

The European e-Business Report

2002/2003 edition

A portrait of
e-business in 15 sectors
of the EU economy

Executive Summary of the First Synthesis Report



THE EUROPEAN E-BUSINESS MARKET WATCH

The European Commission, Enterprise Directorate General, launched the e-Business Market Watch (the *e-Business W@tch*) to monitor the growing maturity of electronic business across different sectors of the economy in the European Union. Since January 2002 the *e-Business W@tch* has been covering seven manufacturing and eight financial and service sectors. Results are published in quarterly sector impact studies and newsletters, along with a set of statistics and other material on e-business. This report is a synopsis of the various publications that have been published during the first year of operation of the *e-Business W@tch*.

All publications of the *e-Business W@tch* – including this report – are available in electronic format on the Internet either via the Europa server (www.europa.eu.int/comm/enterprise/ict/policy/watch/index.htm) or directly at the *e-Business W@tch* website (www.ebusiness-watch.org). E-mail: info@ebusiness-watch.org.

The e-Business W@tch is being implemented on behalf of the European Commission, under a service contract running from December 2001 until June 2003, by empirica GmbH (Bonn) in co-operation with DIW Berlin – German Institute for Economic Research and Databank Consulting (Milan) with the support of Berlecon Research (Berlin).



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Copies can be requested, free of charge, from the above address. The report is also available in electronic format and can be downloaded from the 'Publications' section of the *e-Business W@tch* website (www.ebusiness-watch.org).

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

Luxembourg: Office for Official Publications of the European Communities, 2003

ISBN 92-894-5118-1

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Printed in Germany

Foreword



The competitiveness of European enterprises strongly depends on the productive usage of information and communication technologies (ICT). There is now sufficient evidence that companies across the EU have significantly improved their basic ICT infrastructure and connectivity to the Internet. This improvement, however, is yet to materialise in substantial productivity gains.

In order to reap the real benefits of investing in ICT, companies need to take further steps beyond simply 'going digital'. They need to improve both employers' and employees' skills, as well as to integrate ICT into their business processes. The focus has now to be shifted from basic connectivity and electronic commerce transactions to conducting business electronically. This emphasis on the productive use ICT all along the value chain is reflected by the term 'e-business'.

Since its launch in January 2002, the *e-Business W@tch* has provided policy-makers and stakeholders in industry with statistical data and analysis to better identify the challenges to be addressed in support of e-business. By studying developments in fifteen sectors of the EU economy, the *e-Business W@tch* has contributed to better understanding the impact of e-business on enterprise competitiveness and productivity. As a result, we now have a better picture of the take-up of ICT and e-business in Europe.

So far, most benchmarking indicators are still referring to national comparisons. However, the remarkable differences observed sometimes at the national level, may have to be attributed to a large extent to the specificities of the particular economy and its structure. This is an important lesson to be learned from the experience of the *e-Business W@tch*. Another lesson is that the full implementation of e-business solutions is still in its infancy, in particular for most SMEs. Further efforts have to be undertaken, therefore, by both the ICT industry and policy makers, to get SMEs on board in order to improve the overall performance of Europe in the global competitiveness arena.

Erkki Liikanen

European Commissioner for Enterprise and Information Society

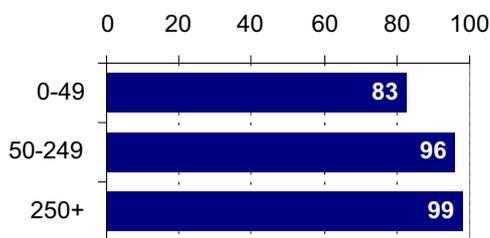
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Executive Summary

Basic access to ICT is no longer a barrier

Basic ICT infrastructure and access are no longer barriers to e-business uptake. Even among small enterprises (0-49 employees), 94% used computers and 84% had access to the Internet in mid 2002. The use of e-mail and of the WWW has become nearly ubiquitous in the world of business. However, there are still significant differences with respect to the quality of businesses' Internet access, especially with regard to bandwidth. In most of the sectors, many of the small enterprises still use an analogue dial-up modem to connect to the net. This indicates low levels of usage (e.g. e-mail) rather than active usage of networks for e-business.

Have Internet access
(% of enterprises, 7/2002)



Source: e-Business W@tch (Survey 2002)

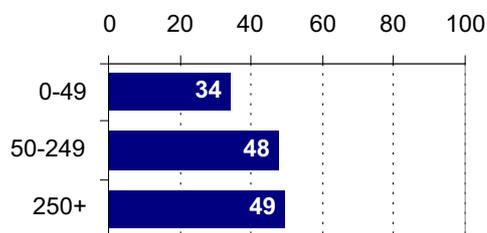
W@tchlist – this will be important:

- ▶ Diffusion of broadband connectivity, especially among SMEs
- ▶ Access of employees to ICT
- ▶ Remote access to companies' IT networks to facilitate flexible and mobile work in the EU
- ▶ Monitoring of the development of the IT skills gap

E-commerce activities: fast adoption of online purchasing

While sell-side e-commerce, and particularly B2C, has not yet reached the volumes anticipated during the boom-and-hype time of the Internet economy, online purchasing seems to spread fast. 34% of enterprises (accounting for 42% of employment) and nearly half of all large enterprises say they make online purchases of MRO goods or direct production goods. In ICT services, in the media & printing sectors and in business services the share of companies purchasing online is already above 45% (in ICT services even at 80%).

Make online purchases
(% of enterprises, 7/2002)



Source: e-Business W@tch (Survey 2002)

W@tchlist – this will be important:

- ▶ Channel strategies used for online selling and purchasing (e.g. website, extranets)
- ▶ Monitoring of further development of B2B marketplaces and SME participation
- ▶ Impact of e-procurement initiatives of large players on competition and supply chain
- ▶ Increasing importance of net-influenced sales on B2C e-commerce (instead of focus only on transactions)

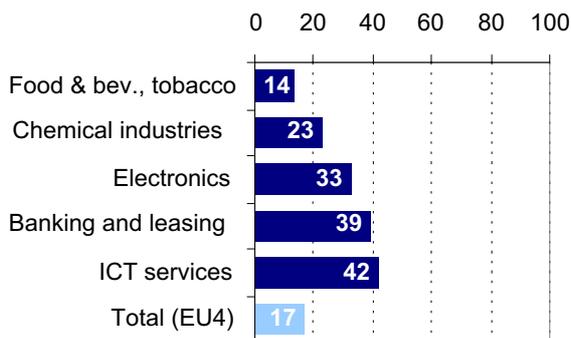
In this context, electronic B2B marketplaces on the Internet have been paid much attention. About 5-6% of European enterprises used e-marketplaces in 2002 and 3% planned to do so until mid 2003. At first sight this may seem a low level of usage. However, marketplaces are important as the intensity of trade (volume of transactions) is often higher than is the case with other online trading channels. Usage also depends on the sector. In the chemical industries, transport equipment manufacturing and in ICT services B2B marketplaces have clearly gained momentum.

In spite of the as yet rather low level of online sales (if measured as percentage of total sales), it is likely that we have only seen the beginnings, even in B2C. The Internet has become a powerful tool for consumers to compare offers in an efficient way. With the introduction of the Euro in most of the EU countries, and the increase and further improvement of public online marketplaces (including peer-to-peer marketplaces and auction platforms) and meta-services (e.g. price-finders), the transparency of prices across regions will further increase. And considering that today's youth – the first generation growing up with the Internet – is likely to develop a different shopping behaviour than their parents and grandparents, the potential for B2C electronic commerce is probably still huge.

E-business integration – the big issue for the years to come

Experts unanimously agree that the new challenge in the e-business (r)evolution many companies are facing today is to integrate the "e"-activities into their general business processes instead of conducting e-commerce as a separate business. This may require more advanced e-business solutions, but implementing them in the company is cost intensive and requires a high level of managerial skills. Today, sophisticated solutions for Customer Relationship Management (CRM) and Supply Chain Management (SCM) are used mainly by large enterprises and by specific sectors.

*Diffusion of CRM technology by sector
(enterprises comprising ...% of employment, 7/2002)*



Source: e-Business W@tch (Survey 2002)

W@tchlist – this will be important:

- ▶ Integration of e-commerce activities with back-end systems
- ▶ Development of new metrics for e-business sophistication and related policy targets
- ▶ "Digital gap" between SMEs and large enterprises with respect to higher level applications, impact on competition
- ▶ Further analysis of sector specific e-business application profiles, taking into account different requirements

On the other hand, online technologies are increasingly used for a number of processes which characterise working routines in companies and facilitate exchanging information with customers and suppliers. 45% of employees work in companies that use online technologies for collaborative work purposes, for instance to share documents. Enterprises accounting for 26% of employees use online technologies to track working hours and production time. And online e-learning applications are used by about 12% of enterprises, accounting for 19% of employment.

Most of these functions are more important for large enterprises than for medium-sized and particularly for small ones, and there are also considerable differences by sector. For instance, about 40% of employees in the ICT services, electronics and transport equipment manufacturing sectors work in enterprises that use online technologies to collaborate with business partners in designing products. However, the figure is only between 15-18% in other manufacturing sectors such as metal products and machinery and equipment.

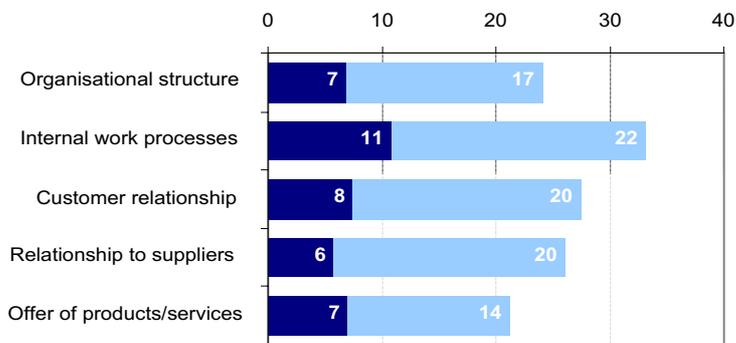
Sectors also differ in the degree to which they have integrated their online sales with the backend systems. In the financial services and some of the manufacturing sectors, a significant percentage of those companies selling online already report that integration is accomplished. Other sectors are less advanced in that respect, including retail and tourism where online selling is supposed to play a relatively important role.

Perceived impacts of electronic business activities

In 2002, more than 10% of European enterprises said that e-business constituted a "significant part" of the way they operated and nearly 50% felt that it constituted at least some part of their activities. The impact is most significant in those sectors which manufacture or operate IT and electronics themselves (ICT services, electronics industry) and in sectors with a high potential for digitisation of service delivery (publishing, business services). In tourism, the awareness of e-business impacts is also very high. On the other hand, there are late adopters where only about a third of firms reports that e-business is already important. The most "conservative" sectors in this respect are the food and beverages industry, retail and the manufacture of metal products.

The most significant impacts of e-business concern the internal work processes. More than a quarter of all enterprises say that these have significantly or somewhat changed through e-business practices. About 20% of enterprises report that the organisation structure and the relation to customers and suppliers has significantly or somewhat changed.

*Perceived impact of e-business activities on ...
(EU-4 enterprises comprising ...% of employment, 7/2002)*



... has changed significantly (dark bar) / somewhat (light bar)

Source: e-Business W@tch (Survey 2002)

W@tchlist – this will be important:

- ▶ Learning from others: Collection of e-business good practice examples for (i) specific sectors and (ii) considering specific requirements of SMEs
- ▶ Statistical effort to improve metrics for measuring impact, e.g. impact of e-business adoption vs. non-adoption on competitiveness
- ▶ Analysis of aggregate impacts (on value chain within sectors, on regional competitiveness)

Looking at the impact of e-commerce activities, close to 60% of those firms that use e-procurement report a "positive" or even "very positive" impact on procurement costs and on their internal business processes. Most of the others say there was "no impact", while only few observe a negative impact. Firms that sell online tend to observe positive effects on sales volumes, number of customers, efficiency of internal business processes and an expansion of the sales area. The quality of customer service is the area where most companies (28%) have achieved "very positive" effects through selling online. Reducing costs for logistics and inventory, on the other hand, is the impact area with the lowest degree of satisfaction.

Thus, the overall "business climate" for electronic business is fairly positive – though not enthusiastic. A majority of firms are fairly satisfied and some are very satisfied with the effect of their e-business solutions. However, there are the disappointed ones as well – and to a higher degree among the large enterprises (19%) than among the small and medium-sized ones (12% / 15% of enterprises).

3 Collection of Charts

Series I:

E-Business Indicators by Business Activity

A collection of 20 bar graphs comparing sectors with respect to the diffusion of ICT infrastructure, e-commerce activities, e-businesses processes within enterprises and between business partners in the value chain, and to what extent electronic business has changed the way how companies operate. In order to ensure comparability across sectors, the comparison is based on a sample of enterprises from Germany, France, Italy and UK (N = 5917, i.e. about 400 per sector). This sample was available for all 15 sectors covered by the *e-Business W@tch* and included in this comparison, while the sets of other countries for which data are available for a specific sector differ by sector. The figures presented in these bar charts have been weighted by employment, which means that they should be read as "enterprises comprising ...% of employment in a sector".

Series II:

E-Business Indicators by Company Size-Class

This collection of 18 bar graphs illustrates to what extent company size matters as a critical factor for the diffusion of ICT infrastructure and of e-business applications. The charts shows in what areas small and medium sized enterprises have (almost of fully) closed the gap to the large enterprises, and which kind of applications are still dominated by larger companies. Data are based on a sample of 9264 interviews with companies from 15 sectors, including interviews in all Member States of the EU-15. The figures presented in these bar charts should be read as "...% of enterprises (as legal units)" in the respective size class.

Series III:

Benchmarking Scoreboard of Indexed Indicators: The e-Business Profile of 15 Sectors

The Benchmarking Scoreboard shows the e-business profiles of 15 sectors of the economy¹⁴ based on 23 indexed indicators, which means that "100" stands for the industry average from these 15 sectors. A definition of the indicators selected for the benchmarking charts is given in the table below. The benchmarking is based on employment-weighted figures in order to emphasize the overall economic importance of applications and not to risk that a large number of micro and small enterprises distorts the picture. The values should therefore be read in the following way: "Compared to the industry average, employees in the [respective] sector are ...% as likely to work in a company which uses/has/says ...". For example, the "food, beverages and tobacco" sector shows a benchmarking value of 76 for intranet diffusion. This means that employees in this sector are 76% as likely to work in a company that has implemented an intranet as on industry average. Values higher than 200 are indicated by the figure in the respective bar.

Although benchmarking activities normally imply that a higher score is better, in this context the main objective of the charts presented is definitely not to make a statement which sectors perform "better" or "worse". Rather, the objective is to make visible at a glance the differences between sectors with respect to the role and the relative importance of various e-business application areas. For instance, the chart for the tourism sector shows that e-commerce is very important in that sector (most scores are clearly above average), while applications for internal processes and e-business integration are not as widely diffused as in other sectors. This does not necessarily mean that tourism lags behind, but can to a large extent be explained by – and, vice versa, confirms – analysis how hotels, restaurants and other companies from the sector are practising e-business.

