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Applying modelling
in the process of anti-
corruption expertise of
legal regulation of public
procurement

Andrei Ivanov



>> **FICHA TÉCNICA****APPLYING MODELLING IN THE PROCESS OF ANTI-CORRUPTION
EXPERTISE OF LEGAL REGULATION OF PUBLIC PROCUREMENT**

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>> RESUMO

Este trabalho demonstra a necessidade de mudar a abordagem ao conhecimento sobre o combate à corrupção. A análise de oportunidades para comportamento mala fide (de “má-fé”) de agentes e avaliação de incentivos para o seu comportamento bona fide (de “boa-fé”) devem ser complementadas por uma avaliação da qualidade da regulação proposta pelo principal (avaliação de impacto ex ante).

No trabalho foram introduzidos dois algoritmos diferentes de combate à corrupção: o primeiro é aplicado ao novo instrumento de regulação e o segundo que tem sido usado, estando disponível alguma informação sobre as reações do agente. Em ambos os casos, o conhecimento surge da modelização das preferências da sociedade e da sua comparação com as preferências do principal, as quais são modelizadas com base na regulação proposta. É sublinhada a relação entre o algoritmo de conhecimento sobre combate à corrupção proposto e a tipologia dos modelos principal-agente, com base nas suposições de bona/mala fides do principal e do agente.

>> ABSTRACT

The paper proves a necessity of changing the approach to anti-corruption expertise. The analysis of opportunities for mala fide behavior of agents and evaluation of incentives for their bona fide behavior must be supplemented by assessment of quality of regulation proposed by the principal (ex ante impact assessment).

In the paper two different algorithms of anti-corruption expertise have been introduced: first one is applied to the new regulation tool, second one – to the regulation tool which has been used and some information on agent's reaction is available. In both cases the expertise starts from the modelling of society's preferences and comparing them with the principal's preferences which are modelled on the base of proposed regulation. The relationship between proposed algorithm of anti-corruption expertise and the typology of principal-agent models, based on the assumptions of bona /mala fides of the Principal and the Agent, is underlined.

>> 1. INTRODUCTION

In the hierarchy of legal acts, the effect of which is aimed at combating corruption, the highest level has the United Nations Convention against Corruption, adopted by the resolution 58/4 of the General Assembly on 31 October 2003

Article 5, paragraph 3 of this document lays in the base of the international legal framework for anti-corruption expertise: «Each State Party shall endeavour to periodically evaluate relevant legal instruments and administrative measures with a view to determining their adequacy to prevent and fight corruption».

At the level of Russian Federation (hereafter “RF”), the cornerstone documents regulating the conduct of this kind of expertise are the Federal Law #172-FL “On anti-corruption expertise of legal acts and draft normative legal acts” (hereafter “172-FL”) and the Decree of the Government of the RF Nº 96 with the same title, which approved the rules and techniques of anti-corruption expertise.

In accordance with Federal law, anti-corruption expertise of normative legal acts and draft normative legal acts carried out “...in order to identify factors, which favor the corrupt behavior of agents, and their subsequent elimination. These factors are the provisions of normative acts (draft laws and regulations), which establish for the law enforcer unreasonably wide margin of appreciation, or the possibility of unjustified use of exceptions to the general rule, as well as provisions dealing with uncertain, intractable, and (or) the onerous requirements for citizens and organizations and those thus creating conditions for corruption” (Article 1).

From the above article it follows that the subject of anti-corruption expertise is the identification and elimination of the regulation's provisions, which opens up opportunities for corruption or, more broadly, *mala fide* behavior of law enforcer. Thus, the problem of assessing the quality of the proposed regulation, in the sense of enabling the agents the possibility to choose the best alternative for society currently remains outside the scope of anti-corruption expertise.

It should be noted that the expertise can be aimed at the separate tools introduced by the regulatory act as well at their totality up to the regulatory act in general.

It seems reasonable to separate the anti-corruption expertise of regulatory tools, which have been introduced into the practice for the first time, from the anti-corruption expertise of tools with the accumulated legal prac-

tice in the framework of the country's regulation system. For example, the anti-corruption expertise of amendments to existing legal acts related to the second case.

