UKRAINIAN E-COMMERCE ATTRACTIVENESS: CHALLENGES AND PERSPECTIVES

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Abstract. *E-commerce is now more than just a trend or innovation. Eastern Europe is one of the most attractive e-commerce destinations. In this article we will talk about peculiarities, principles, main trends and attractiveness of e-commerce market in Ukraine. E-commerce is a relatively new business activity in Ukraine, which is experiencing rapid growth. E-commerce has reached virtually all business spheres today, with all possible types of goods and services being sold through the Internet, from cars and computers to consulting and legal services. Investment attractiveness of e-commerce should be particularly emphasized; considering the fact that in other European countries e-commerce accounts for 15-30% of all retail transactions, the Ukrainian e-commerce market has inexhaustible growth potential.*

Key words: *e-commerce, market orientation, economic value, innovations, investment attractiveness, information technologies, information society and communications.*

1. Introduction

The XXI century has been characterized with a more intensive integration of countries into the global information community. The spread of national, international and genuinely global information exchanges between and within banks, corporations, governments, universities and voluntary bodies indicates a similar trend towards the establishment of a technological infrastructure and the development of information society, which allows instant communications.

The Internet is becoming a platform for such communications and contributes to developing new business structures. The structures use the power of innovative information technologies together with essential experience accumulated in the field of business to establish partnership relations located anywhere in the world. So, territorially scattered businesses get the opportunity to combine and create a basic level of expertise, and

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with the help of information communication technologies, develop effective methods of production for goods and services.

Webster indicates five ways of distinguishing an information society, which are focused on measures of one or other of the following phenomena:

- technological innovation and diffusion;
- occupational change;
- economic value;
- information flows;
- the expansion of symbols and signs. [1]

The goal of this paper is to analyse and justify investment attractiveness of e-commerce market in Ukraine, placing an emphasis on a connection and correlation between development of e-commerce market and a number of economic features. The following objectives are raised in order to achieve the goal:

To review the theory and literature referring to the topic by sourcing comparable research, methodological guidance and main interpretations,

To investigate the connection and correlation between e-commerce factors and wage levels and construct an appropriate model to analyse the effects,

To interpret results to reach a comprehensive set of conclusions.

2. Review of theory and literature

The modern processes of e-commerce in the world is the subject of research for many scientists.

Joo, J. emphasized the roles of the buyer's trust in the seller in posted-price model of consumer to consumer e-commerce. The Document was published in 2015 in the Journal of Theoretical and Applied Electronic Commerce Research. The author states that the buyer's trust in the seller in consumer to consumer e-commerce plays a critical role in consumer purchase decisions, and he profoundly analyses the relationships between buyer's trust in the seller, price discount and price premium by using product price as a moderator variable. A trust function for sellers was calculated through a questionnaire, by using the feedback mechanism and by applying Analytical Hierarchy Process. The empirical study using historical transactions data indicates that the buyer's trust in the seller in the case of an expensive product is more important than that in an inexpensive product. The buyer's behaviour when purchasing a higher-priced product was more sensitive to the buyer's trust in the seller than to product price. Product price played the role of a moderator variable in the relationship between buyer's trust in the seller and price discount. However, there was no evidence that product price performs the function of a moderator variable in the relationship between buyer's trust in the seller and price premium.

At the same time, Yaseen, H., Dingley, K., Adams, C. focused their attention on the analysis of the government's role in raising awareness towards e-commerce adoption:

the case of Jordan (Proceedings of the European Conference on e-Government, ECEG, 2015). The authors prove that the government's initiatives play a major role in e-commerce adoption – they have the potential to make a positive contribution to e-commerce development or, more negatively, to place barriers in the way. Researchers developed and applied a novel research method to examine e-commerce activities and awareness by analysing relevant articles from a national newspaper. The articles were categorised and analysed into themes and reportage of e-commerce in Jordan. The authors revealed that while businesses are aware of e-commerce, and there appears to be a desire to conduct e-commerce, there are limited initiatives for raising awareness about the use of e-commerce among citizens. Although there is growing use of social media for leisure, citizens have yet to transfer their online time to e-commerce activities.

