

Information Security in the Field of E-Commerce, E-Procurement (Tendering)

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Abstract: This research article is about the relative novelty of the E-Commerce Institute and the lack of developed specific legislation in this field raise a number of legal problems. The article is devoted to the legal and economic aspects of the sphere of e-commerce and e-procurement (tendering). The subject of the study is the domestic legislation that governed the issues of information security in the field of e-commerce and e-procurement. The methodology of the research includes general scientific and special methods of knowledge of legal and economic aspects in the field of e-commerce. Thus, the relevance of the article is due to the possibility of using electronic communications in the realization of transactions is declared in the Ukrainian legislation (Articles 207, 1087 of the Civil Code of Ukraine can be named), but the mechanisms of its application do not have proper regulation. Ukrainian legislation does not ensure the effective development of information technologies, dynamics of trade turnover. The authors concluded electronic procurement mechanism contains a large number of provisions based on which the contracting authorities and participants can abuse their rights. The results obtained from the study help to improve the mechanism of electronic procurement in practice. Therefore, as one of the possible ways of solving the problem of electronic trade turnover, it is advisable in the tender committee regulation to determine the rights and obligations of all its members, with the responsibility of one of the employees to monitor the prices and quality of the goods, works and services procured by the organization.

Keywords : e-commerce, e-procurement, information technologie, information security, informatization of process, security of trade.

I. INTRODUCTION

The era of dynamic development of information and communication technologies, one of which is the Internet, has led to the emergence of virtual space (Internet space) – a special electronic interaction environment, in which any

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action with information is carried out by means of digital signals. Such significant changes have led to changes in almost all areas related to information exchange, without leaving aside the system of organization and business activity. Since the same activity with the use of ICT has a certain specificity compared to traditional business activities, the term "e-commerce" was introduced to distinguish it.

The very idea of e-commerce emerged in the 1940s: at that time, large American trading systems were united by a telegraph network, which transmitted information about prices on markets around the country, and its first attempts were rooted in banking. – “wire transfers”. The year of birth of e-commerce is considered 1960, when American Airlines, with the help of IBM corporation introduced the first automatic seat reservation system for flights. Since then, the community of the most developed countries of the world has seen an increase in transactions made through online resources, which has necessitated the regulation of key aspects of e-commerce at the legislative level.

It should be noted, that modern civil society is created with the help of certain forms of self-constitution and self-mobilization. It is institutionalized and generalized through the mediation of laws and, in particular, the consolidation of subjective rights that stabilize social differentiation (Kharytonov, Kharytonova, Tolmachevska, Tkalich, & Fasii, 2019) [1].

II. METHODOLOGY

The methodology of the research includes general scientific and special methods of knowledge of legal and economic aspects in the field of e-commerce.

In this article, the structural-functional approach was used to provide the base structure of e-procurement (tendering).

Moreover, the dialectical method allows studying issues of e-commerce market.

Furthermore, the method of system analysis helps to identify the problems in the field of e-commerce and e-procurement in Ukraine. The synthesis method has helped to comprehensively look at the problem of electronic procurement.

In addition, the logical method has helped to identify ways to solve problems related to the implementation of electronic purchases.

Finally, the legal method investigated the legal norms, which are declared the sphere of e-commerce and e-procurement, and allows to find the way of its improvement.



III. THEORY

The relative novelty of the E-Commerce Institute and the lack of developed specific legislation in this field raise a number of legal problems. First of all, the legitimacy of electronic contracts, the security of trade secrets,

The evidence base of court cases in the process of judicial proceedings based on an electronic document, and a number of others unresolved or insufficiently regulated issues.

The possibility of using electronic communications in the realization of transactions is declared in the Ukrainian legislation (Articles 207, 1087 of the Civil Code of Ukraine, 2003) [2], but the mechanisms of its application do not have proper regulation, Ukrainian legislation does not ensure the effective development of information technologies, dynamics of trade turnover.

