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The European e-Business Market W@tch

E-Business in Europe · 2006

Industry perspectives on electronic business development



October 2006

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Background:

The e-Business W@tch

A European e-Business Observatory since late 2001

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

The initiative was launched by the European Commission's DG Enterprise and Industry in late 2001. It will be operational until the end of 2006. A follow-up initiative is being considered. In 2006, studies by *e-Business W@tch* cover 10 sectors, including manufacturing industries, construction and services.

A cornerstone of the monitoring activities is a representative survey among decision-makers in European enterprises about their use of e-Business. The latest survey was conducted in March and April 2006. To complement the statistical picture, *e-Business W@tch* has conducted about 75 case studies on e-Business activity in enterprises around the world.

This brochure presents findings and conclusions from these activities. More comprehensive sector studies, and further resources (Pocketbook, Annual Report) are available in electronic format at www.ebusiness-watch.org or via the Europa server at (www.ec.europa.eu/comm/enterprise/ict/policy/watch/index.htm).

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Imprint

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

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

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Foreword:

e-Business – a Contributor to Productivity and Growth

The past five years have seen a steady development of e-business across the globe. This development, though not visibly revolutionary in character, has been nonetheless powerful in its impact.

Companies use ICT and e-business for different objectives. While the search for opportunities to cut costs is still a valid motive, the most innovative firms have begun to exploit the potential of ICT for delivering against key business objectives: they have integrated ICT into their delivery of quality goods and services, into their quality management, in marketing, and for improving customer service.

These areas are key to improving competitiveness in the current phase of development of European economies. Competing in mature markets requires not only optimised cost structures, maximal efficiency, and products or services of excellent quality, but also the ability to communicate effectively and indeed cooperate with existing or potential customers.

For these reasons, the European Commission has long placed great emphasis on policy actions supporting the broad uptake of ICT among European enterprises. In 2005, DG Enterprise and Industry launched a new industrial policy. As one of the initiatives covered by this policy, a new Taskforce on ICT Competitiveness was set up, which will help in identifying and removing obstacles that inhibit ICT take-up among enterprises.

Furthermore, the i2010 initiative stresses that "... the adoption and skilful application of ICT is one of the largest contributors to productivity and growth throughout the economy, leading to business innovations in key sectors."

The *e-Business W@tch* supports these and other policy initiatives in two ways. As an observatory, it provides policy with data and case study evidence on current e-business developments in the market. As an intermediary, the *e-Business W@tch* is a platform for debating relevant issues among stakeholders. This brochure offers snapshots from the recent study work conducted in 2006.

We are looking forward to the full sector studies which will soon be available on the web (www.ebusiness-watch.org), along with their comparative synthesis in the forthcoming 'European e-Business Report – 2006 edition'. They will help us understand even better the impact of ICT on firms and industries, and design the right policies to enhance growth and competitiveness of the EU economy.



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Foreword:

A Strategic Perspective on e-Business

It is uncontested that the efficient use of ICT can leverage a firm's performance. ICT applications help companies serving customers in a potentially global market, support production and logistics processes, and facilitate internal work flows.

However, there is no easy win. Technology will rarely lead to the expected benefits by itself; what matters in business (and e-business alike) is strategy. In other words, the way a company uses ICT must be derived from its overall business strategy. This aspect is sometimes underestimated when firms invest in new systems. Technology cannot compensate for a lack of strategy.

When companies are considering whether to invest in a new technology for e-business and which solution to select, many factors that will normally guide the decision, including price, technical features and compatibility with existing systems.

While all these details are clearly relevant, it may also help to link the decision making process with revisiting business objectives: "What are our goals for the next 3-5 years?" "Where does the firm want to go?" "How do we want to achieve this?" In fact, these questions are common denominators of most definitions of the term "strategy" and should guide the use of ICT.

Designing, adapting and pursuing a strategy is the core function of management and requires the respective skills. This has implications for the debate of "e-skills" in companies. Many of the case studies we have conducted in *e-Business W@tch* show that the "e-skills" issue is, in fact, of most relevance at the managerial and strategic level.

In comparison, ICT user skills at the level of individual workers are of less concern, despite the high degree of technology used in production processes. It is true that in some sectors, particularly in ICT industries themselves, there are signs that a shortage of ICT practitioners could hamper growth and innovation. There is an awareness of this risk at policy level, and monitoring of developments has already been put in place, with readiness to take supportive actions, if required.

Without ignoring the importance of this issue, policy should also pay attention to fostering managerial skills in European enterprises. A skilful management with a sound understanding of strategy design and implementation is probably the best asset for firms in the global economy of today.

e-Business on the Rise:

Customer Expectations are Driving e-Business Adoption

About 70% of companies in the sectors studied feel that e-business constitutes at least some part of their operations in 2006. This is up from about 60% in 2002, when *e-Business W@tch* asked this question for the first time. Customer expectations have been a powerful driver of e-business developments in most manufacturing and service sectors.

e-Business matters

A broadly-based evolutionary development of electronic business has set in across the globe. This development, though not visibly revolutionary in character, has been nonetheless powerful in its impact. The maturity of e-business has substantially increased across sectors and regions over the past five years.

About 80% of large companies regard e-business as relevant for their day-to-day operations. A third of them even say that it constitutes a "significant part" of their activities. Among SMEs (small and medium-sized enterprises), about 65% say that e-business plays a role in their operations. *e-Business W@tch* has asked companies this question in all surveys since 2002, and observed a steady increase in the share of firms where e-business matters. This holds true for firms of all size-bands.

Innovation activities, including those enabled by ICT, can be a reaction to pressure from outside (from customers or suppliers) or be a proactive measure to seek competitive advantage. Results of the e-Business Survey 2006 show that both types of motivations are highly relevant.

Fulfilling customer expectations

In particular, pressure from customers' appears to be the most powerful driver of e-business developments in most sectors. About 70%¹ of those firms that practise e-business confirm that meeting expectations of their customers was "an important reason" to start e-business. There are some sectoral differences, though. Customers are

clearly the key driving force in tourism and in ICT-related industries, but much less influential in shipbuilding and construction.

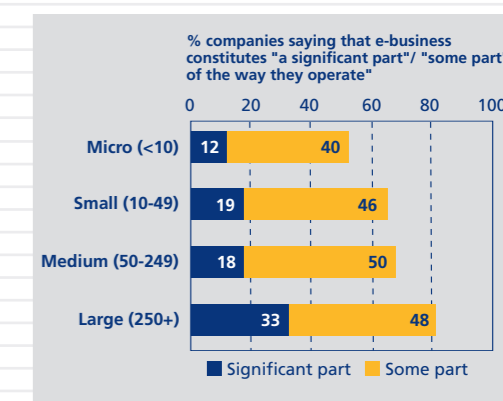
This assessment of companies confirms a general trend in e-business: firms are beginning to explore new forms of ICT-enabled customer service. To radically improve the value proposition to client groups of increasing sophistication, customers are being integrated into planning, decision making and production processes at an increasingly early stage. The flexibility offered by ICT applications permeating business operations is an essential precondition for this new relationship with customers.

Though service sectors lead the way in this field, ICT is already widely used in manufacturing sectors to improve service levels. Recent sector studies by *e-Business W@tch* on the machinery and equipment industry (2005) and the pulp and paper industry (2006) found clear evidence for these developments.

Gaining competitive advantage

More than 60% of firms¹ also state that the opportunity to gain competitive advantage has been an important reason for their e-business engagement. This holds true for all sectors. By comparison, supplier power appears to be rather limited as a driving force for ICT and e-business.

¹ measured by their share of employment



Base (100%): companies with computers from 10 sectors, EU-10, N = 7136.
In % of firms from a size-band.



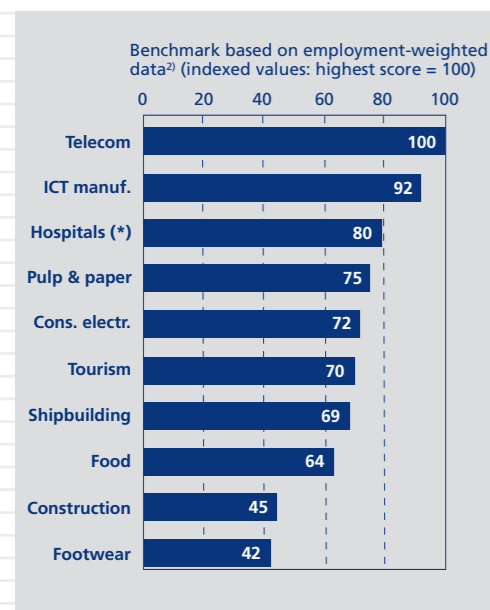
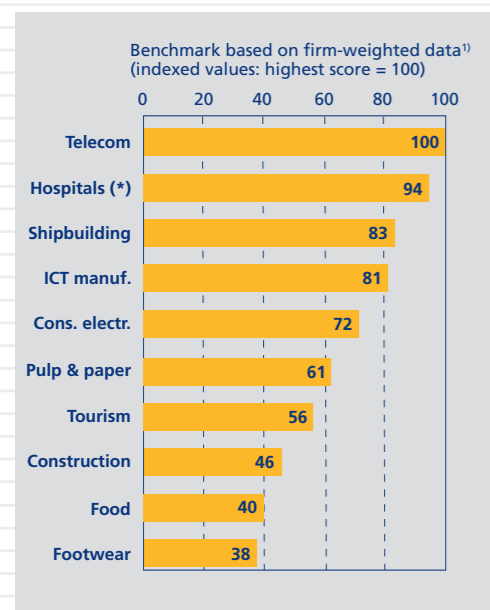
Base (100%): companies from 10 sectors saying that e-business constitutes a part of the way they operate, EU-10, N = 4602.
In % of firms from a size-band.