Gianpiero Di Blasi and Eleonora Pantano deeply analysed the emerging need to make physical stores more attractive to attract new clients and maintain existing ones, in their paper "Consumers' Involvement on (Re)Engineering Store Design: A Cloud Approach" (Successful Technological Integration for Competitive Advantage in Retail Settings, 2015). In their paper they proposed a system for involving consumers in the store's design process through an innovative cloud participatory platform. They showed how the inclusion of modern low-cost game technologies in retail industry might provide ripper effects in several disciplines, such as human-computer interaction, marketing and management.

In the research on the Differentiation through Service Excellence: Empirical Findings on the Role of Self-Service Technology in Retail (Successful Technological Integration for Competitive Advantage in Retail Settings, 2015), Philipp Spreer and Katrin Kallweit examined the mediation effect of service quality within the technology acceptance model, and identified the appropriate segments based on the level of acceptance and the perception of the service quality.

The efficient intermodal transportation auctions for B2B e-commerce logistics with transaction costs were examined by Xu, S.X., Cheng, M, Huang, G.Q. (2015).

Profound analysis of research papers on E-commerce (2000-2013) based on a text mining approach was provided by Yan, B.-N., Lee, T.-S., Lee, T.-P. (Source of the Document Scientometrics, 2015).

The Ukrainian authors continue to regularly analyse the Ukrainian e-commerce market. In particular Dyma, O. - he completed analysis of the state and advantages of e-commerce in Ukraine in 2015 (Economic Annals-XXI). Another Ukrainian author Romanishyn O. emphasized the potential for growth of the e-commerce market in Ukraine (Ukraine Investment, 2015). Specifically, he analysed the current trends of online retail, electronic money, payment systems and Internet banking in Ukraine.

3. Contents

Modern information society is characterized by a number of features such as globalization, increased competition and rapid technological change. Development of the information society is the strategic goal of leading countries in the world - the U.S., Japan, Canada and the EU members. Realizing the urgency and importance of information technology areas as a prerequisite for competitiveness, more and more countries are concentrated on innovations and expansion of e-commerce as an essential part of information society. The Internet is also changing citizen's interactions with the government, for example, citizens visit government websites for many reasons, which can be divided into three categories: e-democracy, e-commerce and e-research. [2]

With an average growth rate of 47% over the year in 2013, the e-commerce market in Eastern Europe is comparatively showing the strongest increase in Europe. The online turnover of €23 billion in 2014 indicates that there is a lot of ground to gain in the region; only 34 million of 135 million Internet users are using the Internet for shopping. E-commerce Europe is the European umbrella organization for online retailers. Figures in E-commerce Europe reports are based on the European Measurement Standard for Ecommerce (EMSEC). [3]

According to Ukrainian publication Korrespondent, the e-commerce sector of the Ukrainian economy reached $1,6 billion (1,23 billion Euro) in 2014, which represents a 45% increase over the previous year and an almost 300% increase over the last 4 years. The site also reports that there are approximately 8,000 internet stores, the largest 300 of which comprise about 80% of the market. The e-commerce sector is the fastest-growing segment of the Ukrainian economy. [4]

Ukraine is one of the largest consumer markets in Central and Eastern Europe with more than 44.9 million people. According to GfK Ukraine, in 2013, Ukraine was listed in the top-three fastest-growing e-commerce markets in Europe. In 2014, according to e-marketer.com, the volume of online sales totaled to $1.6 billion. In 2014 based on the promising conditions for development of e-commerce, Ukraine was ranked 58th place among 130 countries. The rankings' were based on Internet usage, security, distribution of credit cards and the quality of postal services. Ukrainian market remains in its infancy stage and has a huge potential for growth. The leading markets of China and the US are estimated at $ 426.3 billion and $ 305.7 billion respectively. The volume of the Ukrainian market totalled at $ 1.6 billion in 2014, which is 10.9 times less than in Russia and 5.8 times less than Poland. [5]

The country continues to recover from its economic crisis and investors/entrepreneurs started to turn their attention to this region. It will certainly be able to maintain and possibly build upon its current growth rate in the East European Market. Eric Walden states: "Firms are undertaking growing numbers of e-commerce initiatives and increasingly making significant investments required to participate in the growing online market". [6]

Europe is mostly a mature e-commerce market, but it changes and evolves constantly.

