

**RPTSS 2018**  
**International Conference on Research Paradigm**  
**Transformation in Social Sciences**

**METHODOLOGY IMPROVEMENTS IN ASSESSING STATE**  
**PROCUREMENT EFFECTIVENESS OF INNOVATIVE**  
**PRODUCTS**

G. I. Khokhlova (a)\*, N. V. Buintseva, (b) A. Yu. Khokhlova (c)

\*Corresponding author

(a) National Research Technical University, Irkutsk, Lermontov street, 83, Russia, [hgi08@yandex.ru](mailto:hgi08@yandex.ru), 89500669207

(b) Irkutsk National Research Technical University, Irkutsk, Lermontov street, 83, Russia, [buincev83@inbox.ru](mailto:buincev83@inbox.ru)

(c) Legal Department of the private professional educational institution «Russian-Asian Economic and Legal College», Irkutsk, Baikal street, 258 a, Russia, [Anastasia\\_lapova@mail.ru](mailto:Anastasia_lapova@mail.ru)

*Abstract*

The purpose of the article is to explore the role of state procurement in stimulating innovations and to identify the tools to improve the methodology of assessing the effectiveness of the system of state and municipal orders. The object of research is the system of public procurement. The subject of the research is the mechanism of procurement activity. The study's objectives are the following: 1) classification and analysis of the fundamental elements of the public procurement system; 2) identification of interaction of subjects (participants of the system of state and municipal orders) and objects in the mechanism of carrying out state and municipal purchases; 3) improvement of assessment methods to evaluate the efficiency of public procurement in Russia. The study proves the importance of public procurement in stimulating innovation through efficient use of budget funds at various levels of management. It presents the classification of the elements of a public procurement system, identifies the forms of interaction of actors (participants) and objects in the mechanism of public procurement (legal regulation, ways of placing orders and methods of contract price determination). Moreover, it investigates the methodological bases of the contract system functioning in Russia. Finally, the study proposes the improved methodology for assessing the public procurement effectiveness based on rating and integral methods of research.

© 2018 Published by Future Academy [www.FutureAcademy.org.UK](http://www.FutureAcademy.org.UK)

**Keywords:** State order, state procurement system, state procurement mechanism, procurement efficiency, competitive procurement.



## 1. Introduction

According to its economic content, state procurement reflects the role of budget financing in meeting the needs of economic entities (state and municipal customers) required to conduct their activities in accordance with national legislation.

The term "state order" comes from the English "procurement" meaning "purchase". In Russia, this concept has come into use only in recent years, and the economic literature defines it as "a set of practical methods and techniques to guarantee the customer's interests in the procurement through competitive tendering." In a broader sense, it secures the interests of the organizer-customer, that is, the state represented by various governmental and municipal bodies (Khokhlova, Kuznetsova, Kretova, & Tsaregorodtseva, 2017). Taking into account the negative tendencies of the world economy caused by the price situation on traditional export markets, by toughening the financing conditions on the world markets, and also by specific Russian factors and risks, the state order is a mutually advantageous financial instrument for the participants of this mechanism (Keynes, 1936). On the one hand, state procurement is an effective internal tool that contributes to the economy of budget funds, which is particularly important for the development of Russia, especially for its regions. For example, the total volume of purchases for 2016 amounted to 3.9 trillion roubles, with almost three quarters of purchases of Russian regional customers (Khokhlova & Okladnikova, 2014). On the other hand, this method of state support in comparison with other financial security instruments gives advantages for finance obtaining and long-term cooperation of economic entities and the state. It contributes to the development of national innovation systems and improves the quality of state regulation (Fedorova, Dudin, Ljasnikov, & Kuznecov, 2013). The compliance with the requirements of the legislation and procedures of state procurement provides a positive reputation for business representatives and helps to increase the investments in innovation activity, which is important in the conditions of economic instability (Drucker, 1986; Drucker, 2002).

