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Abstract:

This document is a report containing information pertaining to the e-Commerce level within the three regions involved in the e-Minder project. It presents the current situation and it makes recommendations for the future.

Keyword List: e-Commerce, ICT, SME

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1 E-Commerce Assessment Report Introduction

1.1 Introduction

This document is a report assessing the electronic commerce (e-Commerce) situation in the regions of Cyprus, Galicia and Pomerania. These three regions jointly comprise a consortium involved in a European Union project called e-Minder. E-Minder's main objective is to minimize the existing gap between the most developed European Union regions (central regions) and the least ones (peripheral regions) as far as the use and development of e-Commerce is concerned.

The report first presents an overview of what e-Commerce is and what are the processes and the infrastructure requirements necessary to have successful e-Commerce operations. The report then provides the definitions of e-Commerce and its various types (Business-to-Consumer, Business-to-Business, etc.) that were used in evaluating the status of e-Commerce in the involved regions. Further on it describes the processes that differentiate e-Commerce operations from conventional operations as well as the business, technology, logistics, and legal infrastructure necessary to support those operations. Section 2 presents the current situation of e-Commerce in the three regions and Section 3 compares the three regions with other more advanced European regions and gives the conclusions of this report.

1.2 Objectives

The objectives of this report are:

- To measure e-Commerce penetration within the citizens, the SMEs, and the corporate sectors. Pomerania will also measure e-Commerce activities (B2A/A2B) of its regional Government.
- To use existing standard metrics for comparison of local e-commerce penetration with that of advanced European regions.
- To use the report as a future comparison reference.

1.3 E-Commerce General Definition

Activity between two or more parties that interchange products or services (physical or digital) involving economical transactions and/or contracts performed via electronic data transfer in open networks. Each one of these parties can be a supplier, partner or consumer.

1.4 Agent-Based Definitions

1.4.1 B2C (Business-to-Consumer)

Type of e-Commerce activity where one of the transacting parties is a consumer and the other a business entity.

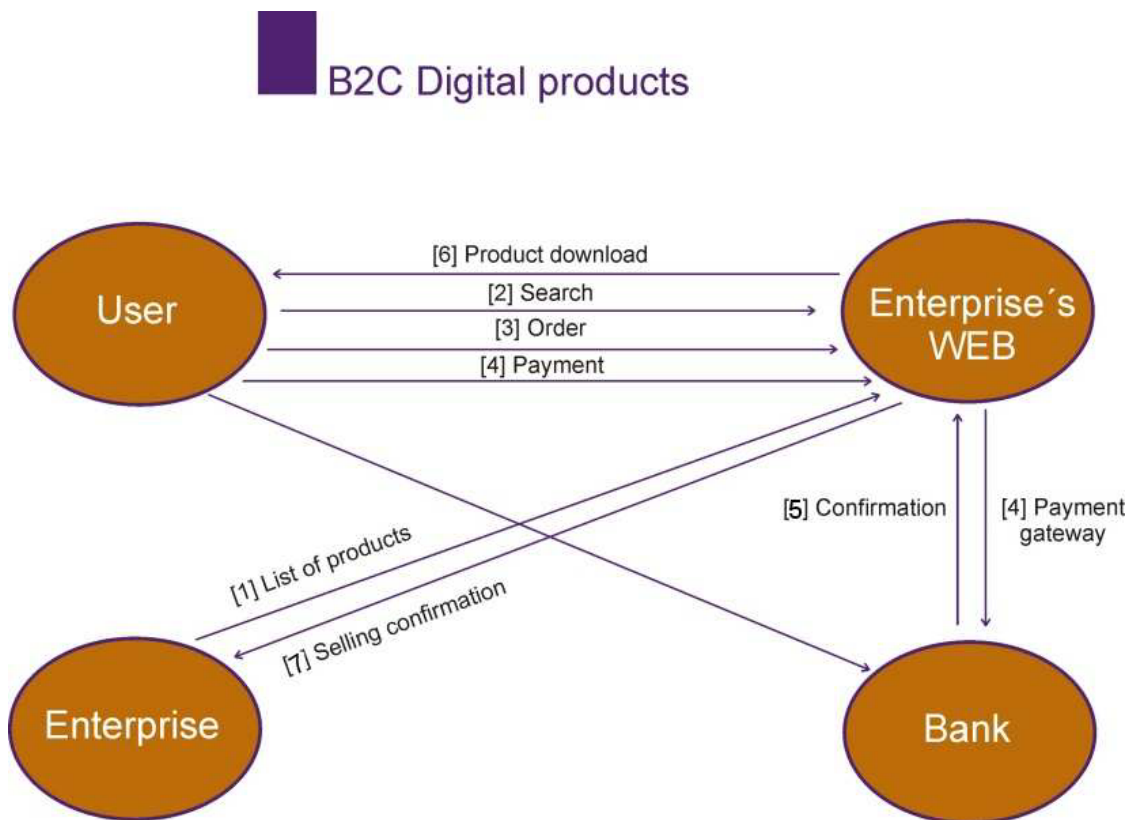


Figure 1: B-C Digital Products

Source: CESGA

B2C Physical products

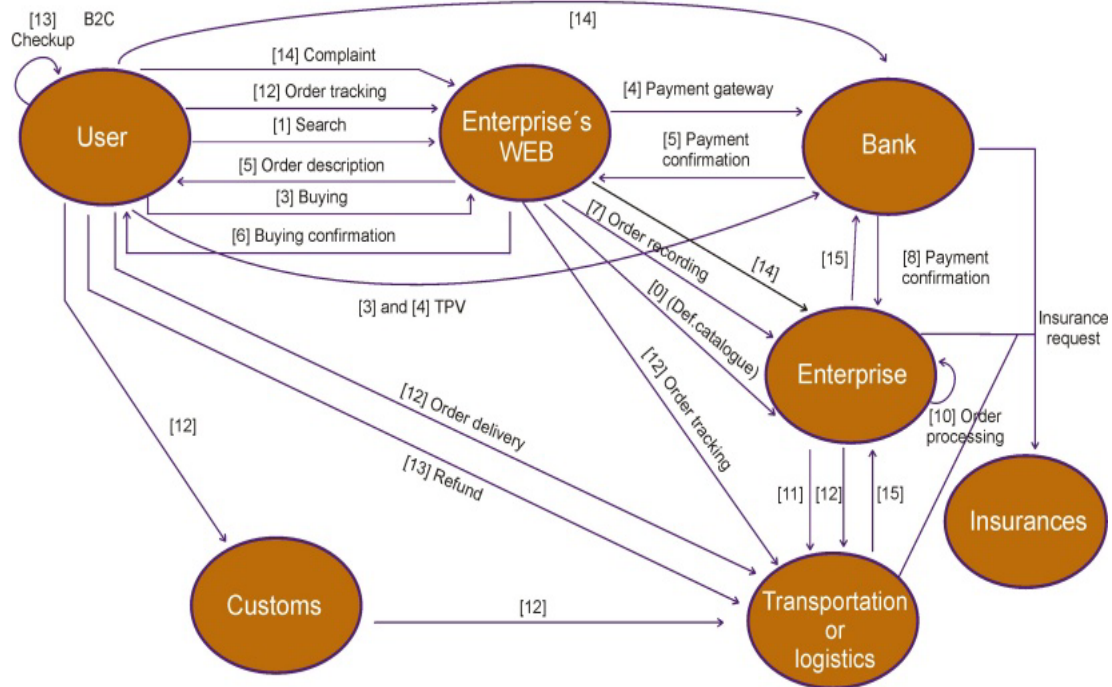


Figure 2: B-C Physical Product

Source: CESGA

1.4.2 B2B (Business-to-Business)

Type of e-Commerce activity where the transacting parties are two or more business entities, or the transacting parties are members of the same company/organization/business.

1.4.3 B2A/A2B (Business-to-Administration/Administration-to-Business)

Type of e-Commerce activity where one of the partners is a local, regional, national or international administration, the other is a business entity, and there exist economic transaction(s) or exchange of information in the process.

1.4.4 A2C/C2A (Administration-to-Citizen/Citizen-to-Administration)

Type of e-Commerce activity where one of the partners is a local, regional, national or international administration, the other is a citizen, and there exist economic transaction(s) or exchange of information in the process.

1.4.5 B2E/E2B (Business-to-Employee/ Employee -to-Business)

Type of e-Commerce activity where one of the partners is a business entity, the other is an employee of the same business entity, and there exist economic transaction(s) or exchange of information in the process.

1.4.6 C2C (Consumer-to-Consumer)

Type of e-Commerce activity where the transacting parties are two or more citizens and there exist economic transaction(s).

A graphical representation of the agent-based definitions is given in the following graph:

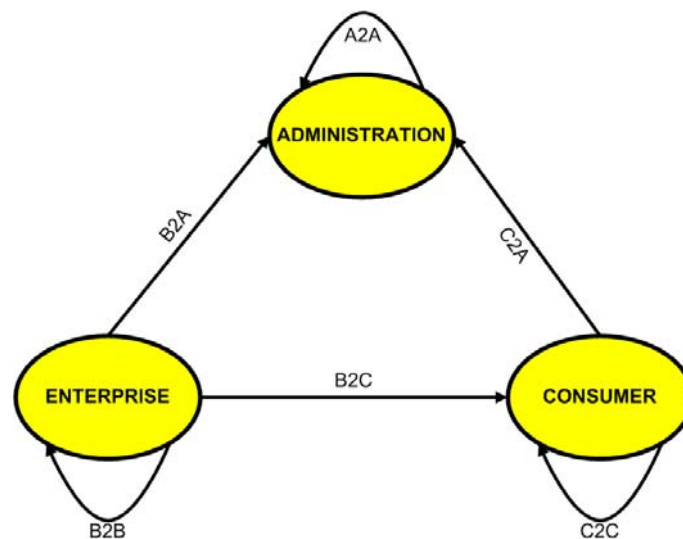


Figure 3: Agent-Based e-Commerce Definitions

1.5 E-Commerce Processes

The e-Commerce processes have significant differences from the standard commerce processes but the core functions remain the same, after all e-commerce is the evolution of the conventional commerce. As with the conventional commerce, e-Commerce processes can be categorised in two areas, the front office and the back office process. Briefly, the front office process includes all the interaction with the customer, and the back office process is the business internal logistics and functions carried out in order to be able to offer products and services to the customer.

1.5.1 The Front Office processes

The front office processes can include the following functions based on the operations associated with each company's business targets:

- **Collect/Provide Information**

An e-Commerce business must be able to collect customer requirements, analyse them and be able to provide and display information about its products and/or services. This is typically the first step taken towards entering the virtual marketplace. The information that is displayed must be accurate, up-to-date, and accessible without long wait times.

- **Sell/Purchase/ Payment**

This function is used to initiate and execute business transactions, such as sales orders and purchases. The major concern in this function is data security. More specifically the major concerns are: data; accuracy and integrity of processing methods; reliability of trading partners; reputability of trading partner; and privacy concerns by customers.

- **Delivery/Distribution**

This function is associated with delivering the product and/or services requested or purchased by customers. Some products and/or services are subject to electronic delivery. For electronic delivery to occur, the products being delivered must be digital (e.g., software) or the service performed digitally (e.g., on-line broker). For conventional products and/or services the major concerns are: delivery of the goods only to legitimate, approved customers; and reliable delivery of products and/or services.

1.5.2 The Back Office processes

The back office processes can include the following functions based on the company's business goals:

- **Product/Services portfolio management**

This function is responsible for the management of the business products/services. It has to do with the products/services provision and availability and it is vital for quality of service offered to the customer by the business. It can contain stock control, accounting, inventory management, purchase order management, accounts management and other operations concerned with the business products/services portfolio. It is important to have in mind that most of these modules are implemented for each company with different systems (e.g. accounting software) and it is critical to find a way to integrate those modules with the e-commerce module in order to automate and enhance the business flows.

- **Customer Relationship Management (CRM)**

The process of CRM is not really a back office function, but we can include it here because of the many similarities with the back office processes. CRM is the process, which enhances and enlarges the relationships between the customers and the business in a profitable way for both parties.

1.6 E-Commerce Infrastructure Requirements

1.6.1 Business Infrastructure

It is important to understand that e-Commerce is another form of doing business, so the existence of the business is a must before we decide to move to electronic business. Although a business can be electronic from day one, most SMEs already exist and they will move to electronic business as a second medium of sales.

There is not a well-known recipe for the successful creation of e-business. However there are a few prerequisites necessary for this. These prerequisites generally speaking are the industry/market eligibility for electronic business and the business infrastructure in terms of internal business processes, organization, human resources and technology, the latter being mainly IT infrastructure.

1.6.2 Technology

There are many different technologies, which can be used for the implementation of electronic business. Speaking in general any business, which will try to implement an e-business division, will either outsource this division to an organization who is specialized in the field (a portal or a virtual mall) or try to implement an e-business division on its own.

In the first case it is assumed that the organization responsible for the e-business division implementation and operation is well established in the e-business market and has the technology knowledge and infrastructure to support this.

In the second case the responsibility for the implementation and operation of the e-business division remains inside the business. In this case the business must ensure that there are available human resources within the company or associates with the knowledge to achieve implementation of the e-business division and there are persons to manage the operation of this division. In this case, online connectivity with an ISP, an e-Commerce application platform, the necessary networking equipment (routers, switches) and security (firewalls, authentication) is required. It is important to understand that the major success factor in this scenario is the knowledge accumulated in the people of the company.

1.6.3 Third-Parties

The third party services such as payment services and delivery services are critical to the success of e-business. It is important to implement the payment and delivery services in such a way so as to achieve an e-Commerce concept that looks homogeneous to the customer. Payments usually are carried out through credit card acquirers, which provide a convenient and fast method for clearing payment transactions for both business and consumers. On line electronic payment is a vital process for a successful e-Commerce implementations.

Delivery of the goods and services purchased by e-businesses is handled directly if the product or service is digital or electronic (software, digital music, news, etc). If the product or the service is physical, e-Commerce companies usually deliver via their own delivery service or outsource to courier services

1.6.4 Legal and Regulatory Framework

A legal framework towards regulating e-Commerce should build trust among consumers. According to OECD's "Electronic Commerce Policy Brief (July 2001)", in order to build trust you need to have consumer protection, privacy protection, and security and authentication. In addition to the OECD directive there has to be providence for merchant protection as well. Other issues involve tax and invoicing considerations.

A legal and regulatory framework should cover directives such as, but not limited to, consumer and merchant protection, security, intellectual property and tax related issues. The legal framework should incorporate constitutional, administrative, corporate, civil, criminal and tax laws.

Europe+ has a number of directives, which will provide the political commitment of accession countries in the promotion of acceleration of e-commerce. Such directives include the putting in place of the basic building blocks for the Information Society, a cheaper, faster and secure Internet as well as the stimulation of the use of the Internet in areas such as E-commerce, E-Government and on line Health. Both Cyprus and Poland have committed to this directive and therefore a number of the directives suggestions will be incorporated throughout the e-minder project.

1.7 Report Highlights

Through the various data gathered for the purposes of this report from the regions of Cyprus, Galicia and Pomerania, a number of results stand out. The Internet Access among citizens is 41% for Cyprus (30% in house and 11% elsewhere), 19% for Pomerania and 14.5% for Galicia. E-Commerce activity among the citizens is very low for all three regions. Five percent of the entire population of Cyprus bought something online the last year, 1,9% in Galicia and 2% in Pomerania.

Cyprus and Galicia have a high percentage of SMEs with PC ownership (98% and 95% respectively). Forty-two (42%) percent of Pomeranian SMEs have PCs. Internet access among SMEs is 92% in Cyprus, 70% in Galicia and 9% in Pomerania. Fifty-one (51%) percent of Cyprus SMEs have a web presence and 25% of those in Galicia. E-Commerce presence of SMEs in Galicia is 5,3%. The percentages of the other regions are too low to measure accurately.

2 Current Situation

2.1 E-Commerce Level Definition

2.1.1 How do we define the level

The level of e-Commerce has a twofold definition:

- Consumer level: the percentage of consumers that use e-Commerce within a one-year period.
- SME level: the percentage of SMEs that have e-Commerce operations.

2.1.2 How do we measure E-Commerce

The OECD (Organisation for Economic Cooperation and Development) indicates that there are three ways to measure e-Commerce:

- E-Commerce readiness: Technical, commercial and social infrastructures necessary to support e-Commerce. This issue is analysed in section 2.3 of this report under the heading e-Commerce Infrastructure.
- E-Commerce intensity: State of e-Commerce application. Explained in terms of usage and existence of e-Commerce and related applications in section 2.2 under the heading Internet Presence and in section 2.4 E-Commerce Usage.
- E-Commerce Impact: Additionality and multiplier effects, i.e. impact of e-Commerce on efficiency and creation of new sources of wealth. In the involved regions this measurable cannot be assessed due to the very low e-Commerce intensity.

In the cases of Cyprus, Galicia and Pomerania, the best way to measure e-Commerce is to assess the existing infrastructure and e-Commerce USAGE. We will measure usage within the corporate sector and the citizen sector. Also there are other measurable, listed in section 2.2, that can be accumulated and used in assessing a region's e-Commerce intensity level, such as number of portals, local search engines, e-shops, presence or lack of "delivery infrastructure", security, etc but they are not as important as usage.

2.2 Internet Presence

CYPRUS

2.2.1 Web-sites

The university of Cyprus is responsible for registering the .cy domain names, and the number of currently registered domains is approximately 3500. Among the 300 companies that were interviewed for the survey 51% had a web presence:

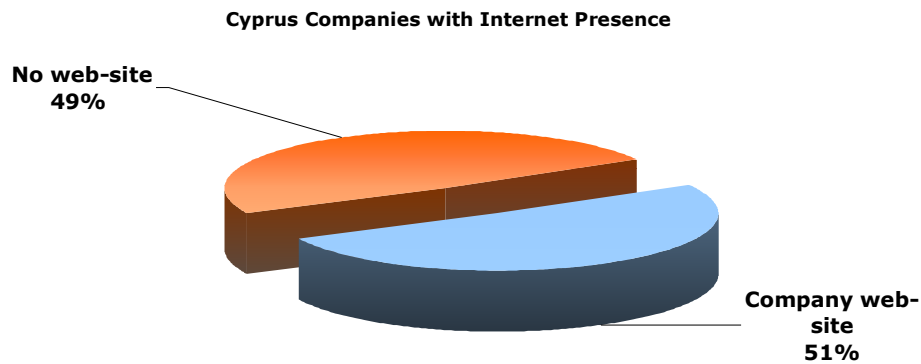


Figure 4: Cyprus - Company Internet Presence

Source: Cyprus Socio-economic Survey

Internet presence broken down by company size follows. It is clear that Internet presence is proportional to the size of the company, that is, the percentage of Internet presence increases with the size of the company.

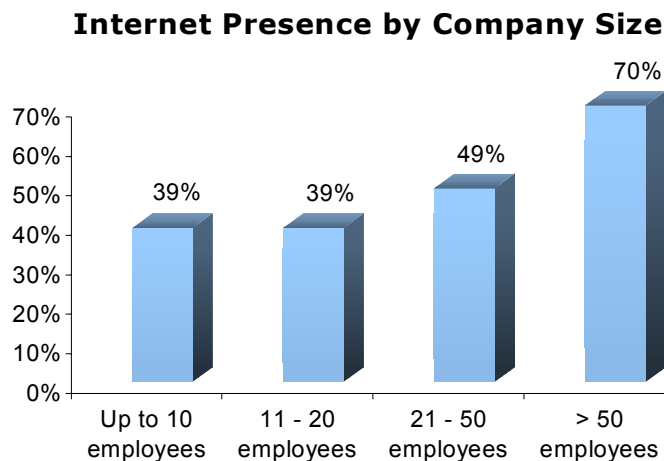


Figure 5: Cyprus - Internet Presence by Company Size

Source: Cyprus Socio-economic Survey

2.2.2 General Portals and Directories

In Cyprus there is a relatively small number of portals. These sites mainly provide typical portal services, like search, news, links to other Cypriot sites and other information. Some of these portals are general portals and some are specialised. Some of the main portals are listed below:

- <http://www.cypria.com>
- <http://www.typos.com.cy>
- <http://www.cyprusisland.com>
- <http://www.yourcyprus.com>
- <http://www.go2.com.cy>
- <http://www.kypros.org>

2.2.3 E-Commerce Sites

Currently in Cyprus there are a few e-Commerce sites, some of them are:

- <http://www.buy.com.cy>
- <http://www.smartshopper.com.cy>
- <http://www.tsaousis1million.com>
- <http://www.go2.com.cy>
- <http://www.netdrinks.com>
- <http://www.agora-cyprus.com.cy>

- www.xak.com

2.2.4 Virtual Marketplaces

The virtual marketplace concept is still at its infancy stage in Cyprus. There are only a few such sites that were recently created with very low volume of transactions.

GALICIA

2.2.5 Web-sites

The source of the data analysed in this section is from the Politics and Sociology Research Group, 2001 University of Santiago de Compostela.

The Galician companies have the technological basis in order to use Internet as another enterprise resource, but the usage degree of Internet isn't the expected one for the technological development. As usual, e-mail is the Internet tool most used for communication reasons and the use of websites, as a new business channel or simply to establish the company's presence in the Internet, is very low.

Only one in four SMEs surveyed (**25%**), has its own website. Most of these websites (**74,7%** of the **25%**) are only static web sites with product information and brochures, only **21,3%** of the **25%** fully sell their products or services on-line. Only 12,4% is preparing one and will be published in the next few months.

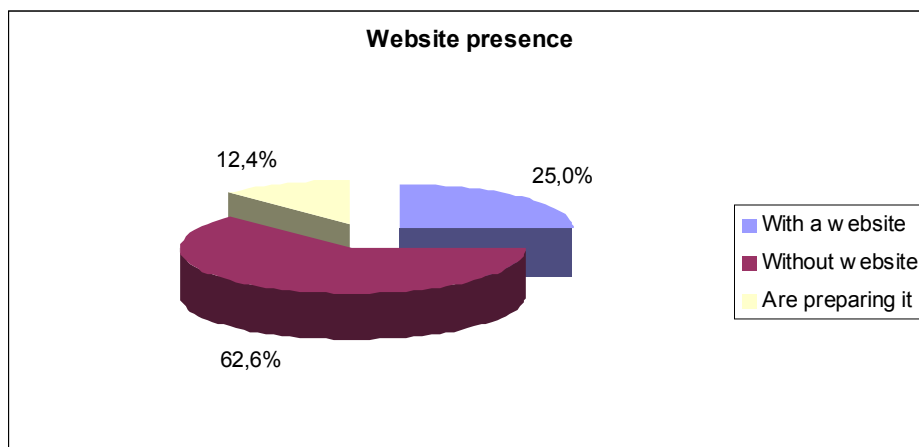


Figure 6 : Galicia Companies with websites

Source: SXID 2001 (Secretaría Xeral de Investigación e Desenvolvemento; Research & Development Department of Galicia Regional Government)

The Galician SMEs usually manage their WebPages with two different views, one is outsourcing the WebPages design and support to other company and the second is managing the WebPages from a computers or systems department of the enterprise. With regard to the hosting of the website, the preferred option is to use specialized hosting servers (service provided by ISPs) instead of managing it from an own server located at the company headquarters.

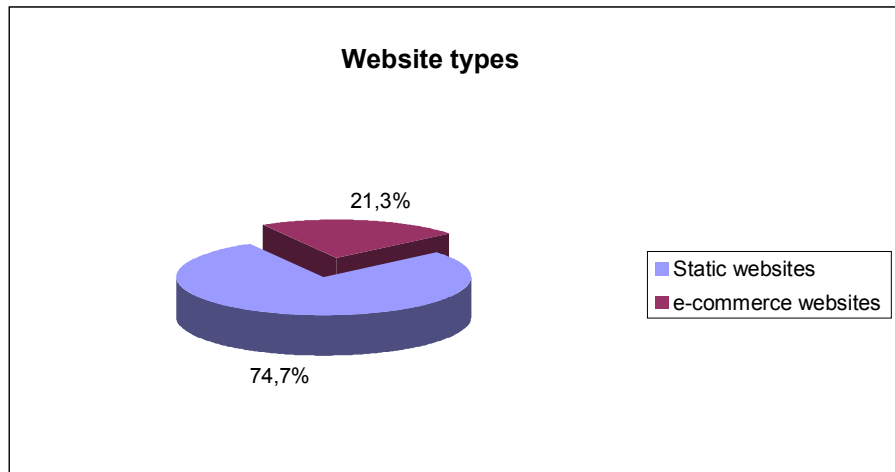


Figure 7: Galicia - Types of websites

Source: SXID 2001

The average profile of an SME interested in developing a corporate identity on the Internet, shows a small or medium enterprise (more than 11 employees) whose main activity falls under the following sectors: industry, transport, commerce (not alimentary) and services. Some reasons explaining why **62,4%** of the surveyed SMEs chose not to develop a web site were, the poor presence of their sector on the Internet (**44,4%**), insufficient information (**12,7%**), never thought about that (**11,6%**) and not having enough time to make it (**11,1%**).

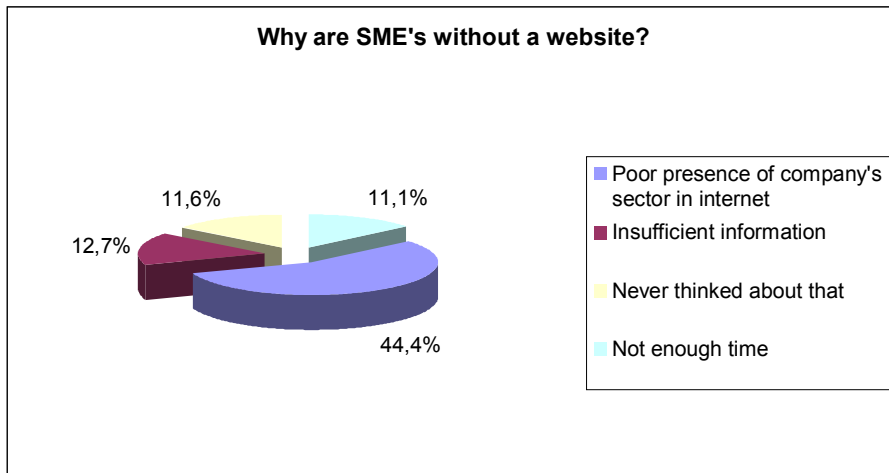


Figure 8: Galicia - SMEs without a website

Source: SXID 2001

Barely one in three companies has an Internet domain registered. The percentage of SMEs that have registered their domain is the **35,9%**. Most of them have a **.com** domain (**46,4%** out of **35,9%**) followed by **.es** with a **40%** of the **35,9%** and at last **14,6%** of the **35,9%** for other type of domain (.org, .net, inside a root domain ...). Generally, **76%** of SMEs that have chosen to develop their web site, register their own domain name too.

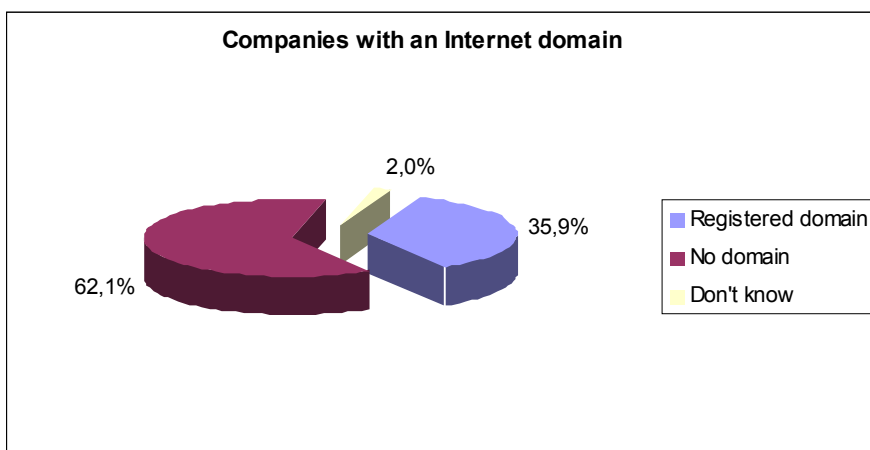


Figure 9: Galicia - Companies with a registered domain

Source: SXID 2001

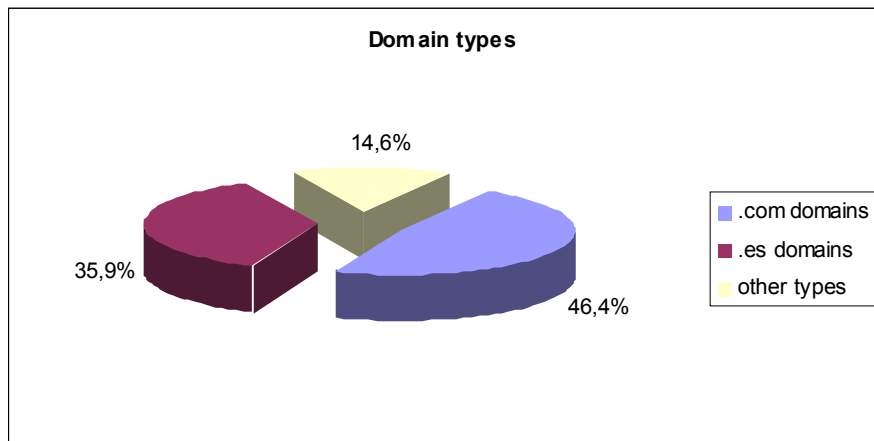


Figure 10: Galicia - Registered domain types in companies

Source: SXID 2001

Mostly, the SMEs' used strategies to promote their own websites are reduced to only two actions: regularly updating the website and do promotional campaigns on the Internet (register at search engines, directories, e-mail, banner interchange). However, there's a low level of promotional campaigns in the traditional mass media (TV, journal and radio). Although this mass media usage, is one of the basis in the strategic consolidation of leader enterprises in Spain, in our region they are still very low and ungenerous.

2.2.6 General Portals and Directories

The number of portals in Galicia is, therefore, low. They provide the typical services expected in a Portal such as: search engine, chats, announcements, events, news, TV guide, banners etc. The most remarkable are:

- <http://www.enxebre.com>, created in 1997 as the first Galician Internet portal. In the 2000 year, Enxebre joins, as a company, the Softnix enterprise group well-known in the national sector of management software (Ofipro application). Enxebre has its own consulting and support team which offers Internet services related to companies.
- <http://www.galiciacity.com>, an information server which born in Vigo (City in Galicia) as a familiar initiative in 1997. It is maintained and updated by a couple (husband and wife) with friend's of their and some internauts with uninterested help.

- <http://www.u-lo.com>, a portal 100% not subsidized property of DinaWeb Networks, a Galician ISP located in Santiago de Compostela. It provides all the expected services in a portal and some of them (i.e. SMS) are outsourced to other national portals like <http://www.navegalia.com>.
- <http://www.xanela.com> a search engine owned by the Observatorio Urbano do Eixo Atlántico, project Co-financed by the European community FEDER. It provides a good resource center with information related to Galicia and the north Portugal region.
- <http://www.galicianet.com> owned by Visual Publinet, another Internet company located in Galicia. It provides the typical services in a portal and has a lot of tourism and cultural resources about Galicia.
- <http://www.vieiros.com>, portal owned by a media sector company called Item aga. The company activity focuses on researching corporate identities and editorial design, institutional advertising and formation courses and assessment to companies or institutions which want to disseminate in Internet.

2.2.7 E-Commerce Sites

The source of the data analyzed in this section is from the Politics and Sociology Research Group, 2001 University of Santiago de Compostela and from AECE 2001 (Spanish association of e-commerce).

Because of the conservative character of the Galician enterprise's business logic, or maybe a lack of information, the Galician entrepreneur doesn't detect a potential market in Internet and his knowledge of Internet tools limits only to a promotional or communicative view. The most extended idea is that customers aren't prepared for Internet buying yet.

That's why the level of e-commerce (B2C side) in the Galician region is low, but is higher than the Spanish media: the **13,6%** of the Spanish SMEs, which have a domain and a website, also have an e-commerce site (sell on-line its product or services). This meaningful ratio shows that our region is one of the Spanish regions leaders in e-commerce usage. From all the Galician SMEs that have their own

domain and website, the **25,3%** of the 25% which have a website offer their products or services in the Internet.