¹⁴ For a definition of the sectors, see Annex "Methodology of the e-Business Survey 2002"

Table 3-1: Definition of indicators used in the Benchmarking Scoreboards (Series III)

Area	No.	Indicator	Definition
ICT infrastructure	1	Access to Internet	Percentage of employees working in enterprises with Internet access
	2	Broadband Internet access	Enterprises connected to the Internet by DSL or other fixed connection (as a share of enterprises connected, weighted by employment)
	3	Intranet	Percentage of employees working in enterprises with an intranet
	4	Extranet	Percentage of employees working in enterprises which have an extranet
	5	Employees' access to e-mail	Percentage of employees working in enterprises where the majority of office workers has access to e-mail for external communication
E-commerce	6	Website	Percentage of employees working in enterprises which have a website
	7	Online selling	Percentage of employees working in enterprises which sell online
	8	Online procurement	Percentage of employees working in enterprises which sell online
	9	Participation in B2B e-marketplaces	Percentage of employees working in enterprises which trade on Business-to-Business electronic marketplaces
E-business processes	10	Online collaboration: designing products	Percentage of employees working in enterprises using online technologies for collaboration in designing products / services
	11	e-CRM	Percentage of employees working in enterprises which use an (electronic) customer-relationship-management solution
	12	IT supported ERP	Percentage of employees working in enterprises which use an IT supported enterprise-resource-planning solution
	13	Online technologies to track working hours	Percentage of employees working in enterprises which use online technologies to track working hours and/or production time
	14	E-learning	Percentage of employees working in enterprises which use online e-learning applications
Barriers	15	Barriers to selling online: "Goods / services do not lend themselves"	Percentage of employees working in enterprises which agree completely to the statement: "Many of the goods / services we produce do not lend themselves to be sold online."
	16	Barriers to online procurement: "Suppliers do not sell online"	Percentage of employees working in enterprises which agree completely to the statement: "Most of our suppliers do not sell online."
	17	Barriers to online procurement: "Concerns about data protection / security"	Percentage of employees working in enterprises which agree completely to the statement: "We are concerned about data protection and security issues."
Impact	18	Significance of e-business today	Index based on the percentages of employees working in enterprises which say that e-business constitutes a "significant part" or "some part" of the way they operate. Weighted computation of both values.
	19	Impact on customer relationship	Percentage of employees working in enterprises which say that e-business has significantly or somewhat changed their customer relationship.
	20	Impact on relationship to suppliers	Percentage of employees working in enterprises which say that e-business has significantly or somewhat changed the relationship to their suppliers.
	21	Impact on work processes	Percentage of employees working in enterprises which say that e-business has significantly or somewhat changed internal work processes
	22	Satisfaction with e-business	Index based on the percentages of employees working in enterprises which are "very" or "fairly" satisfied with their e-business activities. Weighted computation of both values.
	23	Increase expenditure on e-business	Percentage of employees working in enterprises which plan to increase their expenditure on e-business technologies within the next 12 months.

Charts – Series I:

e-Business Indicators by Business Activity

I.1: ICT infrastructure

- PC
- Internet access
- Intranet
- LAN (Local Area Network)

I.2: E-commerce activity

- Website
- Sell online
- Use secure server (SSL)
- Purchase online

I.3: E-commerce intensity and integration

- Share of online sales
- Share of online purchases
- Online sales integrated with backend system
- Use a CRM system

I.4: E-processes within and between companies

- Collaborative work
- Track working hours online
- Collaboration with business partners
- e-Learning

I.5: E-business impacts

- Impact on organisational structure
- Impact on internal work processes
- Impact on customer relationship
- Impact on relationship to suppliers

Charts – Series II:

e-Business Indicators by Company Size-Class

II.1: ICT infrastructure

- PC
- Internet access
- Type of connectivity
- Intranet
- LAN (Local Area Network)
- WAN (Wide Area Network)

II.2: E-commerce activity and intensity

- Website
- Sell online
- Share of online sales
- Use secure server (SSL)
- Purchase online
- Share of online purchases

II.3: E-processes within and between companies

- Online sales integrated with backend system
- Use a CRM system
- Collaborative work
- Track working hours online
- Collaboration with business partners
- e-Learning

Charts – Series III:

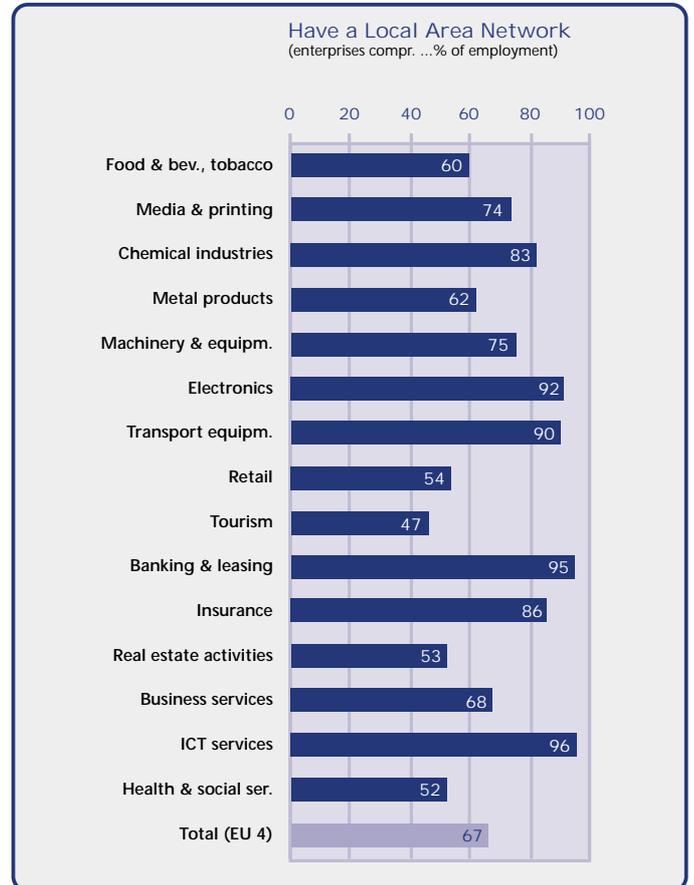
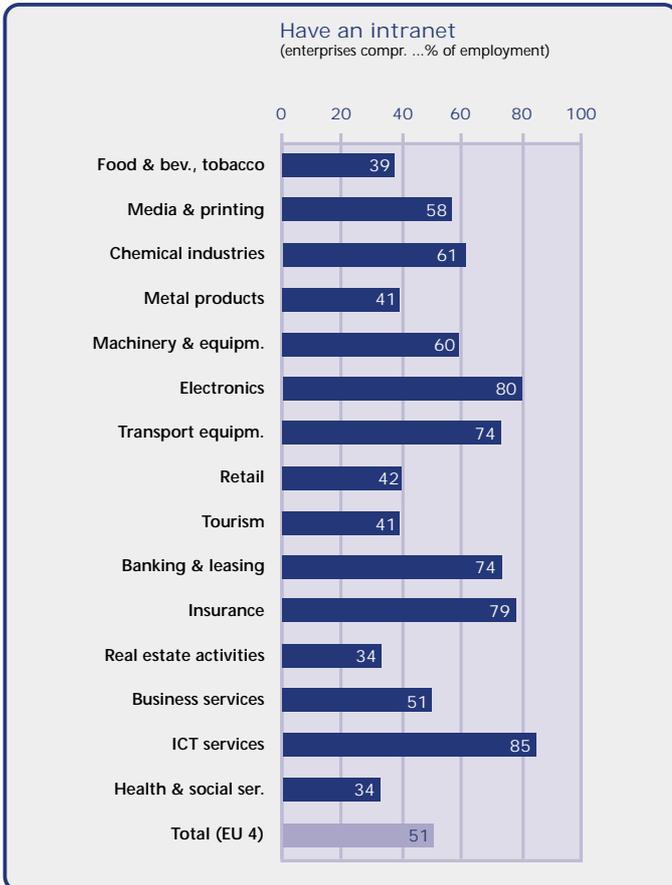
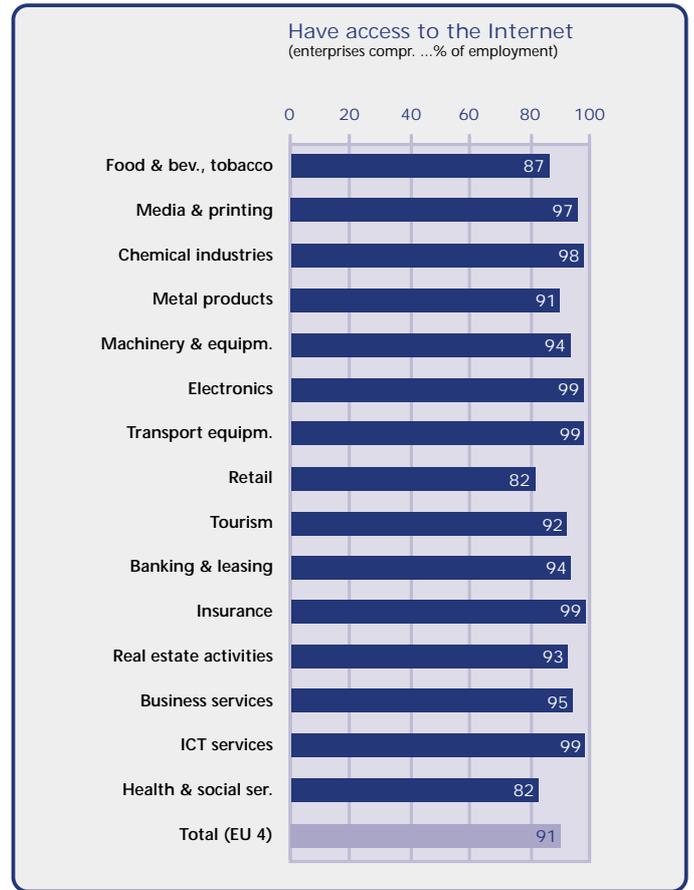
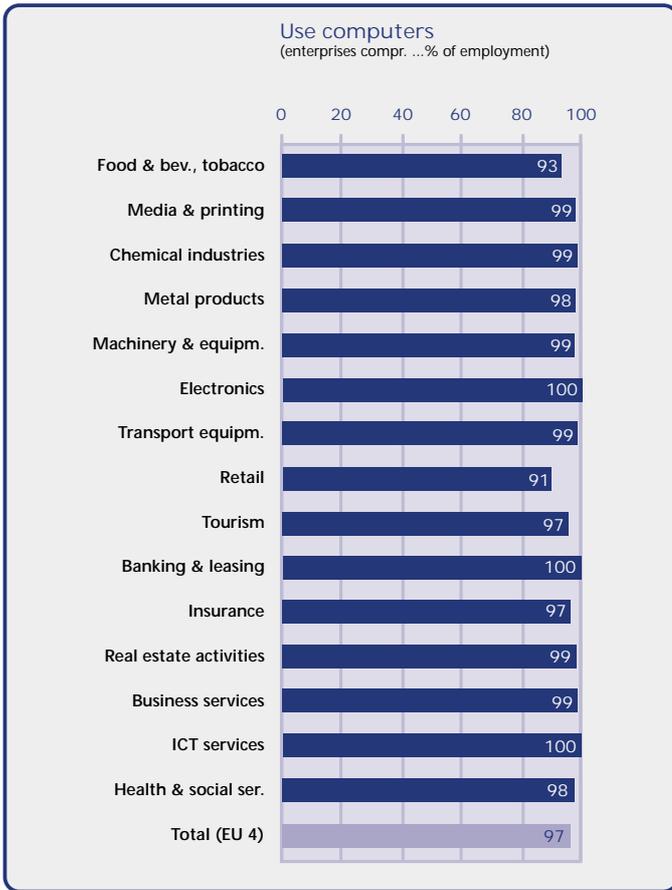
Benchmarking Scoreboards of Indexed indicators:
The e-Business Profile of 15 Sectors at a Glance

- III.1 Food, beverages and tobacco
- III.2 Media and printing
- III.3 Chemical industries
- III.4 Metal products
- III.5 Machinery and equipment
- III.6 Electrical machinery & electronics
- III.7 Transport equipment
- III.8 Retail
- III.9 Tourism
- III.10 Banking and leasing
- III.11 Insurance and pension funding
- III.12 Real estate
- III.13 Business Services
- III.14 ICT services
- III.15 Health and social services

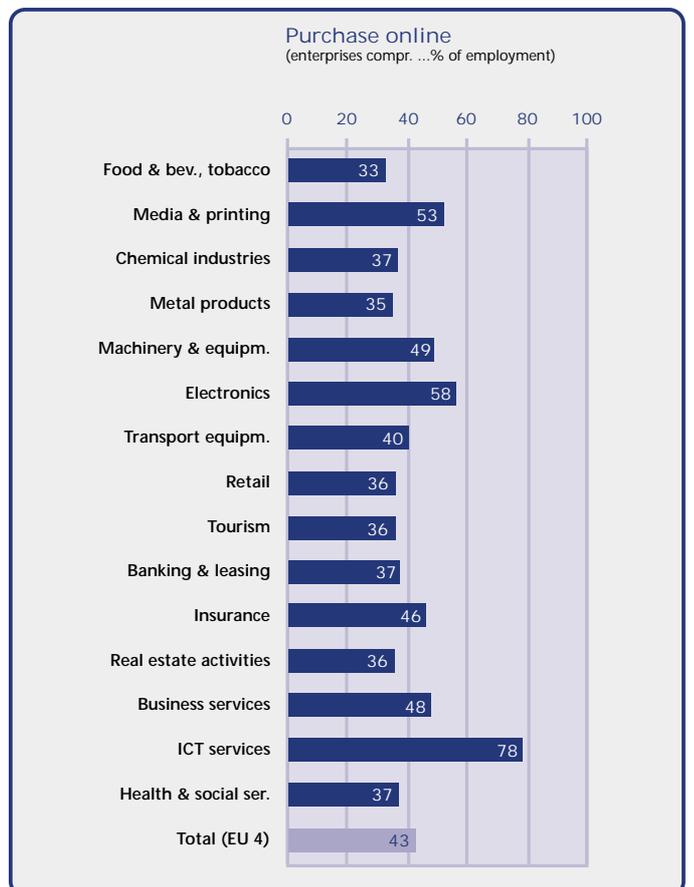
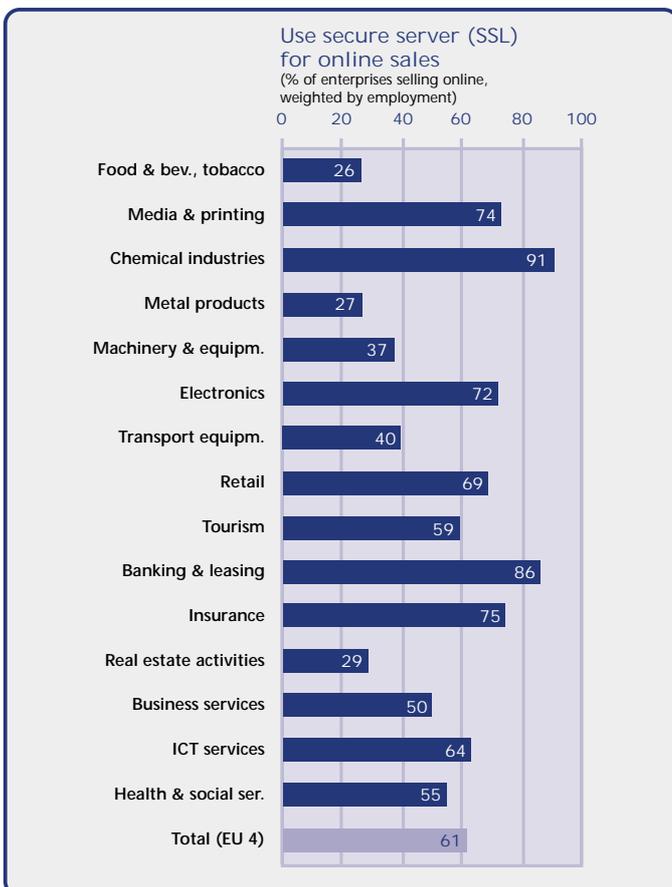
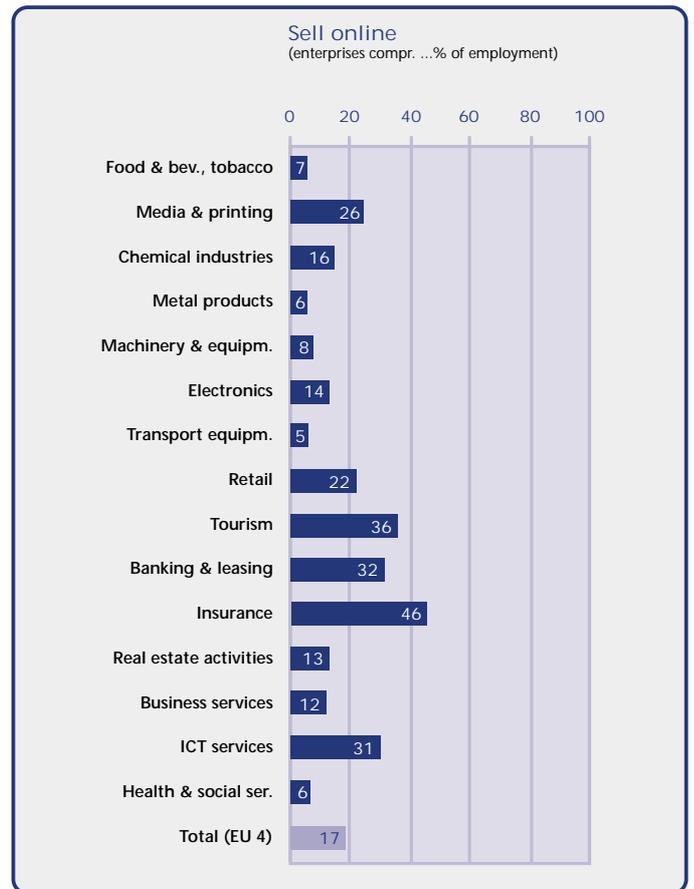
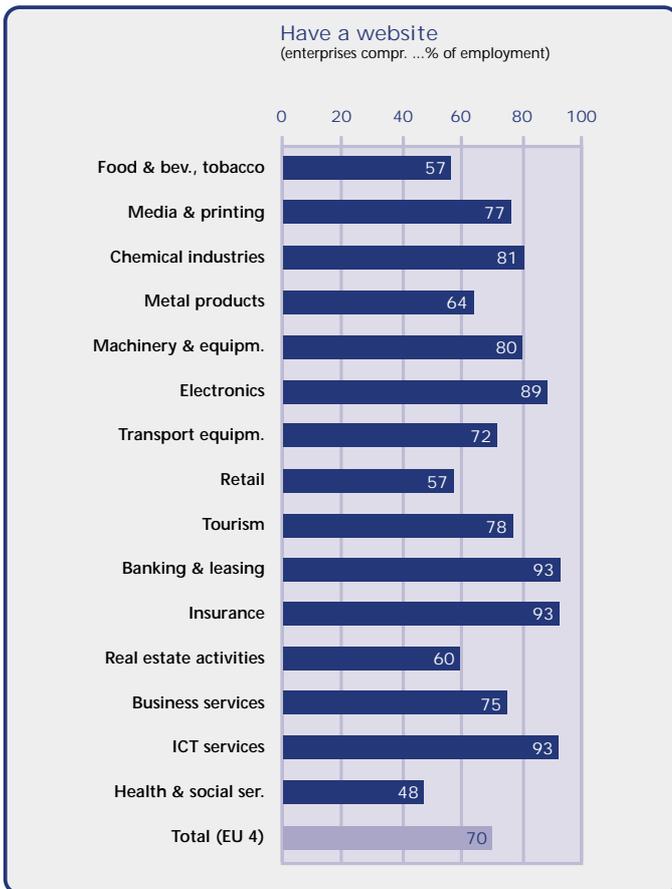
Each of the Benchmarking Scoreboards III.1 – III.15 is based on 23 indicators from the following areas:

- ICT infrastructure
- E-commerce
- E-business processes
- Barriers
- Impacts of e-business

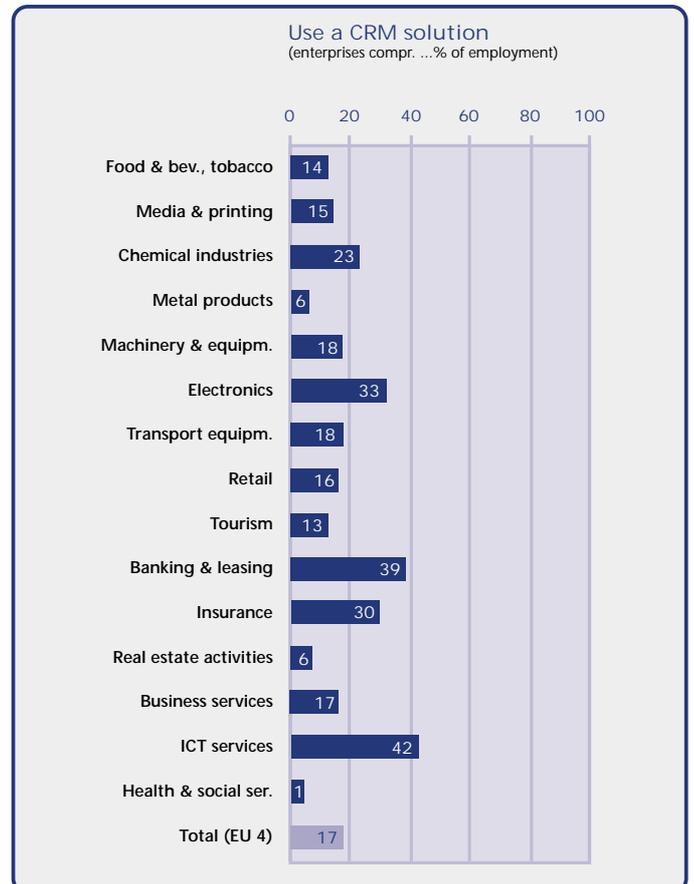
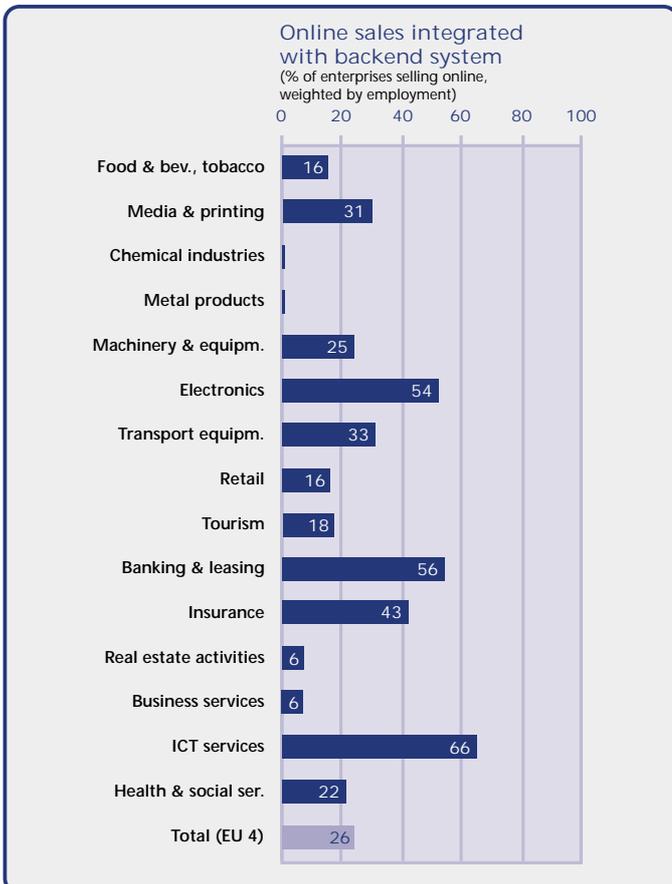
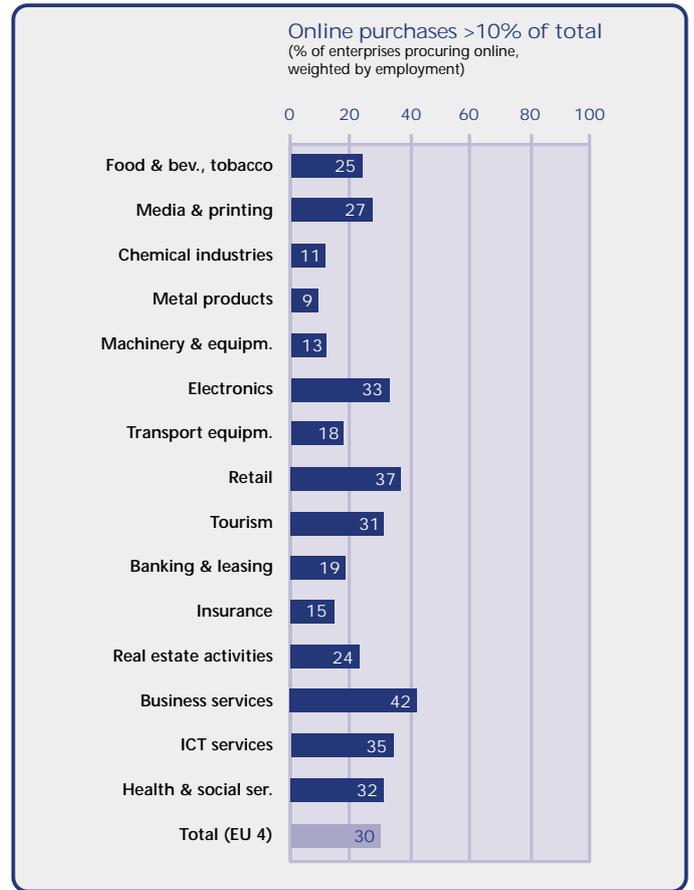
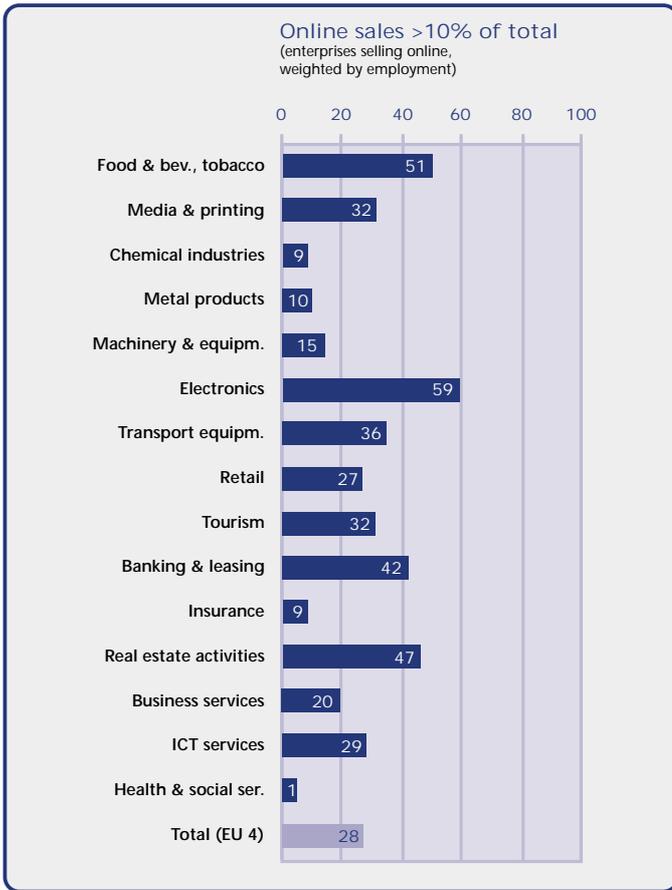
Series I.1: ICT infrastructure by business activity



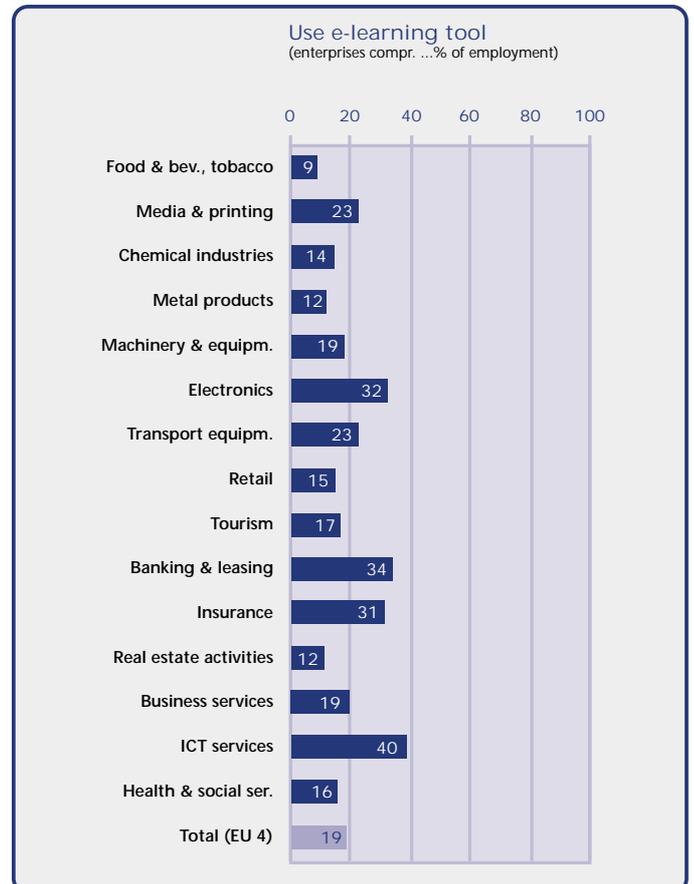
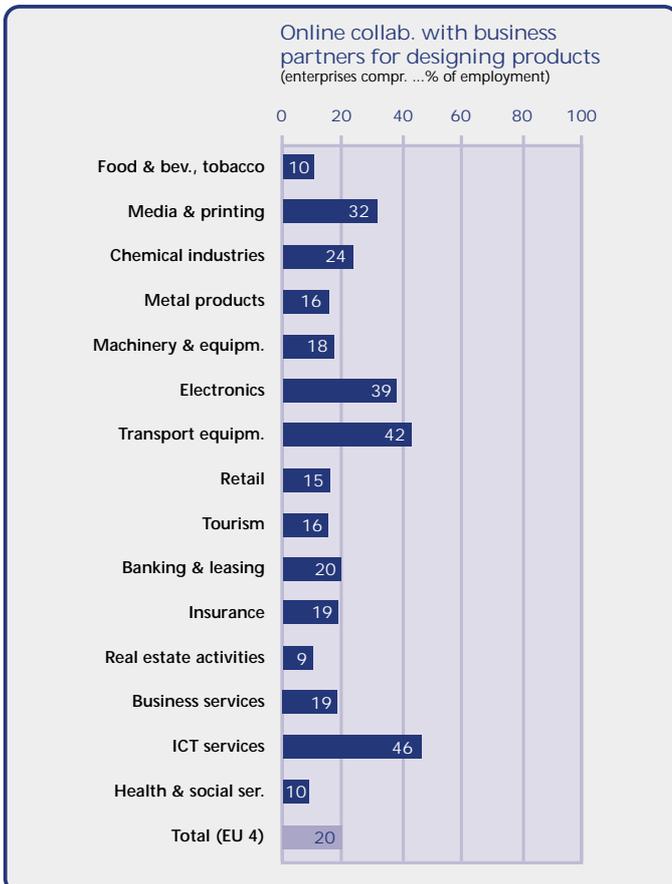
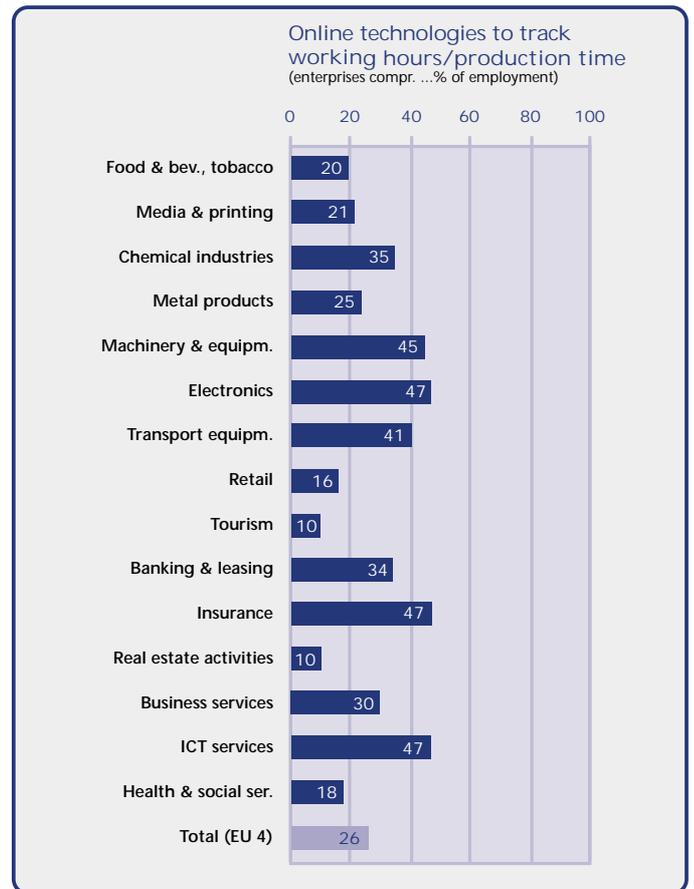
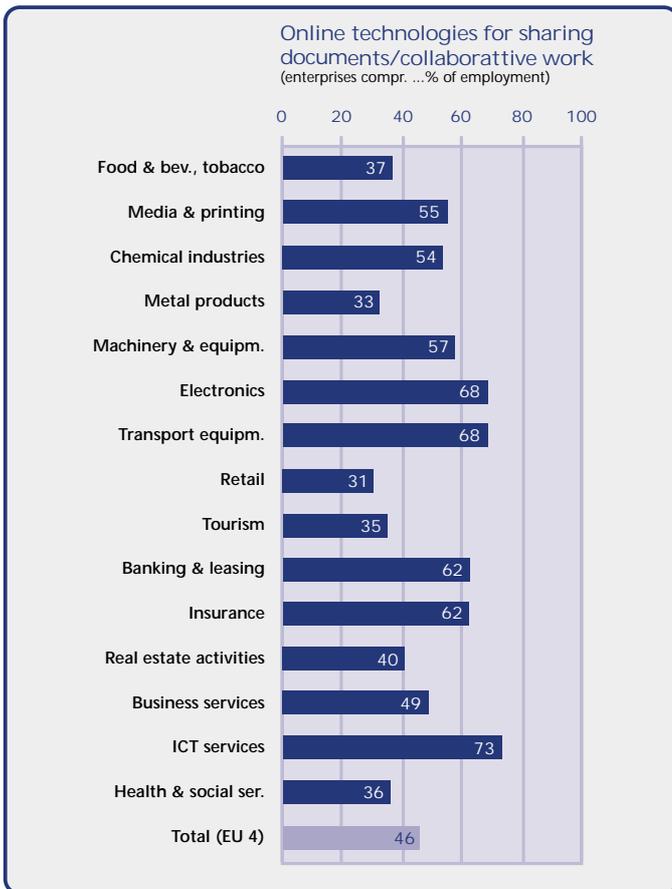
Series I.2: E-commerce activities by business activity