Benchmarking:

e-Business Activity in 10 Sectors of the European Union

Activity in e-business still differs considerably between industries. However, the state-of-play has matured. Large companies in manufacturing pursue similar objectives with their ICT strategies: improving supply-chain processes (e.g. to reduce inventory), streamlining procurement processes and – increasingly – enhancing customer relations.

The e-Business Index (2006) for sectors



1) Firm-weighted data express e-business adoption as "% of firms in a sector", irrespective of the size of the companies (i.e. small companies and large ones count equally). Results are thus mainly determined by the situation in small firms, as there are many more small companies than large ones in the population of enterprises.

2) Employment-weighted data express e-business adoption as "activity in firms comprising ...% of employment in a sector", thus emphasizing the situation in larger companies.

(*)Data for hospitals are not 100% comparable, as for some indicators proxies had to be used, and because the typical industry structure (in terms of firm-size) does not apply to the hospital sector.

Manufacturing

In general, large companies drive e-business development in manufacturing industries. Supply-chain integration is still the key objective for many e-business initiatives; in parallel, innovative ICT-based forms of customer service are rapidly gaining momentum, even in B2B oriented sectors. However, the 'digital divide' between large and small companies is still very pronounced, for example in the food & beverages, pulp & paper and shipbuilding industries. In the footwear industry, ICT usage appears to be much lower than in other manufacturing industries, even among larger firms.

Construction

To some extent, this also applies to many of the small companies in the construction industry; however, as the survey questionnaire was mainly adapted to ICT use in manufacturing industries, it may not fully reflect some of the emerging trends in construction. Project-oriented technologies such as project web and 3D visualisation tools carry significant economic potential for this sector. Although they are not widely deployed yet in the sector, there are relevant business examples demonstrating that companies can benefit from using them.

Services – telecommunications and tourism

Telecommunications companies have a forerunner position as intensive users of ICT and e-business in almost all application areas. Moreover, the wide diffusion of e-business technologies also among smaller enterprises distinguishes the sector from most other industries.

e-Tourism is one of the most dynamic areas of e-business with a major impact for nearly all players involved. ICT enable service providers to interact directly with customers, which puts severe pressure on traditional intermediaries such as travel agencies and tour operators.

Hospitals

Almost all European hospitals have at least an electronic system for patient data and financial administration. However, few of them use more sophisticated systems, and departmental information systems are often not integrated with each other. Core drivers of e-business in hospitals include cost containment, improvement of quality of care, and state regulations, for example the implementation of Diagnosis-Related Groups.

Benchmarking:

e-Business Activity in Countries of the European Union

In international comparisons, EU enterprises are level with their counterparts in other advanced economies in their use of ICT. However, there are still some differences within the EU, particularly with regard to the average ICT maturity of smaller companies.

Nordic countries most advanced

In general, firms in Northern European countries tend to be more inclined towards ICT and e-business than their Southern European counterparts. In particular, as the e-Business Survey 2006 shows, the connectivity between companies is quite advanced in Finland, Sweden and Denmark, compared to most other EU countries.

The e-Business Index 2006, composed of 16 indicators, shows Finland as the e-business benchmark in a comparison of 8 EU countries (see Exhibits). Companies from France, the Netherlands, the UK and Germany are very similar in their use of ICT, particularly if emphasis is laid on the larger companies (see employment-weighted Scoreboard). Firms from the new Member States (Czech Republic and Hungary), although taking the lower ranks in this benchmarking exercise, are not far behind in their use of ICT.

Impact of industry structure – challenges for comparisons by country

Thus, with the possible exception of the Nordic countries, the location of a company is by no means a reliable predictor for the level of its e-business activity.

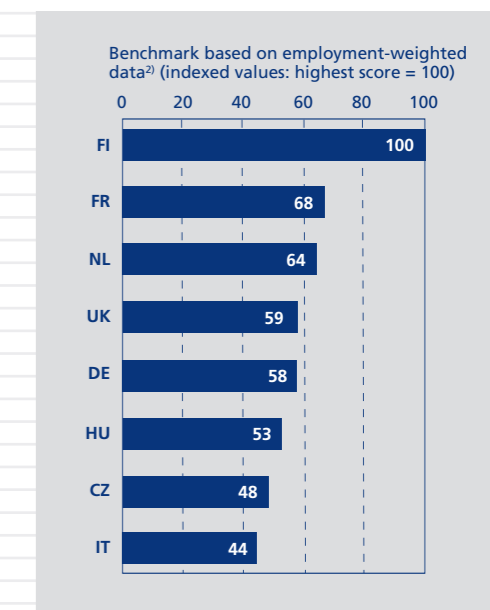
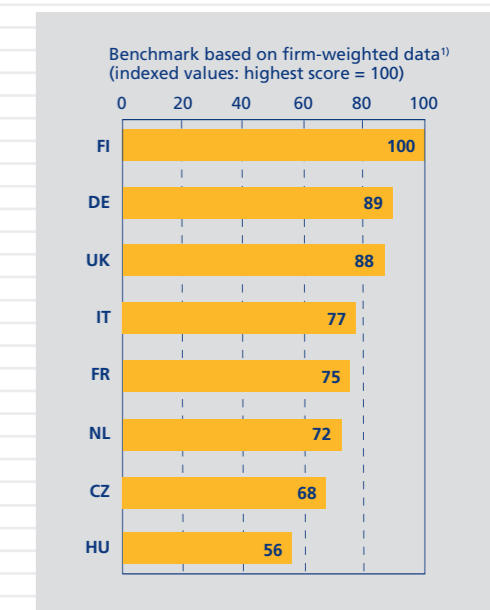
This can be due to structural characteristics. In Italy, for example, sectors dominated by small firms are much more prevalent than in other countries. Since large firms are more advanced in electronic business, aggregated data may point at a lower level of e-business activity in Italy. This reflects, at least to some extent, the structure of the economy rather than the overall e-maturity of firms.

In contrast to Italy, the relative performance of French and Dutch companies is significantly better if the emphasis is on larger firms. These benchmarking results suggest that the digital divide between small and large firms could be quite pronounced in these countries.

Geographic differences within the same sector

Within sectors, the deployment of ICT and e-business is even more aligned across countries, as differences in the sectoral structure of national industries are eliminated. The general pattern remains strikingly similar in practically all sectors surveyed. ICT adoption is most advanced in firms from the Nordic countries; differences between the other EU countries are much less pronounced.

The e-Business Index (2006) for countries



1) Firm-weighted data express e-business adoption as "% of firms in a country", irrespective of the size of the companies (i.e. small companies and large ones count equally). Results are thus mainly determined by the situation in small firms, as there are many more small companies than large ones in the population of enterprises.

2) Employment-weighted data express e-business adoption as "activity in firms comprising ...% of employment in a country", thus emphasizing the situation in larger companies.

e-Business Sector Profiles:

The e-Business Scoreboard 2006

The e-Business Scoreboard approach was developed by *e-Business W@tch* in 2004. It is a compound index that condenses data on ICT adoption and e-business activity, enabling comparisons across different sectors, countries or size-bands. Conceptually, the e-Business Scoreboard owes a debt to the Balanced Scorecard (BSC) approach, which suggests that an organisation should be viewed from four perspectives, and that metrics (and targets) are to be defined for each perspective. Similarly, the e-Business Scoreboard looks at ICT use by enterprises from four (inter-related) perspectives. The Scoreboard is based on 16 component indicators, which represent the metrics for these perspectives.

