

User Group; SMEs as ICT users - Standardization perspective



Reference

DSR/USER-00018

Keywords

ICT, user

ETSI

650 Route des Lucioles
F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C
Association à but non lucratif enregistrée à la
Sous-Préfecture de Grasse (06) N° 7803/88

Important notice

Individual copies of the present document can be downloaded from:

<http://www.etsi.org>

The present document may be made available in more than one electronic version or in print. In any case of existing or perceived difference in contents between such versions, the reference version is the Portable Document Format (PDF). In case of dispute, the reference shall be the printing on ETSI printers of the PDF version kept on a specific network drive within ETSI Secretariat.

Users of the present document should be aware that the document may be subject to revision or change of status. Information on the current status of this and other ETSI documents is available at

<http://portal.etsi.org/tb/status/status.asp>

If you find errors in the present document, please send your comment to one of the following services:

http://portal.etsi.org/chaicor/ETSI_support.asp

Copyright Notification

No part may be reproduced except as authorized by written permission.
The copyright and the foregoing restriction extend to reproduction in all media.

© European Telecommunications Standards Institute 2006.
All rights reserved.

DECTTM, **PLUGTESTS**TM and **UMTS**TM are Trade Marks of ETSI registered for the benefit of its Members.
TIPHONTM and the **TIPHON logo** are Trade Marks currently being registered by ETSI for the benefit of its Members.
3GPPTM is a Trade Mark of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners.

Contents

Intellectual Property Rights	4
Foreword.....	4
1 Scope	5
2 References	5
3 Definitions and abbreviations.....	5
3.1 Definitions	5
3.2 Abbreviations	7
4 General principles	8
4.1 Introduction	8
4.2 Objective	8
4.3 Methodology	8
4.4 Question Analysis.....	12
4.4.1 Method.....	12
4.4.2 Question 1	12
4.4.2.1 Geographical comparison.....	14
4.4.3 Question 2.....	15
4.4.4 Question 3.....	16
4.4.5 Question 4.....	17
4.4.5.1 Geographical comparison.....	19
4.4.6 Question 5.....	20
4.4.7 Question 6.....	20
4.5 Conclusion.....	21
Annex A: Survey results	22
History	29

Intellectual Property Rights

IPRs essential or potentially essential to the present document may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: *"Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards"*, which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (<http://webapp.etsi.org/IPR/home.asp>).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

Foreword

This Special Report (SR) has been produced by ETSI User Group (USER).

1 Scope

The present document will enlighten the needs of SMEs as ICT users in the scope of standardization.

2 References

For the purposes of this Special Report (SR) the following references apply:

ETSI EG 201 219 (V1.3.1): "User requirements; Guidelines on the consideration of user requirements when managing the standardization process".

3 Definitions and abbreviations

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply:

anti virus: utility that searches a hard disk for viruses and removes any that are found

NOTE: Most anti virus programs include an auto-update feature that enables the program to download profiles of new viruses so that it can check for the new viruses as soon as they are discovered.

Asymmetric Digital Subscriber Line (ADSL): new technology that allows more data to be sent over existing copper telephone lines (POTS)

NOTE: ADSL supports data rates of from 1,5 Mbps to 9 Mbps when receiving data (known as the *downstream* rate) and from 16 Kbps to 640 Kbps when sending data (known as the *upstream* rate).

bug: interference of the system

eBusiness: commerce conducted in cyberspace

NOTE: It is the execution of real-time business processes with the assistance of Internet technologies. Business that is primarily carried out electronically over various networks (e.g. intranets, extranets, and/or the Internet using the World Wide Web) and that typically uses Web technology to: Streamline business processes. Increase productivity and efficiency. Easily communicate with partners, vendors and customers. Connect users to back-end applications and databases. Transact commerce in a secure manner (i.e. eCommerce).

eCommerce: conduct of commerce in goods and services over the Internet

NOTE: It includes: consumers using the Internet to purchase goods and services online; as well as businesses selling and communicating with other businesses through the Internet.

eGovernment: generic term that refers to any government functions or processes that are carried out in digital form over the Internet

NOTE: Local, state and federal governments essentially set up central Web sites from which the public (both private citizens and businesses) can find public information, download government forms and contact government representatives.

eMarketplace: can be defined as a web-based environment that links many business parties together

NOTE: This could be a particular industry to execute and optimize business processes in that industry or across industries by collaborating information with these parties.

eProcurement: Business-to-Business (B2B) purchase and sale of supplies and services over the Internet

NOTE: eProcurement software makes it possible to automate some buying and selling. Companies implementing eProcurement systems expect to be able to control inventory more effectively and reduce purchasing agent overhead.

eSignature: shall mean "an electronic sound, symbol, or process, attached to or logically associated with an electronic record and executed or adopted by a person with the intent to sign the record"

encryption software: translation of data into a secret code. Encryption is the most effective way to achieve data security

fibre to the home: single wiring by optical fibre for being used for the various TIC applications of a house

firewall: system designed to prevent unauthorized access to or from a private network

NOTE: Firewalls can be implemented in both hardware and software, or a combination of both. Firewalls are frequently used to prevent unauthorized Internet users from accessing private networks connected to the Internet, especially *intranets*. All messages entering or leaving the intranet pass through the firewall, which examines each message and blocks those that do not meet the specified security criteria. A firewall is considered a first line of defence in protecting private information.

General Packet Radio Service (GPRS): standard for wireless communications which runs at speeds up to 115 Kb/s, compared with current Global System for Mobile Communications (GSM) systems' 9,6 Kb

NOTE: GPRS, which supports a wide range of bandwidths, is an efficient use of limited bandwidth and is particularly suited for sending and receiving small bursts of data, such as e-mail and Web browsing, as well as large volumes of data.

Global System for Mobile Communications (GSM): one of the leading digital cellular systems

NOTE: GSM uses narrowband TDMA, which allows eight simultaneous calls on the same radio frequency.

hotline: telephone service of assistance to the user

Integrated Services Digital Network (ISDN): international communications standard for sending voice, video, and data over digital telephone lines or normal telephone wires

NOTE: ISDN supports data transfer rates of 64 Kbps (64,000 bits per second).

internet sharing software: method for connecting many computers in a LAN to the Internet through a single connection and a single IP address

intrusion: unauthorized access

mCommerce: refers to transactions using a wireless device and data connection that result in the transfer of value in exchange for information, services, or goods

NOTE: Mobile commerce, facilitated generally by mobile phones, includes services such as banking, payment, and ticketing.

Public Switched Telephone Network (PSTN): refers to the international telephone system based on copper wires carrying analogical voice data

NOTE: This is in contrast to newer telephone networks base on digital technologies, such as ISDN and FDDI. Telephone service carried by the PSTN is often called Plain Old Telephone Service (POTS).

router: device that forwards data packets along networks

NOTE: A router is connected to at least two networks, commonly two LANs or WANs or a LAN and its ISP's network. Routers are located at gateways, the places where two or more networks connect.

server: computer or device on a network that manages network resources

spam: not desired email

spoof: not desired email by usurping the identity of a company

Symmetric Digital Subscriber Line (SDSL): technology that allows more data to be sent over existing copper telephone lines (POTS)

NOTE: SDSL supports data rates up to 3 Mbps. SDSL works by sending digital pulses in the high-frequency area of telephone wires and can not operate simultaneously with voice connections over the same wires. SDSL requires a special SDSL modem. SDSL is called *symmetric* because it supports the same data rates for upstream and downstream traffic. A similar technology that supports different data rates for upstream and downstream data is called *Asymmetric Digital SubscriberLine (ADSL)*.

Universal Mobile Telecommunications System (UMTS): 3G mobile technology that will deliver broadband information at speeds up to 2 Mbits/s

NOTE: Besides voice and data, UMTS will deliver audio and video to wireless devices anywhere in the world through fixed, wireless and satellite systems.

Virtual Private Network (VPN): network that is constructed by using public wires to connect nodes

EXAMPLE: There are a number of systems that enable you to create networks using the Internet as the medium for transporting data.

NOTE: These systems use encryption and other security mechanisms to ensure that only authorized users can access the network and that the data cannot be intercepted.

wireless: without wire

3.2 Abbreviations

For the purposes of the present document, the following abbreviations apply:

ADSL	Asymmetric Digital Subscriber Line
ATM	Asynchronous Transfer Mode
B2B	Business-to-Business
FTTB	Fiber-To-The-Building
FTTC	Fiber-To-The-Curb
FTTH	Fiber-To-The-Home
GPRS	General Packet Radio Service
GPS	Global Positioning System
GSM	Global System for Mobile Communications
ICT	Information and Communication Technologies
ISDN	Integrated Services Digital Network
ISP	Internet Service Provider
LAN	Local Area Network
PKI	Public Key Infrastructure
PMR	Private Mobile Radio
POTS	Plain Old Telephone Service
PSTN	Public Switched Telephone Network
QoS	Quality of Service
RF	Radio Frequency
SDSL	Symmetric Digital Subscriber Line
SME	Small and Medium size Enterprises
UMTS	Universal Mobile Telecommunications System
VPN	Virtual Private Network
WAN	Wide Area Network

4 General principles

4.1 Introduction

In November 2003, NORMAPME has conducted a survey among the most important European SMEs associations and some relevant SMEs working in the ICT sector in Europe. The survey concerned the use of ICT in SMEs. What we have to stress for instance, is that even if ICT SMEs produce ICT, they were asked to comment on ICT just as users, and not as manufacturers. The purpose of this questionnaire was in fact to obtain a survey to produce an awareness white paper on SMEs needs as ICT users.

4.2 Objective

A) Volume of SMEs in Europe

One of the key issues of the Internal market policy is to ensure the existence of competition between companies. The more companies that are involved, the more likely that competition will exist. Thus, we can conclude that SMEs encourage competition. They represent the largest share of European companies - 99 % of European companies are SMEs and employ almost 81 million people, which is 66 % of Europe's total employment. Within SMEs, micro-sized enterprises represent 93 % of SMEs and employ fewer than ten people. There are more than 19 million companies in this category. For this reason and because their training needs are more specific and important, we will pay special attention to micro-sized enterprises in this article.

