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International Conference «Humanity in the Era of Uncertainty»**IMPLEMENTATION OF ELECTRONIC AUCTIONS IN RUSSIA IN
CONDITIONS OF UNCERTAINTY**

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Abstract

The paper discusses in detail the legal, structural, and technological features of the organization and implementation of electronic tendering in Russia. It analyzes the components of the existing system of assessing their effectiveness taking into account the possible conditions of uncertainty. The paper considers indicators from both the customer and the supplier. And it deals with the procurement organizers as the state budgetary institutions of the law on the contract system that established the main goal to precisely increase the efficiency of public procurement and, accordingly, the saving of the spending of funds provided from the budget. The indicators to assess the effectiveness of enterprises participating in electronic auctions have been developed. The paper confirms the conclusion that the basis for the socio-economic development of the economy in the field of public procurement is the effective functioning of the procurement system, which is achieved through the optimal match of financial resources and social needs. The assessment of the values of the effects can be developed independently by each organization for its individual goals in accordance with the established requirements.

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1. Introduction

In modern Russia, the procurement system plays an important role both in the economy and in the national welfare of the country. The implementation of the public procurement by electronic tendering is a tool that can hardly be overestimated. State, federal, and municipal budgetary institutions use it to meet their own needs with maximum savings in government appropriation and budgeting.

According to the procurement portal, which provided an analysis based on data from the Unified Information System [UIS], (2021), the volume of contracts concluded for all methods of determining a supplier increased by 19 % in 2019 compared to 2018 and amounted to 8.28 trillion rubles. It amounted to 8.91 trillion rubles in 2020 (Savvateev & Filatov, 2018). Most of the purchases were carried out in the form of electronic auctions (INTERFAX-PROPURCHASES, 2019). This is 63.6 % of the total volume of contracts in 2018 (4.42 trillion rubles), 65.6 % in 2019 (5.43 trillion rubles), 58.8 % of the total volume in 2020 (5.24 trillion rubles). In addition, a large volume of purchases was made in the health sector.

2. Problem Statement

Today, in 2020–2021, due to the current situation, the relevance of such a tool becomes obvious, especially when meeting the needs of hospitals throughout Russia. Since most medical institutions are state and municipal budgetary enterprises, they need a more economical, cost-minimizing, simple, and convenient way of purchasing products and performing services. An opportunity to sell the products throughout Russia and to be confident in legal support and regulation of each stage of the transaction opens up for the winners of electronic auctions and other participants in procurement activities.

3. Research Questions

The following tasks are set for solving. The first is to study the structure of electronic tendering, their essence, content and distinctive features of their components; to study the Russian legal framework in the field of public procurement, defining the procedure for conducting electronic auctions. The second is to identify structural and technological features and problems of tendering implementation in Russia. The third is to develop a system for evaluating the effectiveness of electronic tendering with the aim of further improving the processes of conducting the electronic auctions.

4. Purpose of the Study

The purpose of the study is to develop the recommendations for improving the auction activities in conditions of uncertainty based on the analysis of the features of the implementation of electronic auctions in Russia.

5. Research Methods

Methods of analysis and synthesis, induction and deduction, comparison and systematization are used in this paper. They formed the basis for the developed practical recommendations aimed at reducing the level of uncertainty in the context of the digitalization of the economy.

6. Findings

The format of electronic competitive bidding is a priority method of public procurement, especially in the pharmaceutical industry in Russia. The main goal of public procurement is to economically and efficiently use the public funds in the procurement of goods, works, and services for the needs of state and municipal institutions.

The electronic form of orders implementation in the industry of the enterprise has several varieties of its implementation: request for quotations, auction, and competition (Table 1). Procurement can be open and closed, but closed procurement is carried out under the condition that the customer has a state secret. This type of procurement is not carried out within the framework of the enterprise activity.

The auction is designated in Federal Law No. 44-FZ as a method for selecting the winner of the procurement, when the winner offers the lowest price for the execution of the contract (Federal Law No. 44-FZ, 2013). At the same time, an auction for increasing (prices) is practiced by commercial organizations in private auctions, but sometimes it also occurs in state ones. Declining price auction is used as the main permitted form in public procurement.