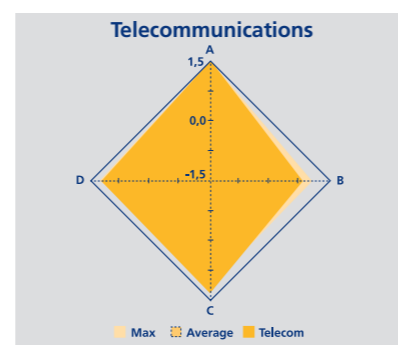
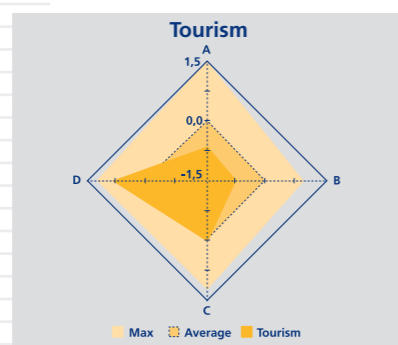
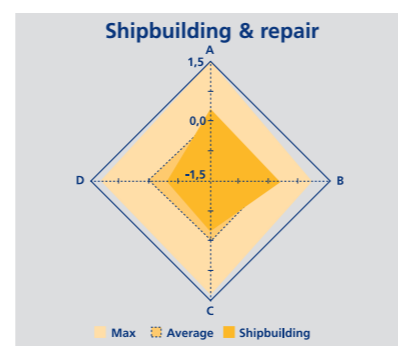
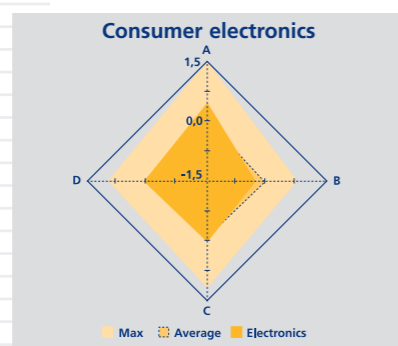
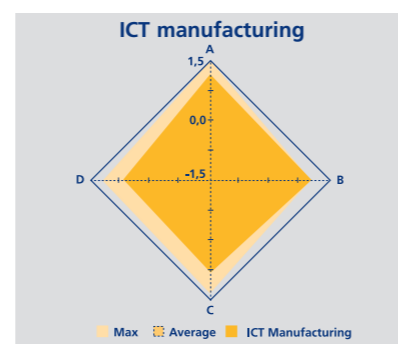
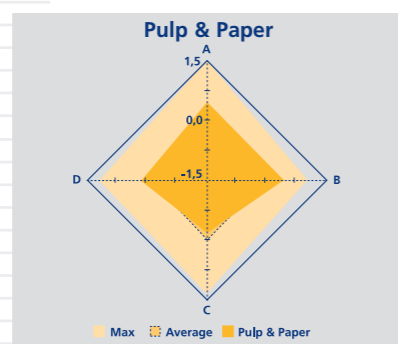
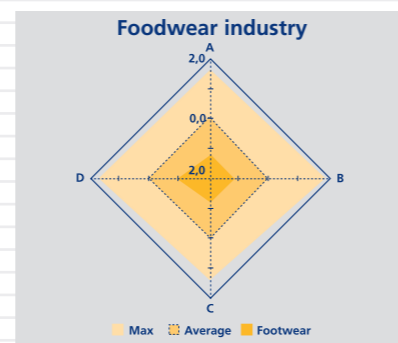
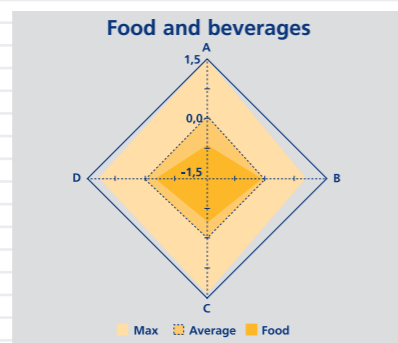
Aggregation: The component indicators of the Scoreboard can be aggregated on several levels. CI can be aggregated into 4 main sub-indices that represent major application areas of e-business. Next, the sub-indices can be further aggregated into 2 dimensions and, finally, into the overall "e Business Index".

The four main perspectives are: (A) Access to ICT networks; (B) e-Process integration; (C) Supply-side activities; (D) Marketing and sales processes.

Normalisation: This takes into account the percentages (diffusion rates) from all sectors (size-bands, ...) and show how a specific sector (size-band, ...) differs from the all-sector average. To this end, values of component indicators were normalised, based on mean values and standard deviations. The scale in the diamond graphs shows the multiple of a standard deviation for a specific sector. 0 equals the mean value for all 10 sectors.

Most of the Scoreboards shown are based on component indicators that have been weighted by employment (see p. 22), which emphasizes the situation in larger companies.

The Scoreboard for the footwear industry is based on indicators expressed as % of firms (and not by employment). For this industry with a very high share of micro and small firms this is probably a more adequate approach to making comparisons with other sectors.



e-Business Profile:

The Food and Beverages Industry

In the food and beverages (F&B) industry, ICT and e-business have their main impacts in the areas of production and logistics. In the marketing and sales areas, the potential of e-business is not yet fully exploited for the benefit of manufactures.

Large retailers exert their power and tend to maximise the advantage of their direct control over suppliers. In general, the powerful ICT systems and e-business solutions of large enterprises enable (and help drive) more advanced practices which yield correspondingly greater savings and efficiency. As a result, large firms are more active in e-business than smaller ones; they also attribute more importance to it.

Supply chain management (SCM) is likely to remain a key point of focus for the leading players in the future: while it was previously focused mainly on cost reduction and logistics, today, with the globalization of supply chain sourcing – driven by cost-reduction policies – and intensified safety concerns, two important new links have been added to the supply chain: the issues of food supply safety and traceability.

Large retail chains continue to drive system integration along the supply chain, leveraging their bargaining power towards manufacturers.

However, diverse ICT systems, integration costs and the lack of information standards continue to hamper external integration. Many manufacturers and retailers are devoting considerable efforts to integrate their information systems.

RFID (Radio Frequency Identification) is the latest technology that can support traceability and quality assurance in the F&B industry. RFID applications are expanding from quality assurance to efficiency gains and control over inventory, delivery, selling and distribution. However, RFID is still mostly used at the pallet and case level. At unit level, there are still technological constraints to be overcome if it is to be applied on a large scale.

More information

This sector study was conducted by Databank (www.databank.it). The full study report is available on the website at www.ebusiness-watch.org ('resources'). For more information about this study, please contact Ms Elena Gaboardi (gaboardi@databank.it).

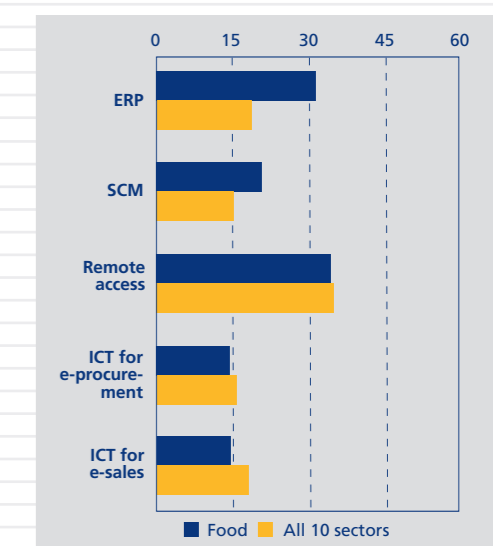
Fact-Box

The food and beverages (F&B) industry covers business activities specified by NACE (Rev. 1.1) DA 15: Manufacture of food products and beverages.

Total employment (EU-25)	3.9 million
No. of enterprises (EU-25)	282,000
% of employees working in SMEs	62%

(Source: Eurostat SBS, latest available figures)

The F&B industry is one of the major pillars of the European economy, accounting for about 13% of total manufacturing. In 2004, the EU-25 food and beverages industry had a turnover of 815 billion euros, transforming over 70% of EU's agricultural raw materials and employing about 3.9 million people.



	ERP	SCM	Remote access	CRM
Food	32	21	35	14
micro (0-9)	4	11	11	3
small (10-49)	17	11	20	4
medium (50-249)	33	19	37	16
large (250+)	66	50	69	39
Footwear	23	14	17	11
Construction	18	16	25	9
Tourism	15	16	38	23
Telecoms	32	18	74	48

Data for sectors weighted by employment ("firms representing x% of sector employment"). Data for size-bands in % of firms from the size-band.

Source: e-Business W@tch (2006)



e-Business Profile:

The Footwear Industry

The potential of ICT as a working tool and as a means to gain productivity improvements is not fully exploited in the footwear industry. ICT is mainly being used to automate existing flows and processes rather than for innovative working methods.

Among the ten sectors studied by *e-Business W@tch* in 2006, the footwear industry has the lowest overall use of ICT and e-business. What is immediately striking is the relatively low level of e-business activity among the larger footwear companies. The delayed ICT adoption, relative to other sectors, is at least in part caused by the economic circumstances and competitive evolution over the past decades.

Many of the smaller companies that do not practise e-business state two main reasons: they regard themselves as "too small", and they say that they cannot afford the required technologies.

For those companies that use ICT and e-business the main impact is felt in production and logistics. Firms put serious efforts into the integration of information and logistic flows with their business customers. Strategic ICT investments by companies tend to focus on production planning, stock-turn improvement and the reduction of out-of-stocks.

In this context, collaborative work is a key issue for footwear and component manufacturers. The objective is to speed up processes and achieve instant visibility of orders, shipments, and inventory across the supply chain. Companies are challenged to address these issues without expensive solutions or the release of sensitive information to external databases.

Another important objective is integration with distribution, in order to improve links between production, logistics, warehousing and sales. There are successful examples of online integration with proprietary distribution networks.

More information

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Fact-Box

The manufacture of footwear (NACE Rev. 1.1 DB 19.3) is a sub-sector of the leather industry (NACE 19).

Total employment (EU-25):	290,000
No. of enterprises (EU-25):	13,700
% of employees working in SMEs:	Not available

(Source: Eurostat SBS, latest available figures)

The footwear industry is dominated by SMEs which together generate 65% of the value added. Specialised distribution plays a particularly important role in the sector, accounting for about half its turnover. There are some 80,000 sales outlets employing about 300,000 persons.

e-Business Profile:

The Pulp and Paper Industry

In the pulp and paper (P&P) industry, the main impact of ICT is as a driver and enabler of process innovation in supply chain management and B2B trading processes. However, e-business activities and experiences differ widely between large manufacturers and the smaller companies in the sector.

Among the ten sectors studied by *e-Business W@tch* in 2006, and probably for other sectors as well, the P&P industry is a perfect yardstick for the state-of-play in ICT adoption and e-business activity. Survey results and case studies show that companies use ICT quite intensively in all application areas along the value chain: for procurement processes, in production, inbound and outbound logistics, and in marketing and customer service.