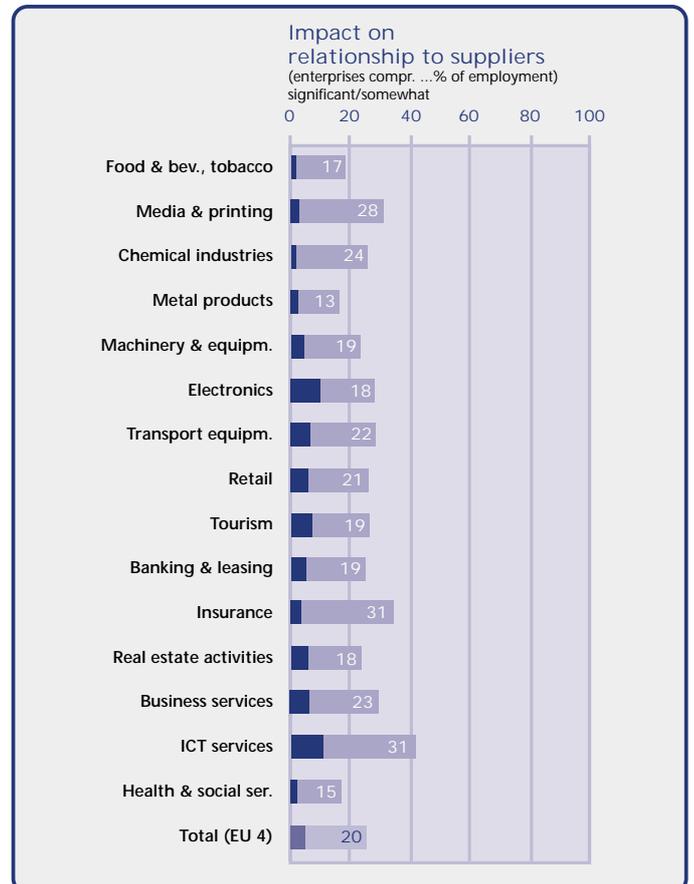
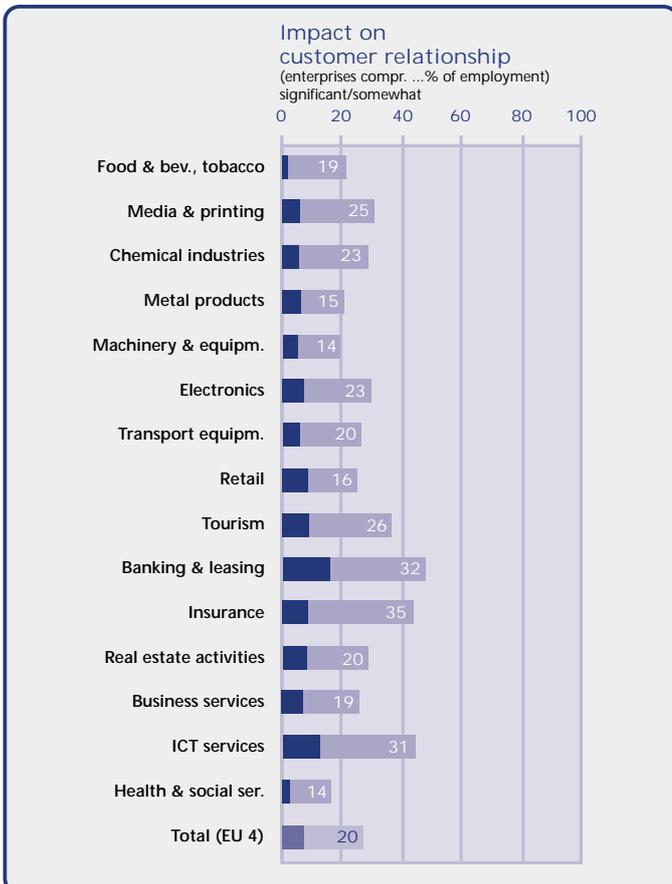
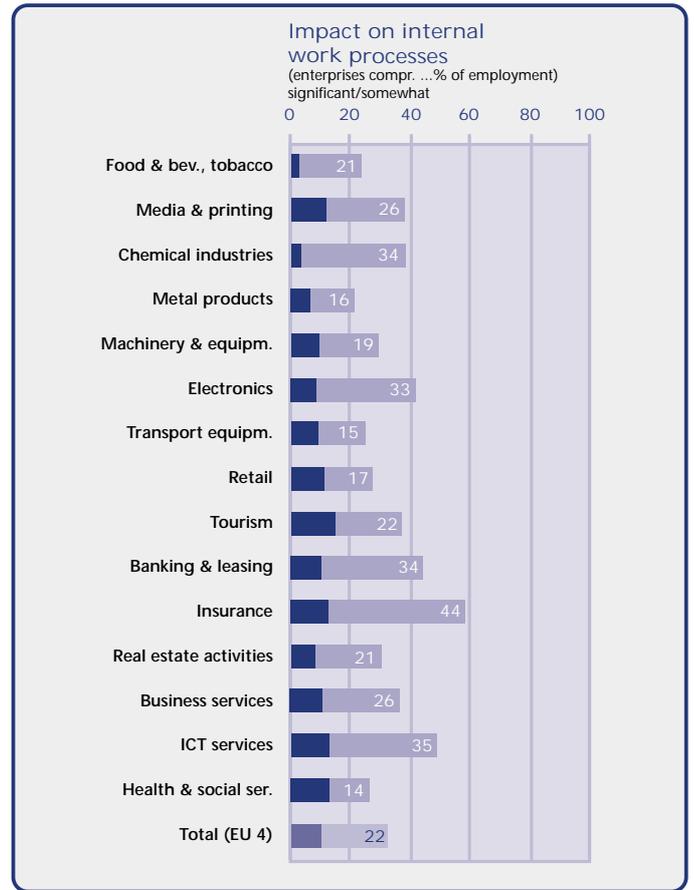
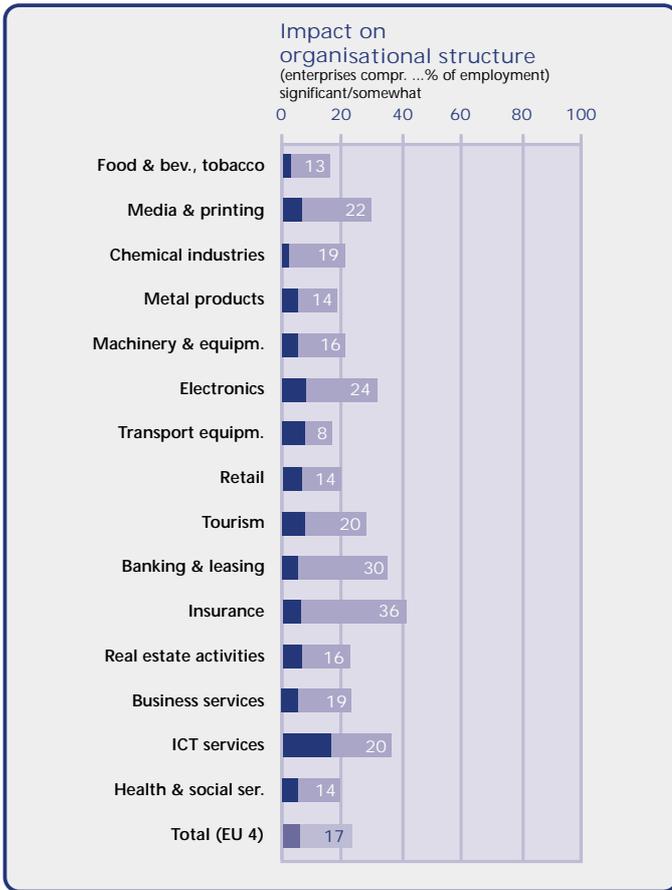
Series I.3: E-commerce intensity and integration by business activity



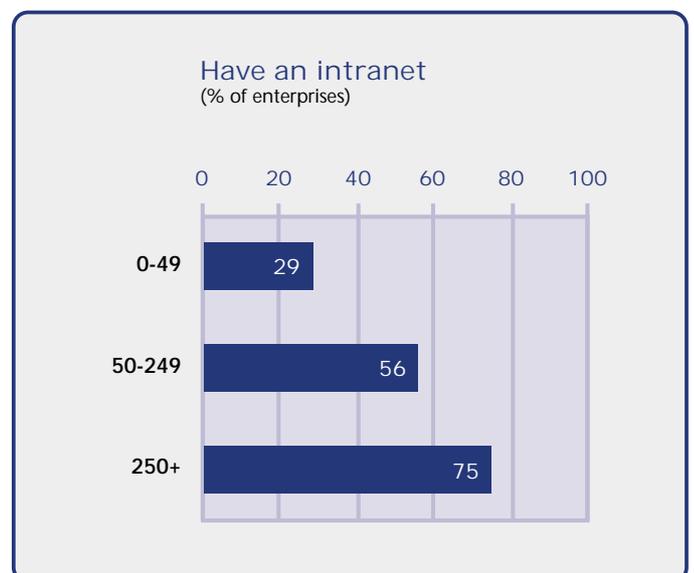
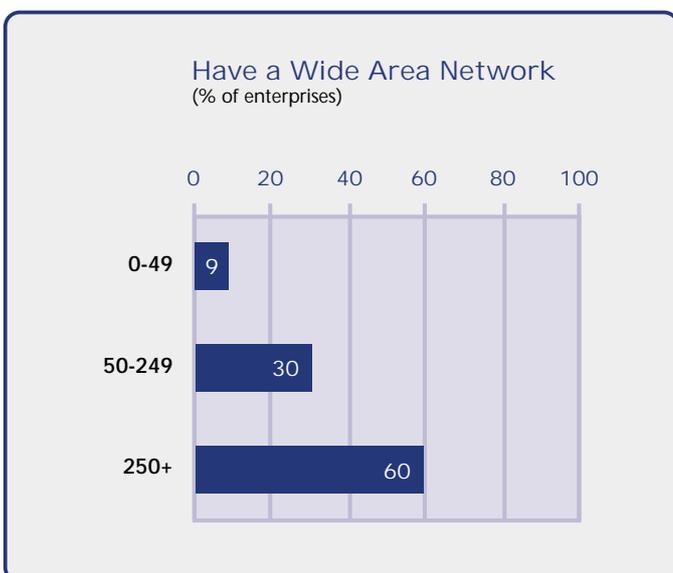
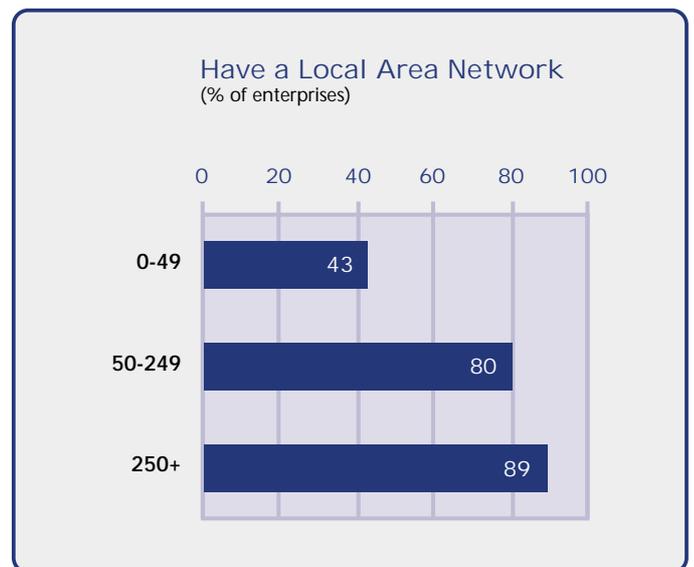
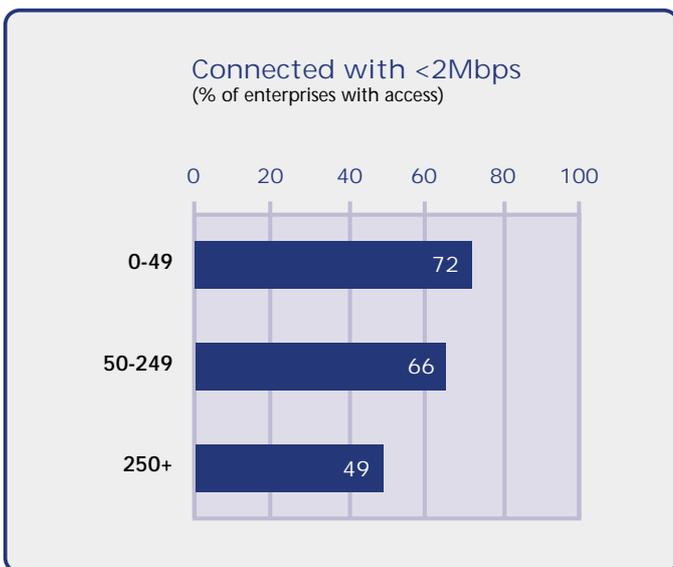
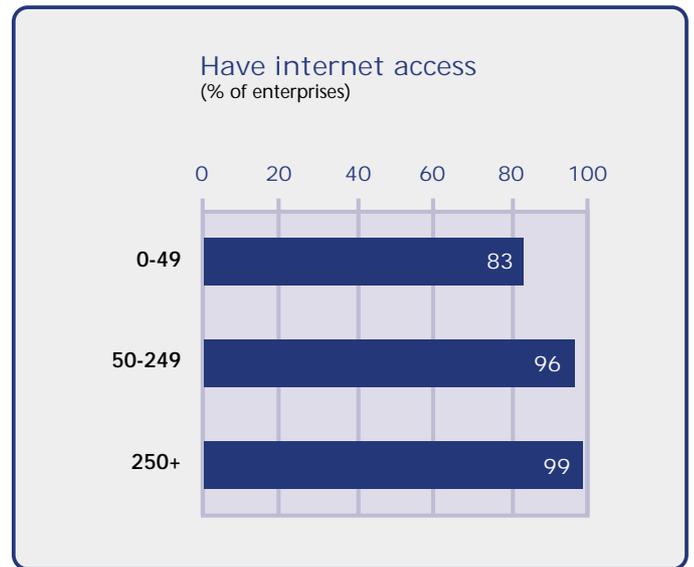
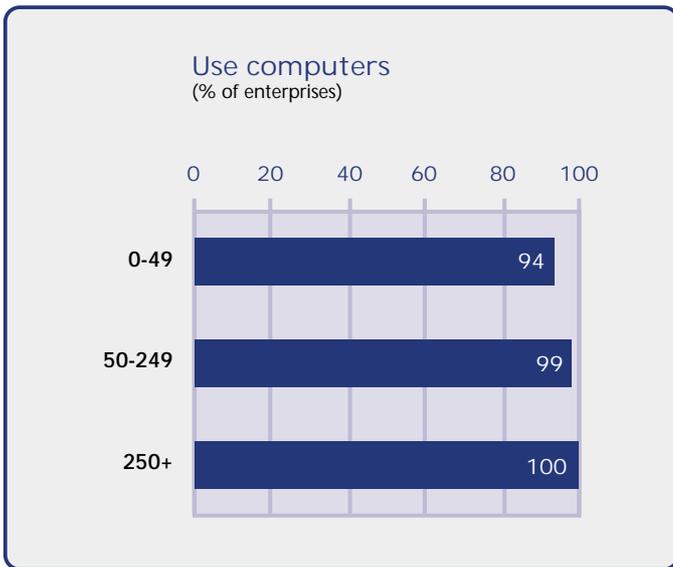
Series I.4: E-processes by business activity



