

E-BUSINESS IN THE AGRARIAN SECTOR

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The article deals with the problem of the possibility and utilization of introducing e-business into the agrarian sector establishments, as well as into the medium and small size companies. A survey that focused on the use of e-business was carried out in the agrarian sector companies. A total of 356 respondents had been contacted of whom 156, or 43.82%, returned the questionnaires. The respondents answered questions on the use of e-business for both the purchases and sales in their companies. Another group of questions aimed at determining the level of the electronic markets use. The questions investigated both the active and passive usage of electronic markets. On the basis of the survey it can be concluded that so far the use of electronic business and electronic markets in the Czech agrarian sector companies is low. The literature survey, as well as the authors' own findings, indicate that the technologies for designing e-business have reached a mature stage. In order to successfully introduce electronic business a suitable methodical procedure, such as the 6C method is required. The procedure for designing a web site with an e-shop module is demonstrated on a specific example of the CUA Wine Centre in Mělník. A suitably designed web site changes the relationships between the elements of the system and emphasises the orientation towards the customer. The Internet technologies can contribute to both the competitiveness of the company and to successful development of the whole region. An example is provided by web sites that are focused on farm stays (agritourism). At present, the speed of the Internet connection is the limiting factor for developing e-business.

www technology; e-business utilisation; hype curve; SME (Small and Medium Enterprises); web design

INTRODUCTION

The European Union strategy is based on an unambiguous statement: the future of Europe depends in all directions on how successful the European entrepreneurs will be, especially the small and medium enterprises (SME), and on how they will utilize information and communication technology (ICT).

The SME sector positively affects the dynamics of work productivity and the growth of GDP. The SME's are innovators and sources of new ideas and topics. These enterprises develop and utilize local resources, and quickly introduce new technologies.

In agriculture and rural areas the SME's support the preservation and development of rural environment, the advance of rural population, and create new employment opportunities. The development of small scale enterprises and services, including electronic business, can make a significant contribution towards the development of rural regions.

MATERIALS AND METHODS

The aim of this study is to evaluate the possibilities for introducing new information and communication technologies, which would make the SME activities in e-business more effective. The hype curve will be used to determine the "maturity" of the technology.

Utilization of e-business in the agricultural sector has been assessed on the basis of a questionnaire survey of agricultural enterprises. The questionnaire survey approached 356 agricultural enterprises, of which 156 responded. The questionnaire was put together using experience

with the questionnaires that had been compiled by companies which monitor the usage of ICT in other areas of economy, and was adapted for the agrarian sector. The questionnaire design ranges from general questions on the use of information technologies and the area of ICT investments, to the questions concerning the use of the Internet. The section of the questionnaire, which deals with the use of communications, information search, and sales and purchases, also focuses on the utilization of the Internet in agricultural enterprises. Evaluation of responses used a scale of 1-5 (1 = significant, 5 = not significant).

A variety of methods can be used when designing a web site for an electronic shop. One of the common methods is the 6C (Distriforce, 2001), which has six logical steps:

- Connaitre - identification of the external and internal environment of the project
- Cibler - focusing on the future users
- Choisir - setting up the basic aims and defining the services to be offered by the web site
- Construire - the actual construction of the web site
- Communiquer - advertising the web site
- Changer - checking and updating the web site contents.

RESULTS

E-business and agricultural enterprises

E-business expands the possibilities for business activities of SME, and it is one of the forms that positively boost the competitiveness of the enterprise (Šilerová,

2004). Utilization of e-business in agricultural enterprises was evaluated by a questionnaire survey.

The questionnaire survey selected the following questions dealing with electronic commerce: You use e-business for communication with:

- suppliers
- consumers/customers/purchasers
- the end customers
- we do not use it.

Results of the "E-business Utilization" question are described in Fig. 1.

From Fig. 1 it is clear that a total of 69% respondents do not use e-business and if they so, the enterprises mostly use it for commerce with their business partners – 19% with their suppliers and 31% with their customers. Only 7% of the respondents use this type of business with their end customers.

The subject of electronic marketing is closely associated with electronic marketplace. Responses to questions dealing with utilization and monitoring of electronic marketplaces are shown in Fig. 2.

As indicated by Fig. 2, electronic marketplaces are used very little in the agrarian sector – only 6%, and only randomly. Fifty six percent of respondents do not monitor electronic marketplaces at all.

Hype curve – evaluation of the life cycle of technology

The so-called "hype curve" term was coined by the analytical company of Gartner and is used for the basic mapping of the life of technologies. The hype curve adds an extra dimension to the models of live cycles – that of the humans' relationship with technology. Its progress records the dependence of the "à la mode" technology on its maturity and usefulness – see Fig. 3 (Dohnal, 2004).