The theoretical study of relations in the field of e-commerce is complicated by the terminological inconsistency of the conceptual apparatus. Thus, along with the term "e-commerce", synonymous terms are used: "e-commerce", "e-business", "internet – business", "internet – commerce". The term "e-commerce" is the most accurate to refer to the relationships under study. This is due to the fact that it is, among others, long-established in international practice ("e-commerce"), and therefore its introduction into the conceptual apparatus of the law of Ukraine will help to improve domestic experience in regulating electronic commercial relations. In addition, the term "e-commerce" most accurately reflects the relations that it defines:

- 1) the implementation of transactions aimed at profit (commercial aspect);
- 2) the implementation of these transactions through electronic means (electronic aspect).

E-commerce should be interpreted from the standpoint of civil law as it is already accepted in international practice. Thus, commerce should not be viewed as a synonym for business activity, but more generally - as the actions of individuals and legal entities to perform transactions (conclusion of contracts) aimed at obtaining material profit (Borysova, 2012) [3]. In the future, along with the development of sound e-commerce rules, these rules will apply by analogy to non-commercial contracts and transactions.

From a civil law perspective, the term "e-commerce" should be understood as the actions of civil law entities to transact through electronic means and to generate profits. The term "electronic transaction" is relatively stable in use, but creates a conflict because it implies the existence of an electronic form of transaction and, as a consequence, a special group of transactions - electronic. Electronic transaction as a type of transaction is only a theoretical construction, which have many practical embodiments. Therefore, it is suggested to understand an electronic transaction – not as a transaction made electronically (a form of expression of will), but as a transaction made by the use of electronic means of communication (method of fixing the will). In order to avoid terminological collisions, it is more appropriate to use the concept of "electronic communications". The term "electronic transaction" can be used with the necessary legislative clarification of its essence.

Based on the existence of written and oral forms of transactions and comparing with them the existing types of electronic transactions (clicking on icons on the site, ordering by phone, etc.), it should be admitted that the theoretical division of transactions into oral and written is outdated. In this regard, it is proposed to divide fixed and non-fixed transactions.

Unlike traditional paper contracts, an original electronic contract can only exist in one copy at the time of creation. It is suggested that all copies of an electronic contract signed by an electronic digital signature and to which the rules of an electronic document apply are considered original. It is suggested that a copy of the electronic contract is considered to be an electronic copy without an electronic-digital signature or a properly certified hard copy.

The problem of the original and the copy of the electronic document is closely related to the problem of notarization and state registration of contracts made by electronic means. At present, such transactions are impossible, but it is further proposed to extend to the notarization and state registration the requirements of the Laws of Ukraine "On Electronic Documents and Electronic Document Management" (2003) [4], "On Electronic Digital Signature" (2003) [5] in the part of signing documents by notaries and state bodies with digital signatures key certificates.

E-commerce calculations are often made with the help of electronic money, which should be considered as a brand new kind of money, which has features of both cash and non-cash.

In concluding electronic treaties subject to private international law, it is proposed to be governed by the relevant national law and to apply a method of choice of law that will enable the parties to the contract to agree in advance on the law applicable to the relations arising from each particular contract.

The most successful international act to implement into Ukrainian law is the UNCITRAL Model Law on Electronic Commerce (2007) [6], which has a high degree of dispositiveness and is therefore convenient to take as a basis for any national law on e-commerce, since UNCITRAL derives from the indivisibility of private and public relations. As a recommendation, it is intended to be used by States as a template for the development of national rules.

In addition, in connection with the ratification of the Association Agreement between Ukraine and the EU (On certain legal aspects of information services, in particular e-commerce, in the internal market, 2000) [7], it is essential to become familiar with the relevant EU Directives and to follow the positive European experience.

Thus, the regulation of these relations was obtained according to the basic rules of the Civil Code of Ukraine, the Economic Code of Ukraine, as well as normative legal acts, the provisions of which only fragmentarily regulated certain issues of e-commerce (On Electronic Digital Signature, 2003 [5]; On Electronic Documents and Electronic Document Management, 2003 [4]; On Payment Systems and Funds Transfer in Ukraine, 2001 [8]; On Information, 2013 [9]). However, a special Law of Ukraine "On E-Commerce" (hereinafter - the Law) [10] was recently adopted in 2015.



According to Part 1 of Art. 1 of the Law [10] the subject of its regulation is the legal relations arising in the sphere of electronic commerce during the realization of electronic transactions.