B) ICT and SMEs

Due to the nature of ICT businesses, fewer SMEs are involved in this sector than in traditional SME sectors like construction. Hence in order to cover the widest scope possible concerning standards and standardization in ICT, we have to take into account both SMEs as ICT users as manufacturers and service providers. Another difference when discussing this subject is to approach standardization as well as the use of standardized products.

Therefore we decided to limit this survey to SMEs as ICT users as if not all SMEs are involved in this sector all of them use ICT products and services.

C) Participation of SMEs in ICT standardization

Concerning standardization work in general, we can fully agree that "it has been frequently observed that SMEs do not normally participate in standardization, a fact typically attributed to a lack of resources." Nevertheless SMEs can do it via their national associations, sectoral associations, Normapme, or even by participation in the National Shadow Committees when they come from a country with a small number of large companies. In these countries, the national position is more likely to reflect that of SMEs.

ICT standardization is rather a different case due to the structure of the ICT standardization bodies. Within ICT Standard Deliverable Bodies, it appears that most SMEs involved in technical work are manufacturers or services providers. Since last year, there was no SME association representing SMEs as users in any ICT standardization institute. This reflects the general trend that users, whoever they are, are not represented in Technical Bodies. When they are, they also have to face another problem, which is the lack of understanding between technical experts and user representatives concerning user requirements.

4.3 Methodology

We produced a small questionnaire taking into account use of IT products and services as well as standardization issues. The Telco standardization issues were listed based on an ETSI report from the ETSI User Group.

The small size of the questionnaire and the fact that most questions were similar was an encouragement to obtain a fair number of answers, as most of SMEs or their associations do not have either time either knowledge (if not both) to answer a too long and complicated survey.

We targeted two groups: SME associations and individual SME ETSI members who had to answer as users. Both groups were important to have on the one hand broad representation and on the other hand to have technical knowledge and existing awareness. Hence we sent it to our member associations and to SME ETSI members.

We tried to extract as much information as possible from a short questionnaire, regarding SME use of ICT and standardization.

The survey aimed to define a better understanding of SME issues regarding use of ICT and give direction to standardization taking into account SME ICT user concerns.

The study aimed at:

- identifying SME needs as ICT users;
- stressing the SMEs problems concerning the standardization of telecommunication in Europe; and
- encouraging SMEs to participate in the standardization process.

By ICT we mean products like: phones, mobile phones, switchboard, connections, servers, Internet, smart cards, etc. Actually, even if few SMEs are manufacturers, all of them are using the products at different levels. They are as well dealing with issues like *quality*, then *interoperability* and *security*, etc., and among these major groups, some variations exist. For instance, within security issues, you can find topics concerning data protection, data transmission, data storage, encryption (more and more used in SMEs as teleworking gains in importance), electronic signatures, eCommerce, etc. So, the growing importance of ICT in SMEs attracts major attention and therefore the need of not keeping silent as those issues can have large commercial and financial consequences on SME life. We asked several SMEs associations and SMEs working in the ICT sector to complete a questionnaire, which consisted of six main questions. Eleven European SMEs associations and thirteen SMEs from the ICT sector returned the questionnaire to NORMAPME.

The SME associations spoke on behalf of their members, and their answers will be reported as non ICT SMEs.

This survey is particularly representative of the situation of SMEs in Europe, because the associations that returned the questionnaire, include SMEs all over the EU: **FFE** (Federation of Finnish Enterprises), **Företagarna** (Federation of Private Enterprises in Sweden) and **Håndværksrådet** (Danish Federation of Small and Medium-Sized Enterprises), **Confartigianato** (Organization representing Italian crafts enterprises), **CCCI** (Cyprus Chamber of Commerce and Industry), **PIMEC** (small and medium sized enterprises in Catalonia), **APCM**, organization representing French crafts enterprises, **FPB** (Forum of Private Business) and **UIC** (Union of Independent Companies) both operating in England, **WKÖ** (Wirtschaftskammer Österreich), and **ZRP** (Polish Crafts Association).

These organizations are horizontal and generally gather most of the national small and medium-sized enterprises. Numerically spoken, this means often some thousand enterprises and several hundreds of professional associations, guilds etc. from the whole spectrum of business activity.

For instance:

The membership of the CCCI exceeds 8 000 enterprises from the whole spectrum of business activity, while more than 120 Professional Associations from trade, industry and services sectors are affiliated to the Chamber.

The Federation of Finnish Enterprises (FFE), this is the largest central business organization in Finland and is a network of 20 regional organizations, 420 local associations in towns and municipalities and 60 sectoral trade and professional organizations. The total number of members in the FFE is 88 000.

The Federation of Private Enterprises in Sweden (Företagarna) has 55 000 members (small and medium sized private enterprises). It also encompasses an additional 25 000 small businesses through some 30 affiliated trade associations. In total Företagarna represents about 80 000 businesses with 450 000 persons employed.

The FPB groups together 25 000 enterprises with 330 000 employees.

With 377 000 members the Danish Federation of Small and Medium-Sized Enterprises is the largest trade federation in Denmark.

APCM represents 846 000 businesses meaning 3 058 000 jobs.

WKÖ represent over 300 000 Austrian businesses.

In Italy, 521 000 companies are member of Confartigianato.

The Polish Crafts Association gathers Poland's crafts and small business chambers, guilds, craft co-operatives, craftsmen not associated in guilds and other organizational units.

In order to contact ICT SMEs we used ETSI network. At that time ETSI did not have a defined SME category on their portal, so we considered one unit members. It appeared later on that some of them were not SMEs but as their answers were in line with the ones provided by real SMEs we kept them. As far as the ICT SMEs are concerned, those we contacted are some of the most successful European companies in this sector. They have their headquarters in European countries, and even if they are not big in size, their products and services are used all over the world. Therefore, apart from being ICT manufacturers, they represent a relevant number of ICT users, which was actually what we would like to investigate with this survey.

In detail, the thirteen enterprises are: Cambridge Positioning System (**CPS**), Copsey Comms, DAI Telecom, **Digitel Telecom**, the **Fraunhofer Institute for Information and Dataprocessing**, Kerner Telecom, **Micro Electronica Española**, **Ossidian** (technology training), **PQM** (business consultants), **Rohill**, **Sicap**, **Ubinetics** (which is not an SME) and **Vecai**. As already said, most of them have relatively small structures but realize an important yearly turnover. They work in training, research, development, production, and distribution of new technologies. Among their clients, they have some of the world's biggest ICT providers like Vodafone, tMobile or Siemens as well as high-profile colleges (Oxford, Cambridge, Trinity College Dublin). Most of them operate worldwide and have a leading role in the ICT sector. What follows is a brief presentation of each one of them.

- CPS Cambridge Positioning System Ltd
 - CPS is the high accuracy location enabler for the wireless world, using a technology called Matrix. It is designed for GSM. They have also developed products for the 3G world - and new innovations to improve performance of A-GPS-based technologies. CPS creates location technology and works with major network equipment and handset vendors to integrate the software into their products.
- Copsey Comms
 - Copsey Comms is a relatively small company with the head-office in Buckinghamshire. Copsey Communication Projects provides network planning, installation, commissioning and rehabilitation of telecommunications networks. It is also able to accommodate open field tests, training, testing of equipment, seminars and lecturers. Copsey Communications also has a wide range of radio equipment available for hire, covering marine, air band and PMR hand held radios, mobiles, base stations and Intrinsically Safe.
- Dai Telecom S.p.A.
 - They design, develop, manufacture and sell devices for mobile and wireless communication. They produce GSM and GPRS handsets, dual and tri-band GSM/GPRS/GPS and modules, RF modules as well as modules applications, such as: telemetry, environmental monitoring, remote meter billing for water, gas and energy supply.
- Digitel Telekom
- Fraunhofer Institute for Information
 - Fraunhofer IITB is the prime institute for automatic and interactive imagery analysis, for the application of information technology to the optimization of industrial processes and also for computer networks and information services. They develop ready-to-implement solutions and offer a broad spectrum of feasibility studies, process analyses and optimization. They also offer process and system development including the provision and installation of problem solutions based on information technology. Quality management and maintenance of the implemented systems complete their palette of services.
- Kerner Telecom
 - Established in 1991, with Corporate Headquarters close to London, Kerner Telecommunications is an Internationally Accredited Test Laboratory and Consultancy specializing in the World Wide Type Approval of Telecommunications, WLAN and Blue tooth enabled equipment. The Kerner independent, fully accredited laboratory is completely equipped to meet any kind of needs for regulatory, pre-compliance, comparison and interoperability testing for Analogue Telecom Equipment.

