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**DIRECTORATE FOR SCIENCE, TECHNOLOGY AND INDUSTRY  
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**Working Party on Small and Medium-Sized Enterprises**

**SMEs AND ELECTRONIC COMMERCE**

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FOREWORD

The present report is a contribution of the Working Party on SMEs of the Industry Committee to the OECD Ministerial Conference on Electronic Commerce which was held in Ottawa, Canada on 7-9 October, 1998.

The report was prepared by Ms. Sandra Prerost (Globalink, Australia) and the Secretariat of the Directorate for Science, Technology and Industry. It is published on the responsibility of the Secretary-General of the OECD.

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## EXECUTIVE SUMMARY

The importance of SMEs in the knowledge-based economy and the need to enhance their role and participation in the global marketplace through electronic commerce, has led the OECD Working Party on SMEs to survey issues which are critical for the adoption of electronic commerce and areas that require government attention on a priority basis. This report explores the opportunities for SMEs presented by electronic commerce and identifies obstacles and barriers to greater SME participation in the global electronic marketplace. It outlines what governments are already doing to broaden the use of new communication and information technologies among SMEs and clarifies how governments can best help SMEs acquire the necessary skills and expertise, and facilitate their access to information technologies.

The report also investigates the Year 2000 problem (Y2K), assessing SME preparedness and government responses. The issues surrounding electronic commerce are not the same as those for Y2K. The former essentially concerns diffusion of a generic information and communication technology (ICT) application, which is both process- and product-oriented and a strategically new way for SMEs to do business. Consequently, government policies are oriented towards promoting its use and removing of barriers to diffusion and competitiveness. Y2K is essentially an exogenous shock and exerts considerable and very real time pressures to react. There is a great deal of uncertainty about the risks of not taking action, both by SMEs themselves with respect to their own systems but also in response to actions by their trading partners and associates. Governments should respond by raising awareness and encouraging the appropriate response to this exogenous shock, whose effects are not clearly understood but are potentially damaging to the competitiveness and viability of SMEs.

### Electronic commerce

The analysis draws attention to gaps in knowledge about the barriers to the adoption of electronic commerce and the interplay with key structural conditions specific to SMEs (age, size, industry sector and regional location). Little systematic research has been carried out and there is limited understanding of the necessary technical (or indeed market) feasibility. Electronic commerce in SMEs is well diffused as a means of communication and is beginning to be used for market development. Business-to-business electronic commerce far exceeds business-to-consumer use. Use for on-line transactions and payment is still in its infancy, hindered by concerns about security, lack of familiarity, and other barriers to diffusion.

The most significant barriers and obstacles facing SMEs included a lack of awareness of electronic commerce, uncertainty about its benefits for their business, security concerns, lack of suitable products and integrated systems for using the Internet, complexity and cost of electronic commerce with regard to the banking system, its early stage of development, set-up costs, lack of knowledge, and lack of a sound legal basis. Concerns about lack of human resources and skills were noted but not rated as most significant.

Governments are actively seeking to encourage the diffusion of electronic commerce as a way to improve competitiveness and access to new markets. It is an important tool for overcoming some traditional barriers for SMEs, such as information rigidities and high barriers to entry to distant markets. Initiatives reported include raising awareness (road shows, information, Websites); demonstration or development centres; pilot project assistance; and funding and training assistance.

*A major issue is the translation of awareness of electronic commerce into its implementation or adoption by SMEs. SMEs' adoption of electronic commerce depends on their perception of the opportunities afforded by electronic commerce and the relevance of these opportunities to their business. It also depends on the potential for capturing these benefits while overcoming barriers to adoption, both general barriers and those that are particular to SMEs. A more hands-on, customised delivery of information is needed together with; assistance and demonstration tailored to specific sectoral needs or specific business functions, such as international market development; supply chain communications; and financial management.*

**Recommendation 1:** *In many countries, governments play a role in facilitating the use of electronic commerce for SMEs and in increasing their ability to capture the benefits, e.g. via awareness building and training programmes, but their actions remain fragmented and tentative. Governments in partnership with the private sector should establish a more comprehensive and consistent policy approach to SMEs and electronic commerce, and apply evaluation mechanisms to assess what works and does not work.*

**Recommendation 2:** *Such an approach should allow for a more hands-on, customised delivery of information; assistance and demonstration tailored to specific needs or business functions, such as international market development; supply chain communications; and financial management.*

### **Best practice**

Most countries have only recently initiated measures to promote electronic commerce; it is too early to judge their success. Some responding countries mentioned evaluation criteria for measuring the success of their programmes: in terms of numbers of SMEs showing interest or registered in their programmes; and cost reductions of over 50 per cent following the implementation of electronic commerce. Policy makers need to look at policies and programmes, both in terms of their effects on electronic commerce per se and in terms of their contribution to broader SME policy objectives, such as enhanced competitiveness. The OECD could assist in the analysis and assessment of best practice policies and their implementation.

**Recommendation 3:** *An in-depth cross-country study should be undertaken to analyse the opportunities, benefits and barriers for the take-up of electronic commerce by SMEs as well as best practice in policy responses. In the initial phase this study should focus on developing a methodology that will ensure comparability across countries.*

### **The Year 2000 problem (Y2K)**

Survey responses reported very few studies of the impact of Y2K on SMEs. There are indications of a lack of understanding and some confusion about Y2K in terms of its implications for SMEs. A number of replies noted a lack of awareness among SMEs of the need to do anything in the

short to medium term and considerable confusion as to what should be done, how it should be done, and the potential costs to SMEs. Industry and professional associations as well as governments have moved quickly to set up information sites, the best of which provide links to expertise, suppliers, and do-it-yourself diagnostic aids. A number of respondents note possible issues of legal liability, and some governments have put in place measures to facilitate compliance, such as short-term tax breaks and funding. *It can also be mentioned that several resolutions have been passed by the United Nations calling for action by member countries on the Y2K problem.*

The overall effects of Y2K on SMEs and the concomitant risks (major liability claims, failures) are hard to ascertain and will vary by country, industry sector, market focus, domestic or overseas market orientation, SME size and age, structure, use of IT, reliance on IT by function, type and frequency of IT purchase by SMEs, etc. While further analysis may be necessary, time is the fundamental challenge. Promoting awareness of the risks and enhancing competence, while facilitating *rapid, practical action* is the key policy issue. The optimum solution is the rapid diffusion of a Manual explaining *key risk factors* for SMEs and *what SMEs should do to deal with them*. *To be of use, this Manual should be made available by the end of the year or by early 1999 at the very latest.*

**Recommendation 4:** *The major risks facing SMEs, as well as pragmatic, practical tools and solutions should be presented in an easily accessible format in a Manual and on Websites, aiming at a wide and timely distribution of this information among OECD Member (and non-member) countries. The OECD Working Party on SMEs may be the international body best placed to carry out this task effectively.*

## INTRODUCTION AND BACKGROUND

1. In view of the importance of SMEs in the knowledge-based economy and the need to enhance their role and participation in the global marketplace through electronic commerce, the Working Party on SMEs, at its 10th Session held in Athens (26-28 April 1998), agreed to the proposal put forward by the Canadian Delegation to contribute to the OECD Ministerial Conference on Electronic Commerce which was held in Ottawa on 7-9 October 1998.

2. To this end, a background paper was prepared to define critical issues affecting SMEs in the field of electronic commerce and areas that require government attention on a priority basis. The aim was to guide governmental policies on global electronic commerce, by:

- pointing out the opportunities for SMEs presented by electronic commerce and identifying obstacles which must be removed in order to encourage greater SME participation in the global electronic marketplace;
- outlining what governments are doing to broaden the use of new communication and information technologies by SMEs in order to facilitate their participation in the digital economy; and
- clarifying how governments can assist SMEs to acquire the necessary skills and expertise and facilitate access to information technologies.

3. This document summarises research to date on SME involvement in electronic commerce and provides a very preliminary description of best practices in Member countries and an outline of possible directions for work within the OECD and Member countries. In addition, it assesses SME preparedness for, and government responses to, the Year 2000 problem (also known as the Millennium Bug or Y2K).

4. Information on countries was gathered from a short questionnaire addressed to delegates to the OECD's Working Party on SMEs (Annex 1), as well as from an extensive literature and Web search. The questionnaire comprised three parts:

- |                  |  |
|------------------|--|
| <b>Part I:</b>   | Assessment of SMEs and Electronic Commerce: Opportunities and Barriers |
| <b>Part II:</b>  | What is Being Done by Governments with Respect to these SME Issues?    |
| <b>Part III:</b> | Responding to the Year 2000 (Y2K) Challenge                            |

5. On the basis of the survey, as well as the related research, this document first addresses issues of electronic commerce for SMEs and then discusses the Y2K problem as it applies to SMEs. The first section essentially concerns the diffusion of a generic ICT application that is both process- and product-oriented and offers SMEs a new way of doing business. Y2K on the other hand is essentially an exogenous shock that exerts considerable pressures to react immediately and uncertainty about the risks of not doing so, for SMEs themselves but also with respect to their trading partners and associates. There is also the issue of government response, where judged appropriate and realistic.

6. Survey responses were received from 26 of the 29 Member countries (plus the European Union). The value of the questionnaire lies mainly in highlighting gaps in knowledge about electronic commerce



(notably about barriers to the adoption of electronic commerce, as most responses rely on judgement and structural conditions specific to SMEs) and about Y2K.

7. However, most questionnaire responses were tentative, particularly concerning barriers to the adoption of electronic commerce by SMEs, and also to the relation between the age, size, industry sector and regional location of SMEs, and the adoption of electronic commerce. There appeared to be little understanding of the importance of technical (or indeed market) feasibility. This tends to suggest that the authorities give low priority to the diffusion of electronic commerce among SMEs and to the Y2K problem (some countries even questioned whether these issues concerned government at all) or a lack of government awareness of the issues, in itself an important finding with implications for the focus and effectiveness of public policies and programmes.

8. This contribution also seeks to reflect the value added that the OECD Working Party SMEs can contribute; first, in terms of its unique capacity as the international forum of SME policy makers and, second, in terms of its long-standing focus on best practice with respect to SME policy formulation and assessment (in the areas of financing, business environment, management capabilities, market access and the global information network more generally). Third, the Working Party on SMEs can contribute to drawing up recommendations for best practice concerning the development of electronic commerce for SMEs. With respect to Y2K, the issue is perhaps less one of best practice than of the need to act quickly within a tight deadline to minimise the harmful effects of Y2K and their spillover into other areas of the economy.

## SECTION I: SMEs AND ELECTRONIC COMMERCE

### A. Summary of questionnaire findings

#### *Definitions and scope*

9. For the purposes of the questionnaire, SMEs are defined as businesses with 500 employees or less in the non-farm business sector (manufacturing, construction, wholesale and retail trade, hotels and restaurants, finance, insurance and real estate, etc.). In fact, survey responses focused on substantially smaller entities, typically 250 employees or less, with some countries specifying smaller firm sizes. To the extent that firm size appears to be positively correlated with the adoption of electronic commerce, a focus on smaller firms could bias the results to lower rates of adoption and to more significant and/or different barriers and obstacles.

10. The definition of SME size varied, with a median size of 250 employees. The figure was substantially lower for New Zealand (50), Australia (less than 20 employees for small companies and 20-200 for medium-sized companies), the Netherlands (100), Turkey (150) and in some studies cited by the United States (100) and the United Kingdom (1-100). The Australian, Canadian and UK inputs differentiated between small and medium-sized firms.

11. For the purposes of the questionnaire, electronic commerce was defined as business occurring over networks using the Transmission Control Protocol/Internet Protocol (TCP/IP), i.e. the Internet, intranets and extranets.<sup>1</sup> That is to say, it refers to the use of Internet technologies for internal business processes (intranet), for business relationships (extranet), and for the buying and selling of goods, services and information (Internet). Practically speaking, this covers total electronic business. The European Union's definition explicitly focuses on electronic business and is technology-independent:

- 
1. • The term "Business" is used broadly to reflect the production function of a firm both internally and with external suppliers and customers. In this sense, the definition includes both business-to-business and business-to-consumer activity, some of which may not result in a transaction but can have an important economic impact on costs and customer satisfaction.
- The Internet, sometimes called the "network of networks", consists of a number of networks which are compatible with each other because they use the same open TCP/IP transmission protocol.
  - The TCP/IP protocol standard for networks internal to an organisation is called an intranet.
  - The extension of an organisation's intranet to other organisations so that they can share information is called an extranet.

Electronic commerce is about doing business electronically. It is based on the electronic processing and transmission of data, including text, sound and video. It encompasses many diverse activities including electronic trading of goods and services, on-line delivery of digital content, electronic fund transfers, electronic share trading, electronic bills of lading, commercial auctions, collaborative design and engineering, on-line sourcing, public procurement, direct consumer marketing and after-sales service. It involves both products (e.g. consumer goods, specialised medical equipment) and services (e.g. information services, financial and legal services); traditional activities (e.g. healthcare, education) and new activities (e.g. virtual malls). Electronic commerce is not limited to a particular technology (i.e. TCP/IP) but instead is technology neutral. This does not prejudice the fact that TCP/IP represents the technology most commonly used for the purpose of electronic commerce. It cannot be excluded that other protocols are used.

