

Norwegian enterprises lag behind Nordic neighbours in use of ICT

Geir Martin Pilskog

This article describes the use of Information and Communication technology (ICT) in Nordic enterprises with at least 10 employees in 1999 and 2000. In most areas, Norway seemed less progressive than the other Nordic countries. 1 out of 10 of all enterprises in Denmark, Finland, Norway and Sweden had Internet sales. The volumes of Internet sales were low in all the Nordic countries.

The use of ICT in enterprises is expected to impact profitability, productivity and employment levels. International comparisons are becoming more important as ICT usage is generally considered to be a critical factor contributing to national performance on both micro and macro economic level. Benchmarking ICT performance against other countries is thus seen as a key issue in an Information Society characterised by increasing globalisation.

National statistical offices are experiencing high or growing demands for ICT statistics. As a consequence of these demands, the director generals of the five Nordic statistical institutes in 1999 set down a Nordic group for the development of statistics on the Information Society. Among the first projects of the group was a questionnaire-based survey of enterprises. This article is based on the publication "Use of ICT in Nordic enterprises 2000/2001" which presented main results from these surveys.

Saturation point reached in Denmark, Finland and Sweden

By the end of 2000, 9 out of 10 enterprises with at least 10 employees in Denmark, Finland and Sweden had Internet connections. Norwegian enterprises were the least advanced. 74 per cent of Norwegian enterprises had Internet access. In all four countries the share of enterprises with Internet access increased at approximately the same rate in 2000. In Sweden the industry Construction was excluded from the survey for this year. In the 1999 survey Sweden had included Construction. The exclusion of this industry also from the Danish, Finnish and Norwegian samples did not radically alter the results. Without Construction respectively 92, 91, 89 and 73 per cent of the enter-

prises in Finland, Sweden, Denmark and Norway had Internet access by the end of 2000.

The Internet penetration rate was everywhere dependent on the size of the enterprises. The relative number of Internet accesses was higher in the largest enterprises than among smaller ones in all the countries. By the end of 2000 almost all enterprises with at least 100 persons employed had access to the Internet in Denmark, Finland and Sweden. The Internet penetration rate was not much lower in smaller enterprises. In enterprises with 10-19 persons employed the relative number of Internet accesses was between 80 and 90 per cent. The Internet penetration rate in Norwegian industry was different. In enterprises with less than 20 persons employed Norway had an Internet penetration rate about 15 per cent below enterprises in Denmark, Finland and Sweden. The gap was smaller among larger enterprises. Norwegian enterprises with at least 100 persons employed were less than 10 per cent behind comparable enterprises in the other Nordic countries.

Even though variations in the response rates between the industries create uncertainty, there seems to be some distinctive national differences in the Internet penetration rate of Nordic industry. The difference between Retail trade enterprises in Denmark, Finland and Sweden and Norwegian Retail trade enterprises was striking. Differences in the national industrial structures may have affected the results.

Homepages least common among Norwegian enterprises

By the end of 2000 between 60 and 70 per cent of all enterprises with at least 10 employees in Denmark, Finland and Sweden had established a homepage while about half of the Norwegian enterprises had one. In Norway the share of enterprises with homepages increased slightly more in 2000 than in

Geir Martin Pilskog is Statistical Adviser at the Division for Transport and Tourism Statistics (geir.martin.pilskog@ssb.no)

