

E-business tools adoption and export performance: Empirical evidence from Croatian companies

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Abstract

Technology development has enabled companies of all kinds, industries, and sizes to actively participate in international business. Information and communications technology (ICT), and especially e-business tools, are important for the international activities of companies. ICT empowers the company's potential to contribute significantly to economic growth, as it plays a vital role in simplifying business processes and contributes to the improvement of the competitive market presence of a company. The objective of this research is to identify the level of e-business tools adoption in Croatian exporting companies and investigate its influence on their export performance. In the analysis of the level of e-business tools adoption, a partial OECD e-commerce maturity model was used, which measures several aspects of ICT readiness and intensity of web sites and e-commerce in exporting companies. Several distinct aspects of e-business tools adoption were examined, namely e-mail usage, internet usage in market research, promotion, e-commerce, and e-payment possibilities. The export performance level was measured through three elements: the export/total business activities ratio, the export/total revenue ratio and, additionally, the existence of multilingual official websites. Our findings provide enough evidence that e-business tools adoption has a positive correlation to export performance for Croatian exporters. However, it should be noted that three e-business tools adoption factors positively correlate with export performance: namely (1) e-mail use for correspondence with partners/suppliers/buyers, (2) use of the internet as a promotional tool for foreign markets and (3) e-payment use. Two remaining e-business tools adoption factors that were measured – (1) use of the internet as an information source on foreign markets/

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buyers/suppliers and (2) online ordering/sales, did not record a significant correlation with export performance. These findings imply that there is still room for better implementation of e-business tools in Croatian exporting companies, particularly regarding market research and online ordering and sales that can contribute to better export performance. With regard to international market geographical orientation, we found significant differences in exporting companies oriented toward geographically and culturally distant markets (non-regional and non-EU markets) that have a statistically higher level of e-business tools implementation in comparison to those exporting dominantly to regional and EU markets. This illustrates the significance of e-business tools adoption for reaching and managing those distant markets that are important for a number of Croatian exporters.

Keywords: *e-business tools adoption, export performance, statistical analysis, Croatian exporters*

INTRODUCTION

Exports play a significant role in the development process. Many governments, in both developed and developing economies, adopt an export-led growth strategy implementing different policies that stimulate exports. International competitiveness that is often a result of such strategies is perceived to be a key development trigger. The significance of exporting activities from both an academic and professional point of view is clearly undeniable (Gregory, Ngo, & Karavdic, 2017; Leonidou & Katsikeas, 2010).

Globalization and trade liberalization processes in recent decades have enabled not only large multinational corporations but also small and medium-sized enterprises (SME's) to compete globally (Spyropoulou, Skarmeeas, & Katsikeas, 2010). Increasing numbers of companies globally take part in international trade activities. Their success in international markets can be measured and analyzed in different ways, and one of the most frequently used measures is export performance, which will be used in this research paper.

A number of authors and studies in the last few years have emphasized the importance of ICT (information and communication technologies) and e-business tools implementation in improving overall business performance (Taylor, 2015; Roztocky & Weistroffer, 2015; Gallego, Gutiérrez, & Lee, 2014; Schlichter & Danylchenko, 2013; Voola, Casimir, Carlson, & Agnihotri, 2012; Bordonaba-Juste, 2012;) as well as exports (Makanyeza & Ndlovu, 2015; Lal, 2002; Sorensen, 2006; Sheikh, Shahzad, & Ishak, 2016; Alarcon-del-Amo, Rialp, & Rialp, 2016, and others).

This study seeks to examine the empirical link between e-business tools adoption and export performance in Croatian exporting companies. With the aim of identifying key relations between the two constructs, 111 Croatian

exporters were included in the study. Different aspects of e-business tools adoption – e-mail usage, internet usage in market research, promotion, e-commerce, and e-payment possibilities were used. Export performance was measured through the export/total business ratio, the export/total revenue ratio and the existence of multilingual official websites.

The research was conducted on a sample of 111 Croatian exporters. To the best of our knowledge, no such research has been conducted either in Croatia or in any of the transition economies in Central and Eastern Europe, which all, more or less, represent developing economies in the European context. We presume that our research results are, to a certain extent, representative for most of those countries too and, therefore, may serve as an indication or a broad reference when comparing to similar economies in terms of market maturity, market size, ICT adoption, and other market attributes.