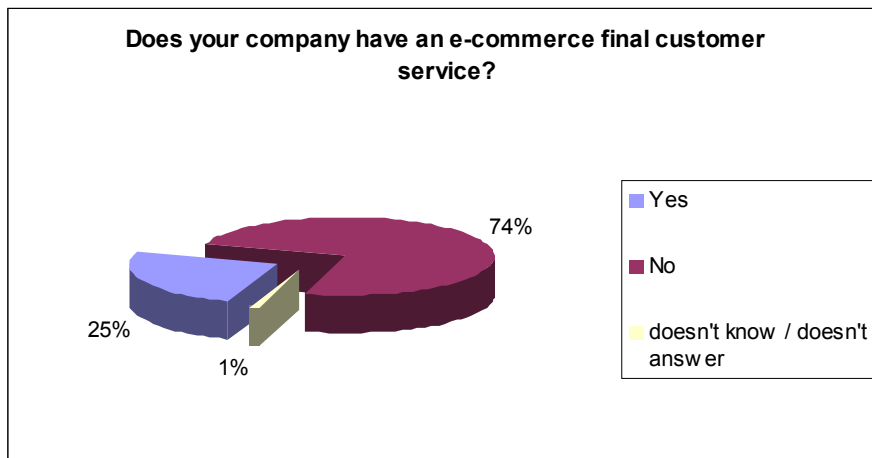


Figure 11: Galicia - Companies with B2C portals

Source: SXID 2001

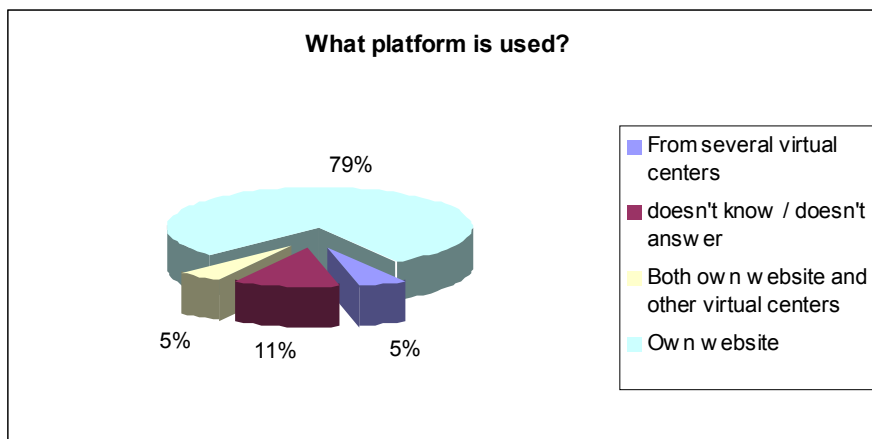


Figure 12: Galicia - Used platforms or services for B2C business

Source: SXID 2001

The **57,9%** of SMEs, that have an e-commerce solution (B2C oriented results), explain that the revenue for these on-line offerings is between **1%** and **2%** of their total revenue and the **21.1%** forecast a revenue between **2%** and **5%**. Moreover, most of the SMEs host their WebPages and e-commerce service in their own website (near **78,9%**) while the use of virtual marketplaces is very low (0,5%).

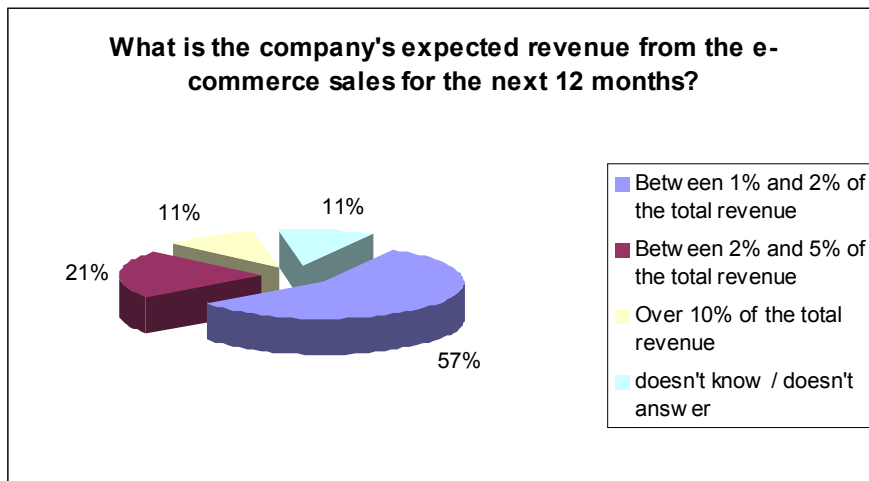


Figure 13: Galicia - Expected revenue from e-commerce sales

Source: SXID 2001

The profile of SME with an e-commerce site depicts an urban located enterprise with a number of employees not greater than 100 and its operations take place in sectors like services (**38,5%**), transports (**33,3%**) and tourism (**33%**). Another important percentage is that the SMEs with an estimated revenue in e-commerce activity between **1%** and **2%** of their total revenue answers to the profile of a semi-urban or urban enterprise with less than 11 employees in the tourist services sector. SMEs with **2%** and **5%** of revenue (e-commerce activity) are located in a coastline-rural environment and develop their activity in the industrial, commerce, transport and services sector.

The principal e-commerce initiatives detected in Galicia belongs to a company profile bound to the tourism, artefacts and computer sectors. These initiatives are sometimes related with media promotions achieved by institutions or local associations. The number of companies yielded to e-commerce is higher because of the physical proximity between the media or promotional institutions and the companies. Nevertheless these e-commerce initiatives are young (two years ago), with a low value in economic and personal resources and with no horizon of external investments. Accordingly, this projects are less competitive than medium or high national existing e-commerce initiatives.

In the B2B side, **80,1%** of SMEs don't expect, for the next 6 months, to get into a B2B project. Only **10,5%** are studying it, **2,3%** are interested but there's a lack of information about it and only **1%** have prepared a B2B implementation plan. The SMEs more interested in developing a B2B, those which are studying it or have an implementation plan (**11,5%** of total), would belong to a profile of urban or semi-urban enterprise with more than 11 employees related to sectors like industrial (not consumer), transport and services (excluding hotel resorts).

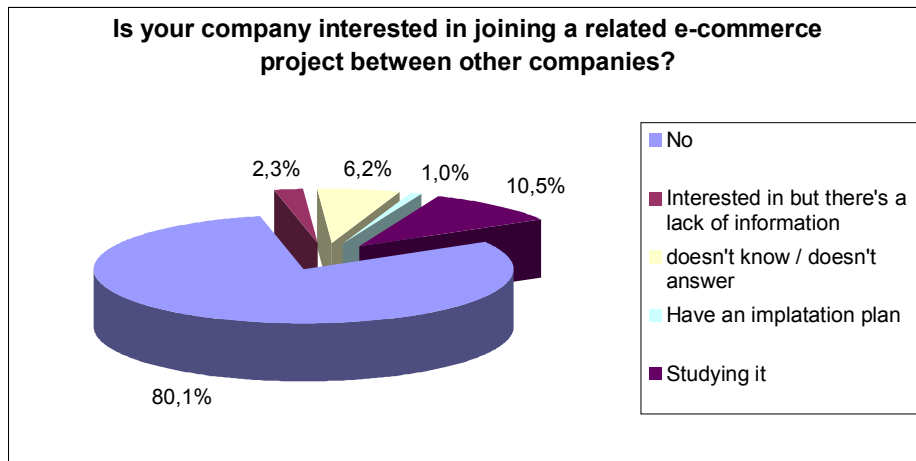


Figure 14: Galicia - Companies interested in joining a common e-commerce project

Source: SXID 2001

Moreover the SMEs less interested in e-Commerce seem to be close to inland rural environment, connected to construction, alimentation and catering sectors. Finally, the segment of SMEs, that are interested in a B2B plan but don't have enough information about it, would be located in inland rural environment, working for sectors like consumer industry, transport and commerce.

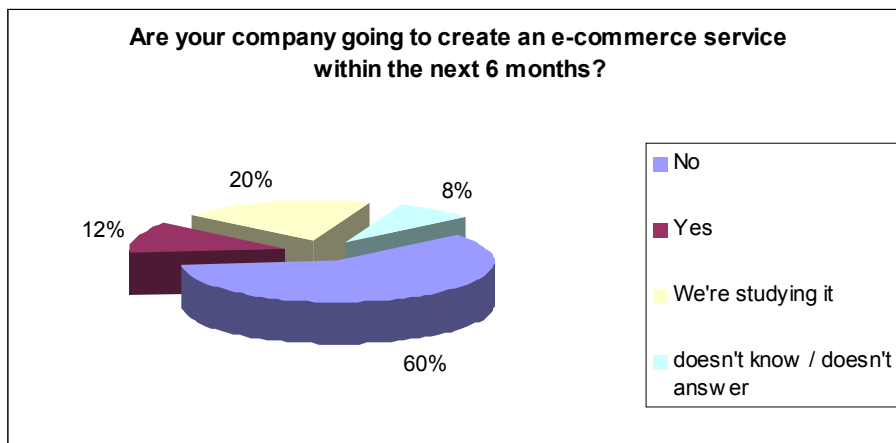


Figure 15: Galicia - Expected e-commerce services that are going to be incorporated into the company business plan

Source: SXID 2001

In spite of this general view of a lack in regional e-commerce resources, there's no doubt that existing initiatives in Galicia are pioneer experiences in the new technologies sector: as B2C or B2B e-commerce initiatives promoted by traditional companies as Internet specifically oriented projects and

that both provide an interactivity with the visitor and contributes to develop and expand an Internet spirit between the SMEs. It is possible that these Galician initiatives could obtain a low profitability because, they are treated as promotional elements or a complementary point of sales that are profitable in the global context of the company's activity (e-commerce revenue activity is about 2% of the total), but the real view should be that e-commerce activity is a future investment and this idea shows the progress and innovation facts in a company.

2.2.8 Virtual Marketplaces

In our region, there are some virtual marketplaces (virtual markets), vertical and horizontal portals and the most are vertical portals. These B2B vertical portals are located in strategic sectors of Galicia (automobile, stone, naval & fish industry, tourism & services etc.) due to the economic importance. The most remarkable virtual centres classified by market places, horizontal and vertical portals:

Virtual Malls (B2C shopping):

- <http://lagaleria.caixagalicia.es> (B2C general sectors). A Caixa Galicia project (financial entity in Galicia) of a virtual marketplace with various shops from different sectors interested in selling in Internet.
- <http://www.mercadoprogreso.com> (B2C regional products). A physical market at Vigo that decided to move to the Internet. Various shops with food related products.

Horizontal portals:

- <http://www.galimarket.com>, virtual market with the objective of approaching the Galician SME business process to Internet economy. Three web page design models are offered based on technologies like ASP,HTML, JavaScript, SSL.
- <http://www.mercagalicia.com> Same philosophy as above. The offered services are regional news, cinema, sectorial enterprise databases, secure electronic payments, hosting services.
- <http://www.webgalega.com> offers a virtual market, Internet services (web design, hosting, domain management etc.) software design (customised software solutions), and other services (network and database management etc.).

- <http://www.comarcasdegalicia.com>, horizontal virtual portal of companies in association with the *Federación de Comarcas Galegas* (Galician regions federation). They sell typical regional products (from artisans to grocers etc.).

Vertical portals:

- <http://www.breogan.com> e-procurement portal at the customers' or salesmen's service whose main objective is to improve supply processes of the enterprises (office furniture and related, computers etc.).
- <http://www.alwaystone.com>, born with the objectives of developing e-commerce (B2B) in the natural stone sector and promoting natural stone usage among architects and constructors. Some services offered are: e-procurement platform for the stone sector, technical services, Internet/extranet, job offers.
- <http://www.comprasauto.com> (B2B automobile components sector). Automobile sector vertical portal which offers the associated customers the possibility to join the activity of e-commerce among companies in order to reduce costs and better improve competitiveness. The supplier can optimise the business logic, accessing to a wide open range of customers without any expensive infrastructure needed.
- <http://www.maresite.com> (B2B naval industry sector) A Marketplace that provides business to business sea community related with the necessary tools to allow them to share information, resources etc. in the field of construction, repairs and large ships operations, with an great deal of flexibility.
- <http://www.worldfishsite.com> a B2B portal with the purpose of commercialise seafood products worldwide. The main objectives are to offer information and tools, which allow developing a new business concept inside the fishing sector. A virtual **fish market** allows a secure process of buying and selling seafood related products between enterprises. It also offers some value added services like logistics, transport assurance, technical consulting...

Another remarkable portal is <http://www.gacel.net> but it doesn't support transactions, it isn't updated since 1997 and only hosts static websites.

POMERANIA

2.2.9 Web-sites

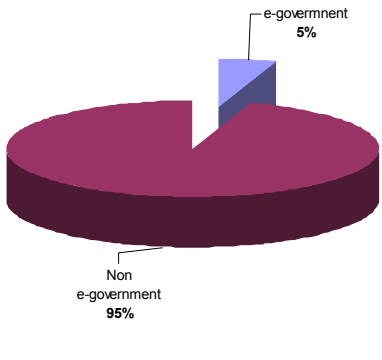
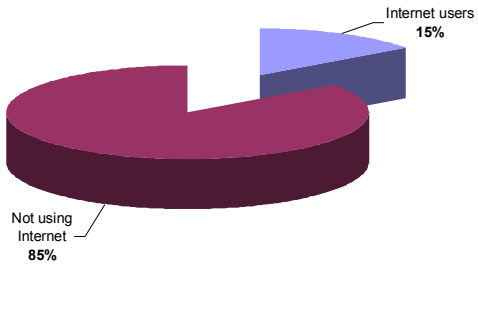
In the great variety of web sites in Polish Internet three main categories of their owners can be distinguished: **citizens, companies and organisations, administration**. Particularity of each category is clearly observed and it is worth describing, although in each one there are some exceptions:

Citizens' web sites have character of individual personal presentation including a photo and description of professional interests and hobbies. Most often the owner of the web site is its author. Many web sites in this category are often created during educational process in secondary and high schools, so the owners of these web sites are very young. These web sites can exist in Internet thanks to free of charge offers of big portals or to the permission of a school server administrator's. Web sites owners are very active in discussion groups and relations of C2C type.

Enterprise and organisation web sites most often have information and statistic character. In case of SMEs web sites are not updated in 8,6% companies, and in 35,6% are updated once a quarter. They are mainly used in relation of B2C type. In case of enterprises from the group „Corporation” a big quality divergence is observed and more relations of B2B type, in case of more interesting solutions the functionality for inner corporation needs of B2E/E2B type relations is seen. Company and organisation experience in relations of B2A type has been growing, mainly in the field of monthly tax declarations connected with social insurance (ZUS).

Administration web sites (of different kinds of councils, in particular of governmental and self-governmental). There are two kinds of government in Poland: government (national, regional) and self-government (regional, county, communal). Self-government in Poland has been in creation stage for the last 10 years. The regional and county levels are really very young as they came into existence in 1999. Many changes in competence between the kinds of government defined by different legal regulations have taken place. Offices (both clerks and buildings) are “under construction” as well as their web sites. Government on line has been developing faster since 1994, but at different levels the results are better or worse. The longest and most stable situation is at the level of communes. Their presence on the Internet is best in both quality and quantity aspects, sometimes real e-government solutions are found. Unfortunately in international comparison Poland is at one of lower e-government

usage levels and occupied the 22nd position out of 26 countries surveyed. The average e-government usage is 26% (Taylor Nelson Sofres).

	
<p>Figure 16: Poland e-government Users Source: Taylor Nelson Sofres</p>	<p>Figure 17: Internet users in Poland Source: Taylor Nelson Sofres</p>

5% of Poles have used the Internet to access e-government and the main use is Information Seeking (3%). Unfortunately the results show that e-government isn't for transactions or for down loaders (2%). The majority of users are 25-34 year old.

2.2.10 General Portals and Directories

Portals offering general Internet services in Polish Internet vary in their length of activity, scope and quality of service, popularity. The number of portals is changeable, however recently this number has not been lower than 10 of big, serious general Internet services (Kopernik). In February 2002 on Internet market 12 portals were active, two of which have a directory character (Panorama Firm – with the main service: company data base, Hoga – with the main service: real estate data base). A very popular portal Arena has disappeared from the market. In 2001 it occupied the 5th position in the popularity ranking. Onet, Wirtualna Polska (Virtual Poland) and gazeta belong to the longest active ones. Portals provide: political, economic and social information, TV, cinema and theatre programmes; cultural and sport events coverage, games, crosswords puzzles and other entertainment; sell/buy/employ/search advertisements; charged or free e-mail addresses (i.e. Onet 2.7 million, Virtual Poland – 2.1 million, Interna – 1.2 million addresses), etc..

2.2.11 E-Commerce Sites

The world in Internet is very diversified, and the definition of e-Commerce Sites can be very wide, i.e. „e-Commerce sites support transactions” and that is why the results of surveys in this field are very divergent. Objective, reliable and repeatable surveys are conducted by I-Metria S.A. company. For the needs of “e-Commerce B2C in Poland” the company researched Internet shops applying the opinion

poll method and assumed the following definition of an Internet shop: “a company located in Poland which enables a customer to learn a product and place an order via Internet, to pay for the product without “getting out of home” and delivers it to the customer’s home door”.

The number of Internet shops has been increasing, though slowly. In 2001 the number of shops in Poland increased monthly of about 16,6 shops on average, while 11,1 shops closed. According to the news service www.biznespolska.pl the present number of e-commerce sites in Poland is 109 and in Pomeranian Region 11.

According to the assortment of offered goods the main ones are books and publications (increase from 23,9% in 2000 to 29,3% in 2001), software (slight increase from 15,7% to 16,3%), computer hardware and accessories (decrease from 16,4% to 12,2%) and multimedia (decrease from 18,7% to 12,2%). The office accessories held the 5th position, while in 2000 it held the 9th.

Among the shops offering one assortment group (over 50% of all shops) bookshops are dominant, they are mainly virtual shops of publishers – 24,2%.

2.2.12 Virtual Marketplace

In the Polish language virtual centres different dictionaries are used, surveys on different aspects are conducted and reports and statistics on different goals are presented. According to the information service www.kopernik.pl, which is the virtual market for companies and presents commercial offers of Internet and telecommunication companies:

- Horizontal portals are commercial platforms (virtual marketplaces) which tabulate/present 46 branch Internet services focusing on providing services and selling products to companies (B2B),
- Vertical portals so called “wortale “ which tabulate/present 96 specialised Internet services of B2B and B2C types.

Kopernik service does not enable to qualify precisely portals geographically to the Pomeranian Region (which seems to be correct), however service [biznespolska](http://www.biznespolska.pl) gives such a possibility, though it is difficult to compare the results because of different assumptions. The general standpoints of both services are presented in the table below / tabulated below:

Specification	Kopernik	Biznespolska		
		Poland	Pomerania	%
Portals totally	142	129	15	11,6
Thematic portals inclusive	96	77	10	12,99

Table 1: Comparison of the information on portals

Source: companies in February 2002

In the result of the comparison it is possible to state with a small risk that the number of virtual centres in the Pomeranian Region is 15 – 16 and in this number there are 10 – 12 vertical portals.

2.3 E-Commerce Infrastructure

CYPRUS

2.3.1 Telecommunications Infrastructure

Currently, the telecommunications infrastructure industry in Cyprus is regulated in such a way that allows only one entity, the Cyprus Telecommunications Authority (CYTA), to build and provide the infrastructure necessary for telecommunication purposes for the whole country. The industry will soon be deregulated as part of the process of aligning Cyprus' law according to European directives and a full liberalisation by 01/01/2003 is anticipated.

2.3.2 Infrastructure Within the Island

The Cyprus Telecommunications Authority has been placing particular emphasis on Network Development. To this end, the transmission network was fully digitised prior to 1999. Since October 1999, the switched network was also fully digitised following the removal of the last crossbar analogue telephone exchange. The public switched telephone network (PSTN) is operating in full (100%) digitisation. The total digitisation allows CY.T.A. to introduce new intelligent services for all the PSTN customers. Currently services offered on the Intelligence Network platform are prepaid GSM and premium rate services.

CYTANET, is CYTA's set of Internet solutions and services, including communication backbone, Internet connectivity, and support. CYTANET provides Point of Presence (PoP) in all major cities of

the island. These points offer various connectivity options. They offer PSTN Connection up to 56000bps, ISDN Connection up to 64000bps, GSM Connections (9600bps), leased lines with a variety of speeds, and A-DSL connection. CYTA's island Internet network as currently offered by CYTANET is described in the following figure:

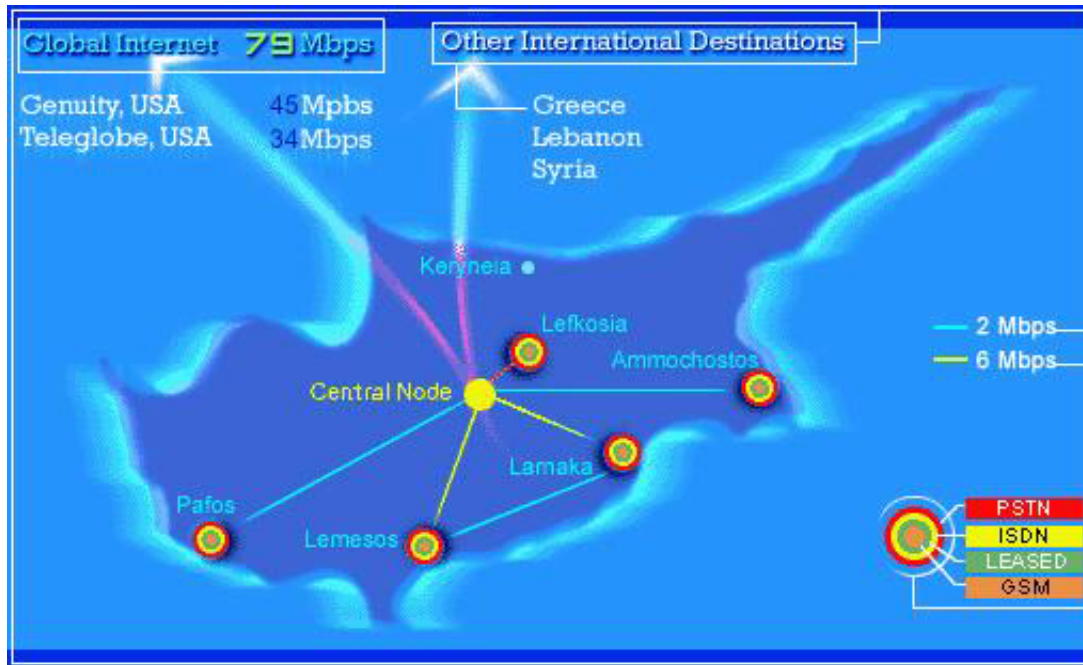


Figure 18: CYTA's Internet Infrastructure
 Source: www.cytanet.com.cy (date: 5/1/2002).

2.3.3 Global Connectivity

Operator Assistance, Toll-free calling and global ISDN, the latter supporting all bearer services, as well as a variety of teleservices and supplementary services, further supplement the Telephony Services.

Several submarine fibre optic cable systems are currently in service connecting Cyprus with:

- **The West:** The *Greece-Aphrodite 2* cable interconnects with *ARIANE 2*, of which CYTA is a major co-owner, and stretches from Crete in Greece to Marseilles, France. It constitutes one of the two major digital backbone facilities connecting Cyprus to Europe, the American continent and the rest of the world.
- **The East:** Cyprus is connected with Israel, Lebanon and Syria via repeaterless cable systems of SDH technology
- **The South and beyond:** There is also a connection to Egypt

- **The East and West:** A state-of-the-art cable system, *Israel and Italy-LEV* was put in operation in January 1999 and is used to interconnect Cyprus to Israel on the East and Italy on the West, with Cyprus maintaining a major role in the regional network.

As a major co-owner and administrator of cable systems, CYTA facilitates the transfer of capacity on submarine fibre optic systems on both IRU and lease basis. Owners of capacity in major international cable systems landing in Cyprus have access to considerable reserve capacity in submarine cables, which connect Cyprus to rapidly developing neighbouring countries.

This far-ranging fibre optic cable network is supplemented by an equally impressive satellite telecommunications network, which delivers enhanced and high quality international connectivity. CYTA is a co-owner of INTELSAT, EUTELSAT, INMARSAT and ICO, and, in addition, has access to Russian and other satellite systems. One earth station site owned and operated by CYTA has a total complement of more than 20 antennae. (Source CYTA)

2.3.4 Service Providers

ISPs

There are currently sixteen ISPs (some of them are not active) that serve Cyprus that offer a wide area of service. They provide PSTN dial-up connections of up to 56kbps, ISDN connections of 64kbps or 128kbps, A-DSL connection, and fixed line connection through leased lines and ATM frame relays.

The figure below illustrates the market share of the main ISP's in Cyprus:

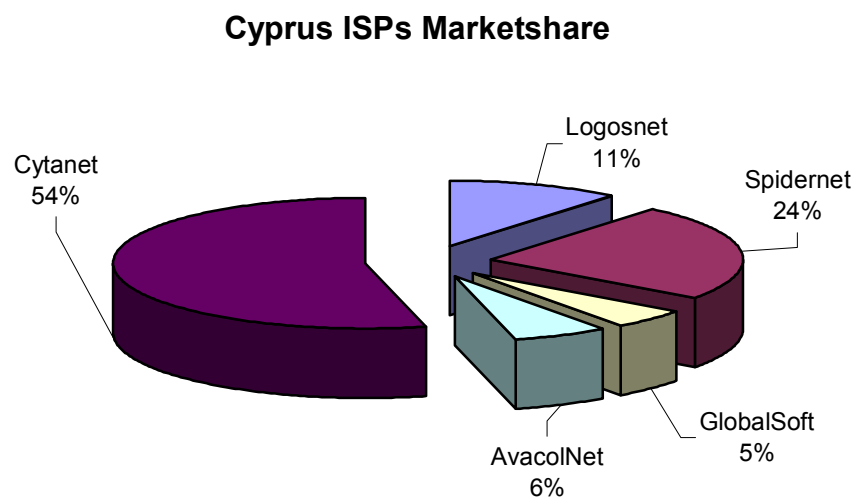


Figure 19: Cyprus ISPs Marketshare

Source: CYTA (February 2002)

The minimum charge for the user for accessing the Internet is lower than the local cost of a telephone call and it is 1,3 cent (0,02 Euro) per 4 minutes. The monthly Internet subscription varies from as low as CY£6,5 (11,28 Euro) for a simple PSTN connection up to CY£30 (52,05 Euro) for A-DSL connection (1,5Mbps). It is pointed out that, for the time being, a DSL connection is offered only in city boundaries.

ASPs

Currently in Cyprus the concept of the provision of application services is at its infancy as there are no ASPs yet, but the concept is being discussed and a few companies are in the process of setting up this type of service.

Payment Infrastructure

In Cyprus there is only one credit card clearing house, which cooperates with all the local banks. Currently, this clearing house does not offer Internet online services for the purposes of e-commerce. As a result businesses that have currently adopted e-Commerce operations cannot handle direct electronic payments or integrate the payment system in an application utility that will automate the payment process and therefore the actual payment clearance is still performed manually.

The payment infrastructure for electronic transactions that exists in Cyprus right now is inadequate since it does not allow for multi-currency and it is not as secure as it should be. The existing e-Commerce companies have been long demanding a higher security infrastructure, and the current lack of it has deterred new companies of entering e-Commerce. The e-payment infrastructure issue is being addressed by the Government.

Virtual Portals

In Cyprus, there are a few companies that offer portal or virtual mall services to SMEs. Usually those companies incorporate businesses that have no capabilities to implement their own e-Commerce site on their own and work on a commission basis obtained from the revenue earned by e-sales or work with a flat rate. However there are a few companies that have decided to implement their own e-Commerce platform. These companies either hire an expert consultant in order to evolve them to e-business or hire specialised personnel to achieve this objective.

There are very few virtual portals in Cyprus, with the two most important being:

- www.cypria.com
- www.typos.com.cy

In this area there is a definite lack of availability.

2.3.5 IT Vendors

There is a plethora of IT companies that offer a wide range of solutions and services in the island. The local IT companies are divided in three major areas:

- i. Computer Consultants. In this area we have approximately 20 companies
- ii. Computer Software. In this area we have in excess of 45 companies
- iii. Computer Agents & Importers. In this area we have more than 75 companies

As it can be seen the majority of these companies are importers, which includes wholesalers and retailers. As there is no local manufacturing these companies represent overseas agencies. There is an important number of custom made software developed by the various software companies on the island for both the private and the public sector. Major customers on the island for such projects are the Government of Cyprus, semi-Governmental organisations, the banking sector, travel industry and insurance sector. There is also a large number of custom built software catered to the operations of the retail and wholesale sectors, like stock control, accounting, office automation mini-ERP like systems and more.

Most of the large organisations like banks and semi-governmental organisations, have their own Information Technology departments. Large organisations use sophisticated software applications like CRMs, ERPs, HR packages and other complex software specific to their operations. Usually the services of IT consulting companies are sought in choosing such systems.

2.3.6 Logistics Infrastructure

In Cyprus there are two airports that provide direct flights to a number of destinations in Europe, and the Middle East and connected flights to the rest of the world. There are two ports that serve not only as a cargo distribution to and from the island but also as a transshipment point between Europe and

Asia and the Middle East. There are a number of inter-island and inter-city private couriers that are currently used in the distribution of products to the end customer.

2.3.7 Legal and Regulatory

Currently in Cyprus there is no specific legislation on electronic commerce. However Cyprus adopted Law 14 of 2000, which regulates long distance contracts and incorporates the provisions of Directive 97/7/EE. This law applies to the sale of goods and services via telephone fax and Internet. Additionally Cyprus adopted law 138 of 2001 on Data Protection, which incorporates the provisions of Directive 95/46/EEC. The Government of Cyprus has initiated a project for the Formulation of a National Strategy and a Legal Framework for e-Commerce.

GALICIA

2.3.8 Telecommunications Infrastructure

According to the data from the local government, there are 200.000 km of fibre optics installed in Galicia by the operators. As said before, Telefonica is the dominant operator (more than 170.000 Km) and the other companies (R, Retevision, Comunitel, Jazztel, etc) are installing their infrastructure mainly in the more populated zones (big cities and the west coast) as can be seen in the figures about the ADSL availability above and in the infrastructure of Retevision below. Where these new operators have not got infrastructure they use the fibre from other companies as Renfe (the railroad company) or Union Fenosa (a company dedicated to electrical energy production and distribution).

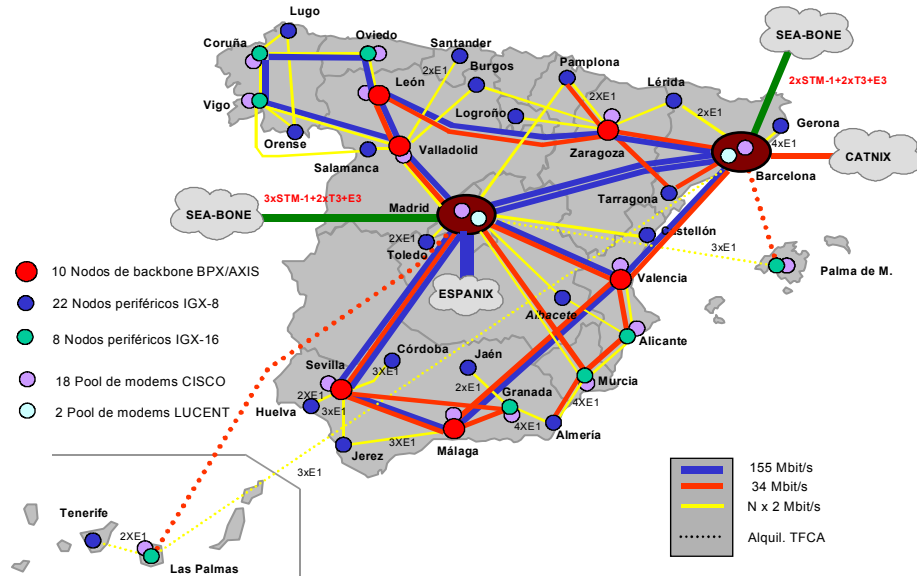


Figure 20: Galicia - Nation wide infrastructure of Retevisión

Source Retevisión

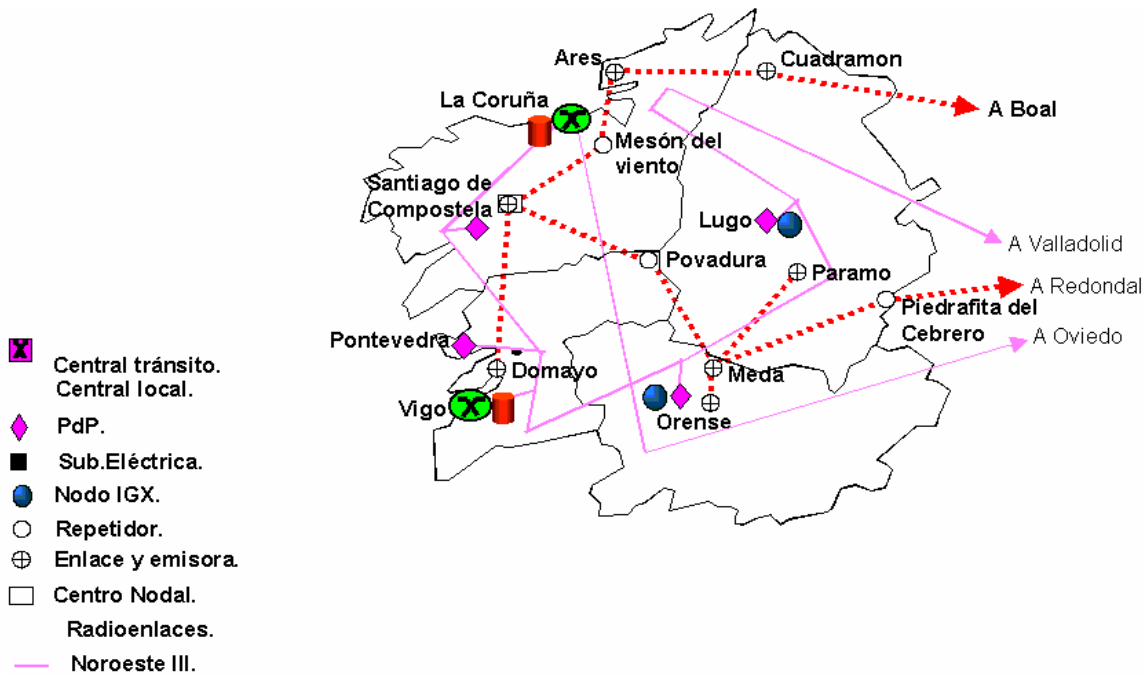


Figure 21: Infrastructure Retevisión in Galicia

Source Retevisión

Due to the constant grow of Internet data traffic, the Foro for the Information Society in Galicia is promoting the construction of a neutral point which will be installed at Cesga (Supercomputing Center of Galicia). In this point the traffic between the different operators and the government networks will be changed when they have not left Galicia. The neutral point (named Galnix) will joint initially the

research network, the local government network and 5 operators and will be operational during the first quarter of year 2002.

