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Marketing Strategy as an Effective Tool for Government Procurement Management

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Abstract: This article investigates theoretical and methodological approaches to developing a marketing strategy for public procurement management in the context of European integration processes and reform of the public procurement system in Ukraine. The necessity of implementing a marketing strategy as an effective tool to increase the efficiency and transparency of public procurement activities is substantiated under modern economic conditions. The conceptual foundations for the formation of a marketing strategy for public procurement management are defined. Its main goal is to build successful and long-term partnerships between public customers and supplier companies based on the rational use of budget funds and the development of effective competition. Priority functions of the marketing strategy are outlined: comprehensive marketing analysis of public customers' needs; market research to find the most competitive suppliers; ensuring effective communication between all participants; and the implementation of effective marketing measures to increase transparency and the openness of procurement procedures. A universal step-by-step algorithm for the formation of a public procurement marketing strategy is developed, including the following: analysis of the current state and identification of deficiencies in the existing system; clear definition of targets, objectives and priority areas for reform; selection of optimal marketing tools; directly implement the strategy and continuously monitor the results. A comprehensive classification of the types of marketing strategies in public procurement by their target orientation is presented. To increase the validity and minimize risks in decision-making regarding supplier selection, an original mathematical model for the formation of competitive prices based on nonlinear programming methods is proposed. This model allows considering the interests of all participants in the procurement process: determining the optimal vector of prices for goods/services based on the utility functions and preferences of customers, their budget constraints, and the technological capabilities of potential suppliers. The versatility of the model lies in the possibility of its application for any number of participants and product groups. The implementation of an effective marketing strategy for public procurement management will contribute to the formation of a highly efficient, transparent and competitive public procurement system focused on the rational use of budget funds, the development of fair competition among suppliers, and the minimization of corruption risks in this area.

Keywords: marketing strategy; public procurement; budget funds; transparency; efficiency; modelling; competition; utility function; pricing.

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1. Introduction. One of the key functions of the state is to procure goods, works and services to meet the basic needs of society. This activity should be based on the reasonable use of public funds and contribute to the development of a competitive economy. There are many government procurement institutions in the world that share similar governance objectives (Qiao & Cummings, 2003; Jones, 2002; Thai, 2001). Weaknesses in government procurement management are compounded by increasing government risk, which has a significant impact on foreign investment (McCue & Gianakis, 2001; Aylesworth, 2003). The implementation of public procurement reform as part of the implementation of a marketing strategy for the development of the country is increasingly important because it is based on social and economic costs (Schapper & Malta, 2004; Hunja, 2003; Pegnato, 2003). Public procurement reform involves addressing political, legal, social, financial, institutional, ethical and technological challenges. Its successful implementation will contribute to the country's sustainable social and economic development, increase the competitiveness of the economy and promote active integration into international markets.

The importance of this study regarding the formation of an effective management strategy for government procurement management lies in the fact that it occupies a significant place in the expenditure part of the budget of most developed countries and is an effective tool for managing the economy. With the help of state contracts of government procurements, many states solve their socioeconomic problems and ensure the conduct of scientific research and the creation and implementation of new technologies and developments.

