

## **CUSTOMER-ACCEPTABLE VARIATION OF E-COMMERCE QUALITY CHARACTERISTICS**

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### **Abstract**

*Globalization escalates the competition on the common market, and so pushes business to expand into the internet. In the virtual environment businessmen create new contacts, exchange knowledge and new ideas, like so improve business competitive abilities. The performance of e-commerce depends on the ability to adapt the available technical solutions to the unstable environment, mostly influenced by the customer preferences. Thus, the aim of this paper is to present the results of performed analysis of customer preferences concerning the variation of e-commerce characteristics, which could serve as quality criteria. The main method used was an e-customer survey; the data were exposed to statistical and valuating analysis. The analysis gave the set of e-commerce aspects important for customers, for main identified characteristics the frames of its acceptable variation were analysed.*

**Key words:** *e-commerce, quality criteria, quality evaluation, customer approach*

### **Introduction**

Global market provides for new possibilities and for new dangers – with growing of the markets, the number of business actors and competition are growing as well. Moreover, the preferences and expectations of customers can differ significantly among the markets, impacted by various cultures and legal systems. All these factors are observable as in traditional trade, as in electronic commerce (hereinafter, e-commerce). E-commerce develops quite quickly in rich countries and begins its way in the developing states. The success of e-commerce depends on many factors: the level of IT infrastructure in target country, the legal business regulation, the level of computer-skills, acceptance of IT solutions, and the preferences of customers. The last one is especially relevant for Business-to-Consumer (B2C) sector. Competitive e-commerce system needs to be flexible and easily adaptable to the various and numerous user requirements. Aiming to find out which e-commerce elements are important for e-customers, and how do they define the acceptable ranges for important factors' variation, the e-customers survey was performed. The survey data were analysed through statistical and valuating prism. The main accent of this paper is put on the customer defined frames of acceptability of identified e-commerce characteristics.

### **Theoretical background and methodology of the e-commerce quality criteria research**

E-commerce was described by many various authors (*e.g. Knoppers, 2000; Coppel, 2000; Ah-Wong et al., 2001; Markevičienė et al., 2002; Sodžiutė&Sūdžius, 2003; Šarapovas, 2005; Schubert, 2006; Isaac, 2008; Guseva, 2009*) as a part of e-business concentrated on selling goods and services. *Pavic et al. (2007)* underlined the way of e-commerce performance through thinking about customers needs, and by using the internet to increase business performance and success.

Author of this paper believes e-commerce is possible to be presented by a complex of online and offline processes. The nature of environment influences the character of possible opportunities and problems. Thus, when processes are separated by environment nature, they can be analyzed in view of environment peculiarities (*Guseva, 2008*). E-commerce processes performed online are the sale organization and the payment organization, from e-customer point of view – ordering and payment online (Figure 1).



**Figure 1: E-commerce analysis model**

Offline activities are the delivery and post-purchase service. Offline environment is the point where the customer and retailer meet in reality. Good delivery practice defines if the consumer will buy something else from this e-shop. Post-purchase service can help to gain customers' loyalty. In the result of all mentioned four processes customer reach the point where he or she will decide to purchase again from this e-shop or not. The miscarriage during any of processes will lead to negative e-shop perception from user's position.

Thus, when the customers' preferences are the priority for e-commerce system refining and development, the developers need to collect, analyse, and interpret customers' opinions and expectations. The organisation of customers' opinions by sectors of presented model (fig. 1): online ordering and payment, and offline delivery and service – helps the developer to concentrate the attention on main e-commerce processes customer is involved in. By the comparison of set of customers' preferences and expectations with facilities and services provided by e-commerce we can estimate the level of certain e-commerce system's conformability with market requirements. We can invoke the quality definition used in ISO 9000 standard: "the totality of characteristics of an entity that bear on its ability to satisfy stated and implied needs". If we treat customers' requirements as target level ("stated and implied needs") of e-commerce performance, we can evaluate the quality of particular e-commerce system. With purpose to reach this goal, the customers' needs must be clearly identified. The described model (fig. 1) was a base of the performed survey, where the questionnaire was organized by four segments corresponding to four e-commerce processes. The survey was performed in the internet (<<http://ecomq.com>>) – in the environment known to each e-customer. The main objective of the questionnaire was to define the aspects of e-commerce, which are important for users, and, moreover, to define the ranges of identified characteristics' variation acceptable for e-customers, and able to be used as criteria for e-commerce quality evaluation. The list of the main e-commerce aspects was presented to the respondents, where they could indicate the importance of each aspect by using the 9-points nominal rating scale. When certain aspect was evaluated as important (more than 5 points), the customer was asked to indicate additional characteristics of this aspect, which determine positive quality perception.

