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A pocketbook of e-Business Indicators · 2005 edition

A pocketbook of
e-Business Indicators
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A portrait of e-business
in 10 sectors of the EU economy

e-business
w@tch

European Commission
Enterprise & Industry Directorate General

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e-business in 10 sectors
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May 2005

This booklet has been prepared on behalf of the European Commission, Enterprise and Industry Directorate General, by empirica Gesellschaft für Kommunikations- und Technologieforschung mbH.

It is a publication in the context of the "European *e-Business W@tch*", which is implemented by empirica GmbH in co-operation with Berlecon Research, DIW Berlin, Databank Consulting, Lios Geal Consultants, RAMBØLL Management and Salzburg Research GmbH.

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A great deal of additional information on the European Union is available on the Internet. It can be accessed through the Europa server (http://europa.eu.int).

A European e-Business Observatory since 2002

Information and communication technologies (ICT) are changing the way in which companies trade with their suppliers and customers. The *e-Business W@tch* monitors related developments and analyses their impacts on different sectors of the European economy. Special emphasis is placed on the implications for SMEs.

The initiative was launched by the European Commission, DG Enterprise and Industry, in late 2001. It will be operational until November 2005, with a possible extension until the end of 2006.

In 2004/05, studies by the *e-Business W@tch* covered 10 sectors, with a focus on manufacturing. A cornerstone of the monitoring activities is a representative survey among decision-makers in European enterprises about their use of e-business, this survey was conducted in January and February 2005. This booklet presents the results of the survey.

All publications of the *e-Business W@tch*, including this booklet, a statistical database and detailed sector studies are available in electronic format at **www.ebusiness-watch.org** or via the Europa server **(www.europa.eu.int/comm/enterprise/ict/policy/watch/index.htm).**

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For 2005, the *e-Business W@tch* has planned the publication of the following studies and reports. All documents are available for free download from the website (www.ebusiness-watch.org).

e-Business Sector Studies

• Food & beverages
• Textile industry
• Publishing & printing
• Pharmaceutical industry
• Machinery and equipment
• Automotive industry
• Aeronautics industry
• Construction
• Tourism
• Computer-related services

Special Reports

• Handbook on ICT indicators
• International outlook on e-business developments
• Electronic standards and interoperability
• ICT security

Synthesis Reports

• European e-Business Report 2005
• Pocketbook of e-business indicators 2005
• Brochure: e-Business Brief - 2005

ICT infrastructure: adoption of broadband and remote access technologies are key

Basic Internet access is no longer an issue for companies which have a computer. More than 90% of firms in all size-bands and sectors (except food and beverages) are connected to the Internet. Possible future targets could be to increase the percentage of firms with broadband access and also the percentage of firms which enable remote access to their computer network. These are important prerequisites of flexible and mobile work.

Although direct comparisons with previous surveys are difficult because of different country and sector configurations, this survey indicates a dynamic development within most sectors, with significant growth rates since 2002/03. In total, 19% of firms (accounting for 40% of employment within the 10 sectors studied) had enabled remote access to their computer network in 2005. About 50% of those firms enable remote access via mobile communication networks. This indicates a trend towards increased use of mobile applications, for example for connecting with field-workers.

Companies enabling remote access to their computer system*			
	2002 (EU-4)	2003 (EU-5)	2005 (EU-7)
Food & beverages	38	44	41
Automotive industries	51	70	75
Chemical/pharmaceutical	66	57	75
Machinery & equipment	45	n.a.	60
Tourism	28	30	34

* Limited comparability due to different country configurations and definitions. Data weighted by employment. Source: e-Business Surveys 2002, 2003, 2005 (*e-Business W@tch*).

Virtual Private Networks (VPN) are a cost-efficient way to provide remote offices or users, with secure access to their company's network, but they are used by less than 10% of firms. VPN have become quite common among large firms (61%) and medium-sized companies (33%).

The adoption of broadband is quite difficult to monitor as many companies do not know the bandwidth of their Internet connection. An indicator of the progress in this area is the decrease in companies which use analogue dial-up modems to connect. In 2002, 28% of small firms with Internet access and 15% of medium-sized ones still used this very basic method for connecting. By 2005, the respective figures are much lower (18% and 6%), as companies have upgraded their access technology. The preferred method for connecting differs according to country and sector, but DSL and other broadband connections dominate.

**Dynamic development of electronic procurement –
19% use special ICT solutions**

Firms representing more than 50% of employment from the
10 sectors studied, made online purchases in 2005. In 2003
(with a different set of sectors), this figure was 46%. However,
if firms whose online purchases are less than 5% of their total
procurement are not included, then only 27% of firms currently
make online purchases (23% in 2003).

19% of firms use special ICT solutions to support e-procurement
processes, which indicates that electronic sourcing and procu-
rement play an important role in these firms.

Percentage of companies buying supplies online (selected sectors)

1. Pharmaceutical   2. Automotive   3. IT services
4. Machinery   5. Construction
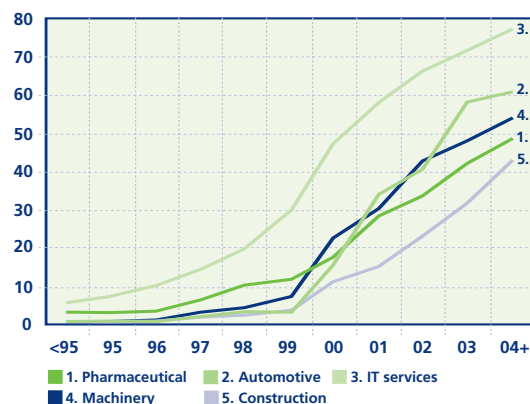
**Online marketing and sales: 17% use ICT solutions
for e-commerce**

B2C electronic commerce developments are difficult to track
with representative surveys. The percentage of firms who sell
goods or services online appears to be little changed: 17% in
2005, 16% in 2003 (by employment). However, the impact of
the Internet on marketing and sales processes in sectors such
as tourism, publishing and IT services is uncontested.

The use of special ICT systems for electronic marketing and sales
is at a similar level (17%) to the use of such systems for e-pro-
curement. Companies that have such ICT systems tend to use
them for a variety of functions, in particular for publishing
offers to customers, answering RfQs/RfPs (requests for quota-
tions/prices), receiving orders from customers, and for billing
and invoicing. Firms from the publishing, IT services and tourism
industries are the most likely to offer customers online payment.

The nature and impact of electronic business differs widely
between sectors, particularly between manufacturing and ser-
vice sectors. Furthermore, the nature of e-business activities
depends on whether the focus is on B2B or B2C.

Manufacturing

Among the 7 manufacturing sectors surveyed, electronic business
activity has reached the highest level of intensity in the auto-
motive, pharmaceutical and aeronautics industries. The rapid
development in these sectors is mostly driven by the large
international companies. Supply-chain integration and the
streamlining of procurement processes are common objectives
in these industries for which e-business solutions are attractive.

In the machinery and equipment industry, electronic business
activity has not yet reached the same level of intensity. At first
sight, this confirms the findings of the 2003 survey. However,
developments in this sector have been quite dynamic since then
(cf. Sector Study 2005), for example, e-business is increasingly
recognised as a useful means of providing customer service
(e.g. after sales services).

e-Business Index 2005 (by sector)
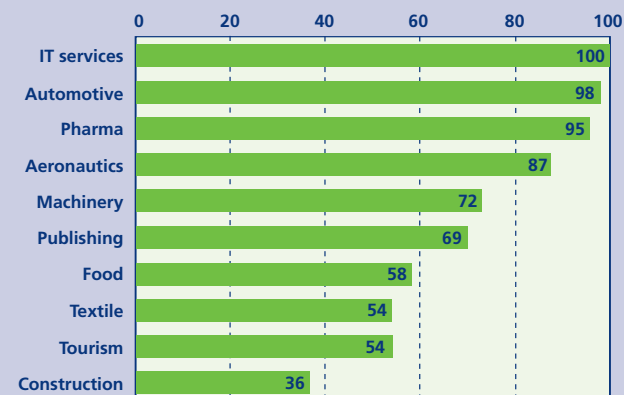
Calculation of the Index

The method for calculating the e-Business Index is explained
in the chapter on "Sector Profiles". Note that the Index tends
to emphasize e-business activity in large enterprises and in
manufacturing sectors.

ICT – a Key Driver and Catalyst of Innovation

The publishing and printing industry has a different e-business profile, as major segments of this sector operate in B2C markets. ICT has a considerable impact on production and internal work processes. Furthermore, customer-facing activities (online publishing, marketing, advertising) are critical. On the other hand, processes with a high e-business potential such as inventory and supply-chain-management are less critical in this sector.

The food and beverages sector, and the textile and clothing industry, are late adopters of ICT compared to the other manufacturing sectors studied. However, in the food and beverages industry, there are signs of increasing e-business activity, mainly in response to structural changes and new requirements. Important issues that promote e-business are food safety and the digital integration of the value chain. RFID (Radio Frequency Identification) based technologies could play an important role in these areas.

Construction

ICT adoption and e-business activity in construction companies appears to be very limited compared to most other manufacturing sectors. The structure of the industry, which includes many small craft companies, cannot fully explain this gap. An industry with a multitude of standards, technical specifications, labels, and certification marks is not an optimal forum for drawing benefits from electronic business. However, e-business tools have the potential to benefit complex construction projects where there is a need to coordinate a large number of sub-contractors.

Service sectors

The computer related services sector is a special case with regard to e-business. Although companies in this sector have information technology and e-business as their end product, ICT also plays a significant role in the way that this product is produced, promoted and provided. This specific way of using ICT distinguishes the IT services industry from the other sectors analysed by the *e-Business W@tch*. The IT services sector shares a common feature with tourism: in both industries, online channels have become key tools for marketing, communication and interaction with customers. In tourism, online booking and reservation services have been widely accepted among consumers and business travellers, and "e-tourism" has truly taken off. However, the great importance of ICT in this sector is not properly reflected in the e-Business Index. The main reason is that e-business normally does not have the same significance in supply-side activities and internal work processes, as in manufacturing companies.

In the European e-Business Report 2004, the *e-Business W@tch* concluded that doing business electronically is about to become a "must" to remain competitive. With the growing maturity and diffusion of ICT based applications, the innovation potential of ICT for individual companies diminishes, whilst on the other hand, firms have little choice about whether to adopt ICT solutions or not. In B2B oriented manufacturing sectors, pressure usually comes from large companies which use e-business to streamline supply processes. In service sectors, particularly in B2C markets, online services have become a key element in customer service. Thus, ICT is a key enabler and driver of process innovation on the aggregate (industry) level.

Majority of process innovations triggered by ICT

Whether in B2B or B2C processes, ICT appears to be a key factor in introducing process innovation in companies. 45% of firms (by employment) reported in the e-Business Survey 2005 that they had introduced "new or significantly improved internal processes" in the 12 months prior to the interview. Of these almost 75% said that these process innovations were "directly related to or enabled by information or communication technology". This finding is consistent across sectors. In nine out of 10 sectors, more than 50% of the recent process innovations were linked to ICT.

The importance of ICT for process innovation is relatively more important for large firms than for smaller ones. Among SMEs (companies with less than 250 employees), about 15-20% of firms reported ICT enabled process innovations (other process innovations discarded). In large companies, 30% of enterprises said that ICT had enabled process innovations.

Importance for product innovation in IT services and publishing

The role of ICT for product innovation is less dominant than for process innovation, but is still important. In total, among the 10 sectors, 46% of firms (by employment) said they had "launched new or substantially improved products or services" during the 12 months prior to the interview. About one third of these innovations were considered as directly related to ICT. In two service sectors, however, ICT is key to product innovation: In IT services, 85% of new products and services are enabled by ICT. In publishing and printing about 65% of new products are ICT based.

Opportunities and Risks for SMEs

ICT has contrasting effects for small and large companies. Large firms can afford more powerful solutions, but small companies have much better access to markets and related information than 10 years ago.

Increasing the efficiency of business processes is a major incentive for companies to invest in electronic business solutions. This applies to companies from all size-bands, although scale economies play an important role.

Fixed costs for technology implementation and maintenance tend to be relatively higher for small companies. Large firms are, therefore, in a better position to benefit from efficiency gains. The e-Business Survey 2005 shows that the diffusion of advanced e-business software solutions for automating business processes increases steadily by company size. For example:

- In 2005 about 8-10% of small companies, more than 30% of medium-sized enterprises, and nearly 60% of large enterprises in the EU had an ERP system.
- Only about 10% of small firms used specific ICT solutions for e-procurement compared with more than 20% of medium-sized companies and about 30% of large firms.
- Similarly, about 10% of small firms used specific ICT solutions for marketing and sales, compared with 20% of medium-sized and almost 30% of large firms.

Opportunities for SMEs

However, ICT and e-business also offer opportunities to small firms which could more than outweigh the disadvantages.

- Improved access to market information at low cost: The Internet has significantly decreased the gap between SMEs and large companies in terms of knowledge of the situation and trends in the market. More than 9 out of 10 micro and small firms with a computer have Internet access in 2005, and more than 50% of those with a bandwidth of at least 200 Kbit/s.
- Enhancing third-party relationships and facilitating co-operation in the marketplace: ICT help SMEs to establish and maintain co-operation with other SMEs.

Geographic Disparities in e-Business

Surveys of domestic ICT use still find considerable gaps in ICT diffusion between different countries. In the context of business, the situation is much more complex. The location of a company is in no sense a reliable predictor of the level of electronic business activity in that company. This has been consistently shown by *e-Business W@tch* surveys since 2002.

Industry structure shapes e-business activity

There are several reasons: Firstly, the structure of an industry can differ significantly between countries. In Italy, for example, sectors dominated by small firms are much more prevalent than in other countries. Since large firms are more advanced in electronic business, aggregate data consequently point at a comparatively lower level of e-business activity in Italy. This reflects, at least to some extent, the structure of the economy rather than the overall e-maturity of firms. Secondly, the digital divide in business tends to be much less pronounced than in households, which makes it difficult to describe a consistent pattern for whole countries and across sectors.

Germany and UK as leaders within the EU-7

With these caveats in mind, some general observations can be made based on the e-Business Surveys of 2003 and 2005. The UK and Germany have a leading role in e-business activity among the seven countries included in the survey in 2005. For instance, while 54% of firms in the UK and 48% in Germany enable remote access to the computer network (an important precondition for flexible forms of work), only 25-35% of firms in Italy, Poland and Czech Republic do so. Significant differences also still exist with respect to B2B trading activities and supply chain integration.

In the survey of 2003, firms from the Nordic countries and the Netherlands were also found to be very advanced in their use of ICT. These countries were not covered in 2005, but it can be assumed that firms from the Nordic countries in particular are still leading ICT adopters in the European Union.

Firms from France and Spain also tend to be well equipped with ICT. The compound e-Business Index for this group of countries in 2005 reaches about 85% of the level of Germany and the UK.

The gap between Czech Republic, Poland and Italy and the leading e-economies is slightly more pronounced, with an index of about 60-70%. However, the industry structure in these countries, with many small companies, has an impact on results, as the Index is based on employment-weighted data.

e-Business Index 2005 (by country)

	A. Basic ICT	B. Internal processes	C. Supply-side activities	D. Customer-facing activities	TOTAL (Index)
DE	98	94	96	97	100
UK	100	80	100	100	98
FR	81	100	83	68	86
ES	80	72	99	75	84
CZ	77	71	64	51	69
PL	70	71	65	51	67
IT	70	65	50	63	65

Compound Index of ICT adoption and e-business intensity, based on 4 sub-indices and 16 component indicators in total (four per sub-index).
Indexed values (max. = 100). All component indicators weighted by employment.

Dynamic development in Poland and Spain

For Polish companies, data indicate that the digital divide may have narrowed compared to the situation in 2003. The level of e-business activity appears to be comparable to the one in Czech Republic, which emerged as one of the forerunners among the (then) Acceding Countries in the 2003 survey.

There are some striking survey results for companies from Spain when it comes to sophisticated applications and business process integration, particularly in the area of supply chain integration and e-procurement. Spain has the highest percentage of firms using SCM solutions among the seven countries benchmarked.