Table 1. Comparative table of electronic procurement methods

Requirement	Request for quotations	Auction	Competition
Registration of the procurement participant in the Unified Information System	mandatory	mandatory	Mandatory
Limitations on the initial (maximum) contract price	up to 500 thousand rubles	no	No
Price is the main criterion for selecting the winner	yes	yes	No
The need to provide the additional documents to the application	no	yes	Yes
Multiple submission of quotation	no	yes	No
Minimum standard contracting time	2.5 weeks	4 weeks	6 weeks
Payment of the application security	no	yes	Yes

As you can see, only an electronic auction (EA) provides an opportunity for a participant to submit a price offer multiple times. This feature demonstrates the competitive advantages of the procurement process and allows all stakeholders to visually track the competition. In addition, the norms of the law on the contract system, which allow the customer to conduct an electronic auction in any cases, actually make it a priority method for determining the supplier (contractor, executor) (Federal Law No. 44-FZ, 2013). Also, online auctions act as an information intermediary in the e-business segment, providing certain conditions for concluding an offer between economic agents.

Stakeholders for any type of auctions are presented in Figure 1 (44-FZ STATE PROCUREMENT..., 2021).

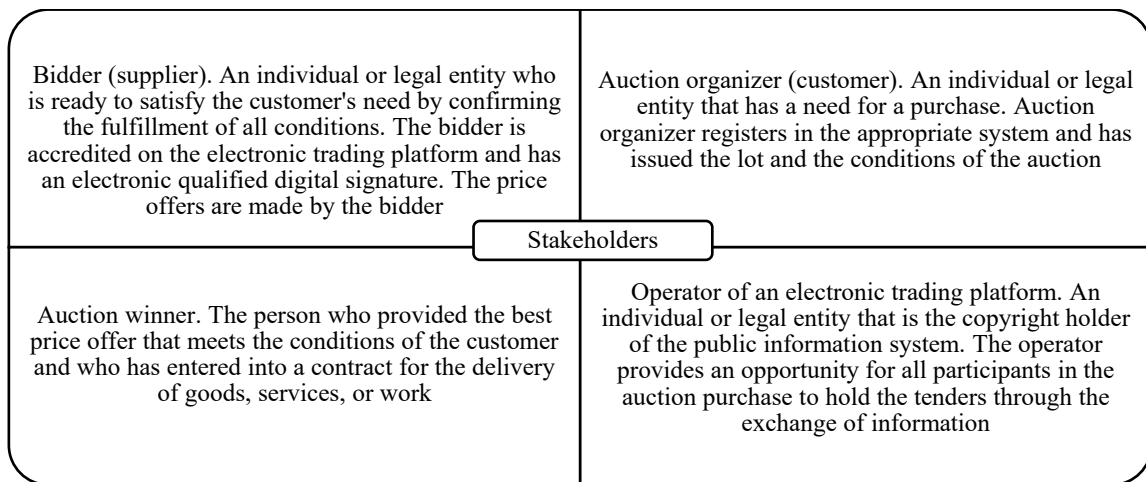


Figure 1. Composition of stakeholders

The general condition for selecting the winner in the request for quotations, according to Federal Law No. 223-FZ, is the same as in the auction, however, the difference lies in three key factors: a simplified procedure for conducting, the initial maximum contract price (IMCP) no more than 500,000 rubles, and the annual volume of purchases no higher than 10 % of the total volume of such orders.

The tender is described in Federal Law No. 44-FZ as a method for selecting the winner: the supplier offers the best conditions for fulfilling the contract, including not only the lowest price, but also tools and solutions to meet the needs of the procurement organizer (Federal Law No. 44-FZ, 2013).

Any procurement method is divided into 2 types: state and commercial. In addition, it is possible for non-governmental organizations to participate in electronic tendering using private electronic trading platforms (ETP) – in this case, registration is optional.

At the moment, there are two main laws in the practice of the contract system of the Russian Federation: Federal Law No. 44-FZ “On the contract system in state and municipal procurement of goods, works and services”, dated 05.04.2013, (On the contract system in state and municipal procurement of goods, works and services..., 2020) and Federal Law No. 223-FZ “On the purchase of goods, works, and services by certain types of legal entities”, dated 18.07.2011 (On the purchase of goods, works, and services by certain types of legal entities”..., 2020). Both laws pursue common goals and highlight similar tools and methods for achieving these goals, but each of them carries its own characteristics (On the contract system in state and municipal procurement of goods..., 2020; On the purchase of goods, works, and services by certain types of legal entities, 2020).

