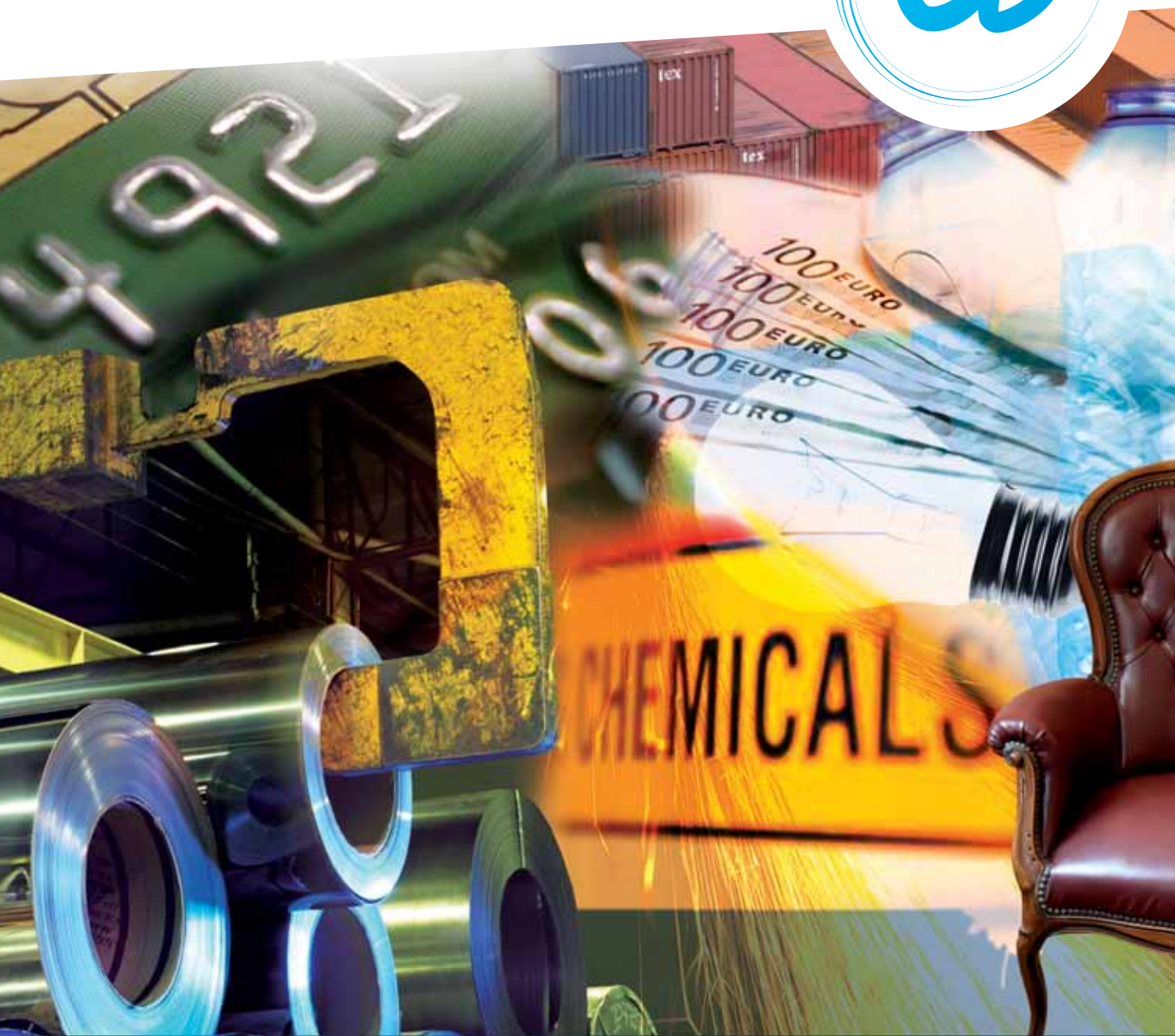




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# e-Business in Europe – 2008

Industry perspectives on  
e-business developments and ICT impact

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## The Sectoral e-Business Watch

The «Sectoral e-Business Watch» (SeBW) studies the adoption, implications and impact of electronic business practices in different sectors of the economy. It continues activities of the preceding «e-Business W@tch» which was launched by the European Commission, DG Enterprise and Industry, in late 2001, to support policy in the fields of ICT and e-business. The SeBW is based on a Framework Contract and Specific Contract between DG Enterprise and Industry and empirica GmbH, running until June 2008, with a possible extension of 16 months for two times.

In ICT-related fields, DG Enterprise and Industry has a twofold mission: to enhance the competitiveness of the ICT sector, and to facilitate the efficient uptake of ICT for European enterprises in general. The services of the SeBW contribute to achieving these goals, by supporting informed policy decision-making in these fields.

A cornerstone of the research is the conduct of surveys among decision-makers in European enterprises about their use of e-business. The resulting data enable the study team to analyse drivers and impacts of ICT adoption. In 2007/08, ten sectoral and thematic studies have been conducted. This brochure presents some of the results. The full sector studies, and further resources such as Table Reports with survey results in detail, can be downloaded from the programme's website ([www.ebusiness-watch.org](http://www.ebusiness-watch.org)).

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### Imprint

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## Closing the Productivity Gap



**P**roductivity growth is a key driver of competitiveness and welfare. The European Competitiveness Report 2007 brings good news for Europe in this regard: the labour productivity gap with the US shrank in 2006 after widening continuously over the last decade. The latest data for manufacturing sectors show that this development continued in the first half of 2007.

However, even if the trend has been reversed, there is no reason for complacency. Labour productivity levels in the US still remain significantly higher than in the EU - by 26% (2005) in terms of GDP per hour worked. This is mainly caused by differences in total factor productivity (TFP), which is the part of productivity growth generated by intangible factors such as technical progress or organisational innovation rather than by capital inputs.

The wide adoption and effective use of ICT is considered to be a key factor for TFP growth. The Commission's "Sectoral e-Business Watch" therefore aims not only to monitor the adoption of ICT in different sectors, but also to assess the impact of ICT for TFP growth, using econometric analysis. This brochure presents the first results of the new Sectoral e-Business Watch studies of 2007/08. The figures are promising; the overall picture is one of dynamic e-business development in Europe, in manufacturing as well as service sectors. More companies are "e-ready" now; that is, they are equipped with ICT systems supporting electronic data exchange with business partners while a significant proportion of enterprises are reporting ICT-enabled innovations in products and processes. If this positive momentum can be maintained, Europe has a good chance of further closing the productivity gap with the US and strengthening its international competitiveness.

The European Commission's DG Enterprise and Industry is determined to further enhance this progress. Among the policies most relevant to TFP growth are those designed to foster technological progress, innovation, research and the use of ICT. The research conducted by the Sectoral e-Business Watch supports our policy activities in this domain by providing facts and figures about e-business and ICT usage in various sectors and assessing their implications.

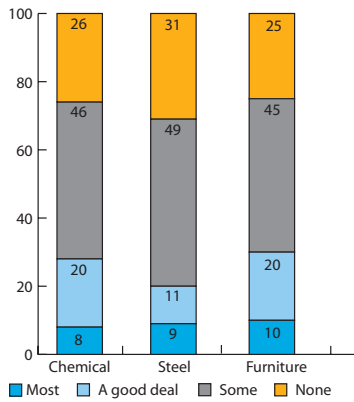
Costas Andropoulos  
Head of Unit for "ICT for Competitiveness and Innovation"  
European Commission, DG Enterprise and Industry

## e-Business in Manufacturing Industries: Chemical, Steel, Furniture

In 2007, surveys of the Sectoral e-Business Watch included the following manufacturing sectors: chemical, rubber and plastics; steel, and furniture. In total, about 2,100 companies (with at least 10 employees) from these sectors in 7 EU countries (France, Germany, Italy, Poland, Spain, Sweden and the UK) and the USA were interviewed about their e-business usage<sup>1</sup>.

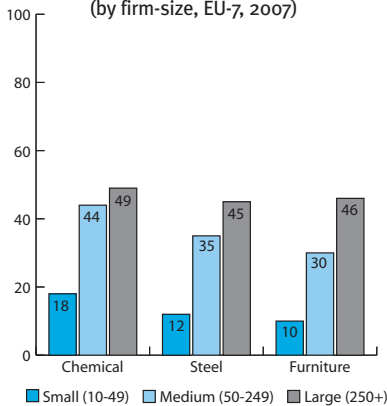
e-Business is already widely used in the sectors studied. Companies representing 20-30% of employment in these sectors said that "most" or "a good deal" of their business processes were conducted electronically; 45-50% said that this was the case for some of their processes. About a quarter of all firms says they do not have any e-business processes."

% of companies\* saying that ... of their business processes are conducted electronically (EU-7, 2007)

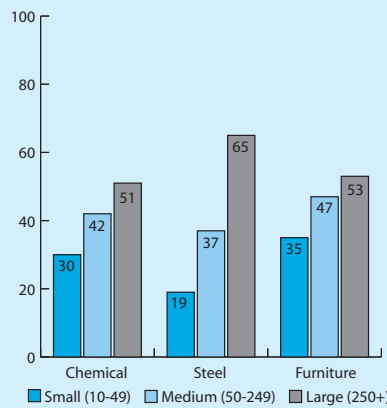


\* weighted by employment (firms representing x% of sector employment).

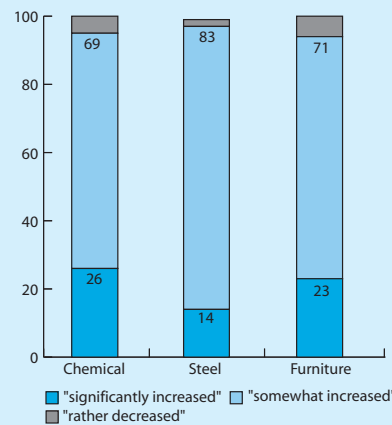
% of companies that have experienced pressure from customers to adapt their ICT solutions or data exchange formats (by firm-size, EU-7, 2007)



% of companies saying that ICT has an impact on competition in their sector (by firm-size, EU-7, 2007)



Of those: % of companies\* saying that competition has ... due to ICT (EU-7, 2007)

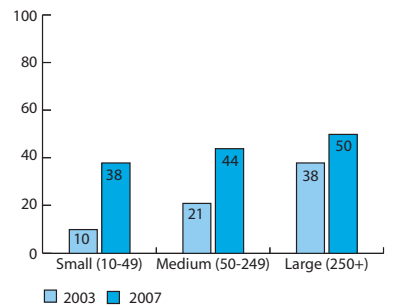


\* weighted by employment (firms representing x% of sector employment).