For merchants, there is still plenty of opportunities for growth by expanding into new European markets. Especially the Southern and Eastern European regions, which include several emerging countries. However, the unique dynamics of the European marketplace do require careful consideration and planning. While selecting the right payment mix per country is part of the necessary basis for cross-border expansion, merchants should also anticipate and act on macro-trends, such as changes in the regulatory environment, in consumer behaviour and in expectations, in order to be successful. In addition, they should actively analyse and optimize their businesses through aggressive fraud management and the application of big data analytics.

According to the latest figures of Eurostat (May 2015), the growing shares of cross-border online purchases is an important indicator to judge how smoothly the Single European Market for e-commerce functions. In 2014, 15% of all individuals in the EU28 purchased goods and/or services through the Internet from sellers outside their country of residence, but within the EU28. This is an increase of 25% compared to 2013. Popular reasons for shopping abroad were: more competitive prices or a wider offer of goods and services available. Cross-border EU purchases by individuals were highest in both, smaller member states with a limited domestic online offers available, such as Luxembourg (65%) and Malta (39%); or in member states with strong regional or linguistic ties to neighbouring countries such as Austria (40%), Finland (36%), Denmark (36%) and Belgium (34%). [7]

The average Internet penetration in Europe increased to 75% in 2014. As a result, it grew closer to the EU28 average, which amounted to 77.1% last year. The graph of the European B2C e-commerce market immediately shows the importance of the UK. After all, its market has a share of almost one third of the entire European e-commerce market. In addition, the share of the UK is more than twice as much as all the other countries outside the top 12 combined. Together, the UK, Germany and France account for 60.2%, while the other nine countries combine for 27.6%. Russia (4.4%) share number four is only 2.1% larger than the number twelve, Denmark (2.3%). [7]

In 2014, the total Western European B2C e-commerce turnover reached €208.1bn, which represented a growth of 13.3% compared to 2013. The UK (€127.1bn) was the largest e-commerce market in Western Europe, and it is expected to increase its lead over the next year. With a forecast growth rate of 13.1%, it will be the fastest-growing Western European country in terms of e-commerce. The second-largest ecommerce market within this region, France (€56.9bn), is expected to grow by 9.9% in 2015, joining the Netherlands (8.1%) as the Western European countries with single-digit growth rates next year. [7]

The total B2C e-commerce turnover of the Eastern European countries is still relatively small, but rising rapidly. In 2014, e-commerce sales of this region's markets amounted to €23.4bn, a growth of 24.6% compared to 2013. Russia is clearly the leading country in this region with an e-commerce turnover of €18.8bn, followed by Ukraine (€2.2bn) and Romania (€1.2bn). It is interesting to see that all Eastern European e-commerce markets increased by more than 15% last year. [7]

With an average growth of 45% over 2014, the Ukrainian e-commerce market outperforms its regional neighbours, Russia (35.5%) and Romania (33.3%). When it comes to Internet penetration, Romania leads the way with a share of 54% of the population, followed by Bulgaria with 51%. Russia and Ukraine are on par with 50%.

"There is a lot of potential in the Eastern European e-commerce market. First of all, only 27 million of 162 million inhabitants are shopping online – a percentage bound to increase once Internet penetration is picking up pace. As demand will rise across this region, logistic services will improve, enabling retailers to also serve in less urbanized areas" - says Wijnand Jongen, Chair Statistical Board E-commerce in Europe. [8]

The last decade is featured by rapid development and implementation of electronic payments, facilitated by prompt progress in IT-technologies and the growth of financial markets. Although today electronic payments are less popular in Ukraine, compared to the EU and US, the turnover of domestic and cross-border electronic transactions involving Ukraine is constantly increasing. Obviously, emergence of new payment instruments in the financial market is a trend evoked by a high demand of efficiency and reliability of payments.

