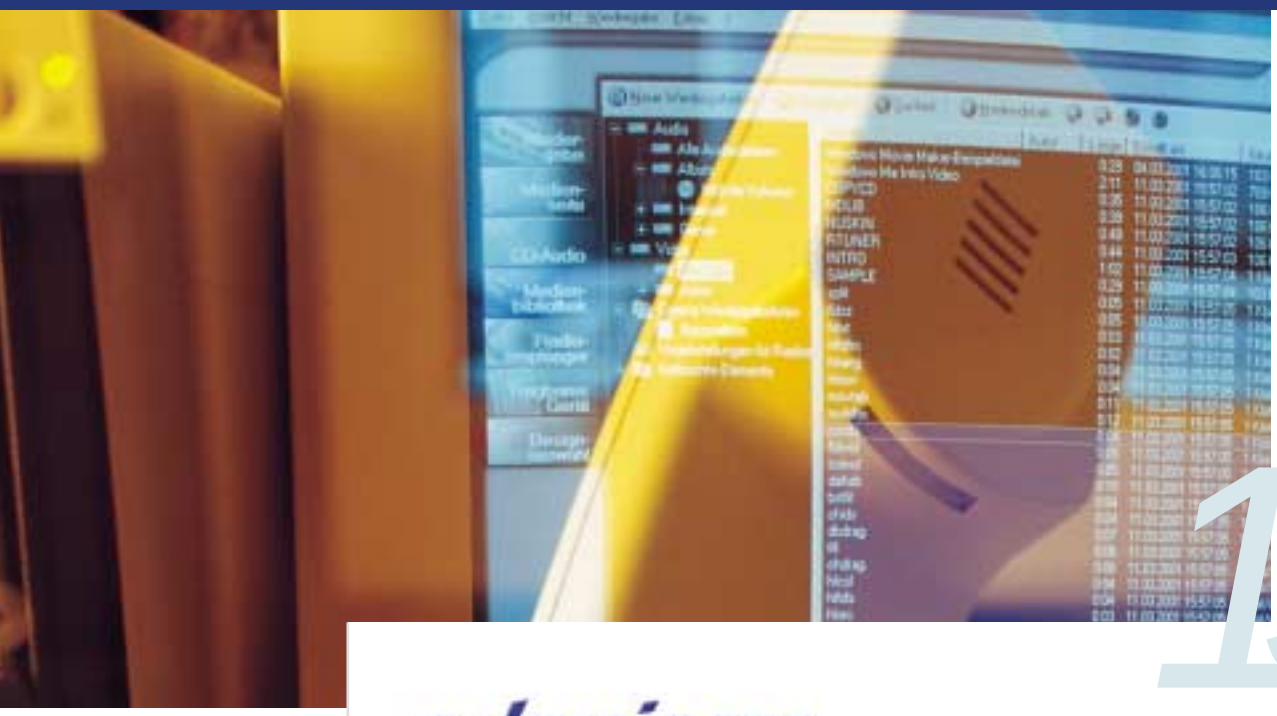

The European
e-Business
Market Watch

Sector Report
No. 15 II/ May 2003

15 II

e-business w@tch

ICT & e-Business in the **Business Services Sector**

eEurope GoDigital

European Commission
Enterprise Directorate General
e-Business, ICT Industries
and Services

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Introduction

European policy is in a number of areas, including economic, innovation and SME policies, increasingly focussed on promoting the business techniques and new ways of working which will provide the economic and social foundation of the information society in Europe. To help policy makers define their programmes, and to monitor the effectiveness of these policies, some indication of progress and of areas requiring active support is essential. At the same time, many areas of European business are lacking information about the speed of technological update in European markets, which they expect to have a strong impact on their global competitiveness.

Despite the increasing number of studies and market research on electronic business, and especially on electronic commerce, from a number of authors and research organisations in different European countries and world-wide, there used to be a lack of reliable empirical information about the extent, scope, nature of and factors affecting the speed of e-business development in Europe at the sectoral level in an internationally comparative framework. It is the objective of this report to provide such information for the business services sector.

The *e-Business W@tch*

This report has been published in the framework of the European e-Business Market Watch. This is a market observatory established by the European Commission, DG Enterprise. Laying the groundwork for a continuous facility, the *e-Business W@tch* monitors and assesses the maturity of electronic business in 15 industry sectors across all EU Member States, including seven manufacturing and eight service sectors. At least two reports are to be published on each sector during the 18-month life-time of the *e-Business W@tch* (cf. publication schedule on the following page).

The research presented in these Sector Impact Studies is intended to help to benchmark progress and to assess how electronic business development can be further enhanced at the European level or at Member State level with the objective to strengthen the competitiveness of European businesses. Special attention is paid to the SME dimension of e-business.

All reports, as well as an extensive collection of statistics on electronic business, can be downloaded from the website of the market observatory at www.ebusiness-watch.org.

Methodological note

Most of the data presented in this report are based on the European e-Business Survey (2002), a cornerstone of the monitoring activities of the *e-Business W@tch.* The fieldwork of this enterprise survey was carried out by INRA Germany GmbH in co-operation with its international partner organisations in June and July 2002 using computer-aided telephone interview (CATI) technology. In total, 9,264 interviews with decision makers in European enterprises were conducted. The survey included all sectors and all Member States, but only in the four largest states (Germany, France, Italy and UK) were all sectors covered. The survey for the business services sector was carried out in the following seven countries: Denmark, France, Germany, Ireland, Italy, Netherlands, UK. More detailed information about the survey methodology is provided in the Annex to this report.

Acknowledgement of contributions

The work of the *e-Business W@tch* is supported by a network of experts who are charged with providing input on specific sectors or e-business topics according to their expertise. With respect to this report and the business services sector, we gratefully acknowledge contributions from Menno Smidts and Pim den Hertog, Dialogic, NL.

Sector Impact Studies of the e-Business W@tch: Publication schedule

No.	Sector	Date
1	**Food, beverages and tobacco industry**	
	• Report I: Economic background / e-business issues	July 2002
	• Report II: The statistical picture (Survey 2002)	Feb. 2003
	• Report III: Recent trends (Survey 2003)	June 2003
2	**Chemical industries**	
	• Report I: Economic background / e-business issues	July 2002
	• Report II: The statistical picture (Survey 2002)	Feb. 2003
	• Report III: Recent trends (Survey 2003)	June 2003
3	**Transport equipment manufacturing**	
	• Report I: Economic background / e-business issues	July 2002
	• Report II: The statistical picture (Survey 2002)	Feb. 2003
	• Report III: Recent trends (Survey 2003)	June 2003
4	**Financial sector**	
	• Report I: Economic background / e-business issues	July 2002
	• Report II: The statistical picture (Survey 2002)	Feb. 2003
5	**Insurance and pension funding services**	
	• Report I: Economic background / e-business issues	July 2002
	• Report II: The statistical picture (Survey 2002)	Feb. 2003
6	**ICT services**	
	• Report I: Economic background / e-business issues	July 2002
	• Report II: The statistical picture (Survey 2002)	Feb. 2003
	• Report III: Recent trends (Survey 2003)	June 2003
7	**Health and social services**	
	• Report I: Economic background / e-business issues	July 2002
	• Report II: The statistical picture (Survey 2002)	Feb. 2003
8	**Media and printing**	
	• Report I: Background, issues and key figures	Oct. 2002
	• Report II: The statistical picture (Survey 2002)	April 2003
9	**Metal products manufacturing**	
	• Report I: Background, issues and key figures	Oct. 2002
	• Report II: The statistical picture (Survey 2002)	April 2003
10	**Machinery and equipment manufacturing**	
	• Report I: Background, issues and key figures	Oct. 2002
	• Report II: The statistical picture (Survey 2002)	April 2003
11	**Electrical machinery and electronics**	
	• Report I: Background, issues and key figures	Oct. 2002
	• Report II: Recent trends (Survey 2003)	June 2003
12	**Retail**	
	• Report I: Background, issues and key figures	Oct. 2002
	• Report II: Recent trends (Survey 2003)	June 2003
13	**Tourism**	
	• Report I: Background, issues and key figures	Oct. 2002
	• Report II: Recent trends (Survey 2003)	June 2003
14	**Real estate sector**	
	• Report I: Background, issues and key figures	Oct. 2002
	• Report II: The statistical picture (Survey 2002)	April 2003
15	**Business services**	
	• Report I: Background, issues and key figures	Oct. 2002
	• Report II: The statistical picture (Survey 2002)	April 2003

The Business Services Sector: Sector Profile & e-Business

1 Economic profile

1.1 Definition and focus

This chapter is based on the (more detailed) introductory chapter to the first report of the *e-Business W@tch* on the business services sector, published in October 2002. It summarises the most important economic data and current challenges. Readers who are interested in a more comprehensive macro-economic portrait of the sector are asked to look up the respective chapter in the first report, which is available at

http://www.ebusiness-watch.org/marketwatch/ressources/ressources.htm.

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

Code	Activity
74.1	Legal, accounting, book-keeping and auditing activities; tax consultancy; market research an 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 an 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. Especially the distinction between management and ICT consulting is increasingly difficult as ICT is of rising strategic importance for companies and decisions about ICT equipment are becoming 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

[1] 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.

pollution measurement as well as certification of ships or motor vehicles. Both categories together are often labelled as “technical services”.

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 as “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, like temporary employment agencies, are specific services in their own kind.

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 situation and key figures

Turnover and value added

The turnover of the business services sector in the European Union (excluding Greece, Ireland and the Netherlands) reached over 863 billion euro in 1999. Over 55% of the total turnover was generated in knowledge-intensive sub-sectors (NACE 74.1, 74.2 and 74.3), characterised by high intensity of value creation. Almost 37% of the sector turnover was created by the legal, accounting and management consultancy companies.

Table 1-1: Structure of the business services sector in the EU-12 (1999) by kind of activity

NACE Rev. 1		Turnover		Value added at factor cost	
		EUR (m)	%	EUR (m)	%
74.1	Legal, accounting, book-keeping and auditing activities; tax consultancy; market research & public opinion polling; business and management consultancy	316,871.3	36.7	174,947.3	37.9
74.2, 74.3	Architectural and engineering activities and related technical consultancy (74.2) and Technical testing and analysis (74.3)	159,118.7	18.4	85,706.9	18.6
74.4	Advertising	114,722.0	13.3	38,307.0	8.3
74.5	Labour recruitment and provision of personnel	62,096.0	7.2	47,200.8	10.2
74.6	Investigation and security activities	16,628.4	1.9	12,520.8	2.7
74.7	Industrial cleaning	38,497.6	4.5	29,386.7	6.4
74.8	Miscellaneous business activities n.e.c.	155,068.2	18.0	73,045.2	15.8
74	Business services total *	863,002.2	100.0	461,114.7	100.0
* EU-12: no data were available for Ireland, Netherlands and Greece.					

Source: Eurostat New Cronos 2002 SBS ENTER. DIW 2002.

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 that use them. This means that, statistically, they are counted as part of the using industries. Data on the business services sector, therefore, only informs about activities in independent firms, not about the entire business service 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.

Table 1-2: Turnover of the business services sector in EU-12 countries (1999)

Country	Turnover		Value added at factor cost		Share in country Gross Value Added
	EUR (m)	%	EUR (m)	%	%
Austria	13,653.9	1.6	6,924.5	1.5	3.8
Belgium	28,059.3	3.3	11,274.7	2.5	5.2
Denmark	13,724.6	1.6	6,992.1	1.5	4.9
Finland	8,352.5	1.0	4,017.8	0.9	3.8
France	159,287.4	18.5	66,408.7	14.4	5.4
Germany	246,471.4	28.6	164,176.8	35.6	8.9
Italy	87,596.0	10.2	42,097.6	9.1	4.1
Luxembourg	1,610.5	0.2	941.8	0.2	5.2
Portugal	13,870.3	1.6	4,722.0	1.0	4.9
Spain	50,429.5	5.8	24,882.3	5.4	4.7
Sweden	26,553.1	3.1	11,303.6	2.5	5.5
UK	213,393.7	24.7	117,372.8	25.5	9.4
EU-12*	863,002.2	100.0	461,114.7	100.0	6.7
EU-12* no data were available for Greece, Ireland and Netherlands.					

Source: Eurostat New Cronos 2002, SBS ENTER. DIW 2002

The largest contributors to the total EU-12 business services sector in 1999 were Germany (28.6%), the UK (24.7%) and France (18.5%). Together they accounted for 72% of the total turnover. The smallest shares were observed for Luxemburg (0.2%) and Austria, Denmark, Finland and Portugal (each reaching less than 2% of the EU-12 turnover).