12. Electronic commerce functions reported ranged from constructing Websites to (somewhat rare) instances of on-line transactions. The latter were reported by the United Kingdom, the United States, Finland, Italy, Korea and the Netherlands. Switzerland questioned the inclusion of non-transactional functions in a definition of electronic commerce.

13. Annex 2 contains a set of tables, summarising the survey responses from 26 countries (as of 1 September 1998): Australia, Austria, Canada, the Czech Republic, Denmark, Finland, France, Germany, Hungary, Ireland, Italy, Japan, Korea, Mexico, the Netherlands, New Zealand, Norway, Poland, Portugal, Spain, Sweden, Switzerland, Turkey, the United Kingdom, the United States and the Slovak Republic. The EU also responded.

#### ***Assessment of SMEs and electronic commerce: opportunities and barriers***

14. Use of electronic commerce primarily involved research and exchange of information, e-mail, promotion, and on-line selling and purchasing. As responses did not give percentage breakdowns of electronic commerce functions, it is not known what proportion of usage concerned electronic mail, electronic data exchange, provision or consultation of Web pages, establishment of intranets (communication functions), marketing, promotional and image development, or ordering with off-line or on-line payment. For the most part, the applications related to business-to-business electronic commerce.

15. Some countries report that they have not systematically assessed the use of electronic commerce by SMEs. Countries which have carried out assessments include Australia, Canada, Finland, France, Germany, Korea, the Netherlands, the United Kingdom, and the United States, as well as the EU.

16. Estimates of the use of electronic commerce among SMEs for 1997 are highest for Finland (42 per cent), the United States (42 per cent), Italy (41 per cent), the United Kingdom (37 per cent) and Australia (34 per cent for small and 65 per cent for medium-sized firms). A significant number of responses did not provide an estimate.

17. Most countries did not estimate the proportion of companies for which electronic commerce would be technically feasible. Again, for 1998 the highest estimate was for Finland (42 per cent), Ireland (40 per cent), and Italy (38 per cent). The objective basis for the estimates provided varied. For these countries, it was based on access to the Internet or PC/modems by size of enterprise.

18. Most of the responses concerning obstacles and barriers were based on judgement. The barriers and obstacles cited as most significant by responding countries were lack of awareness of electronic

commerce by SMEs (ranked most important by France, Ireland, Korea, the Netherlands, Turkey and the Slovak Republic), uncertainty about its benefits (ranked most important by Austria, Canada, the Czech Republic and Finland) and security (ranked most important by Germany, Mexico and the United Kingdom). Finland and Sweden ranked the lack of suitable products and integrated systems for Internet use as the major barrier. Italy rated as most important the complexity and cost of electronic commerce with regard to the banking system. Poland and the EU raised concerns about the embryonic nature of electronic commerce, the United States named set-up costs, Hungary the lack of knowledge, Portugal the lack of "legal preconditions", while Switzerland noted the low use of computer equipment by SMEs. In all responses, lack of awareness, uncertainty of SMEs about the benefits of electronic commerce, concerns about lack of human resources and skills, set-up costs and concerns about security were noted as significant barriers.

19. Most respondents were unable to estimate or comment on the importance of SMEs' structural characteristics as they relate to their use of electronic commerce. Finland and Australia (but also Italy, Mexico, and Sweden) mentioned studies that indicate a positive relationship between size and use of electronic commerce and variations in use of electronic commerce across industry sectors. The sectors in which electronic commerce plays an important role appear to be business and financial services, transport and storage, tourism and export-oriented sectors. Italy, Finland, and Mexico cited regional differences, with more remote or distant regions having lower rates of use. Finland and Italy report the highest use of electronic commerce.

#### ***What is being done to promote electronic commerce?***

20. Most countries reported initiatives by trade associations and chambers of commerce to promote use of electronic commerce and policy measures to support and encourage the use of electronic commerce by SMEs. These initiatives tend to focus on raising awareness (road shows, information and Websites); resource, demonstration or development centres; pilot project assistance; and funding and training assistance. For descriptions of some of these measures, see Annex 3 and the Websites listed in Annex 4.

21. Although many private sector initiatives address knowledge and awareness issues, there remains a gap which calls for an active role by government. Partnership with the private sector is important for identification of needs and effective reaching out. In response to the question about the success of electronic commerce promotion measures, most countries indicated that their programmes had just begun and it was too soon to tell. Austria, Finland, Korea, Sweden and Turkey cited specific promotion programmes as successful. On closer examination, all are recent programmes. Some countries mentioned evaluation criteria for measuring the success of their programmes. Austria, Italy and Turkey (as well as the EU) mentioned interest in their programmes and numbers of registered SMEs. Sweden noted a somewhat more specific measure of cost reductions of over 50 per cent after the implementation of electronic commerce by SMEs. Switzerland commented that as utilisation rates are implicitly a measure of progress accomplished, international benchmarking comparisons might provide good criteria.

#### **B. SMEs and electronic commerce**

##### ***Key elements of electronic commerce and implications for SMEs***

22. This report does not seek to analyse the broader issues of electronic commerce (for a detailed analysis see *The Economic and Social Impacts of Electronic Commerce: Preliminary Findings and*

Research Agenda). However, the key elements and their implications for SMEs are briefly recalled in order to assess the results of the questionnaire, address information gaps, and make meaningful recommendations.

23. First, on a general level, the benefits of moving towards an on-line economy are familiar and well documented. The implications for SMEs are positive but raise new challenges. On the one hand, there are substantial market opening opportunities. Those afforded by the changed economies of scale and customisation can reduce or eliminate some traditional barriers. On the other hand, firms have expressed concerns about difficulties and timeliness in accessing appropriate information (as product cycles compress) and in integrating themselves in the global industrial fabric. Electronic business<sup>1</sup> allows:

- new products and services and new market opportunities (with the emergence of new content-generating industries);
- changes to value added and content components of what is made and sold (as business operations and service delivery are re-engineered);
- alteration to economies of scale and the traditional barriers and advantages of large enterprises (notably as production cycles shorten and desegregate);
- untying work functions from specific locations and time constraints (as distance becomes less relevant with the digitisation of information generation, transfer and transactions);
- flattening and disaggregation of organisational structures (notably as requirements for middle management and intermediaries change);
- scope for customisation at low cost (creating opportunities for niche markets); and
- commercialisation of in-house content and know-how (facilitating the creation of spin-off businesses).

24. Second, electronic commerce has two aspects: business-to-business and business-to-consumer. They differ in terms of areas of application, drivers and the benefits offered. The popular press has largely focused on business-to-consumer electronic commerce (booksellers, computers, etc.), but business-to-business electronic commerce dominates e-commerce activity, accounting for about 80 per cent overall at present.<sup>2</sup> Survey responses show that businesses use Electronic Data Interchange (EDI) over the Internet, Web pages and browsers, intranets and extranets to integrate the supply or value-added chain (from supplier of raw materials to final consumer).

25. Drivers for the adoption of these two forms of electronic commerce are also quite different. Those for business-to-consumer electronic commerce are ease and cost of access, convenience (shops that never close), and mass customisation (niche markets). For business-to-business electronic commerce, competitive pressures are likely to drive adoption of electronic commerce as are decisions by competitors or major contractors to engage in electronic commerce.<sup>3</sup>

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1. Drawn from a number of sources contained in the Bibliography.

2. The Economic and Social Impacts of Electronic Commerce: Preliminary Findings and Research Agenda; Table 3.8.

3. The Economic and Social Impacts of Electronic Commerce: Preliminary Findings and Research Agenda; Chapter 3.

26. In terms of benefits, business-to-consumer electronic commerce can count not only convenience to buyers and the possibility to customise and operate in niche markets but also reduced barriers to entry, as the cost of reaching large numbers of potential customers is lowered. It offers existing firms broader markets and new product and services strategies and reduces barriers to entry for new firms. For the business-to-business segment, electronic commerce can also deliver incremental efficiency and productivity gains and transform the way a company conducts its business.

27. The extent to which these general factors affect the adoption of electronic commerce by SMEs is dependent on some key behavioural and structural factors: the perception of the opportunities afforded by electronic commerce and their relevance and applicability to the SME's business and the potential to capture these benefits while overcoming obstacles to adoption, both in general and those that are specific to SMEs.

### *The opportunities*

28. Savings, accuracy, flexibility and speed underpin electronic commerce. This potentially means gains in efficiency and productivity for all businesses as, for example, business processes are improved and transformed (for example, new ways of sourcing inputs, new methods of advertising).

29. Electronic commerce permits the development of new business opportunities, both in business-to-business and business-to-consumer markets. Perhaps most dramatically, electronic commerce offers companies the possibility to sell internationally, effectively removing constraints of time and location and substantially enhancing their competitiveness. This is the area most frequently cited as offering the most significant opportunities for SMEs in terms of boosting productivity and the capacity to access markets and find business partners world-wide. It also enables SMEs to minimise risks at the launch phase of new products and services (due to interactivity and the shorter market feedback loop) and potentially to become global niche marketers.

30. The survey responses indicate that achieving these potential benefits may be more difficult for SMEs than for larger firms. They point to a significant lack of awareness among SMEs of the potential contribution of electronic commerce to business operations and profitability.

### *Capturing the benefits of electronic commerce*

31. SMEs' ability to adopt electronic commerce depends on various factors, not the least of which is how the SME weighs the value of these benefits against the immediate capital and organisational costs, and the cost of the necessary infrastructure (ICT equipment, Internet access). In response to the survey question about technical feasibility, most countries did not indicate the proportion of companies for which electronic commerce would be technically feasible. The highest estimate was for Finland (42 per cent for 1998), Ireland (40 per cent) and Italy (38 per cent). An EU study<sup>1</sup> comparing Internet ratios was somewhat consistent with the survey findings.

32. A related indicator is the share of SMEs with Internet access and multimedia-ready (CD-ROMs and modems) PCs; for example, Annex 5, Figure 3 gives this information for business as a whole in five

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1. Drawn from EU DGXIII.A3, "Evolution of the Internet and the WWW in Europe", Databank Consulting/IDATE/TNO, p. 33.

countries, with a breakdown by size of firm.<sup>1</sup> However, both equipment and applications lag somewhat for SMEs.

33. There is a positive correlation between adoption of ICT and firm size. However, there are substantial variations even within SMEs. The UK Spectrum study quotes an RPA document (research based on 2 881 companies in 12 European countries) which states that the Internet is used by 41 per cent of companies with 50-99 employees, by 30 per cent of companies with 10-49 employees, and by only 16 per cent of companies with 1-9 employees.

34. A number of survey responses indicated differences between major metropolitan centres and less populated regions. Few surveys indicated that the age of the enterprise was an important factor, other than to suggest that older, family-held companies may be less flexible and less willing to bring in outside help.

35. Market feasibility also has a determining effect on the adoption of electronic commerce. In particular, awareness of potential benefits to SMEs affects the propensity to invest in the technology and to make the necessary changes in organisation and business practices. An essential enabling factor is the type and level of use of PCs. A number of studies show that SMEs use PCs for financial and management functions. Again, size of firm plays a role (i.e. the smaller the SME, the lower the rate of usage) (see Annex 5, Figure 5).

36. In terms of electronic commerce functions, survey responses mentioned information gathering, e-mail, purchasing, advertising and marketing and on-line sales. Quantitative estimates support these findings (Annex 5, Figure 6). The EU Databank survey<sup>2</sup> found that SMEs use the Internet for e-mail (64 per cent), to maintain contact with a wide range of organisations (60 per cent), to access a wider range of information sources (56 per cent), to improve co-ordination of their main line of business within and outside the organisation (29 per cent), to experiment (26 per cent), to conduct on-line sales/orders (14 per cent) and on-line purchase of goods and services (12 per cent). The same study indicated that SMEs were motivated to create Websites to raise visibility and advertise (67.2 per cent) and to widen the range of target customers (40 per cent), but that on-line sales and orders were less important (11 per cent).

37. This would seem to support the view that electronic commerce is still immature in terms of its diffusion into the economy and use as a tool for economic transactions. However, it does indicate that some SMEs are moving beyond a view of electronic commerce as a generic communication tool to perceiving it as a market-opening tool.

38. However, broad conclusions about SMEs are at best indicative and at worst of limited value for policy makers. For electronic commerce (as indeed for most applications and the diffusion of ICT), the heterogeneity of SMEs (in terms of market structure, aversion to risk, location, sector, organisational structure, innovation climate, etc.) affects the scale and rate of implementation of electronic commerce and its very appropriateness. This has implications for the rate of adoption as well as efficacy of policies and programmes to encourage SMEs to adopt electronic commerce.

39. The translation of awareness of electronic commerce into adoption, investment and use also varies. For example, an SME can operate in a highly competitive market with low innovation rates

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1. Drawn from ISI/DTI/Spectrum, "Moving Into the Information Age: International Benchmarking Study 1998", p. 24.

2. Drawn from EU DGXIII.A3, "Evolution of the Internet and the WWW in Europe", Databank Consulting/IDATE/TNO, Section II. 4, pp. 74-84.

(e.g. low end of the retail sector) or in a highly dynamic industry with high innovation rates (e.g. software). The former may be indifferent to electronic commerce or perceive it only as a way to reduce costs; the latter may see it as a tool for new process, product or service innovations or for creating new markets.<sup>1</sup> Other SMEs may operate in clusters for production or within networks dominated by large companies (such as SME suppliers to single large manufacturers in the car industry). In fact, one would expect that adoption of business-to-business electronic commerce would be driven by large companies. In these cases, there is likely to be a highly innovative environment and electronic commerce would be used for productive processes and supply line relations.