Figure 1. Share of all enterprises with Internet access. 1999-2000. Per cent

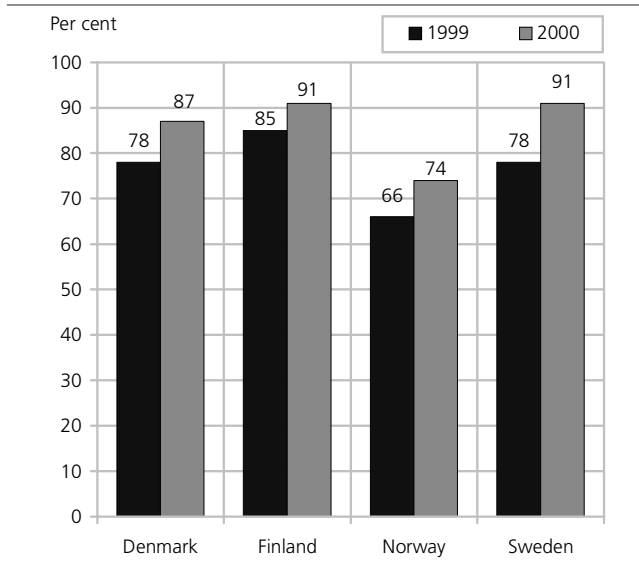


Figure 4. Share of all enterprises with homepage. 1999-2000. Per cent

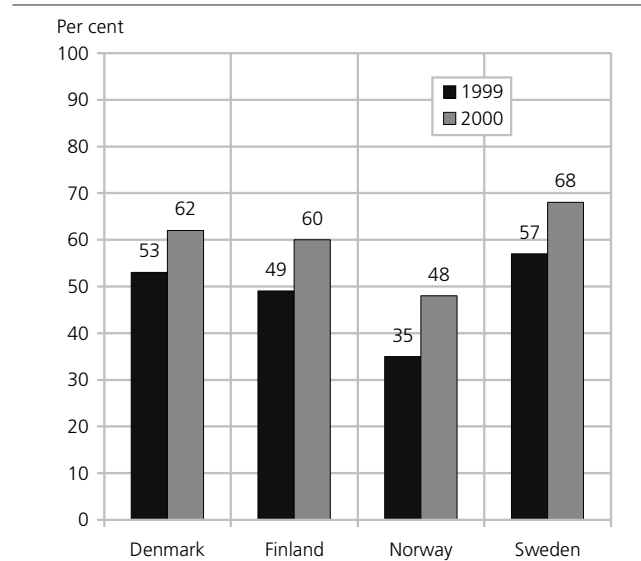


Figure 2. Share of all enterprises with Internet access. Distributed by employment. 2000. Per cent

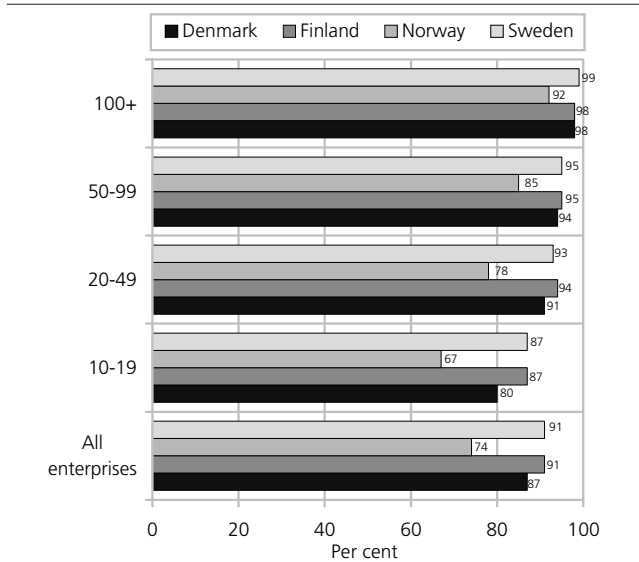


Figure 5. Share of all enterprises with homepages. Distributed by employment. 2000. Per cent

