

Counteracting Corruption In the Field of Public Procurement: E-Procurement in Ukraine

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Abstract: This study considers the case of the e-procurement system being deployed in Ukraine as it is the second-largest country in Europe, and it has a tendency to guide all economies in the region by sharing its experience with the new system. The country went through remarkable trend-setting procurement systems that serve as a benchmark for most of the countries. Also, out of more than seventy member countries, it was the Ukrainian public e-procurement system ProZorro that won the first prize at the third annual Open Government Awards 2016 ceremony in Paris and the "Technology of the Future" award at C4F (Communications for the Future) Davos Awards.

This research makes use of a qualitative case study which refers to the exploration of any phenomena within a particular context using multiple sources of data and find out that the e-procurement system "ProZorro" quickly proved to be effective in Ukraine.

Keywords: government procurement; e-procurement; ProoZorro

I. Introduction

In its report for 2014, Transparency International indicates many negative factors caused by corruption in public procurement, which affect the state and society. These include: reducing the level of trust in government and public administration, lowering the rule of law, distorting the economy, and increasing the level of poverty in the country. This study considers the case of the e-procurement system being deployed in Ukraine as it is the second-largest country in Europe, and it has a tendency to guide all economies in the region by sharing its experience with the new system. The country went through remarkable trend-setting procurement systems that serve as a benchmark for most of the countries. Also, out of more than seventy member countries, it was the Ukrainian public e-procurement system ProZorro that won the first prize at the third annual Open Government Awards 2016 ceremony in Paris and the "Technology of the Future" award at C4F (Communications for the Future) Davos Awards.

Corruption in public procurement also has a negative impact on the environment, health protection, safety, state protection, and other areas. Corruption is also an obstacle to investment here and minimizes fair competition in the market. Counteracting corruption in public procurement is a complicated procedure that requires the implementation of many principles of efficiency and transparency. The guiding principle, which combines subordinate principles, is transparency. It is the basis of an effective and uncorrupted public procurement system, which is embedded in well-formulated provisions, regulations, and implementation mechanisms. Transparency provides open procedures, clear standards, the possibility of social control, equal opportunities for participants, and open access to information for tender participants and ordinary citizens. Transparency in public procurement is about accountability and plays an essential role in creating a level playing field for businesses to engage in a fair procurement process by traders, small or medium-sized entrepreneurs, or large corporations. EU devotes many articles to the issue of the electronification of public procurement to achieve the goals of the European Union Commission's E strategy aiming at the sustainable and economic growth of economies against the plague of corruption in practices of government procurement across Europe.

Background

Impact of new EU anti-corruption directives in public procurement

Public procurement law consists of national and international law. The most important acts of international law on counteracting corruption in public procurement, apart from general international acts, also include detailed international anti-corruption legal acts: OECD Convention on Combating Bribery of Foreign Public Officials in International Business Transactions, OECD Convention on Combating Bribery of Foreign Public Officials in International Business Transactions of November 26, 2009; OECD recommendations on improving integrity in public procurement¹²; UNCITRAL Model Act on the procurement of goods, works and services; WTO Agreement on Government Procurement (Raganelli & Mauro, 2019).

European Union directives also regulate public procurement procedures and introduce various anti-corruption mechanisms in this area. The most important directives in the field of public procurement include: Directive 2004/17 /

EC of March 31, 2004, coordinating procurement procedures by entities operating in the water, energy, transport, and postal services (Antinucci, 2017).

Directive 2014/24 / EU introduces mandatory electronic communication. The competitive procedure with negotiation is a procedure in which the contracting authority has to define in the procurement documents minimum requirements and non-negotiable award criteria in order to ensure non-discrimination and fairness (Mario, 2017).

The minimum requirements should be met by each offer of contractors in order to be able to award the contract to the contracting authority. The competitive dialogue procedure is used when the contracting authority defines its needs and requirements but is unable to determine how to meet them and cannot assess what solutions the market can offer. For example, they can be innovative projects, projects requiring complex and structured financing, or large computer network projects (Ferrand, 2019).