A distinct feature of public procurement is that government authorities not only use it to fulfil specific demands for public services but also treat it as a potent tool for pursuing its overarching policy objectives (Grandia & Meehan, 2017). Public procurement is not the goal of governments but only a tool for realizing economic and social goals. The main lever that governments use to develop public procurement as a policy tool is the administrative process (Bosio et al., 2022; Raj-Reichert et al., 2022). Public procurement in Ukraine is carried out in accordance with the Law of Ukraine "On Public Procurement" dated December 25, 2015 No. 922-VIII, with the relevant amendments and additions. In connection with the introduction of martial law in Ukraine in 2022, a number of amendments were made to the Law of Ukraine "On Public Procurement" regarding the procedure for public procurement for the period of martial law; in particular, the list of goods, works and services that can be procured without tenders was expanded; customers are allowed not to publish information on procurement if it may pose security risks; and certain peculiarities of concluding and executing procurement contracts are established (Verkhovna Rada of Ukraine, 2015). At the same time, the strategic orientation of the public procurement management system in Ukraine is reflected in the "Strategy for Reforming the Public Procurement System (Roadmap)" approved by the Cabinet of Ministers of Ukraine on February 24, 2016, No. 175-r. It should be noted that one of the most important tasks of the "Strategy for Reforming the Public Procurement System (Roadmap)" is "ensuring rational and efficient use of budget funds by creating a transparent, open, understandable, accessible, stable public procurement system and functioning of the general electronic procurement system" (Verkhovna Rada of Ukraine, 2016). The realization of this task is impossible without the creation and functioning of a rational marketing strategy for public procurement management in Ukraine. The need to develop a marketing strategy for public procurement management is because Ukraine is a country with a transforming economy, where public procurement plays an important role in meeting public needs. Public procurement significantly contributes to the value creation of goods and the competitiveness of the country as a whole (Carr & Smeltzer, 1997; Gonzalez-Benito, 2007; Zimmermann & Foerstl, 2014). In the current context of the formation and development of the public administration system, a marketing strategy can be a valuable tool for governments seeking to make the procurement process more efficient, cost-effective and transparent. In particular, this is manifested in the development of marketing campaigns aimed at raising awareness of public procurement among public customers and suppliers. This will help attract new participants to public procurement and increase the competitiveness of domestic producers. It is also possible to conduct educational programs for public procuring entities and suppliers, which will provide a better understanding of the requirements and procedures of public procurement and will help increase the transparency of the procurement process and reduce corruption risks. It is important to involve the public in controlling public procurement. This will help increase the transparency of the procurement process.

The overall importance of a strategic approach to public procurement management is to create a system that ensures fair, efficient and transparent conditions for the use of public funds and contributes to the development of the economy and society. The successful implementation of a public procurement management strategy can have a significant impact on improving financial discipline and public sector development.

One of the main tools of strategic management is a marketing strategy. At the same time, marketing support for public procurement management is essential to ensure the efficiency and transparency of this process. Marketing research allows for a better understanding of the needs of customers, as well as the needs and capabilities of suppliers. This helps develop more efficient procurement procedures that meet the needs of both parties and ensure effective interaction between public procuring entities and suppliers. Marketing activities help raise awareness of suppliers' capabilities, which allows new participants to be attracted to public procurement and thus increases the competitiveness of the public procurement market. Marketing tools can increase the transparency of the procurement process, which complicates corruption schemes and reduces corruption risks in public procurement.

What finally distinguishes public procurement is the way civil society can intervene and request public inquiries into the rationale for the procurement, its process and achieved outcomes (David-Barrett & Fazekas, 2020; Sian & Smyth, 2022). Moreover, the leveraging of public buying power for policy purposes makes public procurement distinct from other governmental policy instruments (Horner, 2017). This paper describes how the implementation of a marketing strategy for public procurement management in Ukraine and the world is an important step toward creating a more efficient and transparent public procurement system, which requires appropriate theoretical generalization and further methodological developments in this area.

2. Literature Review. Government public procurement is an important instrument of state policy, both in the field of supporting small and medium-sized businesses and for the development of strategically important sectors of the economy. In many sectors, such as energy, transportation, waste management, social protection, and healthcare or education, government agencies are the main buyers (Levon, 2019).

One of the most effective tools of government procurement management is the ability to formalize carefully thought about marketing principles and components, their content and the process of use into a procurement strategy (Alonso et al., 2015; Hesping & Schiele, 2015). Usually, government procurement takes into account the strategic role of the state and the specific goals of the government (Walker, 2015; Reis & Cabral, 2015). This applies not only to the general organizational strategy of the state but also to the functional strategies of the second level in the public sector, which must provide public services taking into account the constraints and objectives of the government (Stewart, 2004; Telgen et al., 2007; Schiele & McCue, 2006). Among the main objectives of public procurement is the prevention of corruption, which should be controlled by independent public organizations for the sake of transparency of public procurement and maximization of profits (Murray, 2001; Van Der Wal et al., 2008; Patrucco et al., 2016). This is why the country's government must adhere to strict regulatory requirements around the procurement process (Deng et al., 2003; Matthews, 2005; McCrudden, 2004). However, this requires extensive formalization and monitoring of procurement transparency, and most small and medium-sized enterprises do not agree to participate in public procurement (Erridge & Murray, 1998; Loader, 2011; Kamann, 2007).

Boehm & Olaya (2006) emphasize that the main tool for enhancing transparency is the electronic public procurement system, which reduces corruption risks during bidding. To optimize the public procurement system, it is proposed to place electronic contracts at the center of the system of business communications with contractors, integrating disparate electronic services into a single system (Pochynok et al., 2021). The introduction of electronic contracts will minimize costs in the process of electronic trading, automate the processing of primary information, and optimize accounting and management processes at the enterprise.

