

**Sector Report:** No. 05-I, May 2004

## ***Electronic Business in Craft & Trade***

*The quantitative picture:  
Diffusion of ICT and e-business in 2003/04*

**e-business  
w@tch**



European  
Commission



*Enterprise publications*

## The e-Business W@tch

The European Commission, Enterprise Directorate General, launched the *e-Business W@tch* to monitor the growing maturity of electronic business across different sectors of the economy in the enlarged European Union and in EEA countries. Since January 2002 the *e-Business W@tch* has analysed e-business developments and impacts in 17 manufacturing, financial and service sectors. Results are continuously being published on the internet and can be accessed or ordered via the Europa server or directly at the *e-Business W@tch* website ([www.europa.eu.int/comm/enterprise/ict/policy/watch/index.htm](http://www.europa.eu.int/comm/enterprise/ict/policy/watch/index.htm) or [www.ebusiness-watch.org](http://www.ebusiness-watch.org)).

This document is the first Sector Impact Study on Craft and Trade Sectors published in the 2003/04 period. It presents the results of the e-Business Survey 2003 (for more information about the survey, see annex on methodology). The second study on this sector (to be published in August 2004) will analyse in more depth specific issues which are most relevant for this sector, feature case studies and draw conclusions on business implications of the empirical findings presented in this report.

## Disclaimer

Neither the European Commission nor any person acting on behalf of the Commission is responsible for the use which might be made of the following information. The views expressed in this report are those of the authors and do not necessarily reflect those of the European Commission. Nothing in this report implies or expresses a warranty of any kind. Results from this report should only be used as guidelines as part of an overall strategy. For detailed advice on corporate planning, business processes and management, technology integration and legal or tax issues, the services of a professional should be obtained.

## Acknowledgements

This report was prepared by empirica GmbH on behalf of the European Commission, Enterprise Directorate General. It is part of a deliverable in the context of the *e-Business W@tch*, which is implemented by a team consisting of empirica GmbH (co-ordinating partner), Berlecon Research, Databank Consulting, DIW Berlin, IDATE, PLS RAMBØLL Management and Saatchi & Saatchi Business Communications on behalf of the European Commission based on a service contract running from July 2003 until September 2004.



The *e-Business W@tch* gratefully acknowledges contributions from Mr. Frederic Posthumus, in charge of e-business, ICT and eEurope at the Bureau Européenne de L'Artisanat et des Petites et Moyennes Entreprises pour la Normalisation (NORMAPME), who has been appointed by the Market Watch as a sector expert for craft and trade.

## Contact

For further information about this Sector Study or about the *e-Business W@tch*, please contact:

 <p>Gesellschaft für Kommunikations- und Technologieforschung mbH</p> <p><b>empirica GmbH</b> Oxfordstr. 2 D-53111 Bonn Germany Fax: (49-228) 98530-12 <a href="mailto:info@empirica.com">info@empirica.com</a></p>	 <p><b>e-Business W@tch</b> c/o empirica GmbH Oxfordstr. 2 D-53111 Bonn Germany Fax: (49-228) 98530-12 <a href="mailto:info@ebusiness-watch.org">info@ebusiness-watch.org</a></p>	 <p><b>European Commission</b> Enterprise Directorate-General e-Business, ICT Industries and Services Fax: (32-2) 2967019 <a href="mailto:entr-ict-e-commerce@cec.eu.int">entr-ict-e-commerce@cec.eu.int</a></p>
--	--	--

## Rights Restrictions

Any reproduction or republication of this report as a whole or in parts without prior authorisation is strictly prohibited.

Bonn / Brussels, May 2004

## Table of Contents

Introduction to the <i>e-Business W@tch</i> .....	5
The Craft and Trade sector: Use of ICT and e-business in 2003/04 .....	9
<b>1 Economic profile</b> .....	<b>9</b>
<b>1.1 Definition</b> .....	<b>9</b>
<b>1.2 Economic profile</b> .....	<b>11</b>
1.2.1 <i>Industry structure</i> .....	12
1.2.2 <i>Craft and trade in selected sub-sectors</i> .....	17
1.2.3 <i>Craft and trade in the survey countries</i> .....	18
<b>1.3 Trends and challenges</b> .....	<b>20</b>
<b>2 The use of ICT and e-business in 2003/04</b> .....	<b>23</b>
<b>2.1 Introduction – general aspects of e-business in crafts</b> .....	<b>23</b>
<b>2.2 E-business indicators – the statistical picture</b> .....	<b>29</b>
2.2.1 <i>Infrastructure and skills development</i> .....	30
2.2.2 <i>Internal business processes</i> .....	36
2.2.3 <i>Procurement processes and supply chain management</i> .....	39
2.2.4 <i>Marketing and sales</i> .....	45
2.2.5 <i>Functions of the extended enterprise</i> .....	50
2.2.6 <i>Outlook: what will be important</i> .....	52
<b>2.3 The European e-Business Sector Scoreboard</b> .....	<b>54</b>
2.3.1 <i>Introduction</i> .....	54
2.3.2 <i>E-Business Scoreboards for the craft and trade sector</i> .....	56
2.3.3 <i>Cross-sector Scoreboards</i> .....	57
2.3.4 <i>Sectors in profile</i> .....	61
<b>3 Summary and conclusions</b> .....	<b>62</b>
<b>3.1 Summary of main findings</b> .....	<b>62</b>
<b>3.2 Economic impacts</b> .....	<b>64</b>
3.2.1 <i>Impacts on individual enterprises</i> .....	64
3.2.2 <i>Implications for the industry</i> .....	67
<b>3.3 Policy implications</b> .....	<b>68</b>
3.3.1 <i>General issues</i> .....	68
3.3.2 <i>Knowledge society issues</i> .....	70
3.3.3 <i>Country-related issues</i> .....	71
3.3.4 <i>Sector-related issues</i> .....	71
References .....	73
Annex I: Methodological Notes on the e-Business Survey 2003 .....	74
Annex III: Glossary of Technical Terms.....	78
Annex III: Methodological considerations for the craft and trade sector..	81
Annex IV: Sector Impact Studies of the <i>e-Business W@tch</i> in 2003/04 .....	86

## Index of tables and charts

<i>Exhibit 1-1: Professions in the e-Business W@tch craft sub-sectors .....</i>	11
<i>Exhibit 1-2: Number and percentage of craft enterprises in European countries.....</i>	13
<i>Exhibit 1-3: Number and percentage of craft employees in European countries .....</i>	14
<i>Exhibit 1-4: Crafts' value added and percentage in sub-sector total in European countries .....</i>	15
<i>Exhibit 1-5: Value and percentage of crafts' productivity in European countries .....</i>	16
<i>Exhibit 2-1: Use of physical network infrastructure in craft companies (2003).....</i>	31
<i>Exhibit 2-2: Internet access and use of basic internet applications in craft industries (2003) .....</i>	32
<i>Exhibit 2-3: Craft companies having Internet access (2003) .....</i>	33
<i>Exhibit 2-4: Quality of internet connection used by companies in craft industries (2003) .....</i>	33
<i>Exhibit 2-5: Craft companies supporting any kind of IT skills development (2003).....</i>	34
<i>Exhibit 2-6: Recruitment activities, expected qualifications and outsourcing of IT activities in craft industries (2003) .....</i>	35
<i>Exhibit 2-7: Craft companies having experienced difficulties in recruiting IT staff (2003) .....</i>	35
<i>Exhibit 2-8: Knowledge management and e-learning in craft companies (2003).....</i>	36
<i>Exhibit 2-9: Knowledge management: use of intranets and special applications in crafts .....</i>	36
<i>Exhibit 2-10: Use of online technologies to support internal business processes in craft industries (2003).....</i>	37
<i>Exhibit 2-11: Craft companies using an ERP (enterprise resource planning) system (2003).....</i>	38
<i>Exhibit 2-12: Online purchasing activities in craft companies (2003).....</i>	39
<i>Exhibit 2-13: Craft companies purchasing online by country (2003).....</i>	40
<i>Exhibit 2-14: Distribution platforms and protocols used for online purchases in craft industries (2003).....</i>	41
<i>Exhibit 2-15: Share of online purchases (all platforms) as % of total purchases in craft industries (2003) .....</i>	41
<i>Exhibit 2-16: IT integration with suppliers in craft industries (2003).....</i>	42
<i>Exhibit 2-17: IT integration with suppliers in craft industries (2003).....</i>	43
<i>Exhibit 2-18: Perceived effects of purchasing online in craft industries (2003).....</i>	44
<i>Exhibit 2-19: Reported effect of e-purchasing on the number of suppliers in craft industries (2003) .....</i>	44
<i>Exhibit 2-20: Online marketing and e-commerce activities in craft industries (2003).....</i>	45
<i>Exhibit 2-21: Craft companies selling online by country (2003).....</i>	46
<i>Exhibit 2-22: Share of online sales (all protocols) as % of total sales in craft industries (2003).....</i>	47
<i>Exhibit 2-23: Sophistication of online sales systems in craft industries by size-band (2003) .....</i>	48
<i>Exhibit 2-24: Exchange of documents and standardised data with customers in craft industries (2003).....</i>	48
<i>Exhibit 2-25: Companies from craft industries using a CRM software application (2003).....</i>	49
<i>Exhibit 2-26: Perceived effects of selling online on sales and business processes efficiency in craft industries (2003) ..</i>	49
<i>Exhibit 2-27: Craft industries: Use of online technologies for business processes between companies (2003).....</i>	50
<i>Exhibit 2-28: Exchange of standardised data between companies (2003).....</i>	51
<i>Exhibit 2-29: Assessment by craft companies: importance of future ICT developments for them.....</i>	53
<i>Exhibit 3-1: Overall significance of e-business for craft companies in 2003 (by country).....</i>	65
<i>Exhibit 3-2: Overall significance of e-business for craft companies in 2003 (by size-band).....</i>	65
<i>Exhibit 3-3: Overall significance of e-business for craft companies in 2003 (by industry).....</i>	66
<i>Exhibit 3-4: Reasons why e-business does not play a role in craft industries.....</i>	66

## Introduction to the *e-Business W@tch*

### **The *e-Business W@tch* – observatory and intermediary since late 2001**

The *e-Business W@tch* monitors the adoption, development and impact of electronic business practices in different sectors of the European economy. The eEurope 2002 Action plan provided the basis for targeted actions to stimulate the use of the internet for accelerating e-commerce, acknowledging that "electronic commerce is already developing dynamically in inter-business trading [...]" and that "it is important for SMEs not to be left behind in this process [...]." The eEurope 2005 Action Plan, endorsed by the Seville European Council in June 2002, confirmed and built further upon these objectives with Action 3.1.2. "A dynamic e-business environment", which defined the goal "to promote take-up of e-business with the aim of increasing the competitiveness of European enterprises and raising productivity and growth through investment in information and communication technologies, human resources (notably e-skills) and new business models".

It is against this background that the European Commission, Enterprise Directorate General, launched the *e-Business W@tch* in late 2001, with the objective to provide sectoral analysis based on sound empirical research, including annual enterprise surveys in all countries of the enlarged European Union. Special emphasis is placed on the implications for SMEs.

Since its launching, the *e-Business W@tch* has published e-Business Sector Studies on 17 sectors of the European economy, two comprehensive synthesis reports about the status of electronic business in the European Union, statistical pocketbooks and further resources (newsletters, presentations, special issue reports). These are all available on the website at [www.ebusiness-watch.org](http://www.ebusiness-watch.org).

The quantitative analysis about the diffusion of ICT and e-business is based to a large extent on annual, representative surveys among decision makers of European enterprises. The 2002 survey included 9,264 enterprises from the 15 EU Member States. In 2003, the regional scope of the survey was extended to the EEA and Acceding Countries, with about 10,500 companies in total.

Survey results confirm the initial assumption and rationale of the *e-Business W@tch* that the sector in which a firm operates and the size of a company are main determinants of its e-business activity, rather than the location of a company. The large demand for the various publications and statistics provided by the *e-Business W@tch*, and their exploitation by other research institutions (for example, in the EITO Yearbook 2003 and in the OECD Information Technology Outlook 2004), documents that there has clearly been a demand for sectoral e-business analysis.

Facilitated by positive responses and the growing interest in its analysis, the *e-Business W@tch* is increasingly developing from an observatory into a think-tank and intermediary, stimulating the debate about the economic and policy implications of e-business among stakeholders at an international level.

### **The wide-angle perspective: the *e-Business W@tch* provides the "big picture" as a basis for further research**

The mission of the *e-Business W@tch* is to present a "wide-angle" perspective on e-business developments and practices in the sectors covered. This has important implications regarding the level of detail in which various issues can be explored, both in terms of the quantitative picture (survey) and in terms of the qualitative assessment and background research.

Over the past 10 years, "electronic business" has increased from a very specific to a very broad topic to be studied. The OECD defines e-business in 2004 concisely as "automated business processes (both intra-and inter-firm) over computer mediated networks". This definition is useful as it makes clear that e-business is more than e-commerce (which focuses on commercial transactions between companies and their customers, be it consumers or other companies) and that e-business includes

internal processes within the company as well as processes between companies. Furthermore, the OECD definition implicitly indicates that the focus and main objective of electronic business is to be found in business process automation and integration and the impacts thereof.

This implies that the potential scope for e-business analyses has also broadened. The measurement of e-commerce transactions (the volume of goods and services traded online) can and should be complemented by studies analysing the degree to which business processes, including intra-firm processes, are electronically linked to each other and have become digitally integrated.

In such a context, it becomes practically impossible to cover in depth all areas and facets of e-business in one study. The scope of such a study needs to be carefully defined and – as in photography – it must be decided whether to "zoom in" or to use a "wide-angle" perspective. 'Zoom-in' studies investigate one specific aspect of electronic business in much detail. 'Wide-angle' studies adopt a broader perspective and investigate more issues at the same time, which necessarily puts limits to the level of detail in which each single issue can be explored. This must be considered when using this series of Sector Studies prepared by the *e-Business W@tch*. The second series of these Sector Studies (to be published in August 2004) will investigate and analyse specific issues in more detail also taking into account feedback from a number of case studies.

### The role of economic analysis in the Sector Reports

The first chapter of each *e-Business W@tch* Sector Study provides background information on the respective sector. This overview includes the definition of the sector (on the basis of NACE Rev. 1 classification), some basic industry statistics, as well as information about the latest trends and challenges concerning the specific sector.

It appears that this practice, combined with the growing interest in the *e-Business W@tch* analysis, has caused some confusion: Some readers mistakenly consider that an *e-Business W@tch* "sector report" is a piece of economic research on the sector itself, and not a report focussing on the use of e-business in that particular sector. It is, therefore, necessary to underline that, while some background information is provided in order to better understand the context and the economic impact of e-business, the *e-Business W@tch* reports are neither intended nor could substitute more detailed and specific industrial analysis and statistics on each particular industry.

The same applies to the industry statistics presented in this first, introductory chapter of the *e-Business W@tch* reports. These data are mainly derived from official statistics prepared by Eurostat. However, in order to close the many gaps in the official statistics, DIW Berlin imputed missing data based on extrapolations and their own calculations. The *e-Business W@tch* cannot go beyond the presentation of this consistent set of statistics in the context of its principal assignment.

The mission of the *e-Business W@tch* is to monitor, analyse and compare the development of e-business in different sectors of the European economy – not the sectors themselves. Its objective is to provide reliable results, based on commonly accepted methodologies, which are not readily available from other sources and would trigger the interest of policy-makers, researchers, and other e-business stakeholders for more in depth analyses (or statistical surveys). The *e-Business W@tch* has adopted a 'wide-angle' perspective in its approach and the necessary trade-offs are transparently depicted in all its deliverables.

### The definition of sectors and the adequate level of aggregation

Economic sectors constitute the main level of analysis for the *e-Business W@tch*. In 2003/04, the sample consists of ten sectors. Their configuration and definition are based on the NACE Rev. 1 classification of business activities. The aggregation of various NACE divisions and groups into a "sector" was guided by the aim to produce results which are relevant for the dynamics of the economy as a whole as well as with the intention of covering the most important features of e-business provision and adoption in Europe. The configuration of sectors partly followed aggregations that are also used in the "Panorama of European Businesses" published by Eurostat.

In the context of its 'wide-angle' perspective, the *e-Business W@tch* analysis is covering a large part of the European economy rather than focusing on very specific (sub-)sectors. Therefore, the statistics presented in these reports need to be carefully treated when making comparisons between countries and, occasionally, companies' size-classes. Against the previously described background, some generalisation and approximation has to be accepted, while the definition of sectors could be revisited during the implementation of the *e-Business W@tch*.

### The 10 sectors analysed in 2003/04

The 10 sectors which are being monitored and studied in 2003/04 include eight sectors that were already covered in 2002/03 (thus allowing the continuous monitoring of changes and progress), as well as two new ones (namely the textile, clothing and footwear industries and the craft and trade sector). The regional coverage has been extended to the EEA (European Economic Area) and the Acceding Countries.

*Exhibit: Sectors covered by the e-Business W@tch in 2003/04*

<b>Textile, clothing and footwear industries</b>	The textile and footwear industries account for about 5% of total value added in manufacturing in the EU-15 and about 9% of employment. SMEs and co-operative SME networks are playing a vital role.
<b>The chemical industries</b>	ICT and the Internet in particular have fuelled the globalisation of markets for chemical products. E-business may have considerable future impact on this sector which accounts for ~15% of the production value of EU manufacturing.
<b>The electrical machinery and electronics industries</b>	The electronics industry is very suitable for e-business because of the high degree of standardisation of products, globalisation of production, and specialisation of firms along the value chain. Its dynamic development calls for continuous monitoring.
<b>The manufacture of transport equipment</b>	The transport equipment industries are precursors for economic development in Europe. Large companies are forerunners in using e-business, with considerable implications for all stakeholders in the value chain
<b>Craft &amp; trade</b>	The craft sector, which includes firms with less than 50 employees from a number of business activities, is vast, in terms of number of enterprises, employment and value added. E-business may become crucial in order for many craft firms to stay competitive with industrial production.
<b>Retail</b>	The retail sector represents a cornerstone of economic activity within Europe, with around 3 million retail enterprises currently in the EU, employing nearly 14 million people. As there is still untapped potential, ICT may eventually have major implications for the retail value chain.
<b>Tourism</b>	Tourism employs about 8 million people and is one of the fastest growing sectors in the European economy. SMEs play a very important role: 99% of firms employ fewer than 250 individuals. In some respects, the tourism sector has always been a forerunner in using ICT. E-commerce is exerting a huge impact on the sector, challenging intermediaries.
<b>ICT services</b>	The ICT services sector in many respects is the leading sector, and thus acts as a kind of benchmark with respect to e-business application. E-business can change the nature of ICT services, which has important implications for other sectors which use them.
<b>Business services</b>	Business services are a huge sector, involving more than two million enterprises – 99% of which are SMEs – and employing close to 13 million people. ICT and e-business have significant implications for those areas of the business services sector that are based on information and knowledge.
<b>Health and social work</b>	As national health systems suffer from increasing costs and political pressures to constrain these, it is hoped that strategies for the development of an e-health and e-business infrastructure will become key drivers of change.

## Rationale for the selection of sectors to be monitored in 2003/04

The selection of the ten sectors to be monitored in 2003/04 was guided by the aim of producing results relevant to tracking the dynamics of the economy as a whole as well as with the intention of covering the most important features of e-business provision and adoption in Europe. There are, however, additional factors that have been taken into consideration for the selection process. An important aspect to be considered is that any sector which is not going to be covered during the 2003/04 period is a candidate for analysis in 2004 onwards, provided that the *e-Business W@tch* contract will be renewed.

### Primary selection criteria

- (a) The economic importance of the sectors for the EU economy: For the representation of e-business impacts in the economy as a whole, "large" sectors play a major role, since changes in their production models, their purchasing and marketing behaviour as well as their productivity and dynamics of growth have a very major effect on the performance of the entire economy. The assessment of the economic importance was mainly based on two standard economic indicators: the sector's share of employment and the amount of value-added by the sector.
- (b) The relative importance of electronic business within the sector: As the *e-Business W@tch* has demonstrated in the first phase (2002/03), the intensity and nature of ICT and e-business usage differs considerably between sectors. Some sectors, although still small in absolute terms, are growing rapidly and/or illustrate the role which ICT and electronic business may play in other sectors in the future. The statistical proxy for the relative importance of e-business in a sector is the Pilot Index which was computed for 15 sectors (cf. European E-Business Report 2003), based on the eEurope 2005 E-Business Index.

### Secondary selection criteria

In addition to these two fundamental criteria, some other selection criteria were applied in cases where the economic and e-business relevance appeared to be equal or similar. These criteria were:

- Balance of business activities: There should be a balanced mix of manufacturing and service sectors. Sectors could include a public service sector for comparison.
- The SME dimension continues to be very important. Sectors with a higher share of SMEs could therefore given priority over sectors where large companies dominate.
- Policy relevance: The selection needs to consider the policy relevance from the perspective of DG ENTR, that is for which sectors the DG has responsibility.
- Roll-out strategy: Some new sectors (not covered in 2002/03) should be included in order to broaden the monitoring scope of the *e-Business W@tch*. Among sectors with a comparable economic size, new sectors (not yet covered) may be given priority.

In order to come to an initial ranking of economic importance, the *e-Business W@tch* has computed a simple Index using two component indicators: the number of persons employed, and value added. The Index reflects the contribution of the sector to the total of all sectors compared.

The next step in the selection process was an attempt to make a joint consideration of the sector's contribution to employment and value added together with the relative importance of ICT and e-business in the sector. For this purpose, the *e-Business W@tch* has computed an Index that combines the two components. In such a ranking, Business Services comes out on top, followed by Health, Retail, the Financial Services sector and ICT Services.

Based on this statistical evidence and the considerations presented above, the *e-Business W@tch* proposed a role-out plan and a configuration of 10 sectors for the period 2003/04 that provide good coverage of relevant business activities, issues and countries, as well as being manageable in the organisation designed for the *e-Business W@tch* and the resources available.



## The Craft and Trade sector: Use of ICT and e-business in 2003/04 <sup>1</sup>

### 1 Economic profile

#### 1.1 Definition

##### An operational definition of crafts

“Craft and trade” is considered here as a group of professions in which “workers apply their specific knowledge and skills to produce or process goods” and in which “the tasks call for an understanding of all stages of the production process, the materials and tools used and the nature and purpose of the final product”.<sup>2</sup> However, there is no European definition for craft enterprises, and crafts cover a very wide range of activities that do not constitute a marked-off sector in the General Industrial Classification of Economic Activities within the European Communities (Nomenclature générale des activités dans les Communautés européennes – NACE). The *e-Business W@tch* applies an operational definition of craft enterprises as “firms with less than 50 employees in craft-related NACE categories”. Considering the economic activities criterion that is applied in nine Member States, craft firms are included in manufacturing activities in fields such as food, wood, metals and ceramics (NACE 15-37, excluding 23-25), construction (NACE 45), repairs (NACE 50), transport (NACE 60), and several “other services” (NACE 90 and 93).

##### Analysing a composite craft and trade sector

The heterogeneity of the craft and trade sector implies that e-business application differs largely by sub-sectors, as previous surveys have shown. Thus the *e-Business W@tch* analysis needs to allow a comparison of sub-sectors. In order to allow for such a comparison, a reasonable number of interviews per sub-sector had to be conducted. Consequently, a comprehensive coverage of crafts would be out of the scope of the *e-Business W@tch* survey. Several crafts have been selected; see Annex III for an elaboration of related methodological issues. In order to make best economic use of the *e-Business W@tch* sample, the craft and trade sector analysis is partly based on interviews that are also evaluated for other sector reports. Firstly, the composite craft and trade sector comprises firms with less than 50 employees in three sectors which are also dealt with in separate sector reports of the *e-Business W@tch*:

- Manufacture of textiles, textile products, clothing and footwear (NACE 17-19),
- electrical machinery and electronics manufacturing (NACE 30-32),
- transport equipment manufacturing (NACE 34-35).

Secondly, the composite craft and trade sector includes two sectors which are only dealt with in the craft and trade sector reports of the *e-Business W@tch*:

- wood and wood products manufacturing (NACE 20) and furniture manufacturing (NACE 36.1),
- construction (NACE 45).

These two sectors were selected because they have a particularly high share of small companies, because they are, for construction, of particularly high economic importance, and because they

---

<sup>1</sup> This report was prepared before 1<sup>st</sup> May 2004. Hence, if not stated otherwise, the term "EU-15" refers to the 15 Member States until 30<sup>th</sup> April 2004, while the term "Acceding Countries" is used for the 10 new Member States which joined the European Union on 1<sup>st</sup> May 2004.

<sup>2</sup> See the European variant of the International Standard Classification of Occupations in Elias/Birch (1994).

provide, for furniture manufacturing, exemplary e-business practices. Activities covered in the composite craft and trade sector are listed in the following table.

NACE Rev.1	Business activity	Craft section
17	Manufacture of textiles and textile products	Textiles, clothing and footwear
17.1	Preparation and spinning of textile fibres	
17.2	Textile weaving	
17.3	Finishing of textile	
17.4	Manufacture of made-up textile articles except apparel	
17.6	Manufacture of knitted and crocheted fabrics	
17.7	Manufacture of knitted and crocheted articles	
18	Manufacture of wearing apparel, dressing and dyeing of fur	
18.1	Manufacture of leather clothes	
18.2	Manufacture of other wearing apparel and accessories	
19	Manufacture of leather and leather products	Textiles, clothing and footwear
19.3	Manufacture of footwear	
30	Manufacture of office machinery and computers	Electrical machinery and electronics
30.01	Manufacture of office machinery	
30.02	Manufacture of computers and other information processing equipment	
31	Manufacture of electrical machinery and apparatus n.e.c.	
31.1	Manufacture of electric motors, generators and transformers	
31.2	Manufacture of electricity distribution and control apparatus	
32	Manufacture of radio, television and communication equipment and apparatus	
32.1	Manufacture of electronic valves, tubes and other electronic components	
32.2	Manufacture of television & radio transmitters and apparatus for line telephony	
32.3	Manufacture of television and radio receivers, sound or video recording or reproducing apparatus and associated goods	
34	Manufacture of motor vehicles, trailers and semi-trailers	Transport equipment
34.1	Manufacture of motor vehicles	
34.2	Manufacture of bodies (coachwork) for motor vehicles; manufacture of trailers	
34.3	Manufacture of parts, accessories for motor vehicles	
35	Manufacture of other transport equipment	
35.1	Building and repairing of ships and boats	
35.2	Manufacture of railway, tramway locomotives, rolling stock	
35.3	Manufacture of aircraft and spacecraft	
35.4	Manufacture of motorcycles and bicycles	
35.5	Manufacture of other transport equipment	
20	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials	Wood and furniture
20.1	Sawmilling and planing of wood; impregnation of wood	
20.2	Manufacture of veneer sheets; manufacture of plywood, laminboard, particle board, fibre board and other panels and boards	
20.3	Manufacture of builders' carpentry and joinery	
20.4	Manufacture of wooden containers	
20.5	Manufacture of other products of wood; manufacture of articles of cork, straw and plaiting materials	
36	Manufacture of furniture; manufacturing n.e.c.	Wood and furniture
36.1	Manufacture of furniture	
45	Construction	Construction
45.2	Building of complete constructions or parts thereof; civil engineering	
45.3	Building installation	
45.4	Building completion	

Note: Only enterprises with less than 50 employees in these sectors are considered as craft firms

Wood and furniture manufacturing is in itself a composed sector. Wood manufacturing (NACE 20) is intertwined with furniture manufacturing (NACE 36.1), which is – besides the construction sector – the main user of wood. From the perspective of the furniture industry, the wood-transforming industry is the most important supplier.<sup>3</sup> On EU level, around 40% of furniture is made from wood, and the furniture industry annually buys 90% of medium-density fibreboard and 55% of particleboard production. It should be considered, however, that many other materials such as metal, textiles and plastic are used for furniture manufacturing as well.

Within the main NACE categories several sub-categories were deleted because they do not represent craft professions: in the construction sector, site preparation, that is demolition and wrecking of buildings, earth moving, test drilling and boring (NACE 45.1) as well as renting of construction or demolition equipment with operator (NACE 45.5) are not included. Other sub-categories were not included because they are of too diverse a nature (e.g., NACE 17.5 “manufacture of other textiles”) or because they represent relatively minor parts of the main category (e.g., NACE 31.3 – 31.5 dealing with the manufacture of various electric products such as wire, batteries and lamps).

### Crafts in the ISCO 88 classification

An important reference classification for a craft analysis is the European variant of the International Standard Classification of Occupations, referred to as ISCO 88 (COM). It helps to identify crafts in the NACE classification. ISCO 88, major group 7, comprises crafts. Table 1-2 provides an overview of craft professions in the five sub-sectors of the *e-Business W@tch*.

*Exhibit 1-1: Professions in the e-Business W@tch craft sub-sectors*

Textile, clothing and footwear crafts (ISCO 88, 733, 743, 744)	Electrical machinery & electronics crafts (ISCO 88, 724)	Transport equipment crafts (ISCO 88, 723)	Wood and furniture crafts (ISCO 88, 7331, 742)	Construction crafts (ISCO 88, 712 – 714)
Fibre preparers Weavers, knitters and related workers Tailors, dressmakers and hatters Furriers Textile, leather and related pattern-makers and cutters Sewers, embroiderers and related workers Upholsterers and related workers Handicraft workers in textile, leather and related materials Shoe-makers	Electrical mechanics fitters and services Electronics mechanics, fitters and servicers Telegraph and telephone installers and servicers Electrical line installers, repairers and cable jointers	Motor vehicle mechanics and fitters Aircraft engine mechanics and fitters Agricultural- or industrial-machinery mechanics and fitters	Handicraft workers in wood and related materials Wood treaters Cabinetmakers and related workers Woodworking machine setters and setter-operators Basketry weavers, brush makers and related workers	Builders Bricklayers and stonemasons Concrete placers, concrete finishers Carpenters and joiners Roofers Floor layers and tile setters Plasterers Insulation workers Glaziers Plumbers, pipe fitters Building and related electricians Painters Building structure cleaners

Source: ISCO 88 (COM)

## 1.2 Economic profile

This section gives an overview of the size and structure of selected craft industries, using key economic indicators from the New Cronos database of Eurostat. New Cronos is structured in nine parts (“themes”). Most of the data used in this chapter are derived from theme 4 “Industry, trade, and services”, and here from the collection sbs (structural business statistics). Statistics presented in this

<sup>3</sup> See the notes on the importance of supplier industries on the website of the European Furniture Manufacturers’ Federation ([www.ueanet.com/outlook](http://www.ueanet.com/outlook)).

chapter were prepared by DIW Berlin which obtained the most recent data available from Eurostat in November 2003. Gaps in the official statistics resulting from missing data for individual countries or the respective year in the time-series of a country were imputed based on economic calculations and estimates by DIW. The most recent official statistics for industry-wide indicators are those for 2001 at best. For the new EU Member States, the most recent national accounts usually date back to 2000.

## 1.2.1 Industry structure

### Economic importance of the and trade sector

Craft and trade is a huge sector in terms of number of enterprises, employment and value added. While it is “impossible to quantify craft-trade in Europe” owing to a large variety of surveying methods and the “different updating levels”<sup>4</sup>, 99% of European non-primary enterprises are small firms with less than 50 employees, accounting for more than 50% of employment and half of Europe’s total turnover. A large part of these small firms can be considered as crafts in the definition of the *e-Business W@tch*.

Small businesses and crafts were the motor of employment in the past decade. According to the Observatory of European SMEs, between 1988 and 2001 employment grew with a rate of 0.5 in firms with less than 10 employees and of 0.2 in firms with between 10 and 49 employees. In contrast, employment performed negative growth in medium-sized and large firms (-0.1 each). In the same period, growth of value added was positive in all size classes – smallest in micro firms (1.9) and small firms (2.1) and highest in medium-sized (2.2) and large firms (2.6).

Most crafts, like small firms in general, are rooted in the local economy. Only a small percentage is engaged in international trade. Thus, crafts are also important drivers of local and regional structural change. The capacity to flexibly, rapidly adjust to changing market situations may be more prevalent in small firms than in large enterprises. In large firms, innovation inertia frequently hinders the rapid introduction and use of new technologies. Crafts also play an important role in skills development, providing apprenticeship places, continuing education and advanced training.

### Regional differences in small firm importance

The importance of small firms differs largely between the EU Member States. The average enterprise size is very low in the Mediterranean countries of Greece (2), Italy (3), Portugal (5) and Spain (5), while it reaches a maximum of 10 people in Austria, Ireland, Luxembourg and the Netherlands. Such differences do not appear to be the outcome of different industry structures; rather, the more densely a country is populated and the more prosperous it is, the larger the average enterprise size tends to be.

In contrast to what one may expect, small businesses in the Acceding Countries play a similarly significant role as in Western Europe: According to estimations by the European Observatory for SMEs, employment in non-primary private enterprises amounts to 55% of total employment in the Acceding Countries and 53% in the European Economic Area (EEA – EU and Iceland, Liechtenstein and Norway) plus Switzerland. Many small businesses have been created “from the break up of larger state enterprises and from mass privatisation of smaller units such as retail outlets”. In Europe, small businesses play a more important role than in the USA. According to the European Observatory for SMEs for the EEA and Switzerland, firms of up to 50 employees account for 53% of total employment and only 30% in the US. This difference can be explained by the fact that the US has a larger domestic market without linguistic barriers, a more heterogeneous capital market and fewer barriers against mergers and acquisitions.

