INTERNATIONAL TRADE AND E-COMMERCE IN THE PRACTICE OF ENTERPRISES

Aurelija Burinskienė
Vilnius Gediminas Technical University, Lithuania
e-mail: aurelija.burinskiene@vgtu.lt

The article discusses the ability of European Union enterprises to develop international trade and to apply e-commerce technologies for such development.

The analysis of economic scientific literature on international trade published by Oxford University Press, Cambridge University Press, Harvard University Press, Springer, M. E. Sharpe, Routledge, etc. show that 30% of authors (from 0.4 mln. in total) are talking about the development of international trade. 9.4% of these authors mention the role of enterprises in such development. Most of these authors analyse the role of trade enterprises (it is mentioned by 8% of authors), production enterprises (it is mentioned by 6.5% of authors). Also they mention ability of enterprises to develop international trade as well (it is mentioned by 1.3% of authors).

The analysis of literature shows that international trade should be understood and analysed from the perspectives of enterprises activity. Therefore, it is important to reveal the ability of enterprises to develop international trade in the current challenging conditions, to evaluate, if enterprises, taking into account the new circumstances, are able to respond and adapt to these challenges adequately.

One of the challenges is the application of new technologies in the development of international trade. One of such technologies is e-commerce technologies, supporting development of trade in foreign markets. Under conditions of the application of e-commerce technologies buyers and sellers become less dependent on place. By applying e-commerce technologies both tangible and intangible goods may be realized in foreign markets.

Considering enterprises’ ability to develop international trade greater attention must be paid to those, who are located in member states of European Union (EU). Analyse of World trade volumes reveals that the largest part of these volumes is delivered by EU enterprises.

So, the paper presents the results of investigations in this context.

The study presented in the paper contains three different aspects. First, the development of international trade is disclosed from different perspectives, including e-commerce as well. Second, the framework that incorporates factors determining the ability of companies to develop international trade is presented. Third, the application of framework for EU production and trade enterprises is given.

The article is based on comparative and multiple criteria analysis. For the suggested framework, a set of criteria and the multiple criteria evaluation method (COPRAS) is used.

The proposed approach can be useful for authors who analyse the development of international trade.

Keywords: International trade, European Union, enterprises, e-commerce, COPRAS.

Introduction

International trade – a complex social and economic development phenomenon. This phenomenon is affected by such processes as globalization, the knowledge in the economy, the European Union’s evolution and development:

- Increasingly intensifying globalization processes create conditions for the global market;
- Increased scope of knowledge has opened new possibilities to sell product using e-commerce technologies;
- The development and expansion of European Union helps to establish free movement of goods, services, capital and labor, open a possibility to increase the competitiveness of European companies in the World.

The analysis of literature shows that it is important to reveal the ability of enterprises to develop international trade in the current challenging conditions, to evaluate, if enterprises, taking into account the new circumstances, are able to respond and adapt to these challenges adequately.

In addition, it is important to mention that such topic is not very popular among authors who dedicated books to international trade.

The research is aiming to propose framework, which incorporates factors determining the ability of companies to develop international trade.

The research tasks are defined as follow: 1) to disclose the development of international trade from different perspectives and from the perspective of e-commerce as well, 2) to present...
framework that incorporates factors determining the ability of companies to develop international trade, and 3) to apply suggested framework for EU production and trade enterprises.

Research objective is the framework that incorporates factors determining the ability of companies to develop international trade.

The article is based on comparative and multiple criteria analysis.

The scientific novelty of the study – presented the concepts of international trade and its development; formulated framework, which incorporates factors determining the ability of companies to develop international trade.

The proposed approach can be useful for authors, which analyse the issues related to international trade development.

The concepts of international trade and its development

International trade is a broad concept. Traditionally, it is seen as the trade of tangible products, which have a physical form (tangible movable objects), excluding electricity, water and gas if they are not prepared to be sold in limited volumes or quantities. World Trade Organisation defines international trade as “the flow of goods, carriage of goods within the territorial borders.” United Nations defines it “as international buying and selling activity”. The Organisation of Economic Cooperation and Development (OECD) mentions that international trade is “an import and export activity” (OECD, 2006).

The concept of international trade is analysed by authors widely (Cassey, 2012), Engel et al. (2012), Lee (2012), Neary et al. (2012), Ponikvar et al. (2012)).