## 2. Problem Statement

The effectiveness of the procurement financing mechanism is a powerful instrument for bolstering the economic growth and innovative development of the state, minimizing risks in the conditions of global instability (Nelson, 1993).

At present, Russia has a very small share on the world markets of knowledge-intensive products. It is less than 1%, and in the civil sphere, it is about 0.1%. This is comparable to the positions of countries such as the Czech Republic, Norway and Portugal. The cost of science per one investigator is 35 thousand dollars, which is 5-6 times less than in Germany, the USA, or South Korea. The fact that the material and technical base of the Russian science is considerably outdated worsens this situation (Development of the Russian Federation until 2020, <http://www.inovasyon.org/pdf/Russia.Targeted.Prog.for.R&D.2014-2020.pdf>)

At the same time, the overall macroeconomic performance and the indicators of investment activity demonstrate unfavourable conditions for financial resources formation in the Russian economy. Despite the positive trends of the Bank of Russia's key rate change in 2016 (10%) compared to 2014 (17%), there is still a low rate of economy monetization that is 41.4% (in economically developed countries it is up to

75%. The share of long-term financial investments in the total amount of financial investments is only 11.3% (Nechaev, Ognev, & Antipina, 2017).

### **3. Research Questions**

In Russia, the issues of state order financing and the contract system have the major and strategic importance for development of modern ways of production and innovative development and for the maintenance of economic growth (Statistical Bulletin of the Bank of Russia, 2017).

Despite the global and domestic scientific and practical experience in the field of public financing, there is a need to finalize the methodology of assessing the effectiveness of public procurement of innovative products in Russia in order to optimize the use of budget funds.

### **4. Purpose of the Study**

The purpose of the research is to systematize and to analyse the elements of the modern system of public procurement (the interactions of participants involved in the system of state and municipal orders, the legal regulation, the methods of determining the price of orders and the methods of their placement). The next stage of the study is to improve the methodology of efficiency assessment to carry out the public purchases at the level of constituent entities of the Russian Federation. We propose considering the system of public procurement from the point of view of an actor-object approach, emphasizing the economic relations and the mechanism of public procurement. The set of objects (legal regulation, principles, and methods of procurement) making the relations between the actors (participants) functioning in practice, forms the mechanism of carrying out and financing the state procurement. In this course, the interrelations between the actors (participants) are economic relations with regard to the implementation of state (municipal) purchases. The practice of state procurement integrates the basic principles and procedures enshrined in the UNCITRAL Model Law on Procurement, which the United Nations for the development of national legislation on public procurement recommended. In 2011, there were the amendments to the UNCITRAL Model Law on Public Procurement, which dealt with electronic tendering (Nechaev, Antipina, & Prokopyeva, 2014). Public procurement is out of the WTO rules regulation (para. 8a, art. III of the General Agreement on Tariffs and Trade (GATT), art. XIII of the General Agreement on Trade in Services (GATS). However, the agreement on government procurement of the WTO with a limited number of participants (Plurilateral Trade Agreements) is mandatory for participating countries and is applicable to some types of procurement, the list of which was determined during the negotiations (Antipin, Pakholchenko, & Tauryanskaya, 2017). In this case, the countries are responsible for determining the categories of goods and services. That helps the participating countries to protect their national producers. The analysis of the domestic legislation and the basic normative-legal acts has shown that the system of the state and municipal orders is dynamically developing. For example, the compulsory system of economic relations establishment and compulsory state order (1991) were cancelled.

Then, the modern mechanism of the contract system has been introduced, which regulates: general principles and requirements for procurement of goods, works, and services provided by economic entities, having more than 50% of state-owned authorized capital, as well as budgetary organizations at the expense of grants and funds from income-generating activities, etc.; all stages of procurement procedures for state

and municipal customers, suppliers, infrastructure organizations servicing the procurement system; clear delegation of authority between the participants of the procurement process (public authorities and officials); establishment of a unified information system; establishment of a contract service and/or appointment of a contract manager (customers are obliged to form a contract service if an annual procurement volume exceeds 100 million roubles); electronic document circulation in the system of public procurement regardless of the method used for determining suppliers; unified system of registers applied for procurement process and data accumulation concerning unscrupulous suppliers.