---

<sup>4</sup> Institutio Guglielmo Tagliacarne (2001), p. 7.

## Number of craft enterprises

Craft firms account for the vast majority of enterprises in any country and any sector under consideration, commonly more than 90% – see exhibit 1-2. In construction, the EU average share is even 99%. The average share of crafts in wood and furniture manufacturing is 98%, in textiles 96%, and in electrical machinery and electronics 92%. The lowest share of crafts can be found in the transport equipment manufacturing sector with an EU average of 89%. Country differences are generally not large. Notable deviations from the EU average include textile crafts in Greece (82%), electronics crafts in Ireland (59%) as well as transport manufacturing crafts in Germany (75%) and Greece (75%).

In the Acceding Countries, crafts also make up the largest share of enterprises, but the percentages tend to be lower than in the EU. This can be attributed to the former communist economy with its large-scale enterprises. The Czech Republic tends to meet the EU craft shares and is even higher in electrical machinery and electronics. Poland is very close to the EU average in the sectors for which data are available. The share of crafts in construction comes close to 100% only in the Czech Republic and Poland, whereas the share appears to be particularly low in Latvia (68%).

*Exhibit 1-2: Number and percentage of craft enterprises in European countries*

Country	Textiles, Clothing and Footwear		El. Machinery and Electronics		Transport Equipment		Wood and Furniture		Construction	
	Number	%	Number	%	Number	%	Number	%	Number	%
BE	n.a.	n.a.	n.a.	n.a.	634	88	4,313	97	52,452	99
DK	1,182	95	1,19	91	586	91	1,925	92	27,598	99
DE	11,673	92	n.a.	n.a.	2,576	75	23,523	95	274,602	98
EL	825	82	80	73	92	75	339	92	n.a.	n.a.
ES	n.a.	n.a.	5,432	94	n.a.	n.a.	38,210	99	278,484	99
FR	19,748	95	6,742	90	4,464	90	28,774	98	317,544	99
IE	n.a.	n.a.	188	59	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
IT	100,061	98	29,349	97	6,214	92	83,960	99	509,844	100
NL	3,285	97	1,385	93	2,09	93	6,170	97	n.a.	n.a.
AT	1,872	94	495	78	203	77	6,234	97	17,771	97
PT	16,535	93	n.a.	n.a.	635	88	15,445	98	77,763	99
FI	2,688	98	774	89	816	94	4,509	97	29,023	99
SE	3,747	99	2,183	93	1,902	92	8,821	97	52,888	99
UK	12,073	92	9,380	89	4,969	86	15,336	95	188,547	99
<b>EU-15</b>	<b>211,171</b>	<b>96</b>	<b>68,129</b>	<b>92</b>	<b>29,087</b>	<b>89</b>	<b>238,258</b>	<b>98</b>	<b>1,890,568</b>	<b>99</b>
CZ	14,048	97	20,101	98	534	73	32,630	99	125,164	99
EE	537	85	157	86	74	83	872	89	2,097	95
LT	1,193	84	255	90	85	80	1,590	n.a.	2,371	87
LV	535	86	127	89	100	88	1,331	89	2,1	68
PL	n.a.	n.a.	n.a.	n.a.	2,903	89	38,304	98	202,858	99
SK	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	2,584	89
NO	440	94	362	87	616	84	1372	93	33,342	99

Crafts = enterprises with < 50 employees in selected economic sectors. n.a. = not available

No data available for LU, CY, HU, MT, SI

Source: Eurostat New Cronos 2003, estimates and calculation by DIW Berlin (2003). Data for 2000.

## Employment in craft enterprises

The significance of employment in craft firms differs largely by country and sector, implying differing industry structures and market situations. Construction is the sector with the highest share of craft employment in total employment. The EU average is 73%, while the importance of construction crafts is largest in Italy (90%) and smallest in Austria (60%). The EU averages are much lower in the wood and furniture sector (58%) as well as in the textiles sector (51%). In electronics and electrical machinery (18%) as well as transport equipment manufacturing (8%), the importance of craft employment is low. Italy is always above the EU average. Except construction, France and Germany are below the EU average in the sectors for which data are available. Spain is always above the average.

Data availability for craft employment in the Acceding Countries is poor except for the Czech Republic. Here the importance of crafts is larger than in the EU in electrical machinery and electronics and lower in the four other sectors. As regards sectors, data for construction are available for several Acceding Countries. The share of craft employment tends to be much lower than in the EU except the Czech Republic.

*Exhibit 1-3: Number and percentage of craft employees in European countries*

Country	Textiles, Clothing & Footwear		El. Machinery & Electronics		Transport Equipment		Wood and Furniture		Construction	
	Number	%	Number	%	Number	%	Number	%	Number	%
BE	n.a.	n.a.	n.a.	n.a.	5,069	8	21,721	58	181,645	74
DK	7,121	n.a.	7,316	19	3,850	23	14,553	34	126,288	67
DE	59,993	25	n.a.	n.a.	26,397	3	143,363	39	1,562,204	72
EL	13,273	34	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
ES	n.a.	n.a.	38,366	30	n.a.	n.a.	193,994	78	1,292,263	76
FR	105,319	39	49,858	13	28,513	7	n.a.	n.a.	1,077,551	75
IE	n.a.	n.a.	3,157	6	n.a.	n.a.	3,503	28	n.a.	n.a.
IT	552,341	67	148,904	44	43,414	16	301,238	79	1,336,487	90
NL	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	34,550	59	n.a.	n.a.
AT	n.a.	n.a.	4,587	8	n.a.	n.a.	42,530	56	145,123	60
PT	123,520	41	n.a.	n.a.	6,349	16	74,803	70	259,79	75
FI	n.a.	n.a.	4,802	9	3,696	19	15,190	36	78,361	65
SE	n.a.	n.a.	11,458	13	8,229	8	n.a.	n.a.	145,128	63
UK	n.a.	n.a.	n.a.	n.a.	36,313	9	113,131	47	793,824	59
<b>EU-15</b>	<b>1,259,600</b>	<b>51</b>	<b>439,7</b>	<b>18</b>	<b>210,9</b>	<b>8</b>	<b>1,107,700</b>	<b>58</b>	<b>7,291,900</b>	<b>73</b>
CY	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	75,284	61	n.a.	n.a.
CZ	50,101	33	39,646	29	3,928	4	9,771	40	264,297	68
EE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	18,628	60
HU	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	13,437	n.a.	n.a.	n.a.
LT	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	15,816	40	21,398	32
LV	n.a.	n.a.	n.a.	n.a.	1,039	17	75,284	61	19,158	48
SK	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	29,258	38
NO	n.a.	n.a.	n.a.	n.a.	7169	18	n.a.	n.a.	94092	70

"Persons employed" including self-employed

Crafts = enterprises with < 50 employees in selected economic sectors. n.a. = not available

No data available for LU, MT, PL, SI

Source: Eurostat New Cronos 2003, estimates and calculation by DIW Berlin (2003)

## Value added in craft enterprises

The share of crafts' value added in total sub-sector value added is lower than the share of enterprises and people employed. Again, the EU average percentages vary largely between the sub-sectors considered. While crafts' value added accounts for 66% of total sub-sector value added in construction, 47% in wood and furniture manufacturing and 41% in textiles, clothing and footwear, the share is only 11% in electrical machinery and electronics and 5% in transport equipment. These figures show the different levels of concentration in the sub-sector.

As regards countries, large deviations from the average values include a high share of crafts value added in Italy in all sectors for which data are available and low shares of German crafts in textiles, transport equipment and wood/furniture.

The share of crafts value added tends to be lower in the Accessing Countries compared with the EU Member States. Exceptions from this rule include a larger share of crafts' value added in Czech electronics and electrical machinery manufacturing as well as relatively high shares of crafts' value added in Polish and Latvian transport equipment manufacturing.

*Exhibit 1-4: Crafts' value added and percentage in sub-sector total in European countries*

Country	Textiles, Clothing & Footwear		El. Machinery & Electronics		Transport Equipment		Wood and Furniture		Construction	
	Value added (million Euro)	%	Value added (Million Euro)	%	Value added (Million Euro)	%	Value added (Million Euro)	%	Value added (Million Euro)	%
BE	n.a.	n.a.	n.a.	n.a.	209	5	729	47	6,390	66
DK	270	n.a.	359	20	163	21	553	31	4,940	65
DE	1,478	16	n.a.	n.a.	913	2	4,213	28	49,662	67
EL	270	28	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	26,743	67
ES	n.a.	n.a.	1,029	18	n.a.	n.a.	3,716	67	34,581	71
FR	3,387	37	2,239	10	1,1	4	n.a.	n.a.	n.a.	n.a.
IE	n.a.	n.a.	154	2	n.a.	n.a.	n.a.	n.a.	33,894	85
IT	13,918	55	4,822	31	1,475	12	7,617	68	n.a.	n.a.
NL	n.a.	n.a.	n.a.	n.a.	615	21	n.a.	n.a.	5,878	56
AT	n.a.	n.a.	217	5	n.a.	n.a.	1,331	46	3,418	61
PT	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	741	55	3,143	62
FI	n.a.	n.a.	210	3	151	20	575	31	5,579	59
SE	n.a.	n.a.	442	9	343	5	n.a.	n.a.	36,890	56
UK	3,432	36	3,461	13	1,585	6	4,036	42	6,390	66
<b>EU-15</b>	<b>29,586</b>	<b>41</b>	<b>17,089</b>	<b>11</b>	<b>7,662</b>	<b>5</b>	<b>29,75</b>	<b>47</b>	<b>224,899</b>	<b>66</b>
CZ	188	23	226	19	28	2	255	39	1,264	52
EE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	44	28	87	46
LT	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	75	26
LV	n.a.	n.a.	n.a.	n.a.	4	12	69	28	205	48
PL	n.a.	n.a.	n.a.	n.a.	156	7	611	28	3,779	49
SK	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	158	44
NO	n.a.	n.a.	n.a.	n.a.	312	14	n.a.	n.a.	959	16

Crafts = enterprises with < 50 employees in selected economic sectors. n.a. = not available

No data available for HU, LU, MT, PL, SI

Source: Eurostat New Cronos 2003, estimates and calculation by DIW Berlin (2003)

### Productivity (value added per employee) in craft enterprises

Productivity, measured as value added at factor cost per person employed, is much lower in crafts than in medium-sized and large enterprises (MLEs). In EU average, crafts only reach 71% of MLE productivity in the construction sector, 68% in the textiles sector, 63% in wood and furniture manufacturing, 61% in transport equipment manufacturing and 58% in electrical machinery and electronics. The fact that crafts' productivity is lower than MLE productivity applies to all countries and sectors with two exceptions: electrical machinery and electronics in Denmark (110%) and transport equipment manufacturing in Finland (109%). Crafts' productivity in Denmark, as well as France and the UK, is generally relatively high. On the other hand, crafts' productivity is well below average in the Portuguese wood and construction sectors, the Irish and Finnish electronics sector as well as in the German textiles sector.<sup>5</sup> Again, data availability for the Acceding countries is very limited. The only country for which data for all sub-sectors are available is the Czech Republic. Crafts' productivity here is relatively large in the textiles sector (61% of MLE productivity) and lowest in wood and furniture manufacturing (40%). Considering other available figures, construction productivity in crafts is particularly large in Slovakia (127% of MLE productivity) and Latvia (100%).

*Exhibit 1-5: Value and percentage of crafts' productivity in European countries*

Country	Textiles, Clothing & Footwear		El. Machinery & Electronics		Transport Equipment		Wood and Furniture		Construction	
	Crafts' productivity	% of MLE productivity	Crafts' productivity	% of MLE productivity	Crafts' productivity	% of MLE productivity	Crafts' productivity	% of MLE productivity	Crafts' productivity	% of MLE productivity
BE	n.a.	n.a.	n.a.	n.a.	41,192	67	33,58	64	35,179	70
DK	37,860	n.a.	49,112	110	42,390	92	37,978	84	39,116	89
DE	24,640	59	n.a.	n.a.	34,602	59	29,385	63	31,789	77
EL	20,327	76	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
ES	n.a.	n.a.	26,831	53	n.a.	n.a.	19,157	57	20,695	64
FR	32,158	95	44,902	73	38,589	57	n.a.	n.a.	32,092	80
IE	n.a.	n.a.	48,685	36	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
IT	25,199	59	32,383	58	33,968	72	25,285	58	25,361	61
AT	n.a.	n.a.	47,264	67	n.a.	n.a.	31,289	67	40,505	86
PT	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	9,910	51	13,157	51
FI	n.a.	n.a.	43,690	33	40,828	109	37,834	79	40,109	88
SE	n.a.	n.a.	38,611	67	41,694	52	n.a.	n.a.	38,443	83
UK	n.a.	n.a.	n.a.	n.a.	43,659	66	35,675	84	46,471	86
<b>EU-15</b>	<b>23,488</b>	<b>68</b>	<b>38,866</b>	<b>58</b>	<b>36,33</b>	<b>61</b>	<b>26,858</b>	<b>63</b>	<b>30,842</b>	<b>72</b>
CZ	3,744	61	5,693	57	7,205	47	3,382	40	4,784	53
EE	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	4,493	58	4,681	57
LT	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	2,694	n.a.	3,505	75
LV	n.a.	n.a.	n.a.	n.a.	4,139	64	4,363	58	10,685	100
SK	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	5,383	127
NO	n.a.	n.a.	n.a.	n.a.	43,479	75	n.a.	n.a.	10,194	9

Productivity as value added per employee. Crafts = enterprises with < 50 employees in selected economic sectors. MLE = medium-sized and large enterprises. n.a. = not available. No data available for LU, NL, CY, HU, MT, PL, SI

Source: Eurostat New Cronos 2003, estimates and calculation by DIW Berlin (2003)

<sup>5</sup> Productivity differences between countries should be interpreted cautiously because the figures for value added do not take into account price differences between countries, i.e. they are based on market prices not purchasing power parities.



## 1.2.2 Craft and trade in selected sub-sectors

### Textiles, clothing and footwear manufacturing

In 2000, 96% of the EU textile firms were crafts and 41% of the value added was generated in crafts. The sector employed slightly less than 2.5 million people, 51% of them in crafts. The textile sector is therefore characterised by the considerable importance of crafts and a low degree of concentration. This leads to frequent co-operation along the value chain which is long and complex, consisting of numerous highly specialised enterprises. NACE 17 (textiles) accounts for slightly more than half of the textile manufacturing sector value added; NACE 18 (apparel/fur) accounts for 30% and NACE 19 (leather) for 16%. Textile production is very labour-intensive which has led to an outsourcing of operations to low-wage countries in Eastern Europe, the Mediterranean Rim and Asia. The number of employees had declined by an average rate of 3.4% between 1990 and 2000. In 2000, the textile sector generated a value added of 59.3 billion Euro which was 4.5% of the manufacturing total and 1.8% less than in 1990.

### Electrical machinery and electronics manufacturing

Craft firms account for 92% of all companies in the sector but contribute only 11% of value added and 18% of employment. Considering all size classes, electrical machinery (NACE 31) accounts for almost half of the sector's value added (49%) and radio, TV and communication equipment (NACE 32) for 41%. Manufacture of office machinery and computers (NACE 30) is much smaller with 11% of the sector's production value. In the nineties, NACE 30 and NACE 32 experienced high growth. This was mainly due to a few very large firms in smaller countries such as Nokia in Finland, Ericsson in Sweden, and American firms in the Irish computer industry. Characteristics of the sector include a high specialisation of firms along the value chain – particularly in NACE 30 and 32 – and a largely global business. Labour intensive parts of the chain have been shifted to contract manufacturers in Asia, while Europe and the US retain the high-end-knowledge-intensive stages of the value chain such as R&D and product development.

### Transport equipment manufacturing

The transport equipment manufacturing sector is highly concentrated. 95% of the value added is created in firms with 50 employees or more and 92% of the sector's employees work in such firms, but craft firms with less than 50 employees account for 89% of all enterprises in the sector (see exhibit 1-2 – 1-4). The sector's value chain has three levels: SMEs (first level) supply equipment, components and materials to "System Integrators" (second level) that assemble and integrate components or systems for Original Equipment Manufacturers (third level) such as Fiat and Airbus. Whereas firms in NACE sector 34 (called the "automotive industry" in the following) form a close cluster, firms in NACE sector 35 operate in markets with rather different profiles. The value added of the automotive industry is more than 2.5 times higher than that of other transport equipment industries. Within the automotive industry, manufacture of motor vehicles is by far the biggest part. It is dominated by large producers such as Volkswagen and Renault. Further characteristics of the sector include a high business cycle dependency of the motor vehicle manufacturing sub-sector as well as governments and the military being important customers of transport equipment, especially for the aerospace industry.

### Wood and furniture manufacturing

The value added of wood manufacturing is slightly larger than that of furniture manufacturing. The degree of concentration is fairly low and similar to textiles. In both sectors together, 98% of the firms are crafts, while 58% of the workforce is employed in crafts, and 47% of the value added is generated in crafts. The importance of crafts is further underlined by the fact that wood manufacturing has a relatively high share of self-employed of 16.9% of the workforce. By world standards, the majority of producers are relatively small, especially when compared to North American competitors. In the EU, wood and furniture manufacturing is most important in the Scandinavian countries, with Finland

(4.7%), Sweden (3.6%) and Denmark (2.9%) performing above-average shares of wood manufacturing value added in total manufacturing value added.

## Construction

The construction industry is very large and of basic importance to the whole economy. In 2000, it comprised 1.9 million enterprises, employed more than 10 million people, and generated a value added of 342 billion Euro. Crafts play a very important role in this sector, as they account for 99% of the enterprises, almost three quarters (72%) of the employees and two thirds of the value added. Construction tends to be a local activity with little exports. However, several large EU construction firms are successful in the world market. The world's two largest construction contractors, Hochtief (DE) and Skanska SB (SE), are European.<sup>6</sup>

### 1.2.3 Craft and trade in the survey countries

#### Different cultures and framework conditions for European crafts

Crafts play a very important role in every EU country and acceding country. However, Europe features a large variety of craft framework conditions, cultures and traditions. For example, there are various approaches to the right to set up a business. Whereas many countries do not always require specific qualifications or diplomas, countries such as Germany, Austria and Luxembourg demand a "master certificate". Currently there are endeavours to liberalise such national qualification requirements. In the Central and Eastern European countries, the economy was formerly dominated by large industrial entities. Today, private sector crafts and SMEs are rapidly developing.

The *e-Business W@tch* craft analysis comprises eight countries: the five largest (EU-5, France, Germany, Italy, Spain and the UK), together with Greece<sup>7</sup> and the two acceding countries Estonia and Poland. Each country has peculiarities. A brief description of craft sub-sector characteristics in the sample countries will facilitate the interpretation of findings from literature and the *e-Business W@tch* survey.

#### France

In France, the percentage of craft enterprises is very close to the EU average in all five sub-sectors. The share of craft employees in all employees is below average in the textile and electronics sectors which indicates a relatively high degree of concentration. Crafts' productivity is well above average in textiles, electronics and construction. The French construction sector experienced negative growth rates from 1992 to 1997 but recovered afterwards, creating more favourable conditions for construction crafts as well.

#### Germany

Due to its size, Germany plays, in absolute terms, an important role in all crafts considered. Considering the craft shares in enterprises and employment, Germany has a relatively high degree of concentration in the textile, transport equipment as well as wood and furniture manufacturing sectors and is in line with EU averages in construction (with no data available for electrical machinery and electronics). After a boom in the early nineties, the German construction sector – which accounts for nearly one quarter of EU construction activity – faced decline after 1995, except for a very small growth rate of 0.4 in 1999. This development put construction crafts under severe economic pressure.

---

<sup>6</sup> Ranked according to the construction revenue generated outside of each company's home country. Source: McGraw-Hill Engineering News-Record, quoted according to Eurostat (2002), p. 286.

<sup>7</sup> Greece was included because there were only some further interviews required in the wood and furniture manufacturing as well as the construction sector to form a complete sample for the composed crafts sector.

## Italy

Textile crafts are relatively important in Italy: 22% of all EU textile manufacturing employees work in Italy which is the highest share of all countries. Italy has the third highest share of textile manufacturing in total manufacturing (12%) after Portugal and Greece, and the share of craft employees in textile manufacturing is well above average. In wood manufacturing, the share of self-employed is one of the largest in the EU. In furniture manufacturing, Italy stands out as the only EU country to widen its trade surplus in 2000. Italy also has the highest share of self-employed in construction (35%) of all EU countries, which underlines the importance of crafts in this sub-sector.

## Spain

In the EU, Spain has the third largest amount of craft enterprises in electronics and electrical machinery. Spain performs an above EU-average share of wood manufacturing value added in total manufacturing value added (2.5%) and has, in furniture manufacturing, the highest specialisation ratio within EU-5 (130%). Thus Spain is the most important of the selected countries in wood manufacturing. The share of self-employed in wood manufacturing is one of the largest in the EU. Spain has the highest share of construction value added in total value added in the EU (8.5%).

## United Kingdom

The UK's crafts share in enterprises is slightly below the EU average in all five sub-sectors. The share of employees in crafts is well below average in the wood and furniture sector as well as in that of construction, the only two sectors for which data are available. This indicates a relative importance of medium-sized and large firms in the UK. In construction, self-employed make up 31% of the labour force which was the third highest level in the EU in 2000. However, the level decreased from 44% in 1995, indicating a shrinking importance of small crafts firms.

## Greece

In the EU, Greece has the second highest share of textiles in total manufacturing (12%). In wood manufacturing, the Greek share of self-employed is one of the largest in the EU. In electronics, transport equipment and wood manufacturing, the share of craft enterprises is below the EU average. The Greek construction sector has the second highest share of self-employed (33%) of all EU Member States which indicates a relatively high importance of craft firms. Greece also has an above EU-average level of construction value added in total value added (7%).

## Estonia

In all five sub-sectors, the share of crafts in Estonia is smaller than the craft share average of the EU Member States, but nevertheless quite high with above 80%. Data on employment are only available for construction. The percentage is smaller than on average in the EU. These data indicate a relatively high level of concentration. Large enterprises are likely to play a dominant role in the sub-sectors under consideration. According to Eurostat data, Estonia has a high specialisation in the wood manufacturing sector. As in all Baltic states, this sector is very important for exports.

## Poland

Poland is highly important in almost all craft sub-sectors considered. Poland is a particularly important partner for EU Member States in outward processing trade of textiles because geographical proximity, among other factors, allows manufacturers to respond quickly to market demands. As regards wood manufacturing, Poland provides more than 10% of the EU's imports of builders' carpentry and joinery, and Poland, together with the Czech Republic, provides almost half of the EU's imports of wooden containers. Poland managed to increase its furniture imports to the EU in the 1990s and was the country with the largest imports into the EU in 2000. Among the Acceding Countries, Poland has the highest construction turnover (18.5 billion Euro in 1998, the most recent year for which data are available).

## 1.3 Trends and challenges

### Overview of business trends and challenges in craft and trade

E-business, the core subject of this report, is one of the major challenges to craft firms. However, there are many further current issues in craft enterprises – as well as in small enterprises in general – including the following:

- **Single market.** Improving the single market for enterprises will be important for craft firms to tap into the opportunities of free trade in Europe. The European Commission issued an action plan for “Improving the Single Market for Enterprises and Citizens” for 2002 and beyond, aiming to ensure that rules are properly enforced and simplified. Simplification is of particular importance to crafts – see the sub-chapter on limited resources below.
- **Enlargement and external relations.** The enlargement of the European Union will open up new trade opportunities for craft enterprises in the current and prospective Member States but also challenge their competitiveness. The same applies to the free trade zone between European Union and Mediterranean countries that is planned to be established for 2010, to open the European market to further suppliers from low-wage countries.
- **Environment.** Sustainable development is of increasing importance in the EU and related policy measures often directly affect craft enterprises. For example, the Directive on environmental liability proposed by DG Environment in January 2002 will have major repercussions on small enterprises.

To some extent, these “non-e” issues are closely intertwined with e-business challenges. For example, increasing competition due to the single market, the European enlargement and the Euro-Mediterranean free trade zone may put pressure on craft firms to improve competitiveness by introducing and extending e-business practices such as e-procurement and e-sales.<sup>8</sup>

### Limited resources – a particular challenge for crafts

Crafts and small businesses suffer from the disadvantage of having limited human and financial resources and of being more locally bound. There are several issues related to this disadvantage, among the most important being administrative burdens as well as technical and administrative standards:

- **Administrative burden.** Regulations of various kinds bring about administrative duties by which firms have to abide. Craft firms often lack the financial capability to employ administrative personnel. Examples include additional administrative tasks for online business as compared with offline business.
- **Technological standards.** Frequent shifts of technical solutions or parallel operation of ICT devices with differing technological standards may overtax crafts’ and SMEs’ investment capability.
- **Juridical standards.** Complexity of legal regulation imposes additional costs on crafts. Examples include different legal treatment of electronic contracts and contracts on paper and, in the case of crafts trading internationally, differing commercial rules in the EU Member States.

Today the ISO 9000 system is firmly established in the European economy. Many crafts, in particular those working as subcontractors for big companies, were obliged to become certified. Certification costs for them turned out to be relatively higher than for large companies.

---

<sup>8</sup> See chapter 2.1 for e-business opportunities for crafts including examples.

## **Trends and challenges in textiles, clothing and footwear manufacturing**

Current trends and challenges in the textile industries have been summarised comprehensively in the TEX-MAP study by the European Clothing and Textile Organisation, published in August 2003.<sup>9</sup> The authors of the study identify five “mega trends” affecting the textiles industry: globalisation, business acceleration, concentration (for example chemicals on the supply side and big textile retail on the demand side), quality imperative as well as customisation and personalisation. These trends lead to a transformation process in the textiles industry including the following development. Relocation of labour intensive processes to lower cost countries and regions, streamlining of all business processes including outsourcing and sub-contracting, concentration of knowledge-intensive, high added value activities, closer co-operation with suppliers, customers and service providers, and exploration of new market opportunities in unconventional application areas of textiles. The authors of the study believe that these objectives can be greatly supported by an appropriate use of ICTs.

## **Trends and challenges in electrical machinery and electronics**

The business climate in electronics and electrical machinery remains volatile, maintaining pressure to innovate and increase efficiency. The electronics sector (NACE 30 and 32) was the fastest growing business sector in many European countries during the 1990s, but the past two years confronted the industry with a recessive demand scenario. To improve its situation, the industry tries to increase investment in research and development as well as to increase diversity of commercial applications. However, there are also some positive developments. The proportion of electrical and electronic systems in vehicles' value is likely to increase in a few years from presently 20% up to 35%, creating attractive business opportunities for manufacturers of such components.

## **Trends and challenges in transport equipment manufacturing**

The current business environment in the transport equipment sector is difficult for many producers in the whole value chain, including crafts. The global economic environment continues to be uncertain, and general economic growth is slow in most EU countries. As regards automobile sales, domestic European markets are almost saturated; demand is typically replacement demand. Low consumer confidence and high unemployment do not provide a promising outlook for automotive markets in Europe and North America. On the positive side, increasing demand is expected in China that might become a larger market than Germany. In the airline industry, the aftermath of September 11 resulted in decreasing orders for new aircraft, except for discount airlines that appear to continue their upswing against the overall trend.

## **Trends and challenges in wood and furniture manufacturing**

One of the most important issues in the wood manufacturing industry is the cost of raw materials. In world-wide comparison, stumpage costs in the EU are relatively high because of fragmented and private ownership of forests. Wood costs are particularly important for sawn-wood and plywood manufacturers and those firms in downstream operations where little product innovation is required. For wood products whose processing requires relatively much technology, wood costs as a percentage of final production value are smaller, putting European wood manufacturers in a better competitive position. There may be opportunities that e-business helps to diminish the cost advantage in low-innovation products and to maintain and increase the competitive advantage in more technology-oriented wood production.

Furniture is both an investment article and a casual consumer article sensitive to fashion effects. Demand for furniture is therefore very cyclical, depending on the general economic situation, disposable income, interest rates as well as on demographic aspects such as age class composition and frequency of household formation. The EU faces serious competition in furniture manufacturing and has, in the past, not always been successful to adapt to market challenges. The EU was a net

---

<sup>9</sup> See Euratex (2003).

exporter of furniture in the 1990s, with a ratio between exports and imports decreasing from 105% in 1990 to 101% in 1999. In 2000 there was a trade deficit, indicating a reversal of the EU's trading position. As a consequence of competition, a concentration process is going on in furniture manufacturing.

### Trends and challenges in construction

The construction industry is currently facing stagnation. According to the FIEC, construction activity in the EU grew by a moderate 0.6% in 2002 and is not likely to grow more than +0.5% in 2003. In certain countries growth was sustained: +8.1% in the United Kingdom, thanks to considerable intervention from the public sector, and +4.6% in Spain, mainly due to investments in infrastructures. However, Germany had a particularly difficult year with a negative growth rate of -5.5%. There were 4,500 bankruptcies in the first six months of 2002 and employment in the sector dropped by 10%. According to FIEC, the enlargement of the Union constitutes "a huge potential for construction activity in terms of both major infrastructure as well as building projects (new housing, renovation of existing buildings)".<sup>10</sup>

---

<sup>10</sup> FIEC, European Construction Industry Federation (2003), p. 5.

## 2 The use of ICT and e-business in 2003/04

### 2.1 Introduction – general aspects of e-business in crafts

#### Crafts' e-business use lags behind large firms

The statistical picture from previous *e-Business W@tch* research confirms that small firms in general have taken their first step to go digital. However, they are still far from digitally integrating their business processes: the “e” part of their business processes tends to be a front-end, customer-faced activity. In craft firms in particular, computers do not appear much in work; they are mainly used for administration as well as sales and purchasing processes. More advanced e-business solutions are used mainly by larger enterprises – whereby medium-sized enterprises have more in common with large ones than with small and micro enterprises.

Small firms lag behind large companies in adopting e-business mainly because the cost-benefit structure of advanced e-business solutions is less favourable for them. Economies of scale arise from the fact that e-business solutions tend to require substantial investments into consulting, technological development and implementation. Further, variable costs arise from continued maintenance, user training, licences and access fees. With more users, incremental costs tend to fall, mostly through bulk discounts. In many smaller firms, the “critical mass” of e-business users is not available. Potential benefits become too small compared to the costs involved.

#### Lack of knowledge about e-business benefits

Crafts do not appear to see a necessity to invest in e-business. In a survey by the German Skilled Crafts Association (Zentralverband des deutschen Handwerks, ZDH) in the third quarter of 2000, 36% of those craft firms without WWW access stated that the lack of knowledge about opportunities of the WWW was a barrier to its use. This was the largest percentage of all pre-formulated answers.<sup>11</sup> Furthermore, 29% of those firms not using the WWW stated that the Internet does not offer benefits for them.<sup>12</sup> This attitude may be caused by the fact that craft business often relies on personal relationships between the entrepreneur and his suppliers and customers – often acquired by face-to-face interaction. The Internet may appear as too anonymous for such relationships. It may also be the case that many craft firms are run by relatively old entrepreneurs who do not see good reasons to change processes before retirement. In the ZDH study, costs did not appear to play a core role for e-business absence: only 21% of the respondents stated that they shy away from high costs of WWW use.

#### E-business opportunities for crafts

Although it may be a perfectly rational decision not to adopt an e-business solution, believing that the Internet and e-business do not offer value to craft firms is a misperception. ICT and e-business application can offer many benefits to craft enterprises including the following:

- *Product presentation.* Customers who are used to selecting suppliers by comparing their websites neglect firms without Internet presentations.
- *Pre-sales and after-sales consulting.* Better customer information about products and services reduces the need for time-consuming explanations.
- *New sales channel.* The Internet can offer a new sales channel and a larger sales area for crafts with specialised products, particularly if they can be shipped easily – for example art candles (see [www.wachszieherei.de](http://www.wachszieherei.de), a 140 year-old candle-making firm in Munich and a pioneer as a craft online). Craft firms can participate in online market places for e-sales, see for example

---

<sup>11</sup> See Zentralverband des deutschen Handwerks (2000), p. 6.

<sup>12</sup> See Zentralverband des deutschen Handwerks (2000), p. 16.

Astranetwork ([www.astranetwork.it](http://www.astranetwork.it)), a marketplace for small and medium-sized companies of the textile industry in Emilia Romagna, Italy, mainly run by women.

- *Marketing portals.* Those craft firms that do not want to go online or do not want to sell on the Internet can participate in online portals for marketing their products (see for example [www.craftcollections.co.uk](http://www.craftcollections.co.uk), [www.scotch-corner.co.uk](http://www.scotch-corner.co.uk) and [www.easycraft.org](http://www.easycraft.org)).
- *Sector-specific information.* Craft portals can arrange contacts between craft firms and potential customers, suggest standard contracts, and offer up-to date industry information.
- *Third-party advertising.* Customers can be offered the opportunity to give their assessments of crafts' work, which can be a new form of advertisement.
- *Reduced procurement costs* through e-marketplaces – particularly in consortia with other firms. For example, compiling CD-Roms with catalogues becomes unnecessary when the suppliers present their products online.
- *Employee attraction.* E-business practice can imply increased attractiveness of a craft firm for apprentices and trained employees.
- *Business efficiency.* In general, business processes can become more efficient by streamlining them with ICTs.