Employment, productivity and labour costs

Data on the number of persons employed in the business services sector were only available for 11 EU countries, excluding Greece, Ireland, Luxemburg and the Netherlands. According to Eurostat data, more than 11.6 million persons were employed in these EU-11 business services enterprises in 1999. The average share of employment in business services in total employment in the economy was 8%.

The regional employment structure reveals that the largest number of persons is working in the German business services sector (27% of EU-11 sector employment). The second and the third place are taken by the United Kingdom (24%) and France (15%). These three countries constitute 66% of the total EU-11 employment in the industry. At the same time, over 75% of the total value added at factor cost was created in these countries. The three countries with the largest business services sectors are, thus, also characterised by above average productivity.

The data presented in table 1-3 for productivity and personnel costs per employee does not include self-employed professionals who might have a significant share in this sector and are likely to produce high value added. Relatively low values of productivity and personnel costs may be partly explained by the exclusion of this high-income fraction of the workforce and by a relatively large share of low value added business services in the country. The average productivity, measured as value added per employee, in the eleven EU countries was 46,900 euro in 1999. This figure varies considerably between countries. The lowest productivity was observed in Spain (23,900 euro) and Portugal (25,400 euro), the highest value (61,200 euro) was recorded for Germany.

Table 1-3: Employment, productivity and labour costs in the business services sector in the EU-11 countries (1999)

Country	Employment		Productivity	Personnel Costs
	Number of persons employed	**Share in country total employment** (%)	**Value added per employee** (1000 EUR)	**per employee** (1000 EUR)
Austria	182,953	4.6	44.6	29.2
Belgium	331,339	8.5	41.9	28.9
Denmark	181,426	6.6	43.3	31.1
Finland	108,815	4.9	40.7	27.5
France	1,749,310	7.5	38.7	33.9
Germany	3,139,000	8.3	61.2	26.4
Italy	1,306,086	5.9	59.3	22.3
Portugal	212,518	4.4	25.4	12.9
Spain	1,307,213	8.6	23.9	14.3
Sweden	302,028	7.3	46.8	38.3
UK	2,824,663	10.3	45.9	25.7
EU-11*	11,645,351	7.9	46.9	26.2
EU-11: no data were available for Greece, Ireland, Luxembourg and the Netherlands.				

Source: Eurostat New Cronos 2002. DIW 2002.

There are also significant differences in personnel costs across Europe. On average, the personnel costs in the business services sector were around 26,200 euro in 1999. At the low end of the scale are Portugal and Spain with 12,900 euro and 14,300 euro, around 50% of the EU average. The highest personnel costs were reported in Sweden. With 38,300 euro a Swedish employee in the business services sector is, on average, almost 50% more expensive than on EU average. Explanations for such discrepancies are, among other things, 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 countries.

Size class distribution

The business services sector is characterised by a strong dominance of small enterprises. More than 99% of the enterprises in the sector employed less than 50 persons in 1999. The domination of small firms results from the specific characteristics of many services included in the NACE 74 categories. In 1999, the smallest companies generated over 60% of the sector's turnover and employed more than half of the persons working in the industry. Though accounting only for one percent of the total number of enterprises, the large companies (more than 250 employees) employed over 34% of the total sector work force, but generated only 23% of the turnover.

Table 1-4: Size class distribution in the business services sector

Distribution by …	1 to 49	50 to 249	>250
Number of enterprises (%)	99.3	0.6	0.1
Turnover (%)	60.4	16.9	22.6
Persons employed (%)	51.4	14.5	34.1
EU-8, no data were available for Germany, Denmark, Greece, Ireland, Luxembourg, the Netherlands, and UK. 1999 (latest available figures)			

Source: Eurostat New Cronos 2002. DIW 2002.

This can be partly explained by the heterogeneity of the classification unit. Whereas small firms dominate in the knowledge-intensive and professionals-oriented services, operational services such as security activities, industrial cleaning, etc. are often provided by large companies. Table 1-4 shows the size class distribution based on number of enterprises, turnover, and persons employed for the combined NACE 74 industries.

1.3 General trends and business issues

The general trends and business issues of importance for the business services sector are as diverse as the different sub-sectors. Nevertheless, some critical issues like changing customer needs or the availability and cost of staff are of importance to all sub-sectors as are recent developments like the current economic downturn.

General business issues

A number of general issues exist for the business services sector, which relate to the specific way of doing business in this sector and which pose constant challenges to the enterprises. The ability to cope with these issues crucially determines an enterprise's success.

- **Constantly changing customer needs**: Business services are to a large extent customer-driven. Customers are constantly asking services companies to provide new services or to modify existing ones. Coping with these customer demands and continuously adapting services and processes to new demands requires flexibility and high levels of qualification. Especially knowledge-based business services are challenged as not only new ways of providing the services are demanded but also the subject of the service changes.[2]
- **Availability and cost of staff:** As services are labour-intensive, the availability of staff at conditions that are compatible with market prices for the services is a crucial issue. For different sub-sectors, however, the details of personnel requirements differ. For sectors typically paying rather low wages (e.g. security services, industrial cleaning), the problem is not the availability of labour per se, but the availability of labour at reasonable wages. For sub-sectors that have very specific skill-requirements on labour (e.g. business consulting, advertising, engineering) the continuous problem of finding specialised staff exists. This problem has been severe during the e-business boom particularly for e-business-related knowledge. Currently, at the beginning of 2003, insufficient availability of labour is not a major issue anymore.
- **Intensive competition:** In many business services competition is fierce. Barriers to entry are often comparatively low since capital costs are usually low and the market is very fragmented. Economies of scale favouring (large) incumbents are often weak. Especially in those business services, where specialist knowledge is important and where this knowledge is possessed by individuals rather than by the companies (e.g. consulting, public relations, photography), small spin-off companies can often compete effectively with the large brand names. But also services with comparatively low demands on employee qualifications (e.g. routine secretarial services, industrial cleaning and security services) attract a continuous flow of market entrants that compete primarily on price with established firms. New market entrants also come from other sectors of the economy, for instance IT consulting firms.
- **Sub-sector interdependence:** In certain areas of business services (e.g. in marketing-oriented services) the relevant sub-sectors are highly interdependent, with companies from one sector acting as suppliers or customers of the services from other sectors. Often the combination of these services is offered as a single entity to the final customer (e.g. an advertising campaign includes the creative work as well as the media planning and buying activity).
- **Legal and financing issues:** Many services companies, especially those in knowledge-intensive business services, have started rather small. When they grew, they have kept the legal form from the early days of operating. They are often organised as partnerships with the owners being personally liable. This legal form may be considered inappropriate as companies become larger. Therefore, many business services companies have considered changing their legal nature, also aided by the introduction of new legal constructs like Limited Liability Partnerships.

[2] In a survey among UK companies in the management consultancy sector, in the marketing and communications sector and in the exhibition and conference sector, about one third of all respondents named changing customer needs as the biggest issue at the current time. See PricewaterhouseCoopers/DTI (2001a,b,c).

Recent trends and developments

The recent trends and developments within the business services sector can be divided into short-run issues like the current economic slowdown and the end of the e-business boom on the one hand and long-run issues like the trend towards outsourcing or internationalisation on the other hand.

- **Current economic slowdown:** Most business services are pro-cyclical. In times of an economic slowdown enterprises tend to cut marketing expenditures as well as any sort of future-oriented projects with uncertain return on investment. Thus, business services supporting these activities suffer in economically difficult times. Particularly project-oriented business services suffer from the fact that projects can easily be postponed or cancelled when companies need to save costs in times of economic hardship.
- **End of the e-business boom:** Many sub-sectors of business services profited from the e-business boom of the late 1990s and 2000. They built up new capacity during the boom to handle the sudden increase in demand for e-business and Internet-related services. With the end of the almost frenetic business expansion, these companies were strongly hit. Not only did the economic slowdown lead to a generally weak demand for services, but also the extraordinary demand for e-business related services suddenly fell and made much of the newly created capacity redundant. The overcapacity resulted in a still lasting consolidation process.
- **Focus on core competences favours outsourcing:** A major force driving the growth of business services during the last decade was the tendency of companies to focus on their "core competences" and to buy everything else on the market. Especially those services provided on a continuous basis, like cleaning, security, or bookkeeping, were able to profit from this trend. But also other, more individual services benefited, e.g. engineering or public relations.
- **Internationalisation:** Some business services operate on global markets (e.g. business consulting of large clients, M&A legal and tax advice, advertising / public relations for global companies). As many of the (larger) clients of business services companies are increasingly becoming international, their service companies have to follow them. These new requirements pose specific demands upon companies to handle international clients, international co-operations and adapt to different regulations (e.g. data protection in market research, accounting rules and legal environment for legal and tax consulting). This is especially important for knowledge-focused companies.
- **Increasing complexity of projects:** As client companies become more international and larger, the complexity of services to be provided increases. This poses specific demands on project management skills of the business services companies. But it also poses demands on the availability of experts within the company or within the company's network. The increasing demand for complex business services is a major driving force behind the creation and growth of large business consulting firms, law firms and auditing companies. Nevertheless, their importance in the sector is still comparatively low, as section 1.2 has shown.
- **Specific events:** Some sub-sectors of business services have also been influenced by specific events. The events of September 11, 2001 increased security awareness all over the world considerably. Security services companies were able to profit from this increase in demand. Also the recently discovered accounting frauds in large public companies in the US had a significant impact on the sector. Within short time, the major accounting firm Andersen dissolved in most countries, leading to a change in the industry structure. In the medium-run, tighter accounting rules will most likely lead to an increase in demand for such services, therefore, the sector can expect further growth.

2 Usage of ICT & e-business

The following chapter discusses the usage of ICT and e-business in the business services sector. We focus on the specifics of the business services sector as compared to EU averages and on differences between smaller and larger companies within the sector. Some methodological limitations have to be kept in mind in this analysis:

- Complete data sets are only available for EU-4 (Germany, France, Italy, UK), sector averages are therefore based on EU-4 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 0-24 employees than in size class 250+ employees.
- 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 preferable if employee-oriented indicators are analysed. We use employment-weighted data in section 2.2 and enterprise-weighted data in the remainder of this chapter.
- Data is only available at sector level but not at sub-sector level. By putting the very dissimilar activities in the business services sector together, we surely miss a lot of the dynamics in the more e-business-advanced sub-sectors.

Chapter 2 is organised along the following lines: Section 2.1 provides a first overall picture of the importance of ICT and e-business in the sector and the role that companies ascribe to e-business. Section 2.2 analyses e-business readiness, which is determined by the existing IT infrastructure and IT skills in business services firms. Section 2.3 gives an insight into the usage of ICT and e-business for optimising internal processes, processes of the extended enterprise, and for purchasing as well as marketing and selling goods and services. The impacts of buying and selling online in the sector are analysed ins sub-sections 2.3.3 and 2.3.4.

2.1 The role of ICT and e-business

The following section provides a first picture of the general importance of ICT and e-business in the business services sector. Survey results in this section, e.g. level of satisfaction or plans to invest in e-business, give an impression of the attitude that companies have towards e-business and the overall role that companies ascribe to e-business.

General importance of e-business

Many of the major challenges that business services companies have to deal with today (see section 1.3) are potentially easier to cope with through the use of ICTs 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 considerably 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.
- ICT and e-business systems can help to reduce cost for recurring, standardised business processes. This helps companies to deal with intense (price) competition.

- E-business applications enable companies to outsource an increasing number of tasks to external parties. This allows business services companies to specialise on their core capabilities and use ICTs to collaborate with a network of partners to deliver a complex set of services.

In theory, ICT and e-business therefore play a significant role for today's businesses in the sector. In practice, survey results show that the importance of e-business is indeed above EU-average: 55% of all business services companies see a significant or some role of e-business for the way their company operates today, compared to only 48% on average in the EU-4 (see table 2-1). However, still more than 40 % of all enterprises in the business services sector do not ascribe any role to e-business in the way their company operates today. Over half of the respondents even believe e-business does not and will not play an important role for the way their company operates.

While more large companies believe e-business plays a significant or some role in their company, a larger share of small companies ascribe a *significant* importance to e-business. Obviously, *if* small companies do e-business, the impact on the overall organisation is stronger than in large companies.