40. Technical and market feasibility have a direct bearing on the adoption of electronic commerce and are preliminary indicators of some of the barriers which exist and how they might best be tackled.

### *The barriers*

#### *Lack of awareness*

41. Lack of awareness of electronic commerce seems at first sight odd given the media attention over the last few years. In fact, the problem may actually be a surfeit of too-general information or the focus on consumers. Market and structural factors affect both awareness and the translation of awareness into adoption. While SMEs' use of the Internet and electronic commerce has increased strongly, growth is concentrated in certain sectors and percentages are still somewhat low. There is a need for information tailored to specific segments of this heterogeneous sector to counteract the lack of familiarity or the lack of knowledge of demonstrated benefits.

#### *Uncertainty about the benefits of electronic commerce*

42. The lack of understanding and exposure to the potential benefits of electronic commerce reflects its embryonic nature and the lack of familiarity with and availability of the tools of electronic commerce. Studies suggest that SMEs understand the value of electronic commerce for communication and are beginning to understand the value of the ability to reach new customers. The use of electronic commerce for orders and purchases with off-line payment seems well diffused. For on-line transactions, the perception of potential benefits is very low in view of the costs or constraints involved in adoption.

#### *Concerns about lack of human resources and skills*

43. Skills appear to be a central concern, and the problem becomes more serious for smaller or more geographically isolated firms. In addition, smaller firms tend not to bring in outside help. The shortages may become more acute as pressure to solve the Y2K problem increases. However, respondents did not note skill shortages as a most significant issue. Some felt it would become less important over time as more off-the-shelf solutions become available.

#### *Set-up costs and pricing issues*

44. At a time when prices for IT equipment have been decreasing, costs remain a major issue, in terms of initial costs and particularly in terms of overall costs (maintenance, training, consultancy and communications costs). SMEs are likely to be more price-sensitive than larger firms, both for investment in ICT and for the development of applications like electronic commerce, most notably if the perception

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1. Rovere, Renate, "Small and Medium sized Enterprises and IT Diffusion Policies in Europe", *Small Business Economics*, 11, pp. 1-9, 1998.



of benefits or relevance to their business appears low or uncertain. Here again, more readily available off-the-shelf solutions may alter these perceptions.

#### *Concerns about security*

45. Security issues, together with ease of interaction with banks, form an area of serious concern. Standards are an important infrastructure condition, but the security issue does not affect all aspects of electronic commerce equally. As previously noted, advertising and interactive communication and information are the primary areas of electronic commerce activity, followed by on-line orders or purchases with off-line payment. These are the most widely diffused forms of electronic commerce, but involve no significant security or restructuring issues.

46. Security is, however, a major issue for on-line Internet transactions. The relatively low levels of on-line transactions reported in the survey and in other sources may reflect concerns about the security of transaction information. However, one study<sup>1</sup> indicated that 45 per cent of SMEs do not consider the Internet to be useful for economic transactions, although 46 per cent rated network security as good to excellent. This suggests that implementation of safe standards, while important, may not be sufficient to accelerate on-line electronic commerce transactions. Also important may be the infancy of the electronic transactions component of electronic commerce, the lack of readily available software, limited understanding of the benefits of on-line transactions and lack of experience. Yet it is here that electronic commerce has less the attributes of a stand-alone application and more those of a major transformation. On-line transactions dramatically change distribution channels, intermediation and market positioning.

### **C. Findings on policies and programmes to promote electronic commerce for SMEs**

47. Governments have shown considerable interest in addressing the lag in the adoption of electronic commerce by SMEs and promoting the faster diffusion of electronic commerce among SMEs, as a valuable aid to industry and economic competitiveness. This section looks at how governments address the relevant opportunities and barriers, and the capacities of SMEs to adopt electronic commerce.

#### *Addressing electronic commerce opportunities*

48. Very few responses noted promotion programmes or processes to assist SMEs in identifying opportunities. A German joint government-industry association has recently announced a competition on best practices for business-to-business electronic commerce. As part of a ten-point action plan, the French government focuses on harnessing electronic commerce opportunities for SMEs (world-wide market access, competitiveness) via actions to build awareness, financial aids for Internet use and development, on-line tender and purchasing information, pilot on-line payment systems). The Netherlands has undertaken similar initiatives. In Turkey, the government programme KOBİ-NET (SME-NET) provides business-to-business services of free e-mail addresses and free Websites.

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1. Drawn from EU DGXIII.A3, "Evolution of the Internet and the WWW in Europe", Databank Consulting/IDATE/TNO, p. 89.

*Addressing obstacles to the adoption of electronic commerce*

49. The major barriers identified by the survey are set out below. Governments are primarily acting on awareness issues and information dissemination.

***Lack of awareness:*** Almost all governments are addressing this problem via communication campaigns, most often in concert with industry and trade associations. Actions include the distribution of paper and on-line information sources, conferences and workshops targeted at SMEs. Typically, the information describes the technologies and their use. Industry association input tends to be targeted to members' market orientation and less frequently addresses SME needs in particular.

***Uncertainty of SMEs about the benefits to their business:*** This is a key barrier. Most governments address this issue in conjunction with awareness issues. In addition to providing information, demonstrations to familiarise SMEs with the operation of electronic commerce in relevant business settings are important. These often target SMEs which are part of a large firm's production cluster. In terms of government policy and programmes, this more "hands on" approach involves demonstration centres (the EU, the Netherlands, Finland), interactive on-line tutorials that simulate decision processes in the business environment (e.g. the US Small Business Agency – SBA), presentation of examples of commercial "best practice" (the Netherlands), and the development of pilot projects to allow SMEs to participate at arm's length. A number of governments reported using electronic commerce for their purchasing and tender offers to business. Familiarisation and changes in behaviour can help overcome the awareness barrier. However, lack of awareness interacts with a number of other barriers, and it is clear that both technical feasibility (very underreported in survey responses) and market feasibility underpin decisions to adopt electronic commerce.

***Concerns about lack of human resources and skills:*** Skill shortages in the relevant technical and re-engineering professions and competencies go beyond SMEs. Of particular importance to SMEs is a lack of in-house expertise, coupled with the reluctance of smaller SMEs to bring in outside help. A number of government and trade associations have set up courses and interactive teaching sites to provide expert advice and information. The UK and US initiatives provide links to manufacturers and suppliers of equipment, software and advice. Partnering with organisations which are already competent in electronic commerce is another approach. To the extent that off-the-shelf solutions become more prevalent, there may be less pressure on skills shortage. However, electronic commerce is not a technological "fix"; as it becomes more truly on-line, it requires major changes in business practices and re-engineering and calls into play more comprehensive skill sets. The UK initiatives for skill enhancement provide for extra training support.

***Set-up costs:*** Despite decreasing IT equipment prices, costs are still seen as a major issue, in terms of both direct initial costs and longer-term impacts (maintenance, training, consultancy and communications costs). As noted earlier, SMEs are likely to be more price-sensitive than larger firms, both for investment in ICT and for the development of applications like electronic commerce. French and Finnish initiatives have made funds available for SMEs to encourage use of the Internet and the development of commercial applications. Concerns about costs often overlap with concerns about the value of electronic commerce to the business and its complexity.

***Security concerns:*** Security for on-line transactions is a key area of concern. As discussed above, security is not considered a significant barrier to the use of electronic commerce for communication exchange, market opening and development, or on-line ordering/purchasing with

off-line transactions, but may partly explain the much lower level of on-line transactions among SMEs. Responses did not report particular initiatives concerning security of transactions.

*Addressing the ability of SMEs to capture the benefits of electronic commerce*

50. The survey responses suggest that detailed studies of how and why firms implement or fail to implement electronic commerce, are lacking. It is equally clear that governments are convinced that electronic commerce can benefit SMEs. However, there is a distinction between making businesses aware and facilitating or encouraging businesses to implement electronic commerce. Removing barriers is one issue, and maximising the ability of SMEs to implement and capture benefits is another, albeit related, one. Most governments are undertaking and promoting awareness building for SMEs via information and training programmes and the development of hot links on their SME-oriented Websites. The focus tends to be highly pragmatic, providing information about equipment, technical assistance and development of platforms (the United States, Netherlands, the EU, United Kingdom, France).

51. However, the survey reveals a lack of understanding of some of the key reasons for SMEs to implement electronic commerce. Moreover, the survey responses indicated a lack of evaluation mechanisms on the basis that the programmes are quite recent. However, there have been assessments of earlier programmes aimed at encouraging the diffusion of new technologies and transformation of business practices among SMEs and these criteria are also applicable to the diffusion of electronic commerce. Measures of SME interest or participation in programmes do not indicate to what extent SMEs have implemented electronic commerce.

**D. Key issues and policy implications**

*Awareness and understanding of electronic commerce among SMEs*

52. The issue here is the awareness of the relevance of electronic commerce to the SME's business, and awareness of its capacity to increase competitiveness, productivity and market access. Most electronic commerce is business-to-business, with a potential for expansion to business-to-consumer. Using the Internet to do business allows SMEs to access information and to communicate and present themselves to enlarged or different markets. As firms move beyond the well-diffused forms of electronic commerce to on-line transactions, the ways they do business will fundamentally change. It is necessary to understand the costs and benefits of adopting, or not adopting, electronic commerce.

53. The policy issue is to facilitate the process and to address lags in adoption that are related to company size. It appears important to encourage SMEs to adopt electronic commerce by increasing familiarity, by addressing the specific needs of SMEs, by tailoring awareness initiatives to specific industries or production clusters, and by developing "how to" guidelines and partnering with firms that already possess electronic commerce competence. A hands-on, more bottom-up approach, that allows feedback from users would be useful. One option is to involve industry and professional associations, another is to use Websites with feedback options on aspects of good practice for SME information systems (for example, oriented to specific business functions like export, government tendering or decision trees).

### ***Governments' understanding of electronic commerce for SMEs***

54. One outcome of the survey and review of policy approaches is the impression that governments may at times be wielding blunt policy instruments. Our research suggests that, for SMEs, there are considerable differences in opportunities and benefits (and the perception of them) across different types, sizes, locations and sectors, and therefore differences in firms' willingness and capacity to adopt electronic commerce, broadly defined. Very few survey responses reported on these differences. A better understanding of the mechanics of diffusion of the different types of electronic commerce, their structural characteristics and how they may affect the adoption of electronic commerce seems desirable.

55. The same can be said for the identification of barriers. Very few responses reported any understanding of why some barriers were more important or for which kinds of electronic commerce. For example, security issues were rated a significant barrier, although they are only really significant for on-line payments. Many of the barriers are mutually reinforcing and interdependent. After analysis, it may be that in some countries, like New Zealand, governments choose not to intervene. This may well be the optimal strategy given, e.g. the existence of production clusters or dominant firms that drive adoption of electronic commerce by SMEs.

### ***Delivering business-friendly information***

56. Providing information that is "business-friendly" will facilitate the implementation of electronic commerce. If the objective is to achieve greater diffusion of electronic commerce in order to improve and transform competitiveness, efforts to address awareness and familiarity and to shorten the learning curve should be applied and practical. The information should:

- be user-focused;
- have high-level political support;
- be an interagency, public/private co-operative effort;
- provide decentralised, cross-linked information;
- be explicitly developed to add value to business and SMEs;
- have maximum reach and convenience;
- include a frequently asked questions section;
- be a gateway, one-stop entry point to government and other relevant information;
- be driven by deduction and a question-answer formats.

### ***Training and access to skills***

57. Attention to training and skills is an important enabling condition for the diffusion of electronic commerce in SMEs. It involves an important cost to the enterprise but builds awareness and facilitates the shift from awareness to implementation. In terms of policy implications, at a time of key skills shortages, governments might address the generic issue of skills shortage, and also deal with the skills issue as it relates specifically to SMEs. A number of countries have been moving to interactive Websites as a training and problem-solving tool.

*Evaluation of effectiveness of policies for SMEs and electronic commerce*

58. Most responses did not mention evaluation criteria, other than the level of interest shown by SMEs in their programmes, with the exception of Sweden, which referred to the level of cost reductions attributable to electronic commerce. In the absence of such criteria, any reference to best practice policies and programmes is subjective and conjectural. One approach might be to use a benchmarking exercise, as noted in this document, as an implicit measure of success.<sup>1</sup>

59. One option is to look at the best practice criteria being developed by the OECD's Working Party on SMEs<sup>2</sup> to determine, for example, whether these programmes help SMEs achieve gains in the following areas:

- *Facilitating efficient and unbiased financial markets for SMEs*, for example, through better financial information and faster analysis.
- *Facilitating a suitable business environment for SMEs*. Because electronic commerce appears to enable SMEs to overcome information gaps, diseconomies and costs, it may add value to SMEs (creation of a digital marketplace, joint venture partnerships, new market openings).
- *Facilitating education, training and the capability of SMEs to compete*, by giving SMEs the capacity to access problem-solving techniques and training that are independent of time and location.
- *Facilitating access to information, networking and the global marketplace for SMEs*. Electronic commerce could have major benefits, allow development of markets and exports, and increase showcasing capability by providing specific market and marketing information, networks, and export development.