The answers of European customers (80% – from developing European countries) were collected during the period of 2 month in 2009. Response rate reached 32,7% of persons visited the questionnaire, the sample of 204 questionnaires filled by e-purchasers were analysed. The main characteristics of the structure of the sample are provided on the Figure 2.

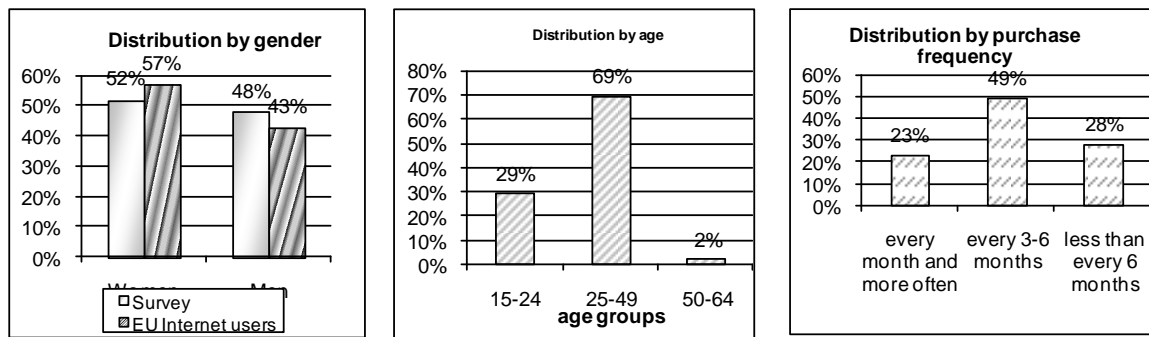


Figure 2: Survey sample characteristics (made by author)

Structure of sample by gender is similar to EU population distribution with 52% of women and 48% of men participated in the survey, but respondents' gender distribution slightly deviates from the EU Internet users' distribution by same characteristic (fig. 2). Sample distribution by respondents' age shows the maximum in the 25-49 years old age group – that is the age, when incomes are maximised, so, naturally the persons with bigger incomes can afford more intense consumption. Considering the frequency of purchase, the results of this survey and the findings reflect an opinion of moderate activity buyers, and only partly influenced by the opinions of respondents with greater and lesser than average purchase frequency. Considering that quite large variety of goods can be sold online the survey data were analyzed for several market types: perishable goods market (e.g. flowers, food), leisure and household goods market, and luxury goods market. Respondents participated in this survey purchase the most on the leisure and household goods market. Thus, the approximate respondent's profile is: women or men of "working" age with moderate online purchase activity, mostly buying from leisure and household market. The next paper section presents the main results of performed survey.

**Customer approach to the e-commerce systems quality characteristics**

Respondents were asked to assess the importance of proposed e-commerce elements in 9 points scale. The averages of evaluations given by customers are provided on the Figure 3.