The key difference between the laws is the ability of the procurement organizer to independently develop procurement regulations in accordance with Article 2 of Federal Law No. 223-FZ. Information on the procedure for preparing and implementing procurement, concluding and correcting contracts, etc. is included After this the provision is approved by the federal or municipal executive authority depending on who is in charge of the customer.

Requirements for participants include the need for participants to be absent from the register of unscrupulous suppliers, whether the goods they provide belong to goods of Russian origin, as well as their belonging to small businesses, etc. Requirements for procurement documentation determine the need for a detailed description of consumer and operational characteristics goods, the absence of explicit indications of any specific trademarks and trade names, as well as the absence of explicit indications of the names of places of origin of goods.

Article 3 of Federal Law No. 44-FZ identifies the main stakeholders of the public procurement system, which are customers, suppliers (procurement participants), the operator of the electronic trading platform, as well as some federal authorities. Procurement can be organized by government agencies (e.g., hospitals, clinics, forensic medical examination bureaus, etc.), municipal authorities (e.g., museums, schools, etc.), and unitary enterprises (e.g., hotels, factories, research institutions, and others). Individuals or legal entities that are not registered in offshore zones are not affiliated with the customer and have no outstanding tax or legal obligations can be suppliers. The authorities involved in the procurement system are the Ministry of Finance of the Russian Federation, the main regulator of procurement relations, the Federal Antimonopoly Service (FAS), an organization that directly monitors the competitiveness of conditions, as well as Rosoboronzakaz, the regulator of procurement, limited by state secret, and such state corporations as Roscosmos and Rosatom.

Information systems (IS) play a significant role in the overall structure of public procurement. The most important one that performs the functions of a register and repository of information about all purchases, data on unscrupulous suppliers, plans and schedules, templates of contracts, and many other data is the UIS portal – Unified Information System in the field of procurement. In addition, the UIS contains a list of official federal sites that post information on purchases and conduct electronic tendering.

The procurement process for customers in accordance with Article 17 of Federal Law No. 44-FZ begins with planning and justifying the need for the purchased goods or services. An order, which includes goals, objects, deadlines and other necessary data plan, is drawn up and approved within 3 calendar years. Then, on the basis of this plan, a schedule is formed for a fiscal year, which contains the procurement method, reasonable IMCP, the amount of security for bids and contracts, and other information listed in Article 21 of the law on the contract system.

The auction as a procedure for identifying a supplier is considered in Articles 59–71 of Federal Law No. 44-FZ. It also has modifications, including a closed auction, conducted by determining the price in the conditions of the physical presence of stakeholders and raising price plates, and an electronic auction, carried out on the Internet through the ETP.

Article 62 of Federal Law No. 44-FZ obliges the participants to obtain the accreditation at all electronic sites they choose. The supplier is accredited by the operator of the electronic trading platform after the submission of a set of necessary documents by the supplier. If everything is in order with the documents, then the contractor is entered in the register of accredited participants and he is given a personal specialized account at the site. If there is any problem, the operator sends a written refusal, indicating the reason and recommendations for eliminating the errors. Accreditation is valid for 3 years, after that the contractor undertakes to update his data in the system (44-FZ STATE PROCUREMENT..., 2021).

According to Article 63 of Federal Law No. 44-FZ, the customer must generate and publish a notice of conducting an EA on any available electronic platform and, if necessary, in the media at least 7 days before the deadline for filing applications.

According to Article 65 of Federal Law No. 44-FZ, all documentation must be generated and posted by the customer in the UIS at least 7 days before the deadline for filing an application. Suppliers who have received accreditation can view other applications, collect additional information on supporting documentation through the Clarification Mechanism. The customer may receive a request for clarification no later than 3 days before the deadline for submission. In this case, he must publish the question in the system (anonymously) and the answer to it within 2 days, as well as make changes to the documentation. In this connection the deadline for filing an application is extended by at least 7 days (Ministry of Finance of the Russian Federation, 2019).

According to Article 66 of Federal Law No. 44-FZ, an accredited supplier that intends to participate in the auction must complete and place an application for participation, consisting of two parts. The application is examined by the auction commission, which verifies the accuracy of all documents, and by the ETP operator, which establishes the compliance with the requirements: the absence of a participant in the register of unscrupulous suppliers, no duplication of a previously submitted application, no violations of the rules of participation, the active deadline of the application.

