

e-Factors in e-Agribusiness

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Abstract

The Internet offers new opportunities for small businesses to conquer new markets and to find better and cheaper suppliers. Internet-based commerce is widely perceived as the new business logic that operates in a world without boundaries; a world characterized by speed, change, interactivity and connectivity. In this global commercial environment, e-business models appear to be the central conceptual component. Information and communication technologies (ICT) are changing the way in which companies trade with their suppliers and customers. The growing complexity of the food sector drives companies to adopt more sophisticated and effective e-business solutions. If we intend to adopt an e-business solution we have to consider more “e-factors” such as technological, individual, organizational, industrial and societal aspects.

Key words

Agriculture, e-Business, Internet

Introduction

As regards the effects of new ICTs, e-commerce and e-business, their impact has been the multiplication of possible business configurations and thus choices to make for managers. In contrast to the traditional organization of a sector where business models looked alike, the range of possible new business models in the ICT era have grown strongly. This increase in variety of business models is closely related to the adoption of ICTs in business. Some opportunities in e-Business are the following:

- Improving of internal processes
- Decrease supply chain management costs
- Improved customer service, build a customer community
- Sharing technological and communication investments
- Growing demand for specialist products in niche markets
- Availability of “*Plug and Play*” solutions

Besides the opportunities and advantages we have some challenges and risk if we would like to adapt e-Business model.

- Inadequacy of SMEs’ ICT infrastructures
- ICT training and skills
- Increasing competition and impact on costs
- Cultural barriers

We studied the present situation from different sources. The first part of our study based on the e-Business MarketWatch database with contains data about the food and beverages sector. The second source was the Electronic Marketplace directory which contains information and links related to agriculture and food products e-trading. The third part is our survey on Eastern part of Hungary namely Hajdú-Bihar County.

e-Business MarketWatch

Information and communication technologies (ICT) are changing the way in which companies trade with their suppliers and customers. The e-Business W@tch monitors related developments and analyses their impacts on different sectors of the European economy. Special emphasis is placed on the implications for SMEs.

The quantitative analysis about the diffusion of ICT and e-business is based to a large extent on regular representative surveys among decision-makers in European enterprises. The 2005 survey covers more than 5000 enterprises from 10 different sectors across 7 EU member states. In addition, more than 70 case studies on e-business activity in enterprises from all EU, EEA and Accession countries are carried out, to complement the statistical picture by a more detailed analysis of current e-business practices.

The “manufacture of food products and beverages” industry is subdivided into nine groups including meat, fish, fruit and vegetables, fats, dairy products, grain mill and starch product and beverages and, lastly, a group for animal feed.

Food and beverages is a very important sector in the European economy, with a production value representing 13% of total manufacturing. The sector provides jobs for about 4.4 million people in the EU. It transforms more than 70% of the agricultural raw materials produced in the EU. France, Germany, Italy, the UK and Spain (the EU-5) account for almost 80% of total production. Food and beverages is a key sector in the 10 new Member States also: The industry generates on average 19% of the value added created by manufacturing as a whole and accounts for 15% of total employment in these countries.

The structure of the food and beverages industry at EU-25 level is characterised by the high presence of micro and small companies. About 95% of enterprises are micro-firms with 1 to 9 employees. SMEs (1-249 employees) generate almost half of the total EU production. 37% of employees work in a micro or small company, 63% in medium-sized or large companies.

The growing complexity of the food sector drives companies to adopt more sophisticated and effective e-business solutions. The applications most commonly used are: e-mail, websites and online banking. Other applications subsequently adopted, with a considerable gap in terms of adoption rates, are EDI and ERP systems. The key issues that are likely to have a major influence on ICT investment decisions in the future are: food safety and the full digital integration of the value chain. Investments in supply chain integration (internally and in B2B processes), including RFID (Radio Frequency Identification) technologies, are a focus of ICT adoption in the sector.