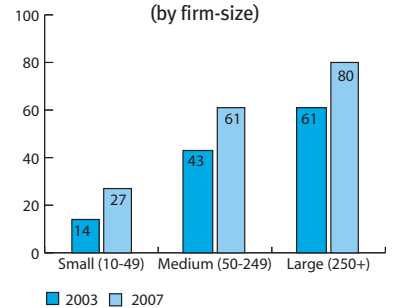
### Dynamic ICT & e-business adoption: the example of the chemical, rubber and plastics industries

The quality of companies' ICT infrastructure has significantly improved in the past 3-4 years, notably among SMEs. For example, the share of small firms in the chemical industries (with 10-49 employees) that have broadband internet connections has increased from 10% in 2003 to nearly 40% (2007). Also, the installed base of advanced e-business software systems has increased. As a result of the improved "e-readiness", more companies have taken to e-commerce (see Exhibits).

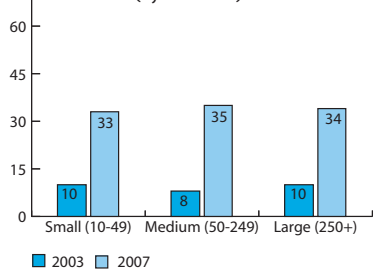
% of companies with internet access with >2 Mbit/s (by firm-size)



% of companies with an ERP system (by firm-size)



% of companies selling online (2003) / accepting orders online (2007) (by firm-size)



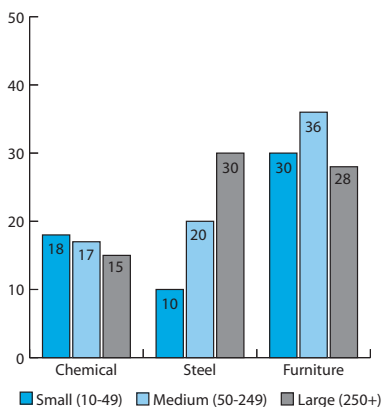
Companies from 5 EU countries (2003) / 7 EU countries (2007), in % of firms.

<sup>1</sup> for more background on the survey, see p. 22

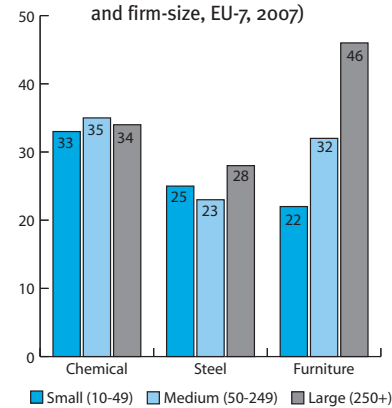
### e-Commerce adoption

The role of e-commerce, and the methods used to sell products online, differ between sectors. For example, electronic catalogues which facilitate e-commerce exchanges are more common in the furniture industry than in the chemical and steel sectors. In the chemical industry, about a third of all firms enable customers to order products online; in the steel industry, about a quarter of all firms do so. In furniture, the use of e-commerce increases by firm-size. The relative share of online orders (as % of total orders received) is highest in the chemical industry. Here, nearly 30% of firms say that they receive more than 50% of their orders online.

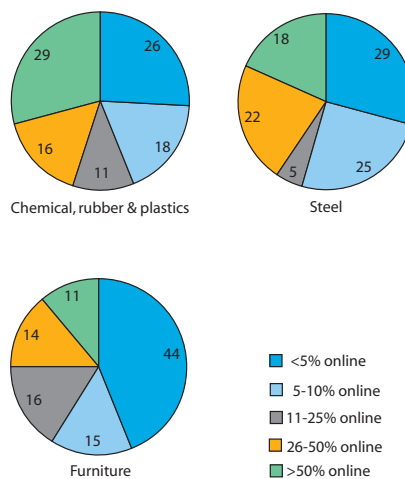
% of companies operating an e-catalogue which describes their products based on an industry standard for catalogues (by sector and firm-size, EU-7, 2007)



% of companies enabling customers to order goods or services online on the internet or through other computer networks (by sector and firm-size, EU-7, 2007)



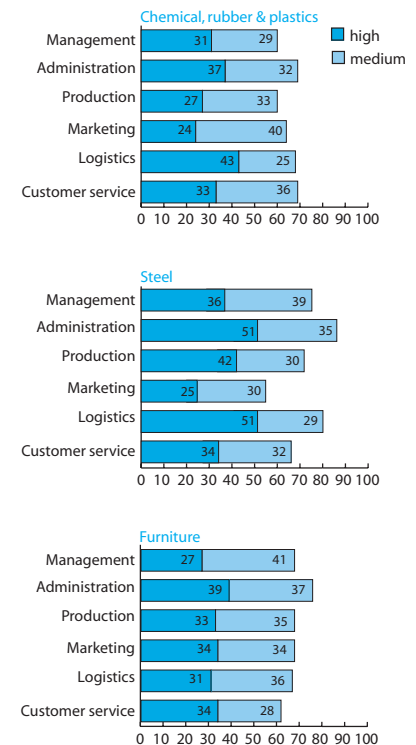
Share of orders received online: % of companies that receive ... % of their orders online (Base: companies accepting online orders, EU-7, 2007)



### The future impact of ICT

A majority of companies expects that ICT will have at least some impact in almost any area of business, notably to support management and administration processes, in logistics and customer service. The pattern is similar for the three sectors studied. In the steel industry, companies expect ICT to be particularly relevant in administration, production and logistics. In general, large firms expect ICT to have a higher impact on these business functions than smaller companies.

% of companies\* expecting that ICT will have a high / medium impact on ... (EU-7, 2007)



### More information

For each of the sectors surveyed, a comprehensive Table Report with survey results can be downloaded from the e-Business Watch web at [www.ebusiness-watch.org/statistics/table\\_chart\\_reports.htm](http://www.ebusiness-watch.org/statistics/table_chart_reports.htm). Researchers can request the micro-data from the survey (in SPSS format) to conduct analytical research. Applications can be made online at [www.ebusiness-watch.org/statistics/phpfmg/ini/application.php](http://www.ebusiness-watch.org/statistics/phpfmg/ini/application.php).

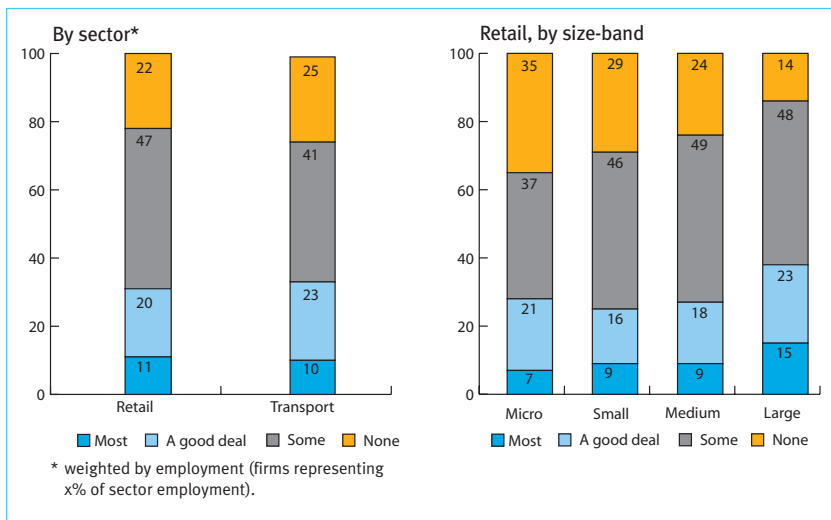
\* weighted by employment (firms representing x% of sector employment).

## e-Business in Service Sectors: Retail, Transport & Logistics

Another survey of 2007 focused on the retail, transport and logistics services sectors. In total, about 2,100 companies (including firms of all size-bands) from these sectors in 7 EU countries (France, Germany, Italy, Poland, Spain, Sweden and the UK) and the USA were interviewed about their e-business usage<sup>2</sup>. The following charts present some of the results.

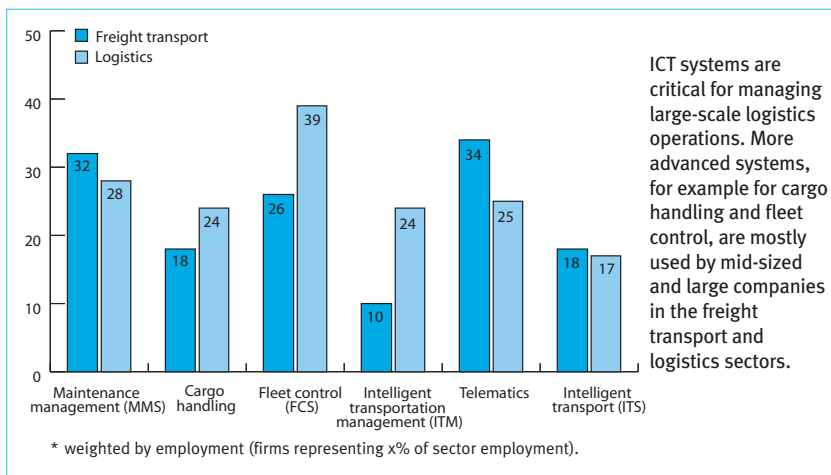
"Companies representing more than 30% of employment in the retail and transport services industries said that "most" or "a good deal" of their business processes were conducted electronically; close to 50% said that this was the case for some of their processes."

% of companies\* saying that ... of their business processes are conducted electronically (EU-7, 2007)



### Use of specific software systems in the transport services sectors

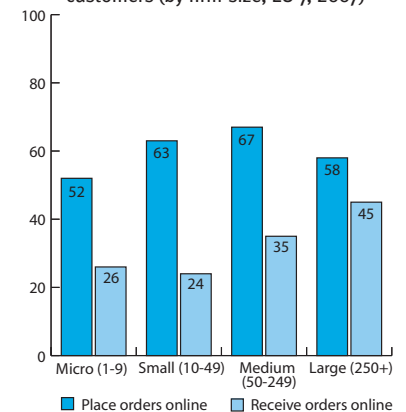
% of companies\* using a ... system / technology (EU-7, 2007)



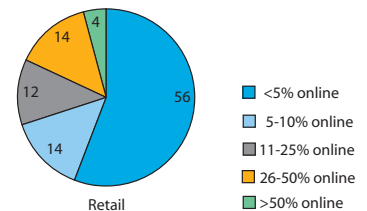
### e-Commerce in the retail sector

More than half of all retail companies use e-business in exchanges with their suppliers. Even among the smallest firms (with up to 9 employees) more than 50% place at least some of their orders online. About a quarter of small retailers (with up to 49 employees) enable their customers to order goods online. Only a few of them are specialised online retailers; in most cases, the share of orders received online is only up to 10%.