The paper is structured in the following way. In the introduction section, we describe the purpose and major elements of the research; in theoretical background, we identify key features of two concepts we have researched: ICT along with e-business tools adoption and export performance. The third part of the article is a review of the state-of-the-art of Croatian exports and e-business tools adoption, based on secondary research. The fourth part of the paper explains research methodology and the fifth provides research findings and a discussion. The last part of the paper provides the conclusion with major research findings. Furthermore, a critical overview of the most important research limitations is provided and future research proposal guidelines are included as well.

THEORETICAL BACKGROUND

ICT is a broad term that includes computerized information and communication technologies such as computers, handheld devices, wired or wireless technologies, and business productivity software. It represents an integration of information, computers, and communication (Ashrafi & Murtaza, 2008; Ghalandari, 2013).

On a global level, ICT is creating a stimulus and a platform for best practice sharing in all areas of life (Schlichter & Danylchenko, 2013) and has evidently “revolutionized and expanded horizons” of many business-related activities (Gosavi, 2017). ICT empowers the potential to contribute significantly to economic growth (Taylor, 2015) as it plays a vital role in simplifying business processes and contributes to the improvement of the competitive market presence of companies in various sectors alike. Bordonaba-Juste (2012) suggested that the usage of ICT implies changes in the companies’

strategy, management, and marketing activities. The ICT contributions to business performance most often mentioned in the literature are non-price competitive elements like product design, marketing, after-sales support, office automation, CRM, SCM and others (Lal, 2004). In addition, Damaskopolous and Evgeniou (2003) and Drew's (2003) research results indicate that ICT also facilitates cost reductions, especially in communication, market research and promotion. All of these findings illustrate the significant contribution of ICT to the international business development of companies.

From a resource-based view, ICT adoption is perceived as a valuable intangible resource that contributes to company innovativeness and competitive advantage (Arcopal-del-Amo, Rialp, & Rialp, 2016) as well as productivity and profitability (Taylor, 2015).

Roztock and Weistroffer (2015) focused on ICT adoption in transition economies. Results from their study revealed that the use of ICT in transition economies "mirrors the transition in the business environment," indicating that significant changes affected entire economies. In addition, they concluded that the early transition phase in Central and Eastern European countries is characterized by a jump in the adoption of ICT. However, evidence shows that business results often failed due to unrealistic expectations and a lack of fundamental understanding of technological possibilities along with market attributes. Later on, companies recognized the need for new approaches to ICT adoption in order to support new e-business models. In addition, there is evidence that some transition economies are increasingly using ICT for strategic purposes.

Furthermore, Gallego et al. (2014) explored the adoption and usage of ICT in manufacturing companies based on a large-scale study in Colombia. Results showed that ICT technology adoption is better facilitated in companies that are relatively large, have large human capital, engage in more innovative activities, and align their organizational structure with the given technology in order to maximize the potential. Mori and Munisi (2012) concluded that if SMEs were to use ICT efficiently, their export performance would most likely improve due to specific technology features that empower extension to the international market.

The level of ICT adoption in a company can be measured in several ways. In this research, we use the partial OECD e-commerce maturity model (OECD, 1999). The model considers three stages for the diffusion of ICT: readiness, defined as an ability to use ICT; intensity, that measures the state of specific ICT applications, primarily e-business tools; and impact, that relates to ICT effects on a company's performance (Mata & Quesada, 2015). Our research uses measures of readiness and implementation and tries to investigate the impact of e-business tools usage on a company, i.e. its export performance.

Export performance reflects the outcomes of export behavior. It represents a degree in which companies achieve their strategic and financial objectives by exporting (Cavusgil & Zou, 1994) and, as such, serves as a basic tool of evaluation of a company's success in foreign markets (Diamatopoulos, 1998). However, it is a complex construct, with no consensus of its determinants. There is a huge variety of different approaches to export performance measurement. According to Chen, Sousa and He (2016) export performance has received increasing attention over recent decades, but the area is still characterized by fragmentation and diversity hindering theoretical and practical development. Madson and Moen's (2018) study identifies 53 different measures of export performance that have been used in recent studies. Aaby and Slater (1989) mention two of the most widely used approaches to measuring export performance: separation of exporters and non-exporters as the first, and rate of growth in export sales and the exports in total sales ratio as the second approach. Shoham (1998) summarized previous studies on export performance and created a model consisting of export sales, export profitability and performance change, as complex dimensions of export performance. Chen, Sousa and He (2016) analyze internal factors (company characteristics, product characteristics, competencies, management attitude, and perception) and external factors (industry characteristics, domestic and foreign market characteristics) as determinants of export performance. Katsikeas, Leonidou and Morgan (2000) discuss export performance as three groups of measures: economic (sales-related, profit-related and market share-related measures), non-economic (product-related, market-related and miscellaneous-related measures) and generic (perceived export success, achievement of export objectives, satisfaction with export performance, and strategic export performance). Several authors focused on specific internal and external export barriers over the internationalization process (Wąsowska, 2016; Cahen, Lahiri, & Borini, 2016; Narayanan, 2015; Kahiya, 2013; Ojala & Tyrvainen, 2007). Zou, Taylor, and Osland (1998) have developed the EXPerf scale that measures three dimensions of export performance: financial, strategic and satisfaction with export. It is widely used in research. Two more scales were developed aiming at optimizing the measurement of export performance: the STEP scale (Lages & Lages, 2004) was developed for purpose of measuring short term export performance, and the APEV scale (Lages, Lages, & Lages, 2005). In this research we concentrate primarily on economic measures of export performance, i.e. we adopt Aaby and Slater's (1989) approach of measuring export performance by growth in export sales and the exports in total sales ratio.

