The European **e-Business Market Watch**

Sector Report: *No. 09-I, May 2004*

Electronic Business in the ***Business Services Sector***

The quantitative picture:
Diffusion of ICT and e-business in 2003/04

e-business w@tch

European Commission

Enterprise publications

The *e-Business W@tch*

The European Commission, Enterprise Directorate General, launched the *e-Business W@tch* to monitor the growing maturity of electronic business across different sectors of the economy in the enlarged European Union and in EEA (European Economic Area) countries. Since January 2002 the *e-Business W@tch* has analysed e-business developments and impacts in 17 manufacturing, financial and service sectors. Results are continuously being published on the internet and can be accessed or ordered via the Europa server or directly at the *e Business W@tch* website (www.europa.eu.int/comm/enterprise/ict/policy/watch/index.htm or www.ebusiness-watch.org).

This document is the first Sector Impact Study on the Business Services Sector published in the 2003/04 period. It presents the results of the e-Business Survey 2003 (for more information about the survey, see annex on methodology). The second study on this sector (to be published in August 2004) will analyse in more depth specific issues which are most relevant for this sector, feature case studies and draw conclusions on business implications of the empirical findings presented in this report.

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Introduction to the *e-Business W@tch*

The *e-Business W@tch* – observatory and intermediary since late 2001

The *e-Business W@tch* monitors the adoption, development and impact of electronic business practices in different sectors of the European economy. The eEurope 2002 Action plan provided the basis for targeted actions to stimulate the use of the internet for accelerating e-commerce, acknowledging that "electronic commerce is already developing dynamically in inter-business trading […]" and that "it is important for SMEs not to be left behind in this process […]." The eEurope 2005 Action Plan, endorsed by the Seville European Council in June 2002, confirmed and built further upon these objectives with Action 3.1.2. "A dynamic e-business environment", which defined the goal "to promote take-up of e-business with the aim of increasing the competitiveness of European enterprises and raising productivity and growth through investment in information and communication technologies, human resources (notably e-skills) and new business models".

It is against this background that the European Commission, Enterprise Directorate General, launched the *e-Business W@tch* in late 2001, with the objective to provide sectoral analysis based on sound empirical research, including annual enterprise surveys in all countries of the enlarged European Union. Special emphasis is placed on the implications for SMEs.

Since its launching, the *e-Business W@tch* has published e-Business Sector Studies on 17 sectors of the European economy, two comprehensive synthesis reports about the status of electronic business in the European Union, statistical pocketbooks and further resources (newsletters, presentations, special issue reports). These are all available on the website at www.ebusiness-watch.org.

The quantitative analysis about the diffusion of ICT and e-business is based to a large extent on annual, representative surveys among decision makers of European enterprises. The 2002 survey included 9,264 enterprises from the 15 EU Member States. In 2003, the regional scope of the survey was extended to the EEA and Acceding Countries, with about 10,500 companies in total.

Survey results confirm the initial assumption and rationale of the *e-Business W@tch* that the sector in which a firm operates and the size of a company are main determinants of its e-business activity, rather than the location of a company. The large demand for the various publications and statistics provided by the *e-Business W@tch*, and their exploitation by other research institutions (for example, in the EITO Yearbook 2003 and in the OECD Information Technology Outlook 2004), documents that there has clearly been a demand for sectoral e-business analysis.

Facilitated by positive responses and the growing interest in its analysis, the *e-Business W@tch* is increasingly developing from an observatory into a think-tank and intermediary, stimulating the debate about the economic and policy implications of e-business among stakeholders at an international level.

The wide-angle perspective: the *e-Business W@tch* provides the "big picture" as a basis for further research

The mission of the *e-Business W@tch* is to present a "wide-angle" perspective on e-business developments and practices in the sectors covered. This has important implications regarding the level of detail in which various issues can be explored, both in terms of the quantitative picture (survey) and in terms of the qualitative assessment and background research.

Over the past 10 years, "electronic business" has increased from a very specific to a very broad topic to be studied. The OECD defines e-business in 2004 concisely as "automated business processes (both intra-and inter-firm) over computer mediated networks". This definition is useful as it makes clear that e-business is more than e-commerce (which focuses on commercial transactions between companies and their customers, be it consumers or other companies) and that e-business includes

internal processes within the company as well as processes between companies. Furthermore, the OECD definition implicitly indicates that the focus and main objective of electronic business is to be found in business process automation and integration and the impacts thereof.

This implies that the potential scope for e-business analyses has also broadened. The measurement of e-commerce transactions (the volume of goods and services traded online) can and should be complemented by studies analysing the degree to which business processes, including intra-firm processes, are electronically linked to each other and have become digitally integrated.

In such a context, it becomes practically impossible to cover in depth all areas and facets of e-business in one study. The scope of such a study needs to be carefully defined and – as in photography – it must decided whether to "zoom in" or to use a "wide-angle" perspective. 'Zoom-in' studies investigate one specific aspect of electronic business in much detail. 'Wide-angle' studies adopt a broader perspective and investigate more issues at the same time, which necessarily puts limits to the level of detail in which each single issue can be explored. This must be considered when using this series of Sector Studies prepared by the *e-Business W@tch*. The second series of these Sector Studies (to be published in August 2004) will investigate and analyse specific issues in more detail also taking into account feedback from a number of case studies.

The role of economic analysis in the Sector Reports

The first chapter of each *e-Business W@tch* Sector Study provides background information on the respective sector. This overview includes the definition of the sector (on the basis of NACE Rev. 1 classification), some basic industry statistics, as well as information about the latest trends and challenges concerning the specific sector.

It appears that this practice, combined with the growing interest in the *e-Business W@tch* analysis, has caused some confusion: Some readers mistakenly consider that an *e-Business W@tch* "sector report" is a piece of economic research on the sector itself, and not a report focussing on the use of e-business in that particular sector. It is, therefore, necessary to underline that, while some background information is provided in order to better understand the context and the economic impact of e-business, the *e-Business W@tch* reports are neither intended nor could substitute more detailed and specific industrial analysis and statistics on each particular industry.

The same applies to the industry statistics presented in this first, introductory chapter of the *e-Business W@tch* reports. These data are mainly derived from official statistics prepared by Eurostat. However, in order to close the many gaps in the official statistics, DIW Berlin imputed missing data based on extrapolations and their own calculations. The *e-Business W@tch* cannot go beyond the presentation of this consistent set of statistics in the context of its principal assignment.

The mission of the *e-Business W@tch* is to monitor, analyse and compare the development of e-business in different sectors of the European economy – not the sectors themselves. Its objective is to provide reliable results, based on commonly accepted methodologies, which are not readily available from other sources and would trigger the interest of policy-makers, researchers, and other e-business stakeholders for more in depth analyses (or statistical surveys). The *e-Business W@tch* has adopted a 'wide-angle' perspective in its approach and the necessary trade-offs are transparently depicted in all its deliverables.

The definition of sectors and the adequate level of aggregation

Economic sectors constitute the main level of analysis for the *e-Business W@tch*. In 2003/04, the sample consists of ten sectors. Their configuration and definition are based on the NACE Rev. 1 classification of business activities. The aggregation of various NACE divisions and groups into a "sector" was guided by the aim to produce results which are relevant for the dynamics of the economy as a whole as well as with the intention of covering the most important features of e-business provision and adoption in Europe. The configuration of sectors partly followed aggregations that are also used in the "Panorama of European Businesses" published by Eurostat.

In the context of its 'wide-angle' perspective, the *e-Business W@tch* analysis is covering a large part of the European economy rather than focusing on very specific (sub-)sectors. Therefore, the statistics presented in these reports need to be carefully treated when making comparisons between countries and, occasionally, companies' size-classes. Against the previously described background, some generalisation and approximation has to be accepted, while the definition of sectors could be revisited during the implementation of the *e-Business W@tch*.

The 10 sectors analysed in 2003/04

The 10 sectors which are being monitored and studied in 2003/04 include eight sectors that were already covered in 2002/03 (thus allowing the continuous monitoring of changes and progress), as well as two new ones (namely the textile, clothing and footwear industries and the craft and trade sector). The regional coverage has been extended to the EEA (European Economic Area) and the Acceding Countries.

Exhibit: Sectors covered by the e-Business W@tch in 2003/04

Textile, clothing and footwear industries	The textile and footwear industries account for about 5% of total value added in manufacturing in the EU-15 and about 9% of employment. SMEs and co-operative SME networks are playing a vital role.
The chemical industries	ICT and the Internet in particular have fuelled the globalisation of markets for chemical products. E-business may have considerable future impact on this sector which accounts for ~15% of the production value of EU manufacturing.
The electrical machinery and electronics industries	The electronics industry is very suitable for e-business because of the high degree of standardisation of products, globalisation of production, and specialisation of firms along the value chain. Its dynamic development calls for continuous monitoring.
The manufacture of transport equipment	The transport equipment industries are precursors for economic development in Europe. Large companies are forerunners in using e-business, with considerable implications for all stakeholders in the value chain.
Craft & trade	The craft sector, which includes firms with less than 50 employees from a number of business activities, is vast, in terms of number of enterprises, employment and value added. E-business may become crucial in order for many craft firms to stay competitive with industrial production.
Retail	The retail sector represents a cornerstone of economic activity within Europe, with around 3 million retail enterprises currently in the EU, employing nearly 14 million people. As there is still untapped potential, ICT may eventually have major implications for the retail value chain.
Tourism	Tourism employs about 8 million people and is one of the fastest growing sectors in the European economy. SMEs play a very important role: 99% of firms employ fewer than 250 individuals. In some respects, the tourism sector has always been a forerunner in using ICT. E-commerce is exerting a huge impact on the sector, challenging intermediaries.
ICT services	The ICT services sector in many respects is the leading sector, and thus acts as a kind of benchmark with respect to e-business application. E-business can change the nature of ICT services, which has important implications for other sectors which use them.
Business services	Business services are a huge sector, involving more than two million enterprises – 99% of which are SMEs – and employing close to 13 million people. ICT and e-business have significant implications for those areas of the business services sector that are based on information and knowledge.
Health and social work	As national health systems suffer from increasing costs and political pressures to constrain these, it is hoped that strategies for the development of an e-health and e-business infrastructure will become key drivers of change.

Rationale for the selection of sectors to be monitored in 2003/04

The selection of the ten sectors to be monitored in 2003/04 was guided by the aim of producing results relevant to tracking the dynamics of the economy as a whole as well as with the intention of covering the most important features of e-business provision and adoption in Europe. There are, however, additional factors that have been taken into consideration for the selection process. An important aspect to be considered is that any sector which is not going to be covered during the 2003/04 period is a candidate for analysis in 2004 onwards, provided that the *e-Business W@tch* contract will be renewed.

Primary selection criteria

(a) The economic importance of the sectors for the EU economy: For the representation of e-business impacts in the economy as a whole, "large" sectors play a major role, since changes in their production models, their purchasing and marketing behaviour as well as their productivity and dynamics of growth have a very major effect on the performance of the entire economy. The assessment of the economic importance was mainly based on two standard economic indicators: the sector's share of employment and the amount of value-added by the sector.

(b) The relative importance of electronic business within the sector: As the *e-Business W@tch* has demonstrated in the first phase (2002/03), the intensity and nature of ICT and e-business usage differs considerably between sectors. Some sectors, although still small in absolute terms, are growing rapidly and/or illustrate the role which ICT and electronic business may play in other sectors in the future. The statistical proxy for the relative importance of e-business in a sector is the Pilot Index which was computed for 15 sectors (cf. European E-Business Report 2003), based on the eEurope 2005 E-Business Index.

Secondary selection criteria

In addition to these two fundamental criteria, some other selection criteria were applied in cases where the economic and e-business relevance appeared to be equal or similar. These criteria were:

- Balance of business activities: There should be a balanced mix of manufacturing and service sectors. Sectors could include a public service sector for comparison.
- The SME dimension continues to be very important. Sectors with a higher share of SMEs could therefore given priority over sectors where large companies dominate.
- Policy relevance: The selection needs to consider the policy relevance from the perspective of DG ENTR, that is for which sectors the DG has responsibility.
- Roll-out strategy: Some new sectors (not covered in 2002/03) should be included in order to broaden the monitoring scope of the *e-Business W@tch*. Among sectors with a comparable economic size, new sectors (not yet covered) may be given priority.

In order to come to an initial ranking of economic importance, the *e-Business W@tch* has computed a simple Index using two component indicators: the number of persons employed, and value added. The Index reflects the contribution of the sector to the total of all sectors compared.

The next step in the selection process was an attempt to make a joint consideration of the sector's contribution to employment and value added together with the relative importance of ICT and e-business in the sector. For this purpose, the *e-Business W@tch* has computed an Index that combines the two components. In such a ranking, Business Services comes out on top, followed by Health, Retail, the Financial Services sector and ICT Services.

Based on this statistical evidence and the considerations presented above, the *e-Business W@tch* proposed a role-out plan and a configuration of 10 sectors for the period 2003/04 that provide good coverage of relevant business activities, issues and countries, as well as being manageable in the organisation designed for the *e-Business W@tch* and the resources available.

Business Services: The use of ICT and e-business in 2003/04 [1]

1 Economic profile

1.1 Definition

Services enterprises attributed to "business services" (NACE Rev. 1 74)[2] cover a wide range of activities, which are closely related to the activities in various other sectors:

Exhibit 1-1: Configuration of business services in terms of NACE Rev. 1

NACE Rev. 1 Division	Group	Activity
74		Business Services
	74.1	Legal, accounting, bookkeeping and auditing activities; tax consultancy; market research and public opinion polling; business and management consultancy; holdings
	74.2	Architectural and engineering activities and related technical consultancy
	74.3	Technical testing and analysis
	74.4	Advertising
	74.5	Labour recruitment and provision of personnel
	74.6	Investigation and security activities
	74.7	Industrial cleaning
	74.8	Miscellaneous business activities not else classified (for example: photographic activities, packaging activities, secretarial and translation activities)

NACE 74.1 includes legal activities like legal advice, notary activities or management of trusts (NACE 74.11); accounting, book-keeping and auditing activities as well as tax consultancies (NACE 74.12); market research and opinion polling (NACE 74.13); business and management consulting activities (NACE 74.14); and the management of holding companies (NACE 74.15). This sub-sector has close ties with ICT services, e.g. with outsourced accounting-related data processing activities, or with hardware and software consulting. The distinction between management and ICT consulting is in particular increasingly difficult as ICT is of rising strategic importance for companies and decisions about ICT equipment are turning into strategic business decisions. The sub-sectors NACE 74.11, 74.12 and 74.14 are often addressed as "professional services".

NACE 74.2 combines activities in architecture, landscape design, and engineering. While the first two have close ties with the construction sector, companies in the engineering sub-sector work closely together with the manufacturing industry, especially the manufacturing of investment goods. Closely related to NACE 74.2 is **NACE 74.3** (technical testing and analysis), which contains, for example, pollution measurement as well as certification of ships or motor vehicles. Both categories combined are often labelled as "technical services".

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[1] This report was prepared before 1st May 2004. Hence, if not stated otherwise, the term "EU-15" refers to the 15 Member States until 30th April 2004, while the term "Acceding Countries" is used for the 10 new Member States which joined the European Union on 1st May 2004.

[2] Strictly spoken, these are "other business services", as many definitions of business services also include activities covered in other *e-Business W@tch* reports. For example, the definition for business services often chosen by the EU also includes IT services (NACE 72.1-6) as well as renting and leasing activities (in NACE 71.1-71.3). Cf. European Commission (1998): The contribution of business services to industrial performance: a common policy framework, COM (1998) 534 final.

NACE 74.4 (advertising) includes the design of advertising campaigns, the provision of spaces for advertising as well as media representation. This sub-sector shows close ties to market research (NACE 74.13), public relations (part of NACE 74.14) and direct mailing (part of NACE 74.83). These four are sometimes combined under “the marketing and communications sector”. NACE 74.13 and 74.4 are commonly addressed as “marketing services”.

Some parts of **NACE 74.5** (labour recruitment and provision of personnel) are close to management consulting (e.g. executive search activities). Other parts, such as temporary employment agencies, are specific services in their own right.

NACE 74.6 (investigation and security activities) and **NACE 74.7** (industrial cleaning) are often referred to as “operational services”. NACE 74.6 contains investigative services, which are mainly provided on a project basis, while security and related activities (e.g., surveillance or guard activities, store detectives) are typically provided on a continuous basis. Also provided on a continuous basis are services in the industrial cleaning sector (NACE 74.7).

Finally, **NACE 74.8** (business activities not elsewhere classified) contains a variety of very different activities. Photography services (NACE 74.81) are in part related to advertising but also subsume household-oriented photography (e.g. for weddings and passports) as well as coin-operated photographic machines. Packaging activities (NACE 74.82) contain all sorts of packaging, labelling and stamping. They are closely related to direct mailing activities, which are part of secretarial and translation activities (NACE 74.83). Finally, other business activities not elsewhere classified contain credit reporting and collection agencies, special design services and the activities of exhibition, fair and conference organisers.

1.2 Economic profile

This section gives an overview of the size and structure of the business services sector, using key economic indicators from the New Cronos database of Eurostat. New Cronos is structured in nine parts ("themes"). Most of the data used in this chapter is derived from theme 4 "Industry, trade, and services", and here from the collection sbs (structural business statistics). The chapter updates the respective section in the previous Sector Impact Studies on e-business in the business services sector by the *e-Business W@tch* from 2002/03.

Statistics presented in this chapter were prepared by DIW Berlin, which obtained the most recent data available from Eurostat in November 2003. Gaps in the official statistics resulting from missing data for individual countries or the respective year in the time-series of a country were imputed based on economic calculations and estimates by DIW. The most recent official statistics for industry-wide macro-economic indicators date back to 2001 at best. For the Acceding Countries, the most recent national accounts usually date back to 2000.

1.2.1 Industry structure

Key figures by sub-sectors

Exhibit 1-2 shows economic key figures summarized for the different activities that attribute to business services according to NACE 74. The total production value of the business services sector in the EU-14 (EU-15 without Greece) reached over 922bn Euro in 2001. More than half of the total production was generated in knowledge-intensive sub-sectors (NACE 74.1, 74.2 and 74.3), characterised by high intensity of value creation. Almost 40% of the sector production was created only by the legal, accounting and management consultancy companies (NACE 74.1).

However, the proportion of a certain sub-sector contributing to the total production value does not automatically reflect its importance for other economic parameters such as employment. Companies that are active in industrial cleaning (NACE 74.6), for example, generate only about 5% of the total production value, but employ almost 18% of the sector workforce. The different characteristics of

certain sub-sectors should be borne in mind as a possible explanation for differences when considering the industrial structure by size class or region.

Exhibit 1-2: Business services in EU-14* by type of activity (2001)

NACE REV. 1		Enterprises	Production value	Value added at factor cost	Persons employed
		(Number)	(Mill. Euro)	(Mill. Euro)	(Number)
74.1	Legal, accounting, bookkeeping and auditing activities; tax consultancy; market research and public opinion polling; business and management consultancy; holdings	939,304	356,605	213,764	3,546,825
74.2 74.3	Architectural and engineering activities and related technical consultancy; technical testing and analysis	589,992	176,683	96,379	1,928,138
74.3	Advertising	132,072	103,817	32,279	697,347
74.4	Labour recruitment and provision of personnel	31,364	88,740	63,977	2,613,291
74.5	Investigation and security activities	21,615	16,481	12,977	661,499
74.6	Industrial cleaning	106,952	49,451	35,818	2,394,608
74.7	Miscellaneous business activities n.e.c.	426,962	130,706	58,479	1,477,569
74	**Other business activities**	**2,248,261**	**922,484**	**513,671**	**13,319,278**

*EU-14 = EU-15 without Greece.

Source: Eurostat New Cronos 2003, calculations and estimates by DIW Berlin (2003)

Key figures by size classes

Exhibit 1-3 shows the size class distribution based on number of enterprises, value added at factor cost, and persons employed for the combined NACE 74 industries of both, the EU-15 and of an assortment of the Acceding Countries for which data could be collected.

In general, the business services sector is characterised by a strong dominance of small enterprises. Almost 94% of the enterprises employed less than 10 persons and about 99% less than 50 persons in 2000. The domination of small firms results from the specific characteristics of many services included in the NACE 74 categories. In 2000, small companies with less than 50 employees in the EU-15 generated more than half of the value added at factor cost and employed about 45 % of the sector workforce. Though accounting only for less than one percent of the total number of enterprises, the large companies (more than 250 employees) employed over 38% of the total sector work force, but generated only 30% of the added value in the EU-15.

This can be partly explained by the heterogeneity of the classification unit. Whereas small firms dominate in the knowledge-intensive and professionals-oriented services, large companies play a more important role in operational services such as security activities or industrial cleaning.

The dominance of small companies is even more pronounced in the Acceding Countries. More than 97% of business services enterprises in 2000 were micro companies with less than 10 employees. In addition, the shares of value added at factor cost and of persons employed by micro firms were essentially higher than in the EU-15. Nearly half of the value added at factor cost in the Acceding Countries was generated by small companies with less than 10 employees. This share was only at about 31% in the EU-15. In contrast, the proportion of persons employed by large companies in the EU-15 is more than twice as large as in the Acceding Countries.

The greater importance of smaller companies in the Acceding Countries might be explained by the early state of evolution of this industry in this region. Many providers of business services in the Acceding Countries have started as rather small companies just a few years ago. Larger companies typically emerge as a consequence of consolidation processes, which need several more years.

Exhibit 1-3: Structure of the business services in the EU (2000)

		Enterprises with … persons employed			
	Total (EU-15)	**1-9**	**10-49**	**50-249**	**250+**
NACE	**Number of enterprises**	**Structure in % of total**			
	Total (EU–15)				
74	2,127,191	93.5	5.4	0.9	0.2
	Acceding Countries*				
74	357,978	97.4	2.0	0.5	0.1
NACE	**Value added at factor cost**	**Structure in % of total**			
	Total (EU-15)				
74	487,254.8	30.8	21.2	17.8	30.3
	Acceding Countries**				
74	9,634.8	48.8	17.7	18.3	15.3
NACE	**Number of persons employed**	**Structure in % of total**			
	Total (EU-15)				
74	12,824,500	27.8	17.7	16.3	38.2
	Acceding Countries***				
74	407,028	43.5	21.2	19.4	15.9

*Czech Republic, Estonia, Hungary, Lithuania, Latvia, Poland only. - **Czech Republic, Hungary, Latvia, Poland only. - ***Czech Republic, Hungary, Latvia only.

Source: Eurostat New Cronos 2003, calculations and estimates by DIW Berlin (2003)

1.2.2 Production value and regional distribution

When comparing the regional distribution of value creation, it has to be borne in mind that in some countries business services are traditionally provided within the companies using them. This means that, statistically, they count as part of these companies. Therefore, data on the business services sector only informs about activities in independent firms, not about the entire business services activity in a country. Business services sectors have grown in all European economies over the last few years. This hints at a particularly dynamic sector, but also at ongoing outsourcing of services.

Considering the production value and value added of the EU-14 (EU-15 without Greece), one has to note the outstanding position of the UK. With nearly 30% they contribute a much larger share to the production of business services in the EU than other comparably large and industrialised countries such as Germany or France. Even though data is partly based on estimates and thus should be considered with caution, the leading position of the UK for the provision of business services cannot be neglected. One possible reason for this outstanding position might be that the UK, especially London, traditionally holds a leading position as financial centre. The existing concentration of financial services may have accelerated the agglomeration of related business services. In addition, there are strong economic relationships between the UK and the USA. Accordingly, in the UK there might be a comparatively large portion of European headquarters of US-based business services enterprises, e.g. globally active management or law consulting companies.

For the Acceding Countries only data for the year 2000 was available. Compared to the total of the EU-15 in 2000, the production value of business services provided by the Acceding Countries was relatively low. In general, the listed Acceding Countries generated about 3% of the production value by the EU-15. Among them Poland and Czech Republic are the largest contributors.

The relatively small share in contribution to the production value may be partly explained by the early stage of evolution of the business services sector in the Acceding Countries. As indicated above, many business services are produced “in-house” and are thus not listed in the sector statistics. But

outsourcing of business services to specialised independent enterprises is a long-term trend that evolves over years. This process is in all likelihood more advanced in the EU-15 than in the Acceding Countries.

Exhibit 1-4: Production value and value added in business services in European countries (2001, 2000)

	Production value		Value added at factor cost	
Country	**Euro (million)**	**% of EU-14***	**Euro (million)**	**% of EU-14***
EU-14 (2001)*				
BE	32,300.4	3.5	13,646.3	2.7
DK	14,230.7	1.5	8,349.6	1.6
DE	163,505.7	17.7	113,603.0	22.1
ES	47,210.1	5.1	30,806.4	6.0
FR	176,591.0	19.1	80,870.9	15.7
IE	5,782.6	0.6	4,086.9	0.8
IT	102,730.4	11.1	53,462.7	10.4
LU	1,761.5	0.2	1,092.4	0.2
NL	55,138.7	6.0	27,418.6	5.3
AT	13,865.4	1.5	8,481.5	1.7
PT	9,894.5	1.1	3,377.1	0.7
FI	8,492.6	0.9	4,486.6	0.9
SE	31,697.1	3.4	13,135.0	2.6
UK	259,283.0	28.1	150,853.8	29.4
EU-14 (2001)*	**922,483.8**	**100.0**	**513,670.9**	**100.0**
Acceding Countries (2000)				
EU-15 (2000)	877,191.5	100,0	488.050,5	100,0
Acceding Countries**	**24,968.7**	**2.8**	**10,921.1**	**2.2**
CZ	5,856.8	0.7	1,882.9	0.4
EE	414.2	0.0	166.3	0.0
HU	1,665.8	0.2	810.8	0.2
LT	354.8	0.0	153.1	0.0
LV	444.2	0.1	259.0	0.1
PL	13,346.1	1.5	6,682.1	1.4
SI	1,790.2	0.2	568.5	0.1
SK	1,096.6	0.1	398.4	0.1

*EU-14 = EU-15 without Greece. **Acceding Countries: Sum of countries listed below.