Talking about the perspectives of international trade development, the particular attention must be given to the sale of goods in foreign markets. J. E. Stiglitz et al. believes that the development of international trade means the increase of sales, expansion of product range, and creation of added value (Stiglitz et al., 2006). S. S. Kuznets emphasizes that the growth of international trade volumes should be associated with “running ahead technology” (Nobel Lectures, 1992). In literature it is stated that, generally, talking about the development of international trade, authors use terms “modernization” and “development”. While the “development” is often confused with “growth”, actually the concept of development is much broader. Growth is defined as the application of traditional technologies in order to sell more of the same products, while development is associated with qualitative changes resulting from the use of advanced technologies (Grabowski et al., 2007; Stehrer et al., 2003; Ekholm et al., 2002).

It is noted that development is defined by authors of the various sources in different ways. Scientific works, published at the beginning of the twentieth century, occupies position that integration of existing technologies initiates development (that means their new usage). Meanwhile, researchers of later works (they are published in the 2nd half of the twentieth century), believed that development is initiated by the usage of new technologies (which are first-time introduced).

According J. E. Stiglitz’s view, development is initiated by significant changes, which together create opportunities for companies that allow to extend the horizons of current knowledge, and to reduce isolation (Stiglitz, 2001).

The concept of e-commerce and e-commerce adoption

1. The concept of e-commerce

E-commerce can be described as the usage of electronic networks (Internet and electronic networks) for buying and selling goods. In literature quite often the broader term is used. E-commerce is considered as a concept for trade based upon products and services that are being marketed, contracted, and paid for over the Internet (Bergendahl 2005).

E-commerce is considered, as employment of electronic networks (e-networks) for simplifying and expediting the purchase-sales process of goods (Šarapovas 2005).

The implementation of e-commerce technologies gives many new opportunities. In comparison to traditional trade, expenditure incurred by selling goods on-line can be bigger or smaller. Smaller activity expenditure can be determined by formation of a customer’s made orders, smaller trade expenditure, less money required for advertisement and exposition equipment. Bigger activity expenditure can be determined by order delivery, introduction and maintenance of e-commerce technologies.

E-commerce provides more opportunities to conduct transactions and encourage the development of new forms of trade. Author thinks that the main reasons encouraging enterprises to have electronic store are extra income, and smaller administration expenditures.

This means also that the usage of e-commerce technologies is the main factor, determining the perspectives of international trade development.

2. E-commerce adoption

Through literature review, three groups of different studies are established.

A) First group of studies, which focus on environmental factors

Studies under this category focus on the general factors that are valid across countries. The gap of e-commerce adoption among countries is widening (Zhu et al., 2010). Some studies integrate factors driving e-commerce adoption into framework, which is important to decision-making practitioner (Li et al., 2012).

Authors often neglect important firm level and technology related factors. They mention that only at the beginning, the organizational factors are more influential comparing with environmental factors. As time goes by, the resource advantages become less important, and e-commerce adoption is affected mainly by environmental factors – telecommunications infrastructure, transparent and trusted financial and legal system, government policy, etc. Many studies show that right government policy influence e-commerce growth. Comparison before and after policy changes for specific regions is provided in such studies. Other studies under this category present the overview of regional contextual factors and unique national characteristics, which influence e-commerce adoption.

B) Second group of studies, which analyse factors influencing enterprises’ e-commerce adoption

Many enterprises have attempted to adopt e-commerce and upgrade their competitive capabilities seeking to build own competitive advantage. However, not all enterprises have achieved expected performance, whereas some of them have failed seeking to get competitive outcomes. How enterprise’ e-commerce adoption be explained? In general, this question
is unanswered. Authors studying this question highlight enterprise’ size and industry structure.

First, enterprise’ size matters for e-commerce adoption. For example, small and medium firms tend to take e-commerce as source to acquire competitive advantages, while large enterprises tend to take this seeking to simplify enterprise’ operation and have lower costs.

Second, industry matters for e-commerce adoption as well. There limited amount of such studies. This perspective is not widely used. For the study (dedicated to the identification of mechanisms of e-commerce adoption among different industries), Li and Xie (2012) suggest to use different structural equivalence and cohesion models together with several social network models.