Large companies from the sector are quite advanced users of e-business. The need to organise trade and logistics on an international scale has been a strong driver to adopt ICT for that purpose. A bottleneck is currently the small installed base of ERP (Enterprise Resource Planning) systems among smaller companies, as ERP is an important hub for B2B integration and consequently conducting e-business.

papiNet has been established as a standard for exchanging data in the paper industry. However, even if papiNet is a success story, there is still wide scope for new papiNet implementations, especially those involving SMEs.

RFID is increasingly used for warehouse and inventory management. Early examples of RFID implementation already demonstrate that it can help companies to link ordering, production and logistics processes, and thus to streamline their supply chain and reduce times. However, usage up to now is mostly limited to large companies.

On the whole, ICT and e-business have a considerable impact on work processes in individual companies in the sector, but findings do not indicate a comparable impact on the overall industry structure.

More information

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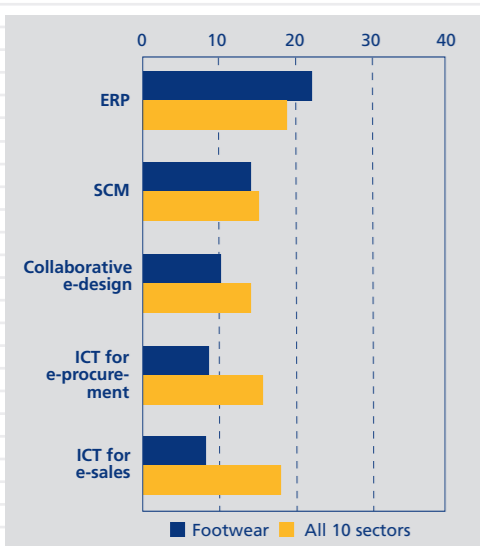
Fact-Box

The pulp, paper and paper products industry in the EU. The manufacture of pulp, paper and paper products covers business activities as specified in NACE Rev. 1.1 Division DE 21.

Total employment (EU-23):	740,000
No. of enterprises (EU-25):	18,400
% of employees working in SMEs:	50%

(Source: Eurostat SBS, latest available figures)

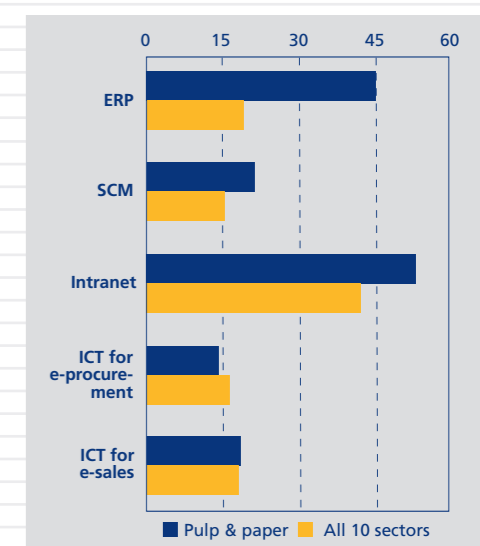
The manufacture of pulp and paper is dominated by very large, typically internationally operating companies. It is a capital intensive business. In contrast to paper manufacturing, the converting industries cover a larger number of enterprises, but these are typically much smaller firms.



	ERP	SCM	Collaborative e-design	Website
Footwear	23	14	11	58
micro (0-9)	5	8	11	33
small (10-49)	12	12	6	48
medium (50-249)	34	19	12	81
large (250+)	40	30	17	71
Pulp & paper	45	21	16	83
Telecoms	32	18	27	91
Construction	18	16	9	52
Tourism	15	16	21	83

Data for sectors weighted by employment ("firms representing x% of sector employment").
Data for size-bands in % of firms from the size-band.

Source: *e-Business W@tch* (2006)



	Intranet	ERP	SCM	papiNet standard
Pulp & paper	53	45	21	7
micro (0-9)	14	8	6	1
small (10-49)	29	18	13	3
medium (50-249)	53	45	13	1
large (250+)	74	70	41	11
Food	40	32	21	
Telecoms	76	32	18	
Construction	31	18	16	
Tourism	46	15	16	

Data for sectors weighted by employment ("firms representing x% of sector employment").
Data for size-bands in % of firms from the size-band.

Source: *e-Business W@tch* (2006)



e-Business Profile:

The ICT Manufacturing Industry

The ICT manufacturing (ICTM) industry is not only a producer of technology needed for e-business, but is itself well positioned to benefit from ICT. In fact, the prevalence of large companies, intensive competition, frequent product changes and production dispersion drive e-business adoption.

More than in other industries, companies from the ICTM industry feel a major impact from ICT on relations with business partners and on the entire value chain. By combining new tools with strategy adjustments, most companies benefit from ICT. Improving supply chain efficiency and information flows in logistics is a key areas of ICT impact.

However, competition is also intensified by ICT. The gravity of these changes has been greater in markets in which SMEs operate.

It can be expected that ICT and improved supply operations will continue to facilitate the transformation towards lean organization and lower logistics costs. Typically, large companies initiate the process of supply chain integration, imposing their interests and requirements on business down the value chain. Nevertheless, SME participation in standards setting is necessary to realize the full potential of supply chain integration.

The terms of competition in the ICTM industry are changed by technological convergence, which forces companies to expand into new business areas and to integrate business processes. At the same time, companies' success depends on user skills and the provision of complementary products by content providers. However, economic uncertainty can hamper investment in new technologies, even in this industry with a high affinity with ICT.

A significant impact of ICT specifically on the PC industry has been the adoption of demand-driven production and a standardized organisational structure. This resulted in significant inventory and overhead reduction.

More information

This sector study was conducted by DIW Berlin (www.diw.de). The full study report is available on the website at www.ebusiness-watch.org ('resources'). For more information contact Mr Daniel Nepelski (dnepelski@diw.de).

Fact-Box

The ICT manufacturing industry as defined by *e-Business W@tch* comprises business activities covered by NACE Rev. 1.1 DL 30 ("Manufacture of office machinery and computers") and DL 32 ("Manufacture of radio, television and communication equipment and apparatus").

Total employment (EU-25):	920,000
No. of enterprises (EU-25):	31,800
% of employees working in SMEs:	31%

(Source: Eurostat SBS, latest available figures)

The ICTM industry exhibits a high level of concentration. Only 3% of all enterprises have more than 250 employees, but they account for over 70% of value added and over 65% of total industry employment.

e-Business Profile:

The Consumer Electronics Industry

Two main trends are challenging consumer electronics (CE) companies. First, the industry's globalisation is forcing the worldwide integration of e-business applications. Second, the trend towards content digitisation and the increased impact of broadband on the CE market are altering the sector's output.

CE companies face serious challenges related to their supply chain activities. Challenges include highly fragmented and global supply chains, short product lifecycles and dependency on key distributors. ICT and e-business tools can support CE manufacturers in overcoming these challenges.

In fact, companies are well-equipped with basic ICT infrastructure. Simple e-business technologies are widely used. However, more complex ICT systems are less widespread than could be expected for an ICT-related manufacturing industry. For example, a relatively small share of CE companies have integrated their ICT systems with those of their customers or suppliers; and only few companies use XML or EDI-based e-business standards.

On the other hand, ICT tools that support marketing and sales activities on a global basis are increasingly important in the CE industry. Online consumer sell-through may not only help to increase revenue; CE companies' web shops are also a source of data about customers' needs and their shopping behaviour.

Fact-Box

The consumer electronics (CE) industry as defined by *e-Business W@tch* comprises business activities covered by NACE Rev. 1.1 DL 32.3 ("Manufacture of radio, television and communication equipment and apparatus").

Total employment (EU-25):	200,000
No. of enterprises (EU-25):	5,400
% of employees working in SMEs:	26%

(Source: Eurostat SBS, latest available figures)

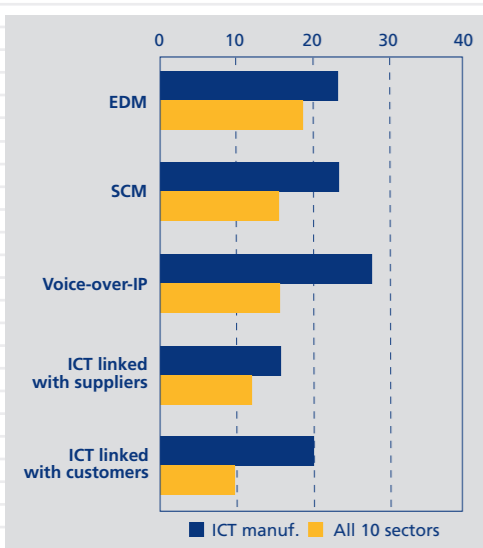
The CE sector comprises very diverse activities. First, output subsumed under the term "consumer electronics" is very heterogeneous. Second, the CE industry's manufacturing process is divided. One can distinguish roughly two groups of manufacturers: Original Equipment Manufacturers (OEMs) and Electronics Manufacturing Services (EMS).

Already today more than 70% of CE companies interviewed state that e-business accounts for a "significant part" or "some part" of the way they operate.

Digital Rights Management (DRM) and broadband convergence are very important issues in this sector, considering the role of CE companies as suppliers of ICT. Interoperability is critical for DRM integration. With multiple DRM technologies on the market, interoperability may help to make DRM implementation economic and to increase usability for consumers.