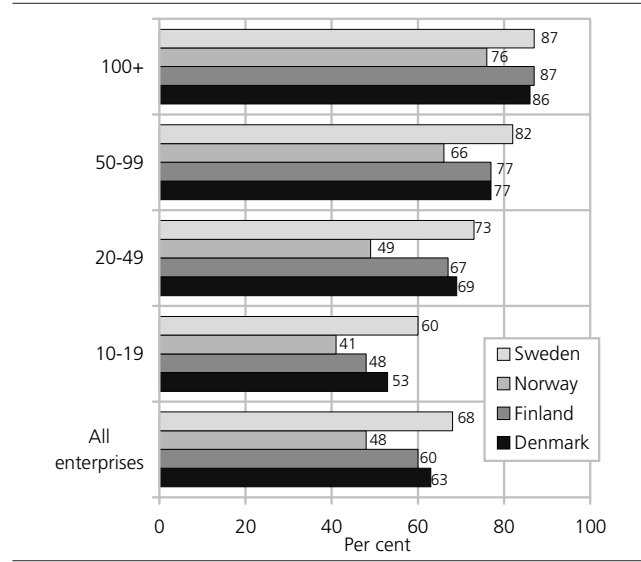
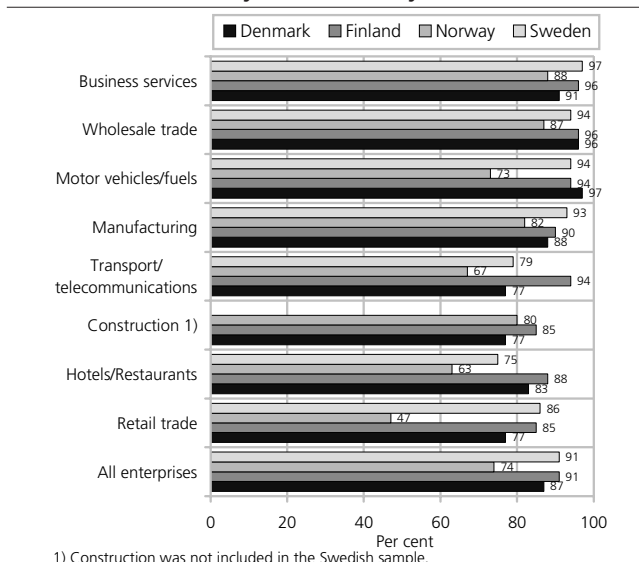
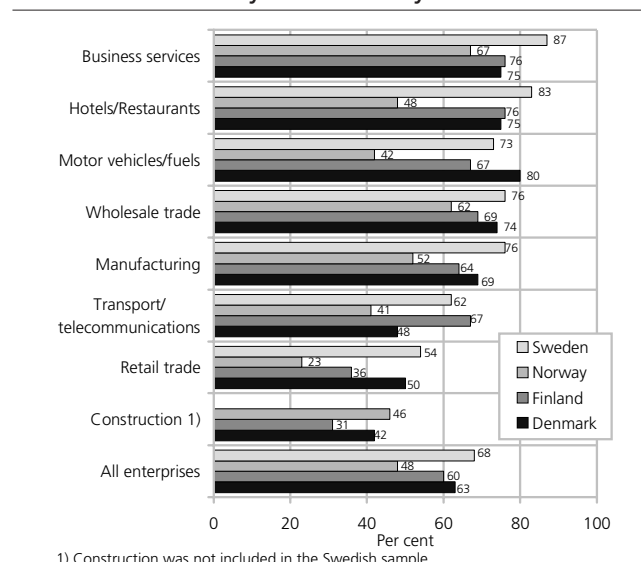


Figure 3. Share of all enterprises with Internet access. Distributed by area of industry. 2000. Per cent



1) Construction was not included in the Swedish sample.

Figure 6. Share of all enterprises with homepages. Distributed by area of industry. 2000. Per cent



1) Construction was not included in the Swedish sample.

the three other countries. As mentioned previously, in Sweden the industry Construction was excluded from the survey in 2000. The exclusion of this industry also from the Danish, Finnish and Norwegian samples changed the results in both Denmark and Finland. Without Construction respectively 68, 67, 64 and 48 per cent of the enterprises in Sweden, Denmark, Finland and Norway had homepages by the end of 2000.

Everywhere large enterprises operated homepages more often than small ones. By the end of 2000 50-60 per cent of Danish, Finnish and Swedish enterprises with 10-19 employees had a homepage against about 40 in Norway. Among enterprises with at least 100 employees there also existed differences. In Sweden, Finland and Denmark almost 90 per cent of all enterprises with at least 100 employees had homepages. In Norway three out of four enterprises in the same size group operated a homepage.

Even if variations in the response rates between the industries create uncertainty, there appears to be clear national differences in the distribution of homepages in Nordic industries. The differences were e.g. large in Retail trade. In Danish and Swedish Retail trade the relative number of enterprises with homepages was more than twice the figure of the Norwegian Retail trade. Differences in the national industrial structures may have influenced results.

Fewer enterprises with Intranets and Extranets in Norway

Intranet is the Internet used internally in an enterprise. Usage of this technology in internal homepages disseminates information among the employees. Between 30 and 40 per cent of all enterprises in Denmark, Finland and Sweden had an Intranet by the end of 2000. About 20 per cent of all Norwegian enterprises had an Intranet. The differences can be explained by variations between the countries in industrial structure and size of enterprises. There were no clear common development features in 2000. While the share of enterprises with Intranets in Sweden increased sharply the share was stable in Denmark, Finland and Norway.

The relative number of enterprises with Intranets was higher in the largest enterprises than among smaller ones. By the end of 2000 more than half of all Nordic enterprises with at least 100 persons employed had Intranets. Not surprisingly, in enterprises with 10-19 persons employed the relative number of Intranets was much lower.