2.3.9 Service Providers

ISPs

In Galicia there are 32 ISPs registered in ESNIC, meaning that they have their own pool of IP addresses. This big quantity of ISP was favoured by Infovía, a nationwide service provided by Telefónica, the dominant operator. Using this general infrastructure, any company can provide access to Internet having only a leased line with the international carrier (usually Telefonica). So, they really worked as *virtual ISPs*, because they did not need their own telephony infrastructure. Now, there exists other national and international wide companies that offer Internet connectivity such as Wanadoo, Terra (a company of Telefonica), El Mundo (a newspaper), Ideo, and some others.

For the last two years, the cost for accessing Internet is decreasing significantly, due to the flat fees that several companies are offering under the Spanish government's pressure. Today, where available, it is possible to contract one ADSL permanent connection to Internet (2Mbps) at 70€ a month.. Cheaper fees can be contracted for special hours, mainly between 18:00 and 8:00 in the morning, targeted to the citizens (as cheap as 6€ monthly plus 80Cents per hour).

Also, there are many companies which offer free e-mail service through WEB or even free access to Internet (paying only the telephone call) but without guaranteed quality. These companies receive from the telephony operator a percentage of the price per minute of connection. Examples of this services are El Mundo or Canal21. They are focused in the low market sector which have no access to Internet from home. Also, in Galicia there is a strong presence of public access services such as cybercafes because the network equipment was paid by the government for a couple of years. The prices of these services are very low (close to 1€ per hour) and include other pay-per-use services as printing.

ASPs

Regarding to Galicia's ASPs, most of them are telecommunication operators which offers ASPs services to companies. Telefónica, Retevisión or Vodafone offers this services all over the Spanish territory. Other companies like R (telephone and cable operator in Galicia) or Comunitel (telco operator specialized in enterprise oriented services) are Galician enterprises. The set of services provided is very wide, from CRM/callcenters, ERPs, database/datawarehouse to, hosting/housing, e-

commerce, intranet/extranets and content management infrastructure. Next a detailed brief of services offered by operator:

R:

The telecommunication (Internet, telephone and TV via Cable interface) company in Galicia, offers to customer companies software, hardware and communications resources for its Internet projects: massive data storage and applications, connectivity (IP network of R), B2C tools and B2B for online management of business processes between enterprises, ASPs (ERP/CRM/Databases), Internet portals tools (plus housing and hosting web sites), payment gateway connected to many banking entities, logistics services

The B2C service is provided two different ways: virtual shop based in contents for virtual marketplaces with a high volume of data, and the advanced shop, create shops with semi developed modules. The B2B service is more technical and complex in order to satisfy the business logic and processes generated by the company. It includes catalogue integrators, ERPs, content publishing servers, transactional and database servers and CRMs.

Comunitel:

Another telecommunication operator which is included a telco Portuguese group called ONI, owned by EDP (an energy company, Electricidade de Portugal), BDP (Banking entity Banco Comercial Portugues), BRISA (Portugal highways) and GALP Energy. The expected set of services provided are e-commerce and communication services.

The e-commerce solutions includes e-procurement solutions with catalogue and ordering platform, e-fulfillment, order transport and tracking and e-factoring.

In addition, the communication services are: Internet services, oriented to high-end enterprise solutions like high speed links, ADSL, hosting/housing, telephony services, basic, tele-meeting, call-centers, and IP services with Internet access, dedicated links, virtual private networks.

Telefónica:

The dominant telco company in Spain was a monopoly until September 1999. The filial companies provides specialized services depending in which activity are involved. Telefónica Data provides IP and ASP services (It's the owner of the widest and most powerful network in Spain), Telefónica provides basic and advanced telephony services, Telefónica móviles is the mobile phone division and

Telefónica I+D is the research and development division. There are other filials like Terra which provides end-user Internet services like (ADSL, hosting, portals e-commerce etc).

The e-commerce provided services are, B2C (virtual shop), create and manage an virtual shop but it is hosted inside the terra.es domain (inside a virtual marketplace called Plaza Terra). The TPV and logistics services are provided by BBVA (a banking entity detailed in the next section) and UPS (United Parcel Service). In the B2B side, telefónica offers an EDI service between companies, a virtual marketplace (horizontal portal) e-procurement, ERP etc.

The other expected services are related with IP services, telephony, Internet/extranet/intranet, and data management like hosting, housing, call centers/CRM, content management, domain registering and more.

Vodafone (Airtel):

An international telco operator that recently made an acquisition operation of Airtel (spanish telco operator). It offers innovative solutions related to Internet and e-commerce. In the e-commerce hand, Vodafone offers a B2C services with virtual shop, catalogue building software etc. The B2B side (an horizontal portal called Parque Empresarial) offers some added features like ERPs, office software tools, e-procurement. The payment gateway and logistics (order tracking) are outsource to BSCH bank and Globeflow an on-line order picking service.

On the other hand are the new technologies services, related with mobile phone technology (UMTS, GPRS, GSM services) and at last connectivity (IP) and Internet services like VPNs, switched an permanent connections, web portals, hosting, housing, e-mail and web services etc.

Iddeo:

Is a division of Retevision, another telco operator with many divisions or filials like telefónica has. Iddeo is the IP network and Internet filial, offering services to a large range of companies. Amena is the mobile telecommunications division oriented to end-user mobile phone services.

The expected services, as usual, are e-commerce and IP networks/Internet/web services. There e-commerce service is oriented to the B2C with the offers of a virtual shop and catalogue creation in order to open to new sales channel like Internet is. Also Retevision has cooperative agreement with BSCH, a financial entity, which provides the necessary payment infrastructure. The B2B e-commerce service will be soon available.

The other are Internet and web services like hosting, housing, web and IP services (Internet connections, VPNs, switched networks and more).

Payment Infrastructure

There are some financial entities in Galicia and Spain which provide this service for enterprises that are interested in opening a virtual office in Internet. Due to the public character of Internet, financial entities must use standard security tools (PKI, SSL, SET) in order to solve the problem of authenticity, integrity and confidentiality. Moreover, the payment gateway (TPV) provided by the financial entity should provide some services like money transfers, mobile telephone payments, virtual cards (A physically non-existent card, with a PIN number and the digital print of a banking entity, which is rechargeable via web or automated teller machine), i-cards or intelligent cards (payment cards with chips that enhance identification security, based in PKI, but a i-card reader interface is required).

Financial entities also offer value added services, in association with other enterprises, like web pages design, hosting, on-line catalogues, virtual shops. This plus services are the same as offered by some ASP's and integral telecommunication services companies located at Galicia (R and Comunitel). Now we will explain in detail the services provided by the most important banking entities in Galicia and Spain.

BBVA (Banco Bilbao Vizcaya Argentaria):

BBVA e-Commerce S.A. it's an independent subdivision of BBVA, which offers some e-commerce and value added services. A package-service known as "e-selling" offers all the lifecycle services needed by an enterprise to start up its business in the Internet. Some services located in the e-selling pack are: design & support of web pages (in collaboration with other companies), with advanced services for big companies (customised or tailored software, CRM, ERP, CRP, hosting etc) and also optimised services for the SMEs (could not afford a customised development) which provide management and control of the complete transaction lifecycle (included payment and logistics services). This service is provided and supported along with Terra S.A. and the price is 60€ + taxes every month. BBVA also offers a Virtual TPV software tool, developed for online payment with credit/debit cards, which provides comlinks between enterprise's web site and bank's payment server (real time payment information, next day sale debit payments, immediate payment accept/deny and returning receipts control). An e-Transfer service, provides payment between the supplier web site and

the marketplace with a real time e-transfer (both customer and sales entity must have an account in the BBVA bank and sales entity must have a secure connection with BBVA server). It offers, online payment confirmation, immediate debit, denied transaction rollback. An e-procurement and e-purchasing payment platform that generates orders, deliveries and payments all from the same user interface. The customer needs the tool “Ariba Buyer”, e-purchasing service and for information about management and billing must have an e-banking service (with BBVA). The sales entity needs TPV virtual B2B service and an open account in BBVA. It decreases administrative and purchasing costs, payment reception etc.

Also, BBVA, offers two solutions in order to finance online commercial operations: An e-confirming (suppliers confirming), a service headed to suppliers (through BBVA) for querying and advance invoice operation by customers. It helps at reducing administrative costs, offers statistics for cash management, advanced invoice operations. The other is an online credit service for virtual shops. The virtual shop offers this credit and the customer chooses the payment quota, fills in the online financial application and receives immediate response authorising or denying it providing an improvement in cash times, and flexibility in payment quotes.

BSCH (Banco Santander Central Hispano):

The e-banking project, Open Bank BSCH, has payment and money collection tools, in addition to value added services, especially designed for sales in the Internet. Some of them are: electronic payment, virtual receipt, payments via call center, 4B ATM (Automated Teller Machine) payments, if no credit card is available or use isn't desired, Virtual receipt payment, automatic payment agreement, automatic management of commissions related to e-transactions. The services offered by the BSCH entity are: A Virtual TPV (payment gateway), which allows online payments with 4B systems. The payment is a real-time committed operation, against the TPV's secure web server. The shop can query the operations committed in real time and if wanted, cancel them, therefore initialising the refund of the payments.

Another one is an online catalogues or virtual shops creation application. User has a free service for posting his catalogue online (fare is 300€ + taxes). A portal service that helps enterprises in the process of acquisition of goods and services. It also includes some free value added services (email accounts, diary and email access via phone). Pymarket, guaranties goods availability and also it provides access to the most competitive suppliers. Also the security is guaranteed by SSL servers. The

available methods of payment are: cheque or cash, funds transfer, Visa/MasterCard/Visa Electron/4B cards, or direct debit.

Caixa Galicia

This financial entity provides services and help to enterprises that want to get involved into e-commerce activity, not only providing a TPV (payment gateway) but also offering B2C services like “La Galeria” (virtual marketplace with online catalogues for every shop) and B2B (financial and non financial services). Caixa Galicia is a banking entity born in our region.

Virtual TPV and B2C services with confidentiality and integrity (secure server with SSL), real time transaction and authorisation with the value added services like query and refund of all the transactions opened and finished. Credit or debit cards are allowed (VISA, Mastercard or Maestro) and also supports the e-banking service called “Caixa Activa” provided by the Caixa Galicia entity.

The B2B solutions offered by Caixa Galicia are financial and non financial services in order to help and secure transactions. The financial services are payment facilities; the banking entity manages and notifies all the payments lifecycle. A bank guarantee, which provides a bank guarantee payment. Commercial discount with a flexible credit assigned to the customer. The Factoring service, handles all the management of invoices from the enterprise to Caixa Galicia. Furthermore, there is another service for leasing of goods devoted to business related or professional services.

On the other hand are the non-financial services, like B2B business approach consulting for the enterprise, dissemination activities for the new e-business economy. Consulting services in developing applications for B2B and B2C, security, certification and digital signature services with third party enterprises.

La Caixa

An Spanish banking entity which offers a payment gateway platform which allows different payment modes: cards (credit/debit), VISA mobile, transfers, direct debit, or cash on delivery.

La Caixa provides a software (Cyberpac) which provides a secure payment medium to enterprises and shops with sales in Internet. The payment modes allowed are: credit/debit cards, VISA Mobile (mobile phones payment), transfers, direct debit and cash on delivery. The purchasing purchase process is

totally secure (secure server) and confidential (for the customer as for the shop). Another service is Mobile VISA, purchasing goods via mobile phones. All operations are charged to a La Caixa credit/debit card and also the confidentiality is guaranteed, but the only need is to have a linked mobile phone number with a credit or debit La Caixa card. An specially attractive service is a rechargeable card for Internet use, that physically doesn't exist (this enhances confidentiality and security) and is represented by a 16 digits number and an expiration date. It is MasterCard compatible (you can shop in whatever virtual shop that accepts MasterCard) and totally free with no maintenance cost. Another expected service is a secure payment method based in the SET protocol (Secure Electronic Transaction). It insures the privacy and integrity of payments and is needed a virtual wallet (eWallet) which includes the digital certificates of any of his cards. A Virtual TPV service with a payment gateway software that insures confidentiality, security, and its free of charge (software and service but an account in the banking entity is needed).

Bankinter

Bankinter offers some payment services for Internet purchases. Also, some other services are offered: domain and site hosting and a shopping basket software. The Virtual TPV (payment gateway) provided supports the common services expected from a payment gateway (all credit or debit payments managed by the entity are headed to the shop, as usual). The process shares common parts with other software gateway payments, where the customer selects the goods and pays. The TPV, which connects to the virtual shop site, checks if all the transaction data (goods prices) is right. If it is, TPV secure server authorises the purchase and notifies it to the customer and shop. VISA, EuroCard and MasterCard admitted and there is only needed an integration feature between TPV secure server and the shop's web site (passing parameters like product id and price), Needless to say that the shop must have an account at the financial entity , of course. Supported SSL and SET secure protocols for transactions.

Banco Popular group:

Financial group composed by Banco Popular Español, Banco de Andalucía, Banco de Castilla, Banco de crédito Balear, Banco de Galicia and Banco de Vasconia. As the expected service, as usual, is: Virtual TPV which allows a connection method between the secure server 4B and customers (shops) in order to commit payments with credit or debit card (4B type cards).

Caixanova:

A banking entity of recently born (a fusion between three important regional banks, Caixa de Pontevedra, Caixavigo y Caixa Ourense) that only offers (not directly) a Virtual TPV service via the Galician cable company. R (name of the cable company) offers the Caixanova TPV via its virtual shop (marketplace) service (e.tienda-R) or providing an API (DLLs or SOs for payment infrastructure access) for developing an independent virtual shop.

Banco Pastor:

The is no proper own service offered but also offers the payment infrastructure provided by 4B systems.

There are also other payment infrastructures not related to banking entities. SERMEPA and 4B systems are companies which provides services, that are outsourced by many banking entities in Spain. The first one is property of Visa Inc, and provides SET solutions any financial entities. The second (4B systems) was created by some Spanish banking entities and outsourced payment services for banking entities as SERMEPA does.

2.3.10 IT Vendors

There is an important number of Galician IT vendors, approximately 275. The main coastline regions of Galicia, A Coruña and Pontevedra (Lugo's coastline is smaller than the others) have the greatest number of IT SMEs, due to the important grade of development and populate density, compared with the other two regions (Ourense and Lugo) [*Galician SMEs IT vendors source, Guia Chip 2001 database*].

Analysing these results by region, A Coruña has 141 SMEs IT vendors and Pontevedra 106. The rest are divided between Lugo, with 16 and Ourense with 16 too. Here the great difference between the coastline and inland Galician regions is shown.

The services provided by these SMEs IT vendors, are mostly oriented to end-users like PC's, laptops and related hardware and software, but there's an important part of SMEs whose services are oriented to the IT needs of another SME, like servers, special hardware, applications consulting and development. There are also other value added services provided by some SMEs like courses and formation services oriented to end-users or employees of SMEs.

2.3.11 Logistics Infrastructure

Galicia has a privileged geographic situation in regard with maritime communications, allowing it to comply with the needs of the Spanish market, thus offering an point of entry into the European markets. Among the principal products that come into the Galician ports, are petroleum products, fresh and frozen fish, cars, granite and wood. The harbours of A Coruña and Vigo are the most important in the whole of Europe regarding the handling of fresh and frozen fish. These harbours are located on the principal maritime routes between Europe, America and Asia, which makes them stand out in a strategic position, also allowing a high degree of specialisation.

The harbour of Vigo is also linked by weekly services with the most important worldwide destinations. There are three airports in Galicia which cover domestic and international demand: Labacolla (Santiago), Alvedro(A Coruña) y Peinador(Vigo). In 1994, regarding commercial traffic, these three airports registered 20640 flights. Also there are two mayor highways in Galicia that connect the main cities in the Atlantic coast (toll highway named as A-9) and another highway from Vigo to Madrid (A-52 toll free highway).

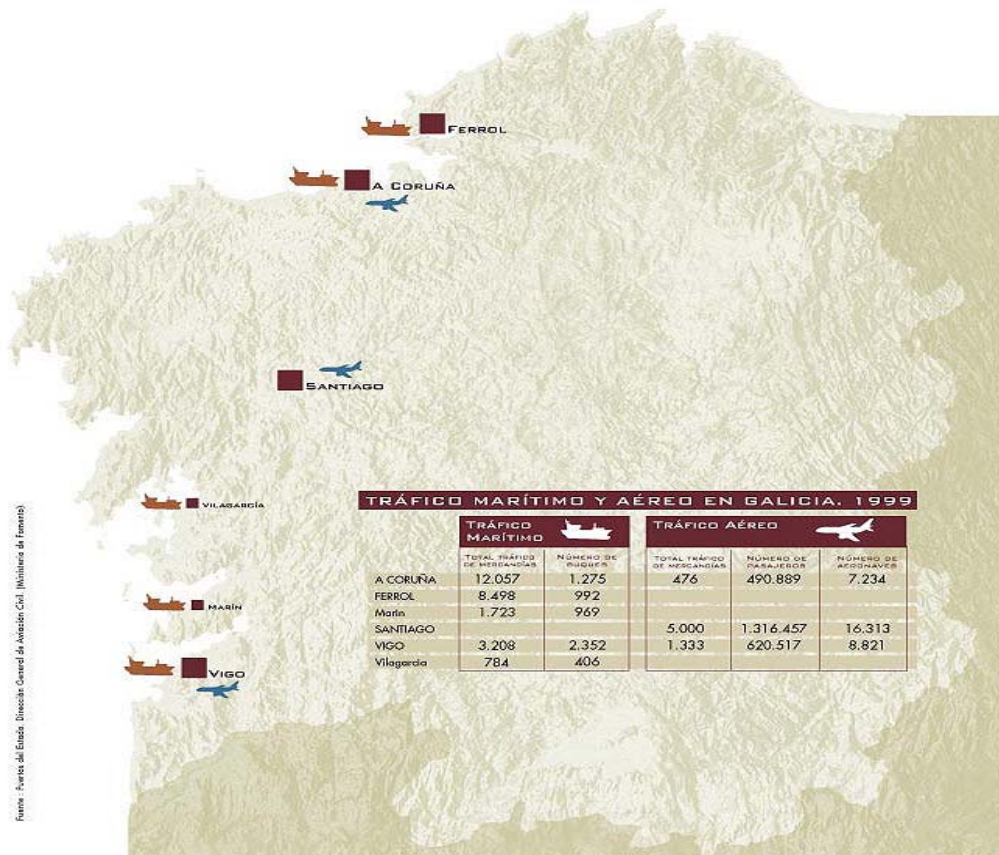


Figure 22: Port and airports in Galicia

Source IGAPE

Regarding couriers and transport companies in our region, there is an overall adaptation process of the logistic sector enterprises because of the IT (stay competitive is the key). E-commerce activity not only implies a set of transactions, but also comprises other areas: manipulation, storage, distribution, collect, revenue and order management. Logistics are fundamental in this subject. The most important couriers in our region are:

AZKAR: Azkar, courier & transports corp. that is positioning itself as a logistic operator for e-commerce related services. Azkarnet Logística S.A.U it's filial from Azkar group, that focus its activities in logistic support for e-commerce activities. A new entity has born, since the alliance between Azkar and iForce.co.uk (major logistic support for e-commerce activities company): iForce ibérica , as an overall service provider for e-commerce (B2C and B2B), develops its activity in three areas: consulting and systems services, customer relationship management and logistics.

Consulting and Systems: Design and implementation of web pages, design and content help, web site management suggestions for enterprises and integration with other tools (seamless integration between the web site and iForce system). Ordering execution, customer support and integration with information and communication systems.

In the Customer relationship management: Multilanguage help, on-line chat for immediate response to a user without leaving the customer web site. Customer profile analysis based on a record of ranks. Customer communication: sales campaigns; telemarketing; email applications and call selections; design, administration and database maintenance; stats.

The logistics service offers: stock control (Inventory tracking, out of stock alarms, references management, personalised product controls, stock synchronisation, periodic physical inventories.), payment certification (immediate payment validation with credit cards, money collection management with alternative payment mediums, refunds, multi-currency collect/payment, customer care support), order execution (special services for delivery, tracking screenshots of the order situation, gifts preparations, authentication and generation of invoices) and returning policy management (rejected goods, client credit management, damaged goods inspection, real-time stock and sales data refreshment).

SEUR: has created products and services personalised and specialised for e-commerce activity. Seur analyses with every customer the needs and adapts its organisation, products and services to the

customer's requirements. Also, Seur has some adapted services to e-commerce activity (night deliveries, utilisation of pickup points and also revenue points. Additionally, it offers urgent transport services as well as integrated logistical services: business plan consulting, online shop design, web hosting, traditional logistic operations, urgent shipping, payment collection, post-sales support.

Seur, offers services in the different steps that conform the lifecycle of an e-commerce transaction:

- Store processes: at this point, SEUR provides two processes in a coordinated way:
 - Supplying: low level stock warning and throws a supply order to the enterprise or supplier's enterprise.
 - Stock management: inside store control activities like, inventory, rotations, handling of perishable goods.

- Order handling: SEUR takes care of product adequacy for transport:
 - Manipulation: takes care of services like **plastic bundling**, special package, and exhibitors. Should these services be hired, SEUR leads the management and control of the selected suppliers.
 - Packaging: SEUR may manage and control acquisition and design of the best-suited packages for each good.

- Management of documentation attached to the parcel
 - Invoice emission, there's a possibility of issuing the invoice in the same format issued by the enterprise which sales and delivers the good.
 - Labeling, special situations (fragility, special care services, high quality) or with identification function (corporate identity elements)

- Distribution: order delivery, required by the customer via virtual shop and a possibility of collecting the delivery.

DHL Internacional España: an international urgent transport enterprise with more than 30 offices in the Spanish country. It offers tracking order and e-commerce easiness solutions.

Products and services, created in order to prepare and track the delivered orders:

- Easyship: free software which permits tracking of the delivered order, label processing, delivery notes and invoices, register customer data, reports etc.
- Winship: order delivery management free software, which provides an on-line tracking and status service of the delivered order.
- Connect: Software that enables access to DHL database in order to post electronic pickups, invoice preparation, proforma invoices, database of final customers
- Hotline customer support, tracking information about delivered orders.
- SMS Tracking: SMS service for the mobile phone with tracking information about delivered orders.
- E-Track: e-mail tracking service.

UPS: an international corporation for logistics delivering, which has software oriented to the automation its deliveries and tracking services. It also owns some applications that improve the customer services and the functionality of the enterprises e-commerce platform.

Products/services:

- UPS Online WorldShip (delivery software): Solutions that improves the automation of the order deliveries and tracking operations, allowing immediate access to information.
- UPS Online Tools (e-commerce application). Set of applications that improve (related with the e-commerce activity) customer web site or e-commerce application, optimising the logistic management of order deliveries. It allows the customer to choose the type of delivery and track it.
- There are some additional services like UPS Tracking, UPS signature tracking (digitally signed delivery note), UPS Rates & Service Selection (online customer can select and compare the delivery service that better suits its needs).

LOGISTA: with its services, provides an added value to distinct areas of the logistics lifecycle: storing, stock management, order preparation, labeling, packaging, load, collecting, assurance, post-sales services. Regarding to e-commerce, Logista services are e-fulfillment comprising: supplier management, order reception, storage, order preparation, residence deliveries, collect/invoice management, and customer support service.

Products/services: services related with e-commerce like:

- Order management: It allows real time management of orders, stocks management. These services allow payment management, work with virtual stock, delivery date and order delivery tracking.
- Stock Management: real time stock managing, allows inquiry planning of each product. It also allows, automatic order preparation with radio-frequency, order preparation with some items , personalized packaging, plastic bundling.
- Service modes according to the needs of the e-commerce application. Models based in virtual stock, in which buyers order through the web and the virtual shop generates an application per day and per supplier. Logista receives the products, shapes the orders and delivers them. Another model is where Logista executes different tasks during the lifecycle of the whole process: administrative management of the purchases, supplying management, suppliers payment, order conforms, deliveries.

A final abstract:

Company	Range/scope *	Granularity
AZKAR	Europe: Spain, Portugal, France, Italy, Germany, UK, Belgium, Holland, Luxemburg, Switzerland, Austria, Hungary, Czech republic, Sweeden, Denmark, Norway Finland. Street pickup.	Everywhere
SEUR	All countries	Everywhere
DHL	Restrictions for some countries.	Everywhere in Spain, somewhere out of Spain the picking up should in in the nearest DHL office.
UPS	Restrictions for some countries.	Not everywhere.
LOGISTA	Everywhere, through UPS/DHL/TNT	Everywhere

*except special conditions (war, frontier closing, custom restrictions for some products etc.)

Table 2: Couriers and Transport Companies in Galicia

2.3.12 Legal and Regulatory

The 8th February of 2002, the Spanish Council of Ministers, approved the draft bill of Information Society and Electronic Commerce Services Act. This act is the first approved in Spain regarding to Internet, with the objective of incorporate, to the Spanish legislation, the 2000/31/CE Directive of the European Parliament and Council dated 8th June of 2000 related to e-commerce activity. Therefore partially incorporates the 98127/CE European Directive dated 19th May 1998, related to conclusion of contracts for consumer protection. The act/law incorporates the information society services concept in a global sense which includes the electronic contract of goods and services, information delivery (as the electronic magazines or journal does), intermediate activities related to provide Internet access, personal data transfers in public networks, backup of WebPages solicited by users, personal web pages hosted in servers or whatever service provided by user demand as far as this service represent an economic income to the service provider. This is the continuing law reinforcement process in Spain, due to the existing legal gaps in information technologies. [Source, *Ministerio de Ciencia y Tecnología, Anteproyecto de Ley de Servicios de la Sociedad de la Información y de Comercio Electrónico (Draft Bill of Information Society and Electronic Commerce Services Act, Science and Technology Ministry)*]

This new act is a complement to the existing regulations. Actually the legal gaps are mostly filled in with the new Information Society and Electronic Commerce Services Act, the existing European Directives and some other Spanish acts and rules not yet completed and/or adapted to the ICT derived problems. These Spanish regulations are next described:

Domain Registration:

A vendor who sets-up an e-commerce business in Spain using the Localised Approach must have a valid and enforceable domain name. In Spain, registration of a domain name is identified by the use of the top level “.es”. Spanish top-level domain names are registered by the ESNIC (Spanish Network Information Centre) and this registry is currently managed by the Corporate Public Entity Red.es (Entidad Pública Empresarial red.es). The registration of domain names in Spain is regulated by the Ministerial Order dated 21 March 2002. The Order was published in the State Official Bulletin (B.O.E) dated 30 March 2000 and came into force the following day. The order allows interested parties to register domain names either directly with the registration authority or through a private agent. Private agents provide advice, submit and process applications, and act before the registration authority under a regime of free competition. The main exceptions to this principle are cases of “domain name grabbing” and “cybersquatting”. This is where domain names that are identical to the

name of an existing company and/or trade mark are registered, thus blocking that company or trade mark owner from registering its proper domain (i.e. <http://www.ozu.com>).

Data Protection, Registration and Use of Personal Data Act (LOPD Ley Orgánica de Protección de Datos, Organic Act of Data Protection):

- The protection of personal data is regulated by Act 15/1999, dated 13 December, on the Protection of Personal Data which implements the EU Data Protection Directive 95/46/EC
- The collection and processing of personal data must be notified to and registered with the Agencia de Protección de Datos (Spanish Data Protection Agency) the authority which controls the protection of personal data in Spain.

Consumer Protection:

There isn't an specific regulation destined to the consumer protection in an electronic and digital environment, that's why in this case is applied the traditional regulation relative to contracts. The consumer protection in e-commerce was made by applying the following acts:

The 26/1884 Act consumer and users defence, the 26/1991 Act consumer protection in non-mercantile establishments done contracts, the 7/1996 Act related to minor commerce and distance selling, the 7/1998 Act on standard terms and conditions related to any standard terms of contract that a vendor uses in relation to customers (as opposed to businesses). Moreover it should be considered the European Regulation: 2000/31/CE Directive E-commerce related, 93/13/CEE Council Directive about abusive clauses in consumer contracts.

Digital Signature:

Actually, the draft bill of the Digital Signature Act it's being discussed, with the objective of implement the actual 1999/93/CE European Directive initially established in an general European frame. Early the 14/1999 Digital Signature Spanish Royal Act- Decree came into force the 17th September 1999 and was proposed for becoming a draft bill but this initiative expired due to the elective process in the High Camera of Spain (government)

e-Crime:

In the Spanish regulation, there isn't the concept of e-crime, because in the 10/1995 Act dated 23 November 1995 isn't reflected a statutory offence to the e-crime, and also there isn't any other legal

frame in which would be included. That's why the e-crime suits in the context of some special and improper actions punished by the law and directly or not related with a computer service or good, and these e-crimes are referred in other acts destined to the protection of any juridical good.

These acts are all referred in sections of the Spanish Penal Code: section 197.2 Unauthorized Use of Personal Data, section 248 related to electronic swindles, sections from 197 to 201 related with acts of trespass, sections 256 Hacking, section 278 related to net or computer espionage, sections 264.2 and 265 related to electronic sabotage and extortion, sections 248 and 255 related to e-fraud, sections 270 and 272 related offences against intellectual property, section 273.3 related to offences against industrial property , sections 186, 187 and 189 related to child pornography, section 510 Apology on hate and discrimination and at last section 205 calumny and affronts.

POMERANIA

In the Pomeranian Region 3 companies being operators of the mobile telephony (the same situation in whole Poland) and 6 companies operating fixed-line telephony (which is 3,6% out of the country number) are active and still face many barriers in overcoming monopolistic past of TP S.A.

Connections to Internet market share is presented in the table and figure below, where it can be seen that 51% of connections is serviced by TP NET.

	Percentage of respondents
Internet Partners	4%
TDC Internet Polska	3%
Nask	3%
TPNET	51%
Others	39%

Table 3: Providers market share in connection service for companies and services

Source: yp.net.pl in February 2002

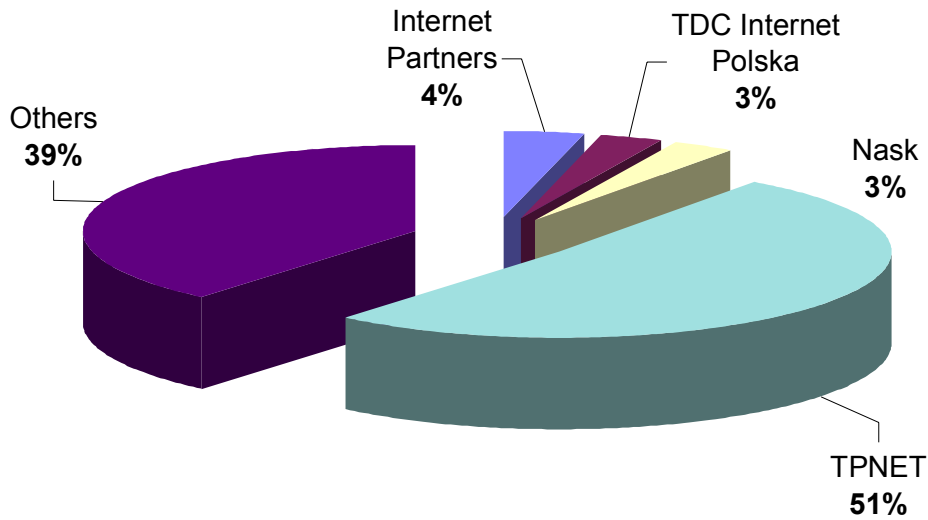


Figure 23: Providers market share in connection service for companies and services

Source: yp.net.pl in February 2002

The real state of the market is worsened by the lack of competition in the areas distant from towns, where the real provider still continues to be TPNET and mainly via PTSN and ISDN.

2.3.13 Service Providers

ISPs & ASPs

The ISP & ASP services are offered by 57 companies in the Pomeranian Region (yp.net), which constitutes 8,6% of companies from Poland (659 companies). The presence of different services in networks of different service providers are presented in the table and figure below. The presence of different services in networks of different Internet service & application providers are presented in the table and figure below.