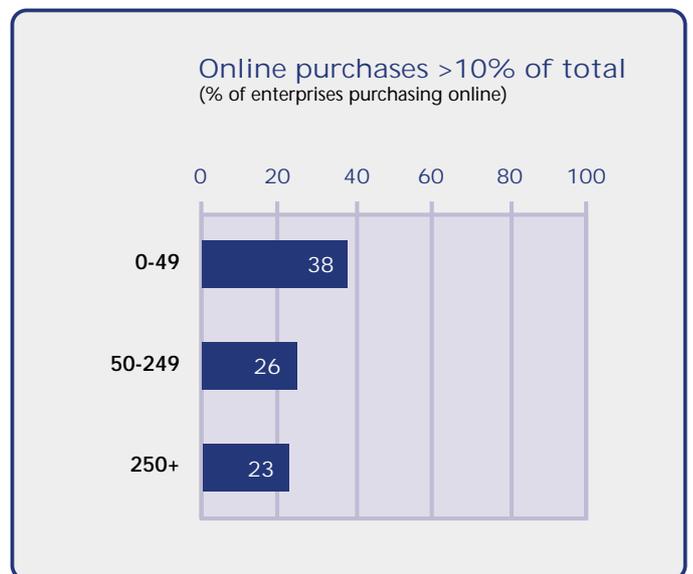
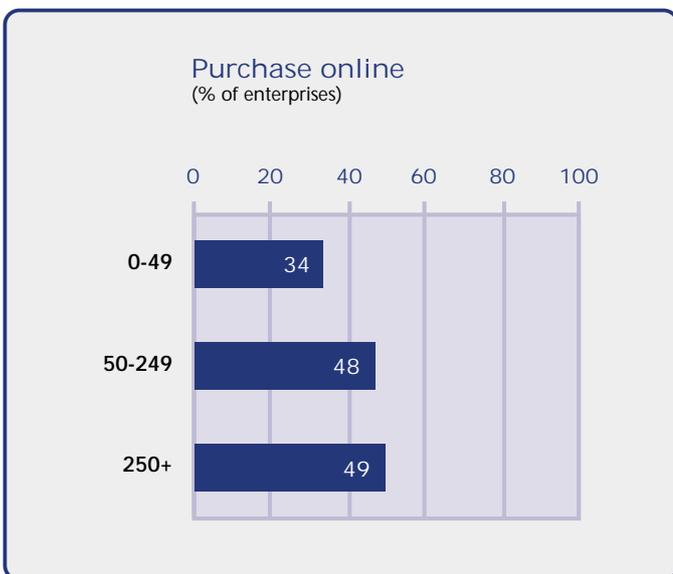
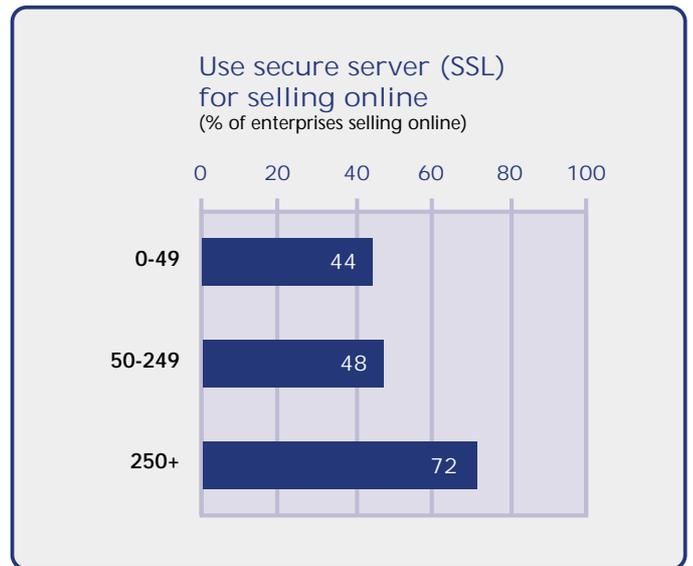
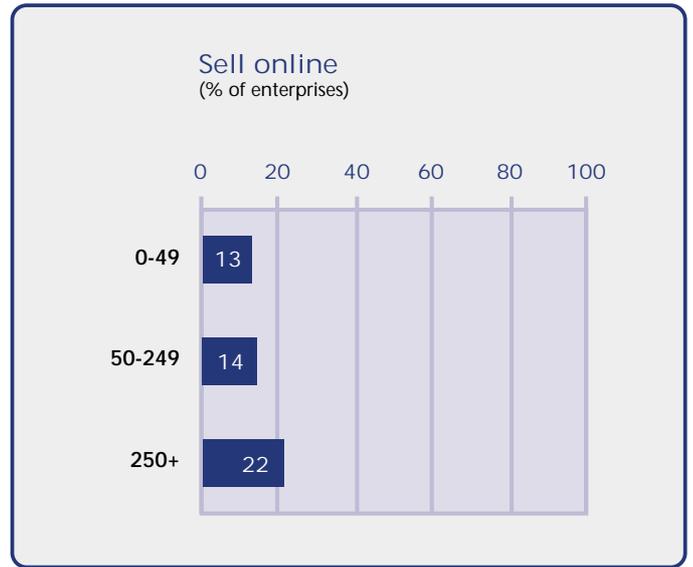
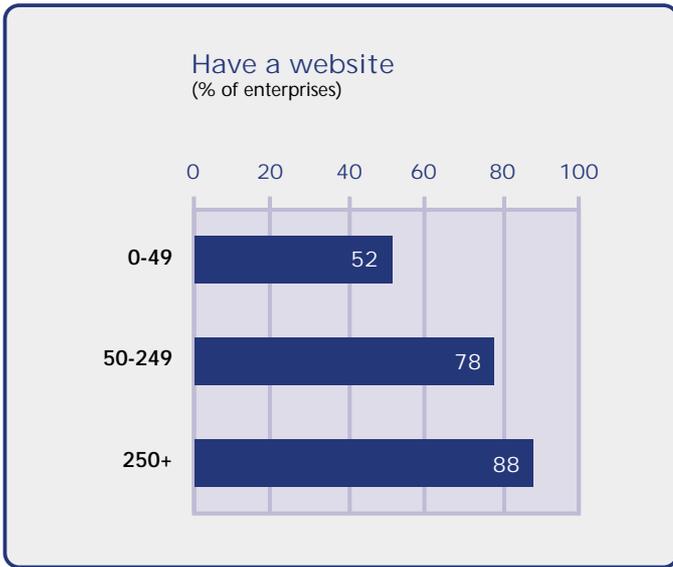
Series I.5: E-business impacts by business activity



Series II.1: ICT infrastructure by company size class

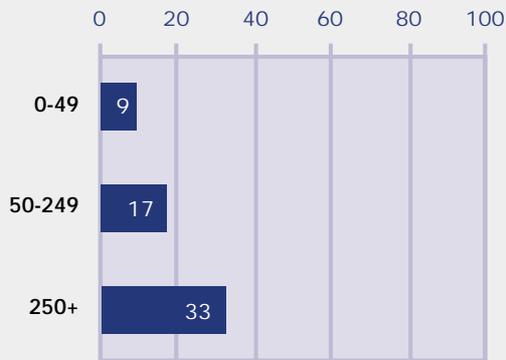


Series II.2: E-commerce activity and intensity by company size class

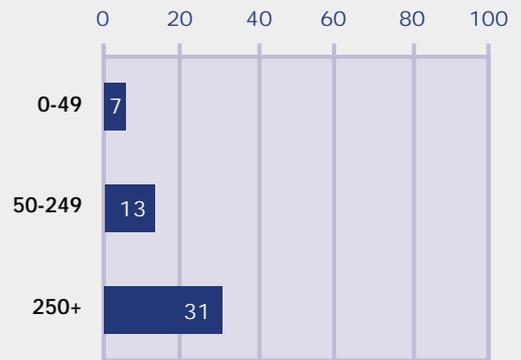


Series II.3: E-processes by company size class

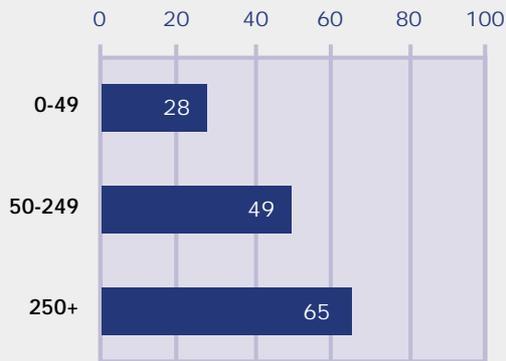
Online sales integrated with backend systems
(% of enterprises purchasing online)



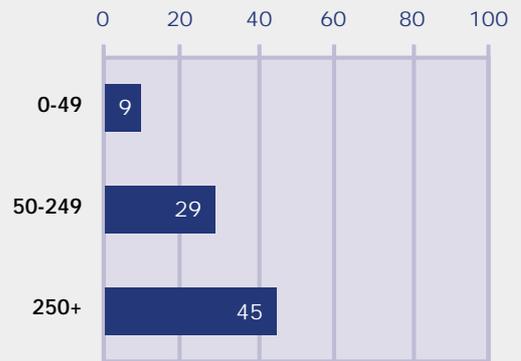
Use a CRM solution
(% of enterprises)



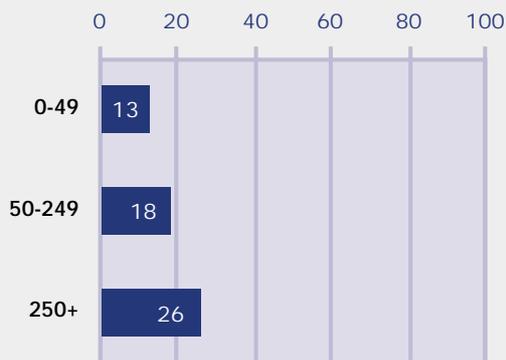
Online technologies for sharing documents/collaborative work
(% of enterprises)



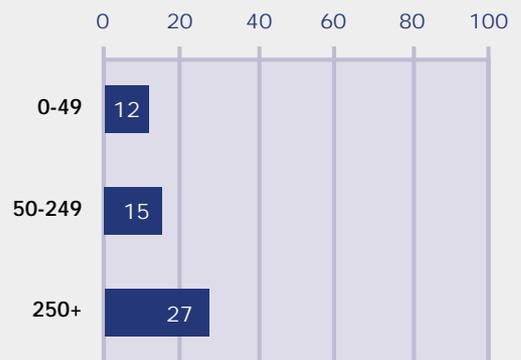
Online technologies to track working hours/prod. time
(% of enterprises)



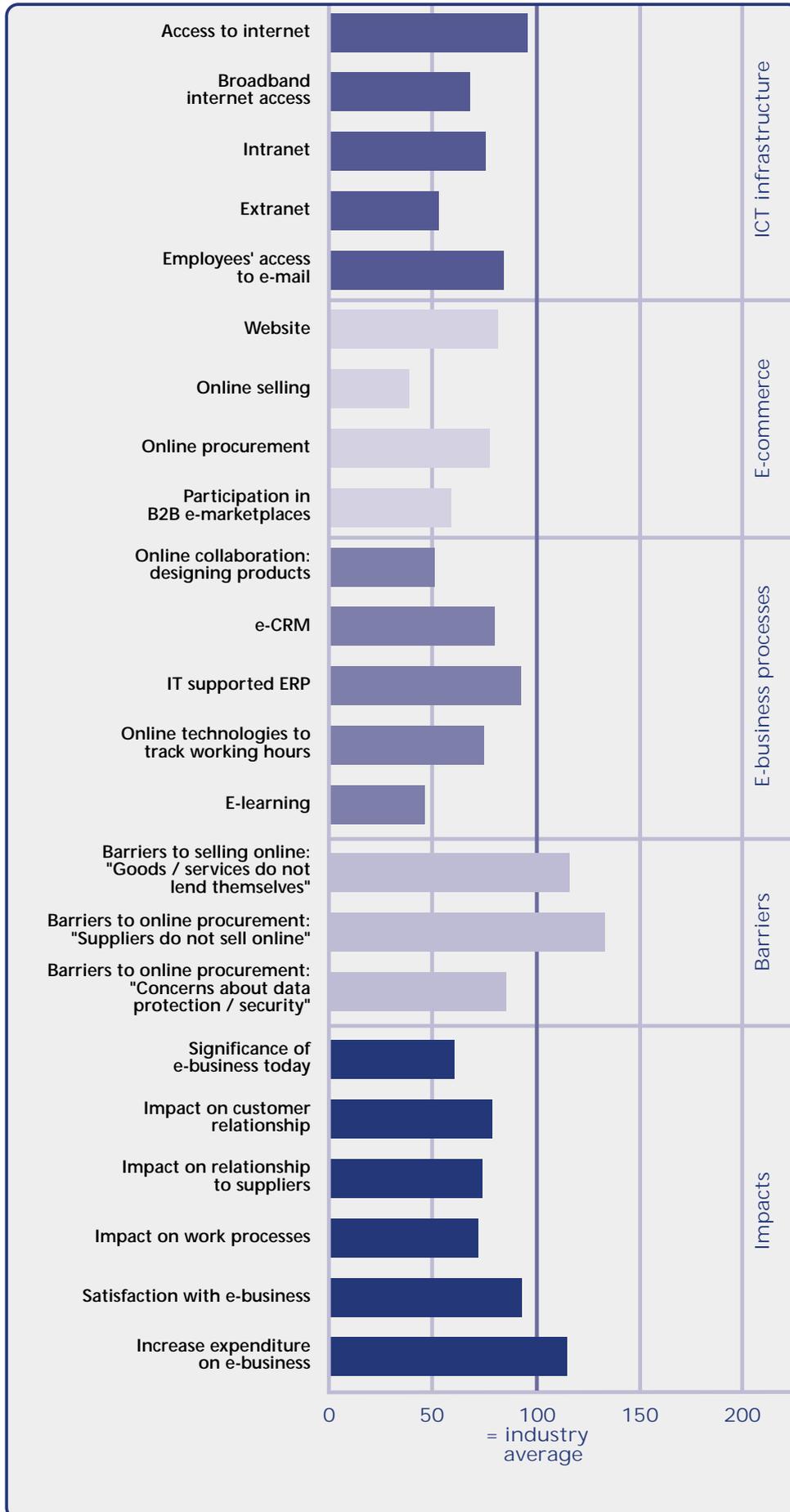
Online collab. with business partners for designing products
(% of enterprises)