This part of our study based e-Business W@tch monitor database. The Internet usage and accessing technology is showed on Fig 1. According to the e-Business Survey 2005, 83% of companies representing 95% of employment in the F&B industry have access to the Internet. However, this percentage increases to 100% if we consider firms with more than 50 employees, whilst it falls to below 80% in companies with less than 9 employees. The most widely-used network application is the LAN (Local Area Network) with 36% penetration (100% if we consider firms with more than 250 employees). Decidedly less common are

Wireless LAN applications (in use in just 4% of companies) and VPNs (Virtual Private Networks).

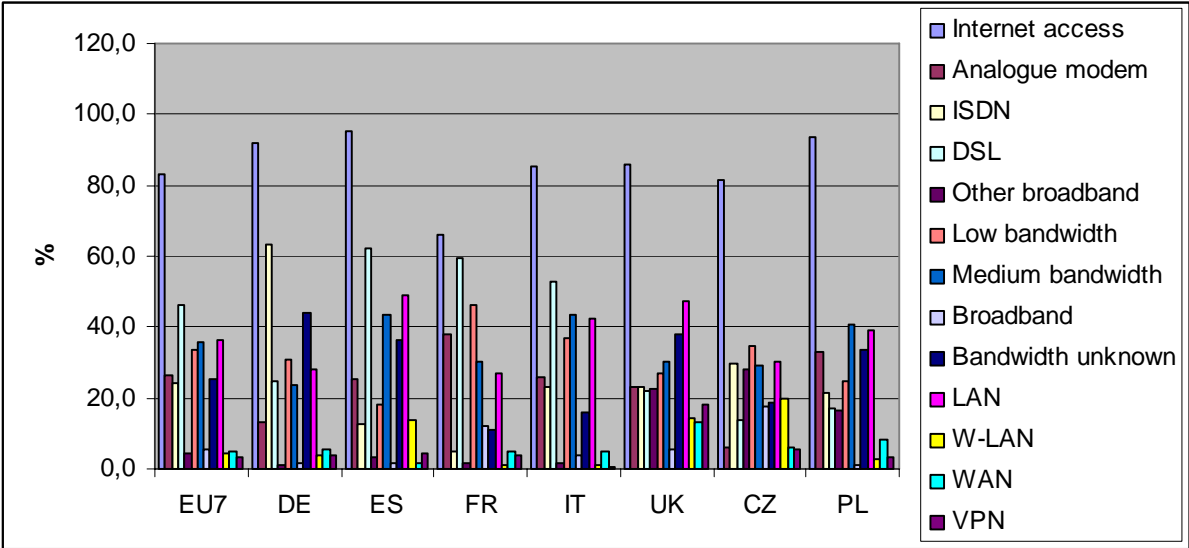


Fig 1. Internet access and network technology (2005). Source: Based on e-Business W@tch monitor

If we exam the ERP systems we find that it is present in 6% of firms in the sector. The percentage increases according to company size, reaching 70% penetration in firms with more than 250 employees and confirming the substantial difference in ICT use between large and small enterprises. (Fig 2.)