Retail: % of companies ordering online from suppliers / receiving online orders from customers (by firm-size, EU-7, 2007)



Retail: % of companies that receive ... % of their orders online (Base: companies accepting online orders, EU-7, 2007)



Reading example: 56% of those retail companies that receive customer orders online say that these account for less than 5% of their total orders.

<sup>2</sup> for more background on the survey, see p. 22

## The Chemical, Rubber and Plastics Industry

In the chemical, rubber and plastics (CRP) industry, the main impact of ICT is as an enabler of process innovation in production, supply chain management and B2B trading processes. As international competition increases, notably from Asian competitors, the correct e-business strategy will be important to establish a global market presence.

Companies in the CRP industries use ICT for a broad range of applications along the value chain: for procurement, in production, to support inbound and outbound logistics, for marketing, sales and customer service.

However, there is still a substantial digital divide between the advanced practices of large firms and the simpler forms of e-business predominant in most of the small companies. This creates a "chicken-and-egg" problem: asked why they do not use e-business more intensively, 60% of those companies said it was "because their customers and suppliers are not yet prepared for it". As a result, 45% of the sector's firms report that their data exchanges with business partners are still mainly paper-based.

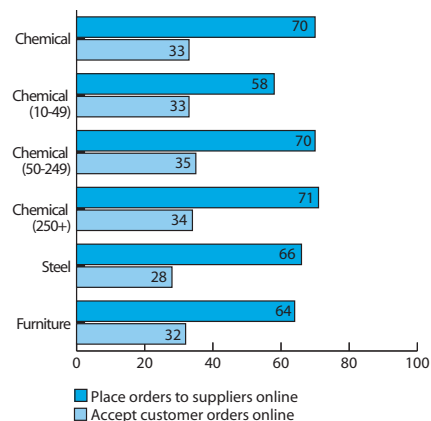
Further progress in standardised data exchange will, however, be important for the sector's competitiveness. It is a pre-condition for optimising supply chain management. Legacy systems are an issue: close to 50% of large firms and

30% of medium-sized ones use EDI. XML-based exchange formats such as those offered by CIDX (the Chemical Industry Data Exchange) could facilitate e-business uptake. Currently, close to 10% of large firms (but only 2% in total) are CIDX users.

ICT-enabled productivity gains can also be achieved through outsourcing business processes. Companies conclude deals with specialised intermediaries (such as Elemica or OB10) to facilitate their B2B electronic data exchanges in ordering and invoicing processes. About a third of all firms surveyed had outsourced ICT services in the preceding 12 months.



% of companies placing / accepting orders online (EU-7, 2007)



% of companies using e-business software systems (by sector and size-band, EU-7, 2007)

	ERP	SCM	CRM	RFID
Chemical - total	68	39	40	13
small (10-49)	27	12	18	1
medium (50-249)	61	24	30	6
large (250+)	80	52	53	18
Steel	59	27	21	12
Furniture	39	15	25	1

ERP = Enterprise Resource Planning  
SCM = Supply Chain Management  
CRM = Customer Relationship Management  
RFID = Radio Frequency Identification

Base (for chemical - total): 811 interviews in 7 EU countries (DE, ES, FR, IT, PL, SE, UK). Data for sector-totals are weighted by employment ("firms representing x% of sector employment"). Date for size-bands in % of firms from the size-band.

Source: e-Business Survey 2007

### Fact Box

The manufacture of chemicals, rubber and plastics covers business activities as specified in NACE Rev. 2 Divisions 20 and 22.

Total employment (EU-25, 2004):	about 3 million
% of employees working in SMEs:	37%

Source: Eurostat SBS, latest available figures

While the chemical industry, and in particular the manufacture of basic chemicals, is dominated by large enterprises, the rubber and plastics products industries are characterised by a much larger number of small and medium-sized enterprises, many of which are highly specialised. The sector is a major supplier to many other industries, thus playing an important role in industrial competitiveness as a whole.

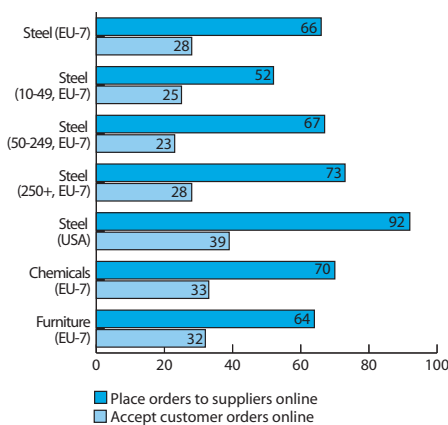
### More information

This sector study was conducted by empirica GmbH ([www.empirica.com](http://www.empirica.com)). The full study report is available on the web at ([www.ebusiness-watch.org](http://www.ebusiness-watch.org)). For more information about this study, please contact Mr Hannes Selhofer ([hannes.selhofer@empirica.com](mailto:hannes.selhofer@empirica.com)).

## The Steel Industry



% of companies placing / accepting orders online (EU-7, 2007)



% of companies using e-business software systems (by sector and size-band, EU-7, 2007)

	OMS	ERP	SCM	CRM
Steel (total EU-7)	76	59	27	21
small (10-49, EU-7)	48	21	9	7
medium (50-249, EU-7)	71	47	17	21
large (250+, EU-7)	(81)*	(71)*	(37)*	(26)*
Steel (US)	92	45	57	33
Chemical (EU-7)	81	68	39	40
Furniture (EU-7)	67	39	15	25

OMS = Order Management Software (to manage placement or receipt of orders)  
 ERP = Enterprise Resource Planning  
 SCM = Supply Chain Management  
 CRM = Customer Relationship Management

\* Percentage indicative due to small number of firms (n = 20-50)  
 Data for sector totals are weighted by employment ("firms representing x% of sector employment"). Date for size-bands in % of firms from the size-band.

Base (for steel - total): 349 interviews in seven EU countries (DE, ES, FR, IT, PL, SE, UK); 100 interviews in USA  
 Source: e-Business Survey 2007

In the steel industry, the main impact of ICT is on process efficiency along the value chain. However, the use of ICT directly for transactions, i.e. for procurement and sales, is limited. The steel industry is currently experiencing an unprecedented upturn, but international competition is increasing, notably from China. e-Business may be important for European steel enterprises to remain competitive.

The steel industry is neither an e-business laggard nor a forerunner. Intensive use of e-business in steel firms is rare, but nearly half of the enterprises in the survey (46%) stated that they use e-business for "some of their business processes". About one third (36%) said they do not use e-business at all. This is similar to other manufacturing industries.

Steel firms use ICT mainly for streamlining business processes. For example, the majority (76%, employment-weighted) have a software application to manage the placement or receipt of orders, and 59% have an Enterprise Resource Planning (ERP) system. However, the use of ICT for direct transactions is limited. Steel firms representing 66% of the sector's employment procure goods online, but raw materials are mainly bought offline. Due to the complex specificities of steel products, only 28% of the steel companies (employment-weighted) sell goods online. e-Marketplaces, which

were supposed to facilitate steel trade, were not successful in the industry.

A main driver to adopt ICT and e-business may be competition. Two thirds (65%) of the steel companies in the survey said that "rivalry in the market is increasing". Demands from customers to adopt particular e-business solutions also play a role in the steel industry, as 22% of the firms confirmed. In any case, compared to competitors in the US, European steel companies need to catch up in terms of e-business. For example, the level of steel firms procuring online is considerably higher in the US (firms representing 92% of employment versus 66% in the EU).

The majority of firms in the steel industry are small or medium-sized, but their use of ICT and e-business applications is considerably lower than in large firms. For example, while around 70% of steel firms with more than 250 employees have an ERP system, only 21% of the firms with between 10 and 49 employees have one.

### Fact Box

The manufacture of basic steel and iron products covers business activities as specified in NACE Rev. 2 Groups 24.1-3 and Classes 24.51-52.

Total employment (EU-27, 2004):	776,800
% of employees working in SMEs:	34% (in complete Division 24 of NACE Rev. 2, i.e. including basic metals other than iron and steel)

Source: Eurostat SBS, most recent available figures

While small and medium-sized enterprises (SMEs) account only for around 20% of the value added in NACE Rev. 2, 24.1-3 (manufacture and first processing of ferrous metals), the contribution of SMEs to value added in group 27.5 (foundries) is much larger, more than 50%. The steel industry is a major supplier to many other industries, in particular automobiles, construction and household appliances. It thus plays an important role in the general competitiveness of the European economy.

### More information

This sector study was conducted by empirica GmbH ([www.empirica.com](http://www.empirica.com)). The full study report is available on the web at ([www.ebusiness-watch.org](http://www.ebusiness-watch.org)). For more information about this study, please contact Mr Stefan Lilischkis - ([stefan.lilischkis@empirica.com](mailto:stefan.lilischkis@empirica.com)).



## The Furniture Industry

In the furniture industry, the main impact of ICT is as an enabler of process innovation in design, production, supply chain management and B2B trading processes. A rapidly changing environment is increasing pressure on EU furniture manufacturers. Product innovation and reduced lead times are the key success factors to remain competitive.

In the furniture industry, e-business is adopted to a lower extent than in the other manufacturing sectors analysed. Fewer individual workers in furniture companies have access to the internet at their workplace than in similar sized companies. The sector's installed base of ERP (enterprise resource planning) systems, an important backbone for B2B integration and cooperation, is low, particularly among small and medium-sized firms. The usage of ICT for B2B exchanges along the value chain for procurement, supply chain management and marketing & sales is also limited, even among the largest companies.

Furniture companies, however, are relatively advanced in the adoption of sector-specific applications in the area of design: CAD systems, 2D and 3D modelling applications. Now the goal is not only to increase the efficiency of the design process, but to foster overall integration with manufacturing and marketing & sales activities, and to exploit design and modelling tools for customer-driven innovation.