The hype curve provides the first guidance when creating technological strategies of enterprises. It serves for

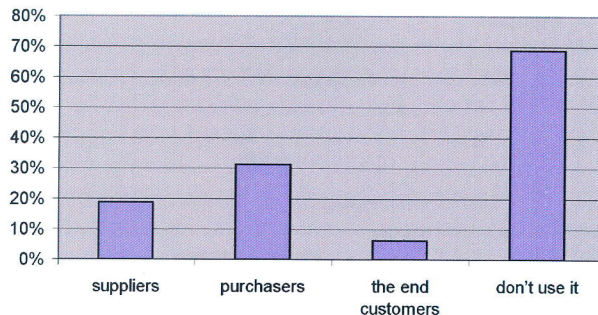


Fig. 1. Utilization of e-business

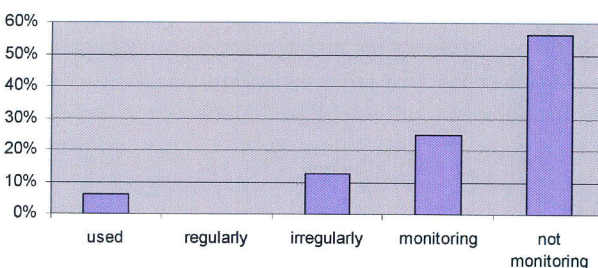


Fig. 2. Utilization of electronic marketplaces

telling the bubble apart from reality. It also assists in making a decision, as to when it is a suitable time for investing into new technologies. However, maturity of a technology and the recommendation for its use definitely do not mean that those technologies that have reached the maturity stage must be implemented by every single company. A specific contribution for a specific firm must be assessed for each investment. Nevertheless, the hype curve clearly shows, which technologies are "ready for implementation". We can consider as "mature" the current www technologies, which are used for e-business applications (eg PHP, Java).

Technologies for electronic business (e-business)

Virtually every current company has its own web page, on which it represents its activities. On the basis of technological solutions we can define the basic types of web sites – see Fig. 4 (Havlíček, 2004). The www technologies are fully utilized in electronic business – and complex web applications are designed as follows:

- static pages (these, more or less, repeat information from the company's brochure)
- static pages with an entry form (eg for sending a contact address)
- dynamic pages generated according to the user's profile
- dynamic web site for access to data in the database

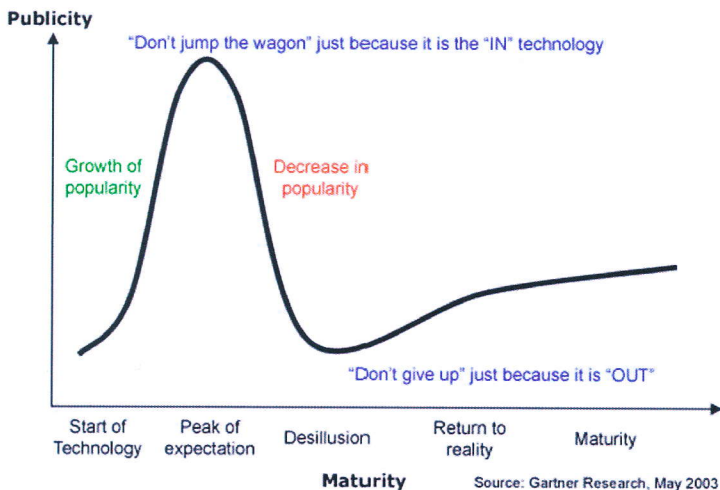


Fig. 3. The curve of evaluation of the life cycle of technologies

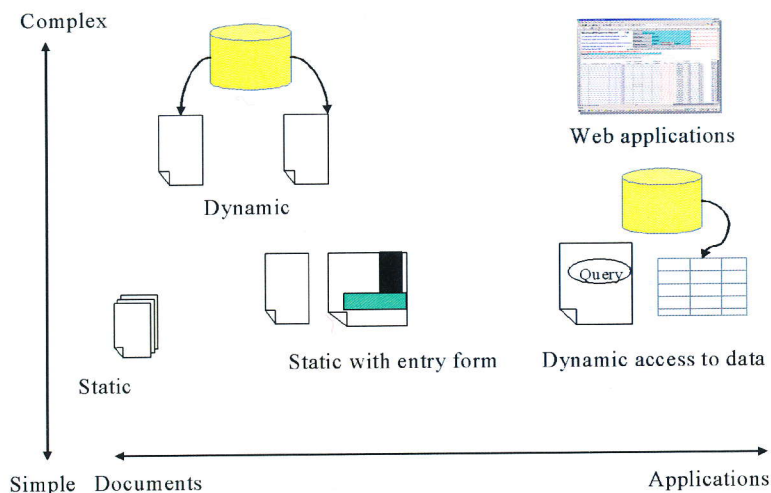


Fig. 4. Types of web sites

– complex web applications, eg e-business applications.