After the end of the period for sending the application, the operator of the electronic site must provide the customer (in full confidentiality) within a day with the first parts of all applications for study. The auction can be declared invalid if no bids have been submitted.

The study of the first parts of the applications is regulated by Article 67 of Federal Law No. 44-FZ. In accordance with it, the auction commission representing the customer must analyze the applications within a period of 1 day and make a decision on admitting the supplier to participate in the EA. If the participant submitted incorrect data or did not provide them at all and if he did not agree to the supply of products he may be not admitted to the auction. As a result, the auction commission (AC) must publish the protocol in the Unified Information System (Prokofiev et al., 2020).

In addition to the UIS, the commission must transfer the results to the operator of the electronic trading platform. He is obliged to familiarize the suppliers with them or to declare the auction invalid if all participants are not admitted.

Article 68 of Federal Law No. 44-FZ directly reflects the procedure for conducting the electronic auction. Only suppliers whose first parts of the application were previously approved and admitted by the commission can take part in it. Then the ETP operator has 3 days to sum up the results, after that an auction is held (Kozhenko, 2019).

Within the framework of an auction, there is such a thing as an “auction step”. The bottom line is that the participant can allow the price to fall by a certain predetermined number when making a move. This number is called a step and is established by law in a value from 0.5 % to 5 % of the IMCP or the current price and cannot be less than 100 rubles.

The auction mechanism assumes access to various means of monitoring the process for all auction participants. During the EA, it is possible to see the history of the submitted price proposals, as well as who submitted the current minimum price (the serial number of the participant and the names of the participants

are kept secret for the purposes of antimonopoly regulation). Also it's possible to see the estimated time until the end of the procedure.

The running time is 10 minutes. It is updated every time a quote is submitted. After the final offer has been made and the time has expired, the purchase ends automatically. However, before completion, an additional 10 minutes is given for serving. During this time a price equal to or greater than the current minimum can be offered. In this case the participant who decided to submit an offer, for example, with the same amount and took second place in the event that for some reason the participant who took first place is rejected can become a winner (Knutov, 2021).

In a situation where, at the end of the bargaining, two best, but identical offers were revealed, according to Part 16 of Article 68 of Federal Law No. 44-FZ, the customer is obliged to determine the supplier, whose proposal was submitted earlier than others, as the winner. Hence, we can conclude that the speed of response to the course of the auction in some cases can play a decisive role in determining the winner.

As a result of the electronic auction, a protocol is drawn up, which is formed by the operator of the ETP and posted within 30 minutes. Participants may have questions about the EA protocol. In this case, they can address the questions to the operator of the ETP in the form of a request for clarification and receive a response no later than in 2 days. There is also a situation where quotations are not submitted within a 10-minute submission period. Then such a purchase is recognized as invalid and the operator of the ETP forms the appropriate protocol (he is given 30 minutes for this).

After creation, the protocol is sent to the customer along with the data on the second parts of the participants' applications. The commission of the customer analyzes and does not admit inappropriate applications. The supplier who sent the application before everyone else is selected among the rest.

Sometimes, during trading, the contract price drops to 0.5 % of the IMCP or even lower. In this case, the auction class changes and it becomes an upward auction. An upper price threshold of 100 million rubles and restrictions on the amount of cash collateral for the contract are set, and the decision to approve a major transaction is changed (Prokofiev et al., 2020).

At the final stages of determining the executor, the auction commission examines the second parts of the bids of all participants in accordance with Article 69 of Federal Law No. 44. Its main tasks are to reject inappropriate applications and to determine the winner. The analysis of the second parts takes place from the lowest price offer.

Then the protocol is sent to the operator of the ETP, and then he is obliged to send notifications to the participants. The winner in the auction is the supplier who meets all the requirements and indicates the lowest price in his price offer. In case of rejection of all participants, the procurement is invalidated, and the auction is declared invalid (Knutov, 2021).

After selecting the winner in the auction, the process of concluding a contract begins. It is concluded in electronic form, signed by an electronic digital signature on both sides of the procurement at the platform where the auction was held. The conditions for concluding a contract are stipulated in the notice, draft contract, auction documentation, and the winner's application in accordance with Part 1 of Article 34 of Federal Law No. 44-FZ.