The new public procurement procedure is an innovative partnership. Pursuant to Article 31 para. 2 of Directive 2014/24 / EU, its purpose is to "develop an innovative product, service or works and the subsequent purchase of supplies, services or works resulting from these works, provided that they correspond to the levels of efficiency and maximum costs agreed between contracting authorities and participants." In this procedure, contracts are awarded on the basis of the best value for money. Directive 2014/24 / EU devotes many articles to the issue of the electronification of public procurement in order to achieve the goals of the Commission's E strategy European Union of March 3, 2010 "Europe 2020, a strategy for smart, sustainable and inclusive growth" (Carloni, Polinori & David, 2021).

The electrification of public procurement is to ensure electronic access to public procurement documents and electronic catalogs. Pursuant to Art. Twenty-two of Directive 2014/24 / EU, Member States shall ensure that all communication and information exchange under the Directive, in particular electronic submission of offers, is carried out using electronic means of communication (Ferrand, 2019). Central purchasing units should obligatorily use electronic means of communication in procurement procedures no later than April 18, 2017, and all other awarding entities should be obliged to do so no later than October 18, 2018. Pursuant to the Directive, the electronic system is to be non-discriminatory, generally available, and may not restrict the access of economic operators to the contract award procedure.

Purpose

Transparency is a key goal to counter the problem of corruption in public procurement, and access is the way to achieve it. Full access to information does not impose any restrictions, apart from those relating to trade secrets and those protecting fair competition. The ease of obtaining information lies in the possibility of finding it and by any person without any specific knowledge or without searching in sources, reaching which provides additional procedures. Timely access to information is based on the availability of current information in the course of the procurement procedure and not post factum, which guarantees to counteract corruption and prevents the conclusion of a corruption contract. e-procurement practices of a new system in Ukraine can be evaluated in this regard within a chosen context to evaluate the feasibility of its operations for addressing the challenge of corruption in government procurements. Keeping all the efforts and regulations of EU, the study can offer a potential case study of a single system whose lessons and problems can be contextualized by others in the region as well.

Research objectives

- To explore the significance of countering corruption in public procurement
- To study the e-procurement operations in Ukraine aiming at achieving the required level of transparency

II. Literature Review

Georgieva (2017) argues that corruption penetrates into various spheres of social life. One of the most harmful varieties is corruption in public procurement, as it results in budget losses and the provision of services and goods of poor quality, or the performance of work that does not meet the requirements and needs. The harm from corruption in public procurement is difficult to quantify. It combines corruption in the private and public sectors, as it has elements of political corruption related to public administration and corruption in business (Georgieva, 2017).

Public contracts are contracts for services, supplies, or construction works concluded by awarding entities with contractors selected in a procedure specified by law. It is a mechanism involving the purchase of goods and services by public administration bodies for state bodies, plants, organizations, and enterprises (Fazekas & Kocsis, 2020). The main instrument of public procurement is tendering, which consists in competing with each other for proposals from among which the contracting authority (state authority) selects the most suitable. The contracting authority and the contractor are the parties to public procurement. The contracting authority may be a public authority, local government bodies or enterprises, plants, organizations that ensure the fulfillment of the state's needs at the national or local level. The

tendering committee is the contracting authority that organizes the tender. The other party to the tender are contractors, i.e., enterprises and entrepreneurs who participate in the tender (Szucs, 2017).

A contracting authority is a public sector entity that wishes to meet its needs with the help of a private sector entity. For example, a state school needs to purchase new computers(Hudon & Garzón, 2016). The purchase of such computers will not be made through the usual purchasing route but through a public procurement process, the submission of bids by companies, and the selection of the best one for fulfillment. The public procurement procedure is aimed at satisfying the contracting authority's needs with funds from the state budget while guaranteeing high quality, efficiency, and savings of state budget funds. Corruption in the public and private sectors is often combined during public procurement procedures, giving illegal benefits to both parties(Ferwerda, Deleanu & Unger, 2017).

Transparency cannot exist without access to information. Access to them is part of the principle of transparency. The confidentiality of information creates an opportunity for corrupt behavior and avoid accountability. The problem of corruption is its undetectability and difficulties in obtaining evidence of an illegal act. Confidentiality of information in the public procurement procedure should be limited to information that is a business secret or protects fair competition (information about a company that may be used by another company for the purposes of unfair competition). Access to information determines the possibility of carrying out checks, including social control and holding the perpetrators of corruption accountable. Access to information should be full, timely, clear, and without subjective limitations. The last of the conditions means that both participants and citizens should have access to information regarding public procurement(Popescu, Onofrei & Kelley, 2016). Timely access to information is based on the availability of current information in the course of the procurement procedure and not post factum, which guarantees to counteract corruption and prevents the conclusion of a corruption contract (Georgieva, 2017).