More information

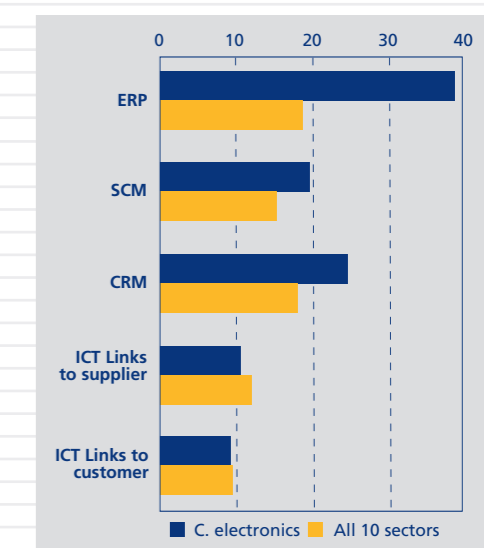
This sector study was conducted by Berlecon Research GmbH (www.berlecon.de). The full study report is available on the website at www.ebusiness-watch.org ('resources'). For more information about this study, please contact Mr Andreas Stiehler (as@berlecon.de).



	Electronic Document Management	SCM	Voice-over-IP	Firewall
ICT manuf.	24	24	28	95
micro (0-9)	15	9	18	76
small (10-49)	17	14	24	90
medium (50-249)	23	22	28	95
large (250+)	29	39	39	98
C. electronics	26	20	29	88
Telecoms	25	18	45	96
Construction	17	16	13	69
Tourism	13	16	16	81

Data for sectors weighted by employment ("firms representing x% of sector employment").
Data for size-bands in % of firms from the size-band.

Source: *e-Business W@tch* (2006)



	ERP	SCM	CRM	Order >10% of supplies online
Consumer electr.	39	20	25	39
micro (0-9)	6	5	7	51
small (10-49)	30	19	19	40
medium (50-249)	63	19	39	49
large (250+)	75	32	71	58
ICT manuf.	61	24	31	34
Telecoms	32	18	48	48
Construction	18	16	9	20
Tourism	15	16	23	30

Data for sectors weighted by employment ("firms representing x% of sector employment").
Data for size-bands in % of firms from the size-band.

Source: *e-Business W@tch* (2006)



e-Business Profile:

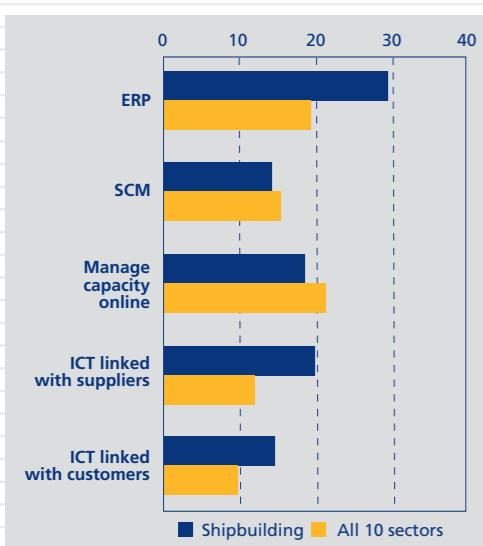
The Shipbuilding and Repair Industry

A key application area for ICT in the shipbuilding and repair industry (SRI) is the integration of engineering and production processes along the value chain. This integration has effects on the competitiveness of individual shipyards, as well as on the industry as a whole.

Due to increasing international competition, structural changes in the shipbuilding and repair industry have resulted in co-operation in engineering and production along the value chain between shipyards, subcontractors, system suppliers and suppliers for standard products. The information flow between different players within the industry has intensified.

Aside from computer aided design (CAD), e-mail and the internet, few e-business technologies such as Enterprise Resource Planning (ERP) or Supply Chain Management (SCM) are currently being used in the shipbuilding industry. The adoption of new ICT and e-business tools in the industry is slow due to the structural characteristics of the industry and complex production processes involving many different actors.

Structurally, there is a clear dichotomy between the large shipyards and the small supply firms. Most of the technologies for collaborative engineering that have been specifically developed for the shipbuilding and repair industry are mainly used by large shipyards.



	ERP	SCM	Manage capacity online	Use secure server technology
Shipbuilding	30	14	19	42
Pulp & paper	45	21	32	40
Footwear	23	14	17	21
Construction	18	16	14	26
ICT manuf.	61	24	37	57

Data for sectors weighted by employment ("firms representing x% of sector employment").
Data for size-bands in % of firms from the size-band.

Source: e-Business W@tch (2006)

Fact-Box

The shipbuilding and repair industry (NACE Rev. 1.1 DM 35.11) is a sub-sector within the transport equipment manufacturing industry (NACE 35).

Total employment (EU-25):	260,000
No. of enterprises (EU-25):	7,200
% of employees working in SMEs:	Not available

(Source: Eurostat SBS, latest available figures)

The shipbuilding industry is composed of several different sub-sectors, with a distinction between the construction of merchant and naval ships, the repairing and conversion of ships and the different suppliers of marine equipment and engineering services.

e-Business Profile:

The Construction Industry

Large construction enterprises have increased their awareness of ICT-related opportunities. They have started to adopt advanced ICT solutions such as e-procurement systems, collaborative design systems (3D technology) and tools for collaborative document sharing (project webs).

Until recently, the construction industry (CI) was rather conservative in its attitude towards ICT and e-business. One of the main reasons is that the typical nature of the service provided in construction – being an on-site and often highly customised service – does not lend itself to typical e-business concepts.

Nevertheless, large construction enterprises and the public sector are now driving ICT uptake in the CI. They have the financial resources, human capital and ICT capabilities which are necessary to benefit most from ICT. The public sector could further accelerate development, both as a major buyer of construction services and via policy initiatives.

New concepts such as strategic procurement are enhanced by the use of e-procurement as a tool. Centralisation of tendering, establishment of framework contracts, consolidation of the supplier base and products are often aspects of strategic procurement, and construction enterprises use e-procurement as a tool to optimise the price/quality ratio.

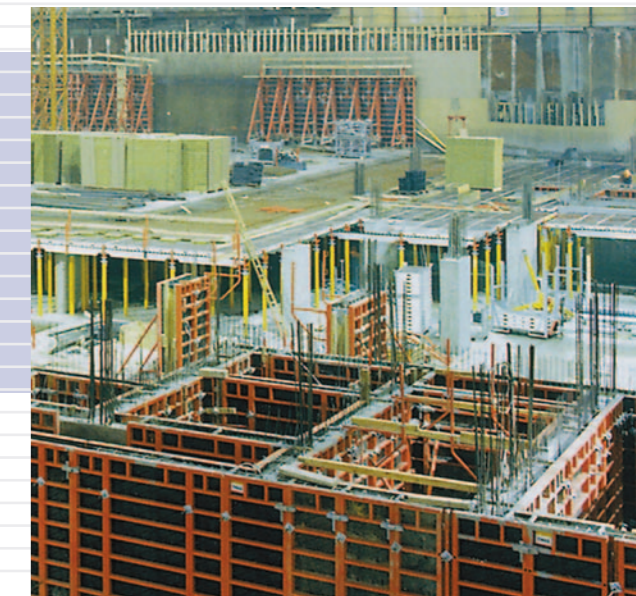
Fact-Box

The e-Business W@tch study on the construction industry focuses on business activities specified by NACE (Rev. 1.1) F 45.2 ("Building of complete constructions or parts thereof, civil engineering") and F 45.3 ("Building installation").

Total employment (EU-25):	14 million
No. of enterprises (EU-25):	1,5 million
% of employees working in SMEs:	80%

(Source: Eurostat SBS, latest available figures)

Construction is one of the largest industrial cluster in the EU, representing about 10% of Gross Domestic Product (GDP) in the EU and about one quarter of total industrial output. Activities of the construction industry can be grouped into house-building (26%), non-residential (29%), civil engineering (20%) and rehabilitation (25%).

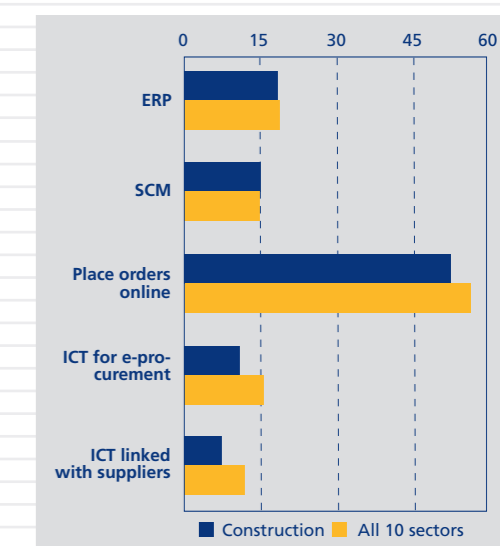


The benefits of e-tendering are first and foremost on the buyer side, however, and the development is therefore mainly driven by the public sector (public e-tendering).

Potential benefits for construction enterprises of implementing advanced ICT solutions (such as 3D, project webs) include cost reductions, risk minimisation and more precise communication between stakeholders. Barriers to the uptake of ICT include the strong adherence to traditional work flow processes, a lack of skills and capabilities for e-business, and incompatibility between different ICT technologies.

More information

This sector study was conducted by Rambøll Management (www.r-m.com). The full study report is available on the website at www.ebusiness-watch.org ('resources'). For more information about this study, please contact Mr Anders Pennerup Gantzhorn (Anders.Gantzhorn@r-m.com).