The customer has the right to increase the quantity of the supplied goods on the stipulation that such a change is provided in the auction documentation or with the consent of the winner to such changes. The procedure for making changes is determined by Part 18 of Article 34 of Federal Law No. 44-FZ by concluding an additional agreement. However, the price per unit under the new volume of goods should not exceed the price per unit proposed by the winner.

It is possible to suspend the signing of the contract on the stipulation that there are acts adopted by the court or force majeure circumstances that prevent one of the parties from signing the contract within the established time frame, and the other party is notified of this. In this case, the signing of the contract is suspended for the period of execution of judicial acts, but no more than 30 days (Sheshukova, 2018).

Each agreement has its own validity period. It comes into force from the moment of its conclusion in accordance with Part 8 of Article 83.2 of Federal Law No. 44-FZ. And it ceases to fulfill the obligations (with the exception of warranty obligations and obligations of payment for delivered goods, as well as liability for violation of conditions) on the expiration date set by the customer.

The regulation of the contract system takes place not only when selecting the winner, but also obligatory at every stage of contract execution. On the part of the customer in relation to the supplier, the timely fulfillment by the counterparty of obligations within the framework of the provisions of the concluded contract, the full compliance of the supplied products, as well as (if provided by the parties) the delivery process, the availability of documentation confirming the quality of products and other transaction documents, and the enforcement of the contract are monitored. In addition, the customer must necessarily carry out the internal self-control, namely, to monitor the observance of the deadlines for the processes of receiving goods, payments, returns of guarantees, filing complaints, etc.

The supplier, on the other hand, undertakes to maintain control over the proper quality and quantity of products in accordance with the terms of the contract, to deliver on time according to the current needs of the customer within the time specified in the contract, to monitor the provision of a complete set of accompanying documentation in accordance with all agreed technical regulations, standards and rules, and regulations, as well as to guarantee the freedom of products from the rights on them of third parties. In turn, the contractor, in his own interests, controls the timing of the return of the collateral by the customer, as well as the payment for the goods. He can charge penalties for the customer's delay in obligations.

In addition to the control of direct participants in commodity relations, there are state structures which agencies carry out the inspections on the fact of violation of the obligations of each of the parties and regulate the bidding processes. They are also the guarantor of the consideration of disputed cases at any stage of the transaction.

Increasing the efficiency of the procurement activities of the main persons involved in the procurement (customer and bidders) is achieved by organizing the procurement process within the institution, its possible automation, and timely tracking of all stages of activity (STATE CONTRACT..., 2018).

Determination of the effectiveness of procurement activities is carried out through the implementation of a comprehensive assessment of all departments involved in the procurement. The components of evaluating the effectiveness of the customer's procurement activities include: procurement plan, enterprise budget, volume and cost of lost sales, volume of proceeds, total volume of operations, labor

productivity, and transportation costs (Kozhenko, 2019). Analyzing them, it seems possible to determine the dynamics and the actual level of efficiency and to develop a methodological toolkit for assessment, namely, a set of indicators and a set of measures to regulate their normality.

Evaluating the efficiency of an enterprise for both the customer and the supplier allows one:

- 1) to compare the summary indicators for each year;
- 2) to identify the dynamics of the summary indicators as a whole for the enterprise;
- 3) to identify “problem” places in the activity by identifying the indicators, at the expense of which the effectiveness of the procurement system decreases;
- 4) to evaluate the values and dynamics of indicators;
- 5) to be fully aware of planning problems;
- 6) to improve the discipline of the execution of contracts;
- 7) to analyze existing violations of the law.

In practice, customers use the indicators shown in Table 2 to assess the procurement activities of the enterprise (STATE CONTRACT, 2018).

