

ENHANCING THE COMPETITIVENESS OF SMEs
IN THE GLOBAL ECONOMY: STRATEGIES AND POLICIES

Workshop 3

**REALISING THE POTENTIAL OF
ELECTRONIC COMMERCE FOR SMEs
IN THE GLOBAL ECONOMY**

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FOREWORD

This background report has been prepared by Mariarosa Lunati of the Industry Division of the OECD Directorate for Science, Technology and Industry (DSTI), in co-operation with Murielle Faverie and Graham Vickery of the DSTI Information, Computer and Communications Policy Division. It has benefited from the substantive comments of a steering group of Delegates from the OECD Working Party on SMEs and the OECD Working Party on the Information Economy, as well as Thomas Andersson (OECD DSTI), Alessandra Colecchia (OECD DSTI), Marie-Florence Estimé (OECD DSTI), Vladimir Lopez-Bassols (OECD DSTI), Antonello Busetto (Italian Ministry of Industry) and Gianfranco Ruta (Confcommercio, Italy). The editorial assistance of Joseph Loux and Susan Peric is gratefully acknowledged.

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SUMMARY

1. The advent of Internet-based electronic commerce offers considerable opportunities for firms to expand their customer base, enter new product markets and rationalise their business. Although problems of definition and measurement of electronic commerce make it difficult to gauge the phenomenon, available data indicate impressive growth in the rate of adoption of the Internet by small and medium-sized enterprises (SMEs) in a number of OECD countries. SMEs appear to be gradually bridging the gap in uptake in comparison with larger firms.

2. However, adoption of information and communication technologies (ICT) is only part of the story. Of greater importance is the use made of them. Although SMEs increasingly use the Internet for a variety of commercial and production-related purposes, on average they have a limited understanding of the full range of benefits of electronic commerce. This lack of awareness of the great potential of e-commerce is one important barrier to its adoption, together with inadequate investment in skills, and the relatively high initial investment costs involved in developing electronic commerce strategies.

3. This situation is a matter of serious concern. Important efficiency gains are associated with the use of electronic commerce, arising from reductions in business costs and a rationalisation of business processes. In addition to these static gains, firms may use Internet-based electronic commerce to create added value by producing new products, adopting completely new business practices, or changing the ways in which they interact in the marketplace. Realising these dynamic gains depends to a large extent on the way in which small firms integrate e-commerce applications into their business functions. The development of effective e-commerce strategies is of fundamental importance for success in domestic and international markets.

4. Evidence from case studies shows that SMEs carry out electronic commerce in three different ways. Internet start-ups invent new ways of creating value-added, new services and new business models, while established small firms use the Internet to develop e-commerce strategies geared to expanding their business, often internationally, and increasing their effectiveness. In addition, groups of small firms are entering into electronic partnerships with large firms which are their customers or suppliers or with industry-wide associations. This works best when e-commerce is used proactively as part of a set of strategies to increase SMEs' competitiveness in global markets.

5. All OECD governments have realised that the advent of ICT, and in particular the potential of the Internet for innovating, reorganising production, carrying out transactions and linking geographically dispersed operations, implies major changes in the ways in which firms do business. Consequently, governments have introduced policies to improve the climate for electronic commerce and facilitate its growth and use. However, the practical policy issues confronting small firms are somewhat different from those confronting all firms, and they can be more difficult to deal with for small firms than for larger ones. These issues relate in particular to network infrastructure access costs, dissemination of information on electronic commerce, training, skill development and human resources. Also, the difficulty in addressing issues of trust and confidence makes SMEs more vulnerable than large firms to problems linked to authentication/certification, data security and confidentiality and the settling of commercial disputes, especially for firms targeting consumers. Finally, the changing nature of competition in electronic markets poses new challenges for small firms, and, in some countries, transport infrastructure and logistics problems are a continuing issue. The establishment of open, competitive electronic exchanges and marketplaces is key for SMEs.

I. BACKGROUND

6. This paper focuses on transactions (purchases of goods and services), business processes and other commercial activities occurring over open, non-proprietary networks such as the Internet. Earlier forms of e-commerce were usually built around pre-existing contractual relationships and required expensive and complex custom-built software, dedicated communication links, and compatible equipment. Thus, the main users of early e-commerce technologies (Electronic Data Interchange and Electronic Funds Transfer) were large businesses and their first-tier suppliers. The accessibility of the Internet, resulting from a combination of regulatory reform and technological innovation, has enabled the expansion of electronic commerce beyond the framework of transactions between known (business) parties to a complex network of commercial activities in which small and medium-sized enterprises¹ are progressively becoming involved.

The impact of electronic commerce on business

7. Electronic commerce technologies (*i.e.* ICTs supporting electronic commerce applications) have the potential to lead to significant productivity gains at firm level. Especially when applied to business-to-business relations, electronic technologies can lead to rationalisation of business processes and cost savings. As an immediate impact, these technologies allow automation of common processes, such as distribution, sales, after-sales service and inventory management. Internet solutions have been primarily developed for distribution channel management, while supply chain management has typically continued to be carried out through established EDI applications. However, as the costs of the Internet decrease, it is expected that new entrants or small companies that are not able to afford EDI will increasingly use the Internet for the management of supply processes (OECD, 2000a).

8. Internet-based applications are not specific to any particular level of the business value chain and can be used across a vast range of sectors and firms. Among early adopters of electronic commerce technologies in the United States, impacts have been observed in product design (shortening the design process, and leading to a higher level of product customisation and standardisation of parts), and in production and logistics (lower inventory costs, faster production, lower supply costs) (OECD, 1999a).

9. Electronic commerce improves possibilities for production re-location. Product specifications can be developed where the company's design/development work is carried out, while production can be

¹ There is no universal definition of "SME" and the term covers a wide variety of definitions and measures. The most common definitional basis in OECD countries is employment. In general, an SME has less than 500 employees, although many countries use a lower cut-off – for example 300 or 100 employees. The Eurostat definition (fewer than 250 employees) applies in 19 European countries, and it is currently the most widely accepted single definition. Some countries use different definitions for manufacturing and services SMEs, with the latter usually defined to be smaller. Some countries distinguish between autonomous SMEs and those connected to a larger enterprise or group, or identify an SME in term of management structure. Finally, statistical definition can differ from those used for policy implementation purposes. For definitional and measurement issues, see OECD (1997), *Globalisation and Small and Medium Enterprises (SMEs)*, Paris.

undertaken at locations that offer the best framework conditions. Through electronic commerce applications, firms within supply and distribution chains which were not previously connected can now establish direct contact. An important source of efficiency associated with e-commerce could come from dynamic impacts. These occur when firms use electronic commerce technologies proactively to create new products, adopt new business practices and change their way of interacting in the marketplace, *i.e.* their relations with customers, suppliers, intermediaries and competitors. The strategic use of e-commerce allows firms to enter, maintain or improve their position along the sectoral value chain.

10. Realising these dynamic gains depends to a large extent on the way in which firms integrate electronic commerce strategies into their business functions. Ideally, e-commerce technologies should be applied throughout the business value chain. One example comes from manufacturing industry, where product proliferation and shorter product cycles require greater speed and flexibility. In this environment, the key to success relies not only on price competition but rather on the ability to introduce sophisticated information links, forecasting capabilities and management systems. Competitive performance is driven less by how a company manages its assembly operations and more by how it manages the organisation and logistics of its operation as a whole (from inventory to time to market) (OECD, 2000a).

Reaping the benefits of electronic commerce: the challenge for SMEs

11. Overall trends suggest that over the past few years the propensity to adopt e-commerce has increased rapidly in OECD Member countries, although there are significant differences depending on country, sector and firm size (OECD, 1999b). A number of factors can drive the adoption of e-commerce by businesses, including: reductions in transaction costs and improvements in product quality/customer service; reaching new customers and suppliers in existing markets and expanding in new markets; a defensive reaction to competitors engaging in e-commerce; requirements by large businesses that their suppliers link into their e-commerce system as a condition of doing business.

12. In general, the firms that enter electronic markets are either start-up firms specifically designed to operate in the Internet environment, or established firms that migrate to electronic commerce. The economic significance of Internet start-ups is very small, but is growing fast. The “scalability” of the Internet offers small niche players many of the advantages enjoyed by large firms in terms of expanding the range of e-commerce customers and transactions. This may be particularly important for small innovative firms entering the electronic market.

13. In principle, the advent of the Internet is helping to enlarge geographical and sectoral markets by cutting through many of the distribution and marketing barriers that prevent smaller firms from entering foreign markets. Smaller firms may particularly benefit from the opportunities offered by electronic commerce. They tend to be less locked in to legacy technology compared to larger firms, and they are normally unencumbered by existing relationships with traditional retail channels. Hence, they can adopt a business model that forces larger, established competitors to restructure their existing relationships. The Internet also provides opportunities for businesses to compete in new areas by creating new products or services.

14. Electronic commerce applications push firms to re-examine the cost structure of the value chain, and their competitive strategies by redefining functions and skills. The entire cycle of business operations may be affected: production planning and logistics and inventories, and change of value-added components (such as compression of business operating cycles by the replacement of traditional intermediary functions, or direct integration of different activities in the value chain). The flexibility and ability to innovate and adapt to rapid change of SMEs mean that they are well placed to take advantage of these opportunities. The

flattening of organisational structures and the promotion of horizontal production and work structures (often open to both clients and partners), can suit their less hierarchical organisation.

15. On the other hand, engaging in business-to-business or business-to-consumer e-commerce induces small firms to improve control of their business process organisation. Business procedures that were previously conducted informally are rationalised and institutionalised, which means that the information is transmissible, including to workers at different geographical locations. The incentive to achieve more structured and formal organisational models given by electronic commerce could be critical for SMEs to the extent that such models are necessary for them to face increased competition in the global marketplace and to foster growth. It has been noted that similar positive effects on SMEs' organisation result from the networking and partnerships that are occurring as the natural response to increasing global competition (G8, 1999).

16. The networking and sharing of functions, typical of clusters and partnerships, enable firms to amplify the gains of electronic commerce. New opportunities for SMEs stem from the integration of supply and demand chains through horizontal inter-firm linkages between suppliers and customers and from the creation of production clusters. These forms of industrial organisation allow SMEs to overcome their isolation by interacting and sharing information with partners. They can contribute to solving SMEs' problem of lack of resources and access to technology by promoting transfer of knowledge through the use of integrated processes or through system-wide interactions in R&D (user-producer, alliances, outsourcing, links to the scientific community).

17. The degree to which the use of e-commerce tools can be enhanced depends on the degree of skills, specialisation and innovation of the firm. Since it is not only the size of the investments that counts but also the way the e-commerce applications are implemented, the development of a formal "e-commerce strategy" is essential for success. Preliminary evidence from case studies of e-commerce adoption and use by SMEs shows that strategies differ depending on companies' behaviour in response to global competition. SMEs can develop effective e-commerce tools and use them proactively as part of their own strategies that increase their competitiveness in global markets.

18. SMEs also adopt e-commerce technologies as part of the top-down strategies of large global companies. When firms only adapt to top-down strategies rather than developing their own individual strategies, this may not be as favourable for them – especially if the re-organisation of business along established value and supply chains leads to a narrowing of opportunities.