26 Indicators on Electronic Business – Overview

A	**Basic ICT infrastructure**
A-1	Internet connectivity
A-2	Use of a LAN
A-3	Use of a VPN
A-4	Remote access

B	**Internal applications**
B-1	Intranet
B-2	ERP
B-3	Track working hours and production time
B-4	Use of e-learning

C	**Supply-side e-business activity**
C-1	Online purchasing activity
C-2	Use of specific IT solutions to support e-procurement processes
C-3	Firms running online auctions or negotiations
C-4	SCM

D	**Customer-facing e-business activity**
D-1	Website maintenance with CMS
D-2	CRM
D-3	Online sales
D-4	Use of specific IT solutions to support sales processes

E	**Use of electronic standards**
E-1	Use of EDI based standards
E-2	Use of XML based standards
E-3	Use of proprietary standards
E-4	Use of OSS in operating systems and/or databases

F	**Outsourcing and IT skills development**
F-1	Outsourcing of IT services
F-2	Regular ICT training of employees

G	**ICT security**
G-1	Damages because of ICT security incidences
G-2	ICT security measures in place

H	**ICT impact on innovation activity**
H-1	ICT and product/service innovation
H-2	ICT and process innovation

A.1: Internet access
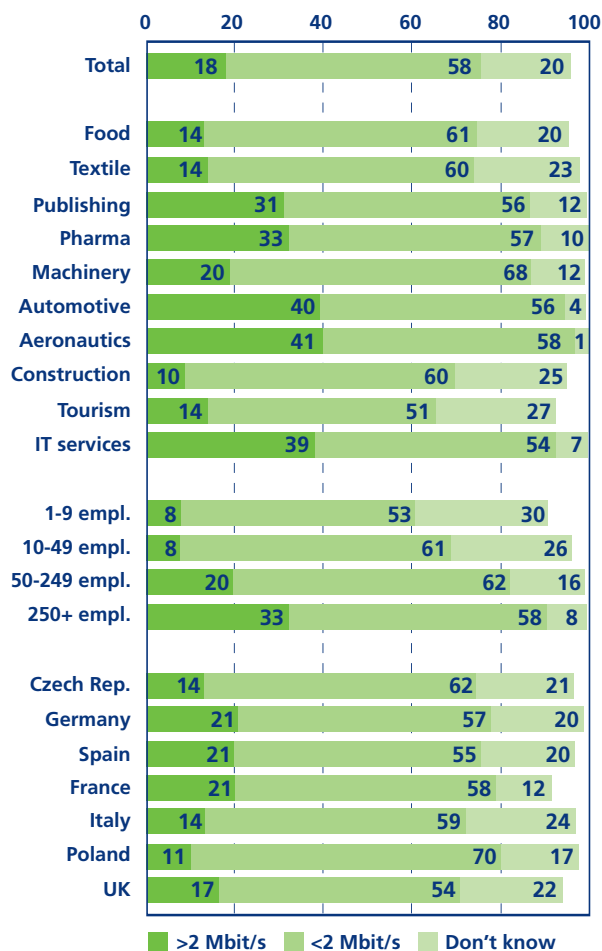
	>2 Mbit/s	<2 Mbit/s	Don't know
Total	18	58	20
Food	14	61	20
Textile	14	60	23
Publishing	31	56	12
Pharma	33	57	10
Machinery	20	68	12
Automotive	40	56	4
Aeronautics	41	58	1
Construction	10	60	25
Tourism	14	51	27
IT services	39	54	7
1-9 empl.	8	53	30
10-49 empl.	8	61	26
50-249 empl.	20	62	16
250+ empl.	33	58	8
Czech Rep.	14	62	21
Germany	21	57	20
Spain	21	55	20
France	21	58	12
Italy	14	59	24
Poland	11	70	17
UK	17	54	22

A.2: Companies with a Local Area Network (LAN)

	%
Total	70
Food	72
Textile	76
Publishing	83
Pharma	96
Machinery	88
Automotive	97
Aeronautics	99
Construction	58
Tourism	56
IT services	93
1-9 empl.	41
10-49 empl.	60
50-249 empl.	87
250+ empl.	96
Czech Rep.	71
Germany	74
Spain	69
France	64
Italy	68
Poland	67
UK	73

Base: EU-7 (CZ, DE, ES, FR, IT, PL, UK), all enterprises from a sector. N=5218 (total).

Weighting: Total number, sectors, countries are weighted by employment (= enterprises comprising …% of employment in sector/country). Figures for size-bands in % of enterprises from the size-band.

Survey questions: C2: "Does your company have access to the Internet?" C5: "What is the maximum bandwidth of your company's connection to the Internet?"
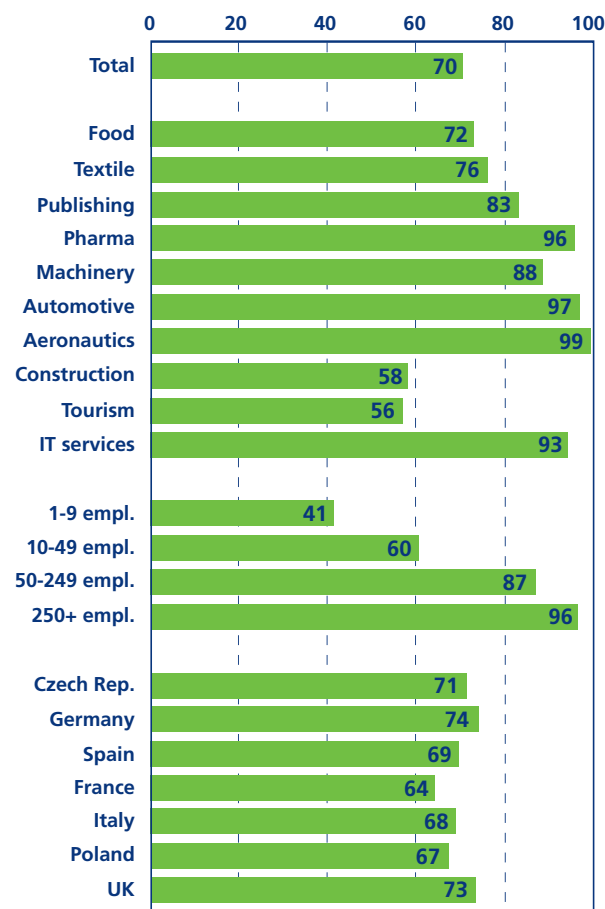
Source: *e-Business W@tch* (Survey 2005)

Base: EU-7 (CZ, DE, ES, FR, IT, PL, UK), all enterprises from a sector. N=5218 (total).

Weighting: Total number, sectors, countries are weighted by employment (= enterprises comprising …% of employment in sector/country). Figures for size-bands in % of enterprises from the size-band.

Survey question: C6a: "Does your company use a Local Area Network (LAN)?"

Source: *e-Business W@tch* (Survey 2005)

A.3: Companies using a Virtual Private Network (VPN)

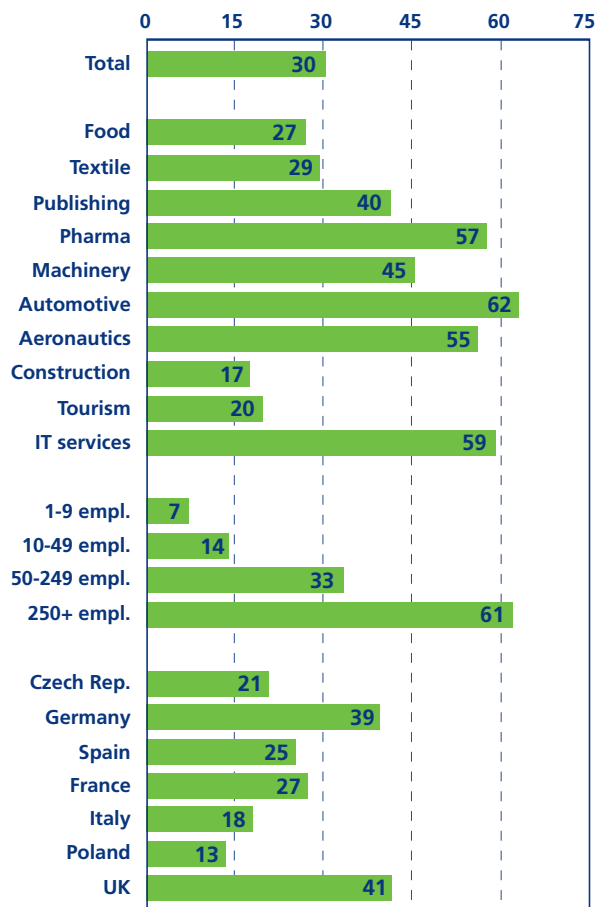|	
Total	30
Food	27
Textile	29
Publishing	40
Pharma	57
Machinery	45
Automotive	62
Aeronautics	55
Construction	17
Tourism	20
IT services	59
1-9 empl.	7
10-49 empl.	14
50-249 empl.	33
250+ empl.	61
Czech Rep.	21
Germany	39
Spain	25
France	27
Italy	18
Poland	13
UK	41

Base: EU-7 (CZ, DE, ES, FR, IT, PL, UK), all enterprises from a sector. N=5218 (total).

Weighting: Total number, sectors, countries are weighted by employment
(= enterprises comprising …% of employment in sector/country).
Figures for size-bands in % of enterprises from the size-band.

Survey question: C6d: "Does your company use a Virtual Private Network (VPN)?"

Source: *e-Business W@tch* (Survey 2005)

A.4: Companies enabling remote access to their computer network

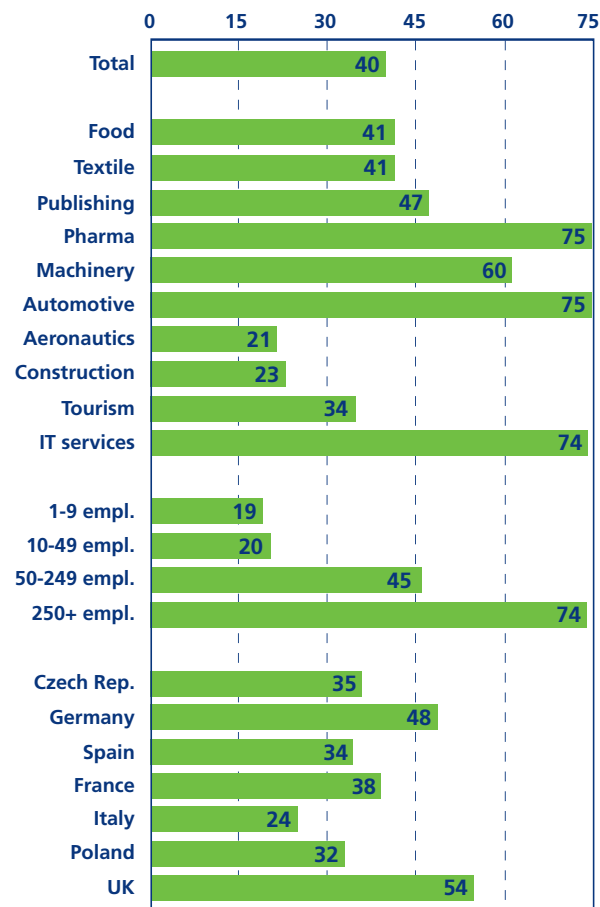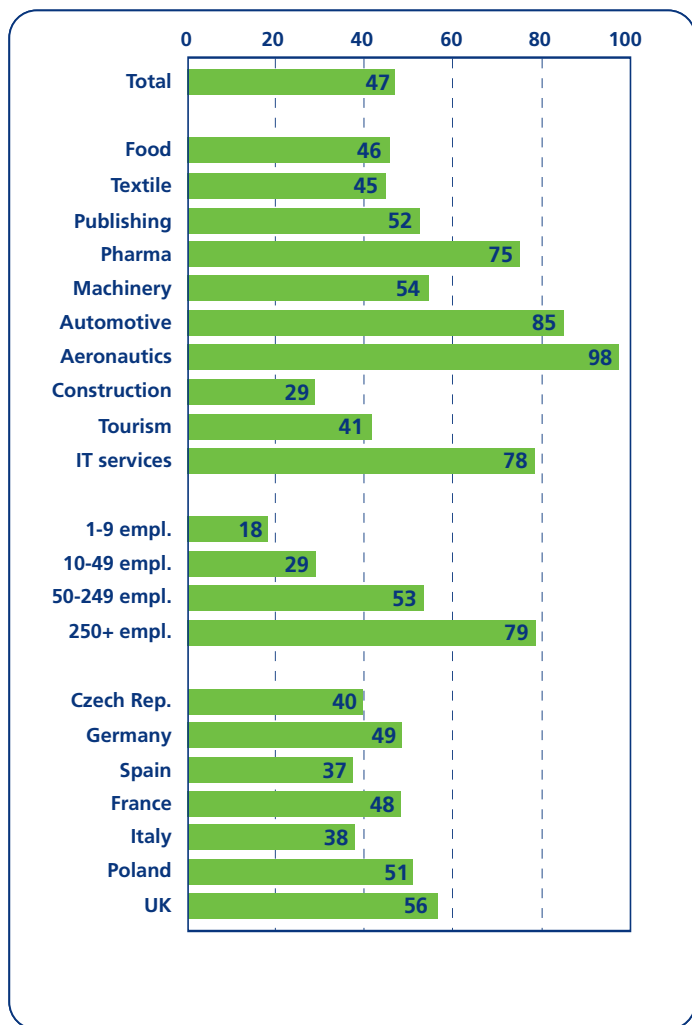|	
Total	40
Food	41
Textile	41
Publishing	47
Pharma	75
Machinery	60
Automotive	75
Aeronautics	21
Construction	23
Tourism	34
IT services	74
1-9 empl.	19
10-49 empl.	20
50-249 empl.	45
250+ empl.	74
Czech Rep.	35
Germany	48
Spain	34
France	38
Italy	24
Poland	32
UK	54

Base: EU-7 (CZ, DE, ES, FR, IT, PL, UK), all enterprises from a sector. N=5218 (total).

Weighting: Total number, sectors, countries are weighted by employment
(= enterprises comprising …% of employment in sector/country).
Figures for size-bands in % of enterprises from the size-band.

Survey question: C8: "Can employees of your company access your computer system remotely from outside the company, for instance from home, from a hotel or while travelling?"

Source: *e-Business W@tch* (Survey 2005)

B.1: Companies using an Intranet

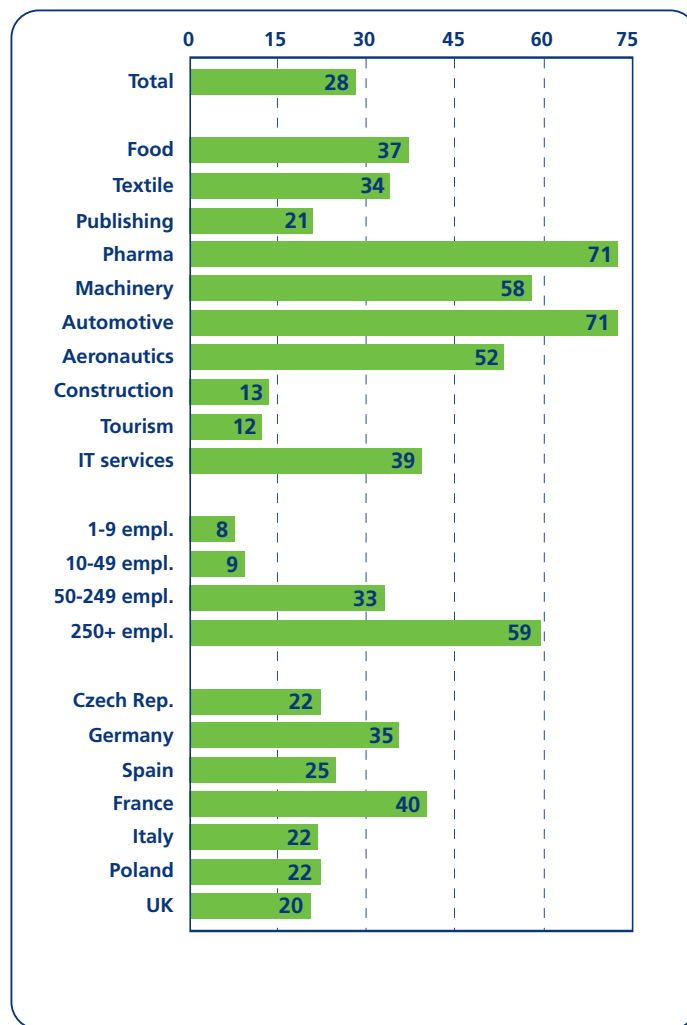|	Value
Total	47
Food	46
Textile	45
Publishing	52
Pharma	75
Machinery	54
Automotive	85
Aeronautics	98
Construction	29
Tourism	41
IT services	78
1-9 empl.	18
10-49 empl.	29
50-249 empl.	53
250+ empl.	79
Czech Rep.	40
Germany	49
Spain	37
France	48
Italy	38
Poland	51
UK	56

Base: EU-7 (CZ, DE, ES, FR, IT, PL, UK), all enterprises from a sector. N=5218 (total).