According to one study (Dimitri, 2013), emphasizing value for money is often described as the most important principle for government procurement, as it ensures that public funds are spent wisely and efficiently while delivering the best possible outcomes for citizens and taxpayers. Rickard & Kono (2014) revealed that neither preferential nor multilateral procurement agreements significantly reduce home bias in public procurement.

The globalization of social relations has led to the need to reform the public sector of the economy. The harmonization of legislation and regulatory frameworks with the standards of the European Union requires the development of new approaches and forms of interaction between contracting authorities and participants in procurement processes. Reforming the public procurement system has given impetus to changing the attitude of public customers toward the procurement process and recognizing the need to introduce green procurement (Smerichevska & Postnikov, 2023). The introduction of green procurement helps reduce the environmental impact and waste accumulation. The principle of green procurement also prohibits the use of hazardous substances that pollute the environment and harm health, helps reduce greenhouse gas emissions, and conserves, protects and restores biodiversity (Psota, 2020).

Arrowsmith (2004) asserts that opening up public procurement to foreign-owned and foreign-located suppliers is considered important for maximizing the value of money. Public procurement is an important component of public service delivery, good governance, and a sustainable economy. Governments around the world annually spend approximately 13%-20% of their GDP on public procurement. Global procurement spending is estimated at almost USD 9.5 trillion (World Bank, 2023).

The public procurement management strategy determines the best approaches and actions for the efficient use of public funds in the procurement of goods, works and services. This strategy aims to improve transparency, competition and efficiency in public procurement, as well as to promote the development of a competitive economy and sustainable socioeconomic development of the country. This is why the correct management of public procurement, which is based on the use of a marketing strategy, brings more benefits but requires more maturity in the management of the procurement process and the use of appropriate tools and procurement (Hartmann et al., 2012; Kauppi et al., 2013).

The main guidelines of the public procurement management strategy should be considered:

- transparency and openness at all stages of the procurement process, from the announcement of a tender to the conclusion of a contract, which helps avoid corruption and ensures the competitive nature of procurement;
- ensuring competition between suppliers in the public procurement market, which is usually achieved by developing clear selection criteria and encouraging the participation of different companies;
- effective use of budgetary funds, for which risk assessment, improvement of procurement processes and the use of innovations are extremely important;
- support and stimulate the participation of small and medium-sized enterprises in public procurement, which contributes to the development of local business and ensures a greater level of competition;
- stimulating innovation and adhering to the principles of sustainable development in the public procurement process (Bezugla & Demchuk, 2019; Lykholat. et al., 2021; Smerichevska, 2013; Smerichevskyi & Zatsarynin, 2022).

The overall goal of the marketing strategy of public procurement management is to build a successful and long-term partnership between the enterprise and public customers, contributing to the effective development of both parties (Smerichevskyi, S.F., & Zatsarynin, S.A., 2022). The priority functions of the implementation of marketing policy in the field of public procurement management should be considered:

1. Marketing analysis by public procuring entities of their needs and priorities, taking into account the market situation, facilitates the procurement of goods and services that best meet the needs of customers.
2. Marketing research on the supply market, which allows us to find the most competitive suppliers, obtains the best prices and conditions for procurement.
3. Ensuring effective marketing communications with suppliers, which allows public customers to receive up-to-date and relevant information from suppliers, as well as to inform suppliers about their needs.
4. The implementation of marketing measures to ensure transparency and openness of the procurement process provides the public with the opportunity to control the procurement process and prevent corruption (Romat & Havrilechko, 2018).

Therefore, considering the above, it can be argued that the marketing strategy of public procurement management is an important tool that allows public customers to:

- define their needs more accurately;
- study the market and find the most competitive suppliers;
- improve communication with suppliers;
- The transparency and openness of the procurement process should be ensured (Levon, 2019; Lykholat et al., 2021).

Thus, it must be stated that at the current stage of the scientific views of the authors, there is no systematic vision of the need for and content of the marketing strategy of public procurement management. At the same time, there are a significant number of problems in the development of the latest marketing strategies, which reflects the expediency of the scientific search for approaches for practical implementation in the public procurement system in Ukraine and in the world.