**E. Policy recommendations***Towards an international definition of electronic commerce*

60. There are many definitions of electronic commerce.<sup>3</sup> The definition adopted for the questionnaire was perceived by the EU as too technology-dependent and by some respondents as too broad. An agreed international definition of electronic commerce appears to be an important priority, particularly to enable international comparisons. The survey responses showed that countries were at different levels of experience and focused on different aspects of electronic commerce.

61. The survey responses and the literature show that electronic commerce encompasses a range of applications that are already widely diffused (communications, purchases with off-line payment), that are beginning to diffuse widely (market opening), or that are still in their infancy (on-line payment). There

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1. As also suggested by Swiss response.

2. "Best Practice Policies for Small and Medium-sized Enterprises", Annual Reports 1995, 1996, 1997, and "Assessment of SME Policies: Analytical Framework".

3. The Economic and Social Impacts of Electronic Commerce: Preliminary Findings and Research Agenda; Box A.

are implications for diffusion, for how SMEs view opportunity, barriers and their ability to undertake electronic commerce, and for the design and efficacy of government and other programmes to promote electronic commerce in SMEs.

62. The lack of a clear international definition of electronic commerce complicates effective learning and policy formulation in this area. There, thus, seems to be value in co-ordinating the development of an international definition. International projects for electronic commerce, such as the G8 and APEC initiatives, should have an important role to play in this context. Co-ordination with the OECD Working Party on SMEs would ensure a definition which is relevant to SME issues.

### ***Promoting the awareness and understanding of electronic commerce among SMEs***

**Recommendation 1:** *In many countries, governments play a role in facilitating the use of electronic commerce for SMEs and in increasing their ability to capture the benefits, e.g. via awareness building and training programmes, but their actions remain fragmented and tentative. Governments in partnership with the private sector should establish a more comprehensive and consistent policy approach to SMEs and electronic commerce, and apply evaluation mechanisms to assess what works and does not work.*

### ***Delivering business-friendly information***

**Recommendation 2:** *Such an approach should allow for more hands-on, customised delivery of information, assistance and demonstration tailored to specific needs or business functions, such as international market development, supply chain communications, and financial management.*

### ***Improving the knowledge of benefits, opportunities and barriers to electronic commerce for SMEs***

63. It would be useful to co-ordinate and exchange experience to build a critical mass of knowledge. The OECD Working Party on SMEs seems well placed to undertake such co-ordination and to address some of the major information and analytical gaps revealed by the survey. The following steps could be taken in co-ordination with the G8 and APEC processes:

- A detailed international study of the impact of electronic commerce on SME competitiveness with analysis in terms of different categories of electronic commerce, structural characteristics of SMEs and the balance of opportunities and costs.
- A detailed review of the barriers to the diffusion of electronic commerce and recommendations for appropriate action, notably for cross-border issues.
- In addition, it may be appropriate, as part of the Working Party's ongoing best practice review process, to compare programme outcomes with defined objectives, using a definition of electronic commerce diffusion or quantifiable outcome or benefit of the adoption of electronic commerce. A systematic review of programmes against more general SME policy outcomes might also be included. This could be co-ordinated with G8 projects that look at aspects of best practice (and draw on an earlier collaboration between the Working Party and the G7).

- A variety of benchmarking studies give a good overview of experience and motivations for use of electronic commerce. A more systematic review might provide useful international comparisons.

**Recommendation 3:** *An in-depth cross-country study should be undertaken to analyse the opportunities, benefits and barriers for the take-up of electronic commerce by SMEs as well as best practice in policy responses. In the initial phase this study should focus on developing a methodology that will ensure comparability across countries.*

## SECTION 2: SMEs AND THE MILLENNIUM BUG (Y2K)

### A. Background

64. This section assesses the preparedness of SMEs to deal with an exogenous shock which could have major effects on SMEs and on those with whom they do business.<sup>1</sup> The severity of the potential effects is unclear, but lack of awareness is a major issue and appears to be most marked among smaller SMEs. In particular, many firms are unaware that they need to do anything in the short to medium term and there is considerable confusion as to what should be done, how it should be done, and what the costs will be. For example:

- The German Economics Ministry found that over 35 per cent of SMEs were not prepared for Y2K.
- A survey in France by IFOP/APSAD of 703 SMEs (20-250 employees) found that 70 per cent were aware of the risks, 29 per cent thought they were poorly informed, 44 per cent considered the issue relatively unimportant, and 39 per cent thought the problem had been exaggerated. The 27 per cent who considered themselves to be affected thought it was either too late to do anything or would cost too much.
- A survey by the Australian Bankers Association in March 1998 found that while most Australian SMEs had heard of the problem, there were major misconceptions about its nature and potential impact. While 80 per cent of the surveyed companies had at least one type of technology that could be affected by the millennium bug and 60 per cent had systems and software instrumental to running their business, over 40 per cent did not plan to take any action and only 25 per cent had taken action, most of it insufficient. Most overlooked the importance of supply-chain dependencies.
- A survey by the Japan Information Service Industry Association surveyed private and public sector approaches to Y2K in 1996 and 1997, and expressed anxiety about significantly lower awareness and lack of action among smaller and rural businesses.
- A government survey in Korea in March 1998 found that 34 per cent of SMEs planned to do nothing about Y2K (the results stimulated action by the Korean government).
- A survey in Europe by IBM on Progress Toward Y2K Readiness in January 1997 and April 1998 noted that while almost 41 per cent of small companies (100-1 000 employees) were undertaking no significant action in 1997, the percentage had decreased to 13 per cent in April 1998. The same IBM survey showed some variation across SMEs by country in terms of whether the Y2K problem was perceived as purely technical or more general and requiring an organisation-wide solution. Overall, some 43 per cent of

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1. A full discussion of Y2K issues and examples is contained in “The Year 2000 Problem: Impact and Actions”, PUMA(98)10/FINAL.



responding small firms saw the problem as a technical one, although these figures were significantly higher in France and Switzerland.

- A Statistics Canada survey of SMEs in October 1997 and May 1998 found that SMEs were dramatically stepping up efforts to prepare their systems. Interestingly, the change was most marked for small businesses (6-50 employees), where the proportion taking action increased from 39 to 66 per cent and for medium-sized firms (51-250 employees), where the proportion increased from 70 to 90 per cent. However, the study noted two risk factors - legal action and lack of preparedness by suppliers, customers or service providers.
- A survey by the UK Action 2000 in June 1998 found that 98 per cent of firms were aware of Y2K, 7 per cent were fully compliant, 17 per cent had completed enough work to function, 39 per cent had scheduled programmes and committed resources, and 30 per cent had estimated how much Year 2000 compliance would cost (half of them had set a budget specifically for their actions). Meanwhile 15 per cent were aware of the problem but had no formal programme, and 4 per cent were taking no action. Construction, transport and agriculture firms were the least advanced in their preparations. One of the findings was that respondents were extremely over-optimistic about their own organisation's progress. For example, 11 per cent were unaware of the potential problems which might be caused by embedded systems.
- A government-co-ordinated survey of industry regarding progress on the Y2K issue is currently under way in the United States.

65. As the deadline approaches, the key issue is time, as well as how to address the lack of preparedness among SMEs and the extent to which it may be necessary to encourage or induce them to institute compliance measures.

## **B. Main findings**

66. Most countries are currently undertaking or have undertaken assessments (in the last year) of the implications of Y2K for SMEs, usually as part of overall assessments of the impact of Y2K on business. A significant number (Canada, Finland, France, Germany, Korea, the Netherlands, Sweden and the United Kingdom) have also undertaken specific reviews of impacts on SMEs. Findings of a significant lack of preparedness were common (although some studies noted a significant improvement over the last six months); survey responses have been supplemented by other information sources for these and other countries.

67. In terms of measures to ensure compliance, a number of countries (Finland, Korea, Mexico, the Netherlands and the United Kingdom) are concentrating on raising awareness. Finland, Korea, the Netherlands, the United Kingdom and the United States are focusing on providing guidelines for testing and validation via Websites. Within the EU, it is intended to use electronic commerce pilot centres to provide these services. Sweden mentioned the use of a Y2000 Certification System, and Australia has announced that Y2K software will be tax-deductible.

68. There was little indication of identifying benefits of Y2K for SMEs, either in terms of the creation of new markets (selling Y2K compliance services) or in terms of their using the opportunity to restructure.

69. Awareness of liability was not emphasised, other than guidance on embedded systems and positive action - rather than legal action - to solve the problem of liability issues (the United Kingdom), seminars on diagnosis and technicalities (Korea), and provision of information by insurance companies (Finland). The Statistics Canada study specifically mentioned this as a problem; in their survey, 74 per cent of firms thought some companies could be exposed to legal challenges but only 21 per cent thought they themselves would.

### C. The SMEs and Y2K

70. Both the survey and the literature indicate not only a lack of preparedness for Y2K among SMEs in general in many countries, but also a lack of understanding of its nature and impact, and its implications for their growth and indeed their viability. Survey responses from Eastern Europe show low awareness. The general literature indicates low levels of awareness in Asia. Some of the optimism about preparedness in key economic sectors in developed countries should be somewhat tempered by the very evident lag in SME readiness and by strong concerns about their capacity to comply in time and the effects of non-compliance for SMEs and for the broader economy. For countries with significant groupings of export-oriented SMEs, there may be concerns about trade impacts.

71. Obviously, any business or organisation with data-reliant systems is at risk. SMEs are vulnerable in a number of ways. The first area is *in-house systems* (some surveys indicate that companies which rely more on computerised systems are most vulnerable) when accounting systems are fully computerised and have a number of linked processes such as order and supply, billing and payment, manufacture and distribution, labelling and bar coding. The IBM study revealed that over 60 per cent of these functions are fully computerised in SMEs.

72. The second area of vulnerability is *exposure to outside organisations or companies closely related to the SMEs' operations and business*. When companies are linked by systems such as data exchange for orders, delivery, billing and banking, the extent to which all entities involved have dealt with their internal Y2K problems is important. Failures in key suppliers and customers, financial institutions and utilities and the companies providing data exchange systems would have major effects on SME operations. This problem was highlighted in a number of studies, including the Statistics Canada study, which found that only 28 per cent of companies had established levels of preparedness for their customers, suppliers and service providers. While this situation makes SMEs vulnerable, supply-chain dependencies may also force compliance by SMEs. The balance of the effect is unclear.

73. A third area of vulnerability is *failure of machinery and equipment operating on time-dependent embedded microprocessors*. This could affect production capacity for small manufacturers as well as essential infrastructure such as telephones, elevators, refrigerators, and security systems.

74. Another indicator of vulnerability and Y2K risk is *the extent to which SMEs are IT-reliant*. For example a jointly-sponsored US Chamber of Commerce, US Government, and IBM study found that US SMEs are 90 per cent reliant for accounting/finance and billing functions, 86 per cent reliant for word processing, 80 per cent reliant for sales recording, 75 per cent for communicating with customers, and 70-60 per cent reliant for database and project management, payroll, marketing and sales management and inventory/tracking and warehousing functions. The lowest level of IT reliance was for manufacturing at 30 per cent. This suggests that all these essential functions may be affected. The age of a company's IT technologies and whether they were developed in house and/or customised also needs to be factored in.

75. Some commentators have argued that their size gives SMEs an advantage in dealing with Y2K. They may be more flexible and be able to use readily accessible off-the-shelf solutions or to re-equip their systems. Some of the smallest SMEs may be able to function more easily off line. The Netherlands' response argued that introducing electronic commerce in SMEs and replacing relatively simple software can produce a millennium-proof situation in the business systems of these companies. However, some SMEs may be particularly vulnerable owing to a lack of flexibility, for example if they are small, family-controlled and rely on comparatively old information technology (characteristics highlighted in a recent German Chambers of Industry and Commerce report). Willingness to incur the costs of overhauling IT equipment may be low or the costs may appear too high, especially if the systems were developed in house, were customised or are specific to the industry. In addition, the original codes may be lost.

76. SME vulnerability is particularly marked in terms of the high costs and shortage of human resources (especially key diagnostic and IT human skills) to deal with the problem. Some SMEs may be very reluctant to bring in outside help when necessary. In the United Kingdom, the government has allocated £30M to give SMEs a £1 300 grant towards training up to 20 000 staff to assess and rectify date change related problems.

77. Legal liability may be a major area of vulnerability. The French response viewed such issues as questions of law and practice between SMEs and suppliers. A number of governments have undertaken to place pressure on manufacturers to advise clients about Y2K compliance, notably for equipment with embedded time-dependent devices in high-risk areas such as transport, safety and health. A number of Y2K sites emphasise the importance of this issue, and some have reproduced insurance company directives and policies for Y2K liability relating to embedded devices and "due diligence" to take action to prevent Y2K-related failures. In the United Kingdom, Action 2000 launched a formal pledge (Pledge 2000) in July 1998 for committing organisations: to share information; to help other firms in their supply chains by helping users of products and services to overcome their Bug problems and giving them access to compliance information; and to solve the problem rather than resort to legal action where possible.

78. Overall effects for SMEs as a whole are hard to ascertain and will vary by country, industry sector, market focus, domestic or overseas market orientation, size, age and structure of SME, use of IT, reliance on IT by function, type and frequency of IT purchase by SMEs, to name but a few factors.