Weighting: Total number, sectors, countries are weighted by employment (= enterprises comprising …% of employment in sector/country). Figures for size-bands in % of enterprises from the size-band.

Survey question: E1a: "Do you use an Intranet?"

Source: *e-Business W@tch* (Survey 2005)

B.2: Companies using ERP systems

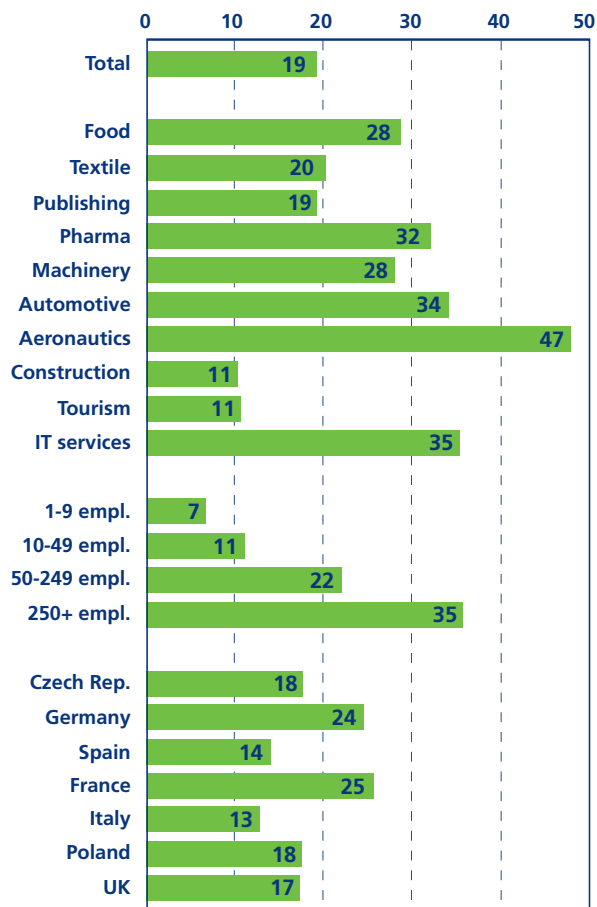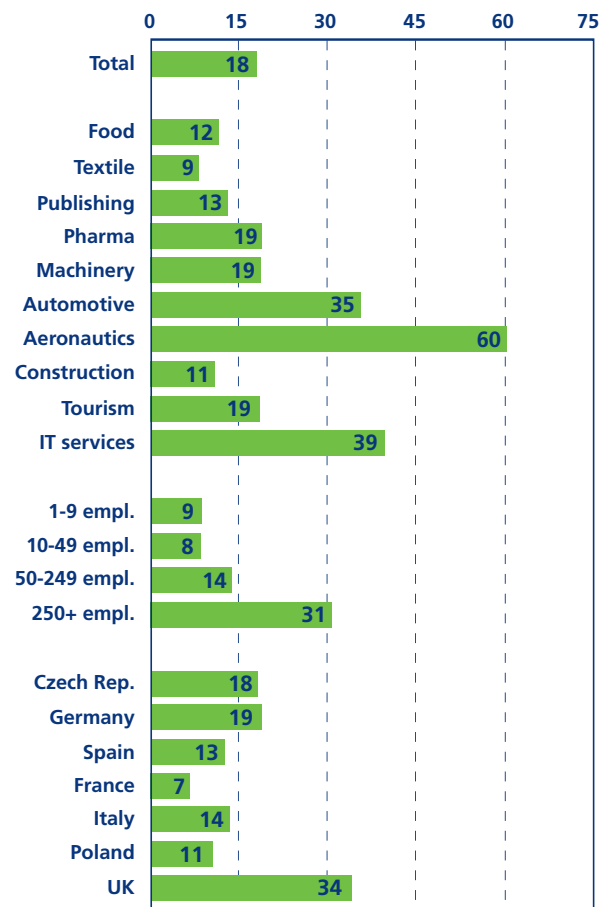|	Value
Total	28
Food	37
Textile	34
Publishing	21
Pharma	71
Machinery	58
Automotive	71
Aeronautics	52
Construction	13
Tourism	12
IT services	39
1-9 empl.	8
10-49 empl.	9
50-249 empl.	33
250+ empl.	59
Czech Rep.	22
Germany	35
Spain	25
France	40
Italy	22
Poland	22
UK	20

Base: EU-7 (CZ, DE, ES, FR, IT, PL, UK), all enterprises from a sector. N=5218 (total).

Weighting: Total number, sectors, countries are weighted by employment (= enterprises comprising …% of employment in sector/country). Figures for size-bands in % of enterprises from the size-band.

Survey question: E1d: "Do you use an ERP system?"

Source: *e-Business W@tch* (Survey 2005)

**B.3: Companies using online technology
to track working hours and/or production time**

Total	19
Food	28
Textile	20
Publishing	19
Pharma	32
Machinery	28
Automotive	34
Aeronautics	47
Construction	11
Tourism	11
IT services	35
1-9 empl.	7
10-49 empl.	11
50-249 empl.	22
250+ empl.	35
Czech Rep.	18
Germany	24
Spain	14
France	25
Italy	13
Poland	18
UK	17

B.4: Companies using e-learning applications

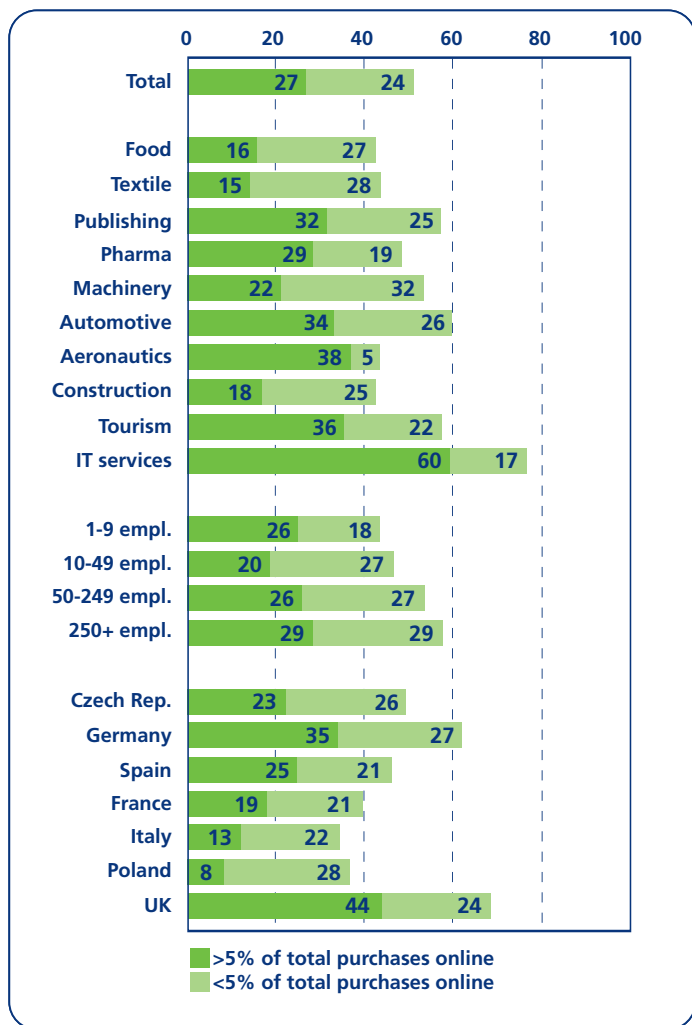|	
Total	18
Food	12
Textile	9
Publishing	13
Pharma	19
Machinery	19
Automotive	35
Aeronautics	60
Construction	11
Tourism	19
IT services	39
1-9 empl.	9
10-49 empl.	8
50-249 empl.	14
250+ empl.	31
Czech Rep.	18
Germany	19
Spain	13
France	7
Italy	14
Poland	11
UK	34

Base: EU-7 (CZ, DE, ES, FR, IT, PL, UK), all enterprises from a sector. N=5218 (total).

Weighting: Total number, sectors, countries are weighted by employment
(= enterprises comprising …% of employment in sector/country).
Figures for size-bands in % of enterprises from the size-band.

Survey question: E2b: "Do you use online applications other than e-mail to track working hours and production time?"
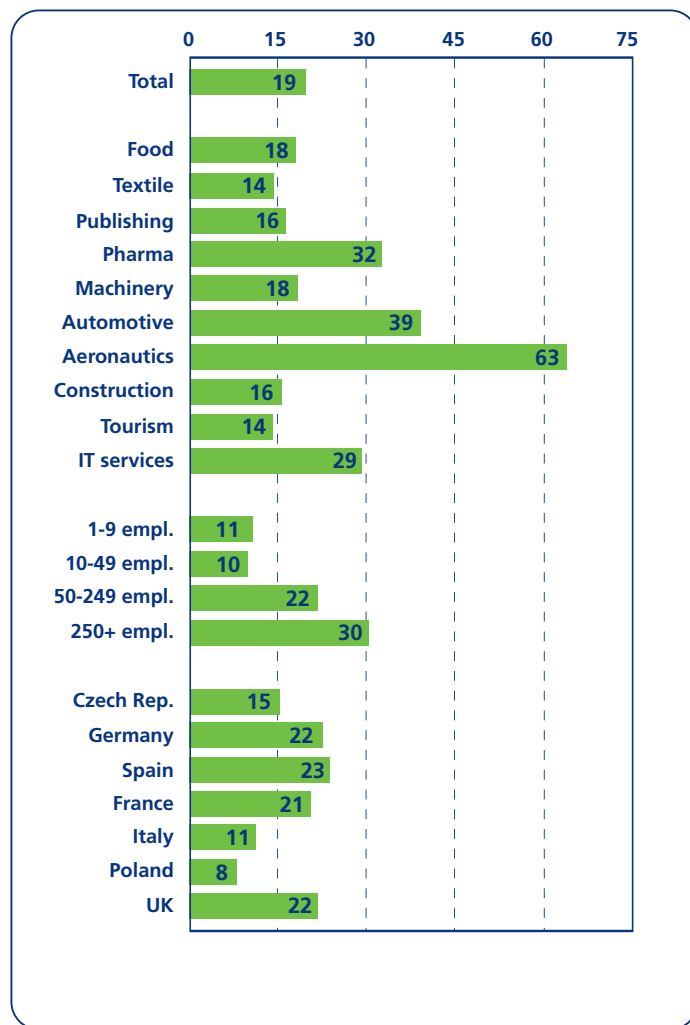
Source: *e-Business W@tch* (Survey 2005)

Base: EU-7 (CZ, DE, ES, FR, IT, PL, UK), all enterprises from a sector. N=5218 (total).

Weighting: Total number, sectors, countries are weighted by employment
(= enterprises comprising …% of employment in sector/country).
Figures for size-bands in % of enterprises from the size-band.

Survey question: E3: "Does your company use e-learning applications, that is for instance learning material for employees available on the Intranet or on the Internet?"

Source: *e-Business W@tch* (Survey 2005)

C.1: Companies buying supplies online

	0	20	40	60	80	100
Total	27	24				
Food	16	27				
Textile	15	28				
Publishing	32	25				
Pharma	29	19				
Machinery	22	32				
Automotive	34	26				
Aeronautics	38	5				
Construction	18	25				
Tourism	36	22				
IT services	60	17				
1-9 empl.	26	18				
10-49 empl.	20	27				
50-249 empl.	26	27				
250+ empl.	29	29				
Czech Rep.	23	26				
Germany	35	27				
Spain	25	21				
France	19	21				
Italy	13	22				
Poland	8	28				
UK	44	24				

■ >5% of total purchases online
■ <5% of total purchases online

C.2: Companies using specific IT solutions to support procurement processes

	0	15	30	45	60	75
Total	19					
Food	18					
Textile	14					
Publishing	16					
Pharma	32					
Machinery	18					
Automotive	39					
Aeronautics	63					
Construction	16					
Tourism	14					
IT services	29					
1-9 empl.	11					
10-49 empl.	10					
50-249 empl.	22					
250+ empl.	30					
Czech Rep.	15					
Germany	22					
Spain	23					
France	21					
Italy	11					
Poland	8					
UK	22					

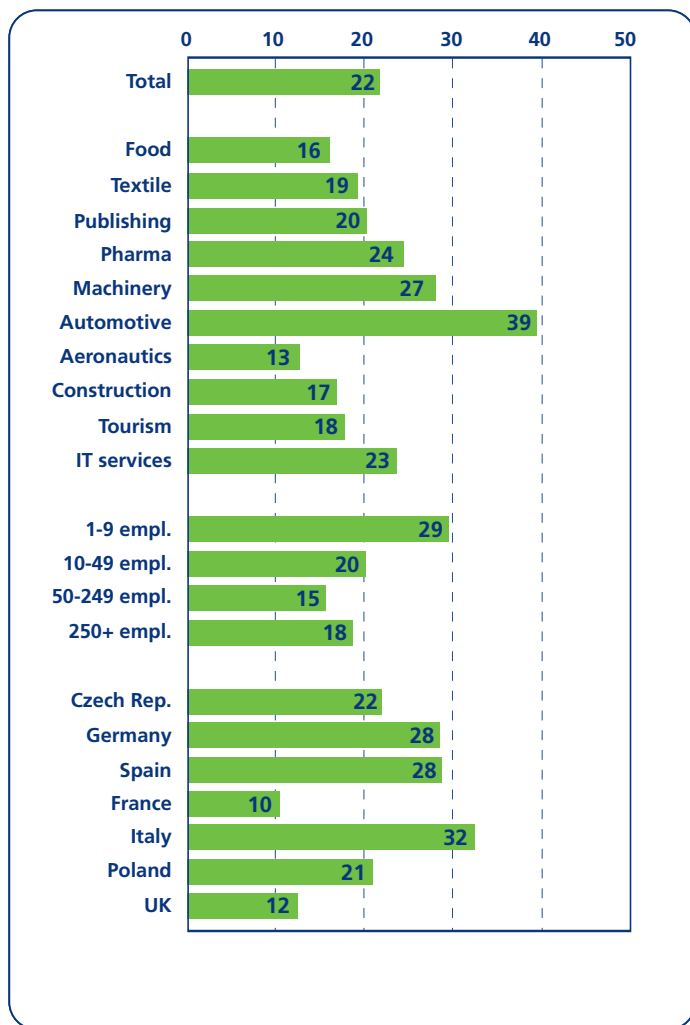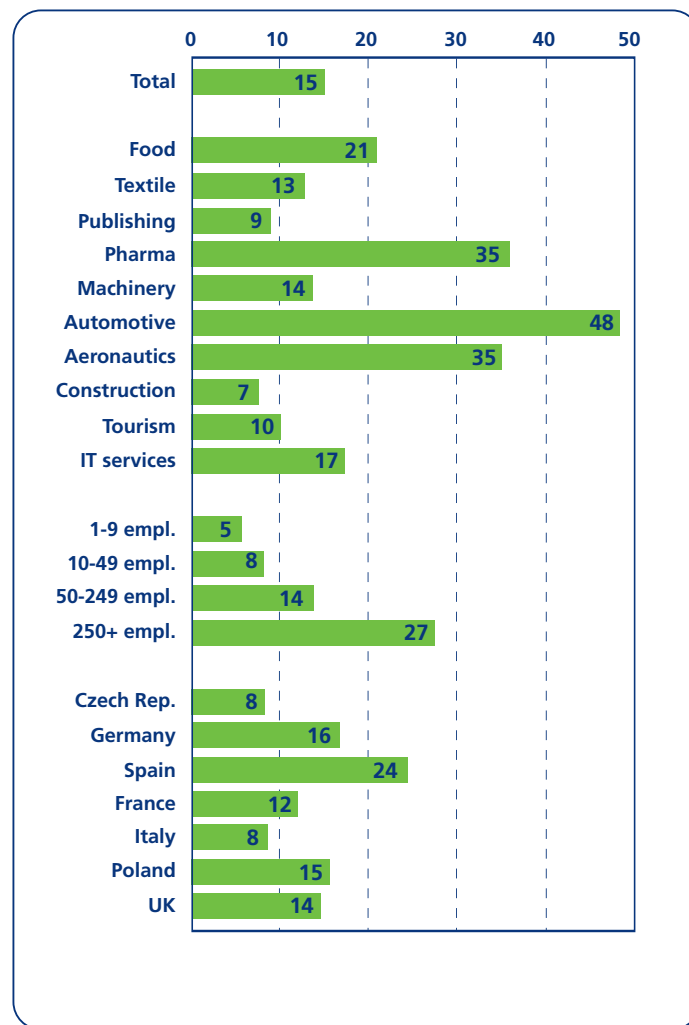**Base:** EU-7 (CZ, DE, ES, FR, IT, PL, UK), all enterprises from a sector. N=5218 (total).