3. Methodology and research methods. This research uses various methods and approaches to form a marketing strategy for government procurement management in Ukraine and the world. Government procurement was chosen as the research object. In the present article, the authors identified and classified the

tools of the marketing strategy of government procurement management and established the importance of effective public procurement management for the country and its economic development.

Most studies on the development and implementation of a marketing strategy for public procurement management have not yet been thoroughly developed. However, based on the generalization of existing scientific studies in this area, the authors were able to establish the content of the concept of a "marketing strategy for public procurement management", which is presented in Table 1.

Table 1. Content of the concept of the "marketing strategy of public procurement management"

Defining process	Conceptual content
Optimization of procurement processes	The marketing strategy for public procurement management involves systematic improvement and optimization of procurement processes to ensure maximum efficiency in the use of public funds.
Stimulation of competition	This strategy aims to actively implement measures aimed at increasing competition among suppliers of goods, works and services in the field of public procurement to achieve optimal conditions and cost.
Formation of partnerships	The marketing strategy of public procurement management involves active work to form and maintain partnerships with reliable suppliers, promoting mutually beneficial cooperation.
Effective use of advertising and information channels	This strategy includes the study and use of effective advertising and information channels to ensure maximum disclosure and accessibility of information on public procurement to potential suppliers.
Innovation and sustainability	The marketing strategy of public procurement management takes into account the issues of innovation and sustainability, promoting the introduction of new technologies, approaches and practices in public procurement to improve its environmental and social impact.

Sources: developed by the authors.

Considering the aim of the paper, the following research hypotheses were established:

- H1: We assume that marketing strategy is an important tool for an effective public procurement system.
- H2: We assume that the development of a marketing strategy for public procurement management should be adapted to the specific conditions and factors of the country. Factors such as legislation, economic situation, and the needs of public customers and suppliers should be considered.
- H3: We assume that implementing a marketing strategy for public procurement management requires a comprehensive approach.

The marketing strategy of public procurement management as an important tool allows public customers to define their needs more precisely, study the market extensively and find the most competitive suppliers, improve communication with suppliers, and ensure transparency and openness of the procurement process (Hypotheses 1). The marketing strategy of government procurement management should be developed considering the following factors: target groups, marketing strategy goals, and the means and methods of marketing activities. The information strategy is aimed at raising awareness of public procurement among public customers and suppliers. Such measures may include media advertising, PR campaigns, and educational programs. The attraction strategy is aimed at attracting new participants to public procurement. It may include measures such as market research to identify the needs of public customers and marketing campaigns aimed at promoting suppliers (Hypotheses 2). It is important to define the goals of the marketing strategy, which exactly needs to be achieved through marketing activities. This could include, for example, raising awareness of public procurement or attracting new participants (Romat & Havrilechko, 2018; Melnikov, 2016). The choice of a particular type of public procurement marketing strategy depends on the specific goals and objectives to be achieved. The process of developing a marketing strategy for public procurement management includes several key stages aimed at the efficient use of public resources and improvement of procurement conditions (Hypotheses 3).

Fig. 1 provides a general overview of the stages of this process. This cycle of the process of developing a marketing strategy for public procurement management can be repeated and adapted depending on specific conditions and needs.