19. The challenge for small businesses lies in their timely adoption of e-commerce technologies, but also, and more importantly, in the strategic rationale behind their adoption and subsequent use of such technologies. First-mover advantages, the trend towards concentration of supply in some segments due to the dominance of a few firms or new business models, the need for greater firm recognition in market-led strategies are all factors that may reduce SMEs' participation in the global electronic marketplace. The development of effective e-commerce strategies is of fundamental importance for success in domestic and international markets.

II. DIFFUSION AND USE OF ELECTRONIC COMMERCE BY SMEs

20. Internet-based transactions are growing rapidly worldwide, although at varying rates in different OECD countries. Definition and measurement problems, as well as the heterogeneity of national data sources, make it difficult to measure and make international comparisons on the level of uptake of electronic commerce by business in general, and by SMEs in particular. More precisely, a set of indicators concerning e-commerce is needed to place the situation of SMEs in the broader context of e-commerce development. These indicators should cover, for instance, the socio-economic infrastructure (what proportion of people, businesses and government organisations have access to and use the technology, how adequate and widespread are the skills needed to utilise e-commerce technology) and the technological infrastructure (how adequate and widespread is the computing and telecommunications infrastructure and how costly is it to access) (OECD, 2000b).

21. The OECD has undertaken work to develop definitions and measures of electronic commerce.² Following work carried out by Industry Canada (1999), it has developed a framework for e-commerce measurement that identifies three types of indicators that could be collected on an internationally comparable basis. These correspond to three broad phases in the growth of electronic commerce:

- *Readiness*: includes issues of preparing the technical, commercial and social infrastructure necessary to support electronic commerce.
- *Intensity*: refers to the current state of e-commerce, including the size and nature of transactions/business.
- *Impacts*: involves issues of whether and to what extent electronic commerce affects efficiency and/or the creation of new wealth.

22. With regards to readiness and intensity, indicators would permit each country: *i*) to construct a statistical picture of the state of readiness of the infrastructure; and *ii*) to identify who are the main users and which are the main sectors and applications. **Table 1** presents a subset of indicators for the analysis of SMEs' take-up of electronic commerce and their use of it. It should be noted that these indicators apply to all businesses, and are not specific to SMEs. Also, the list is not exhaustive and does not cover indicators of impacts, which so far are less developed. [For a more comprehensive list of e-commerce statistical indicators collected in Member countries, see OECD (2000b), Table A1.]

² An Expert Group of the OECD Working Party on Indicators for the Information Society is working to develop internationally comparable indicators, with the mandate "to compile definitions of electronic commerce which are policy relevant and statistically feasible". Eurostat is also participating in the Expert Group, as well as Singapore as an observer.

Table 1. Examples of e-commerce indicators relevant to an analysis of the situation of SMEs

<i>Indicator</i>	<i>Description</i>
E-commerce readiness	<ul style="list-style-type: none"> • Number and percentage share of economic units with Internet access, Web sites • Perceived benefits of and barriers to e-commerce • ICT skills
E-commerce intensity	<ul style="list-style-type: none"> • Internet transactions: type of transaction • Use of Web sites • Proportion of firms providing electronic information services • Proportion of firms providing electronic marketing or advertising services • Percentage share of electronic transactions over all transactions

Source: OECD.

23. The problem of measuring e-commerce concerns all businesses in all countries. However, in the case of SMEs, international comparisons encounter the recurrent problem of different national definitions of small and medium-sized enterprises. Moreover, there is a proliferation of studies and surveys on business use of electronic commerce carried out by private companies whose estimates may vary widely. The use of different definitions, methodologies and indicators, as well as sample size and classes of firm size, leads to data discrepancies and inconsistencies in the reports.³

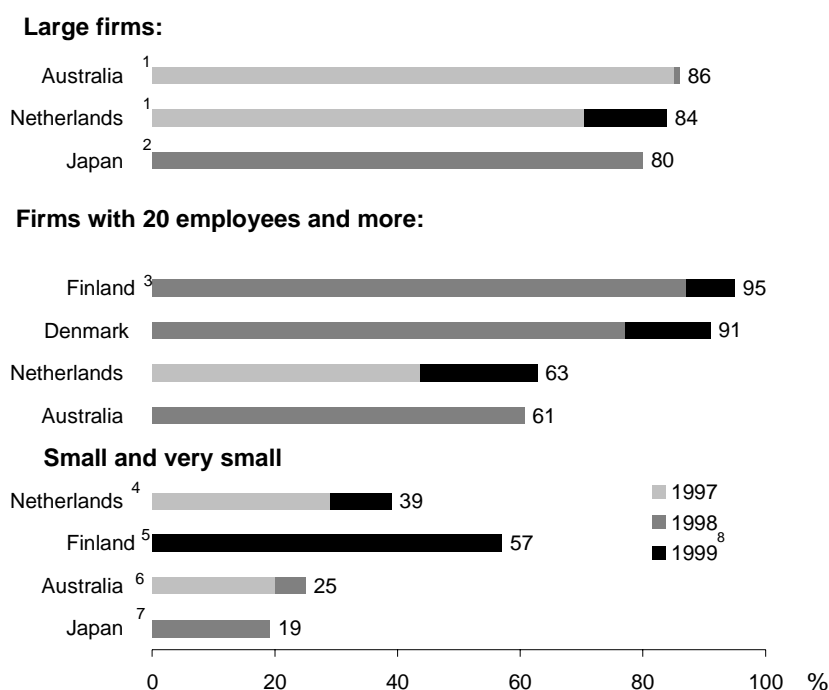
24. This section presents an overview of the situation of SMEs with respect to e-commerce. The framework for the analysis is provided by the three phases of e-commerce development (readiness, intensity and impacts). The data come from various sources that include not only national statistical agencies, but also other governmental bodies and private consulting companies. In addition, the coverage of data by Member country is very diverse: while a few Member countries have produced official statistics on e-commerce related indicators, for the majority no official data is available. Exceptions are some of the indicators of readiness relating, for example, to telecommunications (infrastructure, access and costs), for which the coverage of OECD countries is complete. Finally, as noted in the introduction, it should be noted that the figures available to date do not necessarily cover the same areas or the same population of firms across countries.

³. Examples of data inconsistencies are reported by U.S. Small Business Administration (1999); see also IDC on Czech data on Internet users, www.internetnews.com/intl-news, 2 December 1999.

Trends in Internet diffusion

25. **Figure 1** shows official statistics on Internet penetration rates⁴ by firm size for selected Member countries. The adoption of the Internet by businesses has increased rapidly over the past three years. In all the countries, Internet uptake is lower in smaller firms than in larger firms, although small firms are catching up fast. Although SMEs generally adopt technologies at a lower rate than average, they seem to be adopting information and communication technologies at a faster rate than other technologies (Statistics Canada, 1999).

Figure 1. Internet penetration rate in the business sector in selected OECD countries, latest year available (percent)



1. Firms with 200 employees and more.

2. Firms with 300 employees and more.

3. Among firms already using information technologies.

4. Firms with less than 10 employees.

5. Firms with less than 9 employees.

6. Firms with less than 5 employees.

7. Firms with less than 6 employees.

8. Forecasts/previsions.

Source: National statistical sources: ABS (Australia), Statistics Denmark (Denmark), Statistics Finland and Ministry of Trade and Industry (Finland), MPT (Japan), and Statistics Netherlands (Netherlands); see OECD (1999c).

26. The progression of Internet adoption by Dutch businesses since 1996 illustrates the correlation between the rate of adoption of the Internet and firm size (**Table 2**). The rate of Internet penetration in the Netherlands increases significantly with the size of firms and has grown rapidly over time. For very small Dutch firms, the rate of adoption even doubled within the space of one year, from a low initial level.

⁴. The penetration rate of the Internet (which is a measure of the intensity of use) and the rate of access to the Internet are sometimes used interchangeably; see for instance, Statistics Denmark and Statistics Finland (2000).

27. Detailed data from the Italian Intermediate Census carried out in 1999 and which covered the entire population of Italian firms, highlights the very special situation of the smallest firms with regards to adoption of ICT.⁵ In 1999, a large majority of the smallest firms (1 to 19 employees) had no ICT equipment, and among the 30% that did have it, only a small share (3.7%) was connected to external networks (**Table 3**). This finding is of paramount importance when one considers that in Italy in December 1997, 3.3. million enterprises employed between 1 and 9 workers (out of a total of 3.5 million enterprises). Also, the gap in uptake between small and larger enterprises far exceeds regional differences.

<i>Firm size (No. of employees)</i>	1996	1997	1999
5 to 9	11	29	39
10 to 19	15	30	46
20 to 49	22	35	55
50 to 99	24	47	65
100 to 199	40	59	80
200 to 499	42	65	80
500 and more	63	80	91
All	18	34	49

Source: Statistics Netherlands.

Table 3. ICT equipment by firm size and geographical area in the Italian business sector, 1999

	<i>No equipment</i>	<i>ICT equipment No connection</i>	<i>ICT equipment Internal network only</i>	<i>ICT equipment External network only</i>	<i>ICT equipment Internal and external network</i>	<i>Total</i>
Number of employees						
1-19	71.2	7.7	17.3	2.1	1.6	100.0
20-49	15.3	5.5	63.3	3.4	12.6	100.0
50-249	5.5	3.1	63.1	4.0	24.3	100.0
250 and more	2.2	1.4	44.4	4.3	47.6	100.0
Total	70.1	7.7	18.2	2.2	1.9	100.0
Region						
North –West	67.6	8.5	19.5	2.3	2.3	100.0
North – East	66.8	7.7	20.7	2.5	2.3	100.0
Centre	70.4	7.5	18.0	2.3	1.8	100.0
South and Islands	75.0	6.9	15.2	1.7	1.2	100.0
Total	70.1	7.7	18.2	2.2	1.9	100.0

Note: Share of firms answering YES (or NO) ICT equipment and, if yes, typology of network connection.

Source: Intermediate Census: Use of ICT, ISTAT, Italy, 2000.

^{5.} Comparisons between results of Census (that cover all firms) and results of statistical surveys (based on representative samples) need to take account of the different coverage and methodologies.

28. Combining firm size classes with sector activities of firms can also be enlightening as Internet adoption levels depend on the industry sector. The majority of Italian micro-enterprises operate in the wholesale and retail trade and repair of motor vehicles, personal and household goods sectors. The Canadian Federation of Independent Business reports that the most “connected” SMEs tend to be in the business services industry, followed by finance, community services, wholesale trade and manufacturing sectors (CFIB, 1999). Internet use is less developed in the retail, construction, hotels and restaurants and personal services sectors, probably due to the fact that firms are waiting for e-commerce applications to be extensively used by the public.