Weighting: Total number, sectors, countries are weighted by employment (= enterprises comprising …% of employment in sector/country). Figures for size-bands in % of enterprises from the size-band.

Survey questions: F1: "Does your company use the Internet or other computer-mediated networks to purchase goods or services online?" F4: "Please estimate how large a share of your total purchases is conducted online."
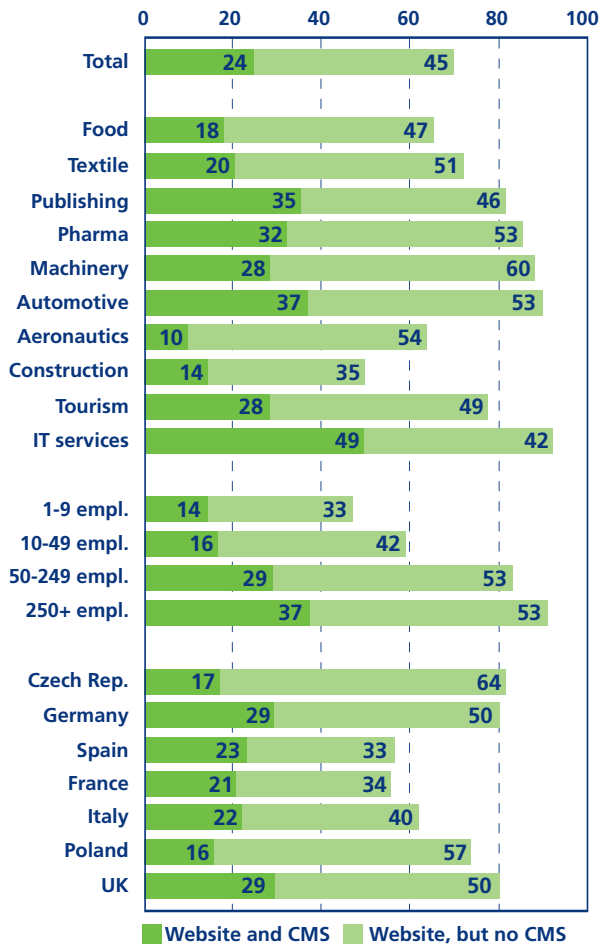
Source: e-Business W@tch (Survey 2005)

Base: EU-7 (CZ, DE, ES, FR, IT, PL, UK), all enterprises from a sector. N=5218 (total).

Weighting: Total number, sectors, countries are weighted by employment (= enterprises comprising …% of employment in sector/country). Figures for size-bands in % of enterprises from the size-band.
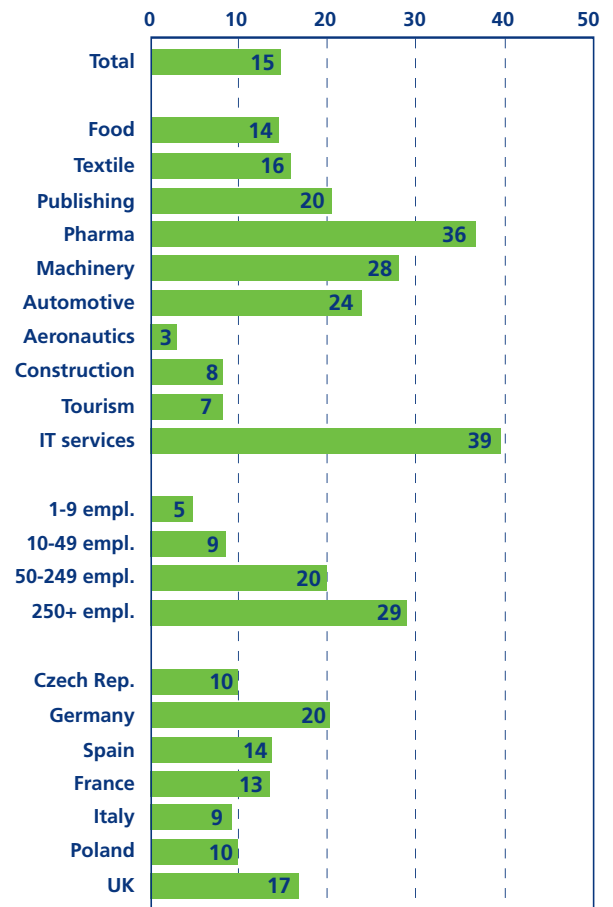
Survey question: F6: "Does your company currently support the selection of suppliers or procurement processes by specific IT solutions?"

Source: e-Business W@tch (Survey 2005)

C.3: Companies running supply-side online auctions and/or negotiations

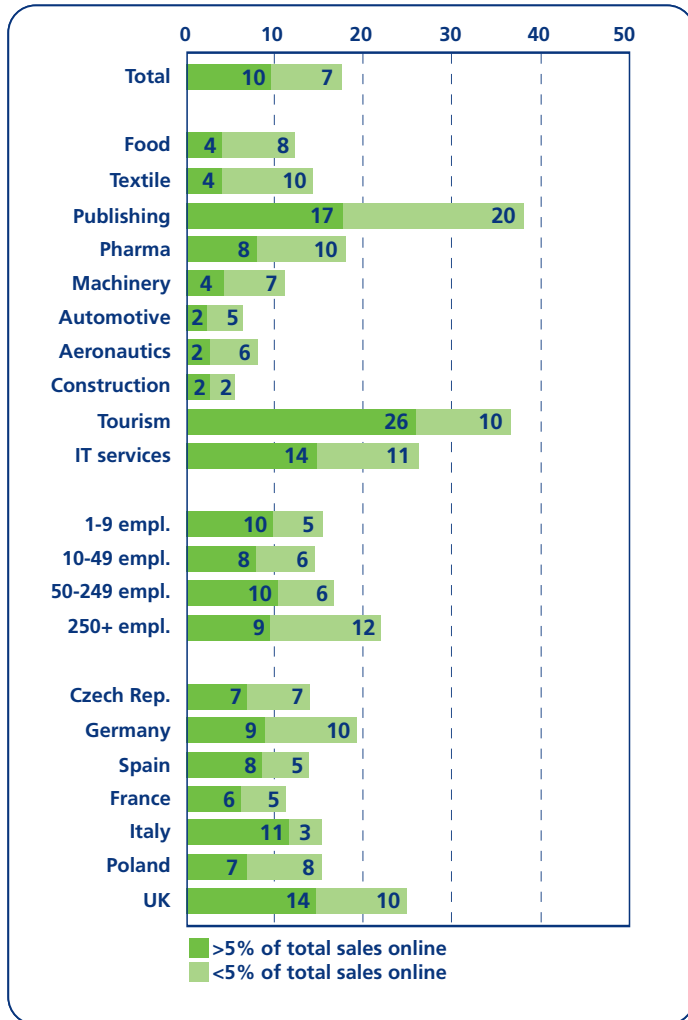|	
Total	22
Food	16
Textile	19
Publishing	20
Pharma	24
Machinery	27
Automotive	39
Aeronautics	13
Construction	17
Tourism	18
IT services	23
1-9 empl.	29
10-49 empl.	20
50-249 empl.	15
250+ empl.	18
Czech Rep.	22
Germany	28
Spain	28
France	10
Italy	32
Poland	21
UK	12

Base: EU-7 (CZ, DE, ES, FR, IT, PL, UK), all enterprises from a sector. N=5218 (total).

Weighting: Total number, sectors, countries are weighted by employment (= enterprises comprising …% of employment in sector/country). Figures for size-bands in % of enterprises from the size-band.

Survey question: F7d: "Do you use IT solutions for running online auctions or negotiations?"

Source: e-Business W@tch (Survey 2005)

C.4: Companies using an SCM system

|	
Total	15
Food	21
Textile	13
Publishing	9
Pharma	35
Machinery	14
Automotive	48
Aeronautics	35
Construction	7
Tourism	10
IT services	17
1-9 empl.	5
10-49 empl.	8
50-249 empl.	14
250+ empl.	27
Czech Rep.	8
Germany	16
Spain	24
France	12
Italy	8
Poland	15
UK	14

Base: EU-7 (CZ, DE, ES, FR, IT, PL, UK), all enterprises from a sector. N=5218 (total).

Weighting: Total number, sectors, countries are weighted by employment (= enterprises comprising …% of employment in sector/country). Figures for size-bands in % of enterprises from the size-band.

Survey question: E1e: "Do you use an SCM system, that is a Supply Chain Management system?"

Source: e-Business W@tch (Survey 2005)

D.1: Companies with a website/use of Content Management Systems (CMS)

	Website and CMS	Website, but no CMS
Total	24	45
Food	18	47
Textile	20	51
Publishing	35	46
Pharma	32	53
Machinery	28	60
Automotive	37	53
Aeronautics	10	54
Construction	14	35
Tourism	28	49
IT services	49	42
1-9 empl.	14	33
10-49 empl.	16	42
50-249 empl.	29	53
250+ empl.	37	53
Czech Rep.	17	64
Germany	29	50
Spain	23	33
France	21	34
Italy	22	40
Poland	16	57
UK	29	50

D.2: Companies using a CRM system

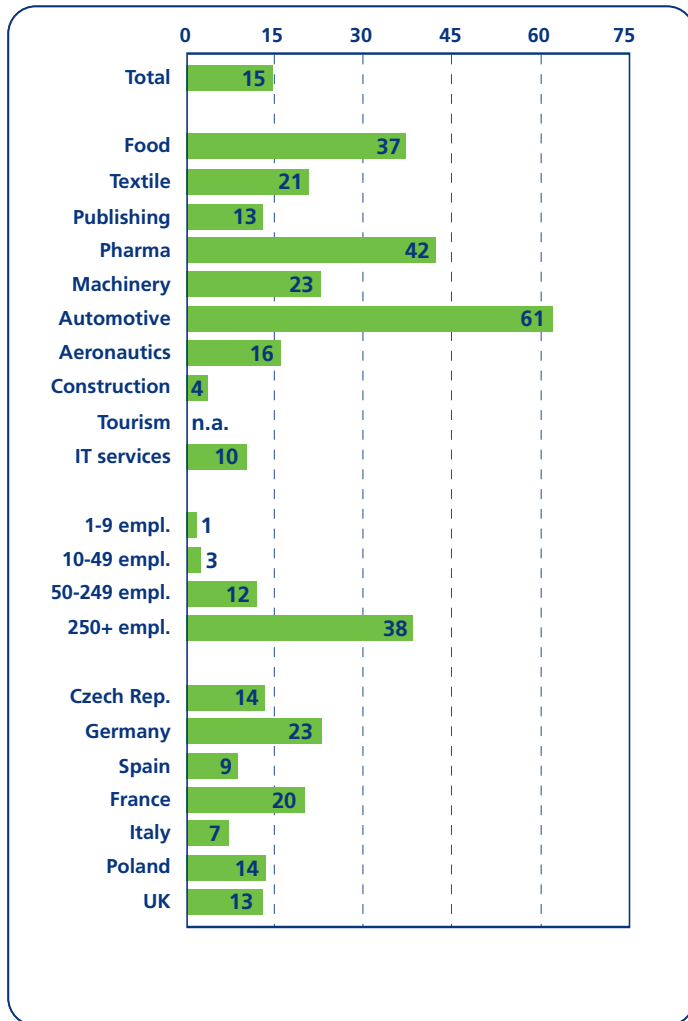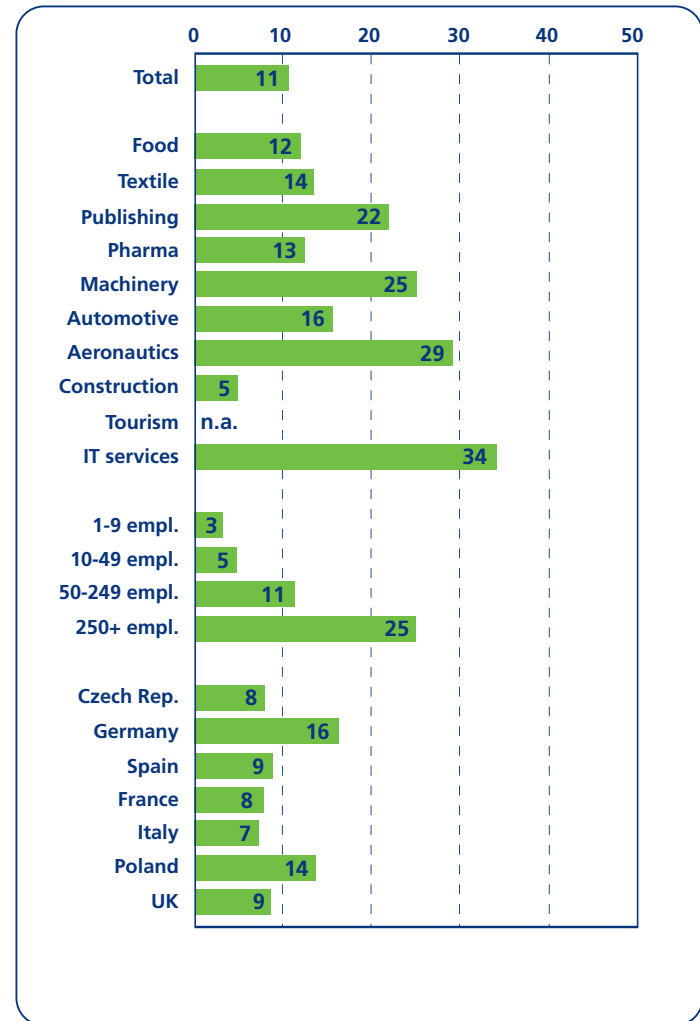|	%
Total	15
Food	14
Textile	16
Publishing	20
Pharma	36
Machinery	28
Automotive	24
Aeronautics	3
Construction	8
Tourism	7
IT services	39
1-9 empl.	5
10-49 empl.	9
50-249 empl.	20
250+ empl.	29
Czech Rep.	10
Germany	20
Spain	14
France	13
Italy	9
Poland	10
UK	17

Base: EU-7 (CZ, DE, ES, FR, IT, PL, UK), all enterprises from a sector. N=5218 (total).

Weighting: Total number, sectors, countries are weighted by employment (= enterprises comprising …% of employment in sector/country). Figures for size-bands in % of enterprises from the size-band.

Survey questions: G1: "Does your company have its own website on the Internet?" G2: "Does your company make use of a content management system, that is special software for maintaining and updating the website?"

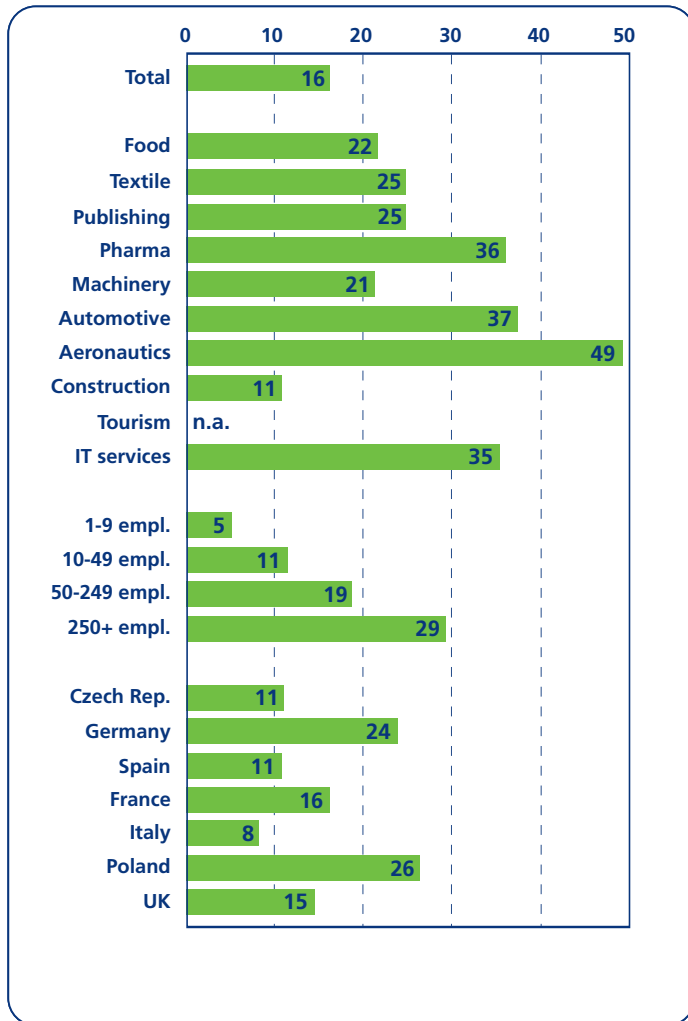**Source:** *e-Business W@tch* (Survey 2005)

Base: EU-7 (CZ, DE, ES, FR, IT, PL, UK), all enterprises from a sector. N=5218 (total).