#### **D. Policies targeted to Y2K and SMEs**

79. Most developed countries are moving rapidly to identify and deal with the Y2K problem as it applies to SMEs. This is understandable, as SMEs contribute massively to employment and income, but are also perceived as a barometer of economic well-being, especially in regional settings. While exhaustive assessments are lacking, fears about potential impacts are considerable.

80. Government policies seek to minimise damage to the economy and to SMEs, and to minimise feedback effects from SMEs to the broader economy. Policies to raise awareness via media coverage, workshops and Websites are being implemented.

81. However, awareness may not be enough, even in countries where it is reported to be high (such as Australia), as awareness does not necessarily translate into action and implementation. In Canada, where response to the Y2K problem is reportedly strong, there are still concerns about the low levels of action concerning liability and the preparedness of suppliers, customers and service providers. A number of governments have taken measures to provide technical support and training via demonstration centres,

interactive Websites and facilitated access to consultants. Many have provided information on product compliance. Australia and Japan have made Y2K software purchases tax deductible.

**E. Key issues and policy implications: timing of responses to Y2K**

82. Key needs involve raising awareness among SMEs as rapidly and as broadly as possible across the OECD and providing some of the necessary “how to” diagnostic and compliance skills and tools. The liability issue appears to be a major area of concern but one which responses either did not address or viewed as a matter between SMEs and their suppliers. Whether governments are best placed to do this is a moot point. New Zealand sees this as a private sector issue, and France sees the compliance/liability issue as a matter for companies and their suppliers. Given the size and heterogeneity of SMEs within any given economy, trade and business associations seem to be important players for disseminating information accurately and rapidly in co-operation with governments. A number of governments provide access to diagnostic and compliance services and tools (Finland, the Netherlands, the United Kingdom, the United States).

**G. Policy recommendations**

83. *For SMEs, the fundamental challenge posed by Y2K is time.* With only 12 months to go, it is difficult to make recommendations for policy analysis that would be useful for SMEs. Raising SME awareness of the risks of Y2K and enhancing competence, while facilitating rapid action *in a pragmatic way* is the key policy issue. One way to do this would be to rapidly and widely circulate a Manual outlining the *key risk factors* for SMEs and what they can best do about them. To be of use, the Manual should be made available by the end of the year or by early 1999 at the very latest.

84. The risk factors can be identified from the survey results and various Websites. Important elements include diagnostic tools, links to key equipment and software suppliers and experts, compliance checklists, details regarding liability and product warranty. The liability issues are worrying, and SMEs may be more vulnerable than large companies, notably for embedded devices or “due diligence”.

85. The Manual should be in the form of a checklist including diagnostic and solution tools and should cover :

- *assessment of liability risk (insurance industry advice, embedded devices, “due diligence”);*
- *Y2K risks for internal systems, external relations with suppliers and customer;*
- *product warranty;*
- *compliance tests and guidelines and solutions;*
- *government programmes and information sources for tools for risk analysis and solutions;*
- *links to key equipment and software suppliers, access to expert advice for diagnosis and solutions;*
- *frequently asked questions (FAQs);*
- *links to industry and professional associations;*
- *guides to risk analysis;*
- *templates for assessment;*
- *demonstration platforms;*
- *partnering, mentoring and “good practice” case studies and examples (where possible) for dealing with Y2K*

- *interactive tutorials for diagnosis and solutions;*
- *hotlinks (to other information sources).*

86. The value of such a Manual for both SMEs and SME policy makers would lie in its comprehensive international coverage and its consolidation of international good practice for the above-mentioned issues, in an *accessible, timely and practical format*.

**Recommendation 4:** *The major risks facing SMEs, as well as pragmatic, practical tools and solutions should be presented in an easily accessible format in a Manual and on Websites, aiming at a wide and timely distribution of this information among OECD Member (and non-member) countries. The OECD Working Party on SMEs may be the international body best placed to carry out this task effectively.*

## ANNEX 1. QUESTIONNAIRE

### SME's and Electronic Commerce Survey Questionnaire

Respondents to this questionnaire are reminded that the aim of these questions is to obtain information on the current situation of SMEs in their country regarding electronic commerce based on existing studies, research or other information gathering exercises.

**N.B.** In responding to the questions, please do not feel limited by the response space provided. Additional pages may be attached to the questionnaire.

#### Definitions

**N.B.** For the purpose of this survey and the upcoming report, the scope of what is considered to be electronic commerce is guided by the public policy interests of policy makers: Therefore, the definition adopted is the definition actually used for the OECD activity on electronic commerce.

- ⇒ **Electronic commerce** refers to business occurring over networks that use the Transmission Control Protocol/Internet Protocol (TCP/IP) -- commonly referred to as the Internet, intranets and extranets.<sup>1</sup>
- ⇒ For the purpose of this survey, **SMEs are defined** as businesses with 500 employees or less in the non-farm business sector (manufacturing, construction, wholesale and retail trade, hotels and restaurants, finance, insurance and real estate, etc.).

If your definition of an SME is different, *please note below*:

SMEs defined as \_\_\_\_\_ employees or less.

- 
1.
    - The term **business** is used to broadly reflect the production function of a firm both internally and with external suppliers and customers. In this sense, the definition includes both business-to-business and business-to-consumer activity, some of which may not result in a transaction but can have an important economic impact on costs and customer satisfaction.
    - The **Internet**, sometimes called the “network of networks”, consists of a number of networks which are compatible with each other because they use the same open TCP/IP transmission protocol.
    - The TCP/IP protocol standard for networks internal to an organisation is called an *intranet*.
    - The extension of an organisation’s intranet to other organisations so that they can share information is called an *extranet*.

**PART I - Assessment of SMEs and Electronic Commerce: Opportunities and Barriers**

1. Has there been any assessment in your country concerning SMEs and electronic commerce? If so, what type of assessment has been carried out? *Please describe.*

2. What % of SMEs are using electronic commerce? *(Please specify the year that your response refers to).*

\_\_\_\_\_ % for \_\_\_\_\_ (year)

\_\_\_\_\_ do not know

How are SMEs using electronic commerce (purpose)? \_\_\_\_\_

3. What % of SMEs have the technical capability to use electronic commerce (i.e. the hardware and software, management or in-house skills) to make most effective use of the opportunities created by electronic commerce? *(Please specify the year that your response refers to).*

\_\_\_\_\_ % for \_\_\_\_\_ (year)

\_\_\_\_\_ do not know

4. A range of obstacles and barriers are often listed to explain why SMEs are slow to become involved in electronic commerce. Please prioritise the top five (5) obstacles/barriers most commonly noted in your country *(numbering from 1 to 5, with 1 for the most restrictive).*

- \_\_\_\_\_ ♦ Lack of awareness
- \_\_\_\_\_ ♦ Limited knowledge of technology
- \_\_\_\_\_ ♦ High cost of acquiring skills and technology to get set up
- \_\_\_\_\_ ♦ Not convinced of financial and business benefits
- \_\_\_\_\_ ♦ Concern about Internet security
- \_\_\_\_\_ ♦ Lack of human resources to maintain/handle Internet business
- \_\_\_\_\_ ♦ Computer technology not used in business operation
- \_\_\_\_\_ ♦ Complexity/cost of bank requirements for electronic payment capability
- \_\_\_\_\_ ♦ Commercial activity on the Internet in its infancy
- \_\_\_\_\_ ♦ OTHER

Basis for answer (e.g. survey, judgement, other): \_\_\_\_\_

5. Some studies have indicated that differences amongst SMEs act as an impediment to SMEs using electronic commerce as a platform for business. Do you have any systematic evidence that such differences do exist and if so, what are they? *(Please specify the year that your response refers to).*

Size of business operation \_\_\_\_\_

Industry sector \_\_\_\_\_

Age of business \_\_\_\_\_

Regional \_\_\_\_\_

Other \_\_\_\_\_

*or*

do not know

## **PART II - What is Being Done to Promote Electronic Commerce**

6. Are special measures being used to raise the skill level of SMEs so they can effectively participate in electronic commerce and the global economy? If so, **when** were these measures taken, and which groups (e.g. commercial enterprises with their suppliers, chambers of commerce, government organisations, etc.) have been most active in this?
7. Which public and private sector initiatives have proven most successful in stimulating/promoting the use of electronic commerce among SMEs, and **when** were they initiated? Where possible, please attach a copy of the programme. *Please describe.*
8. **Currently**, what criteria or measurement approach do you use to evaluate/assess the success of a programme(s). *Please describe.*

## **PART III -- Responding to the Year 2000 (Y2K) challenge**

9. Has there been any assessment in your country concerning the millennium bug problem for SMEs? If so, what type of assessment has been carried out and **when**? *Please describe.*
10. What steps has your government taken to ensure SMEs are Y2K compliant within their own operations, and to minimise risks related to their suppliers and clients, and **when** were they taken? *Please describe.*
11. What measures has your government put in place to facilitate SMEs addressing market opportunities in response to the Y2K problem, and **when** were they carried out? *Please describe.*
12. What measures are organisations (e.g. government organisations, financial institutions, commercial enterprises) undertaking to ensure that SMEs which are vulnerable to Y2K related liabilities are aware of these liabilities, and are taking remedial steps? *Please describe.*



## ANNEX 2. QUESTIONNAIRE RESPONSES

Table 1. Part 1 - Q1-3. SMEs &amp; Electronic Commerce (ECOMM)

Countries	Definition of SMEs (if different from ≤ 500)	Q1. Assessment of SMEs & ECOMM	Q2. Use of ECOMM (% of SMEs, 1997)	Q3. Tech. capability (% of SMEs, 1997)
Australia	< 20(small) 20 < 200(medium)	yes	34%(small) 65%(medium)	not know
Austria	-	yes	25%	20%
Canada	< 50(small) < 500(medium)	none	not know	not know
Czech Republic	-	none	5-10% (1998)	25-35% (1998)
Denmark	-	yes	15%	not know
Finland	250	yes	42% (1998)	75% (all firms with PCs, 1998)
France	-	yes	not know	not know
Germany	-	none	5-10%	not know
Hungary	250	none	not know	not know
Ireland	250	yes	not know	40%
Italy	250	yes	41% (66% 1998)	43% (38% 1998)
Japan	300 (Retail & Service 50, Wholesale 100)	yes	28%	not know
Korea	300	yes	not know	22%
Mexico	-	none	nil response	nil response
Netherlands	100	none	not know	not know
New Zealand	50	none	not know	not know
Norway	-	ongoing	10% (1998)	52%
Poland	-	none	not know	not know
Portugal	-	nil response	nil response	nil response
Spain	250	yes	5%	25%
Sweden	-	yes	20%	25%
Switzerland	2 - 500	yes	20%	33%
Turkey	150	yes	0.5%	1.9%
United Kingdom	250	yes	37% (1998)	not know
United States *	-	yes	42% (1998)	67% (1998)
Slovak Republic	-	yes	nil response	30%
European Union	250	yes	5-20%	not know

\* Background Information Supplied

**Table 2. Part 1 - Q4. Ranking of Importance of Barriers & Obstacles to use of ECOMM by SMEs**

Countries	Lack of Awareness	Limited Knowledge	Set-up cost	Uncertain of business benefits	Security	Lack of Human Resources	Computers not used in business	Complexity/cost re: Banks	Infancy of use	OTHER*	Basis for Answer	* Description of OTHER
Australia		X	X		X		X				nil response	Time to set up
Austria	4			1			5		3	2	Judgement	Lack of critical mass
Canada	4	3	2	1	3	4	4	3	2		Judgement	
Czech Republic	3		2	1				5	4		Judgement	
Denmark				3	1	4	5		2		Survey	
Finland		3		1	2	3				1	Survey	Products not suitable for Internet use
France	1	2		3				5	4		nil response	
Germany	2		5	3	1					4	Studies	Compatibility with existing software and equipment
Hungary		1	3		5	4	2				Judgement	
Ireland	1	5	4	2					3		Judgement	
Italy	3	5			4	2		1			Judgement	
Japan		3	1	4		2				5	Survey	
Korea	1	3	4	5		2					Survey	
Mexico		3		4	1			2	5		Judgement	
Netherlands	1		5	2					4	3	Study	Lack of secure electronic payment systems
New Zealand	X		X	X	X				X		educated Judgement	
Norway					1	2			3	4	Private sector's survey	Lack of culture, supply, established routines
Poland	2	4		3		5			1		Judgement	
Portugal		3		4	2	5				1	nil response	Lack of legal framework, Technological restrictions
Spain	5	5	3	3	5	3	2	2	5	4	nil response	Lack of legal framework

Table 2. **Part 1 - Q4. Ranking of Importance of Barriers & Obstacles to use of ECOMM by SMEs** (*continued*)

Countries	Lack of Awareness	Limited Knowledge	Set-up cost	Uncertain of business benefits	Security	Lack of Human Resources	Computers not used in business	Complexity/cost re: Banks	Infancy of use	OTHER*	Basis for Answer	* Description of OTHER
Sweden	5		3	2		4				1	Judgement & Seminars	Lack of integrated systems for SMEs
Switzerland		5	3	2		4	1				Surveys	
Turkey	1	2	5	3		4					Observation	
United Kingdom	2		4	3	1					5	Judgement	
United States	5	2	1	3					4		Judgement	
Slovak Republic	1			4	5		3		2		Judgement	
European Union	3		5		2	4			1		Judgement	

*Note:* Number from 1 to 5, with 1 for the most restrictive.