Table 2-1: Business services: General importance of e-business

Importance of e-business for the way the company operates today	All sectors	Business services			
		All enterpr.	0-49 empl.	50-249 empl.	250+ empl.
Significant	12	16	16	18	11
Some	36	39	39	37	47
No role	48	41	41	43	36
No significant role today but expected in the future	25	22	22	20	22
No significant role today nor in the future	55	54	54	61	60
Base: EU-4 (D, F, I, UK), all enterprises. N=411 (for business services sector), N=5917 (for all sectors). In % of enterprises. Reporting period: June/July 2002.					

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

Country results depicted in figures 2-1 and 2-2 show e-business plays the most significant role for companies from Italy, Germany and Ireland. The most sceptic attitude towards e-business can be observed in France where only 3% of the companies ascribe a significant role to e-business. Almost 80% of French firms can be considered as e-business sceptics, i.e. companies saying that e-business does not constitute a significant part of their operations today nor will do so within the next 2 years. In Germany companies seems to be somewhat divided in their attitude towards e-business: while a high percentage of 20% sees a significant role, the largest part of the remaining 80% does not believe e-business will become significant for them in the coming years.

When interpreting these results it has to be kept in mind, however, that "e-business" is not always defined the same way in all companies and in all countries. Some firms that are very advanced in using e-business may not regard e-business activities as something extra or additional that can be uncoupled from their overall business strategy. They have integrated e-business in their regular activities and do not make a distinction between business and e-business.

Figure 2-1: Business services: Role of e-business for company across countries

Base: EU-7 (D, DK, F, I, IRL, NL, UK), all companies (N=692).

In % of enterprises. Reporting period: June/July 2002

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

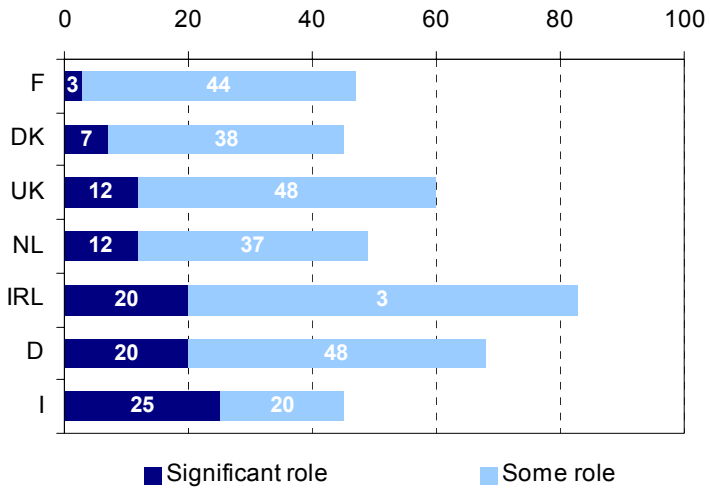


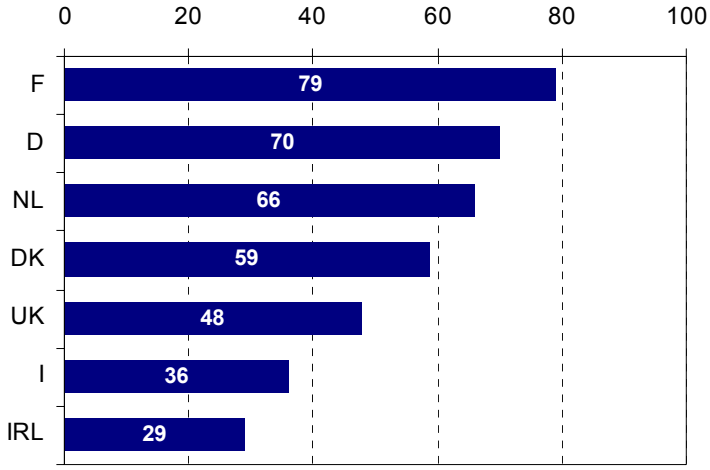
Figure 2-2: Business services: E-business skeptics across countries*

Base: EU-7 (D, DK, F, I, IRL, NL, UK), all companies (N=692).

In % of enterprises. Reporting period: June/July 2002

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

* companies saying that e-business does not constitute a significant part of their operations today nor will do so within the next 2 years



General impact an beneficiaries of e-business

Companies in the business services sector see the most important overall impact of e-business on internal work processes and the way of conducting business. This is almost equally true for large and small companies. In general, the impacts of e-business on the enterprises' organisation differs only slightly between the business services sector and the average of all industries within the EU-4. There are also no major differences between large and small companies in the assessment of e-business-impacts.

Table 2-2: Business services: Impact of e-business on organisation

E-business has significantly changed	All sectors	Business services			
		All enterpr.	0-49 empl.	50-249 empl.	250+ empl.
the organisational structure	6	5	5	4	7
internal work processes	10	11	11	10	13
relationships to customers	8	9	9	7	6
relationships to suppliers	7	9	9	7	6
the offers of products and services	7	7	7	4	8
the way of conducting business	8	11	11	6	10

Base: EU-4 (D, F, I, UK), all enterprises. N=411 (for business services sector), N=5917 (for all sectors). In % of enterprises. Reporting period: June/July 2002.

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

However, most companies believe that large enterprises are more likely to benefit from e-business than small companies. This assessment is, however, in contrast to the actual satisfaction with e-business in those companies that are active in e-business. Large and small companies are more or less equally satisfied with the effects of e-business. Overall, almost 90% of the companies in the business services sector which apply e-business are very or fairly satisfied with it.

Table 2-3: Business services: Perceived beneficiaries of e-business

Most likely to benefit from e-business:	All sectors	Business services			
		All enterpr.	0-49 empl.	50-249 empl.	250+ empl.
SMEs	13	15	15	10	6
Large enterprises	45	41	41	35	30
Equal	34	36	36	48	59
No one	2	<1	<1	<1	0
Base: EU-4 (D, F, I, UK), all enterprises. N=411 (for business services sector), N=5917 (for all sectors). In % of enterprises. Reporting period: June/July 2002.					

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

Satisfaction with and planned expenditure for e-business

The high level of satisfaction with e-business is also reflected in the plans of companies to further invest in e-business technologies within the next 12 months. Only 1% of the companies in the sector plan to decrease e-business expenditures, two thirds want to keep expenditures on the current level and about one third plans to increase the respective budgets.

Particularly business services firms from Ireland, Italy and Denmark plan to increase e-business expenditures. The same is true for only one tenth of German enterprises, despite the comparatively high level of satisfaction with e-business depicted in figure 2-2.

Table 2-4: Business services: Satisfaction with the effects and success of e-business (% of companies doing e-business[3])

Satisfaction with e-business	All sectors	Business services			
		All enterpr.	0-49 empl.	50-249 empl.	250+ empl.
Very satisfied	14	14	14	8	29
Fairly satisfied	74	74	74	81	56
Fairly disappointed	12	11	11	11	15
Very disappointed	1	1	1	0	1
Base: EU-4 (D, F, I, UK), enterprises doing e-business. N=211 (for business services sector), N=2845 (for all sectors). In % of enterprises. Reporting period: June/July 2002.					

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

[3] Companies reporting that e-business constitutes some or a significant part of the way they operate today.

Figure 2-2: Business services: Satisfaction with e-business across countries

Base: EU-7 (D, DK, F, I, IRL, NL, UK), companies doing e-business (N=211).

In % of enterprises. Reporting period: June/July 2002.

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

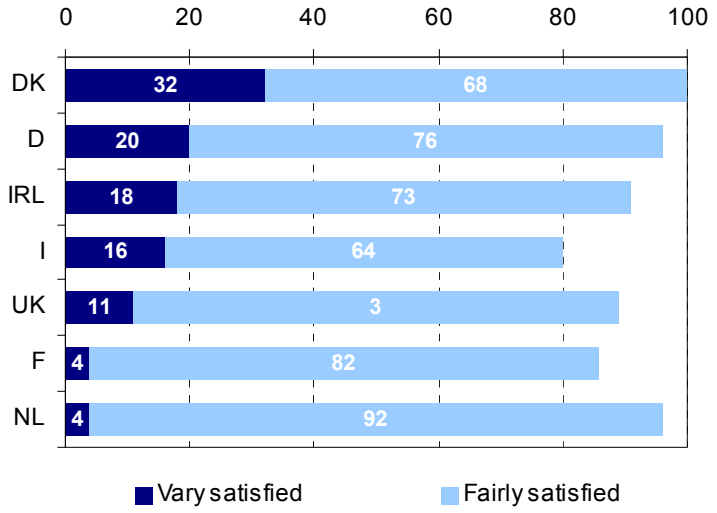


Table 2-5: Business services: Expenditure on e-business technologies within the next 12 months

Expenditure on e-business	All sectors	Business services			
		All enterpr.	0-49 empl.	50-249 empl.	250+ empl.
Increasing	30	29	29	34	32
Decreasing	2	1	1	0	6
Current level	63	63	63	63	56

Base: EU-4 (D, F, I, UK), all enterprises. N=411 (for business services sector), N=5917 (for all sectors). Note: figures enterprise weighted ("% of enterprises"). Reporting period: June/July 2002.

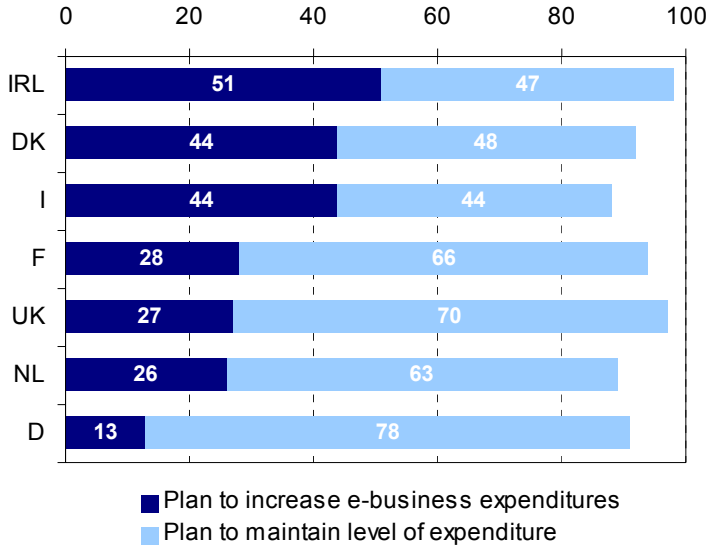
Source: *e-Business W@tch* (2003)

Figure 2-3: Business services: Planned expenditures on e-business technologies across countries

Base: EU-7 (D, DK, F, I, IRL, NL, UK), all companies (N=692).

In % of enterprises. Reporting period: June/July 2002

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



2.2 Readiness and Infrastructure

2.2.1 IT infrastructure

General IT infrastructure

Knowledge-intensive services account for the largest share of turnover 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 IT. Survey results show an above-average usage of the main technologies for accessing and exchanging information. For example, more than 90%of all employees in the sector are working in companies that offer Internet, e-mail and WWW access (see Table 2-6). What distinguishes business services from many other sectors is that not only large companies have a good IT infrastructure. Even for small companies the respective percentages are at almost 90% or higher.

Table 2-6: Business services: Current and planned IT infrastructure

IT infrastructure	All sectors	Business services			
		All enterpr.	0-49 empl.	50-249 empl.	250+ empl.
Internet					
• Current	91	96	92	95	100
• Planned	3	1	3	<1	0
E-mail					
• Current	87	93	92	95	95
• Planned	1	0	0	0	0
WWW					
• Current	84	92	86	94	100
• Planned	1	1	1	0	0

Base: EU-4 (D, F, I, UK), all enterprises. N=411 (for business services sector), N=5917 (for all sectors). Note: figures weighted by employment ("enterprises comprising …% of employment"). Reporting period: June/July 2002.

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

However, no 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. intranets) or remote locations (e.g. WANs). Differences also exist, but are less pronounced, in the use of extranets, which are an important element for collaboration with external parties like sub-contractors, freelancers or clients. Extranet systems, for example, allow third parties to directly access project-related information and input information. Clients can follow the progress of the project and input change requests. Likewise, freelancers and remote workers can see deadlines, report problems and input time spent on certain tasks. About one fifth of all employees in this sector work in companies having an extranet to support the collaboration with external parties.

The availability of EDI networks is below average in the business services sector. This outcome is to some extent explained by the small average size of business services enterprises, as EDI is more useful for larger companies. A further explanation for the comparatively low usage rates of EDI is that EDI networks are best suited to the needs of manufacturing industries while business services are to a large extent individual and flexible.