Intuition suggests that ICT could be an important facilitator of exports by reducing costs and barriers to trade. Quite a few studies in recent years have concentrated on the relationship between ICT adoption and export performance. A great majority of these studies point in one direction: ICT and especially

e-business tools are important for the international activities of companies. A recent World Trade Report (2017) states that ICT helps improve situations with insufficient trade information, shortens physical distances, lowers trading costs and improves trade efficiencies at a macro level. Thus, it significantly contributes to both a company and a country's ability to be internationally competitive. However, ITC still can not completely replace human competence and interaction (Makó, Miklós, & Csizmadia, 2012) and includes several risks that have to be accounted for (MacGregor Pelikánová, 2019).

Mathews and Bianchi (2010) and Bennett (1997) state that the usage of e-business tools drives export performance. Pezderka, Sinkovics, and Jean (2012) research found that it increases the efficiency of market transactions and enables easier, cheaper and faster access to information. It means the development of communication with customers and suppliers, cheaper market research bypassing a costly physical presence in a foreign market, employment of advanced export management technology and cost reduction through internet development, which, according to the authors, all have a significant impact on export performance. Rosson's study (2004) emphasizes the role of the internet and its three main roles in improving export performance: as a global marketing tool, a cost-efficient transaction medium and a tool for customer care. Beckers et al. (2007) provided evidence that the internet, a form of ICT, has had a positive influence on the export performance of firms, especially in promoting global visibility at a minimal cost and allowing firms to collect foreign markets data effectively. Gregory et al. (2017) focused on the e-commerce aspect of ICT and its effect on exporting, in a two-stage research approach. They concluded that specific e-commerce activities directly and positively affect distribution and communication efficiency based on a study of 340 exporters, which finally leads to "enhanced export venture market performance."

These authors suggest that, for one to understand the influence of the firm's Internet activity on the export performance of a firm, there is a need to focus on the internet capabilities of the organization. Internet capabilities refer to "a firm's capacity to systematically develop and implement particular internet tools in four functional areas: in informational, transactional, interactive exchanges with customers and in connecting with suppliers" (Beckers et al., 2007, p.1). Depaoli and Za (2013) reported on a research study based on North American and European SMEs and found that e-business solutions are adopted internationally in order to improve performance and gain "tangible financial benefits." However, this study also showed an uneven distribution of the studied approach across regions, industries, technologies and size categories. Furthermore, Eikebrokk and Olsen (2007) focused on the importance of e-business competencies on

the e-business success of European companies. Some aspects of e-business adoption have been reported for UK-based SMEs (Daniel, Wilson, & Myers, 2002). Oliveira and Martins (2010) conducted a study by analyzing the pattern of e-business adoption by firms across European Union countries (27 EU members were included in the research). They concluded that the most important factors to describe e-business adoption are the industry-specific characteristics and not the country of origin, suggesting that certain industries are more inclined to utilizing e-business tools. Export and innovation-oriented companies are proven to be early ICT adopters as well as e-business adopters, based on a large scale study of Colombian manufacturing companies (Gallego et al., 2014).

Results from a study based on SMEs in the manufacturing sector of Zimbabwe suggested that ICT usage positively predicts export performance (Makanyeza & Ndlovu, 2015). However, out of the three dimensions of ICT usage, only relationship building capabilities significantly predicted export performance while market intelligence and marketing capabilities did not. Even though ICT usage is linked with export performance in many different studies and research efforts, there is still a large portion of uncertainty related to these two constructs and their interactions.