**Table 3. Part 1 - Q5. Characteristics of SMEs as Impediments to use of ECOMM**

Countries	Size of business operation	Industry sector	Age of business	Regional	Other	Not know
Australia	X	X				
Austria						X
Canada						X
Czech Republic						X
Denmark						X
Finland	X	X		X		
France						X
Germany	"No evidence of a problem"					
Hungary						X
Ireland						X
Italy	X	X		X		
Japan						X
Korea						X
Mexico	X	X		X		
Netherlands						X
New Zealand						X
Norway	X	X		X		
Poland						X
Portugal						nil response
Spain						X
Sweden	X	X	X		share of employees with IT education	
Switzerland						nil response
Turkey						X
United Kingdom						X
United States						X
Slovak Republic						X
European Union	"Such differences have not been observed by us"					

**Table 4. Part 2. What is Being Done to Promote ECOMM to SMEs**

<b>Countries</b>	<b>Q6. Measures to promote ECOMM</b>	<b>Q7. Description of successful ECOMM promotion</b>	<b>Q8. Measurement criteria</b>
<b>Australia</b>	Enabling Australia ECOMM Summit: AeB.N, ITOL	Just initiated so do not know	Just initiated so do not know
<b>Austria</b>	edi/ec business Austria 1997-99, Telefit 1996-1999, APTA 1996-, AustriaPro 1989-	(See the answer in Q6.)	Demand and number of interested SMEs
<b>Canada</b>	Industry Canada Newsletter 1998, Industry Canada pilot 1998, Government transactional services online by public sector 1998-99	Just initiated so do not know	recipient/participant feedback, online usage
<b>Czech Republic</b>	Commercial activity		
<b>Denmark</b>	Creation of Danish EDI Council, 1996	National EDI Action Plan	Quantitative & qualitative surveys
<b>Finland</b>	Training on ICT, Operational Conditions Aid	Operational Conditions Aid	No evaluations yet
<b>France</b>	10 measures for ECOMM development, 1998		
<b>Germany</b>	Federal Government Initiative "Elektronischer Geschäftsverkehr"	Just initiated so do not know	Just initiated so do not know
<b>Hungary</b>	Chamber of Commerce & Industry project "Chance" (Chamber Network Contribution to Enlargement): enhancing SME participation in ECOMM, Sept. 1998	Just initiated so do not know	Just initiated so do not know
<b>Ireland</b>	Business Awareness Campaign 1998	nil response	nil response
<b>Italy</b>	Awareness and road shows, 1997-1998	Just initiated so do not know	Participation
<b>Japan</b>	Financial support by MITI to feasibility studies & development of business application SW (1997-), dispatch of experts on IT (1998-)	Just initiated so do not know	Effectiveness of measures evaluated by SMEs supported
<b>Korea</b>	Electronic Commerce Resource Centre (ECRC), 1997	ECRC 1997	No evaluations yet
<b>Mexico</b>	Chambers of Commerce, Trade associations	COMPRANET	nil response
<b>Netherlands</b>	Awareness and demonstration	Just initiated so too soon	Too soon
<b>New Zealand</b>	Private industry's measures only	not know (no govt. programmes)	not applicable

**Table 4. Part 2. What is Being Done to Promote ECOMM to SMEs (continued)**

<b>Countries</b>	<b>Q6. Measures to promote ECOMM</b>	<b>Q7. Description of successful ECOMM promotion</b>	<b>Q8. Measurement criteria</b>
<b>Norway</b>	ECOMM forum for dialogue between enterprises/businesses & govt. on regulatory issues est. Sept. '98. Est. of eforum.no ("Commercenet Norway") June '98 by private actors supported by Research Council of Norway. Est. of Norsk EDIPRO '95 follow-up to Norsk TEDIS/EU TEDIS programme. Pilot projects on ECOMM in public sector under the Research Council of Norway since 1997. Inter-ministerial working group on ECOMM, since March 1998.	early stage, not evaluated yet	not applicable
<b>Poland</b>	Training	No information	No criteria
<b>Portugal</b>	Training, Some private associations' projects	In a very early stage so do not know	nil response
<b>Spain</b>	Commercial enterprises, IT suppliers, Banks	nil response	nil response
<b>Sweden</b>	Pilot projects, Development centres	Pharos project 1996, Municipal procurement '96	cost reduction to SMEs > 50%
<b>Switzerland</b>	Information Society to remove barriers to ECOMM diffusion - not specific to SMEs	Chambers of Commerce re: electronic signatures	Compare diffusion other countries (benchmark study)
<b>Turkey</b>	KOBI-NET (SME-NET) April 1998	KOBI-NET (SME-NET) April 1998	Number of registered/applied to programme
<b>United Kingdom</b>	Govt's promoting skills and awareness	not know	not know
<b>United States</b>	Training seminars, 1997	too soon to know	not applicable
<b>Slovak Republic</b>	SLOVAKPRO 1997, Slovak association for ECOMM 1998	SLOVAKPRO 1997	Legislative questions solving
<b>European Union</b>	RTD Framework programmes; 5th Framework (1998-2002) Action 'New Methods of Work and Electronic Commerce'		Interest of SMEs

**Table 5. Part 3. Responding to the Year 2000 (Y2K) challenge: Y2K & SMEs**

Countries	Q9. Assessment for SMEs	Q10. Ensure Compliance	Q11. Market Opportunities	Q12. Awareness re Liabilities
<b>Australia</b>	Industry Associations	Y2K National Strategy	No specific government initiatives	As per Q10
<b>Austria</b>	Advisory Committee 2000, 1997	nil response	Advisory Committee 2000, 1997	nil response
<b>Canada</b>	Statistics Canada survey 1997&98, Canadian Federation of Independent Business survey 1998	Private sector task force, Information fairs and conferences, Year 2000 First Step programme, CAN2K campaign	Year 2000-readiness information on IT products and services	Communications campaign raising awareness of Y2K impact, Lending institutions' and Insurance firms' promoting awareness & action of clients
<b>Czech Republic</b>	none	none	none	Commercial activity
<b>Denmark</b>	Quantitative & qualitative surveys including interviews, 1997&1998	Seven-point plan on Y2K, 1997	Indirect measures: information & training activities	Year 2000 Forum, Road shows, Training programmes
<b>Finland</b>	T&K Centre, Advisory Committees for Data Management, Industry association, Municipal Confederation: 1998	Survey with questionnaire, Compliance guidelines	Granting aid for service sector	Providing information by Insurance companies on terms & conditions
<b>France</b>		Information for Year 2000, Mobilisation 2000		
<b>Germany</b>	none	nil response	nil response	nil response
<b>Hungary</b>	none	Interministerial Committee	none	none
<b>Ireland</b>	none	Information campaign	none	Awareness campaign
<b>Italy</b>	Private industry's assessment	Awareness campaign	Exploitation of the local EURO Committees will be considered	Awareness campaigns
<b>Japan</b>	Survey with questionnaire, 1996-	Awareness-raising by the mass media & seminars (1997-), Low interest rate loan & Tax incentives for introducing info-system (1998-), Low cost lease of info-equipment (1998-)	none	Promotion of awareness and products information of SMEs
<b>Korea</b>	Survey on SMEs' responding to Y2K problem, March 1998	Synthesis supporting counterplan, June 1998	SME Y2K Information Centre on the Website, May 1998	Seminar, Diagnosis & Technical guidance

**Table 5. Part 3. Responding to the Year 2000 (Y2K) challenge: Y2K & SMEs (continued)**

Countries	Q9. Assessment for SMEs	Q10. Ensure Compliance	Q11. Market Opportunities	Q12. Awareness re Liabilities
<b>Mexico</b>	National Statistics Institute (INEGI)	National Commission re: Computer System Conversion for Y2K	As for Q10	none
<b>Netherlands</b>	PA-Consultancy, 1997 & 1998	Millennium-platform: improvement of awareness & information	Intention to set up a database	Development of various initiatives
<b>New Zealand</b>	none	Committee to monitor & raise awareness	not applicable	Information provided by IT association of NZ (ITANZ)
<b>Norway</b>	Minister of Trade & Industry presented cabinet's action plan on Y2K addressing public and private sector, mainly SMEs in April 1998.	Project "Action 2000": information campaign, Website, tel-services, education	As part of Action 2000, project leaders and consultants working with SMEs will be offered Y2K education, as of Oct. 1998.	Campaigns, Formulation of requirements on Y2K project in SMEs
<b>Poland</b>	none	none	none	Banks working on it
<b>Portugal</b>	none	none	none	Awareness campaign (soon)
<b>Spain</b>	Information campaigns and technical support actions	National commission, Guide and Diskette to detect Y2K problems, Technical assistance network, Financial support for projects related to Y2K and SMEs	no particular measures	Promotion of awareness
<b>Sweden</b>	Industry association made an inquiry 1997; The Millennium Commission, est. in 1998	Y2000 certification system	no particular measures	Information campaigns by government and organisations
<b>Switzerland</b>	Gartner Group	Nominate 'M. Y2K' & Communication campaign May 1998		
<b>Turkey</b>	Financial support of 60-70% consultancy services needed by SMEs		none	none
<b>United Kingdom</b>	Action 2000 established by DTI: telephone interviews, June 1998	Communication programme, Grant towards training	Action 2000, Comply2000, Millennium IT Skills Summit	Embedded systems, Guidance & Advice, Pledge 2000 for information disclosure & liability solution
<b>United States</b>	Informal focus groups, 1997-1998	Educational/awareness campaign 1998, Website for self-assessment and the actions	As for Q10	As for Q10
<b>Slovak Republic</b>	none	none	none	none
<b>European Union</b>	Y2K Computer Problem Communiqué 25/2/1998			



## ANNEX 3. POLICIES FOR ELECTRONIC COMMERCE AND Y2K

	Electronic Commerce	Y2K Compliance
<b>Australia</b>	<ul style="list-style-type: none"> <li>- Focused awareness raising activities (Government and 'Enabling Australia's Electronic Commerce Summit)</li> <li>- Development of a comprehensive range of start-up training and business improvement courseware, and Internet-based online services [Australian Electronic Business Network (AeB.N)]</li> <li>- Information Technology Online (ITOL) programme (Government): support to demonstration projects on business benefits to industry</li> </ul>	<ul style="list-style-type: none"> <li>- "Year 2000 National Strategy" industry programme, 1997: raising the level of understanding and awareness of Y2K, stimulating remedial action and facilitating contingency planning</li> <li>- Announcement of tax deduction on Year 2000 software expenditures</li> </ul>
<b>Canada</b>	<ul style="list-style-type: none"> <li>- Industry Canada Newsletter on ECOMM, 1998</li> <li>- Industry Canada pilot promoting Internet commerce in exchange for testimonials, 1998</li> <li>- Government transactional services online (Public sector), 1998-99</li> <li>- Storefront</li> <li>- Medium neutral legislation, privacy, encryption</li> <li>- "Canadian government's commitment to helping Canadian business to become a world leader in development and use of e-commerce by Y2K"</li> </ul>	<ul style="list-style-type: none"> <li>- Creation of a private sector task force, 1997: examining the state of preparedness of businesses to Y2K, providing leadership and advice on how to address the problem and producing a check list for SMEs</li> <li>- Year 2000 mail out to SMEs, information fairs and SMEs conferences, seminars and information sessions to SMEs</li> <li>- Year 2000 First Step: analysing SMEs' Year 2000 problem and developing specific action plans</li> <li>- National campaign "CAN2K": increasing awareness of Y2K for rural SMEs</li> </ul>
<b>Finland</b>	<p>The most important policy: Liberalisation of IT-Market</p> <ul style="list-style-type: none"> <li>- Training on information and communication technology (Business sector)</li> <li>- Granting "Operational Conditions Aid" for developing SMEs' skills on Internet and their Internet services</li> </ul>	<ul style="list-style-type: none"> <li>- Survey with a questionnaire to primary (SW, HW) suppliers on Y2K compliance</li> <li>- Translation and distribution of compliance guidelines</li> </ul>

ANNEX 3. POLICIES FOR ELECTRONIC COMMERCE AND Y2K *(continued)*

	Electronic Commerce	Y2K Compliance
<b>France</b>	Announced 10 measures for development of electronic commerce, 6 May 1998, to include awareness & consultation including Website forum, integration of relevant Ministry, policy and programmes to facilitate ECOMM and online payment system for government service and contracts, exploit and promote opportunities for SMEs, quality assurance	<ul style="list-style-type: none"> <li>- Programme "Information for Year 2000" to raise the level of awareness in industry; survey progress of work on software &amp; materials compliance, and to devise future actions involving major industry associations, insurers</li> <li>- "Mobilisation 2000" platform focused on SMEs with Website and communication campaign</li> </ul>
<b>Netherlands</b>	<p>Policy focused on: Awareness and demonstration</p> <p>Public - private initiatives:</p> <ul style="list-style-type: none"> <li>- Demonstration Programme on Organisational Innovation (DO-IT), mainly on ECOMM and Business Process redesign</li> <li>- Demonstration centre (Mediaplaza) on possibilities of ECOMM</li> </ul> <p>- Electronic Commerce Platform Netherlands (ECP.nl), comprising intermediary organisations and companies; promotion of developing ECOMM</p> <ul style="list-style-type: none"> <li>- Syntens: two day's of free advice to do business electronically</li> <li>- Informe: Website with information and best practices on ECOMM</li> </ul> <p>Private initiatives:</p> <ul style="list-style-type: none"> <li>- E-trade, Commerce-Net, etc.</li> </ul>	<p>Establishment of "Millennium-platform", 1997: aiming to improve awareness and information on Y2K problem</p> <ul style="list-style-type: none"> <li>- a handbook on how to deal with the potential problems</li> <li>- regional and sectoral information sessions</li> <li>- a call-centre for questions</li> <li>- pilot-studies on the nature of the problems in SMEs and their solutions</li> </ul>
<b>Norway</b>	<ul style="list-style-type: none"> <li>- E-commerce initiative in Action plan for IT in industry 1998-2001</li> <li>- Pilot projects on ECOMM in public sector, health sector</li> <li>- Work on laws and regulations with relevance to ECOMM undertaken in several ministries</li> <li>- Forum for dialogue between private sector and government</li> </ul>	<ul style="list-style-type: none"> <li>- Action plan on Y2K</li> <li>- Establishment of Action2000 (June 1998) undertaking specific measures for SMEs including information services (Internet, telephone service), education.</li> <li>- Monitoring development and reporting to the Stortinget every half year.</li> </ul>