	Percentage of respondents
Internet Partners	3%
TDC Internet Polska	4%
Getin SP	4%
TPNET	57%
HomeNet	10%
Others	22%

Table 4: Presence of different services in networks of different service providers

Source: yp.net.pl in February 2002

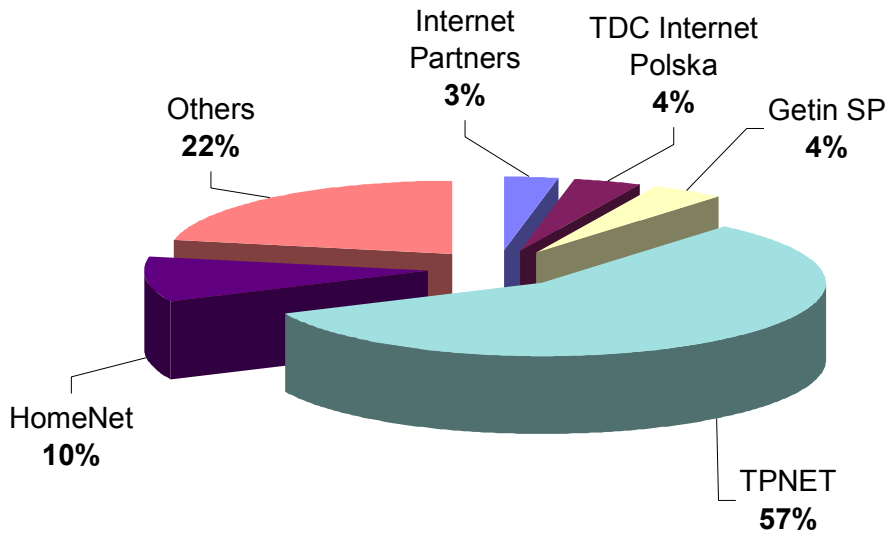


Figure 24: Presence of different services in networks of different service providers

Source: yp.net.pl in February 2002

Payment Infrastructure

In the Pomerania Region 7 banks are active (in this number there are head offices of two banks, localised in Gdansk and Gdynia, others have their branch offices) in realising Internet banking (B2C): Bank PEKAO S.A., Powszechna Kasa Oszczędności Bank Polski S.A., Lukas Bank, Bank Śląski, WBK, Bank BPH, Nordea.

There are many analyses on Internet banking, but the repeatable one is conducted by information service www.i-metria.com, which surveys 24 different kinds of bank services, among others the following: state of and history of operations on the account, starting and ending term deposits, remittances to other accounts, remittances to defined accounts, remittances with future date of execution, remittances to ZUS, list of remittance payees, remittance cancellations and constant value remittances. Banks providing 13 – 21 (out of the given number 24) of the above mentioned kinds of services are considered to be at the desired level. All above mentioned banks from the Pomeranian Region fulfill this condition. The effectiveness of service providers activities is presented in the below survey.

	Percentage of respondents
C.O.D. (to Polish Post)	85,4%
On delivery to the deliverer (courier)	67,5%
Remittance via electronic bank	26,8%
By Credit card	24,4%
Using WellPlay	4,9%
Using OnetPortal (CitiConnect)	3,3%
Another form of payment	28,5%
Lack of data	2,4%

Table 5: Ways of payment used by Internet shops

Source: I-Metria

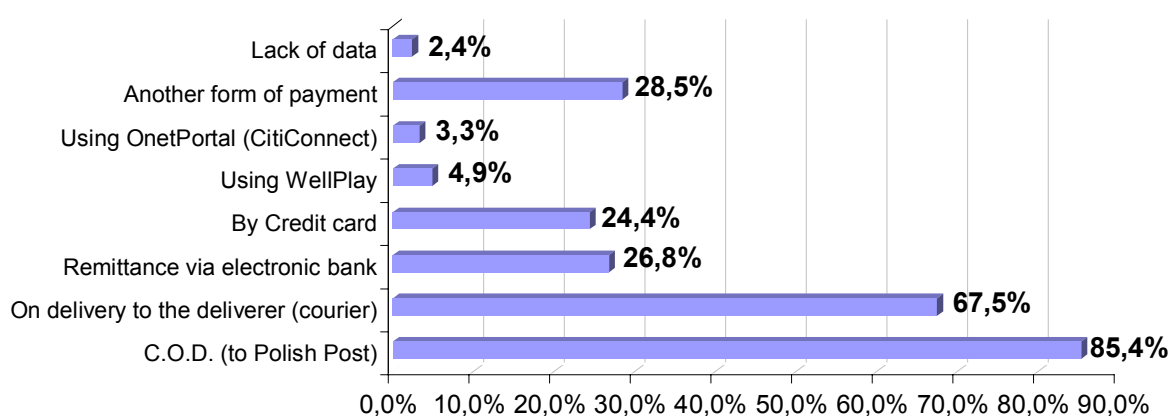


Figure 25: Ways of payment used by Internet shops

Source: I-Metria

The number of Internet shops offering their customers the possibility to pay by credit card has increased (from 19,7% to 24,4%). Nearly a half of shops intend to introduce one new form of payment. According to the shop owners Internet buyers still prefer to pay by C.O.D. / on delivery to the deliverer (courier) – 89,4%. Internet shops still most often deliver ordered products to customers by Polish Post.

	Percentage of respondents
Polish Post	75,6%
Independent courier companies	61,0%
Own deliverers	16,3%
Lack of answer	8,9%

Table 6: Products distribution

Source: I-Metria

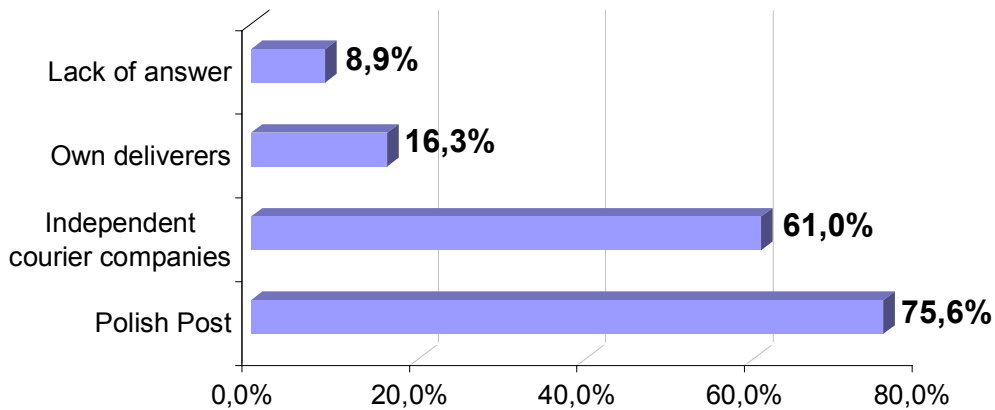


Figure 26: Products distribution

Source: I-Metria

Virtual Portals

2.3.14 IT Vendors

Information service biznespolska presents in its analysis of IT Vendors companies group totally production and sales (403 companies in Poland, 28 in the Pomeranian Region). The detailed situation is presented in the below table.

Company	Poland	Pomerania	
Software producers	250	16	6,4%
Computer hardware producers	117	7	6,0%
Software and hardware	36	5	13,9%
	403	28	6,9%

Table 7: IT – Vendors production and sales

Source: companies in February 2002

However, not all IT Vendors companies promote its activity in Internet, because according to other sources 35 companies of this sector are active in the Pomeranian Region.

2.3.15 Logistics Infrastructure

Transport connections

The localisation of the Pomeranian Region, its features and environment predisposition, developed economy including the maritime as well as the varied settlement net, make the Pomeranian transport system consist of all kinds of transport existing in Poland: land, water and air. The international ways cross the Pomeranian Region providing the future development of the Transeuropean Transport Net of European Union. They are:

- IA Way (Ryga-Kaliningrad-Elblag-Gdansk) as a branch-way of I Way (Helsinki-Tallin-Ryga-Kowno-Warsaw),
- Way VI (Gdansk-Katowice-Zylina).

The main transport junction of the region is the Tricity, which is the potential multimode transport center. Seaports in Gdansk and Gdynia together with their hinterland and ferry services are very important and specific elements of the state transport infrastructure. The Gdansk port is accessible to the biggest vessels entering the Baltic Sea and offers regular ferry services to Nynashamn in Sweden. The main attribute of the port in Gdynia is its modern container terminal. This port offers regular ferry services to Karlskrona in Sweden.

The International Airport “Gdansk-Tricity” in Rebiechowo provides delivery connections to air transport centers in Warsaw, Copenhagen, Hamburg, Frankfurt, Brussels and London. Railway lines and coach transport are also developed, though many local and regional lines have been closed due to low remunerativeness.

Land transport infrastructure

Land transport net in the Pomeranian Region consists of roads of a total length of 18 884 km. The density of road net in the whole region is close to the average value for the whole country. Delays in realisation of fast motorways, especially in the Pomeranian part of the Highway A-1 are the reason of unsatisfactory accessibility to the region, make a delaying factor to the development processes and lower the competitiveness of the Pomeranian Region with other regions of the rest of the country.

Railway infrastructure

On the territory of the Pomeranian Region the railway lines are 1638 km long. The following belong to the railway lines under international agreements AGC (on main international railways) and AGTC (on main combined transport lines) in the Pomeranian Region:

- E-65 Zebrzydowice – Katowice - Warszawa – Prabuty – Malbork – Tczew – Gdansk - Gdynia,
- CE-65 Katowice – Bydgoszcz – Smetowo – Tczew,
- Malbork – Elblag – Braniewo – Kaliningrad in the transport IA Way.

Air and water transport infrastructure

The air transport infrastructure in the Pomeranian Region consists of:

- 10 airports of different ownership status and different ways of usage,
- permanent and temporary landing sites, whose number is estimated to 25-35 of such places in the region,
- entities of air transport security and control.

Three airports are located within Tricity agglomeration, which makes this agglomeration the best equipped with air transport infrastructure in Poland. Increase in importance of the Airport “Gdansk-Tricity” in passenger and freight transport has been observed. In 2000 the passenger traffic in this airport totally amounted to 270 thousand passengers. In the total number of passengers the share of those flying to foreign airports was 55%. The terminal posses big capacity reserves in airplanes and passengers services. In 2000 the Airport “Gdansk-Tricity” serviced over 1500 tons of freight, mainly in international directions.

12 seaports (Gdansk, Gdynia, Hel, Władysławowo, Puck, Jastarnia, Katy Rybackie, Krynica Morska, Piaski, Ustka, Leba and Rowy) are located in the Pomeranian Region. In the ports of Gdansk and Gdynia specialised reloading terminals have been developed. Great investments improving the connections between the ports and the country and international road system have also been undertaken. In 2000 over 5,5 thousand ships of total capacity over 20mln NRT entered the seaports in the Pomeranian Region (about 9% increase in relation to 1999). The total seaway serviced freight amounted to 1,9mln tons and passengers to 130,6 thousand.

Within the passenger services the Sea Service Enterprise Zegluga Gdanska Ltd. (Przedsiębiorstwo Usług Morskich Zegluga Gdanska Sp. z.o.o), Polferries and Stena Line are the dominant ones. Polferries operates the ferry connection Gdansk-Nyneashamn-Gdansk and Stena Line also the ferry connection Gdynia-Karlskrona-Gdynia. In 1999 the number of passengers serviced on Gdynia and Karskrona destinations amounted to over 120 thousand and on Gdansk-Nyneashamn to 58,3 thousand.

The total length of inland waterways in the Pomeranian Region amounts to over 247 km. Within the inland waterways net of the Pomeranian Region there are two inland river ports (Malbork, Leba) and one shipyard in Tczew.

Practically only the waterways in Gdansk are used for regular transport of goods. Other inland waterways in the Pomeranian Region are used for transport of goods and passengers irregularly.

2.3.16 Legal and Regulatory

The formation process of information civilisation takes place in the global scale and becomes a common and inevitable occurrence. A common access to information is the condition of economic development. Assuring an access to information is also one of the constitutional duties of the state. This aim can be reached by applying a suitable strategy stating goals and directions of the information society development as well as by introducing suitable law regulations.

Therefore in order to ensure the proper development of the information society in Poland and to realise the laid on the state duties in this field, the following documents of strategic character were accepted in years 1997-2002: Resolution of the Parliament and Standpoint of the Council of Ministers on the matter of building foundations of the Information Society in Poland. Moreover the governmental and state institutions accepted strategies stating aims and directions of the information society development, including among others: e-Poland Strategy of Information Society Development in Poland in years 2001-2006, Objectives and Directions of Information Society Development in Poland and e-Economy in the sector of SMEs.

Additionally law regulations, which adapt Polish legal norms to European Union requirements and help to build the information society, have been accepted. The following bills are valid: Protection of Personal Data, Telecommunication Law, regulations on domain registration and others. Regulations referring to e-Crime (crimes against information safety) were added to the Criminal Code (Bill on Criminal Code).

2.4 E-Commerce Usage

CYPRUS

2.4.1 Citizens

Since the introduction of Internet in Cyprus in September 1995 we have seen tremendous growth in the market in Cyprus. Today we have more than five active Internet service providers and Internet penetration has almost doubled every year having today an Internet penetration of 41%. It is worth noting that the survey cover ages between 16 and 65 years old people mainly in urban areas. From all Cypriots Internet users, 46% has visited e-commerce sites. From those 12% have purchased something from the Internet. Higher incidents of visiting e-Commerce sites are observed among the male population (26% vs. 15%) and within younger respondents (16 – 30 years of age-35%). The higher the income group the higher the percentage of people that purchase online. People between 21 and 30 years old have the higher incidents of on-line purchases. Only 13% of the general population is not aware of the Internet. This percentage is comprised mainly of people of over 50 years of age and of low-income levels.

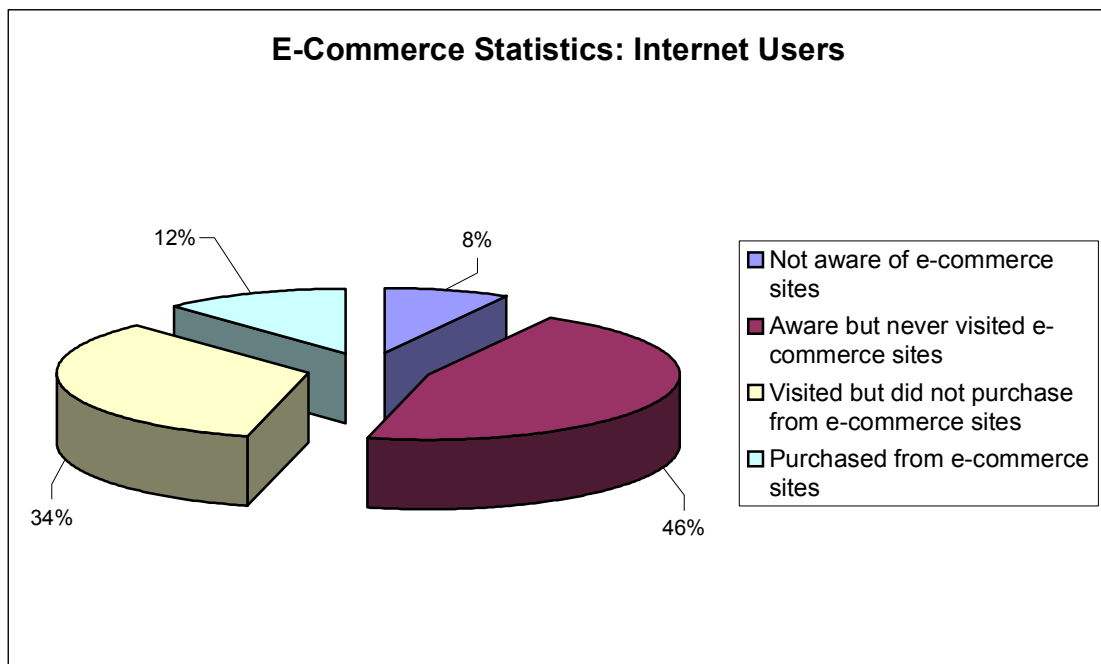


Figure 27. Cyprus - Citizens: Entire Population e-Commerce Statistics

Source: Cyprus Socio-Economic Survey

From all Cypriots *with access to the Internet*, twelve percent (12%) has purchased products or services from the Internet at least once. The most important reason for buying online is that the product was

only available online (83% of those purchased online agree). Second most important reason, is price (42%). The conclusion reached from this survey result is that Cypriots buy online out of necessity and not because of other conveniences Internet offers. The main reasons for buying online are (multiple answers were accepted in the survey):

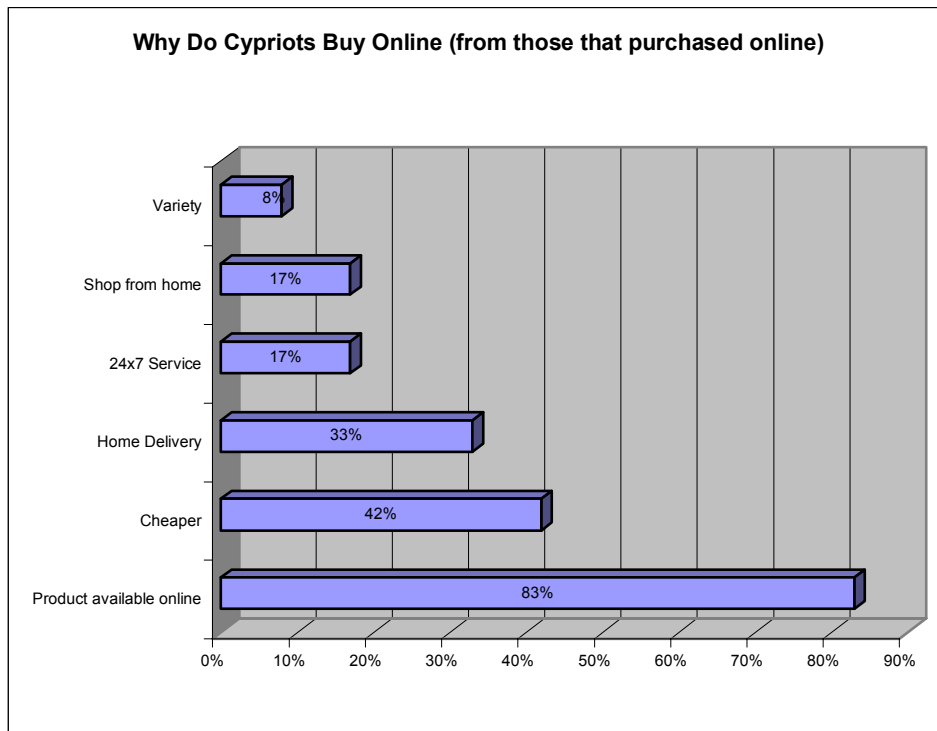


Figure 28: Cyprus – Citizens: Reasons for Buying Online: Respondents that purchased online

Source: Cyprus Socio-Economic Survey

From the total percentage of e-Commerce sites visited, on average 15.4% were Cyprus e-Commerce sites, and 84.6% International sites. International eShops are considered by the users to provide better prices (58% of those that purchased online agree on that) and better service (33%) over Cypriot eShops. As far as language preferences there is almost an accurate three-way split, where 31% prefer Greek only, 36% English only, and the rest 33% either.

Consumers preferences geografically

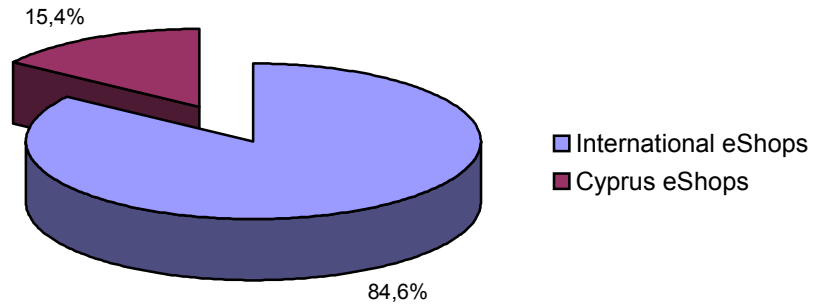


Figure 29: Cyprus - Citizens: Attitude preferences towards International or Cyprus eShops

Source: Cyprus Socio-Economic Survey

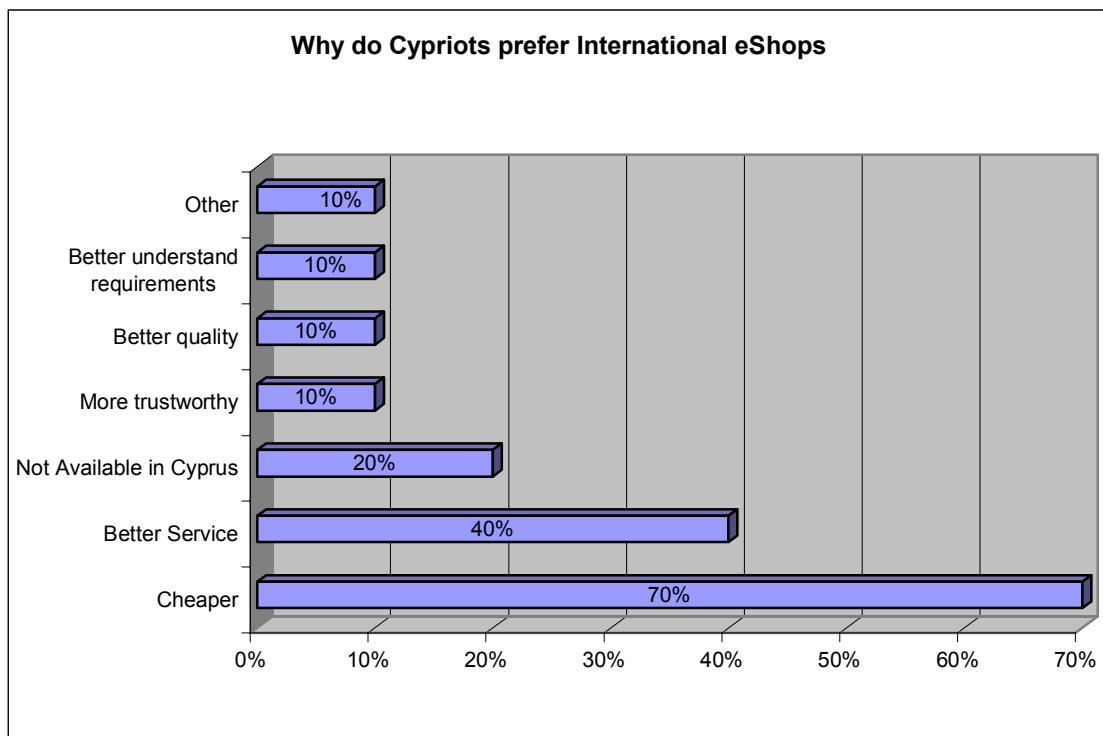


Figure 30: Cyprus – Citizens: Why International eShops are perceived to be better than Cypriot ones (from the 10% that purchased from international eShops)

Source: Cyprus Socio-Economic Survey

Cypriots spent an average of CY£160.04 (280.70 Euros) on online purchases during 2001. This brings the total spending on e-commerce per year approximately to 2 million Euros. Breakdown of online expenditure in 2001 is given below:

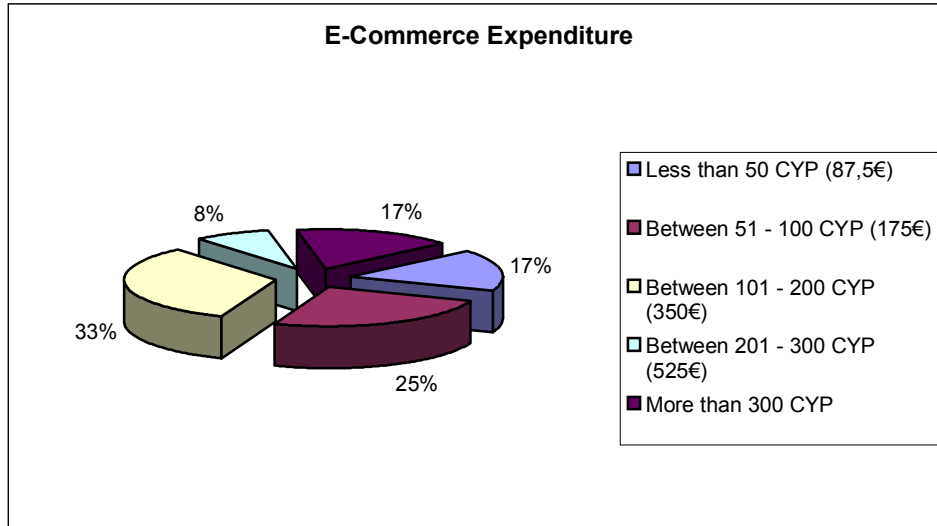


Figure 31: Cyprus – Citizens: Money Spent on the Internet

Source: Cyprus Socio-Economic Survey

A breakdown of products and services bought from the Internet is given in the following graph:

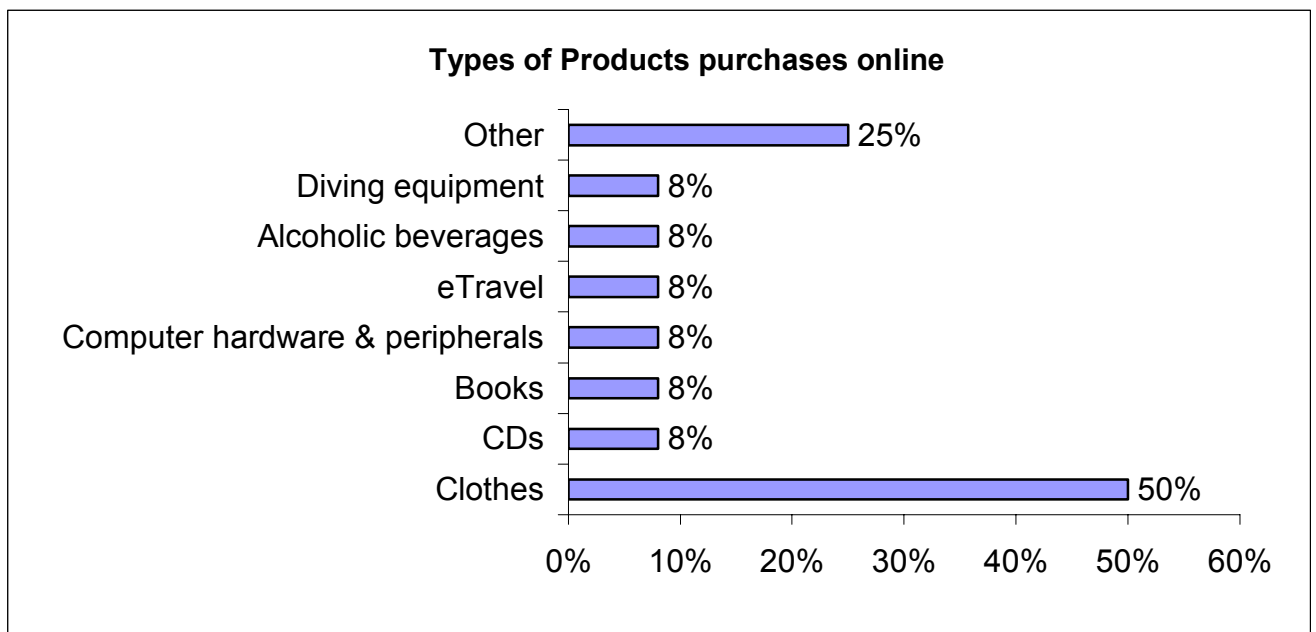


Figure 32. Cyprus - Citizens: Preferences on different products available online

Source: Cyprus Socio-Economic Survey

The question was asked to those that did not buy online as to the reasons for doing so and there answers are listed below:

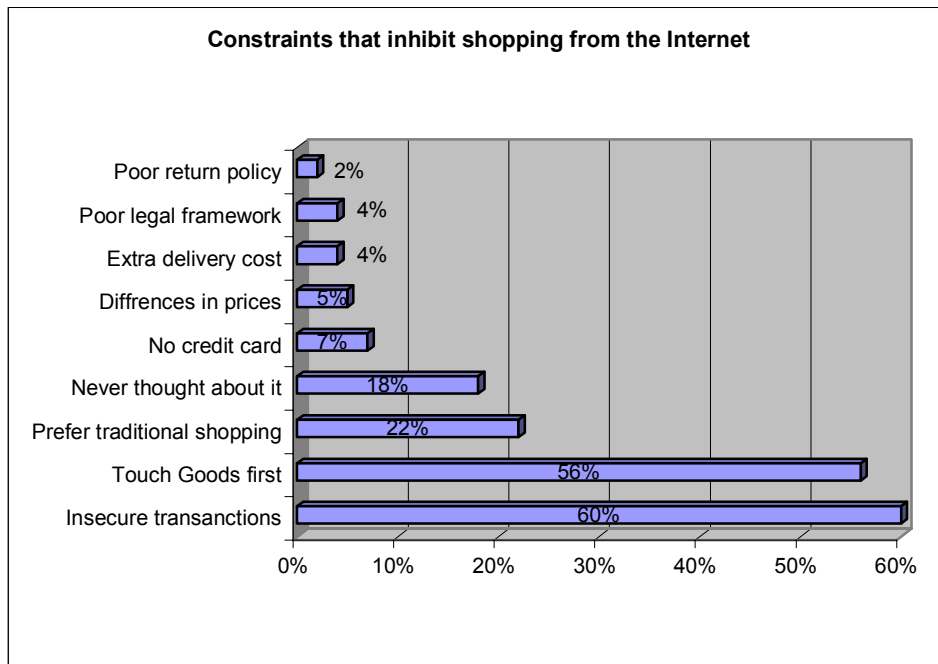


Figure 33: Cyprus – Citizens: Reasons for not buying online (visited EC sites but did not purchase anything).

Source: Cyprus Socio-Economic Survey

In the event that a Cypriot would want to buy something online, credit-card security is his/her primary concern, and would only buy if the eShop would guarantee its security. Guaranteed quality, guaranteed protection of private information and cash-on-delivery are the other important elements concerning someone when buying online. The price element is fifth in importance. Conditions under which Cypriots would buy online are listed below:

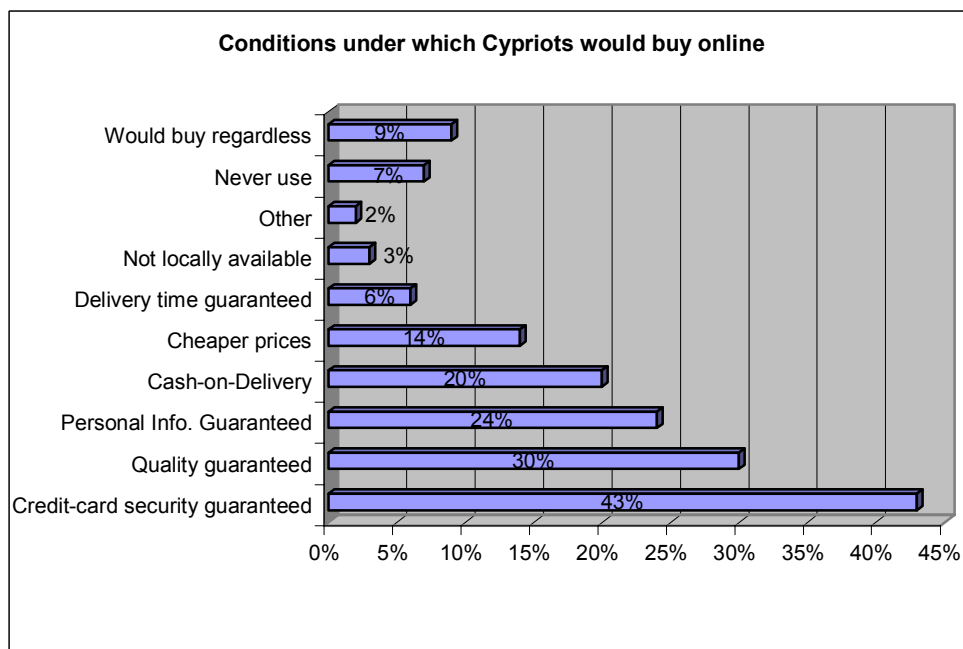


Figure 34: Cyprus – Citizens: Conditions under which Cyprus consumers would buy online

Source: Cyprus Socio-Economic Survey

At the question “what would you consider buying online”, the individuals surveyed responded as per the chart below:

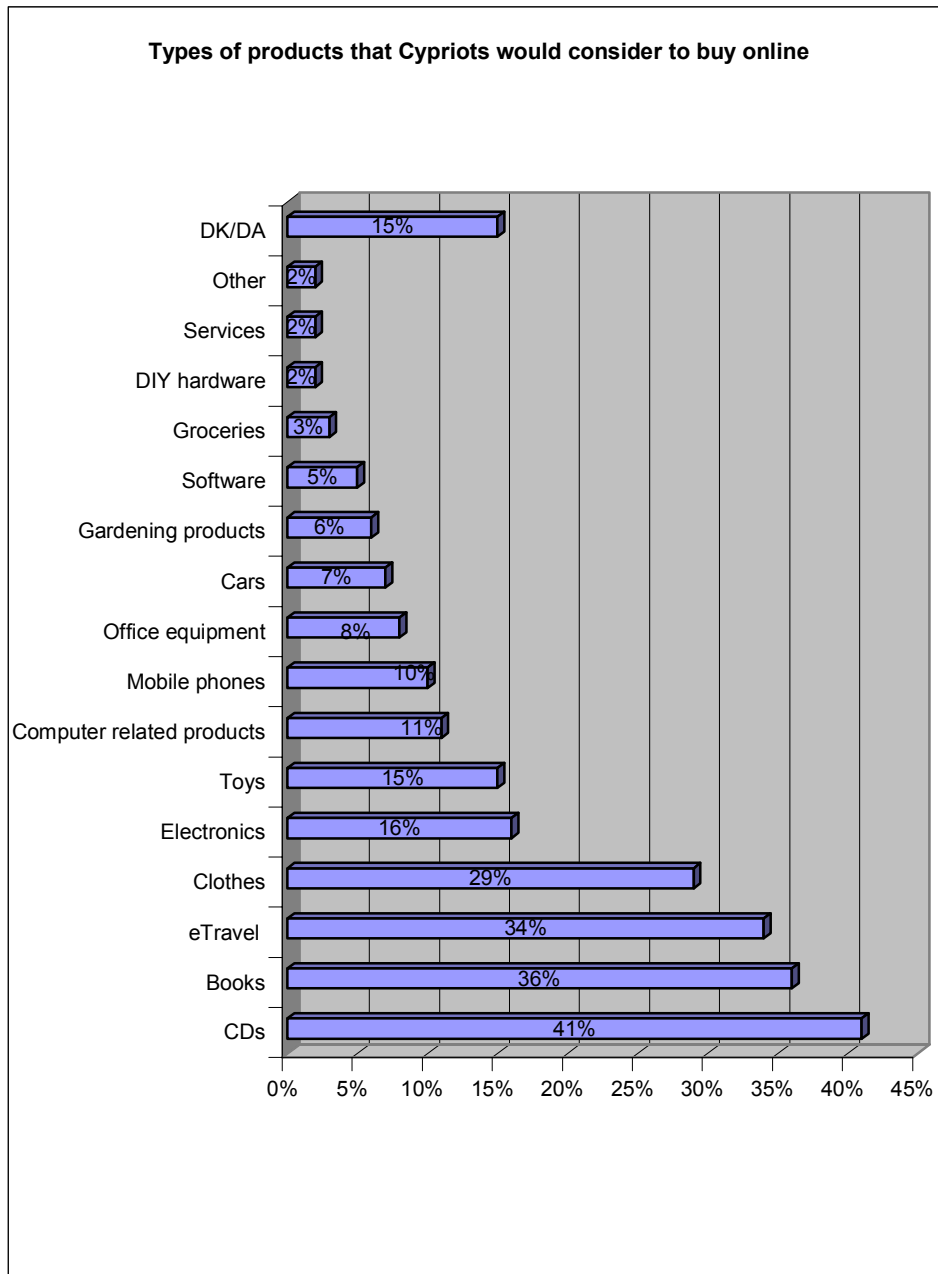


Figure 35: Cyprus - Citizens: Types of Products under consideration for buying online from the 88% that have never bought online

Source: Cyprus Socio-Economic Survey

To better understand the Cypriot consumer, the Cyprus Socio-economic survey asked about the various questions regarding consumer behaviour. The most predominant characteristic of Cypriot

consumers (who are also Internet users) is bargaining before buying. Second most prevalent characteristic was spontaneous shopping, a characteristic dominant mainly in the higher socio-economic groups. They also prefer to buy from local shops, they are very selective and demanding in their purchases, and are interested in low prices.