- Micro Electronica Española
 - Micro Electronica Española is the leading Spanish smart card company fully devoted to develop smart card solutions and related products for telecommunication (GSM, 2G/3G mobile telephony), banking (CEN WG 10 Electronic Purse, EMV debit/credit, transport contact/contactless smart cards, etc.) and security (PKI) markets.
- Ossidian Technology
 - Ossidian deals with fast training on leading mobile and wireless technologies. To cut the cost and time associated with classroom courses, it has flexible access to training, when and where required. Ossidian combines the knowledge of wireless telecoms experts with experienced interactive course designers.
- PQM Consultants
 - PQM Consultants is an independent consulting practice established in 1991 by partners Alex Hardisty and Steve Randall. It has no employees; rather, it operates with a network of associates when it needs them. Their office is located in Chepstow, UK, although most of the business is conducted internationally. It specializes principally in the development, interpretation and use of telecommunications standards. As an independent TIA (Telecommunications Industry Association) registered consultancy, they undertake strategic studies based on interpretation of telecommunication Standards; manage and execute Standards related projects; prepare System and Procurement Specifications that call up relevant Standards; develop new Standards on behalf of clients; and, provide customized training on subjects related to telecommunications Standards. Their specialist area of expertise is Standards dealing with Corporate Networks. They are one of the World's leading independent consultancies on strategies for the implementation and use of the QSIG / PSS1 signalling system.
- Rohill
 - Rohill is a worldwide operating and recognized company, specializing in product and system development for professional mobile communication infrastructure. In the field of security and safety related communication products, Rohill has established a leading role in both hardware and software as well as dedicated customer specific solutions. The company is located in the Netherlands and was founded in 1976, dealing with conventional Private Mobile Radio (PMR) Communication Systems. Rohill aims today at remaining a leader in the ever-evolving market of professional mobile radio communication, satisfying the stringent requirements of organizations where communications for command and control are of critical and vital importance.
- Sicap
 - With a nine years experience in providing leading edge mobile applications for world-class GSM operators, Sicap is a software company based in Bern, Switzerland that develops and provides mobile applications and network products for GSM operators. Since 1995 they have focused on cost-effective solutions that minimize infrastructure upgrades, thereby ensuring a quick return on investment for their customers. They provide solutions in the areas of Charging, Messaging and Over-The-Air.
- Ubinetics
 - UbiNetics is a world leader and key driving force in the development of 3G, mobile wireless technology. It has its headquarter and development centres in UK, but also sales centres in Hong Kong, Taiwan and Japan, as well as other development centres in India. Its capabilities and deliverables are relied upon by the world's major handset and device manufacturers, infrastructure developers and network operators. Its core business is 3G. There are three product areas:
 - 1) 3G Device Technology.
 - 2) 3G Test Solutions.
 - 3) Wireless Modules.

- Vecai
 - VECAI is the line organization of Dutch cable companies. It works within the area of cable, media active and telecom. It represents the interests of the Dutch cable line. This is among other things done by means of lobby for better law - and legislation, standardization of technique and communication concerning the line.

The above mentioned companies will be referred to as ICT SMEs in the survey.

4.4 Question Analysis

4.4.1 Method

For simplification we will take one question after the other and analyse the answers. In the analysis we will compare needs of non ICT SMEs and ICT SMEs as users. In addition in question 1 and 4, we will pay attention to geographic differences. The geographical criteria will only be used for non ICT SMEs as ICT SMEs have a global approach.

4.4.2 Question 1

What kind of ICT products and/or services do SMEs use? Would you please rate the importance of ICT products and/or services that are used (5 extremely important 1 almost none)?

For complexity reasons and lack of expertise of non ICT SMEs, we decided to use a close question and list a wide range of products and services. As ICT SMEs may use more specialized products, we allowed some personal comments.

Type of product or service	YES or NO	Rate
PSTN		
ISDN		
SDSL		
ADSL		
Phone		
GSM		
Server		
Internet sharing software		
Website		
Firewall		
Anti virus		
Emails		
Fax		
Wireless connection		
Cable connection		
Lease line		
Satellite line		
Infrared connection		
Optic fibre line		
Switchboard		
Router		
GPRS		
UMTS		
Mobile phone		
Encryption software		
Virtual Private Network		
Laptops		
PC		
Satellite antenna		
Other		

The importance ratio of a product compared to its related service may be different, as sometimes hardware is more crucial or more problematic than the software, or vice versa.

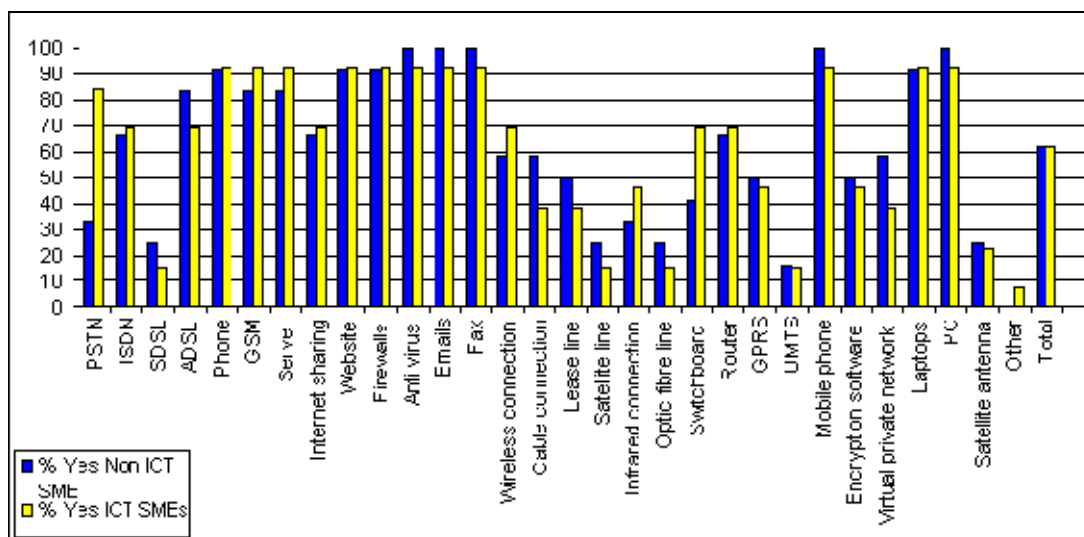


Figure 1: Use of ICT by SMEs

It can be seen that non ICT SME mainly use common ICT applications as telephone (ISDN, mobile phone, fax, etc.) and Internet as well as e-mail. They frequently use or would like to use ADSL connections (83,33 %, importance high: 4,00), which offer faster data transfer, as well as lease lines (50 %, importance low: 1,75). ADSL coverage or insufficient coverage appears as a main concern for non ICT SMEs. The importance rate for these ICT applications is very high; it ranges between 4 and 5. They also use ICT solutions in their office work (PC: importance rate 4,75, laptop), and to ensure data security and privacy: half of the SME organizations we contacted declared that their SMEs in their country use encryption software. Nearly all non ICT SMEs have a firewall; anti-virus software is used by all of them. They consider these applications to be important and rank them quite high (firewall: 3,75, anti-virus software: 4,33), encryption software is not as important for them as other applications (1,92/5).

Almost all SME associations (91,66 %) stated that non ICT SMEs have their own websites and consider this fact to be important (3,75/5). Furthermore, we see that non ICT SMEs work to a large extend with cable connections, but use wireless connections too, whereas they do not generally use satellite or infrared connections (only 25 % do, but the average importance rate is quite low: 0,92/5). More than half of them work in networks that are operated by servers and within which two-thirds of the non ICT SMEs use so-called routers for data processing and Internet sharing software in order to enable the connection of several computers using one single IP address. Other ICT solutions do not seem to be important for non ICT SMEs in their daily work.

SMEs which work in the ICT sector sometimes use different technologies in their daily work. Also, the importance of a certain technology for ICT SMEs might differ from the one of a non ICT SME. SMEs from the ICT sector use more frequently more specialized technological solutions like wireless connections (which are by the way much more important for them than for non ICT SMEs: +1) or switchboards.

As to the common office applications of ICT, we cannot determine a big gap between the answers of the non ICT SMEs and the more specialized ICT SMEs:

ICT SMEs work rather with PSTN than ADSL like the non ICT SMEs do and thus rank it in a different way (3,84 compared to 1,33; 84,61 % compared to 33,33 %). This is also the case for the GSM technology that ICT SMEs consider more important than "normal" SMEs do (+0,6). All technologies that contribute to the functioning of a local network are more important to ICT SMEs than they are to the non ICT SMEs: router +1,3, server +0,6, GPRS (faster than GSM) +1. Mobility seems to be an important aspect for ICT SMEs, too. Mobile phones are important for them, they use laptops as well as and to the same extend as PCs and wireless connections rather than cable connections (+30 %).

To summarize this question we can state that the SME associations and the ICT SMEs interest in ICT applications in their daily work is relatively similar, and that SMEs who work in the ICT sector tend to use more recently developed technologies.

Concerning non ICT SMEs we undertook some geographic comparisons, products by products.

4.4.2.1 Geographical comparison

The 11 SMEs associations representing non ICT SMEs we have questioned can be divided up into four virtual areas/groups, and namely:

- a) three of them belong to North Europe: **Företagarna, Sweden -Håndværksrådet, Denmark - FFE, Finland;**
- b) three belong to an area that we can call "middle Europe": **APC, France - WKO, Austria - FPB, England;**
- c) two belong to South Europe: **Confartigianato, Italy - PIMEC, Spain;**
- d) the last two can not be included in any one of the previous groups, since they are representative of new Member States and come therefore from different economic realities; these are **ZRP, Poland and CCCI, Cyprus.**

From a first, general look at the chart, we can see that what emerges is, for instance, that those countries that we group together show more or less the same figures. That is to say that probably, they rate the different issues in a very similar way and have the same needs and weaknesses regarding some topics, while, on the other side; they show the same strengths on other issues.

As far as the ICT products usage is concerned, it is important to look at the results of the survey, because from them we can understand first of all which country uses which kind of technology and how much importance that product/service has there. This will constitute the first indicator to understand the weak and strong points regarding ICT services for SMEs in Europe.

Let us start with PSTN. The chart shows that, in general, those countries with an advanced economy and technology, those of Northern, Middle and Southern Europe (Italy and Spain) rate the old international telephone service as non-important anymore. On the contrary, new Member States like Poland and Cyprus, which come from a completely different economic and technological background, show that this communication device is still very important. On the other side, it is interesting to note that ISDN, the new telephone network based on digital technology is very popular in those same countries where PSTN is not, except for Sweden and France. Cyprus and Poland rate it as very important, that is to say they still rely on the old system but use the new one as well. That is also an indicator of the fact that they are, at least in this field, at the same level of the other European countries.

