THE IMPACT OF A MARKET SIZE ON E-BUSINESS EFFICIENCY

UTJECAJ TRŽIŠNOG UDJELA NA E-BUSINESS EFIKASNOST

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Abstract: *In this paper an analysis of the impact of the market size on the e-business efficiency is made. The analysis is based upon the secondary data on the application of the e-business in the companies in 29 European countries, as well as on the primary data obtained by a survey on 252 Croatian companies. Using ANOVA analyses it is confirmed that the size of a market affects the efficiency of the e-business. Since e-business decreases the costs of the company and differentiates its products and services, one can assume that the e-business application speeds up the development of the market, meaning that e-business starts a vicious circle of a haste development of the market, which only needs an initial push.*

Key words: *electronic business, market size, e-business efficiency, hi-square test, ANOVA*

Sažetak: *U ovom je radu napravljena analiza utjecaja veličine tržišta na efikasnost elektronskog poslovanja. Analizirajući sekundarne podatke o korištenju elektroničkog poslovanja tvrtki u 29 europskih zemalja te primarnih podataka dobivenih analizom 252 hrvatske tvrtke, ANOVA analizom je utvrđeno kako su je veličina tržišta značajna za efikasnost elektroničkog poslovanja. Istovremeno, kako je elektroničko poslovanje učinkovito u smanjivanju troškova tvrtke te diferenciranju i poboljšanju proizvoda i usluga koje tvrtke prodaju, zaključuje se kako se razvoj tržišta ubrzava primjenom elektroničkog poslovanja, a time e-poslovanje čini začarani krug ubrzanog razvoja tržišta koji je potrebno samo potaknuti.*

Ključne riječi: *elektroničko poslovanje, veličina tržišta, učinkovitost elektroničkog poslovanja, hi-kvadrat test, ANOVA analiza*

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1. Introduction

E-business is a contemporary business organization form which is based upon the intensive application of information, internet and communication technologies in managing current business activities. It encompasses the electronic information exchange within the organization, as well as between the organization and the other subjects. New ways for doing business are developed through the innovative usage of information-communication and internet technologies. It helps companies to achieve the competitive advantage on the global market [1]. E-business does not consist only of internet companies or sales and purchases on the web, e-business is a much broader concept which includes also the internet related technologies so as to integrate and reorganize the internal company activities, business processes and external linkages [2].

2. Microeconomic aspect of the market size on e-business

Market size affects the strategies of the companies. In a rather small and uncongested market the players own a large monopolistic power which enables them to charge more and sell less and earn large profits. It attracts other players too, unless there exist burdens for the entry. The market develops as the number of the competitors grows, pushing the prices down, increasing the quantity and lowering the total profit. However, at certain point the competitors earn very small profits and can try to increase their gain through product differentiation and cost-cutting policies. The latter is effective in the short run, but the possibility for further cost cuts wears out in the long run. Thus the player has to differentiate their products in order to reach broaden the market [3]. Among many different classifications, in this paper we use the one that classifies markets as regional, national and international [4].

The e-business activities seem to be the perfect way to implement both of these strategies since e-business activities can help differentiate a company's service, making it more reachable and more user-friendly, to prompt distribution and reduce the time for many business processes. At the same time, it reduces the costs through reduction of the number of workers and saving the energy.

The main hypothesis in this paper is that the market development increases the e-business activities, and since e-business activities speed up the market development, it would mean that e-business has the potential to start a spiral of a more and more rapid market development.

3. Research Methodology and Data Collection

Data used in this paper is from the database obtained from the European Commission (e-business w@tch). This database contains the information collected through a survey of the company managers or company-subdivision managers. The information are collected in 29 countries from 14.065 companies.

In order to broaden the dataset with Croatian dataset, an original empiric survey is made in Croatia. The survey was conducted in the period from November 2011 to

February 2012. A Web survey was made. 1500 companies were asked to participate in the survey. The sample consisted of 500 small companies, 500 medium sized companies and 500 large companies, according to the Croatian Chamber of Commerce classification and their company registry. After the exclusion of the incomplete submitted questionnaires, the sample for Croatia has 252 companies, on which the complete empiric survey was made.
From various models that measure efficiency of e-business, in this paper we used e-business scoreboard index, which was modified to seven categories: revenue growth, business process efficiency, internal organization, cost reduction in the process of ordering, quality of products and services, quality of user support and productivity growth. The index obtained in this way can have the value from 0 to 7.

4. Research Sample

Figure 1 shows the structure of companies in the sample in the Republic of Croatia, according to the type of market on which a company operates. The most Croatian companies in the sample, 42%, operate on the national market, 37% of companies operate in the regional market, while only 21% operate on the international market. By introducing and developing the electronic commerce, companies can significantly improve this data as well as increase the percentage of businesses on the international market.