According to the survey, a surprisingly high number of business services companies use application service providers (ASP) or plan to do so in the future. This might partly be due to the suitability of web-based groupware and collaboration applications to the needs of business services workers that are frequently offered by ASPs.

Table 2-7: Business services: Current and planned use of IT networks

IT infrastructure	All sectors	Business services			
		All enterpr.	0-49 empl.	50-249 empl.	250+ empl.
Intranet					
• Current	51	51	36	55	71
• Planned	8	9	9	12	10
Extranet					
• Current	20	24	14	27	37
• Planned	8	7	5	18	6
LAN					
• Current	67	68	55	83	82
• Planned	2	2	3	1	0
WAN					
• Current	34	32	10	36	63
• Planned	4	5	3	13	6
EDI					
• Current	23	20	12	21	31
• Planned	4	2	2	3	2
Use of an ASP					
• Current	13	15	9	19	23
• Planned	3	4	4	4	4

Base: EU-4 (D, F, I, UK), all enterprises. N=411 (for business services sector), N=5917 (for all sectors). Note: figures weighted by employment ("enterprises comprising …% of employment"). Reporting period: June/July 2002.

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

Remote access

According to the *e-Business W@tch* survey, 45% of the employees in the business services sector work in companies that offer remote access to the company's computer system. This allows project members at various remote locations to access up-to-date information and input data. In the large company segment, 68% of employees work in companies with remote access.

15% of the business services employees work in companies that even offer wireless access to central data. Wireless business applications provide an additional degree of freedom: they allow employees on the go to connect to centrally stored data independently of time and place. 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.

Table 2-8: Business services: Employees' remote access to the company's computer system

	All sectors	Business services			
		All enterpr.	0-49 empl.	50-249 empl.	250+ empl.
Remote access	40	45	29	46	68
Planning to enable remote access	8	7	9	7	4
Wireless access	12	15	11	8	23

Base: EU-4 (D, F, I, UK), enterprises using computers. N=407 (for business services sector), N=5741 (for all sectors). Note: figures weighted by employment ("enterprises comprising …% of employment"). Reporting period: June/July 2002.

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

Internet connection

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 much higher percentages of analogue modems in small than in large companies.) It is also an evidence for a relatively modern ICT infrastructure, as powerful DSL connections have only recently become available.

Table 2-9: Business services: Internet connection modus

Internet connection	All sectors	Business services			
		All enterpr.	0-49 empl.	50-249 empl.	250+ empl.
Analogue modem	19	17	23	14	9
ISDN	39	39	45	37	31
DSL	25	32	32	30	33
Other fixed	27	28	5	33	56
Other connection	2.9	3	2	5	4

Base: EU-4 (D, F, I, UK), enterprises with Internet access. N=388 (for business services sector), N=5417 (for all sectors). Note: figures weighted by employment ("enterprises comprising …% of employment"). Reporting period: June/July 2002.

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

A difference exists between small and large companies with respect to ISDN versus other fixed connections. 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: the larger the company, the higher the probability that a powerful Internet connection is available.

Table 2-10: Business services: Internet connection speed

Connection speed	All sectors	Business services			
		All enterpr.	0-49 empl.	50-249 empl.	250+ empl.
< 2 Mbit/s	62	60	70	62	46
2-10 Mbit/s	17	18	9	26	28
>10 Mbit/s	7	8	7	3.8	11

Base: EU-4 (D, F, I, UK), enterprises with Internet access. N=388 (for business services sector), N=5417 (for all sectors). Note: figures weighted by employment ("enterprises comprising …% of employment"). Reporting period: June/July 2002.

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

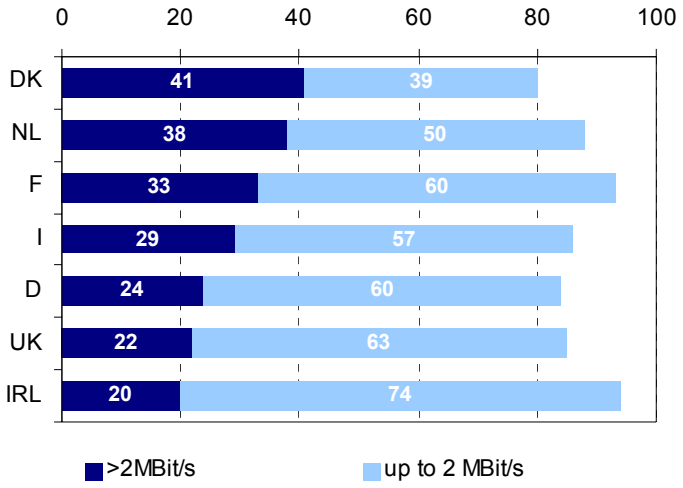
Figure 2-4: Business services: Bandwidth available to companies with Internet access across countries

Base: EU-7 (D, DK, F, I, IRL, NL, UK), companies with Internet access (N=664).

Figures weighted by employment ("enterprises comprising …% of employees"). Figures don't add up to 100% because of "don't know" / "no answer".

Reporting period: June/July 2002.

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



2.2.2 IT skills

Skill requirements

The requirements for IT skills in the business services sector can be considered as comparatively high. First, an above average number of office workers has access to and needs to apply ICT such as e-mail or the WWW in their work routines. Second, using ICT to quickly access and efficiently make use of 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.

Table 2-11: Business services: Facilities available to the majority of office workers

The majority of office workers has access to …	All sectors	Business services			
		All enterpr.	0-49 empl.	50-249 empl.	250+ empl.
… e-mail for internal communication	67	74	64	81	87
… e-mail for external communication	74	87	83	86	93
… the WWW	63	75	76	80	72
… the intranet	44	46	33	49	62

Base: EU-4 (D, F, I, UK), all enterprises. N=411 (for business services sector), N=5917 (for all sectors). Note: figures weighted by employment ("enterprises comprising …% of employment"). Reporting period: June/July 2002.

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

Importance of training schemes

The comparatively high IT usage rates and IT skill requirements should imply that business services companies are aware of the need for training schemes to enable their employees to use the Internet as efficiently as possible. However, at least formal training schemes are not rated as very important by the majority of companies. Only 20% consider such training to be very important. Much more important (65%) is on-the-job learning. One explanation could be that the necessary IT skills are considered to be easy to acquire and/or the qualification of the employees is considered high enough to learn quickly. Another explanation could be that the sort of skills needed cannot be learned through formal training, but are more efficiently learned on the job, for instance through regularly working in project teams.

Compared to other sectors, business services show relatively small differences between large and small companies regarding the importance of formal training. The only exception is self-learning, which is considered more important by small enterprises.

Table 2-12: Business services: Importance of IT training schemes

Training scheme rated as very important	All sectors	Business services			
		All enterpr.	0-49 empl.	50-249 empl.	250+ empl.
On the-job-learning	59	65	64	57	69
Formal training	25	20	19	19	22
Self-learning	38	35	42	38	24

Base: EU-4 (D, F, I, UK), enterprises using computers. N=407 (for business services sector), N=5741 (for all sectors). Note: figures weighted by employment ("enterprises comprising …% of employment"). Reporting period: June/July 2002.

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

Skills development

Table 2-13 shows the reality of IT skill development, i.e. the training schemes offered to employees. Most business services enterprises offer at least some form of support, although there is a difference between small and large companies. While only 5% of the latter offer no support, this percentage is much higher for small companies (23%). This difference can also be observed for in-house and for third party training. Both are more often offered by large enterprises.

Comparing the different training forms, shows that training by third parties is more often offered than in-house training. This is due to the fact that many companies in this sector are small so in-house training would not be economical. For large companies, both forms are of equal importance.

IT training is regarded as moderately important without major differences between small and large companies. In reality, however, larger companies offer more formal training than small companies do.

Table 2-13 IT: Business services: Skills development

Form of support	All sectors	Business services			
		All enterpr.	0-49 empl.	50-249 empl.	250+ empl.
Any support of IT and networking skills development	83	85	77	89	95
In-house computer / IT training	52	50	37	55	67
Computer / IT training by third parties	58	58	50	62	69
Usage of working time for learning activities	66	69	67	79	70

Base: EU-4 (D, F, I, UK), all enterprises. N=411 (for business services sector), N=5417 (for all sectors). Note: figures weighted by employment ("enterprises comprising …% of employment"). Reporting period: June/July 2002.

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

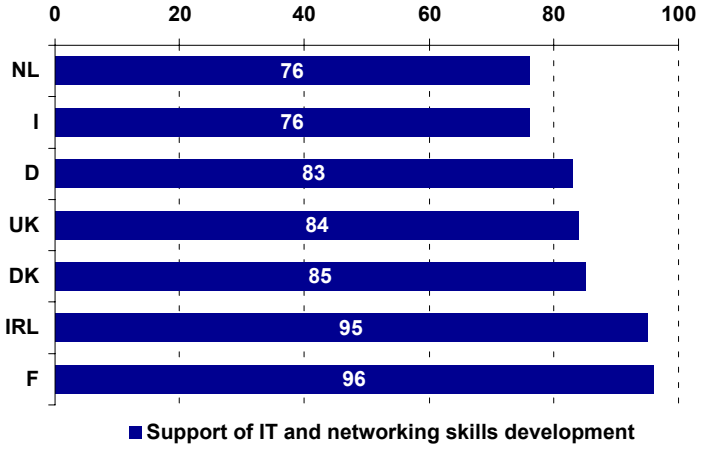
Business services companies in all countries for which data is available offer at least some support for the development of networking and IT skills. Companies in France and Ireland are most supportive while one quarter of employees in Italy and the Netherlands are working in enterprises where they do not receive any support and have to acquire the necessary skills on their own.

Figure 2-5: Business services: Support of IT and networking skills development

Base: EU-7 (D, DK, F, I, IRL, NL, UK), all companies (N=692).

Figures weighted by employment ("enterprises comprising …% of employees"). Reporting period: June/July 2002

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



2.3 Usage and Impact

2.3.1 Internal Processes

Internal collaboration

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 are clearly above the average of other sectors in the EU. Since collaboration is a central element in producing business services, online technologies to share documents and to perform collaborative work are most widespread. 42% of the small and 58% of the large companies use such technologies, compared to only 28% on average.

Table 2-14: Business services: Usage of online technologies for internal processes

Usage of online technologies to…	All sectors	Business services			
		All enterpr.	0-49 empl.	50-249 empl.	250+ empl.
Share documents / perform collaborative work	28	42	42	52	58
Automate travel reimbursement of employees	4	5	5	13	18
Track working hours and production time	10	16	16	31	51
Support the human resources management	8	13	13	24	38
Posting job vacancies on Internet board	12	15	14	36	50

Base: EU-4 (D, F, I, UK), all enterprises. N=411 (for business services sector), N=5917 (for all sectors). In % of enterprises. Reporting period: June/July 2002.

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

Use of internet by labour services company Randstad

The Amsterdam (NL) based Randstad Group is one of the largest temporary and contract staffing organizations in the world. It is market leader in the Netherlands, Belgium, Germany and in the south-east of the United States. In 2001, Randstad employed an average of 217,000 people every day. At the end of 2001, Randstad had a total of 1,769 branches.

The Internet posed some true challenges for Randstad. In the mid-nineties online labour-marketplaces were established in huge quantities by small companies and new entrants to the sector. These marketplaces endangered the position of Randstad in the market for flexible labour. The marketplaces were able to attract a huge pile of CV's and vacancies. Randstad responded to this threat by developing a radical product innovation for every division of the company. JobLife, Hedson and NewMonday (in cooperation with publishing company VNU) were the result. Especially Hedson and NewMonday were based on web technology and supported a full online match of vacancies and flex workers. The traditional intermediaries of the employment agencies disappeared in this new model.

Within a year Randstad discovered these new products were not successful and changed its strategy. In this new strategy internet is no longer used for product innovation but is a catalyst for process innovations. With the knowledge of web technology (which was accumulated in the development process) Randstad reengineered the procurement processes with their clients. Nowadays a full online system supports all communication with important clients. Vacancies and flex workers can be communicated through this system and intermediaries keep their jobs. The application of internet in the business processes resulted in more efficient, productive and effective procedures. The system is subject to continuous improvement.

Source: Dialogic (Utrecht, NL)

Human resource management

Another important area that is supported by online technologies are 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. Particularly 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 applications. More than half of all large business services companies use online technologies to track working hours and production time. The same is true for only 16% of the small and 31% of the medium sized firms.