An important new trend in the design and production of furniture is sustainability and "green design".

### Fact Box

The manufacture of furniture covers business activities as specified in NACE Rev. 2 Divisions 36.1

Total employment (EU-25, 2003): about 1.2 million

% of employees working in SMEs: 51%

Source: Eurostat SBS, latest available figures

The furniture industry is characterised by a large number of small and medium-sized enterprises, many of which are specialised in one type of furniture.

### More information

This sector study was conducted by Databank Spa ([www.databank.it](http://www.databank.it)).

The full study report is available on the web at ([www.ebusiness-watch.org](http://www.ebusiness-watch.org)).

For more information about this study, please contact Ms Elena Gaboardi ([gaboardi@databank.it](mailto:gaboardi@databank.it)).

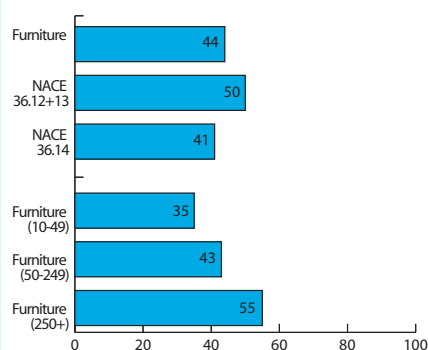
Innovative companies use ICT tools for the life-cycle assessment of furniture products and succeed in converting the additional costs into a competitive advantage.

Further progress in standardised data exchange will be important for the sector's competitiveness. Furniture manufacturers and retailers may benefit from improved interoperability and standardisation both for the integration of business processes and for the development of B2C and B2B commerce.

This is typical for the furniture industry, which involves a high number and diversity of players, mostly traditional craft companies, in the value chain. The diversity of ICT systems in place, and the completely different levels of ICT competence among players, are challenges for e-business integration - in particular between manufacturers and independent distributors. Therefore, industry associations and the European Commission have actively encouraged standardisation initiatives for the furniture industry in recent years.



% of companies using e-business software systems (by sector and size-band, EU-7, 2007)



Base: Companies from 7 EU countries (DE, ES, FR, IT, PL, SE, UK) that have launched new products during the past 12 months. N (for furniture - total): 315. Data for sector-totals are weighted by employment ("firms representing x% of sector employment"). Date for size-bands in % of firms from the size-band.

% of product innovations that were enabled by ICT (by sector and size-band, EU-7, 2007)

	ERP	SCM	CAD	CAM
Furniture (total)	39	15	72	26
small (10-49)	16	9	50	17
medium (50-249)	41	15	79	28
large (250+)	71	23	93	35
Steel	59	27	83	30
Chemical	68	39	63	31

ERP = Enterprise Resource Planning  
SCM = Supply Chain Management  
CAD = Computer Aided Design  
CAM = Computer Aided Manufacturing

Base (for furniture - total): 661 interviews in 7 EU countries (DE, ES, FR, IT, PL, SE, UK). Data for sector-totals are weighted by employment ("firms representing x% of sector employment"). Date for size-bands in % of firms from the size-band.

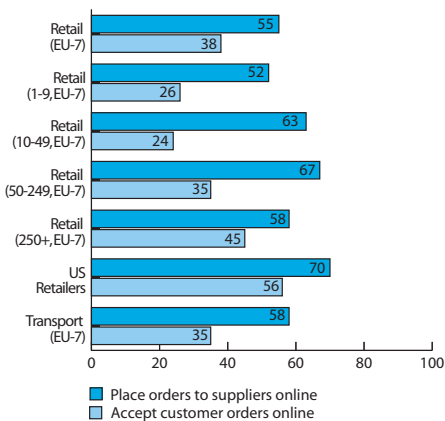
Source: e-Business Survey 2007

## Retail



According to the Sectoral e-Business Watch survey, approximately one quarter of retail firms offer customers the possibility to shop online over the internet. However, more than half of those firms report that the share of orders received online is fewer than 5% of total orders received. By contrast, 4% have specialised in online retailing and sell more than 50% of their goods online.

% of retail firms accepting and placing orders online (EU-7, 2007)



% of companies using e-business software systems (by sector and size-band, EU-7, 2007)

	ERP	CRM	Bar Coding	RFID
Retail (EU7, total)	16	20	59	8
micro (1-9)	10	9	35	0
small (10-49)	29	13	53	2
medium (50-249)	37	23	66	6
large (250+)	33	38	81	15
USA	6	35	69	15
Transport & Logistics	21	17	-	13

ERP = Enterprise Resource Planning  
 CRM = Customer Relationship Management  
 RFID = Radio Frequency Identification

Basis (for retail - total): 1026 interviews in 7 EU countries (DE, ES, FR, IT, PL, SE, UK). 125 interviews in USA  
 Data for retail, transport & logistics and USA weighted by employment ("firms representing x% of sector employment")  
 Firm-size data (micro to large) in % of firms within size-band  
 Source: e-Business Survey 2007

Internet retail sales across Europe are still low compared to the overall sales volume in stores; there is still significant growth potential for online retailing. For small and medium-sized retailers especially, selling through the internet could provide opportunities for business growth: the majority of these retail companies traditionally depend on regional markets. Yet, survey data indicate that online orders received by these types of firms, and indeed across the retail sector, are evenly split between regional and national orders. This supports the notion that retailers - and smaller ones in particular - could expand their market reach through the internet.

Close to half of all retail firms (by their share of employment) report that at least "some" of their business processes are conducted as e-business. More than 20%, however, do not conduct any e-business processes. A divide linked to firm size is apparent: while only 14% of large retail firms say they do not use e-business, the proportion is 35% for micro firms, and 28% for small firms. Of those retailers that report that only some

of none of their business processes are e-enabled, about half think that their firm is "too small to benefit from e-business activities" and 64% think that their "suppliers or customers are not prepared for e-business". A digital divide is also visible when looking at the use of specific e-business software applications (see Table).

Compared to the USA, the European technology ecosystem appears to foster the use of ERP with relatively more European retailers exploiting ERP functions than their US counterparts. However, EU retailers use relatively fewer CRM, bar coding and RFID systems than US retailers.

### Fact Box

The retail industry sector study covers business activities defined in NACE Rev. 2 Division 47: 'retail trade, except motor vehicles and motorcycles; and repair of personal and household goods'.

Total employment (EU-27, 2004):	16,971,100
% of employees working in SMEs:	64%

Source: Eurostat SBS, latest available figures

The retail industry is one of the largest economic sectors in Europe, providing employment to about 17 million people, and services to some 480 million consumers in the European Union. The industry is dominated by large global players and small firms engaging in a wide array of activities. Two types of retail activities are dominant in the EU: the sale of non-food items in stores, and the sale of food items in stores.

### More information

This sector study was conducted by empirica GmbH ([www.empirica.com](http://www.empirica.com)). The full study report is available on the web at ([www.ebusiness-watch.org](http://www.ebusiness-watch.org)). For more information about this study, please contact Ms Maria Woerndl ([maria.woerndl@empirica.com](mailto:maria.woerndl@empirica.com)).

## Transport & Logistics Services

The availability of high quality transport and logistics (T&L) services is of paramount importance for growth and competitiveness of the European economy. Strengthening the competitiveness of the sector itself therefore offers leverage that European and national policy makers could exert to enhance the economy in general. Enhanced use of ICT is a highly relevant tool to achieve this objective.

In a heterogeneous sector such as T&L, ICT applications and their impact differ widely between sub-sectors. In rail and road transport, companies make use of ITS (Intelligent Transport Systems), e-ticketing (in passenger transport) or Fleet Control Systems (in freight transport).

In the logistics sector, the concept of "e-freight" is gaining momentum. It refers to the vision of a paperless electronic exchange of freight transport-related documentation. ICT-based applications that are used by logistics service providers include Automated Warehouse Systems (AWS), Supply Chain Management (SCM), Enterprise Resource Planning (ERP) and Document Management Systems (DMS).

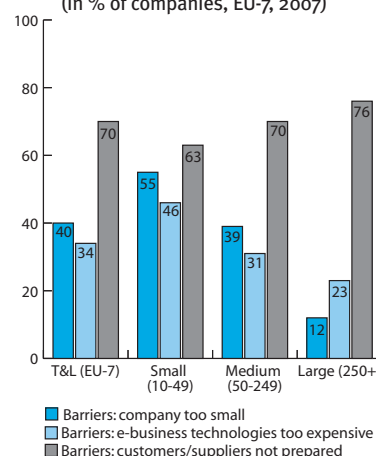
The T&L sector is characterised by a pronounced digital divide between small and large companies. While most of the large service providers use sophisticated systems to manage their - often global - operations, many of the small transport firms are still using hardly any ICT. For example, close to 70% of the large

enterprises said in the e-Business Survey 2007 that they used a Warehouse Management System, compared with only about 20% of the small firms (with 10-49 employees). A similar pattern was found for other e-business systems.

When asked why they did not use e-business in a more intensive way, 40% of the companies said it was "because they are too small," and 34% argued that "e-business technologies are too expensive". The most important barrier, however, is that companies feel that their "customers and suppliers are not yet prepared for it" (about 70%).



Barriers to e-business adoption  
(in % of companies, EU-7, 2007)



Survey question: "Is ... an important reason why your company does not use e-business more intensively?" -asked to firms that said that "some or none" of their business processes are conducted as e-business.

% of companies using e-business software systems (by sector and size-band, EU-7, 2007)

	ERP	SCM	CRM	WMS
Transport & Logistics	21	21	17	42
small (10-49)	8	8	10	22
medium (50-249)	23	16	22	45
large (250+)	41	36	26	69
Steel	59	27	21	?
Furniture	39	15	25	?

ERP = Enterprise Resource Planning  
SCM = Supply Chain Management  
CRM = Customer Relationship Management  
WMS = Warehouse Management System

Base (for T&L - total): 997 interviews in 7 EU countries (DE, ES, FR, IT, PL, SE, UK). Data for sector-totals are weighted by employment ("firms representing x% of sector employment"). Date for size-bands in % of firms from the size-band.

Source: e-Business Survey 2007

### Fact Box

The transport & logistics sector covers business activities as specified in NACE Rev. 2, Divisions 49 and 52.

Subsector	Share in total freight transport (%)	Share in total passenger transport (%)
Road Transport	44	85
Rail Transport	10	7

Source : White Paper "European transport policy for 2010: time to decide".