**ANNEX 3. POLICIES FOR ELECTRONIC COMMERCE AND Y2K** *(continued)*

	<b>Electronic Commerce</b>	<b>Y2K Compliance</b>
<b>United Kingdom</b>	Promotion of skills and awareness (Government)	<ul style="list-style-type: none"> <li>- Communications programme to reach audiences and ensure the action for Y2K</li> <li>- Grant towards training to assess &amp; rectify date related problems</li> </ul>
<b>United States</b>	<ul style="list-style-type: none"> <li>- Training seminars on ECOMM and Electronic Data Interchange, 1997-</li> <li>- SBA's centres around the US: offering access to Internet for the public</li> </ul>	<ul style="list-style-type: none"> <li>- Educational/awareness campaign on Y2K, 1998</li> <li>- Website: instructions for self-assessment and the actions to be followed</li> </ul>

## ANNEX 4. WEBSITES FOR SMEs AND ELECTRONIC COMMERCE, Y2K AND SMEs

	SMEs and Electronic Commerce	Year2K and SMEs
<b>Australia</b>	<a href="http://www.noie.gov.au/strategy.html">http://www.noie.gov.au/strategy.html</a>	<a href="http://www.ogit.gov.au/year2000/y2konlinegovcouncil.htm">http://www.ogit.gov.au/year2000/y2konlinegovcouncil.htm</a> <a href="http://www.aiia.com.au/Year2000.htm">http://www.aiia.com.au/Year2000.htm</a>
<b>Austria</b>	<a href="http://www.wifi.at/edi/edi.htm">http://www.wifi.at/edi/edi.htm</a> , <a href="http://www.apta.at/">http://www.apta.at/</a> , <a href="http://www.wk.or.at/austriapro/">http://www.wk.or.at/austriapro/</a>	<a href="http://www.wifi.at/tub/2000/">http://www.wifi.at/tub/2000/</a>
<b>Canada</b>	<a href="http://www.cfib.ca/">http://www.cfib.ca/</a> , <a href="http://e-com.ic.gc.ca/">http://e-com.ic.gc.ca/</a> , <a href="http://www.ottawaoecdconference.org/">http://www.ottawaoecdconference.org/</a> , <a href="http://strategis.ic.gc.ca/">http://strategis.ic.gc.ca/</a> <a href="http://strategis.ic.gc.ca/SSG/mi05426e.html">http://strategis.ic.gc.ca/SSG/mi05426e.html</a> , <a href="http://strategis.ic.gc.ca/SSG/mi05794e.html">http://strategis.ic.gc.ca/SSG/mi05794e.html</a> , <a href="http://strategis.ic.gc.ca/cs">http://strategis.ic.gc.ca/cs</a> , <a href="http://www.vusme.org/">http://www.vusme.org/</a>	<a href="http://www.info2000.gc.ca/">http://www.info2000.gc.ca/</a> , <a href="http://strategis.ic.gc.ca/sos2000">http://strategis.ic.gc.ca/sos2000</a> , <a href="http://www.cips.ca/papers/y2k">http://www.cips.ca/papers/y2k</a> , <a href="http://www.cfib.ca/english/research/surveys/yk2000.htm">http://www.cfib.ca/english/research/surveys/yk2000.htm</a> , <a href="http://www.cfib.ca/english/research/businfo/din0261.htm">http://www.cfib.ca/english/research/businfo/din0261.htm</a> , <a href="http://www.statcan.ca/Daily/English/980706/d980706.htm">http://www.statcan.ca/Daily/English/980706/d980706.htm</a>
<b>Czech Republic</b>		
<b>Denmark</b>	<a href="http://www.fsk.dk/">http://www.fsk.dk/</a> , <a href="http://www.fsk.dk/fsk/publ/1997/it97.html">http://www.fsk.dk/fsk/publ/1997/it97.html</a>	<a href="http://www.itpolicy.gsa.gov/mks/yr2000/danish.htm">http://www.itpolicy.gsa.gov/mks/yr2000/danish.htm</a> , <a href="http://www.2000parat.dk/">http://www.2000parat.dk/</a>
<b>Finland</b>		
<b>France</b>	<a href="http://www.finances.gouv.fr/">http://www.finances.gouv.fr/</a>	<a href="http://www.urgence2000.gouv.fr/">http://www.urgence2000.gouv.fr/</a>
<b>Germany</b>		
<b>Hungary</b>	<a href="http://www.ikm.iif.hu/economy/forras/index.htm">http://www.ikm.iif.hu/economy/forras/index.htm</a>	
<b>Ireland</b>		
<b>Italy</b>		<a href="http://www.minindustria.it/Gabinetto/Seg_Tech/Inf2000.htm">http://www.minindustria.it/Gabinetto/Seg_Tech/Inf2000.htm</a>
<b>Japan</b>		<a href="http://www.jisa.or.jp/statistics/y2k-97-e.htm">http://www.jisa.or.jp/statistics/y2k-97-e.htm</a>
<b>Korea</b>		<a href="http://www.smba.go.kr/ows-doc/y2k/y2k-main.htm">http://www.smba.go.kr/ows-doc/y2k/y2k-main.htm</a>
<b>Mexico</b>		
<b>Netherlands</b>	<a href="http://www.minez.nl/">http://www.minez.nl/</a> ("Information Technology" through the heading "Fields of Policy")	<a href="http://www.mp2000.nl/millen/Millen.nsf/">http://www.mp2000.nl/millen/Millen.nsf/</a>
<b>New Zealand</b>		<a href="http://www.itanz.org.nz/year2000/">http://www.itanz.org.nz/year2000/</a> , <a href="http://www.y2k.govt.nz/index.html">http://www.y2k.govt.nz/index.html</a> , <a href="http://www.year2000.co.nz/y2kart03.htm">http://www.year2000.co.nz/y2kart03.htm</a> , <a href="http://www.aksjon2000.org/">http://www.aksjon2000.org/</a>
<b>Norway</b>		

**ANNEX 4. WEBSITES FOR SMEs AND ELECTRONIC COMMERCE, Y2K AND SMEs** (*continued*)

	<b>SMEs and Electronic Commerce</b>	<b>Year2K and SMEs</b>
<b>Poland</b>		
<b>Portugal</b>		
<b>Spain</b>		<a href="http://www.ipyme.org/temas/inforeu/inter.htm">http://www.ipyme.org/temas/inforeu/inter.htm</a>
<b>Sweden</b>		<a href="http://www.statskontoret.se/2000/index.html">http://www.statskontoret.se/2000/index.html</a> , <a href="http://www.2000-delegationen.gov.se/">http://www.2000-delegationen.gov.se/</a>
<b>Switzerland</b>		<a href="http://www.ie.iwi.unibe.ch/zeit/y2k/welcome.html">http://www.ie.iwi.unibe.ch/zeit/y2k/welcome.html</a>
<b>Turkey</b>	<a href="http://www.kobinet.org.tr/">http://www.kobinet.org.tr/</a>	
<b>United Kingdom</b>		<a href="http://www.itnto.org.uk/">http://www.itnto.org.uk/</a> , <a href="http://www.support2000.com/index.htm">http://www.support2000.com/index.htm</a> , <a href="http://www.bug2000.co.uk/index2.shtml">http://www.bug2000.co.uk/index2.shtml</a> , <a href="http://www.open.gov.uk/year2000/">http://www.open.gov.uk/year2000/</a>
<b>United States</b>	<a href="http://www.ecommerce.gov/">http://www.ecommerce.gov/</a>	<a href="http://www.itpolicy.gsa.gov/mks/yr2000/y2khome.htm">http://www.itpolicy.gsa.gov/mks/yr2000/y2khome.htm</a> , <a href="http://cio.gov/omb98-02.htm">http://cio.gov/omb98-02.htm</a> , <a href="http://www.sba.gov/y2k/">http://www.sba.gov/y2k/</a> , <a href="http://www.sbaonline.sba.gov/hotlist/year2000.html">http://www.sbaonline.sba.gov/hotlist/year2000.html</a> , <a href="http://www.y2k.gov">http://www.y2k.gov</a> , <a href="http://www.y2ktoday.com">http://www.y2ktoday.com</a>
<b>Slovak Republic</b>		
<b>European Union</b>		

## ANNEX 5. TABLES AND GRAPHS

Figure 1. **The Benefits of Intranets and Extranets**

<p><b>Intranets</b></p> <ul style="list-style-type: none"><li>• Improve internal communication and dissemination of information, breaking down barriers between “islands of communication”</li><li>• Improve efficiency and productivity through improved access to corporate databases and corporate knowledge</li><li>• Facilitate corporate idea generation and teamwork between cross-functional teams that may be located in different geographical locations and time zones</li><li>• Encourage collaborative work-sharing and other wider network communications like industry forums and other “communities of interest”</li><li>• Generate cost-savings by reducing use of other means of communicating (telephone, fax, international air flights)</li><li>• Efficiently provide smaller and remote locations with access to corporate networks using the Internet as access and transport mechanism</li></ul> <p><b>Extranets</b></p> <ul style="list-style-type: none"><li>• Improve communication between company and customers and suppliers</li><li>• Enable company to be more customer oriented by providing channels for customer feedback and input</li><li>• Allow “24-7” (24 hours, 7 days a week) access to databases or information relevant to customers and suppliers (e.g., pricing information, stock availability, delivery schedules, etc.)</li><li>• Improve speed and efficiency of working up and down the value chain (push/pull driven) which shortens the product development process and time to market</li></ul>
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*Source: Spectrum Analysis  
UK Delegation*

Figure 2. **Internet Ratio**

	Internet Ratio
Finland	<b>15.66</b>
Iceland	11.39
Sweden	8.64
Norway	8.61
US	8.59
Switzerland	7.43
Australia	6.57
Canada	5.37
Denmark	4.97
Netherlands	4.89
Ireland	3.90
UK	3.87
Austria	3.63
Belgium	3.17
Germany	3.07
New Zealand	2.72
Japan	2.47
Italy	2.27
Greece	2.16
Portugal	1.88
France	1.50
Hungary	1.48
Spain	1.47
Czech Republic	0.89
Poland	0.59
Korea	0.33
Mexico	0.20

Source: Databank Consulting, 1997

$$\frac{\text{Internet host} + \text{Internet domains} + \text{Web pages}}{\text{GDP}}$$