As far as SDLS and ADSL systems are concerned, it is very interesting to note that the latter is rated almost everywhere as important or very important, while the former and older system has already lost popularity in the most technological countries, in favour of the new system. Poland and Cyprus do not rate it as important. That could probably mean that they have shifted directly to use the newer technology just like the other countries.

As for the telephone and mobile telephone, the figures show very clearly that they are both very important as communication devices in SMEs independent of the geographical area.

What is an interesting but at the same time heterogeneous datum to analyse, is regarding Internet sharing. It seems from the chart that there is not a common denominator for the countries to rate it as important or non-important. Even between the countries of the same area there are relevant differences, as e.g. between Finland (important) and Denmark (non important) or between Italy (not at all) and Spain (yes). It would be interesting at this point to investigate more about this issue, to see what the reasons are, why a company should be interested in using Internet sharing or not.

The figure concerning the usage of the website is outstanding. On average, it is rated as very important by all countries. Looking at single data, there is a slight difference between the Northern and middle/Southern countries (Poland and Cyprus included). It seems that having a website is more a prerogative of the latter than of the former. In detail, Sweden, France, Denmark and Cyprus rate the website as less important than Austria, Italy, Poland, Finland, some UK companies and Spain do.

The firewall issue is also particularly relevant. Even if, on average, the use of devices against unauthorized access from Internet to private networks, is conceived as important. Northern countries rate this protection tool as less important than middle and Southern countries (except for Italy). Cyprus and Poland rate it as important, but not as the most important one. More or less the same happens as far as anti-virus devices are concerned. Also Italy rates it as important.

Then, we can look at e-mails and fax together, since they both constitute communication devices using written language, even if the second one belongs to the older generation of technology. In general, they are both seen as very important in all countries. E-mail is "preferred" to fax in Austria, Poland, Finland, UK (FPB datum) and Spain, while in Sweden and Italy, the latter is rated as slightly more important than the former. In France, Denmark, UK (FPB datum) and Cyprus, there is no difference between the two tools.

For wireless and cable connection, we can see that both are rated as highly important as is wireless in Poland and Finland. Sweden, Austria and Cyprus rate both of them as non important. Those countries that prefer wireless to cable are France and Italy, while the contrary happens for Denmark, UK and Spain. Therefore, looking at all figures, we can state that even if wireless connection is relevant for many countries, the cable connection is still more used in almost all countries or, at least, has not been substituted by the new one yet.

Lease line is rated as non important in Northern countries, in middle countries and Southern ones, except for UK, where it has a very high score. In the two new Member States, it is rated as rather relevant.

As for satellite line, almost all countries do not see it as particularly important, apart from Austria and UK, which show some interest in it, even if low.

Also infrared connection and optic fibre line show, on average, very low use in the countries. The only significant figures are those of Austria and UK, which rate infrareds as quite important. The latter gives the maximum score to the usage/need for optic fibre too.

The data regarding Switchboard show that this device is a key one for new Member States, namely Poland and Cyprus. Between the other states, only UK and Spain rate it as very important, while the others rate it as non important. Finland gives a medium score to it.

Then, we have GPRS and UMTS, two innovative systems in mobile telephone. GPRS is popular in half of the countries, namely Sweden, Austria, Poland, Finland, UK (FPB) and Spain, but it is not rated as very important. The UMTS system, the 3G mobile technology, able to deliver huge amount of data of all kind, is instead still rated as non important in almost all countries, except for Sweden and Finland, where it has a very low score.

Coming to Encryption software use, we see that there is mainly a difference between Northern countries (plus Poland) on the one side, and all the others on the other side. The former actually do not rate this security system as important, while the latter give a medium-to-high score to it, except for France and UK, which share the Northern countries position.

As for the Virtual Private Network, it has no importance in Northern countries (only Finland gives a medium score), while middle European countries are divided into two groups. France and a part of UK (UIC datum) do not rate VPN as relevant, while Austria and another part of UK (FPB) do. Cyprus and Poland attach quite high importance to it.

Laptops and PCs dominate the scene of ICT tools used by SMEs. PC is rated 100 % important in all countries, as an evidence of the fact that nowadays all activities in trade, no matter if small or large, are carried out electronically. Laptop is also rated as very important, even if a little bit less than PC, showing an average percentage of 92.

In the end, we have satellite antenna. This device is rated almost everywhere as non-important, except for Austria (very high importance). This difference may be the result of its mountain geography where radio links may be more difficult to implement.

4.4.3 Question 2

Can you evaluate the ICT importance (financial, human resources, time) for SMEs?

It was decided to use an open form for this question, as it did not require special technical skills and allowed more freedom for the respondent.

Non ICT SMEs consider that ICT applications are essential for their day-to-day work. They all agree in saying that ICT is crucial for their work. They state that the importance of ICT applications is on the rise and that their work strongly relies on it. In particular, concerning financial, human resources and time issues, they consider ICT crucial, because it increases the output, and provides reliable and fast results. Increasing efficiency and decreasing costs are important aspects in using ICTs. Furthermore, they consider that ICT is an essential tool for staff whose keyboard skills and Microsoft (default standard) knowledge are improving. A problem seems to be that ICT and its speed bring along an increased workload and pressure, especially on older staff, whose work ethic and compulsive need to respond leads to sometimes unmanageable pressure. They do not have such a problem with younger staff.

The most important benefits are thus better time and finance management, lower cost of and more efficient communication, lower cost of promotion (promotion based on e-mail and Internet), as well as a lower cost of knowledge about competing firms and foreign markets because all information can be found on the Internet.

The SMEs who work in the ICT sector even go further. For them, the use of ICT products and/or services is crucial and they could not survive without it. They spend up to 40 % of their turnover on ICT and certain firms even have 20 % of their staff working full time exclusively on ICT functions. Especially the ability to use phone and e-mail abroad seems to be important for them. As a key element of the ICT's benefits someone highlighted that thanks to these products, SMEs who do not have local structures in a country may nevertheless compete with large multinational companies, because ICT offers an added value, flexibility and good support without increasing too much the company overhead. In conclusion we state that both groups agree in saying that ICT is crucial for their work.

4.4.4 Question 3

Do you use electronic business programmes?

To simplify and allow more answers we used a close question, which takes in most of electronic business programmes.

eCommerce	eSignature
eGovernment	eBusiness
eProcurement	mCommerce
eMarketplaces	

The answers regarding non ICT SMEs cannot be seen as a European accurate figure as it was asked to SME associations if this type of activity were used by SMEs in their countries.

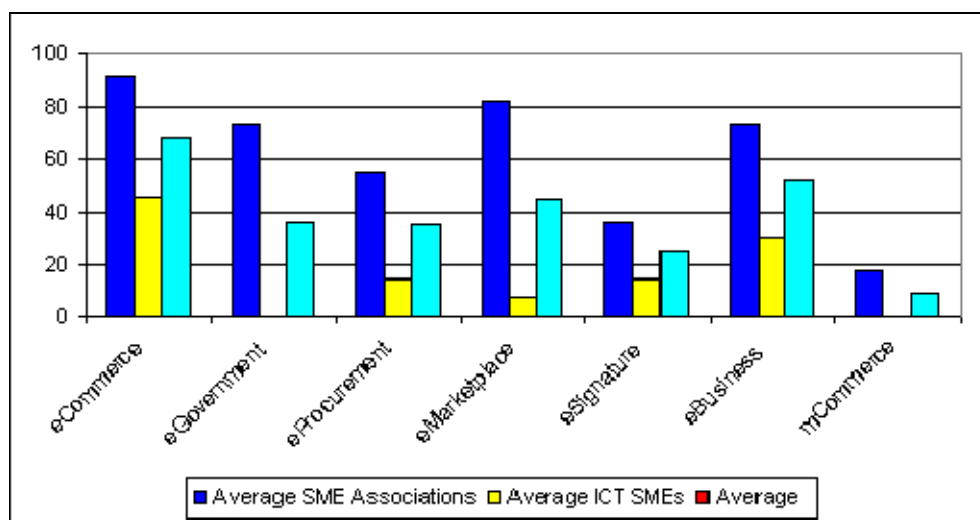


Figure 2: Use of electronic business programmes

There we see a huge difference between the two groups. Especially the SME associations state that their members frequently use the available electronic business programs and they use especially eCommerce and eMarketplace, as well as eGovernment and eBusiness programs. Half of them use eProcurement and still one third uses eSignature. mCommerce is only used by less than 20 %. The ICT SME group uses less electronic business programs than the SME association members. They only use eCommerce and eBusiness programs, as well as to a small extend eProcurement, eSignature and eMarketplace. They do not use the eGovernment and mCommerce programs at all. These differences can be explained by two things. First, we asked SME associations if their members were using such or such type of programmes without mentioning any ratio. This fact may lead to result moderation. Secondly, it is due to their sector. Non ICT SMEs like construction companies are more interested in public procurements.

It is noticeable that although eSignature was promoted in various ways, this system is largely neglected by SMEs. MCommerce was ignored as the technology on the market was not allowing fast and large transfer of data. It may take off with the UMTS but will remain low until 3rd Generation mobiles will be broadly used.

4.4.5 Question 4

What are the main issues encountered in ICT?

Due to little involvement of non ICT SMEs in ICT standardization and the possibility of different understanding of some points, we decided to use a close question by providing also a definition of each issue.