Disclosure of information at all stages of the public procurement procedure makes it possible to avoid concluding a corruption contract. Counteracting corruption in public procurement is important due to the possible loss of money from the state budget because after detecting damage caused to the state, returning funds is problematic(Szucs, 2017). Sometimes the return to the state budget can drag on for years, which creates a budget gap. APEC (Asia-Pacific Economic Community) declares in its non-binding procurement rules that contacts between all suppliers and evaluators and bidders and potential bidders should be formally justified after the official procurement process (Fazekas & Kocsis, 2020).

In public procurement, representatives of public administration have extensive discretionary powers. In order to define the desired result of each activity, the contracting authority must determine where, why, and when the need arises, for what period, in what unit or location. The control of the technical elements of the execution time can be carried out objectively; however, some aspects of the evaluation are clearly individual. Access to documentation can also be related to the principle of transparency. In the public procurement procedure, various documents confirming the candidate's activity, quality, and characteristics of production or works and others are required(Hudon & Garzón, 2016).

The submitted documents are assessed by representatives of public administration (contracting authorities), who decide on their quantity. In this case, there is also the issue of the discretionary activity of representatives of public administration(Ferwerda, Deleanu & Unger, 2017). It is important in this situation to maintain a proper record of the entire procurement process, including the decisions and actions taken during the process and the reasons for them, sufficiently to justify them. All information should be kept for a certain period of time5, which will ensure the possibility of ongoing controls and controls after the end of the tender, as well as verification of the legality of the contracting authority's actions(Popescu, Onofrei & Kelley, 2016).

One of the possibilities of placing orders with a corrupt element is restricting access to the procurement procedure. One can disqualify from the contractor selection procedure by increasing the list of required documents for a specific candidate or by refusing to accept the submitted documents(Szucs, 2017). In a situation where information is not available, it is not possible to check what documents other candidates have submitted and whether there are equally non-discriminatory requirements for each of them. As a rule, the disqualification procedure should be laid down by law, transparent and open. Every candidate and citizen should know what the reasons for disqualification are. They should be unambiguous, open, and clearly written. High international standards of rules and regulations affect the possibilities of internal transactions(Ferwerda, Deleanu & Unger, 2017).

Lambsdorff draws attention to the risk of corruption contracts related to joint ownership. He points out that persons providing and receiving services, goods, or works may conclude a corrupt contract and set up a joint company, and then obtaining income from a specific company will be in the interest of both parties(Hudon & Garzón, 2016). Another important principle is integrity. It combines ethical standards and moral values of honesty, professionalism, and fairness and is the basis of non-discrimination and compliance in public procurement procedures. In order to implement the principle of integrity and define ethical standards in public procurement, Codes of Ethics in public procurement (Code of Conduct) have been created. In this situation, not only de jure the adopted document is important

but also its implementation into the contracting authority's activities and actual compliance with the provisions of the Code at every stage of the public procurement procedure(Georgieva, 2017).

An example of a Code of Ethics in Public Procurement is Canada's Code of Conduct in Public Procurement(Hudon & Garzón, 2016). It aims to summarize existing law, providing a single point of reference for the key responsibilities of both government officials and suppliers. The Code describes the public procurement process, the rights and obligations of the two parties, the contracting authority and the contractor, security, consequences, and liability.

Transparency guarantees the possibility of competition, and this hinders corruption because it reduces the return on corrupt economic activity: the more competition, the more bribes are needed. Smaller bribes demotivate representatives of public administration in connection with concluding corruption contracts. The level of corruption also lowers the natural monopoly when only one entity can zap, evidencing a specific delivery or execution of works (Hudon & Garzón, 2016). The environment of low competition is most conducive to the development of corruption. For this reason, an awarding entity with a private interest in public procurement may create such a situation artificially. Corruption in public procurement has an internal and external impact on the development of the state's economy and the inflow of investments(Popescu, Onofrei & Kelley, 2016).