Croatian exports and e-business tools adoption

Only about 15% of the total registered active companies in Croatia (153,281 in 2017) (Državni zavod za statistiku, 2018) are exporters. Although it is a rather small proportion, it shows a significant growth compared to 2005, when the proportion was only about 10% (Leko Šimić, Horvat, & Forjan, 2006). These companies currently employ 52% of all employees, invest 62% of total investments, contribute 66% of total sales income and invest in about 73% of total R&D investments. They make up 76% of the total profits in Croatia (Izvozni portal, 2018). These data indicate that Croatian exporters are healthy companies and probably the most important development drivers of the whole economy. An interesting fact is that, although SMEs make up 98.5% of all registered companies in Croatia, they are significantly underrepresented in exports. Their share of exports is only 23% (Singer et al, 2017). Consequently, most export-oriented companies in Croatia are large ones.

Croatian foreign trade is, according to official statistics, strongly concentrated on the EU market (66.4% of exports and 77.2% of imports). In the past few years, the import/export rate is between 60 and 65% (Singer et al., 2017). The main features of Croatian international trade are the increase in export orientation, a huge trade deficit, and a high level of export and import concentration (Butorac, Mikulić, & Palić, 2019). However, compared

to other transitional economies of Central and Eastern Europe in the EU, Croatia holds the last position regarding export share in GDP – it is only 27%, whereas in Hungary it is almost 91%, Czech Republic 83%, Slovenia 78%, etc. (CIA World Factbook, 2017).

The general situation with e-business tools implementation in Croatian companies could be described as somewhat diverse and heterogeneous. Several authors focused their research efforts on various elements of ICT adoption and suggested different findings related to the scope and nature of ICT implementation. Sinjeri, Vrčec, & Bubaš, 2010 examined critical factors for successful e-services and e-government implementation at a local or national level and suggested that many critical factors can be examined within three important areas: ICT infrastructure, management issues, and human resources. The survey showed that the vast majority of Croatian cities had a good ICT infrastructure base, but other areas showed a lot of room for improvement, to put it mildly. Zovko and Didović (2013) concluded that it is not enough only to ensure the existence of the necessary ICT infrastructure, but to systematically educate all the stakeholders involved in order to decrease the existing digital divide. A comprehensive study based on the most profitable Croatian companies from different business sectors revealed that only a minority (44%) of them were implementing a high level of electronic resources and internet-based services in conducting business activities (Biloš, 2012). However, among the companies who were utilizing e-business and e-marketing activities, there was enough evidence of best-practice solutions and exemplary implementation to expect further development of ICT adoption. In the last two decades or so, the number of internet users, personal computers, laptops, and mobile devices has increased significantly while Croatian companies have invested considerable resources in technological equipment, thus significantly expanding the ICT infrastructure platform for the further development of the digital economy (Martinović, Požega, & Pudić, 2014).

Baller et al. (2016) published The Global Information Technology Report including The Networked Readiness Index (NRI) for 2016. NRI measures the performance of 139 global economies in utilizing ICT to boost competitiveness, innovation, and well-being, ultimately leveraging the benefits of emerging technologies and capitalizing on the opportunities of the digital environment. Countries in the report are assessed over four categories of 53 indicators in total (Baller, Di Battista, Dutta, & Lanvin, 2016):

- 1) The overall environment for technology use and creation (political, regulatory, business, and innovation).
- 2) Networked readiness in terms of ICT infrastructure, affordability, and skills.

- 3) Technology adoption/usage by the three groups of stakeholders (government, the private sector, and private individuals).
- 4) Economic and social impact of the new technologies.

The NRI Report puts Croatia in 54th place out of 139 analyzed economies with an average score of 4.29. A total NRI score is calculated based on four sub-scores as follows: Environment sub-index (4.10); Readiness sub-index (5.25); Usage sub-index (4.04) and Impact sub-index (3.75). Based on NRI measurements, Croatia shows moderate ICT readiness with its upper-middle position in the rank. Readiness sub-index is the best performing one for Croatia at 5.25 including three pillars – Infrastructure, Affordability, and Skills. However, the lowest score was awarded for Business usage, a pillar in Usage sub-index, which recorded 3.4, thus placing Croatia in 98th position out of 139, based solely on that metric. It is clear that there is quite a lot of room for progress in that area.

Based on the literature review, the following hypothesis was defined:

H1: Companies that have a higher level of e-business tools adoption have better export performance.

RESEARCH METHODOLOGY

The aim of this research is to test whether there is a relation between the level of e-business tools adoption and export performance in Croatian companies. The level of e-business tools adoption was measured with several items that are extracted from the OECD e-commerce maturity model and measure ICT readiness and implementation (OECD, 1999). Additional studies were consulted and the initial research framework was adapted according to Kotnik and Hagsten (2018) as well as Ghalandari (2013). Finally, five items were selected and measured in the research:

- e-mail usage;
- Internet usage in market research;
- Internet usage in promotion;
- online ordering/sales;
- e-payment possibilities.