Source: Eurostat New Cronos 2003, calculations and estimates by DIW Berlin (2003)

1.2.3 Employment, productivity and labour costs

Data on employment, productivity and labour cost in the business services sector was available for 14 EU Member States (EU-15 without Greece) for 2001. In this year more than 13.3 million persons were employed in business services enterprises in the EU-14. Again, one has to note the outstanding position of the UK among the EU Member States. Business services enterprises in the UK not only employ the largest share of the sector workforce, they also show the highest productivity. Compared to France, for example, the value added per person employed in business services enterprises in the UK is about 20% higher, and compared to Portugal more than 3 times as high. Such differences might be partly explained by different weights of business services sub-sectors among the EU Member States as indicated in Chapter 1.2.1.

There are also significant differences in personnel costs across the 13 EU Member States (EU-15 without Greece and Luxemburg) for which data was available. On average, the labour costs per employee in the business services sector were around 28,200 Euro in 2001. At the low end of the scale are Portugal and Spain with about 14,600 Euro and 16,500 Euro, around 50% of the EU average. The highest personnel costs were reported in Sweden. At 38,900 Euro a Swedish employee in the business services sector is, on average, almost 40% more expensive than the EU average. Explanations for such discrepancies include potentially different weights of the sub-sectors within NACE 74, significant differences in labour productivity and also different social security costs borne by employers in different EU Member States.

Exhibit 1-5: Employment, productivity and labour costs in business services in European countries (2001, 2000)

Country	Employment	Productivity	Labour cost
	Persons employed (Number)	Value added per person employed (Euro)	per employee (Euro)
BE	386,060	35,348	31,548
DK	206,223	40,488	32,578
DE	2,478,209	45,841	28,294
ES	1,468,734	20,975	16,488
FR	2,031,971	39,799	35,537
IE	96,100	42,528	23,367
IT	1,558,443	34,305	21,998
LU	26,769	40,808	Na
NL	1,068,697	25,656	21,015
AT	213,245	39,773	30,947
PT	251,603	13,422	14,619
FI	117,021	38,340	30,688
SE	373,196	35,196	38,873
UK	3,043,007	49,574	31,482
EU-14*	**13,319,278***	**38,566***	**28,246****
Acceding Countries***	504,190****	7,280****	6,949*****
CZ	291,436	6,461	6,717
EE	23,155	7,182	5,213
HU	94,179	8,609	5,506
LT	25,433	6,020	4,721
LV	21,413	12,095	3,981
PL	Na	Na	7,662
SI	Na	Na	12,018
SK	48,574	8,202	5,381

*EU-14 = EU-15 without EL, ** without EL and LU. ***Year 2000, ****CZ, EE, HU, LT, LV, SK only. ***** CZ, EE, HU, LT, LV, PL, SI, SK only.

Source: Eurostat New Cronos 2003, estimates and calculation by DIW Berlin (2003)

The second part of the table shows data on employment, productivity and labour costs for a number of Acceding Countries in the year 2000. When considering data for employment and productivity, one should bear in mind that for Poland and Slovenia as largest and third-largest contributors to the production value among the Acceding Countries no data was available. Thus the table can only provide an idea, and not a complete picture, of the economic situation of the new Member States.

Business services enterprises of the 6 Acceding Countries for which data exist employed about 0.5 million people. Almost 60% of them were employed in Czech companies with around 291,000 employees followed by Hungary with about 94,000 employees working in the business services sector.

A comparison of productivity and labour costs between the EU-14 (EU-15 without Greece) and Acceding Countries should be considered with caution due to the limited database and the different years of data collection. In addition, price differences between various countries were not taken into account when calculating productivity measures. However there are serious differences that cannot be neglected. The average productivity of the EU-14 in 2001 was about five times as high as that of the listed Acceding Countries in 2000. Furthermore, the average labour cost in the listed Acceding Countries is only about one quarter of that in the 13 EU Member States (EU-15 without Greece and Luxembourg), for which data could be collected. These differences allow expectations that with the EU being extended there will be a lot of movement in the business services sector. Enterprises in this sector will tend to exploit local differences in productivity and labour costs. This issue will be discussed in detail in the next chapter.

1.3 Trends and challenges

Challenges due to the EU enlargement are some of the most frequently discussed topics in the business services sector. In general, the EU enlargement is reinforcing trends that have been already identified in the last chapter report of March 2003. The large gaps in productivity and labour costs (as pointed out in the previous chapter) may cause integration processes that are associated with an increasing cost pressure and a further internationalisation and complexity of projects in the business services sector.

Increasing cost pressure within the business services sector

The competition in many business services is already fierce. Business services is a labour-intensive sector. The main inputs are labour and knowledge, which consists of process-specific knowledge on one hand and human capital on the other. Economies of scale favouring (large) incumbents are often weak. Thus, barriers to entry are rather low and to a large extent build on brand, reputation and experience. The availability of staff at conditions that are compatible with market prices for the services is crucial for competition.

The opening of the EU towards the east facilitates the exploitation of the existing wage differentials between the west and east of Europe. Wage differentials might be exploited by employing staff coming from the Acceding Countries or by outsourcing supplemental services to subsidiaries or co-operation partners within the low-cost regions. Moreover, the EU enlargement also supports efforts of companies from the Acceding Countries to enter the western European market. The exploitation of wage differentials can therefore lead to an increased cost pressure and intensified price competition within the business services sector.

However, not every business services activity is equally suited to being outsourced to low-cost regions or to being provided from abroad. First, many business services activities such as cleaning or security are home-based, e.g. have to be provided on site, and thus cannot be outsourced to other regions. Furthermore, specific requirements on business services such as language or domain knowledge are inhibiting integration processes. Law consulting and tax advice, for example, might be more difficult to outsource than business services requiring rather process-specific knowledge, such as architectural or engineering services. On the one hand, their provision to a large extent requires country-specific knowledge. On the other hand, several countries have legal restrictions which inhibit the provision of their services from abroad. Finally, even the migration of sector workforce from the east to the west of Europe might not necessarily lead to a large exploitation of wage differentials due to national labour market regulations such as minimum wages or wage agreements reached by labour unions.

A more intense price competition will mainly apply to business services with a rather technical focus like technical testing, architecture or engineering services due to a wider scope of comparatively “cheap” experts available and given that the delivery from abroad is possible. Business services without specific requirements on human capital such as cleaning might also feel the cost pressure due

to the migration of the eastern European workforce and given the flexibility at the national labour markets. In contrast, business services that require rather country-specific human capital, such as tax or law consultancies, will be less affected.

Internationalisation and complexity of projects

Even today some providers of business services already operate in international markets including management, legal or tax consulting as well as advertising or public relations for global economies. The EU enlargement will facilitate a further integration of international businesses advancing the development of international co-operations and projects. This tendency will correspond with an increasing number of multinational businesses among business services clients and a larger scope of complex, international projects.

Business services that are to a large extent customer-driven and dependant on client needs will be increasingly confronted with specific demands for handling international clients, international co-operations and adapting to different regulations and cultures. This trend is ongoing with an increasing complexity of projects. In the future, business services will be more and more confronted with handling multinational projects such as organising global advertising or image campaigns, legal and tax consulting for international mergers or working within multinational research or engineering pools.

This places specific demands on project management abilities and requires the availability of experts within the company or the company's network. This tendency is above all advantageous to rather large organisations and drives the creation and further growth of multinational companies (e.g. internationally active business consulting firms, law or tax advice companies). On the other side, small businesses can compensate for their limited capacities by engaging in co-operation and subcontracting. Setting up and keeping networks of experts and specialised suppliers as well as managing the associated coordination work becomes an increasingly important challenge for business services.

As far as the challenges generated or endorsed by the EU enlargement are concerned, the proper deployment and management of e-business tools and the set-up of an appropriate ICT infrastructure becomes a crucial issue for business services. The clever use of the internet, e.g. to get access to international job markets, as a platform for collaboration and exchange of information and documents, and also as a basis of IT-based project management, becomes an essential requirement to meet the challenges of business service enterprises by the EU enlargement.

Outsourcing

Apart from the EU enlargement there are several other recent trends and events that represent challenges for providers of business services. The enduring economic slowdown, for example, endorsed the tendency of many clients of business services companies to focus on their core competencies and to buy anything else in the market. In particular those services provided on a continuous basis such as cleaning, security, or bookkeeping, are able to profit from this trend. But other, more individual services can also benefit, e.g. engineering or public relations.

In the last few years the trend towards Business Process Outsourcing (BPO) has been increasingly adopted by the ICT services sector: outsourcing services are not only offered for running the companies' ICT infrastructure, but also for operating entire business processes such as HR (Human Resources), finance, accounting or supply chain systems On the other side, providers of business services, e.g. accounting or facility management agencies, are increasingly confronted with a rising IT relevance of business processes.

As a consequence, business and ICT services become more intertwined. This places new requirements on ICT services providers as well as on business services enterprises: ICT services providers have to accumulate specific knowledge about the management of business processes; business services must become increasingly familiar with the processing of ICT infrastructures. This tendency may also cause structural changes for both the ICT and business services sector and open business opportunities for hybrid companies or co-operations. A typical example is the recent announcement of

IT services company Siemens Business Services that takes over human resource services – e.g. payroll and recruitment services – from its customers in cooperation with PricewaterhouseCoopers and the specialised company Alexander Mann Solutions in the UK and Germany.[3] This tendency will most likely continue.

International issues

Some sub-sectors of business services have been also influenced by specific international events. The events of September 11, 2001 have considerably increased security awareness all over the world. Security services companies might be able to profit from this rising demand, but are also faced with new challenges. Security services companies in civil aviation, for example, will have to provide more comprehensive training to personnel destined for airport security as a consequence of new quality control programmes required by the commission regulation (EC) No 1217/2003.[4][5]

The accounting frauds which have been discovered in large public companies in the US and Europe have also had a significant impact on the sector. On the one hand some accounting firms such as Arthur Andersen dissolved. On the other hand tighter accounting rules, e.g. determined by the Sarbanes-Oxley Act in the US, will most likely lead to an increase in demand for such services. Therefore, the sector can expect further growth. In a similar way, Basel II, the international banking agreement to ensure the stability of the financial sector, may also increase the demand for auditing and management consulting services.

The new requirements for the financial and auditing sector not only open new business opportunities for respective services providers (e.g. globally active auditing companies). They also demand changes in the IT support of business processes and require the accumulation of IT competencies by business services. According to the research company IDC, the requirements by Basel II and Sarbanes-Oxley belong to the top business drivers for the IT sector in 2004. The collaboration of the software manufacturer SAP with leading auditing companies in order to develop appropriate software components for capturing the requirements of the Sarbanes-Oxley act reveals the close ties between ICT and business services sector in this respect.

Policy challenges

The establishment of a single European market and the enlargement of the EU presents a challenge for policy to provide “flanking” measures in support of the competitiveness of European enterprises. With respect to business-related services (ICT, Financial, Business Services and Trade), policy related issues have already been addressed in a Communication by the EC.[6] The main political issues identified are:

1. Market integration and competition in business-related services markets is not vigorous enough to ensure and strengthen their competitiveness;
2. The inputs necessary for the production (labour qualifications, integration of ICT and capital) are lacking in quality and quantity;
3. The outputs from the business-related services enterprises are not sufficiently transparent (standards), valued (reporting on intangible assets) or documented (quality);

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[3] Press Release: “Siemens Business Services reinforces its activities in the Business Process Outsourcing and HR Services Market, delivering cost savings and increased service levels to organisations”, Siemens Business Services, Munich, 31.03.2004.

[4] Commission regulation (EC) No 1217/2003 laying down common specifications for national civil aviation security quality control programmes, 4.07.2003.

[5] See: CoESS (Confederation of European Security Services) Newsletter No.12: “The New EU Directives for Civil Aviation and their Impact on Private Security Firms”, Summer 2003, p.9.

[6] Commission of the European Communities (2003): Communication on “The competitiveness of business-related services and their contribution to the performance of European Enterprises”, COM (2003) 747 final, Brussels, 04.12.2003.

4. The provision and use of business-related services is limited in less developed regions and candidate countries, mainly affecting SMEs and convergence processes;
5. Knowledge about the sector and the markets is scarce, hampering the decision making of enterprises and policy makers."[7]

This *e-Business W@tch* report focuses on the adoption of ICT technologies by business services enterprises. It addresses mainly the second policy issue identified in the communication. Based on the survey results presented in Chapter 2, conclusions regarding possible policy implications have been drawn. These will be discussed in Chapter 3.3.

[7] COM (2003) 747 final, Communication on: "The competitiveness of business-related services and their contribution to the performance of European Enterprises", Commission of the European Communities, Brussels, 4.12.2003.

2 The use of ICT and e-business in 2003/04

2.1 Introduction

This report is in parts a follow-up of earlier surveys by the *e-Business W@tch* project. Two impact studies have been published already concerning the business services sector:

- **Impact study No. 15/I** (October 2002): Background, issues and key figures on e-business.
- **Impact study No. 15/II** (May 2003): The statistical picture: facts & figures.

The role of e-business in the business services sector has been described in detail in the impact study No. 15/I of October 2002. However, compared to other industries the business services sector shows some specifics. It might be useful to keep them in mind when looking at the statistical picture.

Due to the rather dissimilar activities summarised as “business services” in NACE 74 the use and importance of single e-business technologies vary significantly between different sub-sectors. A crucial issue for the work of architects and technical engineers, for example, is the support by CAD (Computer aided design) and FM (Facility Management) systems, whereas security firms are more likely being confronted with video surveillance technologies.

Additionally, even enterprises belonging to the same sub-sector might evaluate the importance of certain e-business-technologies significantly differently. For several business services enterprises the provision of IT-based services is the key business, e.g. for providers of internet job markets or agencies specialising in e-mail or mobile marketing. For those companies the use of e-business applications holds a much higher relevance than for other, rather conventional providers of business services within the same sub-sectors.

However, data is mainly available at the total sector level. A disaggregation of survey results into sub-sectors is technically possible, but would lead to a small number of observations which allows comparisons only for some variables. It is acknowledged that the heterogeneous structure of the sector may conceal some of the dynamics in the more e-business-advanced sub-sectors. This issue will be investigated in the second report (to be published in August 2004).

Business services can be provided by both specialised professional services organisations (in the focus of this report) and by internal services organisations embedded in larger companies. Consequently, many e-business applications can be used by both user groups. Software for professional services automation (PSA), for example, was regarded primarily as the ERP system for specialised services companies some years ago. Now, PSA software applications are mainly deployed in large companies for the support of their internal services units. Similarly, CAFM (Computer aided facility management) systems are used by specialised business services enterprises with a focus on facility management as well as by large companies to support the internal facility management.

The *e-Business W@tch*, however, only covers activities of specialised business services enterprises. It can be argued, though, that the overall picture will to some extent also apply to company internal services organisations.

2.2 E-business indicators – the statistical picture

Information presented in this section is predominantly based on the e-Business Surveys of the *e-Business W@tch*. The first survey was conducted in April 2002 and covered more than 9,000 enterprises from 15 sectors and all EU Member States. The 2003 survey was conducted in two waves. In March 2003, about 3,500 enterprises from seven sectors and five countries (France, Germany, Italy, Spain and the UK) were interviewed about their use of ICT and e-business. The second wave of interviews (about 7,000) was conducted in October and November 2003. It added new sectors and extended the regional coverage to the EEA (European Economic Area) and Acceding Countries.

In the second wave, several new indicators were introduced. Thus, although the main parts of the questionnaires used in the two waves were the same, not all information is available for all sectors or countries, depending on whether the survey of this particular sector in a country took place in the spring or autumn wave of the 2003 survey. The footnotes of the exhibits show the time, base, number of observations and weighting schemes for data reported.

Some methodological limitations have to be kept in mind in this analysis:

- Complete data sets are only available for EU-5 (Germany, Spain, France, Italy, UK): sector averages are therefore based on EU-5 data. To give an indication about regional differences, a number of cross-country comparisons are provided.
- The composition of enterprises is different in different size classes. For instance, those sub-sectors where enterprises are typically very small have a larger weight in size class 0-9 employees than in size class 250+ employees.
- Due to the partly very limited database, differences should be regarded with caution. Even if all companies are covered, differences between countries (Base: N = 50-100), for example, must add up to about 10-15 percentage points to become statistically significant. The more limited the database is, for example if analysing only enterprises selling online, the larger must be the differences to become statistically relevant.
- Data is available in employment-weighted and enterprise-weighted form. While enterprise-weighted data is somewhat biased towards small firms, it gives a more precise picture about what enterprises regard as important. Employment-weighted data is biased towards large firms, but is partly useful if employee-oriented indicators are analysed. We generally use enterprise-weighted data for comparisons between size-bands and countries. In order to provide the reader with a comprehensive picture, in most of the tables (and in some figures) sector totals are given according to both weighting schemes.

More information about the methodology of the survey (definitions, sampling, weighting principles) and about the coverage of sectors and countries is available in the Annex to this report and on the website of the *e-Business W@tch* at www.ebusiness-watch.org.

2.2.1 Infrastructure and skills development

ICT and network infrastructure in the company

Knowledge-intensive services account for the largest share of production value and value added in the business services sector. The efficiencies of accessing, compiling and distributing information can be enhanced considerably through the use of new ICT. Accordingly, the sector is well equipped with basic ICT. The survey results show an above-average usage of computers as well as of the main technologies for accessing and exchanging information. Differences exist between small and large enterprises when it comes to IT networks. As should be expected, large companies are more frequently equipped with networks that are needed to connect many employees (e.g. LANs) or remote locations (e.g. WANs).

Concerning the physical network infrastructure, considerable differences between the countries surveyed are also to be noted. Such differences might result particularly from the different weights of sub-sectors within the surveyed countries. In addition, due to the relatively small number of observations, differences should be considered with caution. Nevertheless, the relative underperformance of Poland in the use of computers as well as in most of the other infrastructure indicators (including internet and e-mail usage as displayed in Exhibit 2-3) is interesting. As discussed in Chapter 1.2.2, Poland is among the Acceding Countries the largest contributor to the production value as well as to the value added at factor costs.

12% of EU-5 business services employees work in enterprises that already use Wireless Local Area Network (WLAN) technology. WLANs are appropriate to provide a wireless (radio) access to the internet via a so-called access point. Thus the internet can be accessed by everyone endowed with WLAN-enabled devices and located within the footprint of an access point. The area within the footprint of a WLAN access point is called hotspot.

If the WLAN technology is deployed in a company, e.g. in a production hall or in an office building, employees are not bound to fixed terminal places in order to access the company network. Thus WLANs can help facilitate the collaboration among employees, e.g. if architects or consultants are meeting for a project and all need Internet access on their laptops. This advantage mainly applies to relatively large corporations with a large and diverse workforce that needs to be allocated to various projects at different locations. Consequently, in the business services sector the amount of large and medium-sized companies using the WLAN technology is about twice as high as that of micro enterprises with less than 10 employees.

Moreover, the WLAN technology may be used also by mobile workers to access the internet from locations outside the company (by so-called public hotspots). In the business services sector, for example, consultants or architects who spend a considerable amount of time on the road, can use their notebooks to get wireless access to the internet in an increasing number of public hotspots (e.g. in business hotels, airports or at petrol stations). However, the access to the company network via the internet from remote locations, e.g. by project members to access up-to-date information and input data, generally requires the implementation of a remote access solution.

Exhibit 2-1: Use of physical network infrastructure (2003)

	Use computers	Local Area Network	Wide Area Network	Wireless LAN
Sector total (EU-5)				
% of employment	99	68	30	12
% of enterprises	97	41	5	7
0-9 employees	97	39	4	7
10-49 employees	100	76	9	10
50-249 employees	100	76	33	16
250+ employees	100	84	55	15
All (9) sectors (EU-5)				
% of employment	95	61	29	Na
% of enterprises	89	32	5	Na
BE Belgium	100	46	7	11
DE Germany	100	44	9	14
ES Spain	100	58	3	3
FR France	95	42	6	11
IT Italy	97	37	3	3
PT Portugal	100	49	7	6
SE Sweden	100	55	1	15
UK United Kingdom	95	30	5	12
EE Estonia	99	53	21	16
HU Hungary	100	22	7	7
PL Poland	82	22	7	0
SI Slovenia	100	62	12	6
SK Slovakia	93	29	5	16

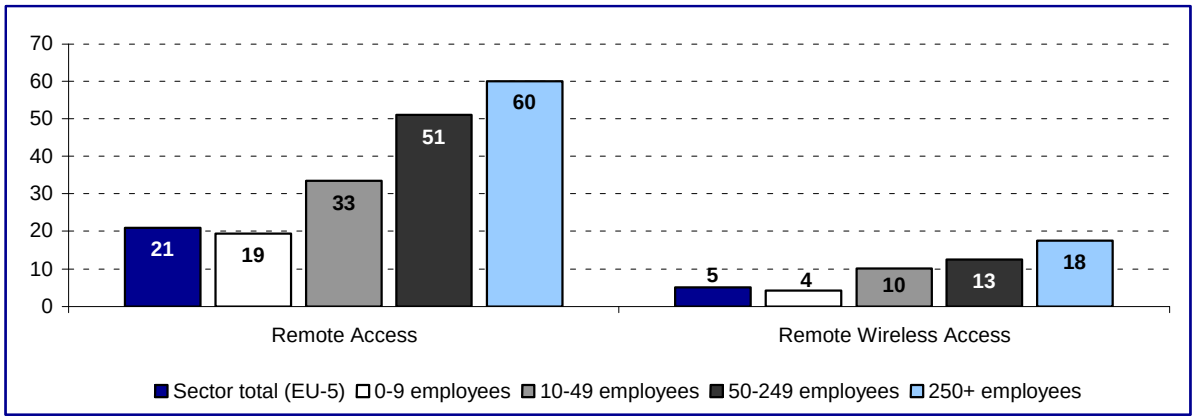
Base: all enterprises. EU-5 = DE, ES, FR, IT, UK. N = 501 for EU-5 sector total and 50-100 per country.
Weighting: figures for size-bands and countries in % of enterprises. Reporting period: November 2003.

Source: *e-Business W@tch* (2003/04)

According to the survey results, 21% of the enterprises in the business services companies provide their employees with remote access to the company's computer system. This rate is slightly above the average of all sectors (18%) surveyed by the *e-Business W@tch*. The number of fieldworkers as well as the necessity to access the company's IT system from remote locations is higher in large companies than in small businesses. Accordingly, 60% of the large companies already have deployed remote access solutions.

5% of the business services enterprises even offer remote access with wireless devices such as mobile phones or PDAs. Wireless remote access solutions allow employees on the go to connect to centrally stored data irrespective of time and place. In contrast to the use of the WLAN technology through public hotspots, they do not depend on any location. A client manager, for example, can check the current availability of resources at the client's location, instantly communicate a customer order to the back office system and input time spent on behalf of the client into a central time tracking system.

Exhibit 2-2: Enterprises enabling remote (wireless) access to their computer system (2003)



Base: enterprises using computers. EU-5 = DE, ES, FR, IT, UK. N = 496 for EU-5 sector total.
Weighting: figures in % of enterprises. Reporting period: November 2003.

Source: *e-Business W@tch* (2003/04)

Internet access and use of basic internet applications

In terms of internet access and basic internet applications such as e-mail or WWW usage (see Exhibit 2-3), business services enterprises also show above average values compared to other sectors analysed by the *e-Business W@tch*. Enterprises with less than 10 employees show generally lower usage rates compared to larger companies. However, compared to the average of other sectors, the backlog of micro enterprises is comparably low. Nearly three quarters of micro enterprises in the business services sector use the WWW whereas on average the use of the WWW by micro enterprises of all nine sectors surveyed accounts only for about 58%. In general, the relatively low differences between different size-bands in terms of the basic ICT infrastructure turn out to be a special characteristic of the businesses services sector.

Exhibit 2-4 illustrates that in most of the countries, even in many Acceding Countries, more than 85% of business services enterprises have access to the internet. The only exceptions are Poland and Slovakia, where only 72% and, 65% respectively of companies in the business services sector provide internet access to their employees. In contrast, business services enterprises in other Acceding Countries like Estonia or Slovenia show access rates that are even above the average of the EU-5 countries.