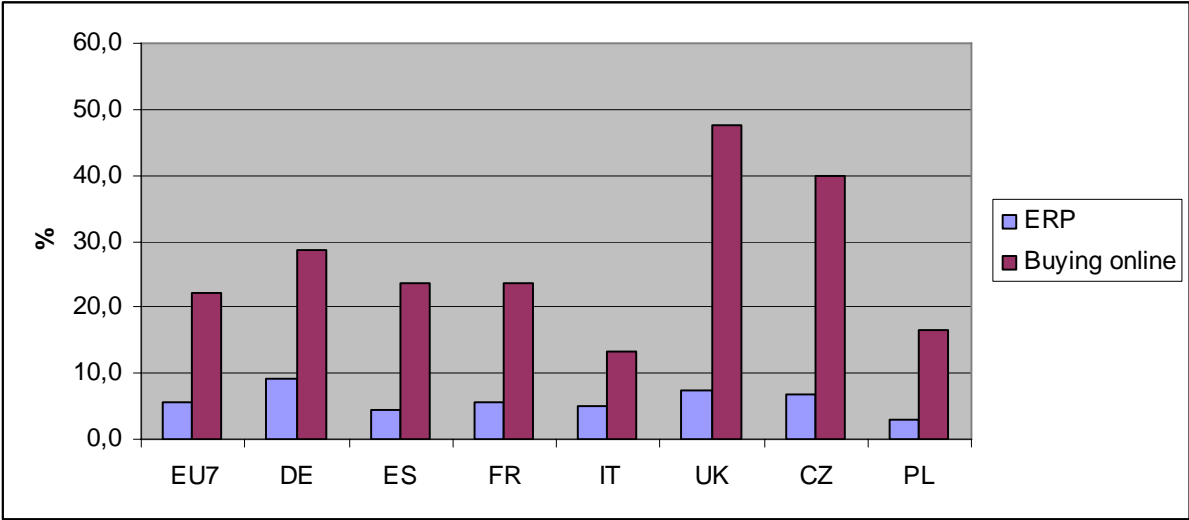


Fig 2. ERP penetration and the on-line buying

Fig 3. shows the use of online purchasing. 22% of firms in the F&B industry use online purchasing. From the second column the figure shows the percentage of firms that buy under or between or above the given percentage of supply goods online

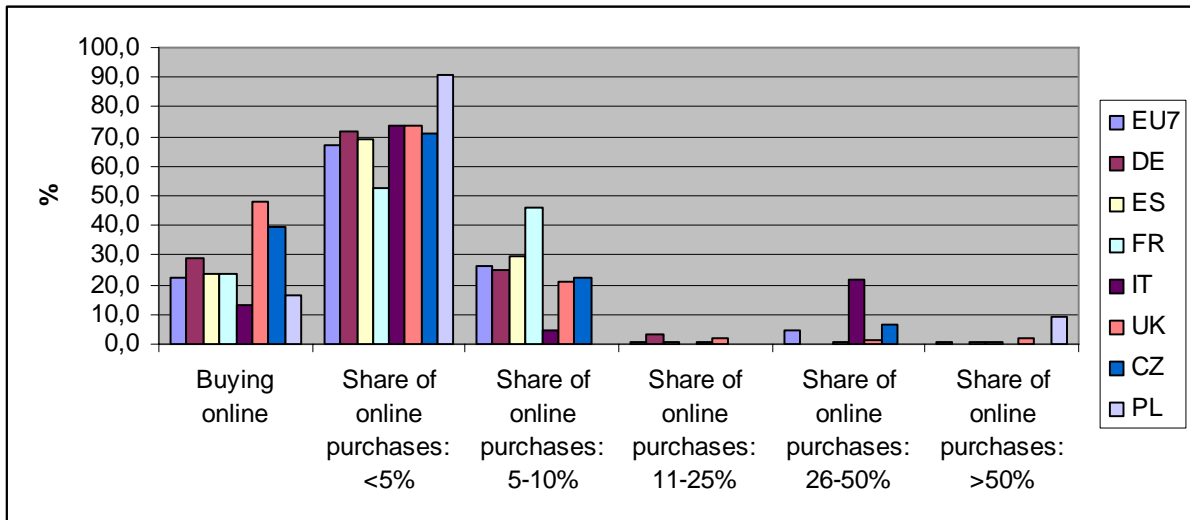


Fig 3. Share of on-line purchases

If we consider the document exchange standard in the food industry (shown on Fig 4.) it should be pointed out that the internet and the new structured information exchange standards like XML (Extensible Mark-up Language) make older systems (like EDI) conceptually and operationally obsolete.