	ERP	SCM	Place orders online	Receive e-invoices from suppliers
Construction	18	16	53	18
micro (0-9)	8	10	51	15
small (10-49)	20	15	54	22
medium (50-249)	26	13	57	12
large (250+)	37	26	58	24
Footwear	23	14	35	17
Shipbuilding	30	14	62	26
Pulp & paper	45	21	59	25
Tourism	15	16	60	24

Data for sectors weighted by employment ("firms representing x% of sector employment").
Data for size-bands in % of firms from the size-band.

Source: e-Business W@tch (2006)



e-Business Profile:

The Tourism Industry

Underpinning the results of previous studies, tourism is still in the vanguard of ICT adoption and e-business in the area of e-marketing and online sales. In these areas, "e-tourism has taken off". This has considerable implications for all intermediaries: dis-intermediation and re-intermediation occur in parallel.

Rising customer expectations and market competition are the main drivers of e-business in the tourism industry, while the considerable costs associated with acquiring technologies constitute the main barriers for an even stronger ICT uptake. The e-Business Survey 2006 shows that travel agencies and tour operators are the strongest adopters of ICT and e-business, followed by the accommodation sector and – with much lower adoption rates – by gastronomy.

A major impact of ICT in this industry is that it enables service providers to interact directly with consumers, thus bypassing traditional intermediaries such as travel agencies and tour operators. However, the extent of dis-intermediation differs between sub-sectors. While, for example, the accommodation sector is only partially affected by dis-intermediation, specific branches of the transport sector, especially the aviation industry, tend to be strongly affected.

Yet ICT solutions may also provide new opportunities for traditional players and newly emerging online intermediaries. Many new market entrants who operate exclusively online successfully provide intermediary services, while some bricks-and-mortar intermediaries have managed to secure their position in the market by offering value-added online services.

A relatively new trend that has attracted much attention is "dynamic packaging", which can empower customers not only to search and book single components, but to assemble and book their entire travel arrangements in real-time by means of web-based technology (configurators).

More information

This sector study was conducted by Salzburg Research GmbH (www.salzburgresearch.at). The full study report is available on the website at www.ebusiness-watch.org ('resources'). For more information about this study, please contact Mr Markus Lassnig (markus.lassnig@salzburgresearch.at).

Fact-Box

The tourism industry as defined by *e-Business W@tch* includes business activities covered by NACE Rev. 1.1 H 55 (hotels and restaurants), I 63 (travel agencies) and O 92 ("recreational, cultural and sporting activities").

Total employment (EU-25):	8,1 million
No. of enterprises (EU-25):	1,5 million
% of employees working in SMEs:	79%

(Source: Eurostat SBS, latest available figures)

The economic importance of tourism and travel has increased tremendously in the last decades, and tourism is still one of the fastest growing industries in Europe and worldwide. Europe's share of global tourism arrivals is more than 50%.

e-Business Profile:

The Telecommunications Industry

Telecommunications companies have a forerunner position as intensive users of ICT and e-business in almost all application areas. Moreover, the wide diffusion of e-business technologies also among smaller enterprises distinguishes the sector from most other industries.

The telecommunications (telco) industry has a dual role as user and supplier of ICT and e-business technologies. As a result, companies in this sector are highly familiar with the benefits of ICT and e-business technologies as well as with strategies for their integration.

In particular, the telco industry sets standards for the use of ICT in marketing, sales and customer care. These are areas of high strategic relevance in an industry which is characterised by increasing competition and limited opportunities for product differentiation. Even small companies use e-business tools for customer service in a way that could serve as role model for SMEs in other industries.

Telco companies are important for other industries as suppliers of ICT services. In this context, the convergence of platforms and technologies has a significant impact on the sector's output, on competition and on growth. The key technical trend that

currently drives convergence is the "IP transformation" of traditional services, for example the delivery of Voice over Internet Protocol (VoIP) and the provision of TV services via IP-based networks (IPTV). Mobile substitution, i.e. the delivery of conventional fixed-line services over mobile networks, is a further driver of convergence.

For telco companies, the convergence of ICT-based services opens new opportunities to use e-business for the provision of new services, as well as for automation of internal processes (e.g. billing platforms). The fast deployment of broadband is a critical enabler and growth driver here, for both the telco industry and the economy as a whole.

More information

This sector study was conducted by Berlecon Research GmbH (www.berlecon.de). The full study report is available on the website at www.ebusiness-watch.org ('resources'). For more information about this study, please contact Mr Andreas Stiehler (as@berlecon.de).

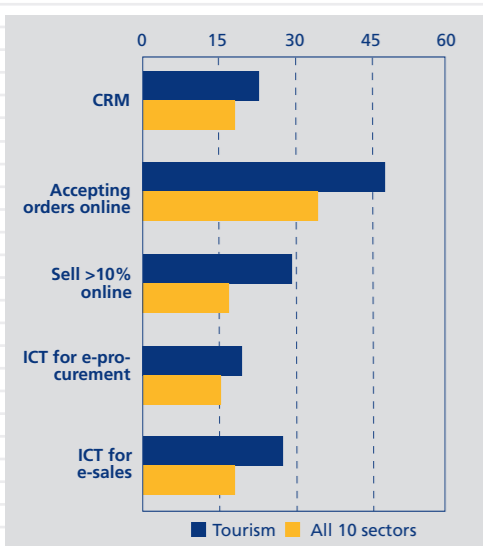
Fact-Box

The telecommunications industry comprises business activities covered by NACE Rev. 1.1 I 64.2: ("Telecommunications"). This classification without any further subdivision reflects the heritage of many companies in this sector as state monopolies. The proposed NACE Rev. 2 will distinguish between wired, wireless, satellite and other telecommunication activities.

Total employment (EU-25):	10,1 million
No. of enterprises (EU-25):	13,000
% of employees working in SMEs:	11%

(Source: Eurostat SBS, latest available figures)

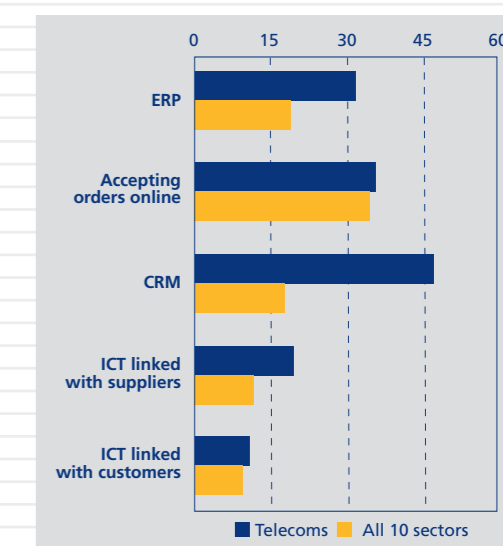
Only about 2% of all telecommunication companies employ more than 250 people; however, these companies account for the overwhelming share of value added and people employed in this sector. The supplier landscape is highly fragmented with regard to the heterogeneous platforms used for data transmission and the different types of content transferred.



	CRM	Accept orders online	Receive >10% of orders online	Have a website
Tourism	23	49	30	83
micro (0-9)	10	35	16	65
small (10-49)	18	46	26	84
medium (50-249)	20	55	31	86
large (250+)	40	61	42	98
Food	14	31	7	70
Consumer electr.	25	25	10	84
Telecoms	48	36	18	91
Construction	9	13	4	52

Data for sectors weighted by employment ("firms representing x% of sector employment").
Data for size-bands in % of firms from the size-band.

Source: *e-Business W@tch* (2006)



	ERP	Accept orders online	CRM	Use digital signature
Telecoms	32	36	48	38
micro (0-9)	9	40	21	20
small (10-49)	21	37	36	37
medium (50-249)	32	35	55	37
large (250+)	53	63	74	74
ICT manuf.	61	26	31	32
Consumer electr.	39	25	25	27
Construction	18	13	9	19
Tourism	15	49	23	18

Data for sectors weighted by employment ("firms representing x% of sector employment").
Data for size-bands in % of firms from the size-band.

Source: *e-Business W@tch* (2006)



e-Business Profile:

The Hospital Sector

Almost all European hospitals have at least an electronic system for patient data and financial administration. However, only few of them use more sophisticated systems, and departmental information systems are often not integrated with each other.

Core drivers of e-business in hospitals include cost containment, improvement of quality of care, and state regulations, for example the implementation of Diagnosis-Related Groups. On the other hand, the survey revealed security challenges and expensive technology as the most important barriers to ICT investment. The importance of certain barriers in hospitals is quite different from other sectors.

Hospital Information Systems can help to cope with the huge amount of data a hospital has to deal with, they can enhance communication among professionals and bring useful knowledge to them, and they can make processes more efficient. However, while 83% of the hospitals in the sample have a computerised patient administration system, only 27% said they have a Radiology Information System, and only 12% transmit prescriptions electronically. Furthermore, often these systems are not integrated with each other inside the hospital.

The main reason for a lack of integration may be managerial shortcomings in hospitals, related to an often fragmented organisation and insufficient strategic ICT planning.

The role of acute care hospitals is to provide in-house, comprehensive, specific and round-the-clock care. This role may change due to ICT. The analysis suggests that ICT impacts mainly on the need for in-house care. Most importantly, electronic communication between hospitals, general practitioners and patients may make a patient's visit to the hospital unnecessary. The hospitals' boundaries potentially become more permeable; the role of hospitals may slowly shift from an in-house care provider to an out-bound communicator.