Figure 3. ICT Ownership by Business Size (%) - All Countries

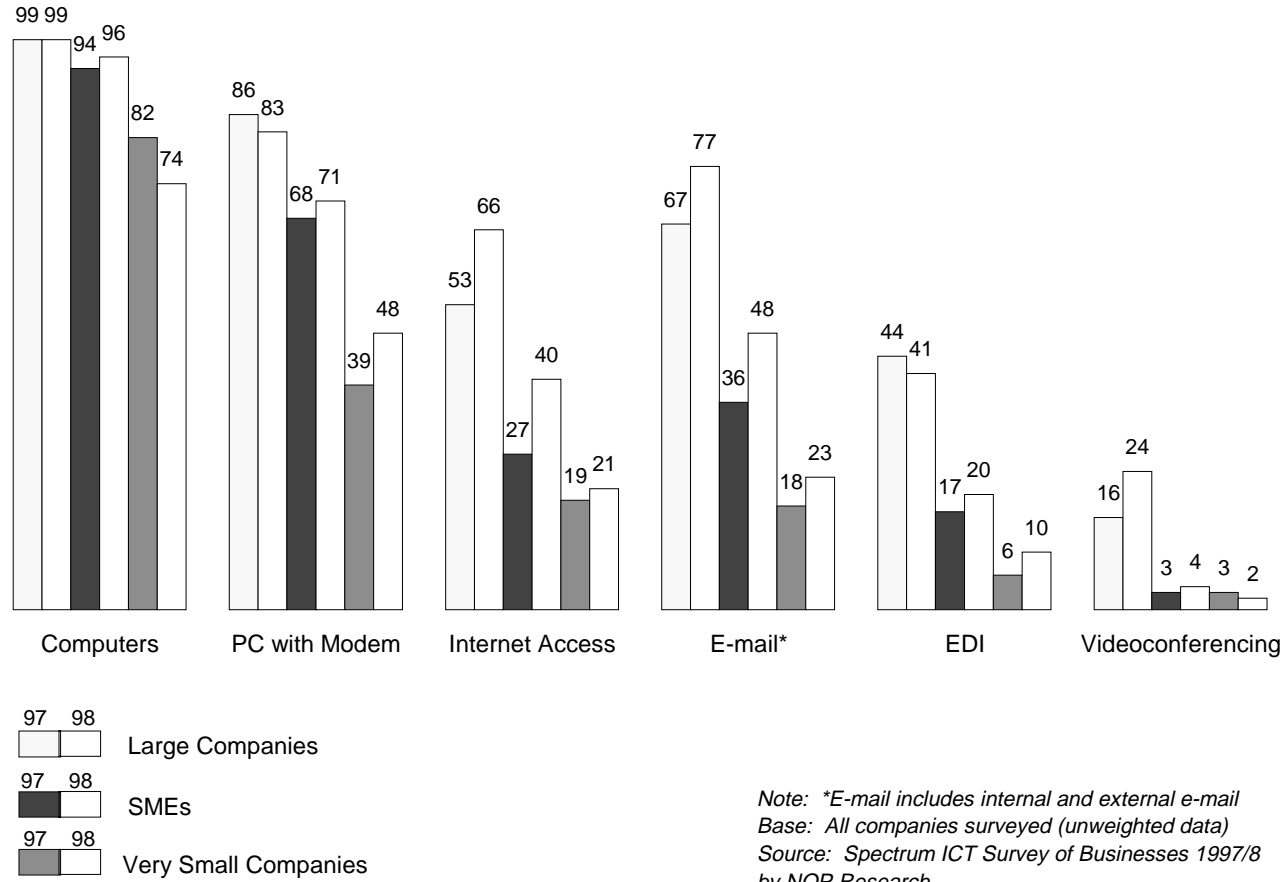




Figure 4. SME Ownership of ICTs - Compared to Average for all Companies (%)

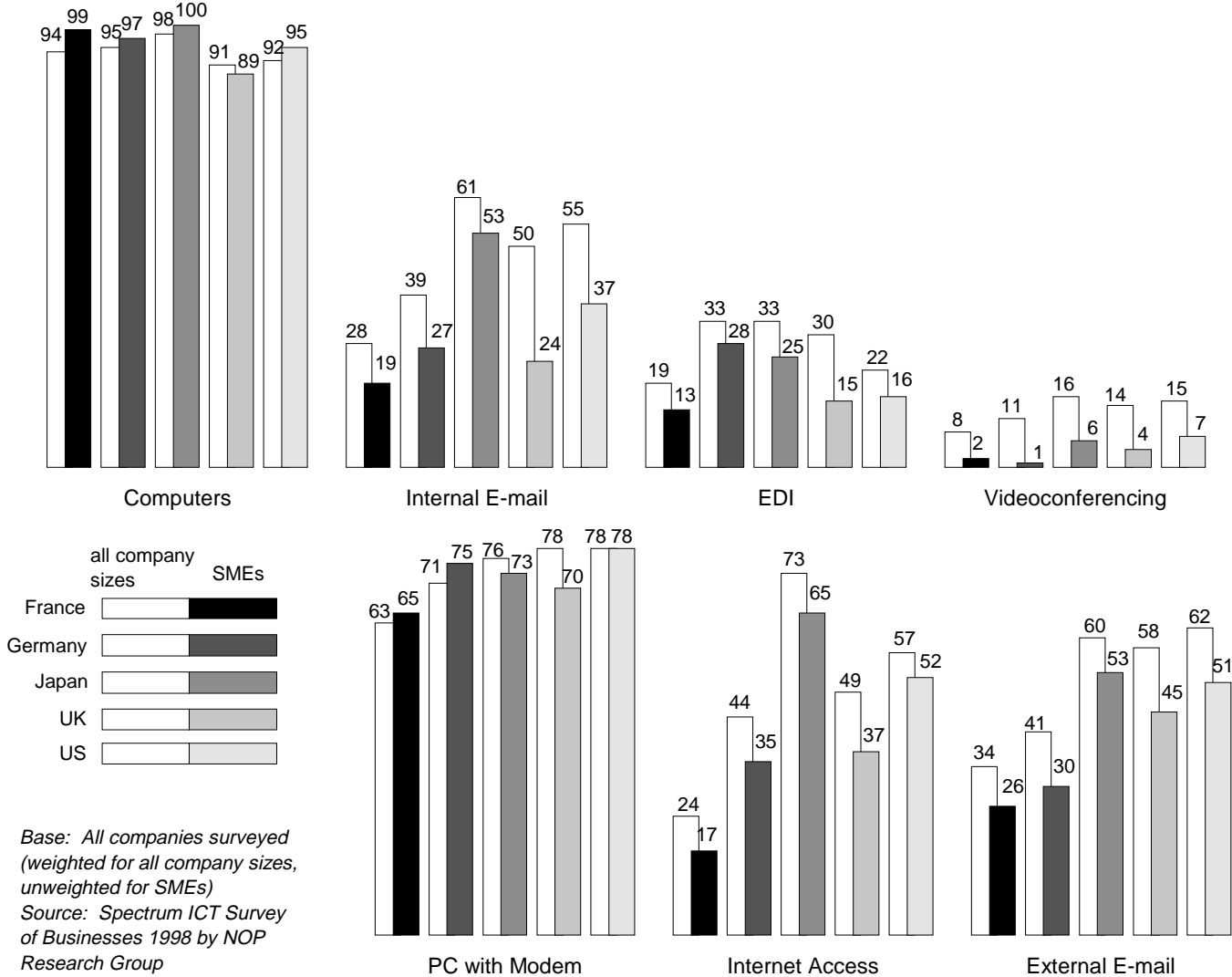
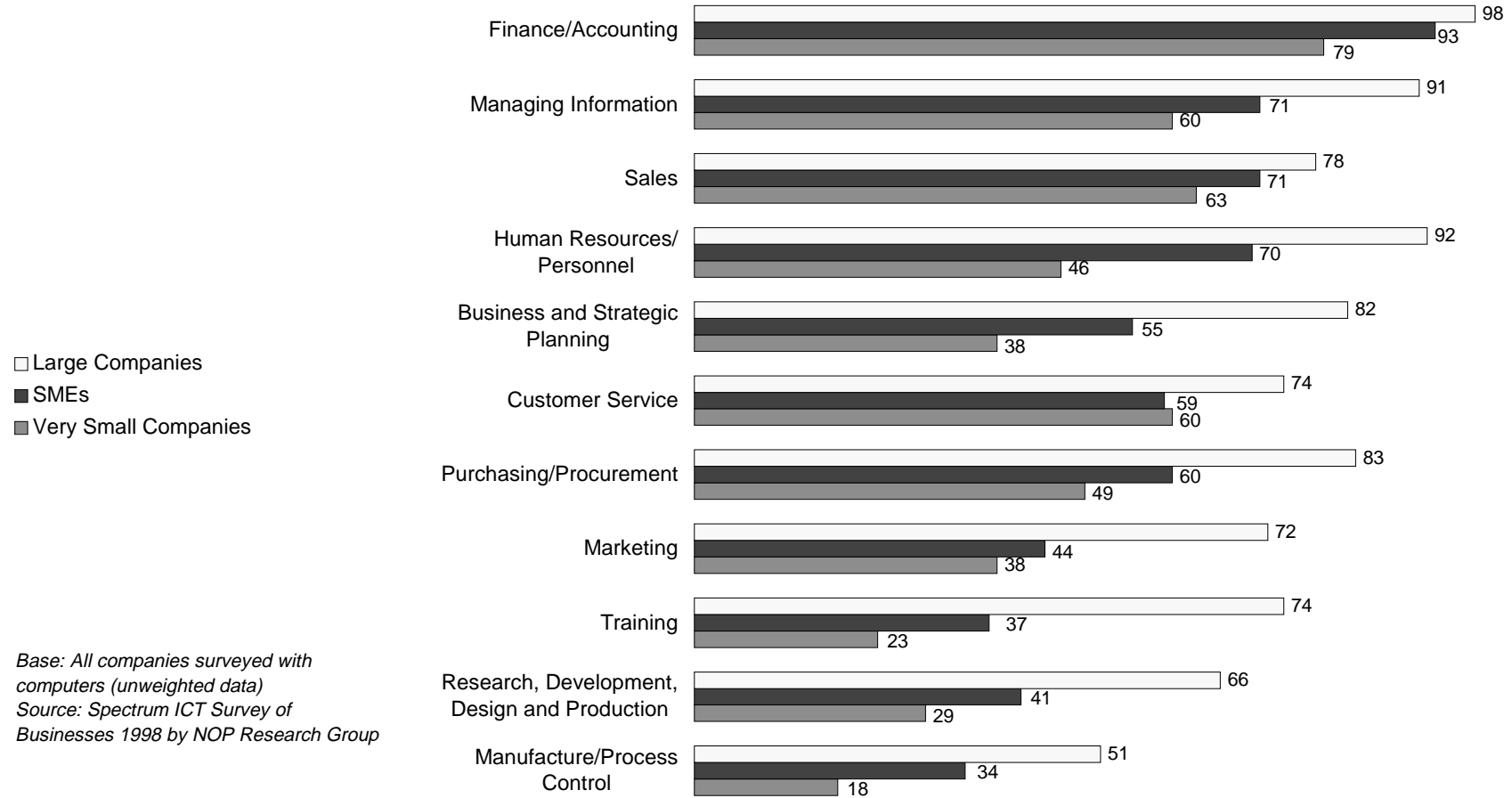
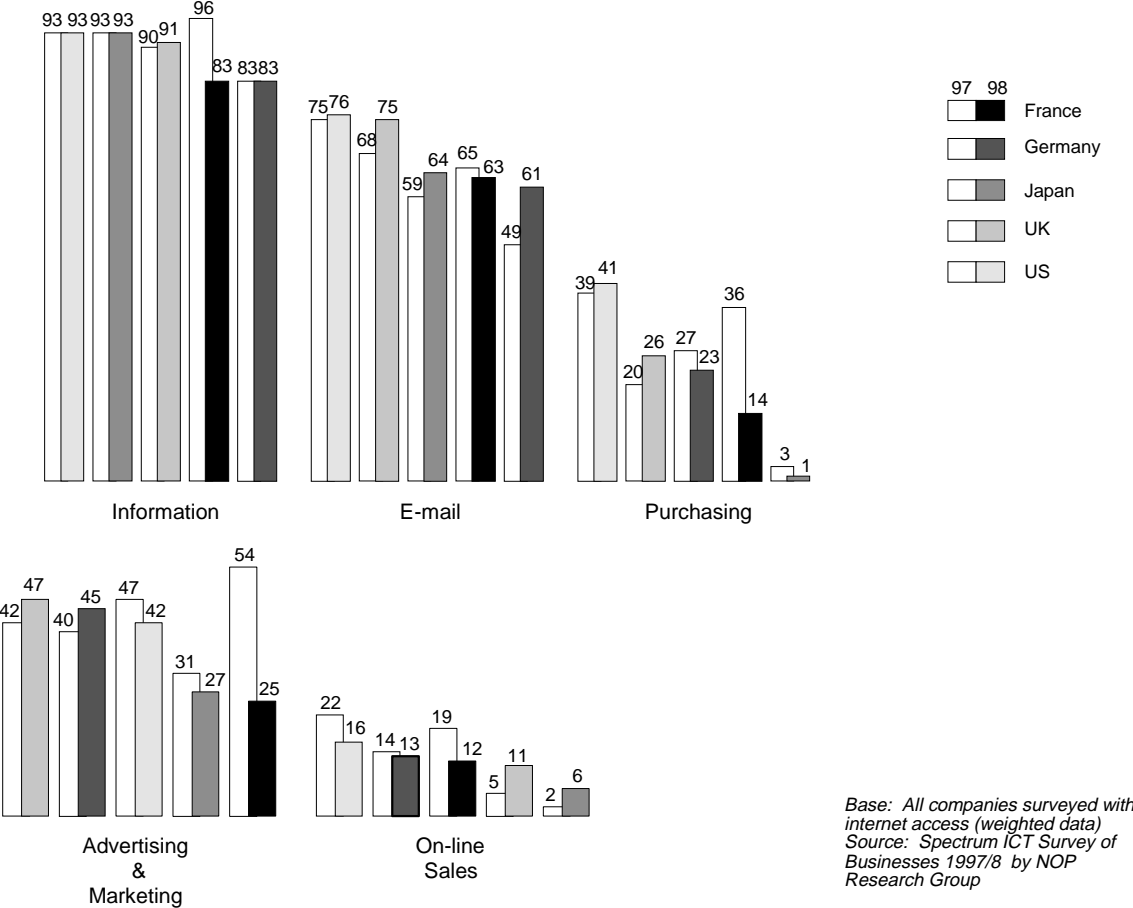


Figure 5. **Functions for which PCs are being used (%) - All Countries**



Base: All companies surveyed with computers (unweighted data)  
 Source: Spectrum ICT Survey of Businesses 1998 by NOP Research Group

Figure 6. Use of the Internet by Businesses (%)



Base: All companies surveyed with internet access (weighted data)  
 Source: Spectrum ICT Survey of Businesses 1997/8 by NOP Research Group

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