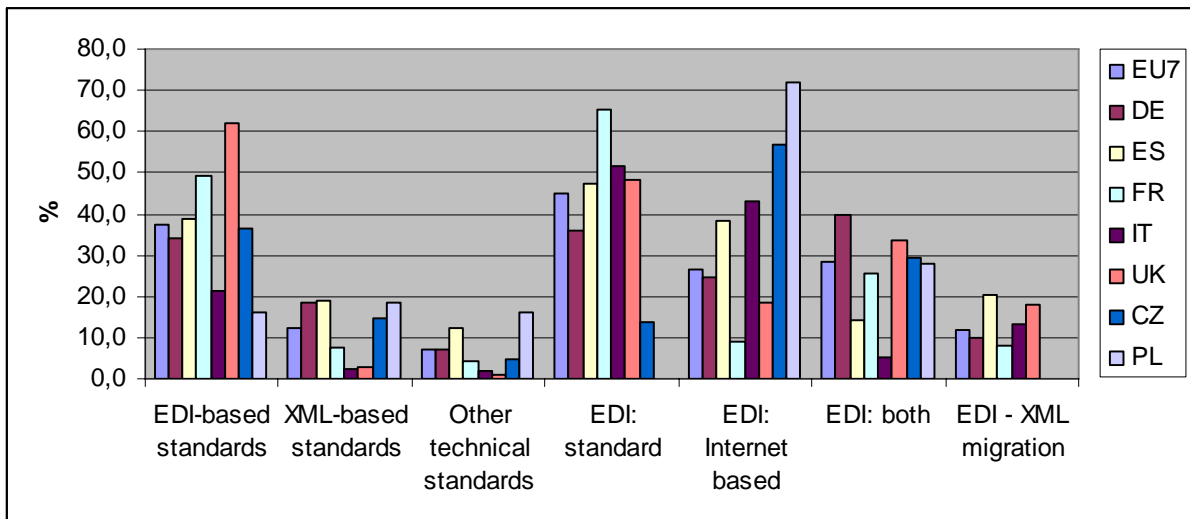


Fig 4. Using document exchange standard

Electronic Marketplaces

On an e-marketplace several buyers and sellers meet on a common platform on Internet to do business. The provider of the e-marketplace does not sell anything and does not set the price of the goods, but host a solution with trading functions for several buyers and sellers. On some e-marketplaces companies find new customers and suppliers. You can list your products and interested buyers can ask for information and quotations. To advertise your products on an e-marketplace is often an interesting additional marketing channel.

Other e-marketplaces make the order process more efficient between large buyers and their suppliers. Product catalogues and all information about the order process can be online. eMarket Services makes it easier for companies, particularly small and medium sized enterprises, to use e-marketplaces for international business.

The purpose of „Directory of Electronic Marketplaces“ is to make it easier for companies to find electronic marketplaces beneficial to their international business. The e-markets can be sorted according to industry and geographical focus. It is suggested that you select continent in "All parts of the world" to narrow down the search result. This directory now contains information more than 900 e-Markets sites and among them 40 Agriculture, 50 Food & Beverage, 24 Forestry & Wood sites.

The Internet offers new opportunities for small businesses to conquer new markets and to find better and cheaper suppliers. E-markets and other business-to-business (B2B) Internet platforms play a central role in realising this promise. If you are involved in a small company's marketing, sales or purchasing decisions, then this handbook is for you. It helps you to understand the different functionalities, which you can use on these platforms.

While we were studying the agricultural portal solutions of 19 countries, our work was made difficult by the language diversity. It is surprising in the world of the Internet, became similarly to business life, we would consider the English language as the official language of the Internet. The English version was used by a little bit more than half of the checked sites. In four cases the usage of English is natural because it is the official language of the operating firms' countries. English was used as a transfer language by the Italian, Turkish, Spanish, Danish, Dutch and French portals. The same rate refers to the Hungarian sites.