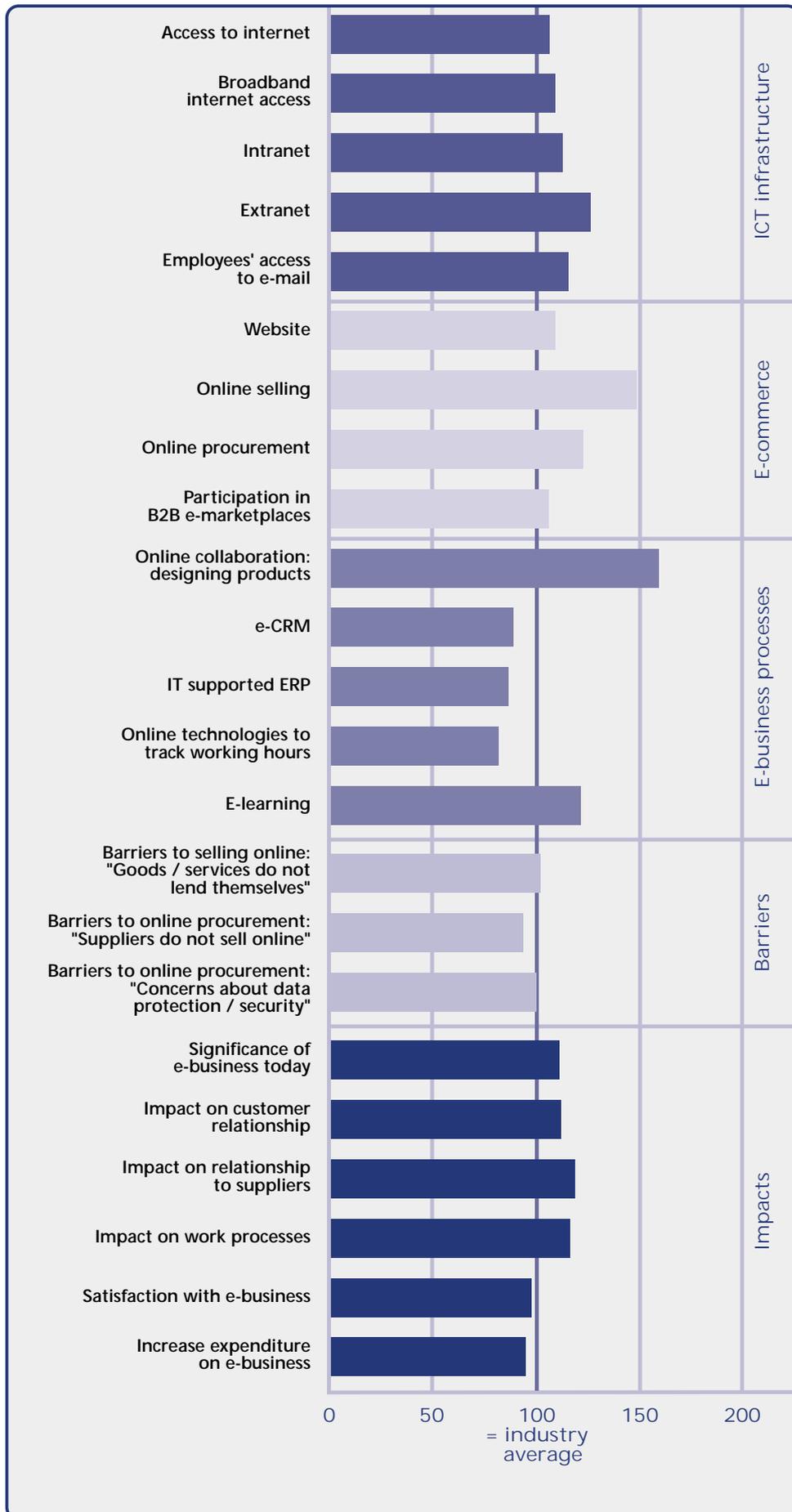
Use e-learning tools
(% of enterprises)



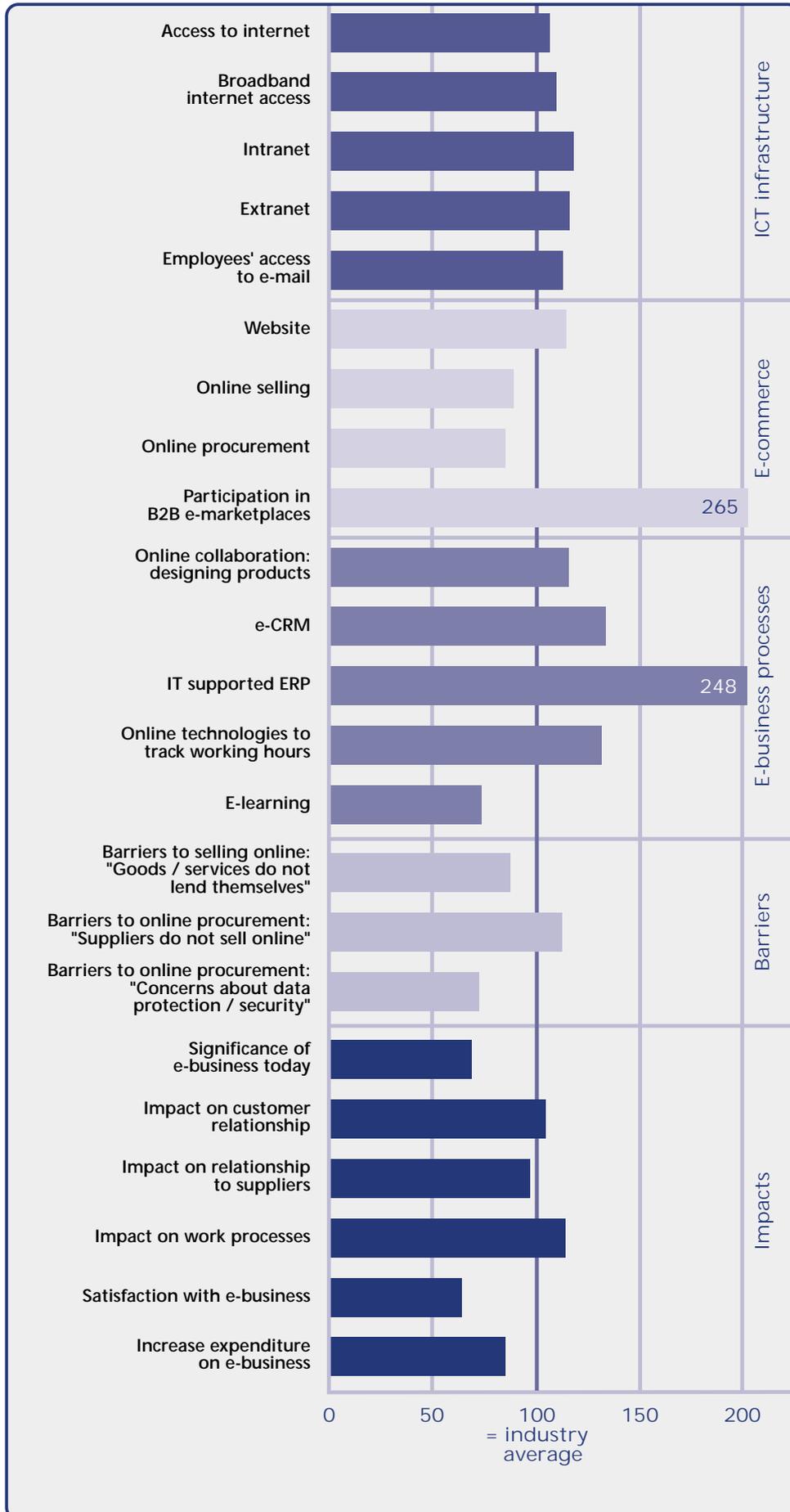
Scoreboard 1: Food, beverages and tobacco