After a closer look at the Ukrainian market in September 2013, 49.8% of the adult population of Ukraine used the Internet (Figure 1). Thus, the increase in the number of users continues to grow even faster than was expected. Growth rate for February 2012 – October 2013 was 16%, which is slightly inferior to record jump of 34% in the period from March 2011 to February 2012.

Compared to the developed countries of Western Europe and North America, the Internet penetration in Ukraine extends slightly slower. For example, the level of Internet penetration reached 56% in 2013, while US developed the same percentage but for the age group of 65 and older.

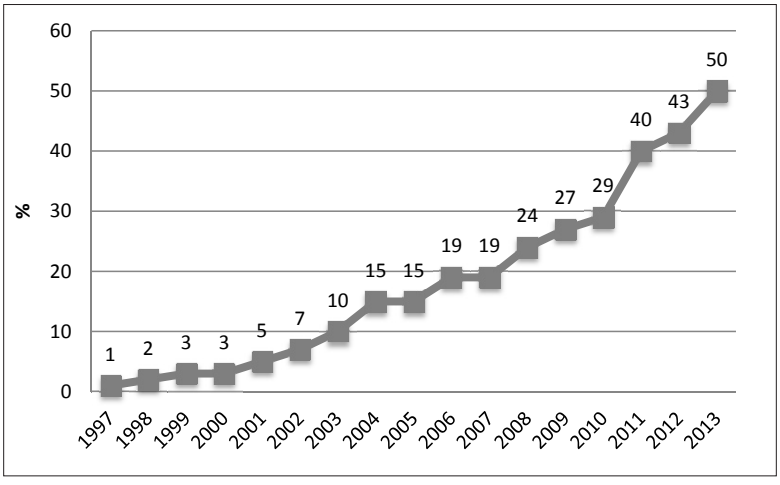

FIG. 1. **The percentage of adult population using Internet in Ukraine (1997–2013)**
Source: [9]

The main axis of the differences in the spread of the Internet in Ukraine remains unchanged; it is the age and type of settlement. There is a linear inverse relationship between age and use of the Internet (Figure 2). The younger the age, the higher is the internet penetration. Similar differences significantly affect not only the forms of consumption of data, but also its content, which is a potential threat of deepening misunderstanding between generations.

Over the past few years, differences in Internet penetration in settlements of various sizes (Figure 3) significantly smoothed.

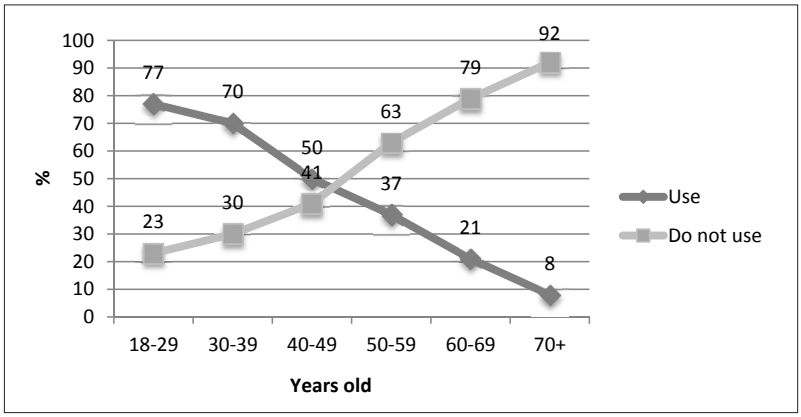

FIG. 2. **Proportion of Internet users among different age groups**
Source: [9]