The distribution of Intranets in Nordic industry showed some national differences. There were e.g. clear differences between hotel and restaurant enterprises in Denmark, Finland and Sweden and Norwegian hotel and restaurant enterprises. In Danish enter-

Figure 7. Share of all enterprises with Intranet. 1999-2000. Per cent

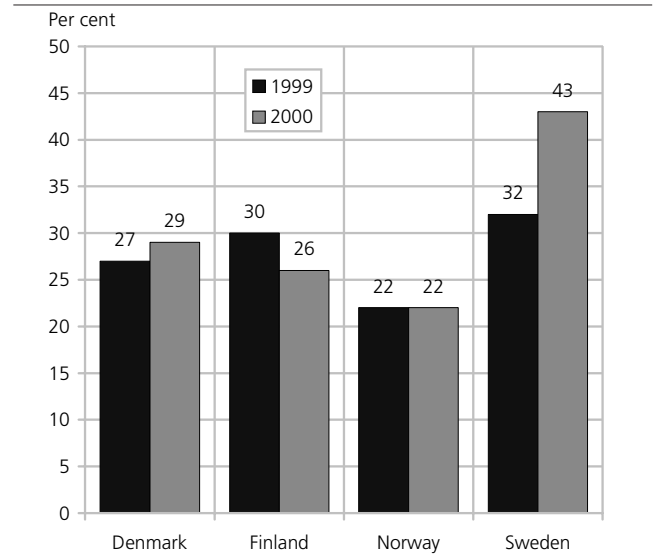


Figure 8. Share of all enterprises with Intranet. Distributed by employment. 2000. Per cent

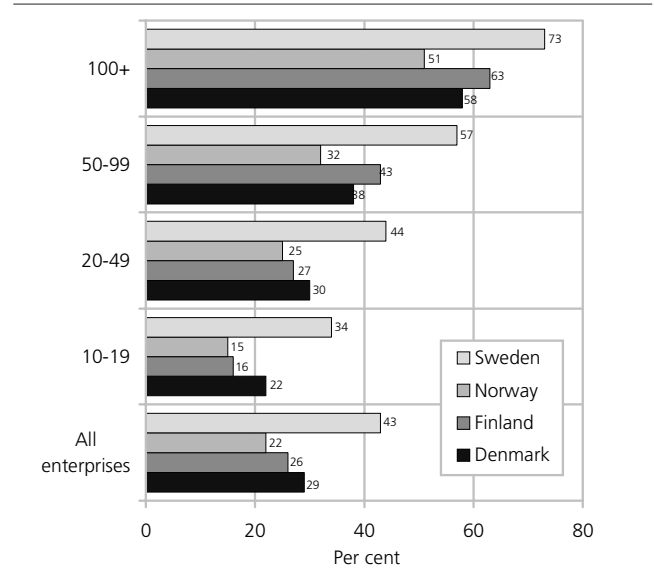
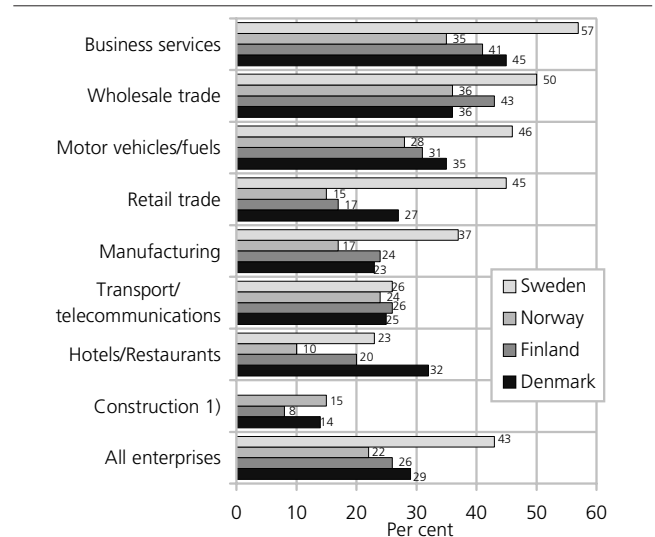


Figure 9 Share of all enterprises with Intranet. Distributed by area of industry. 2000. Per cent



1) Construction was not included in the Swedish sample.