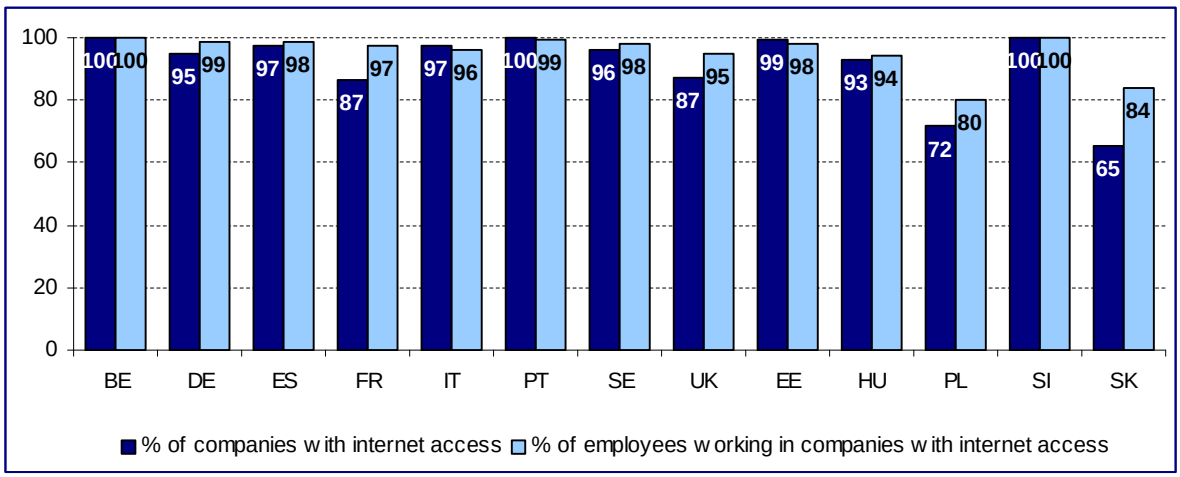
Exhibit 2-3: Internet access and use of basic internet applications (2003)

	Have access to the internet	Use e-mail	Use the WWW
Sector total (EU-5)			
% of employment	97	94	86
% of enterprises	93	90	74
0-9 employees	93	89	73
10-49 employees	99	95	94
50-249 employees	96	93	88
250+ employees	99	98	90
All (9) sectors (EU-5)			
% of employment	88	84	77
% of enterprises	76	68	58
BE Belgium	100	100	87
DE Germany	95	92	87
ES Spain	97	89	58
FR France	87	87	81
IT Italy	97	94	72
PT Portugal	100	97	71
SE Sweden	96	93	81
UK United Kingdom	87	84	80
EE Estonia	99	94	94
HU Hungary	93	93	86
PL Poland	72	58	65
SI Slovenia	100	100	95
SK Slovakia	65	65	65

Base: all enterprises. EU-5 = DE, ES, FR, IT, UK. N = 501 for EU-5 sector total and 50-100 per country.
Weighting: Figures for size-bands and countries in % of enterprises. Reporting period: November 2003.

Source: *e-Business W@tch* (2003/04)

Exhibit 2-4: Companies with internet access (2003)



Base: all enterprises. N = 50-100 per country. Reporting period: November 2003.

Source: *e-Business W@tch* (2003/04)

Business services enterprises use broadly the same technologies as the average of all industries to connect to the internet. However, analogue modems are slightly less popular and DSL connections are more widespread. This points to the use of the internet by several employees within a company, as analogue modems are mostly used to connect single PCs to the internet. This is also shown by higher percentages of analogue modems in small than in large companies.

In general, Exhibit 2-5 confirms the success story of DSL connections as a technology that provides high bandwidths at comparably low prices. DSL connections that have only recently become available have already evolved as very significant internet access technology. The fact that nearly half of business services enterprises already use DSL connections is further evidence for the comparatively modern ICT infrastructure in this sector. In line with other indicators of the ICT infrastructure, the usage rates in Poland and Slovakia are far below the EU-5 average in terms of DSL connections as well. In contrast, about 70% of enterprises with internet access in Belgium, France or Spain already use DSL connections.

Exhibit 2-5: Mode of internet connection used by companies (2003)

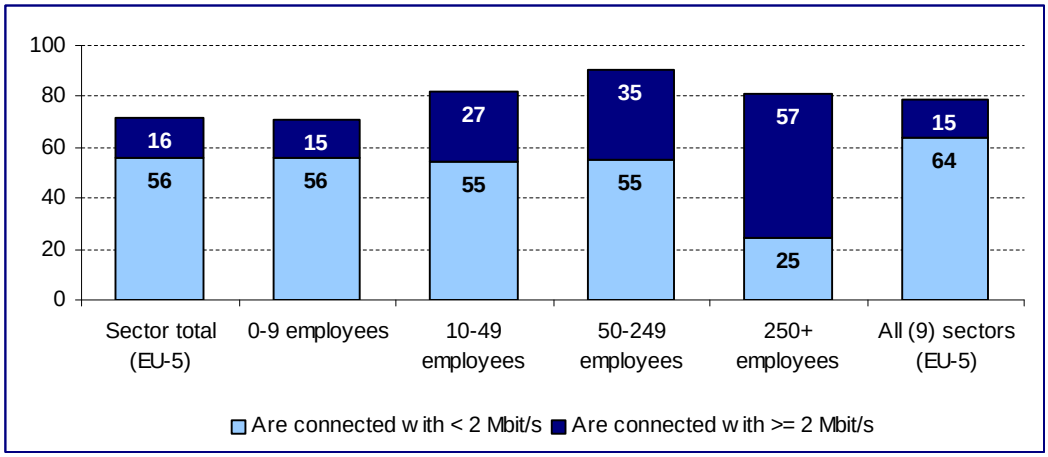
	Analogue modem	ISDN	DSL	Other fixed	Other connection
Sector total (EU-5)		24	47		
% of employment	13	24	47	24	3
% of enterprises	21	27	48	4	0
0-9 employees	21	26	48	4	0
10-49 employees	13	31	53	11	2
50-249 employees	11	26	52	22	3
250+ employees	6	19	44	41	7
All (9) sectors (EU-5)					
% of employment	16	29	38	23	3
% of enterprises	27	30	39	4	1
BE Belgium	8	11	69	12	0
DE Germany	9	51	44	6	0
ES Spain	12	15	68	3	0
FR France	20	4	70	7	0
IT Italy	26	38	36	0	0
PT Portugal	25	29	40	6	0
SE Sweden	31	5	51	17	0
UK United Kingdom	31	18	37	10	1
EE Estonia	28	0	59	19	0
HU Hungary	26	20	24	27	0
PL Poland	35	35	5	30	0
SI Slovenia	10	43	46	6	0
SK Slovakia	28	35	17	42	21

Base: enterprises connected to the internet. EU-5 = DE, ES, FR, IT, UK. N = 479 for EU-5 sector total and 49-100 per country.
Weighting: Figures for size-bands and countries in % of enterprises. Reporting period: November 2003.

Source: *e-Business W@tch* (2003/04)

There is also a difference between small and large companies with respect to ISDN versus other fixed connections worth taking a closer look at. While the former are more common in small establishments, the (typically powerful) latter are more often available in large companies. This observation is in accordance with results for the available bandwidth (see Exhibit 2-6): the larger the company, the higher the probability that a powerful internet connection is available.

Exhibit 2-6: Quality of internet connection by size-band (2003)



Base: enterprises connected the internet. EU-5 = DE, ES, FR, IT, UK. N = 479 for EU-5 sector total.
Weighting: in % of enterprises. Reporting period: November 2003.

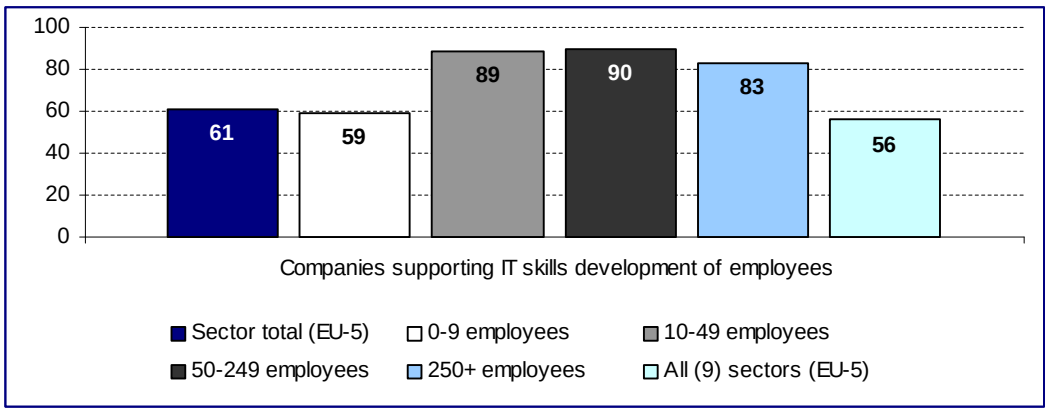
Source: *e-Business W@tch* (2003/04)

IT skills – demand and supply

The requirements for IT skills in the business services sector can be considered as comparatively high. Firstly, an above average number of office workers has access to and needs to apply IT such as e-mail or the WWW in their work routines. Secondly, using IT to efficiently make use of and quickly access new information is a central requirement for employees – at least in knowledge-intensive business services. In addition, the increasing complexity of projects poses specific demands on project and knowledge management abilities of employees, which are increasingly supported by ICT and e-business applications. Finally, many business processes outsourced to business services enterprises, e.g. accounting or facility management, become increasingly IT-based and require a higher level of IT support (see also Chapter 1.3).

The high need for IT skills within the business services sector is also expressed by the relatively large number of business services enterprises providing support for the IT skills development of their employees (see Exhibit 2-7). The rate of business services enterprises supporting the IT skills development is, at 61%, above the average of all sectors surveyed (56%).

Exhibit 2-7: Companies supporting any kind of IT skills development (2003)



Base: all enterprises. EU-5 = DE, ES, FR, IT, UK. N=501 for EU-5 sector total.
Weighting: in % of enterprises. Reporting period: November 2003.

Source: *e-Business W@tch* (2003/04)

The demand for academic degrees or at least IT industry certificates when employing IT staff is a further indicator for the high requirements on IT skills in the business services sector (see Exhibit 2-8): 30% of enterprises that have made recruitment efforts during the past months expect an academic degree and more than 60% demand an IT certificate.

In the same context, problems with recruiting IT staff are above the average of all (9) sectors (see Exhibit 2-9). This holds especially for micro enterprises: more than 60% of them report some or even great difficulties in recruiting IT staff. Moreover, the smaller the company size, the more companies reporting great difficulties in recruiting IT staff. It seems that even after the e-business boom, the recruitment of sufficiently qualified IT staff at moderate costs is still a serious problem in the business services sector, especially for micro enterprises.

A way out of this problem might be to outsource parts of the ICT infrastructure. However, the advantages of IT outsourcing rather apply to large companies with an extensive ICT infrastructure. About 43% of business services enterprises have outsourced some of their IT activities, whereas among enterprises with less than 10 employees this rate is only at about 21%.

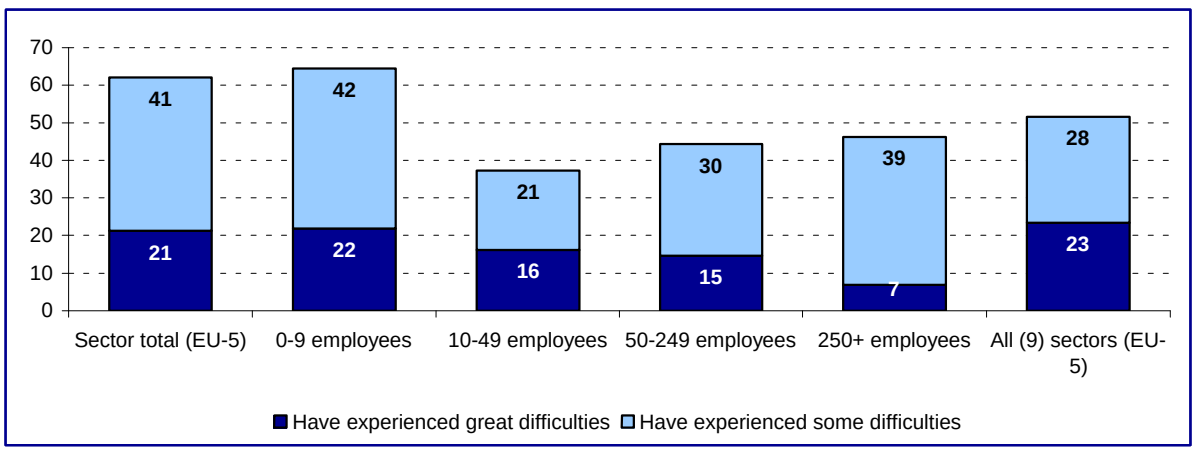
Exhibit 2-8: Recruitment activities, expected qualifications and outsourcing of IT activities in the business services sector (2003)

	Have made recruitment efforts during past 12 months period	Of those expected: Academic degree (Master, PhD) *	Of those expected: IT certificate *	Have outsourced some of their IT activities
Sector total (EU-5)				
% of employment	25	28	68	34
% of enterprises	12	30	62	23
0-9 employees	11	31	61	21
10-49 employees	15	18	68	37
50-249 employees	18	19	72	38
250+ employees	42	28	71	43
All (9) Sectors (EU-5)				
% of employment	22	Na	Na	Na
% of enterprises	9	Na	Na	Na

Base: all enterprises / *enterprises having made recruitment efforts. EU-5 = DE, ES, FR, IT, UK. N = 501 / N* = 86 for EU-5 sector total. Weighting: figures for size-bands in % of enterprises. Reporting period: November 2003.

Source: *e-Business W@tch* (2003/04)

Exhibit 2-9: Companies having experienced difficulties in recruiting IT staff (2003)



Base: all enterprises. EU-5 = DE, ES, FR, IT, UK. N=501 for EU-5 sector total. Weighting: in % of enterprises.

Source: *e-Business W@tch* (2003/04)

2.2.2 Internal business processes

Use of online technologies to support internal business processes

The use of ICT and e-business to support and optimise internal processes has become increasingly important in the business services sector. All indicators for the usage of online technologies to support internal processes (see Exhibit 2-10) are above the average of all (9) sectors surveyed by the *e-Business W@tch.* Since collaboration is a central element in producing business services, online technologies for sharing documents and performing collaborative work are most widespread. 36% of the business services companies use such technologies, compared to only 22% on average of all sectors surveyed.

Exhibit 2-10: Use of online technologies to support internal business processes (2003)

	To share documents internally / for collaborative work	To automate travel reimbursement of employees	To track working hours / production time	To support human resources management
Sector total (EU-5)				
% of employment	46	12	25	25
% of enterprises	36	6	6	5
0-9 employees	36	6	5	5
10-49 employees	27	4	15	5
50-249 employees	50	8	29	26
250+ employees	58	22	40	47
All (9) sectors (EU-5)				
% of employment	40	11	20	21
% of enterprises	22	3	5	5
BE Belgium	32	6	15	12
DE Germany	19	3	6	6
ES Spain	40	8	1	3
FR France	41	6	9	6
IT Italy	37	6	3	6
PT Portugal	35	3	6	15
SE Sweden	32	8	20	4
UK United Kingdom	38	6	10	4
EE Estonia	24	6	19	2
HU Hungary	36	4	4	10
PL Poland	29	7	0	0
SI Slovenia	51	11	18	6
SK Slovakia	41	9	3	9

Base: all enterprises. EU-5 = DE, ES, FR, IT, UK. N = 501 for EU-5 sector total and 50-100 per country.
Weighting: figures for size-bands and countries in % of enterprises. Reporting period: November 2003.

Source: *e-Business W@tch* (2003/04)

Another important area supported by online technologies is that of processes related to project and human resource management. Since personnel is not only an important cost factor but also the most important resource, optimal utilisation of the workforce determines profitability in many business services companies. In particular, large corporations with a large and diverse workforce that needs to be allocated to various projects at different locations can significantly increase efficiency by using e-business tools to support project or human resource management. About 40% of large business services companies use online technologies to track working hours and production time. The same is true for only 5% of the micro enterprises, 15% of the small and 29% of the medium sized firms.

Knowledge management and e-learning

The increasing amount of information available on the internet has made the efficient management of knowledge a key success factor for knowledge-intensive services. Accordingly, intranets as well as specific tools for knowledge management are used by an above-average share of business services companies (see Exhibits 2-11 and 2-12).

Intranets provide access to internal applications using internet technologies and thus may build a basis for the exchange and management of company knowledge as well as for the implementation of internal training programmes. Company policies and procedures ("how things are done here"), company news, or project plans, for example, can be provided on the intranet. Thus, intranets are often understood as internal websites that contain the collective company knowledge and can be accessed by the entire internal staff. The need to use an internal (knowledge) network increases with the number of employees. Correspondingly, the rate of large business services enterprises using an intranet is more than twice as large as the rate of micro companies.

Knowledge management describes the process through which organizations generate value from their intellectual and knowledge-based assets. While knowledge is often shared through informal networks, the intention of formal knowledge management systems is the *systematic* gathering and compilation of information. A typical example are databases in consulting companies describing the expertise and project experience of individual consultants. If a new project comes up, managers can use these knowledge databases to set up the optimal project team.

The efficient management of knowledge is important for companies of all sizes, but they are most valuable for large enterprises with a complex and often dispersed knowledge base and files that have to be accessed by many different parties in the workflow. In particular the sharing of tacit knowledge (the know-how contained in people's heads), which is done face-to-face in smaller companies, can pose a problem for large, dispersed companies. The *e-Business W@tch* survey results show that 5% of the micro firms and 20% of the large companies in this sector use knowledge management systems.

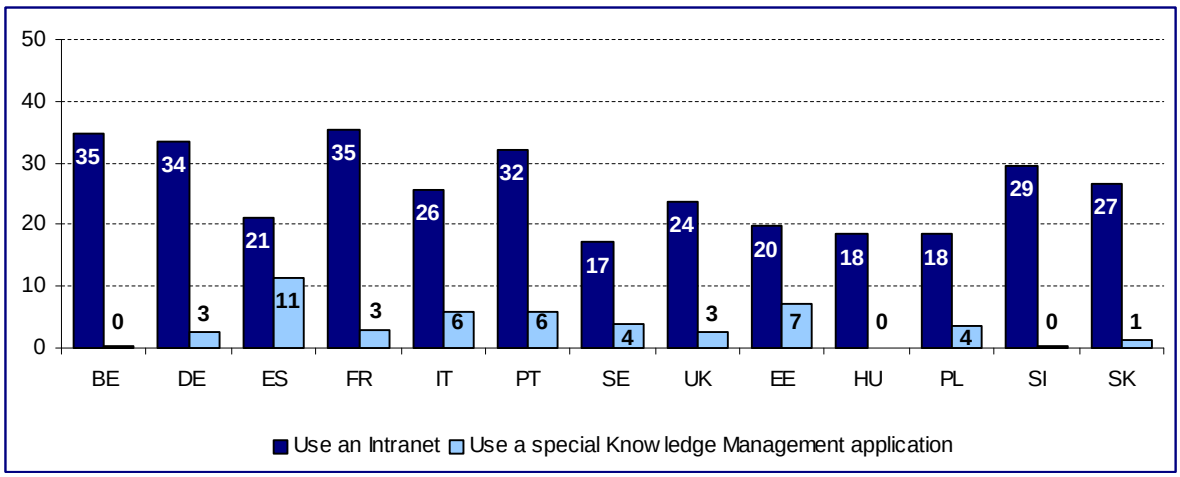
Exhibit 2-11: Knowledge management and e-learning (2003)

	Use an intranet	Use a special knowledge management application	Use an e-learning application
Sector total (EU-5)			
% of employment	49	12	10
% of enterprises	27	5	3
0-9 employees	26	5	3
10-49 employees	38	9	8
50-249 employees	53	8	6
250+ employees	68	20	19
All (9) Sectors (EU-5)			
% of employment	45	10	13
% of enterprises	21	5	5

Base: all enterprises. EU-5 = DE, ES, FR, IT, UK. N = 501 for EU-5 sector total. Weighting: figures for size-bands in % of enterprises. Reporting period: November 2003.

Source: *e-Business W@tch* (2003/04)

Exhibit 2-12: Knowledge management: Use of intranets and special applications in the business services sector by country (2003)



Base: all enterprises. N = 50-100 per country. Weighting: Figures in % of enterprises. Reporting period: November 2003.

Source: *e-Business W@tch* (2003/04)

Comparing the usage rates of intranets and special knowledge management systems between the countries surveyed, there are some noticeable differences. The range for the use of an intranet varies between 35% of all business services enterprises in Belgium and France and only 17% in Sweden. A similar spread can be observed for the use of special knowledge management applications: whereas in Spain 11% of the companies already use such tools, in Belgium, Hungary or Slovenia there are almost no companies using a knowledge management system.

These differences might be partly explained by the heterogeneous distribution of size-classes and business services activities among the countries surveyed. If, for example, knowledge-intensive business services dominate within a country, the rate of enterprises using knowledge management applications can be expected to be much higher. In the same way, intranet usage will most likely be at lower rates in countries with comparatively high numbers of small enterprises.

Implementing software and the technical infrastructure is only a first step towards an efficient management of knowledge. Ensuring the consistent use of these systems by all employees is a much more important issue that touches the organisational and cultural structures of the enterprise. Keeping employees' knowledge up-to-date in a dynamic environment is another important success factor in knowledge-intensive business services. E-learning tools that provide access to online courses can significantly improve efficiency and save costs (for example by saving expenditures for travel and seminar rooms). In addition, e-learning offers opportunities to speed up time-to-market of new products and services or speed up the implementation of new processes and/or company-internal software.

However, the usage of e-learning tools is rather low and even slightly below the average of all (9) sectors surveyed by the *e-Business W@tch*. This finding might be partly explained by the relatively large proportion of micro enterprises in the business services sector. In general, micro enterprises seem to be less interested in investing in training programmes for their employees, e.g. to support the IT skills development (see also Exhibit 2-7). Accordingly, only 3% of the micro enterprises use e-learning tools, whereas 19% of large companies have implemented e-learning applications.

Business Example:

E-Learning at DWS Steuerberatung-Online-GmbH

The DWS Steuerberatung-Online-GmbH is a subsidiary of the Bundes-steuerberatungskammer, a syndicate with about 50,000 associated tax consultancy companies that employ about 500,000 people. The Bundessteuerberatungskammer offers, among other services, a large range of training programmes for associate members. They are typically provided as full-day programmes on a regional basis.

However, the frequent changes in tax law and the complex character of this field triggers a large demand for up-to-date information. Additionally, in order to fulfil their daily tasks, consultants are often only interested in specific aspects of tax problems. Fulfilling these specific needs by conventional training programmes alone would require heavy time resources and enormous travel expenses. Thus, complementary courses provided over the internet seemed to be appropriate. Accordingly, the DWS Steuerberatung Online GmbH was founded in 2001 and the first e-learning programme launched in the beginning of 2002.

The online programme consists of training units that cover actual consulting-relevant problems related to tax and economic law as well as applied courses in business administration. Moreover, basic courses on tax law and accounting are available for employees. Each specific field is administrated by a well-known expert. The lectures are presented via video streams and assisted by a parallel Power Point presentation. Further reading material and scripts can be downloaded.

A fee will be charged either per participant or company. Participants havet access to about 2 actual courses per month as well as to the seminar program of the past. Within two years more than 40 courses have been produced.

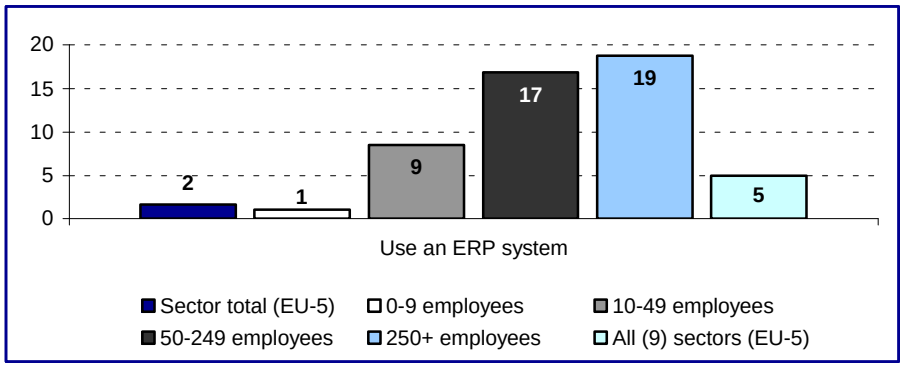
In a field report about the use of DWS-Online, Jochen Ullrich, CEO of a tax consulting company in Kehl (Germany), emphasizes considerable cost savings. He also welcomes the change in the attitude towards learning in his firm. Consultants interact more often and exchange information more frequently than it used to be the case when attending offline seminars.

Sources: www.dws-online.de, www.verbaende.com/Management/online_weiterbildung.htm and presentation material of DWS-Online.

Use of ERP systems

ERP systems are modular software solutions for the planning, management and controlling of enterprise resources. When considering the use of ERP systems by business services enterprises, one has to keep in mind that such complex systems were originally developed for use by large companies in manufacturing, wholesale or retail. Accordingly, ERP systems are used by only 2% of business services enterprises. This number is mainly caused by the low usage rates among micro companies, for which the implementation of such complex IT systems is often not profitable. However, this situation is likely to change, since many ERP software manufacturers are increasingly targeting small and midsize businesses as customers. In addition, an increasing number of standardised software packages specified for certain industries such as engineering (see the business example in the box below) are reaching the market.

Exhibit 2-13: Companies using an ERP (enterprise resource planning) system (2003)



Base: all enterprises. EU-5 = DE, ES, FR, IT, UK. N = 501 for EU-5 sector total.
Weighting: in % of enterprises. Reporting period: November 2003.

Source: *e-Business W@tch* (2003/04)

Business Example

ERP solution at FHECOR Ingenieros Consultores (Spain)

FHECOR specialises in the area of civil engineering. The Spanish-based company with some 40 employees carries out construction projects worldwide and provides technical support for the maintenance, servicing and restoration of constructions for civil and engineering companies.

FHECOR looked for a software solution to increase efficiency in the areas of international documentation and project development. The solution should be able to increase the efficiency of document retrieval, to provide a streamline project development and to integrate customers. The company decided on myEngineering@altim as an industry-specific solution based on the ERP software SAP/R3 and optimized for medium-sized businesses by the technology provider Altim Technologias de Informacion. The solution contains features for financing, logistics as well as product lifecycle management, such as asset accounting, document handling, material management etc.

According to Guellermo Corres Peiretti, Manager at FHECOR, "[…] the solution enables logistics and financials processes to be integrated with the requirement of project planning and document administration. In this way it offers the projects leads an instrument to control the budget and the technical aspects of different projects."

Source: www.sap.com (SAP-KMU examples)

ERP systems designed to support the provision of services activities have only recently become available. "Professional Services Automation" (PSA) has instead become a much-used term for describing e-business applications that integrate and automate key business processes in the consulting sector. They are also often described as ERP for service providers. PSA systems usually consist of a large variety of different modules that can be used separately but are most valuable if applied in an integrated way. They can be used to streamline major business processes, increase productivity of personnel, reduce cost, and increase the organisational efficiency of service provisioning firms. In particular the shift from client-server to web-based systems has allowed enterprises in this sector to significantly enhance interaction between employees and with third parties. However, PSA systems are usually designed to address the needs of large companies and are more used by internal services units of large enterprises than by specialised business services enterprises.