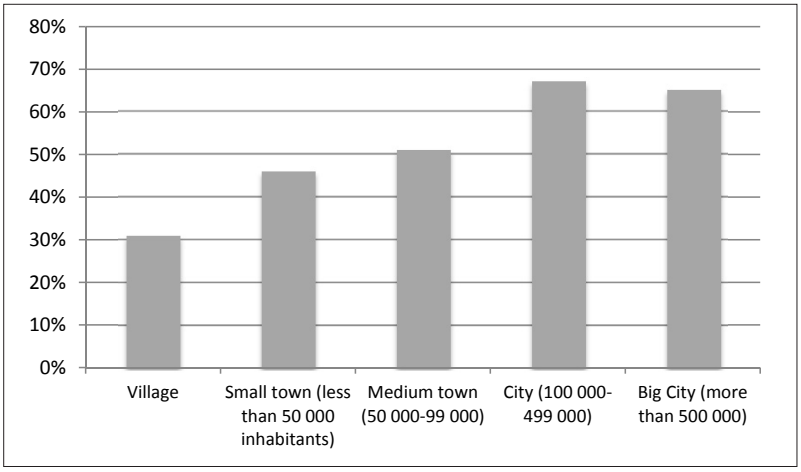

FIG. 3. **Proportion of Internet users among the inhabitants of the settlements of various types**
Source: [9]

Moreover, Ukraine has a great potential concerning the labour force market, which is characterized with a growing number of well-educated professionals (Figure 4).

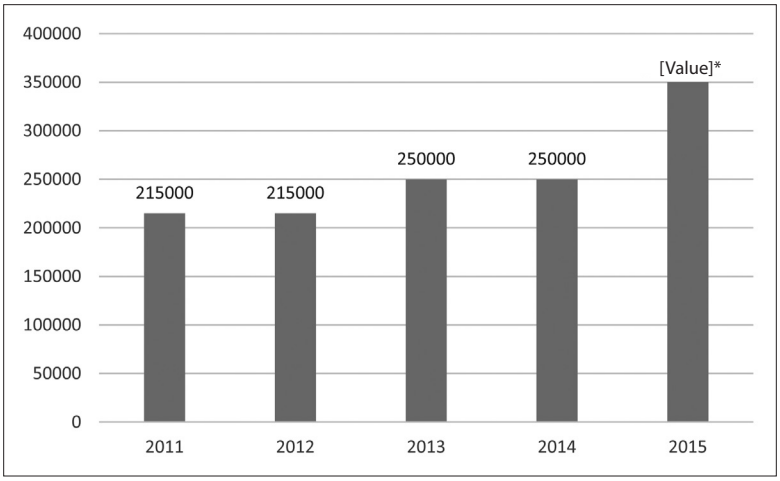

FIG. 4. **Number of IT Specialists in Ukraine (2011–2015)**

* – estimation

Source: [10]

The Ukrainian e-commerce sector has reached the level of $1 bn in the total values of start-ups; those include "Rozetka", "Modna kasta", "Tickets.ua", "Senturia", and other successful businesses. The most visited sites in the IV quarter of 2014 were: an online store rozetka.com.ua, Chinese site aliexpress.com and marketplace.prom.ua. Rozetka holds a leadership position in the market: in 2014 its market share constituted 13%. [5]

The tactics in e-commerce applied by managers in different countries have individual peculiarities. In Great Britain and Germany the companies pay more attention to cutting costs and overall economic expenses. In France the Internet companies try to increase the amount of profit by means of enhancing the product quality, while in the Netherlands the main attention is paid to marketing as means to strengthen the business. In Ukraine, the experience of running and administrating business has become the most valuable quality requested by the Internet-companies' management.

In our research, we would like to investigate a connection and correlation between e-commerce factors and wage levels in Poland. We have decided to take Poland as an example, because many macro-economic indicators of Ukraine showed the same positions and trends as Polish ones, before the economic crisis in Ukraine. Unfortunately, the authors had a lack of statistical Ukrainian data; therefore, they analysed the e-commerce market in Poland because necessary statistical data is required for deep and qualitative analysis.

In our investigation we used the following data (table1).