More information

This sector study was conducted by empirica GmbH (www.empirica.com). The full study report is available on the website at www.ebusiness-watch.org ('resources'). For more information about this study, please contact Mr Stefan Lilischkis (stefan.lilischkis@empirica.com).

Fact-Box

Hospital activities, as defined in class 85.11 of NACE Rev. 1.1, are a sub-section of human health activities (Division 85.1) which comprise medical, surgical technical and other related on-site care activities.

Total employment (EU-25):	(e) 2,5 million
No. of enterprises (EU-25):	(e) 13,000
% of employees working in SMEs:	Not available

(Source: Eurostat SBS, latest available figures)

(e) = estimated on the basis of figures for the former EU-15 (no figures available for EU-25) Hospitals are a large service sector both in terms of employment and value added. Hospital activities include short- or long-term hospital activities of general and specialised acute care hospitals as well as related organisations such as psychiatric hospitals, sanatoria, medical nursing homes, including prison and military hospitals.

Special Study:

The Impact of ICT on Corporate Performance, Productivity and Employment Dynamics

As a typical general purpose technology, ICT has a wide range of applications and a large impact on economic activity.

The key to understanding the impacts of ICT on performance is to view ICT as an enabler of innovation. Process innovations can be enabled by e-business and ICT investments in general, on condition that the implementation of new ICT succeeds, the routines are changed, and the new system is actually utilized. ICT investments can also enable product or service innovations at the enterprise level.

The share of growing firms is significantly higher among the innovators. 70% of firms that conducted ICT-enabled innovations report turnover growth. Also, 60% (63%) of firms that used traditional, non-ICT enabled product (process) innovation experienced turnover growth in 2005. In addition, innovative firms were significantly less likely to exhibit a decrease in turnover compared to non-innovative firms. In contrast, only 44% of firms that did not conduct any kind of innovation in 2005 experienced increased turnovers that year. More advanced users of ICT and innovative firms are also more likely to exhibit productivity increases than non-innovative firms at all stages of ICT development.

Advanced users of ICT are more likely to exhibit increases in employment. Furthermore, firms that conduct product innovations, whether they are ICT-related or non-ICT-related, are more likely to increase employment. Only 22% of non-innovative firms report an increase in employment, compared to 34% of firms that carried out non-ICT-enabled product innovations and even 43% of firms that had ICT-enabled product innovations.

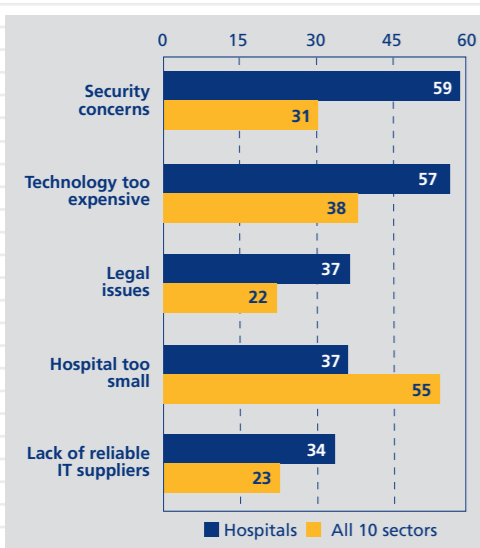
The data suggest a similarly positive pattern for process innovations. Employment increased in 2005 in 37% of firms that conducted non-ICT-enabled-, and 43% of firms that reported ICT-enabled process innovations.

Firms with a high share of college-educated employees tend to be more advanced users of ICT and vice versa. This is consistent with the view that a highly skilled workforce and intense ICT usage complement each other. This could lead to changes in the labour market which over-proportionately benefit highly skilled individuals.

Ongoing public policy action is mainly needed in two areas. First, policy makers should focus on improving the framework conditions for innovation in general; this includes education, R&D, and market regulation. Second, recent technological developments should be monitored and analyzed in order to inform governmental institutions, industry, and the interested public about the implications of these developments.

More information

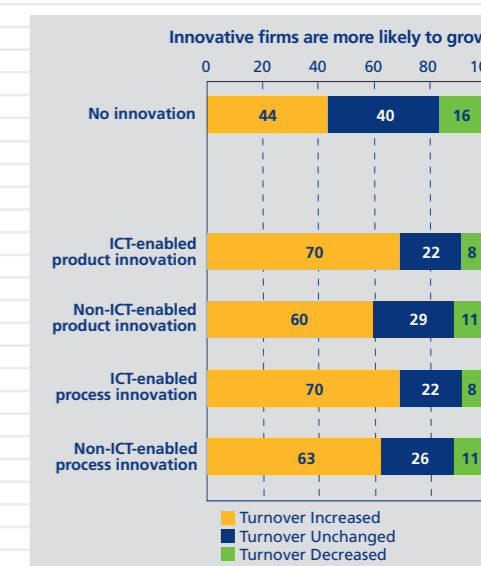
This special study was conducted by DIW Berlin. For more information about this study, please contact Dr. Philipp Koellinger (koellinger@few.eur.nl). The full report is available at www.ebusiness-watch.org ('resources') by the end of 2006.



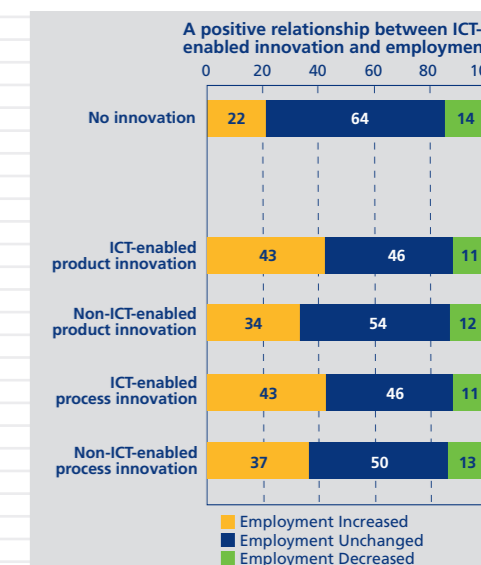
	ERP	Computerised Physician Order Entry	HL7 standard	Electronic transmission of prescrip.
Hospitals	33	29	41	21
micro (0-9)	3	3	0	2
small (10-49)	8	15	11	7
medium (50-249)	24	22	22	13
large (250+)	36	31	46	24

Data in % of hospitals.

Source: e-Business W@tch (2006)



Base (100%): All companies. N = from 12,721 to 12,799 depending on missing values, in % of firms.



Base (100%): All companies. N = from 13,516 to 13,610 depending on missing values, in % of firms.

Source: e-Business W@tch (2006)

Special Study:

The Role of New Companies in e-Business Innovation and Diffusion

A Special Study by *e-Business W@tch* in 2006 found that new companies play an important role in innovation and diffusion of e-business applications in various sectors. However, there is also evidence that many new companies are not innovative at all as far as e-business is concerned.

Research findings from this report confirmed the assumption that new companies play an important role in introduction and uptake of new e-business applications in many industries. However, there were also statements from some industry representatives that there are no significant differences between new and established companies in this respect. At company level, the impact of new companies on e-business innovation and diffusion depends on the importance of e-business in their business model. On an aggregate level, the impact of new companies on e-business innovation and diffusion differs between industries, regions, types of technologies and stages of the innovation process.

The e-Business Survey 2006 for the first time offered the opportunity to analyse data by the age of the company. Overall, 9% of the survey companies were founded between 2006 and 2003, 22% between 2002 and 1997, a relative majority of 42% was founded between 1996 and 1981, and 26% were founded before 1981. The findings indicate that new companies are more innovative than established companies with regard to ICT and e-business. However, the age class differences are not large.

New companies have a lead in ICT-related product, service and process innovation. Product and service innovation activity declines with company age, and there are considerable differences for ICT-related product or service innovation: 62% of the innovative firms founded 2006 – 2003 introduced new ICT-related products

or services in the past twelve months, followed by the age classes of 2002 – 1997 (58%), 1996 – 1981 (53%) and before 1981 (49%). Furthermore, companies founded 2003 – 2006 had the highest level of all age classes (79%) with regard to the introduction of ICT-related new business processes in the past year, followed by “before 1981” (74%), 2002 – 1997 (73%) and 1996 – 1981 (70%). The levels of innovativeness by age class differ considerably between sectors so that a different composition of sectors may lead to different overall results.

Start-ups tend to have the highest percentage of use of particularly innovative e-business applications. New companies have the highest use of VoIP of all age groups (24%) and they are at the same level with companies founded before 1981 as regards e-Invoicing (20%) and RFID (4%).

In common e-business applications, new companies do not have a clear lead. New companies are behind other age classes in ERP (Enterprise Resource Planning), SCM (Supply Chain Management) and CRM (Customer Relationship Management); these systems are more beneficial for large than for small companies.

More information

This study was led by empirica GmbH. For more information about this study, please contact Dr. Stefan Lilischkis (stefan.lilischkis@empirica.com). The full report is available at www.ebusiness-watch.org ('resources') by the end of 2006.

Outlook:

Where Companies Expect ICT to Influence Their Business in the Future

Firms expect that ICT will have a significant impact on how they do their business in the future. In particular, they believe that ICT will become even more important as a tool to support planning, decision making and controlling.