These items are also used for measuring market intelligence capabilities, marketing capabilities and relationship building capacities of companies, the major dimensions of functions of ICT usage, as suggested by Luccheti and Sterlacchini (2004). The export performance was measured by:

- export/total business activities ratio;
- export/total revenue ratio;

- existence of a multilingual official web site.

This study has used the Bisnode database of Croatian companies. We concentrated on the following industries: agriculture, forestry and fishing, mining and quarrying, manufacturing, and information and communication. The intention was to exclude services, especially tourism and transportation that significantly impact Croatian exports, according to the suggestion of separating exports of goods and services in the study by Bilas, Bošnjak, and Franc (2015). The Bisnode database has identified 25,423 companies from those industries that are involved in export activities, which makes up about 8% of all registered companies. Their total income of almost 275 million Euro in 2018 makes up about 29% of the total income in the given industries. Altogether, 600 exporting companies that export a minimum of 10,000 Euro value per year in the last three years were chosen from the Bisnode database for inclusion in the sample, taking into account company size, industry, and geographic scope. Research was conducted through a field survey using an e-questionnaire, which was sent to general managers of the identified companies. Respondents were assured anonymity and confidentiality. The questionnaire was available online from November 2017 to May 2018. A total of 137 questionnaires were returned and after the separation of invalid or incomplete ones, a total of 111 questionnaires were used for statistical analysis. This gave a response rate of 18.5%, which is considered acceptable in studies of this nature.

In order to test the hypothesis H1, a dependent variable measuring export performance was created (*EXP_Per*). The variable (*EXP_Per*) is based on the z-value of the following variables: the export/total business activities ratio, the export/total revenue ratio, and the existence of a multilingual official website. In the research hypothesis testing process, several statistical methods were used. One of the applied methods was *correlation analysis*, which indicates if there is any correlation between e-business tools adoption and the export performance of Croatian exporters. *T-test* procedure for independent samples was deployed to test the differences between the export companies that are exporting and the ones that are not exporting to specific international markets (regional, EU and non-EU or non-regional market) and the level of e-business tools implementation of Croatian exporters. The sample structure is presented in Table 1.

Table 1. Sample structure

Variables		n	%
Number of employees	1 – 50	45	40.5
	51 – 250	36	32.4
	More than 250	30	27.0
	Total	111	100.0
Proportion of highly educated employees	Less than 10%	34	30.6
	11 – 25%	51	45.9
	26 – 50%	16	14.4
	More than 50%	10	9.0
	Total	111	100.0
Company age (years)	1 – 10	14	12.6
	11 – 30	52	46.8
	31 – 50	14	12.6
	51 – 80	16	14.4
	More than 80	15	13.5
	Total	111	100.0
Share of foreign ownership	0%	78	75.7
	0.1% – 10%	2	1.9
	10.1% – 25%	2	1.9
	25.1% – 49.9%	2	1.9
	More than 50%	19	18.4
	Total	103	100.0
Industry	Manufacture of wood and furniture	12	11.3
	Construction	12	11.3
	Manufacture of wearing apparel	10	9.4
	Agriculture and food	19	17.9
	Metal industry and mechanical engineering	10	9.4
	Information technology	7	6.6
	Chemical and pharmaceutical industry	13	12.3
	Manufacture of rubber and plastic products	2	1.9
	Manufacture of electrical equipment and machinery	6	5.7
	Trade	9	8.5
	Manufacture of paper and paper products	6	5.7
	Total	106	100.0

RESEARCH RESULTS AND DISCUSSION

The first part of the research was aimed at recognizing the export performance characteristics of Croatian exporters. These are presented in Table 2.