Weighting: Total number, sectors, countries are weighted by employment (= enterprises comprising …% of employment in sector/country). Figures for size-bands in % of enterprises from the size-band.

Survey question: G11: "Does your company use a CRM system, that is a software for customer relationship management?"

Source: *e-Business W@tch* (Survey 2005)

D.3: Companies selling goods/services online

	0	10	20	30	40	50
Total	10	7			
Food	4	8			
Textile	4	10			
Publishing	17	20			
Pharma	8	10			
Machinery	4	7			
Automotive	2	5			
Aeronautics	2	6			
Construction	2	2			
Tourism	26	10			
IT services	14	11			
1-9 empl.	10	5			
10-49 empl.	8	6			
50-249 empl.	10	6			
250+ empl.	9	12			
Czech Rep.	7	7			
Germany	9	10			
Spain	8	5			
France	6	5			
Italy	11	3			
Poland	7	8			
UK	14	10			

■ >5% of total sales online
■ <5% of total sales online

D.4: Companies using specific IT solutions to support sales processes

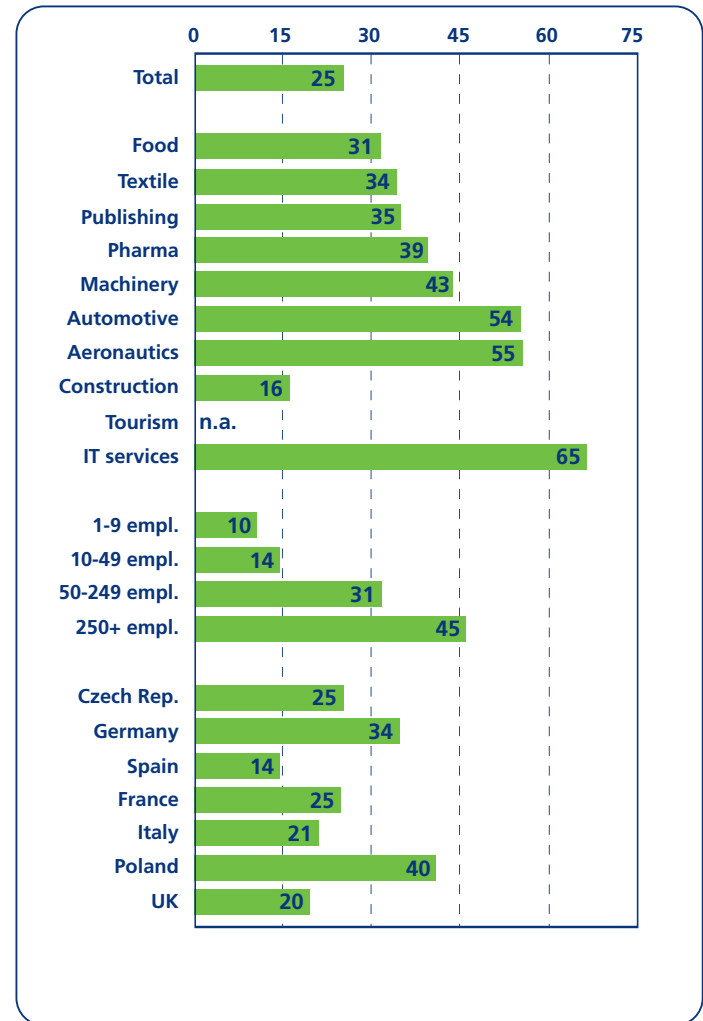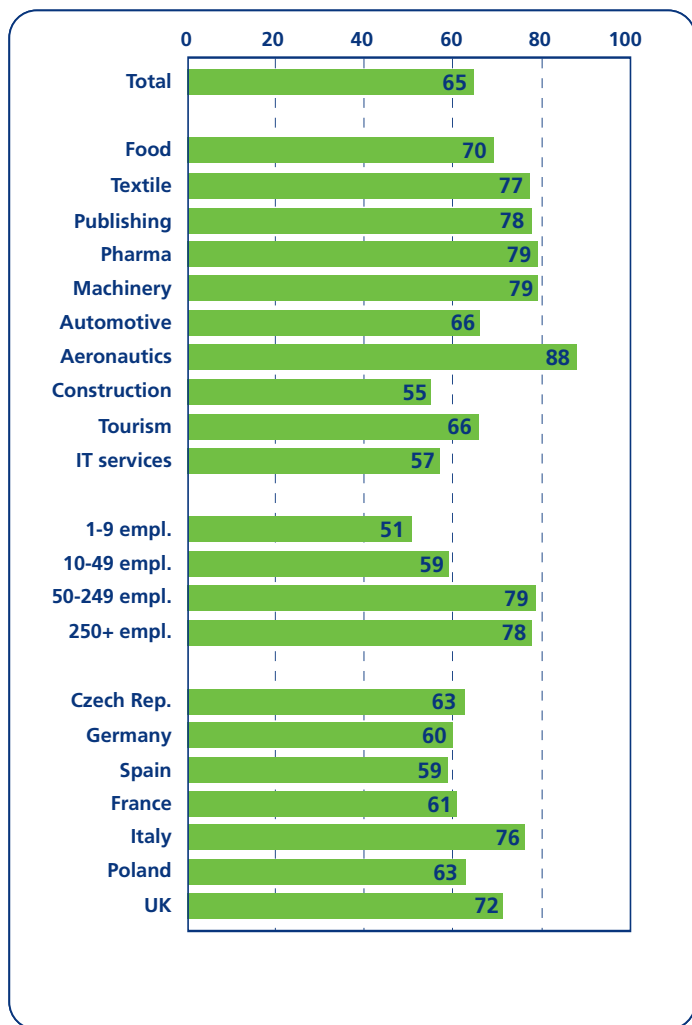|	0	10	20	30	40	50
Total	17					
Food	15					
Textile	14					
Publishing	27					
Pharma	26					
Machinery	17					
Automotive	24					
Aeronautics	6					
Construction	8					
Tourism	19					
IT services	40					
1-9 empl.	8					
10-49 empl.	11					
50-249 empl.	20					
250+ empl.	28					
Czech Rep.	9					
Germany	23					
Spain	17					
France	17					
Italy	8					
Poland	9					
UK	21					

Base: EU-7 (CZ, DE, ES, FR, IT, PL, UK), all enterprises from a sector. N=5218 (total).

Weighting: Total number, sectors, countries are weighted by employment (= enterprises comprising …% of employment in sector/country). Figures for size-bands in % of enterprises from the size-band.

Survey questions: G3: "Does your company sell goods or services online on the Internet or through other computer-mediated networks?" G5: "Please estimate how large a share of your total sales is conducted online."

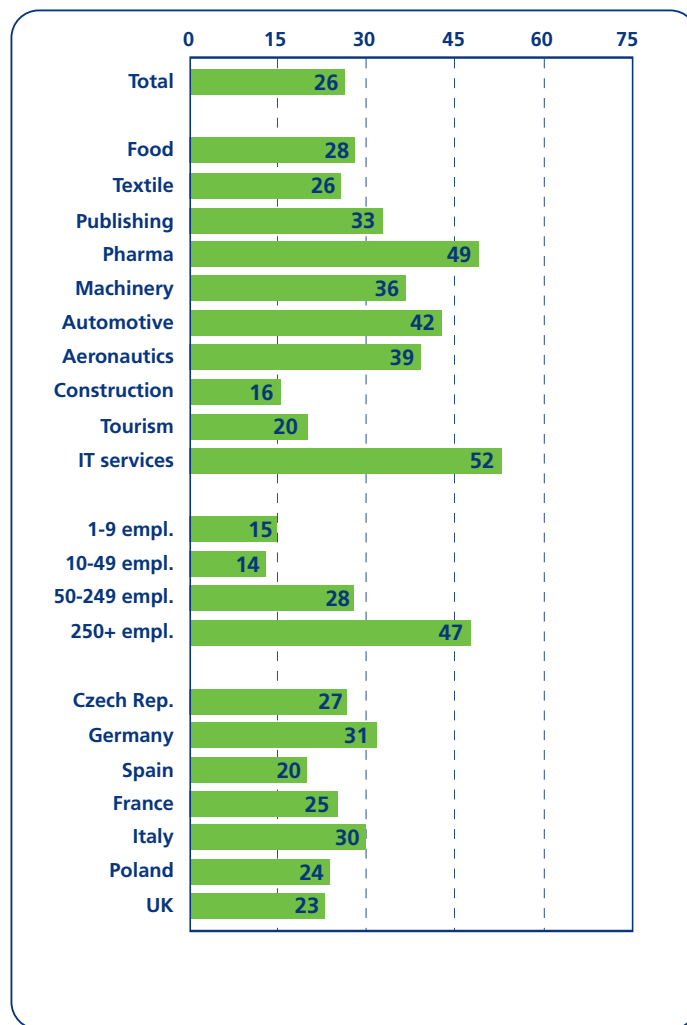**Source:** e-Business W@tch (Survey 2005)
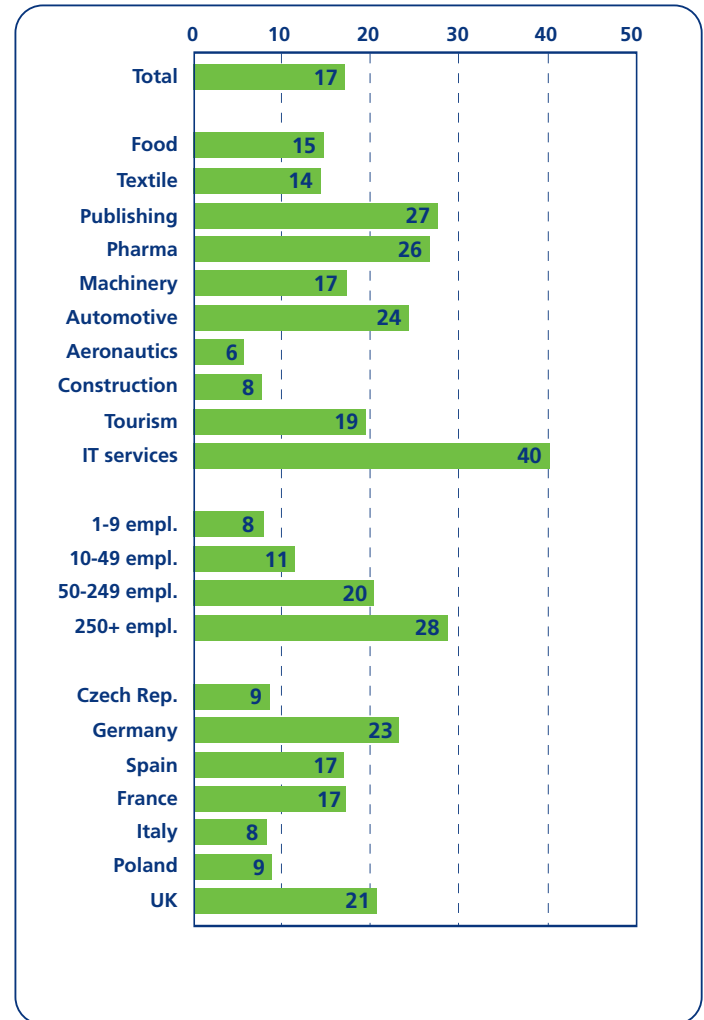
Base: EU-7 (CZ, DE, ES, FR, IT, PL, UK), all enterprises from a sector. N=5218 (total).

Weighting: Total number, sectors, countries are weighted by employment (= enterprises comprising …% of employment in sector/country). Figures for size-bands in % of enterprises from the size-band.

Survey question: G7: "Does your company support marketing or sales processes by specific IT solutions?"

Source: e-Business W@tch (Survey 2005)

E.1: Companies using EDI based standards

Total	15
Food	37
Textile	21
Publishing	13
Pharma	42
Machinery	23
Automotive	61
Aeronautics	16
Construction	4
Tourism	n.a.
IT services	10
1-9 empl.	1
10-49 empl.	3
50-249 empl.	12
250+ empl.	38
Czech Rep.	14
Germany	23
Spain	9
France	20
Italy	7
Poland	14
UK	13

E.2: Companies using XML based standards

Total	11
Food	12
Textile	14
Publishing	22
Pharma	13
Machinery	25
Automotive	16
Aeronautics	29
Construction	5
Tourism	n.a.
IT services	34
1-9 empl.	3
10-49 empl.	5
50-249 empl.	11
250+ empl.	25
Czech Rep.	8
Germany	16
Spain	9
France	8
Italy	7
Poland	14
UK	9

Base: EU-7 (CZ, DE, ES, FR, IT, PL, UK), all enterprises from a sector. N=5218 (total).

Weighting: Total number, sectors, countries are weighted by employment (= enterprises comprising …% of employment in sector/country). Figures for size-bands in % of enterprises from the size-band.

Survey question: H1a: "Do you use EDI-based standards, for example EDIFACT, EANCOM, ANSI X12 or TRADACOM?"

Source: *e-Business W@tch* (Survey 2005)

Base: EU-7 (CZ, DE, ES, FR, IT, PL, UK), all enterprises from a sector. N=5218 (total).

Weighting: Total number, sectors, countries are weighted by employment (= enterprises comprising …% of employment in sector/country). Figures for size-bands in % of enterprises from the size-band.

Survey question: H1b: "Do you use XML-based standards such as cXML, UBL, RosettaNet, xCBL?"

Source: *e-Business W@tch* (Survey 2005)

E.3: Companies using proprietary based standards

Total	16
Food	22
Textile	25
Publishing	25
Pharma	36
Machinery	21
Automotive	37
Aeronautics	49
Construction	11
Tourism	n.a.
IT services	35
1-9 empl.	5
10-49 empl.	11
50-249 empl.	19
250+ empl.	29
Czech Rep.	11
Germany	24
Spain	11
France	16
Italy	8
Poland	26
UK	15

E.4: Companies using Open Source Software in operating systems and/or databases

Total	25
Food	31
Textile	34
Publishing	35
Pharma	39
Machinery	43
Automotive	54
Aeronautics	55
Construction	16
Tourism	n.a.
IT services	65
1-9 empl.	10
10-49 empl.	14
50-249 empl.	31
250+ empl.	45
Czech Rep.	25
Germany	34
Spain	14
France	25
Italy	21
Poland	40
UK	20

F.1: Companies that have outsourced IT services

	Value
Total	65
Food	70
Textile	77
Publishing	78
Pharma	79
Machinery	79
Automotive	66
Aeronautics	88
Construction	55
Tourism	66
IT services	57
1-9 empl.	51
10-49 empl.	59
50-249 empl.	79
250+ empl.	78
Czech Rep.	63
Germany	60
Spain	59
France	61
Italy	76
Poland	63
UK	72

F.2: Companies with regular ICT training schemes for employees

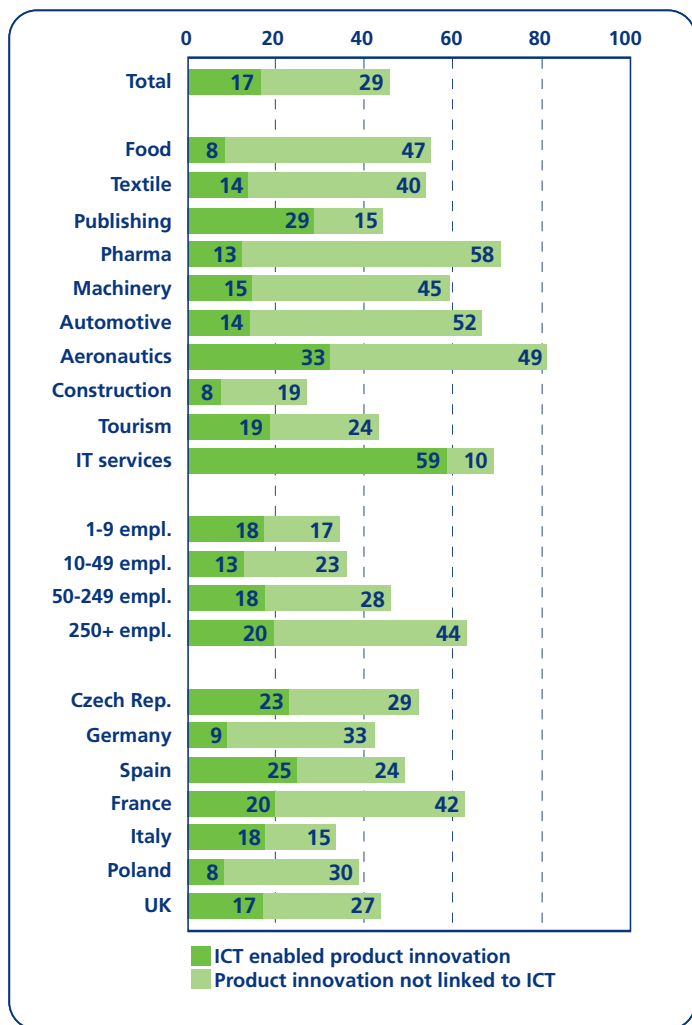|	Value
Total	26
Food	28
Textile	26
Publishing	33
Pharma	49
Machinery	36
Automotive	42
Aeronautics	39
Construction	16
Tourism	20
IT services	52
1-9 empl.	15
10-49 empl.	14
50-249 empl.	28
250+ empl.	47
Czech Rep.	27
Germany	31
Spain	20
France	25
Italy	30
Poland	24
UK	23

Base: EU-7 (CZ, DE, ES, FR, IT, PL, UK), all enterprises from a sector. N=5218 (total).