Considering these possible benefits, the lack of knowledge about e-business opportunities and a resistant attitude towards online technologies could have detrimental effects on craft competitiveness and also on adequate vocational training. Facing this challenge, the European Commission funded the project EASYCRAFT (see box text) that seeks to support the competitiveness and quality of work of European craft firms with online information, support and marketing opportunities.

#### **EASYCRAFT – online support for European crafts**

*The IST project EASYCRAFT (<http://www.easycraft.org>), funded by the European Commission, provides the business framework and technological platform to network craft actors, enabling them to offer value-added services demanded by today's craft consumers, and to meet demand for new products. The strategic objective of EASYCRAFT is to support the competitiveness and quality of work of European craft SMEs in the global marketplace by providing a platform for organisational, legal and technological collaboration.*

*"The EASYCRAFT system is a state-of-the-art, online system providing a flexible working environment that supports collaborative work between all players of the value chain of the craft sector," says project Manager Anna Assimakopoulos. "Its major advantage is that it combines a wide variety of services to all interested crafts sector actors and private consumers of crafts creations."*

*The EASYCRAFT website, launched in January 2002, includes a wealth of information, listings and news, online exhibitions and sales of craft creations, expert assistance, opportunities for education and training, and advanced communication and working tools. The system also addresses related markets, such as tourism, which are commercially relevant to the craft and trade sector. The website exhibits around 500 craft products, mainly from the textile, jewellery, wood and ceramic sectors.*

*The EASYCRAFT system is used by the international network of the World Crafts Council (WCC) - one of the most prominent non-governmental organisations recognised by UNESCO supporting the craft and trade sector worldwide. Through its extensive network of partners and members WCC guarantees a wide information provider and user base, and offers assurances regarding the quality and authenticity of the craft creations exhibited and sold through the system. Currently, 167*



craftspeople participate in the EASYCRAFT system, most of them from Romania (37%), Greece (15%), Belgium (13%), Germany (12%) and Slovakia (11%).

EASYCRAFT meets a number of key needs of craft and trade sector actors in relation to dealing with the challenges and taking advantage of the opportunities offered by advanced information and communication technologies. "For example," says WCC International President, Mrs Elena Averoff, "crafts sector SMEs are in the vast majority of cases individuals or family businesses, which lack the necessary resources and suffer from working in an isolated environment, where they are deprived from public support and access to information for locating suppliers, partners, funding and commercial opportunities internationally."

Craft intermediary organisations traditionally have the role of promoting craft products from variable local sources by discovering consumer demand in a highly distributed market environment. EASYCRAFT allows them to perform this activity much more easily and effectively, by offering them cost-effective capabilities to reach distributed markets in a unified way, to adopt innovative promotional techniques customised to diverse consumer interests and preferences, and to co-operate better with craft product providers. These organisations can also expand their role as a link between supply and demand by providing consumers with information on products offered and providing suppliers with information on consumer demand. Customers are thus offered a unified way of access to craft product information resources from variable local markets.

Some of the main difficulties encountered are in the field of logistics. In international shipping in particular, transportation costs need to be calculated and included in the price listed for sale. This creates a risk for the seller, but otherwise a potential customer has to confirm the additional cost of shipping and might cancel the online purchasing process. Continued availability of items listed for sale also turned out to be a problem.

Since completion of the project in June 2003, the website community continues, while consortium members seek commercial exploitation opportunities and strive to competitively position the EASYCRAFT platform. Marketing the system initially in Europe and thereafter in Latin America is envisaged, based on franchising using the network of WCC members.

Source: IST Results e-Bulletin 19.1.2004; Anna Assimakopoulos, Director Egnatia Epirus Foundation; own research

### E-business use in crafts differs between sub-sectors

Previous research showed that e-business application differs between craft sub-sectors.<sup>13</sup> In electronics and electrical equipment manufacturing, small (craft) firms perform better than small firms in many other industries considered in the *e-Business W@tch*. A survey on "crafts in the Internet" conducted by the umbrella organisation for German crafts in the third quarter of 2000 revealed large differences in Internet use: While Internet use was very prevalent among information technicians (79%), electrical machinery manufacturers (72%) and vehicle manufacturers (70%), the Internet was used much less by farm machine fitters (56%), building cleaners (57%) and dental technicians (59%). Certain sub-industries such as furniture manufacturing have recently been found to perform particularly well in e-business applications. Particular groups of crafts could therefore serve as an e-business model for small firms in other industries.

<sup>13</sup> See Zentralverband des Deutschen Handwerks (2000).

## Regional and sector-specific support to e-business in crafts

Numerous activities have been started to promote e-business use in small firms and crafts. Some have a regional approach, such as the German e-commerce centres of excellence ([www.ec-net.de](http://www.ec-net.de)) or the Belgian KMonet ([www.kmonet.be](http://www.kmonet.be)). In Bristol, UK, a comprehensive approach between the government and private SME promoters led to the implementation of Bristol e-Business ([www.bristolebusiness.net](http://www.bristolebusiness.net)), providing merchants with a quick and easy route to trading online. Others focus on a certain industry sector of the economy, such as “FashionMe”, “e-Tailor” and “ShoeNet” in the textile, clothing and footwear industry (see below the paragraph on e-business in textile crafts) and the Kenniscentrum Metaal in the Netherlands ([www.pkm.nl](http://www.pkm.nl)) specializing in metal converters problems which started a website with e-business solutions for SMEs in that sector. A further distinguishing mark besides regional or sectoral approaches is the way of funding: some of these projects are publicly funded, others are private, and some are public-private partnerships. The box-text on KMonet provides an example of a regional, private e-business support initiative for small firms.

### ***KMonet: e-business support for small firms in Flemish Belgium***

*KMO stands for “Kleine en Middelgrote Ondernemingen”, the Flemish term for Small and Medium-sized Enterprises (SMEs). KMonet’s mission is to provide news and information – particularly about the Internet and e-business – to entrepreneurs in the Flemish part of Belgium. It runs two kinds of activities for firms with up to 50 employees:*

- *the KMonet.be website as a portal with information on issues such as contracting, funding, legislation, social security and personnel as well as links to sites for, e.g., international business and new firms,*
- *free seminars about opportunities and threats of e-business in SMEs.*

*These services are widely used: according to KMonet, the website is visited by 1,000 people a day, and the KMonet seminars have been attended by more than 36,000 entrepreneurs in the past six years.*

*KMonet was founded in 1997 as a service within Unizo, an independent Flemish SME organisation with more than 80,000 SME members. In 2000, KMonet became a private company owned 100% by Unizo. Big business also contributes to the activities: KMonet is funded with the sponsorships of partners such as Microsoft, Fujitsu Siemens Computers and EPSON. They provide financial benefits and in return can promote their products and services in KMonet seminars as well as extend their knowledge about the small business market. However, KMonet does not receive public funding and is thus an example of e-business support that does not strain public budgets. KMonet has only two employees – a manager and his secretary – but many Unizo people help updating the website content and a lot of freelance programmers and designers are also involved.*

*The close link to a large SME association can be considered a crucial strength of KMonet. According to Lieven van de Velde, KMonet Manager, the success of an initiative like KMonet depends on the development of “online activities within existing offline activities”. Service providers must speak a small business entrepreneur’s “language” – they need to have intimate knowledge about SMEs’ requirements and constraints so that website content, seminars and other services can be offered tailor-made to the SME entrepreneurs. As a for-profit stand-alone project, a private e-business support network for SMEs could hardly attract a sufficient number of SME customers willing to pay for its services. “Trust and service are very important for an SME”, says van de Velde, “therefore it’s a success factor that there’s a reliable partner behind a website”.*

*The example of KMONet has been promoted in the European Commission's Go Digital Programme for which KMONet organised several events. Currently, KMONet is preparing a similar activity in Poland, providing advice on how to create a website for e-business support in SMEs and how to launch a company such as KMONet.*

*In the future, KMONet seeks to further develop its platform as an online SME networking system, allowing people visiting the KMONet website to exchange messages of any kind. The website content is also intended to become more interactive, focusing on online tools and not on text articles. For the time being, KMONet.be already offers model contracts and letters for download. "We see a lot more visitors coming to our website because of the interactive tools, not for text articles", van de Velde explains. "People want to use the internet, not read it."*

*Source: Lieven van de Velde, KMONet Manager; own research*

### **E-business in textile, clothing and footwear crafts**

The textile, clothing and footwear industry's conservative culture has been delaying the incorporation of e-business. Despite a tradition of long-term partnerships, many firms are reluctant to pass on information. The implementation of stand-alone ICT solutions is common, leading to a diversity of information systems inhibiting integration. The laggard firms – many of them micro enterprises – continue to rely on non-electronic business methods even when they move towards closer co-operation with their partners. This situation is worsened by the fact that production and distribution in the textile industries is complex and the value chain is fragmented. Advantages expected from e-business, system harmonisation between business partners and related speed up of information flows include:

- shortening the development cycle by co-ordinating all information on marketing forecasts, design, production scheduling, dispatch and delivery,
- improving links with manufacturing operations – especially if outsourced – in order to shorten lead times and to save administration and management costs,
- capturing and analysing information about distribution channels and final customers in order to adjust their marketing and production strategies.

Textile, clothing and footwear craft firms may reduce costs through the adoption of ICTs, for example through standardising the processing of orders, product and shipping information, supply chain management, automatic replenishment systems and point-of-sales information. This may be particularly beneficial when resources are pooled. Related European Commission projects are "FashionMe" ([www.fashion-me.com](http://www.fashion-me.com)) and "e-Tailor" ([www.atc.gr/e-tailor/](http://www.atc.gr/e-tailor/)). FashionMe is a B2B-project supplying technical data on the human body to be transmitted between enterprises, developing techniques to scan the body and integrate this information into production equipment. E-tailor is a B2C project aiming at creating a virtual fitting room where consumers can visualise garments on a representation of their own body and purchase clothes without going to a store.

### **E-business in electrical machinery and electronics crafts**

The electrical machinery and electronics sector is a fast and advanced adopter of sophisticated e-business applications for improving supply chain and production processes. The advantages of e-business are clearly recognised and solutions are jointly promoted by firms in all parts of the value chain. For example, the sector is the leader – even ahead of ICT services – in using IT-supported Enterprise Resource Planning, and is one of the forerunners in implementing advanced e-procurement systems. The office machinery and computers industry (NACE 30) as well as the radio, TV and communication equipment industry (NACE 32) were found to be clearly more advanced than the electrical machinery (NACE 31) sector. Specific e-business drivers in the industry are short product life cycles, standardised components and products, a complex value chain with a very high degree of outsourcing, IT-competence of firms, and a truly globalised industry.

The *e-Business W@tch* survey 2002 showed that large firms led in some e-business applications, but SMEs did not seem to fall behind as markedly as in other sectors. This characteristic can be attributed to the high degree of IT knowledge and experience in this sector, even in small firms. Conflicts between business partners in implementing industry-wide e-business are less pronounced than, e.g., in the automotive industry. However, conflicts of interest between SMEs and larger firms in the sector remain a central issue in industry-wide e-business adoption. Small firms are often confronted with external pressure and incentives from their larger business partners to join e-business initiatives. This offers benefits for them, such as maintaining or even amplifying good relations with their large customers. But it also creates problems: implementation and maintenance costs need to be dealt with. Lock-in to certain customers or solutions might limit strategic options of smaller firms. Increased price pressure usually intensifies the trend towards consolidation – that is, the emergence of a small number of price leaders at the expense of less cost-efficient (usually smaller) firms. Thus, e-business creates challenges that require careful judgement and action by craft firms.

### **E-business in transport equipment manufacturing crafts**

During the 1990s, co-operation in engineering between firms in the sector became more common, leading to an increasing specialisation of suppliers and closer interdependencies between firms. The use of communication technology for exchanging data has thus long been an issue in the sector. During the 1980s, Electronic Data Interchange (EDI) was already implemented in almost all transport equipment producers. However, there was no standard solution or even a uniform data standard. Many firms today still have legacy communication systems that are unable to exchange data across system boundaries. Until 2000 the sector was slow to adopt electronic business processes. The reasons for this range from the strong general acceptance of EDI systems to a relatively conservative way of thinking about business in the industry. Since 2000, however, the sector has made rapid progress. Some major initiatives have been successfully launched (such as Covisint, [www.covisint.com](http://www.covisint.com)) and all major automotive OEMs are now engaged in some sort of e-business activities. The transport equipment sector can therefore be categorised as a “late e-business adopter” with a relatively low level of ICT infrastructure and e-business activity compared to the other sector considered in the *e-Business W@tch*.<sup>14</sup> Particular e-business challenges for the automotive sector are a further streamlining of the organisation of production over the entire value chain as well as mobile communication features in cars and lorries to realise flexible routing schemes and transport tracking.

It can be expected that the e-business initiatives of the sector’s “giants” will have a knock-on effect on the smaller firms and lower level suppliers. In fact, in many cases SMEs which supply to larger customers will be forced to adapt to their standards or get out of business.

### **E-business in wood and furniture manufacturing crafts**

As already mentioned above, the furniture industry may be a good example of e-business practice. According to the Federation of European Furniture manufacturers (Union Européenne de l’Ameublement, UEA) “use of Internet and development of electronic commerce are also important” in current innovation issues in the industry. Sector-specific platforms such as the Woodforum ([www.woodforum.net](http://www.woodforum.net)) providing Internet-based sales and marketing channels for the wood industry have been implemented. However, as the UEA points out, “automation, the use of Computer Aided Design or Manufacturing and the introduction of new materials that are more resistant or cheaper than previous ones” appear to come first.<sup>15</sup>

Currently, the e-business potential of the furniture industry is underexploited because of disparate technologies – from design systems to catalogue management tools – that impede interoperability between enterprises. Several EU-funded projects support the development of common standards in the furniture industry. “Standard for the exchange of furniture product data” (Funstep,

---

<sup>14</sup> See the classification in European Commission (2003), p. 14 – 15.

<sup>15</sup> See UEA (2004).

[www.funstep.org](http://www.funstep.org)) targets the interoperability of software solutions within and between companies, bringing together software vendors, manufacturers, retailers and technology developers. The project “Improving competitiveness through SMART Furniture Manufacturing” (SMART, <http://isg.uninova.pt/smart-fm>) seeks to support completely integrated product life-cycle information management and e-commerce for the furniture industry.<sup>16</sup>

### E-business in construction crafts

Previous empirical research has shown that e-business in construction is underdeveloped relative to other sectors.<sup>17</sup> As in other sectors, small firms appear to apply e-business solutions much less frequently than medium-sized and large firms. There may be a danger that construction crafts miss e-business opportunities and lose competitiveness relative to larger firms. However, e-business offers opportunities similar to other sectors and not only to medium and large enterprises: product and service presentation on a website, selling and procuring construction-related goods online (particularly on sector-specific e-marketplaces), online construction project monitoring in virtual groups, as well as electronic calls for tenders and bidding. An example of a construction platform initiated by a private firm is [www.handwerker-forum.de](http://www.handwerker-forum.de). At European level, a “Working Group on e-Construction” comprising voluntary representatives from industry bodies and Member States came into being in late 1998 in order to tackle Information Society challenges in the industry, with a special emphasis on ICT accessibility for SMEs.<sup>18</sup>

Electronic tenders are already quite widespread, allowing the supplier of a tender to save costs of printing, copying, packing and sending out calls. As regards the European level regulation, a current issue is a proposed Directive of the European Parliament and the Council on the “co-ordination of procedures for the award of public supply contracts, public service contracts and public work contracts” (COM(2000)275final). In a position paper, the European Union for Crafts and Small and Medium Enterprises (Union Européenne de L’Artisanat et des Petites et Moyennes Entreprises, UEAPME) has expressed concerns that reverse auctions “can be suitable for the procurement of suppliers and materials, but not with construction services” because “the goal of public procurement should not be the lowest initial price but best value for money over the whole life span of a building”.

A particular challenge in the construction industry are complex co-ordination of numerous players – architects, engineers, project managers, general contractors and sub-contractors including crafts. Project management can be supported by collaboration software improving team productivity through online document management, workflow co-ordination, drawing mark-ups and knowledge management. Examples of suppliers of such solutions are BuildOnline ([www.build-online.com](http://www.build-online.com)) and, with a wider sector approach and a US basis, Autodesk ([www.autodesk.com](http://www.autodesk.com)).

## 2.2 E-business indicators – the statistical picture

Information presented in this section is predominantly based on the e-Business Surveys of the *e-Business W@tch*. The first survey was conducted in April 2002 and covered more than 9,000 enterprises from 15 sectors and all EU Member States. The 2003 survey was conducted in two waves: In March 2003, about 3,500 enterprises from seven sectors and five countries (France, Germany, Italy, Spain and the UK) were interviewed about their use of ICT and e-business. The second wave of

---

<sup>16</sup> On a cross-industry level, the European Commission supports the “European e-Business Interoperability Forum” (eBIF) set up by the European Committee for Standardisation (CEN, [www.cenorm.be](http://www.cenorm.be)).

<sup>17</sup> See various studies in Germany mentioned in Koch/Baier (2002), p. 64 – 65.

<sup>18</sup> See Communication Technologies Working Group (2003) for an overview of problems, ICT contributions to solve these, and recommended activities.

interviews (about 7,000) was conducted in November 2003. It added new sectors and extended the regional coverage to the EEA and Acceding Countries.

In the second wave, some new indicators were introduced. Thus, although the main parts of the questionnaires used in the two waves were the same, not all information is available for all sectors or countries, depending on whether the survey of this particular sector in a country took place in the spring or autumn wave of the 2003 survey. The footnote of the exhibits show the time, base, number of observations and weighting schemes for data reported.

The five sub-sectors of the composed craft and trade sector were weighted according to their share in employment and enterprises. In employment-weighted figures, total employment in the composed craft and trade sector reflects the weight of employment of the five single sectors, and enterprise-weighted figures reflect the weight of enterprises. Consequently, due to the high number of firms and employees in the construction sector, the overall figures of the composed craft and trade sector are dominated by construction. For example, in Germany 81% of craft enterprises and 80% of craft employment in the sample belong to the construction sector. In the following it is therefore insightful to consider the sub-sector data where provided in the tables and diagrams.

More information about the methodology of the survey (definitions, sampling, weighting principles) and about the coverage of sectors and countries is available in the Annex to this report and on the website of the *e-Business W@tch* at [www.ebusiness-watch.org](http://www.ebusiness-watch.org).

## 2.2.1 Infrastructure and skills development

### IT and network infrastructure in the company

**Overall:** Craft enterprises representing 91% of employees in the craft and trade sector use computers – see exhibit 2-1. Almost one third (30%) are equipped with a Local Area Network (LAN). Remote access to the company's computer system is less common: enterprises representing only 11% of employees allow this feature. These figures may partly reflect that network infrastructure is less useful in small companies or that small enterprises lack the investment power for such technologies.

**Sector comparison:** Compared with the other nine sectors included in the *e-Business W@tch* analysis, craft firms lag behind in all network infrastructure indicators. The lag is less pronounced in computer use (91% in the craft and trade sector versus 96% in all other sectors) but strong in more specialised types of networks: 30% versus 61% in LANs, 11% versus 39% in remote access, and 4.8% versus 29% in Wide Area Network (WAN) use. Perhaps the most important message here is that computer use in crafts, as in other sectors, almost goes without saying.

**Size classes:** Physical network infrastructure is more advanced in small craft firms than in micro firms. While 97% of craft firms with 10 – 49 employees use computers, 85% of craft firms with 0– 9 employees use computers. The differences are even stronger in LAN and WAN use as well as remote access. The fact that people in micro enterprises can communicate personally whenever it is necessary may make advanced infrastructure uneconomic.

**Countries:** Network infrastructure differs largely by country. In Germany (100%), Greece (100%), Spain (97%) and also in Estonia (97%) companies representing virtually all craft employees reported computer use. France (87%), Italy (85%) and the UK (89%) had a smaller level of usage. Poland lags far behind with 66%. Craft firms from Germany, Greece, Estonia, Spain and the UK reported the highest levels of LAN and WAN use as well as remote access to the company's computer system.

Exhibit 2-1: Use of physical network infrastructure in craft companies (2003)

	Use computers	Local Area Network	Wide Area Network	Remote Access	Wireless LAN
<b>Sector total (EU-5)</b>					
% of employment	91	30	5	11	n.a.
% of enterprises	86	21	3	8	n.a.
0-9 employees	85	19	2	7	n.a.
10-49 employees	97	41	7	13	n.a.
<b>Other (9) Sectors (EU-5)</b>					
% of employment	96	61	29	39	n.a.
% of enterprises	89	32	5	18	n.a.
<b>Countries</b>					
DE Germany	100	39	3	12	n.a.
EL Greece	100	47	5	26	n.a.
ES Spain	97	35	10	15	n.a.
FR France	87	15	3	4	n.a.
IT Italy	85	26	1	6	n.a.
UK United Kingdom	89	32	9	18	n.a.
EE Estonia	97	37	9	23	8.2
PL Poland	66	20	2	18	3.3
<b>Industries (EU-5)</b>					
Textiles, clothing & footwear	83	23	5	12	2.4
El. Machinery & electronics	100	67	9	25	n.a.
Transport equipment	96	44	6	15	n.a.
Wood & furniture	90	25	1	10	0.6
Construction	93	29	5	10	4.3

Base: EU-5 (DE, ES, FR, IT, UK), all enterprises (n = 1,414 for EU-5 sector total, 138-288 per country and 144-440 per industry); except "remote access": enterprises using computers. Figures for size-bands in % of enterprises. Figures for countries and industries are weighted by employment ("enterprises comprising ...% of employees in the country/industry"). Reporting period: March/November 2003. n.a. = not available

Source: e-Business W@tch (2003/04)

**Industries:** Infrastructure is most advanced in electrical machinery and electronics manufacturing crafts. The level of LAN use – enterprises representing 70% of all employees in this sub-sector – is even above the all-sector average. Transport equipment manufacturing is fairly well advanced; construction takes a medium position within the sub-sectors considered. Textiles manufacturing, with the lowest percentages of computer and LAN use, as well as wood and furniture manufacturing, with low or lowest levels in all network indicators, are sub-sectors with relatively poor network infrastructure. In those sub-sectors for which data on Wireless LAN use are available, construction stands out with 4.3%.

### Internet access and use of basic Internet applications

**Overall:** Craft enterprises representing 77% of employees and 67% of all craft enterprises in the sample have access to the Internet – see exhibit 2-2. E-mail usage is quite common (enterprises representing 69% of employees in craft firms), while only half of the firms use the World-Wide Web (49% of enterprises). As exhibit 2-4 shows, one third of craft firms (34%) access the Internet with an analogue dial-up modem.

**Sector comparison:** In sector comparison, the craft and trade sector performs lower levels of Internet access, e-mail use and WWW use, lagging more than ten percentage points behind in employment-weighted figures and around ten percentage points in enterprise-weighted figures.

**Size classes:** The percentages of micro craft firms having access to the Internet, using e-mail and the WWW are much lower than in small firms. The positive message may be that two thirds (65%) of craft enterprises have access to the Internet.

**Countries:** Craft enterprises from Greece reported the highest levels of Internet access (96%) and e-mail use (92%). This result calls for a more in-depth investigation of ICT use in Greek craft firms.<sup>19</sup> Estonian craft firms are in the lead in WWW use (93%) and second in the other two indicators. German craft firms are second in WWW use (84%) and well above average in Internet access and e-mail use. British craft firms are also above average in all indicators. Spanish craft firms are slightly above average in Internet access and e-mail use but have the lowest level of WWW use. French, Polish and Italian crafts have some of the lowest levels in all indicators.

*Exhibit 2-2: Internet access and use of basic internet applications in craft industries (2003)*

	Have access to the internet	Use e-mail	Use the WWW
<b>Sector total (EU-5)</b>			
% of employment	77	69	60
% of enterprises	67	58	49
0-9 employees	65	56	47
10-49 employees	87	80	72
<b>Other (9) Sectors (EU-5)</b>			
% of employment	88	84	77
% of enterprises	76	68	58
<b>Countries</b>			
DE Germany	93	86	84
EL Greece	96	92	60
ES Spain	81	73	47
FR France	59	51	51
IT Italy	69	60	50
UK United Kingdom	84	77	76
EE Estonia	94	90	93
PL Poland	57	45	51
<b>Industries</b>			
Textiles, clothing & footwear	69	59	51
El. machinery & electronics	98	96	87
Transport equipment	90	87	70
Wood & furniture	76	71	57
Construction	77	68	60

Base: EU-5 (DE, ES, FR, IT, UK), all enterprises (n = 1,414 for EU-5 sector total, 238-288 per country and 144-440 per industry). Figures for size-bands in % of enterprises. Figures for countries and industries are weighted by employment ("enterprises comprising ...% of employees in the country/industry"). Reporting period: March/November 2003.

Source: *e-Business W@tch* (2003/04)

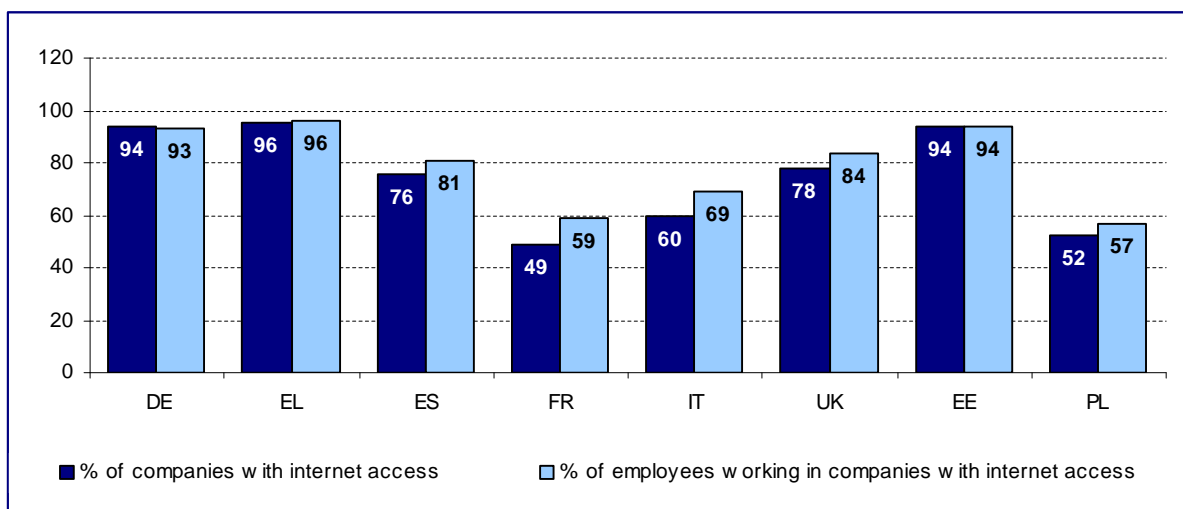
Exhibit 2-3 shows the percentages of craft firms having access to the Internet broken down by country. In Italy and France, the employment-weighted figures are significantly higher than the enterprise-weighted data which indicates greater importance of relatively large craft firms in these countries. Country differences in Internet access technology are very large – see exhibit 2-4. More than half of

<sup>19</sup> The second report on the craft and trade sectors (to be published in August 2004) will investigate this issue in more detail.



French craft firms (55%) access the Internet with an analogue dial-up modem, while only 6% of German craft enterprises use this simple technology.

*Exhibit 2-3: Craft companies having Internet access (2003)*



Base: All enterprises (n = 238-288 per country). Reporting period: March/November 2003.

Source: *e-Business W@tch* (2003/04)

*Exhibit 2-4: Quality of internet connection used by companies in craft industries (2003)*

	Use analogue dial-up modem	Are connected with < 2 Mbit/s	Are connected with >= 2 Mbit/s
<b>Sector total (EU-5)</b>			
% of employment	28	69	10
% of enterprises	34	73	6
0-9 employees	35	74	4
10-49 employees	23	66	13
<b>Other (9) Sectors (EU-5)</b>			
% of employment	16	54	31
% of enterprises	27	64	15
<b>Countries</b>			
DE Germany	6	81	8
EL Greece	30	89	5
ES Spain	26	54	18
FR France	55	72	5
IT Italy	32	74	6
UK United Kingdom	37	63	8
EE Estonia	16	57	14
PL Poland	43	74	9
<b>Industries</b>			
Textiles, clothing & footwear	39	69	5
El. machinery & electronics	14	74	14
Transport equipment	28	74	7
Wood & furniture	25	75	6
Construction	28	68	11

Base: EU-5 (DE, ES, FR, IT, UK), enterprises with Internet access (n = 1,130 for EU-5 sector total, 188-257 per country and 108-344 per industry). Figures for size-bands in % of enterprises. Figures for countries and industries are weighted by employment ("enterprises comprising ...% of employees in the country/industry"). Figures for <2Mbit/s and >=2Mbit/s do not add to 100 because of "don't know"-answers. Reporting period: March/November 2003.

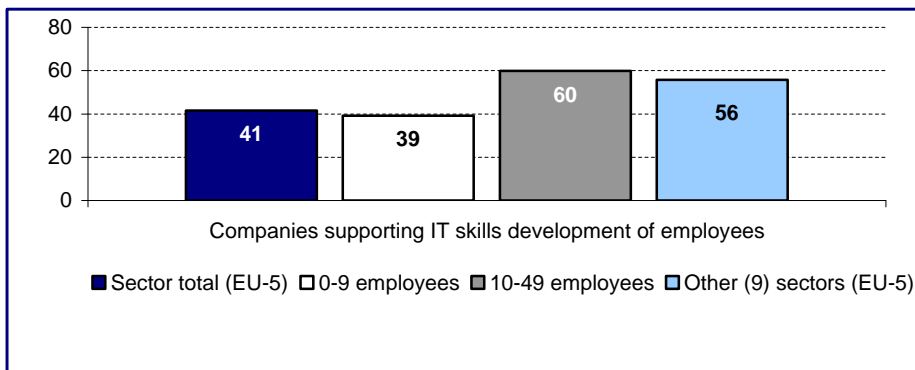
Source: *e-Business W@tch* (2003/04)

**Industries:** Enterprises representing almost all employees in electrical machinery and electronics manufacturing have access to the Internet (98%) and use e-mail (96%). The WWW is used by companies representing almost nine in ten employees (87%) in this sub-sector. In Internet access technology, electronics crafts are also most advanced. Crafts in transport equipment manufacturing also perform high levels of Internet, e-mail and WWW use, while having a relatively large share of firms with analogue dial-up modems. Construction as well as wood and furniture crafts have average levels, whereas the textiles sub-sector is lowest in all three basic applications and has the highest percentage of analogue dial-up modem users.

### ICT skills – demand and supply

The interviewees were asked if their company supports employees in acquiring computer or IT networking skills. Three concrete support measures were named by the interviewer: in-house computer or IT training; participation in computer or IT training offered by third parties; employees being able to use some of their working time for learning activities. Finally the enterprises were asked if they offer any other support measure. 41% of craft enterprises offer any kind of support for IT skills development (see exhibit 2-5). This is less than in all other sectors (56%). However, considering the level of IT skills development in craft firms with 10–49 employees, the percentage (60%) is slightly higher than in the other sectors. This points to the often stated importance of craft firms for training and education.<sup>20</sup>

*Exhibit 2-5: Craft companies supporting any kind of IT skills development (2003)*



Base: EU-5 (DE, ES, FR, IT, UK), all enterprises (n = 1,414 for EU-5 sector total, n = 4,516 for other (9) sectors (EU-5)).  
 Figures in % of enterprises. Reporting period: March/November 2003.

Source: e-Business W@tch (2003/04)

A small share of 4% of the craft enterprises had made recruitment efforts regarding staff with special IT skills during the past twelve months before the survey (see exhibit 2-6). In the other nine sectors, this percentage was twice as high (9%). Of the enterprises that tried to recruit IT specialists, only 2% expected an academic degree (Master or Ph.D.) from the recruits, while 36% expected an IT certificate. Recruitment efforts as well as qualification expectations were more widespread among companies with 10 – 49 employees compared to companies with less than 10 employees. In a further question, the interviewees were asked if they outsourced some of their IT activities. In 12% of the craft enterprises such outsourcing had taken place.

<sup>20</sup> See also page 11 on the economic importance of the craft and trade sector.

**Exhibit 2-6: Recruitment activities, expected qualifications and outsourcing of IT activities in craft industries (2003)**

	Have made recruitment efforts during past 12 months period	Of those expected: Academic degree (Master, PhD) *	Of those expected: IT certificate *	Have outsourced some of their IT activities
Sector total (EU-5)	4.3	2.2	36	12
0-9 employees	3.6	<1	26	12
10-49 employees	9.7	8.6	65	17
Other (9) Sectors (EU-5)	8.6	n.a.	n.a.	n.a.

\* enterprises having made recruitment efforts.