Table 2. Export performance characteristics

Variables		n	%
Exports/total business	Less than 10%	18	16.4
	11 – 25%	15	13.6
	26 – 50%	17	15.5
	51 – 75%	28	25.5
	More than 75%	33	29.1
	Total	111	100.0
Export/total revenue	Less than 10%	17	16.5
	11 – 25%	15	14.6
	26 – 50%	22	21.4
	More than 50%	49	47.6
	Total	103	100.0

Table 3. Existence of multilingual official website

Company official website	Responses		Percent of cases
	n	%	
English	84	58.7	83.2
German	31	21.7	30.7
Italian	5	3.5	5.0
French	3	2.1	3.0
Other language	6	4.2	5.9
Croatian only	14	9.8	13.9
Total	143	100.0	141.6

Although there are not many exporting companies in Croatia (15% of all registered companies), those that engage in export activities are strongly export-oriented: for 54.6% (61 companies) of our respondents, exports make up 50% or more of their total business activities. This is in accordance with GEM research findings (Singer et al., 2017) that show a relatively high level of internationalization of Croatian companies: 37% of respondents have more than 25% as international customers. Accordingly, for 49 companies (47.6%), export revenues make up over 50% of their total revenue. Furthermore, almost 84% of examined companies have multilingual websites aimed at

international markets with English (81.1%) and German (28.8%) being the most popular language variants.

Regarding e-business tools and their adoption, the research results are presented in Table 4.

Table 4. E-business tools adoption by Croatian exporters

Items		Never	Rarely	Often	Permanently	Total
E-mail for correspondence with partners/suppliers/buyers	n	0	0	8	103	111
	%	0.0	0.0	7.2	92.8	100.0
Internet as an information source on foreign markets/buyers/suppliers	n	0	3	34	72	109
	%	0.0	2.8	31.2	66.1	100.0
Internet as a promotional tool for foreign markets	n	9	34	35	32	110
	%	8.2	30.9	31.8	29.1	100.0
Online ordering/sales	n	38	33	23	16	110
	%	34.5	30.0	20.9	14.5	100.0
E-payment	n	13	11	24	63	111
	%	11.7	9.9	21.6	56.8	100.0

Research findings show that Croatian exporters rely on various e-business tools in conducting business activities. It comes as no surprise that Croatian exporters utilize e-mail as a dominant communication channel: over 90% of the examined companies use e-mail constantly while an additional 7.2% use it often, which makes up over 99% of companies using e-mail as a major tool for international correspondence. About two thirds (66.1%) of companies constantly rely on the internet as an information source about international markets, customers and suppliers while an additional 31% report using it often. The internet is significantly used for digital payments; 88.3% of respondents utilize e-payments to some extent. The majority of respondents (56.8%) use it constantly and an additional 21.6% often. Usage patterns are somewhat different regarding internet promotion and online ordering/sales. Even though 91% of respondents report utilizing an internet platform for promotional purposes, over 30% use it rarely and about the same percentage use it often (31.8%) and constantly (29.1%). In addition, over a third (34.5%) of respondents do not provide an online ordering/sales platform, and 30% use one rarely.

It is clear that Croatian exporters are digitally present on the global market and rely on e-business tools in terms of multilingual variants of official websites, using the internet as an information source and communication channel. Besides, Croatian exporters exhibited a tendency to use e-payments

in their business activities. However, according to the findings of this research, the adoption of internet promotion and online ordering/sales is detectable but rather limited.

The e-business variables described in Table 4 are measured on an ordinal measurement scale. In order to test the research hypothesis, new e-business variables were calculated with the following recoding of categories: never = 0, rarely = 1, often = 2, permanently = 3. This recoding procedure resulted in five new variables that are finally aggregated in one variable: e-business tools_sum, where the higher results indicate a higher implementation of e-business tools in export companies.

Table 5. Correlation analysis (Spearman's rho)

		(1) EXP_Per	(2)	(3)	(4)	(5)	(6)
(1) Export performance (EXP_Per)	Correlation Coefficient	1.000					
	p	.					
	n	111					
(2) E-mail for correspondence with partners/suppliers/buyers	Correlation Coefficient	.206*	1.000				
	p	.030	.				
	n	111	111				
(3) Internet as an information source on foreign markets/buyers/suppliers	Correlation Coefficient	.027	.399**	1.000			
	p	.782	.000	.			
	n	109	109	109			
(4) Internet as a promotional tool for foreign markets	Correlation Coefficient	.244*	.037	.365**	1.000		
	p	.010	.698	.000	.		
	n	110	110	108	110		
(5) Online ordering/sales	Correlation Coefficient	.139	.054	.214*	.328**	1.000	
	p	.147	.575	.026	.001	.	
	n	110	110	108	109	110	
(6) E-payment	Correlation Coefficient	.262**	.179	.229*	.107	.365**	1.000
	p	.006	.060	.017	.266	.000	.
	n	111	111	109	110	110	111

Note: *. Correlation is significant at the 0.05 level (2-tailed); **. Correlation is significant at the 0.01 level (2-tailed).