2.2.3 Procurement processes and supply chain management

Buy-side electronic commerce activities

Exhibit 2-14: Online purchasing activities by companies (2003)

	Make online purchases	*Online purchase of MRO* goods	*Online purchase of direct production goods
Sector total (EU-5)			
% of employment	50	59	41
% of enterprises	35	64	47
0-9 employees	34	65	47
10-49 employees	52	59	49
50-249 employees	57	63	41
250+ employees	57	56	37
All (9) sectors (EU-5)			
% of employment	46	62	49
% of enterprises	31	60	53

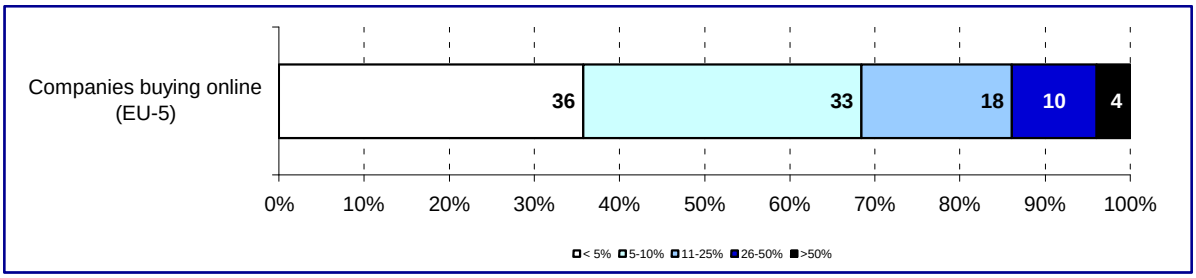
* Maintenance, repair and operations goods (indirect production goods)

Base: all enterprises / *enterprises making online purchases. EU-5 = DE, ES, FR, IT, UK. N = 502 / N*=227 for EU-5 sector total .Weighting: in % of enterprises. Reporting period: November 2003.

Source: *e-Business W@tch* (2003/04)

Results from the *e-Business W@tch* survey reveal that business services companies are already actively using new technologies to purchase online. About 35% of all companies in the sector are purchasing online, compared to only 31% on average of all sectors (see Exhibit 2-14). Nevertheless, volumes purchased online in many companies are still relatively low (see Exhibit 2-15) pointing to the fact that most companies still experiment with online purchasing.

Exhibit 2-15: Share of online purchases (all platforms) as % of total purchases in the businesses services sector (2003)



Base: enterprises making online purchases. EU-5 = DE, ES, FR, IT, UK. N=218.
Weighting: in % of enterprises. Reporting period: November 2003.

Source*: e-Business W@tch* (2003/04)

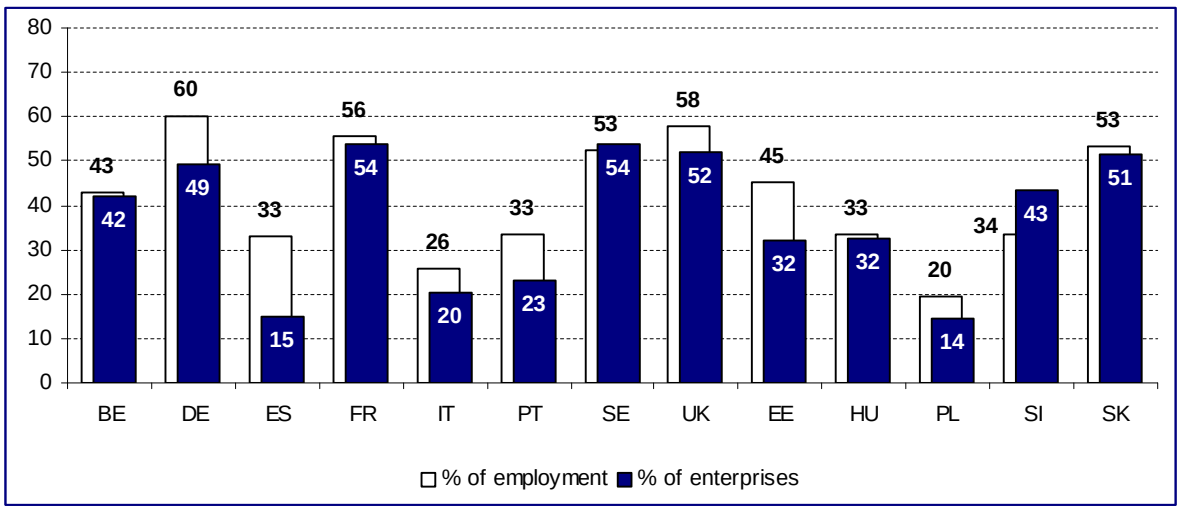
64% of those business services companies that purchase online buy MRO goods such as office and cleaning supplies online. Since transaction costs for MRO goods are typically high in relation to the actual cost of the products, major efficiency gains can be achieved by electronically procuring this type of goods. In particular companies providing standardised continuous services can profit from streamlining recurring procurement processes. While the advantages of e-procurement of MRO goods are somewhat bigger for large companies with a greater number of procurement transactions, small companies can also achieve improvements in efficiency by electronically supporting their MRO procurement process. The survey results show similar rates across all size-bands.

While buying of MRO goods is more important than buying direct production inputs, the share of those establishments procuring direct inputs is not negligible. Almost half of business services companies buy direct inputs online. Direct inputs include a large variety of very different goods in this diverse sector. They range from industrial cleaning supplies for the cleaning sector to paid content in knowledge-based business services.

As illustrated in Exhibit 2-16, in all countries covered by the survey a significant number of companies purchases online. The data also shows that there is no general gap between Acceding Countries and EU-15 in terms of online purchasing. The rate of business services enterprises purchasing online is in some of the Acceding Countries even above the EU-5 average, especially in Slovenia or Slovakia.

However, there is a large dispersion between the surveyed countries. The numbers of Spain, Italy, Portugal and Poland are considerably lower than the EU-5 average. Less than one quarter of business services enterprises in these countries purchase online. In contrast, in Germany, France, Sweden, the UK, or Slovakia at least half of the business services enterprises purchase online. These differences might be explained by the different weights of size-classes within the countries surveyed. If small enterprises are dominating the structure of the business services sector, a smaller rate of companies purchasing online should be expected.

Exhibit 2-16: Business services enterprises making online purchases by country (2003)



Base: all enterprises. N = 50-100 per country. Reporting period: November 2003.

Source: *e-Business W@tch* (2003/04)

Types and relative importance of online purchases by companies

It must be remembered that purchasing online can be interpreted in a rather broad sense - it means different things for large or small companies and for different sub-sectors. Complex e-procurement systems, for example, are beneficial in companies with a large volume of direct inputs for providing continuous services (e.g. industrial cleaning) and for companies with complex supplier-networks (e.g. architectural services).

In other sub-sectors and particularly in smaller companies, the internet simplifies the finding of appropriate suppliers and might just be a substitute for fax or telephone ordering. Buying books, research and photo supplies or booking flights is frequently done on the internet and can improve purchasing processes in a rather simple way. Even micro-enterprises can benefit, e.g. photographers can speed up the process of buying film and other photographic equipment. Also if the actual transaction is not conducted online, companies can profit from simply preparing the purchase over the internet. They can gather information on suppliers, available products, prices, and conditions and profit from significantly increased market transparency. The wide range of online purchasing services available in packaging services (NACE 74.82) is also illustrated in the box below.

Business example:

Different types of B2B trading platforms for the packaging (services) industry (NACE 74.82, Filling and Packaging)

eMarketServices.com, a directory for e-marketplaces, has 11 e-marketplaces worldwide specifically for the packaging industry. Nine of them are active in Europe. The marketplaces differ in the geographical focus as well as in the characteristic of trading functions offered. The range goes from simple B2B portals with bulletin boards to trading networks, which aggregate catalogues, or the support of tendering procedures.

Verpackungsbranche.de, for example, is a B2B portal for the German packaging industry. Visitors to this platform access industry news and event information as well as a directory with direct links to suppliers of packaging products and services. Enterprises in the packaging industry may use this offer to search for appropriate trading partners or to announce actual requests on a bulletin board. Thus the focus of this platform is the initiation rather than the direct support of trading processes, e.g. by connecting supplier catalogues via the platform.

In contrast, the aggregation and filing of supplier catalogues is the focus of platform providers such as WEBpackaging.com, a UK-based provider with a global focus, or Verpakking.com, a trading platform for the packaging industry in Netherlands and Belgium. By compiling different product catalogues from a number of suppliers, this type of e-marketplaces primarily helps purchasing companies to simplify the ordering process with associated suppliers.

Trading networks may also support the sourcing process by initiating and supporting tendering procedures. The US-based platform provider PackagingNetwork.com, for example, offers not only access to supplier catalogues but also RFQ (Request for Quotation) functionalities. These functionalities contain the creation of requests and responses online as well as support for the necessary information exchange and management for the tendering procedure (e.g. invitations to quote or tracking requests and responses).

Source: www.emarketservices.com and respective websites of trading platform providers.

Overall, the supplier's website is still the most widespread distribution platform for companies purchasing online over all size-classes. It is used by more than 90% of all business services enterprises (See Exhibit 2-17). While the use of supplier websites is more widespread than in other sectors, the use of other distribution platforms is far below the average of all (9) sectors covered by the *e-Business W@tch*. Connections via EDI play almost no role in the business services sector.

When interpreting these results one has to keep in mind that in the business services sector micro companies are dominant. Thus, the quantities (e.g. of MRO goods) that might be purchased online are rather low so that a connection via EDI, an integration with the extranet of suppliers or even the use of B2B marketplaces is often not economical. This reasoning is also supported by the differences in size-bands if the use of suppliers' extranet or EDI connections as purchasing channels are considered. 36% of large enterprises purchasing online, for example, use the extranet of suppliers as a distribution platform, compared to only 9% of micro and small companies.

Exhibit 2-17: Distribution platforms and protocols used for online purchases in the business services sector (2003)

	Website of suppliers	B2B Marketplaces	Extranet	EDI
Sector total (EU-5)				
% of employment	93	14	24	3
% of enterprises	91	12	9	0
0-9 employees	92	11	9	0
10-49 employees	89	23	9	2
50-249 employees	89	11	26	1
250+ employees	98	13	36	5
All (9) Sectors (EU-5)				
% of employment	88	24	28	6
% of enterprises	85	21	22	3

Base: enterprises making online purchases. EU-5 = DE, ES, FR, IT, UK. N = 227 for EU-5 sector total.
Weighting: figures for size-bands in % of enterprises. Reporting period: November 2003.

Source: *e-Business W@tch* (2003/04)

Business process integration in e-commerce (buy-side)

The use of online technologies to support the collaboration on the buy-side not only includes the pure purchasing process. It also comprises the exchange of data and documents with suppliers (e.g., for the management of projects) or the use of SCM systems to integrate the production process. As already pointed out in previous chapters, collaboration with third parties (including suppliers) is a central element in the production of business services. Managing suppliers is for example a core business in the architectural or engineering industries.

The importance of the third-party-relationship management compared to other buy-side activities is also reflected in the survey results: 29% of business services enterprises (with internet access) use online technologies to exchange documents with suppliers. In contrast only 3% of the enterprises purchasing online (e.g. about 2% of all enterprises in this sector) have integrated their IT system with that of their suppliers for placing orders (see Exhibit 2-18). SCM systems are more appropriate to address the needs of large manufacturing companies than to support the rather small enterprises in the business services sector. Accordingly, only about 1% of business services enterprises use such complex systems.

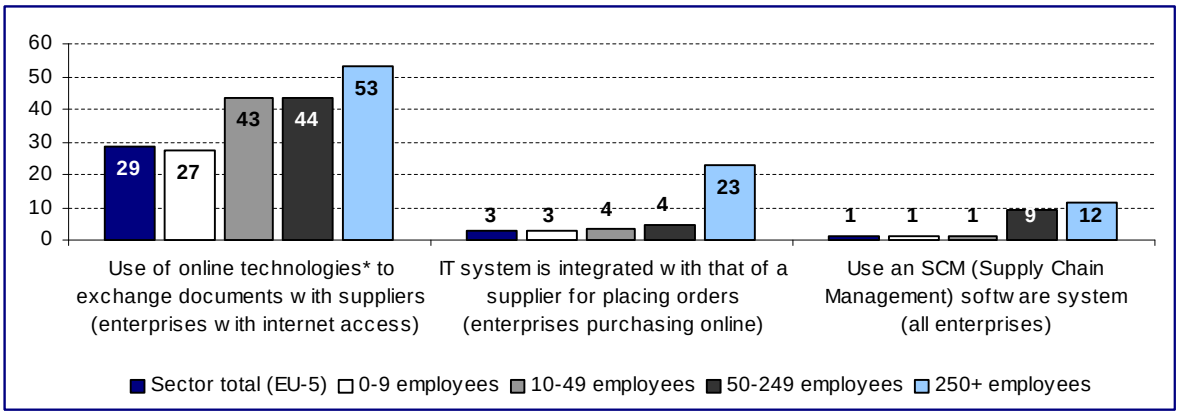
Exhibit 2-18: IT integration with suppliers (2003)

	*Use of online technologies (other than free text e-mail) to exchange documents with suppliers	**IT system is integrated with that of a supplier for placing orders	***Use an SCM (Supply Chain Management) software system
Sector total (EU-5)			
% of employment	45	12	6
% of enterprises	29	3	1
0-9 employees	27	3	1
10-49 employees	43	4	1
50-249 employees	44	4	9
250+ employees	53	23	12
All (9) sectors (EU-5)			
% of employment	42	18	6
% of enterprises	32	18	2

Base: *enterprises with internet access / **enterprises purchasing online/ ***all enterprises. EU-5 = DE, ES, FR, IT, UK.
N = *479 / **227 / ***501 for EU-5 sector total.
Weighting: Figures for size-bands in % of enterprises. Reporting period: November 2003.

Source: *e-Business W@tch* (2003/04)

Exhibit 2-19: IT integration with suppliers (2003)



* other than free text e-mail

Base: enterprises with internet access **/** enterprises purchasing online/all enterprises. EU-5 = DE, ES, FR, IT, UK.
N =479 / 227 / 501 for EU-5 sector total. Weighting: in % of enterprises. Reporting period: November 2003.

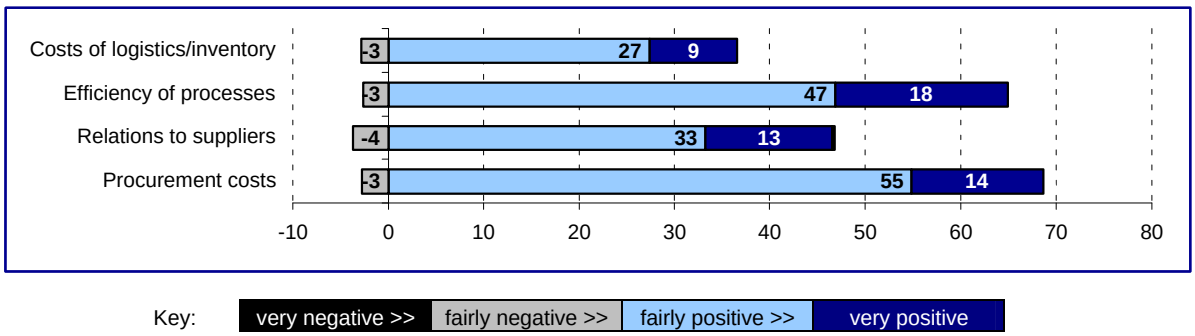
Source: *e-Business W@tch* (2003/04)

Exhibit 2-19 further illustrates that technologies to integrate suppliers for placing orders as well as SCM systems are almost exclusively used by rather large companies. In contrast, a substantial proportion of micro and small enterprises use online technologies to exchange documents with suppliers.

Perceived impacts of purchasing online

The most important effects of online purchasing on business services firms are a reduction in procurement cost and an improved efficiency of processes. About two thirds of the business services companies purchasing online report very or fairly positive effects on these key measures. Overall, there are almost no negative effects reported by those enterprises that purchase through the internet. This holds also for relationships with suppliers. In spite of the tendency for purchasing online to have caused a rather increased number of suppliers (see Exhibit 2-21), less than 5% of business services enterprises report a negative impact on supplier relations.

Exhibit 2-20: Perceived effects of purchasing online (2003)

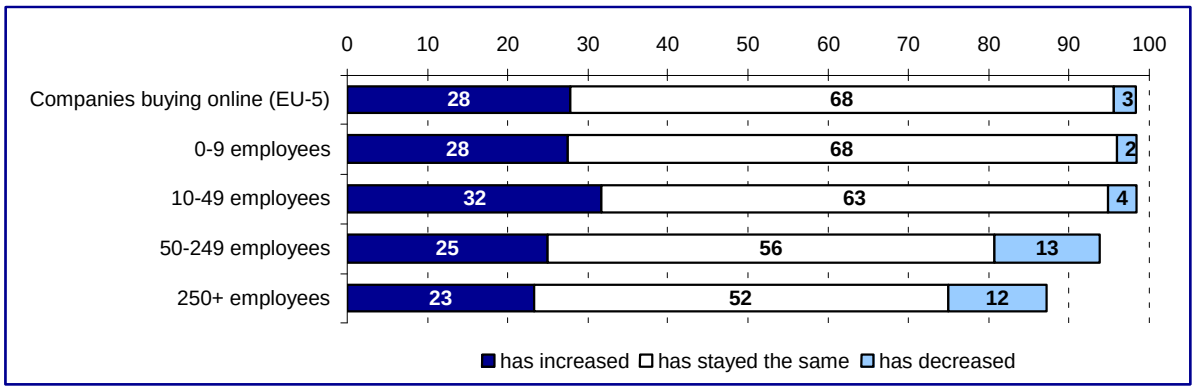


Base: enterprises making online purchases. EU-5 = DE, ES, FR, IT, UK. N = 210-219.
Weighting: in % of enterprises. Reporting period: November 2003.

Source: *e-Business W@tch* (2003/04)

Generally, more than one quarter of business services enterprises report an increasing number of suppliers, whereas for only 2% of companies has the number of suppliers decreased as a consequence of e-purchasing. More than two thirds of business services enterprises did not report any change in the number of suppliers as a result of e-purchasing. However, there are also differences between the size-bands. Larger firms, for example, have started to consolidate their supplier base in order to deepen the collaboration with the best-qualified suppliers. This observation is also supported by the survey results: among the medium-sized and large companies more than 10% report a decreasing number of suppliers.

Exhibit 2-21: Reported effect of e-purchasing on the number of suppliers (2003)



Base: enterprises making online purchases. EU-5 = DE, ES, FR, IT, UK. N=227.
Weighting: in % of enterprises. Reporting period: November 2003.

Source: *e-Business W@tch* (2003/04)

2.2.4 Marketing and sales

Sell-side electronic commerce activities

Company websites have become a common element in the overall marketing strategy of business services companies. More than two thirds of enterprises with more than 9 employees in this sector have a website today (see Exhibit 2-22). While most of the small and medium-sized and nearly all of the large firms (97%) have a website, only 33% of micro-enterprises with less than 10 employees are on the web.

In their simplest form websites are online brochures which provide information on the company. More sophisticated websites offer interactivity to the viewer, e.g. allow for searching archives, downloading

documents, ordering services and requesting further information. For knowledge-intensive business services, providing work samples, case studies and research publications to a large audience over the internet can help build the brand and reduce the trust problems of new customers.

Exhibit 2-22: Online marketing and e-commerce activities (2003)

	Have a website on the internet	Make online sales
Sector total (EU-5)	72	11
% of employment	72	11
% of enterprises	35	3
0-9 employees	33	2
10-49 employees	69	10
50-249 employees	79	11
250+ employees	97	17
All (9) sectors (EU-5)		
% of employment	66	16
% of enterprises	35	9

Base: all enterprises. EU-5 = DE, ES, FR, IT, UK. N=501for EU-5 sector total.
Weighting: Figures for size-bands in % of enterprises. Reporting period: November 2003.

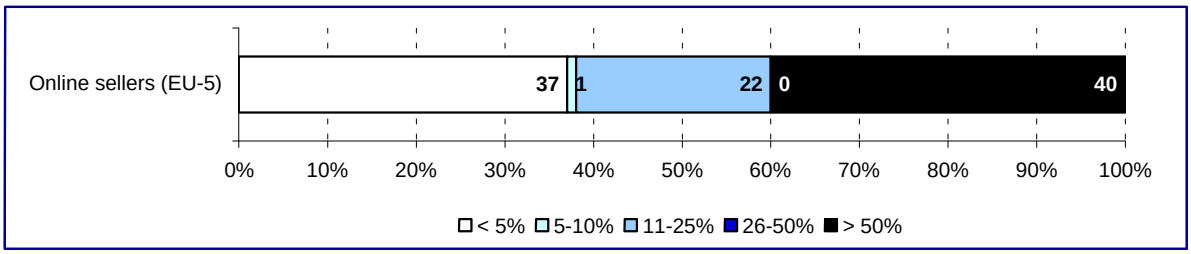
Source: *e-Business W@tch* (2003/04)

In general, online sales are most appropriate if products can be standardised and/or digitised to be traded and/or delivered online. The degree of standardisation of inputs and outputs seems to be rather limited in large parts of the business services sector – at least in those sub-sectors where services are predominantly of an individual nature. This is also confirmed by the survey results. Only 3% of business services enterprises sell online, which is only about a third of the value for the average of all (9) sectors surveyed.

The rate of online selling is even smaller when considering firms where online sales account for a significant portion of their overall sales. As illustrated in Exhibit 2-23, for more than one third of the companies selling online, the volume of online sales adds up to only 5% or less of their total sales volume. For only 40% the amount of online sales accounts for more than 25% of their total sales volume.

As the survey results further show, large companies are more prone to online selling than small companies. High set-up costs of e-sales solutions might have played a role for this outcome as well as structural differences between the size classes. Larger business services companies might also be better in offering standardised services that are better suited for online selling than individual services.

Exhibit 2-23: Share of online sales (all protocols) as % of total sales (2003)



Base: enterprises selling online. EU-5 = DE, ES, FR, IT, UK. N = 40. Weighting: In % of enterprises.
Reporting period: November 2003.

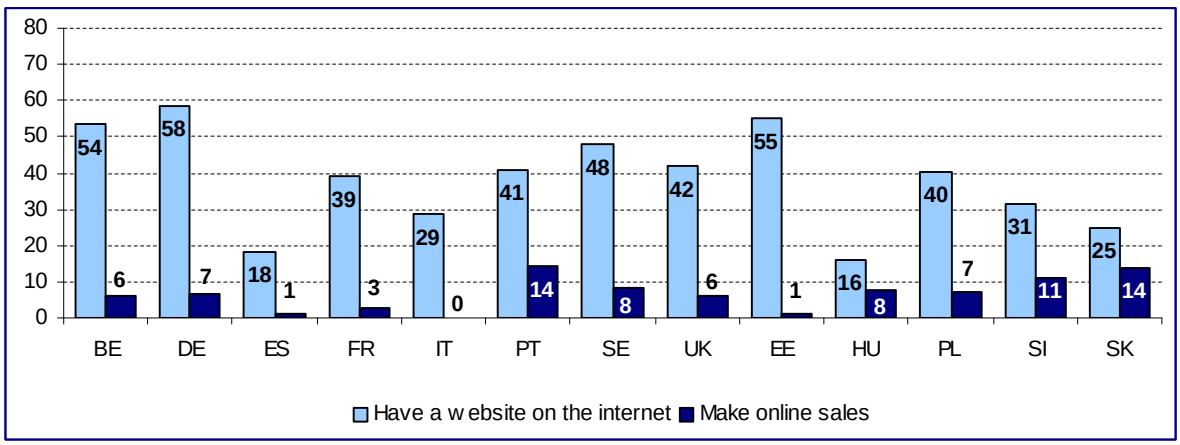
Source: *e-Business W@tch* (2003/04)

Exhibit 2-24 illustrates differences between countries for both the provision of company websites and for online sales activities. It is in line with country comparisons concerning other e-business indicators,

which do not indicate a general gap between EU-15 and Acceding Countries. Furthermore, a large number of companies with a website does not automatically result in a large amount of enterprises selling online, even if the website is the main sales channel for the companies selling online (see Exhibit 2-25). In Estonia, for example, the percentage of business services companies that have a website is 55% and therefore strongly above the EU-5 average. However, only 1% of Estonian business services enterprises surveyed report online sales.

The low rates of Spain and Italy observed for both parameters are in line with the small numbers in terms of enterprises purchasing online. Therefore, one may expect that there is a relationship between the use of online technologies for purchasing and marketing or sales activities. However, this correlation does not hold for all countries. Poland and Portugal, for example, also show results far below the EU-5 average for online purchasing activities. In contrast, the proportion of business services companies that have a website or sell online is even above the EU-5 average in these countries.

Exhibit 2-24: Companies having a website / selling online by country (2003)



Base: all enterprises. N = 50-100 per country. Weighting: in % of enterprises. Reporting period: November 2003.

Source: *e-Business W@tch* (2003/04)

Types and relative importance of online sales

The figures displayed in Exhibit 2-25 (as well as further analysis on enterprises selling online) should be considered with caution since the low percentage of companies selling online results in a small number of observations on which this analysis is based.

The usage numbers concerning distribution platforms and protocols for online sales show a similar pattern to the use of distribution channels for online purchases (see Exhibit 2-17). The company website turns out to be the most important sales channel. More than three quarters of the companies that sell online in the business services sector do so through their company website. In contrast, other channels such as extranet, EDI connections or mobile services are used mainly by large companies but play almost no role in the sector total. Due to relatively small sales volume, selling online through the extranet or an EDI connection is often not economical for the large number of small business services enterprises.