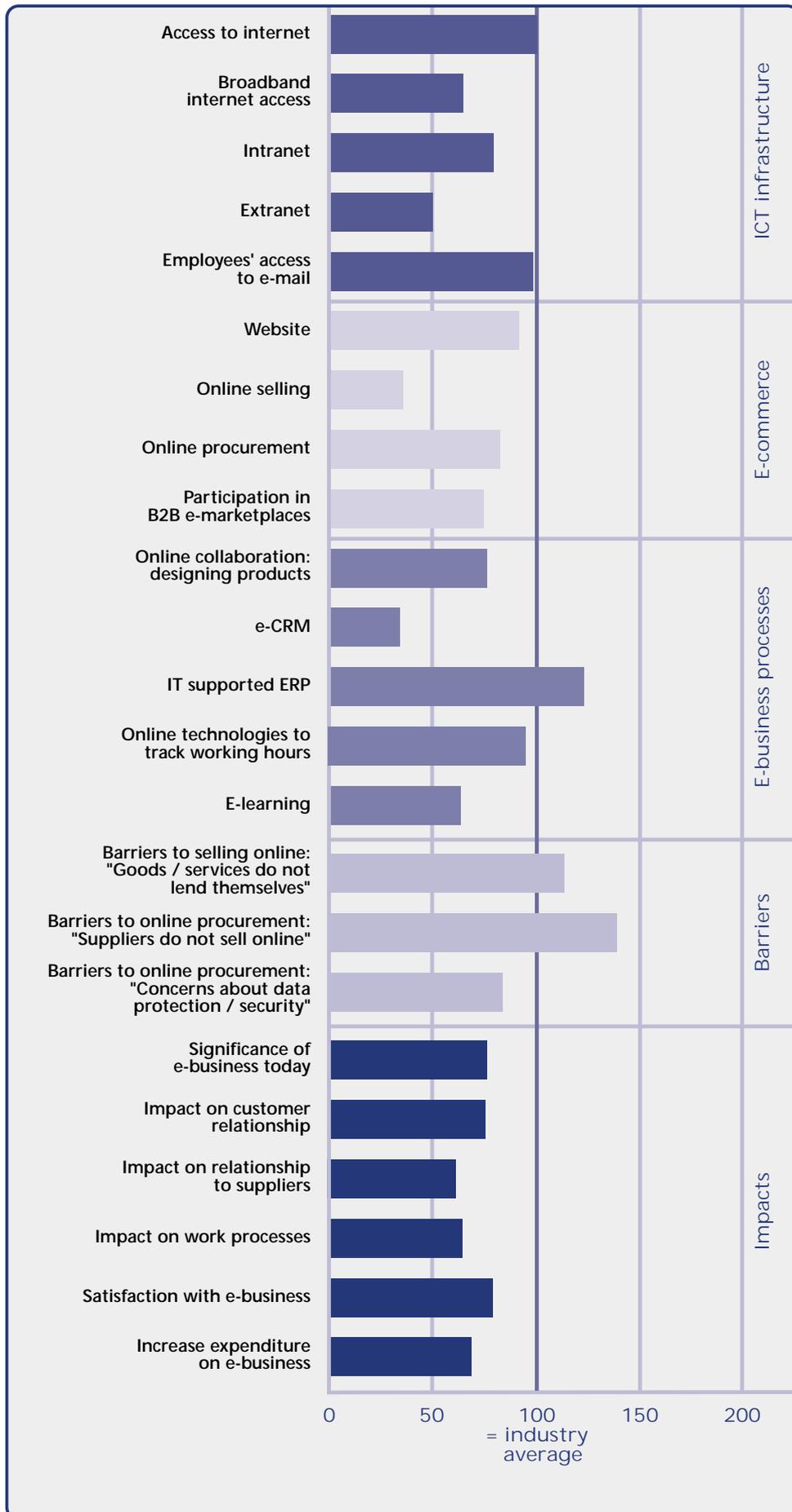
Scoreboard 2: Media and printing



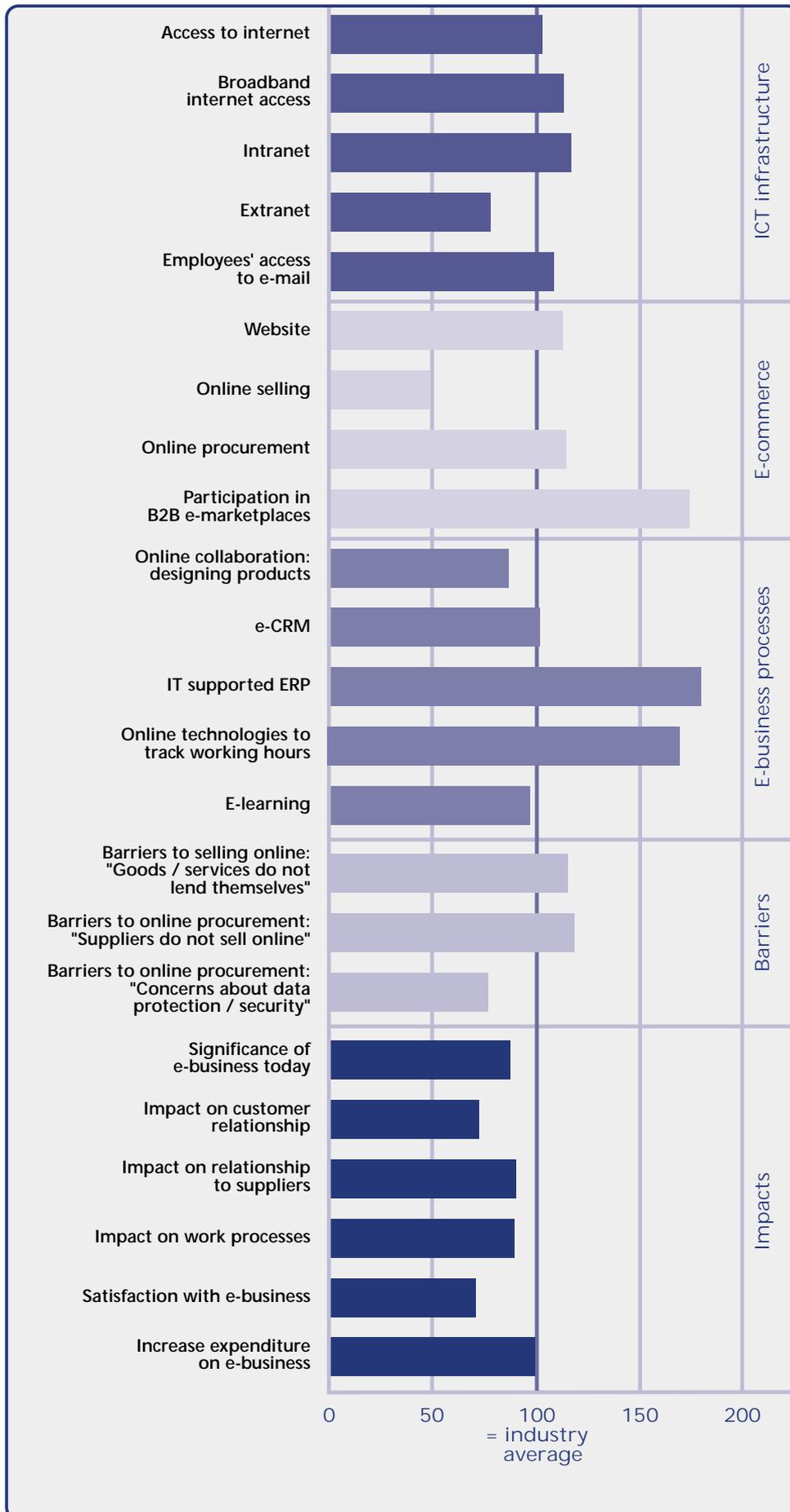
Scoreboard 3: Chemical industries



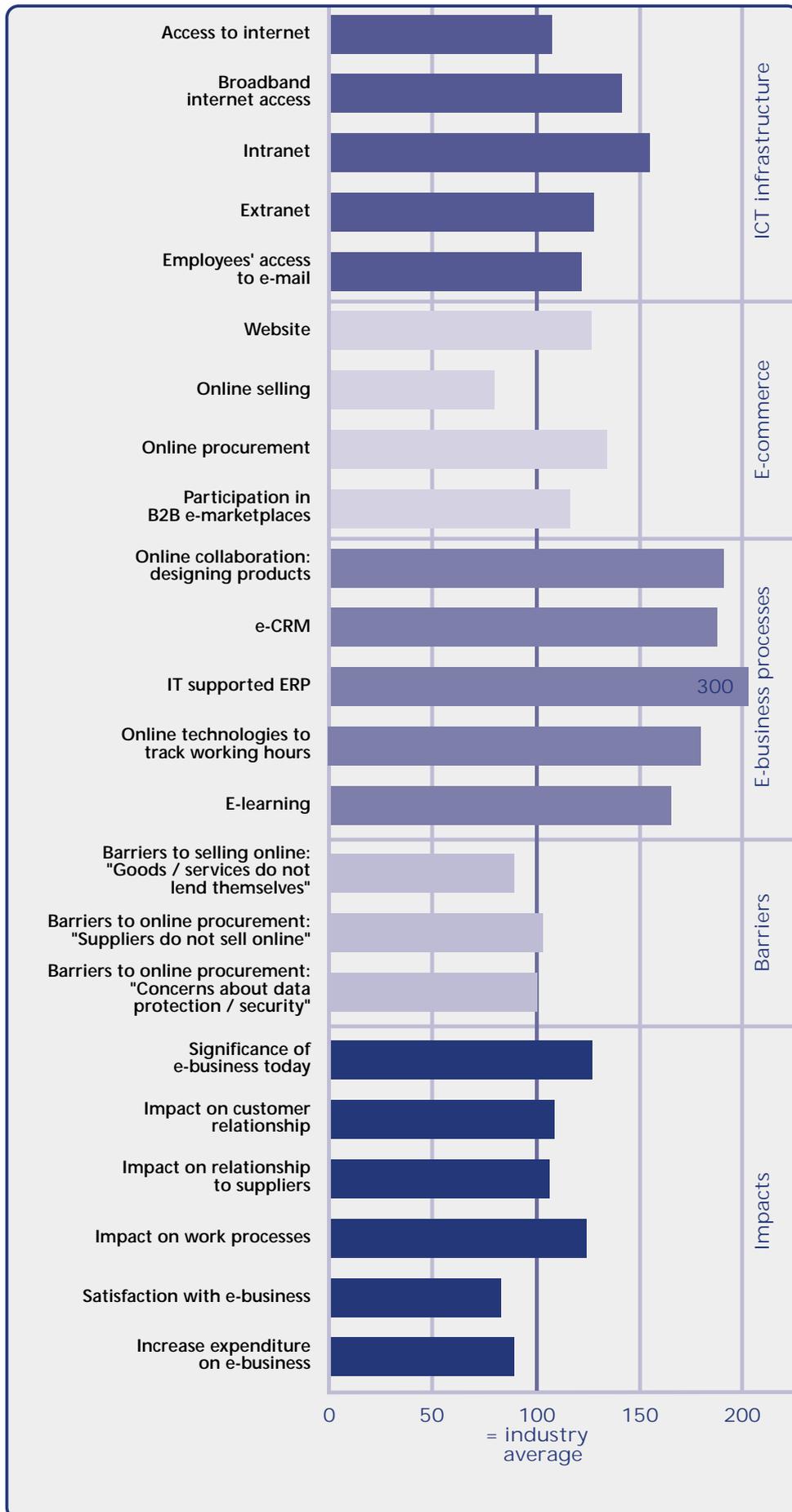
Scoreboard 4: Metal products



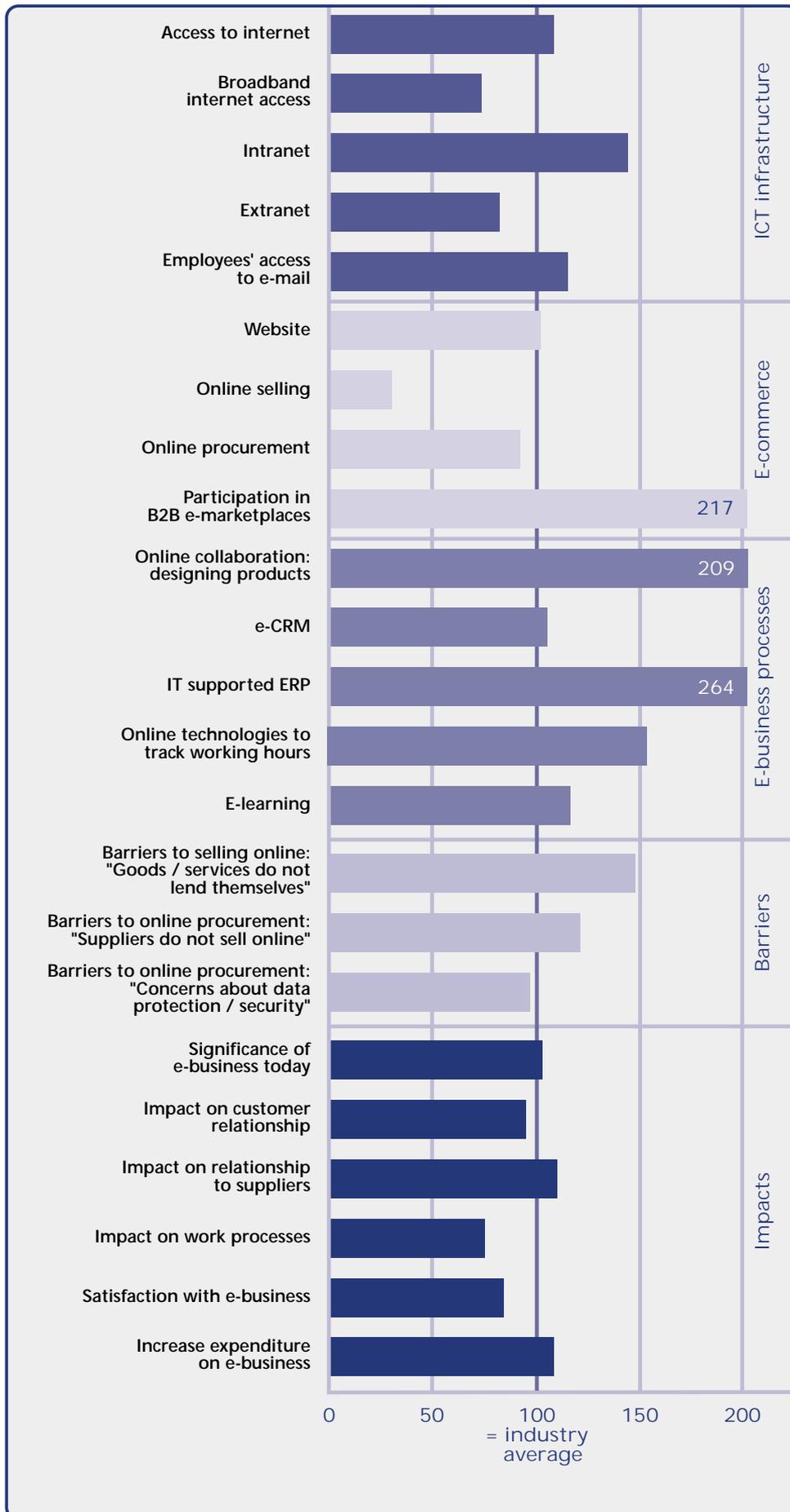
Scoreboard 5: Machinery and equipment



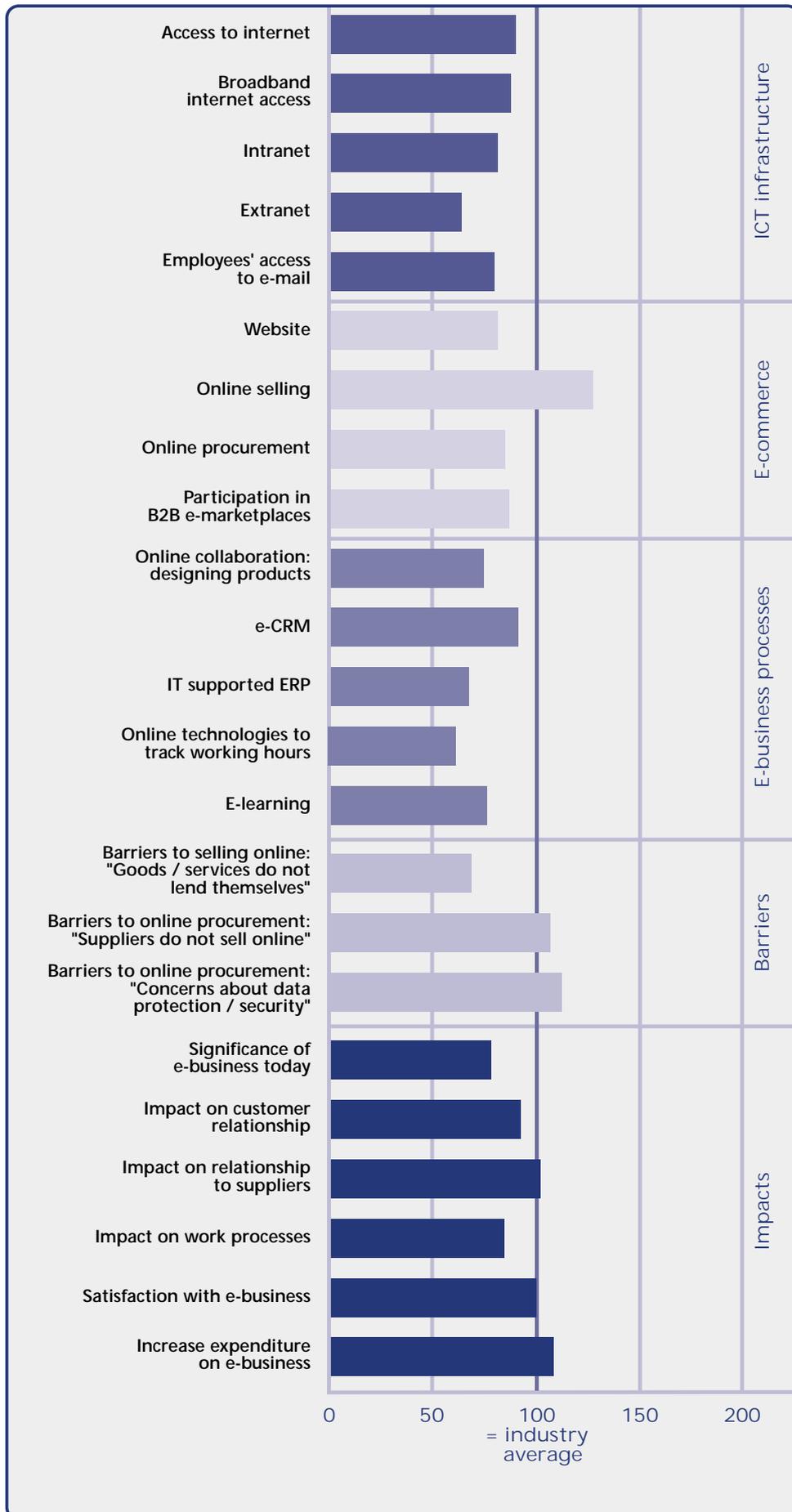
Scoreboard 6: Electrical machinery & electronics