Type of issues	Definition	Rank (from 0 to 10) (see note)
Accessibility/Design for all	Access to products and services. Design for All means designing for as many people as possible	
Adaptability	Meeting a user's specific requirements and abilities, e.g. output in a format and at a pace that meets each entity's needs	
Comprehensive standards	Unambiguous and easy to understand	
Consistent user interface	A method of processing, storing and accessing the systems is consistent for the user and can be achieved by different means e.g. all components of the user interface are uniform, or the user interface adapts to the user so that the user always meets a personalized uniform interface	
Cost transparency	Transparent regarding all costs involved	
Easily adaptable access and content control	Technical devices at disposal to control access and the content of electronic media	
Ease of Use	Ease of use for all intended user groups stated in the scope of the standard	
Environmental issues	...such as power consumption, life cycle analysis, possible environmental risks	
Error tolerance and system stability	Anticipating errors of operation and forgiving, informative error messages leading the user forwards, being robust and remaining stable if users try services, which cannot be delivered or make choices that are redundant	
Explorability	Possibility of discovering system functions	
Functionality of solution	How a solution helps in dealing with problems faced by users	
Health and safety issues	How a set-up procedure provides sufficient instructions, and in the case of an automatic set-up system the possibility of manual override	
Information supply for first time user set-up procedure		
Interoperability and compatibility	In practice, interoperability means the access on any appropriate network to any relevant device, thus avoiding the acquisition of access to several different networks and terminals for similar services (i.e. portability is achieved), and compatibility means that different systems should be compatible so as to allow their joint operation	
Provision of system status information	The status of the system (e.g. waiting for input, checking, fetching, etc.)	
Privacy and security of information	Privacy of the individual. Security of information - sent, stored, received or deleted. The level of security should be clearly stated to the user	
Quality of Service, system reliability and durability	To determine and present quality of service, system reliability and durability	
Rating and grading systems	The application of rating and grading systems, which would provide information on quality to assist the user's decision	
Reliability of information	The reliability of information (possibly by quoting sources) provided on the system (e.g. in the event of system failure)	
Terminology	The terminology used in user interfaces (this includes brochures, user instructions and information presented by the system)	
Other		
NOTE: 10 = Extremely important in my business. 0 = Not at all important in my business.		

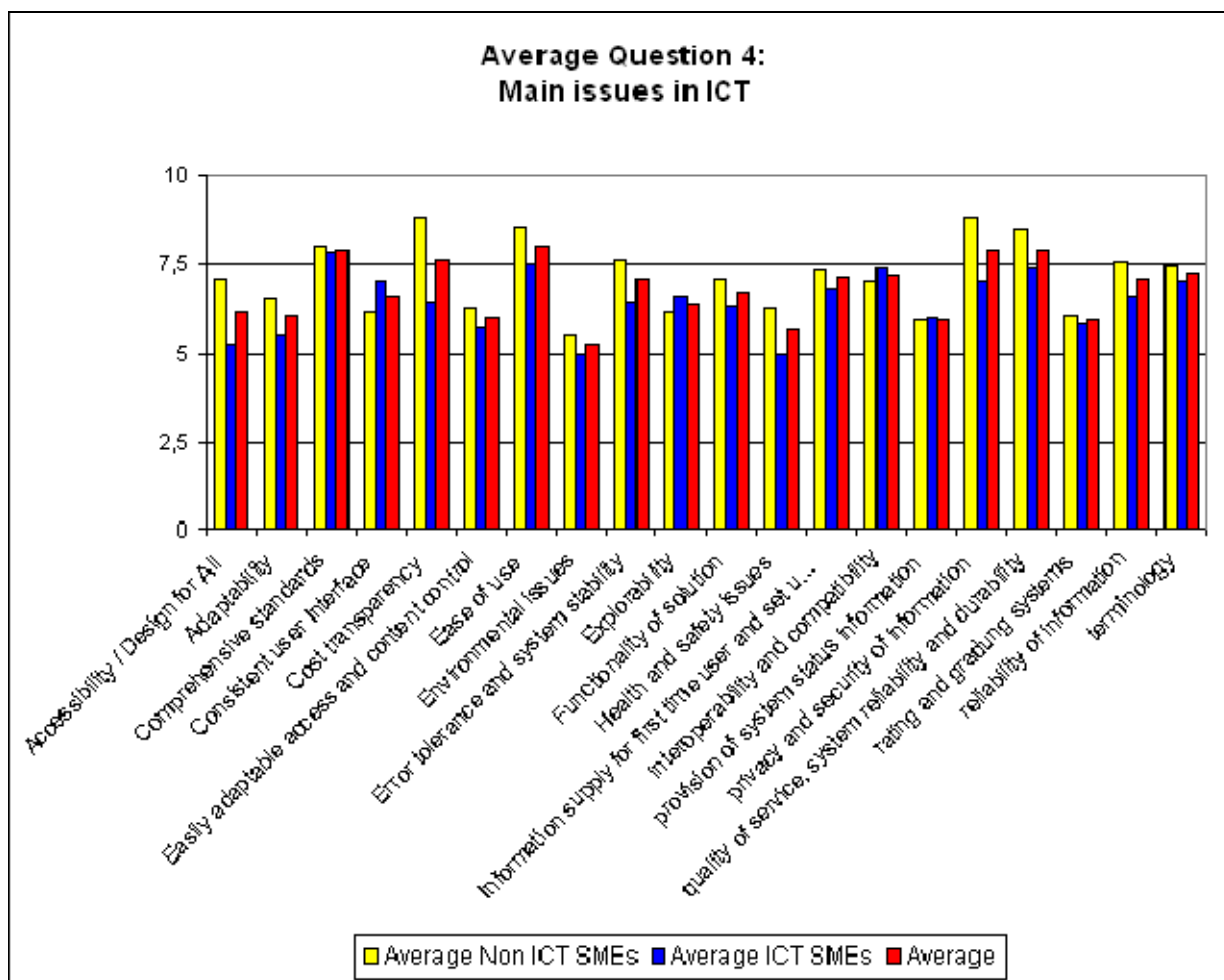


Figure 3: Main issues in ICT

As to this question, the opinions and rankings differ more than concerning the previous ones. Here we need to state that ICT SMEs have more precise needs and different priorities than average offices. Also we can understand the figures by the fact that ICT SMEs are often involved in standardization and hence can allocate one problem they face to a standard issue.

As a general comment we can see that SMEs agree in finding very low interest in what is called societal needs. Accessibility/design for All, Adaptability, environmental issues and health and safety issues are not very relevant issues for businesses, especially because it is far from what they need in their daily activities. Content control is an issue which concerns mainly big business which wants to have an eye on their employees and parents who want to watch their children. Hence, this issue is not of SME concern. Provision of system status information and rating and grading systems are not by their nature interests of business users, even with minimum knowledge.

On the other hand, all SMEs consider it as very important to get comprehensive standards. Ease of use, privacy and security of information and quality of services are common highly rated concerns to non ICT SMEs and ICT SMEs. We can also see that non ICT SMEs are even more interested in these issues than ICT ones.

In general non ICT SMEs demand more to standardization than ICT SMEs. This difference is even greater when it concerns usage made by non ICT literates or daily business activities. Non ICT SMEs consider also as extremely important cost transparency and error tolerance.

The only issue where we see a greater demand from ICT SMEs than non ICT ones is consistent user interface. It is due to the fact that some ICT skills are required to appreciate that type of service.

Therefore, it is to be noticed that the criteria "accessibility/design for all" and "adaptability" are far more important for the non ICT SMEs than for the ICT SMEs, even if accessibility remain very low in comparison with other factors. "Cost transparency" is another criterion that is very important (almost 9/10) to the non ICT SMEs who are present in all sectors, and much less to the ICT SMEs. For the non ICT SMEs, the practicability of the solution seems to be the main concern. They need easily applicable, functional and stable ICT products with high error tolerance (7,64) which is less important for ICT SMEs because they have the knowledge to deal with problems that might occur in less stable systems. The ease of use is thus one of the most important aspects for the non ICT SMEs.

Another aspect that is very important to the non ICT SMEs is "quality of service, system reliability and durability". This is almost as important as the issue "privacy, information security", which is one of the most important aspects in this ranking (8,82/10). Aspects that are more important to ICT SMEs are for example a "consistent user interface" or the "interoperability" between different systems. Those are aspects that are less important to average offices because the systems they use are in general less specialized, thus less complicated and easier to operate together. For the ICT SMEs a "consistent user interface" is more important than for non ICT SMEs. As to the other criteria it can be noticed that in general the non ICT SMEs rank them slightly higher than the ICT SMEs. In general it is remarkable that the non ICT SMEs seem to be more interested in these criteria than the ICT SMEs. Their average rank is 0,7 points higher than the average for ICT SMEs.

4.4.5.1 Geographical comparison

In rating the issues encountered in ICT usage by SMEs some geographical similarities might be found. In order to draw the comparison we divided the SME associations, which have been questioned, into four groups: **northern Europe** with Sweden, Denmark and Finland; **middle Europe** - France, Austria, England; **South Europe** - Italy and Spain; and finally two representatives of the **new Member States** Poland and Cyprus. However they come from different economic realities.

It can be noticed that the rating of the first named issue "accessibility/design for all" differs significantly according the areas. In northern countries it remains low while all the others indicate it as of relative high or even of high importance.

The second named issue - "adaptability" encounters the same rating as far as geographical differences are concerned.

Further issues like "comprehensive standards" and "ease of use", that both indicate the practicability of solutions, seem to be one of the main SME concerns all over Europe. Surprisingly low is the evaluation on importance of the "functionality of solution". It was scored with really high rates only in the new Members States and significant relevance in middle-European countries.

As the society in North Europe countries is in general more familiar with the technological solutions therefore it can be concluded that they deal with technical problems of software and system crashes more easily. It can explain why the issues like "error tolerance and system stability" as well as "information supply for first time user and set up procedure" are both placed with a very high relevance score in most of the countries but Nordic ones.

Nevertheless the problems, that do not directly concern office staff skills but rather concern ICT suppliers, gain a very high score within all of countries ("quality of service, system reliability and durability", "reliability of information"- issues). It is the same for the "privacy and security of information" issues, which are also rated of high importance for SMEs all over of Europe.

"Rating and grading systems", "provision of system status information" and "easily adoptable access and content control" as well as "explorability" are usually not of the concern of SMEs - which just require enjoying the practical, superficial side of ITC solutions. The concern of these subjects is even lower in the northern countries.