On the sell-side in this sector, e-marketplaces are more likely to be used to initiate new business (e.g. by answering calls for tenders) than for closing and settling deals. Accordingly, the number of business services enterprises selling online through e-marketplaces is relatively low compared to the average of other sectors.

Exhibit 2-25: Distribution platforms and protocols used for online sales in the business services sector (2003)

	Own company website	B2B Marketplaces	Extranet	EDI	Mobile services (e.g. WAP)
Sector total (EU-5)					
% of employment	89	24	26	11	22
% of enterprises	78	24	2	0	2
0-9 employees	83	17	0	0	0
10-49 employees	54	54	6	0	4
50-249 employees	90	8	4	0	7
250+ employees	100	21	36	17	29
All (9) Sectors (EU-5)					
% of employment	81	34	15	14	6
% of enterprises	79	38	4	5	1

Base: enterprises selling online. EU-5 = DE, ES, FR, IT, UK. N=42 for EU-5 sector total.
Weighting: figures for size-bands in % of enterprises. Reporting period: November 2003.

Source: *e-Business W@tch* (2003/04)

Business example

Translation Services by LanguageWire

LanguageWire considers itself "a full-service globalisation agency offering innovative language solutions". The company was founded in 1999 and has agencies in Denmark and Sweden. The focus of the company business is the provision of an internet platform matching customers looking for appropriate translators on the one hand and suppliers of translation services looking for projects on the other.

Companies working on projects that require linguistic skills can use the platform to search for appropriate translation experts. LanguageWire takes over the entire contract and project management and offers additional services such like proofreading, interpreting or consulting.

For associated translators LanguageWire arranges jobs and projects based on a tendering procedure provided over the platform. Registered suppliers are free to bid on jobs and projects offered through the internet platform. LanguageWire organises contract and invoice management and earns a commission fee for its services.

Source: www.languagewire.com

Business process integration in e-commerce (sell-side)

Many business services activities (e.g. management consulting or tax advice) require an intensive interaction with clients. Thus, for many business services enterprises the use of online technologies to exchange information with clients is a key element of their business. It may also result in specific advantages for these companies enabling them to differentiate from their competitors.

The importance of online document exchange with customers in this sector compared to the use of online technologies for other sell-side activities is also confirmed by the survey results (see Exhibit 2-26). The number of business services enterprises using online technologies to exchange documents with customers (40% of enterprises with internet access) is more than ten times larger than the number of companies selling online (about 3% of all enterprises). This rate is also about ten percentage points above the average of all (9) sectors surveyed by *e-Business W@tch*.

The fact that about 97% of business services enterprises do not sell products or services online does not mean that online technologies are not used to support the sales process. This is also shown by the 21% of business services enterprises that use an electronic invoicing system. 40% of the large and even 22% of the micro firms use online technologies that support the invoicing process.

Exhibit 2-26: Exchange of documents and standardised data with customers (2003)

	*Use of online technologies (other than free text e-mail) to exchange documents with customers	**IT system is integrated with that of a customer for receiving orders	***Use of an electronic invoicing system
Sector total (EU-5)			
% of employment	50	38	25
% of enterprises	40	32	21
0-9 employees	40	40	22
10-49 employees	46	6	13
50-249 employees	52	15	19
250+ employees	55	50	40
All (9) sectors (EU-5)			
% of employment	38	31	Na
% of enterprises	30	27	Na

Base: *enterprises with access to the internet / **enterprises selling online / ***all enterprises. EU-5 = DE, ES, FR, IT, UK.
N = *479 / **42 / ***501 for EU-5 sector total. Weighting: Figures for size-bands in % of enterprises.
Reporting period: November 2003.

Source: *e-Business W@tch* (2003/04)

Exhibit 2-27: Business integration of online sales systems in the business services sector (2003)

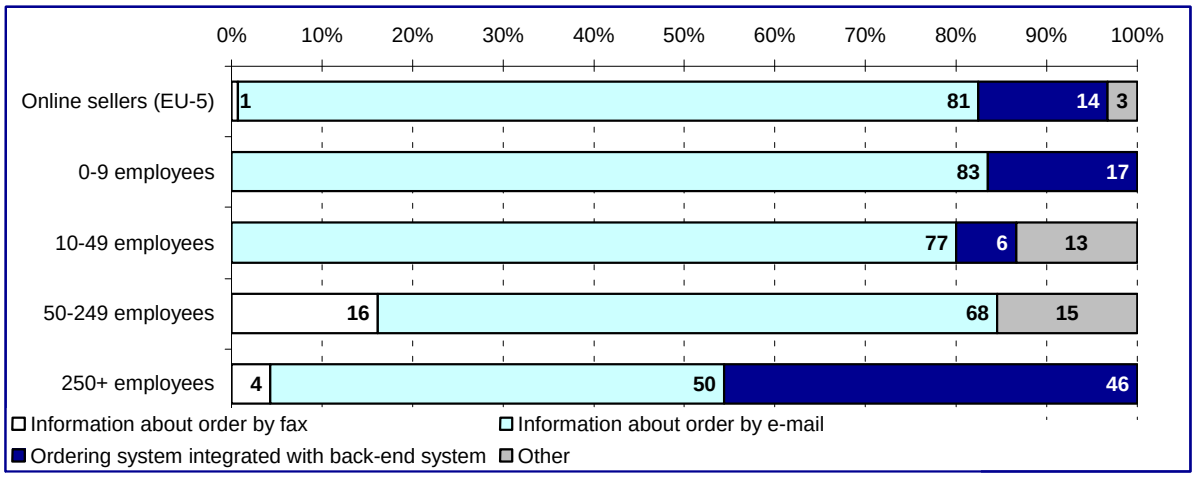
	Information about order by fax	Information about order by e mail	Ordering system integrated with back end system	Other
Sector total (EU-5)				
% of employment	5	57	33	5
% of enterprises	1	81	14	3
0-9 employees	0	83	17	0
10-49 employees	0	77	6	13
50-249 employees	16	68	0	15
250+ employees	4	50	46	0
All (9) Sectors (EU-5)				
% of employment	4	53	33	7
% of enterprises	8	77	6	6

Base: enterprises selling online. EU-5 = DE, ES, FR, IT, UK. N=42 for EU-5 sector total.
Weighting: figures for size-bands in % of enterprises. Reporting period: November 2003.

Source: *e-Business W@tch* (2003/04)

As summarised in Exhibit 2-27 and illustrated in Exhibit 2-28, the e-mail system is the most important channel for receiving information on incoming orders. More than 80% of the business services enterprises selling online use the e-mail system to receive orders. This number is also above the average of all sectors surveyed. The use of e-mail systems is most widespread among small and medium-sized companies. For small companies further integration of the ordering process into the backend system is often not economic due to the relatively small sales volume. By contrast, nearly half of the large companies selling online have integrated the ordering process in their backend system.

Exhibit 2-28: Sophistication of online sales systems in the business services sector by size-band (2003)



Base: enterprises selling online. EU-5 = DE, ES, FR, IT, UK. N=42 for EU-5 sector total.
Weighting: figures for size-bands in % of enterprises. Reporting period: November 2003.

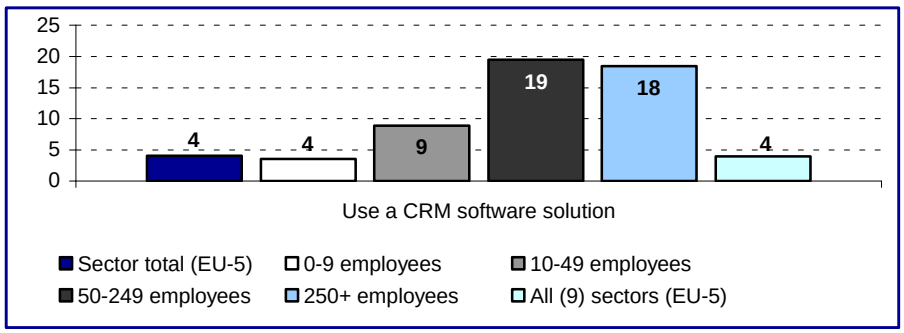
Source: *e-Business W@tch* (2003/04)

Customer relationship management

Maximising customer satisfaction and building long-term relationships with clients is a key success factor for business services companies. It is of particular importance for companies that offer services (project-based or standardised) on an ad-hoc basis and depend on returning customers. Customer relationship management (CRM) systems provide a central database containing all data related to the company's prospective or actual clients. CRM systems track all forms of contacts with the client and store information that can be used to evaluate future demand and business opportunities.

While small companies usually have the ability to maintain effective personal contacts with their clients, the management of customer relationships is often a rather complex task in large companies with a large customer base. Here, automating client interaction with the support of CRM systems can help to make processes more efficient. The survey results in Exhibit 2-29 show that only 4% ofmicro enterprises but 18-19% of large and medium-sized companies use CRM systems.

Exhibit 2-29: Business services enterprises using a CRM (customer relationship management) software application (2003)



Base: all enterprises. EU-5 = DE, ES, FR, IT, UK. N=501 for EU-5 sector total.
Weighting: in % of enterprises. Reporting period: November 2003.

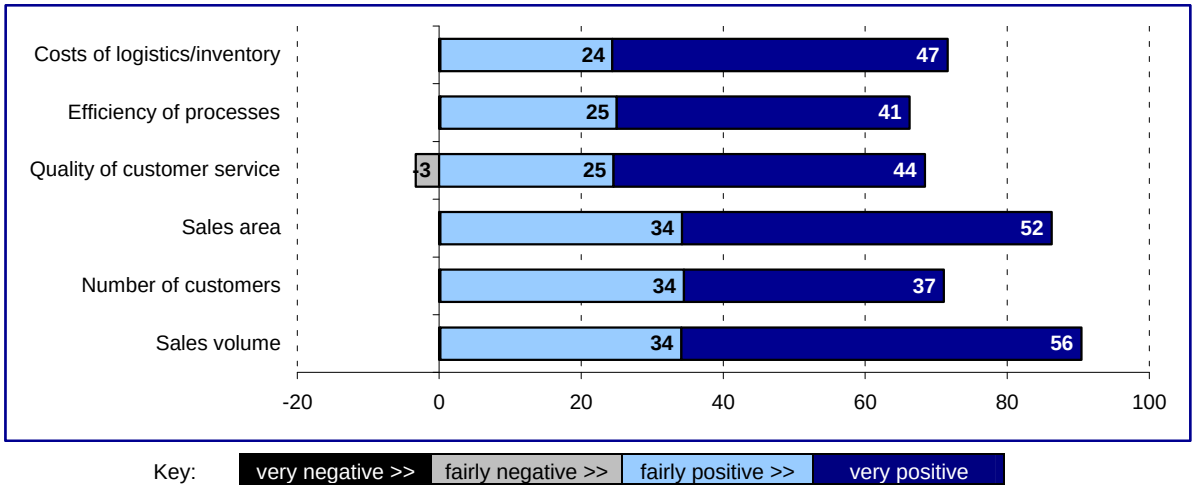
Source: *e-Business W@tch* (2003/04)

Perceived impact of online selling

Even though only few companies in the business services sector sell online, those that do consider its impact to be positive. Between 66% and 90% report a fairly or very positive impact of selling online on their volume of sales, the number of customers, the sales area, customer care and on the efficiency of internal business processes.

The most important impacts of selling online are the increase in sales volume and an enlargement of the sales area. More than 85% of business services enterprises report positive effects for these parameters. However, online purchasers seem to profit more than online sellers if the efficiency of processes is considered. Compared to the reported effects of purchasing online an increase in the efficiency of processes as effect of selling online was less often reported.

Exhibit 2-30: Perceived effects of selling online on sales and business processes (2003)



Base: enterprises selling online. EU-5 = DE, ES, FR, IT, UK. N = 35-37.
Weighting: in % of enterprises. Reporting period: November 2003.

Source: *e-Business W@tch* (2003/04)

2.2.5 Functions of the extended enterprise

The main idea behind the concept of an “extended enterprise” is that a company not only consists of its employees but also of a network of business partners such as its suppliers and its customers. In business services, the coordination and management of third-party relationships on behalf of the client is an important part of the service. Third parties may be the end-user of a product or service, suppliers, sub-contractors and freelancers as well as the government.

For companies in the advertising industry (NACE 74.4), for example, the management of third party relationships is a core business activity. They not only design advertising campaigns for their customers, but also manage the various relationships with suppliers, freelancers and contractors within the advertising value chain. Managing third party relationships is also a core activity in the architectural and engineering industries (NACE 74.2). They have to manage a complex network of suppliers and subcontractors on the one hand and the relationship with government agencies for building supervision, planning permission and clearance etc. on the other hand.

ICT and e-business applications play a major role in the management of complex third party relationships. Firstly, the speed and cost of communication has been significantly enhanced by the use of e-mail. In 90% of all companies in the business services sector e-mail for external communication is available for the majority of office workers (see Exhibit 2-3). Secondly, the possibilities for collaboration have been significantly enhanced by new technologies. To share documents and/or perform collaborative work is by far the most important use of online technologies other than e-mail in this sector. And thirdly, documents can easily be exchanged over the internet.

40% of all companies in this sector exchange documents with customers and 29% with suppliers electronically (see Exhibits 2-18 and 2-26).

Besides project management (not directly asked for in the survey), collaborative product design and contract negotiation seem to be important applications for the use of online technologies. Online technologies for the management of inventories are less applicable for business services companies than for sectors producing goods. This also shows in the data: The usage of such technologies in the business services sector is below average. The same is true for online collaboration to forecast demand, which is most important for industries keeping stock of produced goods.

Exhibit 2-31: Use of online technologies (other than free text e-mail) for business processes between companies (2003)

	Collaborative product design	Collaborative demand forecast	Capacity / inventory management	Contract negotiation
Sector total (EU-5)				
% of employment	14	10	10	16
% of enterprises	15	7	4	12
0-9 employees	15	7	4	11
10-49 employees	7	9	7	15
50-249 employees	18	11	10	21
250+ employees	16	11	14	17
All (9) sectors (EU-5)				
% of employment	17	12	14	13
% of enterprises	12	8	6	11
BE Belgium	12	3	3	27
DE Germany	14	6	1	9
ES Spain	12	3	3	9
FR France	26	17	10	29
IT Italy	12	3	3	6
PT Portugal	22	14	6	20
SE Sweden	12	8	8	5
UK United Kingdom	15	10	4	12
EE Estonia	6	1	0	45
HU Hungary	23	9	12	46
PL Poland	20	15	5	25
SI Slovenia	33	28	1	27
SK Slovakia	36	15	24	49

Base: enterprises with internet access. EU-5 = DE, ES, FR, IT, UK. N = 479 for EU-5 sector total and 49-100 per country.
Weighting: figures for size-bands and countries in % of enterprises. Reporting period: November 2003.

Source: *e-Business W@tch* (2003/04)

Most of the information exchange with third parties takes place in a rather informal manner. Only 32% of business services enterprises exchange standardised data (see Exhibit 2-32). However, the proportion of enterprises exchanging standardised data is significantly larger than in other sectors for which EU-5 data is available. Parameters of standardised data are new indicators that were included for the first time in the second wave of the survey. Accordingly, comparable EU-5 data is only available for the health and textile sectors. The percentage of enterprises in the health and textile sectors that exchange standardised data is about 13% and 18%, respectively, and thus only half of the percentage observed in the business services sector.

Enterprises in the business services sector as well as in other sectors seem to be more interested in the use of applications than in standards on which these applications are based. The exchange of

Word files or Excel sheets, for example, is a common form of information exchange in the business services sector. However, to classify these types of standardised data exchange among the predetermined categories listed in Exhibit 2-32 is obviously difficult. Accordingly, among those enterprises exchanging standardised data, the group not replying about the type of standards used is the largest. Even though multiple answers were possible, adding all five values for the default standards (including "Other") adds up to only 21% whereas 32% of enterprises reported to exchange standardised data. A similar pattern can be observed for the health and textile sector.

Among those enterprises that actually replied to this question, the category "other standards" received the most approval followed by the use of proprietary standards. This finding might be an indicator for the common exchange of Excel or Word documents in the businesses services sector. In contrast, EDI, XML or STEP are used almost exclusively by large companies but do not play an important role for the sector total.

Exhibit 2-32: Exchange of standardised data between companies (2003)

	Any standards	of those (multiple answers possible):				
		EDI based	XML based	STEP	Proprietary standards	Other
Sector total (EU-5)						
% of employment	44	10	13	3	25	12
% of enterprises	32	2	3	1	7	8
0-9 employees	31	2	3	1	6	7
10-49 employees	41	6	7	1	16	10
50-249 employees	42	7	8	1	21	9
250+ employees	54	17	22	6	44	18
BE Belgium	42	3	3	0	19	3
DE Germany	34	1	1	2	13	14
ES Spain	40	3	6	3	1	3
FR France	29	9	3	0	12	6
IT Italy	29	0	3	0	3	11
PT Portugal	34	9	3	0	3	11
SE Sweden	31	1	4	0	0	11
UK United Kingdom	29	1	4	0	12	1
EE Estonia	9	0	1	1	1	1
HU Hungary	36	4	7	4	11	10
PL Poland	22	14	0	4	7	7
SI Slovenia	39	0	11	0	17	0
SK Slovakia	25	2	2	3	9	4

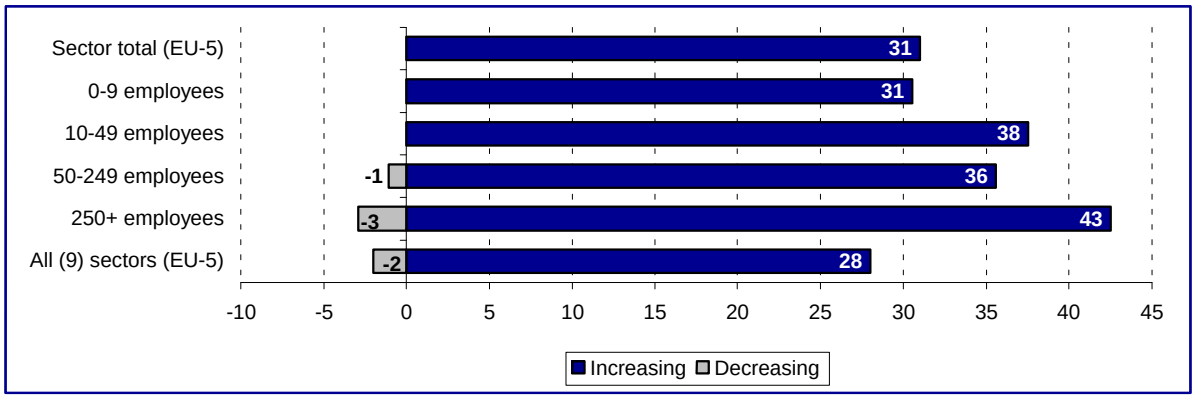
Base: all enterprises. EU-5 = DE, ES, FR, IT, UK. N = 501 for EU-5 sector total and 50-100 per country.
Weighting: figures for size-bands and countries in % of enterprises. Reporting period: November 2003.

Source: *e-Business W@tch* (2003/04)

2.2.6 Outlook: What will be important

As discussed in Chapter 1.3, the adoption of e-business technologies is increasingly becoming a key factor for the success of enterprises in the business services sector. Accordingly, investments in e-business technologies are likely to grow. 31% of business services enterprises actually plan to increase expenditure on e-business technologies within the next months. This rate is also above the average of all (9) sectors surveyed by *e-Business W@tch* (28%). In addition, almost no company in the business services sector plans to decrease e-business expenditures compared to an average rate of 2% for all sectors.

Exhibit 2-33: Future expenditures on e-business technologies within the next 12 months (2003)



Base: all enterprises. EU-5 = DE, ES, FR, IT, UK. N=502 for EU-5 sector total.
Weighting: in % of enterprises. Reporting period: November 2003.

Source: *e-Business W@tch* (2003/04)

Exhibit 2-34 shows evaluations of new e-business developments by business services enterprises with respect to the importance for their company business in the future. However, the possibilities of comparing the assessments of business services enterprises with companies of other sectors are limited. Since the evaluation of new e-business developments was covered only by the second part of the 2003 survey, comparable EU-5 values are only available for some of the sectors analysed (textile industries, business services, health and social services).

In general, business services enterprises belong to the early adopters of e-business technologies. For most parameters indicating a modern ICT infrastructure, business services enterprises show usage rates that are above the average of other sectors (see also Chapter 2.2.1). This appears to hold true for the evaluation of new e-business developments. For each item listed in Exhibit 2-34, the share of enterprises considering the new developments important is at least twice as large as in the health or textile sector.

A specific characteristic for many sub-sectors of business services (for instance cleaning or security services) is that many activities are carried out in the field. Accordingly, 22% of business services enterprises consider mobile solutions for connecting fieldworkers with the company as important. In the health sector this rate is only about 6% and in the textile sector about 5%.

There are different ways in which mobile solutions may support activities of business services enterprises. On the one hand, employees in the field can access up-to-date information irrespective of time and location. Mobile office applications, for example, may help to provide project members with current e-mails and calendar entries. Thus, collaboration among employees can be facilitated and project management improved. On the other hand, mobile solutions enable fieldworkers to collect data in electronic form directly on site. That way, for example, working times might be stored (see business example on Attensam GesmbH). Such applications help to reduce paper work, avoid errors resulting

from the transmission of data from paper sheets to companies' ICT systems and can also help to improve the efficiency of processes.

Business example:

Mobile Computing at Attensam (Austria)

Attensam GesmbH is a provider of facility services in Austria. About 200 employees with 140 vehicles are deployed in the field in order to service more than 2000 objects. For complete uninterrupted collection of data the company deployed the mobile computing system by Tempore Zeiterfassungssysteme GesmbH, an Austrian provider of time recording systems.

The system enables fieldworkers to collect data on services and working hours as well as on the usage of the vehicles in electronic form directly in the field. At the end of each working day all data is synchronized via a software programme that provides documentation and analysis tools and contains interfaces to the company's accounting and controlling system. Thus, no paperwork for data collection is necessary. Data can be collected and analysed in a comparatively short amount of time. Moreover, customers can access all relevant data with respect to the services ordered via the internet.

The system contributes to a significantly higher quality of service and transparency for the customers. According to Attensam, productivity increased by 25% within one year through a more efficient deployment of the field force and an optimized fleet management.

Source: www.Tempore.com (Erfolgsstory)

With the evolution of e-business, the integration of IT components becomes more and more important. Many companies have started to deploy single best-of-breed solutions to solve different problems, e.g. for accounting, sales or project management. This way, many different applications have been installed, which often have their own data records and are not able to communicate seamlessly with each other. Thus, redundancies in the data management arise as well as difficulties in managing integrated processes that require information from different systems. Within business services a typical problem is the co-ordination of contact information. Valuable contacts to prospective customers might be documented within the project management system, but should be made available to the sales team, too, which often uses its own sales force automation tool.

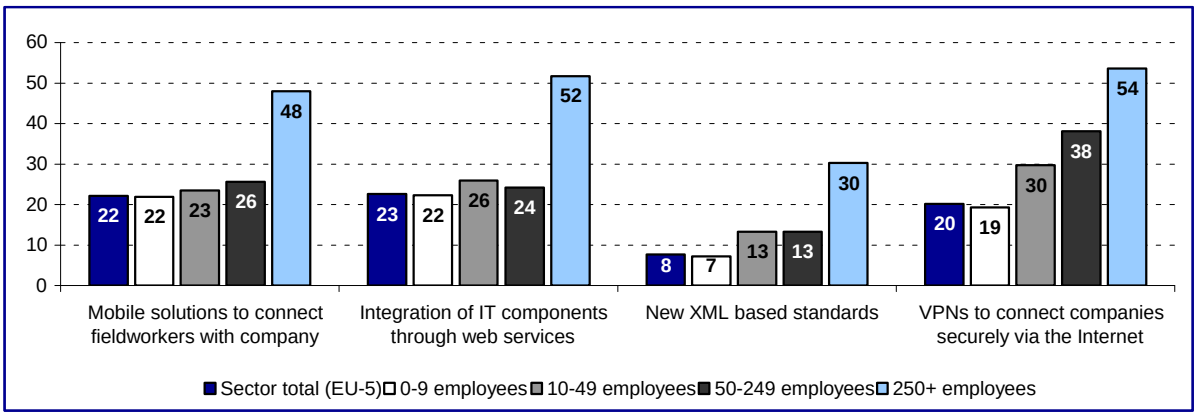
Web services as an integration tool standardize the communication interfaces of different applications and thus facilitate the integration of different IT components. Integration is especially important for large companies due to the multiple applications deployed. Additionally, it is more likely that this IT specific topic has already been discussed in larger companies. Accordingly, more than half of the large business services companies consider this development to be important.

XML standards are the basis for many e-business applications. Among others, they build the basis for the provision of web services. However, as already pointed out in the previous Chapter 2.2.5, enterprises are more interested in applications than in technical standards on which such applications are based. This is also confirmed by the assessments of new developments. Compared to evaluations of the other current developments listed in Exhibit 2-34, new XML standards are perceived as important only by a relatively small fraction of business services enterprises. This finding is also in line with the evaluations by enterprises in the health and textile sector.

A virtual private network (VPN) is a data encryption technology that allows companies to connect securely via the internet. Business services enterprises may use VPNs for the information exchange via the internet with third parties as well as with branches that are located outside the companies' headquarters. In addition, VPNs can help to connect fieldworkers securely with the company.