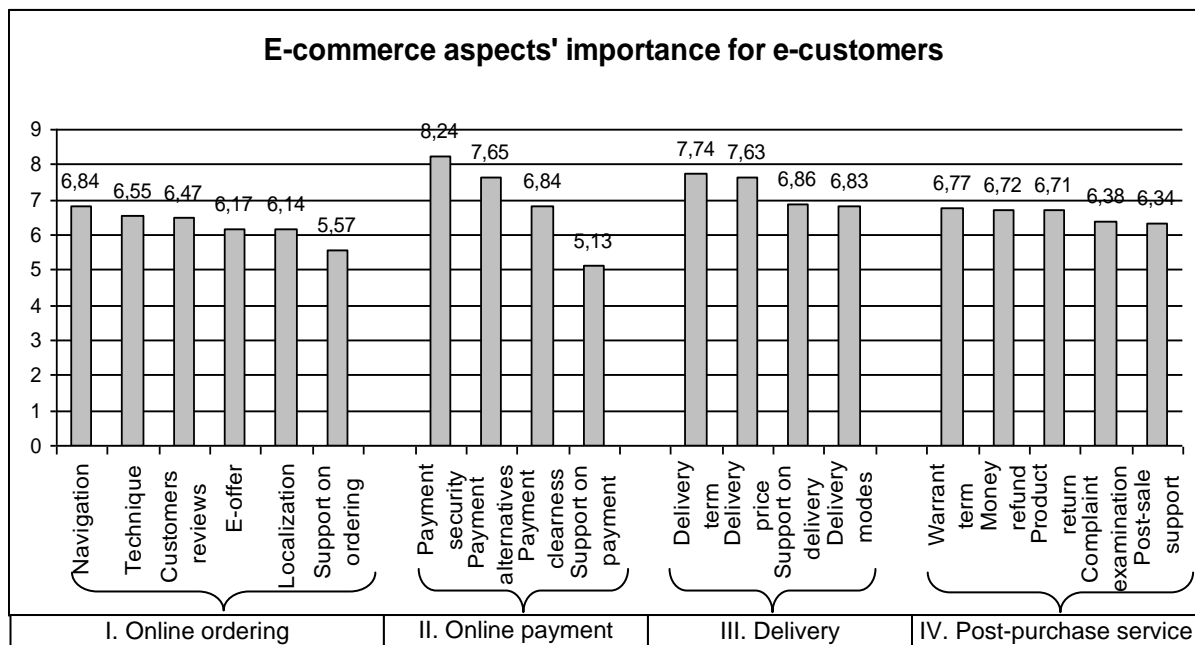


Figure 3: Means of e-commerce elements' importance (made by author)

On online ordering step the six of nine proposed elements by mean were evaluated as important. In this block for customer evaluation there were provided e-shop characteristics,

which could be divided on 2 groups: quality characteristics by properties and quality characteristics by result. The quality criteria by results (such as e-shop's rank in search results, attendance, and turnover) are more important for e-shop owner, but not for customers – no one of result characteristics were assessed as important. It can be assumed, that properties are defining the results. The properties – that is exactly what customer perceive, and on its acceptance by the customers depends customer's wish to purchase though certain e-shop (turnover result), to visit it again (attendance result), to recommend it to other users, etc. Thus, the further analysis was concentrated on e-commerce quality characteristics by properties, as such an evaluation allows identifying of problems' or achievements' reasons and basis. For such aspects as navigation, technique, customers' reviews it is difficult to define objective, possible to account, characteristics. However, we can invoke the statement of presence of positive and desirable elements. So, for navigation evaluation it can be observed the presence of navigation trail ("breadcrumb") on each page, of SE friendly URL, of e-shop map or adequate search inside e-shop (this aspect was mentioned by 25% of respondents filled "other" field), 404 error page with indication of title page URL, external links separation from internal ones. Technical e-shop side could be evaluated by checking code's and links' validity, alternate description of media content and links, different browser compatibility, media content and code optimisation, etc.

The nature of e-shop localization and e-offer customization is analogical. Localization comes into play through adaptation of the web site, as a whole, to the target market, as well as though the offer content's adaptation to the culture, market or target consumer group. Thus, these two aspects can be operated together. Customers that assessed e-offer content as important marked such e-offer dimensions (several options possible to check, total more than 100%): price (96%), discounts (76%), available in stock assortment (60%), offer relevance to request (57%), loyalty support (19%). In the field "other" respondents (15%) mentioned the completeness of offer: detailed description, several representatives views of product (high resolution pictures), and the possibility to compare selected products.

The importance of online support and importance of consumers' reviews can be explained by user's willingness to communicate and by preferences in communication ways and information sources. Thus, when customer like more to gather opinions from other users for choosing a product to purchase, it is likely that such a customer won't ask the seller for help to select an appropriate product, on the other hand, if the customer is waiting for online support from the seller in selecting and ordering goods, it is likely that reviews of users will be less important for him.