The correlation analysis indicates that e-business tools adoption has a positive correlation to the export performance of Croatian exporters. However, it should be noted (as can be seen in Table 5) that three e-business tools adoption factors positively correlate with export performance: namely (1) e-mail use for correspondence with partners/suppliers/buyers, (2) use of the internet as a promotional tool for foreign markets and (3) e-payment use.

Two remaining e-business tools adoption factors that were measured – (1) use of the internet as an information source on foreign markets/buyers/suppliers and (2) online ordering/sales, did not record a significant correlation with export performance. The use of the internet as an information source could be a general practice that doesn't directly influence export performance even though it should enable a better understanding of a foreign market. Also, it was apparent from the results that respondents do not rely on online ordering/sales as much as was expected and this might be the reason behind the missing correlation.

The new e-business tools adoption variable was used to test differences between export companies that are exporting or not exporting to specific international markets (regional, EU and non-EU or non-regional market)

Table 6. Independent sample t-test for the e-business tools_sum variable and presence in the international market

	Presence in the international market	n			Std. Deviation	Std. Error Mean	Test statistics
			Mean	Std.			
e-business tools_sum	Regional market	Yes	72	11.31	2.761	.325	p > 0.05
		No	31	10.97	2.961	.532	
e-business tools_sum	EU market	Yes	91	11.34	2.806	.294	p > 0.05
		No	12	10.17	2.758	.796	
e-business tools_sum	Non-EU market, non-regional market	Yes	63	11.80	2.766	.348	t=2.756, df=101, p <0.01
		No	40	10.28	2.660	.421	

Table 6 shows statistically significant differences between companies that are present at non-EU and non-regional markets. The analysis of the results indicates that the e-business tools implementation of Croatian exporters does not differ in the case of companies' presence in regional ($p > 0.05$) and EU markets ($p > 0.05$), which can be identified as geographically and culturally close, but companies that are present in the non-EU and non-regional markets have a statistically higher level of e-business tools implementation ($p < 0.01$). It shows that non-regional and non-EU markets, i.e. geographically and culturally distant markets, require a higher level of e-business tools implementation by Croatian exporters. It is a significant indication since 56% of respondents do business in those markets.

Several similarities can be observed in comparison with other studies of similar scope. Generally speaking, e-business is adopted internationally and is usually linked with improving company performance. Similar trends are found in studies related to European companies (Eikebrokk, & Olsen, 2007), and SMEs in particular (Depaoli & Za, 2013; Daniel, Wilson & Myers, 2002). Galandhari (2013) concluded that ICT has a significant effect on export performance

of Iranian companies, but this effect was depending on the way of using ICT (different dimensions of ICT use). Makanyeza and Ndlovu (2015) obtained similar findings on Zimbabwean exporters; ICT's influence on export performance was "dimension-specific" and only one dimension was linked to export performance.

In contrast to our research, company size played an important role in ICT adoption's effect on the export performance of Costa Rican exporters (Mata & Quesada, 2015). As Kotnik and Hagsten (2018) suggested, there is a noticeable heterogeneity of e-business tools' effect on export performance among different EU countries; in some of them, e-commerce is positively associated with the predicted export performance and in others, e-business tools usage does not appear to be of importance for export performance. The latter leads to the possible conclusion that even the country, i.e. external environment characteristics, can influence export performance.

CONCLUSION

The aim of this study was to contribute to the recent studies on significant factors that determine the export performance of a transitional economy in Central and Eastern Europe. The research concentrated on the issue of e-business tools usage and its, presumably positive, impact on the export performance of Croatian exporting companies. The intention was to provide a deeper understanding of its impact. As was shown in the theoretical background, many authors and studies focused on the importance of ICT and e-business tools implementation in improving overall business performance and particularly in export activities. Furthermore, several studies have confirmed a more or less strong positive correlation between the level of e-business tools adoption and export performance (Beckers et al., 2007; Mathews & Bianchi, 2010; Ghalandary, 2013 and others). A similar conclusion can be drawn from our research. In line with the expected research outcomes, our findings provide enough evidence that e-business tools adoption has a positive correlation to the export performance of Croatian exporters. However, it should be noted (as can be seen in Table 5) that three e-business tools adoption factors positively correlate with export performance: namely (1) e-mail use for correspondence with partners/suppliers/buyers, (2) use of the internet as a promotional tool for foreign markets and (3) e-payment use. Two remaining e-business tools adoption factors that were measured – (1) use of the internet as an information source on foreign markets/buyers/suppliers and (2) online ordering/sales, did not record a significant, i.e. positive correlation, with export performance. With regard to international market geographical orientation, we found significant differences in

exporting companies oriented toward geographically and culturally distant markets (non-regional and non-EU markets) that have a statistically higher level of e-business tools implementation in comparison to those exporting dominantly to regional and EU markets. This illustrates the significance of e-business tools adoption for reaching and managing those distant markets that are important for a number of Croatian exporters.