Since the management of third party relationships is a key factor in the business services sector, secure connections via the internet are essential. For many tax or management consulting companies frequently exchanging confidential information about their clients via the internet, for example, the use of VPNs can be an appropriate security measure. Accordingly, about 20% of business services consider the development of VPNs to be important for their company business. The same rate accounts for about 10% in the health sector and for only about for 5 % in the textile industry. In particular large companies with an extensive network of third party relationships as well as a relatively large number of branches and fieldworkers are interested in this technology. Accordingly, more than half of the large business services enterprises evaluate VPNs as important for their company business.

Exhibit 2-34: Assessment by companies: The future importance of new developments (2003)



Base: all enterprises. EU-5 = DE, ES, FR, IT, UK. N = 501 for EU-5 sector total.
Weighting: in % of companies saying this will be "important for their company". Reporting period: November 2003.

Source: *e-Business W@tch* (2003/04)

2.3 Sector scoreboards and benchmarks

2.3.1 Introduction

This Scoreboard compares the importance of ICT and e-business applications in 9 sectors of the European economy using 16 key indicators. For reasons of consistency and comparability, all indicators are based on data obtained through the e-Business Survey 2003 of the *e-Business W@tch*. Normally, benchmarking activities of this type imply that a higher score stands for a better performance. In this context, however, the main objective of the Scoreboard is not to make a statement about sectors' e-business performance. The goal is rather to make visible at a glance the fundamental differences between sectors with respect to the role and the relative importance of information technology and electronic business applications. For instance, the Scoreboard for the tourism sector shows that e-business is very important for marketing and sales, while the e-business intensity is below average in other business areas. For the chemical industries, the finding is just vice versa.

The indicators

The Scoreboard is composed of 16 component indicators for ICT and e-business which are grouped into four categories according to the business functions they refer to. These categories are: (i) the connectivity of the enterprise, (ii) Internal business process automation, (iii) procurement and supply chain integration, and (iv) marketing and sales. The scoreboard compares the level of e-business across different sectors in each of these categories.

The selection and definition of component indicators was driven by pragmatic requirements, considering data availability (a selection criteria was that data were available for all sectors monitored and for the EU-5 countries) as well as data reliability (in the sense that only a minimum of indicators which reflect subjective perceptions of the interviewee were used). Some of the component indicators consist of more than one variable by themselves. The Exhibit on the next page explains all 16 component indicators and their definition.

The Scoreboard is flexible in terms of scope and choice of indicators. Additional categories could be added on demand. If component indicators are modified or exchanged, however, aggregate values for the respective category will obviously be affected.

Percentages and index values

The Scoreboard presents data both as percentages and as indexed values.

- **Percentages** express the share of employees from a sector that work in enterprises using an application as defined in the following table.
- **Indexed values** take into account the percentages from all sectors and show how a specific sector differs from the all-sector-average. An index value is based on mean values and standard deviations. Constituting values are z-values, i.e. z=(x - mean(x))/stddev(x). This procedure results in a distribution with mean(z)=0 and stddev(z)=1. Thus, index values express the multiple of the standard deviation (1 or (-1)) for a specific sector and the selected indicator. 0 equals the mean value for all sectors, a value of +1 that the percentage is higher than the mean percentage of all sectors by the extent of the standard deviation. Negative values show that the percentage is lower than the mean percentage of all sectors.

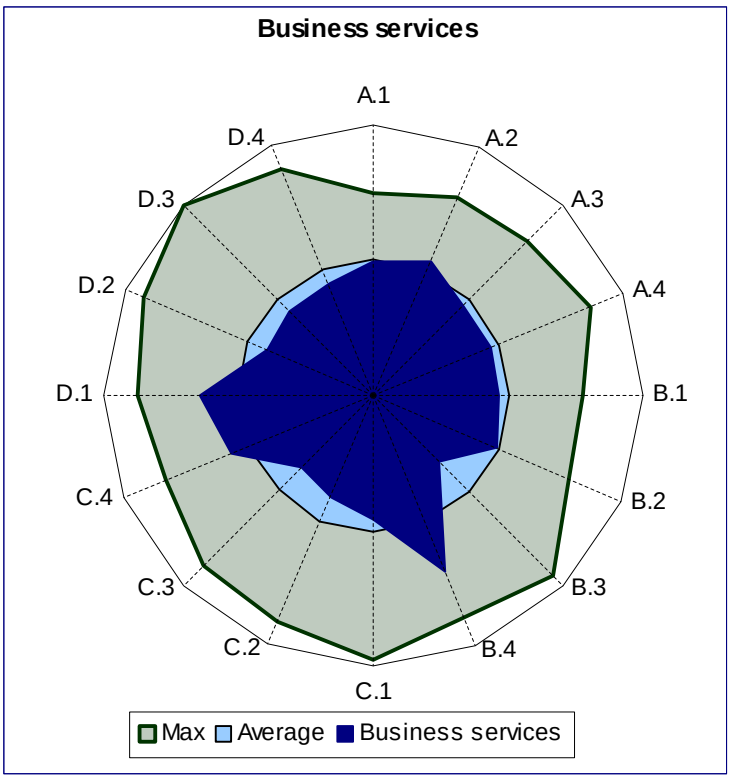
All spider diagrams are based on index values. The reason for preferring indexed values over simple percentages is that they adjust data for typical cross-sectoral gaps.

Exhibit: Definition of component indicators used for the E-Business Sector Scoreboard

A	**Connectivity of the enterprise**	
A.1	Enterprises connecting computers with a LAN	= the percentage of employees from a sector working in enterprises that have connected computers with a Local Area Network (LAN).
A.2	Internet connectivity	= the percentage of employees working in enterprises that are connected to the internet, with a supplementary indicator for the type of internet connection in terms of bandwidth. The percentage of employees working in enterprises that are connected with a bandwidth of less than 2 Mbit/s is computed with a factor of 0.5, enterprises connected with >= 2 Mbit/s bandwidth with a factor of 1.0. The maximum value of 100 would be returned if all employees from a sector work in enterprises connected to the internet with >= 2 Mbit/s bandwidth.
A.3	Remote access to the company network	= the percentage of employees from a sector working in enterprises where it is possible to access data from the company's computer system from a remote location.
A.4	Wireless access to company network	= the percentage of employees from a sector working in enterprises where it is possible to access the company network through wireless technology, for example by means of a wireless LAN (W-LAN).
B	**Internal business process automation**	
B.1	Use of an intranet	= the percentage of employees working in enterprises that use an intranet.
B.2	Use of online technology to track working hours and/or production time	= the percentage of employees working in enterprises that use online technologies for production process controlling purposes by tracking working hours of employees and / or production times
B.3	Use of ERP systems	= the percentage of employees working in enterprises that have implemented an ERP (enterprise resource planning) system
B.4	Perceived impact of e-business on internal work processes	= the percentage of employees working in enterprises that say that the use of e-business applications has significantly or somewhat changed their internal work processes
C	**Procurement and supply chain integration**	
C.1	Enterprises purchasing at least 5% of their supplies online	= the percentage of employees working in enterprises saying that they purchase at least 5% of their supplies online via the Internet or other online networks (for example via EDI based connections to their suppliers)
C.2	Use of SCM systems	= the percentage of employees working in enterprises that use an SCM (supply chain management) system
C.3	Integration of the IT system with that of a supplier	= the percentage of employees working in enterprises that purchase some of their supplies online and have integrated their IT system with that of a supplier for this purpose
C.4	Electronic exchange of documents with suppliers	= the percentage of employees working in enterprises that exchange documents (other than plain text e-mails) electronically with their suppliers
D	**Marketing and sales**	
D.1	Enterprises maintaining a website with a content management system	= the percentage of employees working in enterprises that have a website and use a content management system to maintain and update the website
D.2	Use of CRM software systems	= the percentage of employees working in enterprises that use a CRM (customer relationship management) software to organise data about their customers electronically
D.3	Enterprises selling at least 5% of their goods & services online	= the percentage of employees working in enterprises saying that online sales via the Internet or other online networks (for example via an extranet) constitute at least 5% of their total sales volume
D.4	Enterprises with an online sales system offering the capability of secure transactions	= the percentage of employees working in enterprises that make online sales and whose online sales system offers the capability of secure transactions by means of a secure server, for example using SSL, TLS or a comparable technical standard

2.3.2 E-Business Scoreboards for the business services sector

Indexed scoreboard: component indicators



Indicators

A.1) LAN

A.2) Internet connectivity

A.3) Remote access to company network

A.4) Wireless access to company network

B.1) Use of an intranet

B.2) Use of online technology to track working hours and/or production time

B.3) Use of ERP systems

B.4) Perceived impact of e-business on internal work processes

C.1) Enterprises purchasing at least 5% of their supplies online

C.2) Use of SCM systems

C.3) Integration of IT system with supplier(s)

C.4) Electronic exchange of documents with suppliers

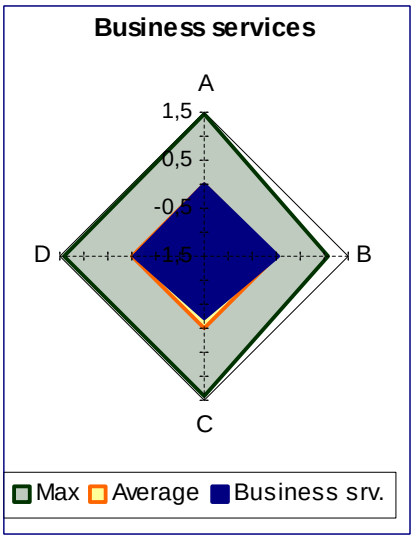
D.1) Enterprises maintaining a website with a content management system

D.2) Use of CRM software systems

D.3) Enterprises selling at least 5% of their goods & services online

D.4) Enterprises with an online sales system offering the capability of secure transactions

Indexed scoreboard: categories (aggregate)



Categories

A) Connectivity of enterprises

B) Internal business process automation

C) Procurement and supply chain integration

D) Marketing and sales

Max = maximum indexed value for one of the 9 sectors

Average = mean value for the 9 sectors

Assessment: Small companies with modern ICT infrastructure

Business services enterprises rely on a comparatively modern ICT infrastructure. The deployment of LANs or Internet connections is more widespread than on average in other sectors covered by *e-Business W@tch*. This is noticeable since the sector is characterised by a strong dominance of micro and small enterprises. About 99% of all business services enterprises have less than 50 employees.

Online technologies are mainly used as tools to support collaboration among employees as well as the management of third-party-relation-ships. Thus, basic applications for information exchange and project management such as e-mail and intranet usage are most widespread in this sector. In contrast, the deployment of complex software systems such as ERP or SCM systems is among the predominantly small companies in this sector - less likely.

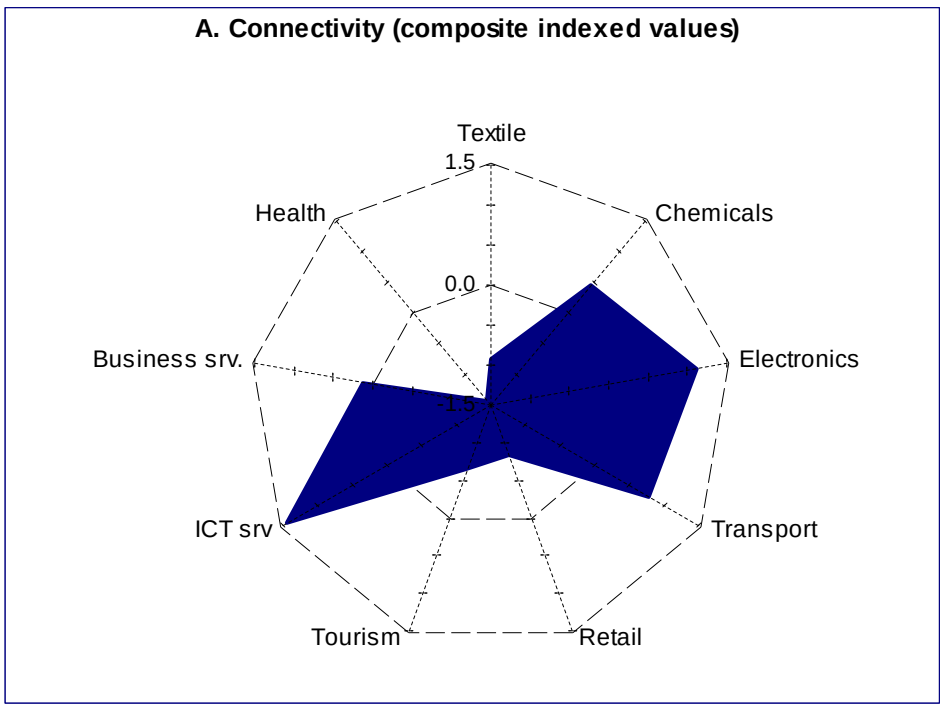
2.3.3 Cross-sector Scoreboards

Scoreboard A) Connectivity of the enterprise

Indicator	A.1 LAN		A.2 Internet		A.3 Remote access		A.4 Wireless access	
Sector	%	Index	%	Index	%	Index	%	Index
Textile	50	-0.94	50	-0.99	26	-0.89	6	-0.88
Chemicals	83	0.82	63	0.31	57	0.63	12	0.01
Electronics	89	1.18	67	0.69	61	0.84	25	1.69
Transport equipment	88	1.13	71	1.10	70	1.25	9	-0.44
Retail	51	-0.91	51	-0.96	24	-1.03	9	-0.43
Tourism	49	-1.00	55	-0.49	28	-0.79	10	-0.36
ICT services	87	1.06	74	1.41	73	1.42	26	1.78
Business services	68	0.02	66	0.59	43	-0.08	12	-0.08
Health services	42	-1.36	43	-1.66	17	-1.35	3	-1.29
All sectors	**61**	(-0.33)*	**58**	(-0.26)*	**37**	(-0.38)*	**11**	(-0.25)*
Crafts & trade **	30	-1.68	42	-1.55	10	-1.50	3	-1.15

* Due to the larger number of firms and persons employed, service sectors have more weight in the "all sectors" percentage. In contrast, the mean percentage of nine sectors which is used to compute the indexed values, does not consider different sector sizes. Therefore, the indexed value of the percentage for "all sectors" is not zero.

** Figures for the crafts & trade sector were not included for computing the all-sector average and the indexed values for other sectors, because "crafts & trade" only include small enterprises. Values for crafts & trade result from a separate computation where this sector was included.



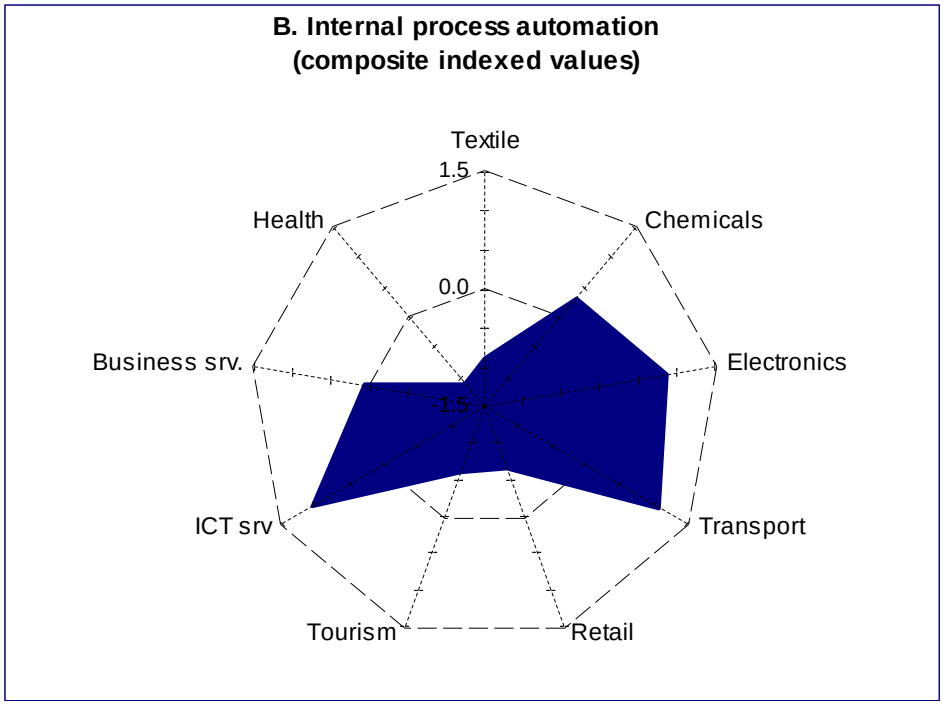
The connectivity scoreboard compares sectors with respect to the functionality of their ICT networks. In general, companies from manufacturing sectors tend to be equipped with more powerful ICT architectures than businesses from service sectors. The textile industries and the ICT services sector are the exceptions to this rule among the sample of sectors analysed by the *e-Business W@tch*. Results reflect the dominance of large enterprises with complex and sophisticated networking architectures in some manufacturing sectors (for instance in transport equipment manufacturing), compared to sectors such as business services, retail or tourism, where large players are less dominant. If only SMEs were considered, the connectivity gap would be much less pronounced.

Scoreboard B) Internal business process automation

Indicator	B.1 Intranet		B.2 Track production time		B.3 ERP use		B.4 Impact on work organisation	
Sector	%	Index	%	Index	%	Index	%	Index
Textile	32	-1.01	15	-0.74	18	-0.43	12	-1.39
Chemicals	62	0.47	33	0.60	48	0.96	16	-0.81
Electronics	77	1.18	36	0.85	45	0.84	25	0.47
Transport equipment	81	1.34	42	1.29	72	2.12	18	-0.51
Retail	37	-0.75	11	-1.06	13	-0.66	21	-0.13
Tourism	34	-0.91	10	-1.14	7	-0.96	26	0.57
ICT services	77	1.18	43	1.37	21	-0.28	34	1.80
Business services	49	-0.16	25	0.00	12	-0.71	29	1.09
Health services	25	-1.33	9	-1.18	9	-0.87	14	-1.08
All sectors	**45**	(-0.35)*	**20**	(-0.39)*	**19**	(-0.40)*	**23**	(0.11)*
Crafts & trade **	16	-1.48	8	-1.14	5	-0.95	11	-1.70

* Due to the larger number of firms and persons employed, service sectors have more weight in the "all sectors" percentage. In contrast, the mean percentage of nine sectors which is used to compute the indexed values, does not consider different sector sizes. Therefore, the indexed value of the percentage for "all sectors" is not zero.

** Figures for the crafts & trade sector were not included for computing the all-sector average and the indexed values for other sectors, because "crafts & trade" only include small enterprises. Values for crafts & trade result from a separate computation where this sector was included.



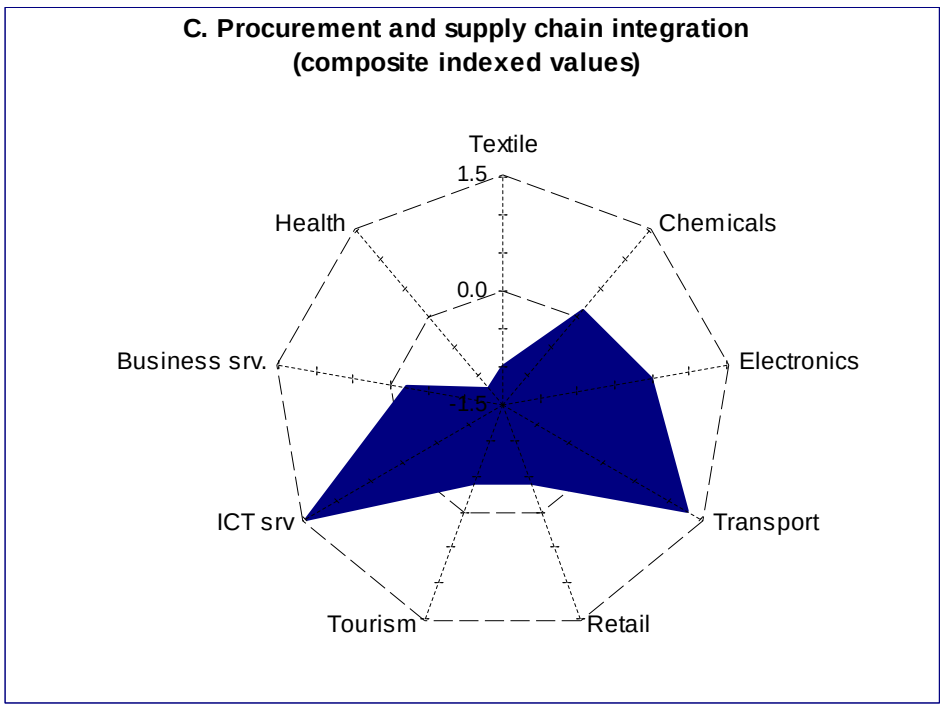
This scoreboard indicates to what extent sectors use ICT to automate internal business processes. Results are largely in line with the connectivity scoreboard. Again, the scoreboard suggests that companies from manufacturing sectors where large enterprises are particularly dominant tend to be most advanced in linking and automating internal business processes. This could be expected considering that many internal e-business applications such as ERP systems are clearly more relevant for manufacturers and for large companies. However, service companies also use applications to link their internal processes, most of all the ICT services and the business services sectors.

Scoreboard C) Procurement and supply chain integration

Indicator	C.1 E-procurement intensity		C.2 SCM use		C.3 IT integration with suppliers		C.4 Online exchange with suppliers	
Sector	%	Index	%	Index	%	Index	%	Index
Textile	6	-1.56	7	-0.22	2	-1.31	31	-0.93
Chemicals	23	-0.23	13	0.91	6	-0.55	43	0.33
Electronics	30	0.34	10	0.36	12	0.62	45	0.56
Transport equipment	31	0.47	19	1.98	14	1.03	55	1.58
Retail	16	-0.81	5	-0.63	11	0.43	34	-0.59
Tourism	28	0.16	3	-1.05	7	-0.37	35	-0.49
ICT services	54	2.29	11	0.53	19	1.89	50	1.05
Business services	23	-0.18	6	-0.44	6	-0.62	43	0.34
Health services	20	-0.47	1	-1.44	3	-1.12	21	-1.85
All sectors	**23**	(-0.18)*	**6**	(-0.42)*	**8**	(-0.19)*	**37**	(-0.27)*
Crafts & trade **	10	-1.11	3	-0.97	6	-0.58	30	-0.86

* Due to the larger number of firms and persons employed, service sectors have more weight in the "all sectors" percentage. In contrast, the mean percentage of nine sectors which is used to compute the indexed values, does not consider different sector sizes. Therefore, the indexed value of the percentage for "all sectors" is not zero.

** Figures for the crafts & trade sector were not included for computing the all-sector average and the indexed values for other sectors, because "crafts & trade" only include small enterprises. Values for crafts & trade result from a separate computation where this sector was included.



This scoreboard compares sectors with respect to the intensity and sophistication of their e-procurement activities. Results suggest that two sectors are outstanding in this regard: the ICT services sector and the automotive industries. From the other sectors, only electronics and the chemical industries have indexed scores above average. The retail and the tourism sector are closer to the sector average (= 0 in the spider diagram) than in the scoreboards for their industry-wide connectivity and internal process automation. E-procurement activities in the textile industries seem to be at a low level for a manufacturing sector where managing the supply chain is a core business function.

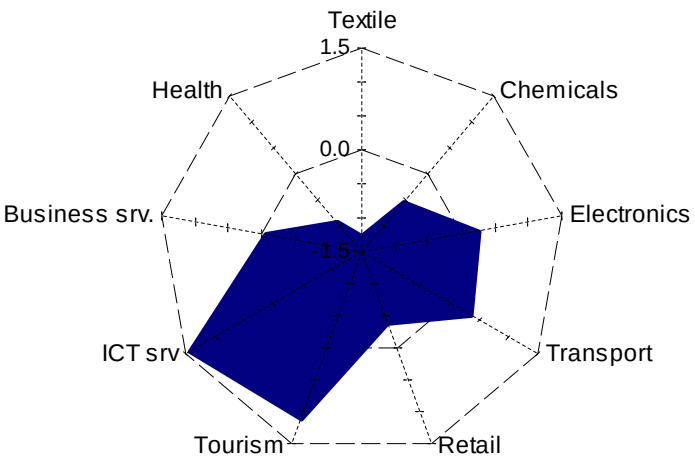
Scoreboard D) Marketing and sales

Indicator	D.1 Website with CMS		D.2 CRM use		D.3 E-commerce		D.4 Secure transaction capability	
Sector	%	Index	%	Index	%	Index	%	Index
Textile	7	-1.64	7	-1.05	1	-1.11	4	-1.24
Chemicals	17	-0.51	16	-0.01	2	-0.95	5	-0.83
Electronics	28	0.73	23	0.73	8	-0.11	8	-0.27
Transport equipment	23	0.13	26	0.98	13	0.63	8	-0.16
Retail	17	-0.53	7	-0.97	9	0.00	9	-0.04
Tourism	26	0.48	14	-0.28	24	2.36	18	1.92
ICT services	38	1.78	36	2.03	11	0.33	16	1.56
Business services	28	0.70	13	-0.35	6	-0.30	8	-0.25
Health services	12	-1.14	6	-1.07	3	-0.85	6	-0.70
All sectors	**22**	(-0.03)*	**13**	(-0.36)*	**9**	(0.03)*	**9**	(0.04)*
Crafts & trade **	6	-1.51	3	-1.24	1	-0.95	1	-1.50

* Due to the larger number of firms and persons employed, service sectors have more weight in the "all sectors" percentage. In contrast, the mean percentage of nine sectors which is used to compute the indexed values, does not consider different sector sizes. Therefore, the indexed value of the percentage for "all sectors" is not zero.