In addition, Li and Xie (2012) summarize ten factors which determine enterprise’ adoption of e-commerce (i.e. environment, enterprise, and technology) and highlight four significant factors, such as managerial attitude, corporate strategy, external pressure, and firms’ technological strength.

The strategic orientation of enterprise is divided by authors into two categories: orientation to customers and orientation to innovations. Enterprises, which are oriented to innovations, will be likely to adopt e-commerce. They will be industry and technology frontier and ready to meet high risks during the implementation of e-commerce technology. They always try to explore the needs of current and potential customers. Other enterprises will focus on the needs of current customers only.

E-commerce adoption may cause channel conflict between traditional channel and online channel (To et al., 2007). Those who depend heavily on intermediaries may choose to avoid new channel. In research Li and Xie (2012) find out that enterprises, which are oriented to innovations, are more likely to adopt e-commerce and enterprises, which heavily depend on intermediaries, are reluctant to adopt e-commerce. In addition, enterprises with internationalization strategy is more likely to adopt e-commerce. Enterprises, which face with foreign competition, are under greater pressure to adopt e-commerce seeking to expand market share and have efficient operations. Most of authors find a positive relation between high level of internationalisation and e-commerce adoption. As a whole, the number of studies presenting positive relation is larger than the number of studies with negative one.

C) Third group of studies, which focus on specific e-commerce activity

Studies under this category focus on single e-commerce activity, such as online trade, e-procurement: (Crespo et al., 2008) receiving orders, sending transport and payments documents via e-networks, and so on. Authors assume that each e-commerce activity has its unique influencing factors. For example, for the adoption of e-procurement, the most important thing is whether the e-procurement technology can be integrated with other systems (i.e. material requirement system, inventory system, and performance reporting system). In addition, the lack of such functionality stops or postpones a sizeable number of companies to adopt e-procurement.

Finally, the analysis of various studies shows that factors driving e-commerce adoption can be integrated into systematic framework, which is important to decision-making practitioner. In addition, the conclusion can be drawn that if statistical data is available then general factors describing e-commerce frontiers and internationalisation level have to taken into new framework. The analysis of factors shows that the ones, which characterise the number of enterprises facing with fierce competition, operating in other markets, aiming to expand operations in international markets have to be integrated into suggested framework.

**Development of international trade**

Under the conditions of globalization, the application of knowledge economy, the enlargement of European Union, new possibilities are opened for enterprises to develop international trade. There are two ways of this performance:

- development of international trade using its traditional forms (Cibureni et al., 2006), for example:
  - enterprises use opportunities of international trade aiming to reach economies of scale (Brooks et al., 2004),
  - suppliers operating in foreign countries may provide more and better opportunities to local production entities buying components, which are included into their product composition (Abele et al., 2008),
  - international enterprises get their chance to develop trade among their divisions in different countries (Bartkus et al.; 2007; Egger et al., 2005; Grimwade, 2000).

- development of international trade using its new forms, as:
  - products are changing their physical (tangible) form to intangible,
  - new technologies, which are used in various fields, spread among companies and population; by applying new technologies, companies are able to reduce trading costs, and increase sales volumes (Kraemer, 2006).

By applying new technologies in international trade development, both tangible and intangible goods may be realized through internet using e-commerce technologies. Due to applications of e-commerce technologies buyers and sellers become less dependent on the time and place: buyers without leaving home can purchase goods anytime and anywhere in the world; sellers can compete not only in national but in international markets as well.

Regardless of forms companies use for the development of international trade, volumes of international trade are affected by the level of World trade (Polak, 2003), by the size of national market, and specific factors such as natural resources (The World Bank, 2009; Emons, 1994). For example, enterprises, which are located in large domestic market, generally buy more. Enterprises, which are located in countries with natural resources, such as oil, tend to sell more. Meanwhile, enterprises located in countries, which have no direct access to sea ports (so-called “land surrounded by countries”), due to higher transportation costs face with transport difficulties concerning the development of international trade (The World Bank, 2009).

In the literature authors note that company engaged in international trade faces other difficulties such as customs duties, differences of language and culture, foreign currency exchange (Bishop, 2004). Overall, therefore, enterprises, which are engaged in international trade, should be more prepared than those subjects who only sell goods in national markets. In addition, firms in large countries have higher
competitiveness than firms in the smaller countries (Pires, 2010).