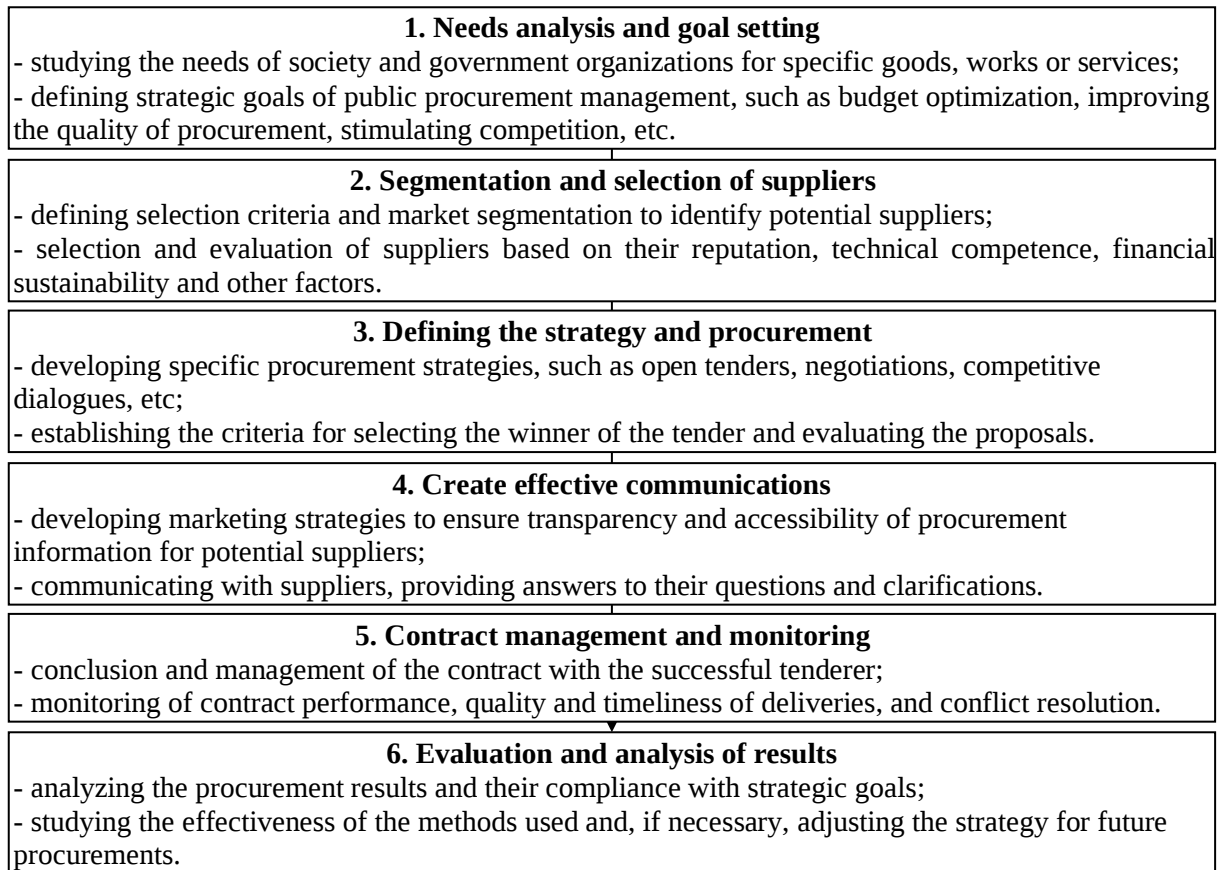


Figure 1. Algorithm for developing a marketing strategy for government procurement management
Sources: developed by the authors.

The methodology of marketing strategy formation government procurement management (Hypotheses 1-3) includes the following sequence of actions. The first step is to analyse the needs and determine the goals that can be achieved by public procurement. The next step is the definition of selection criteria and market segmentation to identify potential suppliers, taking into account their reputation, technical competence, financial stability and other factors. The next step is communication with suppliers, which provides answers to their questions and clarifications. At this stage, the winners are determined, depending on their price offer. The last step is the conclusion of contracts and the analysis of procurement results and their compliance with strategic goals.

The methodology of marketing strategy formation government procurement management includes the following sequence of actions. The first step is to analyse the needs and determine the goals that can be achieved by public procurement. The next step is the definition of selection criteria and market segmentation to identify potential suppliers, taking into account their reputation, technical competence, financial stability and other factors. The next step is communication with suppliers, which provides answers to their questions and clarifications. At this stage, the winners are determined, depending on their price offer. The last step is the conclusion of contracts and the analysis of procurement results and their compliance with strategic goals. With the help of mathematical modelling, a model for choosing the supplier with the most potential for public procurement was developed, which consists of the initial stock of the product (in conventional units) and its price offer. Since there are certain restrictions on access to public procurement-related information containing state secrets, the proposed model can be used in future research to determine the optimal supplier in public procurement management processes. The model allows one to take into account the available stocks of customers, simulate demand functions taking into account available advantages, and apply nonlinear optimization methods to determine the optimal values of the vector of competitive prices.

4. Results. In the structure of the formation of the marketing strategy for public procurement management, an important role is played by the selection of a supplier, which depends on many factors, selected criteria and procurement conditions. To minimize possible risks in the procurement process, it is advisable to use mathematical modelling when selecting a supplier, which analyses various criteria, in particular, the price

offer, which has been and still remains one of the key criteria for selecting a supplier and allows you to choose the best supplier.