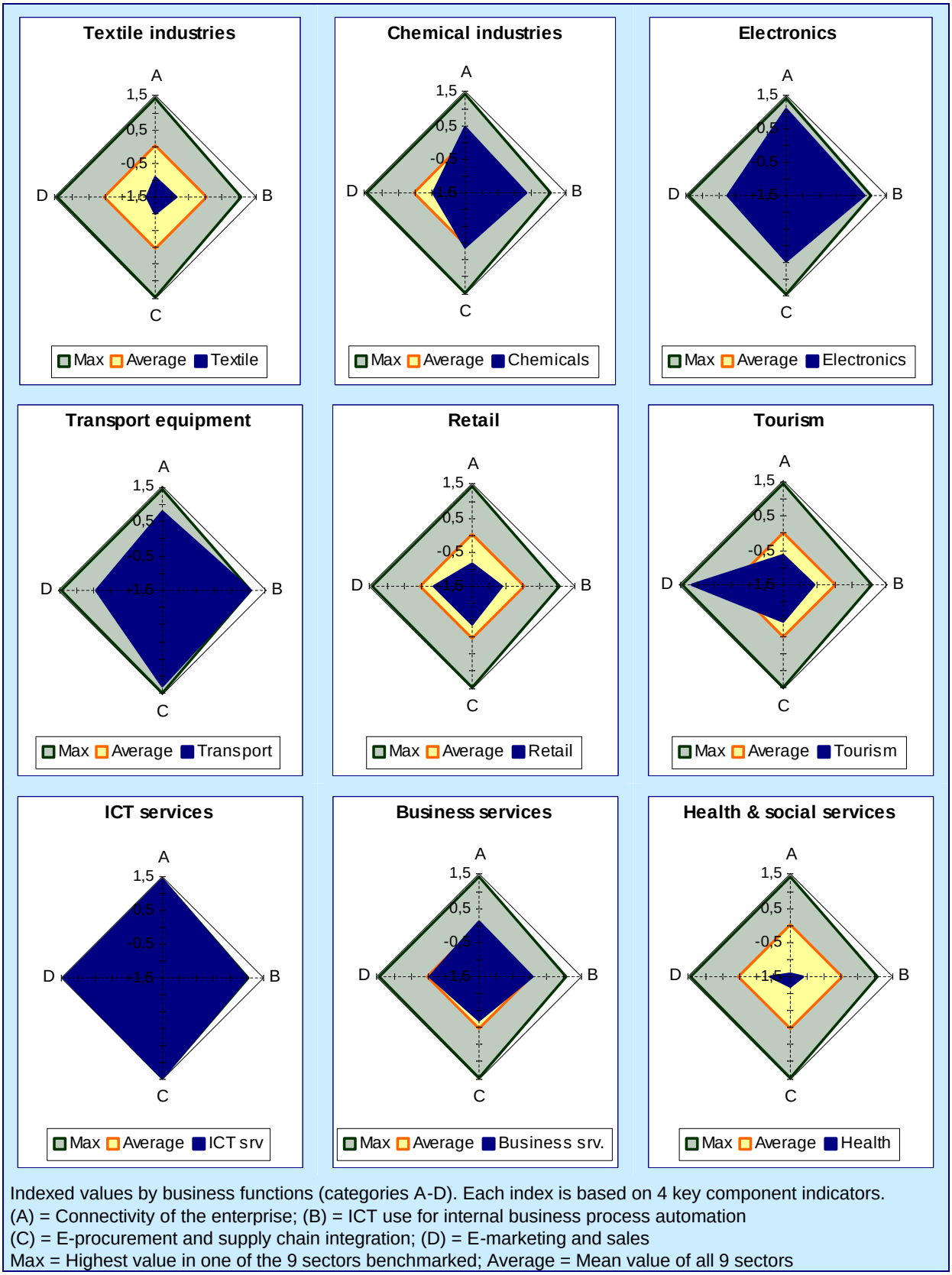
** Figures for the crafts & trade sector were not included for computing the all-sector average and the indexed values for other sectors, because "crafts & trade" only include small enterprises. Values for crafts & trade result from a separate computation where this sector was included.

D. Marketing and sales (composite indexed values)



This scoreboard compares sectors with respect to e-marketing and e-sales activities. Results are quite different from the other scoreboards and show that using e-business for marketing and sales is a different story than, for instance, automating procurement and supply chain. Tourism, which is below average in all other sectors, is a leader and forerunner in the use of customer facing e-business applications. The sector is topped only by companies from ICT services which manage a large deal of their customer relationship electronically. Retail also scores higher than in the other business areas, although still below average, which is quite astonishing considering the e-commerce boom in specific retail markets (for instance books, software).

2.3.4 Sectors in profile



Indexed values by business functions (categories A-D). Each index is based on 4 key component indicators.
(A) = Connectivity of the enterprise; (B) = ICT use for internal business process automation
(C) = E-procurement and supply chain integration; (D) = E-marketing and sales
Max = Highest value in one of the 9 sectors benchmarked; Average = Mean value of all 9 sectors

3 Summary and conclusions

3.1 Summary of main findings

This sector report analysed the readiness, actual use and impact of ICT and e-business in the business services sector. This sector covers a wide range of activities including legal and business consulting, architectural and engineering activities as well as advertising and industrial cleaning. Analysing the rather heterogeneous components of the business services sector in total, therefore, always bears the risk of generalisation.

What most sub-sectors have in common is a strong dominance of micro firms and small enterprises with less than 50 employees. They make up about 99% of all enterprises, generate more than half of the sector's value added and employ almost half of the people working in the sector. More than half of the production value and value added in the sector is generated in knowledge-intensive sub-sectors (NACE 74.1, 74.2 and 74.3), characterised by a high intensity of value creation.

Companies in the business services sector currently face a large number of challenges, many of which are potentially easier to cope with through the use of ICT and e-business applications. The management of complex (and international) projects can be significantly facilitated through the use of ICT and e-business applications. This applies to the management of internal processes as well as to the management of third-party-relationships, e.g. with sub-contractors, specialised suppliers and freelancers. The internet also facilitates the search for and access to information. This helps business services companies to respond to changing customer needs and supports the process of finding skilled experts or cheap labour. In addition, ICT and e-business systems can help to reduce cost for recurring, standardised business processes. This helps companies to deal with intense (price) competition. And last but not least, e-business applications enable companies to outsource an increasing number of tasks to external parties. This allows business services companies to specialise in their core capabilities and use ICTs to collaborate with a network of partners to deliver a complex set of services.

Companies in the business services sector are generally very well equipped with basic ICT infrastructure. More than 90% of all employees are working in companies with internet access and use basic applications such as e-mail. The fact that not only large but also small companies have a good ICT infrastructure distinguishes the business service sector from many others sectors. Even for small companies the respective percentages are at 90% or higher.

The most important use of new technologies in this sector is for accessing and exchanging information. The WWW is used more intensively than in other sectors and online technologies are also used more often for exchanging documents with customers and to perform collaborative work. Buy-side e-commerce activities are also strongly developed in the business services sector: the percentage of companies purchasing online is higher than on average. By contrast, sell-side e-commerce activities are comparatively weak. However, most services differ inherently from products as they are "produced" individually for each customer and at the customer's premises. Due to this different nature, they do not lend themselves as well to being sold online as products do.

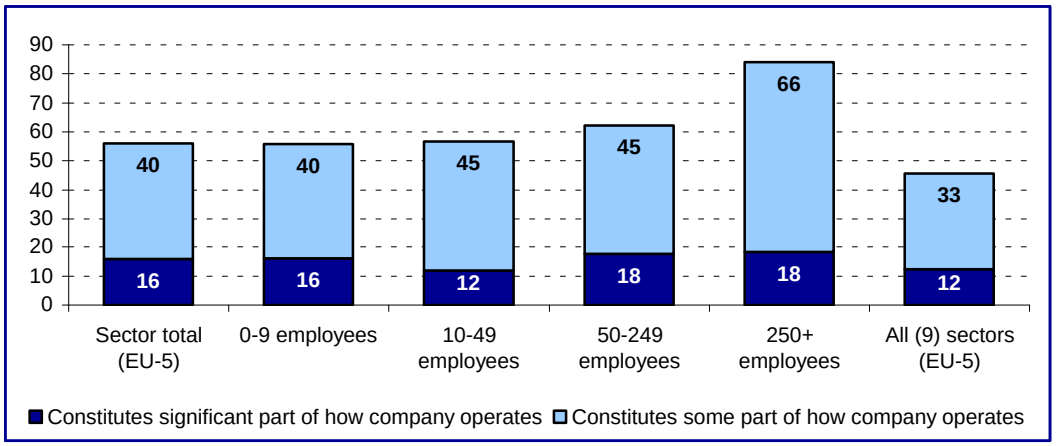
The survey results reveal some unexpected differences between countries. These might be partly explained by different weights of business services sub-sectors and company sizes in the countries surveyed. However, there is no general gap between EU-15 and Acceding Countries in deployment of e-business technologies.

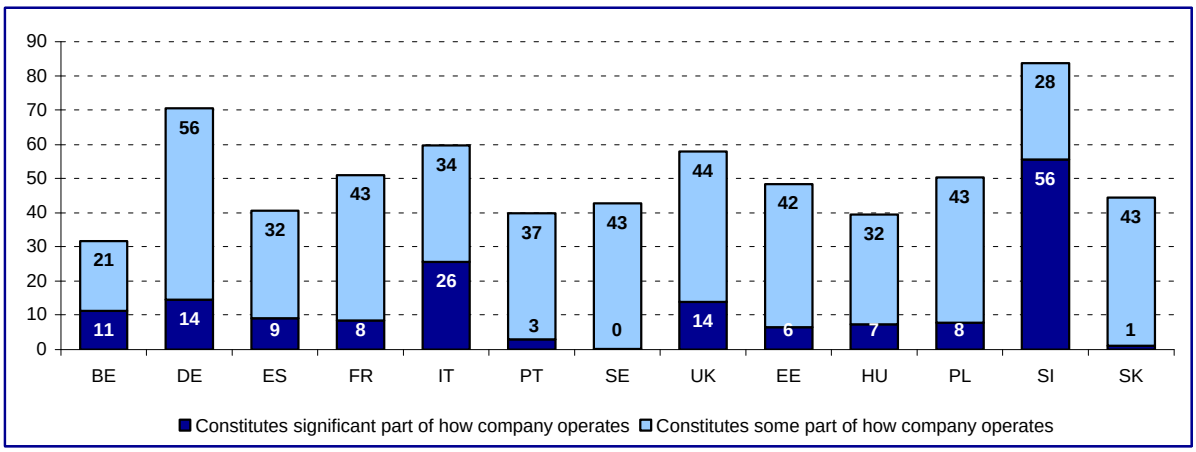
3.2 Economic impacts

3.2.1 Impacts on individual enterprises

Results from the *e-Business W@tch* survey indicate that ICT and e-business play an important role for business services companies today: 56% see a significant or some role of e-business for their company, compared to 45% on average of all (9) sectors surveyed (see Exhibit 3-1). However, more than 40% of all enterprises surveyed still do not ascribe any role to e-business. In addition, over half of the respondents even reported that e-business does not play an important role for the way their company operates today nor will it do during the next two years (not displayed in the exhibits). This might indicate that initial expectations of the effects and importance of e-business, especially the huge importance attached to e-business during the dot-com era, have been overstated.

Exhibit 3-1: Overall significance of e-business for companies in 2003 (by region and by size-band)





Base: all enterprises. EU-5 = DE, ES, FR, IT, UK. N=188 for EU-5 sector total and 50-100 per country.
Weighting: in % of enterprises. Reporting period: November 2003.

Source: *e-Business W@tch* (2003/04)

As illustrated in Exhibit 3-2, the company size being too small turns out to be one of the main reasons why e-business does not a role. More than two thirds of the micro companies and almost half of the small companies justify the non-importance of e-business for their company by too small a company size. Even 17% of the large companies indicating that e-business plays no role for their company business justify this assessment by pointing to their small size. There could be several reasons for this finding. There might actually be a number of companies that neither require any support of e-business tools for offering their services nor are large enough to benefit from e-business tools that support collaboration among employees or project management.

However, there also seems to be a lack of information about the use of e-business and its impacts. This is also supported by the fact that 17% of the large and 25% of the medium-sized companies reporting that e-business does not play a role feel too small to benefit. For these companies there is at least a potential for the use of e-business to support collaboration among employees or the internal management. Exhibit 3-3 actually confirms the exceedingly positive effects on internal collaboration and management reported by the majority of companies that actually use e-business tools.

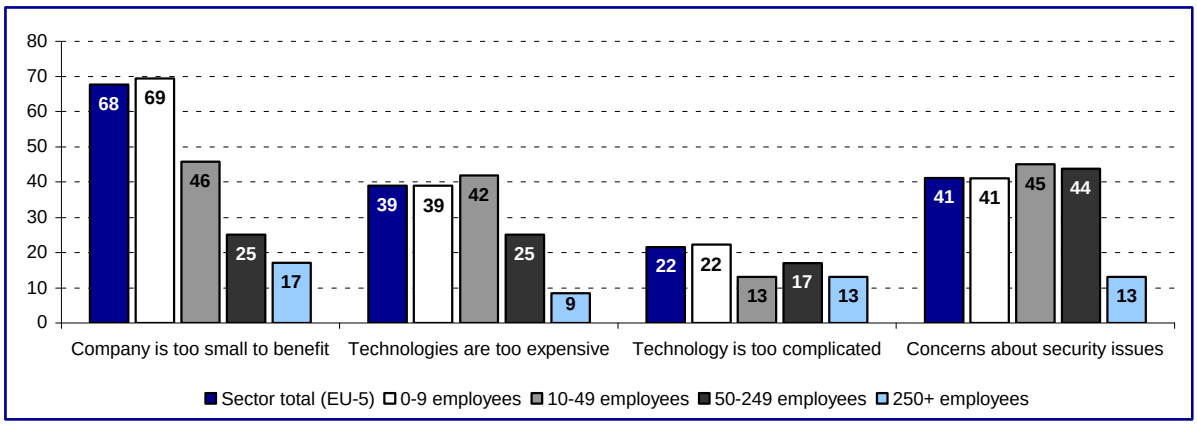
Finally, there might also be differences in the understanding of the term “e-business”. The expression might be understood by a number of enterprises exclusively as the deployment of complex systems such as ERP or CRM solutions. Thus, simple but often very important basic applications like the exchange of e-mails or the search for information on the web are not taken into consideration by these enterprises.

The fact that technologies are considered too expensive is another important reason for not using e-business tools. About 40% of business services enterprises reporting that e-business does not play a role for their company consider technologies to be too expensive. This argument is most widespread among micro and small companies. In fact, many software manufacturers have just recently started to target small and medium-sized businesses so that applications suited for the needs of SMEs have only recently become available.

Many business services enterprises are not only concerned with the security of their own company data, but often they also have to work with confidential information concerning their clients. Thus it is no surprise that concerns about security issues turn out to be a further important argument against the use of e-business applications by business services enterprises. More than 40% of companies for which e-business does not play a role justify this assessment with concerns about security issues.

However, there might also be a considerable lack of information concerning the risks of e-business and appropriate security technologies to avoid them. Large firms, which have more capacity to employ IT-skilled employees, are (in spite of the larger amount of sensitive data) obviously less concerned about security issues than small and medium-sized enterprises. They seem to be better informed about technologies for avoiding security risks. This is also supported by the fact that the rate of large companies considering VPNs for secure internet connections to be important for their company business is essentially larger than that of small enterprises (see Exhibit 2-34).

Exhibit 3-2: Reasons why e-business does not play a role in companies (2003)



Base: enterprises not using e-business applications. EU-5 = DE, ES, FR, IT, UK. N=188 for EU-5 sector total.
Weighting: in % of enterprises. Reporting period: November 2003.

Source: *e-Business W@tch* (2003/04)

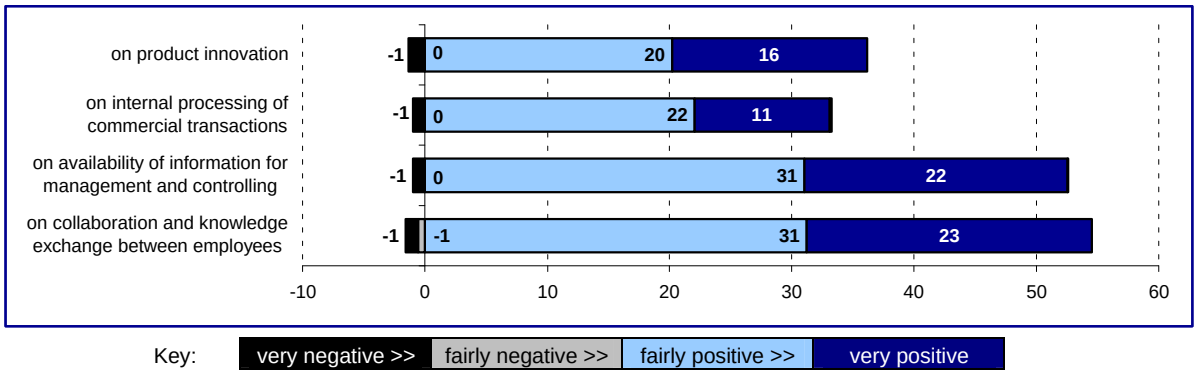
Business services enterprises essentially can profit from the use of e-business technologies. The perceived positive effects on the parameters listed in Exhibit 3-3 are consistently bigger than in the health or textile sectors. Since many business services emerge from collaborations of many different parties, the support of collaboration and knowledge exchange between employees as well as the

availability of information for management and controlling by e-business technologies is vital. More than half of the companies using the internet report positive or even very positive impacts concerning these parameters. In contrast, the proportions in the textile and health sector reporting positive effects on these parameters vary only between 22% and 37%.

The use of e-business tools for product innovation and for internal processing of commercial transactions seems to play a lesser role. About one third of business services enterprises report positive or very positive effects concerning these parameters. However, these rates are still higher than in the textile and health sector, where between 22% and 27% of enterprises report positive effects.

Generally, the results for the impact on individual enterprises show a distinct discrepancy between the perceived positive impacts of companies using the internet and the relatively large percentage of companies reporting that e-business does not play a role. As discussed above, lack of knowledge about the use and impact of appropriate technologies might be one reason for not doing e-business. Replacing this lack of information by the positive experiences of companies actually using e-business tools may be a future policy issue, which will be discussed in detail in Chapter 3.3.

Exhibit 3-3: Perceived impacts of the internet and e-business technologies (2003)



Base: enterprises using the internet. EU-5 = DE, ES, FR, IT, UK. N=479 for EU-5 sector total.
Weighting: in % of enterprises. Reporting period: November 2003.

Source: *e-Business W@tch* (2003/04)

3.2.2 Implications for the industry

Easier access to information and increased transparency

For those parts of the business services sector that are based on information and knowledge, ICT and e-business have significant implications: the efficiencies of accessing, compiling and distributing information are enhanced considerably. The internet puts any sort of information at the fingertips of connected knowledge workers. This applies to information necessary for producing the services (e.g. legal documents, research) as well as to new business opportunities (e.g. through tender databases). Accordingly, the proportion of companies that have access to the internet and use the WWW is well above the average of other sectors. The same holds for the quality of internet connection: modern DSL connections are more widespread in the business services sector than in other sectors surveyed by *e-Business W@tch*.

Before the internet, this information had to be collected expensively (e.g. in libraries or archives) or was only available to larger companies that could distribute the costs of using expensive databases over many projects and workers. Thus, the barriers to market entry are lower now than they used to be since the minimum size necessary to produce high-quality services is lower than it used to be.

The internet has also increased market transparency on the supply side: purchasing online has become common in 35% of enterprises. This also has implications for the non knowledge-intensive

services. For almost 30% of companies purchasing online the number of suppliers has increased and about two thirds report positive effects on procurement costs.

Increased efficiency of internal processes

According to the survey results, one of the most important effects of ICT and e-business usage is an increased efficiency of internal work processes. More than half of the companies using the internet report a positive impact on collaboration and knowledge exchange between employees as well as on the availability of information for management and controlling. Since collaboration is a central element in providing business services, increased efficiencies already result from using basic technologies such as e-mail to share documents and to perform collaborative work. Further possibilities to optimise internal processes range from simple project and human resource management tools to relatively complex knowledge management systems. While the potential benefits of such applications might have been exaggerated during the e-business hype, they have found their way into the daily work routine in many companies. More than one third of business services enterprises, for example, use online technologies to share documents internally or for collaborative work. This rate is well above the average of other sectors.

Since business services are to a large extend provided at the costumers' premises, the connection of mobile workers with the company is of great relevance for the efficiency of internal processes. The information exchange with employees outside the company, for example, helps to improve project management and thus to streamline internal processes. Accordingly, the rate of business services companies providing remote access to their employees is above the average of all sectors surveyed. In addition, about 22% of business services enterprises evaluate mobile solutions for connecting fieldworkers as important for the company business in the future. In this context, security solutions like VPN, which provide secure connections via the internet, are also of increasing importance.

Enhanced co-operation with third-parties

The coordination and management of third-party relationships, e.g. with suppliers, sub-contractors or end-users, is an important part of business services. ICT and e-business applications today play a major role in managing these often rather complex relationships and enhancing efficiencies in the communication process. As the costs of exchanging documents and information fall and at the same time software and tools help manage larger and more distributed projects and relationships, the costs for co-operating with others decrease. Thus, co-operation between business services companies is significantly facilitated. Accordingly, the use of online technologies to exchange documents with suppliers and customers is the most often used application on buy- and sell-side in this sector. In addition, the use of online technologies for document exchange with customers is well above the EU-5 average for all sectors covered.

The information exchange with third parties also includes the exchange of confidential material such as business data of customers. Thus security is critical for the use of collaboration applications with third parties. Accordingly, security concerns turn out to be one of the most important reasons not to do e-business.

Change of products and services provided

In many sub-sectors of business services, the digital provision of services does not only impact on the efficiency of processes between service providers and their clients, but in fact changes the very nature and quality of the services provided. This has some important implications. First, customers of service companies can benefit from substantial cost savings if this potential is realised. Second, the value and the quality of the service should increase. As a result, a strong link between ICT innovativeness and competitiveness exists in the business services sector. This is also supported by the survey results: more than one third of business services enterprises using the internet reported positive effects from the use of e-business on product innovation.

Public opinion polling companies, for example, have developed internet surveys as a new service for their clients. Security firms have created online video surveillance systems, which offer clients a

significantly higher quality of service. Companies from the exhibition and conference sector are offering a large set of online services in addition to their offline business such as online directories, the download of conference material, virtual exhibitions etc.

These new services are not only intended to increase profitability by lowering costs and/or raising the product value and thus prices. They can also serve as a tool to intensify customer relationships by tying the customer more closely to the services company. In particular for those companies focused on ad-hoc services, such a strategy can help to make the income stream more steady and predictable and thereby reduce risk. It also reduces the costs of customer acquisition, as it is typically easier to sell new services to existing customers than winning new ones.

3.3 Policy implications

Business services companies, particularly the knowledge-intensive ones, have a considerable impact on the performance of other industries. By supporting the introduction of innovations, the implementation of new business strategies and the management of change, they enhance the competitiveness of their clients. Thus, a strong and innovative business services sector is an important part of a well functioning industrial system. We have identified a number of issues that policy can address to support ICT innovativeness and competitiveness in the business services sector.

Information on best practices to overcome e-business scepticism

As the survey results reveal, there is a discrepancy between the perceived positive impacts of e-business by enterprises using the internet and the relatively large share of business services enterprises reporting that e-business does not play a role in their operations. Some of the main reasons for not doing e-business, mentioned by companies not doing e-business, are too small a size and concerns about security issues. E-business scepticism as well as concerns about too small a company size and security issues are most widespread among small and medium-sized companies.

One of the main barriers to a more widespread use of e-business applications in the business services sector, especially among small and medium sized companies, seems to be a lack of information (see also Chapter 3.2.1). This includes information about the reliability of e-business applications suitable for SMEs and their impacts on small businesses as well as information on possible risks and appropriate measures to avoid them. Policy can, therefore, help to foster e-business by providing respective information, summarizing experiences of companies actually using e-business tools and compiling best practice examples. However, it is crucial for the success of policy measures that they are designed to meet the needs of the target groups with respect to both the specific characteristic of services provided and the company size.

In this context, it also needs to be stressed that ICT innovativeness requires employees who know how to efficiently use and adapt new technologies to their daily work routines. The value of investing in ICT skills cannot be overemphasised by policy makers.

E-business initiatives must meet actual needs of targeted companies

As explained before, companies from the business services sector are very diverse in terms of the services they provide. As a consequence, value chains and the typical company size differ by sub-sector. This diversity is also reflected in the companies' motivation for engaging in e-business activities as well as in the different priorities attached to the various possibilities. A large consulting company, for instance, may want to improve the knowledge base of its employees by implementing a complex knowledge management system. A small advertising agency, on the other hand, may rather have demand for co-operation tools to facilitate the co-ordination of freelancers, or in e-procurement applications in order to avoid paperwork and lengthy telephone calls.

This implies that different sub-sectors of business services as well as companies from the same sub-sector but of different size will follow different “optimal” e-business strategies. This has implications for measurement as well as for policy. Differences in the usage of certain types of e-business solutions might reflect different optimal strategies rather than reflecting different states of “e-readiness”.

Policy measures should try to take into account this diversity. Measures targeted at improving the usage of e-business should aim at closing the gap between best practice enterprises and laggards *within* the relevant peer group rather than across different categories of enterprises.

Promoted solutions should be suitable for small and medium-sized enterprises

According to the survey results, a large percentage of small and medium-sized enterprises justifies the non-usage of e-business by technologies being too expensive. Missing applications suited for the needs of SMEs might be one reason for this result. In fact, during its boom, e-business was often considered as the adoption of state-of-the-art technologies with focus on rather visionary solutions. In contrast, smart solutions with proven ROI (return on investment) that fit the needs of small businesses had often been neglected.

However, this situation has changed. Many players of the ICT sector have adjusted their solutions as well as the product marketing in order to win small and medium-sized enterprises as their clients. E-business initiatives should support this tendency by promoting such smart solutions that fit the needs of small business, show a proven ROI and do not require extensive resources for their implementation.