Table 2. KPI of the customer’s organization

Indicator	Formula and Notation	Formula and Notation
Coefficient of the number of changes in schedules	$C_{ch.s.} = \frac{C_{ch.i.}}{C_{o.i.}}$	$C_{ch.i.}$ – the number of changed items of the schedule $C_{o.i.}$ – the number of outbound items of the schedule
Coefficient of the number of successfully completed contracts	$C_{s.c.c.} = \frac{C_{s.c.}}{C_{t.n.c.}}$	$C_{s.c.}$ – the number of successfully concluded contracts $C_{t.n.c.}$ – the total number of contracts
The coefficient of the number of failed procedures	$C_{f.p.} = \frac{C_{c.p.}}{C_{t.n.p.}}$	$C_{c.p.}$ – the number of canceled procedures $C_{t.n.p.}$ – the total number of procedures
Purchase ratio from a single supplier	$C_{p.r.s.s.} = \frac{C_{o.p.w.}}{C_p}$	$C_{o.p.w.}$ – the number of purchases where the only participant won $C_{t.n.p.}$ – total number of purchases

Speaking about the supplier’s working efficiency, the following components of the performance assessment can be distinguished:

- 1) commodity stock;
- 2) average purchase price of supplied products;
- 3) volume of sales;
- 4) supply stability;
- 5) payment periods (from customers – to transport companies, etc.);
- 6) quality pre-sales and post-sales service;
- 7) delay in delivery dates, etc.

A system of performance indicators shown in Table 3 is proposed for an adequate and comprehensive assessment of the supplier’s activities (Lisovenko, n.d).

Table 3. KPI of the supplier participating in the electronic auction

Indicator	Formula and Notation	Explanation
Profitability (margin)	$P_m = \frac{P_{sel} - P_p}{P_{sel}}$	P_{sel} – selling price P_p – purchase price
Markup coefficient (in %)	$C_M = \frac{M_{abs}}{P_p} \times 100 \%$	M_{abs} – markup in absolute terms
Coefficient of the number of purchases	$C_{n.p.} = \frac{Q_{p.c.y.}}{Q_{p.b.y.}}$	$Q_{p.c.y.}$ – the number of purchases for the current year $Q_{p.b.y.}$ – the number of purchases for the base year
Net profit ratio	$NP = R - CS - BE - OE + OI - IT$	R – revenue CS – cost of sales BE – business expenses OE, OI – other expenses and income IT – income tax
Product turnover ratio	$C_{p.t.} = \frac{R}{C_{a.v.s.}}$	$C_{a.v.s.}$ – the average value of stocks, which is found as $\frac{S_{b.p.} + S_{e.p.}}{2}$, where $S_{b.p.}$ – stock at the beginning of the period, and $S_{e.p.}$ – stock at the end of the period
Financing ratio	$C_{fin} = \frac{Q_{eq}}{Q_{bor}}$	Q_{eq} – the amount of equity capital Q_{bor} – the amount of borrowed capital
Absolute liquidity ratio	$C_{abs.l.} = \frac{CA + SFA}{CL}$	CA – cash assets SFA – short-term financial attachments CL – current liabilities
Coefficient of the number of bank guarantees	$C_{b.g.} = \frac{Q_{b.g.}}{Q_{col}}$	$Q_{b.g.}$ – the number of bank guarantees Q_{col} – the total number of collaterals
The turnover ratio of fund	$C_{t.f.} = \frac{R}{C_{av.v.s.a.}}$	$C_{av.v.s.a.}$ – the average annual value of short-term assets
Sales volume factor	$Q_{sales} = \frac{FC + P_{b.t.}}{P_{p.u.} + C_{u.p.}}$	FC – fixed costs $P_{b.t.}$ – profit before taxes $P_{p.u.}$ – the purchase price of a product unit $C_{u.p.}$ – variable costs per unit of production
Claims coefficient	$C_c = \frac{Q_{r.c.}}{Q_t}$	$Q_{r.c.}$ – the number of received claims Q_t – the number of all transactions
Coefficient of the number of won litigations	$C_{w.l.} = \frac{Q_{w.l.}}{Q_l}$	$Q_{w.l.}$ – the number of won litigations Q_l – the total number of litigations
Coefficient of the number of delays in delivery times	$C_d = \frac{Q_{o.d.t.}}{Q_c}$	$Q_{o.d.t.}$ – the number of contracts with overdue delivery times Q_c – total number of contracts

7. Conclusion

The basis for the socio-economic development of the economy in the field of public procurement is the effective functioning of the procurement system. It is achieved through the optimal match of financial resources and social needs. The very definition of efficiency, its methods and methods of measurement are not legally defined. Thus, the assessment of the values of the effects can be developed independently by each organization for its individual goals in accordance with the requirements of Federal Laws No. 44 and No. 223.

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