Research projects on topics of international trade, highlighted the different entities of the world, developing international trade activity, as well as having an impact on their competitive advantage. Research work also emphasizes the need to investigate the ability of companies to develop international trade.

Talking about ability to develop international trade, greater attention must be paid to EU companies. Analyse of volumes of World trade reveals that the largest part of these volumes is delivered by EU enterprises.

Meanwhile, manufacturing and trading companies are the most active among EU enterprises: 82.4% of international trade volumes belong to production and trade enterprises in EU (Eurostat, 2009).

It is clear that EU enterprises (particularly the manufacturing and trading companies), in response to the changes brought on by globalization, the knowledge in the economy, the expansion of European Union, should actively apply traditional and new forms to develop international trade.

According to Eurostat data, it is evident that 23% of production and 9.4% of trade enterprises are selling products in international markets: 13.5% of production and 5.8% of trade enterprises are selling goods in other EU countries, 9.4% of production and 3.7% of trade companies – outside the EU territorial boundaries (Eurostat, 2009). It is noted that between the incomes of production enterprises 23.7% and between the incomes of trade enterprises 6% are incomes, which are reached from the disposal of goods in international markets (Eurostat, 2009). It also noted that the number of both production and trade companies engaged in international trade is growing each year.

Regardless of form used in development of international trade among EU trade enterprises the most active are wholesale trade enterprises: 11.9% of wholesalers sell goods in other EU countries, 9.8% of wholesalers – outside the EU territorial boundaries (Eurostat, 2009). It is noted that between the incomes of wholesalers 10.7% are incomes, which are reached from the disposal of goods in international markets (about three-quarters of incomes are incomes reached by selling goods in other EU countries). Between EU wholesalers the most active are wholesalers, which have 9 and more employees: 44% of their goods sold in other EU countries, 33.6% – outside the EU territorial boundaries (Eurostat, 2009). However, the number of enterprises, which has more than nine employees, among all trade enterprises (including wholesalers) is quite small (in percentage it is less than 10%) (Eurostat, 2009). In addition, it is cleared that the new forms to develop international trade are not actively applied by EU production and trade enterprises. Comparing EU trade and production ventures with respective companies in other countries, it is noted that an increasing number of trade and production enterprises located in other countries of the world, apply new forms to develop international trade. For example, trade enterprises located in Canada collect 56% or production enterprises located in Iceland collect 59% of incomes, which are reached by using e-commerce technologies selling goods in international markets (OECD, 2008; Statistics Iceland, 2008). The most active within EU trade enterprises are trade enterprises, which sell cars: they apply e-commerce technologies for their sales in other European Union countries.

It is also noted that trade enterprises often apply traditional forms to develop international trade, and therefore, the most of their incomes come from online sales in national markets. For example, trade enterprises in Spain and German collect only 10%, trade enterprises in United Kingdom – 11%, in Lithuania – 14% of their incomes from on-line sales when products are sold in other countries (all EU trade enterprises collect 13% of incomes by selling goods in other countries on-line (Eurostat, 2009; Department of Statistics, 2009).

Most of EU enterprises sell goods on-line in a several EU countries and only 4% of them – in ten and more EU member states (Commission of European Communities, 2009). It is also noted that EU enterprises using e-commerce technologies to carry international trade apply territorial restrictions. For example, 59% of on-line shops provide information in single language only; often sellers of goods prevent on-line sales process, when person present the details of credit card and it turns out that the address is outside the territorial boundaries of the target market of the seller. In addition, the seller of goods does not allow reviewing proposals, if they are dedicated to the on-line store visitors from other EU member states. The seller refuses to sell and deliver goods to customers residing in countries, where is no single seller’s established division (Commission of European Communities, 2009).

It is clear that the inability or unwillingness of EU enterprises to find logistics service provider, which can service customers in other countries, can be a key factor, which hinders the development of international trade (Commission of European Communities, 2009). It is also noted that inside EU sub-space is formed, which functions in accordance with common standards. In this sub-space traditional forms are used for the development of international trade.

Finally, the analysis of various data suggests that framework, which incorporates factors determining the ability of companies to develop international trade, have to be presented. In addition, the conclusion can be drawn that if statistical data is available, then main factors of international trade and the application of e-commerce technologies can be used seeking to prioritise the most active enterprises.