Domestic and international companies often face the dilemma of corrupt public procurement. In such systems, companies believe they must pay a bribe to win a tender, so they are like the victim who cannot have any environmental impact. Corruption is a two-sided phenomenon - both parties make a deal for their own interests. Rose-Ackerman writes that entering into corrupt contracts, even in a corrupt public procurement environment, is a decision of companies whether to participate in such a practice or to resign and report violations to the relevant national and international bodies(Georgieva, 2017).

E-Procurement System: Concept, Mechanism and Key Objectives

E-procurement is the use of information and communication technologies in public procurement. The e-procurement system enhances transparency, facilitates access to tenders, reduces direct communication between the contracting authority and contract participants (companies, entrepreneurs), increases competitiveness, and enables easy detection of law violations, corruption, and corrupt relationships(shin, 2016). The e-procurement system performs three most important functions: it enables access to information to tender participants and citizens, presents information in a transparent, transparent, and clear manner, and increases the level of accountability through the possibility of control by competent authorities, social control, and the possibility of establishing a person responsible for a specific activity (Brandon-Jones & Kauppi, 2018).

E-procurement enables control at various levels, in particular: control of competent authorities, contract participants, non-governmental organizations, anti-corruption bodies, and the Antimonopoly Committee (an authority shaping and coordinating the implementation of the fair competition policy in the field of public procurement and economic activity), social control and in the case of orders from a foreign entity controlled by international bodies. An example of such an e-procurement system is, for example, KONEPS in Korea (Kim & Oh, 2018). Public procurement is complex and often far from being transparent. This makes it difficult to detect corrupt behavior. Corruption may occur at any of the six stages of the procurement: determining the needs, determining the contracting authority and announcing the contract, the preparatory stage (defining the terms of participation in the procedure), opening tenders and qualifying contractors, selecting an offer, and concluding a contract, performing the contract and checking (Choi et al., 2016).

Counteracting corruption in public procurement in Ukraine and the new e-procurement system ProZorro

After the events of 2014 in Ukraine, social activists launched an initiative to create an e-procurement system. Public procurement was one of the most corrupt areas, causing huge losses to the state budget. According to the information of experts, each year, Ukraine lost around 50 billion hryvnia due to corruption in public procurement(Syuyutka, Kurylo & Vasyliuk, 2019). The political situation, economic problems, and increased spending due to the war in eastern Ukraine increased the need to fight corruption in public procurement. The European integration course is chosen by Ukraine also required bringing public procurement standards up to EU standards. In 2014, three new EU directives in the field of public procurement were adopted. The most important innovation introduced under these directives is the creation of an e-procurement system in all EU countries by October 2018. Ukraine introduced a test model of e-procurement in 2015, and since August 1, 2016, it has been functioning as an independent, universally binding public procurement system (Baumane-Vitolina & Osypenko, 2020).

a. Corruption in the public procurement system before the reform

Before the reform, public procurement was not transparent and corrupt, in particular, due to limited access to information and bureaucracy. Due to participation in the tender, the contractor was required to submit many different documents, and the time for this was limited. The information about the tender was a kind of confidential information - it was difficult to find out about the announcement of the tender, although the contracting candidates knew about it(Choi et al., 2016). People from outside the group of the contracting authority's friends often simply do not know about the tender after being informed about the tender and the possibility of submitting documents through bureaucracy and complicated procedures. For this reason, persons whose success was directly interested in the contracting authority participated in the tenders (Shin, 2016). The requirements for the goods or services were written down from their offer. It was not possible to trace the course of the tender as information directly related to the tender (tender notice) and its results were disclosed(Brandon-Jones & Kauppi, 2018).

Until the introduction of the e-procurement system, the conclusion of a corruption contract between the contracting authority and the contractor could be detected by examining the price set by the contracting authority and the price that won the tender(Synyutka, Kurylo & Bondarchuk, 2019). The contracting authority, having a private interest in the procurement procedure, placed the maximum price for a specific product, for example, UAH 300,000, and the winner was 299,000 UAH. The difference between the contracting authority's maximum price and the tender winner's price was minimal. The purpose of the tender is to save money from the budget(Dmytryshyn et al., 2018).