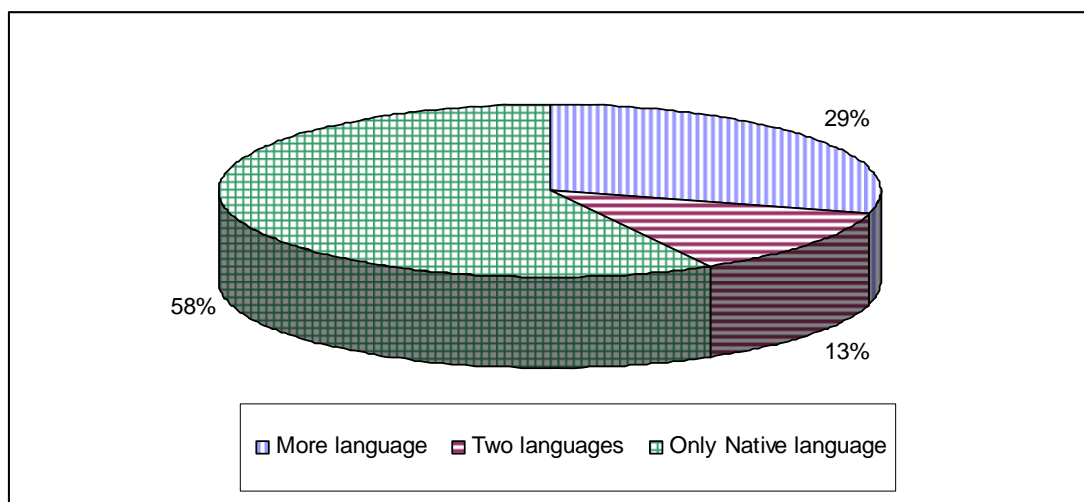


Fig 5. Used languages on Electronic Marketplaces

Geographical environment

Most of the portals let their users know what countries they can use this service from. When this information isn't given, the possible group of users is determined by the generally used languages. The analysed sites can be divided into 3 spheres of operation: a) the native country of the operating firm b) area including different countries c) global. In most cases (58%) the extension of the portal is the native country. While one of the 2 German portals (www.agrimanager.de) provides services for local users, the other one concentrates on the German, Swiss, Austrian, Belgian, British, Italian, Spanish, Danish, Polish and Hungarian producers & buyers who are interested in the e-Trade. The language of the Netherlands-based (<http://www.agromachinemarkt.nl>, <http://www.veemarkt.nl>, <http://www.florecom.com>) is Dutch, which clearly shows its sphere of operation. The <http://www.sporhorses.nl> uses 5 languages, including English, French, German, Belgian and Dutch, so its sphere of operation

contains the countries where the above mentioned languages are spoken. 2 from the 4 Italian versions aim to top provide services in the local trade. The rest of them want to get a global sphere of operation. 2 from the 5 Spanish sites <http://www.agronetsl.com> and <http://www.agroterra.com> have the intension of a country-wide market participation. The remaining 3 Spanish sites intend to have a global market participation.

The widespread usage of the Spanish language makes their situation easier, although it's also possible to choose the English language. The Swedish <http://www.lantbrksnet.se> concentrates on local partners. In spite of the fact that the people living in Sweden speak foreign languages, the information about the products is available in Swedish. All of the English & French sites are for global group of users.

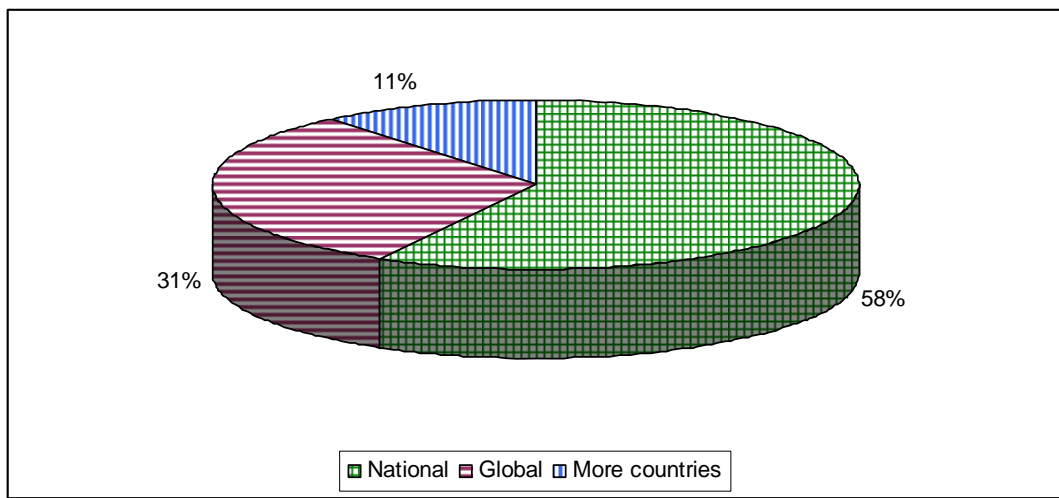


Fig 6. Geographical environment

The Age of Portals

It's important to know the exact date when the homepages were put into operation because the majority of the Internet firms got into a dangerous situation and then they went bankrupt in 2000.