The transport and logistics sector is characterised by a few global players at one end and a multitude of small operators at the other. The sector is a major service provider to many other industries, thus playing an important role in industrial competitiveness as a whole.

### More information

This sector study was conducted by Altran and Consultrans ([www.altran.com](http://www.altran.com)).

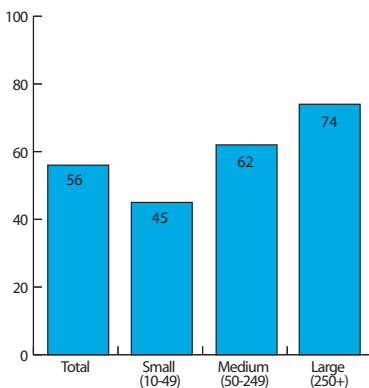
The full study report is available on the web at ([www.ebusiness-watch.org](http://www.ebusiness-watch.org)).

For more information about this study, please contact Mr Samuel Gabaly ([s.gabaly@consultrans.org](mailto:s.gabaly@consultrans.org)).

## Banking



% of companies providing financial services via the Internet (by firm-size, EU-25, 2006)



% of companies with security facilities (EU-25, 2006)

	Digital signature	Other e-authentication mechanisms	Data encryption for confidentiality
Total	36	68	61
Small (10-49)	35	60	47
Medium (50-249)	33	72	67
Large (250+)	42	81	85

Aggregation of NACE Rev. 1.1 J65.12, J65.22; J66 except for J66.02 Data of 2006  
Source: Eurostat Survey on ICT Usage and e-Commerce in Enterprises of the Financial Sector (2006)

ICT plays an important role in the Banking Industry (BI), as many banks see it as a source of competitive advantage to be able to provide financial services over the internet. Trends such as e-banking, branch renewal and ICT-enabled process efficiency influence the choice of competitive strategy in the BI. Bricks-and-mortar banks are under pressure from electronic banking concepts.

Among the sectors studied, the BI is one of the most advanced in applying ICT to service offerings and business processes. Banking products, services, and communication channels are becoming gradually more digitalised, and purely internet-based banks and dual-combination banks (a combination of internet banking and bricks-and-mortar branches) are increasingly common.

Nevertheless, there is a digital divide between large banks and SMBs (small and middle-sized banks). The SMBs are generally less capable of investing in cost-heavy ICT. Outsourcing in SMBs is, however, increasingly utilised, and independent ICT service providers are employed to handle ICT operations, which suggests that this picture is on the brink of change.

Although the BI is generally characterised by a high uptake of ICT compared to the other sectors studied, there is still room for improvement. 55% of small and 25% of large credit institutions have not yet offered

e-banking to their customers, which is a good indicator of the general ICT uptake in the industry. Security concerns among customers are particularly important in this regard, as they are thought to be a barrier to the further dissemination of ICT-enabled banking.

With the implementation of SEPA (the Single Euro Payments Area), with financial transactions becoming borderless, and with new markets opening, the industry is likely to face increased competition. The advances in ICT and SEPA present a challenge, especially to the SMBs, and policy measures aimed at this segment should seek to facilitate further ICT-uptake and ensure SEPA compliance.

### Fact Box

The Banking Industry covers business activities in financial intermediation as specified in NACE Rev. 2, Divisions 64.1, 64.19 and 64.92.

Total employment (EU-25, 2004):	3 million
% of gross value added (EU-25, 2004):	7.0 % of gross value added within the EU-25's business economy (EUR 489.4 billion)

Source: European Central Bank; Eurostat SBS - European business: Facts and figures, 2006 edition  
Europe remains a highly financial intermediation-based economy, with most savings and investment in the economy being channelled through banks. The restructuring of the BI has gained momentum since the introduction of the Euro and the European Single Market, and mergers and acquisitions in the sector have increased as consolidation has intensified.

### More information

This sector study was conducted by Ramboll Management ([www.ramboll-management.com](http://www.ramboll-management.com)). The full study report is available on the web at ([www.ebusiness-watch.org](http://www.ebusiness-watch.org)). For more information about this study, please contact Mrs Benita Kidmose Rytz ([benita.kidmose.rytz@r-m.com](mailto:benita.kidmose.rytz@r-m.com)).

## ICT Implications for Energy Consumption

The role of ICT in shaping energy needs and behaviour has increased sharply. ICT can help to reduce energy consumption and thus costs by reorganising production processes, but it can also lead to additional demand for energy for the provision of new products and services. This study by e-Business Watch aimed at analysing the relationships between ICT and energy use from an economic perspective.



The impact of growing ICT diffusion on energy consumption (and hence also on emissions of air pollutants and greenhouse gases) in ICT-using sectors is ambiguous. It depends on the relative magnitude of two countervailing forces: an income effect caused by the economic boost accruing from increased ICT use (which increases energy consumption) and a substitution effect caused by changes in the industrial structure and the capital stock towards higher productivity (which decrease energy consumption). Furthermore, the outcome depends on a number of other factors, such as the industrial structure and the previous patterns of energy use.

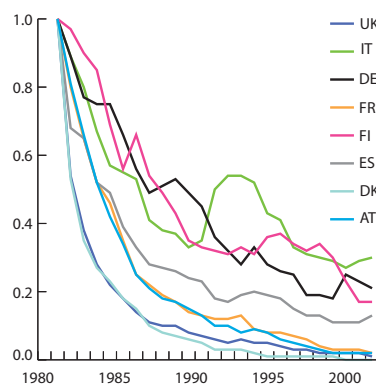
An important aspect in this context is the impact of rising energy prices on the deployment of energy-efficient and energy-saving ICT applications, i.e. the innovativeness of the ICT manufacturing sector. The demand for ICT applications that support the efficient management of energy use will increase, creating incentives for product innovation in this

field. This feedback effect has been confirmed in empirical research: energy prices and the quality of existing knowledge on the supply-side have strong positive effects on innovations. However, little research has so far been conducted on the quantitative dimension of these relationships at the aggregate or sectoral level.

Existing studies are mostly qualitative or on a case-study basis, focusing on the identification of important aspects and the identification of energy efficiency potentials.

This study, by contrast, which was still in progress when this brochure was printed, has empirically tested hypotheses on the energy consumption changes induced by the spreading of ICT in different sectors, derived from economic theory. This was complemented by case studies and a literature survey.

Ratio between intermediate energy inputs and IT capital stock, basic metals and fabricated metal industry, selected EU Member States (index ratio, 1980 = 1)



Source: EU KLEMS, illustration by FCN

Ratio between electricity consumption and ICT capital services, total and chemical industries, selected EU Member States and years (index ratio, 1995 = 1)

	Total (all sectors)			Chemical industries		
	2000	2003	2004	2000	2003	2004
AT	0.43	0.30	0.30	0.45	0.31	0.31
DK	0.36	0.23	0.21	0.41	0.17	0.14
FI	0.71	0.54	0.52	0.82	0.57	0.55
FR	0.60	0.48	0.46	0.59	0.45	0.39
DE	0.51	0.41	0.40	0.58	0.51	0.52
IT	0.58	0.49	0.47	1.30	1.41	1.44
ES	0.69	0.64	0.61	0.73	0.60	0.63
UK	0.43	0.29	0.28	0.46	0.35	0.34
EU 15	0.51	0.39	0.37	0.60	0.50	0.49

Source: Eurostat, EU-KLEMS, illustration by FCN

### Fact Box

Some business examples on the relationship between ICT usage and energy consumption: It was estimated that businesses world-wide spent approximately €44 billion on new servers in 2006. To power and cool those machines, they spent about €23 billion, almost half the cost of the equipment itself.

Source: "New technologies cut high cost of powering, cooling computers", Wall Street Journal, 1 February 2006 (Figures quoted in the article were US\$ 55 billion and US\$ 29 billion). Researchers concluded in 2004 that Japan could save energy by promoting ICT in the years to come, while further penetration of ICT in the USA, where the substitution effect is already more pronounced, might actually increase energy use.

Source: Takase, Kae; Murota, Yasuhiro (2004): "The impact of IT investment on energy: Japan and US comparison in 2010", in: Energy Policy, Vol.32, No. 11, pp. 1291-1301.

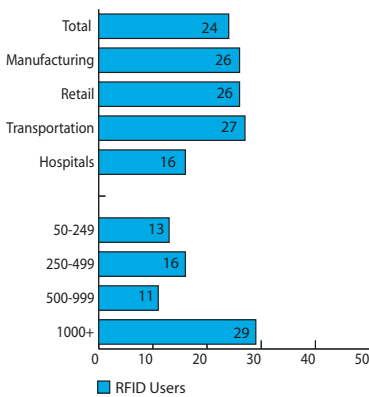
### More information

This thematic study was conducted by Prof. Dr. Reinhard Madlener, E.ON Energy Research Center RWTH Aachen University ([www.eonerc.rwth-aachen.de/fcn](http://www.eonerc.rwth-aachen.de/fcn)). The full study report will be made available on the web at ([www.ebusiness-watch.org](http://www.ebusiness-watch.org)). For more information about this study, please contact Professor Madlener ([RMadlener@eonerc.rwth-aachen.de](mailto:RMadlener@eonerc.rwth-aachen.de)).

## RFID Adoption and Implications



% of companies currently using, piloting or implementing RFID technology (by sector and size-band, EU-7, 2007)



RFID application areas (% of RFID-using firms that use it for ..., EU-7, 2007)

	person identification	inventory management	product tracking	container and pallet tracking
Total	42	70	41	39
Manufacturing	23	96	52	67
Retail trade	41	94	58	38
Transport services	75	19	15	19
Hospitals	50	42	20	0

Base (for RFID - total): 434 interviews in 7 EU countries (DE, ES, FR, IE, IT, PL, UK). Data for totals and sectors are weighted by employment ("firms representing x% of sector employment"), data for size-bands in % of firms.  
Source: e-Business Watch RFID Survey 2007

RFID (Radio Frequency Identification) is a real-time data acquisition platform for enterprises and private or public healthcare providers. If used well, it can significantly improve the performance of asset-, technology-, engineering- and brand-oriented value chains. RFID is expected to become mainstream over the next 5 to 10 years, and investments will increase.

Although the reality of RFID investment has not lived up to the hype in the past, a significant increase in implementation was evident in 2007 compared to 2006, even in the mid-tier segment of the market. Research evidence suggests that RFID penetration and actual spending are on the rise and that Europe is in the lead, as stronger increases in RFID adoption rates are anticipated compared to other regions. This is due to industry and technological advances, which have boosted confidence in RFID-driven business projects during 2007.