Figure 10. Share of all enterprises with Extranet. 1999-2000. Per cent

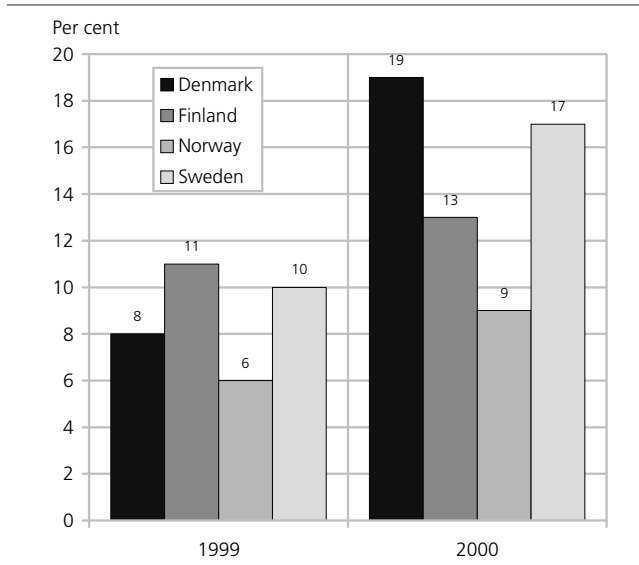


Figure 13. Share of all enterprises with EDI. 1999-2000. Per cent

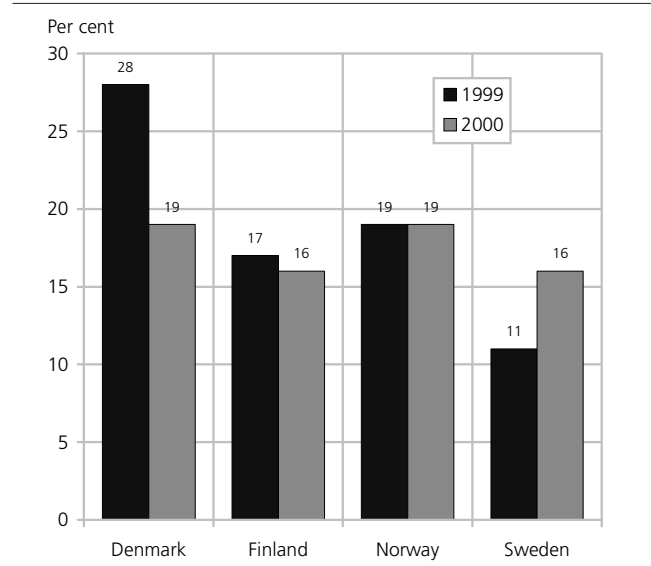


Figure 11. Share of all enterprises with Extranet. Distributed by employment. 2000. Per cent

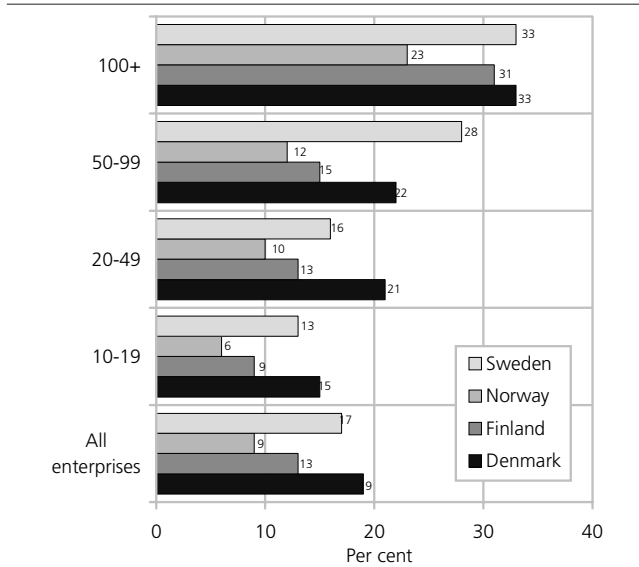


Figure 14. Share of all enterprises with EDI. Distributed by employment. 2000. Per cent