On the next step, payment, the respondents, that evaluated payment security as important were asked to indicate, which elements help them to assess payment security level. The majority of respondents (68%) indicated that the security certificate issued by identifiable institution can convince them; others (58%) indicated that they need clear and easily checkable information about seller to decide if they can confide him, less than half of respondents (44%) mentioned the using of https protocol for transactions.

The payment alternatives were presented to customers as a list of 10 positions, where was possible to check more than one position. In result the customer preferences disposed as follows: payment on delivery (77%), payment by credit card (71%), by Web money (45%), payment through e-bank (41%), Yandex money (32%), and payment by loyalty points (32%), by bank transaction (30%), by PayPal (13%), by sms (3%), by Wire transfer (2%). Here we can perceive the desire of customer to pay in as more secured way as possible, they want more guaranties and prefer to pay on delivery, when they are sure, that e-shop fulfils order and ordered product is relevant to request. Moreover, customers mentioned they appreciated the possibilities to pay by instalments, and that the fees for the way they pay are of fundamental importance when choosing among payment alternatives.

The clearness of payment system can be ensured by use of typical standardised forms (typicality of payment interface and confirmation of accepted payment – 6%), explanation by

instructions of use (72%), interactive payment system's demo-versions (21%), and the vivid examples (28%).

When processes are moving to the offline environment the peculiarities of goods can impact significantly the preferences of customer – this was showed by respondents' answers, which were collected for 3 main market types: (1) perishable goods market, (2) leisure and household goods market, (3) luxury goods. Customer preferences for delivery term differ among the market (as it was expected):

(1) for perishable goods the delivery term vary by means from 1,3 till 8 hours and the most concentration of acceptable terms falls in range from 1 to 8 hours, but the majority of judgement was noticed in 1–5 hours range, less – in 5–8 hours diapason, the terms exceeding 8 hours are less acceptable and can be considered as receding from commonly acceptable perishable goods delivery term.

(2) for leisure and household goods the delivery term by means are acceptable from 2 till 8 days. The analysis of customer opinion data shows that longer terms (which made impact on mean's calculation) are acceptable to very small customers group. If we ignore these atypical judgements, we will notice, that judgements are concentrated mainly in 1–7 days range. The terms exceeding 7 days are acceptable to not so many as 1/3 of respondents.

(3) for luxury goods the means of acceptable delivery term vary from 4 till 24 days. There are two minority customer groups – ones expect delivery in less than 2 days, others keep acceptable terms over 45 days. The main variety of judgements falls into range from 1–30 days. Here the same tendency as in previous markets was noticed – the longer the delivery term, the fewer customers find it acceptable.

Considering that the short terms are a part of longer ones, it can be assumed that the shorter terms are acceptable to all customers, when with increase of term the satisfiability progressively declines. Thus, the orientation on shorter term is more rational: for perishable goods delivery must be finished in 8 hours (1 workday), for leisure and household goods – in 7 days (1 calendar week), for luxury goods – in 24 days.

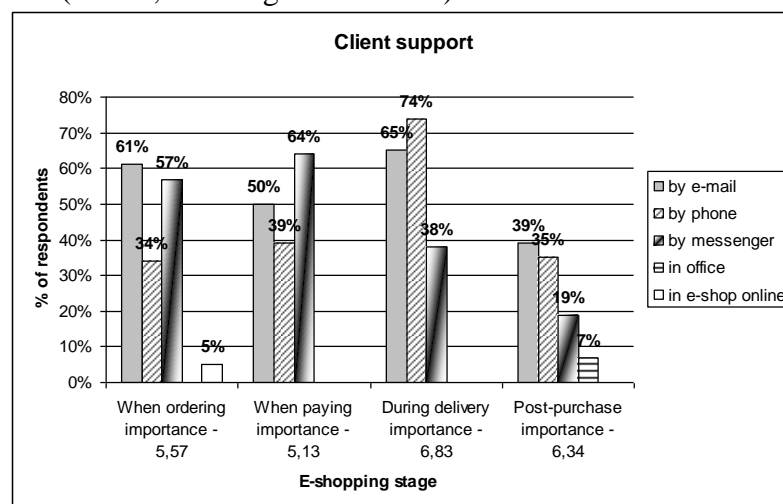
The delivery price can be treated as consisting of two parts: fixed and variable. The fixed part is a basic price for delivery service, the variable – depends on ordered goods price (total sum). The basic price by customers' judgements means vary from 1,3 € (1,78 \$) to 8,76 € (12 \$). However, when eliminating the rare judgments (delivery price over 36,5 € (50 \$)) the customer-acceptable delivery prices vary from 0 to about 7 € (about 10 \$), the higher price for delivery are ready to pay only ¼ of respondents. The added variable part of delivery price is estimated as acceptable when it does not exceed 5-6% of order sum.