29. As with any new technology, the adoption of the Internet by the business sector is influenced by previous investments in and familiarity with other technologies. As a rule, the legacy of previous technology investments tends to be lower for smaller than for larger firms. The French case illustrates how this factor, while retarding adoption of new technologies for all businesses, is likely to favour SMEs over larger firms. The Minitel certainly played a major role in the pattern of Internet adoption by the French business sector. At the beginning of 1998, French SMEs showed a relatively low rate of adoption of the Internet compared to SMEs in other Member countries. For instance, according to the Observatoire des Echanges et du Commerce Electronique (1998), the percentage of French firms with 21 to 50 employees using the Internet was a low 9% – although 22% of these firms were Minitel users. A report commissioned by the French Ministry of Economy, Finance and Industry (1999) highlighted that, although the Minitel helped to familiarise SMEs with electronic technologies, the benefits associated with the use of the Minitel technologies caused an initial resistance to using the Internet.

30. However, the latest data from a private source (UFB-Locabail, 1999-2000) indicate that 61% of French SMEs were connected to the Internet in 1999. Behind that average lies an access rate of 58% for very small businesses (fewer than 9 employees) and of 70% for firms with more than 100 employees. This suggests that the Minitel legacy has had a favourable effect on small firms. Incidentally, these figures highlight the general problem of timeliness of data: the development of e-commerce is occurring at such a fast rate that only the most recent data appropriately describe the current situation.

Are SMEs ready for e-commerce?

31. Several surveys have been undertaken by official statistical agencies or by private consulting companies to investigate SMEs’ attitudes to the adoption of the Internet and/or the development of e-commerce activities. These studies focus on national or cross-country samples of SMEs (for example, the surveys carried out by PriceWaterhouseCoopers for APEC and by Spectrum/NOP Research Group). While the issues raised are much the same in all surveys, differences emerge in the relative importance assigned to the various benefits and barriers by SMEs in the different Member countries. Also, early adopters of electronic commerce have different views compared to more recent users, and the same applies to SMEs not yet using the Internet compared with those using it.

32. Survey responses on perceived obstacles indicate that numerous SMEs fail to exploit the opportunities of e-commerce because of their *lack of awareness* of the potential benefits.⁶ SES Canada Research Inc. (1999) reported that for SMEs not yet using the Internet, the main obstacles preventing the adoption of electronic commerce are indifference and disinterest. Compared to large firms, the inability to correctly assess the impact and benefits of electronic commerce makes SMEs more cautious about the investment and cultural change involved.

⁶. See OECD (1998), Annex 2, Table 2 for a review of responses relating to the obstacles to SMEs’ adoption of electronic commerce in OECD Member countries.

33. *Cost* is a crucial issue. The initial investment for the adoption of a new technology may be proportionally heavier for small than for large firms. A Canadian survey on technology diffusion in service industries found that the most significant reason for delaying the implementation of e-commerce was the expense of installing a new technology (Statistics Canada, 1997). Adopting new technologies may entail relatively high fixed costs in terms of development. If the costs of access to e-commerce technologies such as the Internet can be contained to a certain extent, the ongoing cost of IT support represents a continuing business investment. According to SBA (1999), small firms suffer from lack of funds for up-front implementation costs and lack of monthly cash-flows to maintain their sites. The case studies performed for the present report highlight the finance problem.⁷

34. Equally important as a barrier to e-commerce uptake by SMEs is the fear of too *low use of e-commerce by customers and suppliers* (i.e. the lack of a critical mass of users), a fact that emerges from virtually all surveys. This highlights two points. One is the importance for electronic commerce development of a general context of “e-commerce readiness” involving other actors besides SMEs themselves, so that, for example, there exists an installed base of potential consumers.⁸ Secondly, it is possible that SMEs tend to associate e-commerce mainly with direct selling to consumers, while they are less conscious of the opportunities of business-to-business applications (AUSE.NET, 1998).

35. *Ensuring the security of payments and privacy of personal data* may also be a serious concern for SMEs, because of their limited capacity to deal with disruption. The costs associated with establishing trust and reducing risk tend to be more important for an SME than for a large firm that enjoys strong brand identification. In general, early adopters have a different perception of barriers from new adopters. In Finland and Denmark, countries with very high level of ICT diffusion in the business sector, enterprises of all sizes rate the risk of viruses or hackers as the first obstacle to the use of the Internet. Respondents to the AUSE.Net survey, mainly SMEs with no experience in e-commerce, felt quite confident in the security of e-commerce technologies.

36. Many SMEs do not know how to profitably develop their e-commerce activities or how to cope with the complex rules governing this area. The *lack of appropriate human resources*, in terms of technical and/or managerial staff familiar with the IT environment, constitutes a major barrier for SMEs wanting to adopt e-commerce technologies and strategies. The Irish Information Society Commission, which is carrying out research to explore the business community’s attitude to new technologies and how Irish businesses are positioned internationally, provides evidence for the existence of skill constraints in smaller companies. With respect to the availability of IT skills, the Irish findings indicate that most Irish businesses consider that it is becoming increasingly difficult to hire employees with the appropriate skills (**Table 4**).⁹ However, while larger firms have acted on their concerns about scarcity of skills by providing IT training for their employees, smaller firms do not seem to be reacting adequately to the situation. In 1999, 46% of

⁷ . Denmark and Finland (2000) and Nielsen/Net Ratings (2000) report on an additional cost related to the introduction of the Internet. This is associated with losses of working hours due to net surfing not related to work.

⁸ Thus the relevance of having indicators covering all aspects of e-commerce development. For instance, indicators of diffusion of PCs and the Internet in households are an important element to assess the potential diffusion of electronic commerce applications in businesses and in households. Although uptake has been very rapid in many countries, access and usage are not equally distributed. Income and education remain strong differentiating factors, but their importance may be declining in some countries as prices continue to drop (OECD, IT Outlook 2000, Ch.3.).

⁹ See OECD, IT Outlook 2000, Ch.3. that reports concern in some OECD countries about the tight labour market for IT professionals. However, it is considered that a severe shortage appears unlikely, but skill mismatches and tightness in specific IT labour markets are issues of concern.

very small firms did not provide any ICT training to employees; the corresponding figure for large businesses was only 8% (**Figure 2**).

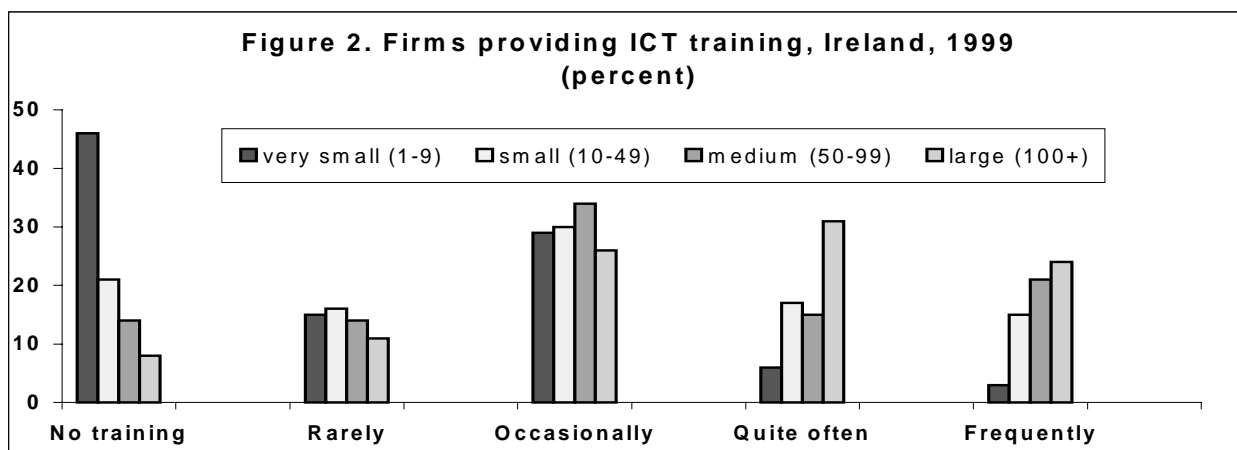
Table 4. Availability of skills by firm size

(% of firms that consider these skills to be in somewhat short supply over those who consider these skills as essential or very important)

	<i>Very small</i>		<i>Small</i>		<i>Medium</i>		<i>Large</i>	
	1998	1996	1998	1996	1998	1996	1998	
Computers	32	18	41	14	56	17	59	
Language skills	50	63	60	44	64	49	55	
Information gathering/ research skills	25	40	33	38	47	42	52	

Note: Very small businesses are classified as employing 1 to 9 people, small 10 to 49, medium 50 to 99, and large 100+.

Source: Information Society Commission, Ireland (December, 1998).



Source: Information Society Commission, Ireland (December 1999).

37. The business survey responses are to be confronted with the conclusions relating to inhibitors to e-commerce that emerge from case studies. While problems of *logistics* and *visibility* emerge as major practical issues and obstacles in the case studies, these two obstacles do not seem to be rated highly in business survey responses. This points to the fact that SMEs which are not yet involved in e-commerce are unaware of the practical problems and strategic issues involved in conducting electronic commerce. As they become more involved in e-commerce activities, SMEs are likely to change their perception of the most important obstacles.

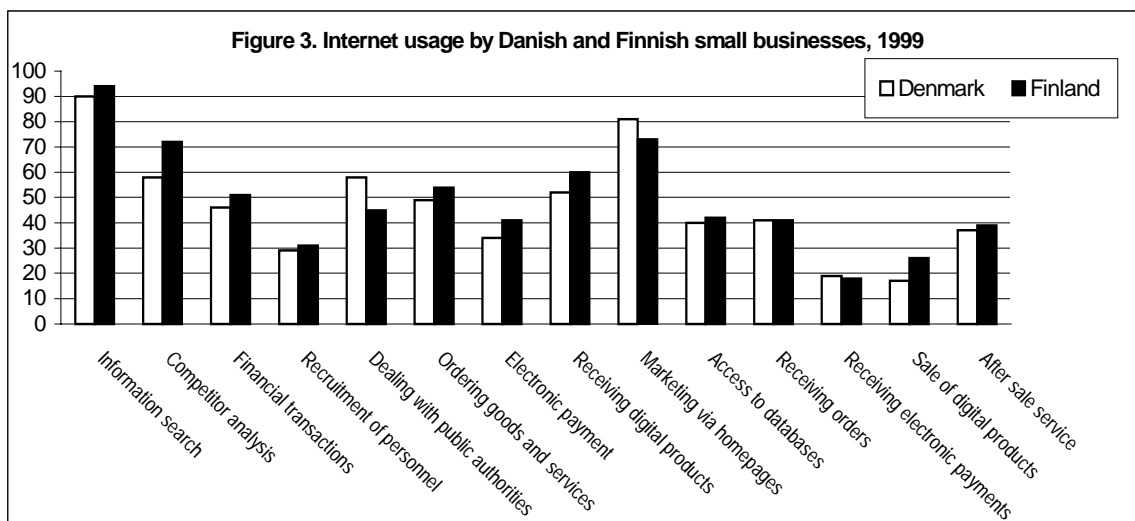
38. Concerning the *ex-ante* perceived benefits, findings are fairly consistent across surveys and indicate that the main advantages SMEs associate with electronic commerce are: strengthening customer relationships; reaching new markets; optimising business processes; and creating new products and services, as well as reducing costs. There are significant differences in perceived benefits between firms that already use ICT as a working tool and those that do not. A 1999 survey on Canadian SMEs found that half of business Internet users believed that the Internet will have a major impact on their business, while

only 19% of non-users shared the same opinion. Similarly, almost 40% of SME non-users could not identify a key benefit to using the Internet, compared to less than 5% of Internet users (SES Canada Research Inc., 1999).