To consider the following objects: a set of consumers $S = \{s_1, s_2, \dots, s_l\}$, $l \in N$, a set of producers $V = \{v_1, v_2, \dots, v_m\}$, $m \in N$, and a set of goods consisting of n types of goods $j = 1, 2, \dots, n$. We denote by $p = (p_1, p_2, \dots, p_n)$ the row vector of prices for the goods and $x = (x_1, x_2, \dots, x_n)^T$ the column vector of volumes of the goods.

We assume that each consumer has an income $K_i(p)$, $i = 1, 2, \dots, l$, and has its own system of preferences for goods and suppliers. This system of preferences is determined at the stage of segmentation and selection of suppliers and the establishment of appropriate selection criteria. The preference system is modelled by the consumer's utility function $U(x)$, given a set of goods.

Let X be the domain of definition of the function $U(x)$; then, we define the demand function of each consumer $F_i(p, U_i(x))$, $i = 1, 2, \dots, l$ as the one that should acquire the largest value on the set X under the given price constraints p , taking into account the preference function $U(x)$.

Each supplier is determined by its technological capabilities. We denote by $y_k = (y_{k1}, y_{k2}, \dots, y_{kn})^T$, $k = 1, 2, \dots, m$ the column vector of the input–output of the k -th supplier. The scalar product of the vectors py_k determines the supplier's profit from the sale of goods. The technological capabilities of suppliers are defined as the set of all valid vectors $Y_k = \{y_k\}$, $k = 1, 2, \dots, m$. As a set of proposals, we consider one or more input–output vectors that maximize profit at a given price p .

The income of each consumer consists of two parts: income pb_i , $i = 1, 2, \dots, n$, from the sale of the initial stock of goods b_i , and income $l_i(p)$ as a result of the consumer's participation in production or other income items.

A supplier's supply function is defined as one or more input–output vectors that maximize profit at a given price p . Then, the interaction of a set of consumers and suppliers can be described by the following functional equations:

$$\begin{cases} F_i(p, U_i(x), K_i(p)) = \{x^*: U(x^*) = \max_{x \in X(p)} U(x)\}, \\ \Psi_k(p, y_k) = \{y_k^*: py_k^* = \max_{y_k \in Y_k(p)} py_k\}, \\ K_i(p) = pb_i + l_i(p). \end{cases} \quad (1)$$

The input–output vector for the entire set of consumers and suppliers is defined as the sum of the input–output vectors for all suppliers:

$$y = \sum_{k=1}^m y_k.$$

The vector y takes on certain values from the aggregate technological set (the economy-wide set of production possibilities):

$$Y = \{y: y = \sum_{k=1}^m y_k, \quad y_k \in Y_k, \quad k = 1, 2, \dots, m\} \quad (2)$$

The sum of all consumers' initial stocks of goods $b = \sum_{i=1}^l b_i$ is the aggregate initial property. The concept of initial property can include not only consumer goods but also intermediate goods.

The set $Y + \{b\}$ is the set of aggregate supplies. By joint optimal allocation of supply and purchase, we mean the following set of consumption vectors and input–output vectors:

$$\{x_1, x_2, \dots, x_l, y_1, y_2, \dots, y_m\}, \quad x_i \in X_i, \quad y_k \in Y_k,$$

for which aggregate demand coincides with aggregate supply, i.e.,

$$x = \sum_{i=1}^l x_i = b + \sum_{k=1}^m y_k = b + y. \quad (3)$$

The set $\{x_1^*, x_2^*, \dots, x_l^*, y_1^*, y_2^*, \dots, y_m^*, p^*\}$ represents a competitive equilibrium in the model if:

$$\begin{cases} x_i^* \in F_i(p^*, U_i(x^*), K_i(p^*)), & i = 1, 2, \dots, l, \\ y_k^* \in \Psi_k(p^*), & k = 1, 2, \dots, m, \\ \sum_{k=1}^m y_k^* + b \geq \sum_{i=1}^l x_i^*, \\ p^* (\sum_{k=1}^m y_k^* + b) = p^* \sum_{i=1}^l x_i^*. \end{cases} \quad (4)$$

By solving model (4), we can obtain the value of the vector p^* , which determines the vector of competitive prices. Let us consider the implementation of the model on the example of optimizing the purchase of two goods by three market participants with the following characteristics:

- participant 1 has an initial stock of the product (in conventional units) $b_1 = (1, 1)$, its utility function $U_1(x, y) = xy$;
- participant 2 has an initial stock of $b_2 = (1, 2)$, its utility function $U_2(x, y) = x^2y$;
- Participant 3 has an initial stock $b_3 = (2, 3)$ and a utility function $U_3(x, y) = xy^2$.