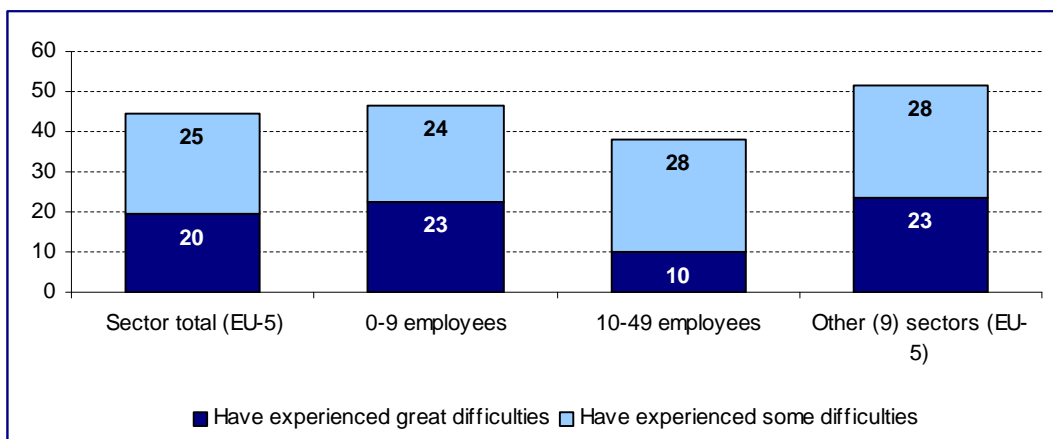
Base: EU-5 (DE, ES, FR, IT, UK), all enterprises (n = 1,414 for EU-5 sector total, n = 4,516 for other (9) sectors (EU-5)). Figures in % of enterprises. Reporting period: March/November 2003. n.a. = not available.

Source: e-Business W@tch (2003/04)

Of those craft enterprises that sought to recruit IT specialists, every fifth (20%) stated that it had great difficulties and every fourth (25%) some difficulties (see exhibit 2-7). Both values are three percentage points smaller than the average of the nine other sectors of the survey. This may appear to contradict the assumption that craft firms have difficulties in attracting IT personnel. The research findings do not allow a concise interpretation here. On the one hand, it may be the case that craft firms look out for IT personnel with more general IT skills, whereas the (larger) enterprises in other sectors tend to search highly qualified personnel. This view can be supported by the fact that the level of expected qualifications is higher in craft firms with 10 – 49 employees than in craft firms with less than 10 employees. On the other hand, the share of craft enterprises with 10 – 49 employees reporting difficulties in finding IT staff (38%) was smaller than in micro firms (47%).

Data for a sector comparison of expected IT specialist qualification and of outsourcing activities are not available. A breakdown of craft data by countries and sub-sectors is not meaningful due to too small a number of cases.

**Exhibit 2-7: Craft companies having experienced difficulties in recruiting IT staff (2003)**



Base: EU-5 (DE, ES, FR, IT, UK), enterprises having made recruitment efforts (n = 102 for EU-5 sector total). Figures in % of enterprises. Reporting period: March/November 2003.

Source: e-Business W@tch (2003/04)

## 2.2.2 Internal business processes

### Knowledge management and e-learning

The interviewees were asked about technologies supporting knowledge exchange and improvement within the company. A basic network technology for this purpose is an intranet. 12% of craft enterprises use an intranet, 10% of micro enterprises with less than 10 employees and 21% of small enterprises with 10 – 49 employees – see exhibit 2-8. The level of intranet use among these small enterprises equals the level in the other nine sectors of the *e-Business W@tch* (21%).

More sophisticated technologies of knowledge exchange and improvement were very rare. Only 3% of the craft enterprises use a special knowledge management (KM) software application. This is less than in the all-sector total of 5%. E-learning applications, that is for instance learning material for employees available on the Intranet or on the Internet, are even less widespread: 2% of the craft enterprises use such technologies, most of them in the electronics and electrical machinery as well as transport equipment sector, which is less than in all sectors (5%). While all sectors appear to neglect the opportunities of KM and e-learning, crafts appear to have particular shortcomings in this respect.

*Exhibit 2-8: Knowledge management and e-learning in craft companies (2003)*

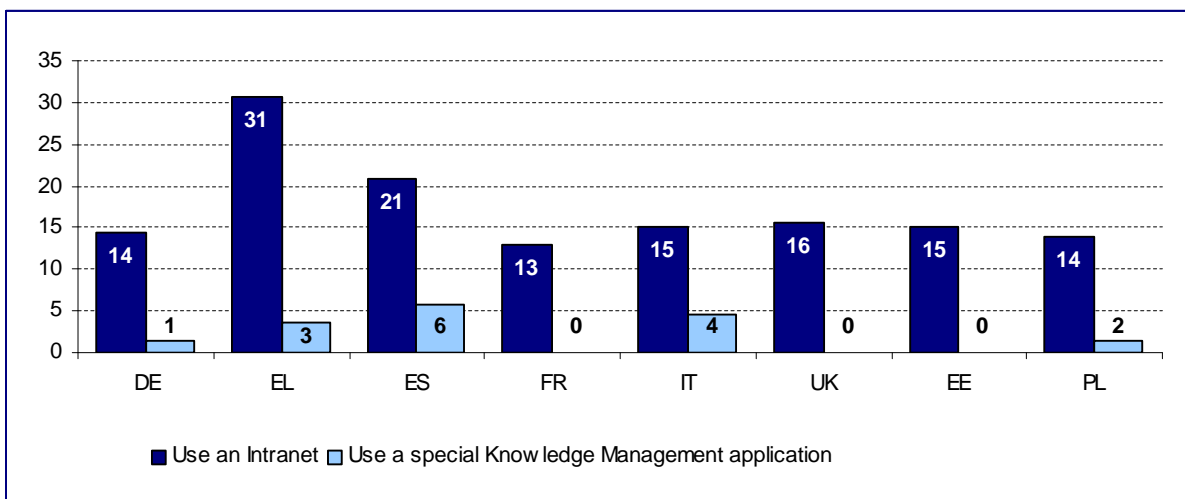
	Use an intranet	Use a special knowledge management application	Use an e-learning application
Sector total (EU-5)	12	2.9	1.6
0-9 employees	10	3.0	1.6
10-49 employees	21	2.6	1.6
Other (9) Sectors (EU-5)	21	4.8	5.3

Base: EU-5 (DE, ES, FR, IT, UK), all enterprises (n = 1,414 for EU-5 sector total). Figures in % of enterprises. Reporting period: March/November 2003.

Source: *e-Business W@tch* (2003/04)

Greek craft firms reported the highest levels of intranet use (31% of employment) – see exhibit 2-9. Spain follows with (21%), while the UK (16%), Italy (15%), Estonia (15%), Poland (14%), Germany (14%) and France (13%) had quite similar values. As regards Knowledge Management applications, Spanish craft firms (6% of employment) and Italian ones (4%) reported the highest use, while in France and the UK no firms with KM were included in the survey.

*Exhibit 2-9: Knowledge management: use of intranets and special applications in crafts*



Base: EU-5 (DE, ES, FR, IT, UK), all enterprises (n = 138 – 288 per country). Figures are weighted by employment (“enterprises comprising ...% of employees in the country). Reporting period: March/November 2003.

Source: *e-Business W@tch* (2003/04)

## Use of online technologies to support internal business processes

**Overall:** E-business solutions can enhance communication between personnel and the processing of staff-related issues within a company. Enterprises representing 16 % of employees in the craft and trade sector reported that they share documents between colleagues or perform collaborative work in an online environment. More specific internal business processes are quite rare. Enterprises representing 8% of the employees track working hours and production time online, 5% support the human resources management, and only a tiny percentage (1%) uses online technologies to automate travel reimbursement.

**Sector comparison:** In the composite craft and trade sector, all types of online support of internal business processes are used less frequently than in the all-sector average. The differences are particularly pronounced in the automation of travel reimbursement (1% in craft firms versus 11% in sector average) and human resources management (5% versus 21%). The reason may be that these technologies are of particular use in large companies.

**Size classes:** Craft firms with 10 – 49 employees have a much higher percentage of internal business processes use than firms with less than 10 employees. Firms with 10 – 49 employees even outperform the other sectors average in tracking working hours and production time and human resources management.

*Exhibit 2-10: Use of online technologies to support internal business processes in craft industries (2003)*

	To share documents internally / for collaborative work	To automate travel reimbursement	To track working hours / production time	To support human resources management
<b>Sector total (EU-5)</b>				
% of employment	16	1.3	8	5
% of enterprises	11	<1	5	3
0-9 employees	10	<1	4	2
10-49 employees	21	2.2	12	8
<b>Other 9 Sectors (EU-5)</b>				
% of employment	40	10.7	20	21
% of enterprises	22	3.3	5	5
<b>Countries</b>				
DE Germany	12	<1	12	8
EL Greece	39	1.9	10	10
ES Spain	27	1.6	8	5
FR France	18	<1	8	4
IT Italy	9	1.4	3	2
UK United Kingdom	15	3.5	12	9
EE Estonia	5	<1	17	5
PL Poland	15	1.9	2	2
<b>Industries</b>				
Textiles, clothing & footwear	10	<1	8	5
El. machinery & electronics	28	3.5	11	7
Transport equipment	23	2.1	9	7
Wood & furniture	7	2.0	2	1
Construction	17	1.1	8	6

Base: EU-5 (DE, ES, FR, IT, UK), all enterprises (n = 1,414 for EU-5 sector total, 238 – 288 per country and 144 – 440 per industry). Figures for size-bands in % of enterprises. Figures for countries and industries are weighted by employment ("enterprises comprising ...% of employees in the country/industry"). Reporting period: March/November 2003.

Source: e-Business W@tch (2003/04)

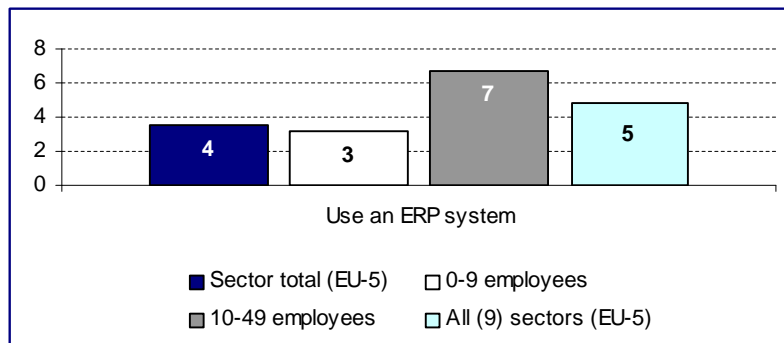
**Countries:** Greek craft firms reported the highest percentage of internal documents sharing and online collaborative work (enterprises representing 39% of craft employees) as well as human resources management (10%) and are above average in the other two indicators.<sup>21</sup> Spanish crafts performed high in internal documents sharing (27%) and were average in the other categories. UK firms are above average except internal online documents sharing (15%). French craft firms tend to be average. German craft enterprises are particularly high in tracking working hours or production time (12%) and in supporting human resources management (8%). Italian craft firms reported the lowest shares of all countries except automated travel reimbursement. Estonia is well above the EU-5 average in tracking working hours and production time (17%) and well below in internal documents sharing (5%). Poland meets the EU-5 values in online internal documents sharing and automated travel reimbursement, but is very low in tracking working hours or production time as well as in support of human resources management.

**Industries:** Electronics and electrical machinery as well as transport equipment manufacturing are again the leading sub-sectors in internal business processes, the wood and furniture industries are at the bottom. The textiles industries that usually tend to be below average within the composite craft and trade sector perform average in tracking working hours and production time as well as in supporting human resources management. It may be that these functions are particularly relevant to the textiles industries' competitiveness due to the importance of labour as a production factor.

**Use of ERP systems**

Enterprise Resource Planning (ERP) systems are used by a small minority of craft firms (4%) as well as in all other sectors (5%) – see exhibit 2-11. However, the share of craft firms with 10 – 49 employees reporting the use of an ERP system was 7% which is higher than the other sectors' average. This higher level is not only caused by the small electrical machinery and electronics crafts (14%) and transport equipment crafts (10%) in the sample, but also by relatively high levels of ERP use in wood and furniture manufacturing firms with 10 – 49 employees (10%). An explanation may be the furniture industry's requirement of a number of different input materials.

*Exhibit 2-11: Craft companies using an ERP (enterprise resource planning) system (2003)*



Base: EU-5 (DE, ES, FR, IT, UK), all enterprises (n = 1,414 for EU-5 sector total). Figures in % of enterprises.  
Reporting period: March/November 2003.

Source: e-Business W@tch (2003/04)

<sup>21</sup> This result is not in line with other surveys' results and calls for a more in-depth investigation of ICT use in Greek craft firms that will be conducted for the second craft and trade report.

## 2.2.3 Procurement processes and supply chain management

### Buy-side electronic commerce activities

**Overall:** In total, enterprises comprising 24% of employees in the craft and trade sector and 21% of craft enterprises purchase online (see exhibit 2-12). Of the former, 60% purchase Maintenance, Repair and Organisational (MRO) goods online, and an equal share (59%) purchases direct production goods.

*Exhibit 2-12: Online purchasing activities in craft companies (2003)*

	Online purchases	Thereof:	
		Online purchase of MRO* goods	Online purchase of direct production goods
<b>Sector total (EU-5)</b>			
% of employment	24	60	59
% of enterprises	21	57	57
0-9 employees	20	56	57
10-49 employees	25	62	60
<b>Other (9) Sectors (EU-5)</b>			
% of employment	46	62	50
% of enterprises	31	60	53
<b>Countries</b>			
DE Germany	47	77	54
EL Greece	10	26	15
ES Spain	17	50	67
FR France	11	40	58
IT Italy	13	56	43
UK United Kingdom	38	44	74
EE Estonia	15	31	78
PL Poland	11	57	76
<b>Industries</b>			
Textiles, clothing & footwear	12	42	43
El. machinery & electronics	53	66	69
Transport equipment	31	66	53
Wood & furniture	24	59	53
Construction	24	60	61

\* Maintenance, repair and operations goods (indirect production goods)

Base: EU-5 (DE, ES, FR, IT, UK), all enterprises (n = 1,414 for EU-5 sector total, 238-288 per country and 144-440 per industry) for (1); enterprises procuring online (n = 440 for EU-5 sector total, 37-137 per country and 33-176 per industry) for (2). Figures for size-bands in % of enterprises. Figures for countries and industries are weighted by employment ("enterprises comprising ...% of employees in the country/industry"). Reporting period: March/November 2003.

Source: *e-Business W@tch* (2003/04)

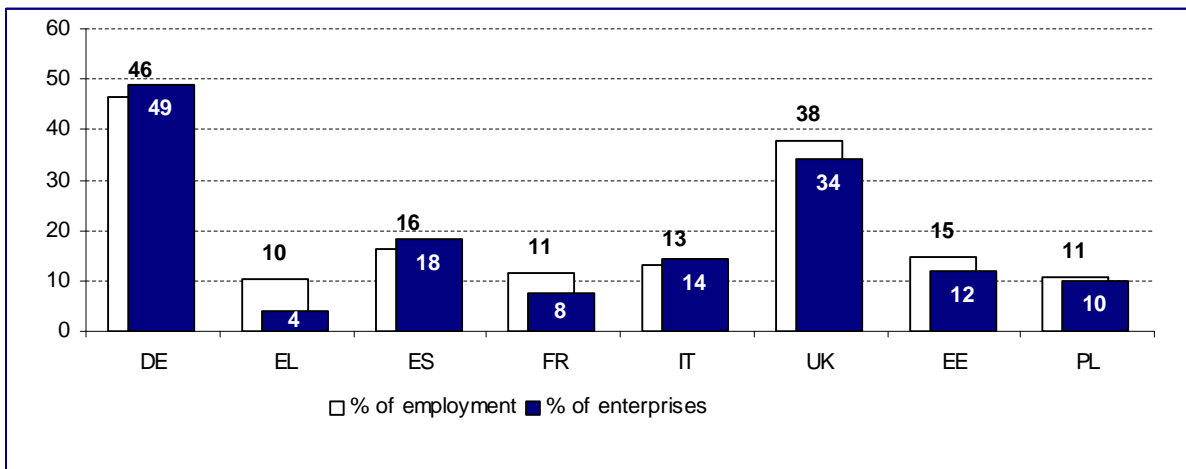
**Sector comparison:** In the other nine sectors, the share of online purchasers is much higher. Enterprises representing 46% of employees purchase online which is twice as high as in the craft and trade sector. In percentage of enterprises, the share is at least 50% higher. Of those firms purchasing online, the shares of enterprises purchasing MRO goods is slightly higher in the other sector average, whereas online purchases of direct production goods are higher among craft firms. One reason for the relative importance of direct production good purchase versus MRO good purchase may be that small firms purchase rather small amounts of MRO goods that can easily be bought in bricks-and-mortar stores.

**Size classes:** Online purchases are slightly more prevalent among small craft firms (25%) than in micro firms (20%). Small firms also have slightly higher shares in both good categories which means that there are relatively more small than micro firms purchasing both MRO goods and direct production goods online.

**Countries:** The share of online purchasers varies widely among the survey countries – see exhibit 2-13. Germany has by far the highest level (47% of employment), followed by the UK (38%). The shares of employees in craft firms purchasing online is only between one tenth and one sixth in the other countries. In percentage of enterprises, only 4% of craft firms purchase online in Greece and 8% in France. Purchase of MRO goods is highest in Germany (77%) and purchase of direct production goods is highest in the UK (74%), while Greece is lowest in both categories.

**Industries:** The distribution by industry shows the typical picture: electrical machinery and electronics lead the way (53%) followed by transport equipment (31%); construction as well as wood and furniture are average, while textiles manufacturing is behind (12%). The ranking is similar in types of goods procured.

*Exhibit 2-13: Craft companies purchasing online by country (2003)*



Base: All enterprises (n = 238-288 per country). Reporting period: March/November 2003.

Source: e-Business W@tch (2003/04)

### Types and relative importance of online purchases by companies

**Overall:** Companies can use various media to purchase online. Most important are suppliers' websites: Craft firms comprising 83% of employment use this method (see exhibit 2-14). B2B marketplaces (19%) and suppliers' extranets (21%) are less important but notable, while Electronic Data Interchange (EDI) is used in a negligible share of companies. The majority of craft companies purchases only a small amount of goods online: craft firms comprising 53% of employment in the sector buy less than 5% of their purchases online, and 26% buy between 5 and 10% (see exhibit 2-15). "Online purchase only" is conducted by enterprises comprising only 4% of the sectors employment.

**Sector comparison:** In the other sectors, the employment-weighted shares of distribution platform use are slightly higher than in the craft and trade sector which is due to the fact that the other sectors include medium-sized and large firms. In percentage of enterprises, the levels are very similar. EDI plays, on average, a slightly more important role in the other sectors.

**Size classes:** The only notable difference in distribution platform use between micro (0 – 9 employees) and small (10-49 employees) firms is that micro firms have a higher level of B2B Marketplace use – 23% versus 15%. Reasons may be an actually higher importance of B2B marketplaces for micro firms or a misinterpretation of the question in the interview.



**Industries:** In contrast to other indicators, the shares of companies purchasing through suppliers' websites are quite similar in the sub-sectors (between 83% and 86% of employees). The exception is the textiles industry with 67%. In the other platforms, differences are quite distinct, with electrical machinery and electronics again performing the highest levels and textiles some of the lowest. In wood and furniture manufacturing, B2B marketplaces are of little relevance (6%), while extranets are quite important (23%), which may indicate a close relationship in the industry's value chain. EDI only plays a role in the electronics and transport equipment sectors.

Due to the small number of cases in some countries, a breakdown by countries is not meaningful.

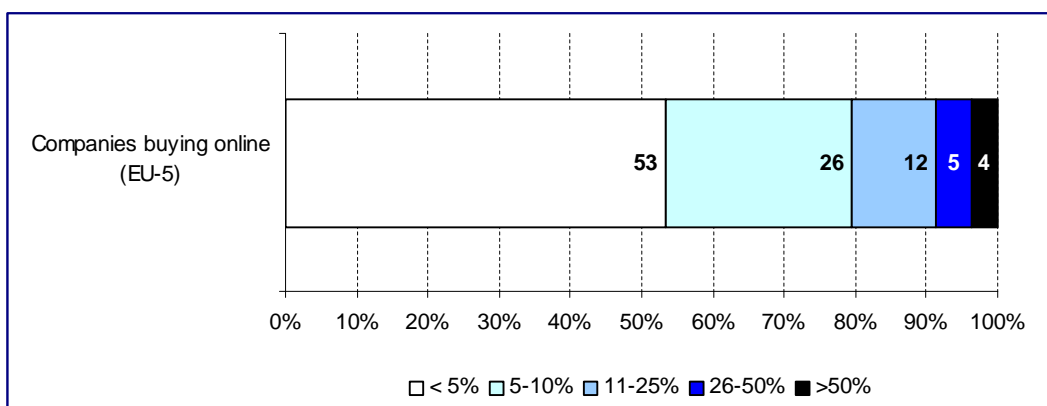
**Exhibit 2-14: Distribution platforms and protocols used for online purchases in craft industries (2003)**

	Website of suppliers	B2B Marketplaces	Extranet	EDI
<b>Sector total (EU-5)</b>				
% of employment	83	19	21	<1
% of enterprises	81	22	20	<1
0-9 employees	81	23	20	0
10-49 employees	83	15	20	<1
<b>Other (9) Sectors (EU-5)</b>				
% of employment	88	24	28	5.9
% of enterprises	85	21	22	2.9
<b>Industries</b>				
Textiles, clothing & footwear	67	9	8	0
El. Machinery & electronics	86	33	33	2.6
Transport equipment	85	20	21	5.3
Wood & furniture	85	6	23	0
Construction	83	21	20	0

Base: EU-5 (DE, ES, FR, IT, UK), enterprises purchasing online (n = 440 for EU-5 sector total, 37-137 per country and 33-176 per industry). Figures for size-bands in % of enterprises. Figures for countries and industries are weighted by employment ("enterprises comprising ...% of employees in the country/industry"). Reporting period: March/November 2003.

Source: e-Business W@tch (2003/04)

**Exhibit 2-15: Share of online purchases (all platforms) as % of total purchases in craft industries (2003)**



Base: EU-5 (DE, ES, FR, IT, UK), enterprises purchasing online excluding don't know / know answer (n = 429). Figures are weighted by employment ("enterprises comprising ...% of employees"). Reporting period: March/November 2003.

Source: e-Business W@tch (2003/04)

### Business process integration in e-commerce (buy-side)

**Overall:** Besides actual online procurement, that is electronic transactions for purchasing goods, companies can conduct related buy-side business processes online. Among craft companies with Internet access, the use of online technologies other than text e-mail to exchange documents with suppliers is practised in firms comprising more than one third (39%) of employment. In one quarter of companies purchasing online, (25% of employment and 25% of enterprises), the IT system is integrated with that of a supplier for placing orders – see exhibit 2-16. Supply Chain Management systems play an insignificant role (3% of employment, 2% of all enterprises).

**Sector comparison:** In percentage of enterprises, both the use of online technologies to exchange documents with suppliers and IT system integration with suppliers for placing orders is higher in craft firms than in the other sector average. This result is striking because it marks one of the few cases where (micro and small) craft firms show a higher level of advanced e-business solutions than the other sectors that include large firms. However, as regards IT system integration with suppliers, although this is an advanced a-business function it is not necessarily for the benefit of the craft firms but may create dependencies limiting the opportunity to purchase from other suppliers.

*Exhibit 2-16: IT integration with suppliers in craft industries (2003)*

	Use of online technologies* to exchange documents with suppliers (1)	IT system is integrated with that of a supplier for placing orders (2)	Use an SCM (Supply Chain Management) system (3)
<b>Sector total (EU-5)</b>			
% of employment	39	25	2.7
% of enterprises	36	25	1.9
0-9 employees	35	26	1.7
10-49 employees	42	24	3.7
<b>Other (9) Sectors (EU-5)</b>			
% of employment	42	18	6.3
% of enterprises	32	18	2.3
<b>Countries</b>			
DE Germany	34	34	<1
EL Greece	38	15	0
ES Spain	47	27	8.8
FR France	47	5	0
IT Italy	30	25	1.6
UK United Kingdom	47	12	<1
EE Estonia	36	38	0
PL Poland	33	18	<1
<b>Industries</b>			
Textiles, clothing & footwear	33	14	2.0
El. Machinery & electronics	47	11	3.1
Transport equipment	42	15	1.4
Wood & furniture	34	14	1.1
Construction	41	30	3.1

\* other than free text e-mail

Base: EU-5 (DE, ES, FR, IT, UK), enterprises with internet access for (1); enterprises purchasing online for (2); all enterprises (n = 1,414 for EU-5 sector total, 238-288 per country and 144-440 per industry) for (3). Figures for size-bands in % of enterprises. Figures for countries and industries are weighted by employment ("enterprises comprising ...% of employees in the country/industry"). Reporting period: March/November 2003.

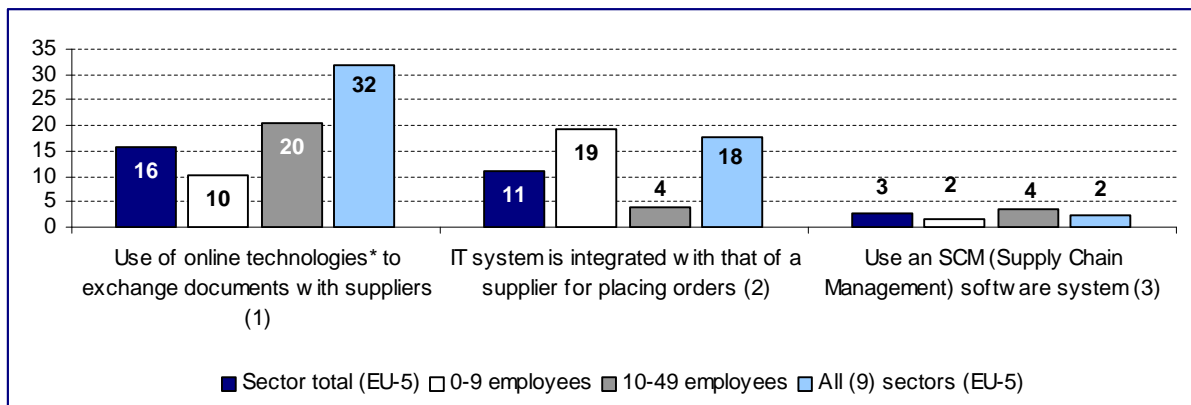
Source: e-Business W@tch (2003/04)

**Size classes:** In micro firms, IT system integration for placing orders appeared to be slightly more prevalent than in small firms: 26% versus 24% (see also exhibit 2-17). Use of online technologies to exchange documents with suppliers was reported to be more often used in small firms (42%) than in micro firms (35%).

**Countries:** Spain has one of the highest levels of exchange of documents with suppliers by using online technologies (47%) and system integration with suppliers (27%) and is the only country with a considerable level of SCM (9%). Germany has the second lowest level of online document exchange (34%) and the highest level of system integration with a supplier (33%). Italy has the lowest level of online document exchange with suppliers (30%) and is quite high in system integration with a supplier (25%) and craft firms comprising at least 1.6% of employment report to use an SCM. France has one of the highest levels in online document exchange with suppliers (47%) but is by far lowest in system integration with a supplier for placing orders (5%). UK craft firms are also high in online document exchange (47%) but low in system integration (12%). Greece is average in electronic document exchange with suppliers (38%) but low in system integration with a supplier (15%). Estonia has the highest level of system integration with a supplier for placing orders (38%). Poland is below average in all cases.

**Industries:** In contrast to many other e-business indicators, the electronics and electrical machinery industry is lowest of all selected industries in system integration with a supplier for placing orders (11%). Most remarkable in the construction industry is that it has a level of system integration with that of a supplier (30%) more than twice as high than the other industries. The reason is that construction products are commonly bought from large enterprises with online catalogues. Construction craft firms also a relatively high share of SCM (3.1%), equalling the electronics industry. The systematic electronic ordering of construction material appears to be quite advanced in craft firms. Wood and furniture has, together with textiles manufacturing, the lowest level of electronic document exchange with suppliers, but both industries are relatively high in system integration.

**Exhibit 2-17: IT integration with suppliers in craft industries (2003)**



\* other than free text e-mail

Base: EU-5 (DE, ES, FR, IT, UK), enterprises with internet access for (1); enterprises using computers for (2); all enterprises (n = 1,414) for (3). Figures in % of enterprises. Reporting period: March/November 2003.

Source: e-Business W@tch (2003/04)

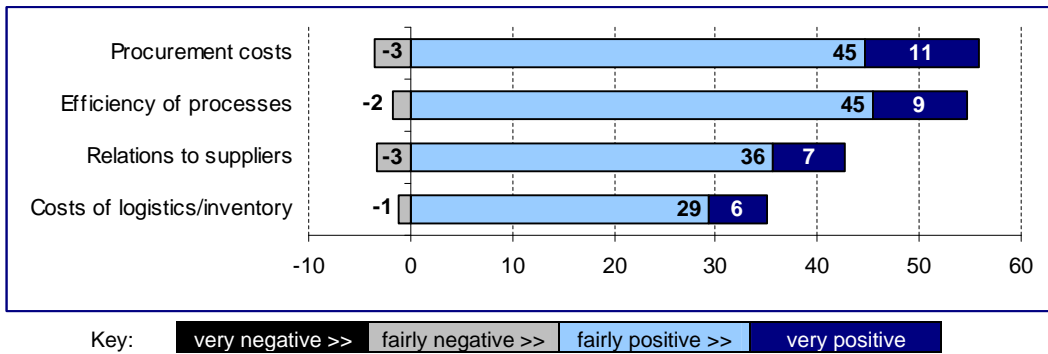
### Perceived impacts of purchasing online

The interviewees were asked what has been their experience of the effect of online procurement. The reduction of procurement costs appears to be the most beneficial impact of craft firms' purchasing online activities. Enterprises representing 11% of employment reported very positive effects in this respect, 45% reported fairly positive effects (see exhibit 2-18). Efficiency of internal business processes was reported to be almost equally improved (9% / 45%). Two other positive effects were stated by less than half of the respondents (in percentage of employment): enhancement of relations

to suppliers (7% / 36%) and costs of logistics and inventory (6% / 29%). Negative effects were reported by a very small share of interviewees, between 1 and 3% for the four answers.

The small number of cases in some countries (Greece in particular) and industries (wood and furniture in particular) does not allow for a detailed data breakdown by country and industry. Notable deviations include, as far as countries are concerned, a relatively small share of French firms reporting positive effects on procurement costs, and, as far as industries are concerned, relatively small levels of “positive” answers in textiles and construction.

**Exhibit 2-18: Perceived effects of purchasing online in craft industries (2003)**

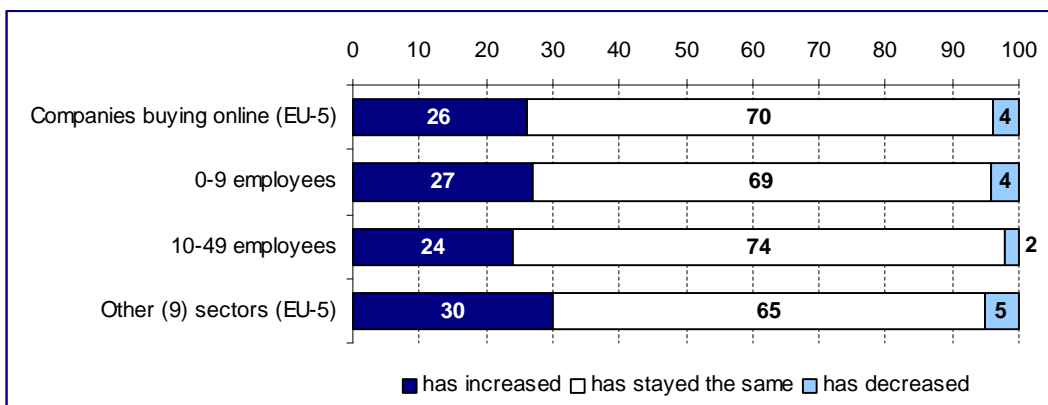


Base: EU-5 (DE, ES, FR, IT, UK), enterprises purchasing online excluding don't know / no answer (n = 409-426). Figures are weighted by employment (“enterprises comprising ...% of employees”). Reporting period: March/November 2003.

Source: e-Business W@tch (2003/04)

A further question dealt with the number of suppliers. Most enterprises reported that the number of suppliers had stayed the same due to purchasing online: 70% the craft and trade sector average, 69% in micro craft firms and 74% in small craft firms (see exhibit 2-19). The share of enterprises stating that the number of suppliers has increased is around one quarter in each case. Online purchases may have opened up new opportunities for buying cheaper or qualitatively improved goods, particularly in enterprises where the number of suppliers has increased. In the other nine sectors’ average, the percentage of answers of “has stayed the same” is slightly smaller (65%), while the share of firms reporting increases (30%) is larger. A possible interpretation is that other sectors make better use of competition benefits due to online purchasing.

**Exhibit 2-19: Reported effect of e-purchasing on the number of suppliers in craft industries (2003)**



Base: EU-5 (DE, ES, FR, IT, UK), enterprises purchasing online excluding don't know / no answer (n=409-426). Figures are weighted by employment (“enterprises comprising ...% of employees”). Reporting period: March/November 2003.

Source: e-Business W@tch (2003/04)

## 2.2.4 Marketing and sales

### Sell-side electronic commerce activities

Overall: Enterprises representing one third (32%) of craft employment and one fourth of craft enterprises (25%) have a website (see exhibit 2-20). The share of craft firms that sell online is very small, only around 3% in both weighting schemes. Of those firms selling online, around one third (31%) offers online payment of goods or services ordered and also one third (34%) has an online sales system with secure transactions capability.