How are SMEs using the Internet?

39. How are SMEs using the Internet and to what extent are they involved in electronic commerce? Several surveys point to the fact that SMEs tend to move into the electronic business world in stages (see, for instance, SES Canada Research Inc., 1999). The first step involves using the Internet as a tool for communicating and obtaining information. In a second phase, SMEs consider basic electronic commerce activities such as buying and selling. Finally, SMEs start conducting banking and financial transactions.

40. **Figure 3** illustrates Internet use among firms with 20 to 49 employees in Denmark and Finland, which had or planned to have Internet connections by the end of 1999. These firms represented 88% and 92% of all firms of this size category in Denmark and Finland respectively.



Source: Statistics Denmark and Statistics Finland, 2000.

41. More strategic use of electronic applications among small firms seems to develop with the construction of a Web site. European Commission findings on business usage of Web sites in the European Union, Canada and the United States, mostly by small firms, indicate that many firms do not use their site uniquely for direct transactions but rather to transform their internal systems and re-engineer their organisational strategies.¹⁰ The business strategies identified by the EC study were classified as follows: *i)* promote, advertise, create brand awareness; *ii)* increase turnover, market share, achieve sales; *iii)* improve interaction with external partners (customers/suppliers); and *iv)* improve interaction within the company (processes/organisation). Most of the surveyed companies had as their primary target to establish their presence in this new arena of competition or to explore new channels of communication (EC, 1999b).

¹⁰ Information was collected in two ways: an automated process collected information on 200 000 business web sites, and a questionnaire survey registered 2129 responses of web business site owners/ webmasters; see European Commission (1999b).

The Irish Information Society Commission (1999) presents similar results: advertising and marketing are the predominant activities associated with having a Web site, with online sales lagging far behind.¹¹

42. According to the EC report, relatively more American companies decided to build a Web site under the pressure of competitors. On the other hand, EU firms consider the Internet important for competing in international markets to a greater extent than do American ones. This motivation can be explained by the smaller size of European domestic markets compared to the US market. For the same reason, one comparative advantage that European SMEs seem to have over their American counterparts is in maintaining multilingual sites.

43. Looking at the profile of the online company, half of the Web sites in the EC samples target consumers (54%), the rest (46%) being business-to-business oriented. The customer profile of the firms operating on the Internet differs between North American and European firms. The customer breakdown for US firms is as follows: 57% are individual firms and 43% other companies, while for European firms, it is 39% individual firms and 61% other companies. The EC interpreted these findings as an indication that proportionally more Web sites in North America are consumer-oriented, while in Europe they tend to targeting other businesses and are oriented towards relationship building. The EC found confirmation of this hypothesis in the fact that US firms' Web sites have a higher number of customers, whereas European firms have higher turnovers (a larger share of EU firms have a turnover of over EUR 1 million).

Benefits of e-commerce

44. To measure the impact of e-commerce on businesses and the economy as a whole, different techniques have been used (see OECD, 1999a for an overview). For example, OECD is presently considering techniques based on case studies in order to analyse the impacts of e-commerce on firm performance (OECD, 1999d).

45. Statistical measuring of impacts indicators has been very limited to date; only two surveys have collected data relating to the impacts of e-commerce on small firm performance. The first was an *ad hoc* survey carried out by Statistics Canada (1997). Respondents indicated that the implementation of electronic commerce technologies had positive impacts on customer service issues. In particular, firms that implemented e-commerce indicated improvements in reducing errors in information transfer, increasing the speed of customer payments, establishing closer ties with business partners and increasing the speed to market of new products. A large majority also perceived a positive impact on expanding employee skill sets, lowering operating costs and increasing sales. In the second case, data were collected as part of a business longitudinal survey carried out by Australian Bureau of Statistics (1998, 1999). The survey aimed to assess the factors that affect firm growth and performance. A positive statistical relation was found between SME use of computers and the Internet and rising employment and income. The results were even more significant for micro businesses.

46. Finally, a recent French report by UFB-Locabail (2000) on SMEs' use of the Internet in four European Member countries, based on a questionnaire survey, reported that firms that use the Internet were more dynamic in terms of turnover, profitability, investment and job creation. However, the report does not provide adequate information on the methodology applied.

¹¹ In this case Irish figures are for all business; however, Ireland has a very high proportion of very small, small and medium enterprises.

What do the data tell us?

47. Despite the limitations imposed by the available evidence, some preliminary conclusions can be drawn on the diffusion and use of e-commerce technologies by SMEs in OECD countries. Impressive growth in the rate of adoption of the Internet and e-commerce by SMEs seems to be bridging the gap in uptake with respect to larger firms. However, adoption is only part of the story, and the use made of e-commerce technologies is what really counts. SMEs use the Internet for a variety of commercial and production-related purposes that include exchanging correspondence, gathering market intelligence, compiling customer databases, advertising, buying and selling, establishing in-house networks and external ones (with their partners), and setting up communications and data exchange networks.

48. Weak points include a limited understanding by SMEs of the potential of e-commerce and an inadequate investment in skills. While SMEs perceive some of the key aspects of e-commerce, such as electronic orders, many do not have a realistic vision of the complexity of e-commerce – or of its potential.

49. Firm-level case studies can provide key insights into SMEs' behaviour with respect to e-commerce. The OECD is currently carrying out work to improve the international comparability of firm-level sectoral case studies (OECD, 1999d). A case study approach can provide policy-relevant information on the impacts of electronic commerce on business processes, market structure, and on the barriers and incentives to successful implementation of electronic commerce. Available case studies are reviewed in the next section.

III. ELECTRONIC COMMERCE: THE KEY TO COMPETITIVENESS

50. This section reviews case studies of business-to business and business-to-consumer e-commerce by SMEs. It analyses SME strategies that have proved successful in adapting to, and taking advantage of, the e-commerce environment. The sample consisted of 100 SMEs from all industrial sectors and of various sizes that engage in electronic commerce over the Internet. The sources and the case-study methodology are described in the Annex.

51. Firms entering electronic markets are either start-ups or established firms that migrate to electronic commerce. The case-study analysis has broken down established firms engaging in e-commerce into businesses developing their own e-commerce strategies and firms entering into electronic partnerships with large corporate customers or suppliers or with industry-wide associations.

52. **Internet start-ups** are small businesses born with the Internet that are *inventing new ways of creating value added*, new services and new business models. They spring up and shut down quickly and those that endure are sometimes acquired by other firms. Financing the initial investment can be a problem. In addition to bank loans or other debt-financing instruments often inaccessible to SMEs operating in high-risk environments, venture capital represents a source of finance for start-ups.¹²

53. **Established small firms** are also using the Internet and *developing their own e-commerce strategies* to expand their business by entering new markets, often internationally. The Internet is undoubtedly the medium of choice for putting such a strategy to work, as is shown by the experiences of many firms in services and the agri-food business. However, in implementing Web-based export strategies, SMEs are more vulnerable than large firms to problems linked to taxation, authentication of partners, data security and confidentiality and the settling of commercial disputes, as well as overcoming logistics hurdles, especially if they are targeting the public at large. Reputation and consumers' trust are crucial to success. A number of case studies pointed out that a considerable number of players make their first step into the Internet world from a locally oriented commercial or production standpoint so that they can cope more easily with problems of tailoring production, marketing and logistic capabilities.

54. A second dynamic conducive to the use of electronic commerce by existing SMEs is entering into *electronic partnerships* with large corporate customers or suppliers or with industry-wide associations. When a mass-market distributor decides to develop a project with its suppliers, including even the smallest among them, the number of SMEs involved is generally in the hundreds. While the costs of starting up and operating electronic commerce strategies tend to decrease if a group of SMEs join forces in a project, the expected impact in terms of competitiveness and business expansion varies widely from one project to another and depends on how the project is set up.

¹² However, (OECD, 2000e) reports that outside of North America smaller firms generally and innovative firms specifically are not benefiting from the overall growth in OECD venture capital supply. Governments are initiating programmes to remedy this funding gap. Informal venture capital ("business angel capital") is believed to have a quite important weight as compared to the formal channel, especially in the United States.

55. These three types of SME entry are more widespread in some sectors than in others, depending *inter alia* on the nature of the service or product traded, market structures and the degree to which firms in the industry join forces. Thus the strategy for setting up Internet-based electronic commerce, and the opportunities and obstacles experienced can vary widely from one SME to another.

Case studies I: Internet start-ups

56. While Internet start-ups attract a great deal of media attention, they are actually few in number and most are still investing more in establishing themselves than they earn. What is important is the fact that these SMEs are proposing alternatives to traditional companies. The emerging business models may rival established models and forms of organisation in the corresponding offline markets. Such Internet start-ups use the Web and its applications to create new services and new value added, or to reap the benefits of replacing physical with electronic intermediation. Four main strategies can be identified:

IT suppliers. These start-ups are relatively numerous on the Web, and are specialised in consulting, or in selling digital products and services related to ICTs, the Internet in particular. Examples are www.buyonet.com an Internet retailer specialised in software that aims to become “the leading global software reseller on the Internet using electronic delivery” (as the firm’s homepage declares), or www.store.com, a site specialised in English software. These IT suppliers not only meet the increasing demand for IT products but are extremely responsive to customers’ needs and very efficient in dealing with customers’ enquiries and requests. The fact that there is no packaging or physical distribution guarantees competitive prices.

Information intermediaries. These start-ups use the Internet’s characteristics and commercial applications to create new value added. Clearing-house sites such as www.auto-by-tel.com and specialised information services like www.webtour.fr use extremely high-powered search engines and other analytical applications to give their customers the best view of the market at all times, as well as the best prices and the highly specific services they are looking for. Others set up portal sites or exchanges specialised in matching supply and demand for a particular product or type of product; an example of this is www.etexx.fr, which bills itself as a marketplace for the textiles industry. Finally, others do not specialise in a traditional sense, but instead take as distinguishing feature a specific way of doing business, as in the case of the British QXL (**Box 1**).

Box 1. Creating new value-added

www.QXL.com is an auction site that was created in 1997, at the same time as Quixell, the small British firm that owns it. From the outset, the goal was to make QXL an auction site that was recognised and used at international level – hence the choice of domain (.com). As the site has added new services (auctions of electrical goods and travel, consumer-to-consumer auctions), the firm has expanded its Web presence by opening a variety of sites with national domain names: German, French, Italian, Dutch and British. In this way, it has been able to enter auction markets for physical products that are inherently more local than information goods. At the same time, the firm is forging a strategy of acquiring competing sites and sites that are complementary in terms of services or location.

As the first Web-based auction site, QXL has been followed and imitated by many others. Its sites create a borderless marketplace accessible by any Web surfer. At the end of 1999, Quixell’s various sites were generating nearly EUR 6 million in annual income and employed a staff of 20.