Some business examples that illustrate smart solutions suited for SMEs have already been presented in the text. The business example “Mobile Computing at Attensam”, for example, demonstrates that to be profitable mobile solutions do not necessarily require an always-online connection via a “high-speed data highway” as often claimed during the UMTS hype. The business example “ERP solution at FHECOR Ingenieros Consultores” further shows that a rather smart ERP solution with an appropriate selection of software modules can be best suited for small enterprises.

Similarly, when considering electronic marketplaces, simple B2B-portals that provide access to a well organised business directory of the respective industry can be more appropriate to the needs of small companies than a fully fledged electronic marketplace with extensive trading functions.

E-business initiatives should go beyond e-commerce

In the past the usage of e-business was often equated with the participation in e-commerce activities like selling or purchasing goods and services through e-marketplaces. Even though the survey results still show a high potential in this field, e-business initiatives for the business services sector cannot and should not be limited to fostering e-commerce. More importantly, they have to focus on the potential e-business holds for improving internal as well as inter-company processes.

While buy- and sell-side processes are essential, the organisational and inter-organisational processes of companies are even more important for determining competitiveness in the business services sector. The importance of information access, the central role of collaboration and third party relationships, as well as the significance of the delivery process for the quality of the service are just a few reasons to mention here. In this respect, policy can provide information and best-practice examples on innovative ICT and e-business solutions for optimising internal and inter-company processes.

Governments can serve as role model for public tendering

E-Government initiatives may also influence the use of e-business in the business services sector. Governments, for example, may serve as role model for public tendering. The decrease in the costs of information dissemination and information gathering increases market transparency and thus allows a better match between supplier and buyer. This also applies to knowledge-intensive services like consulting or advertising. However, the potential gains from distributing calls for tenders and related

documents on the internet are most likely not yet exhausted, as smaller projects in particular are awarded without public calls.

Government institutions with their experience in handling public calls can serve as a role model by increasingly using public tendering also for smaller contracts and especially by developing appropriate tendering procedures that keep the costs of tendering low for all parties involved. A perceived cost advantage by companies that participate in public tendering procedures via the internet is crucial for the success of such initiatives.

Finally, developing appropriate tendering procedures should not be equated with the technical development of tendering platforms by public institutions. Trading platforms designed for processing tendering procedures already exist and are often sufficient, at least for a start. More important are (organisational) measures which increase the use of such platforms. These can also serve as a role model for the private sector.

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Annex I: Glossary

Term	Definition
Access	The ability to retrieve information and to communicate online through the use of digital information and communication technologies.
B2B	Business to Business. Electronic transactions between companies.
B2B e-marketplace	Electronic trading platforms on the Internet where companies can sell and/or buy goods or services to/from other companies. They can be operated by a single buyer or seller or by a third party. Many marketplaces are industry-specific. Some marketplaces require registration and membership fees from companies that want to conduct trade on them.
B2C	Business to Consumer. Electronic business processes between companies and consumers.
Bandwidth	The physical characteristic of a telecommunications system that indicates the speed at which information can be transferred. In analogue systems, it is measured in cycles per second (Hertz), and in digital systems in binary bits per second. (Bit/s).
Broadband	High bandwidth internet access. In this report, broadband is defined as the capacity to transfer data at rates of 2Mbit/s (megabits per second) or greater.
Channel	In communications, a physical or logical path allowing the transmission of information; the path connecting a data source and a receiver.
CRM	Customer Relationship Management. Software systems that promise the ability to synthesize data on customers' behaviour and needs and thus to provide a universal view of the customer.
Dial-up	The process of establishing a temporary connection (to the Internet) via the switched telephone network.
DSL	Digital Subscriber Line. A family of technologies generically referred to as DSL, or xDSL, capable of transforming ordinary phone lines (also known as "twisted copper pairs") into high-speed digital lines, capable of supporting advanced services. ADSL (Asymmetric Digital Subscriber Line), HDSL (High data rate Digital Subscriber Line) and VDSL (Very high data rate Digital Subscriber Line) are all variants of xDSL
E-business	Electronic business. The *e-Business W@tch* uses the term "e-business" in the broad sense, relating both to external and to company internal processes. This includes external communication and transaction functions, but also ICT supported flows of information within the company, for example, between departments and subsidiaries.
E-commerce	Electronic commerce. As distinct from the broader concept of e-business, e-commerce refers to external transactions in goods and services between companies (B2B), between companies and consumers (B2C), or between companies and governments (B2G) and may therefore be seen as a subgroup or component of e-business activities.
EDI	Electronic Data Interchange. A way for unaffiliated companies to use networks to link their businesses by using a common technical standard for exchanging business data. While electronic mail between companies is common, electronic data interchange passes bigger bundles that replace large paper documents such as bills and contracts. Besides saving paper, computers could save time by taking over transactions such as regular purchase orders that now require human intervention.
E-readiness	Readiness for e-business is defined as the capability to engage in electronic transactions. This comprises appropriate network access (including sufficient bandwidth), internal hardware and software solutions as well as the procedural and managerial readiness to deal with online transactions from simple web presence through to fulfilment of customer orders and related after sales services.

ERP	Enterprise Resource Planning. A software system that helps to integrate and cover all major business activities within a company, including product planning, parts purchasing, inventory management, order tracking, human resources, projects management, and finance.
Extranet	A network using Internet protocols that allows external organisations (for example customers or suppliers) access to selected internal data. Essentially it is an Intranet which gives external users restricted access (often password protected) to information through the firewall.
ICT	Information and communication technology. ICT includes networks, computers, other data processing and transmitting equipment, and software. The application of ICT in business processes leads to e-business, if non-proprietary networks are used.
Information security	Measures taken to protect information systems against unauthorised use and attacks
Internet	The world's largest computer communication system, with an estimated 600 million users worldwide.[8] The Internet is a loose confederation of principally academic and research computer networks. It is not a network but rather the interconnection of thousands of separate networks using a common language.
Interoperability	The technical features of a group of interconnected systems (includes equipment owned and operated by the customer which is attached to the public telecommunication network) which ensure end-to-end provision of a given service in a consistent and predictable way.
Intranet	An internal Internet, that is an internal network running using TCP/IP, which makes information available within the company. Most intranets are connected to the Internet, and use firewalls to prevent unauthorised access.
ISDN	Integrated Services Digital Network. An international telecommunications standard for transmission of voice and data over dial-up lines running at 64 Kbit/s (kilobits per second). It allows sharing of multiple devices on a single line (for example, phone, computer, fax).
LAN	Local Area Network. The most common way of connecting computers in a small area (typically inside a building or organisation) for sharing databases and communication facilities. The two most common versions are Ethernet and Token Ring. Implementation is based on coaxial cables or plain wires. Speed achieved ranges from 10 Mbps to 100 Mbps.
Leased line	A private communication channel leased from the common carrier. It is usually a dedicated fixed-route link (e.g. point-to-point frame relay).
M-commerce	Mobile commerce. E-commerce that takes place using mobile connection devices and through data transmission via technical standards for mobile communication.
Micro enterprise	A company with less than 10 employees.
Modem	Modulator/Demodulator. A device that modulates outgoing digital signals from a computer or other digital device to analogue signals suitable to be transmitted through a conventional telephone line (copper twisted pair telephone). The reverse procedure takes place for incoming signals.
MRO goods	Maintenance, repair and operating goods. Supplies which companies need to maintain their operations, for example office supplies, in contrast to "direct production goods" which are components of the goods and services the company produces.
Processes	Business processes are operations that transform the state of an object or a person. This can, for example, be an order placed via the internet. Ordering an object or a service creates a liability for the supplier to deliver, and initiates the transfer of property

[8] cf. Nua Internet Surveys, How many online, June 2003 (http://www.nua.com/surveys/how_many_online/index.html).

	rights from one entity to another. The electronic handling of processes is likely to speed them up and to introduce new processes in the realisation of the same transaction.
Remote access	The ability of a company computer network's transmission points to gain access to a computer at a different location.
SCM	Supply Chain Management. Software that helps businesses to match supply and demand through integrated and collaborative planning tools.
Sector	Sectors of the economy with comparable business activities. These constitute the main research unit of the *e-Business W@tch*. Aggregated information at the industry level is used to document the diffusion of activities within the industries as well as the overall importance of the observed phenomena for changes in the economy as a whole. The definition of sectors follows NACE Rev.1 classifications.
SME	Small and medium-sized enterprises with 0-249 employees. To be classed as an SME, an enterprise has to satisfy the criteria for the number of employees and one of the two financial criteria, i.e. either the turnover total or the balance sheet total. In addition, it must be independent, which means less than 25% owned by one enterprise (or jointly by several enterprises) falling outside the definition of an SME or a micro-enterprise, whichever may apply. The thresholds for the turnover and the balance sheet total will be adjusted regularly, to take account of changing economic circumstances in Europe.
Transaction	Electronic transactions can be subdivided into several steps, each of which initiates a process. There are pre-sale (or -purchase) phases, sale and after-sale phases. Typically a transaction starts with information gathering, price and quality comparisons and possibly pre-sale negotiations. During the sale phase contracting and delivery are the core processes, and payment is the final stage of this phase. After-purchase transaction stages comprise customer service, the administration of credit payments and the handling of returns as well as marketing activities preparing for the next purchase.
Value added	Gross output minus intermediate inputs. It is valued at producers' prices and includes all indirect taxes but excludes VAT and subsidies.
WAN	Wide Area Network. A network allowing the interconnection and intercommunication of a group of computers over a long distance.
WAP	Wireless Application Protocol. A communication protocol for delivering data over mobile telephone systems, allowing cellular phone sets and other mobile hand-set systems to access WWW pages and other wireless services.
Website	A related collection of World Wide Web files that includes a beginning file called a home page.
Wi-Fi	Short for "wireless fidelity", popular term for a high-frequency wireless local area network (W-LAN). Wi-Fi technology is rapidly gaining acceptance as an alternative or complementary infrastructure to a wired LAN.
W-LAN	Wireless Local Area Network. An implementation of a LAN with no physical wires, using wireless transmitters and receivers. It allows a mobile user to connect to a LAN or WAN through a wireless (radio) connection. A standard, IEEE 802.11, specifies the technologies for wireless LANs.
WWW	World Wide Web. The collection of pages in html format which reside on web-servers. Although WWW and the internet are different, the terms are increasingly becoming interchangeably used.

Annex II: Methodological Notes on the e-Business Survey 2003

Background

Most of the data presented in this report are results of a decision-maker survey about e-business in European enterprises in 2003. This is an annual survey carried out by the *e-Business W@tch* – the first one took place in 2002 –, constituting a cornerstones of its monitoring activities. For organisational and contractual reasons, the e-Business Survey 2003 was split into two parts. The first part consisted of 3,515 telephone interviews which were conducted in March 2003 with decision-makers in enterprises from five EU countries. The second part had a scope of 4570 interviews in the EU, 100 interviews in Norway and 2632 interviews in the 10 new EU Member States (NMS) and was conducted in November 2003. The questionnaires used in the two parts of the survey were largely the same. A few new questions were added in the second part in order to cover issues of special topical interest for policy.

Fieldwork

The fieldwork of the surveys in the EU-15 and in Norway was carried out by Ipsos Germany in co-operation with its partner organisations on behalf of the *e-Business W@tch*. Fieldwork in the 10 new Member States was carried out by NFO Aisa (Czech Republic) and its network.

Country	Organisation	Country	Organisation
Belgium	INRA Belgium, Avenue de la Couronne 159-165, 1050 Brussels	UK	Continental Research, 132-140 Goswell Road, EC1V 7DY London
Denmark	Gallup TNS Denmark, Masnedogade 22-26, 2100 Copenhagen	Norway	Norfakta Markedsanalyse, Kjøpmannsgt. 5, 7013 Trondheim
Germany	INRA Deutschland GmbH, Papenkamp 2-6, 23879 Mölln	Cyprus	Synovate (member of the Aegis Group plc), Nicosia
Greece	Synovate, 24 Ippodamou St., 11635 Athens	Czech Republik	NFO AISA s.r.o., Slezská 113, 130 00 Praha 3, Česká republika
Spain	IPSOS ECO Consulting, Avda. de Burgos, 12-8a, 28036 Madrid	Estonia	Saar Poll, Veetorni 4, 10119 Tallinn, Estonia
France	Ipsos Insight Marketing, 99, rue de l'Abbé Groult, 75739 Paris Cedex 15	Hungary	MEDIAN, Opinion and Market Research, POB 551, BUDAPEST, H-1539
Ireland	TNS mrbi, Blackrock, Co. Dublin 2	Lithuania	BALTIC SURVEYS, 6A Šermukšnių str., Vilnius LT-2001, Lithuania
Italy	Ipsos-Explorer, Via Mauro Macchi 61, 20124 Milano	Latvia	TNS – baltic data house, Kronvalda Blvd. 3 – 2, Riga LV-1010, Latvia
Netherlands	INRA in Belgium, Avenue de la Couronne 159-165, 1050 Brussels	Malta	MISCO – Market Intelligence Services Co. Ltd., Valetta
Austria	Spectra Marktforschung: Brucknerstr. 3-5/4, 4020 Linz	Poland	CASE Consumer Attitudes & Social Enquiry, ul. Nowy Świat 64, PL 00-357 Warsaw
Portugal	Ipsos Portugal, Rua Joaquim António de Alguiar 43-5.°, 1070-15 Lisbon	Slovenia	CATI – Marketing, Media and Social Research & Consulting, Tržaška 2, 1000 Ljubljana
Finland	Taloustutkimus Oy, Lemuntie 9, 00510 Helsinki	Slovakia	NFO AISA s.r.o., Slezská 113, 130 00 Praha 3, Česká republika
Sweden	GfK Sverige, Box 401, 221 00 Lund		

Interview method

The fieldwork was carried out using mostly computer-aided telephone interview (CATI) technology. Face-to-face interviews were used in Lithuania, and a mixed approach in Malta. The decision-maker in the enterprise targeted by the survey was normally the person responsible for ICT within the company, typically the IT manager. Alternatively, particularly in small enterprises without a separate IT unit, the managing director or owner was interviewed.

Population coverage and sampling

The highest level of the population for the e-Business Survey was the set of all enterprises which are active at the national territory of one of the respective countries and which have their primary business activity in one of the sectors specified by NACE Rev. 1 categories (see table). The selection and composition of sectors took into account their economic importance and the relevance of e-business activities.

The most important viewpoints used for breakdown of the population in the survey were (i) the economic activity, (ii) the national territory of the enterprise and (iii) the size in terms of employees. The survey was carried out as an enterprise survey, i.e. data collection and reporting focus on the enterprise (rather than on the establishment), defined as a business organisation of one or more establishments comprised as one legal unit.

The sample drawn was a random sample of companies from the respective sector population in each country where the respective sector was to be surveyed with the objective of fulfilling strata with respect to company size class. Strata were to include a share of at least 10% of large companies (250+ employees) per country-sector cell, 30% of medium sized enterprises (50-249 employees) and 25% of small enterprises (10-49 employees). Micro enterprises with less than 10 employees were also included in the survey. Samples were drawn locally by fieldwork organisations based on acknowledged business directories and databases (see table).

Population coverage of the e-Business Survey (2002)

No.	NACE Rev. 1		Sector Name
	Section	Division/Group	
01	D	17, 18, 19	Manufacture of textiles and textile products, leather and leather products
02	D	24, 25	Manufacture of chemicals and chemical products
03	D	30, 31 *(except 31.3 - 31.6),* 32	Manufacture of Electrical machinery and electronics
04	D	34, 35	Manufacture of transport equipment
05	D	Parts of (17-19), 20, (30-32), (34-35), 36, 45	Crafts and Trade: In addition to companies from sub-sections covered by other sectors: Manufacture of wood products; manufacture of furniture; construction and site preparation. Only enterprises with 0-49 employees.
06	G	52.11, 52.12, 52.4	Retail
07	H / I / O	55.1, 55.2, 62.1, 63.3, 92.33, 92.52, 92.53	Tourism
08	K	74	Business services
09	I / K	64.2, 72	Telecommunications and computer-related services
10	N	85.11, 85.12, 85.3	Health and social services

Country	Directory / Database	Country	Directory / Database
Austria	Herold BUSINESS MARKETING database	UK	Dun & Bradstreet
Belgium	Dun & Bradstreet	Norway	Dun & Bradstreet
Denmark	KOB (Købmandsstandens Oplysnings Bureau)	Cyprus	Census of economic activity
Germany	Heins und Partner Business Pool	Czech Republic	Merit – CDF, Meritum Software, Enterprises database 2003
Finland	Blue Book - TDC Hakernistot OY	Estonia	Estonian statistical bureau + Krediinfo (register of taxpayers)
France	IDATA, based on INSEE Siren file (the National Institute of Statistics) and other directories	Hungary	Company Information Data Store, provided by Hungarian Central Statistical office
Greece	ICAP directory (the major database for Greece)	Lithuania	Department of Statistics and National Register at Ministry of Economics
Ireland	Bill Moss	Latvia	Business Register of Republic of Latvia
Italy	Dun & Bradstreet	Malta	National Statistics Office, Employment and training corporation
Netherlands	Dun & Bradstreet	Poland	REGON (GUS) data (National register of business)
Portugal	MOPE database	Slovenia	IPIS directory, published by Noviforum (list of active Slovenian enterprises)
Spain	Dun & Bradstreet	Slovakia	Albertina, Albertina Data, Enterprises database 2003
Sweden	Swedish Post Address Register (PAR)		

Scope of the e-Business Survey 2003: No. of interviews per country and sector

Scope	Part I (March 2003)	Part II (Nov/Dec 2003)
No. of sectors covered	7 sectors	10 sectors
No. of EU Member States involved	5 countries	25 countries
No. of sector-country-cells	35	98
No. of interviews	3515	4,670 (EU+NO) + 2,632 (NMS) = 7302

	Food, beverages and tobacco	Textile industries	Chemical industries	Electronics	Transport equipment	Crafts & trade (Construction ; Wood & furniture)	Retail	Tourism	ICT services	Health & social services	Business services	Total int.
Belgium			101				100				100	301
Denmark							67	67		66		200
Germany	100*	100	100*	100*	100*	100	100*	101*	100*	100	100	1101
Greece		84		76	89	75		75				399
Spain	100*	101	100*	100*	100*	108	100*	100*	100*	101	100	1110
France	100*	100	100*	100*	101*	101	101*	99*	100*	100	100	1102
Ireland			70					70	71			211
Italy	102*	100	101*	101*	100*	100	102*	102*	101*	100	101	1110
Luxembourg **												0
Netherlands		100							101	102		303
Austria					68			132		100		300
Portugal					104		100				100	304
Finland		75		75					76			226
Sweden			80	75	79						80	314
United Kingdom	100*	100	101*	101*	100*	100	101*	100*	101*	100	100	1104
Cyprus							64					64
Czech Republic			60		60			60	60	60		300
Estonia		50	50	50	21	65	50	50	50	50	50	486
Hungary				80	80						80	240
Lithuania							57					57
Latvia		51	49				51					151
Malta								51				51
Poland		80	80	80	80	80	80	80	80	80	80	800
Slovenia				56				51	53	55	58	273
Slovakia		50		50			50				60	210
Norway		30					70					100
TOTAL	**502**	**1021**	**992**	**1044**	**1082**	**729**	**1193**	**1138**	**993**	**1014**	**1109**	**10817**

* interviews carried out in March 2003 ** was covered in the e-Business Survey 2002

Problems encountered

No major problems were reported by the fieldwork organisations with respect to interviewing (e.g. comprehensibility of the questionnaire, logical structure). The overall feed-back from the survey organisations was that fieldwork ran smoothly and that they had the impression that the questionnaire was well understood by most respondents. Some difficulties occurred, though, mainly with respect to the following issues:

- The main challenge was the fulfilment of quotas regarding company size-bands. In many countries, it was not possible to accomplish the objective of including a minimum share of large or even medium-sized enterprises in specific sectors. In such a case, these were replaced by interviews with smaller companies or from other sectors.
- Another well known issue in this type of survey stems from the difficulties of conducting research projects among ICT decision-makers in general. Dedicated ICT professionals are heavily researched and therefore securing their participation can be difficult. This is a particular problem in larger companies.
- In some countries it was difficult to carry out interviews within businesses and retailers not using or with a very basic use of computers, because of the number of questions on related issues. The French fieldwork

organisation, for instance, reported that the questionnaire was too specific for some organisations, for example for small companies in the health & social services sector. These are mostly doctor's surgeries, where it was felt that the e-business related questions were not applicable to them. Also, small companies from the crafts and trade sector, which often have just a computer but no network at all felt that the questionnaire was not sufficiently adapted to their activities.

- A related issue is that there are some compromises to be made if the same questionnaire should be used for micro-enterprises as well as for large companies. Some of the questions, while only scratching the surface of e-business activities in large companies, are hardly relevant for micro-enterprises with less than 10 employees. The Hungarian survey company, for instance, reported that some questions seemed to have little relevance for companies with only one or a few employees.
- Finally, an issue which was known in advance but is unavoidable in telephone interviews is that there is no "ideal target person" to be interviewed. Fieldwork organisations reported that sometimes a data processing manager is not very aware of the consequences of e-business on the whole of the company, on the personnel and on the financial level. On the other hand, the general manager may not always be aware of the technical implementation status. The Irish fieldwork organisation, for instance, reported that some of the smaller companies were not familiar with technical terms such as used for standards ("EDI" or "EDIFACT").

Weighting principles

Two weighting schemes have been applied: weighting by employment and by the number of enterprises. Data are presented in either way depending on the kind of the analysis to be made.

- Values that are reported as weighted by employment should be read as "enterprises comprising x% of employees". To give an example: The indicator "percentage of companies selling online" – if weighted by employment – is defined as "companies comprising x% of employees sell online". The reason for using employment weighting is that there are very many more micro enterprises than non-micro enterprises. The unweighted figure would effectively represent mainly the smallest sizes of firm.
- Values that are reported as enterprise-weighted figures are to be read as "x% of enterprises", reflecting the number of enterprises as legal entities but not their relative economic importance in terms of employment.

Weighting was based on the latest available universe figures by Eurostat. Missing or undisclosed universe data had to be imputed. The imputation procedures depended on auxiliary or proxy data availability, taking into account where available information about higher industry aggregations, nearest neighbour data, turnover-employment correlation and secondary sources other than Eurostat. It also allows for the constraint of predetermined ranges such that imputed data had to be contingent with published sectoral, national and European universe totals as well as for final plausibility checks for every single imputed data item. The weighting cells correspond to the data reporting pattern used as regards industries and employment size-classes. Uniform expansion factors are applied to enterprises within one of the four size-classes per industry per country. As for data that refer to a base other than the universe of all enterprises (e.g. indicators appropriately reported for online selling enterprises only), expansion factors are adjusted to the different shares of observations per cell that build the computation base.

Variables - indicators

The set of ICT and e-business indicators for which data were collected in this survey was organised into the following modules:

- Background information (basic company data, innovation activities)
- ICT infrastructure and e-skills development in the company
- E-commerce and e-business activities (internal business process automation, procurement and supply chain integration, exchange of standardised data between trading partners, marketing and sales activities, use of e-business software)
- Impact of e-business (impact of selling and procuring online, perceived effects on work processes, satisfaction with outcome)
- Assessment of future importance of various e-business technologies

The choice of indicators considers relevant statistical work by the OECD and Eurostat and includes a basic set of widely accepted measures for e-commerce and e-business, but also tries to introduce innovative indicators which have a pilot character and are not yet widely tested.

The full list of variables which was the basis for preparing the questionnaires can be downloaded (as a spreadsheet) from the *e-Business W@tch* website (http://www.ebusiness-watch.org).

Annex III: Sector Impact Studies of the *e-Business W@tch* in 2003/04

No.	Sector	Date
1	Textile, clothing and footwear industries	
	• Report I: The Quantitative Picture: Diffusion of ICT and e-business in Europe	May 2004
	• Report II: Assessment and Case Studies: Economic implications and policy recommendations.	August 2004
2	Chemical industries	
	• Report I: The Quantitative Picture: Diffusion of ICT and e-business in Europe	May 2004
	• Report II: Assessment and Case Studies: Economic implications and policy recommendations.	August 2004
3	Electrical machinery and electronics	
	• Report I: The Quantitative Picture: Diffusion of ICT and e-business in Europe	May 2004
	• Report II: Assessment and Case Studies: Economic implications and policy recommendations.	August 2004
4	Transport equipment manufacturing	
	• Report I: The Quantitative Picture: Diffusion of ICT and e-business in Europe	May 2004
	• Report II: Assessment and Case Studies: Economic implications and policy recommendations.	August 2004
5	Crafts and trade sectors	
	• Report I: The Quantitative Picture: Diffusion of ICT and e-business in Europe	May 2004
	• Report II: Assessment and Case Studies: Economic implications and policy recommendations.	August 2004
6	Retail	
	• Report I: The Quantitative Picture: Diffusion of ICT and e-business in Europe	May 2004
	• Report II: Assessment and Case Studies: Economic implications and policy recommendations.	August 2004
7	Tourism	
	• Report I: The Quantitative Picture: Diffusion of ICT and e-business in Europe	May 2004
	• Report II: Assessment and Case Studies: Economic implications and policy recommendations.	August 2004
8	ICT services	
	• Report I: The Quantitative Picture: Diffusion of ICT and e-business in Europe	May 2004
	• Report II: Assessment and Case Studies: Economic implications and policy recommendations.	August 2004
9	Business services	
	• Report I: The Quantitative Picture: Diffusion of ICT and e-business in Europe	May 2004
	• Report II: Assessment and Case Studies: Economic implications and policy recommendations.	August 2004
10	Health and social services	
	• Report I: The Quantitative Picture: Diffusion of ICT and e-business in Europe	May 2004
	• Report II: Assessment and Case Studies: Economic implications and policy recommendations.	August 2004