The increasing momentum for investment in 2008 is also a consequence of the fact that RFID will be used not only in the supply chain but also more generally to optimise business processes, and to drive informed decisions within enterprises. RFID-enabled companies can achieve on average a 12 months competitive

advantage, most often due to supply chain/operational execution optimization.

The big bet for RFID in the long run will be to enable concrete improvements in the service provided to consumers, patients, and more broadly to citizens. The rising focus on improving customer-service levels, both in the private and public sectors, will also require advances in the way enterprises and institutions measure customer service performance and customer satisfaction.

The development of RFID standards accepted globally and at European level accelerated significantly during 2006 and 2007, but technology standards should not become a moving target. The need for stability requires policy makers to support standards consolidation and to consider the development of a regulatory roadmap for a period extending beyond the next 10 years.

### Fact Box

The study by the Sectoral e-Business Watch focuses on RFID adoption in four sectors.

Sector	Sub-sectors (NACE Rev. 1.1 codes)
Retail distribution and trade	52
Transportation	Railways (60.1), other land transport (60.2), and air transport (62.1 and 62.2)
Manufacturing	Manufacture of food and beverages (15); wearing apparel (18); leather and leather products (19); pharmaceuticals (24.2); computer, electronic and optical products (30-33); motor vehicles (34)
Human health services	Hospital activities (85.1)

Overall, across EU-7 countries in the manufacturing, retail, transportation and healthcare sectors, 24% of companies have already implemented or piloted RFID. Transportation, manufacturing and retail are currently the EU-7 industries with the highest adoption levels, at over 26%. (Source: eBusiness Watch RFID Survey, 2007).

### More information

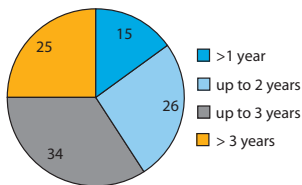
This sector study was conducted by Global Retail Insights, an IDC Company ([www.idc.com](http://www.idc.com)). The full study report is available on the web at ([www.ebusiness-watch.org](http://www.ebusiness-watch.org)). For more information about this study, please contact Mr Ivano Ortis ([iortis@idc.com](mailto:iortis@idc.com)).



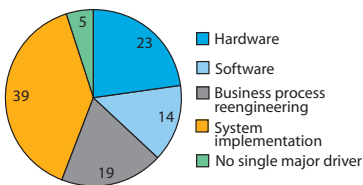
In total, about 25% of the companies (by their employment share) in the sectors surveyed said they were using, implementing or piloting RFID in 2007. The most decisive adoption factor currently is firm size: the technology is mainly used by large firms with more than 1000 employees.

Cost is still a major issue when introducing RFID technology. Companies differ in their expectations of the payback period for their investments. About three quarters of those firms using RFID expect to reach the break-even point within 3 years. Many of the users (close to 40%) report that the costs for project implementation and system integration are the major cost driver.

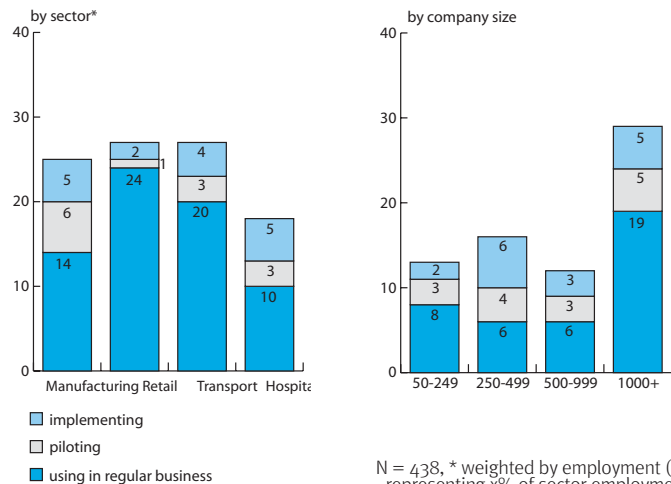
Expected payback period for RFID investments (in % of RFID-using companies, N=137, EU-7, 2007)



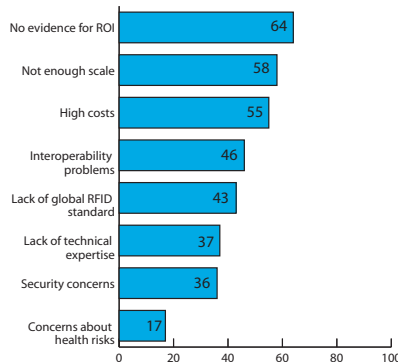
"The major cost driver for introducing RFID is ..." (in % of RFID-using companies, N = 137, EU-7, 2007)



RFID usage in companies by status: % of companies implementing / piloting / using RFID in regular business (EU-7, 2007)

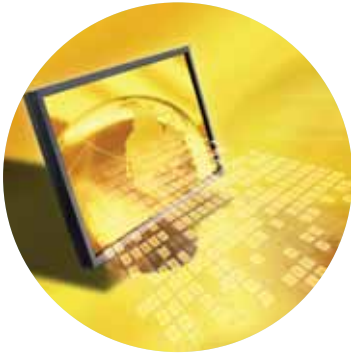


Reasons for not using / not planning to use RFID (% of companies not using / planning to use, N=353, EU-7, 2007)



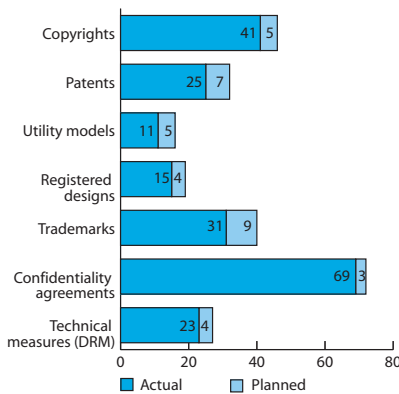
Companies that do not use RFID typically quote several reasons. More than 60% of them say that there is no convincing evidence of a strong return-on-investment (ROI); close to 60% believe that their operations do not have enough scale to justify RFID. More than 50% say that the high costs are an important factor for non-adoption.

## Intellectual Property Protection by ICT-SMEs



Intellectual Property (IP) protection is critical to the success of many ICT-producing SMEs. The Sectoral e-Business Watch conducted a study of how European ICT-SMEs use IPR (Intellectual Property Rights) protection to enhance their competitiveness and business strategies. Companies were asked what they think about the present IPR regulatory framework and possible shortcomings, and the need for a European patent and litigation system.

Ways chosen by ICT SMEs to protect their Intellectual Property (% of actual and planned use of different IP rights, both formal and informal, among European ICT SMEs, EU-8, 2007)



% of European ICT-SMEs having registered patents (EU-8, 2007)

	Patents	Patents planned	No patents and no plans
Micro firms (3-9 empl.)	17	32	50
Small firms (10-49 empl.)	7	8	8
Medium firms (50-249 empl.)	74	58	39

Base (for RFID - total): 683 interviews in 8 EU countries (DE, ES, FR, IE, IT, AT, PL, UK). In % of firms.  
Source: e-Business Survey 2007

Intellectual Property - including copyrights, patents, trademarks and trade secrets - is widely recognised as a key driver of innovation in the ICT arena. European ICT SMEs present a higher propensity to innovate than other European SMEs (see fact box). Adequately protecting and promoting IP is thus fundamental to Europe's future ICT competitiveness.

On the other hand, IP regulation is at the heart of some of the most heated competitive battles in the industry, concerning software production (including the rise of open source software and the question of the patentability of software) and concerning digital rights management for media content.

In this context there is a conflict between defenders of IP protection and stakeholders who believe that excessive regulation in this field may even obstruct innovation, rather than encouraging it. This means that IP protection is an extremely sensitive issue, where policy makers have considerable power to influence the development of the market and the competitive game.

This is particularly relevant for ICT SMEs. The use of IPR is essential for the competitiveness of three groups of ICT SMEs:

- start-ups and new technology-based firms (NTBF), whose business model is based on IP;
- software SMEs (particularly copyright, which is essential to guarantee returns from the sale of software licences);
- highly innovative manufacturing ICT SMEs, that may benefit from positive effects of patents on sales, owing to better reputation, higher value of products, and easier commercialisation of products in international markets.

### Fact Box

This study focused on SMEs (i.e. companies with up to 249 employees) in the ICT industries, including ICT manufacturing, ICT services and software publishing.

Share of innovative European ICT SMEs compared to share of innovative SMEs in all industries:

Share of innovative SMEs on total ICT enterprises:	59%
Share of innovative SMEs on total enterprises:	42%

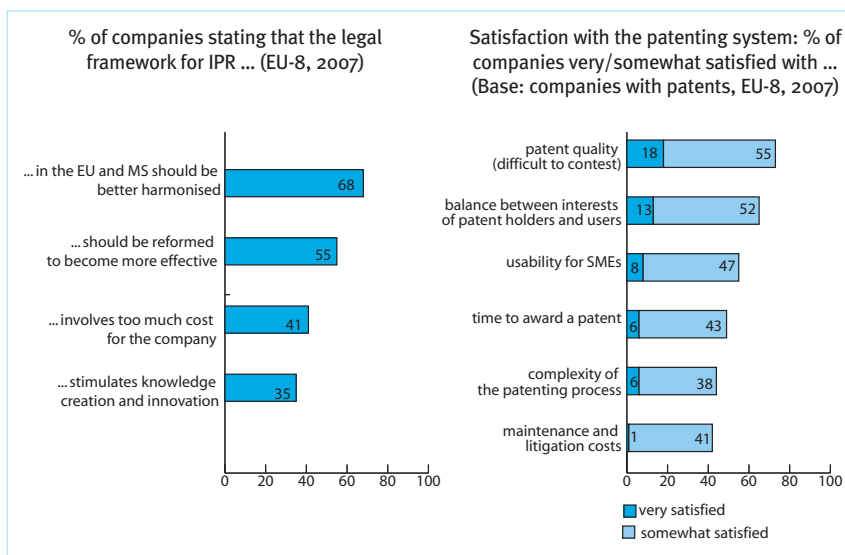
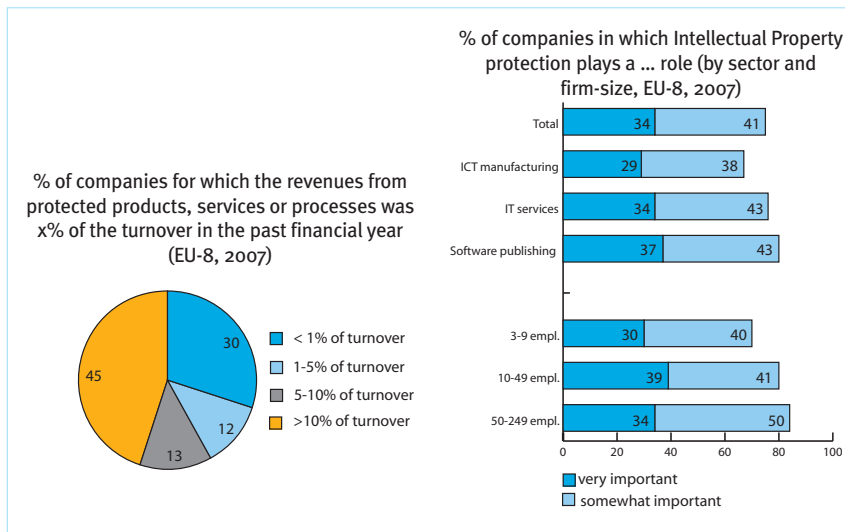
Source: Community Innovation Survey, CIS, 2004

European ICT SMEs present a higher propensity to innovate than other SMEs.