The utility functions are modelled using regression analysis based on the participants' preferences. The full stock is a vector: $b = b_1 + b_2 + b_3 = (4, 6)$. Let us find the demand function $F_i, i = 1, 2, 3$. Fix the price: $p = (p_1, p_2)$.

The first bidder maximizes the utility function $U_1(x, y) = xy$ under budget constraint $p_1x + p_2y = p_1 + p_2$.

Using the Lagrange multiplier method, we see the following:

$$\begin{aligned} L(x, \lambda) &= xy + \lambda(p_1 + p_2 - p_1x - p_2y) \rightarrow \max. \\ \frac{\partial L}{\partial x} &= y - \lambda p_1 = 0, \quad \frac{\partial L}{\partial y} = x - \lambda p_2 = 0, \\ \frac{\partial L}{\partial \lambda} &= p_1 + p_2 - p_1x - p_2y = 0. \end{aligned}$$

Therefore, at the maximum point, the following equality must be fulfilled:

$$p_1 + p_2 = 2\lambda p_1 p_2$$

By solving the obtained equations as a system, we obtain a vector of preferences for participant 1:

$$X_1(p) = \left(\frac{p_1 + p_2}{2p_1}, \frac{p_1 + p_2}{2p_2} \right).$$

For participant 2:

$$\begin{aligned} L(x, \lambda) &= x^2y + \lambda(p_1 + 2p_2 - p_1x - p_2y) \rightarrow \max. \\ \frac{\partial L}{\partial x} &= 2xy - \lambda p_1 = 0, \quad \frac{\partial L}{\partial y} = x^2 - \lambda p_2 = 0, \\ \frac{\partial L}{\partial \lambda} &= p_1 + p_2 - p_1x - p_2y = 0. \end{aligned}$$

For participant 2:

$$X_2(p) = \left(\frac{2p_1 + 2p_2}{3p_1}, \frac{p_1 + p_2}{3p_2} \right).$$

The same for participant 3:

$$X_3(p) = \left(\frac{2p_1 + 3p_2}{3p_1}, \frac{4p_1 + 6p_2}{3p_2} \right).$$

Therefore, the general model involves three participants:

$$X_1(p) + X_2(p) + X_3(p) = \left(\frac{11p_1 + 16p_2}{6p_1}, \frac{13p_1 + 20p_2}{6p_2} \right)$$

$$X_1(p) + X_2(p) + X_3(p) - b = \left(\frac{11p_1 + 16p_2}{6p_1} - 4, \frac{13p_1 + 20p_2}{6p_2} - 6 \right)$$

Obviously, the above equation becomes 0 when $13 \cdot p_1 - 16 \cdot p_2 = 0$. From the last equality, we can obtain the optimal ratio of competitive prices. Since we have considered a model example for the conditional values of product inventory and supply, we can formulate $p_1 + p_2 = 1$ for convenience. Then, the price vector is $p^* = \left(\frac{16}{29}; \frac{13}{29} \right) \approx (0,45; 0,55)$.

This value can be used to select the optimal ratio of suppliers' price offers. The suggested model allows us to consider the interests of both suppliers and consumers (customers) in the formation of the optimal ratio of prices for goods and can be used to determine the optimal supplier in the public procurement management process.

- take into account the available stocks of customers;
- model their functions and advantages, taking into account the criteria for selecting suppliers;
- model demand functions taking into account existing preferences;
- apply nonlinear optimization methods to determine the optimal values of the competitive price vector.

The model can be used to determine equilibrium competitive prices based on consumer utility functions, budgetary constraints, and suppliers' technological capabilities. The use of the model in the formation of starting prices will help avoid significant distortions in favour of one of the parties and achieve a compromise of interest. The methodology for calculating competitive prices is formalized and can be implemented in software to automate pricing processes to form a reasonable and balanced pricing policy in public procurement.

5. Conclusions. Thus, it can be concluded that the marketing strategy of public procurement management is an important element of an effective public procurement system that helps to optimize procurement processes, stimulate competition, and increase transparency and openness. The marketing strategy should be adapted to the specific conditions of the country and take into account the legislation, economic situation, and needs of customers and suppliers. The implementation of a marketing strategy requires a comprehensive approach, including strategy development and the implementation of marketing activities. The characteristic features of a marketing strategy are as follows:

- target orientation;
- clarity of wording;
- realism;
- flexibility
- adaptability.