TABLE 1

Year	SHOPS	WAGE, PZN	VOL_E_COM_SHOPS, M PZN
2000	327	700	0.02
2001	564	760	0.05
2002	785	760	0.15
2003	1171	800	0.33
2004	1537	824	0.98
2005	1856	849	1.3
2006	2762	899	2
2007	4230	934	3.5
2008	5841	1126	4.5
2009	7576	1276	3.5
2010	9289	1317	6
2011	10814	1386	7.5
2012	12117	1500	8.2
2013	14347	1600	9.6
2014	16263	1680	10.7

The data show that the number of Internet shops grew significantly during the investigated period. At the same time, one can mention the growth of average wages and shop's retails. We wanted to investigate how e-commerce factors influence wage levels in Poland. Therefore, we used the following type of the model:

$$wage_t = \alpha + \beta x_t + \varepsilon_t,$$

where

Wage – average wage level in Poland in PZN,

X – one of the factors (number of shops of retail volume in M PZN),

α, β – model coefficients,

ε – residuals.

Descriptive statistics for data is shown in the table 2.

TABLE 2

	SHOPS	WAGE	VOL_E_COM_SHOPS
Mean	5965.267	1094.067	3.888667
Median	4230.000	934.0000	3.500000
Maximum	16263.00	1680.000	10.70000
Minimum	327.0000	700.0000	0.020000
Std. Dev.	5423.886	337.5059	3.692161
Skewness	0.596906	0.447017	0.556124
Kurtosis	1.962105	1.703969	1.926591
Jarque-Bera	1.564008	1.549372	1.493316
Probability	0.457488	0.460849	0.473948
Sum	89479.00	16411.00	58.33000
Sum Sq. Dev.	4.12E+08	1594743.	190.8488
Observations	15	15	15

The number of shops is not related to the inflation processes (inflation in Poland for the investigated period was quite low) we used level data. We did not conduct tests for stationarity because of lack of data.

The first model shows that the number of Internet shops strongly influences the wage levels. Each new shop increases the average salary by 0.06 PZN. Model 2 shows that each additional 1 M PZN of the Internet shops turnover, increases the average salary by 89,37 PZN.

We can see that the increase of the shop's turnover is more beneficial in terms of pay rise, comparing to the increasing number of shops. It means that one can expect a significant merging process among shops to create huge centres of trade. If nowadays each shop provides a turnover of about 650 thousands PZN, in the next 3-6 years we can expect turnovers increasing to 1 M PZN. All of the small shops will compete with the big ones and it can lead to the extinction of small shops and creation of medium and large shops only.

The relevant calculations for two models are given in **Annex 1.**

Taking into account the dynamics of the development of electronic commerce in Ukraine, it is necessary to state the regulations of e-commerce.

The first attempt of the National Bank of Ukraine (the "NBU") to regulate the area of electronic money was made in 2008. Despite a slight progress of regulation since 2008, it remains underdeveloped, primarily due to a rather re-strike NBU approach reflected in the existing normative acts, lack of special law governing the activity of domestic and foreign electronic money systems in Ukraine and absence of the required provisions in the Ukrainian legislation on bookkeeping and taxation of electronic money payments received by goods and services vendors.

As of today the legislative framework governing the issuance and circulation of electronic money consists of: (I) the Law of Ukraine "On Payment Systems and Money Transfer in Ukraine" No 2346-III as of 05 April 2003, as amended (the "Payment Systems Law"), (II) the NBU Regulation No 481 as of 04 November 2010 "On Amendments to Certain Legislative Acts of the NBU in respect of Regulation on Issuance and Circulation of Electronic Money" (the" E-Money Regulation"), and (III) the NBU Regulation No 223 as of 30 April 2010 "On Performance of Transactions Utilizing Special Payments Instruments".

The rise of e-commerce in Ukraine secured the development of the market of non-cash payments. According to the National Bank of Ukraine, in 2014 there were more than 879 million non-cash payments made for the total amount of 255 billion UAH. Non-cash payments accounted for a quarter of the market of payment cards in Ukraine. [5]

According to the Law, "On Payment Systems and money transfer in Ukraine", electronic money may be issued only by banks. Today 19 banks have such a right. Officially Ukraine has 14 interbank payment systems, 16 Ukrainian payment systems, three of which are international: "Welsend" by "Ukrgasbank", "PrivatMoney" by "PrivatBank" and