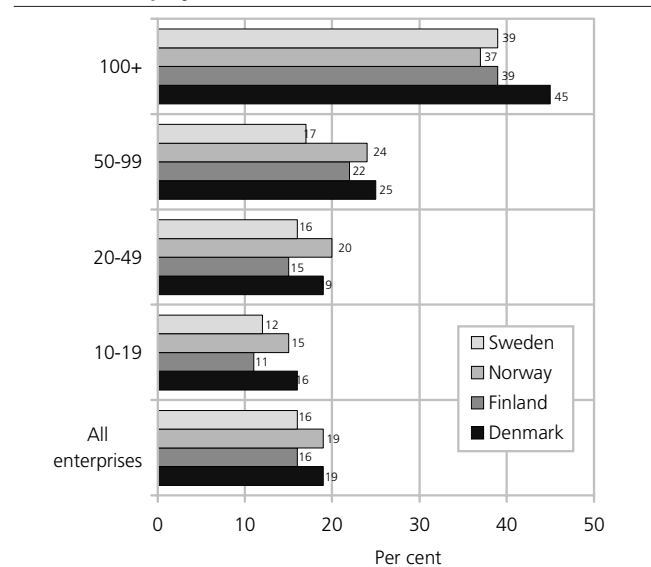


Figure 12. Share of all enterprises with Extranet. Distributed by area of industry. 2000. Per cent

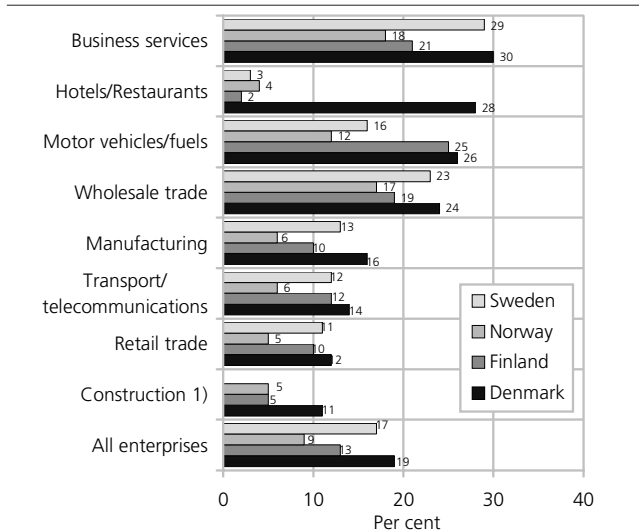
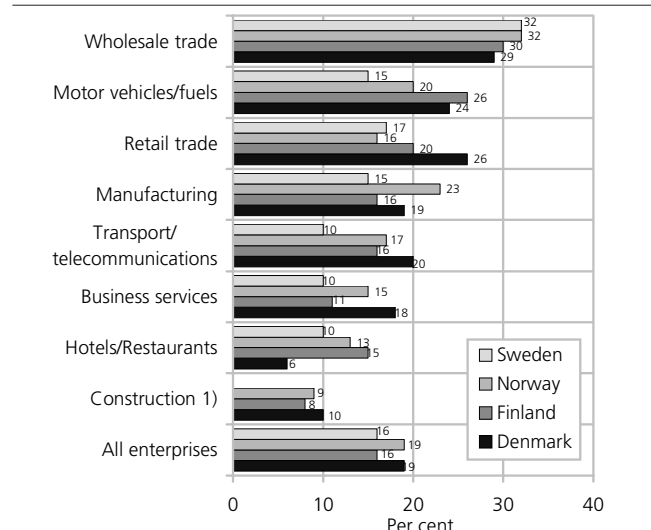


Figure 15. Share of all enterprises with EDI. Distributed by area of industry. 2000. Per cent



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prises in this industry Intranets were three times more common than in Norway. Variations in the response rates between the industries create uncertainty.

Extranets are homepages made available for a limited group outside the enterprise. Customers or suppliers get access to services and products through a password. Extranets were not common among Nordic enterprises. Norwegian enterprises were again the least advanced. By the end of 2000 less than 10 per cent of all Norwegian enterprises had established an Extranet. The corresponding Danish number was almost 20 per cent. In Denmark the share of enterprises with Extranets increased more in 2000 than in the three other countries.

Extranets were more common among the largest enterprises than among smaller ones everywhere. By the end of 2000 about one third of all Danish, Finnish and Swedish enterprises with at least 100 employees had extranets against two out of ten Norwegian.

Even if variations between the industries response rates create uncertainty, there seems to be clear national differences in the distribution of Extranets in Nordic industries. The difference between hotel and restaurant enterprises in Denmark and the Finnish, Swedish and Norwegian hotel and restaurant is extreme.