Weighting: Total number, sectors, countries are weighted by employment (= enterprises comprising …% of employment in sector/country). Figures for size-bands in % of enterprises from the size-band.

Survey question: D5: "Has your company outsourced ICT services to external service providers in any of the following application areas: maintenance of hardware and networks, web-hosting or data storage services, software development, software application hosting, call centre services or other ICT services?"

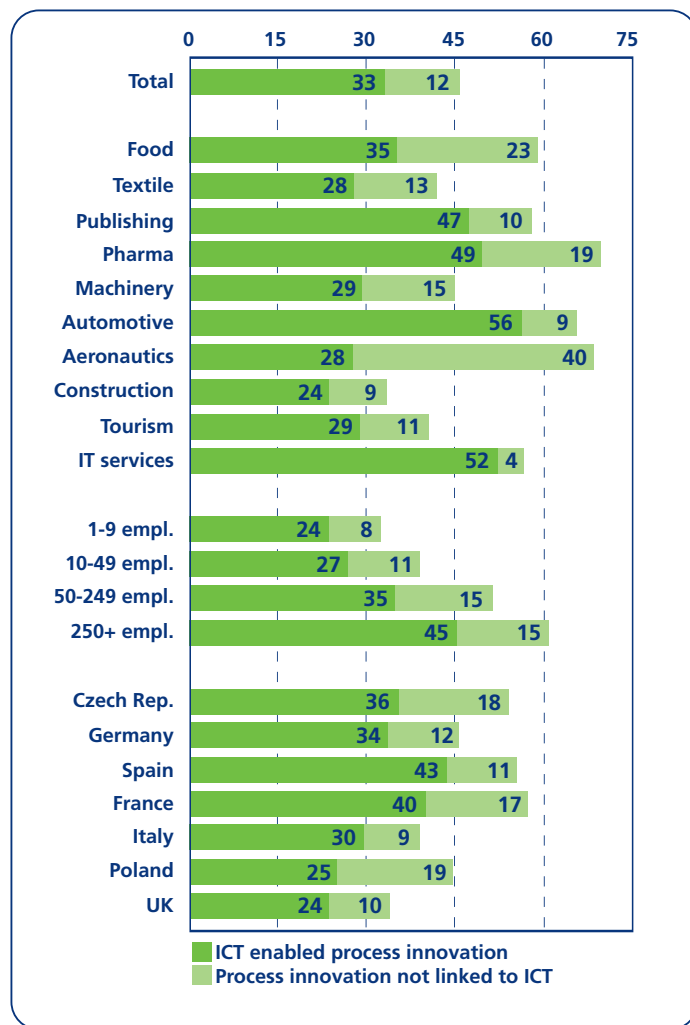**Source:** *e-Business W@tch* (Survey 2005)

Base: EU-7 (CZ, DE, ES, FR, IT, PL, UK), all enterprises from a sector. N=5218 (total).

Weighting: Total number, sectors, countries are weighted by employment (= enterprises comprising …% of employment in sector/country). Figures for size-bands in % of enterprises from the size-band.

Survey question: D4: "Does your company regularly send employees to ICT training programmes?"

Source: *e-Business W@tch* (Survey 2005)

G.1: Companies having experienced damages because of ICT security incidents

	Hardware failure	Software failure/ Malfunction	Employee lack of security awareness or negligence	Viruses, Trojan horses, or Internet worms	Spam	Unauthorised access to systems	Inadequate confidentiality of information	Failure of services provided by third parties	New legislation
Total	6	5	2	8	11	1	1	7	2
Food	5	5	3	7	9	2	1	6	3
Textile	5	4	2	7	7	1	1	8	1
Publishing	5	5	2	5	17	0	0	7	3
Pharma	7	5	7	5	7	0	0	5	3
Machinery	7	6	5	10	12	2	1	8	1
Automotive	4	1	0	8	8	0	0	14	7
Aeronautics	22	2	0	2	10	0	0	6	0
Construction	4	5	1	9	6	2	0	4	1
Tourism	9	8	3	11	15	0	1	6	2
IT services	6	4	1	6	17	1	1	11	4
1-9 empl.	7	7	1	9	8	0	0	6	1
10-49 empl.	6	6	2	9	12	2	1	5	2
50-249 empl.	5	5	3	8	12	1	1	7	2
250+ empl.	5	5	3	8	11	1	1	8	3
Czech Republic	3	2	1	2	4	0	0	3	0
Germany	6	4	2	5	9	1	1	6	3
Spain	4	7	3	10	11	1	0	7	3
France	4	4	3	7	7	0	0	4	1
Italy	7	7	1	14	11	1	0	10	2
Poland	15	10	6	14	11	4	4	10	3
United Kingdom	5	5	1	8	16	1	0	6	2

G.2: Companies having installed ICT security measures

	Firewall	Secure server technology	Data encryption	Digital signature	IT-security policy	Disaster recovery plan	Risk assessment	Information-security management system	Staff-training in security awareness
Total	75	42	31	20	48	55	29	33	25
Food	76	40	31	25	52	60	28	30	22
Textile	74	36	26	24	48	53	21	30	23
Publishing	85	45	28	23	54	63	28	31	23
Pharma	94	49	41	34	85	81	54	53	32
Machinery	87	43	31	20	59	64	27	34	29
Automotive	96	76	63	36	88	92	61	46	49
Aeronautics	62	55	36	3	70	62	38	73	40
Construction	63	31	21	14	31	43	18	23	18
Tourism	69	37	29	15	41	44	28	32	22
IT services	96	69	53	36	74	80	45	54	42
1-9 empl.	54	24	14	11	21	33	14	18	14
10-49 empl.	65	31	22	14	32	42	17	22	18
50-249 empl.	84	43	31	21	57	60	26	37	26
250+ empl.	94	61	50	36	79	83	46	50	37
Czech Republic	56	38	20	15	42	57	22	33	24
Germany	87	47	38	18	49	52	29	19	25
Spain	63	42	28	27	46	55	22	42	23
France	70	31	19	17	50	66	24	29	15
Italy	65	30	16	18	39	36	26	40	25
Poland	63	39	30	34	33	43	13	26	27
United Kingdom	86	53	48	19	63	70	47	41	33

Base: EU-7 (CZ, DE, ES, FR, IT, PL, UK), all enterprises from a sector. N=5218 (total).

Weighting: Total number, sectors, countries are weighted by employment (= enterprises comprising …% of employment in sector/country). Figures for size-bands in % of enterprises from the size-band.

Survey question: D11: "During the past 12 months, have any of the following incidents had an significant impact on your business: hardware failure, software failure or malfunction, employee lack of security awareness or negligence, viruses, Trojan horses, Internet worms, Spam, unauthorised access, inadequate confidentiality of information, failure of the Internet or other services provided by third parties, new legislation relating to information security, other security-related incident?"

Source: *e-Business W@tch* (Survey 2005)

Base: EU-7 (CZ, DE, ES, FR, IT, PL, UK), all enterprises from a sector. N=5218 (total).

Weighting: Total number, sectors, countries are weighted by employment (= enterprises comprising …% of employment in sector/country). Figures for size-bands in % of enterprises from the size-band.

Survey question: D12: "Do you have/use a firewall, secure server technology, company rules relating to encryption of data, rules that specify the use of digital signature or PKI, an IT-security policy, a disaster recovery plan, a risk assessment using a pre-defined methodology, an information-security management system or a staff-training programme in information security awareness?"

Source: *e-Business W@tch* (Survey 2005)

H.1: ICT enabled product/service innovation

	ICT enabled product innovation	Product innovation not linked to ICT
Total	17	29
Food	8	47
Textile	14	40
Publishing	29	15
Pharma	13	58
Machinery	15	45
Automotive	14	52
Aeronautics	33	49
Construction	8	19
Tourism	19	24
IT services	59	10
1-9 empl.	18	17
10-49 empl.	13	23
50-249 empl.	18	28
250+ empl.	20	44
Czech Rep.	23	29
Germany	9	33
Spain	25	24
France	20	42
Italy	18	15
Poland	8	30
UK	17	27

■ ICT enabled product innovation
■ Product innovation not linked to ICT

H.2: ICT enabled process innovation

	ICT enabled process innovation	Process innovation not linked to ICT
Total	33	12
Food	35	23
Textile	28	13
Publishing	47	10
Pharma	49	19
Machinery	29	15
Automotive	56	9
Aeronautics	28	40
Construction	24	9
Tourism	29	11
IT services	52	4
1-9 empl.	24	8
10-49 empl.	27	11
50-249 empl.	35	15
250+ empl.	45	15
Czech Rep.	36	18
Germany	34	12
Spain	43	11
France	40	17
Italy	30	9
Poland	25	19
UK	24	10

■ ICT enabled process innovation
■ Process innovation not linked to ICT

The European e-Business Scoreboard was developed by the *e-Business W@tch* in 2004. It is an instrument to compare the intensity of e-business activity across different sectors, countries or size-bands in different areas of business activity.

The Scoreboard is composed of compound indices on two levels.

- 16 component indicators are aggregated into four subindices that represent major application areas of e-business.
- The four sub-indices are then aggregated into the (overall) e-Business Index.

The component indicators are similar to those featured in the previous chapter of the pocketbook (categories A-D).

Structure of the e-Business Scoreboard
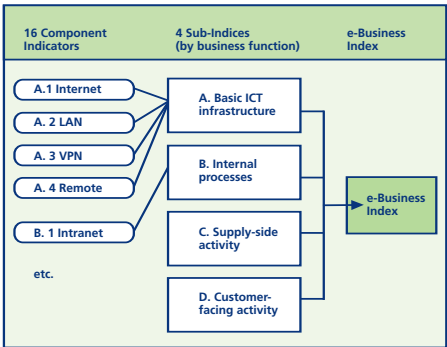
Methodological background notes on the Index

Indexes simplify multi-dimensional concepts. To correctly assess the validity and shortcomings of the e-Business Index, the following notes are important:

Weighting: Results are influenced by the selection of the underlying weighting scheme. In the computation presented in this booklet, employment-weighted figures were used. This emphasizes e-business activity in large firms and has an impact on the Index for sectors with dominant large players (for instance the automotive and pharmaceutical industry).

Component indicators: The selection of component indicators may have a bias towards manufacturing activities, as some indicators in dimension B ("internal processes") are more relevant for manufacturing than for service sectors (e.g. ERP).

e-Business in the Food and Beverages Industry

The growing complexity of the food sector drives companies to adopt more sophisticated and effective e-business solutions.

Until recently, companies in the food and beverages industry have used e-business mainly to improve their internal processes and procedures. The applications most commonly used are: e-mail, websites and online banking. Other applications subsequently adopted, with a considerable gap in terms of adoption rates, are EDI and ERP systems.

On the whole, the sector has rather been a late adopter of ICT, with the notable exception of the large international companies. However, there are signs of increasing e-business activity, in response to structural changes and new require-ments.

The key issues that are likely to have a major influence on ICT investment decisions in the future are: food safety and the full digital integration of the value chain. Investments in supply chain integration (internally and in B2B processes), including RFID (Radio Frequency Identification) technologies, are a focus of ICT adoption in the sector. Integration of internal processes, CRM and SCM are also likely to gain momentum.

Trends and key issues:

• Increased use of ICT for specific purposes (food traceability and quality control)

• Large firms will drive supply chain integration

More information:

Sector Studies at www.ebusiness-watch.org ('Resources')

e-Business Scoreboard: Food and beverages
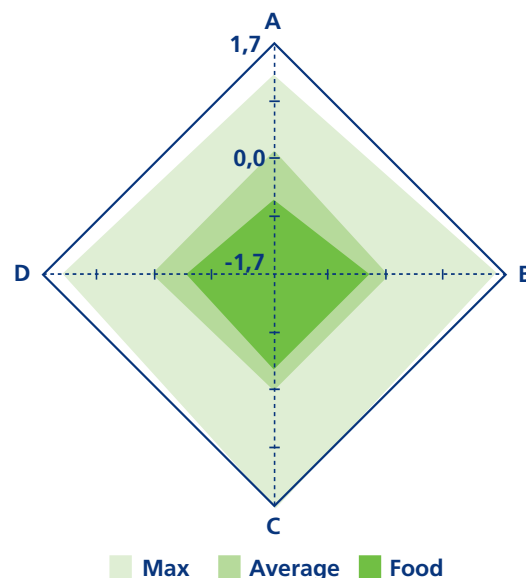
A = 1,7
0,0
-1,7

D ← → B

C

Max   Average   Food

E-business dimensions (sub-indices):
A = Basic ICT Infrastructure
B = Internal processes
C = Supply-side e-business activity
D = Electronic marketing and sales

Scale:
Max = maximum e-business intensity in one of the 10 sectors benchmarked
Average = average e-business intensity in the 10 sectors benchmarked
Green diamond = relative e-business intensity in the food and beverages industry

e-Business in the Textile Industry

The level of e-business activity in the textile industry is below average compared to other manufacturing sectors studied by the *e-Business W@tch*.

The stated objectives of companies, and their short-term expenditure plans, also suggest a slow pace of change. The dominance of small firms is a factor in this but cannot be the only reason.

Gaps in the diffusion of ICT and in e-business activity, particularly for more sophisticated applications such as Supply Chain Management (SCM) or Customer Relationship Management (CRM), have been identified in all sub-sectors.

A relatively widely deployed activity is collaborative online design of products. This may be attributed to the long tradition of exchanging product design related data. The introduction of CAD/CAM in the sector dates back some decades and is widely diffused even among micro and small companies.

The complex, and very fragmented, sector supply chain tends to be based on a network of long standing relationships between suppliers, third parties and customers. Enhancing the efficiency of business processes is a subordinate objective in such relationships, compared to issues such as quality and trust. Even the larger companies have not yet taken a leading role towards supply chain integration. Online trading with customers does not appear to be high in this sector's priorities.