2.4.2 Enterprises

SMEs

From a sample of 300 companies, only 35 have Internet access and know what e-commerce is as well. Another 50 pre-screened companies were identified to be included in an additional sample for obtaining more conclusive results to the e-Commerce survey, but only 10 more companies met these two criteria. From the 45 companies that took part in this survey, 51% have their own IT department. Thirty-eight percent (38%) of their software development takes place in-house and 69% is outsourced whereas a larger percentage (42%) of maintenance and of IT training is performed in-house. All these numbers, compared to the entire [surveyed] population of Cyprus companies, are larger, which indicate that companies with Internet connection have in general a better ICT infrastructure in place.

It is also very important to know what are the main reasons for SMEs of having an Internet connection and the following table summarises those reasons.

Internet Usage	Present
Email	98%
Browsing Information	89%
Exchange Information with partners/suppliers	78%
Find new suppliers/partners	71%
New customer markets	44%
Buy products / services	44%
Intranet / extranet communication	42%
Connection from home to office	22%
Direct sales of product / services	16%
Teleconferencing / videoconferencing	13%

Table 8. Cyprus - E-Commerce Usage – SMEs: Reasons for having Internet connection

Source: Cyprus Socio-Economic Survey

Twenty-nine (29) out of 45 companies surveyed have a company web site. From the rest 16 companies, 15 are in the process of creating a web site. The reasons for having a web site are:

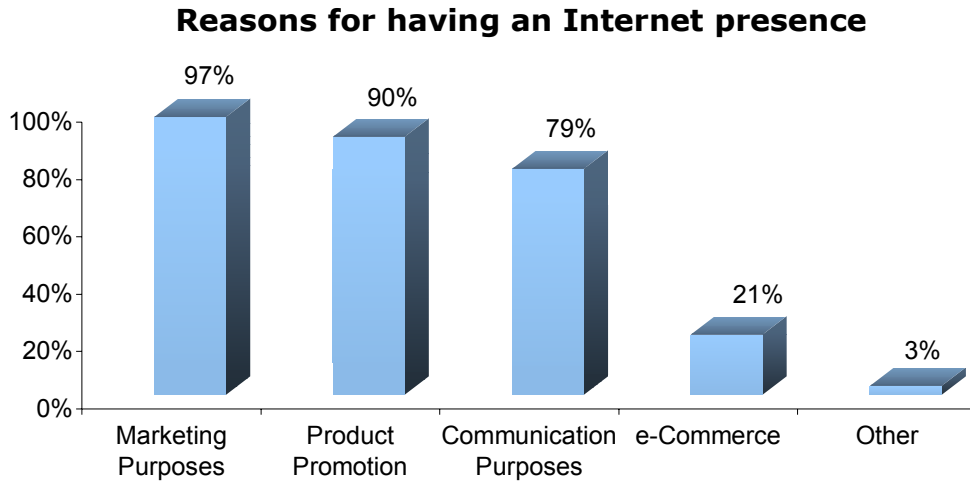


Figure 36: Cyprus - e-Commerce Usage – SMEs: Reasons for having an Internet presence

Source: Cyprus Socio-Economic Survey

Internet access in SMEs by industry is shown in the next graph. Please note that some companies operate in more than one industry:

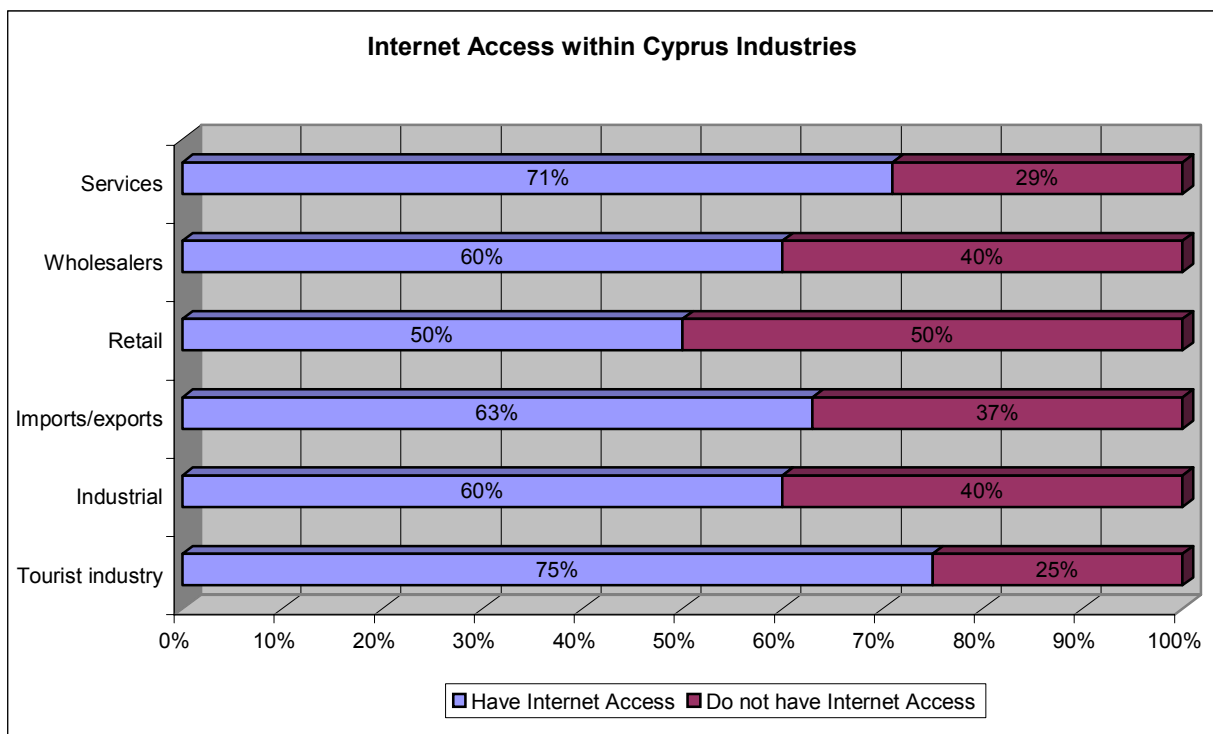


Figure 37: Cyprus - SMEs: Internet Presence percentage in each Industry

Source: Cyprus Socio-Economic Survey

The opinion on the benefits of having a website are:

Benefit of Having an Internet Presence	
Extremely beneficial	51% (23/45)
Very beneficial	42% (19/45)
Little beneficial	7% (3/45)
Not beneficial at all	0%

Table 9 : Cyprus - Benefits of Having an Internet Presence

Source: Cyprus Socio-Economic Survey

Only a short percentage of companies with Internet presence have e-Commerce operations. Out of the 45 surveyed companies, only 8 have e-Commerce activities. From the rest 37 companies, 22 state they have definite plans to adopt e-Commerce operations, 11 say “maybe yes”, 1 says “maybe no”, and 3 don’t know yet. Three of the companies are planning to implement e-Commerce in the first few months of 2002, 13 by the end of 2002, and 17 after 2002.

The Cyprus Socio-Economic Survey also asked companies with Internet presence and e-Commerce knowledge what they perceive to be the benefits of e-Commerce as well as the problems associated with it.

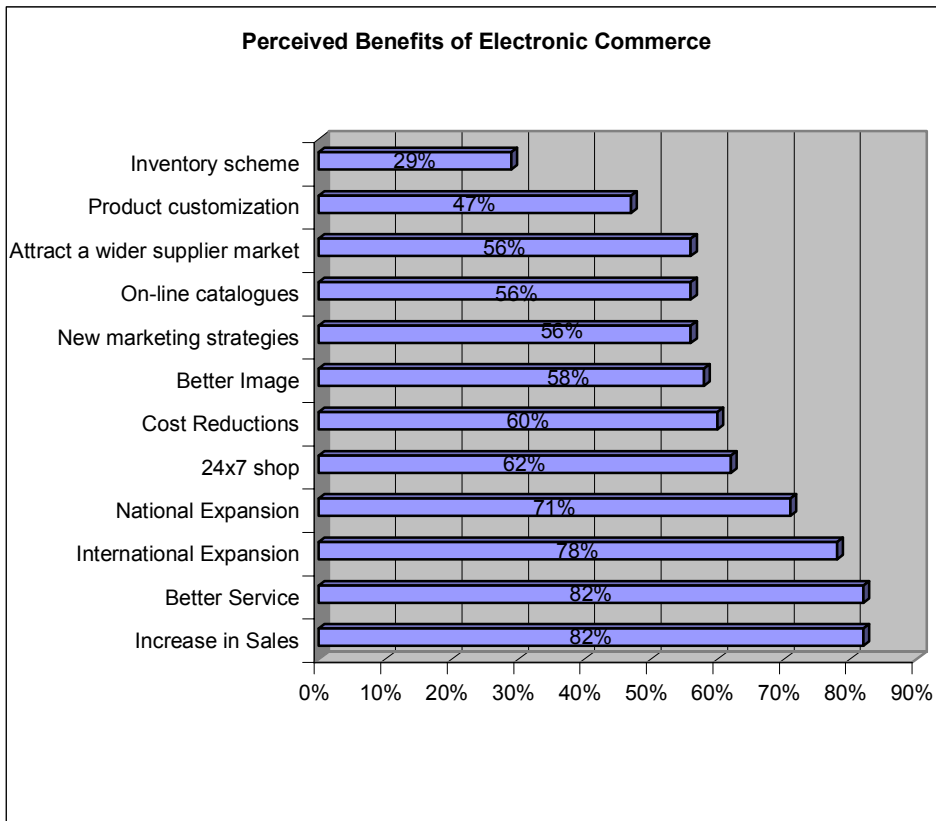


Figure 38: Cyprus - SMEs: Percentage of perceived benefits from Electronic Commerce

Source: Cyprus Socio-Economic Survey

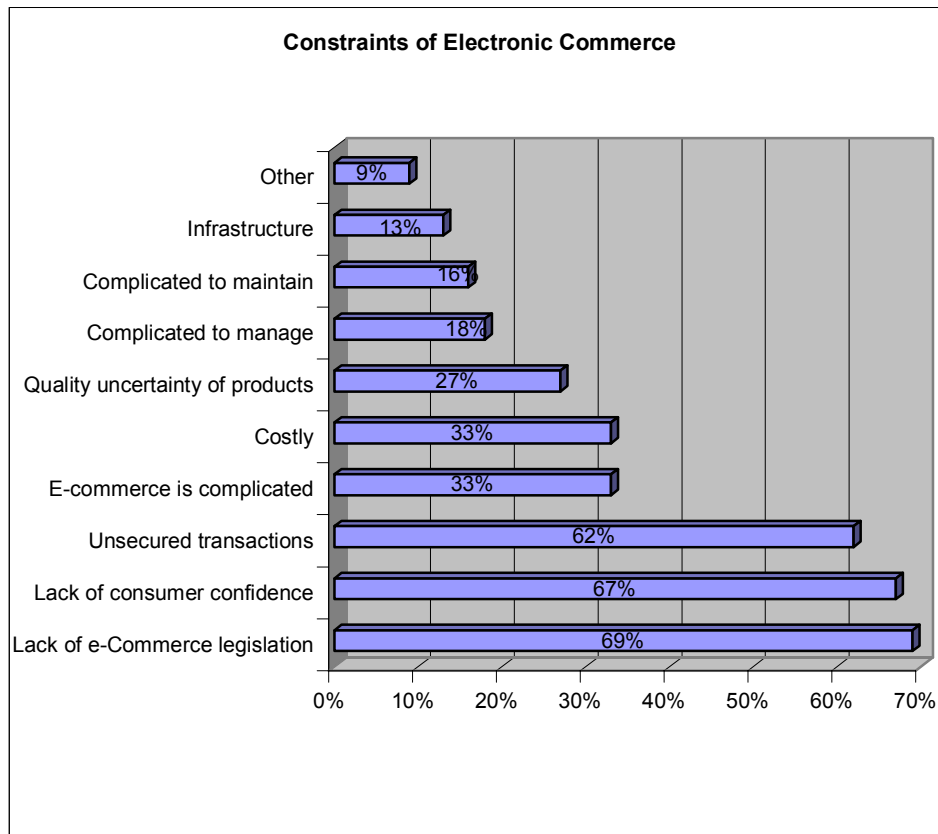


Figure 39: Cyprus - SMEs: Percentage of each constraint that inhibits Electronic Commerce

Source: Cyprus Socio-Economic Survey

It is obvious that the majority of Cypriot companies with e-Commerce awareness find a lot of benefits to electronic Commerce. Benefits that are closely associated with reaching new markets and increasing sales as well as offering better customer service receive a higher mark than other perceived benefits such as 24x7 operation and cost reductions. The survey also verifies the fact that e-Commerce legislation, consumer confidence, and unsecured transactions are the major problems and constraints of e-Commerce success. It seems though that the overall opinion finds the benefits of e-Commerce to be more than the problems associated with it. But to verify the motivation behind a decision to adopt e-Commerce operations, the survey asked SMEs what are their influencing factors for adopting e-Commerce. Their responses were:

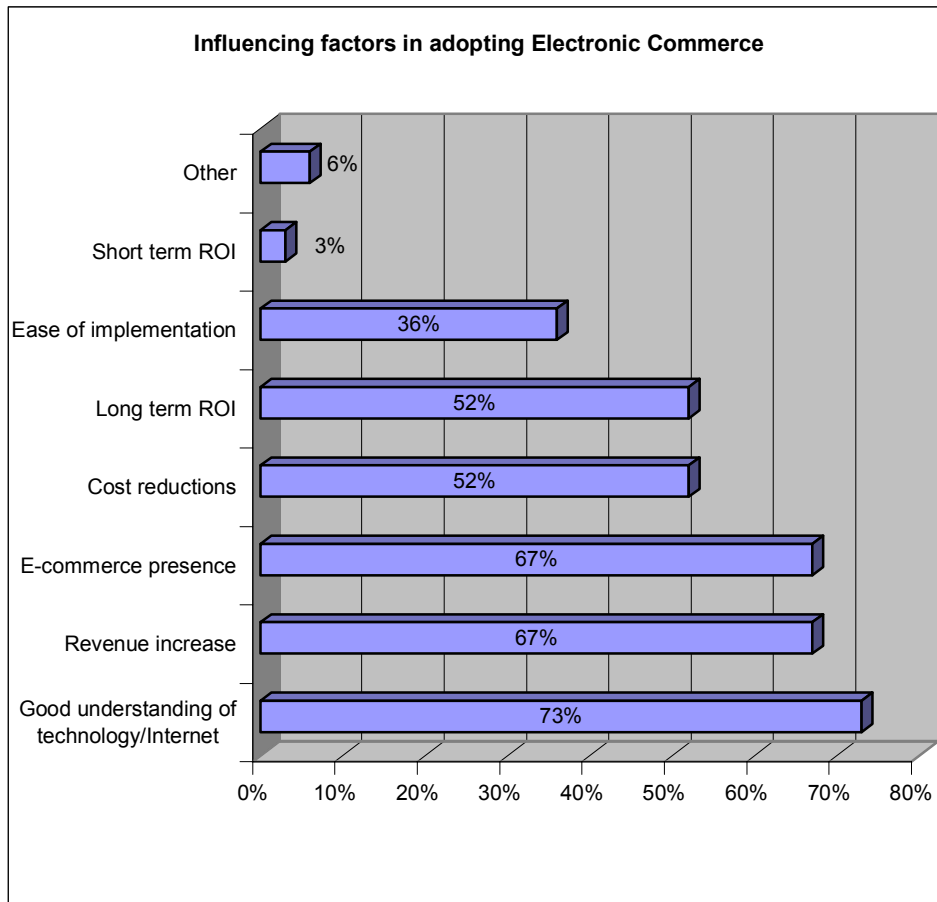


Figure 40: Cyprus - SMEs: Influencing factors percentage in adopting e-Commerce

Source: Cyprus Socio-Economic Survey

Based on all companies contacted through personal interviews, the highest-ranked factor perceived to be leading to e-commerce success was outsourcing delivery, followed by adopting a good return policy and having good graphics. Having their own delivery system was also ranked high by many companies as well as having a good back office integration.

From the 37 out of 45 SMEs that don't have e-Commerce operations, 31 would like to own their own site, 3 would like to sell via e-Malls, 2 would like to sell through third-party sites and one does not know, yet. From the 8 that already have e-Commerce sites, 7 own their site and 1 sells through a third-party site.

All surveyed SMEs were asked to rank critical factors for e-Commerce success. The ranking was as follows:

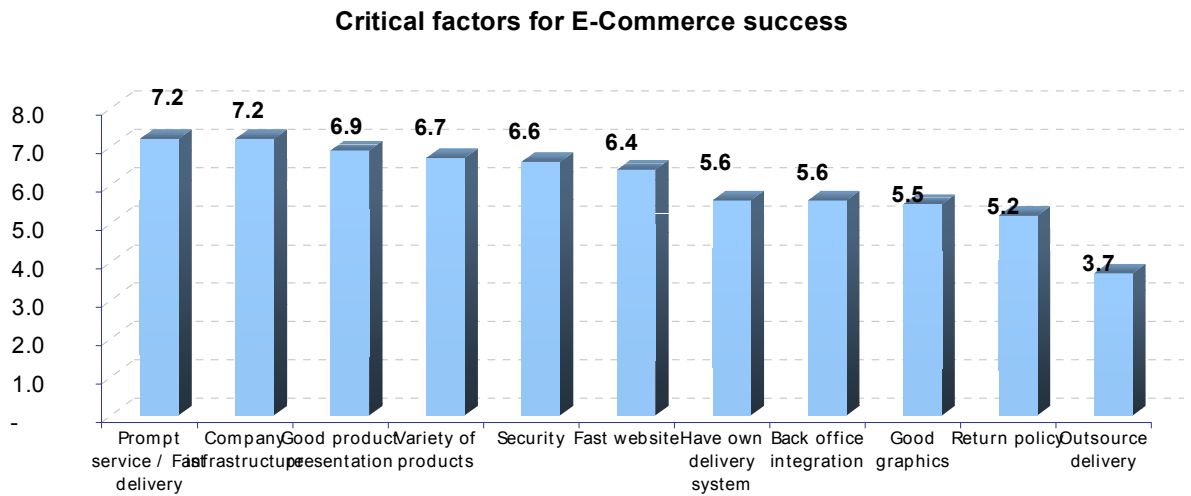


Figure 41: Cyprus - SMEs: Rating of critical factors for e-commerce success (mean score)

Source: Cyprus Socio-Economic Survey

Corporations

There are only a handful of large corporations in Cyprus. They are mainly found in the banking sector, the tourist sector, the construction sector, and in the form of group of companies. The banking sector leads the e-commerce efforts. All major banks now offer e-banking services.

GALICIA

2.4.3 Citizens

In the 2001 year, the 12,7% of the total Internet users in Spain, (23,5%) purchased items or goods through the Internet with a medium spent of 209,24€ per person. An study made by the Mancomunidade de Vigo and EGANET (Asociacion de Empresas Gallegas en Internet, Galician Internet Companies Association) asserts that the 53% of the Internet users in Galicia made purchases in Internet during 2001 year and the medium spent is 19,50€ per capita. This ratio is higher than the expected, because the 95% of the statistical pattern used were internauts from A Coruña and Pontevedra, the most developed and populated regions in Galicia. It must be taken into account that all the data and percentages obtained in the study made by EGANET could be slanted because it was an electronic survey published on the Internet which means that the surveyed user is not an Internet

newcomer. [Source, Mancomunidad de Vigo 2001 (Local Enterprise association), EGANET 2001 (Asociacion de Empresas Gallegas en Internet, Galician Internet Companies Association) and AECE 2001 (Spanish Association of Electronic Commerce).]

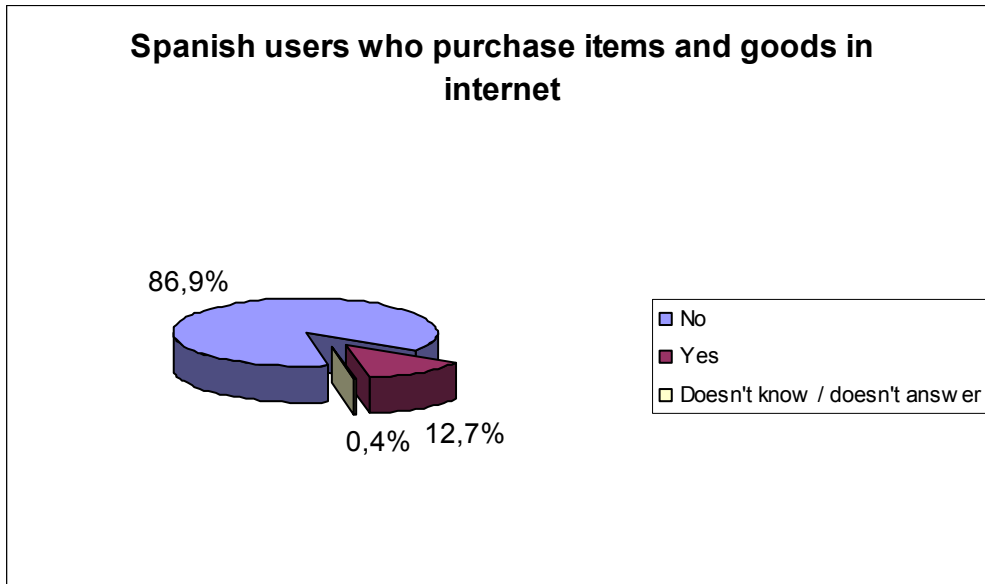


Figure 42: Spanish purchasers

Source AECE 2001

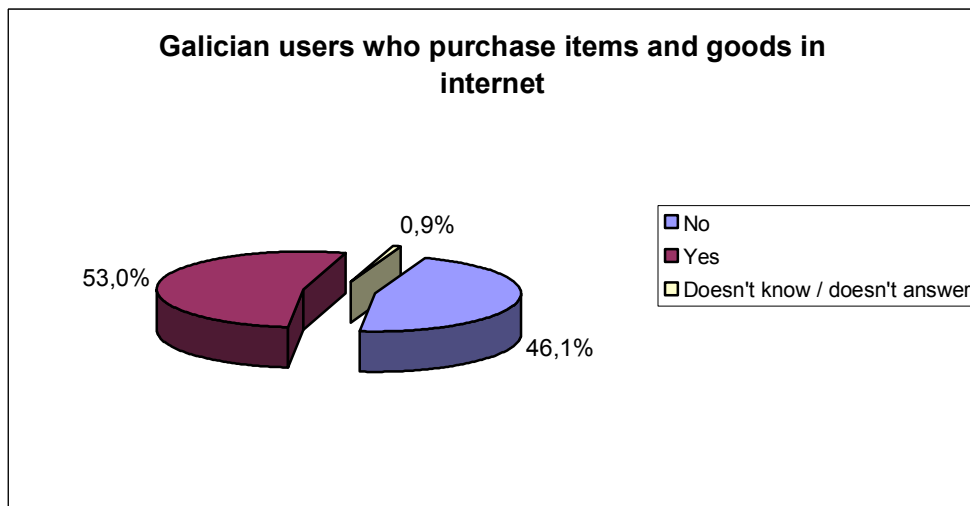


Figure 43: Galician purchasers

Source EGANET 2001

In Spain some of the most purchased items or goods are, music, books, travel reservations, software, electronics, leisure, DVDs etc, and for the Galician Internet the most purchased items were books,

hardware & software, travel reservations, financial products, information services, music etc. These types of purchases are the most common in Internet.

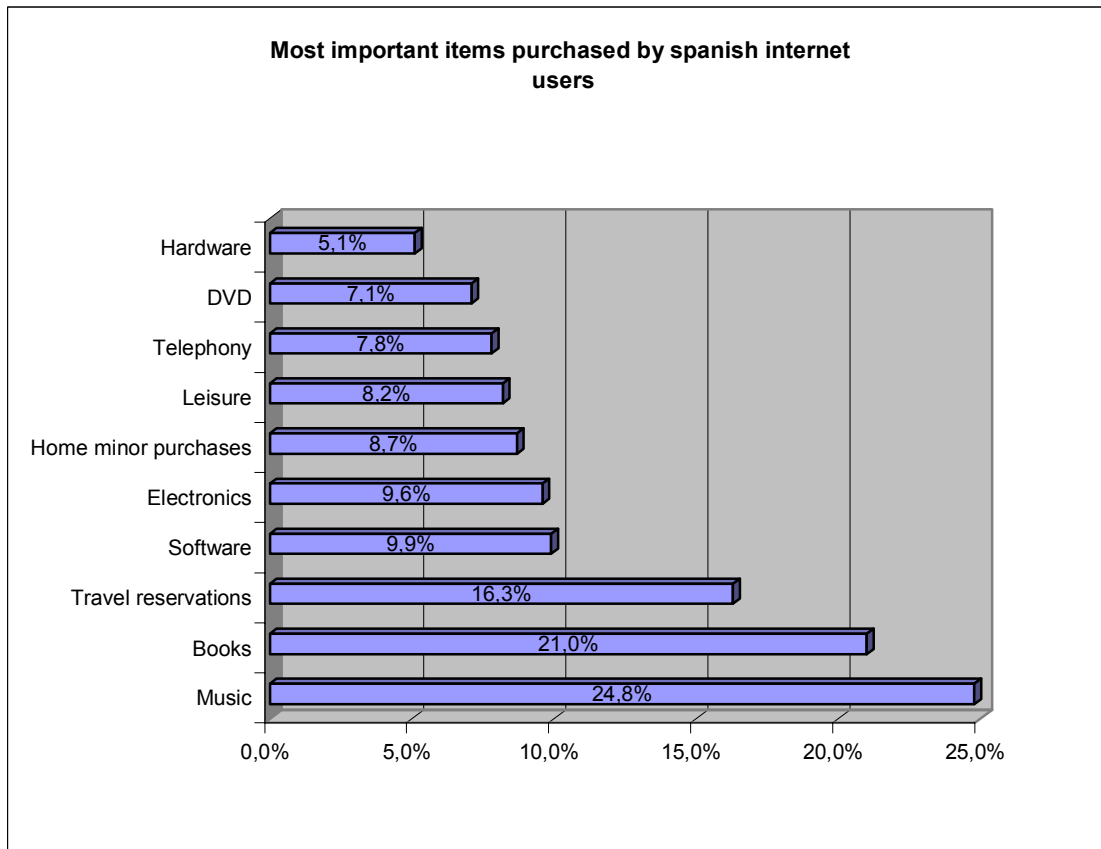


Figure 44: Most important items purchased by Spanish users

Source AECE 2001

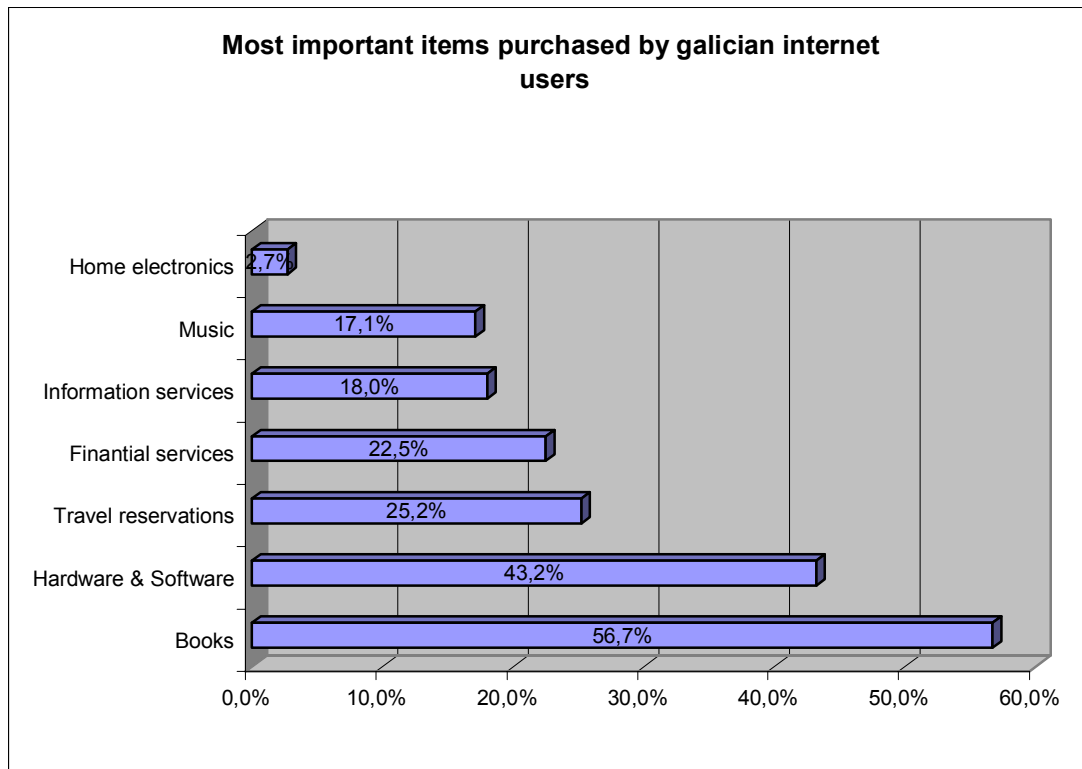


Figure 45: Most important items purchased by Galician users

Source: EGANET 2001

Another important ratio is that the 19% (percentage of the total Internet users in Spain that purchased items or goods in Internet) of the people made their purchases in international retailers (amazon, cdnow, ebay etc.) and the satisfaction grade with the purchases is very high (about 88,5% are satisfied with the on-line purchases). In this case the Galician region ratio is similar to the Spanish because the satisfaction grade is commonly good between all Internet purchasers.