EDI most often used by large enterprises

EDI (Electronic Data Interchange) is electronic transmission of data in a structured form between an enterprises own computer system and a remote computer system based on a defined standard. In 1999 and 2000 only the use of EDI based on the EDI-FACT standard was surveyed. By the end of 2000 almost two out of 10 Nordic enterprises used EDI. It is difficult to find any clear development features in 2000.

The use of EDI was least common in smaller enterprises with 10-19 employees and most common in the biggest enterprises with 100 or more employees. Among the largest enterprises about 40 per cent used EDI in Denmark, Finland, Norway and Sweden. EDI is an investment intensive technology and the advantages are expected to rise with the number of EDI documents exchanged.

EDI was most commonly used within Wholesale. In Nordic enterprises about one out of three enterprises in Wholesale used EDI. An industry with large differences between the four countries was Hotels and restaurants.

Internet sales not common

Sale via Internet was limited to orders received via homepages. Enterprises with at least one per cent of total turnover from orders received via homepages

have Internet sales. By the end of 2000 Internet sales were not common among Nordic enterprises. Internet sales were least common among Norwegian enterprises.

The share of enterprises with Internet sales is dependent on the size of enterprises. The relative number of enterprises with Internet sales was higher among large enterprises than among small ones everywhere. By the end of 2000 between 10 and 20 per cent of all enterprises with at least 100 persons employed had Internet sales in Denmark, Finland, Norway and Sweden. Among enterprises with 10-19 persons employed the relative number of enterprises with Internet sales was lower. In this size group between 5 and 10 per cent of the enterprise in the four countries had Internet sales.

A look at Internet sales in Nordic industries showed some distinctive national differences. Almost 40 per cent of the Hotel and restaurant enterprises in Denmark and Finland had Internet sales against only 20 per cent in Norway and Sweden. In Danish Retail trade the relative number of enterprises with Internet sales was three times higher than among the corresponding Norwegian enterprises.

Internet sales made up a small share of total turnover

Internet sales made up a considerable share of total turnover in few enterprises. Respectively 5, 3, 2 and 2 per cent of the enterprises in Sweden, Denmark, Finland and Norway received 10 per cent or more of total turnover from Internet sales by the end of 2000. The total Internet sales of Nordic enterprises were almost 12 billion Euros. About two thirds of the volumes were created by Swedish enterprises. The volumes of Swedish, Finnish, Danish and Norwegian Internet sales were in billion Euros respectively 7,5, 1,8, 1,6 and 0,8.

Norwegian enterprises generally less progressive

By the end of 2000 Norwegian enterprises were generally less advanced than their Nordic neighbours in implementing and utilizing ICT. Since comparable data currently is available only from 1999 and 2000, the survey results give little information about development features. It seems highly likely that most Nordic dissimilarities in some time will be levelled out. However, there is so far little actual evidence of Norwegian enterprises catching up with enterprises in Denmark, Finland and Sweden.

The production of official Nordic statistics in this field includes only data about the enterprise's access and usage of ICT. A more important matter still not examined in this context is the possible effect of ICT access and usage on the performance of the enterprises. Hopefully, the data already collected and future

Figure 16. Share of all enterprises with Internet sales. Internet sales mean that at least 1 per cent of total turnover is received via homepage. 2000. Per cent