Trends and key issues:

- Integration of business processes within the supply chain as a objective for the future

- Focus on developing and agreeing on electronic standards, in particular XML based standards

More information:

Sector Studies at www.ebusiness-watch.org ('Resources')

e-Business Scoreboard: Textile industry
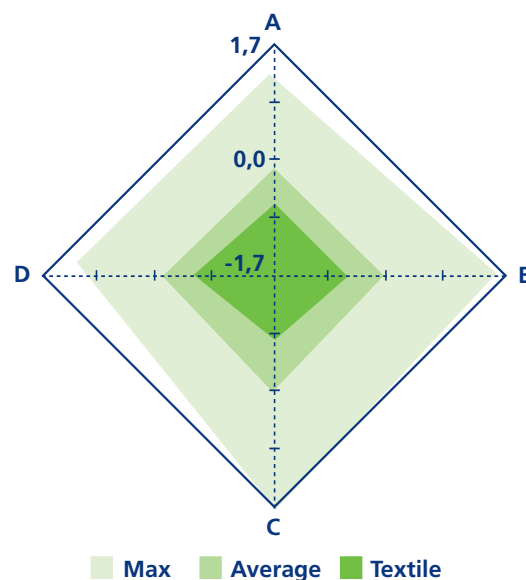
Legend: Max — Average — Textile

E-business dimensions (sub-indices):
A = Basic ICT Infrastructure
B = Internal processes
C = Supply-side e-business activity
D = Electronic marketing and sales

Scale:
Max = maximum e-business intensity in one of the 10 sectors benchmarked
Average = average e-business intensity in the 10 sectors benchmarked
Green diamond = relative e-business intensity in the textile industry

e-Business in the Publishing and Printing Industry

ICT has important implications for publishing and printing companies. It is changing work and production processes, and has encouraged competition by facilitating market entry.

The European publishing and printing industry is in a continuous state of flux. The enormous increase in the availability of digital content, powerful IT solutions for workflow management, delivery and storage technologies, is drastically changing its existing supply value chain.

In general, there are three major factors driving e-business evolution in the sector: the technology innovation imperative, market pressure due to substitution and new market entries, and changes in consumer demand.

Publishing has a tendency to become a complex, multi-channel, media-rich mode of content delivery. Business models tend to become more diverse and complex, but the dual market (serving advertisers and readers) still determines the strategic positioning of players.

In the printing industry, ICT is not only changing production processes, but is a carrier for customer-specific delivery of services.

Trends and key issues:

• Increased competition and risk of substitution for publishing companies, particularly for newspaper publishers

• Change of the role of printing, from manufacturing to full-scale operation and provision of services

• Organisational changes due to digital workflows in publishing and printing

More information:

Sector Studies at www.ebusiness-watch.org ('Resources')

e-Business Scoreboard: Publishing and printing
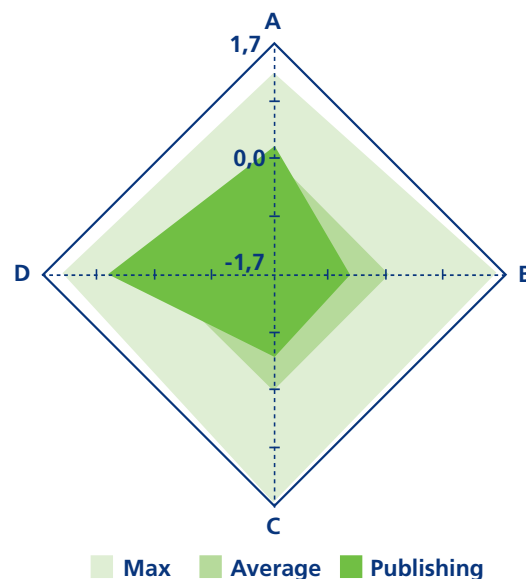
Max　Average　Publishing

E-business dimensions (sub-indices):
A = Basic ICT Infrastructure
B = Internal processes
C = Supply-side e-business activity
D = Electronic marketing and sales

Scale:
Max = maximum e-business intensity in one of the 10 sectors benchmarked
Average = average e-business intensity in the 10 sectors benchmarked
Green diamond = relative e-business intensity in the publishing and printing industry

e-Business in the Pharmaceutical Industry

The pharmaceutical industry is well suited to the use of ICT and e-business applications. This is true for both internal processes and for the support of B2B relationships.

In fact, the pharmaceutical industry is an intensive user of electronic business (cf. Scoreboard): ICT and Internet-based solutions play a key role in supporting marketing and sales processes in the pharmaceutical industry. CRM (customer relation management) systems and mobile solutions have a high potential for facilitating the management and work of the pharmaceutical sales force.

Combating counterfeiting activities currently appears to be a main driver for the deployment of RFID/Auto-ID solutions in this sector. The role of the pharmaceutical industry as a fore-runner in this field is further enhanced by the large range of suitable applications, the favourable ratio of tag prices to product values, as well as by the strict requirements of some regulation authorities. However, a widespread deployment of this technology within the pharmaceutical industry brings many challenges with it.

In B2B trading, the structure of Internet trading platforms is well suited to reflect the current reality of e-business in the pharmaceutical industry. The platforms used today, however, differ widely in their structure and functions and do not always have much in common with the original concept of e-marketplaces.

Trends and key issues:

- Further adoption of ICT for increasing process efficiency, both in supply-side and customer-facing applications
- Increased use of CRM systems and mobile solutions to support the work of the sales force
- Continued trendsetting in the adoption of RFID/Auto-ID for combating counterfeiting activity

More information:

Sector Studies at www.ebusiness-watch.org ('Resources')

e-Business Scoreboard: Pharmaceutical industry
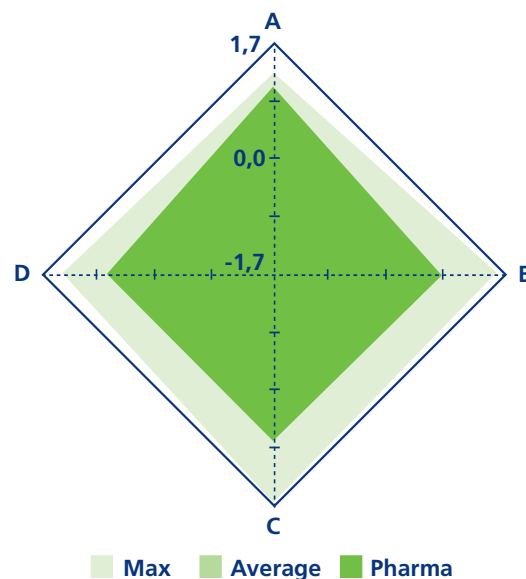
Max   Average   Pharma

E-business dimensions (sub-indices):
A = Basic ICT Infrastructure
B = Internal processes
C = Supply-side e-business activity
D = Electronic marketing and sales

Scale:
Max = maximum e-business intensity in one of the 10 sectors benchmarked
Average = average e-business intensity in the 10 sectors benchmarked
Green diamond = relative e-business intensity in the Pharmaceutical industry

e-Business in the Machinery and Equipment Industry

The machinery and equipment industry has not been an early adopter of ICT. However, compared to 2002/03, the sector has advanced in its use of e-business.

Companies have started to develop their own strategies. Applications are planned with an understanding of their scope and potential benefits. Companies are thereby moving away from a mere imitation strategy which was common in the early stages of e-business. The transition from e-business as a technical ICT tool to 'e-business as a strategic concept' is a major distinguishing factor in this recent phase.

Customer service, and after-sales services in particular, play an important role in this context. The increasing practice of machine sales with accompanying services, offers a vast range of opportunities to provide that service via e-business channels. Quicker procedures in pre- and after sales services, an active role played by customers in shaping and providing the service, 24-hour availability and up-to-date information about new products and services are advantages on the customers' side.

In the B2B trading area, a large number of e-markets for 'industrial machinery and equipment' have been established in 2004. eMarket Services has identified 38 e-markets in the sector (Feb. 2005). Thus, electronic markets have developed from a very small base into a diversified tool for Internet trading in the sector.

Trends and key issues:

• Increasing importance of e-business in delivering product related services (in particular after-sales services)

• Growing maturity of online trading platforms after the failure of many of the initial e-marketplaces

More information:

Sector Studies at www.ebusiness-watch.org
('Resources')

e-Business Scoreboard: Machinery
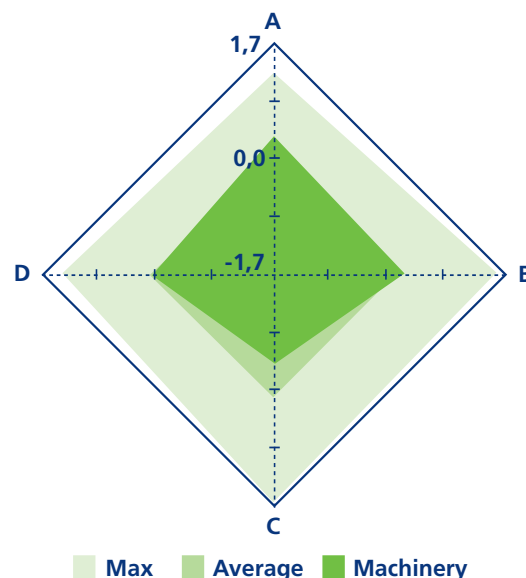
☐ **Max**   ☐ **Average**   ■ **Machinery**

E-business dimensions (sub-indices):
A = Basic ICT Infrastructure
B = Internal processes
C = Supply-side e-business activity
D = Electronic marketing and sales

Scale:
Max = maximum e-business intensity in one of the 10 sectors benchmarked
Average = average e-business intensity in the 10 sectors benchmarked
Green diamond = relative e-business intensity in the machinery and equipment industry

e-Business in the Automotive Industry

Electronic business has had considerable impacts on supply chain processes in the automotive industry. Large companies are steering this development.

The automotive sector exhibits a high level of basic ICT infrastructure. Consequently, the industry is among the most intensive users of e-business technologies and applications.

However, even within this advanced sector, there are clear signs that the potential of e-business has not yet been fully utilised. Most importantly, there is a considerable gap between large companies and their small supply firms in terms of e-business activity.

Notwithstanding this digital divide, online procurement and supply chain integration are key application areas for e-business in the automotive industry. In terms of internal business process integration, enterprise resource planning (ERP) systems are widely diffused compared to other sectors.

The industry-wide implementation of e-commerce platforms, such as procurement marketplaces initiated by Original Equipment Manufacturers (OEMs), has resulted in the past in a battle over the shift of power between OEMs and their supplier base. This has led to conflicts and to a certain reluctance among smaller suppliers to join the e-commerce initiatives launched by large manufacturers.

Trends and key issues:

• Important role of OEMs in determining IT strategies of SMEs and suppliers

• Growing maturity of e-business solutions and activity

More information:

Sector Studies at www.ebusiness-watch.org ('Resources')

e-Business Scoreboard: Automotive industry
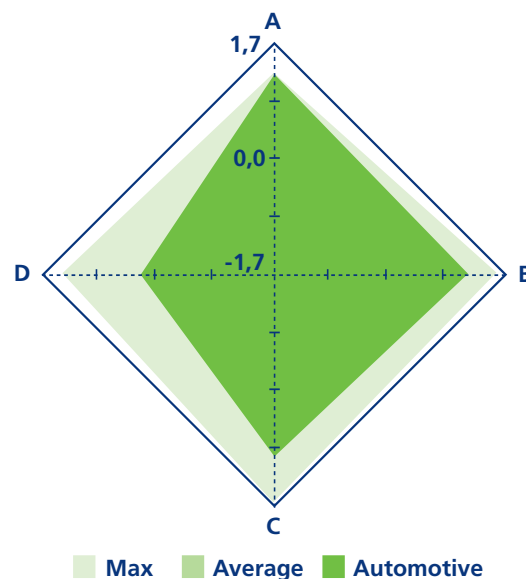
■ **Max**   ■ **Average**   ■ **Automotive**

E-business dimensions (sub-indices):
A = Basic ICT Infrastructure
B = Internal processes
C = Supply-side e-business activity
D = Electronic marketing and sales

Scale:
Max = maximum e-business intensity in one of the 10 sectors benchmarked
Average = average e-business intensity in the 10 sectors benchmarked
Green diamond = relative e-business intensity in the automotive industry

e-Business in the Aeronautics Industry

The aeronautics industry is an advanced user of ICT for managing collaborative processes and electronic procurement. As in the automotive industry, large firms lead the development.

The European aircraft industry is characterised by a very high degree of concentration and a complex network of companies, joint ventures, international consortia and partnership agreements.

A few very large companies play a dominant role as OEMs (Original Equipment Manufacturers) at the end of the value chain, cooperating with a large number of suppliers from various countries. Suppliers include companies from all size-bands.

Again, as in the automotive industry, the dichotomy between large, international players on the one hand, and small and medium-sized suppliers on the other, determines not only the industry structure but also the e-business activity in the sector.

In general, e-business in this sector is strictly supply-side oriented, and focussed on the optimisation of internal processes.

More information:

Sector Studies at www.ebusiness-watch.org
('Resources')

e-Business Scoreboard: Aeronautics
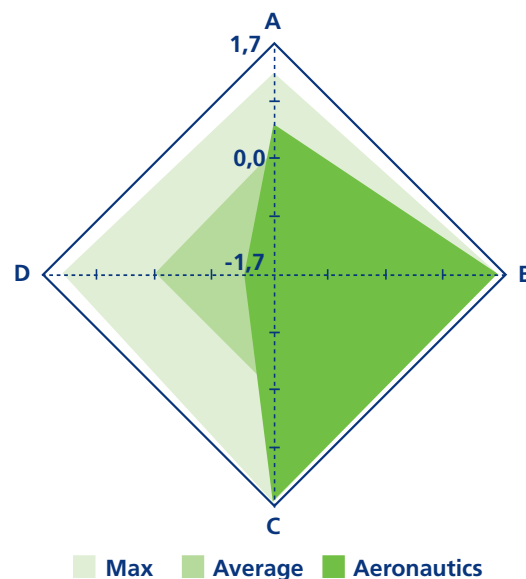
■ **Max**　■ **Average**　■ **Aeronautics**

E-business dimensions (sub-indices):
A = Basic ICT Infrastructure
B = Internal processes
C = Supply-side e-business activity
D = Electronic marketing and sales

Scale:
Max = maximum e-business intensity in one of the 10 sectors benchmarked
Average = average e-business intensity in the 10 sectors benchmarked
Green diamond = relative e-business intensity in the aeronautics industry

e-Business in the Construction Industry

Electronic business activity is less developed in the construction industry than in manufacturing sectors. There are a multitude of standards, technical specifications, labels, and certification marks.

Electronic business activity in construction is very limited compared to the other sectors studied by *e-Business W@tch*. Many companies prefer to be re-active rather than pro-active in their use of ICT.

The construction industry has yet to show the same level of ICT driven improvement of productivity as in other industries. This can partly be explained by the nature of the work and the type of production involved in construction processes. It is also related to slow uptake of ICT in a sector which is dominated by SMEs.

Large enterprises in the industry and new sector entrants have adopted ICT based production methods. However, there is still great potential for further ICT uptake, for example: production planning systems, ERP-systems with financial components, inventory management systems, supply chain management (SCM) and mobile solutions.

Business process integration may be a key driver for ICT adoption in the future. Most companies in the sector tend to organise work around individual construction projects which has led to a fragmentation in ICT use and e-business activity, characterised by a lack of commonly accepted standards, technical specifications and labels.

Trends and key issues:

- Search for strategies to overcome the fragmented IT landscape

- Focus on tools for collaboration among the many partners in consortia

More information:

Sector Studies at www.ebusiness-watch.org ('Resources')

e-Business in the Construction Industry
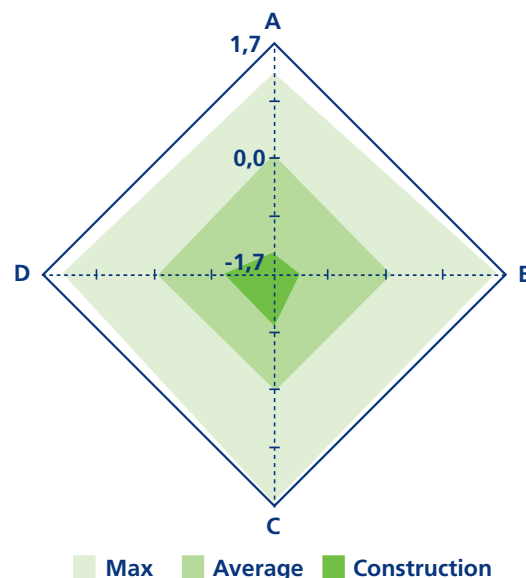
Max   Average   Construction

E-business dimensions (sub-indices):
A = Basic ICT Infrastructure
B = Internal processes
C = Supply-side e-business activity
D = Electronic marketing and sales

Scale:
Max = maximum e-business intensity in one of the 10 sectors benchmarked
Average = average e-business intensity in the 10 sectors benchmarked
Green diamond = relative e-business intensity in the construction industry

**e-Tourism – The Impact of ICT on
the European Tourism Industry**

The Internet has led to sustained changes in the tourism industry. The dynamic development of e-tourism will continue.