Over the past years, also the use of ICTs in the recruitment process has become increasingly common. Survey results show that 50% of the large and 15% of small companies in the business services sector post job vacancies on Internet boards. Even though most positions are still filled through personal networks, searching over the Internet can facilitate the process of finding new employees or freelancers with very specific skills.

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, knowledge management as well as e-learning tools are used by an above average share of business services 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. 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. Particularly 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 7% of the small and 24% of the large companies in this sector use knowledge management systems. In addition, 5% of the small and 3% of the large companies plan to implement such systems over the next 12 months.

Implementing software and the technical infrastructure is, however, 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.

Table 2-15: Business services: Current and planned usage of specific IT tools

IT tool	All sectors	Business services			
		All enterpr.	0-49 empl.	50-249 empl.	250+ empl.
Knowledge management					
• current	5.2	6.8	6.8	9.1	23.5
• planned	2.3	5.2	5.2	4.4	3.1
E-learning	12.3	16.9	16.9	13.5	25.3
ERP					
• current	6.6	8.7	8.6	13.2	21.1
• planned	2.5	2.7	2.7	5.0	2.0
Base: EU-4 (D, F, I, UK), all enterprises. N=411 (for business services sector), N=5917 (for all sectors). In % of enterprises. Reporting period: June/July 2002.					

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

Keeping employees' knowledge up-to-date in a very 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 cost by cutting back secondary education

costs (such as travel and seminar room expenses etc.). 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.

Accordingly, e-learning tools are used by an above average share of business services firms (17% compared to 12% on EU-average). While e-learning typically makes sense especially for larger firms in dynamic environments, where a variety of change processes and product innovations (and associated training needs) occur, in business services also small firms are active users of e-learning tools.

Enterprise resource planning

Even though enterprise resource planning systems (ERP) have originally been primarily used by manufacturing or wholesale and retail companies, the use of such complex systems is also on the rise in the services sector. Almost 9% of the enterprises in the business services sector use ERP systems today and an additional 3% plans to do so in the future. Since the implementation of complex IT systems is often not profitable for SMEs, more large than small companies use ERP systems. However, an increasing number of standardised software packages for key business processes are now offered at low prices that make them affordable also for smaller companies.

"Professional Services Automation" (PSA) has become a much-used term for describing e-business applications that integrate and automate key business processes in the business services sector. They are often described as ERP for service providers. PSA systems usually consist of a large variety of different modules that can be used separately but offer most value 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. Especially 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.

2.3.2 Processes of the extended enterprise

Management of third party relationships

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 like 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 from the advertising industry (NACE 74.4), for example, the management of third party relationships is a core business. They do 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 business 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.

ICTs and e-business applications play a major role in the management of complex third party relationships. First, the speed and cost of communication has been significantly enhanced by the use of e-mail. In almost 90% of all companies in the business services sector e-mail for external communication is available for the majority of office workers. Second, 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 third, documents can easily be exchanged over the Internet. More than half of all companies in this sector exchange documents with suppliers and customers electronically. Small companies are more frequently using these rather informal technologies to conduct e-business than large ones.

Internet enhances innovativeness in marketing services

Amsterdam (NL) based BlueberryFrog names itself "The cross border guerrilla marketing agency". Instead of traditional broadcasted media campaigns that aim at brand awareness, Blueberryfrog uses interactivity to create word of mouth and word of mouse -'buzz'- around brands.

From a marketing perspective Blueberryfrog has introduced very innovative tactics. Maybe even more innovative is the underlying organizational model. The agency is more than 50% virtual. Thirty full-time employees are connected over internet with fifty free-lance creative minds around the world, from countries as diverse as the US, Belgium and Morocco. On every assignment people from different backgrounds and (literally) different parts of the world are virtually working together in one project. A mix of different people with different environments provides optimal circumstances for creativity and enables Blueberryfrog to develop really innovative and attention generating marketing campaigns. The effect of this approach has not gone unnoticed as large corporations like Motorola, Ericsson, IKEA, Dockers and Adidas are among it's clients.

Source: Dialogic (Utrecht, NL) based on Blueberryfrog website and press coverage.

Less important for business services companies than on average are online technologies to manage inventories, which are to a much smaller extent applicable to a services sector than to sectors producing or handling physical goods. The same is true for online collaboration to forecast demand, which is most important for industries keeping a stock of produced goods.

Table 2-16: Business services: Use of online technologies for cooperation with external business partners

	All sectors	Business services			
		All enterpr.	0-49 empl.	50-249 empl.	250+ empl.
Online collaboration with business partners for designing products	13	16	16	24	20
Online collaborating with business partners to fore-cast product demands	10	9	9	17	12
Online management of capacity / inventory	9	7	7	8	23
Electronic exchange of documents with suppliers	42	51	51	46	37
Electronic exchange of documents with customers	39	58	58	58	51
Online negotiation of contracts	16	16	16	18	9
Access to an extranet of business partners	18	19	19	38	25

Base: EU-4 (D, F, I, UK), all enterprises. N=411 (for business services sector), N=5917 (for all sectors). In % of enterprises. Reporting period: June/July 2002.

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

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 table 2-17 show that indeed only 6% of small business services companies but 35% of the large ones use CRM systems.

Table 2-17: Business services: Current and planned usage of CRM systems

	All sectors	Business services			
		All enterpr.	0-49 empl.	50-249 empl.	250+ empl.
CRM					
• current	6.6	6.4	6.2	13.5	34.7
• planned	2.2	3.5	3.5	9.8	4.7
Base: EU-4 (D, F, I, UK), all enterprises. N=411 (for business services sector), N=5917 (for all sectors). In % of enterprises. Reporting period: June/July 2002.					

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

Particularly in the medium sized segment, companies obviously believe that CRM systems can improve their customer contact processes: 10% of the companies with 50-249 employees plan to implement a CRM system within the next 12 months.

E-marketplaces

In general, the use of e-marketplaces is 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.

Exceptions on the input side are MRO goods and specific inputs for certain sub-sectors. One specific input for the advertising industry, for example, which is comparatively easy to standardise and trade online is media space, for which a number of European marketplaces exist. Another direct input for the advertising industry, which can be digitised and delivered online, are photos and images, which can also be bought on specialised e-marketplaces. On the output side, service companies can use the Internet as new sales channel by offering their services on expert or service provider marketplaces or online directories.

Even though the potential for e-marketplaces is at first sight rather limited for this sector, survey results show that the participation in e-marketplaces is in line with the average of all sectors and future plans to use e-marketplaces are even above average in this sector.

Table 2-18: Business services: Current and planned participation in e-marketplaces

	All sectors	Business services			
		All enterpr.	0-49 empl.	50-249 empl.	250+ empl.
Participation in e-marketplaces	5.3	5.0	5.0	2.9	3.5
Planned participation in e-marketplaces	3.4	5.1	5.1	5.2	1.6
Base: EU-4 (D, F, I, UK), all enterprises. N=411 (for business services sector), N=5917 (for all sectors). In % of enterprises. Reporting period: June/July 2002.					

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

This result can be explained if a closer look is taken at how business services firms use e-marketplaces. While e-marketplaces are commonly defined as platforms operated by independent third parties or a consortium of buyers and/or sellers, business services firms are most active on e-marketplaces that are operated by a single buyer or seller. Their most important activities on e-marketplaces are catalogue-based buying or selling. This indicates that marketplaces are predominantly used to optimise existing forms of buying and selling rather than offering new forms of trading as in other sectors (where e.g. marketplaces for overcapacities or used machinery exist).

The second most important activity on e-marketplaces is participating in calls for tender. Online requests for proposals or calls for tenders have become an increasingly important tool for governmental institutions and commercial clients. Calls for tender or proposals on the Internet offer especially smaller business services companies and those that are new to the market the opportunity to compete for orders without being well known or having established relationships with the ordering parties. This might explain why a larger share of small companies already uses or plans to use e-marketplaces in the way defined here.

Table 2-19: Business services: Operation of e-marketplaces

E-marketplaces operated by…	All sectors	Business services
a single buyer/seller	36	47
an industry consortium of buyers/sellers	14	<1
an independent third party	31	16
Others	17	28

Base: EU-4 (D, F, I, UK), enterprises participating in e-marketplaces. N=19 (for business services sector), N=290 (for all sectors). In % of enterprises. Reporting period: June/July 2002.

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

Table 2-20: Business services: Activities on e-marketplaces

Activity on e-marketplaces	All sectors	Business services
Catalogue-based offering	41	55
Catalogue-based purchasing	36	55
Selling on auctions	16	10
Bidding on auctions	18	10
Launching calls for tender	15	20
Answering calls for tender	24	28

Base: EU-4 (D, F, I, UK), enterprises participating in e-marketplaces. N=19 (for business services sector), N=290 (for all sectors). In % of enterprises. Reporting period: June/July 2002.

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

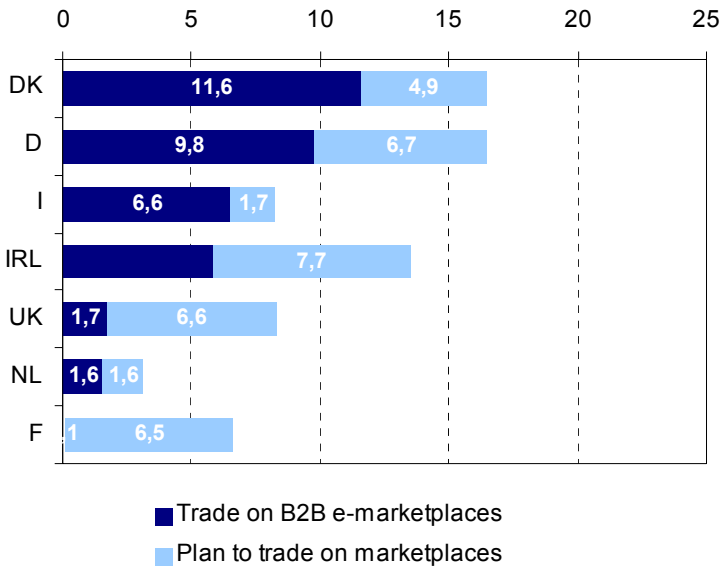
A comparison across countries shows that Danish and German business services firms are the most active users of e-marketplaces and also plan to increase their activity within the next 12 months (see figure 2-6). Least active on e-marketplaces are British, Dutch and French firms. However, differences might also be due to different definitions of e-marketplaces.

Figure 2-6: Business services: Current and planned participation in e-marketplaces across countries

Base: EU-7 (D, DK, F, I, IRL, NL, UK), all companies (N=692).

In % of enterprises. Reporting period: June/July 2002.

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



2.3.3 Purchasing

Online Purchasing

Results from the *e-Business W@tch* survey reveal that business services companies are already actively using new technologies to purchase online. Almost half of all companies in the sector are purchasing online, compared to only 36% on average in the EU-4 (see table 2-21). Also the share of online purchases in total purchases is higher in this sector than on average (see table 2-22). Nevertheless, volumes in many companies are still relatively low pointing to the fact that most companies still experiment with online purchasing.

Compared to other sectors, the differences in online purchasing between small and larger companies are small in this sector. In fact, table 2-22 shows that for those companies that procure online, its importance is higher in small than in large companies.

It has to be kept in mind, though, that purchasing online can be interpreted in a rather broad way and means different things for large and 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 rather 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 simply improve purchasing processes. 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.

Table 2-21: Business services: Current and planned online purchases

	All sectors	Business services			
		All enterpr.	0-49 empl.	50-249 empl.	250+ empl.
Currently purchasing online	36	47	47	54	46
Plan to purchase online	7	7	7	3	4
Purchasing online for					
… > 2 years	42	48	48	55	19
… 1-2 years	40	38	38	39	57
… < 1 year	15	13	13	6	23

Base: EU-4 (D, F, I, UK), lines 1-2: all enterprises, N=411 (for business services sector), N=5917 (for all sectors), lines 3-5: enterprises purchasing online, N=197 (for business services sector), N= 2387 (for all sectors). In % of enterprises. Reporting period: June/July 2002.

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

Table 2-22: Business services: Share of online purchases in total purchases

Share in total purchases	All sectors	Business services			
		All enterpr.	0-49 empl.	50-249 empl.	250+ empl.
> 50%	9	15	15	4	0
26 to 50%	10	9	9	11	5
11 to 25%	19	24	24	21	34
5 to 10%	25	18	18	24	16
< 5%	37	35	35	41	46

Base: EU-4 (D, F, I, UK), enterprises purchasing online, N=197 (for business services sector), N= 2387 (for all sectors). In % of enterprises. Reporting period: June/July 2002.