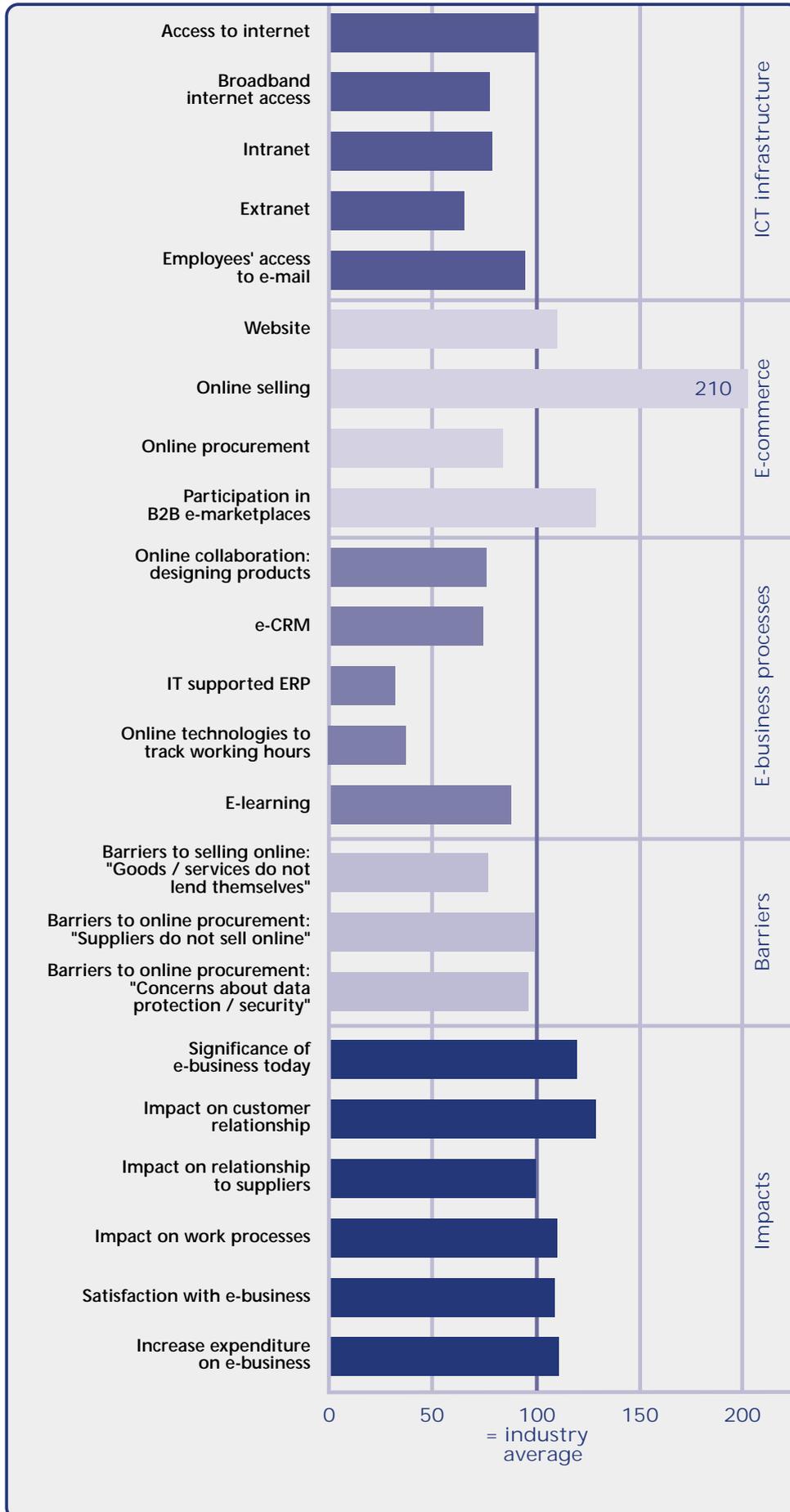
Scoreboard 7: Transport equipment



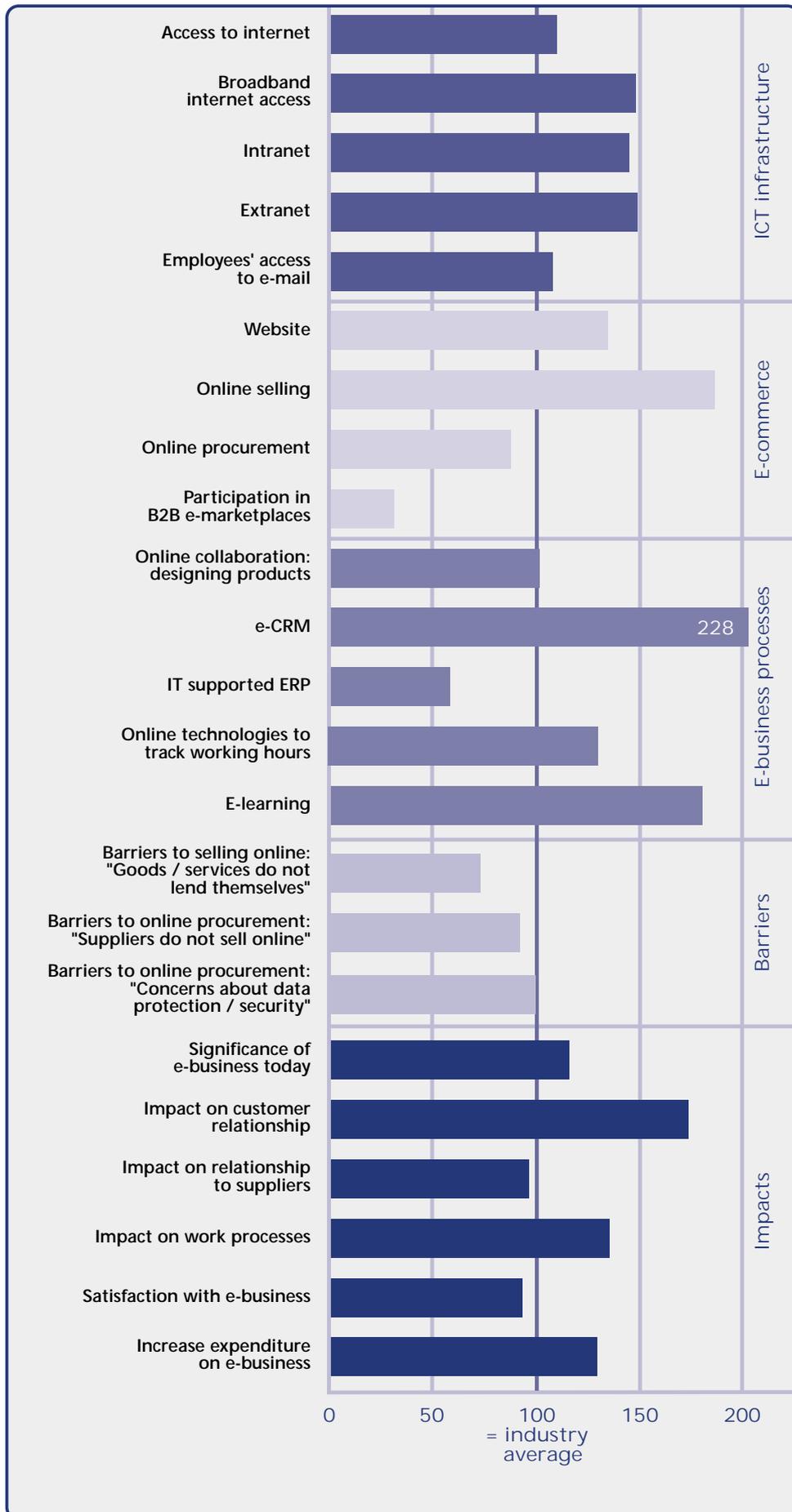
Scoreboard 8: Retail



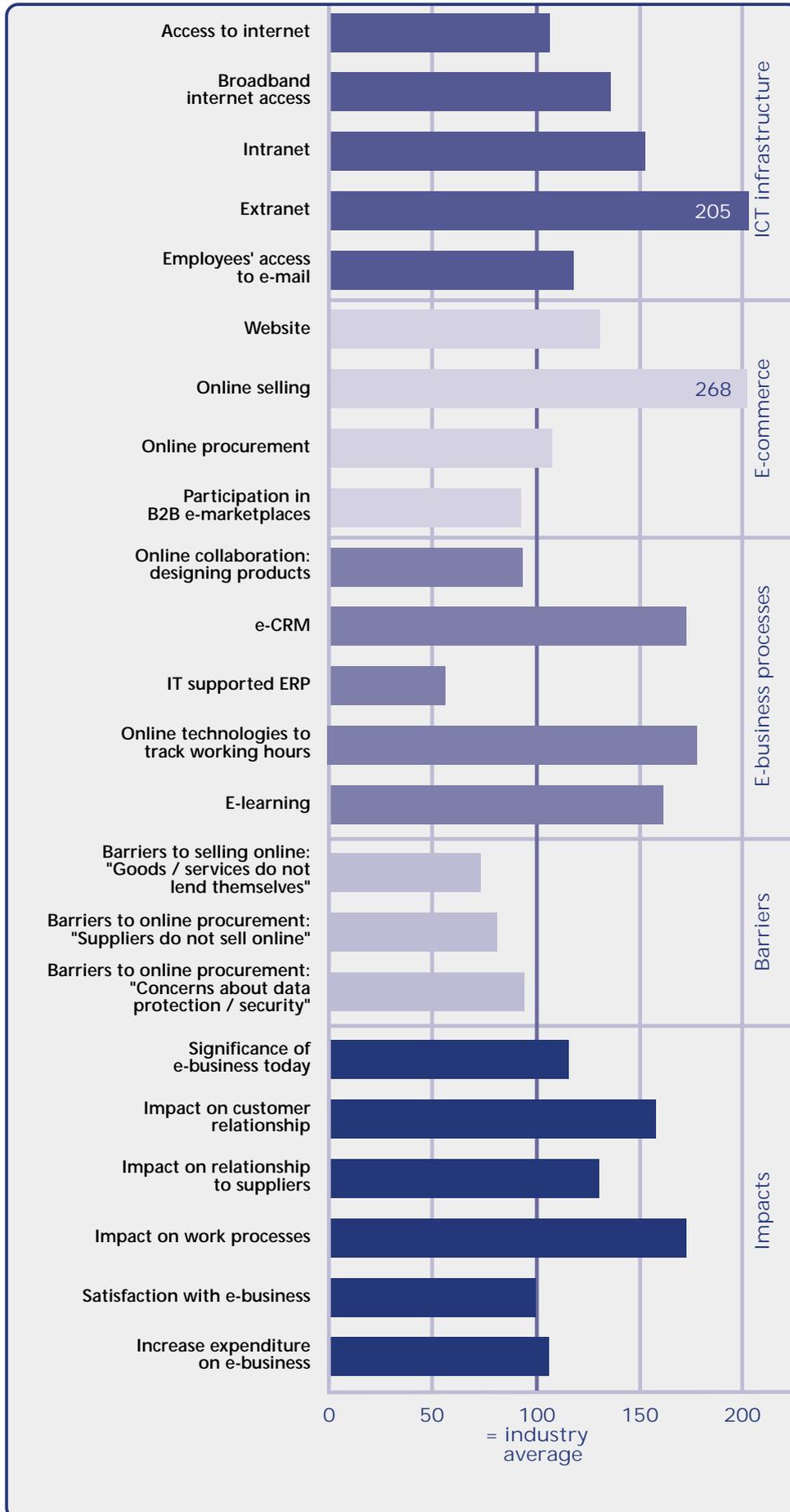
Scoreboard 9: Tourism



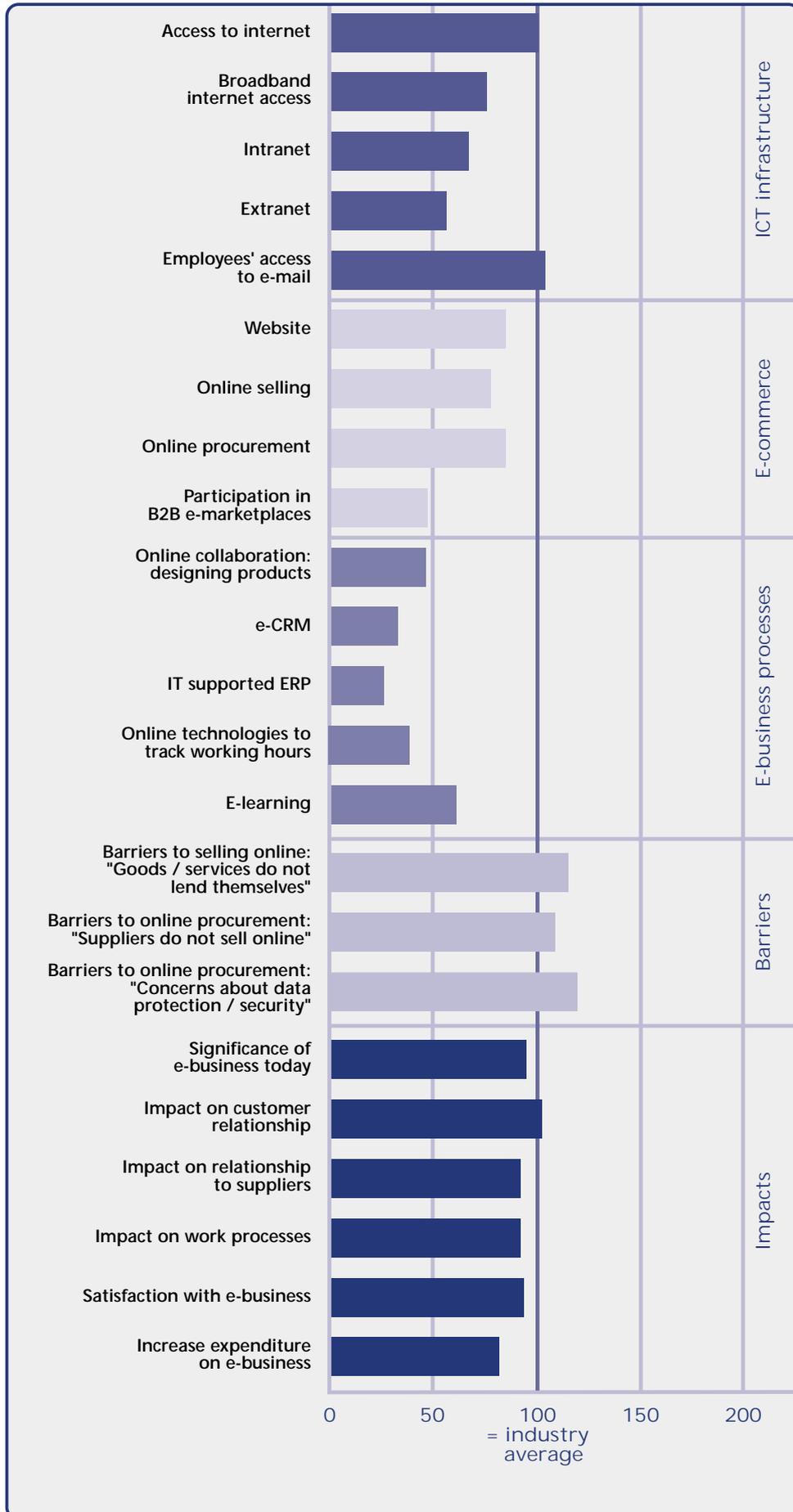
Scoreboard 10: Banking and leasing



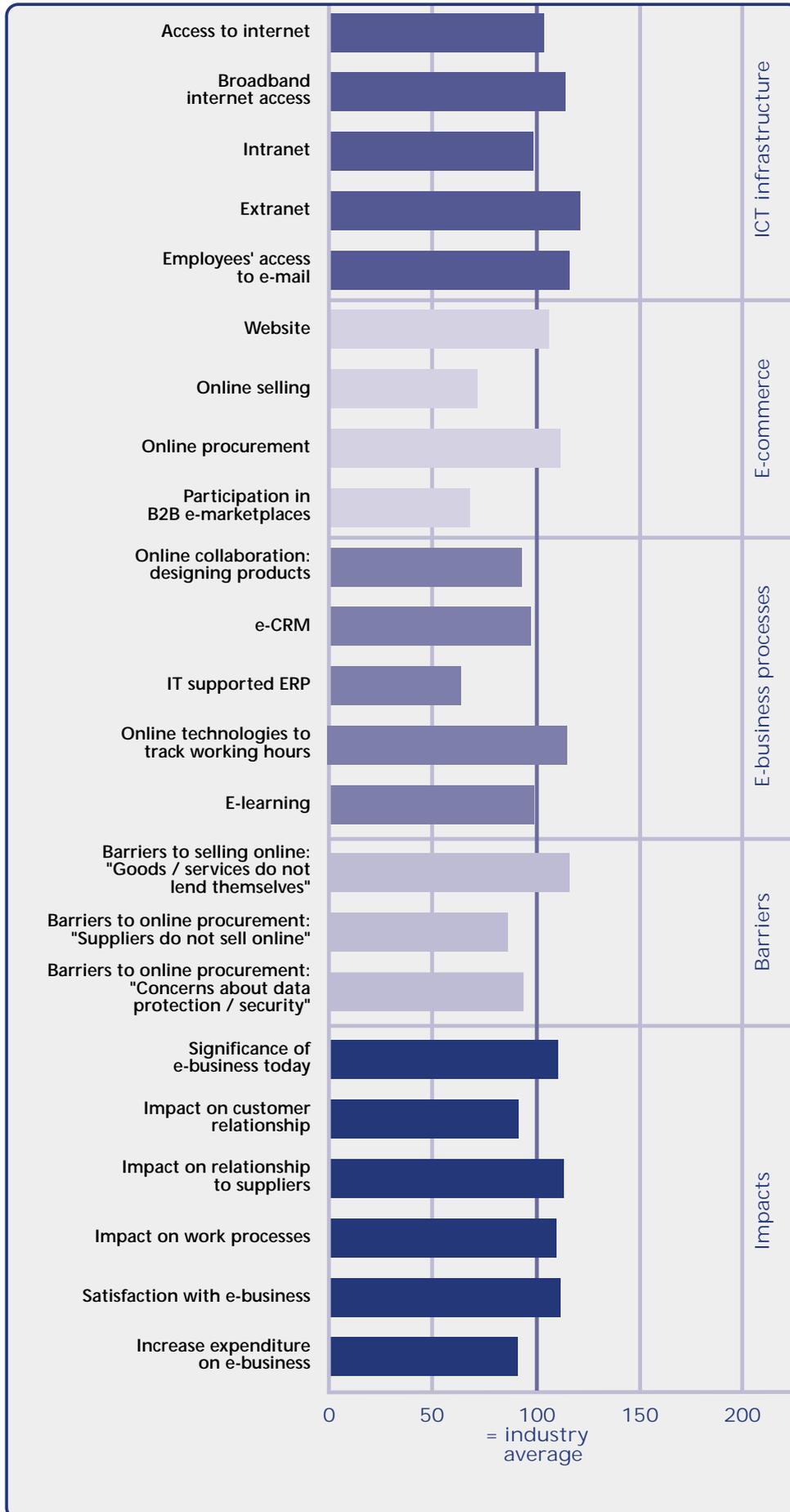
Scoreboard 11: Insurance and pension funding



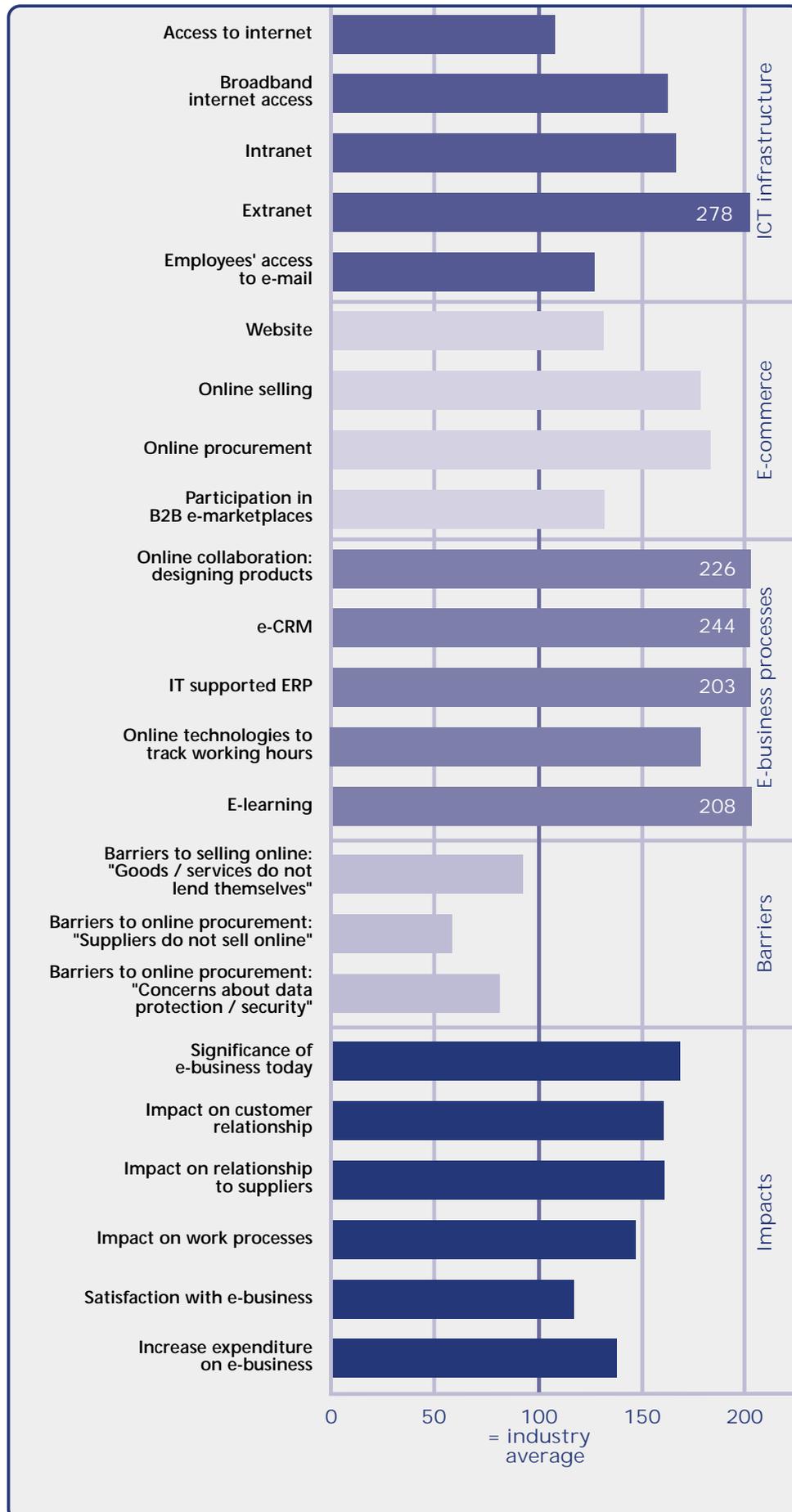
Scoreboard 12: Real estate



Scoreboard 13: Business Services



Scoreboard 14: ICT services



Scoreboard 15: Health and social services