After analyzing paper tenders, it was found that the average difference between the maximum price of the awarding entity and the contractor's price was less than 0.5%. With such a low coefficient of difference, the saving of money from the state budget was negligible. Such a situation did not allow for savings, and the tender did not fulfill its most important goal, namely purchasing high-quality goods, services, or works at the lowest price. Often people who could create competition did not know about the tender, and the winner was the person with whom the representatives of the authority concluded a corrupt contract (Yuzevych et al., 2016).

The pattern of the corruption contract was as follows. The governing body published an announcement about a tender, about which the other party to the corrupt contract had been informed. The contracting authority issued the maximum price, and the future contractor of the contract gave a price that was minimally lower than the maximum price of the contracting authority. The future contractor obviously artificially increased the price of its goods and services(Synyutka, Kurylo & Vasyliuk, 2019). Thanks to the conclusion of a corrupt contract, he had no fear that another person might win the tender because, firstly, few people knew about it, and secondly, all the required documents were in printed form, and it took a certain time to submit them(Dmytryshyn et al., 2018). A person who knew about the announcement of the tender may have managed to fight the bureaucracy and submit the required letters. Third, the tender authority could find a "mistake" in the documents, which resulted in disqualification from the tender. Fourth, there was no competition because the conditions and requirements for production, services, or works were written directly from the order of the future contractor with whom a corruption contract was concluded(Synyutka, Kurylo & Bondarchuk, 2019).

The winner of the tender was selected by the tender committee, which was also non-transparent. As a result of the implementation of the corruption contract, the state loses money from the budget because there are no savings, goods or services are not always of adequate quality, and moreover, competition disappears from the sphere of public procurement, which is a prerequisite for trusting the authorities and ensuring effective, quality, cheap goods, services, and works (Baumane-Vitolina & Osypenko, 2020). Order system public before the introduction of "ProZorro" excluded the possibility of social control because tracking the course of the tender was very complicated for ordinary citizens, and the disclosure of corruption was possible only on the part of people with knowledge and competence to carry out anti-corruption expertise in public procurement(Dmytryshyn et al., 2018).

b. Legal aspects of the reform and the algorithm of e-procurement operation in Ukraine

Pursuant to the Law of Ukraine of December 25, 2015, on public procurement²⁵, awarding entities are required to conduct all tenders through the "ProZorro" system if the value of goods is equal to or higher than 200,000 hryvnias, and services equal to or higher than 1.5 million hryvnias. In each town or region, the thresholds can be lowered from UAH 200,000 to, for example, UAH 50,000 for the transparency of all orders, including small orders. The exceptions to this rule are tenders carried out with funds from international financial organizations, for example, loans granted by the European Investment Bank, Northern Investment Bank, International Bank for Reconstruction and Development, and others(Synyutka, Kurylo & Bondarchuk, 2019).

In these cases, public procurement is carried out in accordance with the rules and procedures of these organizations. If such procedures have not been established, then, in accordance with the provisions of the Public Procurement Act, tenders with the following amounts may be conducted through the "ProZorro" system, but there is no

such obligation. The contracting authority is obliged to publish a public procurement report worth more than UAH 50,000 in the "ProZorro" system. Pursuant to the Act, public procurement operates on the principles of fair competition, maximum economy and efficiency, transparency and openness at all stages of procurement, non-discrimination, anti-corruption, and objective evaluation of tender proposals(Dmytryshyn et al., 2018). An important principle is non-discrimination in the field of access to information, which ensures equal access to all information about the tender for participants and ordinary citizens. The Ministry of Economic Development and Trade conducts a policy in the field of public procurement. The Antimonopoly Committee of Ukraine is a body that deals with complaints about violations in public procurement (Baumane-Vitolina & Osypenko, 2020).

The contracting authority is obliged to publish a tender notice in the "ProZorro" system. The Law of Ukraine provides for three types of public procurement procedures: open tender, competitive dialogue, and negotiated procurement procedure(Dmytryshyn et al., 2018). In line with the previous Public Procurement Act, there were five types of procurement: open tender, two-stage tender, price inquiry, previous qualification of participants, and negotiated procurement procedure. Competitive dialogue is used when the contracting authority cannot clarify the technical, quality specifications of services or works, and negotiations with the participants are needed to make an effective decision. This type of public procurement is used in the spheres of consulting, legal, research, information systems, etc.