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

70% 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. Especially 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, also small companies can achieve improvements in efficiency by electronically supporting their MRO procurement process. The survey results show that 70% of the small and 78% of large online-procuring companies procure MRO goods online.

While buying of MRO goods is more important than buying direct production inputs, the fraction of those establishments procuring direct inputs is not negligible. Almost half of the 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.

Table 2-23: Business services: Type of goods purchased online

Type of goods purchased online	All sectors	Business services			
		All enterpr.	0-49 empl.	50-249 empl.	250+ empl.
MRO goods	64	69	69	64	78
Direct production goods	49	46	46	41	44

Base: EU-4 (D, F, I, UK), enterprises purchasing online, N=197 (for business services sector), N= 2387 (for all sectors). In % of enterprises. Reporting period: June/July 2002.

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

The fraction of business services enterprises that already buy online differs considerably across the seven EU member countries for which data is available. Danish and Irish enterprises in particular are familiar with online purchasing. Both countries also show high rates of online sales, which points to some correlation between both activities. Also those countries showing the lowest rates of current online procurement activity (France and Italy) have the lowest rates of online selling.

Figure 2-7: Business services: Current and planned online purchases across countries

Base: EU-7 (D, DK, F, I, IRL, NL, UK), all companies (N=692).

In % of enterprises. Reporting period: June/July 2002

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

Barriers to online purchasing

In accordance with the result that business services firms are comparatively active in online purchasing, potential barriers to online purchasing are considered less important here than in other sectors. As in other sectors, the need for face-to-face contact with suppliers, limited online offerings of

suppliers and concerns about data security are the most important barriers to online purchasing in this sector. No major differences in the assessment of large and small companies can be found.

One barrier that is more important for large companies, though, is an insignificant cost advantage of purchasing online. This result seems surprising since particularly large companies with a high number of transactions can profit from optimising procurement processes. However, it is in line with results depicted in the table below, which shows that 64% of the small and 57% of the large companies report positive impacts of purchasing online on procurement cost. This result might point to the fact that simple buying online rather than sophisticated e-procurement solutions are the most widespread form of e-purchasing in this sector.

Table 2-24: Business services: Barriers to online purchasing

Completely agreeing to statement	All sectors	Business services			
		All enterpr.	0-49 empl.	50-249 empl.	250+ empl.
Requires face-to-face interaction	38	31	31	32	34
Suppliers do not sell online	32	26	26	25	31
Concerns about data protection and security issues	31	25	25	23	35
Technology is expensive	24	19	19	15	13
Suppliers' technical systems are not compatible	13	8	8	5	15
Cost advantage is insignificant	22	17	17	21	27

Base: EU-4 (D, F, I, UK), all enterprises. N=411 (for business services sector), N=5917 (for all sectors). In % of enterprises. Reporting period: June/July 2002.

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

Impacts of online purchasing

The most important impact of online purchasing on business services firms is a reduction in procurement cost. More than two thirds of the companies in the sector that purchase online report a very or fairly positive impact on procurement cost, compared to only 58% on average. Overall, a higher share of small than large firms report positive impacts on procurement cost.

The second most important impact of purchasing online is an improvement in internal business processes. This effect is particularly felt in large companies: 71% of them report positive impacts on internal processes while the same is true for “only” 55% of the small companies.

Relationships with suppliers have both positively and negatively been affected by the increased online purchasing activity. Even though 45% of the companies report positive impacts on the relations with suppliers, 14% also report negative impacts. This result is most likely related to the changed number of suppliers that companies work with. Especially in small companies the increased transparency of the Internet has resulted in a higher number of suppliers, almost one third reported an increased number. On the contrary, one fifth of the large companies now deal with fewer sellers, probably due to the implementation of e-procurement systems with selected contractors. Relations to those selected suppliers have obviously been very positively affected, while relations to others have most likely deteriorated.

Table 2-25: Business services: Impact of purchasing online

Impact on…	Very positive	Fairly positive	Neither positive nor negative	Fairly negative	Very negative
Procurement costs					
Business services	13	52	32	3	0
all sectors	13	46	39	2	<1
Relations to suppliers					
Business services	7	38	42	12	2
all sectors	11	34	45	8	2
Internal business processes					
Business services	18	37	41	2	2
all sectors	17	42	39	2	1
Costs of logistics and inventory					
Business services	10	37	48	1	4
all sectors	12	35	48	2	3
Number of suppliers					
	Increased	**Constant**	**Decreased**		
Business services	29	64	7		
all sectors	24	70	5		

Base: EU-4 (D, F, I, UK), enterprises purchasing online, N=197 (for business services sector), N= 2387 (for all sectors). In % of enterprises. Reporting period: June/July 2002.

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

Table 2-26: Business services: Impact of purchasing online across size classes

Impact on…	Very positive	Fairly positive	Neither positive nor negative	Fairly negative	Very negative
Procurement costs					
0-49 empl.	13	51	33	3	0
50-249 empl.	10	45	44	0	1
250+ empl.	19	38	41	1	2
Relations to suppliers					
0-49 empl.	7	38	42	12	2
50-249 empl.	8	34	53	4	1
250+ empl.	13	25	42	20	<1
Internal business processes					
0-49 empl.	18	37	41	2	2
50-249 empl.	12	54	32	2	1
250+ empl.	16	55	28	1	0
Costs of logistics and inventory					
0-49 empl.	10	37	48	1	3
50-249 empl.	6	37	54	1	1
250+ empl.	20	25	55	0	0
Number of suppliers					
	Increased	**Constant**	**Decreased**		
0-49 empl.	29	65	6		
50-249 empl.	16	73	11		
250+ empl.	19	59	22		

Base: EU-7 (D, DK, F, I, IRL, NL, UK), enterprises purchasing online, N=369. In % of enterprises. Reporting period: June/July 2002.

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

2.3.4 Marketing and Sales

Marketing

Company websites have become a common element in the overall marketing strategy of business services companies. Almost two thirds of all enterprises in the sector have a website today. While for large enterprises having a website is practically a must (96% have one), there is a considerable catch-up potential for small enterprises: Today 59% have a site on the Internet and 13% plan to have one within the coming year.

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 building the brand and reducing trust problems of new customers. 16% of the smaller and 30% of the large business services firms have implemented content management systems, which indicates that they provide larger amounts of up-to-date information on their sites. The website is also the primary channel for online sales in this sector as table 2-30 below shows.

Table 2-27: Business services: Enterprises with a website

	All sectors	Business services			
		All enterpr.	0-49 empl.	50-249 empl.	250+ empl.
Having a website	54	59	59	83	96
Plans to have a website	16	13	13	6	2
Usage of content management systems	15	16	16	21	30

Base: EU-4 (D, F, I, UK), all enterprises. N=411 (for business services sector), N=5917 (for all sectors). In % of enterprises. Reporting period: June/July 2002.

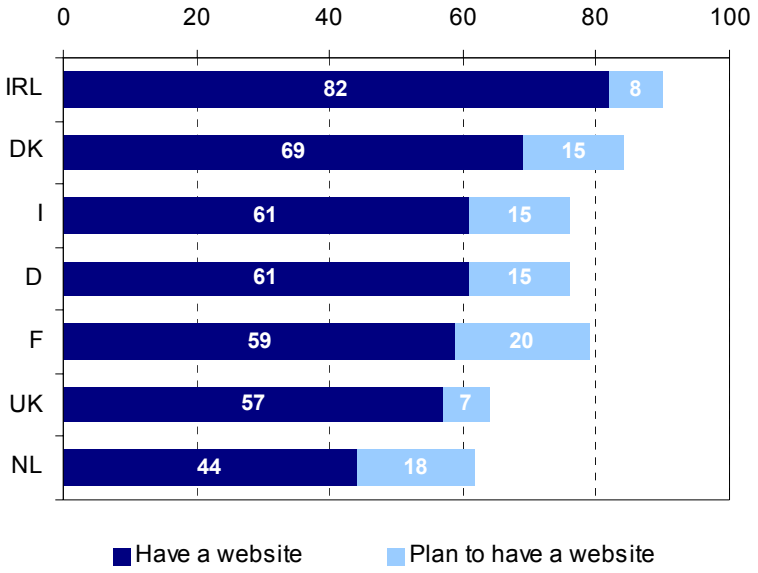
Source: *e-Business W@tch* (2003)

Figure 2-8: Business services: Current and planned website across countries

Base: EU-7 (D, DK, F, I, IRL, NL, UK), all companies (N=692).

In % of enterprises. Reporting period: June/July 2002

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



Selling online

Quite in contrast to e-purchasing, selling online is less important in the business services sector than it is on average. Survey results show that only 10% of all companies in the sector sell products or services online. A quite substantial share of 10% plans to enable online sales within the next 12 months. Online sales only constitute a marginal fraction of overall sales: for 59% selling online is responsible for less than 5% of total sales.

Table 2-28: Business services: Current and planned selling online

	All sectors	Business services			
		All enterpr.	0-49 empl.	50-249 empl.	250+ empl.
Currently sell online	12	10	10	12	17
Plan to sell online	9	10	10	10	4
Selling online for					
… > 2 years	42	35	35	39	28*
… 1-2 years	36	29	28	45	72*
… < 1 year	20	32	33	15	0*

Base: EU-4 (D, F, I, UK), lines 1-2: all enterprises, N=411 (for business services sector), N=5917 (for all sectors), lines 3-5: enterprises selling online, N=43 (for business services sector), N= 805 (for all sectors). In % of enterprises. Reporting period: June/July 2002.

* number of observations < 10, to be interpreted with care

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

Of those companies selling online, many have only recently started to do so. Almost a third has been selling online for less than a year, while this fraction is at 20% for the average of all industries within the EU-4.

As the survey results show further, large companies are more prone to online selling than small companies, and online sales are also more important for those large companies that do sell online than for small ones.[4] 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. Also larger business services companies might be better in offering standardised services that are better suited for online selling than individual services.

Table 2-29: Business services: Share of online sales in total sales

Share of total sales	All sectors	Business services			
		All enterpr.	0-49 empl.	50-249 empl.	250+ empl.*
> 50%	9	6	6	25	0
26 to 50%	10	0	0	12	13
11 to 25%	11	9	9	6	0
5 to 10%	26	26	26	22	10
< 5%	46	59	59	34	76

Base: EU-4 (D, F, I, UK), enterprises selling online, N=43 (for business services sector), N= 805 (for all sectors). In % of enterprises. Reporting period: June/July 2002.

* number of observations < 10, to be interpreted with care

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

Figure 2-9 shows that the differences in selling online between countries are quite substantial. While Irish and British business services firms are rather actively using the Internet as a sales channel, its importance is almost neglectable for companies from Italy and France. Very striking is that in France almost none of the surveyed companies plans to sell online within the coming year.

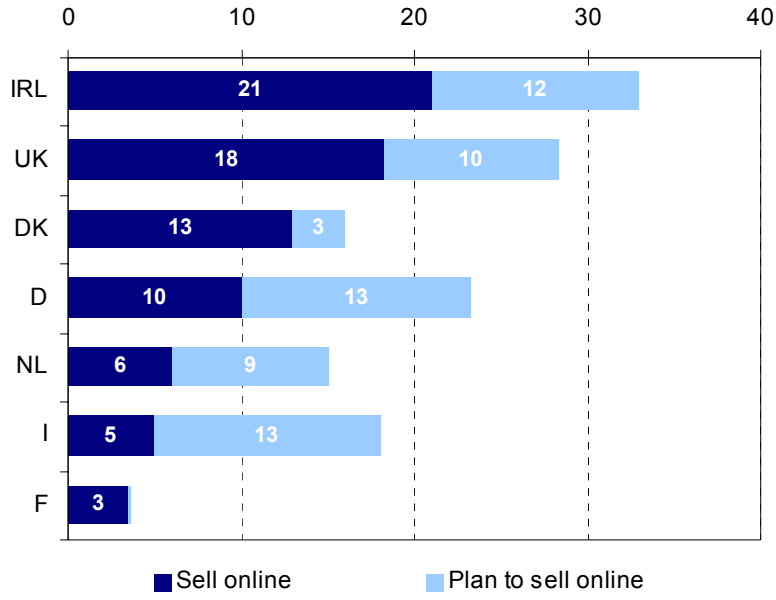
[4] Due to few observations results have to be interpreted with care, though.

Figure 2-9: Business services: Currently and planned selling online across countries

Base: EU-7 (D, DK, F, I, IRL, NL, UK), all companies (N=692).