The societal needs like "environmental issues" and "health and safety issues" were given low rates, as they are not of a special interest for down-to-earth SMEs. Nevertheless it appears that the northern countries pay even less attention to these subjects than other countries. It might be related to the fact that in the North of Europe the norms regarding the above subjects have being stricter for years and might be considered as obvious and already executed by the ICT developers and installers. Another reason may be due to the fact that they are more technology and business oriented in their ICT approach.

The high interest of all countries is "cost transparency", which is quite understandable regarding the fact that the expenses on ICT are often relatively high for small companies with low turnover. For the middle Europe and New Member States associations it was even of higher interest than for the rest of Europe.

Furthermore, it might be observed, that the associations from the New Member States have given the higher rates to almost all of the issues in comparison to the other countries, which is easily to explain regarding those country's technical background.

4.4.6 Question 5

Have you encountered any problems relating to ICT? If so, what were they? Do you often face problems relating to this sector in your daily operations?

In order to avoid being restrictive and over directive, we decided to allow a certain freedom to respondents. It helped us to understand their needs and concerns better.

Frequently mentioned by the SME associations on behalf of non ICT SMEs, one of the main problems is the cost factor. Soft- and hardware solutions are very expensive and due to limited financial resources, the investments in ICT solutions stay at a rather low level. The cost issue is, among other things, related to the fact that the systems need to be continuously updated or even replaced to keep up with the rapid technological advancements. Furthermore, the secure and reliable functioning and the stability of their systems seem to be a problem for the non ICT SME group. According to their answers, many small companies do not have sufficient routine knowledge and protection to minimize the risk of system crashes and to prevent data losses. The lack of knowledge about ICT becomes visible in cases of computer or system problems, and is closely linked with the "computer speak", i.e. "please wait" instead of plain text messages that explain in detail to the user what is happening and how long the function will take before the user will be able to continue his input. A third problem category that has to be noticed is the security issue: Companies fear virus infections and the violation of privacy. Thus they reject everything that they do not recognize, and may therefore lose safe information. This also causes problems in b2b or b2c issues. Spam mail seems to be a major problem, too.

The latter was also mentioned by the ICT SMEs. Spammers even "spoof" mail domains so that junk mail looks as if the company itself had sent it out. Another major problem that ICT SMEs face is the instability of systems they use. System crashes they often face are caused by software bugs in the Windows NT/XP server software they use, mainly on desktop systems. Furthermore, the de facto standardization by the use of MS Windows leads to the adoptions of proprietary data formats and hence incompatibility with other formats they use. Hard- and software installation as well as hardware failure (e.g. printers) is a major problem for them, too, as well as is the fact that sometimes ICT tools do not respond exactly to their special need for personalization. Hence, they need more flexibility concerning this issue. One of the ICT SMEs who answered to our questionnaire made the remark that the handling of certain ICT tools is very difficult for untrained staff. This is no problem for ICT SMEs but might be one for SMEs who work in other sectors. This is sometimes worsened by the unavailability of good support to solve a user's problem. Additionally they have problems concerning the quality of phone lines and ADSL seems to be unavailable for some of them. This might be linked to the fact that it is a new technology, which is on the rise as more areas around the world are getting access successively. The ICT companies believe that globalization, particularly in the telecommunications sector, will speed up and improve the efficient and proper use of ICT in future.

4.4.7 Question 6

On which area would you like standards to improve your use of ICT products?

The reasons for an open question choice are the same than in question 5.

The non ICT SMEs need more assistance for innovation on all levels. They also need to rely on the software solutions they chose and the information they get. Hence, they need a functional and reliable software solutions with functions like auto save or a possibility of more efficient e-mail management, etc. They insist on the fact that they need more assistance in ICT, like clearer and fully texted installation instructions for soft- and hardware products. This would enable even the untrained user to install these tools. Terminology plays an important role in this context. Another important aspect many of the non ICT SMEs underlined is the compatibility between different invoicing and bookkeeping programs. They think that standardization could help to improve and facilitate the use of these applications for them. Some of them also think that standards on the validity of sites could be useful in future. Some claim penalty for spammers and even suggest to debar them from Internet by a strict ISP management. They assume standards could help to achieve this. Moreover, the non ICT SMEs insisted on the accessibility of standards: Open standards are very important for them. Another aspect they mentioned in this context is the fact that they need comprehensive standards that are easy to implement. Cost transparency is important for them, too.

The ICT SMEs are more optimistic and criticize less. They insist on the interoperability issue as well as on the security aspect, especially concerning wireless connections, where adequate protection is nowadays more important than anything else. They also insist on the improvement of user interfaces and user-friendliness. Another aspect one of them mentioned in this context is the convergence of all services onto one single network like FTTH (Fibre To The Home) in order to maximize the use and increase user-friendliness.

4.5 Conclusion

In general, this survey shows that the needs of ICT SMEs and non ICT SMEs may differ in the degree of specialization that the technology has and in what applications they need. The only striking difference is pretty obvious as ICT SMEs claim more specialized ICT solutions and thus have more specialized needs in standardization. But for general questions, their priorities are rather similar. ICT is of crucial importance for both of them. They use the same "common" technologies and office applications (e-mail, phone, etc.) to a similar extent.

In particular, as far as non ICT SMEs are concerned, ICT is of importance for financial, human and time aspects. Financially, ICT tools are very beneficial, give an increased and reliable output with lower costs (namely costs of communication, of promotion and of knowledge). They are essential for people working with them, because they allow a faster exchange of data. Time saving nowadays constitutes a way to increase performance, which is very positive from a "quantity" perspective. Nevertheless, it is worth saying that there is still negative from a "quality" point of view. Speed in communication, in data exchange and elaboration, may cause older staff, not usually used to such a work ethic, more stress than the younger.

A crucial point of discussion is also that regarding standardization. Actually, non ICT SMEs rate standards as very important and easy to understand, that is to say that standards constitute one strength point for SMEs and work efficiently. For this reason, the continuous need for new standards to be developed is a basic necessity.

In this general view, we have to point out that ICT producers have still to work on many aspects to be improved. For example, many SMEs still encounter economic difficulties in upgrading or replacing their systems in order to keep up with the rapid technological advancements. Also, they ask for a better security system, to protect them against virus, spam and so on. Furthermore there are plenty of issues that can be summarized under the expression "need for computer knowledge". That means that it is essential for SMEs to know exactly the computer language connected with ICT, in order to operate easily and safely with these tools. But, nevertheless, it seems that still many SMEs encounter difficulties in understanding computer language and so lack ICT knowledge. Hence, more assistance, such as training, fiscal aid, etc. will be required in future in order to facilitate innovation. The area in which most SMEs would like to improve ICT products is in the use of standards.

We conclude by summing up the five most important and most urgent needs on the side of SMEs regarding ICT use:

- Mobility: of information, of capitals, etc.
- Transparency: of costs, of information, etc.
- Stability/security/privacy: of the system, of the exchange of information and sensible data.
- Accessibility/adaptability: products and services should be easier to access and able to meet a user's specific requirement.
- Continuous upgrading of knowledge.

As far as the ICT producers/service providers are concerned, we can say that the survey shows that the ICT products they provide and the levels of innovation achieved are of very good quality. Nevertheless, this is a sector requiring continuous up-grading and continuous research to produce new products to fulfil the SMEs needs. Standardization has turned to be once more a major matter of concern. ICT SMEs argue, in fact, that open standards for data formats, interfaces for ICT users and interoperability standards are required. The three other issues that have to be mentioned and that draw a comprehensive picture of the ICT SMEs situation are:

- Flexibility;
- Interoperability; and
- Quality.

As for flexibility, they ask for more flexible ICT tools to be developed that are able to respond exactly to the need of personalization. Interoperability concerns different fields, but in particular the need to make the implementation of the same standard easier and more straightforward. Also interoperability between producers using IP will make users' requirements and products correspond. In the end, the need for a better and safer system is high for them too. ICT SMEs still have frequent system crashes based on SW bugs, and some specific problems connected with un-known e-mail spammers using their "names" illegally.

Annex A: Survey results

- 1) What kind of ICT products and/or services do SMEs use? Would you please rate the importance of ICT products and/or services that are used (5 = extremely important, 1 = almost none).