The terms "electronic transaction" and "electronic contract", before their legislative enactment, were introduced in science to emphasize that transactions performed on the Internet have certain features compared to those which are concluded in the traditional physical space. However, these transactions are not a new type of contract, since the electronic format of information submission (in other words, paperless) and, if we talk about the contract, the exchange of electronic messages as a way of expression of persons does not change the legal nature of the transaction. Accordingly, the terms "electronic transaction" and "electronic contract" are conditional.

As noted by Dmitryk, N. transactions, in particular their main form - contracts, remain contracts whether they are done via the Internet or not, or concluded in the form of a written document signed and stamped, or as an electronic document signed with using an electronic digital signature (2006) [11].

Thus, it should be noted that, first of all, although the Law introduces the notion of "electronic transaction", in fact e-commerce is carried out only through the conclusion of bilateral or multilateral transactions, i.e. contracts; secondly, the essence of e-commerce (as defined in the Law) requires, as a general rule, the conclusion of only those contracts which mediate entrepreneurial activity. An exception to this rule is provided in Part 2 of Art. 1 of the Law - when parties, one of which is a natural person who is not a business entity, sells or offers for sale goods, performs works, renders services using information and telecommunication systems, have explicitly agreed to apply the provisions of the Law to the contract that they conclude [10]. Therefore, not any transaction is the basis for the emergence of relationships in the field of e-commerce, but only those that are business and consumer contracts [12].

In recent years, procurement legislation has been constantly changing. The 2010 Public Procurement Law [13], and its replacement by a new version in 2014, were amended more than 20 times, mainly due to the addition of new exceptions, and in several different respects, the law did not comply with EU procurement law and practice.

The concept of "tender" was first introduced in the national legislation of Ukraine by the Cabinet of Ministers of Ukraine dated August 12, 1993 No. 604-r "On measures for preparation and holding of the International tender for solving the problem of transformation of the «Shelter» object of the Chornobyl Atomic Power plants in an environmentally friendly system" [14]. Initially, the tender procedures were used only for international procurement and were regulated by the Cabinet of Ministers of Ukraine Resolution "On Approval of the Regulation on the Organization and Conduct of International Trades (Tenders) in Ukraine" of October 21, 1993 No. 871 [15].

On April 20, 2014, a new, more progressive version of the Law of Ukraine "On the Implementation of Public Procurement" [21] came into force and, at key moments, adapted to EU rules. This edition was designed to simplify public procurement procedures, increase transparency and openness of procurement, create the conditions for combating

public procurement corruption, and bring national legislation closer to European standards.

In particular, the new wording of the Law on Public Procurement introduced a new approach for identifying the contracting authorities to whom the law applies, which is based on the provision of public needs as a criterion for attributing the customer to the need for procurement procedures. In addition, the number of cases not covered by the Act has been significantly reduced; reduced the list of grounds for non-competitive (negotiation) procedure, etc.

Proper protection of information in the electronic procurement system is considered to be protection in the cloud computing system, which is confirmed by the presence of a valid certificate, which establishes the compliance of the information security management system, which is used in the processing of information in the cloud computing system, requirements of the standard ISO / IEC 27001 [16] or National Standards of Ukraine ISO / IEC 27001 [20], or other standards that have been superseded, issued by an accredited national accreditation body of Ukraine or by a foreign accreditation body, that is a party to a multilateral agreement on the recognition of the International Accreditation Forum [17] and / or the European Cooperation for Accreditation [18] in accordance with the ISO / IEC 17021 [19] or ISO / IEC 17021 or other standards, which they replaced.

Access to and transmission of information in the electronic purchasing system is via the Internet using cryptographic security using Transport Layer Security (TLS) version no lower than 1.2 [22].

In the case of opening and evaluating the proposals of the participants, the electronic system should provide input / output data, receive commands and display the results of their realization in real-time interactive mode.

During an electronic auction, authorized electronic venues should ensure equal and free access to it for all participants and enable the online auction to be viewed online in real time by all interested parties.

Additional requirements for the functioning of the electronic procurement system, provision of services are established by the Cabinet of Ministers of Ukraine.