In the past 30 years, the tourism industry has been influenced by three major waves of information and communication technologies (ICT): the Computer Reservation System (CRS) in the '70s, the Global Distribution System (GDS) in the '80s and the Internet from the mid '90s onwards.

The focus of e-business activity in tourism is on marketing and sales. Online booking and reservation services have been widely accepted among both leisure and business travellers to a degree where it is true to say that "e-tourism" has taken off.

Customer Relationship Management (CRM) is an important internal application, although not widely diffused among the smaller firms.

The dynamic development of electronic business in the tourism industry is likely to continue, as there are new opportunities ahead. One of the main trends is "destination management" where destinations (regions, areas) can be regarded as a kind of virtual enterprise. Coordination and networking are crucial factors, and ICT plays an important role in these considerations.

Trends and key issues:

• Disintermediation and intermediation are occurring in parallel: new entrants (online players) on the one hand, and pressure on traditional intermediaries (travel agencies) on the other

• Continued boom in e-tourism, triggered by EU enlargement and increases in domestic broadband Internet access

• Experimentation with new mobile applications

More information:

Sector Studies at www.ebusiness-watch.org ('Resources')

e-Business Scoreboard: Tourism
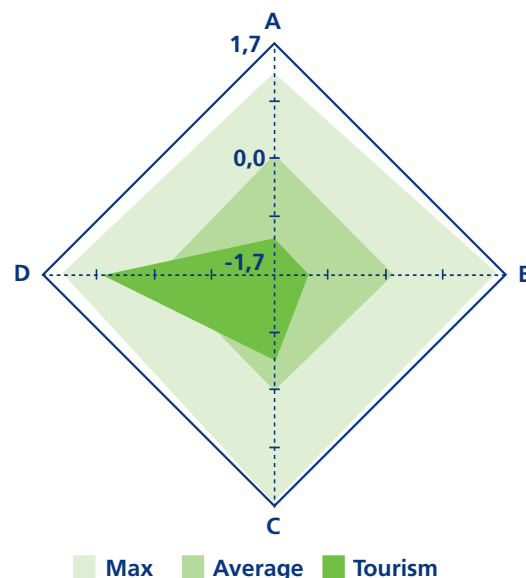
Max   Average   Tourism

E-business dimensions (sub-indices):
A = Basic ICT Infrastructure
B = Internal processes
C = Supply-side e-business activity
D = Electronic marketing and sales

Scale:
Max = maximum e-business intensity in one of the 10 sectors benchmarked
Average = average e-business intensity in the 10 sectors benchmarked
Green diamond = relative e-business intensity in the Tourism industry

e-Business in the IT Services Sector

Although companies in this sector have Information Technology and e-business as their end product, ICT also plays a significant role in the way that this product is produced, promoted and provided.

This specific use of ICT distinguishes the computer related services industry from the other sectors analysed by the *e-Business W@tch*. Online channels have become key for marketing, communication and interaction with customers. A necessary requirement for such services is a powerful ICT infrastructure, such as a broadband connection between service providers and users, hence companies from the IT services sector are well equipped with it.

As many products and services from this sector are delivered online, the border between "product" and "service" is becoming less distinct. In the software industry in particular, service orientation has increased along with e-business activity, with user needs being better understood and considered, with a lesser focus on technology.

The open source development plays an important role in this context. Open source software (OSS) paves the way from product-centred software supply towards new business approaches that focus on services linked to that software. The Internet and Internet-based platforms provide the basis for collaboration between companies for marketing and for delivery.

Trends and key issues:

• Establishment of offshore IT services in Europe

• Increased importance of open source software (OSS)

• Maturing concept of software as a service, with better consideration of user needs

More information:

Sector Studies at www.ebusiness-watch.org ('Resources')

e-Business Scoreboard: IT services
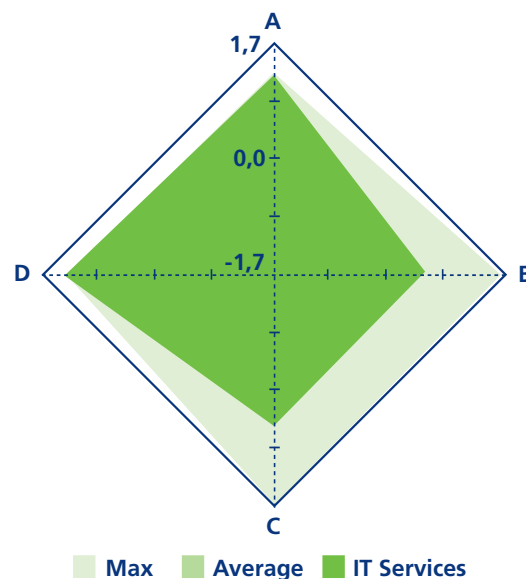
Legend: Max — Average — IT Services

E-business dimensions (sub-indices):
A = Basic ICT Infrastructure
B = Internal processes
C = Supply-side e-business activity
D = Electronic marketing and sales

Scale:
Max = maximum e-business intensity in one of the 10 sectors benchmarked
Average = average e-business intensity in the 10 sectors benchmarked
Green diamond = relative e-business intensity in the IT services sector

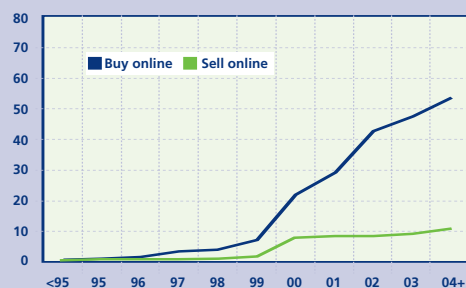## e-Commerce Adoption by Sector

Food and beverages
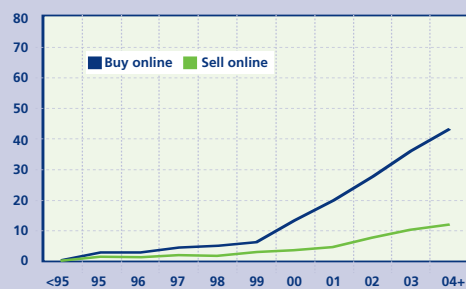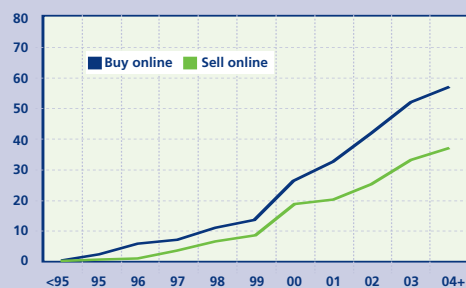
Textile industry

Publishing and printing

Pharmaceutical industry

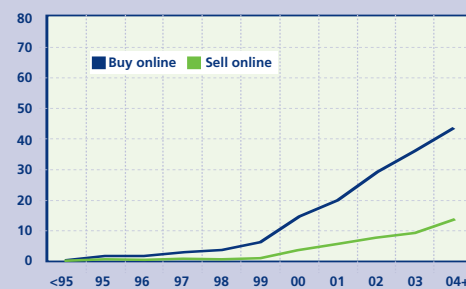### Machinery and equipment

Automotive industry

Base: EU-7 (CZ, DE, ES, FR, IT, PL, UK), all enterprises from a sector. N=5218 (total).

Weighting: Data weighted by employment
(= enterprises comprising …% of employment in a sector).

Survey questions: Buying online: F1: "Does your company use the Internet or other computer-mediated networks to purchase goods or services online?" F2: "When did your company purchase goods or services online for the first time?" Selling online: G3: "Does your company sell goods or services online on the Internet or through other computer-mediated networks?" G4: "When did your company offer goods or services online for the first time?"
Source: *e-Business W@tch* (Survey 2005)

e-Commerce Adoption by Sector/Size

Construction
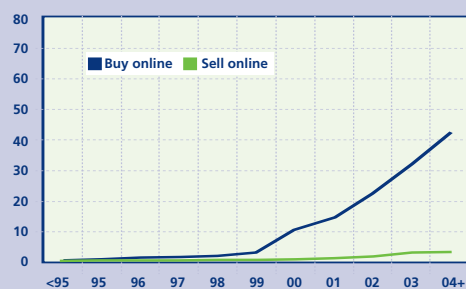
Computer related services
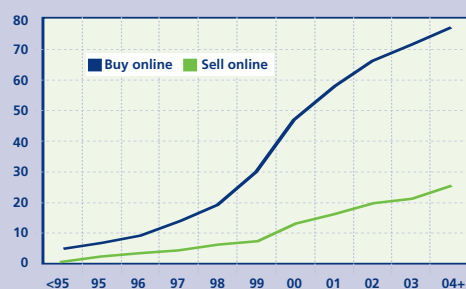
Medium-sized firms (50-249 employees) from 10 sectors

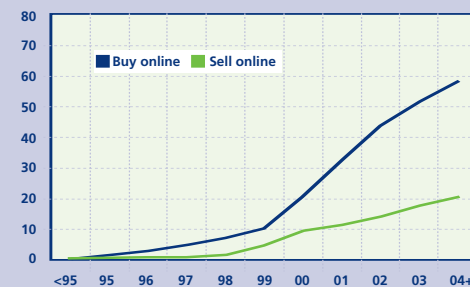## e-Commerce Adoption by Sector/Size

Tourism
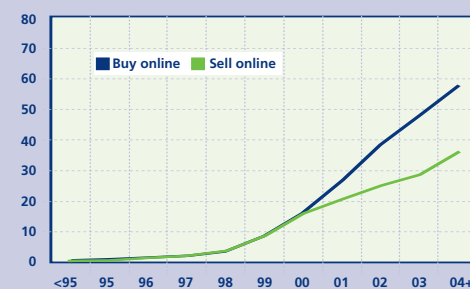
Small firms (10-49 employees) from 10 sectors


Large firms (250+ employees) from 10 sectors

Base: EU-7 (CZ, DE, ES, FR, IT, PL, UK),
all enterprises from a sector/size-band. N=5218 (total).

Weighting: Figures for sectors are weighted by employment
(= enterprises comprising …% of employment in a sector).
Figures for size-bands in % of enterprises from the size-band.

Survey questions: Buying online: F1: "Does your company use the Internet or other computer-mediated networks to purchase goods or services online?" F2: "When did your company purchase goods or services online for the first time?" Selling online: G3: "Does your company sell goods or services online on the Internet or through other computer-mediated networks?" G4: "When did your company offer goods or services online for the first time?"
Source: *e-Business W@tch* (Survey 2005)
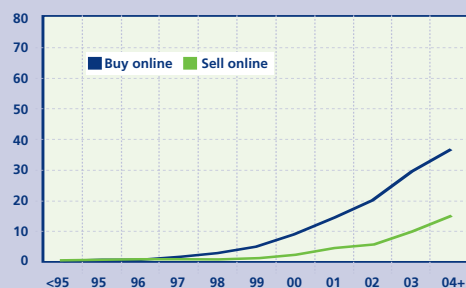
e-Commerce Adoption by Country

Czech Republic

France
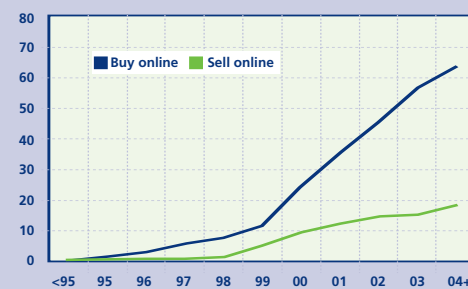

Poland

Germany

Italy

UK
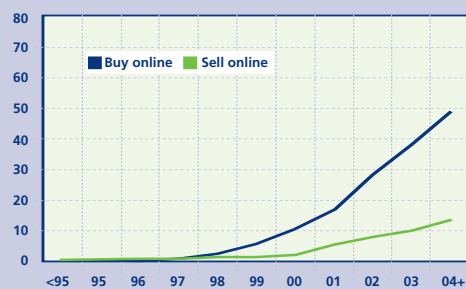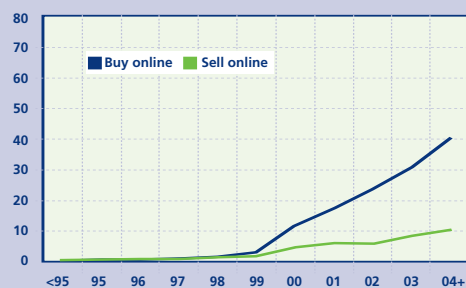
Base: All enterprises with computers, 10 sectors.

Weighting: Data weighted by employment
(= enterprises comprising …% of employment in a country).

Survey questions: Buying online: F1: "Does your company use the Internet or other computer-mediated networks to purchase goods or services online?" F2: "When did your company purchase goods or services online for the first time?" Selling online: G3: "Does your company sell goods or services online on the Internet or through other computer-mediated networks?" G4: "When did your company offer goods or services online for the first time?"
Source: *e-Business W@tch* (Survey 2005)

Methodological Notes:
The e-Business Survey 2005

Data presented in this pocketbook are results of a representa-
tive survey among decision-makers in European enterprises
from seven countries. It was the third survey by the *e-Business
W@tch* after those of 2002 and 2003.

The e-Business Survey 2005 consisted of 5,218 telephone inter-
views with decision-makers in enterprises from seven EU countries
(Germany, Spain, France, Italy, UK, Czech Republic, Poland). The
Interviews were carried out in January and February 2005. The
field work of the survey was coordinated by Ipsos Germany.
Interviews were carried out locally by national branches and
partner organisations of Ipsos on behalf of the *e-Business W@tch*.

The fieldwork was carried out 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. Alter-
natively, particularly in small enterprises without a separate
IT unit, the managing director or owner was interviewed.

Population coverage and sampling

The highest level of the population for the e-Business Survey
was the set of all computer-using enterprises which are active
within the national territory of one of the respective coun-
tries, and which have their primary business activity in one of
the sectors specified by NACE Rev. 1.1 categories.
In contrast to many other ICT surveys, no cut-off was made in
terms of minimum size of firms. However, the major differen-
ce from the previous *e-Business W@tch* surveys was that only
enterprises that use computers were included in the 2005 sur-
vey. Thus the universe is, strictly speaking, not "all enterpri-
ses", but "enterprises using computers". The difference is rele-
vant mainly in three sectors: tourism, food and beverages, and
textiles.

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

The sample drawn was a random sample of companies from
the respective sector population in each country where the
respective sector was to be surveyed with the objective of
fulfilling strata with respect to company size class.

Strata were to include a share of at least 10% of large companies
(250+ employees) per country-sector cell, 30% of medium sized
enterprises (50-249 employees) and 25% of small enterprises
(10-49 employees). Micro enterprises with less than 10 employees
were also included in the survey. Samples were drawn locally
by fieldwork organisations based on acknowledged business
directories and databases.

Sectors covered by the e-Business Survey 2005

NACE Rev. 1.1			
Section	Division/ Group	Sector	Interviews
DA	15	Food and beverages	571
DB	17, 18	Textile industry	561
DE	22	Publishing and printing	563
DG	24.4	Pharmaceutical industry	532
DK	29	Machinery and equipment	565
DM	34	Automotive industry	565
DM	35.3	Aeronautics industry	163
F	45	Construction	566
H, I, O	55, 62.1, 63.3, 92.3+5	Tourism	567
K	72	Computer related services	565

Survey modules – indicators

Interviews with companies included questions on different
areas of ICT use and electronic business activity:

• Background information about the company (basic company
  data, innovation activity)
• Basic ICT infrastructure of the company
• Investment in ICT, skills and security issues
• ICT based internal and external collaboration
• Supplier-facing e-business activity
• Customer-facing e-business activity: marketing and sales
• Use of e-standards and interoperability
• Implications, drivers and inhibitors

Weighting principles

Two weighting schemes have been applied: weighting by employment and weighting by the number of enterprises. The respective weightings are used depending on the context and objective of the analysis.

• Values that are reported as weighted by employment should be read as "enterprises comprising x% of employees". The reason for using employment weighting is that there are many more micro and small enterprises than others. Unweighted figures would therefore 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 and on business directories. Missing or undisclosed universe data had to be computed depending on auxiliary or proxy data. The weighting cells correspond to the data reporting pattern used with regard to industries and employment size-classes. Uniform expansion factors were applied to enterprises within one of the four size-classes per industry per country. In terms of 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 were adjusted to the different shares of observations per cell that build the computation base.

Further background information

More information about the methodology, the full questionnaire, and lists of the fieldwork organisations that carried out the survey in the various countries, and the directories used for sampling, can be downloaded from the *e-Business W@tch* website (www.ebusiness-watch.org).