PROPOSED SOLUTION FOR AN E-BUSINESS

The methodical procedure for designing an e-business will be demonstrated on the case study of the Czech University of Agriculture Prague, Winery Centre at Mělník. The Method 6C is utilized here.

Identification of environment

Internal environment of the company/enterprise

The University's Winery Centre is one of the winery enterprises of the Mělník wine industry region, which is situated on the southern foot of the hill called Chloumek, on the outskirts of the Mělník township. The Centre

grows grapes and fruit on an area of 20 hectares. The area of the productive vineyards is 10.9 ha. The wine is produced in a reconstructed historical building from the 16th century, with a cellar dug out in the rock deep underground, which ensures a constant low temperature. The wines produced on the historical premises of a former monastery are dry, chemically unadjusted and without preservatives. The Winery Centre produces approximately 30,000 litres of wine per annum.

External environment

There is a great number of businesses to be found on the Internet wine market. By means of the three best known Czech search centres (Seznam, Centrum and Atlas) it is possible to find a range of relevant references. A predominant proportion consists of electronic presentations by "stone shops" and/or producers, or of information on the actual wine with its history, production and

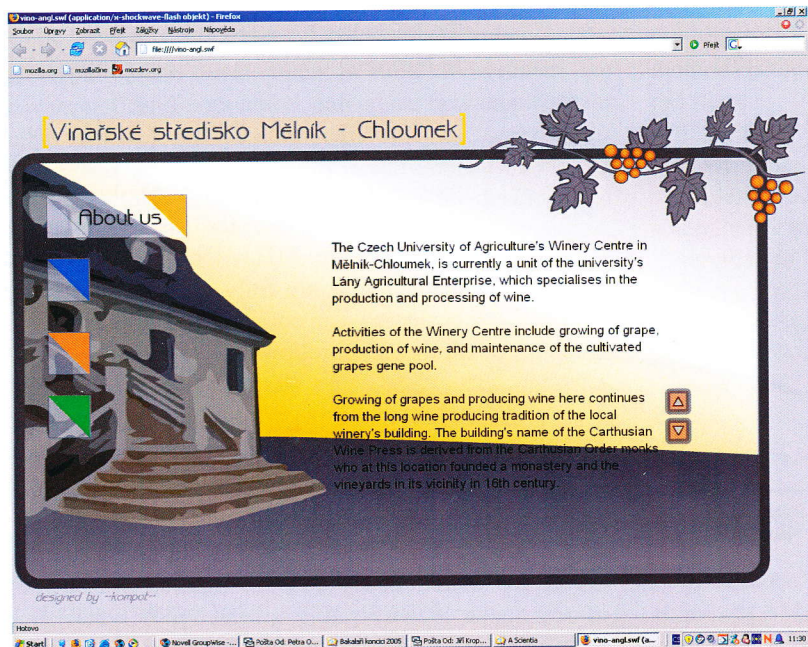


Fig. 5. Homepage of a web site

Table 1. Internet wine businesses in the Czech Republic

	2001	2004
Total number of the Internet wine businesses in the Czech Republic	22	38
Number of the same shops in 2001 and 2004 respectively	16	16
Number of new businesses (which did not exist in 2001)	–	22
Number of the businesses from 2001 (which no longer exist in 2004)	8	–

other specific pieces of information. There are also virtual shops, where one can not only view the goods and obtain more detailed information, but also order and pay. The virtual shops themselves differ from one another not only by their selections on offer, but mainly by the style of their presentation, the mode of sale and an overall offer of associated services.

A specific case based on the Internet survey carried out in 2001 and 2004 provided the details which are outlined in Table 1.

The dynamics of the development in electronic business is considerable. Within just three years one third of the original businesses has either disappeared or has become inoperational. E-shops have been described and compared using more than ten selected categories as follows: Graphic design of the e-business, Introduction page of the e-business, Instructions on how to shop, Descriptions and pictures of the goods, Mode of sale, Guarantee conditions and deadlines for delivery, Goods prices, Method of payment, Foreign trade, Advertising of the e-business, etc.

Business focus on future users

We believe that interest in the wine from the Mělník Vineyard will be shown particularly by the students, graduates and perhaps also the guests of the Czech University of Agriculture Prague. A typical future user is expected to be "a young and successful university graduate".

Setting the basic aims and defining the services on offer from the web site

- The web site must, first of all, provide information on:
- history and the regional characteristics of the Mělník wine
 - products made by the Centre
 - styles of serving individual types of wine.

The web site will also contain an e-shop module, through which it will be possible to place an order for the wines selected by the customer.