The customer-preferable mode of delivery depends on product he or she purchased. The perishable goods are to be delivered by courier (mentioned 92% of respondents) or taken in distribution point (45%) – these ways of delivery are the most quick, what is important for perishable goods. In case of leisure and household goods, besides courier (66%) and distribution point (44%), the respondents mentioned post service (58%) as a practical delivery mode. As about luxury goods' delivery, the acceptable delivery modes are courier service (49%), post service (25%), and distribution point (24%). However, there is accented the possibility to trace delivery online (65% of respondents) – it is important for new owner to know where is his or her ordered and paid luxury property.

As concerns the post-purchase service, the warranty for online purchased products have to be no shorter as in real shop (83 % would like to get the same warranty as in real shop), the customers positively look on additional longer warranty (24 % of respondents). The acceptable term of refund (the period of time from refund requirement till moment when money is refunded) varied from 1 till 45 days. The large variation is noted (standard deviation 0,64) in this section of data, thus, modes ("from" 1 day and "till" 5 days) differ significantly from averages ("from" 3, "till" 10 days). By presumption, that customers always want to get refund as quick as possible and longer refund term acceptance depends on subjective customer's tolerance level, it is rational to define the acceptable refund term in period of 1–5

days. With term's increase the satisfaction will decrease: the term over 10 days is acceptable for 27% of respondents, over 14 days – 18%, and over 21 days – 1% only. The complaint examination term is closely linked with refund term – the quicker complaint examination, the quicker refund will be. Thus, the customers' expectations about complaint examination term are analogical to ones about refund. The next assessed as important aspect is the period when it is possible to return the product; here the mode is "from" 14 days, "till" 30 days, and means – "from" 11 days, "till" 30 days. Considering the customers' desire to have a real possibility to put into practice their rights provided by warranty, the term for product returning have to be no shorter than 11 days, on the other hand this term longer than 30 days is not so required among customers.

Client support was evaluated as important on all of four e-shopping stages (fig. 4); the most important it becomes in offline environment, when e-customer fulfilled his engagement (paid for his order) already and expect an adequate fulfilment of e-seller's promises. The ways of support needed in each stage differ according to nature of requested assistance, so, in online stages the preferable means of communication are purely online and implemented through the internet (e-mail, messengers dominate).



**Figure 4: Preferable client support tools in e-commerce**

The most important is the support during delivery, where the preferable means of communication are phone and e-mail, naturally, the phone is more quick and operative when contacting with logistic service (post, courier, etc.), which works in real environment and is not always reachable by internet. In post-purchase stage, besides already mentioned means, some of respondents indicated the need to get a consultation or other assistance in real office of the seller – such a need could be predicted, as on post-purchase stage the problems user can face are mostly linked with physical products' features and could request intervention.