**Framework that incorporates factors determining the ability of companies to develop international trade**

There are two groups of factors that are presented in the literature:

- **General factors**, which are characterizing traditional international trade environment. For such analysis authors suggest using the indicators of growth, geographic competition and indicators of competitiveness of enterprises in different countries, other indicators (general country-based indicators) describing external environment and the level of World trade. The analysis of other indicators is not a part of this study.

- **Specific factors**, which include the features of development of new forms of international trade (ability of enterprises to develop international trade by using e-commerce technologies, ability of enterprise to meet high risk, i.e. overcome difficulties arising from using information technologies). Method (which uses
the shift-share approach) relies on the identification of relative business changes.

For the framework, that incorporates factors determining the ability of enterprises to develop international trade, multiple criteria method COPRAS. The set of nine criteria is used. So, this set consists of such criteria, which characterize enterprises:
1) trading in other EU countries,
2) trading in markets beyond the boundaries of EU,
3) using e-commerce technologies for selling goods,
4) facing the problem of information technology effective use at the moment of company’s establishment,
5) facing the lack of partners in the development of business,
6) facing fierce competition,
7) developing the variety of products and services,
8) aiming for the growth of sales,
9) aiming for international markets.

The nine criteria presented herein above are divided into such three groups:
• Criteria, which describe the practice of enterprises activity in the development of international trade (1-3),
• Criteria, which describe the ability of enterprises to overcome difficulties (4-6),
• Criteria, which describe the strategic goals of enterprises (7-9).

The author thinks that the aforementioned set of criteria can describe the ability of enterprises to develop international trade using e-commerce technologies from different perspectives of time (meaning current and future perspectives).

In quantitative comparison each alternative is described by nine criteria. Some of these criteria have different direction (Turskis et al., 2009). Maximising and minimising criteria are with different directions.

Below (see Table 1), the criteria and their direction – maximizing or minimizing (i.e. max or min in column 2), is defined.

For long time managers are dealing with multiple criteria issues (Zavadskas et al., 2011; Antuchevičienė et al., 2010). Numerous methods have been developed for the analysis of such problems (Peldschus, 2009). One multiple criteria method is the method of COmplex Proportional ASsessment of alternatives (COPRAS). During the application of method direct and proportional dependences are assumed and the alternatives, values and weights of criteria are adequately described (Turskis et al., 2009). Among Lithuania scientists COPRAS method is used widely (for example, by Kildienė et al. (2011); Ginevičius et al. (2009); Ginevičius et al. (2008); Andruškevičius, A. (2005); Malinauskas et al. (2005)).

Based on such type of methods, the multiple criteria problem is represented by a matrix. In our case the matrix contains of 18th alternatives (rows) and 9th criteria (columns). In order to avoid the difficulties caused by different dimensions of nine criteria, normalization is used (Ginevičius, 2008).

The transformed values of nine criteria of eighteen countries are given in Table 3 and 4. The criteria weights (column 3 in Table 1) are determined by the experienced experts from ICT companies, online business owners and home University. The number of experts is limited to ten. Calculations are more accurate and more objective when number of experts is higher.

The application of multiple criteria methods depends on the calculation of criteria weights. Usually experts are used for the estimation of weights. In our case study 10 experts were used (see Table 2).

The consistency of experts’ judgments is checked using the coefficient of concordance.

The sum of scores, presented by experts:
\[
c = \sum_{j=1}^{r} c_j (i = 1, ..., m) = 450,
\]

here \( m \) is the number of alternatives; \( r \) – the number of experts.

The coefficient of concordance \( W \) is calculated according such formula:
\[
W = \frac{S}{S_{\text{max}}}, \text{ when } S = \sum_{i=1}^{m} (c_i - \bar{c})^2,
\]

here \( S \) is the sum of deviations, which shows difference from average squared, \( S_{\text{max}} \) – the sum of deviations in ideally agreed case, \( \bar{c} \) – overall average is calculated:
\[
\bar{c} = \frac{1}{2} r (m + 1) = \frac{1}{2} \cdot 10 \cdot (9 + 1) = 50. \text{ when }
\]

\[
S_{\text{max}} = \frac{r^2 m (m^2 - 1)}{12} = \frac{100 \cdot 9 \cdot (81 - 1)}{12} = 6000,
\]

after \( W = \frac{S}{S_{\text{max}}} = \frac{2841}{6000} = 0.47. \)