The majority of craft firms do not sell much online: 54% sell less than 5% of their total sales online, further 22% between 5 and 10%. However, 5% of craft firms sell more than 50% of their turnover online. These may be cases of crafts offering very special products that do not have a sufficient local market but find customers with equivalently special preferences in distant locations. This may be the case for crafts offering traditional products from certain regions (see box text).

*Exhibit 2-20: Online marketing and e-commerce activities in craft industries (2003)*

	Have a website on the internet (1)	Sell online (1)	Of online sellers:	
			Allow online payment of goods/services ordered (2)	Online sales system with secure transactions capability (2)
<b>Sector total (EU-5)</b>				
% of employment	32	3.2	17	30
% of enterprises	25	2.8	31	34
0-9 employees	23	2.7	n.a.	n.a.
10-49 employees	41	3.4	n.a.	n.a.
<b>Other (9) Sectors (EU-5)</b>				
% of employment	66	15.9	43	59
% of enterprises	36	9.5	38	46
<b>Countries</b>				
DE Germany	55	5.8	n.a.	n.a.
EL Greece	35	6.9	n.a.	n.a.
ES Spain	25	3.9	n.a.	n.a.
FR France	21	2.8	n.a.	n.a.
IT Italy	24	<1	n.a.	n.a.
UK United Kingdom	42	3.4	n.a.	n.a.
EE Estonia	43	5.2	n.a.	n.a.
PL Poland	28	2.3	n.a.	n.a.
<b>Industries</b>				
Textiles, clothing & footwear	23	1.6	n.a.	n.a.
El. Machinery & electronics	68	9.2	n.a.	n.a.
Transport equipment	56	7.1	n.a.	n.a.
Wood & furniture	38	4.3	n.a.	n.a.
Construction	30	2.8	n.a.	n.a.

Base: EU-5 (DE, ES, FR, IT, UK), all enterprises (n = 1,414 for EU-5 sector total, 138-288 per country and 144-440 per industry) for (1), enterprises selling online (n = 85 for EU-5 sector total) for (2). Figures for size-bands in % of enterprises. Figures for countries and industries are weighted by employment ("enterprises comprising ...% of employees in the country/industry"). Reporting period: March/November 2003. n.a. = not available.

Source: e-Business W@tch (2003/04)

**Sector comparison:** In the other nine sectors, the share of enterprises with a website (36%) and selling online (10%) is higher. Online payment (38%) and secure transactions capability (46%) are more widespread.

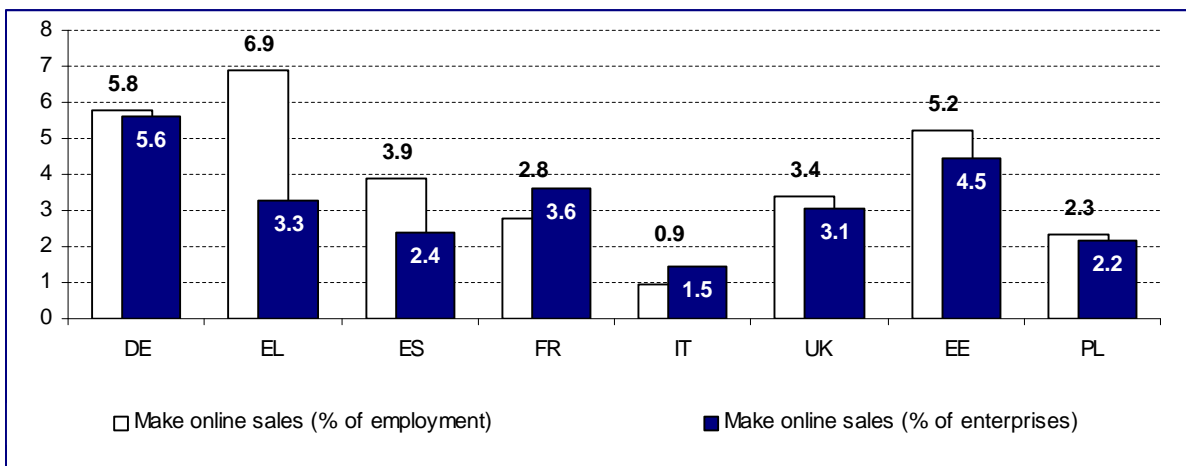
**Size classes:** Website provision and online sales are more prevalent in small companies than in micro companies. 41% of craft firms with 10-49 employees have a website, which is more than the other sector average.

**Countries:** Germany has the largest share of craft firms with a website (55% of employment) and a high share of online sellers (6%) (see exhibit 2-21). France has the lowest share of firms with a website (21%) and a low share of online sellers (2.8%). Greek craft firms reported the highest level of online sellers (6.9%) weighted by employment, but the share is only 3.3% weighted by enterprises and the level of Greek firms with a website (35%) is only slightly above average. Estonia has the second highest level of craft firms with a website (43%) and is above average in online sellers (5%). Poland is below average in both indicators.

**Industries:** The only remarkable characteristic in a data breakdown by industry may be that wood and furniture manufacturing companies have a relatively high level of website provision (38%) and, behind the all-time leader electronics and electrical machinery, the second highest share of online sellers (4%). Wood and furniture products may be relatively well suited for online sales.

A breakdown of craft data about online payment and secure transactions by countries and sub-sectors is statistically not adequate due to a too small number of cases.

*Exhibit 2-21: Craft companies selling online by country (2003)*



Base: All enterprises (n = 238-288 per country). Figures are weighted by employment ("enterprises comprising ...% of employees in the country"). Reporting period: March/November 2003.

Source: e-Business W@tch (2003/04)

### **Regional online collections marketing craft products**

Numerous websites are marketing national or regional craft products, often selling products from various firms. Such websites offer traditional crafts the opportunity to sell to remote customers with an emotional affiliation to a certain region. Crafts from the British Isles may be in an advantageous position because English is spoken well by most tourists. An exemplary web search for crafts from Scotland identified, among others, the following sites: [www.scottishcraftsdirect.com](http://www.scottishcraftsdirect.com), [www.heritage-of-scotland.com/crafts.htm](http://www.heritage-of-scotland.com/crafts.htm), [www.walsav.co.uk](http://www.walsav.co.uk), [www.scotscrafts.org.uk](http://www.scotscrafts.org.uk).

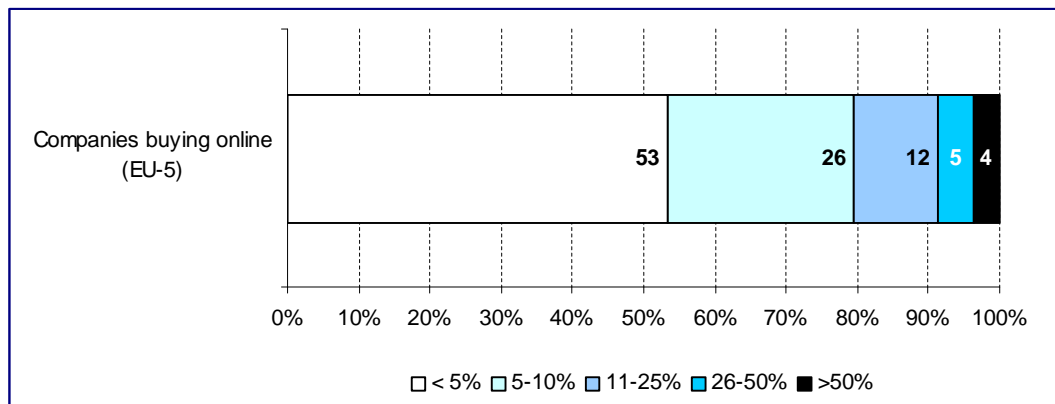
To elaborate on one example, Craft Collections at [www.craftcollections.co.uk](http://www.craftcollections.co.uk) is a specialist Internet-based company founded in 1999 to offer traditionally made products from the British Isles.

According to the company's presentation, some of the best small companies and craftspeople have been identified by travelling through England, Ireland, Scotland and Wales, often to remote locations. Craft Collections claims to be "in many cases the suppliers' only route to market". Based in Totton, Southampton, Crafts Collections can only be accessed through the Internet. Crafts Collections seeks an international market. Price can be shown in Pounds Sterling, Euro and US Dollar.

There is also a Scottish craft "webring", a group of websites with a common interest ([www.linkfonet.co.uk/scottish/index.html](http://www.linkfonet.co.uk/scottish/index.html)). Its intended benefit is that, as a crafts person, "you are associating yourself with other websites related to the theme of your site so it is an advantage to use other websites to direct visitors to your site". It is not sure if such webring, with a provider who is not necessarily well-known and trusted, meet the needs of craft firms. At the time of the research the webring linked only three websites.

Source: own research

Exhibit 2-22: Share of online sales (all protocols) as % of total sales in craft industries (2003)



Base: EU-5 (DE, ES, FR, IT, UK), enterprises selling online excluding don't know / know answer (n = 83). Figures are weighted by employment ("enterprises comprising ...% of employees"). Reporting period: March/November 2003.

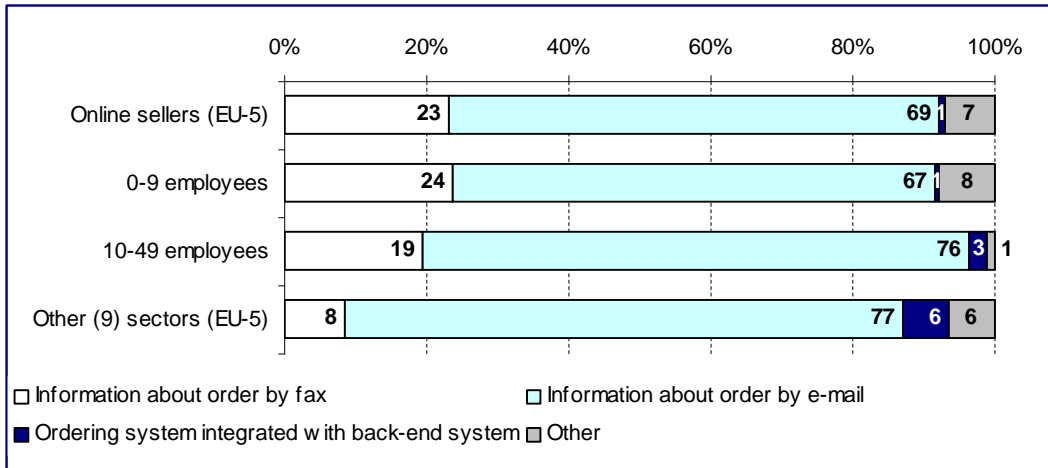
Source: e-Business W@tch (2003/04)

### Business process integration in e-commerce (sell-side)

The interviewees were asked how their company is informed about an online order. Four possibilities were mentioned and the interviewees were asked to name the one that is most appropriate. The information about an online order commonly reaches the craft firms by an e-mail that is generated automatically: two thirds of craft firms (69%) reported this mode (see exhibit 2-23). In 23% of the companies the order comes in by fax. Only 1% of the craft firms reported that the ordering system is fully integrated with the back-end system of the company. This share is slightly larger in firms with 10-49 employees (3%). In other sectors, the shares of enterprises receiving an e-mail (77%) and having the ordering system integrated with the back-end system (6%) is larger, while faxes are less common (8%).

A breakdown of craft data by countries and sub-sectors is statistically inadequate due to too small a number of cases.

**Exhibit 2-23: Sophistication of online sales systems in craft industries by size-band (2003)**



Base: EU-5 (DE, ES, FR, IT, UK), enterprises selling online (n = 83 for EU-5 sector total). Figures for size-bands in % of enterprises. Reporting period: March/November 2003.

Source: e-Business W@tch (2003/04)

32% of craft enterprises with Internet access reported that they use online technologies to exchange documents with customers – see exhibit 2-24. In other sectors, this feature is found in slightly fewer enterprises (30%). While these figures should be interpreted cautiously due to the small number of online sellers in craft firms, it appears that a considerable share of craft firms is fairly advanced in online selling. IT system integration with that of a customer for receiving orders is practised in 17% of craft firms and 27% of enterprises in the other nine sectors. Interoperability problems may be the reason for this relatively low level in craft firms.

**Exhibit 2-24: Exchange of documents and standardised data with customers in craft industries (2003)**

	Use of online technologies* to exchange documents with customers (1)	IT system is integrated with that of a customer for receiving orders (2)
Crafts (EU-5)	32	17
Other (9) sectors (EU-5)	30	27

\* other than free text e-mail

Base: EU-5 (DE, ES, FR, IT, UK), enterprises with internet access (n = 1,130 for EU-5 sector total) for (1), enterprises selling online (n = 85 for EU-5 sector total) for (2). Figures in % of enterprises. Reporting period: March/November 2003.

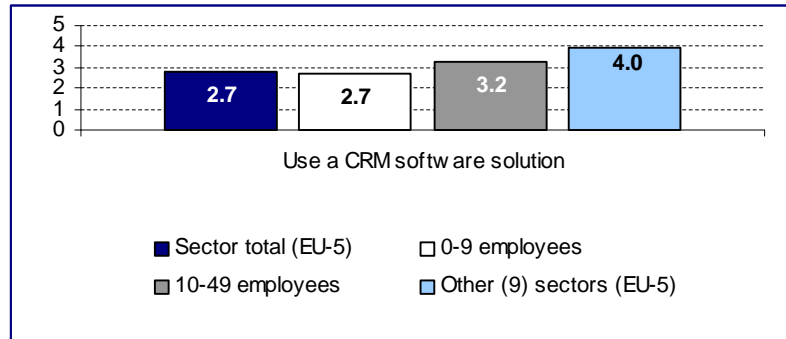
Source: e-Business W@tch (2003/04)

### Customer relationship management

Customer relations are more and more important for all economic sectors. Customers are becoming increasingly well informed about product features and firms offering the products they want, demand for special characteristics in products and services is growing, and the tendency is not to stay with one firm or trademark. In this situation, electronic applications allows companies to reduce overall costs of customer interaction in a set time, to personalise customer interaction at minimum cost, as well as to track and analyse customer data in order to focus marketing and service activities on target customers who promise particularly high returns. However, Customer Relationship Management (CRM) software is rather tuned to large firms with abundant customer data. Consequently, only 2.7% of craft firms apply CRM software, while the share in the other sectors is 4% – see exhibit 2-25.



**Exhibit 2-25: Companies from craft industries using a CRM software application (2003)**



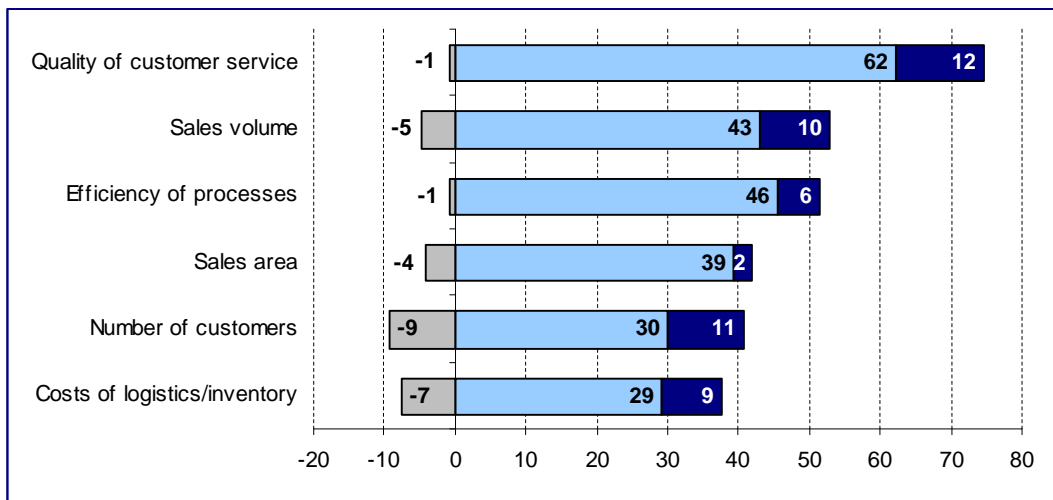
Base: EU-5 (DE, ES, FR, IT, UK), all enterprises (n = 1,414 for EU-5 sector total).  
 Figures in % of enterprises. Reporting period: March/November 2003.

Source: e-Business W@tch (2003/04)

**Perceived impact of online selling**

Most craft firms that sell online reported that the quality of customer service increased: firms representing 12% of employment stated very positive effects, 62% fairly positive effects (see exhibit 2-26). Sales volume (10% / 43%) and efficiency of internal business processes (6% / 46%) follow in the ranking of positive effects. In three other criteria, the share of companies reporting positive effects was less than 50%: sales area (2% / 39%), number of customers (11% / 30%), and costs of logistics and inventory (9% / 29%). In the latter two items, a considerable share of firms even reported a fairly negative effect. Maybe some firms' online offers were inadequate so that they lost customers, and maybe some underestimated the logistics costs of goods shipping.

**Exhibit 2-26: Perceived effects of selling online on sales and business processes efficiency in craft industries (2003)**



Key: very negative >> fairly negative >> fairly positive >> very positive

Base: EU-5 (DE, ES, FR, IT, UK), enterprises selling online excluding don't know / no answer (n = 79 for EU-5 sector total).  
 Figures are weighted by employment ("enterprises comprising ...% of employees"). Reporting period: March/November 2003.

Source: e-Business W@tch (2003/04)

## 2.2.5 Functions of the extended enterprise

### Online technology use for business processes between companies

**Overall:** Electronic applications may improve business processes between companies – among crafts or including enterprises from other sectors and with suppliers, customers or cooperation partners. Free text e-mail was excluded. In all four processes posed to the interviewees, the share of craft firms was below 10% – see exhibit 2-27. 8% use online technologies for contract negotiation, 6% for collaborative product design, 5% for management of capacity and inventory, and 4% for collaborative demand forecast.

**Sector comparison:** Enterprises from other sectors reported higher levels. In collaborative product design and collaborative demand forecast, the shares of enterprises are twice as high.

**Size classes:** Craft enterprises with 10 – 49 employees performed higher levels of online technology use for business processes between companies than firms with less than 10 employees.

*Exhibit 2-27: Craft industries: Use of online technologies (other than free text e-mail) for business processes between companies (2003)*

	Collaborative product design	Collaborative demand forecast	Capacity / inventory management	Contract negotiation
Sector total (EU-5)				
% of employment	7	5	5	9
% of enterprises	6	4	5	8
0-9 employees	6	4	5	8
10-49 employees	7	7	5	9
Other (9) Sectors (EU-5)				
% of employment	17	12	14	13
% of enterprises	12	8	7	11
Countries				
DE Germany	4	5	3	3
EL Greece	10	7	6	11
ES Spain	3	3	6	12
FR France	13	13	8	15
IT Italy	7	5	4	5
UK United Kingdom	12	4	6	16
EE Estonia	5	7	9	34
PL Poland	13	7	4	16
Industries				
Textiles, clothing & footwear	11	5	6	5
El. machinery & electronics	18	12	10	17
Transport equipment	12	8	8	15
Wood & furniture	9	6	4	7
Construction	5	5	4	9

Base: EU-5 (DE, ES, FR, IT, UK), enterprises with Internet access (n = 1,130 for EU-5 sector total, 188-257 per country and 108-344 per industry). Figures for size-bands in % of enterprises. Figures for countries and industries are weighted by employment ("enterprises comprising ...% of employees in the country/industry"). Reporting period: March/November 2003.

Source: e-Business W@tch (2003/04)

**Countries:** In contrast to other indicators, France has the highest shares of firms practising online collaborative product design (13%), collaborative demand forecast (13%) and capacity/inventory management (8%). In contract negotiation, France has the second highest level (15%). UK craft firms have the highest level in contract negotiation (16%) and the second highest in online collaborative

product design (12%). Spain has a particularly low level of online product design. German crafts are below average in all categories. Greek craft firms are above average in all categories.<sup>22</sup> Italian crafts are below average except for online collaborative product design. Estonia reported the single highest level of craft firms negotiating contracts online (34%). Polish crafts enterprises reported, together with the French, the highest level of online product design (13%) and is also high in online contract negotiation. With regard to Poland, one reason for the high levels may be Poland's importance as a supplier of preliminary products for enterprises in Western European countries that require online technologies in collaborative processes.

**Industries:** Construction has the lowest level of online collaborative product design which can be explained by the fact that building design is fulfilled by separate actors in the value chain, namely architects. Construction is below average except in online contract negotiation. Electrical machinery and electronics again revealed the highest levels of online technology use, followed by transport equipment manufacturing. Wood and furniture manufacturing has some of the lowest levels in all categories. In contrast with other e-business indicators, in online collaboration textiles manufacturing is lowest only in contract negotiation, and the value for collaborative product design is remarkably high (11%). This correlates with the fact that design is very important in the textiles industry.

### Exchange of standardised data and technical standards use

The exchange of standardised data between companies was introduced as a new question in the November 2003 survey so that data are not available for all industries. The enterprises were asked if they are exchanging standardised data with their buyers or sellers electronically. "Standardised data" referred to "electronic product catalogues, orders, invoices, delivery notes and similar business documents". Plain e-mails were excluded in the question. Enterprises representing 24% (construction), 21% (wood and furniture) and 19% (textiles) of employees reported exchanging standardised data electronically – see exhibit 2-28.

Asked about particular technical standards used for data exchange, the shares were quite low. Electrical machinery and electronics (11%) as well as transport equipment manufacturing (10%) have a considerable level of EDI standards use (such as EDIFACT, EANCOM, ANSI X12 or TRADCOM), while this technology is negligible in other industries. The other category with notable levels of use are proprietary standards agreed between the craft firm and its business partners: 9% in construction, 6% in wood and furniture, and 5% in textiles, clothing and footwear.

*Exhibit 2-28: Exchange of standardised data between companies (2003)*

	Standardised data* exchange	EDI based	XML based	STEP	Proprietary standards	Other
Industries						
Textiles, clothing & footwear	19	2.3	<1	1.4	4.5	3.2
El. machinery & electronics	n.a.	10.5	n.a.	n.a.	n.a.	n.a.
Transport equipment	n.a.	9.9	n.a.	n.a.	n.a.	n.a.
Wood & furniture	21	<1	<1	<1	6.2	2.7
Construction	24	1.6	1.8	2.0	9.1	2.7

\* Standardised data = electronic product catalogues, orders, invoices, delivery notes and similar business documents

Base: EU-5 (DE, ES, FR, IT, UK), all enterprises (n = 1,414 for EU-5 sector total and 144-440 per industry). Figures are weighted by employment ("enterprises comprising ...% of employees in the industry"). Reporting period: March/November 2003. n.a. = not available.

Source: e-Business W@tch (2003/04)

<sup>22</sup> This result is not in line with other surveys' findings. A more in-depth investigation of ICT use in Greek craft firms will be conducted for the second craft and trade report.

## 2.2.6 Outlook: what will be important

### Technical issues possibly influencing the future of e-business

The final question to the interviewees was about “technical issues which could influence the future of e-business”. Four technological developments were put to them and they were asked if they think that these will be important to their company or not:

- mobile solutions to connect fieldworkers with the company,
- integration of IT components through web services,
- new XML based standards,
- VPNs to connect companies securely via the Internet.

Answer possibilities were limited to “yes, important” or “no, not important”. None of the technical issues appeared to be of crucial importance to the three industries for which answers are available. Although it is unpredictable if the technologies considered will become standards in the future and if so in what industries they will be most important, it appears that the construction and wood/furniture industries are more open to these developments than the textile industry.

### Mobile solutions to connect fieldworkers

Craft business often implies on-site production which makes mobile solutions particularly relevant for the craft and trade sector. “Mobile solutions to connect fieldworkers with the company” were attributed importance by construction enterprises representing 16% of employees. The level was almost equally high in wood and furniture firms (15%) but much smaller in textiles (5%) – see exhibit 2-29. The reason for the higher levels in construction and wood/furniture may be that these industries naturally imply more outdoor production which can benefit from mobile solutions.

### Web services could boost B2B integration

Many IT analysts and market researchers predict that Web services may blaze the trail for the next boom of e-business, in which collaborative commerce and business transactions on the web could reach levels not even anticipated at the height of the new economy bubble. Web services, once they have reached the next stage of technological maturity, could greatly facilitate machine-to-machine communication and thus trigger e-business activities by dramatically reducing costs for business process integration within and between companies. Web service based standards already exist, and companies are already experimenting around with Web services, for example by using them to integrate different implementations of ERP systems within a single enterprise.<sup>23</sup> Integration of IT components by means of web services were assessed as important by firms comprising 14% of employment in construction, 8.8% in wood and furniture and 6% in textiles – see exhibit 2-29.

### New XML based standards

The IT and e-business specialist press is rather uniform in their assumption that XML (Extensible Markup Language) based standards will play a most important role in tomorrow's e-business. XML is a flexible way to create common information formats and share both the format and the data on the World Wide Web or on intranets. Thus, XML based standards can be used for e-business purposes, promising to simplify business transactions on the web. Facilitating data interchange may even be their strongest point. New standards based on XML such as electronic business XML (ebXML) or RosettaNet were assessed as being most important for the wood and furniture industry (8%), followed by construction (6%). XML appears to have little relevance for the textiles industry (2.2%) – see exhibit 2-29.

---

<sup>23</sup> See "Gartner: Web services poised to transform the Web again", by Bernadette Hearne, Editor, e-business Chemicals Newsletter, 24 Sep. 2003. ([www.eyeforchem.com](http://www.eyeforchem.com))

## VPNs to connect companies securely via the Internet

A virtual private network (VPN) is a way to use a public telecommunication infrastructure, such as the Internet, to provide remote offices or individual users with secure access to their company's network. A virtual private network can be contrasted with an expensive system of owned or leased lines that can only be used by one organisation. The goal of a VPN is to provide the organisation with the same capabilities, but at a much lower cost. Privacy is maintained through specific security procedures and "tunnelling protocols" which, by encrypting data at the sending end and decrypting it at the receiving end, send the data through a "tunnel" that cannot be "entered" by data that is not properly encrypted.<sup>24</sup> The highest level of positive responses on VPNs came from the wood and furniture industry (14%), followed by construction (13%) – see exhibit 2-29.

*Exhibit 2-29: Assessment by craft companies: importance of future ICT developments for them*

	Mobile solutions to connect field workers with company	Integration of IT components through web services	New XML-based standards	VPNs to connect companies securely via the Internet
Industries				
Textiles, clothing & footwear	5	6	2	6
Wood & furniture	15	9	8	14
Construction	16	14	6	13

Base: EU-5 (DE, ES, FR, IT, UK), all enterprises (n = 144-440 per industry). Figures are weighted by employment ("enterprises comprising ...% of employees in the industry"). Reporting period: March/November 2003.

Source: *e-Business W@tch* (2003/04)

<sup>24</sup> Definition by searchNetworking.com Definitions, a site by TechTarget for Networking professionals (<http://whatis.techtarget.com>)

## 2.3 The European e-Business Sector Scoreboard

### 2.3.1 Introduction

This Scoreboard compares the importance of ICT and e-business applications in 10 sectors of the European economy using 16 key indicators. For reasons of consistency and comparability, all indicators are based on data obtained through the e-Business Survey 2003 of the *e-Business W@tch*. Normally, benchmarking activities of this type imply that a higher score stands for a better performance. In this context, however, the main objective of the Scoreboard is not to make a statement about sectors' e-business performance. The goal is to make visible at a glance the fundamental differences between sectors with respect to the role and the relative importance of information technology and electronic business applications. For instance, the Scoreboard for the tourism sector shows that e-business is very important for marketing and sales, while the e-business intensity is below average in other business areas. For the chemical industries, the finding is just vice versa.

#### The indicators

The Scoreboard is composed of 16 component indicators for ICT and e-business which are grouped into four categories according to the business functions they refer to. These categories are: (i) the connectivity of the enterprise, (ii) Internal business process automation, (iii) procurement and supply chain integration, and (iv) marketing and sales. The scoreboard compares the level of e-business across different sectors in each of these categories.

The selection and definition of component indicators was driven by pragmatic requirements, considering data availability (a selection criteria was that data were available for all sectors monitored and for the EU-5 countries) as well as data reliability (in the sense that only a minimum of indicators which reflect subjective perceptions of the interviewee were used). Some of the component indicators consist of more than one variable by themselves. The Exhibit on the next page explains all 16 component indicators and their definition.

The Scoreboard is flexible in terms of scope and choice of indicators. Additional categories could be added on demand. If component indicators are modified or exchanged, however, aggregate values for the respective category will obviously be affected.

#### Percentages and index values

The Scoreboard presents data both as percentages and as indexed values.

- **Percentages** express the share of employees from a sector that work in enterprises that use an application as defined in the following table.
- **Indexed values** take into account the percentages from all sectors and show how a specific sector differs from the all-sector-average. An index value is based on mean values and standard deviations. Constituting values are z-values, i.e.  $z = (x - \text{mean}(x)) / \text{stddev}(x)$ . This procedure results in a distribution with  $\text{mean}(z) = 0$  and  $\text{stddev}(z) = 1$ . Thus, index values express the multiple of the standard deviation (1 or -1) for a specific sector and the selected indicator. 0 equals the mean value for all sectors, a value of +1 that the percentage is higher than the mean percentage of all sectors by the extent of the standard deviation. Negative values show that the percentage is lower than the mean percentage of all sectors.

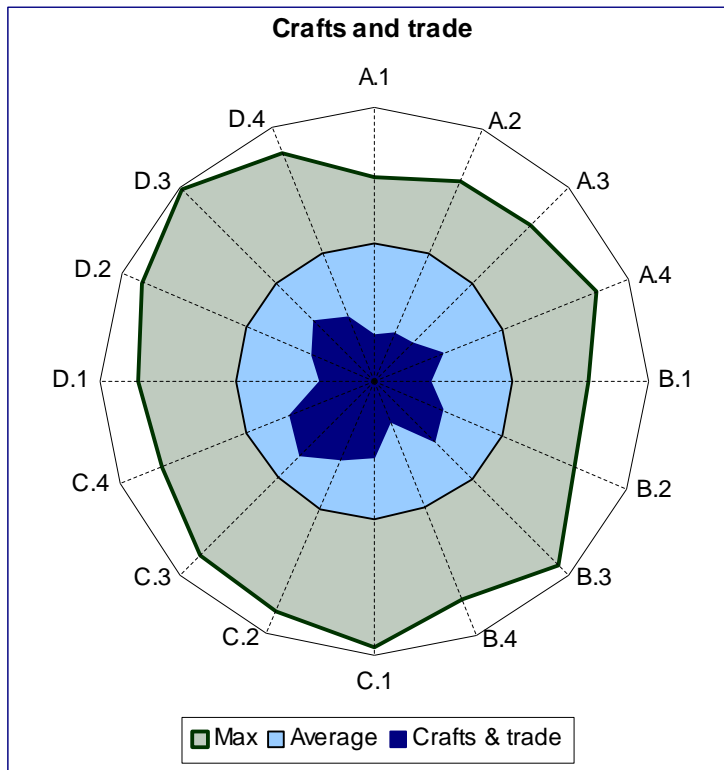
All spider diagrams are based on index values. The reason for preferring indexed values over simple percentages is that they adjust data for typical cross-sectoral gaps.