Source: www.QXL.com, <http://kite.tsa.de>

Digital content providers. A number of start-ups have entered markets for intangible products such as financial services, travel services, newspapers/magazines, entertainment services or provision of e-mail. These small firms turn the absence of logistics and geographical borders into a competitive advantage that offsets the limitations imposed by their size. Firms that specialise in dematerialising existing products and services using the digital networks represent a special case of digital-content providers. Start-ups like www.00h00.com and www.libri.de publish virtual books and magazines directly on line. Based on the model of Amazon.com, booksellers are attempting to establish a new online business model (**Box 2**).

Box 2. Internet start-ups in the book sector

The book sector is among the industries most affected by the spread of electronic commerce over the Internet. www.Amazon.com is probably the best-known virtual retailer in the world. Bookseller with no material place of sale, its concept is based on networking (primarily over the Internet and by telephone) with partners, publishers, wholesalers and even rival booksellers, to offer the entire world the most exhaustive list of books in existence.

The example of Amazon.com has given rise to other virtual booksellers such as www.alapage.com in France, www.libri.de in Germany and Proxis in Belgium. Not all are new or began as SMEs: some, like the FNAC in France and BOL in Germany, are new services launched by large groups. These booksellers are affecting the industry in two major ways: *i*) they are instituting a demand-driven model; and *ii*) they are exposing the sector to international competition.

www.00h00.com, created in June 1998, is one of the best-known French sites for electronic print on demand. Like a traditional publisher, its business consists in selecting texts, purchasing copyrights and publishing books. Where it differs from a traditional publisher is that, instead of producing thousands of copies of a book and placing them in book stores, 00h00 prints books on demand, either directly over the Internet, in digital form, or through the post in paper form. 00h00 also offers a print-on-demand service that can get a book to the customer within 48 hours.

In the case of the digital publishing model, disintermediation is total. The customer is in direct contact with the publisher, and all transactions are handled over the Internet. According to some estimations, this type of organisation could be expected to generate savings of nearly 65% compared with the cost of traditional methods of book distribution, lowering the break-even point to about a hundred copies, or one-tenth of a traditional print-run.¹³ In the print-on-demand model, the cost of a digital edition is increased by unit publication, printing and transport costs that do not enjoy the scale economies of a traditional operation. As a result, the total cost of publishing and distributing a book comes to about 20% less than the cost of a conventional book.

The organisation of the book industry is not yet threatened by these new business models insofar as the vast majority of publishing turnover continues to be generated by traditional means of publishing and distribution. Some observers predict, however, that this model will soon become the norm – at least for certain categories of works such as short stories, poetry and articles in specialised journals, as some large firms' print-on-demand strategies would tend to confirm¹⁴. Other sectors – music, video recordings, travel, information and software – will most likely also follow this path.

Source: OECD (1999e).

¹³ These assessments based on the case of 00h00.com are corroborated by that of the German www.libri.de and a number of evaluations concerning the publishing sector in the United States; OECD (1999d).

¹⁴ Havas is one of the largest French publishing distributors. See Faverie (1999), *New Logistics for the Book Trade*, B-to-B E-commerce Working Paper, OECD.

Shopping malls. Start-ups have set up general shopping malls, such as www.shopping.t-online.de, a German mall that houses more than 200 retailers, or special-purpose ones, such as www.fromage.com, a French gallery specialised in cheese. In France, the www.adelys.com shopping mall, which opened in 1998 as a purveyor of France's regional culinary traditions, derives 60% to 70% of its turnover from exports to the United States and Asia. Such virtual shopping malls allow established SMEs to reach international markets.

Financing of e-commerce projects

57. As is the case with all start-ups, innovative SMEs entering electronic markets are many in number and their mortality rate is high.¹⁵ The main problem facing these Internet start-up companies is that of financing their projects. Contrary to a widespread misconception, such investments are relatively costly.¹⁶ They entail not only the initial technical and human inputs, but also the other outlays – advertising and logistics in particular – that will enable the firm to exist on the Internet and prove to its future partners or shareholders the relevance of its concept (**Box 3**).

Box 3. The price of visibility

A perverse effect of the Internet's development, and of the profusion of information available, is that information can get lost. "In real estate, it is said that there are only three critical factors: location, location, and location. Any idiot can establish a Web presence – and lots of them have. The big problem is letting people know about it" wrote Shapiro and Varian (1999). For a service to be visible and accessible, it must be present in certain parts of the Internet, virtually indispensable places like search engines, access providers and certain publishers. There are not very many of these places, and space there costs a lot of money, especially inasmuch as banners leave little room for the affiliation strategies that in some cases result in exclusivity contracts. This visibility problem prompts companies to invest heavily in affiliation and advertising, as the Amazon.com example shows. Number one on the Internet in terms of presence and fame, in 1998 Amazon.com concluded an agreement with AOL that reportedly cost it nearly EUR 19 million to advertise to 8.5 million subscribers (Shapiro and Varian, *ibid.*, p. 12). The French start-up www.alapage.com (a virtual bookseller) has spent about FRF 15 million in advertising every year since its creation. For FNAC, the advertising budget (FRF 100 million per year) represents roughly a quarter of the investments that the firm plans to make over the period 2000-03 to launch and operate its Web site.

Problems and cost of visibility are encountered by all businesses that want to establish themselves and sell on the Internet. The smaller and newer the firm, the more the problems, especially if the target market is the general public (business-to-consumer). Conversely, a firm will find it easier to tackle these problems if it is large, established and well known, and if it has a corporate clientele (business-to-business).

¹⁵. Silicon Valley has some 7 000 SMEs specialising in information technologies or multimedia services and records 500 to 600 creations per year. Source: Raymond Hor (October 1999), "MSC Central Incubator to Nurture Hi-Tech SMEs", www.asia.internet.com.

¹⁶ According to figures reported by the French press, after five months the cash burn rate of a French start-up whose launch is underway is some FF 2 million per month, requiring the firm to raise a minimum of FF 15 million every six months. In 1999 the greatest fund-raising efforts by Internet start-ups in France brought in FF 25 million in December for FranceMP3 (a music distribution site); FF 62 million in October for Château Online (a wine seller); and FF 260 million in October for Self-trade, a brokerage firm. These funds were used for advertising, research and development.

Case studies II: Established SMEs developing their own e-commerce strategies

58. The second group of case studies refers to the experience of established SMEs that have developed their own Internet-based electronic commerce strategy. These firms represent a fairly small segment of overall e-commerce growth by SMEs and are mainly interested in targeting an existing or new clientele. In the United States, 78% of the SMEs that developed their own Internet sites cited as their main reason reaching new consumers (US SBA, 1999). Contrary to popular opinion, such commercial strategies do not necessarily aim at reaching an international market. The case studies have highlighted two key strategies: expanding the customer base, either locally or internationally; and expanding the range of products and services and/or upgrading their quality.

59. Most of the firms that make the move *from a local to an international market* are companies pursuing a niche strategy, involving products that are highly specialised, such as traditional regional foods and beverages, or rare, such as luxury goods, works of art or other specialised products (**Box 4**).

Box 4. Reaching global customers

Mansfield Motors was established as a traditional Land Rover dealership in 1993. Its six employees provide a high-quality, value-for-money service. It encourages local customers to drop in for an informal chat about their Land Rovers.

The company wanted to expand its business without compromising on quality. International Land Rover customers often had difficulty in sourcing Land Rover parts and advice locally. Where there were local agents, the supply of parts from the United Kingdom was often slow and relatively expensive. Mansfield Motors set up a Web site to allow foreign Land Rover users to browse its catalogue, purchase spare parts on line (or by fax), obtain technical advice and chat with other Land Rover enthusiasts.

The company has been able to extend its reach from a 25-mile radius to being global. In its first full year of operation, Mansfield Motors' Web site accounted for 20% of the company's sales of spare parts. 70% of Internet visitors are from overseas and Internet orders account for shipments to over 80 countries. Some 4 000 people visit the site each month. Turnover has doubled since the introduction of the Web site.

By dealing directly with its international customers, Mansfield Motors has cut out the middleman, providing a fast turnaround time and competitively priced goods for Land Rover drivers overseas. By providing a virtual community for Land Rover enthusiasts, the company encourages visitors to return to the Web site. Importantly, the company's increased visibility through its customers has also had the effect of enhancing its reputation with local customers.

Mansfield Motors plans to use its customer base for targeted e-mail marketing campaigns. It is also planning to establish local representatives abroad, in part to help market the site in languages other than English.

Source: www.isi.gov.uk.

60. Adding to the problems of selecting and installing technologies and then keeping them up to date and running smoothly, established SMEs generally experience problems involving adjustments to production and logistics, organisational matters and marketing know-how. Only rarely, in fact, does e-commerce amount to a mere complement to existing activities, even if a business is not altered by organisational changes. Successful e-commerce results usually require comprehensive e-commerce strategies which in turn depend on re-thinking the way in which the business operates.

61. Developing a marketing effort on a scale as wide as the Internet demands that the firm be in a position to meet the demand it is seeking. This refers both to volume and quality of service (production and

logistics), and entails substantial financial, technical and human investments that can pose virtually the same financing problems for established companies as for start-ups. The experience of the Belgian company Fruit of Course provides a good illustration of logistics (**Box 5**).

Box 5. Adapting logistics to demand

Founded in 1994, the Fruit of Course sold and delivered fresh food in the Flemish region of Belgium. Buyers (individuals and businesses) ordered over the telephone and remote sales accounted for the bulk of the firm's turnover. Between 1994 and 1997, delivery service was extended to the whole of Belgium. In time, the firm's fame spread beyond the Belgian borders, and in 1997 the company set up its first sales site on the Internet. Ten months later the site was being held up as an example of successful e-business and ranked as one of the five best sites in Belgium.

The company is now expanding its operations in the Netherlands, Germany and France, along with its physical facilities. To reach customers in the United Kingdom, the United States and New Zealand, Fruit of Course prefers to develop a strategy of partnership with local distributors. At the same time, the company is instituting an affiliation strategy that should ensure its presence and visibility on the Internet.

In 1998, the firm diversified its product line, adding a new site, GiftsOfCourse, to the original one, with over 180 products – mainly gourmet foods – to be sent as gifts or for customers' own use.

Because the company's founders lacked the funds to finance expansion themselves, a Belgian mass-market retailer provided the funds in the form of venture capital.¹⁷

The company's success is due to the fact that its project was clear and feasible, and its business plan sufficiently solid to attract venture capital. This made it possible, at each stage in the development of the online business, to satisfy demand and meet commitments for delivery deadlines and product quality. The company's logistical evolution and ability to meet the demand it generates is a key factor in the success or failure of a firm that sells physical goods, especially perishable goods. The firm's ability to make itself known and convey its strategy, its prior reputation and dealings with the media are also elements highlighted by Fruit of Course as essential to its success, along with well-designed sites that customers can use and navigate through easily.

Source: "Net Success for SMEs: Fruit of Course" in *SMEs and Electronic Commerce*, November 1999, <http://kite.tsa.de>; www.giftsofcourse.com.