The significance \( x^2 \) for the coefficient of concordance is calculated as follows:
\[
x^2 = Wr (m - 1) = 0.47 \cdot 10 \cdot (9 - 1) = 37.87.
\]

<table>
<thead>
<tr>
<th>Table 1. The basic information about criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Criterion</strong></td>
</tr>
<tr>
<td>Trade in other EU countries (%)</td>
</tr>
<tr>
<td>Trade in markets beyond the boundaries of EU (%)</td>
</tr>
<tr>
<td>Use e-commerce technologies for selling goods (%)</td>
</tr>
<tr>
<td>Face with the problem of information technology effective use at the moment of company’s establishment (%)</td>
</tr>
<tr>
<td>Face with the lack of partners in the development of business (%)</td>
</tr>
<tr>
<td>Face with a fierce competition (%)</td>
</tr>
<tr>
<td>Develop the variety of products and services</td>
</tr>
<tr>
<td>Aim for the growth of sales (%)</td>
</tr>
<tr>
<td>Aim for international markets (%)</td>
</tr>
</tbody>
</table>

The application of multiple criteria methods depends on the calculation of criteria weights. Usually experts are used for the estimation of weights. In our case study 10 experts were used (see Table 2).

The consistency of experts’ judgments is checked using the coefficient of concordance.

The sum of scores, presented by experts:
\[
c = \sum_{j=1}^{r} c_j (i = 1, ..., m) = 450,
\]

here \( m \) is the number of alternatives; \( r \) – the number of experts.

The coefficient of concordance \( W \) is calculated according such formula:
\[
W = \frac{S}{S_{\text{max}}}, \text{ when } S = \sum_{i=1}^{m} (c_i - \bar{c})^2,
\]

here \( S \) is the sum of deviations, which shows difference from average squared, \( S_{\text{max}} \) – the sum of deviations in ideally agreed case, \( \bar{c} \) – overall average is calculated:
\[
\bar{c} = \frac{1}{2} r (m + 1) = \frac{1}{2} \cdot 10 \cdot (9 + 1) = 50. \text{ when }
\]

\[
S_{\text{max}} = \frac{r^2 m (m^2 - 1)}{12} = \frac{100 \cdot 9 \cdot (81 - 1)}{12} = 6000,
\]

after \( W = \frac{S}{S_{\text{max}}} = \frac{2841}{6000} = 0.47. \)

The significance \( x^2 \) for the coefficient of concordance is calculated as follows:
\[
x^2 = Wr (m - 1) = 0.47 \cdot 10 \cdot (9 - 1) = 37.87.
\]
Random number $x^2$ is distributed under $x^2$ with $\nu = m - 1$ the degrees of freedom of the chosen significance level $\alpha$ (in practice $\alpha$ is usually equal to the value of 0.05 or 0.01). The assessments of experts are aligned calculated $x^2$ value is greater than the $x^2$ (which is taken from tables of distribution and is equal to 15.51).

The coefficient of concordance is equal to 0.47 (its significance is equal to 37.87 and is greater than the critical value – equal to 15.51) and shows that experts' judgments are in a good agreement. This means that the weights of criteria (estimated by experts) can be used for analysis (Podvezko, 2005).

Finally, the weights of criteria are placed into framework. The criterion, which represents the use of e-commerce technologies for selling goods, received the highest experts’ interest. After this the matrix is normalized. The sum of normalized values is equal as always to one (Turskis et al., 2009).

### The application of framework for EU production and trade enterprises

In the paper the application of framework is presented. For the application of framework to EU production and trade enterprises Eurostat (2009) data, which is collected using questionnaire, is applied.

The sample size is determined by statistical analysis. The results of the analysis of survey sample show that it is sufficient.

In order to ensure 95% reliability of statistical data and 4% of allowable inaccuracy 1.22% production and 1.20% trade enterprises have to be questioned. During Eurostat survey 3.91% production and 2.14% trade enterprises have been interviewed.

The results of study show that Danish production and trade enterprises are the most active: these enterprises have received the highest score (3 and 4 table).