**Exhibit: Definition of component indicators used for the E-Business Sector Scoreboard**

<b>A</b>		
<b>Connectivity of the enterprise</b>		
A.1	Enterprises connecting computers with a LAN	= the percentage of employees from a sector working in enterprises that have connected computers with a Local Area Network (LAN).
A.2	Internet connectivity	= the percentage of employees working in enterprises that are connected to the internet, with a supplementary indicator for the type of internet connection in terms of bandwidth. The percentage of employees working in enterprises that are connected with a bandwidth of less than 2 Mbit/s is computed with a factor of 0.5, enterprises connected with $\geq 2$ Mbit/s bandwidth with a factor of 1.0. The maximum value of 100 would be returned if all employees from a sector work in enterprises connected to the internet with $\geq 2$ Mbit/s bandwidth.
A.3	Remote access to the company network	= the percentage of employees from a sector working in enterprises where it is possible to access data from the company's computer system from a remote location.
A.4	Wireless access to company network	= the percentage of employees from a sector working in enterprises where it is possible to access the company network through wireless technology, for example by means of a wireless LAN (W-LAN).
<b>B</b>		
<b>Internal business process automation</b>		
B.1	Use of an intranet	= the percentage of employees working in enterprises using an intranet.
B.2	Use of online technology to track working hours and/or production time	= the percentage of employees working in enterprises that use online technologies for production process controlling purposes by tracking working hours of employees and / or production times
B.3	Use of ERP systems	= the percentage of employees working in enterprises that have implemented an ERP (enterprise resource planning) system
B.4	Perceived impact of e-business on internal work processes	= the percentage of employees working in enterprises that say that the use of e-business applications has significantly or somewhat changed their internal work processes
<b>C</b>		
<b>Procurement and supply chain integration</b>		
C.1	Enterprises purchasing at least 5% of their supplies online	= the percentage of employees working in enterprises saying that they purchase at least 5% of their supplies online via the Internet or other online networks (for example via EDI based connections to their suppliers)
C.2	Use of SCM systems	= the percentage of employees working in enterprises that use an SCM (supply chain management) system
C.3	Integration of the IT system with that of a supplier	= the percentage of employees working in enterprises that purchase some of their supplies online and have integrated their IT system with that of a supplier for this purpose
C.4	Electronic exchange of documents with suppliers	= the percentage of employees working in enterprises that exchange documents (other than plain text e-mails) electronically with their suppliers
<b>D</b>		
<b>Marketing and sales</b>		
D.1	Enterprises maintaining a website with a content management system	= the percentage of employees working in enterprises that have a website and use a content management system to maintain and update the website
D.2	Use of CRM software systems	= the percentage of employees working in enterprises that use a CRM (customer relationship management) software to organise data about their customers electronically
D.3	Enterprises selling at least 5% of their goods & services online	= the percentage of employees working in enterprises saying that online sales via the Internet or other online networks (for example via an extranet) constitute at least 5% of their total sales volume
D.4	Enterprises with an online sales system offering the capability of secure transactions	= the percentage of employees working in enterprises that make online sales and whose online sales system offers the capability of secure transactions by means of a secure server, for example using SSL, TLS or a comparable technical standard

### 2.3.2 E-Business Scoreboards for the craft and trade sector

#### Indexed scoreboard: component indicators



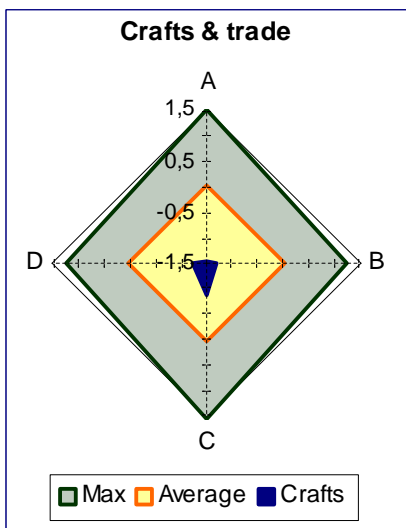
**Indicators**

- A.1) LAN
- A.2) Internet connectivity
- A.3) Remote access to company network
- A.4) Wireless access to company network
- B.1) Use of an intranet
- B.2) Use of online technology to track working hours and/or production time
- B.3) Use of ERP systems
- B.4) Perceived impact of e-business on internal work processes
- C.1) Enterprises purchasing at least 5% of their supplies online
- C.2) Use of SCM systems
- C.3) Integration of IT system with supplier(s)
- C.4) Electronic exchange of documents with suppliers
- D.1) Enterprises maintaining a website with a content management system
- D.2) Use of CRM software systems
- D.3) Enterprises selling at least 5% of their goods & services online
- D.4) Enterprises with an online sales system offering the capability of secure transactions

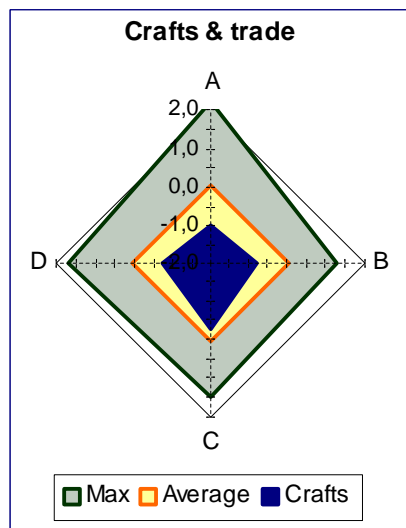
(employment-weighted index)

#### Indexed scoreboard: categories (aggregate)

**Employment-weighted index**  
(adoption of e-business activities in a sector measured in relation to employment)



**Index weighted by % of enterprises**  
(adoption of e-business activities in a sector measured as % of firms)



**Assessment: Craft firms rely on traditional business methods**

When it comes to e-business applications, adoption rates in the craft and trade sector are below average for all component indicators of the Scoreboard. This is largely due to the fact that this sector per definition only includes companies with less than 50 employees. Many craft firms lack critical size and investment power for comprehensive e-business use. However, compared to small companies from other sectors, the gap is smaller (see right diamond chart). Online procurement appears to be the electronic function that is most important to crafts.

**Max** = maximum indexed value for one of the 9 sectors  
**Average** = mean value for the 10 sectors

- Categories**
- (A) Connectivity of enterprises
  - (B) Internal business process automation
  - (C) Procurement and supply chain integration
  - (D) Marketing and sales

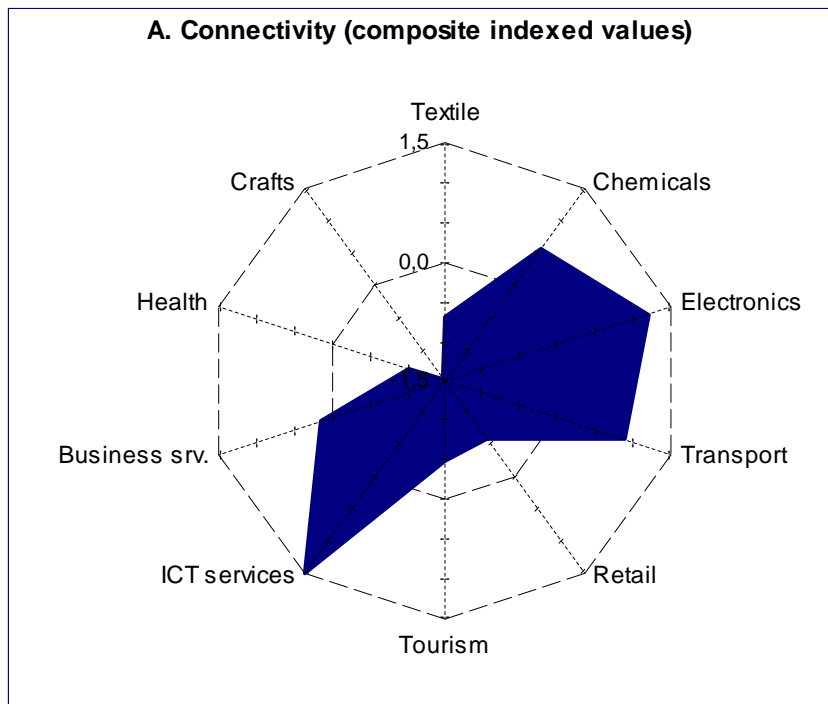


### 2.3.3 Cross-sector Scoreboards

Scoreboard A) Connectivity of the enterprise

Indicator	A.1 LAN		A.2 Internet		A.3 Remote access		A.4 Wireless access	
	%	Index	%	Index	%	Index	%	Index
Craft & trade	30	-1.68	34	-1.55	11	-1.50	3	-1.15
Textile	50	-0.68	43	-0.74	29	-0.63	6	-0.72
Chemicals	83	0.90	58	0.46	57	0.72	13	0.10
Electronics	89	1.22	62	0.86	61	0.92	25	1.77
Transport equipment	88	1.18	69	1.39	70	1.32	9	-0.35
Retail	51	-0.65	44	-0.70	26	-0.76	10	-0.21
Tourism	49	-0.74	47	-0.48	30	-0.58	10	-0.20
ICT services	87	1.12	70	1.48	74	1.50	26	1.88
Business services	68	0.18	56	0.34	43	0.05	12	0.02
Health services	46	-0.87	40	-1.06	20	-1.05	3	-1.14
<b>All sectors *</b>	61	--*	51	--*	39	--*	11	--*

\* Due to the larger number of firms and people employed, service sectors have more weight in the "all sectors" percentage. In contrast, the mean percentage of nine sectors which is used to compute the indexed values does not consider different sector sizes. Therefore, the indexed value of the percentage for "all sectors" would not be zero and has not been computed.

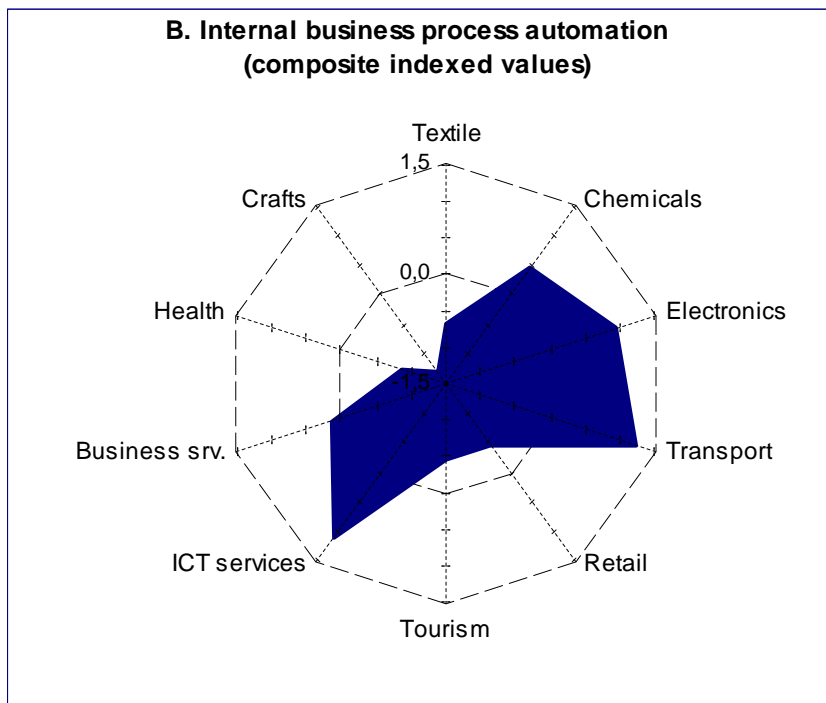


The connectivity scoreboard compares sectors with respect to the functionality of their IT networks. In general, companies from manufacturing sectors tend to be equipped with more powerful IT architectures than businesses from service sectors. The textile industries and the ICT services sector are the exceptions to this rule among the sample of sectors analysed by the *e-Business W@tch*. Results reflect the dominance of large enterprises with complex and sophisticated networking architectures in some manufacturing sectors (for instance in transport equipment manufacturing), compared to sectors such as business services, retail or tourism, where large players are less dominant. If only SMEs were considered, the connectivity gap would be much less pronounced.

Scoreboard B) Internal business process automation

Indicator	B.1 Intranet		B.2 Track production time		B.3 ERP use		B.4 Impact on work organisation	
	%	Index	%	Index	%	Index	%	Index
Craft & trade	16	-1.48	8	-1.14	5	-0.95	11	-1.70
Textile	32	-0.78	15	-0.59	18	-0.33	17	-1.07
Chemicals	62	0.59	33	0.71	48	1.07	22	-0.48
Electronics	77	1.25	36	0.96	45	0.94	32	0.57
Transport equipment	81	1.40	42	1.39	72	2.23	25	-0.16
Retail	37	-0.54	11	-0.91	13	-0.56	28	0.11
Tourism	34	-0.68	10	-0.99	7	-0.87	33	0.67
ICT services	77	1.25	43	1.46	21	-0.19	43	1.79
Business services	49	0.01	25	0.13	12	-0.61	36	1.04
Health services	27	-1.01	9	-1.01	10	-0.73	19	-0.78
<b>All sectors *</b>	<b>45</b>	<b>--*</b>	<b>20</b>	<b>--*</b>	<b>19</b>	<b>--*</b>	<b>29</b>	<b>--*</b>

\* Due to the larger number of firms and people employed, service sectors have more weight in the "all sectors" percentage. In contrast, the mean percentage of nine sectors which is used to compute the indexed values does not consider different sector sizes. Therefore, the indexed value of the percentage for "all sectors" would not be zero and has not been computed.

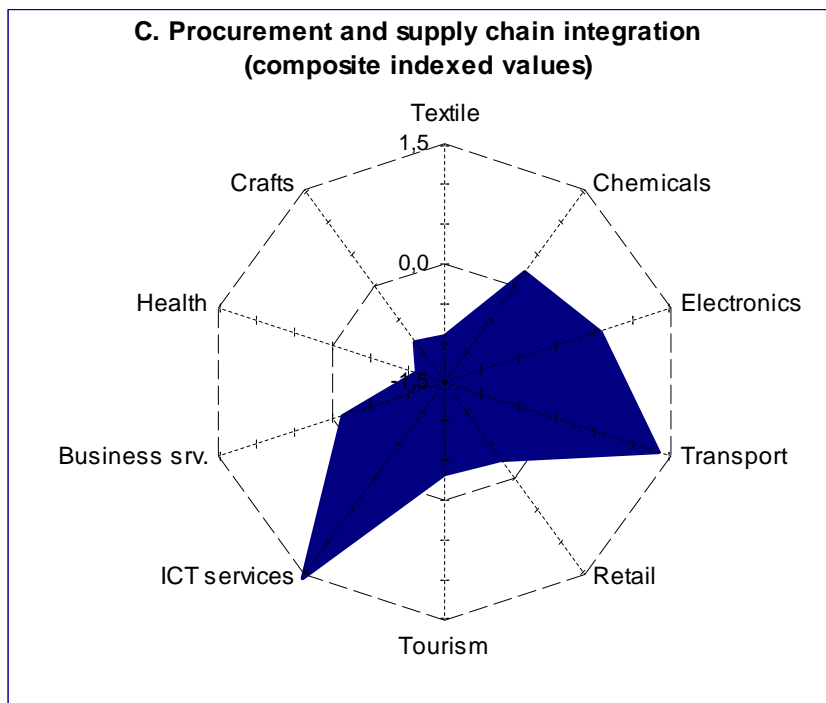


This scoreboard indicates to what extent sectors use ICT to automate internal business processes. Results are largely in line with the connectivity scoreboard. Again, the scoreboard suggests that companies from manufacturing sectors where large enterprises are particularly dominant tend to be most advanced in linking and automating internal business processes. This could be expected considering that many internal e-business applications such as ERP systems are clearly more relevant for manufacturers and for large companies. However, service companies also use applications to link their internal processes, most of all the ICT services and the business services sectors.

Scoreboard C) Procurement and supply chain integration

Indicator	C.1 E-procurement intensity		C.2 SCM use		C.3 IT integration with suppliers		C.4 Online exchange with suppliers	
	%	Index	%	Index	%	Index	%	Index
<b>Sector</b>								
Craft & trade	10	-1.11	3	-0.97	6	-0.58	30	-0.86
Textile	6	-1.44	7	-0.10	2	-1.25	31	-0.83
Chemicals	23	-0.13	13	1.02	6	-0.47	43	0.43
Electronics	30	0.44	10	0.47	12	0.71	45	0.66
Transport equipment	31	0.56	19	2.08	14	1.13	55	1.68
Retail	16	-0.70	5	-0.51	11	0.51	34	-0.49
Tourism	28	0.26	3	-0.93	7	-0.29	35	-0.38
ICT services	54	2.36	11	0.64	19	2.00	50	1.15
Business services	23	-0.08	6	-0.33	6	-0.55	43	0.44
Health services	22	-0.16	1	-1.36	3	-1.20	21	-1.79
<b>All sectors *</b>	23	--*	6	--*	8	--*	37	--*

\* Due to the larger number of firms and people employed, service sectors have more weight in the "all sectors" percentage. In contrast, the mean percentage of nine sectors which is used to compute the indexed values does not consider different sector sizes. Therefore, the indexed value of the percentage for "all sectors" would not be zero and has not been computed.

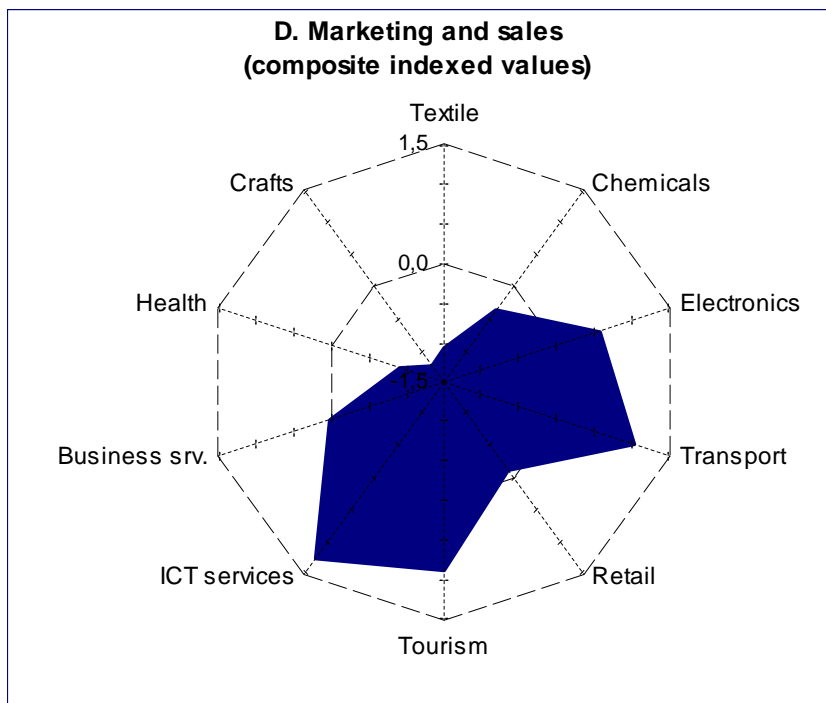


This scoreboard compares sectors with respect to the intensity and sophistication in their e-procurement activities. Results suggest that two sectors are outstanding in this regard: the ICT services sector and the automotive industries. From the other sectors, only electronics and the chemical industries have indexed scores above average. The retail and the tourism sector are closer to the sector average (= 0 in the spider diagram) than in the scoreboards for their industry-wide connectivity and internal process automation. E-procurement activities in the textile industries seem to be at a surprisingly low level for a manufacturing sector where managing the supply chain is a core business function.

Scoreboard D) Marketing and sales

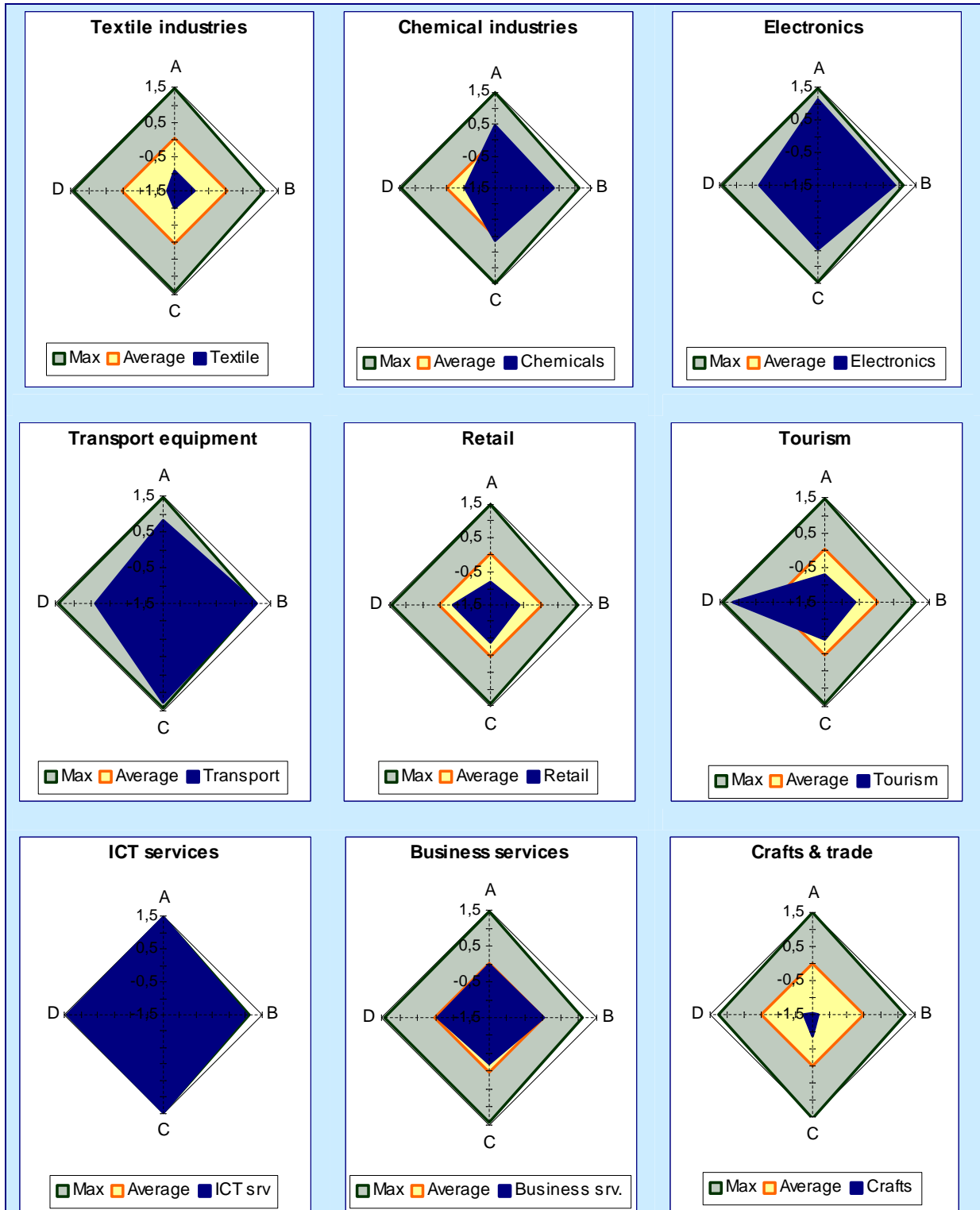
Indicator	D.1 Website with CMS		D.2 CRM use		D.3 E-commerce		D.4 Secure transaction capability	
	%	Index	%	Index	%	Index	%	Index
<b>Sector</b>								
Craft & trade	6	-1.51	3	-1.24	1	-0.95	0	-1.24
Textile	7	-1.35	7	-0.88	1	-1.01	1	-1.05
Chemicals	17	-0.31	16	0.12	2	-0.85	3	-0.45
Electronics	28	0.83	23	0.83	8	-0.01	8	0.60
Transport equipment	23	0.28	26	1.08	13	0.73	13	2.00
Retail	17	-0.32	7	-0.81	9	0.10	8	0.56
Tourism	26	0.60	14	-0.14	24	2.47	8	0.55
ICT services	38	1.80	36	2.09	11	0.43	8	0.67
Business services	28	0.80	13	-0.20	6	-0.20	4	-0.37
Health services	12	-0.82	7	-0.86	3	-0.72	0	-1.26
<b>All sectors *</b>	22	--*	13	--*	9	--*	5	--*

\* Due to the larger number of firms and people employed, service sectors have more weight in the "all sectors" percentage. In contrast, the mean percentage of nine sectors which is used to compute the indexed values does not consider different sector sizes. Therefore, the indexed value of the percentage for "all sectors" would not be zero and has not been computed.



This scoreboard compares sectors with respect to e-marketing and e-sales activities. Results are quite different from the other scoreboards and show that using e-business for marketing and sales is a different story than, for instance, automating procurement and supply chain. Tourism, which is below average in all other sectors, is a leader and forerunner in the use of customer facing e-business applications. The sector is topped only by companies from ICT services which manage a large deal of their customer relationship electronically. Retail also scores higher than in the other business areas, although still below average which is quite astonishing considering the e-commerce boom in specific retail markets (for instance books, software).

### 2.3.4 Sectors in profile



Indexed values by business functions (categories A-D). Each index is based on 4 key component indicators. (A) = Connectivity of the enterprise; (B) = ICT use for internal business process automation (C) = E-procurement and supply chain integration; (D) = E-marketing and sales  
Max = Highest value in one of the 9 sectors benchmarked; Average = Mean value of all 9 sectors

## 3 Summary and conclusions

### 3.1 Summary of main findings

#### Profile of the craft and trade sector: very important economic actors

Crafts cover a very wide range of activities that do not constitute a marked-off sector in official statistics. The *e-Business W@tch* applies an operational definition of craft enterprises as firms with less than 50 employees in craft-related industries. In this report, the sector comprises five selected industries: manufacture of textiles, clothing and footwear, electrical machinery and electronics, transport equipment, wood and furniture, and construction.

Craft and trade is a huge sector in terms of number of enterprises, employment and value added. While it is impossible to quantify craft-trade in Europe owing to the deformity of surveying methods and the different updating levels, 99% of European non-primary enterprises are small and micro firms with less than 50 employees, accounting for more than 50% of employment and half of Europe's total turnover. A large part of these small firms can be considered as crafts. Small businesses and crafts were the motor of employment in the past decade. Most crafts are rooted in the local economy. Only a small percentage is engaged in international trade. Thus, crafts are also important drivers of local and regional structural change. In contrast to what one may expect, small businesses in the Acceding Countries play a similarly significant role as they do in Western Europe. In Europe, small businesses play a more important role than in the US. In the EEA and Switzerland, firms of up to 50 employees account for 53% of total employment and only 30% in the US.

#### State of e-business application: first steps are made – large industry differences

The e-Business W@tch as well as research from other sources confirm that small firms in general and crafts in particular have taken their first step to go digital. However, they are still far from digitally integrating their business processes: the “e” part of their business processes tends to be a front-end activity, facing the customer or supplier. A core reason for this lag behind appears to be that crafts do not see a necessity to invest in e-business. This attitude may be caused by the fact that crafts business often relies on personal relationships. However, e-business offers many benefits to craft enterprises, including product presentation opportunities, pre-sales and after-sales consulting, new sales channels, marketing and provision of sector-specific information in craft portals, third-party advertising, reduced procurement costs, employee attraction, and improved business efficiency in general. The heterogeneity of the craft and trade sector implies that e-business application differs largely by sub-sectors. Crafts in IT-related industries such as electrical machinery and electronics have a high level of e-business use, while crafts such as textile manufacturing and building cleaners have a low level.

#### Findings in sector comparison: below average – strong in online procurement

The craft and trade sector is below average in almost all indicators which can be explained by the fact that this sector per definition only includes companies with less than 50 employees. Many craft firms lack critical size and investment power for comprehensive e-business use. However, there are some exceptions from the rule – indicators in which crafts perform quite well:

- The level of craft enterprises with 10 – 49 employees supporting any kind of IT skills development (60%) slightly exceeds the other-sector average (56%). This indicates the importance of small craft firms for IT training.
- The share of craft firms with 10 – 49 employees reporting the use of an ERP system was 7%, which is even higher than the other sectors' average of 5%. One of the reasons is a relatively high ERP use in small wood and furniture manufacturing firms which may be a consequence of complex supply requirements in the furniture industry.

- Both the use of online technologies to exchange documents with suppliers and IT system integration with suppliers for placing orders is higher in craft firms than in the other sectors average. However, this may not necessarily be positive but may indicate dependencies limiting the opportunity to purchase from other suppliers.

A cross-sector comparison with component indicators revealed that online procurement appears to be the electronic function that is currently most important to crafts. In this domain, the difference to other sectors is smallest. On the other hand, connectivity is furthest below average. Compared with the other sectors of the *e-Business W@tch*, craft firms do not lag much behind in computer use, but in Internet access, WWW and e-mail use and all network infrastructure indicators.

### Findings by country: large differences within the EU

**France:** French crafts commonly reported some of the lowest levels of ICT and e-business use. This is in line with findings from previous e-Business Watch reports. For example, France has the lowest share of craft firms with a website and a low share of online sellers. On the other hand, France has one of the highest levels in online document exchange with suppliers and some of the highest levels in online collaboration with other companies.

**Germany:** German crafts tend to perform some of the highest values. They reported by far the highest level of online purchasers. The share of craft firms using the web and having a website is largest and the share of online sellers is high. Germany has the highest level of system integration with a supplier, but online document exchange is quite low.

**Greece:** Greek craft firms very often reported some of the highest levels of e-business application. However, there were exceptions in core indicators. As regards WWW use and high-bandwidth Internet connection, Greek craft firms stated relatively low levels, and in online procurement they were lowest.

**Italy:** Craft firms from Italy are usually at the bottom of the sample countries or below average. For example, the share of enterprises selling online is lowest and the percentage of those having a website second lowest. In internal business processes support by ICT, Italian craft firms reported the lowest shares of all countries except for automated travel reimbursement.

**Spain:** Spanish craft enterprises presented a picture of being quite advanced in e-business. Almost all enterprises reported computer usage. Spain has one of the highest levels of exchange of documents with suppliers by using online technologies and system integration with suppliers and is the only country with a considerable level of SCM.

**United Kingdom:** UK craft enterprises are generally above-average, but there were also some low levels. Levels are particularly high in online purchasing, having a website, online contract negotiation and online product design. On the other hand, levels are fairly low in computer usage, firms with a Knowledge Management solution were not identified, and the percentage of firms accessing the Internet with an analogue dial-up modem is one of the highest.

**Estonia:** Crafts from Estonia tended to report high levels of e-business use. Virtually all firms use computers, network equipment and use is very widespread, website provision and online sales are above average, and online collaboration with business partners is advanced. These high levels may appear surprising for an East European country but are in accordance with findings from other ICT surveys, notably within the IST project SIBIS (Statistical Indicators Benchmarking the Information Society).

**Poland:** Polish crafts tended to be below average or at the bottom. Infrastructure is much behind EU Member States. Computer use was reported by only two thirds of the firms, and use of e-mail and the WWW was also very low. Polish crafts performed quite well in only a few indicators, above all online business processes within the company and with other companies.

### Findings by industry: electronics at the top – textiles need to catch up

**Textiles, clothing and footwear:** Crafts from the textiles, clothing and footwear industries usually had some of the lowest levels of e-business use. However, textiles perform average in tracking working

hours and production time as well as in supporting human resource management. It may be that these functions are particularly relevant to the textiles industries' competitiveness due to the importance of labour as a production factor. Textile manufacturing crafts are also relatively high in system integration with a supplier for placing order. The value for collaborative product design is remarkably high which correlates with the fact that design is very important in the textiles industry.

**Electronics and electrical machinery:** Electrical machinery and electronics crafts are most advanced among the five industries selected. Often craft firms from this industry revealed higher levels of ICT and e-business use than the other sectors' average. An exception to this rule is the lowest level of all industries in system integration with a supplier for placing orders.

**Transport equipment manufacturing:** Crafts from the transport equipment manufacturing industry commonly ranked second in ICT and e-business application behind electrical machinery and electronics. There were no particularly remarkable exceptions from this rule.

**Wood and furniture manufacturing:** Wood and furniture crafts often performed slightly below average in ICT and e-business use, sometimes even at the bottom. E-business use was relatively high in ERP application in companies with 10 – 49 employees (10%), having a website (38%) and selling online (4.3%). Wood and furniture products may be relatively well suited for online sales.

**Construction:** ICT and e-business use in construction crafts often was in the middle of the other craft industries included in the survey. Remarkable findings include that construction has a level of system integration with that of a supplier (30%) more than twice as high than the other industries, and also a relatively high share of SCM (3.1%). Construction has the lowest level of online collaborative product design which can be explained by the fact that building design is fulfilled by separate actors in the value chain, namely architects.

## 3.2 Economic impacts

### 3.2.1 Impacts on individual enterprises

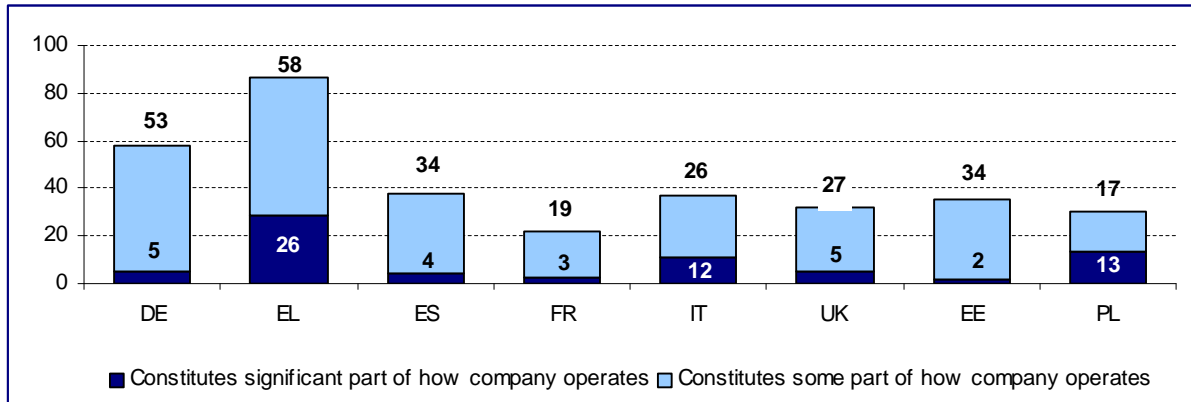
#### Impacts by country

Craft enterprises from Greece reported the highest share of e-business significance. Firms representing 26% of employment stated that e-business constitutes a significant part of how the company operates, and 58% stated "some part" – see exhibit 3-1. This corresponds with some very high levels of e-business use reported from Greek crafts. However, this self-assessment in a rather vague question does not correspond with fairly low levels of e-business use in some concrete technologies (see chapter 3.1, findings by country). Self-assessments may be influenced by individual benchmarks and cultural dispositions.

In the ranking of overall significance of e-business, Germany comes second (5% "significant part", 53% "some part"), followed by Spain (4% / 34%), Italy (12% / 26%), the UK (5% / 27%), and France (3% / 19%). Presuming that actual differences between countries exist, one implication for individual enterprises is that the competitive environment differs largely by country. In countries where e-business does not yet play an important role in craft firms, pressure from competitors to introduce e-business is likely to be low. As craft business is largely local or regional, pressure is unlikely to come from international competitors but more likely from private consumers demanding electronic functions.