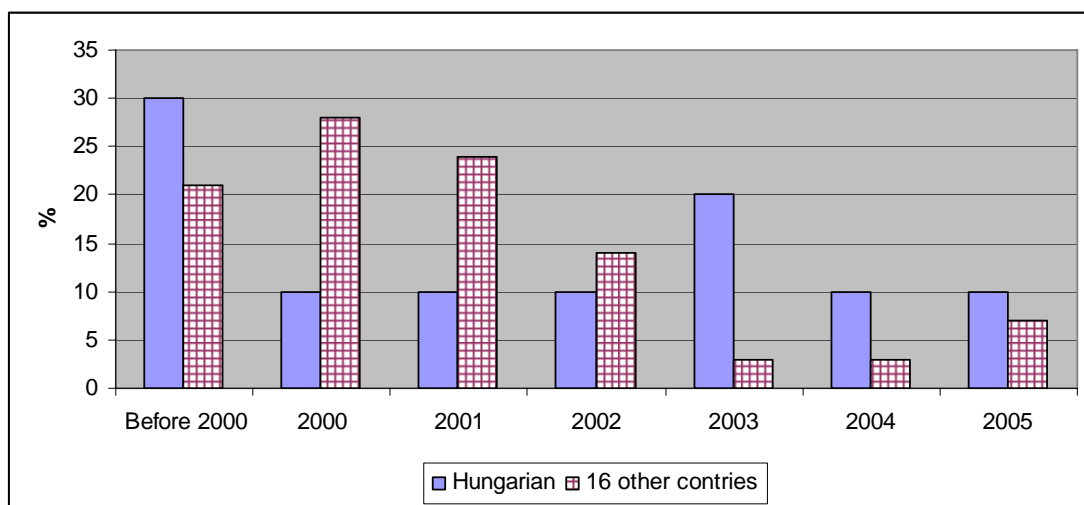


Fig 7. The age of portals

Survey in Estern region of Hungary

We made a survey about the position of e-Trade in Hajdú-Bihar country, Hungary. We sent our questionnaire including 29 questions to 445 farms according to the following table.

Activity	Staff number				Total:
	-10	10-19	20-49	49-	
1. Crop prod.	122	28	24	11	185
2. Animal breed.	48	15	21	22	106
3. Mixed	34	2	1	6	43
4. Services	91	16	4	0	111
Total:	295	61	50	39	445

Table 1: Distributed questionnaires

A kérdőív szerkezete

The aim of the survey was to measure the formation of the infrastructure – computer, the Internet, special softwares, etc. – necessary for the e-Trade at the given area. The questionnaire was anonymous. It contained 16 closed & 13 open questiones. The answers were appraised according to the staff number and bracch activities of the farms. The branches were the following ones: 1. Crop production, 2. Animal breeding, 3. Mixed farming, 4. Agricultural services (Fig 8 – Fig 11.).