### Importance of Intellectual Property (IP) protection for ICT-producing SMEs

IP protection plays an important role in three quarters of ICT-producing SMEs. For 34% of the surveyed companies, IP protection is very important, and for 41% it is somewhat important. The results do not differ much between the three industries considered. The survey also found that many firms gain considerable revenues from IP protection. In 45% of the companies, revenues from protected products, services or processes were more than 10% of the turnover in the preceding financial year.



### Opinions about legal frameworks

The majority of firms were critical about the legal IP framework. Close to 70% said that national and European regulation should be better harmonised, and 55% said that the legal framework should be reformed to make it more effective. Those companies that protect patents were positive about some aspects of the patenting system and critical about others.

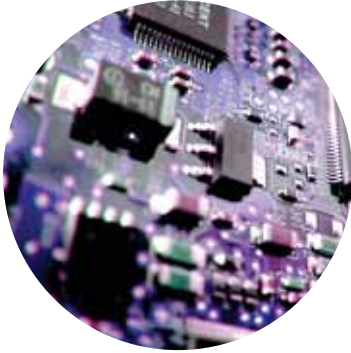
#### More information

This topic study was conducted by the IDC Government Insights Europe ([www.idc.com](http://www.idc.com)).

The full study report is available on the web at ([www.ebusiness-watch.org](http://www.ebusiness-watch.org)).

For more information about this study, please contact Ms Gabriella Cattaneo ([gcattaneo@idc.com](mailto:gcattaneo@idc.com)) or Ms Elena Vaciago ([evaciago@idc.com](mailto:evaciago@idc.com)).

## Drivers and Impacts of ICT Adoption



This central study of 2008 examines the economic drivers and impacts of ICT adoption in selected sectors in the EU, including banking, chemicals, steel, furniture, retailing and transport services. It focuses on links between ICT and work force composition, value chain characteristics, market structure, innovation dynamics, employment and productivity. The analysis is mostly based on (micro-level) survey data collected by the Sectoral e-Business Watch and on the EU-KLEMS database (sectoral level).

**P**reliminary findings<sup>3</sup> point to two important effects. The first is a strong complementarity between ICT capital and ICT skills. This means that, on the one hand, ICT capital enables higher productivity growth, improves innovation performance, and drives organizational change. On the other hand, to obtain these benefits in full, ICT capital needs to be complemented by the appropriate human capital. The second finding relates to the dynamics of the innovation process. There is an obvious need for a medium-to-long-term perspective for the investigation of structural changes resulting from ICT adoption.

### Complementarity between ICT capital and skills

Econometric regression results for the banking and retail sectors based on the multi-country panel data in the EU-KLEMS database indicate the greatest benefits for those countries and companies that best manage this complementarity. This management consists of both investing in appropriate human skills, and adjusting the organizational structure according to the intrinsic requirements of the new ICT equipment. The benefits include higher productivity and employment growth and, thus, overall higher economic growth of economies. This is in line with the general capital-skill-complementarity hypothesis by Griliches (1969), and with the ICT-

focused version of this hypothesis suggested by Erber and Hagemann (2005). Thus, this study provides results beyond those obtained in previous studies, where it has been found that, in the sectors under consideration, ICT capital plays a key role in productivity growth (e.g., van Ark et al. 2003, Jorgenson et al. 2000).

These results suggest that economic policy directed to maximise benefits from the technological revolution in ICT (e.g. the Lisbon agenda) should focus on supporting an appropriate mix of the three key factors: ICT-capital formation, higher skill formation (in particular, ICT-skill), and implementation of appropriate organisational changes.

### Dynamics of the innovation process

An econometric analysis of the dynamics of the innovation process based on the EU-KLEMS panel data indicates that, in specific industries, the structural changes accompanying ICT adoption in certain industries require a medium- to long-term time perspective. This can explain the short-run negative impacts often observed from the adoption of new ICT on productivity growth and competitiveness. The overall benefits of ICT adoption tend to become visible in the statistical data only after a couple of years. This is in line with David (1990), who stated a similar hypothesis for general purpose technologies such as the substitution of electric equipment or combustion machines for steam engines.

From this perspective, it is easier to solve the enigma of continuous, even accelerating productivity growth in the US after the bursting of the New Economy bubble (Gordon 2004). It is only on the assumption that ICT investments instantaneously increase growth, productivity and employment - an assumption implicit in the traditional studies based on growth-accounting - that this puzzle emerges. It is less of a challenge in light of a more realistic account of the adoption process. The dynamic process of ICT adoption across economies implies significant delays in obtaining the benefits from the technological revolutions. Country-, industry- and company-wide differences prevail if the appropriate mix between ICT investment, skills and complementary organizational changes are not implemented. This could even lead to persistent inefficiencies in the long run if necessary corrections are not made.



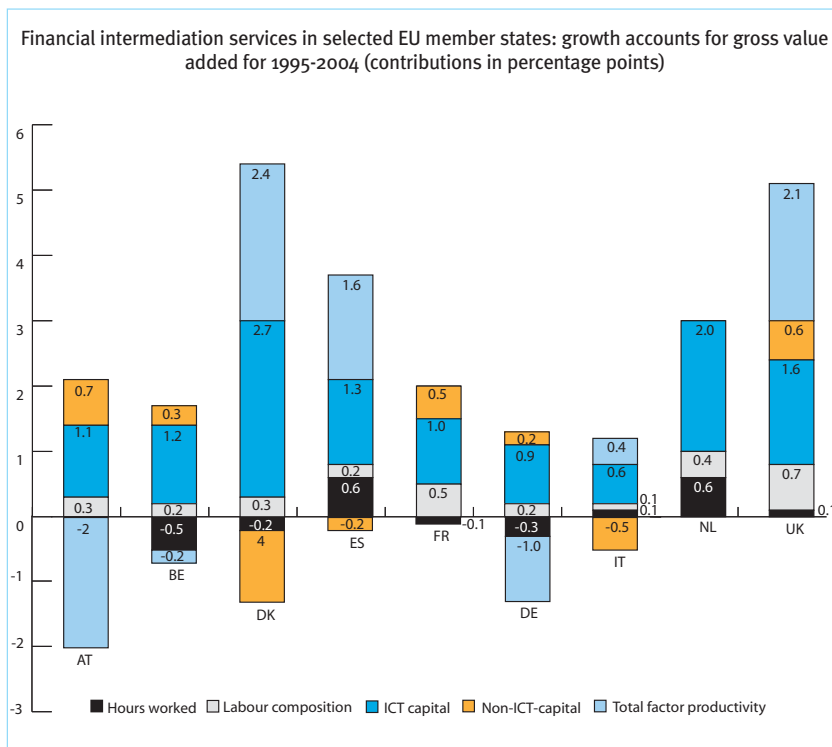
### More information

This thematic study was conducted by DIW Berlin ([www.diw.de](http://www.diw.de)).  
The full study report is available on the web at ([www.ebusiness-watch.org](http://www.ebusiness-watch.org)).  
For more information about this study, please contact Mr Georg Erber ([gerber@diw.de](mailto:gerber@diw.de)).

<sup>3</sup> the study was still in progress when this brochure was produced

### Policy and business implications

There is a two-fold policy implication. First, policy makers as well as managers have to be aware that patience is needed when adopting ICT. Second, business managers need to be very careful in their choice of the appropriate mix in the elements of the adoption strategy, rather than blindly investing in new ICT equipment alone and ignoring the complementary investments in skills and organisational restructuring.



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## e-Business Adoption in European and US Companies in Comparison



Studies by e-Business Watch found that ICT adoption and e-business activity are mainly determined by value chain characteristics and firm size. Regional factors are less important in this regard. However, the new survey results - for the first time including US companies - also point to some differences between Europe and the US firms in their pattern of ICT adoption.

International comparisons of ICT adoption by business face some difficulties. One of the challenges is that aggregate results partly reflect industry structure; a national industry which is dominated by large firms will demonstrate higher levels of ICT adoption than in another country where SMEs predominate. Conclusions about differences in "e-maturity" should not be drawn simplistically.

A study by e-Business Watch on international e-business developments<sup>4</sup> in 2005 had concluded that "on average, EU enterprises are head-to-head with their counterparts in other advanced economies in terms of electronic business activity." To validate this finding, the sector surveys of 2007 included interviews with US companies.