**Exhibit 3-1: Overall significance of e-business for craft companies in 2003 (by country)**



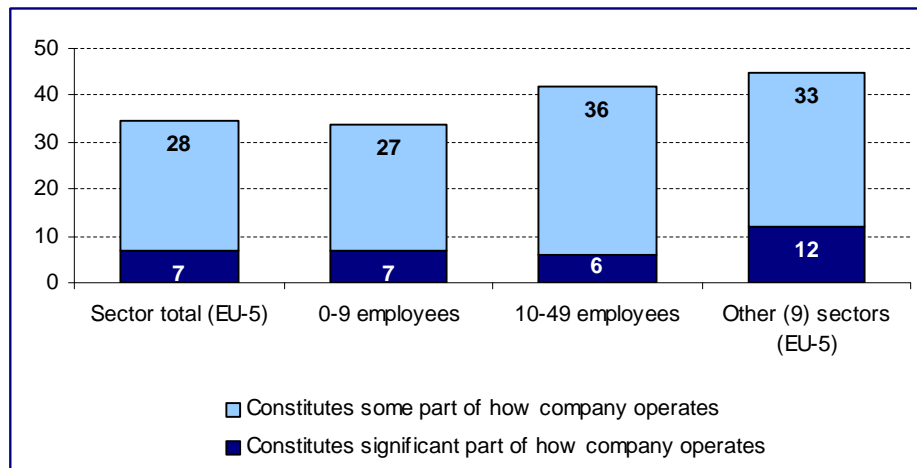
Base: EU-5 (DE, ES, FR, IT, UK), all enterprises (138 – 288 per country). Figures are weighted by employment (“enterprises comprising ...% of employees in the country/industry”). Reporting period: March/November 2003.

Source: *e-Business W@tch* (2003/04)

### Impacts by size class

As could be expected, the reported levels of importance of e-business were higher in companies with 10 – 49 employees (6% “significant part”, 36% “some part”) than in those with less than 10 employees (7% / 27%) – see exhibit 3-2. The level of importance among companies with 10 – 49 employees comes close to the other sectors’ average (12% / 33%).

**Exhibit 3-2: Overall significance of e-business for craft companies in 2003 (by size-band)**



Base: EU-5 (DE, ES, FR, IT, UK), all enterprises (n = 1,414 for EU-5 sector total, n=4,516 for other (9) sectors (EU-5)). Figures in % of enterprises. Reporting period: March/November 2003.

Source: *e-Business W@tch* (2003/04)

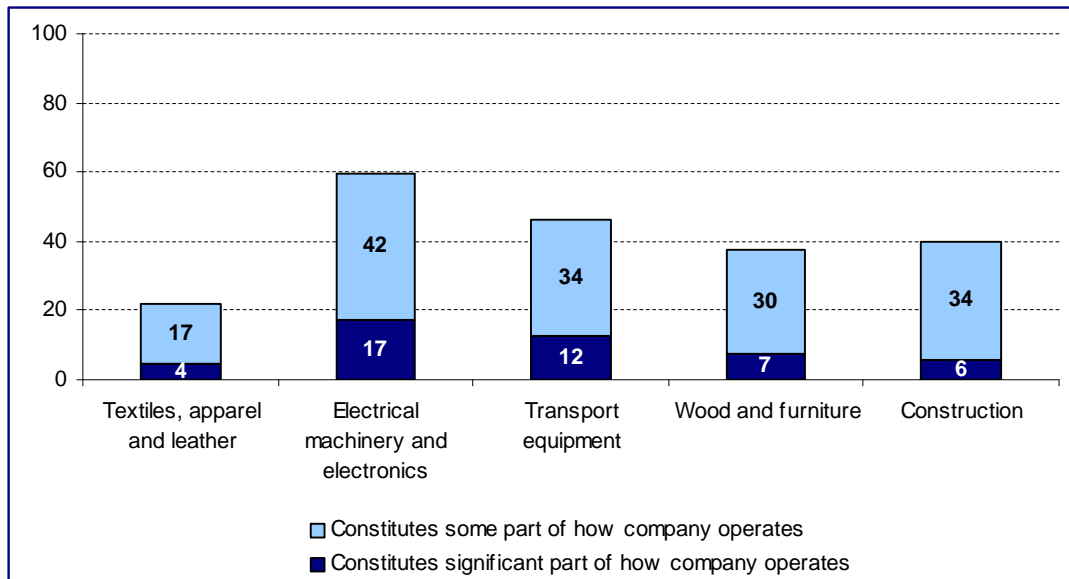
### Impacts by industry

The ranking of e-business importance assessments by industry reflects the overall findings: electrical machinery and electronics is far ahead, with enterprises comprising 17% of employment stating that e-business constitutes a significant part of how the company operates and 42% saying “some part” – see exhibit 3-3. Transport equipment comes second (12% / 34%), followed by construction (6% / 34%) as well as wood and furniture manufacturing (7% / 30%) with almost equal assessments. The textiles, clothing and footwear industry has the lowest level of e-business importance with 4% “significant part” and 17% “some part”. Although the composite craft and trade sector examined in this report comprises

only a fraction of crafts, this picture may well represent the current and future situation of e-business application in the craft and trade sector: the differences between industries are immense.

In the November 2003 survey of the *e-Business W@tch*, those interviewees who stated that e-business does not play a role in their company for the first time were asked why this is the case. Answers are not available for the electrical machinery and electronics industry as well as that of transport equipment.

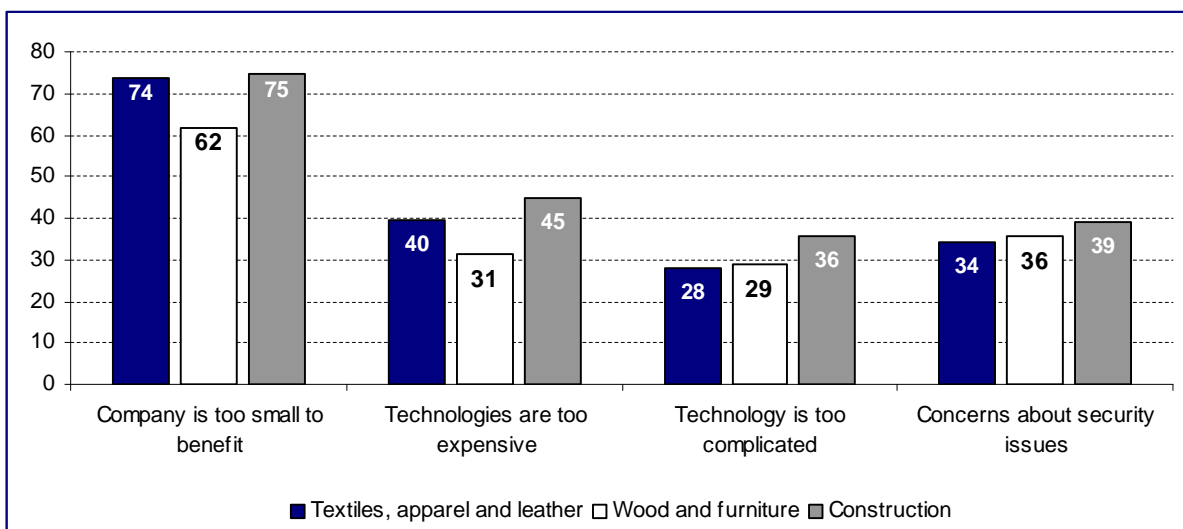
**Exhibit 3-3: Overall significance of e-business for craft companies in 2003 (by industry)**



Base: EU-5 (DE, ES, FR, IT, UK), all enterprises (n = 1,414 for EU-5 sector total, 144-440 per industry). Figures are weighted by employment ("enterprises comprising ...% of employees in the industry"). Reporting period: March/November 2003.

Source: *e-Business W@tch* (2003/04)

**Exhibit 3-4: Reasons why e-business does not play a role in craft industries**



Base: enterprises not using e-business applications. n = 509 for EU-5 sector total. EU-5 = DE, ES, FR, IT, UK. Figures are weighted by employment ("enterprises comprising ...% of employees in the industry"). Reporting period: March/November 2003.

Source: *e-Business W@tch* (2003/04)

The most important reason was that the "company is too small to benefit". Construction enterprises representing 75% of employment gave this answer, while the level was 74% in textile companies and

62% in wood and furniture companies – see exhibit 3-4. Other reasons were much less important. Only a minority of craft firms found that “technologies are too expensive” (construction: 45%, textiles: 40%, wood/furniture: 31%) and that “technology is too complicated” (construction: 36%, wood/furniture: 29%, textiles: 28%). “Concerns about security issues” were stated by more than a third of the enterprises (construction: 39%, wood/furniture: 36%, textiles: 34%). The fact that the construction industry always revealed the highest level of concerns may have various reasons. Besides a possibly more conservative way of thinking business, the multitude of standards, technical specifications, labels and certification marks as well as the diversity of local, regional and national legislation and regulations may make the introduction of ICT particularly expensive and complicated in construction crafts.

### **3.2.2 Implications for the industry**

#### **Non-adoption of e-business can be rational – initiatives for e-business take-up in craft firms should reflect their requirements**

Findings presented in this report and in other e-Business W@tch reports indicate that e-business solutions seem to benefit large firms to a greater extent than small firms because many e-business projects imply increasing returns to scale. The more advanced e-solutions in particular require substantial investments in software, customisation, and user training. Large firms therefore appear to be in a more advantageous position to realise efficiency gains, cost reduction, and improved competitiveness of e-business. Consequently, large firms currently take the lead-role in changing the supply chain and industry structure with e-business solutions. This applies particularly to the transport equipment sector with its dominance of large manufacturers at the top of the supply chain.

However, slower adoption of e-business in small businesses does not suggest a market failure or irrationality. Small firms do not have the strategic position or financial capabilities to take a leading role in e-business application. High costs of implementation together with increased pressure on product margins in e-marketplace environments and the difficulties in keeping confidential information are likely to prohibit the adoption of e-business in quite a number of small firms, even in the medium term. Therefore, they are well advised not to heedlessly adopt any standard industry solutions that are naturally primarily shaped to benefit large firms, if no good SME-tailored solutions are found. Negotiations and retention could well be their best strategy to influence the industry’s e-transformation to their advantage. If non-adoption of e-business is a wise management decision, there is no case for public policy intervention. Unreflecting incentives to support e-business take-up in small firms may be ineffective or even counterproductive.

#### **E-business rejection may put craft firms at a competitive disadvantage in goods and labour markets**

Comprehensive use of ICTs and e-business may not be economic in many craft firms. However, non-application of e-business even in rudimentary forms of website presentation and electronic correspondence with customers and suppliers may put the craft and trade sector at a serious disadvantage in the medium term. Modern marketing and sales channels meeting customers’ expectations as well as opportunities of cheaper procurement and more efficient business processes remain unused. As more and more young people who grew up with Internet technology become prosperous consumers, the Internet will be a common medium for selecting suppliers. Craft firms without website presentations will be neglected. Furthermore, the attractiveness of craft firms for young people searching for an apprenticeship declines, which is alarming considering the craft and trade sectors’ importance for vocational training. While it may be uneconomic for small firms to use e-business comprehensively, completely refraining from it does not appear to be wise.

## **In complex value chains, e-business initiatives of large enterprises may force craft firms to adopt standards – all partners should benefit**

Crafts that are part of value chains with large enterprises can be expected to feel knock-on effects of e-business initiatives of the sector's "giants". In many cases small firms which supply to larger customers will be forced to adapt to their standards or get out of business. However, it is also clear that even large firms can only unleash the full potentials of e-business if they manage to win the support of their customers and suppliers, and also of their small business partners. Interoperability has to be good for that.<sup>25</sup> Co-operation and a fair share of costs and benefits are therefore needed to realise the full potential of e-business in the sector. After all, an industry-wide e-transformation can only be successful if all partners in the value chain and the final customer profit from it.

## **E-business further speeds up globalisation and specialisation in electronics and electrical machinery**

In the electrical machinery and electronics sector, Internet and e-business solutions are likely to further speed up globalisation and specialisation. The trend towards specialisation – both of firms and economic regions – can exploit comparative advantages and improve the overall sector productivity and economic growth. However, this does not necessarily mean that all regions and firms will benefit equally. Exploitation of comparative advantages does involve reallocation of production and development facilities to regions with especially profitable surroundings. The reallocation of chip and component manufacturing facilities to Asia and the emergence of Contract Equipment Manufacturers during the nineties is such a consequence. In the electronics industry, further specialisation and outsourcing enabled by e-business could eventually contribute to a further disintegration of individual firms, strengthen the position of highly specialised firms, service providers and contract manufacturers. On the other hand, high value-added research, engineering, and development tasks often remain in the high-skill industrialised European countries. The electrical engineering industry in particular is likely to remain a strong presence in Europe.

## **3.3 Policy implications**

### **3.3.1 General issues**

#### **Meeting the action lines of the European Charter for Small Enterprises**

Crafts and small businesses have frequently been the subject of European policy initiatives. On a general and strategic level, the European Charter for Small Enterprises adopted in June 2000 in Lisbon defined ten lines of action: (1) education and training for entrepreneurship; (2) cheaper and faster start-up; (3) better legislation and regulation; (4) availability of skills; (5) improving online access; (6) getting more out of the Single Market; (7) taxation and financial matters; (8) strengthening the technological capacity of small enterprises; (9) making use of successful e-business models and developing top-class small business support; (10) developing stronger, more effective representation of small enterprises' interests at Union and national level. The Charter is supposed to demonstrate "the Union's commitment to equipping small enterprises (...) to take full advantage of the digital economy". Lines 5 (online access) and 9 (e-business models) deal directly with e-business, lines 4 (skills) and 8 (technological capacity) include ICT issues, and the other lines can also be related to e-business issues. The following paragraphs include some suggestions on how these lines can be met.

---

<sup>25</sup> The European Commission supports the "European e-Business Interoperability Forum" (eBIF). Set up by the European Committee for Standardisation (CEN, [www.cenorm.be](http://www.cenorm.be)), the Forum will bring together stakeholders from industry and society to agree on a roadmap for e-business interoperability and to assess ongoing and planned standardisation activities in this field.

## Promoting e-business in crafts on a regional level, supported by national and EU initiatives

Since crafts are generally rooted in the local and regional economy, support to e-business should also predominantly take place on the local and regional level. Craft chambers or chambers of commerce could take a leading role in promoting the introduction and extension of e-business practices in crafts. Examples include the KMOnet in Belgium and the “e-business competence network” in the region of Halle and Leipzig, Germany. Facing strained public budgets, privately funded initiatives by business organisations should be preferred.

Regional initiatives can be supplemented by national and EU activities. Current SME policy initiatives in the field of e-business include the following:

- the European e-Business Support Network (eBSN, <http://www.e-bsn.org/content/en/index.html>), building upon the results of the GoDigital initiative from 2001 to 2003<sup>26</sup> and providing links to national initiatives,
- the eSkills Forum (<http://europa.eu.int/comm/enterprise/ict/policy/ict-skills.htm>).
- the European e-Business Legal Portal ([www.ebusinesslex.net](http://www.ebusinesslex.net)),
- the European B2B marketplaces portal (<http://www.emarketservices.com/>).

## Websites and interactive modules for e-business support in craft and trade

Websites can be a valuable source of news and information about e-business. In order to make best use of the Internet opportunities and in order to provide good examples of helpful Internet applications, such websites should also include interactive modules such as forums for enterprises looking for business partners and self-assessment software tools (“check if your company makes optimal use of e-business!”). An example of an online self-assessment tool in a different context – related to sustainable telework, not only in crafts – can be found at [www.telework-test.org](http://www.telework-test.org). Telework and home office concepts at small enterprise level are largely unexploited and should be one of the efficiency optimisation methods for the SME of the future.

## Stepwise moving into the Information Society may be the best way to prevent false investments

While there are good reasons for craft firms to apply e-business, it does not appear to be recommendable to move into the Information Society in one big leap and without a well-defined strategy. A stepwise approach, consciously monitoring costs and benefits, may be more reasonable. As research in the framework of the European IST project “Socio-economic Trends Assessment for the Digital Revolution” (STAR) showed, even large firms took an incremental approach to introduce and extend electronic Customer Relationship Management.<sup>27</sup>

Small enterprises need even more care in that they neither have the resources nor the financial freedom to make mistakes. The experience of for example KMOnet in Belgium shows that by taking them along slowly, step by step and process by process, they are more successful in rapidly increasing the user numbers. Educational coaching programs should use this approach.

---

<sup>26</sup> See <http://europa.eu.int/comm/enterprise/ict/policy/e-bus-snfsme.htm> for further information about the eBSN portal and <http://europa.eu.int/comm/enterprise/ict/policy/godigital.htm> for the Go Digital initiative.

<sup>27</sup> See the STAR reports No. 20 – 24 on electronic Customer Relationship Management, available for download at [www.databank.it/star/list\\_issue/issue.html](http://www.databank.it/star/list_issue/issue.html).

### 3.3.2 Knowledge society issues

#### **Promoting specialised research, education and knowledge transfer is vital to assist craft firms to be at the forefront of e-business application**

The research and education system could contribute more to e-business penetration in the craft and trade sector. The research for this report highlights the fact that research and education appears to neglect e-business in SMEs in general and in crafts in particular. This may be due to the fact that crafts do not predominantly employ academics. Crafts' competitiveness and personnel acquisition could benefit from university research and teaching dealing more intensely with e-business in crafts. Networks of excellence between public research institutions, craft associations and craft firms can be established and promoted to facilitate a transfer of knowledge about ICT and e-business practice. Links to universities may also ameliorate difficulties of recruiting IT specialists by the fraction of craft enterprises seeking staff with an academic degree.

An example of institutionalised craft research is the German Craft Institute (Deutsches Handwerksinstitut e.V., DHI, [www.dhi.zdh.de](http://www.dhi.zdh.de)), an umbrella organisation of six public research institutes in various German regions. They are dealing with specialised issues: craft business, technology, management, education, legislation and synthetic material processing. The DHI was founded as long ago as 1929 in order to make new research findings usable for craft practice.

#### **Improving craft participation in European research**

The European Commission's Sixth Framework Programme introduced the new R&D instruments of Integrated Projects and Networks of Excellence. Integrated Projects were designed to support large-scale R&D with considerable impact and thus favour large companies. 15% of the total budget for IPs was earmarked for SMEs, but the character of IPs however makes it difficult for SMEs to find a way into them. Networks of Excellence turned out to involve only a small number of enterprises of any size. Thus the sixth framework programme offers relatively unfavourable conditions for the participation of SMEs and crafts. The seventh framework programme could shift the focus to types of instruments that are more favourable for SMEs, particularly with regard to e-business related R&D projects. By taking part in leading-edge ICT R&D projects, crafts and SMEs can take a place at the forefront of e-business development. By applying new business solutions and multiplying them across sectors and regions they can provide the level of innovative solutions at business level at which SMEs are good and so contribute to the growth of the European economies.

#### **Improving diffusion of findings of craft research to key craft organisations can help to enhance benchmarking and best practice learning**

Findings of craft research could be distributed more comprehensively to organisations representing crafts and small businesses. On the European level, the European Union for Crafts and Small and Medium Enterprises (UEAPME) sponsors the Avignon Academy, an organisation whose objectives include to "undertake studies and research together with universities and institutes" and to "add value to the role of entrepreneurial associations", could strengthen its activities in this field. Its website could become an even more valuable source of information for crafts and SME organisations in Europe. Information and links could be updated and extended. Best practice examples and benchmarking data could be presented. The electronic journal named "AvignonE" that "aims to highlight research focused on European SMEs and Craft Enterprises" could be archived on the website.

#### **Links between craft firms and schools may help to recruit young computer specialists as apprentices**

As crafts are usually rooted in the local and regional business, they tend to search for personnel in the local and regional labour market. However, crafts may not always be able to attract young, IT-skilled personnel because one does not expect crafts to be advanced ICT appliers. Links between craft firms with e-business practices and schools may help to create a favourable image among young people interested in computer issues. Local and regional bodies for education on the one hand and crafts on

the other hand may set up initiatives and programmes linking schools and craft firms. Craft firms should be a good learning ground for students in their studies, for example providing help for thesis work.

### 3.3.3 Country-related issues

#### **E-business is a valuable tool to speed up alignment between current Member States and Acceding Countries**

The active promotion and application of e-business solutions can be a major factor in the rapid alignment of the Acceding Countries with the rest of Europe. E-business can make craft enterprises in those countries more competitive and, as far as they approach international markets, allow them to sell across Europe on a basis equal to the craft firms in other countries. Development projects in the Acceding Countries funded by the European Commission could pay particular attention to craft firms and e-business in those firms. This may include more general issues as well as knowledge society related and sector-related issues mentioned in this chapter. Policy measures should, however, reflect that in most Acceding Countries GDP per capita is low, while Internet access costs are still comparatively high. In such a context, doing business electronically may appear to be an issue somewhat distant from the more urgent needs of everyday business for SMEs.

In some Acceding Countries, for example in Poland, the regulatory framework for ICT infrastructures is also a crucial issue because incumbent suppliers have a dominant or even monopolistic position and charge high prices for Internet connections.<sup>28</sup>

#### **Reducing legal barriers of craft business market entry in Germany and Luxembourg – particularly in ICT-related crafts**

Legal barriers for craft businesses to enter the market could be reduced in order to allow better uptake and maintenance of e-business applications. In Germany and Luxembourg, for example, market entry is highly regulated for craft professions. In these countries, a skilled crafts certificate is required in most crafts to be allowed to run a business. Austria used to have similar regulations, but liberalised access to craft professions significantly in 2002.

In Germany, a recent reform of craft business liberalised market entry in a number of crafts, but in the vast amount of crafts it is still necessary to complete a master training to be allowed to start a business. These crafts include electronic mechanics dealing with information technology. Thus there is a significant market entry barrier in a key profession for Information Society development in the largest national market in Europe. While the German skilled craft association (Zentralverband des deutschen Handwerks) argues that such barriers ensure high levels of service quality and vocational training as well as high survival rates of businesses, one can also hold the view that the barriers mainly protect incumbent firms and impede growth and employment.

### 3.3.4 Sector-related issues

#### **Supporting e-business in craft and trade on a sector level**

Beside regional activities (see above), sector-level initiatives to promote e-business applications appear to be valuable because industry associations know best about the requirements and constraints of their particular sector, assuring effective and targeted promotion measures. Considering

---

<sup>28</sup> See “Summary and Conclusions” of the Workshop on e-Business in Acceding Countries in Brussels, 10 December 2003, available in the publications section of the *e-Business W@tch* website at <http://www.ebusiness-watch.org>.

the low level of e-business use in textile, clothing and footwear craft firms, initiatives appear to be particularly recommendable in these industries.

### **Addressing shared standards, e-learning, B2A applications and legal aspects for accelerating ICT uptake in construction crafts**

The construction industry as the largest employer in Europe deserves particular attention in political activities. The European Commission supports the use of IT in the construction industry. A voluntary e-Construction Working Group, comprising representatives from construction industry organisations and Member States, was formed to support the development of a European Commission action plan for increasing the construction sector's competitiveness. In 2003 the Group proposed that future initiatives should address a number of measures, including the following, which are in line with *e-Business W@tch* findings:<sup>29</sup>

- Promoting the further development of user-friendly, cost-effective ICT solutions for the construction industry.
- Driving the development of shared standards for design, materials and business exchanges in the construction industry, as a prerequisite for effective e-collaboration and e-business.
- Setting up an effective e-learning programme for the sector in order to overcome the ICT skills gap which particularly affects craft firms.
- Working closely with governments and administrations in setting up innovative B2A applications all over Europe. Although the public sector is a major client of the construction industry, such applications are still in their infancy.
- Legal, transactional and authentication aspects on information sharing, responsibilities and copyrights are fundamental issues. Few companies will incorporate B2B, B2A and B2C without legal backing.

With regard to legal issues, support can be found on the European Commission's e-Business legal portal (ELEAS) at <http://www.ebusinesslex.net>. The portal's aim is to provide SMEs with "extensive, clear and practical information on all legal aspects of e-business".

---

<sup>29</sup> See Information and Communication Technologies Working Group (2003) and related activities by the European Commission at <http://europa.eu.int/comm/enterprise/construction/it/inftech.htm>.



## References

- Commission of the European Communities (2003). Adapting e-business policies in a changing environment: The lessons of the Go Digital initiative and the challenges ahead. Communication from the Commission to the Council, the European Parliament, the European Economic and Social Committee and the Committee of the Regions. COM(2003)148 final. Brussels, 27.03.2003.
- Elias, P.; Birch, M. (1994). Establishment of community-wide occupational statistics. ISCO 88 (COM) – a guide for users, [www.warwick.ac.uk/ier/isco/frm-is88.html](http://www.warwick.ac.uk/ier/isco/frm-is88.html).
- Euratex, European Apparel and Textile Organisation (2003). TEX-MAP. New organisation and e-business solutions for conventional and non-conventional textile applications: a roadmap. August. <http://www.euratex.org/content/rdpublications.html>.
- European Commission (2004). Smart standards for furniture e-commerce. IST Results, 28 January 2004. <http://istresults.cordis.lu>.
- European Commission (2003). The European e-business report, 2003 edition. A portrait of e-business in 15 sectors of the EU economy. Second Synthesis Report of the e-Business W@tch. July.
- European Commission (2002). SMEs in Europe, including a first glance at EU candidate countries. Observatory of European SMEs 2002, No. 2. Luxembourg: Office for Publications of the European Commission.
- European Commission (2000). European Charter for Small Enterprises. 19 – 20 June 2000. [http://europa.eu.int/comm/enterprise/enterprise\\_policy/charter/](http://europa.eu.int/comm/enterprise/enterprise_policy/charter/)
- European Commission (1999). Final Report of the first phase of the IT Working Group activities. Rapporteurs: Maxwell, Diana E.; Venstermans, David L.J., 14.6.1999. <http://europa.eu.int/comm/enterprise/construction/it/wg/phase1/itphase1.htm>.
- Eurostat (2002a). European business facts and figures, data 1990 – 2000, Theme 4: Industry, trade and services. Luxembourg: Office for Official Publications of the European Communities.
- Eurostat (2002b). Business in candidate countries. Facts and figures. Data 1995 – 1999. Theme 4: Industry, trade and services. Luxembourg: Office for Official Publications of the European Communities.
- FIEC, European Construction Industry Federation (2003). Construction activity in Europe. Brussels.
- Information and Communication Technologies Working Group (2003). Draft final report. Phase II, e-construction, 2001 – 2003. 1 July 2003. Forthcoming; to be published at <http://europa.eu.int/comm/enterprise/construction/it/compitp2.htm>.
- Institutio Guglielmo Tagliacarne (2001): Proposal for the development of a methodology for the collecting and grouping of statistical data on small craft businesses in Europe. November.
- Koch, Matthias; Baier, Daniel (2002). Anwendungsstand und Nutzenpotenziale des E-Commerce in KMU in der Bauwirtschaft. Eine theoretische und empirische Bestandsaufnahme. In: Meyer, Jörn-Axel (ed.), New Economy in kleinen und mittleren Unternehmen. Jahrbuch der KMU-Forschung 2002. München: Vahlen.
- KPMG (2001). Momentum in the automotive industry, Vol. 1, No. 1.
- UEA (2004). The EU Furniture Industry. <http://www.ueanet.com/outlook.htm>, 07.01.2004.
- UEAPME (2003). Annual Report 2002.
- UEAPME (2002). Annual Report 2001.
- UEAPME (2000). Craft, trade and SME policy agenda for Europe. November.
- Zentralverband des Deutschen Handwerks (2000), H@ndwerk im Internet. Ergebnisse einer Umfrage bei Handwerksbetrieben im 3. Quartal 2000.

## Annex I: Methodological Notes on the e-Business Survey 2003

### Background

Most of the data presented in this report are results of a decision-maker survey about e-business in European enterprises in 2003. This is an annual survey carried out by the *e-Business W@tch* – the first one took place in 2002 –, constituting a cornerstones of its monitoring activities. For organisational and contractual reasons, the e-Business Survey 2003 was split into two parts. The first consisted of 3,515 telephone interviews which were conducted in March 2003 with decision-makers in enterprises from five EU countries. The second part had a scope of 4,570 interviews in the EU, 100 interviews in Norway and 2,632 interviews in the 10 new EU Member States (NMS) and was conducted in November 2003. The questionnaires used in the two parts of the survey were largely the same. A few new questions were added in the second part in order to cover issues of special topical interest for policy.

### Fieldwork

The fieldwork of the surveys in the EU-15 and in Norway was carried out by Ipsos Germany in co-operation with its partner organisations on behalf of the *e-Business W@tch*. Fieldwork in the 10 new Member States was carried out by NFO Aisa (Czech Republic) and its network.

Country	Organisation	Country	Organisation
Belgium	INRA Belgium, Avenue de la Couronne 159-165, 1050 Brussels	UK	Continental Research, 132-140 Goswell Road, EC1V 7DY London
Denmark	Gallup TNS Denmark, Masnedogade 22-26, 2100 Copenhagen	Norway	Norfakta Markedsanalyse, Kjøpmannsgt. 5, 7013 Trondheim
Germany	INRA Deutschland GmbH, Papenkamp 2-6, 23879 Mölln	Cyprus	Synovate (member of the Aegis Group plc), Nicosia
Greece	Synovate, 24 Ippodamou St., 11635 Athens	Czech Republik	NFO AISA s.r.o., Slezská 113, 130 00 Praha 3, Česká republika
Spain	IPSOS ECO Consulting, Avda. de Burgos, 12-8a, 28036 Madrid	Estonia	Saar Poll, Veetorni 4, 10119 Tallinn, Estonia
France	Ipsos Insight Marketing, 99, rue de l'Abbé Groult, 75739 Paris Cedex 15	Hungary	MEDIAN, Opinion and Market Research, POB 551, BUDAPEST, H-1539
Ireland	TNS mrbi, Blackrock, Co. Dublin 2	Lithuania	BALTIC SURVEYS, 6A Šermukšnių str., Vilnius LT-2001, Lithuania
Italy	Ipsos-Explorer, Via Mauro Macchi 61, 20124 Milano	Latvia	TNS – baltic data house, Kronvalda Blvd. 3 – 2, Riga LV-1010, Latvia
Netherlands	INRA in Belgium, Avenue de la Couronne 159-165, 1050 Brussels	Malta	MISCO – Market Intelligence Services Co. Ltd., Valetta
Austria	Spectra Marktforschung: Brucknerstr. 3-5/4, 4020 Linz	Poland	CASE Consumer Attitudes & Social Enquiry, ul. Nowy Świat 64, PL 00-357 Warsaw
Portugal	Ipsos Portugal, Rua Joaquim António de Alguiar 43-5.º, 1070-15 Lisbon	Slovenia	CATI – Marketing, Media and Social Research & Consulting, Tržaška 2, 1000 Ljubljana
Finland	Taloustutkimus Oy, Lemuntie 9, 00510 Helsinki	Slovakia	NFO AISA s.r.o., Slezská 113, 130 00 Praha 3, Česká republika
Sweden	GfK Sverige, Box 401, 221 00 Lund		

### Interview method

The fieldwork was carried out using mostly computer-aided telephone interview (CATI) technology. Face-to-face interviews were used in Lithuania, and a mixed approach in Malta. 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.

## Population coverage and sampling

The highest level of the population for the e-Business Survey was the set of all enterprises which are active at the national territory of one of the respective countries and which have their primary business activity in one of the sectors specified by NACE Rev. 1 categories (see table). The selection and composition of sectors took into account their economic importance and the relevance of e-business activities.

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

The sample drawn was a random sample of companies from the respective sector population in each country where the respective sector was to be surveyed with the objective of fulfilling strata with respect to company size class. Strata were to include a share of at least 10% of large companies (250+ employees) per country-sector cell, 30% of medium sized enterprises (50-249 employees) and 25% of small enterprises (10-49 employees). Micro enterprises with less than 10 employees were also included in the survey. Samples were drawn locally by fieldwork organisations based on acknowledged business directories and databases (see table).