In view of the above-mentioned, the mechanism of state order financing in Russia implies a variety of procurement methods. The choice of how to place orders depends on: the national legislation on state and municipal procurement; the complexity and variety of goods, works and services purchased; the cost and volume of goods, works and services purchased.

The procurement monitoring assesses the effectiveness of procurement by means of procurement audits and procurement control, and they find some procurement unsubstantiated. It is relevant that in the course of implementing the procurement mechanism, the procurement justification depends on the procurement plans and schedules, indicating: the initial (maximum) price of the contract; the methods of determining the supplier and additional requirements to the participants of the purchase (Official site of Rosstat, 2017).

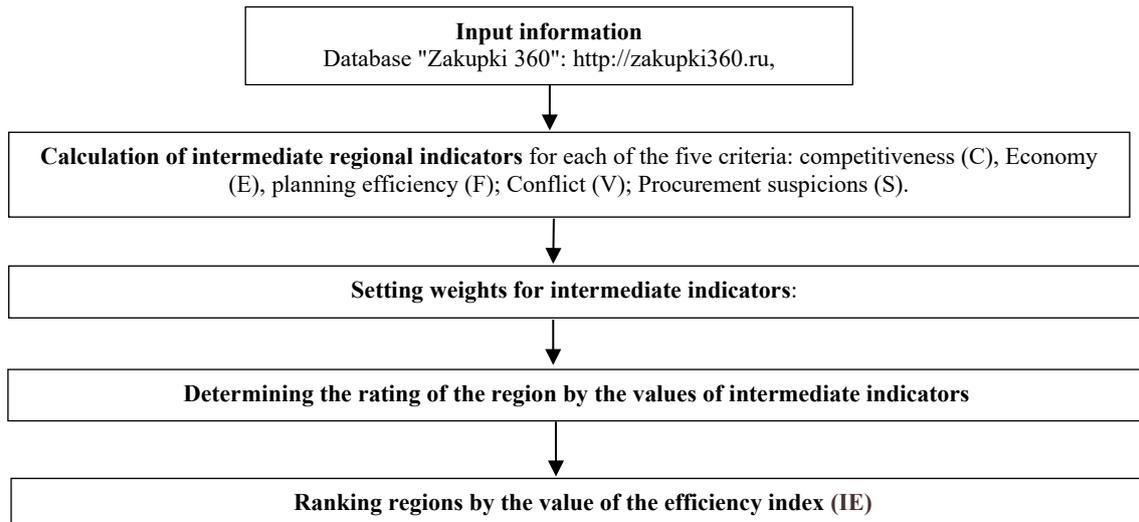
## 5. Research Methods

To analyse the state purchases efficiency on the regional level, the rating method and integral methods of research, and also expert estimations are used. To make up the rating system, the following criteria of evaluation are used: competitiveness, economy, efficiency of planning, conflict and suspicion of purchases. A set of specific indicators determines the value of each criterion (Bibarsov, Kretova, & Popova, 2017).

As a result of the study, focused on the mechanism of procurement procedures and methodological approaches to the evaluation of its effectiveness, the existing methodology has been modernized. In particular, it has introduced the indicators characterizing the use of contracts for the purchase of innovative products, which are included in the calculation of the value of competitiveness (C) of the actor.

The highest value of the intermediate indicator corresponds to the higher place of the region in the rating. All intermediate indicators are included in the calculation of the IE efficiency index with a certain weight:

$$IE = 0.5 \times C + 0.08 \times E + 0.12 \times F + 0.2 \times V + 0.1 \times S.$$



**Figure 01.** The model of ranking score for evaluation of the effectiveness of state and municipal

The total weight of all five indicators is equal to 1.