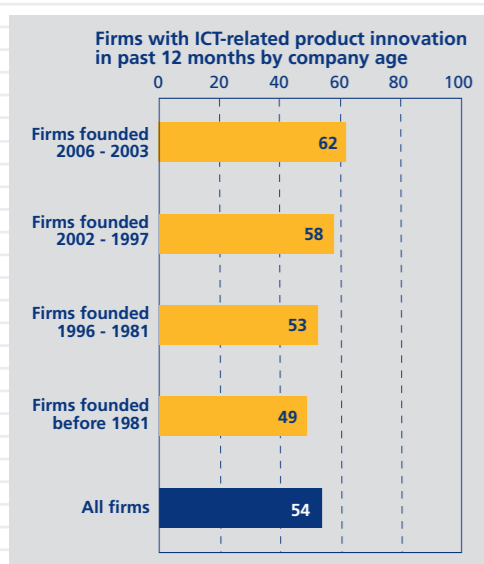
Without doubt, management and controlling functions in an enterprise depend critically on ICT systems. They provide information faster, more flexibly and more concisely than would otherwise be possible. In larger enterprises, many of the regular management reports (e.g. from controlling) are automatically generated from ICT based information systems.

However, there are some pronounced differences between small firms and large companies in how they see the future impact of ICT. In general, large firms expect a much more significant impact – this holds true for all business functions. For example, while about 50% of large companies expect a “high impact” on management and accounting, only 25-35% of small firms do. Similarly, relatively more large companies than small ones expect that ICT will have a high impact on their future marketing activities and on customer support functions.

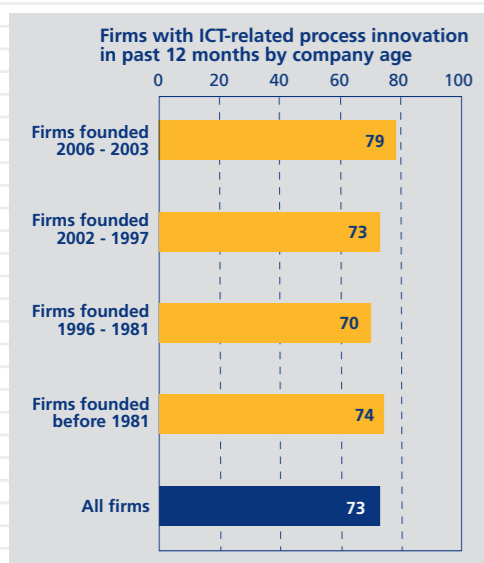
It is interesting that marketing and customer support have overtaken production and logistics as primary application areas for ICT in the scenario of large firms. This applies not only to service sectors such as tourism and telecommunications (obvious for these industries), but increasingly also to manufacturing sectors; for example, even in a traditional production-focused sector such as the pulp and paper industry, customer support is perceived as a key function of ICT in the future.

These findings confirm the impression that e-business is increasingly evolving from a tool for cutting costs into an instrument that helps companies serve their customers better. The development in B2C focused service industries now seems likely to take place in B2B- focused manufacturing industries.

Thus, the use of ICT in business is probably far from having reached its zenith. It is an evolutionary development which can be described in terms of innovation life-cycles. The current life-cycle has been characterised by a focus on process efficiency and was led by large players in the private and public sectors. The next life-cycle (which is now beginning to emerge) could see companies go beyond this goal. They will increasingly use ICT not only as a tool to run their business, but to change their business. In the long run, most business will probably be “e-business” in one way or another.

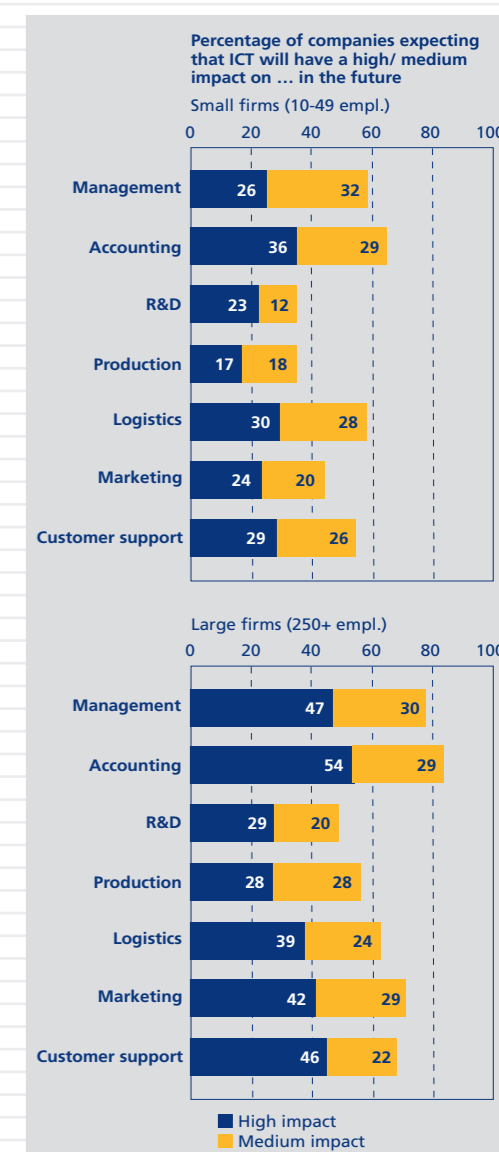


In % of firms stating product or service innovation in the past 12 months. N = 5,542.



In % of firms stating process innovation in the past 12 months. N = 4,599.

Source: *e-Business W@tch* (2006)



Base (100%): Companies with computers, EU-10, 10 sectors. N = 2159 (small firms) / 670 (large firms). In % of firms. Survey question: “Do you expect that ICT will have a high / medium / low impact or no impact on <business function> in your company in the future?”

e-Business Survey 2006:

Methodological Notes

Interviews conducted in the e-Business Survey 2006			
NACE Rev. 1.1	Sector name	No. of firms in EU-25*	No. of interviews
DA 15 (most groups)	Food and beverages	282,000	1,709
DC 19.3	Footwear	13,700	980
DE 21	Pulp, paper and paper products	18,400	1,158
DL 30, 32.1+2	ICT manufacturing	31,800	1,687
DL 32.3	Consumer electronics	5,400	665
DM 35.11	Shipbuilding and repair	7,200	150
F 45.2+3 (most classes)	Construction	1,546,000	2,655
H 55; I 63.3;			
O 92.33/52+53	Tourism	1,500,000	2,663
I 64.2	Telecommunication services	12,900	1,580
N 85.11	Hospital activities	(e) 18,000	834

(*) mostly based on Eurostat SBS (latest available figures); (e) = estimate

e-Business W@tch collects data on the use of ICT and e-business in European enterprises by means of representative surveys. The e-Business Survey 2006 was the fourth survey after those of 2002, 2003 and 2005. It consisted of 14,081 telephone interviews with decision-makers in enterprises from 29 countries, including all EU Member States as well as EEA and Candidate Countries. In 10 countries ("EU-10"), all 10 sectors were covered; in the other countries, selected industries were surveyed. In most countries, between 400 and 750 interviews were conducted. The survey field work was coordinated by Ipsos GmbH.

Interviews were carried out in March and April 2006, 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 without a separate IT unit, the managing director or owner was interviewed. As in 2005, the survey included only companies that used computers.

Weighting

For data presentation, two weighting schemes have been applied: weighting by employment and weighting by the number of enterprises. Employment-weighted data should be read as "enterprises comprising x% of employees" in a sector or country.

Statistical accuracy – confidence intervals

For totals of all 10 sectors (in the EU-10), an accuracy of about +/- 3 percentage points can be expected for most values that are expressed as "% of firms", and of about +/- 2 percentage points for values that are weighted by employment. The confidence intervals for industry totals (EU-10) differ considerably depending on the industry and the respective value; on average, it is about +/- 5 percentage points (in both weighting schemes). Differences lying within these intervals should not be emphasised. Confidence intervals are highest for the shipbuilding and repair industry, due to the small number of observations. Data for this industry are therefore indicative.

Non response

In a voluntary telephone survey, in order to achieve the targeted interview totals, it is always necessary to contact more companies than just the number equal to the target. In addition to refusals, or eligible respondents being unavailable, any sample contains a proportion of "wrong" businesses (e.g., from another sector), and wrong and/or unobtainable telephone numbers. The completion rate (= the number of completed interviews divided by the net sample of contacts established with eligible enterprises / hospitals) was typically about 15-20%, with, however, big differences in some of the countries.

More information

More detailed information about the e-Business Survey 2006 is available at the e-Business W@tch website (www.ebusiness-watch.org) in the "about" section (see: "methodology").

Networking and Debate:

The Advisory Board of 2006

To validate research findings, e-Business W@tch seeks regular exchange and debate with international experts on ICT, e-business and specific sectors. The Advisory Board of 2006 consists of 20 industry representatives, researchers and business consultants. Board members offer comments on reports, provide input to the research, and thus help e-Business W@tch to identify the relevant trends and to set research priorities. Their services are gratefully recognised.



Advisory Board			
Member	Affiliation	Appointed for sector / expertise in	Country
Mr Martin Baker	Tor Consulting	Footwear industry	UK
Mr Dimitrios Buhalis	University of Surrey	Tourism	UK
Mr Jesús Galván	Schiller International University, Madrid	Telecom industry	Spain
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