Type of product or service	12 SME Associations (on behalf of their members)		13 ICT SMEs	
	YES or NO	Average rate	YES or NO	Average rate
PSTN	YES: 4, NO: 8 YES: 33,33 %	1,333	YES: 11, NO: 2 YES: 84,61 %	3,85
ISDN	YES: 8, NO: 4 YES: 66,67 %	3,167	YES: 10, NO: 3 YES: 69,23 %	2,92
SDSL	YES: 3, NO: 9 YES: 25,00 %	0,583	YES: 2, NO: 11 YES: 15,38 %	0,85
ADSL	YES: 10, NO: 2 YES: 83,33 %	4,00	YES: 9, NO: 4 YES: 69,23 %	3,23
Phone	YES: 11, NO: 1 YES: 91,66 %	4,5	YES: 12, NO: 1 YES: 92,31 %	4,38
GSM	YES: 10, NO: 2 YES: 83,33 %	3,5	YES: 12, NO: 1 YES: 92,31 %	4,15
Server	YES: 10, NO: 2 YES: 83,33 %	3,167	YES: 12, NO: 1 YES: 92,31 %	3,769
Internet sharing software	YES: 8, NO: 4 YES: 66,67 %	2,33	YES: 9, NO: 4 YES: 69,23 %	2,69
Website	YES: 11, NO: 1 YES: 91,67 %	3,75	YES: 12, NO: 1 YES: 92,31 %	3,769
Firewall	YES: 11, NO: 1 YES: 91,67 %	3,75	YES: 12, NO: 1 YES: 92,31 %	4,307
Anti virus	YES: 12, NO: 0 YES: 100%	4,33	YES: 12, NO: 1 YES: 92,31 %	4,46
Email	YES: 12, NO: 0 YES: 100%	4,83	YES: 12, NO: 1 YES: 92,31 %	4,54
Fax	YES: 12, NO: 0 YES: 100%	4,83	YES: 12, NO: 1 YES: 92,31 %	3,46
Wireless connection	YES: 7, NO: 5 YES: 58,33 %	1,83	YES: 9, NO: 4 YES: 69,23 %	2,38
Cable connection	YES: 7, NO: 5 YES: 58,33 %	2,42	YES: 5, NO: 8 YES: 38,46 %	1,92
Lease line	YES: 6, NO: 6 YES: 50,00 %	1,75	YES: 5, NO: 8 YES: 38,46 %	1,46
Satellite line	YES: 3, NO: 9 YES: 25,00 %	0,75	YES: 2, NO: 11 YES: 15,38 %	0,69
Infrared connection	YES: 4, NO: 8 YES: 33,33 %	0,92	YES: 6, NO: 7 YES: 46,15 %	1,307
Optic fibre line	YES: 3, NO: 9 YES: 25,00 %	0,83	YES: 2, NO: 11 YES: 15,38 %	1,38
Switchboard	YES: 5, NO: 7 YES: 41,67 %	1,83	YES: 9, NO: 4 YES: 69,23 %	2,92
Router	YES: 8, NO: 4 YES: 66,67 %	2,33	YES: 9, NO: 4 YES: 69,23 %	3,62
GPRS	YES: 6, NO: 6 YES: 50,00 %	1,167	YES: 6, NO: 7 YES: 46,15 %	2,076
UMTS	YES: 2, NO: 10 YES: 16,67 %	0,4167	YES: 2, NO: 11 YES: 15,38 %	0,846
Mobile phone	YES: 12, NO: 0 YES: 100 %	4,4167	YES: 12, NO: 1 YES: 92,31 %	4,15
Encryption software	YES: 6, NO: 6 YES: 50,00 %	1,9167	YES: 6, NO: 7 YES: 46,15 %	1,92
Virtual private network	YES: 7, NO: 5 YES: 58,33 %	1,83	YES: 5, NO: 8 YES: 38,46 %	2,23
Laptop	YES: 11, NO: 1 YES: 91,67 %	3,33	YES: 12, NO: 1 YES: 92,31 %	4,23

Type of product or service	12 SME Associations (on behalf of their members)		13 ICT SMEs	
	YES or NO	Average rate	YES or NO	Average rate
PC	YES: 12, NO: 0 YES: 100 %	4,75	YES: 12, NO: 1 YES: 92,31 %	4,46
Satellite antenna	YES: 3, NO: 9 YES: 25,00 %	0,83	YES: 3, NO: 10 YES: 23,08 %	1,00
Other			YES: 1, NO: 12 YES: 7,69 %	0,38
TOTAL	YES: 63,79 %	2,583	YES: 62,25 %	2,779

2) Can you evaluate the ICT importance (financial, human resources, time) for SMEs?

ICT SMEs	SME Associations (on behalf of their members)
<ul style="list-style-type: none"> ▪ As a key element I would highlight that, thanks to ICT products, SMEs not having local structure in a country may compete with large multinational companies, offering added value, flexibility and good support, without increasing too much the company overhead ▪ No ▪ We spend approx 1/3 of turnover on ICT and have 20 % of staff full time on ICT unique functions ▪ Could not work as an SME without ICT, especially the ability to use phone and e-mails abroad ▪ About 8 % ▪ It depends on the business branch. On average, from our experience with controlled suppliers, the overall importance if ICT could cover from 20 % to 40 % of turnover ▪ Very important. Note: We are a development company for telecommunications equipment, so for us it is of more importance than for many other organizations ▪ Crucial ▪ Extremely important. We couldn't survive without ICT! 	<ul style="list-style-type: none"> ▪ In this day and age it is extremely important ▪ 30 - 42 - 28 ▪ Importance grows all the time. Some things like e-mail and mobile phone are already crucial ▪ ICT have a great importance for the SME ▪ Essential ▪ Financial: cannot do without it, speed reliability, increased output ▪ Human Resources: essential tool for staff, keyboards skills improving, less frequents/w changes, microsoft well understood and is effectively a default standard ▪ Time: speed brings with it increased workload and pressure - more so on mature/older staff, whose work ethic and compulsive need to respond brings sometimes unmanageable pressure, not such a problem with younger staff ▪ Very important ▪ Very important for them; mainly, SMEs need the ICT for increase their efficiency and decrease their costs ▪ Extremely important ▪ The most important benefits are: better time and finance management, lower cost of communication, efficient communication, lower cost of promotion (promotion based on email and internet), lower cost of knowledge about competitive firms and foreign markets

3) Do you use electronic business programs?

Use of	ICT SMEs		SME Associations (on behalf of their members)	
	YES	% YES	YES	% YES
ECommerce	6	46,15 %	10	90,9 %
Egovernment	0	0,00 %	8	72,72 %
Eprocurement	2	15,38 %	6	54,55 %
Emarketplace	1	7,69 %	9	81,82 %
ESignature	2	15,38 %	4	36,36 %
EBusiness	4	30,76 %	8	72,73 %
MCommerce	0	0,00 %	2	18,19 %

- 4) What are the main issues encountered in ICT? (10 = extremely important in my business - 0 = Not at all important in my business).

Type of issues	Average Rank ICT SMEs	Average Rank SME Associations (on behalf of their members)
Accessibility/Design for all	5,23	7,09
Adaptability	5,54	6,55
Comprehensive standards	7,85	8,00
Consistent user interface	7,00	6,18
Cost transparency	6,46	8,82
Easily adaptable access and content control	5,69	6,27
Ease of Use	7,54	8,55
Environmental issues	5,00	5,55
Error tolerance and system stability	6,46	7,64
Explorability	6,62	6,18
Functionality of solution	6,31	7,09
Health and safety issues	5,00	6,27
Information supply for first Time user set-up procedure	6,85	7,36
Interoperability and compatibility	7,38	7,00
Provision of system status information	6,00	5,91
Privacy and security of information	7,00	8,82
Quality of Service, system reliability and durability	7,54	8,45
Rating and grading systems	5,85	6,09
Reliability of information	6,62	7,55
Terminology	7,00	7,45
Other	0,77	

- 5) Have you encountered any problems relating to ICT? If so, what are they? Do you often face problems relation to this sector in your daily operations?

ICT SMEs	SME Associations (on behalf of their members)
<ul style="list-style-type: none"> ▪ Usual problems due to interoperability issues. ▪ No special problems. Mainly it is the reliability of the Windows operating system. We have a special problem at the moment with unknown e-mail spammers "spoofing" our mail domains so that junk mail looks as if it originated from us. ▪ You quite have to be IT literate, i.e. engineer, to use the ICT tool. Ok for us, but an inhibitor for wider market acceptance. ▪ Everyone assumes the use of MS Windows which has led to the de facto adoption of proprietary data format and hence incompatibility, in many cases, with our unix-based shop. ▪ Most problems are related to LAN cabling and Windows NT/XP server software and configuration. Problems are not frequent, maybe once per week a minor problem and once per four months a major problem. ▪ Sometimes ICT tolls don't respond exactly to our needs for personalization. We need more flexibility. ▪ We often have system crashes based on SW bugs, mainly on desktop systems. ▪ Failing equipment (regularly printers do not do their job. Nobody, not even the manufacturer, seems to be able to solve the problem). ▪ Problems with the quality of phone/ISDN lines and unavailability of ADSL. ▪ Not in our daily operations, but occasionally. As a company in a telecommunication sector, we believe that globalization in general (and in particular in telecommunication) shall speed up and improve the more efficient and proper use of ICT. ▪ Installing new hardware and software. ▪ Getting adequate service form ISPs (Internet Service Provider). ▪ Understanding user documentation and help. ▪ Sometimes no good support to solve a user's problem. 	<ul style="list-style-type: none"> ▪ Compatibility and costs. The cost issue is related to the fact that you need to continuously upgrade or even replace your systems to keep up with the rapid technological advancements. ▪ Security problems, virus, intrusion. Spam. ▪ Violation of privacy. Difficulties concerning payments B2B/B2C (Short for <i>business-to-business</i>, the exchange of services, information and/or products from one business to another, as opposed to business-to-consumer B2C). ▪ An important problem is security. Many small companies do not have sufficient routine ad protection to minimize risk for system crashes and prevent data losses. ▪ No high-speed Internet access and no lever we can use to get it. ▪ Costs and frequency of upgrading h/w and s/w, would prefer to use services of an ISP but have not done so yet. More and more copy/paper to file, the paperless office seems further away than ever. Fear of a virus intrusion, result: I reject anything not recognized. ▪ Usually associated with "computer speak", e.g. "Please wait", instead of plain language messages that explain to the user exactly what is happening and how long the function will take before user input or continuation can occur. ▪ Each technology has problems of being accepted, understood and implementation. ▪ Lack of relatively cheap and common broadband access is a main problem. ▪ Lack of knowledge about ICT. ▪ To low number of Internet users (customers, cooperated companies). ▪ To low ICT investment level (limited financial resources).

6) On which area would you like standards to improve your use of ICT products?