It is clarified that 24% of Danish production enterprises sell goods in other EU countries, 20% of them – outside the EU boundaries. It is noted that 34 % of Danish production enterprises use e-commerce technologies for selling goods, 45% them aim to increase sales (more than one third of them aim to increase those sales in international markets).

In general, from all researched production enterprises 18% of them are selling products in other EU countries; 13 % of them – outside the EU boundaries; only 7% of them use e-commerce technologies for selling goods, although 39% of them aim to increase sales (half of them have aim to increase those sales in foreign markets).

The results of the application of framework in trade enterprises show that Danish and Luxembourg trade enterprises have received the highest scores (4 table).

13 % of Danish and Luxembourg trade enterprises sell goods in other EU countries; 14% of them – outside the EU boundaries; 37% of them use e-commerce technologies for selling goods; 42% of them aim to increase sales (more than one third of them aim to increase those sales in international markets).

It is also revealed that within researched enterprises 7% EU trade companies sell goods in other EU countries and 4% of them – outside the EU territorial boundaries. Just 8% of them use e-commerce to sell products; 22% of them have aim to increase sales (more than half of them want to increase sales in international markets).

The results of research show that EU production enterprises are more active by selling goods in international markets, yet they apply traditional technologies more often. Meanwhile, trading companies have more opportunities to apply e-commerce technologies, but they are more passive by selling goods in international markets.

The results of the study show that the framework, which incorporates factors determining the ability of companies to develop international trade, is important to authors, which analyse the issues related to international trade development.

### Conclusions

The analysis of literature shows that it is important to reveal the ability of enterprises to develop international trade in the current challenging conditions, to evaluate, if
<table>
<thead>
<tr>
<th>Country</th>
<th>Significance of entries</th>
<th>0.10</th>
<th>0.05</th>
<th>0.01</th>
<th>0.005</th>
<th>0.001</th>
<th>0.0005</th>
<th>0.0001</th>
<th>0.00005</th>
<th>0.00001</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK</td>
<td>0.02</td>
<td>0.005</td>
<td>0.002</td>
<td>0.0002</td>
<td>0.00005</td>
<td>0.000005</td>
<td>0.0000005</td>
<td>0.00000005</td>
<td>0.000000005</td>
<td>0.0000000005</td>
</tr>
<tr>
<td>Germany</td>
<td>0.02</td>
<td>0.005</td>
<td>0.002</td>
<td>0.0002</td>
<td>0.00005</td>
<td>0.000005</td>
<td>0.0000005</td>
<td>0.00000005</td>
<td>0.000000005</td>
<td>0.0000000005</td>
</tr>
<tr>
<td>France</td>
<td>0.02</td>
<td>0.005</td>
<td>0.002</td>
<td>0.0002</td>
<td>0.00005</td>
<td>0.000005</td>
<td>0.0000005</td>
<td>0.00000005</td>
<td>0.000000005</td>
<td>0.0000000005</td>
</tr>
<tr>
<td>Italy</td>
<td>0.02</td>
<td>0.005</td>
<td>0.002</td>
<td>0.0002</td>
<td>0.00005</td>
<td>0.000005</td>
<td>0.0000005</td>
<td>0.00000005</td>
<td>0.000000005</td>
<td>0.0000000005</td>
</tr>
<tr>
<td>Spain</td>
<td>0.02</td>
<td>0.005</td>
<td>0.002</td>
<td>0.0002</td>
<td>0.00005</td>
<td>0.000005</td>
<td>0.0000005</td>
<td>0.00000005</td>
<td>0.000000005</td>
<td>0.0000000005</td>
</tr>
</tbody>
</table>