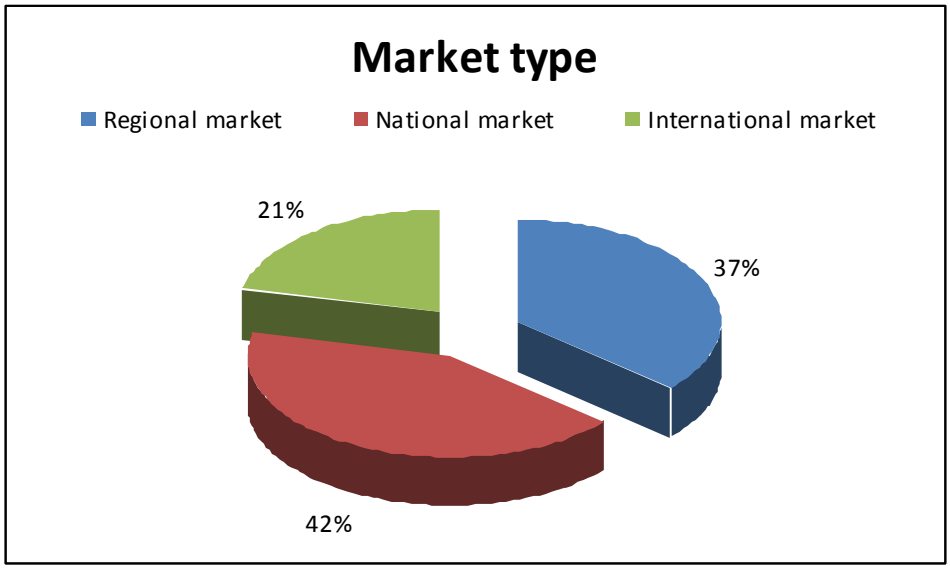

Figure 1. The structure of companies in the sample by the market type where the company operates in Croatia in 2012

Table 1 shows the indices of efficiency of e-business divided by the market type where the company operates. According to the results of a research, 4997 companies operate on the regional market, the greatest number, 5686 companies, operate on the national market, and 2030 companies operate on the international market. Looking at the positive indices of efficiency of e-business there is a positive trend of increasing number of companies with the growth of index for all markets types in which firms operate.

		e-business efficiency								Sum
		,00	1,00	2,00	3,00	4,00	5,00	6,00	7,00	
Market type	Regional market	1117	382	447	532	590	558	612	759	4997
	National market	996	321	421	527	667	718	800	1236	5686
	International market	238	91	111	183	271	304	311	521	2030
Sum		2351	794	979	1242	1528	1580	1723	2516	12713

Table 1. The index of efficiency of e-business companies by market type

The means of indices of efficiency of e-business with regard to the market type where the company operates shown in Table 2 vary from 3.40 to 4.42, and the standard deviation from 2.342 to 2.519.

Market type	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval		MIN	MAX
					Lower Bound	Upper Bound		
Regional market	4997	3,40	2,518	0,0356	3,3336	3,4733	0,00	7,00
National market	5686	3,95	2,519	0,0334	3,8835	4,0145	0,00	7,00
International market	2030	4,42	2,342	0,0520	4,3212	4,5251	0,00	7,00
SUM	12713	3,81	2,518	0,0223	3,7665	3,8540	0,00	7,00

Table 2. Descriptive statistics for the index of the efficiency of e-business by the market type where the company operates

In order to examine the statistical dependence variable types of markets where the company operates in relation to the efficiency of e-business will be performed using the chi-square test of independence of variables with the following hypotheses:
H0: markets types where the company operates and the efficiency of e-business of a company are statistically independent variables
H1: markets types where the company operates and the efficiency of e-business of a company are statistically dependent variables

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	285,536	14	0,000
Likelihood Ratio	292,531	14	0,000
Linear-by-Linear Association	267,457	1	0,000
N of Valid Cases	12713		

Table 3. Chi-square test of independence of markets types where the company operates and the efficiency of e-business of a company

As shown in Table 3, on the significance level of 5% there is a statistically significant correlation between the market type where the company operates and the efficiency of e-business of a company (p-value = 0.000).

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1698,996	2	849,498	136,881	0,000
Within Groups	78879,38	12710	6,206		
SUM	80578,38	12712			

Table 4. ANOVA analysis of the market types where the company operates and the efficiency of e-business of a company

ANOVA analysis showed a statistically significant correlation between the market type where the company operates and the efficiency of e-business of a company with a significance level of 5% (F = 136.881, p-value = 0.000).

To determine between which market types where the company operates there is a statistically significant correlation, we performed post-hoc Scheffe test, which is shown in Table 5.

		Mean Difference (I-J)	Std. Error	Sig.	95% Confidence	
					Lower Bound	Upper Bound
Regional market	**National market**	-,54556*	0,04831	0	-0,6638	-0,4273
	International market	-1,01971*	0,06557	0	-1,1802	-0,8592
National market	**Regional market**	,54556*	0,04831	0	0,4273	0,6638
	International market	-,47416*	0,06441	0	-0,6318	-0,3165
International market	**Regional market**	1,01971*	0,06557	0	0,8592	1,1802
	National market	,47416*	0,06441	0	0,3165	0,6318

*. The mean difference is significant at the 0.05 level.

Table 5. Post-hoc Scheffe test of market types where the company operates and the e-business efficiency

Post-hoc Scheffe test showed that between all combination of markets types where the company operates there is a statistically significant correlation with the e-business efficiency.

5. Conclusions and Recommendations

E-Business evolves rapidly and its significance grows, but also the factors that affect it change daily [5]. This empiric research gives the up-to-date information on the impact of market size on e-business efficiency, which made it possible not to reject the hypothesis that indeed the size of the market affects the e-business efficiency. The evolution of e-business than in return broadens the market, which causes a most desirable vicious circle effect of the market evolution and the increase of the e-business efficiency. The further analyses should continue checking for the new factors that might affect e-business in order to recognize the freshest trends and apply it swiftly.

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