62. Strategies for building international markets must take account of problems involving authentication of partners, data security and confidentiality and cross-country differences in crucial areas such as taxation and the settling of commercial disputes. Surveys on SMEs' attitudes to e-commerce indicate that these are powerful obstacles. The Internet and Internet-based electronic commerce offer solutions in the form of intermediary sites specialised in international trade, such as online shopping malls. Many small retailers, wholesalers and producers choose to expand their business by joining a general-purpose or specialised virtual shopping mall. This strategy allows them to conduct Internet-based e-commerce without bearing all the start-up costs or the costs of improvements, advertising and technical difficulties, which are instead spread over all the merchants in the mall. The same results can be achieved on a co-operative basis. Mainly specialised in developing export markets, these malls and co-operatives offer the services and counsel of legal and commercial experts.

63. Solutions exist. However, SMEs that do business within extremely narrow geographical confines are able to escape the problems which affect international e-commerce. These firms exploit the Internet's

¹⁷. This strategy is extremely common among large enterprises. It allows them to gain a solid footing in an area in which they lack experience, spreading their investments over a variety of projects in order to increase their chances of being involved in successful projects that could ultimately be of use to them.

potential to deliver more and better services locally. Some shops have set up Web sites specifically to *expand their local client base and markets*. Only later does the international market become a target **(Box 6)**.

Box 6. Expanding local markets

Teddington Cheese is a small specialist food and drink retailer set up in South-West London in 1995. It sells cheeses, pickles, biscuits, wine, cider and port and hampers. This five-member firm saw the potential of reaching new customers outside its local area. The company established a Web site containing details and pictures of its products and hampers. Orders are delivered all over Europe the following day. A bi-monthly newsletter, distributed by e-mail, updates customers and potential customers on new products available and informs them about different aspects of the cheese world. It has been a very successful marketing tool, helping to maintain customer awareness of the company and its products, and encouraging repeat orders at little cost.

The Web site receives over 1 000 hits each week and more than paid for itself within a year. It is used by local retail customers and restaurants, as well as customers further afield. Turnover has increased by about 10% per annum as a result of e-mail orders within the United Kingdom. The company believes that its Web presence has been instrumental in increasing the number of customers walking through its front door. Many international customers use it to send gifts to relatives and friends in the United Kingdom, and the company now delivers anywhere in the United Kingdom and continental Europe.

Source: www.isi.gov.uk.

64. Finally, SMEs that do routine business with customers or suppliers have a tendency, particularly when those customers or suppliers are located abroad, to set up Internet tools for communication and for taking or placing orders (such as Internet-based EDI) targeted primarily at those partners. The primary objective is to improve these business relationships by *expanding the range of products and services and enhancing the quality of services* and rationalising transactions. This strategy enables SMEs to proceed in stages and avoid, at least at the outset, problems involving the costs of rapidly expanding international markets, commercial and logistical reorganisation, visibility and confidence. This strategy allows the firm offering the services to gain in terms of service quality and reliability, and can prompt it to expand its product range and take on additional customers **(Box 7)**.

Box 7. Upgrading the quality of service

In the global marketplace, competing effectively means delivering world-class service and controlling costs. Manitoulin Transport, a company based a Manitoulin Island (Canada) and specialised in “less-than-truckload” freights, decided to introduce a simple way for its customers to access information electronically, over the Internet, seven days a week and 24 hours a day, in order to trace their shipments. In 1997 a Web server interfaced with the company’s computer system was set up and this electronic service replaced a central switchboard where operators dealt manually with requests for information, which could take up to five minutes to process. Once the electronic service was up and running, it took the pressure off the switchboard and freed operators to handle other higher-value and more complex queries. These services bring the company closer to its customers and enhance their loyalty.

The success of this initial experience prompted the company to take its use of the Internet a step further. In 1999, it launched a second service available over an Extranet to its 70 highly mobile and widely dispersed sales representatives, who can now access customer files from anywhere they can connect to a modem.

The company plans in the near future to equip its Web server with menus customised to the needs of each customer and based on their account profile information. They will be able to receive specialised reports and guaranteed delivery contracts in real time on line instead of by post. The company also has plans for automatic pick-up ordering and automatic rate reports.

The company is proving that it does not have to be based in a central business area to expand its activity nationally and internationally. The difficulties encountered in setting up these systems were primarily technical. In the autumn of 1996, when the company first examined its project, it discovered that there was no Internet service outlet on Manitoulin Island. The second challenge was to select the right service provider, capable of meeting the firm’s needs and offering it a one-stop solution.

Using the Internet for improving quality of logistics and services has also been the core of the expansion strategy of Opengate S.p.A., the Italian leading distributor of IT products.

Opengate covers the entire country and serves about 10 000 general and specialised resellers offering a wide variety of support services, ranging from technical and sales support to management of logistics. The company has successfully adopted an e-commerce strategy that envisages the integration of online sales with the provision of services, particularly logistics and transport services, via the Internet. Opengate has implemented a simple system that enables customers to place orders on line and follow the status of the order on the company’s Web site.

In 1999, the Opengate Web site was awarded the Italian Ministry of Industry’s E-commerce Prize for the best business-to-business e-commerce site.

Source: ITAC *E-commerce Best Practice Case Study: Manitoulin Transport Inc.*, www.itac.ca, December 1999; www.manitoulintransport.com, December 1999; Anasin, Assinform and Confindustria, www.e-commercepmi.it, www.opengate.spa.

Case studies III: Established SMEs entering into electronic partnerships

65. A third group of SMEs take part in big projects led by large firms (with SMEs as customers or suppliers), or by industry-wide associations. This dynamic represents an extremely important trend in the development of Internet-based electronic commerce, in terms of the number of companies involved, the resources deployed and the expected economic effects. When large groups like Ford and General Motors in the United States or Casino in Europe decide to set up electronic commerce solutions with all of their subsidiaries and all of their suppliers, this decision can affect thousands of domestic and foreign companies of all sizes.

66. This dynamic would appear to be inherently beneficial as it results in a pooling of knowledge, know-how and investment and serves to reduce uncertainty. However, it seems that the possibility for SMEs to fully reap the benefits of joining such initiatives very much depends on the extent to which e-commerce is integrated in the value chain of their business.

67. *Projects managed by large firms that are industry leaders.* Large firms have long possessed internal information systems and/or systems which tie in with those of their main business partners. Traditionally, these have been EDI systems operating over proprietary networks. The high cost of such investments has meant, in many cases, that only selected data can be exchanged within long-term business relationships. EDI systems on dedicated networks were developed by large corporations for their main partners, to handle recurring and relatively routine transactions, to save time, shorten deadlines and reduce errors and inventories in the interests of productivity. The spread of the Internet is enabling these companies to supplement existing information systems while simultaneously pursuing complementary production and commercial strategies.

68. From a sales standpoint, adoption of this strategy by large companies entails the establishment of a classic Web site that can be visited by all potential customers. Even when it involves business-to-business (B-to-B) transactions, the strategy does not differ significantly from that used for selling to the general public.¹⁸ Large firms use their sales sites to diversify, by targeting a particular type of clientele, to enter wider markets or to replace paper catalogues by electronic ones. Small firms use the Internet to access information on markets and on their competitors.

69. For the purchasing requirements of large companies, the strategy is more specific and often entails setting up an Internet-based EDI system. The large firm sets up an EFI Web server (also known as Web-EDI or EDI Lite) for the exchange of computer files. These servers combine Internet with EDI techniques through a translation software that converts EDI data to html format. The server communicates with some firms via EDI and with others via EFI over the Internet. The large firm posts purchase orders, order forms or calls for tenders to a site that SMEs can consult on the Internet. Suppliers visit the site, and those to which orders are addressed or who wish to place bids respond on line.

70. For small firms using this system, the advantages stem mainly from the fact that the bulk of the investment is made by the large group. Even so, those with the most to gain from these systems are generally the firms that set them up and can therefore integrate them into their computerised procurement systems, so that the productivity benefits (*e.g.* time savings, fewer errors, etc.) can be reaped by their upstream operations. This extension of EDI over the Internet enables a firm to reduce its dependence on its biggest suppliers. To take full advantage of the efficiency-enhancing potential, suppliers need to create an

¹⁸. There are many Internet sites to illustrate this strategy. See for example those of Wstore, Camif for corporate and group clients, and Guibert.

interface to integrate data from this external system into any in-house computerised management systems they might possess. Few small or medium-sized enterprises are currently able to do so.

71. Moreover, such systems do not necessarily lessen the hierarchical relationships between buyer and seller. Such servers generally involve automated procedures and order forms which, if they are not standardised, do not allow a supplier to respond to any other customer than the firm that set up the system.

72. SMEs that are customers or suppliers of large groups adopt whatever technologies the groups propose, whether proprietary or open, Extranet or Internet. It is in an SME's interest to adapt to its customer's new requirements, especially when the customer is a big one. The choice of technology hinges on the large firm's strategy and whether it wishes to close or open up its market. Such proprietary strategies are generally carried out by large corporations that are leaders in their fields, such as Ford in the United States auto industry and mass-market retailer Casino in France. In each case, thousands of SMEs are involved.

73. *E-commerce partnership projects between SMEs.* To improve co-ordination and interoperability, exchange information and lower costs, SMEs are increasingly becoming partners in projects in which methods, procedures and formats are standardised across a maximum number of corporate customers. Projects instituted by industry-wide associations are especially advantageous for SMEs, who benefit not only from the network effects of investments made by the large firms taking part in the project and from the spreading of costs and risks, but also from the pooling of knowledge and experience, while at the same time avoiding the effects of hierarchy and dependence. As a rule, this has a multiplier effect on rationalisation and productivity gains for all parties concerned, and should ultimately improve the international competitiveness of the industry as a whole, as shown by the Japanese fishing boat construction industry's project for exchanging information over a Web-based server (**Box 8**).

Box 8. Co-operating in Japanese fishing boat construction

The Japan Foundation is supporting a project being carried out by 21 shipbuilders, 66 equipment manufacturers and the Fisheries and Ocean Foundation. The three-year programme started in 1998 with the aim of boosting the sector's international competitiveness by computerising technical and production information. The technical solution will be a Web server that will enable all project members to exchange – either bilaterally or with all other members – the information they need to work together. Information exchanged will include references, plans, estimates and industrial designs.

The greatest investment is not technical, but, initially, involves getting together to ascertain needs and select the standards according to which this information will be encoded, transmitted and transported: specifications, formats for designs, files and data, and exchange protocols. The development of standardised data exchange flows over a Web-based server is expected to enhance the international competitiveness of co-operating firms by cutting the costs of exchanging information, and by heightening competitive pressures among the rivals taking part in the project. The project's developers hope that the standards used will subsequently be promoted at the global level, thereby consolidating its members' competitive standing in the international market.

Source: MITI (1999).