**Table 3. The comparison of production enterprises**

<table>
<thead>
<tr>
<th>Country</th>
<th>Trade in matter</th>
<th>Usable technology for producing goods</th>
<th>Face with the problem of market competition</th>
<th>Face with the lack of partners for the development of the company</th>
<th>Minimizing the importance of the company</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK</td>
<td>0.02</td>
<td>0.005</td>
<td>0.002</td>
<td>0.0002</td>
<td>0.00005</td>
<td>0.000005</td>
</tr>
<tr>
<td>Germany</td>
<td>0.02</td>
<td>0.005</td>
<td>0.002</td>
<td>0.0002</td>
<td>0.00005</td>
<td>0.000005</td>
</tr>
<tr>
<td>France</td>
<td>0.02</td>
<td>0.005</td>
<td>0.002</td>
<td>0.0002</td>
<td>0.00005</td>
<td>0.000005</td>
</tr>
<tr>
<td>Italy</td>
<td>0.02</td>
<td>0.005</td>
<td>0.002</td>
<td>0.0002</td>
<td>0.00005</td>
<td>0.000005</td>
</tr>
<tr>
<td>Spain</td>
<td>0.02</td>
<td>0.005</td>
<td>0.002</td>
<td>0.0002</td>
<td>0.00005</td>
<td>0.000005</td>
</tr>
</tbody>
</table>

**Table 4. The comparison of trade enterprises**

<table>
<thead>
<tr>
<th>Country</th>
<th>Trade in matter</th>
<th>Usable technology for producing goods</th>
<th>Face with the problem of market competition</th>
<th>Face with the lack of partners for the development of the company</th>
<th>Minimizing the importance of the company</th>
<th>Priority</th>
</tr>
</thead>
<tbody>
<tr>
<td>UK</td>
<td>0.02</td>
<td>0.005</td>
<td>0.002</td>
<td>0.0002</td>
<td>0.00005</td>
<td>0.000005</td>
</tr>
<tr>
<td>Germany</td>
<td>0.02</td>
<td>0.005</td>
<td>0.002</td>
<td>0.0002</td>
<td>0.00005</td>
<td>0.000005</td>
</tr>
<tr>
<td>France</td>
<td>0.02</td>
<td>0.005</td>
<td>0.002</td>
<td>0.0002</td>
<td>0.00005</td>
<td>0.000005</td>
</tr>
<tr>
<td>Italy</td>
<td>0.02</td>
<td>0.005</td>
<td>0.002</td>
<td>0.0002</td>
<td>0.00005</td>
<td>0.000005</td>
</tr>
<tr>
<td>Spain</td>
<td>0.02</td>
<td>0.005</td>
<td>0.002</td>
<td>0.0002</td>
<td>0.00005</td>
<td>0.000005</td>
</tr>
</tbody>
</table>
enterprises are able to respond and adapt to these challenges adequately taking into account the new circumstances.

It is important to mention that this topic is not very popular among authors who dedicated books for international trade.

Talking about the development of international trade, greater attention must be paid to EU companies. By analysing the volumes of World trade it is noted that the largest part of these volumes is delivered by EU enterprises: 82.4% of international trade volumes belong to production and trade enterprises in EU.

It is clear that EU enterprises (particularly the production and trade ones) should actively apply traditional and new forms to develop international trade in response to the changes brought on by globalization, the knowledge in the economy, the expansion of EU.

On the other hand, talking about EU trade and production ventures with respective companies in other countries, it is noted that an increasing number of trade and production enterprises located in other countries of the world apply new forms of international trade development more actively.

Inside EU sub-space is formed, which functions in accordance with common standards. It is clear that the inability or unwillingness of EU enterprises (selling products through their on-line stores) to find logistics service provider able to service customers in other countries, might be a key factor, which hinders the development of international trade.

The results of the application of framework for EU production and trade enterprises show that Danish enterprises are the most active: they use e-commerce technologies in the development of international trade more actively.

Comparing Danish production and trade enterprises to other enterprises, it is noted that there are more active enterprises in Denmark (the number of active enterprises is 1.5-5 times greater than in other countries). This means that it is necessary to improve the ability of other enterprises to use e-commerce technologies in the development of international trade.

In addition, the results of research show those EU production enterprises are more active by selling goods in foreign markets. Yet, they apply traditional technologies more often. Meanwhile, EU trade enterprises have more opportunities to apply e-commerce technologies, but they are more passive by selling goods in foreign markets.

Finnaly, the set of criteria is tested by using data of enterprises located in 14 EU countries. The survey is conducted to reveal how enterprises apply e-commerce technologies in the development of international trade.

Different criteria are used in the framework, including factors about international trade and the application of e-commerce technologies.

It is noted that suggested framework that incorporates factors determining the ability of companies to develop international trade, is important for authors, which analyse the issues related to international trade development.

References


The article has been reviewed.

Received in April, 2012; accepted in June, 2012.