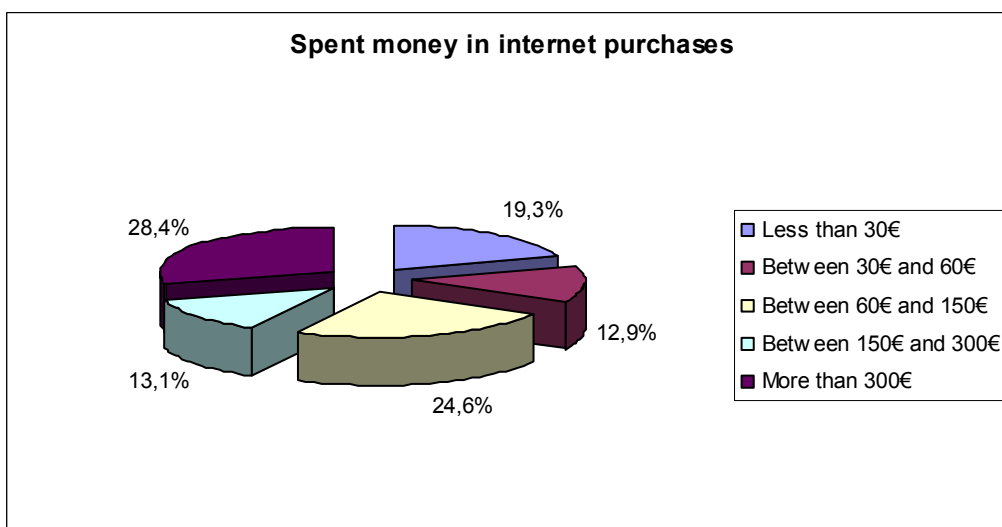


Figure 46: Galicia - Money Spent on the Internet

Source: AECE 2001

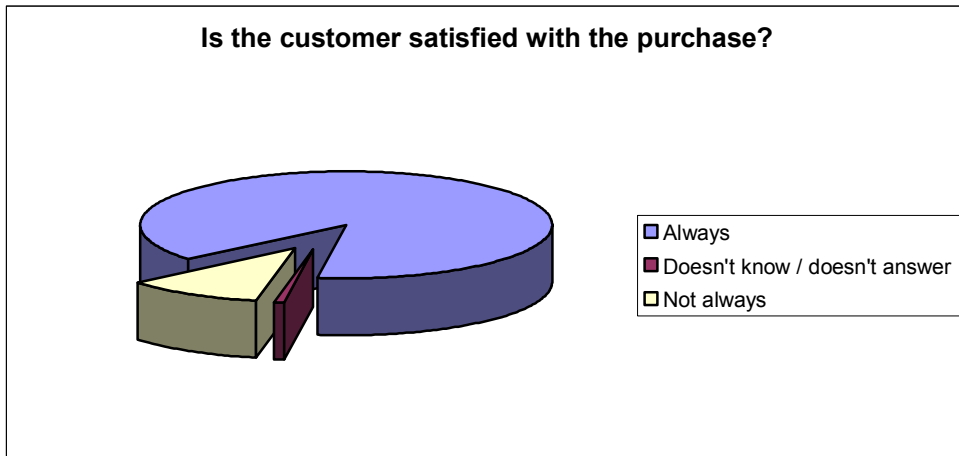


Figure 47: Galicia - satisfaction grade with the purchase

Source: AECE2001

The payment mode most used for Internet purchases is the credit/debit card payment (more than 50%) followed by general refunds. As ever this ratio is very similar to the Galician one, because the most extended payment method is the credit/debit card for almost all users.

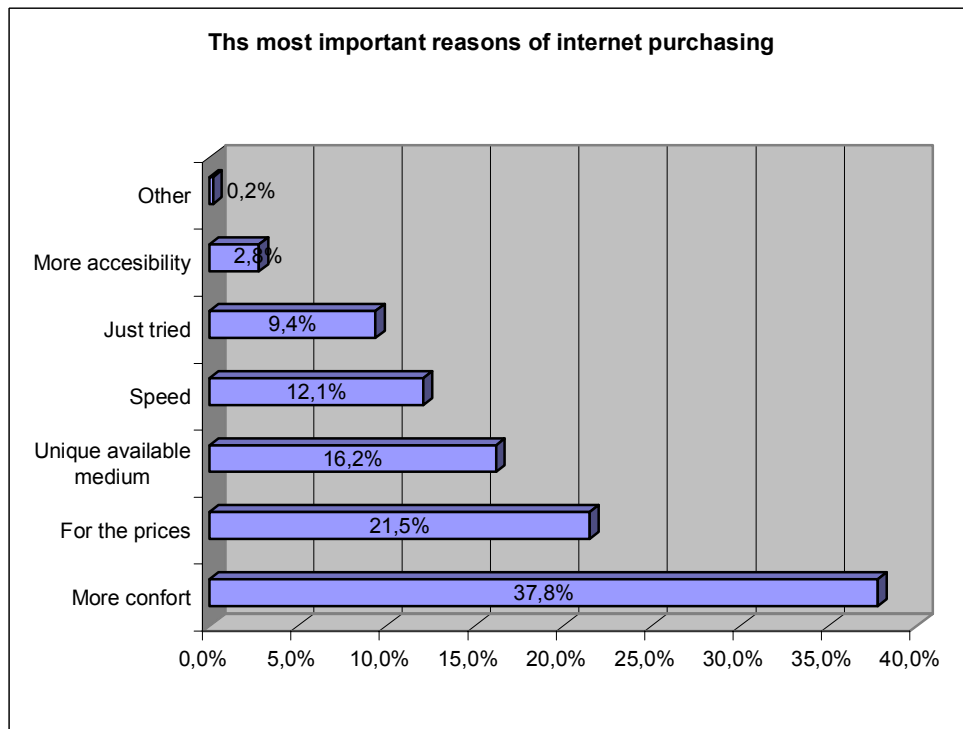


Figure 48: Galicia - Most important reasons of purchasing,

Source: AECE

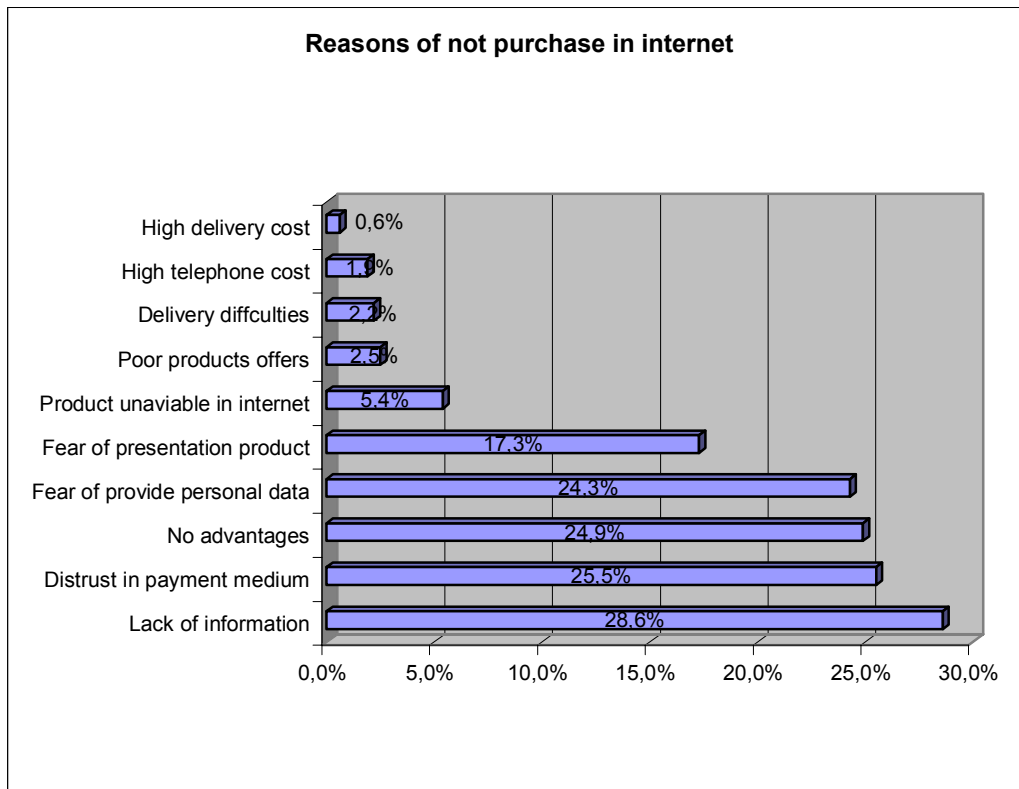


Figure 49: Galicia - Reasons of not purchase in Internet

Source AECE 2001

And last, but not least, are the principal reasons of not purchase goods and items in Internet. Maybe the lack of information is the most extended reason, followed by distrust in the payment modes. Finally, the number of Internet users and purchasers of items is low as Spain as for Galicia. Maybe the Galician ratio is slanted but the data obtained is very significant and important.

2.4.4 Enterprises

SMEs

The source of the data analysed in this section is from the Politics and Sociology Research Group, 2001 University of Santiago de Compostela and from AECE 2001 (Spanish association of e-commerce).

At this point, it should be very interesting to know the usage, the evolution and the opportunities of B2B e-commerce in Galicia, in addition to identifying individuals or groups that aid the development of B2B in the SMEs of Galicia. The studied sectors, which have a relevant importance in B2B, are

from the financial to industrial, by way of all sub sectors, pharmaceutical industries, metals, logistics, transport, energy, etc.

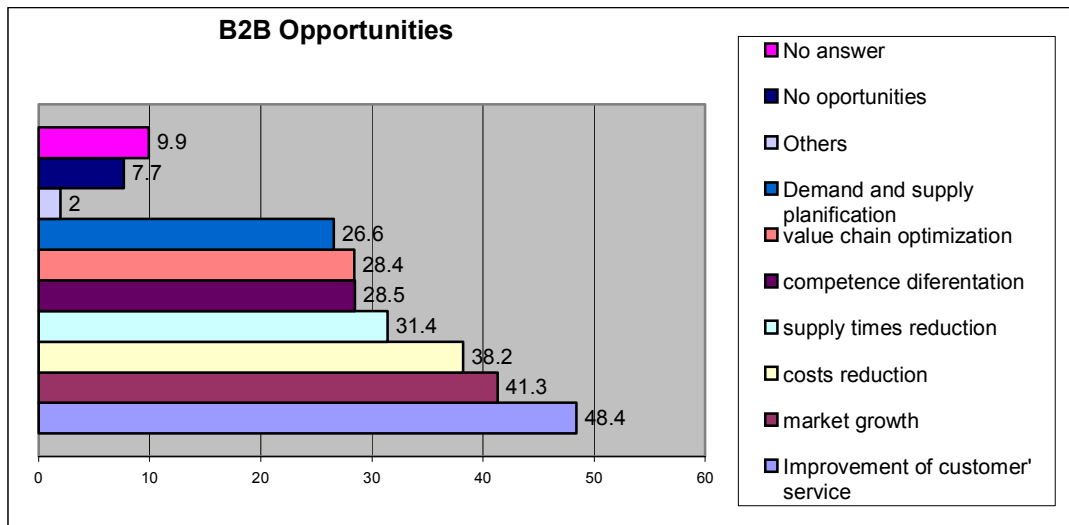


Figure 50: Galicia - B2B e-commerce opportunities

Source: AECE 2001 (Asociación Española de Comercio Electrónico, Spanish association of e-commerce)

The B2B revenue in Spain was 28.247 million €, for Galicia the percentage is much lower. The growth previsions for B2B in Spain for 2003 year is notable (14000 companies doing B2B) and the estimated revenue is 57.000 millions €, of course, due to the forecasted price reductions (more realistic and favourable).

Referring to B2B applications and in which fields is B2B used, it could be said that companies use it for ordering services (customer relationship side), being a minor percentage enterprises which use it for logistics, business negotiations, advanced ordering and invoicing.

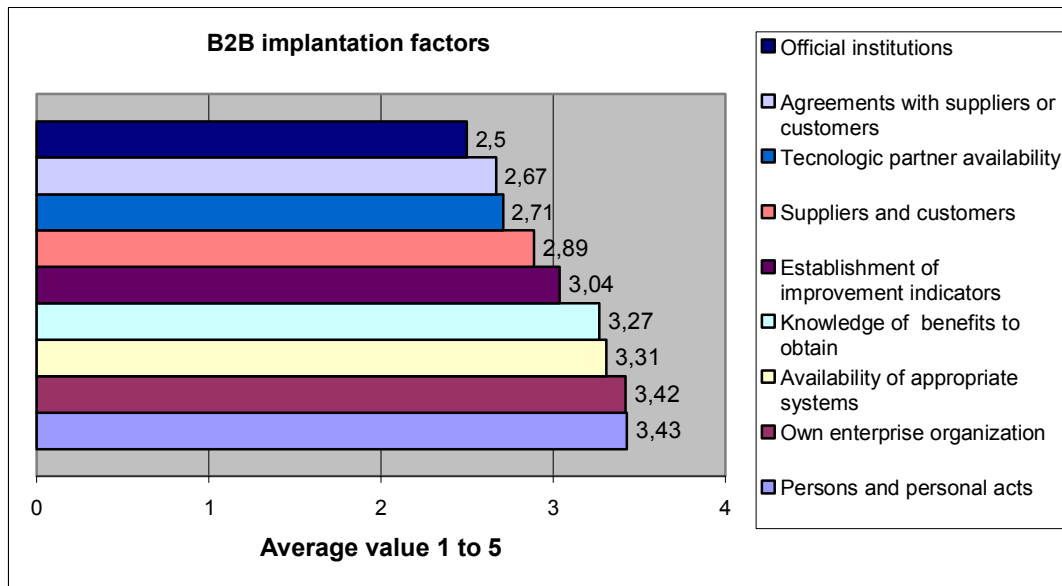


Figure 51: Galicia - B2B implantation reasons in SMEs

Source: AECE 2001

The greatest use of B2B between companies and its suppliers is focused on ordering services, which is the fundamental task, but it must be underlined that logistics and business negotiations are the second in importance. The Spanish ratio of SMEs without a B2B e-commerce solution is **79.9 %**, near to the **80,1%** of the Galician SMEs, showing that the Galician SMEs are in the expected Spanish media.

It is meaningful that B2B isn't used product design. This shows the distrust in this medium by the companies. The greatest barriers that slowed the B2B development are the companies culture or simply because the legacy systems of enterprises are not the best for integrate with this e-commerce solutions. The widespread idea between entrepreneurs is that customers and suppliers aren't prepared for doing e-commerce. The lately return of investments is another clog for B2B development.

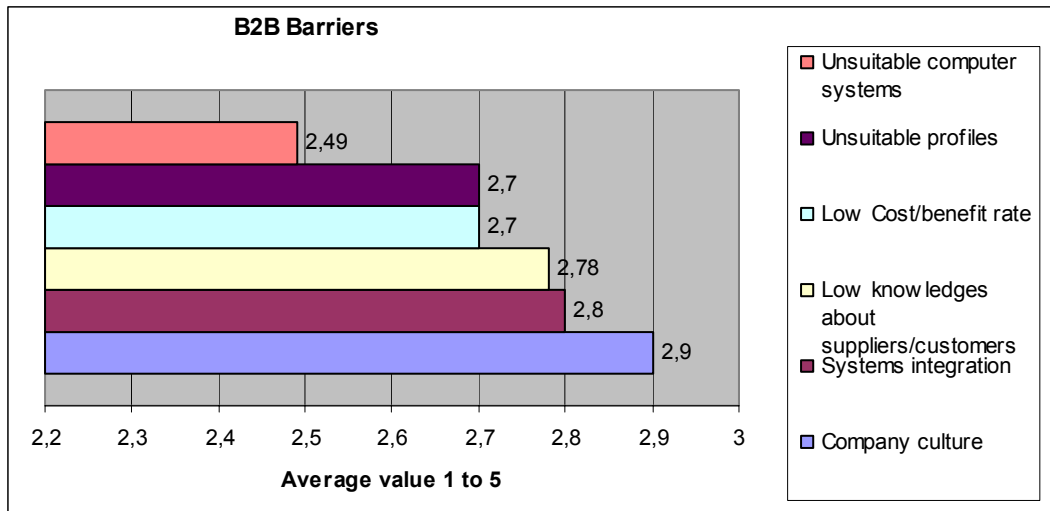


Figure 52: Galicia - B2B implantation barriers in SMEs

Source: AECE 2001

In the other hand, the reasons that helped developing B2B in Galician and Spanish enterprises were the personal behaviour of employees and the enterprise structure. Another remarkable idea is that the know-how acquired by B2B will be very valuable and this idea recommends the use of B2B e-commerce.

Companies don't agree in defining the benefits of B2B. Some of them think that B2B directly improves suppliers' services and cost reductions, and other adds the improvement of competitiveness and customer services.

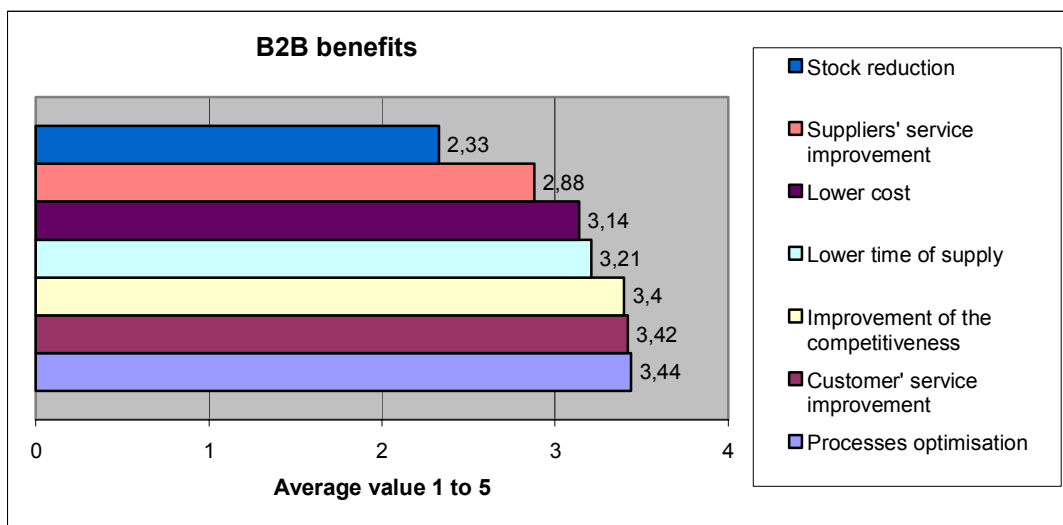


Figure 53: Galicia - B2B implantation benefits in SMEs

Source: AECE 2001

Finally, the conclusions are that the situation of B2B is very diffuse. There are no uniform patterns of the performance of B2B e-commerce, and enterprises aren't as motivated as expected, maybe because the revenues aren't very important (time and money) and all related to information technologies transmits an unstable view.

Corporations

There are in Galicia, 41 corporations with a revenue of more than 60 million of €, in sectors like textile (Inditex), fishing (Pescanova), Food (GADIS), automobile (Citroën), construction (San José), wood (FINSÁ) ... and more. [*The source of the data analyzed in this section is from Ardan database 1999 (the top 10000 companies in Galicia)*]

A very small part of these top corporations have plans to or have implemented an integrated e-commerce solution in its business processes. The general trend in Galician corporations should be to use B2B solutions in order to optimise resources and reduce costs, or in some cases a B2C solution (GADIS a chain of supermarkets which sells on-line its products) but this isn't the real view. Actually, there is a very poor number of e-commerce initiatives in the Galician corporations, due to the lack of information or simply with the general view that e-commerce don't provide any added value to the business process. The expected view should be that corporations must lead the e-commerce development in our region, because they have a position of strength and resources in order to involve other corporations or SMEs with a special relationship (they could be suppliers) between them.

The Galician SMEs with e-commerce initiatives tend to group or join virtual marketplaces, vertical or horizontal portals, because it is still expensive to develop an own e-commerce solution.

POMERANIA

2.4.5 Citizens

Purchasing habits of Poles are best characterised by the survey presented in the below table and figure (N=1000, +15).

	Never	Rarely (sometimes)	Often	Very often
In traditional, small shops	4	18	36	42
On open air markets, street traders	16	45	28	11
In small self-service shops with up to 4 tills	17	41	30	13
In supermarkets and hyper-markets	28	38	19	15
In specialised shops	34	51	13	2
In big shops with shop assistants in different departments	37	44	14	5
In specialised shops located in shopping centers	51	36	10	3
At wholesaler's (a bigger amount of purchased products is required)	67	24	7	2
By mail-order (order sent by post)	90	7	3	0
At traveling agents	93	6	0	1
By mail-order (order made by telephone)	96	3	0	1
In Internet (ordered by computer)	98	2	0	0

Table 10: Purchase and its frequency

Source: I-Metria

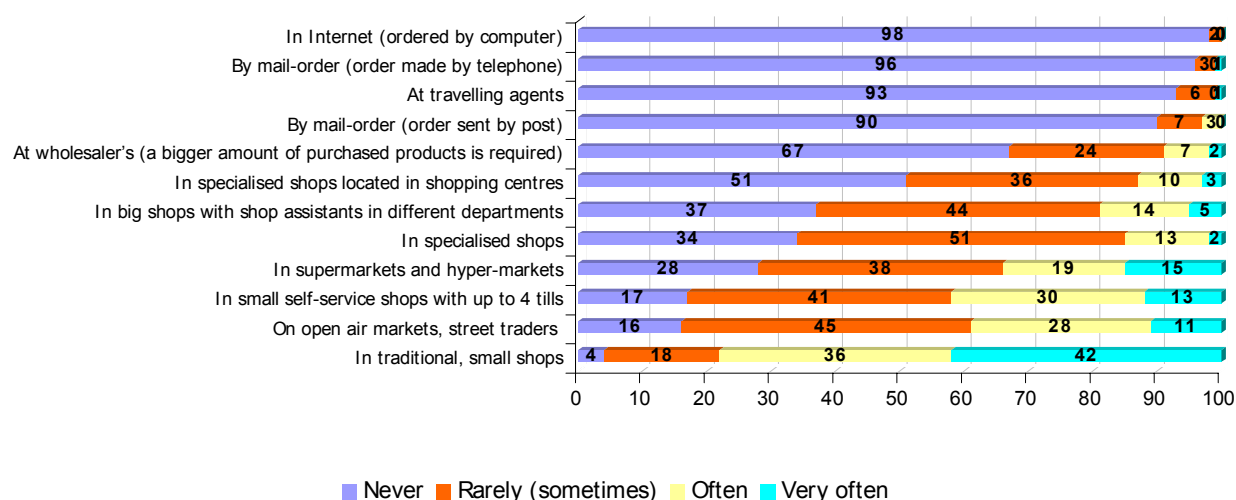


Figure 54: Purchase and its frequency

Source: I-Metria

Poles “often” and “very often” buy in traditional, small shops (36% + 42% = 78%) and they “never” (in 90% or more) use mail-order purchase (ordering by post or telephone), at traveling agents’ or in Internet by computers. The survey shows that only 2% of Poles “rarely (sometimes)” purchase products in Internet using computers, thus the e-Commerce readiness seems to be small. However, it is a too quick conclusion, which is showed in other surveys referring to the above habits. The crucial is to take analysis of barriers to using mail-order purchase into consideration, which is enabled by the following table and figure:

	Percentage of respondents
I do not trust companies selling this way	32%
All products I need are easily available in shops	32%
I am afraid it will be difficult to make a possible complaint	31%
I am afraid the delivered product will be damaged or defective	30%
I am afraid it will be difficult to return the product, if I do not like it	27%
I am not sure if my order will be realised	24%
I am not familiar with these forms of sale	24%
The way of placing an order is inconvenient	14%
I am afraid the product can be delivered after a too long period of expectance time	14%
The way of payment is inconvenient	9%
I am afraid my personal data will be used improperly/will be delivered to unwanted people	9%
Lack of answer	1%

Table 11: The biggest barriers to using mail-order purchase (orders placed by post, telephone or Internet)

Source: I-Metria

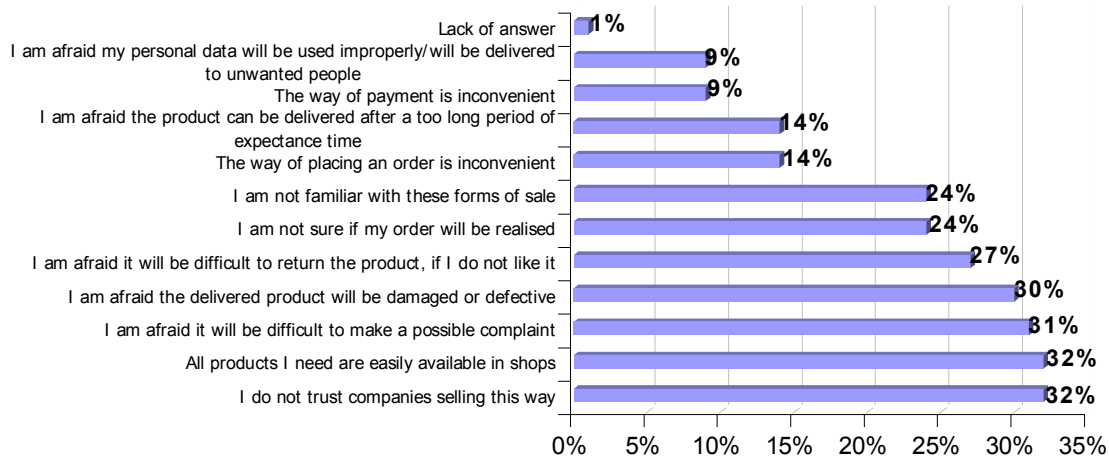


Figure 55: The biggest barriers to using mail-order purchase (orders placed by post, telephone or Internet)

Source: I-Metria

The conclusion from the above shows that pragmacny of mail-order purchase requires to overcome so many barriers, that only “rarely (sometimes)” such a risk can be afforded. Surely the above results of the survey are typical for the purchasing habit of citizens in Pomeranian Region.

2.4.6 Enterprises

SMEs

In Poland both democracy and private enterprises have a very short history, as it is a little longer than 10 years. According to the IBNDiPP research 73,6% of companies are active on the market shorter than 10 years (average 5.7 in the year 2000), while over 80% of companies began their activity in Internet within a period shorter than 3 years (all enquired companies fulfilled the condition of having an e-mail address and web site at the same time).

Years	Percentage of respondents			
	0-3	4-6	7-10	>10
Electronic mail	86,0%	11,6%	2,4%	0
Web sites	81,4%	14,1%	4,5%	0

Table 12: Pomerania - Number of years of Internet connection: Web sites and e-mails
Source: own study based on the survey

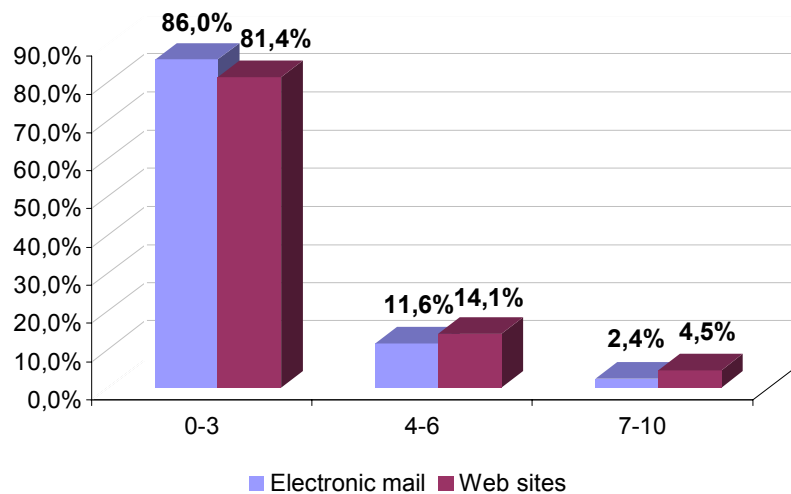


Figure 56: Pomerania - Number of years of Internet connection: Web sites and e-mails
Source: own study based on the survey

It reflects a very low experience in business and even lower in electronics. It is still a very serious undertaking (due to many reasons) to register a company, install an access to Internet, organise electronic mail, set up the Web site. And the reasons are not of the technological or intellectual nature rather of infrastructural one. A low level of investment capital and liquidity of assets have a significant meaning.

Frequency	Percentage of respondents
Once a month	26,7%
Once a quarter	35,6%
Daily	24,4%
Once a year	4,4%
None	8,9%

Table 13: Pomerania - Frequency of updating Web sites
Source: own study based on the survey

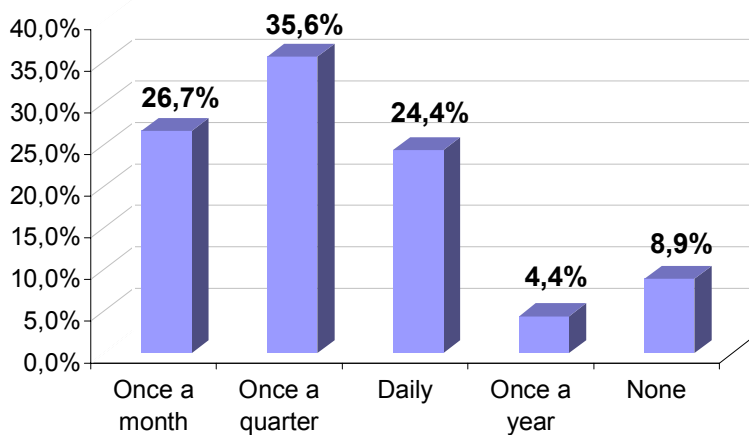


Figure 57: Pomerania - Frequency of updating Web sites

Source: own study based on the survey

As a result of the above described situation provisional and inefficient solutions appear, which can be exemplified by the survey of frequency of updating WWW sites. It shows that about 50% of companies do not update their sites at all or once a year or once a quarter. A similar example presents the frequency of outgoing and incoming electronic correspondence as in nearly 50% of companies the amount does not exceed 5 a day (the amount of incoming correspondence is bigger than outgoing).

Correspondence	Percentage of respondents					
	0-5	6-10	11-20	21-50	51-100	>100
Mail received	44,4%	19,8%	16,9%	12,6%	6,3%	0
Mail sent	48,9%	18,6%	15,7%	10,9%	5,9%	0

Table 14: Pomerania - E-mail correspondence (daily amount)

Source: own study based on the survey

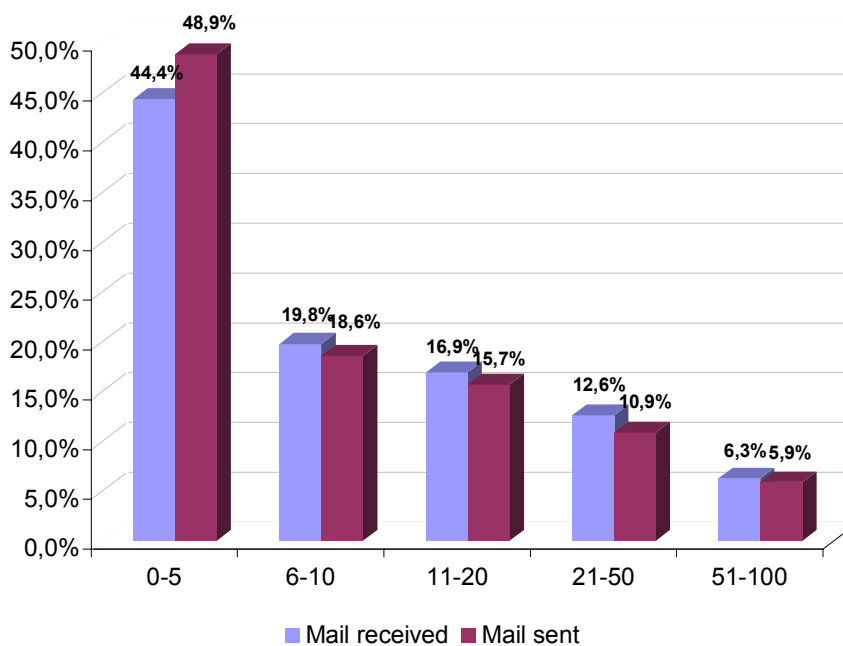


Figure 58: Pomerania - E-mail correspondence (daily amount)

Source: own study based on the survey

The most active in the world of Internet are companies active in commerce, as they make as many as 50% of companies, which show interest and are able to prove their activity of e-commerce character. The low activity of manufacturing companies (11,3% - production) or lack of companies active in other industries is alarming for the development of the Pomeranian Region.

Activity	Percentage of respondents
Commerce	48,4%
Services	40,3%
Production	11,3%

Table 15: Pomerania - Main industries of enterprise activity

Source: own study based on the survey

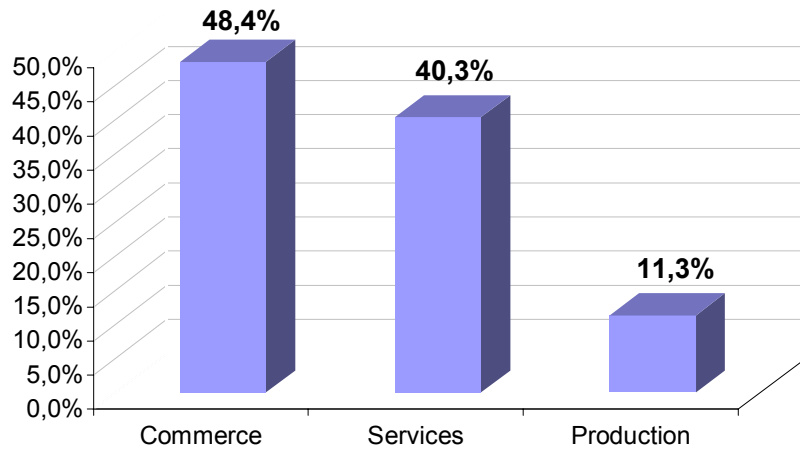


Figure 59: Pomerania - Main industries of enterprise activity

Source: own study based on the survey

In the opinion of enquired companies Internet makes the main and the most important channel of information acquiring (75,6%). The hierarchy of information acquiring channels formed by the enquired companies shows many weaknesses of Polish economy. The question still remains : will e-business (in the wide meaning) help to overcome them and fill in the gaps or will it deepen the present difficulties ?