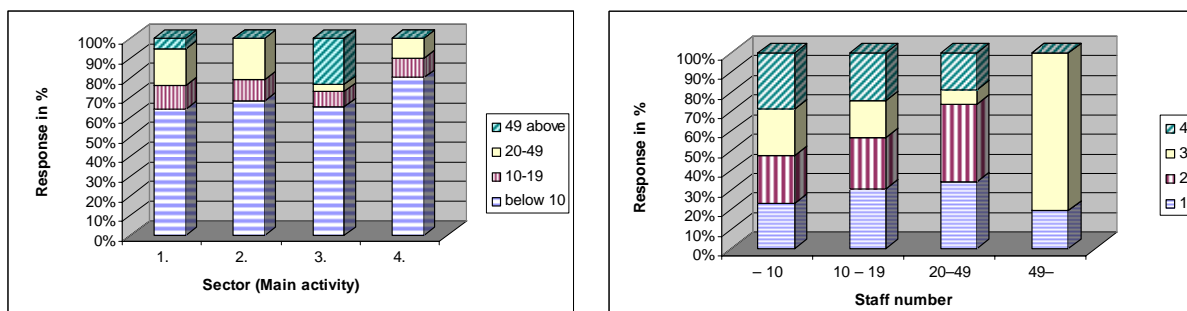


Fig8. Distribution of responses by sector type and farms size

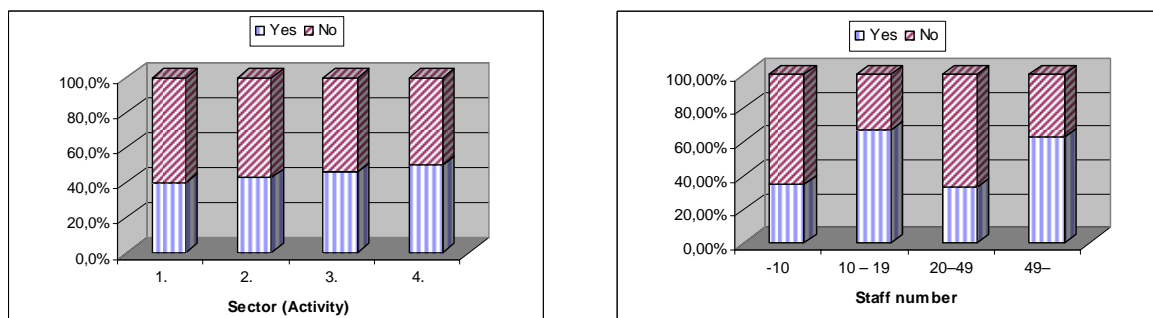


Fig 9. Farms involved in on-line procurement and sales

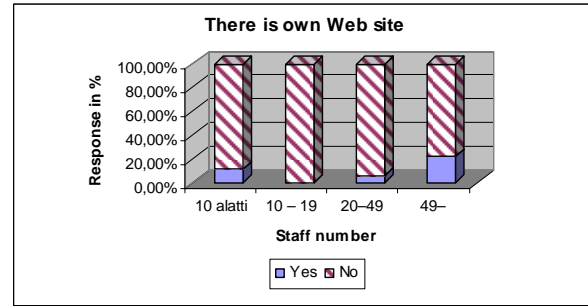
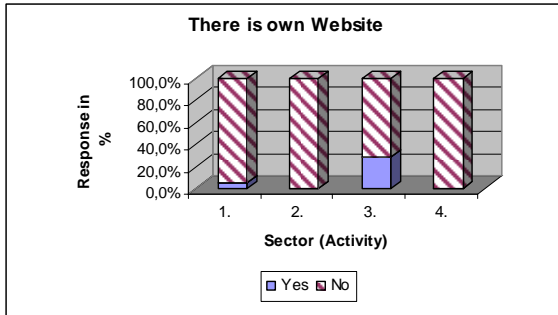