"Avers", owned by the bank "Finance and Credit". In 2014, in Ukraine there were three international card payment systems operating: MasterCard, Visa and AmericanExpress. International payment system PayPal is going to enter Ukrainian market. The working group has developed a three-step action plan for the National Bank of Ukraine, the implementation of which will allow the popular payment system to come to the market. [5]

Unfortunately, current legislative framework appears to be rather restraining and is holding back the potential development of e-money and e-commerce in Ukraine. In particular, the Payment Systems Law contains only few clauses devoted to issuance and circulation of e-money in Ukraine. The law, together with the above NBU regulations, stipulates the following provisions significantly complicating the Ukrainian legislation compared to EU Directive 2000/46/EC as of 18 September 2000, "On the Taking Up, Pursuit of and Prudential Supervision of Business of Electronic Money Institutions" and "Business of Electronic Money Institutions". Although a part of Ukrainian e-money sector has already been occupied by international payment systems established by foreign companies, there is still a significant niche in this market, with a large-scale potential for development. Apparently, simplification of the Ukrainian legislation in this area and bringing it in line with the equivalent EU regulations could substantially speed-up this process. Particularly, an adoption of a separate law governing e-money payments would be an enormous step forward. [11]

4. Conclusions

Reasons to invest in developing e-commerce in Ukraine:

A successful development of Information Technology and e-commerce industry in Ukraine results from the following major factors:

Relatively low costs. Since Ukraine is not an EU member yet, the manpower and well-established infrastructure allow customers to save money due to low prices, without losing the best quality of the products under development.

Also a substantial reduction of travel costs and time, as well as the proximity to their permanent clients from Western Europe due to a convenient geographical location, visa-free or simplified conditions for EU citizens.

Similar set of rules in business making process: ISO standards are adopted as state and are obligatory for some industries, different MBA programs become more and more popular as does the importance of educational background of potential employees. Skillful, with a higher education specialists, will be able to present customers with different models of work and solutions based on their area of expertise. Moreover, the labour cost is much lower than it is in the EU and the US.

Time zone – little time difference creates perfect conditions for real time meetings, allowing customers to fully monitor their development teams. Also a more familiar mentality in comparison with representatives of Indian and Chinese markets.

R&D and Innovation-driven software development. Ukrainian companies have strong advantage in R&D application development due to education specifics, long research and development traditions. Ukrainian software developers possess creative non-standard approach towards solving science-intense tasks.

This actually leads Ukrainian e-commerce market to a fast and steady growth. Industry analysts predict permanent growth of demand for it due to ever-growing opportunities in international trade and software development work. Ukraine with its excellent human resources and reasonably low labour costs can become one of the leading destinations to watch for.

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ANNEX 1

Calculations for two models

Model 1

Dependent Variable: WAGE
Method: Least Squares
Date: 02/15/16 Time: 21:58
Sample: 2000 2014
Included observations: 15

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	724.8857	14.25064	50.86687	0.0000
SHOPS	0.061888	0.001795	34.48173	0.0000
R-squared	0.989185	Mean dependent var		1094.067
Adjusted R-squared	0.988353	S.D. dependent var		337.5059
S.E. of regression	36.42462	Akaike info criterion		10.15193
Sum squared resid	17247.79	Schwarz criterion		10.24634
Log likelihood	-74.13950	Hannan-Quinn criter.		10.15093
F-statistic	1188.989	Durbin-Watson stat		1.445991
Prob (F-statistic)	0.000000			

Model 2

Dependent Variable: WAGE
Method: Least Squares
Date: 02/15/16 Time: 21:59
Sample: 2000 2014
Included observations: 15

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	746.5130	28.07445	26.59048	0.0000
VOL_E_COM_SHOPS	89.37606	5.320320	16.79900	0.0000
R-squared	0.955963	Mean dependent var		1094.067
Adjusted R-squared	0.952576	S.D. dependent var		337.5059
S.E. of regression	73.49917	Akaike info criterion		11.55599
Sum squared resid	70227.66	Schwarz criterion		11.65040
Log likelihood	-84.66993	Hannan-Quinn criter.		11.55499
F-statistic	282.2065	Durbin-Watson stat		1.766353
Prob (F-statistic)	0.000000			