Population coverage of the e-Business Survey (2002)			
No.	NACE Rev. 1		Sector Name
	Section	Division/Group	
01	D	17, 18, 19	Manufacture of textiles and textile products, leather and leather products
02	D	24, 25	Manufacture of chemicals and chemical products
03	D	30, 31 (except 31.3 - 31.6), 32	Manufacture of Electrical machinery and electronics
04	D	34, 35	Manufacture of transport equipment
05	D	Parts of (17-19), 20, (30-32), (34-35), 36, 45	Craft And Trade: In addition to companies from sub-sections covered by other sectors: Manufacture of wood products; manufacture of furniture; construction and site preparation. Only enterprises with 0-49 employees.
06	G	52.11, 52.12, 52.4	Retail
07	H / I / O	55.1, 55.2, 62.1, 63.3, 92.33, 92.52, 92.53	Tourism
08	K	74	Business services
09	I / K	64.2, 72	Telecommunications and computer-related services
10	N	85.11, 85.12, 85.3	Health and social services

Country	Directory / Database	Country	Directory / Database
Austria	Herold BUSINESS MARKETING database	UK	Dun & Bradstreet
Belgium	Dun & Bradstreet	Norway	Dun & Bradstreet
Denmark	KOB (Købmandsstandens Oplysnings Bureau)	Cyprus	Census of economic activity
Germany	Heins und Partner Business Pool	Czech Republic	Merit – CDF, Meritum Software, Enterprises database 2003
Finland	Blue Book - TDC Hakernistot OY	Estonia	Estonian statistical bureau + Kredinfo (register of taxpayers)
France	IDATA, based on INSEE Siren file (the National Institute of Statistics) and other directories	Hungary	Company Information Data Store, provided by Hungarian Central Statistical office
Greece	ICAP directory (the major database for Greece)	Lithuania	Department of Statistics and National Register at Ministry of Economics
Ireland	Bill Moss	Latvia	Business Register of Republic of Latvia
Italy	Dun & Bradstreet	Malta	National Statistics Office, Employment and training corporation
Netherlands	Dun & Bradstreet	Poland	REGON (GUS) data (National register of business)
Portugal	MOPE database	Slovenia	IPIS directory, published by Noviforum (list of active Slovenian enterprises)
Spain	Dun & Bradstreet	Slovakia	Albertina, Albertina Data, Enterprises database 2003
Sweden	Swedish Post Adress Register (PAR)		

**Scope of the e-Business Survey 2003: No. of interviews per country and sector**

Scope	Part I (March 2003)	Part II (Nov/Dec 2003)
No. of sectors covered	7 sectors	10 sectors
No. of EU Member States involved	5 countries	25 countries
No. of sector-country-cells	35	98
No. of interviews	3515	4670 (EU+NO) + 2632 (NMS) = 7302

	Food, beverages and tobacco	Textile industries	Chemical industries	Electronics	Transport equipment	Craft & trade (Construction ; Wood & furniture )	Retail	Tourism	ICT services	Health & social services	Business services	Total int.
Belgium			101				100				100	301
Denmark							67	67		66		200
Germany	100*	100	100*	100*	100*	100	100*	101*	100*	100	100	1101
Greece		84		76	89	75		75				399
Spain	100*	101	100*	100*	100*	108	100*	100*	100*	101	100	1110
France	100*	100	100*	100*	101*	101	101*	99*	100*	100	100	1102
Ireland			70					70	71			211
Italy	102*	100	101*	101*	100*	100	102*	102*	101*	100	101	1110
Luxembourg **												0
Netherlands		100							101	102		303
Austria					68			132		100		300
Portugal					104		100				100	304
Finland		75		75					76			226
Sweden			80	75	79						80	314
United Kingdom	100*	100	101*	101*	100*	100	101*	100*	101*	100	100	1104
Cyprus							64					64
Czech Republic			60		60			60	60	60		300
Estonia		50	50	50	21	65	50	50	50	50	50	486
Hungary				80	80						80	240
Lithuania							57					57
Latvia		51	49				51					151
Malta								51				51
Poland		80	80	80	80	80	80	80	80	80	80	800
Slovenia				56				51	53	55	58	273
Slovakia		50		50			50				60	210
Norway		30					70					100
<b>TOTAL</b>	<b>502</b>	<b>1021</b>	<b>992</b>	<b>1044</b>	<b>1082</b>	<b>729</b>	<b>1193</b>	<b>1138</b>	<b>993</b>	<b>1014</b>	<b>1109</b>	<b>10817</b>

\* interviews carried out in March 2003 \*\* was covered in the e-Business Survey 2002

**Problems encountered**

No major problems were reported by the fieldwork organisations with respect to interviewing (e.g. comprehensibility of the questionnaire, logical structure). The overall feed-back from the survey organisations was that fieldwork ran smoothly and that they had the impression that the questionnaire was well understood by most respondents. Some difficulties occurred, though, mainly with respect to the following issues:

- The main challenge was the fulfilment of quotas regarding company size-bands. In many countries, it was not possible to accomplish the objective of including a minimum share of large or even medium-sized enterprises in specific sectors. In such a case, these were replaced by interviews with smaller companies or from other sectors.
- Another well known issue in this type of survey stems from the difficulties of conducting research projects among ICT decision-makers in general. Dedicated ICT professionals are heavily researched and therefore securing their participation can be difficult. This is a particular problem in larger companies.
- In some countries it was difficult to carry out interviews within businesses and retailers not using or with a very basic use of computers, because of the number of questions on related issues. The French fieldwork

organisation, for instance, reported that the questionnaire was too specific for some organisations, for example for small companies in the health & social services sector. These are mostly doctor's surgeries, where it was felt that the e-business related questions were not applicable to them. Also, small companies from the craft & trade sector, which often have just a computer but no network at all felt that the questionnaire was not sufficiently adapted to their activities.

- A related issue is that there are some compromises to be made if the same questionnaire should be used for micro-enterprises as well as for large companies. Some of the questions, while only scratching the surface of e-business activities in large companies, are hardly relevant for micro-enterprises with less than 10 employees. The Hungarian survey company, for instance, reported that some questions seemed to have little relevance for companies with only one or a few employees.
- Finally, an issue which was known in advance but is unavoidable in telephone interviews is that there is no "ideal target person" to be interviewed. Fieldwork organisations reported that sometimes a data processing manager is not very aware of the consequences of e-business on the whole of the company, on the personnel level and on the financial level. On the other hand, the general manager may not always be aware of the technical implementation status. The Irish fieldwork organisation, for instance, reported that some of the smaller companies were not familiar with technical terms such as used for standards ("EDI" or "EDIFACT").

### Weighting principles

Two weighting schemes have been applied: weighting by employment and by the number of enterprises. Data are presented in either way depending on the kind of the analysis to be made.

- Values that are reported as weighted by employment should be read as "enterprises comprising x% of employees". To give an example: The indicator "percentage of companies selling online" – if weighted by employment – is defined as "companies comprising x% of employees sell online". The reason for using employment weighting is that there are very many more micro enterprises than non-micro enterprises. The unweighted figure would effectively represent mainly the smallest sizes of firm.
- Values that are reported as enterprise-weighted figures are to be read as "x% of enterprises", reflecting the number of enterprises as legal entities but not their relative economic importance in terms of employment.

Weighting was based on the latest available universe figures by Eurostat. Missing or undisclosed universe data had to be imputed. The imputation procedures depended on auxiliary or proxy data availability, taking into account where available information about higher industry aggregations, nearest neighbour data, turnover-employment correlation and secondary sources other than Eurostat. It also allowed for the constraint of predetermined ranges such that imputed data had to be contingent with published sectoral, national and European universe totals as well as for final plausibility checks for every single imputed data item. The weighting cells correspond to the data reporting pattern used as regards industries and employment size-classes. Uniform expansion factors are applied to enterprises within one of the four size-classes per industry per country. As for data that refer to a base other than the universe of all enterprises (e.g. indicators appropriately reported for online selling enterprises only), expansion factors are adjusted to the different shares of observations per cell that build the computation base.

### Variables - indicators

The set of ICT and e-business indicators for which data were collected in this survey was organised into the following modules:

- Background information (basic company data, innovation activities)
- ICT infrastructure and e-skills development in the company
- E-commerce and e-business activities (internal business process automation, procurement and supply chain integration, exchange of standardised data between trading partners, marketing and sales activities, use of e-business software)
- Impact of e-business (impact of selling and procuring online, perceived effects on work processes, satisfaction with outcome)
- Assessment of future importance of various e-business technologies

The choice of indicators considers relevant statistical work by the OECD and Eurostat and includes a basic set of widely accepted measures for e-commerce and e-business, but also tries to introduce innovative indicators which have a pilot character and are not yet widely tested.

The full list of variables which was the basis for preparing the questionnaires can be downloaded (as a spreadsheet) from the *e-Business W@tch* website (<http://www.ebusiness-watch.org>).

## Annex III: Glossary of Technical Terms

Term	Definition
<b>Access</b>	The ability to retrieve information and to communicate online through the use of digital information and communication technologies.
<b>B2B</b>	Business to Business. Electronic transactions between companies.
<b>B2B e-marketplace</b>	Electronic trading platforms on the Internet where companies can sell and/or buy goods or services to/from other companies. They can be operated by a single buyer or seller or by a third party. Many marketplaces are industry-specific. Some marketplaces require registration and membership fees from companies that want to conduct trade on them.
<b>B2C</b>	Business to Consumer. Electronic business processes between companies and consumers.
<b>Bandwidth</b>	The physical characteristic of a telecommunications system that indicates the speed at which information can be transferred. In analogue systems, it is measured in cycles per second (Hertz), and in digital systems in binary bits per second. (Bit/s).
<b>Broadband</b>	High bandwidth internet access. In this report, broadband is defined as the capacity to transfer data at rates of 2Mbit/s (megabits per second) or greater.
<b>Channel</b>	In communications, a physical or logical path allowing the transmission of information; the path connecting a data source and a receiver.
<b>CRM</b>	Customer Relationship Management. Software systems that promise the ability to synthesize data on customers' behaviour and needs and thus to provide a universal view of the customer.
<b>Dial-up</b>	The process of establishing a temporary connection (to the Internet) via the switched telephone network.
<b>DSL</b>	Digital Subscriber Line. A family of technologies generically referred to as DSL, or xDSL, capable of transforming ordinary phone lines (also known as "twisted copper pairs") into high-speed digital lines, capable of supporting advanced services. ADSL (Asymmetric Digital Subscriber Line), HDSL (High data rate Digital Subscriber Line) and VDSL (Very high data rate Digital Subscriber Line) are all variants of xDSL.
<b>E-business</b>	Electronic business. The <i>e-Business W@tch</i> uses the term "e-business" in the broad sense, relating both to external and to company internal processes. This includes external communication and transaction functions, but also ICT supported flows of information within the company, for example, between departments and subsidiaries.
<b>E-commerce</b>	Electronic commerce. As distinct from the broader concept of e-business, e-commerce refers to external transactions in goods and services between companies (B2B), between companies and consumers (B2C), or between companies and governments (B2G) and may therefore be seen as a subgroup or component of e-business activities.
<b>EDI</b>	Electronic Data Interchange. A way for unaffiliated companies to use networks to link their businesses by using a common technical standard for exchanging business data. While electronic mail between companies is common, electronic data interchange passes bigger bundles that replace large paper documents such as bills and contracts. Besides saving paper, computers could save time by taking over transactions such as regular purchase orders that now require human intervention.
<b>E-readiness</b>	Readiness for e-business is defined as the capability to engage in electronic transactions. This comprises appropriate network access (including sufficient bandwidth), internal hardware and software solutions as well as the procedural and managerial readiness to deal with online transactions from simple web presence through to fulfilment of customer orders and related after sales services.

<b>ERP</b>	Enterprise Resource Planning. A software system that helps to integrate and cover all major business activities within a company, including product planning, parts purchasing, inventory management, order tracking, human resources, projects management, and finance.
<b>Extranet</b>	A network using Internet protocols that allows external organisations (for example customers or suppliers) access to selected internal data. Essentially it is an Intranet which gives external users restricted access (often password protected) to information through the firewall.
<b>ICT</b>	Information and communication technology. ICT includes networks, computers, other data processing and transmitting equipment, and software. The application of ICT in business processes leads to e-business, if non-proprietary networks are used.
<b>Information security</b>	Measures taken to protect information systems against unauthorised use and attacks
<b>Internet</b>	The world's largest computer communication system, with an estimated 600 million users worldwide. <sup>30</sup> The Internet is a loose confederation of principally academic and research computer networks. It is not a network but rather the interconnection of thousands of separate networks using a common language.
<b>Interoperability</b>	The technical features of a group of interconnected systems (includes equipment owned and operated by the customer which is attached to the public telecommunication network) which ensure end-to-end provision of a given service in a consistent and predictable way.
<b>Intranet</b>	An internal Internet, that is an internal network running using TCP/IP, which makes information available within the company. Most intranets are connected to the Internet, and use firewalls to prevent unauthorised access.
<b>ISDN</b>	Integrated Services Digital Network. An international telecommunications standard for transmission of voice and data over dial-up lines running at 64 Kbit/s (kilobits per second). It allows sharing of multiple devices on a single line (for example, phone, computer, fax).
<b>LAN</b>	Local Area Network. The most common way of connecting computers in a small area (typically inside a building or organisation) for sharing databases and communication facilities. The two most common versions are Ethernet and Token Ring. Implementation is based on coaxial cables or plain wires. Speed achieved ranges from 10 Mbps to 100 Mbps.
<b>Leased line</b>	A private communication channel leased from the common carrier. It is usually a dedicated fixed-route link (e.g. point-to-point frame relay).
<b>M-commerce</b>	Mobile commerce. E-commerce that takes place using mobile connection devices and through data transmission via technical standards for mobile communication.
<b>Micro enterprise</b>	A company with less than 10 employees.
<b>Modem</b>	Modulator/Demodulator. A device that modulates outgoing digital signals from a computer or other digital device to analogue signals suitable to be transmitted through a conventional telephone line (copper twisted pair telephone). The reverse procedure takes place for incoming signals.
<b>MRO goods</b>	Maintenance, repair and operating goods. Supplies which companies need to maintain their operations, for example office supplies, in contrast to "direct production goods" which are components of the goods and services the company produces.
<b>Processes</b>	Business processes are operations that transform the state of an object or a person. This can, for example, be an order placed via the internet. Ordering an object or a service creates a liability for the supplier to deliver, and initiates the transfer of property

<sup>30</sup> cf. Nua Internet Surveys, How many online, June 2003  
([http://www.nua.com/surveys/how\\_many\\_online/index.html](http://www.nua.com/surveys/how_many_online/index.html)).

---

	rights from one entity to another. The electronic handling of processes is likely to speed them up and to introduce new processes in the realisation of the same transaction.
<b>Remote access</b>	The ability of a company computer network's transmission points to gain access to a computer at a different location.
<b>SCM</b>	Supply Chain Management. Software that helps businesses to match supply and demand through integrated and collaborative planning tools.
<b>Sector</b>	Sectors of the economy with comparable business activities. These constitute the main research unit of the <i>e-Business W@tch</i> . Aggregated information at the industry level is used to document the diffusion of activities within the industries as well as the overall importance of the observed phenomena for changes in the economy as a whole. The definition of sectors follows NACE Rev.1 classifications.
<b>SME</b>	Small and medium-sized enterprises with 0-249 employees. To be classed as an SME, an enterprise has to satisfy the criteria for the number of employees and one of the two financial criteria, i.e. either the turnover total or the balance sheet total. In addition, it must be independent, which means less than 25% owned by one enterprise (or jointly by several enterprises) falling outside the definition of an SME or a micro-enterprise, whichever may apply. The thresholds for the turnover and the balance sheet total will be adjusted regularly, to take account of changing economic circumstances in Europe.
<b>Transaction</b>	Electronic transactions can be subdivided into several steps, each of which initiates a process. There are pre-sale (or -purchase) phases, sale and after-sale phases. Typically a transaction starts with information gathering, price and quality comparisons and possibly pre-sale negotiations. During the sale phase contracting and delivery are the core processes, and payment is the final stage of this phase. After-purchase transaction stages comprise customer service, the administration of credit payments and the handling of returns as well as marketing activities preparing for the next purchase.
<b>Value added</b>	Gross output minus intermediate inputs. It is valued at producers' prices and includes all indirect taxes but excludes VAT and subsidies.
<b>WAN</b>	Wide Area Network. A network allowing the interconnection and intercommunication of a group of computers over a long distance.
<b>WAP</b>	Wireless Application Protocol. A communication protocol for delivering data over mobile telephone systems, allowing cellular phone sets and other mobile hand-set systems to access WWW pages and other wireless services.
<b>Website</b>	A related collection of World Wide Web files that includes a beginning file called a home page.
<b>Wi-Fi</b>	Short for "wireless fidelity", popular term for a high-frequency wireless local area network (W-LAN). Wi-Fi technology is rapidly gaining acceptance as an alternative or complementary infrastructure to a wired LAN.
<b>W-LAN</b>	Wireless Local Area Network. An implementation of a LAN with no physical wires, using wireless transmitters and receivers. It allows a mobile user to connect to a LAN or WAN through a wireless (radio) connection. A standard, IEEE 802.11, specifies the technologies for wireless LANs.
<b>WWW</b>	World Wide Web. The collection of pages in html format which reside on web-servers. Although WWW and the internet are different, the terms are increasingly becoming interchangeably used.

---



## Annex III: Methodological considerations for the craft and trade sector

### Methodology challenges: crafts as a cross-industry sector with no clear definition

Craft-trades play an important role in the European economy and therefore suggest themselves for an analysis within the *e-Business W@tch*. However, such an analysis faces methodological difficulties. Firstly, there is no agreed definition of crafts in the EU Member States let alone in the accession states. As summarised by DG Enterprise: "There is no European definition for craft enterprises. (...) It is difficult to compare the available information, due either to the lack of a legal definition of craft-trade enterprise in many countries or to the lack of uniformity."<sup>31</sup> A study conducted to establish operational definitions of the craft and trade sector revealed four characteristics of the craft and trade sector that are applied in EU Member State statistical practice: legal nature (e.g., one-man companies, partnerships), profession, economic activities, and dimension of enterprise in number of workers (less than 50).<sup>32</sup>

Secondly, as a consequence, crafts is not a marked-off sector in official statistics. The European classification of economic activities (NACE Rev. 1) does not contain a section on "crafts". Rather, crafts is a cross-industry sector. Considering the economic activities criterion that is applied in nine Member States, various categories include crafts firms: manufacturing activities in fields such as food, wood, metals and ceramics (NACE 15 – 37, excluding 23), construction (NACE 45), repairs (NACE 50), transport (NACE 60), and several "other services" (NACE 90 and 93).

### ISCO 88 crafts as a reference classification

An important reference classification for a crafts analysis is the European variant of the International Standard Classification of Occupations, referred to as ISCO 88 (COM), which helps to identify crafts in the NACE classification. ISCO 88, major group 7, defines "crafts and related trades" as a group of professions in which "workers apply their specific knowledge and skills to produce or process goods" and in which "the tasks call for an understanding of all stages of the production process, the materials and tools used and the nature and purpose of the final product". ISCO 88 distinguishes four broad categories of crafts:

- Extraction and building trades workers.
- Metal, machinery and related trades workers.
- Precision, handicraft, craft printing and related trades workers.
- Other craft and related trades workers (including food processing, wood treaters and textile workers).

This ISCO 88 major group 7 list has large intersections with the crafts-related NACE categories but is not congruent with them. Extraction workers are not part of the NACE list, while transport and "other services" are not included in ISCO 88 major group 7.

### Survey of a limited number of crafts with an operational definition

For the *e-Business W@tch* the methodological difficulties mentioned above imply that it would be difficult to analyse an all-inclusive crafts sector. However, a pragmatic approach allows a meaningful analysis of crafts in Europe. Such a pragmatic approach requires an operational definition of crafts and a selection of crafts that is included in the survey. The operational definition in the framework of the *e-Business W@tch* is "firms with less than 50 employees in crafts-related NACE categories". The selection of craft trades for the *e-Business W@tch* analysis includes NACE categories with a significant amount of enterprises with less than 50 employees that constitute a large share of employees and value added in these NACE categories and that are assumed to be fairly advanced in e-business application.

### Crafts make up a large share in three of the survey sectors

Referring to ISCO 88, three of the ten sectors selected for the *e-Business W@tch* survey largely comprise craft professions: textile, clothing and footwear manufacturing, manufacture of electrical machinery and electronics, and manufacture of transport equipment. Firms with less than 50 employees in these sectors form one group of firms of the *e-Business W@tch* craft and trade sector. In order to make optimal use of the available sample, these

<sup>31</sup> See <http://europa.eu.int/comm/enterprise/entrepreneurship/craft/definition.htm>.

<sup>32</sup> See Institutio Guglielmo Tagliacarne (2001).

firms are included in two different analyses: first in the analysis of the whole sector including all size classes and NACE sub-categories, second in the analysis of the crafts sector.

Two other sectors were selected for the craft and trade analysis in order to widen the spectrum for sub-sector comparison: construction as well as wood manufacturing and furniture manufacturing. These sectors have a particularly high share of small companies, and they are, for construction, of particularly high economic importance, and because they provide, for furniture manufacturing, exemplary e-business practices.

For a craft and trade analysis a few NACE sub-categories needed to be excluded because they are not considered as crafts in ISCO 88, for example "site preparation" in the construction industry which includes demolition and wrecking of buildings and test drilling. Tables 1 – 5 present an overview of crafts included in the *e-Business W@tch* craft analysis.

### Crafts are of little or no importance in the other e-Business W@tch sectors

A minor group of crafts is included in the retail, ICT services and business services industries that were also included in the e-Business W@tch survey. Due to a small number of cases in the survey, an analysis by country or size class would not be appropriate. Thus it was not meaningful to include them in the crafts sector of the e-Business W@tch:

- Retail: ISCO 88 category 7231 "motor vehicles mechanics and fitters" has intersections with NACE 50.2 "maintenance and repair of motor vehicles". However, motor vehicle maintenance and repair is not really a retail activity but only related to it. The first e-Business W@tch survey included no cases of NACE 50.2.
- ICT services: ISCO 88 category 7242 "Electrical mechanics, fitters and servicers" and NACE 72.5 "Maintenance and repair of office, accounting and computing machinery" activities have intersections. The first e-Business W@tch survey included only 41 cases of NACE 72.5.
- Business services: NACE 74.7 "Industrial cleaning" includes crafts in terms of the German Crafts Act. The first e-Business W@tch survey included only 36 cases. NACE 74.8 "Miscellaneous business activities" include photographic activities which are included in ISCO 88 crafts unit group 7344 "photographic and related workers". This craft is too specific to be identified in the sample.

No crafts in terms of ISCO 88 are included in tourism and chemical industries.

### Further craft and trade sectors not included in the survey

The following ISCO 88 categories are not included in the e-Business Watch survey at all:

- 711 Miners, shotfirers, stone cutters and carvers
- 721 Metal moulders, welders, sheet-metal workers, structural-metal preparers
- 722 Blacksmiths, tool-makers and related trade workers
- 73 Precision workers in metal and related materials
- 741 Food processing and related trades workers

Several of the categories did not lend themselves to be included in the survey, for various reasons:

- Some sectors are dominated by large enterprises. This applies to energy products mining (NACE 10–12) and manufacture of basic metals (NACE 27).<sup>33</sup>
- Some sectors are too specific to identify a sufficient number of firms in the sample countries or to compare them against the other quite broad sectors that are supposed to be included. This applies to "cutting, shaping and finishing of stone" (NACE 26.7), "manufacture of musical instruments" (36.3), manufacture of jewellery and related articles (NACE 36.2).
- Some sectors are not significant in terms of employment, value added and e-business application. This applies to "forestry, logging and related service activities" (NACE 2).

Several industries were included in the first and second e-Business W@tch surveys so that detailed information is already available in previous reports:

- Manufacture of food products, beverages and tobacco (NACE 15 and 16).
- Printing and service activities related to printing (NACE 22.2).
- Manufacture of machinery and equipment (NACE 29).

Table 6 presents an overview of craft-related professions and NACE categories that are not included in the *e-Business W@tch*.

<sup>33</sup> See European Commission (2002), European Business Facts and Figures, p. 188 for NACE 27.

**Table 1: Textile, clothing and footwear industry crafts**

Crafts in ISCO 88		Corresponding NACE categories	
743	Textile, garment and related trade workers	17	Manufacture of textiles
7431	Fibre preparers	17.1	Preparation and spinning of textile fibers
7432	Weavers, knitters and related workers	17.2	Textile weaving
7433	Tailors, dressmakers and hatters	17.3	Finishing of textiles
7434	Furriers and related workers	17.4	Manufacture of made-up textile articles, except apparel
7435	Textile, leather and related pattern-makers and cutters	17.5	Manufacture of other textiles
7436	Sewers, embroiderers and related workers	17.6	Manufacture of knitted and crocheted fabrics
7437	Upholsterers and related workers	17.7	Manufacture of knitted and crocheted articles
733	Handicraft workers in wood, textile, leather and related materials	18	Manufacture of leather clothes
7332	Handicraft workers in textile, leather and related materials	18.1	Manufacture of leather clothes
		18.2	Manufacture of wearing apparel and accessories
			Dressing and dyeing of fur, manufacture of
		18.3	articles of fur
744	Pelt, leather and shoemaking trades workers	19	Tanning and dressing of leather; manufacture of luggage, handbags, saddlery, harness and footwear
7441	Pelt dressers, tanners and fellmongers	19.1	Tanning and dressing of leather
7442	Shoe-makers and related workers	19.2	Manufacture of luggage, handbags and the like, saddlery and harness
		19.3	Manufacture of footwear

NACE sections included in the survey: 17 excluding 17.5, 18 excluding 18.3, and 19.3.

**Table 2: Manufacture of electrical machinery and electronics industry crafts**

Crafts in ISCO 88		Corresponding NACE categories	
724	Electrical and electronic equipment mechanics and fitters	30	Manufacture of office machinery and computers
7241	Electrical mechanics fitters and services	30.1	Manufacture of office machinery and computers
7242	Electronics mechanics, fitters and servicers	30.2	Manufacture of computers and other information processing equipment
7244	Telegraph and telephone installers and servicers	31	Manufacture of electrical machinery and apparatus n.e.c.
7245	Electrical line installers, repairers and cable jointers	31.1	Manufacture of electric motors, generators and transformers
		31.2	Manufacture of electrical distribution and control apparatus
		31.3	Manufacture of insulated wire and cable
		31.4	Manufacture of accumulators, primary cells and primary batteries
		31.5	Manufacture of lighting equipment and electric lamps
		31.6	Manufacture of electrical equipment n.e.c.
		32	Manufacture of radio, television and communication equipment and apparatus
		32.1	Manufacture of electrical valves and tubes and other electronic components
		32.2	Manufacture of television and radio transmitters and apparatus for line telephony and line telegraphy
		32.3	Manufacture of television and radio receivers, sound or video recording or reproducing apparatus and associated goods

NACE sections included in the survey: 30, 31.1 – 31.2, 32.1 – 32.3.

*Table 3: Manufacture of transport equipment industry crafts*

Crafts in ISCO 88		Corresponding NACE categories	
723	Machinery mechanics and fitters	34	Manufacture of motor vehicles, trailers and semi-trailers
7231	Motor vehicle mechanics and fitters	34.1	Manufacture of motor vehicles
7232	Aircraft engine mechanics and fitters	34.2	Manufacture of bodies (coachwork) for motor vehicles; manufacture of trailers and semi-trailers
7233	Agricultural- or industrial-machinery mechanics and fitters	34.3	Manufacture of parts and accessories for motor vehicles and their engines
		35	Manufacture of other transport equipment
		35.1	Building and repairing of ships and boats
		35.2	Manufacture of railway and tramway locomotives and rolling stock
		35.3	Manufacture of aircraft and spacecraft
		35.4	Manufacture of motorcycles and bicycles
		35.5	Manufacture of other transport equipment n.e.c.

NACE sections included in the survey: all.

*Table 4: Manufacture of wood and furniture industry crafts*

Crafts in ISCO 88		Corresponding NACE categories	
742	Wood treaters, cabinet-makers and related trades workers	20	Manufacture of wood and of products of wood and cork, except furniture; manufacture of articles of straw and plaiting materials
		20.1	Sawmilling and planing of wood; impregnation of wood
		20.2	Manufacture of veneer sheets; manufacture of plywood, laminboard, particle board, fibre board and other panels and boards
		20.3	Manufacture of builders' carpentry and joinery
		20.4	Manufacture of wooden containers
		20.5	Manufacture of other products of wood; manufacture of articles of cork, straw and plaiting materials
		36	Manufacture of furniture; manufacturing n.e.c.
		36.1	Manufacture of furniture

NACE sections included in the survey: all.

Table 5: Construction industry crafts

Crafts in ISCO 88		Corresponding NACE categories	
712	Building frame and related trade workers	45	Construction
7121	Builders	45.2	Building of complete constructions or parts thereof; civil engineering
7122	Bricklayers and stonemasons	45.3	Building installation
7123	Concrete placers, concrete finishers and related workers	45.4	Building completion
7124	Carpenters and joiners	45.5	Renting of construction or demolition equipment with operator
7129	Building frame and related trades workers not elsewhere classified		
713	Building finishers and related trades workers		
7131	Roofers		
7132	Floor layers and tile setters		
7133	Plasterers		
7134	Insulation workers		
7135	Glaziers		
7136	Plumbers and pipe fitters		
7137	Building and related electricians		
7139	Building finishers and related trade workers not elsewhere classified		
714	Painters, building structure cleaners and related trade workers		
7141	Painters and related workers		
7143	Building structure cleaners		

NACE sections included in the survey: 45.2 – 25.4. (Note that 45.1 “site preparation” is not included in ISCO 88 crafts.)

Table 6: Crafts in ISCO 88 and NACE not included in the e-Business W@tch

Crafts in ISCO 88 not included in the e-Business W@tch survey		Corresponding NACE categories	
7111	Shotfires and blasters	10	Mining of coal and lignite; extraction of peat
7112	Miners and quarry workers	11	Extraction of crude petroleum and natural gas; service activities
		12	Mining of uranium and thorium ores
		13	Mining of metal ores
		14	Other Mining and quarrying
7113	Stone splitters, cutters and carvers	26.7	Cutting, shaping and finishing of stone
721	Metal moulders, welders, sheet-metal workers, structural-metal preparers	27	Manufacture of basic metals
722	Blacksmiths, tool-makers and related trade workers	28	Manufacture of fabricated metal products, except machinery and equipment
		29	Manufacture of machinery and equipment n.e.c.
7311	Precision-instrument makers and repairers	33	Manufacture of medical, precision and optical instruments, watches and clocks
7312	Musical-instrument makers and tuners	36.3	Manufacture of musical instruments
7313	Jewellery and precious-metal workers	36.2	Manufacture of jewellery and related articles
732	Potters, glass-makers and related trades workers	26.1	Manufacture of glass and glass products
		26.2	Manufacture of non-refractory ceramic goods other than for construction purposes; manufacture of refractory ceramic products
		26.3	Manufacture of ceramic tiles and flags
7331	Handicraft workers in wood and related materials	2	Forestry, logging and related service activities
734	Craft printing and related trades workers	22.2	Printing and service activities related to printing
741	Food processing and related trades workers	15	Manufacture of food products and beverages
		16	Manufacture of tobacco products

## Annex IV: Sector Impact Studies of the e-Business W@tch in 2003/04

No.	Sector	Date
1	Textile, clothing and footwear industries	
	<ul style="list-style-type: none"> <li>• Report I: The Quantitative Picture: Diffusion of ICT and e-business in Europe</li> <li>• Report II: Assessment and Case Studies: Economic implications and policy recommendations.</li> </ul>	<p>April 2004</p> <p>August 2004</p>
2	Chemical industries	
	<ul style="list-style-type: none"> <li>• Report I: The Quantitative Picture: Diffusion of ICT and e-business in Europe</li> <li>• Report II: Assessment and Case Studies: Economic implications and policy recommendations.</li> </ul>	<p>April 2004</p> <p>August 2004</p>
3	Electrical machinery and electronics	
	<ul style="list-style-type: none"> <li>• Report I: The Quantitative Picture: Diffusion of ICT and e-business in Europe</li> <li>• Report II: Assessment and Case Studies: Economic implications and policy recommendations.</li> </ul>	<p>April 2004</p> <p>August 2004</p>
4	Transport equipment manufacturing	
	<ul style="list-style-type: none"> <li>• Report I: The Quantitative Picture: Diffusion of ICT and e-business in Europe</li> <li>• Report II: Assessment and Case Studies: Economic implications and policy recommendations.</li> </ul>	<p>April 2004</p> <p>August 2004</p>
5	Craft and trade sectors	
	<ul style="list-style-type: none"> <li>• Report I: The Quantitative Picture: Diffusion of ICT and e-business in Europe</li> <li>• Report II: Assessment and Case Studies: Economic implications and policy recommendations.</li> </ul>	<p>April 2004</p> <p>August 2004</p>
6	Retail	
	<ul style="list-style-type: none"> <li>• Report I: The Quantitative Picture: Diffusion of ICT and e-business in Europe</li> <li>• Report II: Assessment and Case Studies: Economic implications and policy recommendations.</li> </ul>	<p>April 2004</p> <p>August 2004</p>
7	Tourism	
	<ul style="list-style-type: none"> <li>• Report I: The Quantitative Picture: Diffusion of ICT and e-business in Europe</li> <li>• Report II: Assessment and Case Studies: Economic implications and policy recommendations.</li> </ul>	<p>April 2004</p> <p>August 2004</p>
8	ICT services	
	<ul style="list-style-type: none"> <li>• Report I: The Quantitative Picture: Diffusion of ICT and e-business in Europe</li> <li>• Report II: Assessment and Case Studies: Economic implications and policy recommendations.</li> </ul>	<p>April 2004</p> <p>August 2004</p>
9	Business services	
	<ul style="list-style-type: none"> <li>• Report I: The Quantitative Picture: Diffusion of ICT and e-business in Europe</li> <li>• Report II: Assessment and Case Studies: Economic implications and policy recommendations.</li> </ul>	<p>April 2004</p> <p>August 2004</p>
10	Health and social services	
	<ul style="list-style-type: none"> <li>• Report I: The Quantitative Picture: Diffusion of ICT and e-business in Europe</li> <li>• Report II: Assessment and Case Studies: Economic implications and policy recommendations.</li> </ul>	<p>April 2004</p> <p>August 2004</p>