Fig 10. Farms have own Website

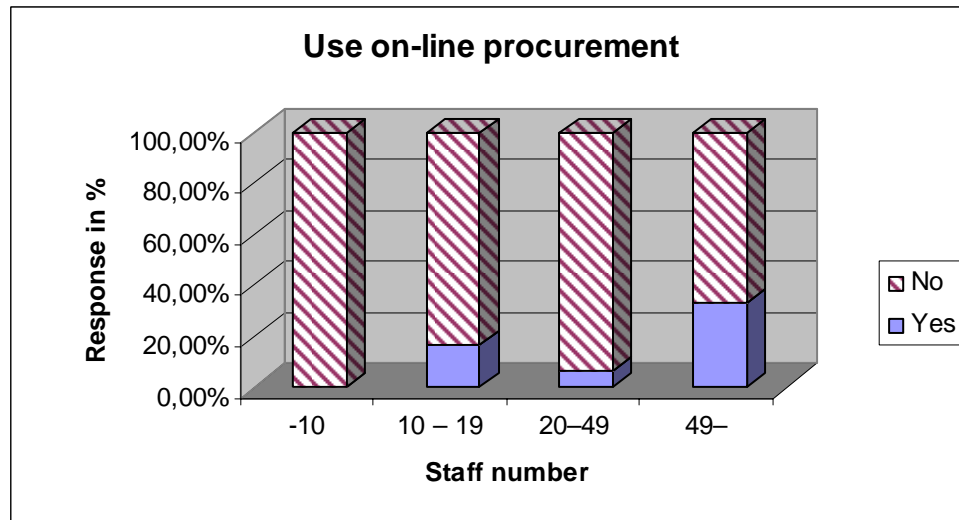


Fig 11. Using on-line procurement

e-Factors

In order to identify government policy initiatives aiming at increasing e-Commerce/-Business adoption for SME's, it is useful to classify the factors influencing adoption and diffusion into two distinct categories: environmental demand factors and direct governance initiatives. The term governance is used instead of government, since the former stress the many initiatives are not per se implemented by a government in the narrow sense of the word. The basic idea behind the model is the identification of the major factors, which may retard or facilitate the adoption of e-Business models

Industry structure includes industry concentration, sector distribution, vertical integration, size of firms, and value networks; o Information infrastructure includes telecommunication, wireless and Internet infrastructure, technology access and use, and technology acceptance; o Financial and human resources include payment mechanisms, venture capital, population, wealth, income distribution, age, education, and IT skills; and o Social/cultural factors include consumption patterns, consumer preferences, business culture, investment levels, and language.

The following four types of governance initiatives crucial for e-Commerce diffusion are defined in the following way

- o Knowledge diffusion includes dissemination of information, development of skills, alliances with business associations designed to create a positive dialogue on ecommerce, and the definition of visions for the future

- Economic incentives involve the provision of favorable pricing for network services, tax breaks to help facilitate the purchase of home PC's, as well as direct government subsidization of e-commerce activities.
- Regulation and legislation include directives and legislation on deregulation, privatization and/or liberalization of the telecommunications market, including various technical standards utilized in business transactions such as encryption and provision of certification measures.
- Electronic government focuses on the work processes within the public sector's own organizations as well as service provided to the public'

According to the result of the „Thematic Network In E-Business” four main thematic priority groups are identified: technological, individual, organizational, industrial and societal.

Technological and organizational factors are the most commonly recognized and analyzed part of e-business model adoption process. Technological factors are more or less externally indicated, and the company must consider them as factors in different business models that are closely dictated by external factors, e.g. the state of technological development, user preferences and expectations, and competitive environment.

Individual Thematic Priority Business models are conceived, implemented, adopted and evolved by individuals and organizations or rather groups of individuals. Consequently these models aim to service individuals or groups thereof. It is therefore apparent that the individual plays a central role in the “sustainable adoption” of e-Business models. Moreover, an e-Business model should accommodate and anticipate the behavior of consumers. In addition, one should also be reminded that an organization is an organic collection of individuals. Hence, one should realize the importance that individuals play in the evolution of an organization and its business model.

Organizational factors. The adoption and subsequent performance of business models for e-business require much more than just “jumping on” the latest technologies. An enterprise would have to consider or reconsider what kind of business they are in, what products and services to sell, how they should serve the market, how they should organize their business processes, and how they could exploit new and promising virtual partnerships.

Sectorial factors. Adoption of e-business models is influenced by sector structure and vice versa. However, not every industry faces the same changes in structure due to e-business. The amount of Internet usage within an industry branch or sector is not only reflected in the nature of the product (e.g. digitized products such as music, books and software are easier to sell and distribute over the Internet) but also on consumer tastes and habits. Products with a high level of services are perfectly suitable to create a relation with the consumer by personalization. This characteristic stimulates the adoption of the business model. Furthermore, the potential of products that are digitalized is greater than non-digitalized products.

Societal e-factors are those related to the general context within which new e-business models are formulated and adopted. Thorough examination of this priority aims to conclude this project's effort toward the holistic understanding of e-factors, by considering factors that affect people and their environment: societal issues on the whole.

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