In % of enterprises. Reporting period: June/July 2002

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



Almost all of the companies that sell online in the business services sector do so through their company website. While e-marketplaces are also used to sell online, particularly by smaller and medium sized companies, other channels like extranets or EDI play almost no role.

Table 2-30: Business services: Online sales channels

Selling online…	All sectors	Business services			
		All enterpr.	0-49 empl.	50-249 empl.	250+ empl.*
through company website	86	96	96	88	100
through e-marketplaces	36	33	33	18	12
via extranet	5	4	4	30	10
via EDI	6	5	5	0	35
via mobile channels	7	0	0	0	3

Base: EU-4 (D, F, I, UK), enterprises selling online, N=43 (for business services sector), N= 805 (for all sectors). In % of enterprises. Reporting period: June/July 2002.

* number of observations < 10, to be interpreted with care.

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

Customer services related to online sales

In 40% of the enterprises selling online, online orders automatically trigger business processes, which is true for only 29% on average. This indicates that even though online sales systems are not always fully integrated with backend IT systems (only 10% of the companies selling online), they are at least integrated into overall business processes.

The Internet enables customer services that allow for a high degree of interactivity. Clients can, for example, track the status of a project, input change requests, use interactive help desks, access account information online, etc. Internet-based services can be offered at low cost and at the same time offer substantial value to the client if they complement (and not substitute) conventional service-offerings. Table 2-31 shows that online after-sales-services are a very important element for business services companies that sell online. Even 68% of the small firms selling online offer this service. Most online selling companies also allow customers to pay online via secure Internet connections.

Table 2-31: Business services: Processing of online orders

Online orders…	All sectors	Business services			
		All enterpr.	0-49 empl.	50-249 empl.	250+ empl.*
are fully integrated with backend systems	9	10	10	18	0
generate an automatic e-mail	73	72	72	70	37
generate a fax informing about order	9	5	5	6	10
trigger other forms of information	6	10	9.9	6	10
trigger business processes	29	40	40	33	47
Online sales system with SSL is offered	46	43	43	42	56
Online payment system offered	31	30	30	21	22
Online after-sales-service is offered	49	67	68	39	47

Base: EU-4 (D, F, I, UK), enterprises selling online, N=43 (for business services sector), N= 805 (for all sectors). In % of enterprises. Reporting period: June/July 2002.

* number of observations < 10, to be interpreted with care

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

Barriers to selling online

The most important barrier to a stronger online sales activity in the business services sector is that most goods and services in this sector do not lend themselves to selling online. Despite standardisation efforts, business services are still to a large extent individual activities. Accordingly, the barrier "goods/services do not lend themselves to online sales" is more often considered as very important by business services firms than on average. In fact, this barrier to online sales is even more pronounced in large companies. This may be due to different service offerings in the size classes. Large professional service companies, e.g., often conduct complex large-scale projects, which are sold through personal contacts.

Table 2-32: Business services: Barriers to selling online

Completely agreeing to statement	All sectors	Business services			
		All enterpr.	0-49 empl.	50-249 empl.	250+ empl.
Few customers online	20	17	17	10	14
Customers hesitant to buy online	31	30	30	24	26
Goods / services do not lend themselves to selling online	47	51	51	61	65
Processing of payments for online orders is a problem	22	21	21	18	11
Technology too expensive	21	18	18	16	20
Revenue of online sales is still low	34	32	32	31	39
Delivery process causes problems	15	14	14	10	11
Adapting corporate culture to e-commerce is difficult	24	21	21	27	23

Base: EU-4 (D, F, I, UK), all enterprises. N=411 (for business services sector), N=5917 (for all sectors). In % of enterprises. Reporting period: June/July 2002.

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

All other barriers to selling online are considered less important than on average. This implies that it is mostly the (perceived) unsuitability of business services for online sales that is responsible for the comparatively low usage of this distribution channel.

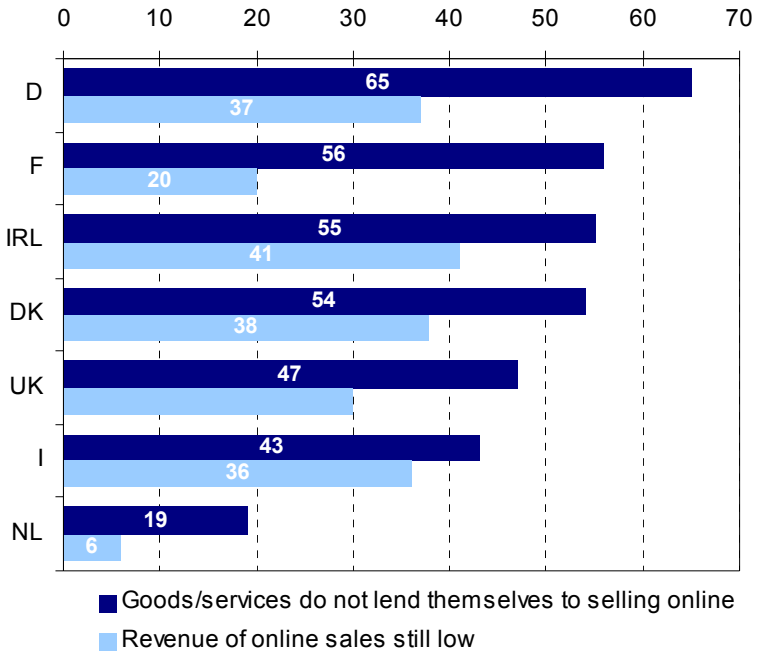
Barriers with especially low importance for business services compared to the average are the adaptation of business culture to e-commerce, the expensiveness of technology and the number of customers on-line. This points to a considerable potential for online sales in this sector, once products and services are created that are more suitable for online-selling. The potential transformation of conventional services into digital products and services that can be traded online is a very specific characteristic of the business services sector (physical products produced by other sectors usually cannot be digitised).

Figure 2-10: Business services: Major barriers to selling online across countries

Base: EU-7 (D, DK, F, I, IRL, NL, UK), all companies (N=692).

In % of enterprises. Reporting period: June/July 2002.

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



Impacts of selling online

Even though only a small fraction of companies in the business services sector sells online, those that do so generally consider its impacts as rather positive. Between 55% and 60% report fairly or very positive impacts 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. These results are more or less in line with the average over all sectors.

There are differences between large and small companies, though. While the number of customers and the sales are positively impacted in both, large and small companies, the impact on the volume of sales is less positive in small than in large companies. 16% of the small companies even report negative impacts on the volume of sales and 11% on the number of customers. This outcome gives a first indication that preliminary hopes of small companies to extend their markets with the help of the Internet have not materialised.

On the contrary – and quite surprisingly – customer care has been more positively affected in small than in large companies (the opposite is true in many other sectors). Obviously, small companies have been able to optimise their customer-related processes through e-business. We have already seen above that almost 70% of the small companies that sell online offer online after-sales-services to their clients.

Table 2-33: Business services: Impacts of selling online

Impact on…	Very positive	Fairly positive	Neither positive nor negative	Fairly negative	Very negative
Volume of sales					
Business services	25	31	29	16	0
all sectors	20	37	35	6	2
Number of customers					
Business services	19	37	28	11	5
all sectors	18	40	35	4	3
Sales area					
Business services	21	39	31	4	5
all sectors	22	37	34	4	3
Customer care					
Business services	40	20	35	4	0
all sectors	28	35	34	2	1
Efficiency of internal business process					
Business services	24	35	32	10	0
all sectors	21	37	38	3	2

Base: EU-4 (D, F, I, UK), enterprises selling online, N=43 (for business services sector), N= 805 (for all sectors). In % of enterprises. Reporting period: June/July 2002.

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

Table 2-34: Business services: Impacts of selling online across company size classes

Impact on…	Very positive	Fairly positive	Neither positive nor negative	Fairly negative	Very negative
Volume of sales					
0-49 empl.	25	31	29	16	0
50-249 empl.	19	40	41	0	0
250+ empl.	46	11	43	0	0
Number of customers					
0-49 empl.	19	36	28	11	6
50-249 empl.	6	55	39	0	0
250+ empl.	30	25	45	0	0
Sales area					
0-49 empl.	21	39	31	4	5
50-249 empl.	12	41	47	0	0
250+ empl.	31	27	42	0	0
Customer care					
0-49 empl.	41	20	35	4	0
50-249 empl.	9	51	40	0	0
250+ empl.	48	11	33	0	8
Efficiency of internal business process					
0-49 empl.	24	35	32	10	0
50-249 empl.	13	53	27	8	0
250+ empl.	35	21	44	1	0

Base: EU-7 (D, DK, F, I, IRL, NL, UK), enterprises purchasing online, N=91. In % of enterprises.
Reporting period: June/July 2002.

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

3 Summary and conclusions

This sector report has 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 reaching from legal and business consulting over architectural and engineering activities, to advertising and industrial cleaning. Analysing the business services sector in total, therefore, means putting very dissimilar activities together which always bears the risk of generalisation.

What most sub-sectors have in common is a strong dominance of small enterprises with less than 50 employees. They make up for 99% of all enterprises, they produce 60% of the sector's turnover and employ more than half of the persons working in the sector. Over half of the total turnover, and value added in the sector is generated in knowledge-intensive sub-sectors (NACE 74.1, 74.2 and 74.3), characterised by 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 on their core capabilities and use ICTs to collaborate with a network of partners to deliver a complex set of services.

Results from the *e-Business W@tch* survey show that ICT and e-business play an above average role for business services companies today: 55% see a significant or some role of e-business for their company, compared to 48% on average in the EU-4. However, still more than 40% of all enterprises do not ascribe any role to e-business. Over half of the respondents even believe that e-business does not and will not play an important role for the way their company operates. This shows that initial expectations on the effects and importance of e-business might have been overstated.

Nevertheless, companies in the business services sector are generally very well equipped with basic IT infrastructure. For example, more than 90% of all employees are working in companies with Internet, e-mail and WWW access. What distinguishes business services from many other sectors is that not only large companies have a good IT infrastructure. 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 used more often for exchanging documents with suppliers and customers and to perform collaborative work. Buy-side e-commerce activities are also strongly developed in the business services sector: the percentage of companies procuring online as well as the share of e-procurement in total procurement are both higher than they are on average. On the contrary, sell-side e-commerce activities are comparatively weak, mainly because companies believe that their goods and services do not lend themselves to selling online.

3.1 Economic implications

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 considerably enhanced. 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). 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, as 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, which has implications also for the not knowledge-intensive services. Particularly smaller companies now trade with a higher number of suppliers and report lower procurement costs.

Increased efficiency of internal processes

According to survey results, one of the most important effects of ICT and e-business usage is an increased efficiency of internal work processes. Since collaboration is a central element in producing business services, increased efficiencies already result from using basic technologies, like e-mail, to share documents and to perform collaborative work. Further possibilities to optimise internal processes reach from simple project and human resource management tools over knowledge management to very complex PSA 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. Purchasing on the Internet has become common in almost 50% of enterprises and, according to survey results, had visibly positive effects on internal efficiencies.

What limits the potential for enhancing efficiencies through e-business tools in large parts of the business services sector is that business services are often of a very individual nature with a low degree of standardisation. While the potential of e-business in traditional standardised services such as cleaning, security or book-keeping is obvious, it is less so for individual, more customised services that are by definition more client specific.

However, also individual project-based business services contain components that can be standardised and accordingly streamlined with the help of IT tools. A standardisation of recurring business processes (e.g. standardised procedures for consulting projects or for conducting field work in a market research company) make costs and quality of the resulting services more predictable and help finding inefficiencies in the production process. While creating competitive advantages for companies being good at standardisation in the short run, it should decrease the price level of these services in the long run.

Enhanced cooperation 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 associated with cooperating with others decrease. Thus, cooperation between business services companies is significantly facilitated. This offers also small companies the chance to become part of larger, more challenging and thus typically better paid service activities. In some sub-sectors, a development towards networked service professionals that can work like a virtual firm through ICT-applications can be observed.

Diverse impacts of selling online

While the use of ICT and e-business to support internal and external processes and to purchase online are comparatively widespread in the business services sector, online sell-side activities are still limited. Of those companies that sell online, however, almost two thirds report positive impacts on their volume of sales, the number of customers, the sales area, customer care and the efficiency of internal business processes.