**Conclusions**

Nowadays business is under pressure to take advantage of the possibilities provided by global market. One of the tools for global marketing, e-commerce, to become competitive needs to be flexible and easily adaptable to customers' requirements. This paper presents the main results of performed customer preferences survey, which let identify the e-commerce aspects important for customers, and its acceptable characteristics. So, the survey showed the need to customize e-shop structure and e-offer content in comfortable, readable, and easily understandable manner, as well as to insure the possibility of dialog on e-shop – this is important to stimulate the interest of customer and purchase. The found payment characteristics showed the means of payment the most requested, and the main indispensable characteristics of payment: secure (certification can be used), clear (customers need instructions), multifarious (customers want to have a choice), and cheap. All e-commerce

developers know that customers require as short delivery term as possible, the survey let to define the concrete acceptable terms' ranges, which vary from 8 hours for perishable goods, till 1 week for leisure and household goods, and till 24 days for luxury and rare goods. In the same time the majority of users is not ready to pay for such delivery more than 7 € and 6% of order's total sum. The mode of delivery depends on the character of ordered products, when for perishable goods the most important is quickness of delivery mode, than for other (more expensive goods) – the accuracy and traceability. The success of first 3 e-commerce stages makes positive impact for recurring purchases. By-turn, post-purchase service can help to gain customers' loyalty. Customers want to have a possibility, when need it, to use their rights provided by warranty, which is expected to be the same or longer than in real shop. The acceptable refund term defined by survey reaches 5 days long, when the term for product returning have to be no shorter than 11 days. Client support was evaluated as important on all of four e-shopping stages; mostly it is relevant for ones conducted offline.

The identified important e-commerce elements help the developer to concentrate attention on the crucial for e-commerce quality issues on each stage of work.

### References

1. Ah-Wong J., Patel, H., Shah, U., Tran, T., Targett, D. (2001) E-commerce progress: Enablers, inhibitors and the short-term future. *European Business Journal*, Vol. 13 (2), pp. 98-107.
2. Coppel J. (2000) E-commerce: Impacts and Policy Challenges. *Economics Department Working Papers*, No 252, OECD, Paris, pp. 193-213. Available at: <http://www.oecd.org/dataoecd/42/48/2087433.pdf> (accessed January, 2010)
3. Guseva, N. (2008) Fuzzy classification in the assessment of e-commerce systems' quality, *Transformations in business and economics*, Vol. 7, No. 3, suppl. C., pp. 193-206. ISSN 1648-4460.
4. Guseva, N. (2009) The analysis of e-commerce systems quality criteria found in the scientific literature. RTU FEEM scientific conference on economics and entrepreneurship: 50th international scientific conference of Riga Technical University, 15-16 October 2009, Riga: conference proceedings. pp. 25-26, [CD] – 10 p. ISBN 978-9984-32-173-8.
5. Isaac, H., Volle, P. E-commerce: de la stratégie à la mise en oeuvre opérationnelle. Pearson education France, 2008. – 342 p. ISBN: 978-2744072796
6. Knoppers, J. V. (2000) Making Standards Work in Electronic Commerce and among Jurisdictions: IT-enablement of Data Element-based Standards. *Open Forum on Metadata Registries*, Santa Fe, NM (USA), 19 January 2000. – 22 p. Accessible on the Internet: <[https://forums.scc.ca/forums/scc-archives/archived\\_CAC-ISO-TC211/100633/JVTK-OpenForum2000.doc](https://forums.scc.ca/forums/scc-archives/archived_CAC-ISO-TC211/100633/JVTK-OpenForum2000.doc)>
7. Markevičienė, A., Kriaučionienė, M., Dapkus, G., Gatautis, R., Slivinskas, M., Valiukonytė, D. (2002) Verslas ir e-verslas. Integravimas, galimybės, metodai: mokomoji medžiaga. Kaunas: Technologija, – 218 p. ISBN 9955-09-148-7.
8. Pavic, S., Koh, S.C.L., Simpson, M., Padmore, J. (2007) could e-business create a competitive advantage in UK SMEs? *Benchmarking: An International Journal*, Vol. 14 ( 3), pp. 320-351.
9. Šarapovas, T. Elektroninės komercijos modeliai verslo efektyvumui didinti. *Daktaro disertacija. Kauno technologijos universitetas*, 2005. –159 p.
10. Schubert, P. *The E-Business Framework*. University of Applied Sciences Northwestern Switzerland. 2006. –33 p.
11. Sodžiutė, L., Sūdžius, V. (2003) Elektroninė komercija: prielaidos, struktūra ir procesai. – Vilnius: Petro ofsetas. – 168 p.

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