One of the key requirements for the electronic procurement system is to ensure proper protection of information in the cloud computing system, which is one of the key reservations of the State Special Communications Service and information protection at the stage of drafting law. This issue remains open and should be taken into account as the law is further refined. At the same time, according to the resolution of the Cabinet of Ministers of Ukraine dated February 24, 2016 No. 166 "On Approval of the Procedure of Functioning of the Electronic Procurement System and Carrying Out of Authorization of Electronic Sites" [23], it was determined that an integrated system of information security with confirmed compliance in accordance with the requirements of the legislation in the field of information protection must be established in the electronic procurement system.

The purchase contract shall be concluded under the provisions of the Civil Code of Ukraine [2] and the Commercial Code of Ukraine [24], taking into account the features defined by this Law.

According to paragraph 1 part 1 article 638 of the Civil Code of Ukraine [2] is concluded if the parties in the proper form have agreed on all essential terms of the agreement. The essential terms of the contract are the terms of the subject matter of the contract, the conditions that are defined by law as essential or necessary for the contracts of this type, as well as all those conditions on which at least one of the parties has to agree. The inclusion of certain conditions in the draft contract by the Customer, based on the above article, are those conditions on which the Client's request must be agreed.

Therefore, if the tenderer has submitted a tender offer in which he or she has agreed to the draft contract and has been declared the winner of the procurement procedure, such tenderer must conclude a procurement contract, the content of which must not contradict the tender contract included in the tender documents.

Besides, there is a category of contracts, the essential conditions for which are defined by regulatory acts, and therefore should not contradict them.

For example, the Resolution of the Cabinet of Ministers of Ukraine dated 01.08.2005 No. 668 approved the General Conditions for Concluding and Executing Contracts in Capital Construction [25] (hereinafter referred to as the General Conditions).

Following the first General Conditions, they determine the procedure for concluding and executing contracts for new construction works, reconstruction of buildings and structures and technical re-equipment of existing enterprises (hereinafter referred to as capital construction of objects), as well as complexes and types of works, related to capital construction of facilities.

According to the second paragraph of the General Conditions, the General Conditions are mandatory for taking into account when concluding and executing contracts in capital construction irrespective of the sources of financing of works, as well as the form of ownership of the customer and the contractor (subcontractors).

Also, certain specifics about contracts are defined by the Law of Ukraine "On Foreign Economic Activity" [26], "On Scientific and Technical Activity" [27], "On Copyright and Related Rights" [28], "On State Defense Order" [29] and some others.

The peculiarity of the conclusion of procurement contracts, as a result of the use of the negotiated procurement procedure, is the absence in Article 35 of the Law on Public Procurement a clear requirement on the obligation of the customer to agree with the participant (s) during the negotiation of the draft contract.

According to Part 3 of Art. 631 of the Civil Code of Ukraine, the parties may determine that the terms of the contract apply to the relations between them that arose before it was signed [2].

According to Part 7 of Art. 180 of the Civil Code of Ukraine [2] on the obligations arising from the parties before the conclusion of their economic agreement, the terms of the concluded agreement shall not be extended unless the

agreement provides otherwise.

However, the application of this rule is possible only if the parties to the contract have relations before the moment of its conclusion.

At the same time, according to the provisions of the Law, the procurement contract is concluded as a result of the procurement procedures. In this case, the tender procedures provide for competitive selection of bidders to determine the successful bidder. That is, the customer cannot agree in advance with a particular entity until the successful bidder determines it.

The only procedure that involves the conclusion of a contract without competitive selection is the negotiation procedure.

Based on the foregoing, only in the case of the conclusion of the contract on the results of the negotiation procedure can the parties establish that the terms of the contract apply to the relations between them that arose before its conclusion.

The Civil Code of Ukraine stipulates the requirements for the form of the contract. In particular, according to Part 2 of Art. 639 of the Civil Code of Ukraine of Ukraine [2], if the parties have agreed to sign an agreement in a certain form, it is considered concluded from the moment of providing this form, even if the law did not require this form for this type of contracts.

If the parties have agreed to conclude the contract through information and telecommunication systems, it shall be considered in writing.

According to Part 4 of Art. 639 of the Civil Code of Ukraine, if the parties have agreed on a notarial certificate of the contract, which is not required by law for notarial certification, such agreement is concluded from the moment of its notarial certificate [2].