There are differences between large and small companies, though. Even though the number of customers and the volume of sales have increased in both, large and small companies, positive effects have been less visible for small companies and some small companies even report negative effects. This outcome gives a first indication that preliminary hopes of small companies to extend their markets with the help of the Internet have not fully materialised.

On the contrary – and quite surprisingly – customer care has been more positively affected in small than in large companies (the opposite is true in many other sectors). Obviously, small companies have been able to optimise their customer-related processes through e-business.

Change of products and services provided

In many sub-sectors of business services, the services provided change by being provided digitally or by having digital components added to them. Such changes in the nature of the service provided or the service delivery process can, first, imply cost savings for the service companies' customers, second, lead to a higher value of the service and, third, increase the experienced quality of the service. As a result, a strong link between ICT innovativeness and competitiveness exists in the business services sector.

Research based consultancy changed by new Internet methods

Traditional research methods have been translated to the Internet. During the Dutch national elections, January 22nd 2003, online panels were successfully used for opinion polling by market research firms. Nowadays fully automated, instant online questionnaires are available on the Internet. Only the questions have to be added. See for instance www.enquete.be and www.enquete.nl. A market research company like Netpanel (www.netpanel.nl) has organised an online panel, which can be questioned instantly. The incorporation of the Internet in the research process is in fact an integration and automation of front-office and back-office research processes. The labour-intensive distribution, collection and data-entry of questionnaires is cut out of the process, which resu

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 rise 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. Especially 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.

Transformation of services into products

In addition, service companies are increasingly able to transform services into products that can be delivered in digital form. This process has also been labelled as “commodification”. Management consultant companies, for example, can apart from offering individual consulting, make their knowledge available in standardised market research reports that can be delivered online. Photographers can apart from taking individual orders, offer their products in searchable image databases and deliver the photos at low cost and high speed in digital form to their clients.

This transformation firstly influences the production process, as the enterprises now have to produce first and sell afterwards, whereas it is the other way round for traditional services. Such standardised products put further pressure on prices for standardised knowledge and should thus benefit the customers.

The possibility to transform services into digitally deliverable products secondly increases the potential for sell-side e-commerce activities in the business services sector. A part of those services that formerly could not be traded online might be transformed into digital products appropriate for e-commerce. This also means that business services can increasingly be traded internationally. The latter enforces the link between ICT-innovativeness and competitiveness in the business services sector.

3.2 Policy issues

Business services companies, above all 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:

Providing information and best practices on sell-side e-commerce

Online selling activities in the business services sector are not yet widespread, even though companies that are active in sell-side e-commerce report positive impacts, e.g. on their volume of sales. The business culture of firms and their clients does not seem to be the primary barrier in this sector, neither does an insufficient infrastructure. The major barrier to more online selling is that goods and services are supposedly not suitable for being sold online.

However, innovative companies in the sector have shown that online selling activities can be enabled in two ways: First, by offering new services that can be standardised and ordered via the Internet which can at the same time lower cost and/or increase the quality of the service. And, second, by transforming services into products that can be standardised and be delivered in digital form.

The low sell-side activity of business services firms might in part be due to limited information on the potentials of selling standardised products and services online. Policy can, therefore, help to foster e-commerce on the sell-side by providing information about the chances of online selling and compiling best practice examples of innovative leaders in the business services sector.

E-business initiatives should go beyond e-commerce

However, 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.

In this context, it also needs to be stressed that ICT innovativeness requires employees that 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.

One (policy) size does not fit all

Yet it has to be kept in mind that companies in business services are rather diverse with respect to their products, business processes, distribution by size class, and value chains. 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. While, e.g., a large consulting company might want to improve the knowledge base of its employees by implementing a complex knowledge management system, a small advertising company might be more interested in employing cooperation tools to improve its work with freelancers or in purchasing inputs online 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".

For policy it has the implication that policy 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 groups of enterprises.

Governments can 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 especially smaller projects 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.

Annex: Methodology of the e-Business Survey 2002

Background

Most of the data presented in this report are derived from the European e-Business Survey 2002, a cornerstone of the monitoring activities of the *e-Business W@tch.* In total, 9264 telephone interviews with decision makers in European enterprises in all EU Member States were conducted during June and July 2002. For the construction of the questionnaire and for underlying definitions, OECD recommendations were taken into account.

Field work

The field work of the survey was carried out by INRA Germany in co-operation with its partner organisations on behalf of the *e-Business W@tch*:

Country	Organisation		Country	Organisation
Austria	Spectra Marktforschung: Brucknerstr. 3-5/4, 4020 Linz		Italy	INRA Demoskopea S.p.A.,Via Rubicone 41, 00199 Roma
Belgium	INRA Belgium, Avenue de la Couronne 159-165, 1050 Brussels		Luxembourg	ILReS Market Research, 46, Rue di Cimentière, L-1338 Luxemburg
Denmark	Gallup TNS Denmark, Masnedogade 22-26, 2100 Copenhagen		Netherlands	Blauw Contactcenter, Conradstraat 18, 3013 AP Rotterdam
Germany	INRA Deutschland GmbH, Papenkamp 2-6, 23879 Mölln		Portugal	Metris GfK, Av. Eng. Arantes e Oliveira 3-2, 1900-221 Lisboa
Finland	Taloustutkimus Oy, Lemuntie 9, 00510 Helsinki		Spain	INRA España S.A., C. Alberto Aguilera, 7-5, 28015 Madrid
France	CSA TMO, 22 rue du 4 Septembre, 75065 Paris Cedex 02		Sweden	GfK Sverige, Box 401, 221 00 Lund
Greece	MEMRB – K.E.M.E, 24 Ippodamou St., 11635 Athens		UK	Continental Research, 132-140 Goswell Road, EC1V 7DY London
Ireland	Lansdowne Market Research, 49 St., Stephens Green, Dublin 2			

Interview method

The field work was carried out in June and July 2002 using computer-aided telephone interview (CATI) technology. 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 which may not have 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 EU Member States and which have their primary business activity in one of the 15 sectors specified by NACE Rev. 1 codes. The most important used viewpoints 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 focuses 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 included enterprises from 15 sectors of the economy, defined by NACE Rev. 1 business activities (see table next page). The composition of sectors took into account their economic importance, homogeneity with respect to the analysis of e-business, and the relevance of e-business activities.

The sample drawn was a random sample of companies from the respective sector population in each Member State where the respective sector was to be surveyed with the objective to fulfil quota with respect to company size class. Target quota were to include a share of at least 10% of large companies (250+ employees) per country-sector cell and at least 30% of medium sized enterprises (50-249 employees).

Samples were drawn locally by the INRA partner organisations based on the acknowledged business directories and databases (cf. table next page).

Population coverage of the e-Business Survey (2002)			
No.		**NACE Rev. 1 Codes** (Section – Division/Group)	**Sector Name**
01	D	15, 16	Manufacture of food products, beverages and tobacco
02	D / O	22, 92.1, 92.2	Publishing, printing, reproduction of recorded media, audiovisual services
03	D	24, 25	Manufacture of chemicals and chemical products
04	D	28	Manufacture of metal products
05	D	29 *(except 29.6, 29.7)*	Manufacture of machinery and equipment
06	D	30, 31 *(except 31.3 - 31.6),* 32	Manufacture of Electrical machinery and electronics
07	D	34, 35	Manufacture of transport equipment
08	G	52.11, 52.12, 52.4	Retail
09	H / I / O	55.1, 55.2, 62.1, 63.3, 92.33, 92.52, 92.53	Tourism
10	J	65.12, 65.2	Credit institutions, investment firms and leasing enterprises
11	J	66	Insurance and pension funding services
12	K	70	Real estate activities
13	K	74	Business services
14	I / K	64.2, 72	Telecommunications and computer-related services
15	N	85.11, 85.12, 85.3	Health and social services

Country	**Directory / Database**	**Country**	**Directory / Database**
Austria	Herold BUSINESS MARKETING database	Italy	Dun & Bradstreet
Belgium	SPECTRON database by Vicindo	Luxembourg	Rèpertoire des entreprises luxem-bourgeoises by STATEC (the official list of the National Statistic Administration).
Denmark	KOB (Købmandsstandens Oplysnings Bureau)	Netherlands	MarktSelect
Germany	Heins und Partner Business Pool	Portugal	Business directory by INE (the National Statistics Institute)
Finland	Blue Book - Salesleads database by the Helsinki Media Company Oy (Sanoma Magasines Finland)	Spain	Dun & Bradstreet
France	IDATA, based on "INSEE Siren file“ (the National Institute of Statistics) and other directories	Sweden	Swedish Post Adress Register (PAR)
Greece	ICAP directory (the major database for Greece)	UK	Dun & Bradstreet
Ireland	Bill Moss / Dun & Bradstreet		

In total, 9264 interviews were carried out. The following table shows the breakdown by country and the average interview length:

Country	**No. of interviews**	**Average length**	**Country**	**No. of interviews**	**Average length**
Austria	308	17.0 min.	Italy	1517	22.5 min.
Belgium	300	18.2 min.	Luxembourg	102	17.4 min.
Denmark	304	20.2 min.	Netherlands	500	17.2 min.
Germany	1500	18.8 min.	Portugal	300	23.0 min.
Finland	308	20.6 min.	Spain	502	18.4 min.
France	1362	17.2 min.	Sweden	260	19.8 min.
Greece	308	16.5 min.	UK	1538	16.5 min.
Ireland	155	20.1 min.	**TOTAL**	**9264**	**~ 18 min.**

Problems encountered

No major problems were reported by the fieldwork organisations with respect to interviewing (e.g. comprehensibility of the questionnaire, logical structure). A statement from the institute that carried out the survey in the UK summarises this general assessment very well: "On the whole, the fieldwork went relatively smoothly. The questionnaire was logically structured and flowed naturally. Most problems stemmed from the difficulties of conducting research projects among ICT decision makers in general rather than from any specific flaws in design of this project itself. 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 not possible to accomplish the number of interviews envisaged, mainly in those cases where the total population of enterprises was relatively small (e.g. in the insurance sector in smaller countries). In some cases, the objective of including a share of 10% of large companies could not be accomplished; if possible, these were then replaced by interviews with SMEs.

An issue – which was known in advance but is unavoidable in telephone interviews – is that it is not always easy to find the right target person. Field work organizations 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 level and on the financial level. On the other hand, the general manager may not always be aware of the implementation status and technical consequences.

Tabulations

Within the coverage specified above, and in line with the special task of the *e-Business W@tch*, results were compiled for mainly two sets of data:

1. An activity breakdown of the population of enterprises into 15 sectors. This breakdown is based on the aggregate of four countries (D, F, I, UK), as in these countries all 15 sectors were included in the survey and therefore comparability of the sample is given. These four countries represent more than 60% of the market volume in any of the 15 sectors and in most sectors actually more than 70%.
2. A size-class breakdown of the population of enterprises into three categories: small enterprises (including micro-enterprises, i.e. enterprises with 0-49 employees), medium sized enterprises (50-249 employees) and large enterprises (250+ employees).

A breakdown of the population by EU Member States is also available, but it is restricted to four countries (D, F, I, UK) for the same reason as explained in (1.) above. This implies that two different kinds of totals were calculated: (i) an EU-4 total consisting of the results from Germany, France, Italy and the UK and (ii) a sector total consisting of all countries included in the survey of a particular sector. For reasons of comparability and consistency, tables comparing sectors build on the EU-4 totals. Sector totals are composed of 6-8 countries per sector.

In addition, the activity breakdown was cross-tabulated with the country as well as with the size-class breakdown. These cross-tabulations are offered in special sector databases. However, depending on the indicator and the filter questions, the number of observations can become very small in many cells of this cross-tabulation. It is therefore recommended to limit the breakdown of data to one dimension (in the case of pre-filtered questions) or two dimensions (if all enterprises were asked).

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 figures should be read as "enterprises comprising x% of employees". To give an example: The indicator "*percentage of companies selling online*" is – if weighted by employment – 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 and allowing 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 three 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 can be structured into five main modules:

- Module A: ICT infrastructure and e-skills development in the company
- Module B: E-commerce and e-business usage
- Module C: Barriers to e-commerce
- Module D: Impact of selling and procuring online
- Module E: Impact of and satisfaction with electronic business

The choice of indicators includes a basic set of widely accepted measures for e-commerce and e-business (as used in related surveys on e-commerce and e-business e.g. by Eurostat), but also introduces a few 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 questionnaire can be downloaded (as a spreadsheet) from the e-Business W@tch website at its "database" section (http://www.ebusiness-watch.org/marketwatch/database/survey_info.htm