Channel of information acquiring	Percentage of respondents
Internet	75,6%
Professional papers	66,2%
Data bases	57,8%
Talks with entrepreneurs	51,1%
Meeting in public offices, banks, companies	38,4%
Information acquiring by phone	37,8%
Books	25,2%
Advisory services	20,0%

Table 16: Pomerania - Main channels of information acquiring

Source: own study based on the survey

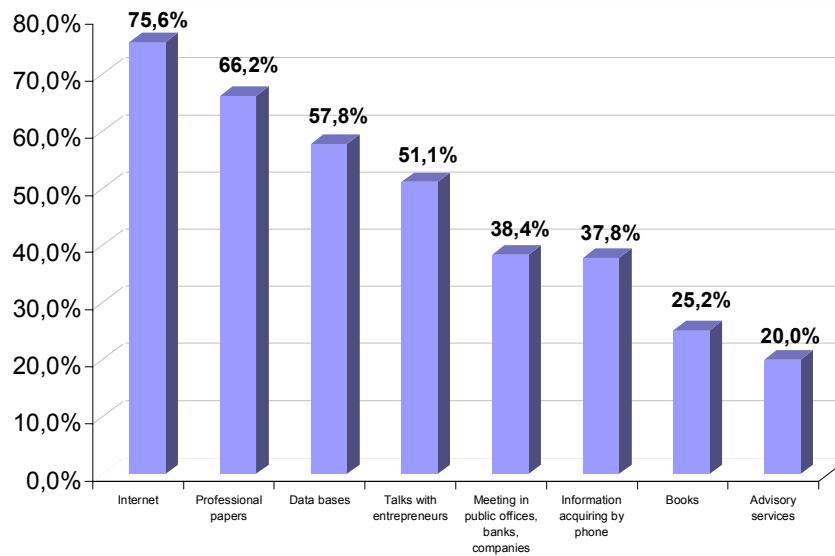


Figure 60: Pomerania - Main channels of information acquiring

Source: own study based on the survey

The enquired population of SMEs defined frequency and business aims of Internet usage as follows:

- the biggest number of companies visit their competitors' web sites and the least number the web sites of help institutions,
- information service web sites (portals) are most often visited, as well as distributors' and potential customers'.

The scope of Internet usage the enquired companies assessed as in the following table and chart.

Use of Internet	Average
Collecting different information	4
Commercial partners communication	3,5
Communication with clients/buyers	3,4
Advertisement of own products/ services (via WWW sites)	3,3
Internal communication	3,1
Communication with suppliers	2,9
e-mail advertising	2,9
Sales of products	2,7
Searching for employees	1,9
Buying products	1,8
INTERNET BANKING	1,6
Branches focus groups	1,6
Employees training	1,3

Stock exchange deals	1,1
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*Description: 5-very often, 4-often, 3- sometimes, 2- rarely, 1 – not at all

Table 17: Pomerania - Purposes of use of Internet

Source: own study based on the survey

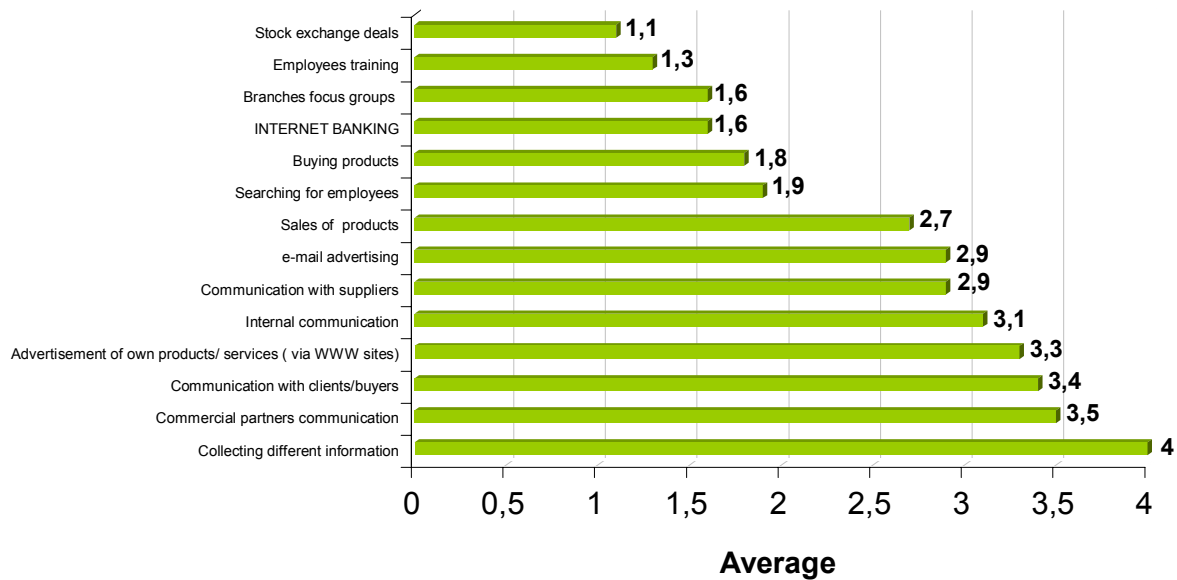


Figure 61: Pomerania - Purposes of use of Internet

Source: own study based on the survey

The activity in the field of e-Commerce was confirmed by nearly 40% of companies. The biggest number of companies (37,8%) declared the sale via Internet. In the enquired population 16% of companies were involved in sale of audio - video equipment, 13% - in sale of computers, components and accessories, 6% - in sale of books, magazines, multimedia publications, telephones, faxes, office equipment, tourist equipment. Not many industries can be found on the list of enquired enterprises, which means they have not used Internet actively.

	Percentage of respondents
Sale via Internet (e-commerce)	37,8%
Traditional sale with the use of Internet information	35,6%
Buying via Internet	31,1%
Traditional buying with the use of Internet information	28,9%
Enterprise does not use Internet in the sale/buy process	13,3%

Table 18: Pomerania - e-commerce

Source: own study based on the survey

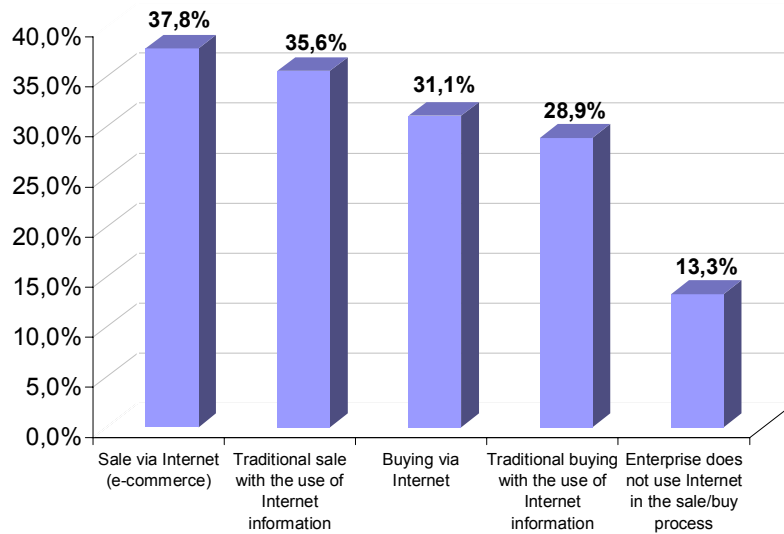


Figure 62: Pomerania - e-commerce

Source: own study based on the survey

Corporations

Both in the Pomeranian Region and in Poland significant changes, including the ownership, have taken place in corporations. Due to this the situation connected with the ICT management and usage is very unstable. Many changes are connected with introducing co-operation with international corporations, which have already used e-Commerce technology. Automatically usage of e-Commerce is applied by corporations in Poland (B2B & B2E/E2B). However the co-operation integrating activities are not published.

3 Comparative analysis with developed European Regions

3.1 State of e-Commerce Development

The main focus of this section is to present the current state of e-Commerce within Europe and to compare it with the three regions of Cyprus, Galicia, and Pomerania. Information was gathered from various statistical sources including a comprehensive study published in 2001 by the UK government and the eEurope Benchmarking Report 2002. The comparison is further enriched by general European ICT statistics, called “*just numbers*” published by the European Commission’s Electronic Commerce Team.

3.1.1 Citizen Internet Access and e-Commerce Usage

The latest report of eEurope, published in February of 2002, shows that Internet penetration in Europe averages 37,7%. Cyprus, with a percentage of 30% within households (and a total of 41% Internet access including households and other points of connection) is very close to Europe’s average, but Galicia and Pomerania have a much lower percentage.

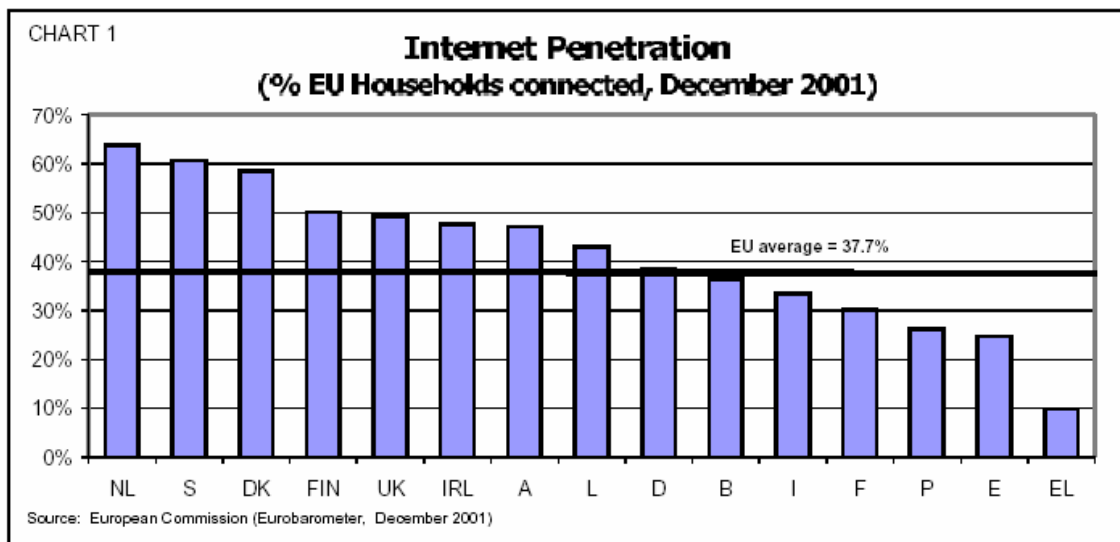


Figure 63: Internet Penetration (EU Households)

Source: eEurope Benchmarking Report 2002

The average percentage of European Internet users that purchase online is 35,6%. Cyprus’ survey showed a percentage of Internet users that purchase online of 12%. Galicia’s percentage is 12,3%.

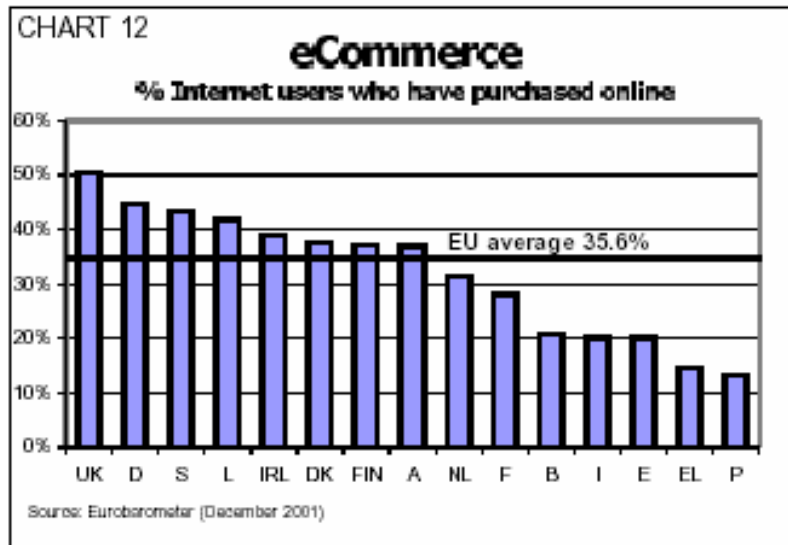


Figure 64: European Internet users who have purchased online

Source: eEurope Benchmarking Report 2002

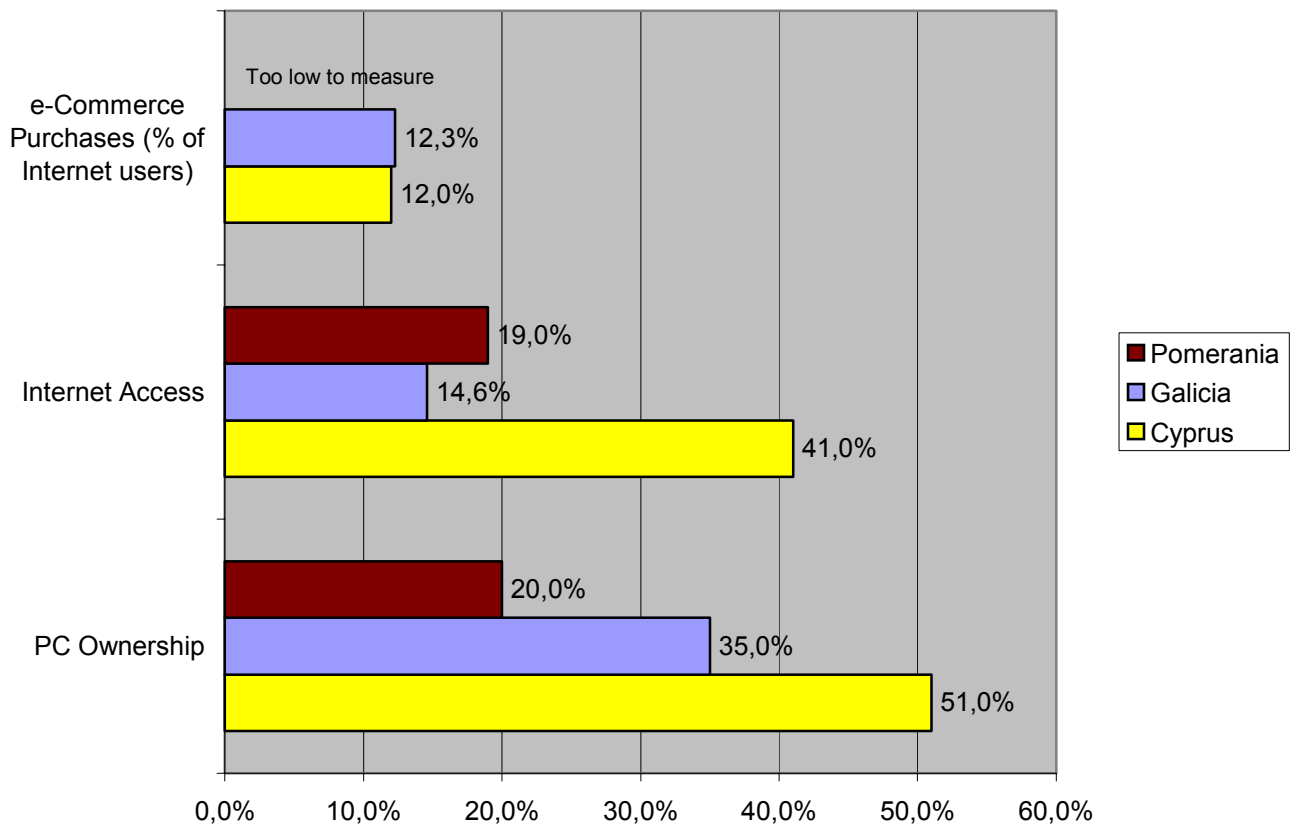


Figure 65: Citizens ICT 7 e-Commerce Highlights

Source: Compiled data from Cyprus, Galicia, and Pomerania

3.1.2 SMEs Internet Access, Web-Presence and e-Commerce Usage

The proportion of businesses in Cyprus with Internet access is as high as 92%. Galicia has also a high percentage of 70% but it is not as high as other developed European regions. Internet penetration among Pomeranian businesses is around 9%.

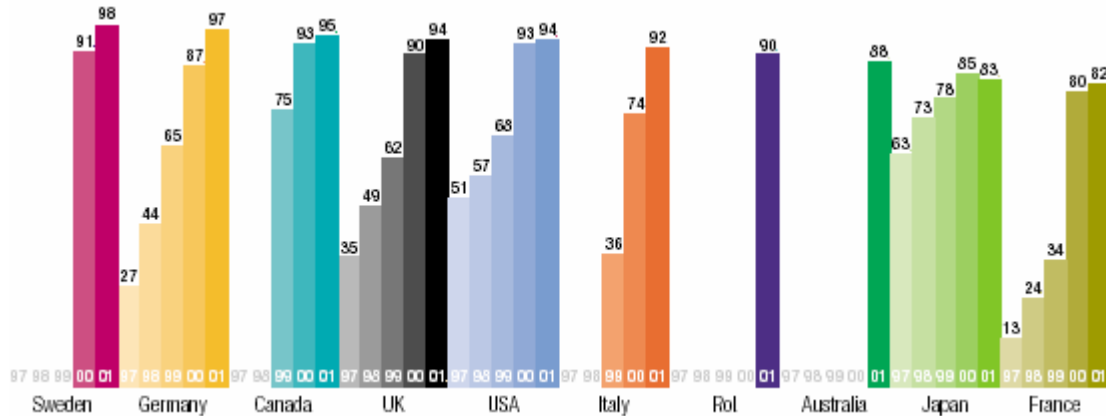


Figure 66: Businesses with access to the Internet, 1999 to 2001 (%)

Source: UK Government – International Benchmarking report 2001

The level of Internet access has continued to grow in nearly all countries. However, growth rates during the last year have not been as high as in previous years. This is probably because several countries, including the UK, are nearing saturation point. Internet access is virtually ubiquitous amongst medium and large businesses (those with 50 or more employees) across all countries. The UK, with Italy, the Republic of Ireland, the USA and Canada, is approaching the levels of access seen in Sweden (98%) and Germany (97%). This group is somewhat ahead of France, Australia and Japan.

In Cyprus 51% of SMEs now have a website presence, in Galicia 25% in comparison with the UK and Sweden that have the highest proportion of businesses (87%) to have websites and France (56%), the lowest among the developed European regions. The UK also recorded the second highest percentage growth in website creation last year, increasing by 21% to 80% (Italy’s growth was 32%). Website creation continues to grow significantly in every country.

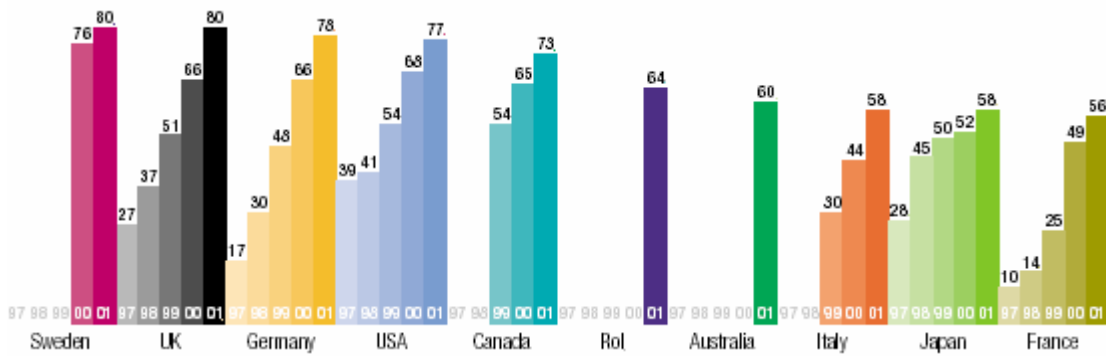


Figure 67: Businesses with a website, 1997 to 2001 (%)

Source: UK Government – International Benchmarking report 2001

The average percentage of European businesses that sell online is approximately 23%. The UK, Germany and Ireland companies lead Europe in this field.

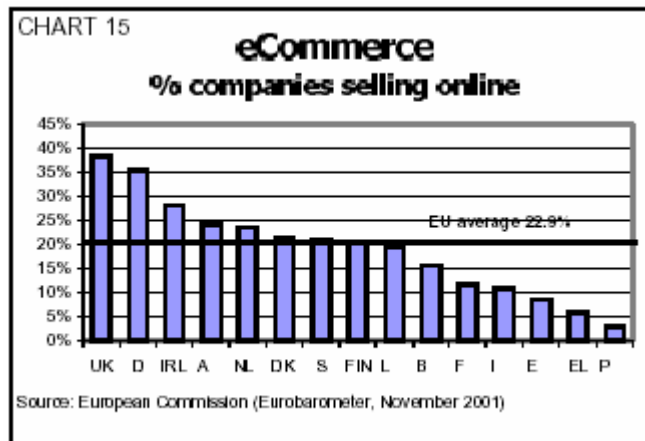


Figure 68: European Businesses selling online

Source: Source: eEurope Benchmarking Report 2002

In Galicia 5,3% of companies sell online. In Cyprus the percentage is nearly non-measurable.

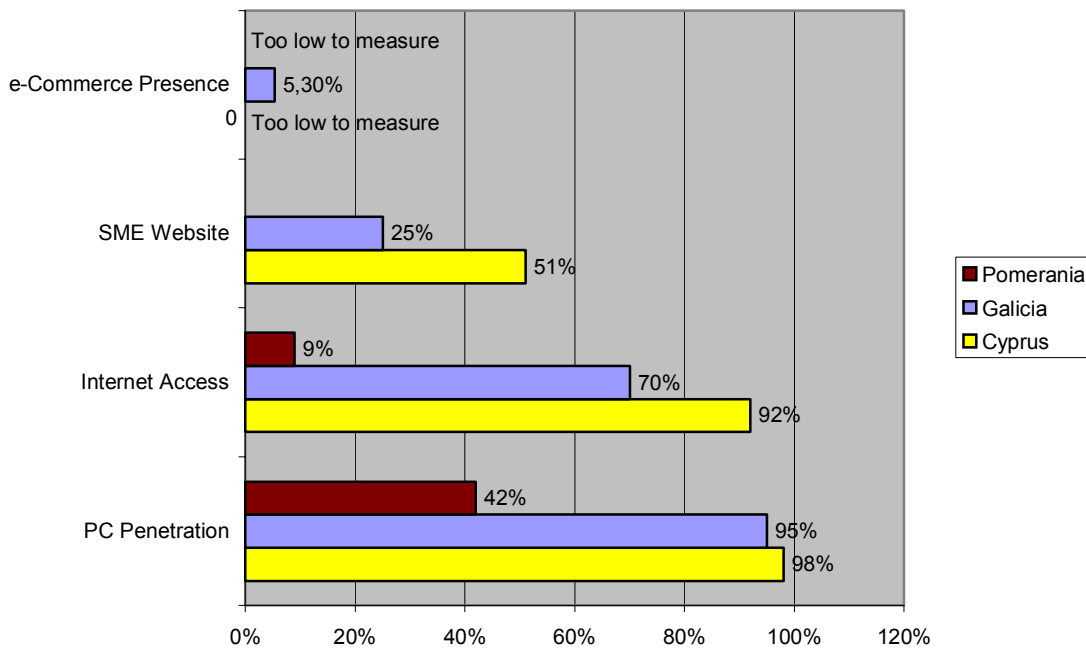


Figure 69: SMEs e-Commerce highlights

Source: Compiled data from Cyprus, Galicia, and Pomerania

The following two figures shows in more detail the proportion of micro and small business that is trading online. The proportion of *micro businesses* (0 –9) that are connected has increased during the last year in five of the eight countries for which 2000 data is available. Germany (30%) and Australia (21%) have the higher percentage in online trading. The proportion of micro businesses that trade online in France, Canada and Japan has decreased since last year.

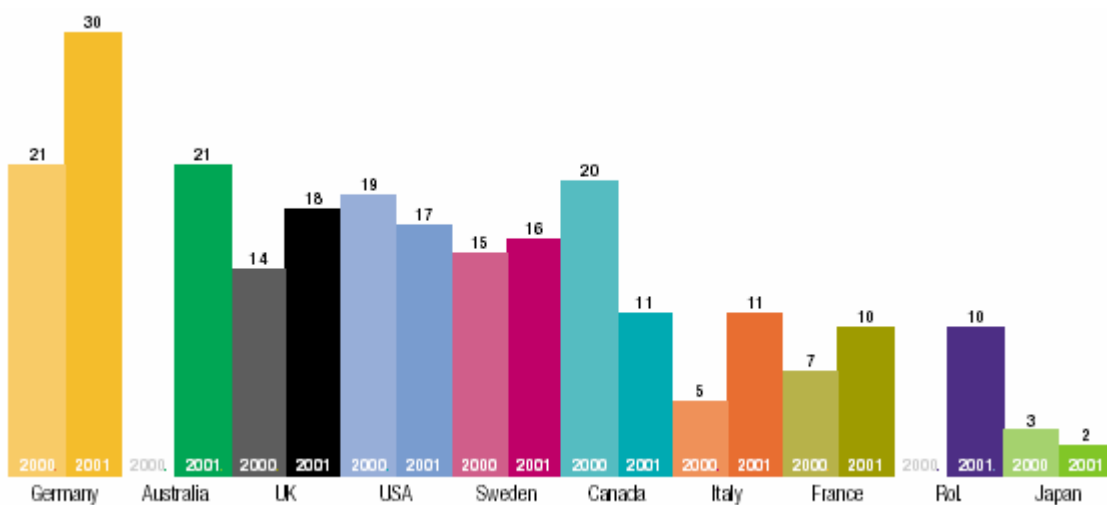


Figure 70: Proportion of micro businesses trading online, 2000 and 2001 (%)

Source: UK Government – International Benchmarking report 200

The proportion of *small businesses (10- 49)* that trade online has decreased during the last year in six of the eight countries for which 2000 data is available. Australia (30%), Germany (24%), Sweden (23%) and the UK (19%) lead the table. The proportion of small businesses that trade online in France and Sweden has increased since last year, although only by 1 percentage point.

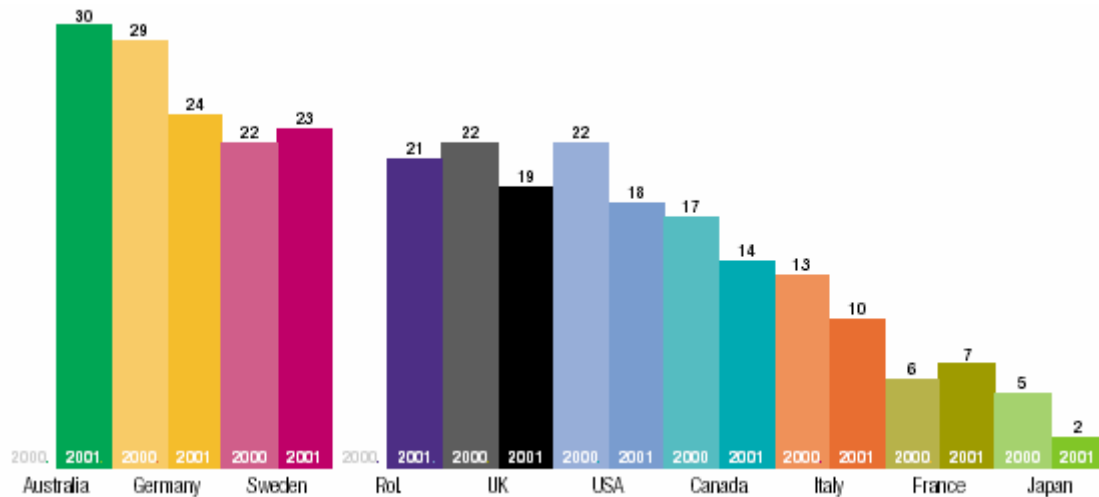


Figure 71: Proportion of small businesses trading online, 2000 and 2001 (%)

Source: UK Government – International Benchmarking report 200

4 Conclusions

4.1 E-Commerce Readiness

CYPRUS

4.1.1 Infrastructure

Internet connection:

The Internet is easily accessible to the majority of the Cyprus population. High speed Internet is also available throughout the island. Therefore, there are no Internet connection obstacles that need to be overcome in order to realise a take up of e-Commerce.

E-Payment/Security:

The E-payment and Internet security area is a major barrier in the promotion of e-Commerce, since there is an insufficient infrastructure. Technologies such as public and private key encryption are needed to help ensure the confidentiality and privacy of messages on the Internet as well as enhanced protocols such as Secure Electronic Transactions are required to enable secure credit card and other economic transactions. This infrastructure is a prerequisite in creating confidence in electronic transactions both among citizens and SMEs.

Legal Framework:

Some work has already started in this area but Cyprus still has a lot to do so that the necessary legal framework for e-Commerce is put in place. In countries that have a high level of e-Commerce the legal framework has already been solidified. Major issues include privacy, protecting intellectual property, preventing fraud, controlling Internet offensiveness, establishing a tax framework, determining jurisdiction, digital signatures and digital certificates help identification, protecting both sellers and buyers.

4.1.2 Citizens

The percentage of Internet penetration in Cyprus (41%) is at an encouraging level and the growth in the number of Cypriot Internet users is expected to rise as new and faster connections become widespread. A major issue remains though, that of e-confidence, which is holding back the Cypriot

Internet consumer to take advantage of e-Commerce. Only 19% of the total population surveyed has visited an e-Commerce site, and only a 5% made actual purchases (12% of Internet users), which make these figures low compared to the 41% Internet penetration.

4.1.3 SMEs

From the figures that were presented in this report we can see that the level of e-Commerce readiness among SMEs is very low. A possible reason that SMEs are reluctant to adopt e-Commerce may be the fact that there is a very large number of small companies on the island with poor business infrastructure, mostly conservative low risk family businesses that do not want to invest in technology.

Additionally, since there are very few manufacturers in Cyprus and most of the companies are importers of overseas products the Cypriot SMEs have a disadvantage in that they do not have a unique product. Nevertheless, a number of SMEs have indicated that they have short-term plans of selling their goods and services over the Internet.

A 73% of the SMEs surveyed stated that one of the influencing factors in adopting e-Commerce is to have a good understanding of the technology and the Internet. This aspect of the low e-Commerce readiness of SMEs will be addressed by another European Community funded project which Cyprus is involved in, ENLARGE, and which will provide training specifically for SMEs.

Lastly, a main obstacle for SMEs in deciding to enter e-Commerce is the lack of legislation. Another major reason stated is the lack of consumer confidence and the unsecured transactions. The first issue as mentioned above, is currently being addressed by the Cyprus Government.

4.2 E-Commerce Intensity

4.2.1 Web Presence

There are only 3,500 websites in Cyprus that were accounted for, which have a .cy domain name, but the actual number of websites owned by Cyprus companies is presumed to be quite higher than that since a lot of the Cypriot websites use other domains like .com or .net. In spite of that there are no dedicated portals and only a handful of high quality websites or a diversity of websites among the Cypriot Internet sites.

4.2.2 E-Commerce

The current e-Commerce intensity in Cyprus is extremely low. Despite the high level of ICT infrastructure the e-Commerce penetration is very low. There are only a handful of e-Commerce sites, which operate without the proper e-payment and legal infrastructure. In addition, as can be seen from the survey, their number of monthly orders and unique monthly visitors/subscribers is very low with the exception of a stockbrokerage firm that has a high volume of monthly transactions.

GALICIA

Infrastructure

According to December 2001 Galicia's ICT Observatory data, Galicia has a 35% of households with a PC and 20% of the Galician population are Internet users. Their data reveals that most SMEs access the net through ISDN (53,3%) or modem (39,1%) with a lesser number accessing through ADSL line (10,3%). The number of SMEs accessing through high bandwidth technologies such as ATM or satellite links is insignificant in Galicia (less than 1,5%). The data presented above describes an encouraging picture. However, when compared to Internet connection data from more developed regions in Europe the difference becomes clear, since as it is shown in Section 3 of this deliverable the tendency in these regions is to use technologies providing higher bandwidths.

As detailed in D1.1, Internet Service Providers and Telecommunication Companies in Galicia have made great investment efforts these last years in Galicia. Such investments, however, have not yet shown the expected benefits in SME's e-commerce activity. It would be obvious to assert that the existence of infrastructures is not enough to boost e-commerce. The affordability of reasonable bandwidths seems to be a basic requirement for e-commerce activity to flourish. Infrastructures are a much-needed element, though there are not sufficient in order to see a significant growth in e-commerce activity. From the data shown in Section 3 we can conclude that there seems to be a relationship between the availability of high bandwidth technologies at affordable costs and the level of e-commerce activity in a given region. Nowadays high bandwidth technologies are too costly for the average Galician SME.

In Galicia, some of the most important Spanish and Galician banking entities offer payment infrastructures ensuring the acting parties' privacy, confidentiality and security in economic transactions. These infrastructures play an important role and are essential in e-commerce development.

Though these infrastructures are in place and ready to be used, and in spite of their technical readiness, their use is prevented by the widespread negative public perceptions with regard to security (see fig. 49: Reasons of no purchase in Internet- on page 77). There's a lack of confidence in this payment medium. It seems that such lack of confidence should be corrected through education and communication activities.