Some conclusions from case studies

74. Overall, the context in which SMEs are expanding their use of electronic commerce is improving continually, shaped by the government policies already in place, the adaptation of existing policies to the Internet environment and the introduction of policies to assist SMEs in meeting the challenges and opportunities posed by e-commerce. At the same time, an increasingly vast market is developing for Internet tools and services tailored specifically to SMEs, with almost all operators and Internet service providers present. In France, for example, France Télécom has set up a turnkey Internet-based electronic commerce unit that offers merchants secure payment, notarised digital receipts, management of order forms and customer relations, and consumer database services. Many Internet start-ups offer SMEs advice, hardware, software, and site development and hosting services for their Internet marketing business. Others enable SMEs to group together in specialised shopping malls, thereby gaining economies of scale by pooling their communications capability in a single Web site. This is a relatively new market, which can be expected to facilitate SME access to Web-based electronic commerce in the future.

75. Although many SMEs are entering electronic markets, either as start-up businesses or as established firms migrating their activity on line, available data do not allow the phenomenon to be measured or, for example, an assessment of the number of start-ups compared with the corresponding offline markets. Moreover, the cases examined only reflect successful examples of implementation of e-commerce by SMEs, it being harder to find information on failures.

76. The objectives underlying the adoption of e-commerce strategies differ from one SME to another, and include the creation of new products or services, more efficient production methods and organisation, improvement of the quality of services/goods provided, and expansion of the customer base in the local or international market. If the goals vary, a common denominator for success seems to be the existence of an *e-commerce implementation strategy*. The experiences of the firms reviewed confirm that adopting e-commerce technology for a specific function (*e.g.* ordering goods and services or receiving orders) is far less beneficial than making a more proactive and comprehensive utilisation of the technology. The extent to which e-commerce is integrated throughout the business value chain is crucial to determining the benefits that can be reaped.

77. In this respect, the experience of SMEs that participate in partnerships and supply arrangements led by large firms is revealing. In some cases, small firms adopt the technologies proposed by the groups and are obliged to invest in a technology that, being specific to only one contractor/client, cannot be used for other purposes. Strategies involving small and medium firms participating in partnership projects in which e-commerce solutions can be SME-tailored and fully integrated in their business value chains, are usually far more successful.

78. *Financing* e-commerce development is not always easy for small firms, especially start-ups. While a range of solutions exist, ranging from traditional debt-financing instruments to venture capital markets, running e-commerce activities implies a continuing business investment, particularly in intangibles such as advertising, marketing, innovation, software, skill formation and logistics networks. Building up a reputation in the electronic market requires complex investment strategies, in addition to a well-defined business strategy, and both start-ups and established SMEs face problems in building visibility on the Internet, and providing valuation and security for investors.

79. *Logistics* problems mainly concern established firms with physical products; Internet-based start-ups very often enter electronic markets for digital products. In general, established SMEs have some advantages over start-ups in that they benefit from existing distribution systems that, at least in a first phase, allow them to respond to the demand generated by their Web strategy. Once the business grows,

ventures with foreign distributors can be put in place. For this reason, established firms that seek international expansion of their customer base through Internet strategies frequently already have an international activity. The Internet simply provides a new channel for commercialising their products. However, there are also general issues of logistics organisation and quality of transport infrastructure which need to be addressed as the Internet changes patterns of purchasing, production and delivery (see section IV).

80. The analysis in this section suggests that development of new information technologies and networks are extremely dependent on the structure of existing markets. Where markets are extremely concentrated, and new information technologies and EDI highly developed (such as in the automobile industry), the dissemination of new information technologies follows a different pattern than in industries where firms are small and the markets highly fragmented (such as in the textile industry). In concentrated industries, the move to the Internet is likely to depend on corporate strategy *vis-à-vis* major industry players and the subsequent need for the firm to supplement or replace its EDI system by an Internet-based one. In contrast, sectors in which SMEs are more numerous would appear to have greater potential for the growth of independent and innovative Internet-based electronic commerce strategies (See, *e.g.* AUSe.NET, 1999).

IV. POLICY IMPLICATIONS AND RECOMMENDATIONS

81. All OECD governments have realised that the advent of ICT, and in particular the potential for using the Internet to reorganise business, carry out transactions and link geographically dispersed operations, implies major changes in how firms, including smaller ones, do business. Consequently, governments have introduced policies to improve the climate for electronic commerce and facilitate its growth and use.

82. This section reviews the practical policy issues confronting small firms that are somewhat different from the general issues confronting all firms, or which can be more important for small firms than for larger ones.¹⁹ These problems particularly involve diffusion issues, including dissemination of information on electronic commerce, training, skill development and human resources; and enabling issues, such as network infrastructure and transaction security covering authentication and certification. Finally, other problems relate to the changing nature of competition in electronic markets which poses new challenges for small firms, and, in some countries, there exist problems related to transport infrastructure and logistics.

Monitoring e-commerce implementation

83. Since the SME population covers an extremely diverse range of micro, small and medium-sized firms, improved monitoring of the adoption and use of electronic commerce and electronic business processes by SMEs in OECD countries is needed. The definitions and measures of electronic commerce agreed upon at the international level (for example at the OECD) should be used as the basis for improving the collection of internationally comparable data for policy purposes.

Information on electronic commerce

84. Many SMEs reveal limited understanding of the full range of benefits of electronic commerce. Information on electronic commerce, *i.e.* dissemination of information on best practices, success stories and opportunities and obstacles related to the use of the Internet and electronic commerce, is one crucial area for policy action. Most OECD countries have initiatives aimed at familiarising SMEs with business applications of the Internet and with electronic commerce issues. These initiatives are often part of a wider framework for promoting the development of e-commerce within all segments of the business sector and are often developed through public-private partnerships. These may take various forms: awareness campaigns to improve the flow of information to small firms on the benefits of electronic commerce; Internet-based systems to provide information on line; newsletters on electronic commerce distributed to small businesses; training courses and workshops on electronic commerce; awards programmes to recognise the achievement of business innovators and reward innovative business practices. Most OECD countries have set up centres to provide comprehensive information, advice and training on business usage of the Internet as well as support services for the establishment of e-business activities.

¹⁹ See also general policy developments in OECD, 1999f.

Training and skill development strategies

85. Among initiatives to stimulate the SME uptake of electronic commerce, greater interest should be paid to small-firm needs in terms of training and skill development strategies, as small firms tend to provide less training, of shorter duration, and usually of a short-term nature. The policy focus for small businesses has tended to concentrate on aggregating small-business requirements for training and skill formation to provide human resource development services at reasonable cost. Such strategies have often been carried out in conjunction with business and industry associations or with consortia of small firms in order to gain economies of scale in developing and delivering training services. One example is the Australian Electronic Business Network (AeB.N), established by federal, state and territory governments in partnership with industry, to assist in training for and uptake of electronic commerce by SMEs. It was launched in response to the need to improve understanding of Internet-based electronic commerce and takes into account the need for industry-specific approaches, the role of industry associations, SME information requirements and the ways in which a given industry can share information and spread costs. The AeB.N provides business training programmes, e-commerce information, access to Web-based information and training resources (AUSE.NET) and demonstration and pilot e-commerce business systems and solutions.

Online government

86. Another effective government initiative affecting both the development of electronic commerce and SME familiarity with and uptake of it is the progressive online transfer of government activities. Business-related activities can be grouped into four major types: *i*) transactions such as business registration, taxation and social security-related transactions; *ii*) information provision (business and corporate legislation, local government information, building zoning) and information collection (statistics); *iii*) government purchasing (procurement); and *iv*) government consultation activities (calls for inputs into new planning or zoning initiatives). Good examples include the development of interactive electronic forms which businesses can retrieve from the Internet, fill in with the aid of an interactive guide and transmit electronically. Shifting different kinds of business-related activities on line will have a positive influence on the adoption and use of electronic commerce by small firms. This operates through numerous channels: *i*) by providing an active demonstration effect of the use of online solutions and online transactions; *ii*) by introducing small firms to certification, authentication and security systems; and *iii*) by providing useful information to small firms. For instance, the government-backed Business Development Bank of Canada provides Internet access to a full range of business-financing options, including specific options for SMEs who wish to set up an Internet commerce facility. Government online purchasing and procurement, to the extent that they provide opportunities for equal access to small firms, can reduce some of the inherent bias towards large enterprises in government procurement.

Network infrastructure

87. Of particular importance to small firms are policy issues relating to the network infrastructure. Infrastructure access costs are relatively high in some countries, particularly in those which have not liberalised, or have been slow to liberalise, their telecommunications markets.²⁰ In particular, there is a wide range of pricing strategies. Although there has been a continuous and rapid shift towards flat-fee (un-metered) pricing which encourages “always-on” use of the Internet, this is by no means widespread. Furthermore, small firms are less likely to purchase or lease very high dedicated capacity and thus are more likely to be affected by the relatively high cost and lack of competition in the local loop. To the

²⁰. DSTI/ICCP/TISP(2000)1, “Local access pricing and e-commerce”, OECD, Paris.

extent that small firms are confronted with high Internet access costs and metered charges, the burden will be relatively greater for them than for larger firms, putting small firms at a relative disadvantage compared with larger ones. Further liberalisation and price reductions in these areas, and the advent of alternative access infrastructures (cable, mobile communications), are likely to be of proportionately greater benefit to SMEs, and there has been consistent recent policy interest in and policy initiatives to lower network infrastructure costs and Internet access charges.²¹

Authentication and certification issues

88. Small firms using the Internet to set up or expand their supply and purchasing operations and those offering new intermediate products and services need low-cost and reliable authentication and certification mechanisms to establish their online identity and reliability. These are more likely to be organised on an “open-but-bounded” model, in which the transacting parties agree to recognise each other’s authenticators, but where there is not necessarily a direct relationship or agreement between the parties. Issues such as the establishment and technological neutrality of laws for digital and electronic signatures, the development of easy-to-use authentication and certification systems and services, and recognition of SMEs in new government online procurement systems are all significant developments for small firms.

Privacy and consumer protection

89. Small firms may face considerable hurdles in establishing an appropriate credible privacy policy and establishing the right level of consumer confidence and trust in their activities. These issues are particularly relevant for business-to-consumer transactions, because consumers tend to be reluctant to transact business electronically until issues of security of the financial transactions and sellers’ credentials, privacy of personal data and the free movement of such data have been resolved. To address the problem of consumer acceptance and trust, a number of private initiatives have been developed to provide online business certification, *i.e.* trust seals or quality labels to certify compliance with a number of pre-established rules on honest business conduct and a good past record. In this context, the European Commission is supporting initiatives to offer business certification services to small businesses, at a multi-national level. In addition, a number of alternative dispute resolution initiatives have been launched in Member countries (such as the e-Confidence Forum launched by the European Commission). The aim is to provide affordable and effective mechanisms to settle disputes with customers without having to resort to the courts, particularly in cross-border transactions. Such arbitration and mediation schemes are likely to be crucial for both SMEs and consumers and are a key component for building trust and confidence in electronic commerce. These schemes should be open to as many business sectors as possible and benefit as many parties as possible, including micro-enterprises.