According to Part 1 of Art. 640 of the Civil Code of Ukraine the contract is concluded from the moment of receipt by the person who made the offer to conclude the contract, the answers on acceptance of this offer. Besides, it is necessary to take into account part 3 of Article 640 of the Civil Code of Ukraine, according to which the notarized Contract has been concluded since the date of such certificate [2].

Thus, the requirement of notarization of the procurement contract is solely a right and not a duty of the customer.

IV. RESULTS AND DISCUSSION

Table- I: Comparison of the procedure for concluding electronic procurement contracts

Criteria for comparison	Law of Ukraine "On the Implementation of Public Procurement"	Law of Ukraine "On Public Procurement"

The form of electronic contract	Part one of Article 40 [21] states that he purchase contract shall be concluded in writing in accordance with the provisions of the Civil Code of Ukraine and the Economic Code of Ukraine, taking into account the features defined by this Law.	Part one of Article 36 of the new Law [30] refers to the norms of the current Civil Code of Ukraine and the Commercial Code of Ukraine. As the Civil Code of Ukraine [2] allows the conclusion of contracts in electronic form, the conclusion of contracts for the purchase in electronic form is also acceptable, if the technical and organizational and legal prerequisites for both the customer and the successful tenderer.
Documents and information necessary for the conclusion of the electronic contract	The customer requires from the participant documents and information confirming the absence of the grounds specified in part one of Article 17 of the old Public Procurement Law [21], as well as information contained in open unified state registers, which are freely accessible.	It is important that the customer does not require from the participant documents and information confirming the absence of the grounds specified in paragraphs 1 and 7 of Article 17 of the new Law [30], as well as information contained in open unified state registers, access to which is freely available, since the customer must independently verify such information.
Deadlines for submission of documents confirming the absence of grounds for the conclusion of an electronic contract for public procurement	Pursuant to Article 17, paragraph 3, of the old Public Procurement Law [21], the auctioneer's tender for a period not exceeding 10 days (5 days - during the procurement by shortened procedure or at the request of price quotations) from the date of publication of the acceptance notice on the web-portal of the Authorized Body competitive bidding proposals, shall submit to the customer documents confirming the absence of the grounds specified in parts one and two of Article 17.	The winners need to observe the deadlines for submitting documents confirming the absence of grounds. Under the second paragraph of paragraph 3 of Article 17, this period shall not exceed five days from the date of publication on the web-portal of the Authorized Body of the intention to conclude a contract.

Table 1 presents the comparison of the procedure for concluding electronic procurement contracts under some criteria.

The first criteria is the form of electronic contract. Thus, unlike the previous Law on the Implementation of Public Procurement [21], the new law does not require the written contracts to be formally written.

The second criteria is documents and information necessary for the conclusion of the electronic contract. In fact, as of December 2018, the winners must submit documentary evidence of the absence of the grounds provided for in paragraphs 2, 5, 6 of Part 1 and Article 17 (2) of the Law [30].

The last criteria is the deadlines for submission of documents confirming the absence of grounds for the conclusion of an electronic contract for public procurement. Thus, according to Art. 253 of the Civil Code of Ukraine [2],

the period begins on the day after the corresponding calendar date or the occurrence of the event, which is associated with its beginning. According to Art. 254 of the Civil Code of Ukraine [2], if the last day of the term falls on a day off, public holiday or another non-working day, the first working day after the end of the term shall be the first working day.

V. CONCLUSION

Ukrainian legislation does not ensure the effective development of information technologies, dynamics of trade turnover.

Thus, it should be concluded that the electronic procurement mechanism contains a large number of provisions on the basis of which the contracting authorities and participants can abuse their rights (without formally violating the law) should determine the main areas of improvement of the procurement legislation:

- 1) to introduce the principle of proportionality of tender requirements for price and complexity of the subject;
- 2) to approve industry standards for the preparation of tender documents;
- 3) to provide for a clear ban on the submission of any procurement documents and information in writing before the date of the tender opening.

In addition, at the local level, it is advisable in the tender committee regulation to determine the rights and obligations of all its members, with the responsibility of one of the employees to monitor the prices and quality of the goods, works and services procured by the organization.

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