The calculation formulas of intermediate indicators are applicable for all criteria on the same principle and represent the expression of the kind:

$$\theta_k = \sum_{i=1}^n x_{ik} \cdot V_i,$$

$\theta_k$  – the value of the calculated criterion for the region "k";

$n$  – the number of indicators included in the calculation of the intermediate indicator;

$x_{ik}$  – the score for the position in the rating of "i" indicator for the region "k" in the range of 1 to 85;

$V_i$  – the weight factor for the indicator "i".

The values of weights at the indicators ( $V_i$ ) are defined by the method of expert estimations.

In our opinion, in calculating the value of competitiveness (C), it is necessary to introduce additional indicators C10 and C11. The formula for calculating the indicator will be as follows:

$$C = C1 \times 0.175 + C2 \times 0.1 + C3 \times 0.175 + C4 \times 0.325 + C5 \times 0.1 + C6 \times 0.025 + C7 \times 0.05 + C8 \times 0.015 + C9 \times 0.015 + C10 \times 0.01 + C11 \times 0.01,$$

C1 – the share (in value) of purchases resulted from competitive methods;

C2 – the share (by quantity) of purchases resulted from competitive methods;

C3 – the share of the average number of participants per purchase (lot) resulted from the competitive method (based on all submitted applications);

C4 – the share of the average number of participants per purchase (lot) resulted from the competitive method (among the admitted applications);

C5 – the percentage of purchases won by suppliers from the top 100, 18 of the total number of competitive purchases made;

C6 – the average number of participants per one purchase (lot) resulted from the competitive method (based on all submitted applications) and made for small and medium businesses and social-oriented actors;

C7 – the average number of participants per one purchase (lot) resulted from the competitive method (among the admitted applications) and made for small and medium businesses and social-oriented actors;

C8 – the share (by value) of contracts resulted from competitive purchases for small and medium businesses and social-oriented actors;

C9 – the share (by number) of contracts resulted from competitive purchases for small and medium-sized businesses and socially oriented actors;

C10 – the share (by value) of contracts resulted from competitive purchases of innovative products;

C11 – the share (by number) of contracts resulted from competitive purchases of innovative products. .

## 6. Findings

Summarizing the results of the research focused on state and municipal procurement, reveals the following main tendencies: the greatest volume of competition of the conducted purchases was made in Moscow, St. Petersburg, and also in the Moscow region; at the same time the real competition was observed in 61% of purchasing procedures of competitive type; the highest level of economy was recorded by the results of procurement in 2016 in the Republic of Crimea (23.4%), Sevastopol (21,9%) and Lipetsk Oblast (Region) (21.3%); more than 40% of all contracts (in 65 regions of Russia) are made with the suppliers included in the top-100 based on the number of the contracts, and the average value of one day of the contract in 2016 for all regional purchases was 12 000 roubles; according to the level of efficiency of public procurement, the leaders are Yaroslavl Region, Kemerovo Region and Tyumenskaya Oblast (Region) (from the 1st to the 3d positions), which, by the results of the rating of 2015, occupied the 2nd, 35th and 25th positions respectively. But generally there is a decrease in the percentage of budget savings in 2017 compared to 2016, about 2 times (from 5.6% to 2, 2%); at the same time there is an increase in the share of public procurement (from 0.49% to 0.6% of the total amount), which caused the complaints.

The results of the practical approbation of the existing methodology show that the criterion of competitiveness has the most influence on the overall assessment of the region's efficiency in the area of procurement and the position of the region in the ranking, as it has indicators, characterizing the competitive environment, participation of representatives of large, medium and small businesses. To assess the effectiveness of procurement activities and the stimulation of innovation more fully, the calculation of the integral value of competitiveness (C) should be supplemented by indicators that characterize the share (by value and quantity) of contracts, based on the results of competitive purchases of innovative products and production of innovative products (respectively C10 and C11) (Freeman, 1987).