Implementation

The project is currently being developed by a group of students within the framework of their "e-business application" subject. The details can be viewed on kit.pef.czu.cz. The homepage of a web site that had been created by students is shown in a diagram (Fig. 5).

Advertising

The web site will be linked to the main page of the Czech University of Agriculture in Prague. Eventually, references for the search engines will also be provided.

Verification and updating of the web site contents

The e-shop module provides updating and administration of data.

DISCUSSION

Creating an e-business application – global or local

The Internet knows no borders and allows a global approach towards a creation of an application. When designing a web site, four starting points must be considered (Levy 2000).

- Legal pre-requisites – legislative obstacles, commercial boundaries, customs barriers
- Logistics – the mode of dispatch, customs, processing, distance
- Payment – electronic payment, rate of exchange, transaction
- Language/culture – localisation, tools/means.

We believe that the global solution can be recommended to companies that are already experienced in international business, and which are already operating their own, local electronic shop. Agrotourism (farm stays) is an example of special applications that have a global reach. In such cases the web site has also to be created in an English (or German) version.

Many smaller companies are now getting ready to join the sphere of e-business. Their situation is easier as they do not have to solve global type queries, nevertheless, the whole process of designing an electronic shop is quite complex.

As shown by the survey of agricultural enterprises, the use of electronic business is not widely spread and 69% of respondents are not using this type of business at all. One of the reasons indicated by the respondents is the fact that the group of suppliers and customers is not very big and is clearly delimited. From the respondents' viewpoint it is futile to invest into these technologies and thus increase the costs the return of which is not precisely defined. The possibility of utilizing electronic business is more straightforward for those companies which also orientate their production activities towards the end product – e.g. the wine production as described in the case study. There the use of electronic business with the

end customer is quite evident. Agricultural enterprises can utilize the option of electronic business when developing multifunctional agriculture, and they can also develop services which support advancement of regions, such as agrotourism (farm stays).

The case study shows that the situation on the electronic wine market is changing very dynamically. Within just a few years a number of new shops came into existence, but there are also a great many shops that have ended their activities. The basis for quality business activities on the Internet rests, above all, with a high quality presentation of the business.

CONCLUSIONS

We can recommend the use of www technology for e-business for the following reasons:

- the web site changes the relations between the elements of the system and at the same time it enhances the role of the customer. The customer is no longer the last element of the system but becomes its centre.
- e-business technologies are affordable and are now at the “maturity” stage. Even a small business can now utilize the e-shop modules and create an e-business application.
- the cost of the Internet connection can be a limiting factor for the development of electronic business.

HAVLÍČEK, Z. – ŠILEROVÁ, E. (Česká zemědělská univerzita, Provozně ekonomická fakulta, katedra informačních technologií, Praha, Česká republika):

E-business v agrárním sektoru.

Scientia Agric. Bohem., 37, 2006: 128–132.

Článek řeší problematiku využití a možnosti zavedení e-businessu jak v podnicích agrárního sektoru, tak i v podnicích malého a středního rozsahu. V podnicích agrárního sektoru bylo provedeno dotazníkové šetření zaměřené na využití e-businessu. Celkem bylo osloveno 356 respondentů, návratnost dotazníků byla 156, což je 43,82 %. Respondenti odpovídali na dotazy využití e-businessu v jejich podnicích pro nákup i pro prodej. Další skupina dotazů zjišťovala využití elektronických tržišť. Dotazy sledovaly jak využití elektronických tržišť pasivní, tak i využití aktivní. Na základě provedeného šetření lze konstatovat, že využití elektronického obchodu a elektronických tržišť v podnicích agrárního sektoru je zatím nízké.

Z literatury i z vlastního zjištění vyplývá, že technologie pro vytvoření elektronického obchodu jsou ve stadiu zralosti. Pro úspěšné nasazení elektronického obchodu je třeba použít vhodný metodický postup, např. metodu 6C. Postup při vytváření tvorby web site s modulem e-shop je demonstrován na konkrétním příkladu – Vinařské středisko ČZU Mělník. Vhodně vytvořený web site mění vztah mezi prvky systému a zdůrazňuje orientaci na zákazníka. Internetové technologie mohou přispět ke konkurenceschopnosti podniku a zároveň je lze využívat i ku prospěchu rozvoje celého regionu. Příkladem mohou být web site, které jsou zaměřeny na agroturistiku. Limitujícím faktorem v současné době při rozvoji e-businessu je rychlost připojení k internetu.

technologie www; využívání e-business; hype křivka; MSP (malé a střední podniky); web design

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– an important condition for the success of an e-business application solution is the (computer) information literacy, ie the ability to utilize technological solution for the implementation of the enterprise objectives and of the overall enterprise goals.

This contribution demonstrates that with the appropriate use of www technologies we can contribute towards enhancing the competitiveness of enterprises in rural areas.

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