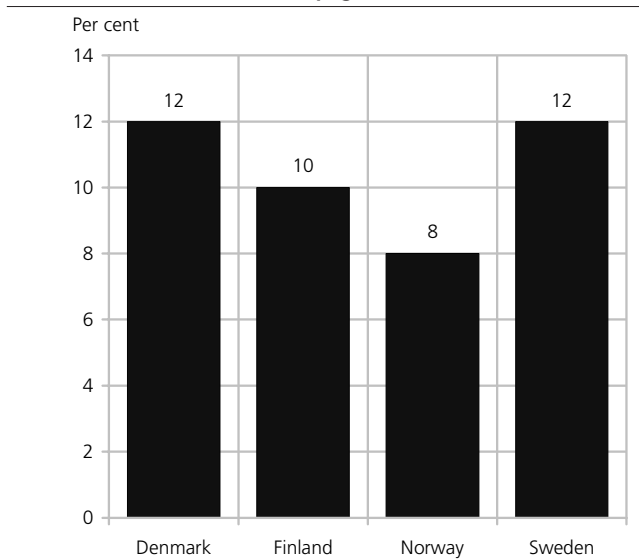
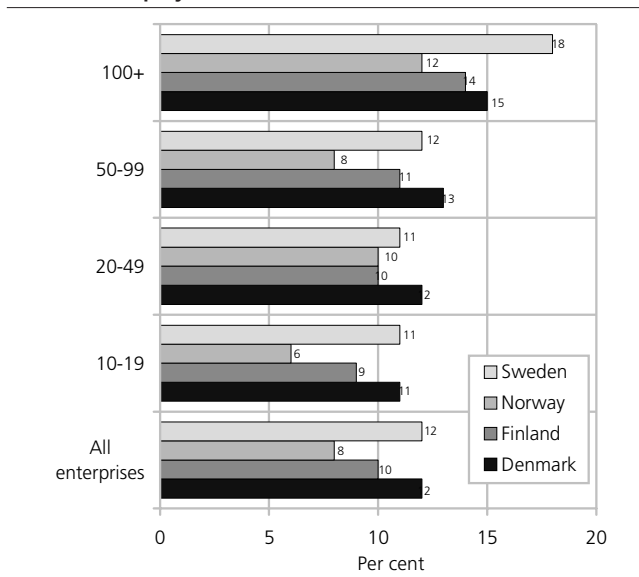


Figure 17. Share of all enterprises with Internet sales. Internet sales mean that at least 1 per cent of total turnover is received via homepage. Distributed by employment. 2000. Per cent



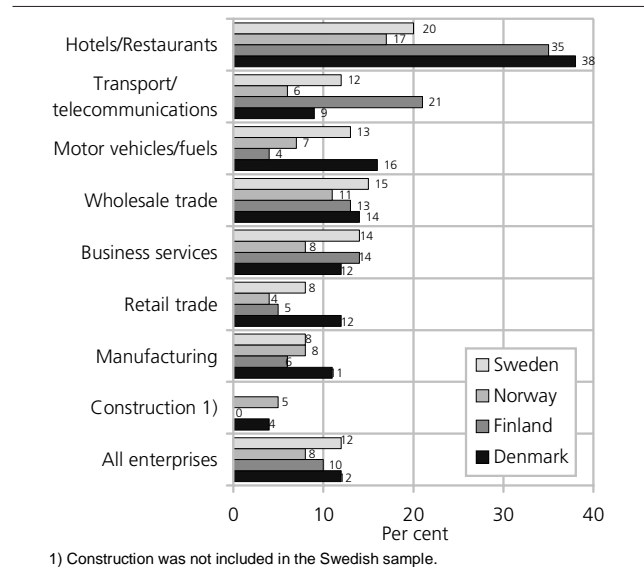
surveys of ICT usage will be useful tools to analyse the impact of ICT. Does really lacking Norwegian usage of ICT have any significance?

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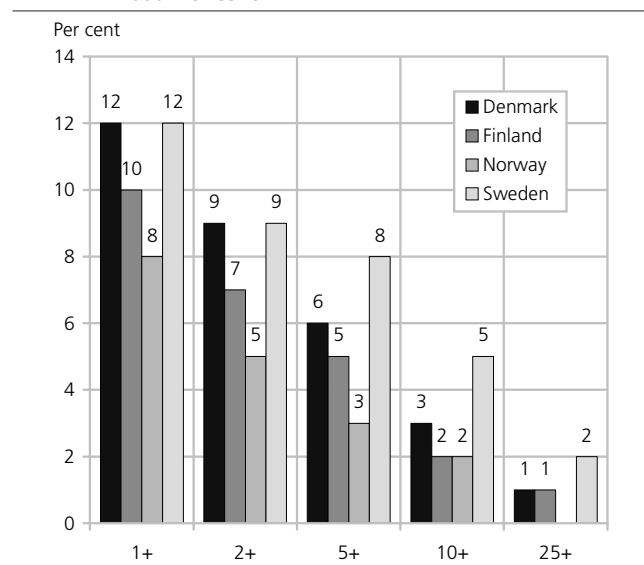
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Figure 18. Share of all enterprises with Internet sales. Internet sales mean that at least 1 per cent of total turnover is received via homepage. Distributed by industry. 2000. Per cent



1) Construction was not included in the Swedish sample.

Figure 19. Share of total turnover from Internet sales among all enterprises. Internet sales mean that at least 1 per cent of total turnover is received via homepage. 2000. Per cent



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