The key functions of marketing strategy implementation include analysing customer needs, searching for suppliers, communicating with them, and ensuring the transparency of processes. Marketing analysis allows us to understand the needs of government customers and their priorities, which helps government customers more accurately determine what goods and services they need. Market research allows public customers to study the public procurement market and find the most competitive suppliers. The use of marketing tools contributes to ensuring transparency and openness of the procurement process, which allows for controlling the procurement process and preventing corruption. In general, the public procurement management process is an important tool that ensures the efficient use of public resources and the country's competitiveness.

Having carried out a study of the analysis of the functioning of the government procurement system in Ukraine and the world, it can be concluded that authorized authorities use various mechanisms to ensure the effectiveness of their organization. This applies, in particular, to the requirements for holding tenders, disclosure of information by their participants, establishing the responsibility of officials for compliance with procedures and rules established by law, etc. During the application of the specified model for determining a potential supplier for public procurement, various institutional factors are taken into account (legislative and legal norms of the activity of state customers, suppliers and final recipients of the relevant goods, works, services, cultural and ethical values, procedures and rules for making and implementing the necessary management decisions regarding the formation and placement of government orders, etc.). An effective government procurement system guarantees the stable development of both the economy and the country as a whole. In this context, the potential for future research lies mainly in expanding the study not only of the marketing strategy of government procurement but also of the country's investment attractiveness. The implementation of other international studies aimed at attracting investments can be useful, especially in the

framework of innovations, which can be key in planning future investments and strategies. Comparing innovative approaches can lead to the identification of opportunities for mutual cooperation between countries in the field of know-how through creating policies and initiatives to support innovation and economic competitiveness.

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Маркетингова стратегія як ефективний інструмент управління державними закупівлями

У статті досліджуються теоретико-методичні підходи до розробки маркетингової стратегії управління державними закупівлями в умовах євроінтеграційних процесів та реформування системи публічних закупівель в Україні. Обґрунтовується необхідність впровадження маркетингової стратегії як дієвого інструменту підвищення ефективності та прозорості закупівельної діяльності держави в сучасних економічних умовах. У роботі визначено концептуальні основи формування маркетингової стратегії управління держзакупівлями з метою раціонального використання бюджетних коштів та розвитку ефективної конкуренції. Окреслено пріоритетні функції маркетингової стратегії: комплексний маркетинговий аналіз потреб держзамовників; дослідження ринку з метою пошуку максимально конкурентоспроможних постачальників; забезпечення ефективних комунікацій між усіма учасниками процесу; впровадження дієвих маркетингових заходів щодо підвищення прозорості та відкритості процедур закупівель. Розроблено універсальний алгоритм поетапного формування маркетингової стратегії державних закупівель, що включає: аналіз поточного стану та виявлення недоліків існуючої системи; чітке визначення цільових орієнтирів, завдань і пріоритетних напрямків реформування; вибір оптимального маркетингового інструментарію; безпосередню реалізацію стратегії та постійний моніторинг результатів її виконання. Представлено класифікацію видів маркетингових стратегій у сфері держзакупівель за їх цільовою спрямованістю. З метою підвищення обґрунтованості та мінімізації ризиків при прийнятті рішень щодо вибору постачальників у роботі запропонована математична модель формування конкурентних цін на основі методів нелінійного програмування. Дана модель дозволяє врахувати інтереси всіх учасників процесу закупівель: визначити оптимальний вектор цін на товари/послуги виходячи з функцій корисності та переваг замовників, їх бюджетних обмежень, а також технологічних можливостей потенційних постачальників. Універсальність моделі полягає у можливості її застосування для будь-якої кількості учасників та товарних груп. Обґрунтовано, що впровадження дієвої маркетингової стратегії управління державними закупівлями сприятиме формуванню високоефективної, прозорої та конкурентної системи публічних закупівель, орієнтованої на раціональне використання бюджетних коштів, розвиток добросовісної конкуренції серед постачальників та мінімізацію ризиків корупційних проявів у цій сфері.

Ключові слова: маркетингова стратегія, державні закупівлі, бюджетні кошти, прозорість, ефективність, моделювання, конкуренція, функція корисності, ціноутворення.