ICT SMEs	SME Associations (on behalf of their members)
<ul style="list-style-type: none"> ▪ No several standards for the same type of product. ▪ Improve interoperability between different implementations of the same standard. ▪ None in particular. ▪ Interoperability of all kinds. ▪ Wireless access with adequate protection regarding misuse and abuse. ▪ Convergence of ALL services onto ONE single network like FTTH (Short for fiber-to-the-home, the installation of optical fiber from a telephone switch directly into the subscriber's home. Fiber optic cable is an alternative to coaxial cable. FTTH is also referred to as Fiber-To-The-Building (FTTB), which includes optical fiber that is installed directly into a home or enterprise. Compare with FTTC. A disadvantage of FTTH, as opposed to FTTC, is that power cannot be supplied to a home along with the signal on the fiber optic lines.) ▪ None. ▪ Voice and video over data. ▪ User interfaces. ▪ Icons. ▪ Better interoperability between products using IP, e.g. for QoS (Short for Quality of Service, a networking term that specifies a guaranteed throughput level. One of the biggest advantages of ATM over competing technologies such as Frame Relay and Fast Ethernet, is that it supports QoS levels. This allows ATM providers to guarantee to their customers that end-to-end latency will not exceed a specified level) handling. ▪ Open standards for data formats and interfaces adopted by everyone. ▪ User interface! ▪ I think we are quite competent. ▪ Interoperability and content standards. 	<ul style="list-style-type: none"> ▪ Very complex problem, need more detailed question. ▪ Open standard (not to be confused with open source: <i>open source</i> refers to a program in which the source code is available to the general public for use and/or modification from its original design free of charge, i.e. open. Open source code is typically created as a collaborative effort in which programmers improve upon the code and share the changes within the community. Open source sprouted in the technological community as a response to proprietary software owned by corporations). ▪ More assistance for innovation (framework, fiscal aid, training). ▪ Clearer, fully texted installation instructions for the untrained user. ▪ Mobility: We think it is the most important ICT product in the future for SMEs. ▪ Management of e-mails, some kind of standard, e.g. reply urgency etc so that if response time is passed, it drops off. ▪ Attempts to penalize/debar from Internet thro strict ISP (Internet Service Provider) management anyone guilty of Spam. ▪ Reliability of software and auto save. ▪ Electronic invoicing. ▪ Compatibility of different bookkeeping programs and invoicing programs. ▪ Site validity standards. ▪ Terminology. ▪ Reliability of information. ▪ Rating and grading systems. ▪ Adaptability. ▪ Comprehensive standards. ▪ Cost transparency. ▪ Ease of use. ▪ Functionality of solution. ▪ Health and safety issues. ▪ Information supply for first time user set-up procedure. ▪ Interoperability and compatibility. ▪ Privacy and security of information. ▪ Quality of service, system reliability and durability. ▪ B2B/B2C. ▪ Terminology. ▪ Cost transparency.

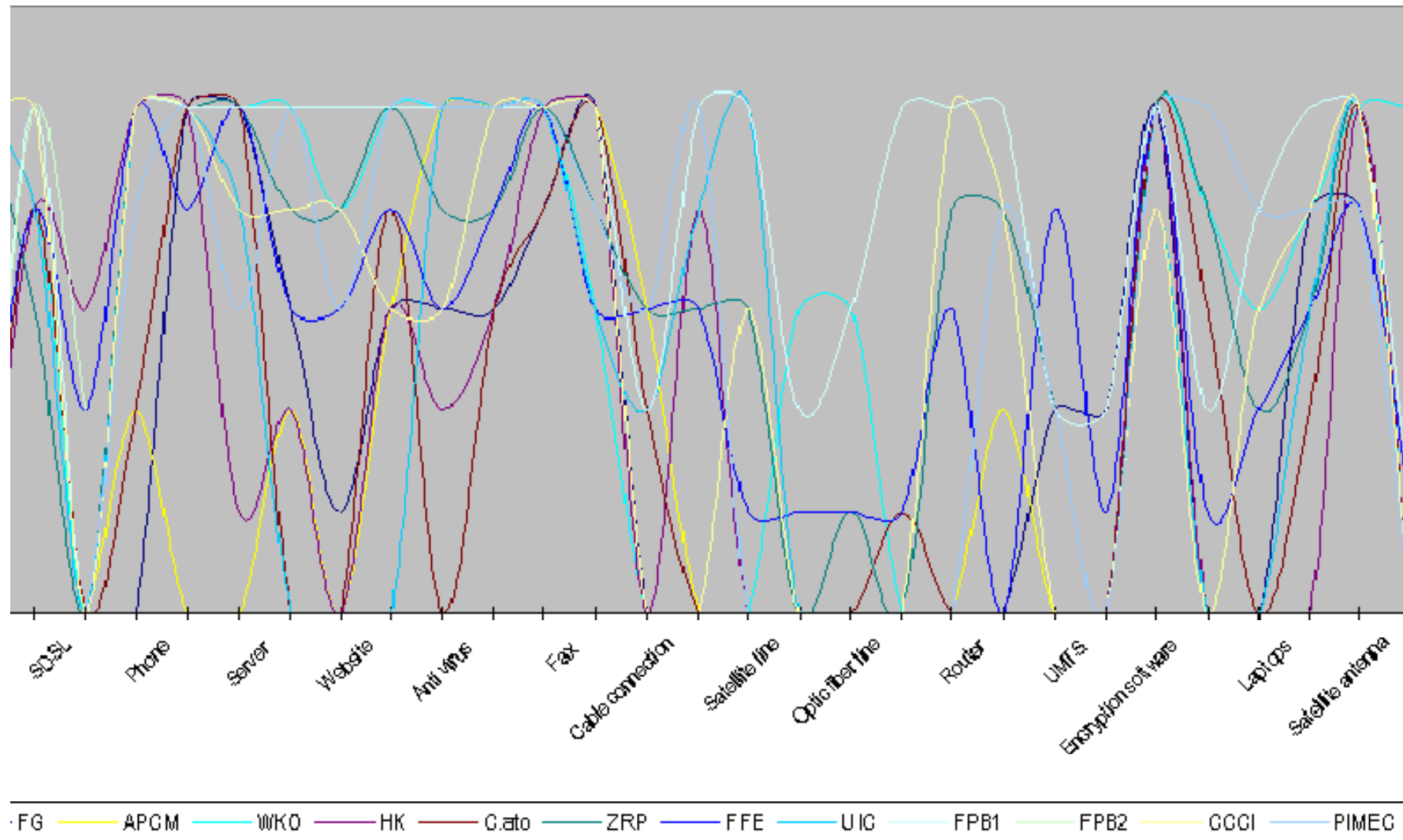


Figure A.1: Geographic comparison of SME concerns regarding the use of ICT products and services

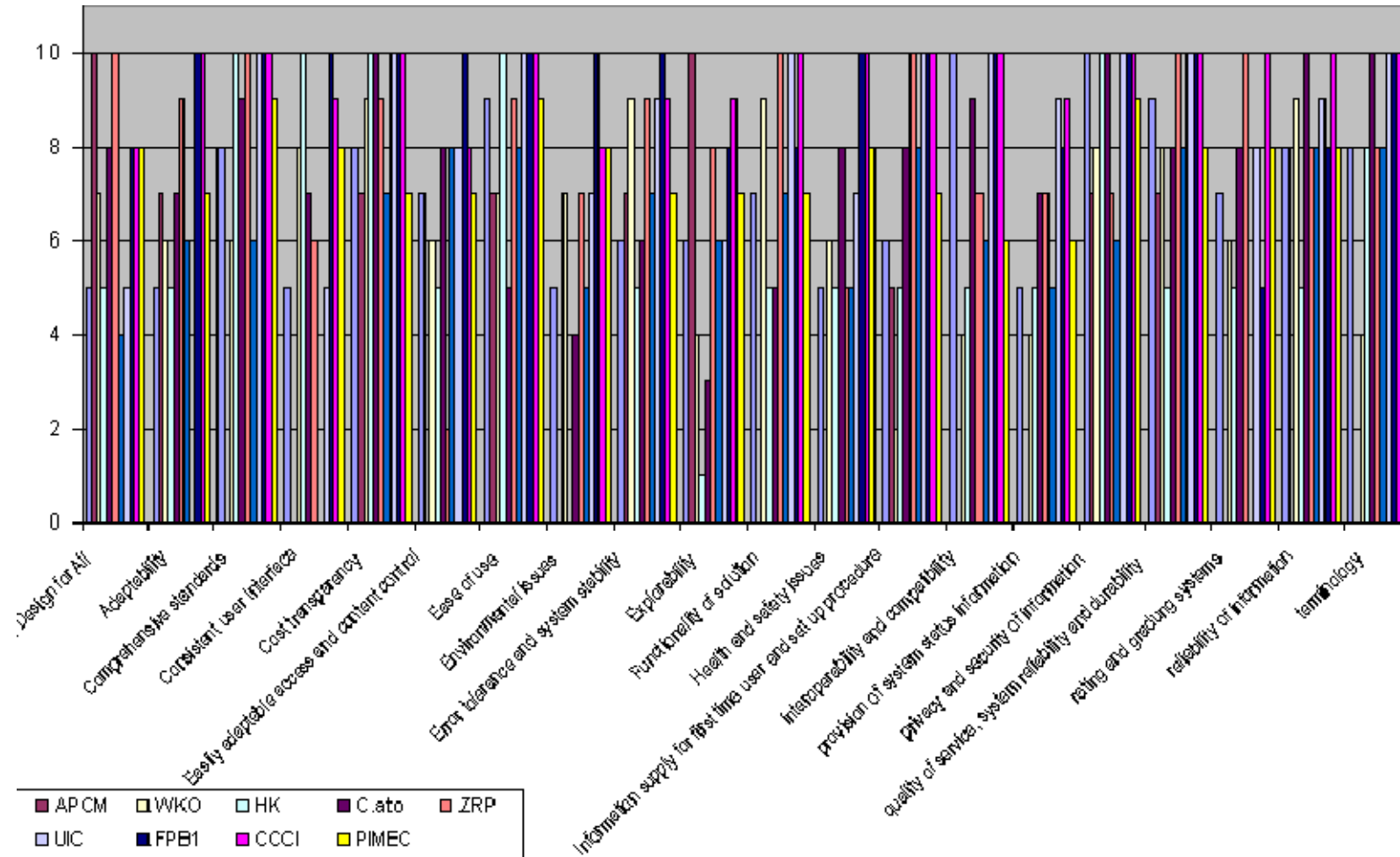


Figure A.2: Geographic comparison of SME concerns regarding ICT standards

History

Document history		
V1.1.1	January 2006	Publication