In the legal framework, on February the eighth, 2002, the Spanish Council of Ministers approved the draft bill of the Information Society and Electronic Commerce Services Act. Among others, this Act has the objective of incorporating to Spanish regulation the 2002/31/CE Directive of the European Parliament and Council dated 8th June 2000 related to e-commerce activity. This Act, once passed by Parliament, will fill current legal gaps in Spain with regard to Information Society.

CITIZENS

As we have shown above, Internet penetration ratios for Galician and Spanish citizens are lower than those observed in the most developed countries in Europe. The connection (modem, ISDN, ADSL) cost is reasonably affordable for the small-medium income holders but is still higher compared to Sweden or the UK, and this is an important barrier to overcome in order to improve the relatively low e-commerce activity level in our region. Most users purchasing through the Internet, mostly consume books and music (see figures in pages 74 and 75, Most important items purchased by Galician and Spanish users).

Among issues to be solved remain: lack of Internet awareness and confidence preventing Internet users making online purchases (see fig. on page 76, Reasons of not purchase in Internet). Dissemination and education activities seem to be the most appropriate tools to change the existing patterns of belief, thought and behaviour among Galician users.

SMEs

Galician small and medium enterprises seem not be prepared for e-commerce at this time. Galician SMEs are generally conservative and rigid in their business methods. In the past they have shown a relatively slow pace in adapting to change. Overall, there is still a low level of ICT penetration in comparison with more developed European regions (see Comparative table at the end of this section). Galician entrepreneurs seem to have little regard for the business opportunities provided by the information and communications technologies available today.

The use of ICT in general and e-commerce related technologies specifically should be promoted amongst Galician SMEs.

Noteworthy in Galicia is the case of B2B activity. The number of businesses engaged in B2B activities is reasonably high (almost 20% according to AECE's 2001 Study). This seems to be due to the domino effect generated by the large and multinational enterprises present in the region driving their local partners and suppliers (mostly SMEs) to carry business online. Large companies understand well the opportunities offered by ICT to accomplish cost reductions in their business transactions with regular suppliers.

Therefore, it seems necessary to encourage larger SMEs to adopt B2B e-commerce solutions. This action should bring about a larger number of SMEs in the area adopting such solutions.

e-commerce intensity

Web presence:

The ratio of SMEs with a website is quite low, amounting to 25% (Galicia's data p. 17). Of those, most are static (74.7% of the 25%) and merely have an informative purpose. The number of websites sell products or services online is extremely low (21.3% of the 25%) and reflects the poor level of e-commerce activity existing in our region. Having a website is clearly a first step in the right direction; however it is by all means not enough to start e-commerce activity. Once more, awareness raising, dissemination activities and information campaigns could prove to be highly useful in breaking this pattern.

e-Commerce

As expected the number of SMEs with an e-commerce site in Galicia is very low (about 5% of the total SME population). E-commerce activity in Galicia takes place mainly between companies. B2B activity is at reasonable levels. However, business to consumer activity is very low (see Comparative table at the end of this section). On top of consumer distrust with regard to online transactions, SMEs don't perceive a need to take up e-commerce methods and channels to reach their customers.

POMERANIA

The shift of planned Internet usage intensity from the areas of „basic communication”, based mainly on e-mail, to the direction of more specialised services, testifies with no doubt overcome of the barrier of “Internet usage elementary stage” and shows the enquired have substantial knowledge on variable forms of Internet usage. The confirmation of these can be found in the answers to the questions about the effects connected with Internet usage in the enquired enterprises (the table below). It shows that the following in particular belong to these effects: “Better knowledge of market” (57.8% of responses) and “Increase in the number of customers” (60.00% of responses). Significant meaning for entrepreneurs and their enterprises has also (26,7% - 33,3% of responses) such effects as: “Costs reduction”, “Sale increase” and “Improvement of inside company communication”.

Effects connected with Internet usage	Percentage of respondents
Better knowledge of market	57,8
Increase in the number of customers	60,0
Costs reduction	26,7
Sale increase	42,2
Improvement of inside company communication	33,3
Finding commerce partners	31,1
Other effects	20,0
Profits increase	24,4
Entering new geographical markets	17,8

Table 19: Internet effectiveness

Source: own study based on the survey

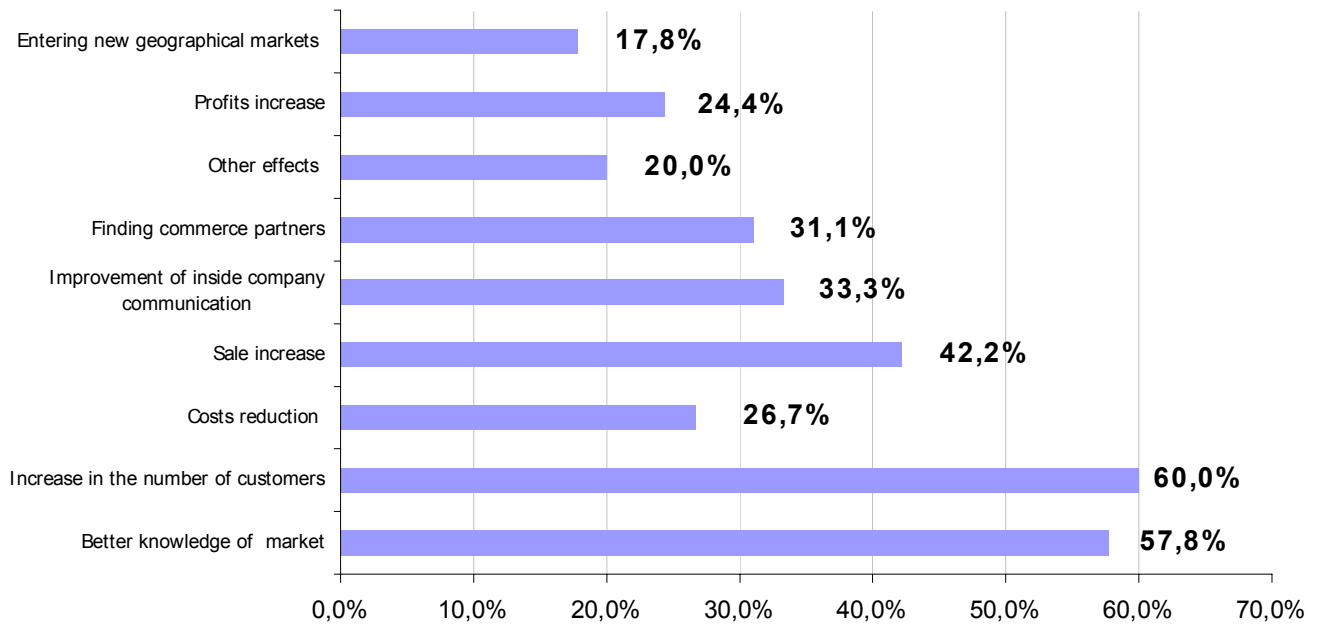


Figure 72: Internet effectiveness

Source: own study based on the survey

In parallel it could be possible to ponder on the barriers causing the present low level of Internet usage and according to the enquired entrepreneurs its staying still low in the next following 2 – 3 years. In the presented surveys the essential barriers to Internet usage are technical problems connected mainly with the telecommunication area and high costs, especially of Internet access costs (the table below). Many years' negligence of state telecommunication infrastructure causes the limitation of ICT development dynamics, being at the same time a barrier to Information society development.

Distinguished barriers	Percentage of respondents
Monopoly in telecommunication	73,3
Low speed of transmission	46,7
High costs of access, costs of connection with Internet	53,7
Lack of relevantly high speed hardware	35,6
Lack of knowledge how to use Internet effectively	23,2
High costs of Web site creation	22,2
Necessity of possession of expensive hardware	6,7
Excessive technical complication of Internet	4,4

Table 19: Essential barriers to Internet usage

Source: own study based on the survey

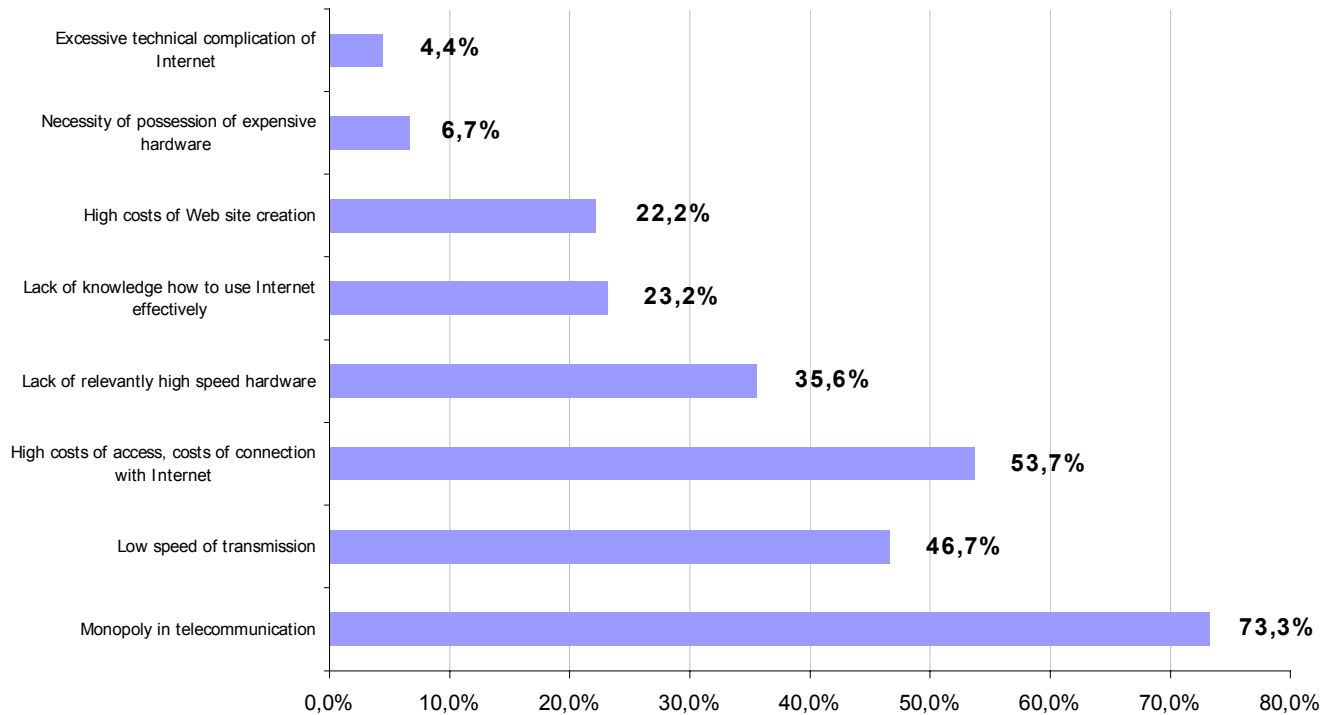


Figure 73: Essential barriers to Internet usage

Source: own study based on the survey

It can be observed at the same time, that entrepreneurs realise the fact that development of their companies can significantly depend on Internet development as well as the dynamics of this development depends significantly on the policy of state authorities in relation to Internet users. This is expressed in entrepreneurs' recommendations to the public authorities made during the survey (the table below). Entrepreneurs expect that realisation of their recommended activities would allow factual, not only hypothetical (as it currently happens in many regions of the country) unconstrained access to Internet.

Recommendations	Percentage of respondents
To quicken the end of the communication monopoly	80,0
To implement friendly security of Internet commerce	55,6
To introduce limits in fees for Internet access	57,8
To introduce public computer-Internet education	57,8
To introduce preferences in ZUS and tax settlements via Internet	36,6
To start financial services facilitating Internet development in enterprises	35,6
To orientated public authorities' work towards future needs in economy	35,3
To activate programmes supporting SMEs starting their presence in Internet	40,1
To organise competitions distinguishing best enterprises providing Internet services	24,4
Others	18,3

Table 20: Preferences in the range of recommendations to the public authorities

Source: own study based on the survey

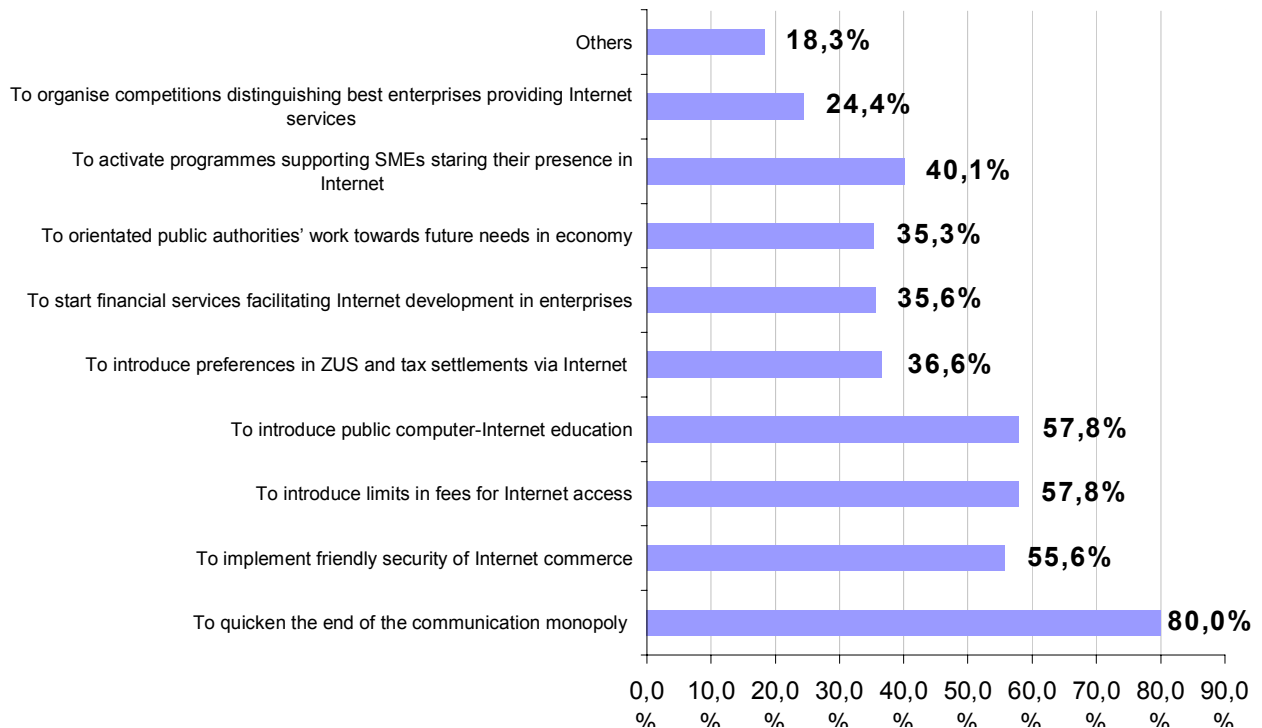


Figure 74: Preferences in the range of recommendations to the public authorities

Source: own study based on the survey

In conclusion of the surveys the authors deliver one more piece of significant information. However, the surveys have confirmed the put forward hypothesis that Internet is becoming more and more important, and sometimes it is even the basic source of information for enterprises which use it, and at the same time that not the costs of Internet access by enterprises are an essential barrier to electronic business development (mainly in the area of commerce), but too high costs of connections for customers of these enterprises. The second barrier to development is lack of proper education of customers, the retail ones in particular.

Analogically it can be stated that the development of the Information Society in all previously presented aspects will face both of these barriers: costs and education restrictions. The first will gradually decrease together with the ICTs infrastructure development, while the latter requires special concern and undertaking of variable educational initiatives dedicated to all groups of the society.

4.2.3 Final Conclusions

It is interesting to note that although the three regions have very diverse demographics and different Internet penetration, all regions have similar status in e-commerce presence and purchases. The constraints faced in the exploitation of e-commerce are also similar. These findings provide an ideal opportunity for a common strategy towards enhancing the use of e-commerce in the region adapting to the strategy of the specific region characteristics. The e-MINDER project aims at providing such a strategy.

The Europe+ directives, the common mitigation strategies for eliminating the E-commerce constrains as well as the exchange of experiences in the promotion of E-commerce to the various regions form the basis of the e-minder consortium synergy.

As a final conclusion we present a summary graph and a table of the main findings of the E-Commerce Report:

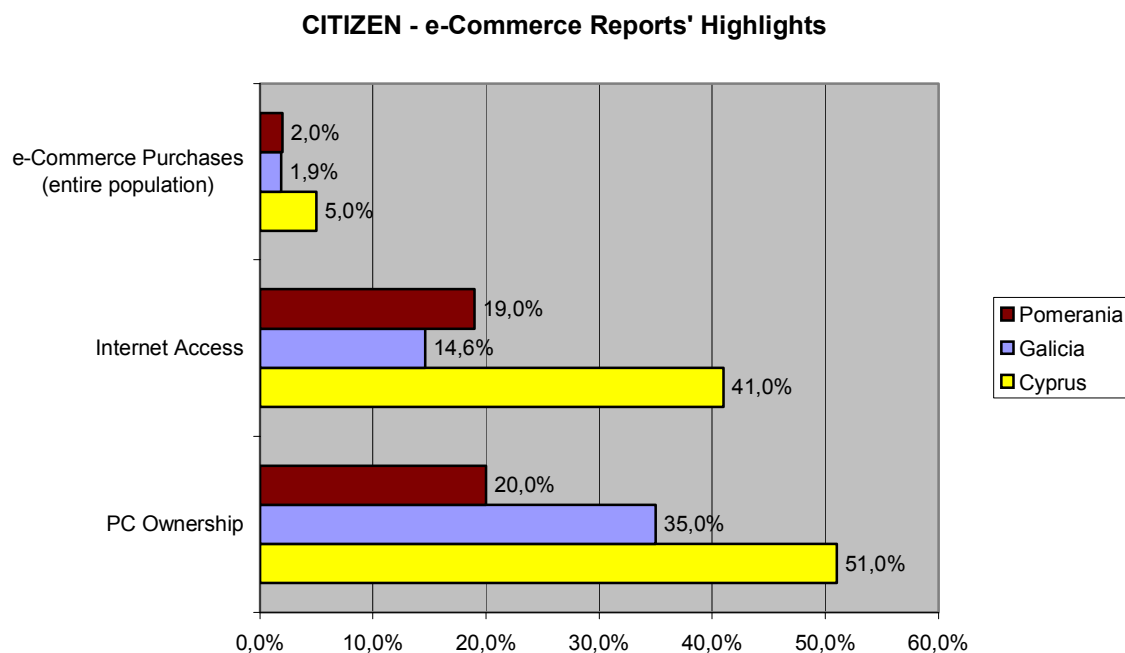


Figure 75: Citizens e-Commerce Highlights

Source: Data found in this Report

SMEs - e-Commerce Report highlights

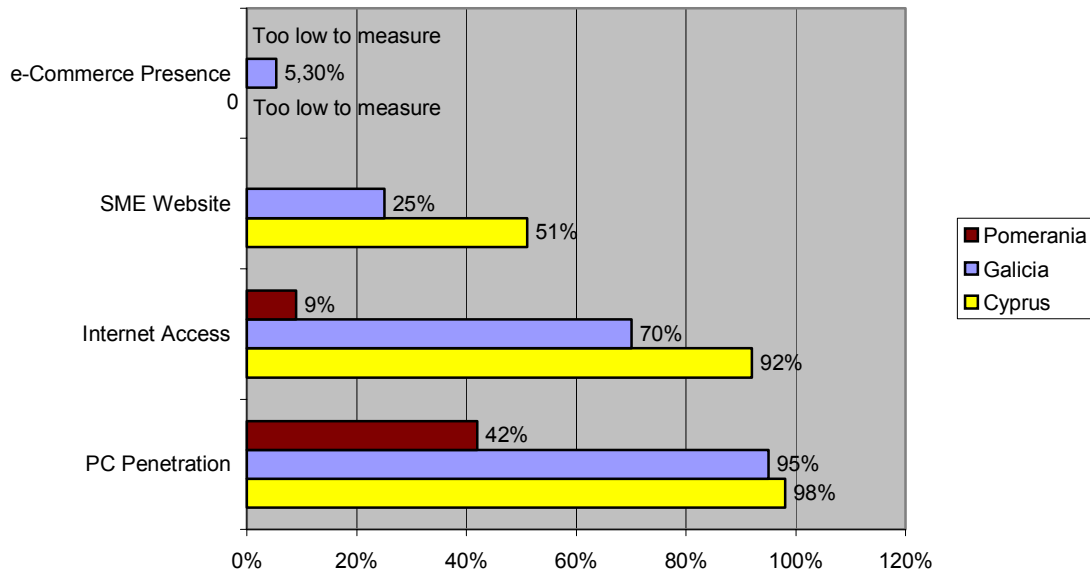


Figure 76: SMEs e-Commerce Highlights

Source: Data found in this Report

	Cyprus	Galicia	Pomerania	UK	Sweden	Germany	France
Businesses with access to the Internet	92%	68%	20,3%	94%	98%	97%	82%
Method of connection to the Internet	Analog 55%	(Small) Analog 39,1%	Analog 50,1%	Analog 32%	Analog 19%	Analog 5%	Analog 36%
*high broadband leased lines	ISDN 30%	ISDN 53,3%	ISDN 4,8%	ISDN 29%	ISDN 20%	ISDN 65%	ISDN 10%
	ADSL 8%	ADSL 10,3%		ADSL 2%	ADSL 1%	ADSL 2%	ADSL 10%
	Cable 0%	Cable 0%		Cable 2%	Cable 1%	Cable 5%	Cable 6%
	Other* 11%	Other* 1,1%	Other* 45,1%	Other* 35%	Other* 59%	Other* 23%	Other* 38%
Businesses with a website	51%	25%	-----	80%	80%	78%	56%
Businesses enabling on-line ordering	18% (8 out of 45)	5,3% (the 21,3% of the 25% with website)	-----	29%	38%	43%	19%
Percentage of the total value of sales that are on-line ordered	Too low to measure accurately	2%	Too low to measure accurately	13%	17%	11%	13%
Internet users which have purchased online (B2C trading)	12%	12,3%	-----	51%	43%	45%	28%
Businesses that provide goods and services for sale at an e-marketplaces	Too low to measure	Insignificant (less than 0,5 %)	-----	8%	5%	11%	3%
Businesses to Businesses online ordering (B2B trading)	-----	20%	-----	33%	25%	30%	20%

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Glossary

Asymmetric Digital Subscriber Line (ADSL) ADSL enables voice and high-speed data to be sent simultaneously over telephone (copper) line. It can be configured to deliver up to six megabits of data per second (6000K) from the network to the customer that is up to 120 times faster than dialup service and 100 times faster than ISDN. The service is 'always available,' end-users don't need to dial in or wait for call set-up.

Application Service Provider (ASP) A provider of business applications on a pay and use basis. It allows companies to lease or rent hardware/software applications or operations - everything from maintaining an e-commerce site to handling payroll.

Authentication A method to verify the buyer's identity before payments are authorized.

Administration-to-Citizen/Citizen-to-Administration (A2C/C2A) Type of e-Commerce activity where one of the partners is a local, regional, national or international administration, the other is a citizen, and there exist economic transaction(s) or exchange of information in the process.

Business-to-Administrator/Administrator-to-Business (B2A/A2B) Type of e-Commerce activity where one of the partners is a local, regional, national or international administration, the other is a business entity, and there exist economic transaction(s) or exchange of information in the process.

Business-to-Business EC (B2B) Type of e-Commerce activity where the transacting parties are two or more business entities, or the transacting parties are members of the same company/organization/business.

Business-to-Consumer EC (B2C) Type of e-Commerce activity where one of the transacting parties is a consumer and the other a business entity.

Business-to-Employee/Employee-to-Business (B2E/E2B) Type of e-Commerce activity where one of the partners is a business entity, the other is an employee of the same business entity, and there exist economic transaction(s) or exchange of information in the process.

Consumer-to-Consumer (C2C) Type of e-Commerce activity where the transacting parties are two or more citizens and there exist economic transaction(s).

Customer Relationship Management (CRM) is the business process, which enhances and enlarges the relationships between the customers and the business in a profitable way for both parties.

Digital signature is a phrase (like Andreas N. Georgiou) and it is a method of authenticating the source of a document and/or its author. It is based on PKI (Public key encryption) and uses digital certificates, whereby the issuing company vouches for you and gives you a unique identification that can be verified by a merchant prior to accepting an order.

Domain name the name used to reference a computer on the Internet where the Domain Name can be converted as requested by an Internet User into an IP Address. The location of the machine with this IP address is known & the information being requested can then be found such as www.yahoo.com. Commonly used codes to indicate types of organizations are:

AC - Educational institution

CO - Commercial organization

COM - Commercial organization

EDU - Educational institution

GOV - Non military government organization

INT - International Organization

MIL - Military government organization

NET - Network organization, ties to Internet administrative bodies

ORG - non profit organization

E-government is about bringing administrations closer to citizens and businesses by bringing their services online.

E-procurement is the business-to-business purchase and sale of supplies and services over the Internet. This is sometimes referred to as Supplier Exchange.

E-Marketplaces are online virtual markets that enable buyers and sellers to share information and order/pay online.

Electronic shopping center (or mall) a set of independent electronic stores who share an electronic marketing environment such as servers, software, and payment systems where a person can go to many "stores" and browse for different types of products in the same website.

Enterprise resource planning (ERP) an integrated software package for the business.

Extranet is a private network that uses the Internet protocol and the public telecommunication system to share securely part of a business's information or operations with suppliers, vendors, partners, customers, or other businesses.

Firewall a network node consisting of both hardware and software that isolates a private network from external networks (i.e. Internet). Its primary purpose is for security and is designed to keep unauthorized outsiders from altering or accessing unauthorised information on a networked computer system.

Integrated Services Digital Network (ISDN) is an international communications standard for sending voice, video, and data over digital telephone lines. ISDN requires special metal wires and supports transfer rates of 64 Kbps. Most ISDN lines offered by telephone companies give you two lines at once, called B channels. You can use one line for voice and the other for data, or you can use both lines for data to give you data rates of 128 Kbps, four or five times the data rate provided by today's fastest modems.

Internet Service Provider (ISP) private companies supplying local and regional connections to the Internet and providing individuals and businesses with Internet access for a fee.

Intranet web technology in conjunction with a LAN to enable staff to communicate with each other, access databases and exchange documents and files.

Portal - an entry point or starting site for the World-Wide Web, combining a mixture of content and services and attempting to provide a personalized "home base" for its audience with features like customisable start pages to guide users easily through the Web, filterable e-mail, a wide variety of chat rooms and message boards, personalized news and sports headlines options, gaming channels, shopping capabilities, advanced search engines and personal homepage construction kits. Examples are AOL, MSN, Yahoo.

Secure electronic transaction (SET) a set of cryptographic protocols jointly developed by Visa, MasterCard, Netscape, and Microsoft and designed to provide secure Web credit card transactions for both consumers and merchants.

Secure socket layer (SSL) a special communication protocol used by web browsers and servers to encrypt all communication online and makes secure web transmissions obvious to end users.

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APPENDIX A: Galician Payment Infrastructure Abstract

A final review and abstract (note that Banco Pastor isn't in the abstract because the service offered is outsourced to 4B systems and all the information not available is reflected as blank).

Virtual TPV

	Caixa Galicia	BBVA	BSCH	Bankinter	La Caixa	Caixanova	Banco Popular
TPV What kind of cards?. From any financial entity?	VISA or Mastercard from any entity. Also Caixa Activa too.	Visa, Mastercard and Eurocard. From any entity.		Visa, Mastercard and Eurocard.	Any card emitted by La Caixa entity. (Cards from other entities must be approved)		
% commissions	Sales in the Internet	From 3 to 3,25			From 2 to 4,12		
Who assumes the risk if the buyer cancels the purchase?.		Customer has a time limit to rollback the transaction. If the purchase's not approved, operation is cancelled.					
Data sent to the payment gateway	Shop sends order id and price. Buyer provides the card number and expiry date.	Card number, expiry date, shop number and price.	Card number and expiry date.				
XML? Integration facilities		100% Compatible					
Multicurrency?		Only Euro.					

	Caixa Galicia	BBVA	BSCH	Bankinter	La Caixa	Caixanova	Banco Popular
When is the payment confirmation received?	Immediately	Real-time payment information.		Payment information in real time.	In real time.		
When is the payment collected?		Next-day-collecting Payment.		Next-day-collecting Payment.			
When does the customer receive payment ack?	Immediately	When the web server sends the acknowledgement (as requested when the parameters were sent). Payment gateway will answer OK to the web server which request the data.		immediately	Email notification		
Value added services to the Shop (ie. Query, stats and management facilities provides to the shop).	Real-time queries of all the daily transactions done in the shop. It permits the return of payments from the same shop. Help-desk telephone, email...	Query of all operations authorised, denied or filed by the payment gateway. It provides management of returning payments from purchases already done. If the purchase has been entered in the shop account, the commissions are rollbacked.		Query the accomplished operations. Return policy permitted. Extra security controls: maximum authorised amount, Maximum amount in transaction and maximum number of transactions.	Shop can return the payments.		Can query operations, and initiate a refund.

	Caixa Galicia	BBVA	BSCH	Bankinter	La Caixa	Caixanova	Banco Popular
Value added services for the customer (ie. Any facilities for querying payments? About SET: ¿Is there any software or help supplied?...)	Email and help-desk for the two sides	Query easiness: it depends on the banking entity and card. In the case of a BBVA customer, he can query his operations with the e-banking service provided by the BBVA. SET Software: Customer can request technical support from BBVA.					
Which entities get involved in the transaction (Visa, Mastercard ...)		From web sever to BBVA via SSL. From BBVA to SERMEPA (Visa) via X25. From Customer/shop to BBVA via SSL.					
Virtual card applications		Yes, same conditions for the shop as it was a normal credit. For the customer: banking product specific conditions.			Yes, "Cibertarjeta" free – without maintenance costs. Activation and recharge via Internet within a credit/debit card. Shop must accept Mastercard. Balance querying and purchases with the e-banking service		

	Caixa Galicia	BBVA	BSCH	Bankinter	La Caixa	Caixanova	Banco Popular
					of La Caixa.		
Intelligent cards applications (i-cards)? Conditions. ¿Reader/Software? are?		Yes. Terms for the shop: 1,5%, 30 € maximum sum operations, end of day payment total sum. Software reader needed. Actually free for BBVA customers.					
Supported Mobile devices?		Being helded.			Yes, Mobile VISA service supported		
TPV with SSL?	yes	Yes		yes	yes	yes	yes
SET protocol solutions?		Yes		yes	yes		
Security comments	TPV works with SSL protocol.						

TPV service request

	Caixa Galicia	BBVA	BSCH	Bankinter	La Caixa	Caixanova	Banco Popular
Web applications request, offices		All					
Service set up time		2 days					
Contract needed	Virtual TPV contract signed	Virtual TPV contract signed		Virtual TPV contract signed	Virtual TPV contract signed		
Is needed an opened	Yes, for the shop.	Yes for the shop if services		Yes, for the shop	Yes, for the shop. Not needed for		

	Caixa Galicia	BBVA	BSCH	Bankinter	La Caixa	Caixanova	Banco Popular
account at the banking entity.		are e-buyer and TPV. In the case of e-transferencia the tow sides must have.			the customer.		
Other installation requisites.	Internet connection and email account if notification of confirmed order acknowledgement is desired. Web site with shopping basket (Caixa Galicia could provide it). Virtual shop must send to the payment gateway an order id and price.	Web server authorization in order to install payment gateway software (security libraries in a system folder). Installation is done by the same web server.		An Internet shop with a shopping basket.			

Setting up TPV service

	Caixa Galicia	BBVA	BSCH	Bankinter	La Caixa	Caixanova	Banco Popular
Required components in the installation.		E-commerce server installation. Free		Executing an integration process between shop and payment gateway (order id and price)	Installation of free software for the shop.		
Install a new shop in the Marketplace. What is needed?		It is not necessary to reinstall the software in order to add a new shop.					

	Caixa Galicia	BBVA	BSCH	Bankinter	La Caixa	Caixanova	Banco Popular
		Simply, add a new folder to obtain the same results.					
User has a support and help desk service	Help-desk phone for TPV installing problems.	Installation manual, and phone support, level 1 and 2		Bankinter cooperation	Self installer		

Other solutions

	Caixa Galicia	BBVA	BSCH	Bankinter	La Caixa	Caixanova	Banco Popular
Own solutions or in association with other enterprises (hosting, web pages design, shopping basket, etc.).	B2C: La Galería with a Virtual TPV B2B: financial services (payment facilities and quotes, endorsements and bank guaranties ...) and no financial (operational assessments, formation activities and dissemination, e-commerce software developments via SoftGal, security assessment, certification, digital signature via UNICOM).	e-selling pack, for easiness star up in e-commerce Includes: Azertia solutions (web pages design online catalogs... e-payments (virtual TPV e-transferencia, e-buyer) + e-financing (e-confirming , finanziaweb) . Terra. Create your own shop	Collect and payment services (virtual TPV + electronic payment, + virtual receipt + callcenter payment + ATM payment + virtual receipt payment + payment from any banking entity). Value added services related with the payment process. Comerciaplus service Pymarket service.	Services for enterprises that want its own domain or host a site, a shopping basket ...	Cyberpac: Payment platform in Internet for different modes like VISA mobil, tranfers, by direct debit		