III. Methodology

This research makes use of a qualitative case study which refers to the exploration of any phenomena within a particular context using multiple sources of data. It is an intensive study about the e-procurement operation being carried out in Ukraine and its effectiveness in overcoming the challenge of corruption in public procurement. This study is a systematic investigation of the counter efforts made against corruption in public procurement through operations of e-procurement in the chosen context. The study highlighted a problem experienced by all nations and narrowed it down to the context of Ukraine for developing a contextual understanding of the problem and available solutions to it.

The process of the case study begins with the determination and definition of research questions around the potential of chosen e-procurement system in ensuring transparency. After that, research questions are determined the literary data on the ProZorro system is being collected before subjecting it to qualitative analysis technique. Data collection is carried out across well-reputed research platforms, and then the collected studies are evaluated and analyzed for obtaining desired insights. Finally, the report is prepared in a comprehensive manner.

IV. Results

The "ProZorro" system has proven its effectiveness and transparency. An example of his significant success is the tender for the construction of a school in the small village of Ozerci in the Rivne region. A maximum amount of UAH 42 million was allocated for the construction of the school. The price of the contractor, a construction company that won the tender, amounts to only 48% of the maximum price - UAH 20 million. The ProZorro system saved the funds that were allocated to building a new school in another village(Synyutka, Kurylo & Bondarchuk, 2019).

Currently, according to the analysis of experts and creators of the "ProZorro" system, the difference coefficient between the maximum price of the contracting authority and the contractor's price is on average 12-13%. Currently, the cheapest and most convenient option is selected by the system itself, based on information entered by the tender participants. The funds saved on completed and pending orders already amount to over UAH 17 billion. Ukraine is ahead of many countries in terms of transparency of public procurement.

The discussed e-procurement system counteracts corruption in the field of public procurement. It creates new conditions but does not change people holding positions in public administration, often acting as contracting authorities—the previous system allowed for a wide range of corruption, lawbreaking, and manipulation. The new system does not provide this option, but attempts have been made to bypass the system and place an order in accordance with the old corrupt scheme (Baumane-Vitolina & Osypenko, 2020).

The Act on Public Procurement provides for the possibility of lowering the thresholds for contracts implemented by the "ProZorro" system by city councils. The aim is to increase competition and counteract corruption in public procurement. The state of hospitals in Ukraine confirms that for many years state orders were made with a high degree of corruption. The second way to bypass the system is to set lower thresholds for orders for goods and services but not for works. In the Kharkiv region, the City Council has set lower thresholds, and therefore orders for goods in the amount of 50 thousand. Hryvnia to be made through the system "ProZorro." (Synyutka, Kurylo & Vasyliuk, 2019).

For works, the threshold of 1.5 million hryvnias has remained unchanged. Hence, large amounts are spent on works rather than on goods and services, which allows for continued illicit income through corrupt activities in public procurement between procurers and contractors. Works worth up to millions of hryvnia in hospitals are performed by companies related to politicians and ordering parties, companies with no experience or at all from any other sphere of

activity. The contracting authority sometimes enters into contracts with contractor companies against which criminal cases are pending. In Kharkiv, 16 companies were registered at one address, and each of them received contracts for millions of hryvnia, executing public orders from various hospitals (Baumane-Vitolina & Osypenko, 2020). Analyzing the condition of hospitals, in particular in Kharkiv, we come to the conclusion that no work for millions of hryvnia has been performed, and corruption in public procurement in the field of health care is at a very high level.

V. Conclusions

Counteracting corruption in public procurement is a crucial step in the democratization of the state, improving the condition of the economy and increasing investment attractiveness. The e-procurement system "ProZorro" quickly proved to be effective in Ukraine. ProZorro won the first prize at the third annual Open Government Awards 2016 ceremony in Paris. The system won another award of "Technology of the Future" at the C4F (Communications for the Future) Davos Awards. International awards and a high degree of state budget savings confirm the effective prevention of corruption in public procurement. The harmonization of new public procurement regulations in Ukraine with EU standards is also an important step in the country's European integration.