## 7. Conclusion

The results of the study will make use of recommendations to improve the analytical procedures in the light of innovation, as well as to improve the quality of management of state procurement procedures in order: to ensure open and equal conditions for tenders selected on the basis of quality standards (no discrimination); to implement the procurement procedures rules, to provide economic entities with reliable, complete, timely and accessible information (the principle of transparency); to implement the principle of equity, which implies giving all participants equal opportunities to ensure the efficient use of budget funds and the acquisition of quality goods, works and services; to ensure the principle of efficiency, which means minimizing the costs of suppliers, contractors and performers in the expeditious execution of procurement

procedures; to ensure the accountability of expenditure of budget funds, which means the necessity of mandatory reporting of customers and control by authorized bodies.

## References

- Antipin, D.A., Pakholchenko, V.M., & Taurianskaya, O.V., (2017). Banking supervision: current trends and prospects. *Advances in Economics, Business and Management Research. Proceedings of the International Conference on Trends of Technologies and Innovations in Economic and Social Studies*, 38, 1-6.
- Bibarsov, K.R., Kretova, N.V., & Popova, E.Yu. (2017). Improvement of Innovative Forms as a Tool for Effective Development of Small Business. *European Research Studies Journal*, XX, 2 (Part B), p. 98-110.
- Development of the Russian Federation until 2020 (approved by Directive No. 2227-r of December 8, 2011, issued by the Government of the Russian Federation) (2013). Retrieved from <http://www.inovasyon.org/pdf/Russia.Targeted.Prog.for.R&D.2014-2020.pdf>
- Drucker, P.F. (1986). *Innovation and entrepreneurship: Practice and principles*. London: Pan Books.
- Drucker, P. (2002). *Management challenges for the 21st century*. London: United Kingdom Harper Collins Publishers Ltd.
- Fedorova I.J.U., Dudin M.N., Ljasnikov N.V., & Kuznecov A.V. (2013). Innovative Transformation and Transformational Potential of Socio-Economic Systems. *Middle. East Journal of Scientific Research*, 17, 10, 1434-1437.
- Freeman, C. (1987). *Technology Policy and Economic Performance: Lessons from Japan*. London: Pinter.
- Keynes, J.M. (1936). *The General Theory of Employment, Interest and Money*. Retrieved from <http://cas2.umkc.edu/economics/people/facultypages/kregel/courses/econ645/winter2011/generaltheory.pdf>
- Khokhlova, G.I., & Okladnikova, D.R. (2014). Classification of factors as grounds for analysis of innovative-investment activity of small and medium business Middle. *East Journal of Scientific Research*, 20, 8, 900-904.
- Khokhlova, G.I., Kuznetsova, I.A., Kretova, N.V., & Tsaregorodtseva E.Y. (2017). Improvement of financial instruments of innovative activities` stimulation. *Advances in Economics, Business and Management Research. Proceeding of the International Conference on Trends of Technologies and Innovations in Economic and Social Studies*, 38, 304-311.
- Nechaev, A.S., Ognev, D.V., & Antipina, O.V. (2017). Innovation risks: challenges and prospects. *Advances in Economics, Business and Management Research*, 38. *Proceeding of the International Conference on Trends of Technologies and Innovations in Economic and Social Studies*. 38, 7-12. doi:10.2991/ttiess-17.2017.2
- Nechaev, A.S., Antipina, O.V., & Prokopyeva, A.V. (2014). *The risk of innovation activities in enterprises. Life Science Journal (LSJ)*. USA, 11, 11, 574-575.
- Nelson, R.R. (ed) (1993). *National Innovation Systems. A Comparative Analysis*, New York, Oxford University Press.
- Official site of Rosstat* (2017). Retrieved from [http://www.gks.ru/free\\_doc/new\\_site/business/nauka/innov-n1.xls](http://www.gks.ru/free_doc/new_site/business/nauka/innov-n1.xls).