Competition

90. Network effects and first-mover advantages in electronic commerce tend to favour large, established enterprises and firms which have been able to establish early brand recognition, although these effects need to be weighed against opportunities for new entrants. Specifically in business-to-business electronic commerce, recent developments in large vertical exchanges (of the type announced by large firms in major established industries) may increase the dominance of larger and more advanced players,

²¹. See also Reuters, Lisbon, “EU Ministers Call for Cheap Internet Access”, April 10, 2000, and <http://www.cordis.lu/portugal/activ-cal2-pr.htm>

leading to fewer suppliers along supply chains and greater concentration of value chains in fewer enterprises. Such concerns have to be balanced against opportunities for new entrants to transform some areas of electronic business by exploiting the potential for new business models (*e.g.* creation of new intermediaries and aggregators). Opportunities also exist for small firms to participate in the re-organisation of supply chains to capture efficiency gains, and to participate in more geographically diverse supply systems. The development of open dynamic marketplaces should be encouraged to ensure that SMEs are not unnecessarily handicapped.

91. Three areas of particular concern regarding competition are: *i)* ensuring positive competition policy and reducing anti-competitive practices which may exclude small businesses from supply chains or unnecessarily increase barriers to entry and decrease the contestability of markets; *ii)* ensuring competition in network and security infrastructures so that small firms have access to the necessary competitive infrastructure at low cost; and *iii)* encouraging small businesses to form networks and clusters in order to reduce the average costs of their input transactions, and increase their relative market power in business-to-business transactions. Also, there is the need for clear non-discriminatory trade, standards, and intellectual property rights regimes, which do not unnecessarily hinder SMEs.

Logistics

92. It is worth mentioning that inadequate public communication and transport infrastructures and an insufficient supply of private distribution and logistics services could limit the development of electronic commerce in a number of Member countries by limiting efficient product delivery. Small businesses are normally less well equipped to overcome inefficiencies in public infrastructures. As was the case with the liberalisation of telecommunication infrastructure, encouraging the development of services in transport, packaging and distribution, and improving the communication and transport infrastructure, should be seen as part of a set of policy actions directed to fostering a well-functioning business environment for the development of electronic commerce.

A co-ordinated approach

93. Finally, in this specific area of SMEs, as in all other areas of electronic commerce, a comprehensive, co-ordinated approach is necessary. In countries where different agencies and government departments implement e-commerce initiatives which are specifically targeted to SMEs, co-ordination between the lead actors should be encouraged in order to prevent duplication of effort and to ensure that these policy actions are fully effective. This approach has been taken by the US Small Business Electronic Commerce Working Group, an interagency initiative established to co-ordinate SME e-commerce activities between the Small Business Administration, the Department of Commerce and the US Department of Agriculture,²² and a similar policy has been adopted by the European Commission within the framework of its new initiative, Enterprise Policy for New Economy. These initiatives are designed to increase the effectiveness of policy delivery to SMEs, while reducing duplication and unnecessary budgetary expenditures.

²² See US Government Working Group on Electronic Commerce (1999).

REFERENCES

- AUSE.NET (1998), *Taking the Plunge. Small Business Attitude to Electronic Commerce*, report published by the Department of Communications, Information Technology and the Arts, Canberra.
- AUSE.NET (1998), *World Wide Awareness*, report published by the Department of Industry, Science and Tourism, Canberra.
- AUSTRALIAN BUREAU OF STATISTICS (1998, 1999), *Small and Medium Enterprises. 1996-97 and 1997-98 Business Growth and Performance Surveys*, Canberra.
- CANADIAN FEDERATION OF INDEPENDENT BUSINESS (1999), "Virtually a Reality: Results of 1999 CFBI Survey on Internet Use among Small and Medium-Sized Firms", August.
- EUROPEAN COMMISSION (1999a), *Electronic Commerce: A Catalyst for European Competitiveness*", Commission Staff Working Paper, July, Brussels.
- EUROPEAN COMMISSION (1999b), *Best Business Web Sites*, October 1999.
- G8 (1999), *Global Marketplace for SMEs Project: Final Report of the Pilot Phase*.
- KITE (1999), "Gazelles and Gophers: SME Recommendations for Successful Internet Business", EC Project KITE - Knowledge and Information Transfer on Electronic Commerce, November.
- IRELAND INFORMATION SOCIETY COMMISSION (1998), *Ireland as an Information Society...Is the Business Community Ready?* December.
- IRELAND INFORMATION SOCIETY COMMISSION (1999), *Irish Business in the Information Society*, December.
- ISTAT (2000), *Censimento Intermedio dell'industria e dei servizi – fase "long form", Nota Rapida*.
- MINISTERE DE L'ECONOMIE, DES FINANCES ET DE L'INDUSTRIE/FRANCE (1999a), "Internet et PME mirage ou opportunité?", Rapport de la Mission conduite par Jean-Michel Yolin.
- MINISTERE DE L'ECONOMIE, DES FINANCES ET DE L'INDUSTRIE/FRANCE (1999b), *Information Technology and the Information Society. A Statistical Survey*, Paris.
- MINISTRY OF TRADE AND INDUSTRY/FINLAND (1999), *The Results of SME Barometer 2/1999 Concerning the use of Internet in Small and Medium-sized Enterprises in Finland*, Helsinki.
- MITI (1999), *Case Studies of Business to Business Electronic Commerce in Japan*, MITI/JECALS.
- OBSERVATOIRE DU COMMERCE ET DES ECHANGES ELECTRONIQUES (1998), AFCEE-EDIFRANCE.

- OECD (1997), *Globalisation and Small and Medium Enterprises (SMEs)*, Paris.
- OECD (1998), “SMEs and Electronic Commerce”, DSTI/IND/PME(98)18/FINAL.
- OECD (1999a), *The Economic and Social Impact of Electronic Commerce. Preliminary Findings and Research Agenda*, Paris.
- OECD (1999b), “Business-to-business electronic commerce: Status, economic impact and policy implications. Digest”, DSTI/ICCP/IE(99)4/FINAL.
- OECD (1999c), “Business-to-business electronic commerce: Status, economic impact and policy implications. Chapter 1. Recent developments in business-to-business electronic commerce across OECD countries”, DSTI/ICCP/IE(99)8/CHAPTER1.
- OECD (1999d), “Proposed methodology for analysing the impact of electronic commerce on business”, DSTI/ICCP/IE(99)10.
- OECD (1999e), “Business-to-Business electronic commerce in publishing, retail distribution and pharmaceuticals distribution in France”, DSTI/ICCP/IE(99)9/FINAL.
- OECD (1999f), “Business-to-business electronic commerce: Status, economic impact and policy implications. Chapter 3. Policy issues and policy development”, DSTI/ICCP/IE(99)8/CHAPTER3.
- OECD (2000a), “A New Economy? – The Role of Innovation and Information Technology in Recent OECD Economic Growth”, DSTI/IND/STP/ICCP(2000)1/REV1.
- OECD (2000b), “Defining and Measuring Electronic Commerce: A Background Paper”, DSTI/ICCP/IIS(2000)5.
- OECD (2000c), “Electronic Commerce: Measurement Issues and Priorities”, DSTI/ICCP/IE/IIS(2000)2.
- OECD (2000d), *Information Technology Outlook 2000*. Chapter 3. E-commerce “Readiness”, Paris.
- OECD (2000e), “Venture Capital: Supply vs. Demand Issues”, DSTI/IND(2000)1.
- PRICE WATERHOUSE COOPERS-APEC (1999), “SME Electronic Commerce Study”, September.
- RICCARDINI F., A. NURRA and S. VENCESLAI (2000), “SMEs and Electronic Commerce in Italy”, ISTAT, Italy, background document for Bologna SME Conference Workshop 3: “Realising the potential of Electronic Commerce for SMEs in the Global Economy”.
- SES CANADA RESEARCH INC. (1999), *The SES Web Entrepreneurship Survey*, Spring.
- SHAPIRO C. and H. R. VARIAN (1999), *Information Rules. A Strategic Guide to the Network Economy*, Harvard Business School Press, Boston (Mass.)
- SIEGRIST M. and D. HUNZIKER (1999), “Deployment and utilisation of the Internet in small-to-medium-sized enterprises in Switzerland”, *Die Volkswirtschaft*, June.
- STATISTICS CANADA (1997), “Survey of Technology Diffusion in Service Industries, 1996”.

STATISTICS CANADA (1999), “Technology Adoption in Canadian Manufacturing. Survey of Advanced Technology in Canadian manufacturing 1998”, August.

STATISTICS DENMARK and STATISTICS FINLAND (2000), *Use of ICT in Danish and Finnish Enterprises 1999*.

STATISTICS FINLAND (1999), *Use of Information and Communication Technologies in Enterprises 1999*, Helsinki.

UFB-LOCABAIL (2000), “Internet. France and Europe”, Enquête PME-PMI –1999/2000.

UK DEPARTMENT OF TRADE AND INDUSTRY and SPECTRUM STRATEGY CONSULTANTS (1998, 1999), *Moving into the Information Age – An International Benchmarking Study*.

U.S. SMALL BUSINESS ADMINISTRATION (1999), “E-commerce. Small Business Venture Online”, July.

US GOVERNMENT WORKING GROUP ON ELECTRONIC COMMERCE (1999), *Towards Digital eQuality*, 2nd Annual Report.

ANNEX: SOURCES AND SCOPE OF THE CASE STUDIES

Section III is based on case studies of 100 SMEs engaged in electronic commerce over the Internet. The cases come from a variety of sources. Most have been presented by governmental or non-governmental public institutions as examples of best practices in the use by SMEs of Internet-based electronic commerce. In addition, most are presented in reports and/or on Internet sites. Other cases were drawn from the sites of consulting firms – these, too, provide particularly impressive success stories. A common denominator of the 100 cases is therefore that they are especially positive and optimistic with regard to SMEs' use of electronic commerce over the Internet. As a rule, they cannot be used to ascertain concrete problems of implementation, cost or the special difficulties encountered by “average” firms. The second characteristic of these cases is that they are mainly representative of two categories of SMEs: start-ups and established SMEs that introduce Internet-based marketing strategies.

To prepare Section III, the first step was to differentiate between the two categories of SME and, after returning to the case studies to spotlight benefits, to examine obstacles using other sources, such as responses to questionnaires. The second step was to supplement these two types of cases with others, particularly those involving SMEs tied in with the strategies of large groups or with industry-wide strategies. Cases like these are cited and studied more rarely, and information about them must generally be sought in sectoral studies or case studies of large groups – and as a result, any information about the SMEs can only be partial. The case studies already completed at the OECD focusing on sectoral dynamics and the strategies of large groups show, however, that these dynamics concern a large number of SMEs (OECD, 1999a).

Finally, it should be noted that the database organised for this report on small and medium-sized enterprises that use the Internet contained, at the beginning of the review, nearly 200 firms. Almost half of these – in many instances established firms – proved unusable, since it was not possible to find them on the Internet. Why? There are three possible explanations. The first is that these companies lack visibility on the Internet. Many of the documents at our disposal did not cite any Internet address, and the elements provided in the case study, such as the firm's name, nationality and line of business, were not enough to find it on the Web. The second hypothesis is that these companies had already disappeared from the Web after less than two years' existence. The third explanation is that some of the firms may have been taken over and that the Internet does not provide enough historical information to allow them to be easily tracked down.