This study is not without limitations. The major one is the sample size and a structure that is not fully representative of Croatian exporters, especially regarding its geographical distribution. Therefore, the obtained results can only be taken as indicative. The second one is the simplification of the export performance measure, which takes into account only three variables, whereas numerous studies rely on many more, including managers' subjective satisfaction with export results. Regarding the limitations of the present study, future research on the topic should aim at constructing a more complex export performance measurement instrument, and the provision of a more representative sample. It could also be interesting to analyze the company characteristics (size, industry, ICT knowledge, organizational culture) in relation to e-business tools adoption. Moreover, the study could be expanded in order to test the perceptions of e-business tools' contributions to different aspects of value creation in export performance (financial, strategic and personal satisfaction).

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Abstrakt

Rozwój technologii umożliwił firmom wszelkiego rodzaju, branży i wielkości aktywne uczestnictwo w międzynarodowym biznesie. Technologie informacyjno-komunikacyjne (ICT), a zwłaszcza narzędzia e-biznesu, są ważne dla międzynarodowej działalności przedsiębiorstw. Technologie informacyjno-komunikacyjne zwiększają potencjał firmy do znacznego przyczynienia się do wzrostu gospodarczego, ponieważ odgrywają istotną rolę w upraszczaniu procesów biznesowych i przyczyniają się do poprawy konkurencyjnej obecności firmy na rynku. Celem tych badań jest określenie poziomu wdrożenia narzędzi e-biznesu w chorwackich firmach eksportujących i zbadanie ich wpływu na wyniki eksportowe. W analizie poziomu wdrożenia narzędzi do e-biznesu zastosowano model OECD, częściowej dojrzałości e-commerce, który mierzy kilka aspektów gotowości ICT i intensywności stron internetowych i e-commerce w firmach eksportujących. Zbadano kilka różnych aspektów wdrażania narzędzi do e-biznesu, a mianowicie korzystanie z poczty elektronicznej, korzystanie z Internetu w badaniach rynku, promocję, handel elektroniczny i możliwości płatności elektronicznych. Poziom wydajności eksportowej mierzono za pomocą trzech elementów: wskaźnika eksportu / całkowitej aktywności biznesowej, wskaźnika eksportu / całkowitego dochodu oraz, dodatkowo, istnienia wielojęzycznych, oficjalnych stron internetowych. Nasze ustalenia dostarczają wystarczających dowodów na to, że przyjęcie narzędzi e-biznesowych ma pozytywną korelację z wynikami eksportowymi chorwackich eksporterów. Należy jednak zauważyć, że trzy czynniki związane z przyjęciem narzędzi e-biznesowych pozytywnie korelują z wynikami eksportowymi: a mianowicie (1) korzystanie z poczty elektronicznej do korespondencji z partnerami / dostawcami / nabywcami, (2) korzystanie z Internetu jako narzędzia promocyjnego dla zagranicznych rynków i (3) korzystanie z płatności elektronicznych. Dwa pozostałe czynniki przyjęcia narzędzi e-biznesowych, które zostały zmierzone to (1) wykorzystanie Internetu jako źródła informacji o rynkach zagranicznych / kupujących / dostawcach oraz (2) zamówienia online / sprzedaż online, nie odnotowały istotnej korelacji z wynikami eksportowymi. Ustalenia te sugerują, że wciąż jest miejsce na lepsze wdrażanie narzędzi e-biznesu w chorwackich firmach eksportujących, szczególnie w zakresie badań rynku oraz zamówień online i sprzedaży, które mogą przyczynić się do lepszych wyników eksportowych. Jeśli chodzi o orientację geograficzną rynku międzynarodowego, stwierdziliśmy znaczne różnice w firmach eksportujących zorientowanych na rynki odległe geograficznie i kulturowo (rynki nieregionalne i poza UE), które mają statystycznie wyższy poziom wdrażania narzędzi e-biznesowych w porównaniu z fir-

mami eksportującymi głównie na rynki regionalne i rynki UE. Pokazuje to znaczenie przyjęcia narzędzi e-biznesu dla dotarcia do odległych rynków, które są ważne dla wielu chorwackich eksporterów i zarządzania nimi.

Słowa kluczowe: narzędzia e-biznesu, wyniki eksportowe, analiza statystyczna, eksporterzy chorwaccy, Chorwacja

Biographical notes

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