References

- [1.] Antinucci, M. (2017). The new public procurement code within international relations and anti-corruption policies. *Vestnik Saint Petersburg UL*, 62.
- [2.] Baumane-Vitolina, I., & Osypenko, O. (2020). ADOPTION OF A PUBLIC E-PROCUREMENT SYSTEM IN UKRAINE. *HUMANITIES AND SOCIAL SCIENCES LATVIA*, 31.
- [3.] Brandon-Jones, A., & Kauppi, K. (2018). Examining the antecedents of the technology acceptance model within e-procurement. *International Journal of Operations & Production Management*.
- [4.] Carloni, E., Polinori, P., & David, D. (2021). Public Procurement and Corruption: Perspectives, Rules, Experiences. In *Understanding and Fighting Corruption in Europe* (pp. 127-149). Springer, Cham.
- [5.] Choi, H., Park, M. J., Rho, J. J., & Zo, H. (2016). Rethinking the assessment of e-government implementation in developing countries from the perspective of the design-reality gap: Applications in the Indonesian e-procurement system. *Telecommunications Policy*, 40(7), 644-660.
- [6.] Dmytryshyn, B., Zhovnovach, R., Levchenko, O., Malakhovskyi, Y., & Gonchar, V. (2018). Practical aspects of assessing the efficiency of the modern system of public procurement in Ukraine. *Problems and Perspectives in Management*, 16(2), 353-363.
- [7.] Fazekas, M., & Kocsis, G. (2020). Uncovering high-level corruption: Cross-national objective corruption risk indicators using public procurement data. *British Journal of Political Science*, 50(1), 155-164.
- [8.] Ferrand, A. (2019). e-Procurement: lessons from interventions and approaches from Emerging Economies of Eastern Europe and Western Balkans.
- [9.] Ferwerda, J., Deleanu, I., & Unger, B. (2017). Corruption in public procurement: finding the right indicators. *European Journal on Criminal Policy and Research*, 23(2), 245-267.
- [10.] Georgieva, I. (2017). *Using Transparency Against Corruption in Public Procurement*. Springer International Publishing AG.
- [11.] Hudon, P. A., & Garzón, C. (2016). Corruption in public procurement: entrepreneurial coalition building. *Crime, Law and Social Change*, 66(3), 291-311.
- [12.] Kim, H. H., & Oh, C. (2018). Analysis of the Productivity and Effects of Administration Information System: Focused on KONEPS (Korea Online E-Procurement System). *Journal of Society for e-Business Studies*, 22(2).
- [13.] Mario, A. (2017). The new public procurement Code within international relations and anti-corruption policies. *Вестник Санкт-Петербургского университета. Право*, (1).
- [14.] Oliychenko, I. PROCUREMENT AUTOMATION AS A MECHANISM TO SUPPORT THE PARTICIPATION OF ENTERPRISES IN OPEN BIDDING IN CONDITIONS OF INCREASED COMPETITION. *ББК 67.401 П88*, 7.
- [15.] Popescu, A., Onofrei, M., & Kelley, C. (2016). An overview of European good practices in public procurement. *Eastern journal of european studies*, 7(1).
- [16.] Raganelli, B., & Mauro, I. (2017). Renegotiation and anti-corruption measures in public procurement. In *Law and Economics of Public Procurement Reforms* (pp. 225-246). Routledge.
- [17.] Shin, Y. J. (2016). E-Procurement System as an E-Government Platform: Case of South Korea. *Politics and Social Activism: Concepts, Methodologies, Tools, and Applications*, 410-432.
- [18.] Synyutka, N., Kurylo, O., & Bondarchuk, M. (2019). Digitalisation of public procurement: The case study of Ukraine. *Annales Universitatis Mariae Curie-Skłodowska, sectio H-Oeconomia*, 53(3).
- [19.] Synyutka, N., Kurylo, O., & Vasyluk, T. (2019). Digital transformation of public procurement in Ukraine. *governance*, 2, 5.
- [20.] Szucs, F. (2017). Discretion and corruption in public procurement. *Job Market Paper*. Available at: <https://economics.ceu.edu/sites/economics.ceu.edu/files/attachment/event/1135/szucsjmp.pdf>.
- [21.] Yuzevych, V., Klyuvak, O., & Skrynnikovskyy, R. (2016). Diagnostics of the system of interaction between the government and business in terms of public e-procurement. *Economic Annals-XXI*, 160(7-8), 39-44.