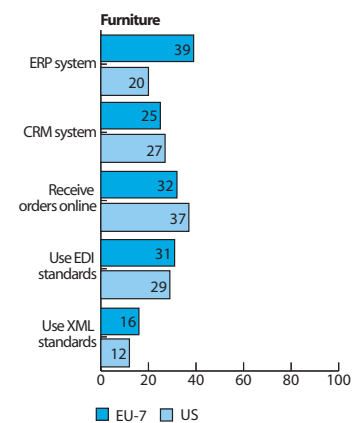
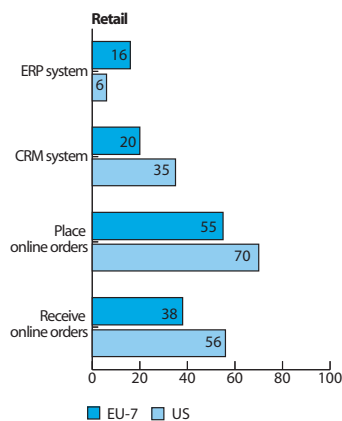
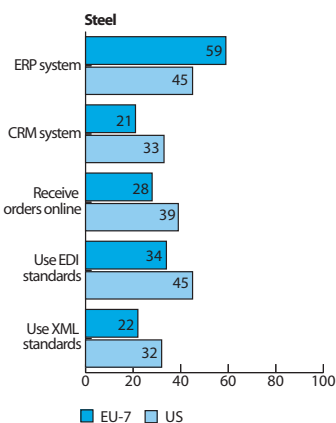
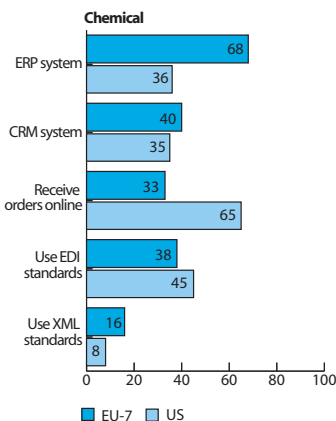
By and large, the survey confirms the general assessment of the 2005 study; however, there are some surprising differences in the details (see charts) which raise questions. For instance, a

consistent finding for all sectors is that ERP-systems are significantly more widely deployed among European enterprises than among US firms, although the average firm size is higher in the USA (by a factor of 2-3 compared to the European countries). As ERP is often the main hub for advanced e-business applications, this indicates that European enterprises are clearly competitive in that respect.

On the other hand, e-commerce is more widely used by US firms. In retail, for instance, 70% of US firms say that they offer their products online, compared to 55% of European companies (by their share of employment). In the chemical industry, the difference is even more pronounced.

For other indicators, the results are less clear. For instance, there are differences in the adoption of CRM systems and the use of EDI and XML-based standards, but the picture differs by sector and size-band.

Adoption of ICT systems and e-business activities: EU vs. US (in % of companies, EU-7, US, 2007)



Base (100%): Companies with computers in 7 EU countries / in the USA. In chemical, steel and furniture, enterprises with at least 10 employees; in retail, micro-firms are also included. Figures are weighted by employment.

## ICT Standards in the Health Sector

According to a survey among experts in e-health, there is a lack of commonly used and sufficiently developed standards for ICT in the health sector. Experts also point to a lack of activities to harmonise standards. As a consequence, achieving interoperability of health systems on a national and - particularly - on an international level is a major challenge.

In November 2007, the Sectoral e-Business Watch conducted an online survey on ICT standards in the health sector (e-health standards). 94 high-level e-health experts mainly from European countries responded. They were affiliated with ICT industry, public entities such as Ministries of Health, universities and research, ICT user organisations such as hospitals, standards development organisations, health associations, and consulting firms.

Asked about current e-health standards, almost all experts confirmed that there is a lack of widely used e-health standards. 55% of the respondents agreed completely with this statement, and a further 39% agreed to some extent. There were also large majorities confirming that there is a lack of sufficiently developed standards (40% “agree completely” / 40% “agree somewhat”) and a lack of harmonisation activities (35% “agree completely” / 40% “agree somewhat”).

This situation impacts negatively on the interoperability of health information systems. The majority of the respondents stated that the current situation of e-health standards is unsupportive for systems interoperability in cross-border care provision (45% “very unsupportive” / 25% “somewhat unsupportive”) and in national health systems (27% “very unsupportive” / 28% “somewhat unsupportive”). The situation may also negatively affect the international competitiveness of European ICT-for-health manufacturers and service providers (21% “very unsupportive” / 34% “somewhat unsupportive”).

In order to improve the situation, more than two thirds of the respondents stated that there should be stronger involvement in e-health standards development from many sides: national governments, national competent authorities, ICT user organisations, the European Commission, and ICT industry.



Assessment of the current situation of e-health standards (in % of companies, EU-7, 2007)

There are / is	I strongly disagree	I disagree somewhat	I agree somewhat	I strongly agree
...generally too many e-health standards	8	28	36	20
...too many conflicting e-health standards	5	17	51	21
...a lack of widely used e-health standards	1	3	39	55
...a lack of sufficiently developed e-health standards	3	12	40	40
...a lack of standards for electronic health records	10	20	43	21
...a lack of e-health standards harmonisation activities	5	14	35	40

Lines do not add up to 100% because some respondents gave no answer  
Base: 94 responses to an online expert survey in November 2007  
Source: e-Business Watch e-Health Survey 2007

### Fact Box

For the European Commission, “standards play an important role for the competitiveness of industry”. Standardisation remains a “voluntary, consensus-based, market driven activity” so that “the main input on the work in the European Standardisation Organisations must originate from the stakeholders”. The market for ICT in the health sector is commonly considered as huge and largely untapped. However, there are indications that the situation of ICT interoperability and standards development in this sector is particularly difficult.

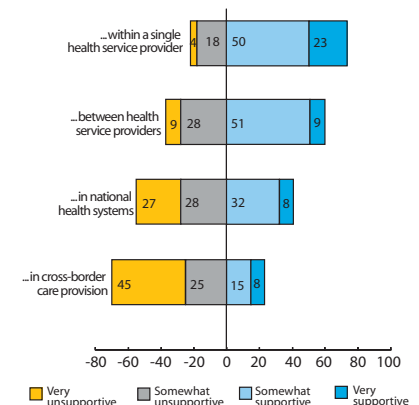
The most important European organisations developing standards for the health sector include the European Committee for Standardisation (CEN), the International Organisation for Standardisation (ISO), the International Health Terminology Standards Development Organisation (IHTSDO), Health Level 7 (HL7), Integrating the Healthcare Enterprise (IHE), and Digital Imaging and Communications in Medicine (DICOM).

1 See [http://ec.europa.eu/enterprise/standards\\_policy/action\\_plan/index.htm](http://ec.europa.eu/enterprise/standards_policy/action_plan/index.htm).

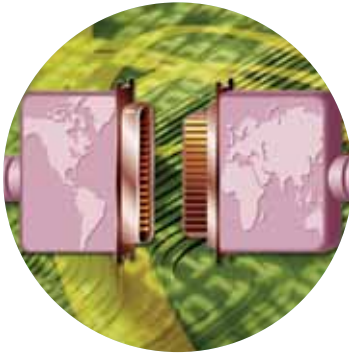
### More information

This study was conducted by empirica GmbH ([www.empirica.com](http://www.empirica.com)).  
The full study report is available on the web at ([www.ebusiness-watch.org](http://www.ebusiness-watch.org)).  
For more information about this study, please contact Mr Benjamin Jung ([benjamin.jung@empirica.com](mailto:benjamin.jung@empirica.com)).

**Impact of the current e-health standards on systems interoperability:**  
the current situation of e-health standards is very unsupportive / somewhat unsupportive / somewhat supportive / very supportive ...”  
(in % of companies)



## The e-Business Surveys 2007



Since 2002, the Sectoral e-Business Watch collects data on the use of ICT and e-business in European enterprises by means of representative surveys. In 2007, four surveys were conducted, with a total coverage of about 5,500 interviews with decision-makers in enterprises from 9 European countries and the USA (see table). The survey field work was coordinated by Ipsos GmbH (German branch office) and conducted locally by its partner institutes.

COVERAGE OF THE FOUR E-BUSINESS SURVEYS 2007

Surveys	Sectors covered	Countries covered	No. of interviews
Survey I: e-Business in manufacturing	Chemical, rubber & plastics, steel, furniture	France, Germany, Italy, Poland, Spain, Sweden, UK, USA	2,121
Survey II: e-Business in retail & logistics	Retail, transport services, logistics		2,248
Survey III: RFID adoption	Manufacturing, retail, transport services, hospitals	France, Germany, Ireland, Italy, Poland, Spain, UK	434
Survey IV: IP protection	ICT industry (manufacturing, software), ICT services	Austria, France, Germany, Ireland, Italy, Poland, Spain, UK	683

Interviews were carried out mainly in August and September 2007, 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. The survey included only companies that used computers. The average interview length was about 15-20 minutes in surveys 1 and 2, and about 8-12 minutes in surveys 3 and 4.

### 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 industry totals in surveys 1 and 2, an accuracy of about +/- 3 percentage points on average can be expected for most values that are expressed as "% of firms", and of about +/- 5 percentage points for values that are weighted by employment. In survey 3 (RFID), confidence intervals (at  $\alpha=.90$ ) are about 5 percentage points for total figures, but can be higher for sector break-downs. In survey 4 (IPR), the expected accuracy is about 3-5 percentage points for the total ICT industry (depending on the weighting scheme and values), and 3-8 percentage points for sub-sectors.

### 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) varied considerably between countries and surveys. In the larger surveys 1 and 2, it varied between 5% in the USA and 23% in Italy, while it was about 12-15% in the other countries.

### More information

More detailed information about the e-Business Surveys 2007 is available at the Sectoral e-Business Watch website ([www.ebusiness-watch.org](http://www.ebusiness-watch.org)) in the "About" section (see: "methodology").

## The Advisory Board of 2007/08

To validate study results, the Sectoral e-Business Watch seeks regular exchange and debate with international experts on ICT, e-business and from the sectors covered. For each study conducted in 2007/08, an Advisory Board was established. This way, about 50 industry representatives, researchers and business consultants contribute as members to the work of the SeBW. They provide comments on interim reports and specific inputs to the research work. Their services are gratefully recognised.

Advisory Board member	Company / organisation	Appointed for study on	Country *
Ms Fazilet Cinaralp	ETRMA - European Tyre & Rubber Manufacturers Association	Chemical	EU
Mr Herbert Fisch	BASF AG	Chemical	Germany
Mr Henry Ryan	Lios Geal Consultants	Chemical	Ireland
Mr Dave Wallis	Self-employed consultant - liaison with CEN/ISSS	Chemical	UK
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Mr Enrico Gibellieri	European Metalworkers Federation	Steel	Italy / EU
Mr Martin Grösschen	DGV German Foundry Association / European Foundry Association	Steel	Germany / EU
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Mr Barry O'Mahony	Ireland's national payments association	Banking	Ireland
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\* EU = representative of a European industry federation / organisation (sorted alphabetically within each advisory board)

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