In the Russian Federation the “Law on Placement of Orders for Supplying Goods, Executing Works, and Providing Services for State and Municipal Needs” (Federal Law #94-FL, hereafter “PPL-1”), which came into force on 01.01.2006, had introduced auction as the primary procurement method. PPL-1 had originally introduced auction in the face-to-face outcry form, and then, faced with a massive cases of *mala fides* of suppliers, replaced them with e-auctions. Since by the time of enforcement of the law, Principal had no information about the response to the regulation tool from the agents (contracting authorities), in this case we are talking about anti-corruption expertise of the first type.

By the time of enforcement of the new Russian PPL – Federal Law “On the contract system in the procurement of goods, works and services for state and municipal needs” (Federal Law #44-FL, hereafter “PPL-2”), which came into force on 01.01.2014, there were more than three years of applying of e-auctions and there was a lot of information about their performance. Hence, in this case we are talking about anti-corruption expertise of the second type.

In the both cases we propose a modified approach to anti-corruption expertise that complements traditional anti-corruption expertise, aimed at identifying opportunities for corrupt behavior and evaluating of incentives for *bona fides* of agents, with the preliminary stage, at which society's preferences are modeled and are compared to the principal's preferences generated by the proposed regulation.

>> 2. METHODS, MODELS, ALGORITHMMS

As a rule, as a methodological framework for modeling corrupt behavior is used the “Principal - Agent” model: “Pathologies in the agency/principal relation are at the heart of the corrupt transaction” (Rose-Ackerman, 2008, 330).

This model was developed for describing processes in the private sector and understands the agency relationship as “a contract under which one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent” (Jensen and Meckling, 1976, 308). Accordingly, the principal faces the task of shaping a system of incentives for the agent, in which agent's preference relation, defined by a corresponding set of alternatives, coincides with preferences of the principal.

In turn, the starting point for modeling public sector processes is the assumption that to meet public needs, the political elite (principal) delegates some decision-making authority to government agencies or other public entities (agents). In contrast to the private sector, the use of the “Principal - Agent” model in the public sector has its own specifics related to the fact that in a democracy, the political elite, in turn, is an agent, elected for the achievement of social objectives. Thus, the ideal preferences in this case is not the preferences of political elites but society's preferences and we have some reasons to denote society as a basic principal.

Assume that the basic principal, the principal, and the agent (hereafter, in the figures, BP, P, and A, respectively) equally identify a set of corresponding alternatives \tilde{A} , and on this set their preference orders \succeq_{BP} , \succeq_P , \succeq_A , respectively – are defined.

Definition 1 (Ivanov, 2014). We call the the principal (agent) *mala fide* (MF) if its preference order is different from the basic principal's preference order: $\succeq_P \neq \succeq_{BP}$ ($\succeq_A \neq \succeq_{BP}$), and *bona fide* (BF) if otherwise.

Consider the problem of anti-corruption expertise of a legal act, enacting a new regulatory tool for which there is no law enforcement practice. Suppose that a set of possible outcomes of the application of the tool in question can be formalized and that the preferences of basic principal and principal are defined on this set (hereafter, respectively, BPPO and PPO, and reserve APO for agent's preference order).

It appears that in this case the first step of anti-corruption expertise is to determine the *bona fides* of the principal. Indeed, if the principal is *bona fide*, the vesting of agent with principal's preference order will inevitably

lead to the achievement of public objectives, and otherwise, will not allow of achieving them.

To determine the *bona fides* of the principal is necessary to put forward hypotheses about the properties of society's preferences, build a model of BPPO then, based on the proposed regulation, to model the PPO, and then find out whether they match or differ.

In the first case, tradition anti-corruption expertise aimed at the identification and elimination of corruptive factors is further applied, and in the second one it is necessary preliminary to develop appropriate amendments to the legal document in question.

Definition 2. Anti-corruption expertise, which includes in its algorithm the identification of the principal's *bona fides*, is called the extended anti-corruption expertise.

Let us depict the algorithm of extended anti-corruption expertise of a new regulatory tool (in Fig.1 TACE – traditional anti-corruption expertise).

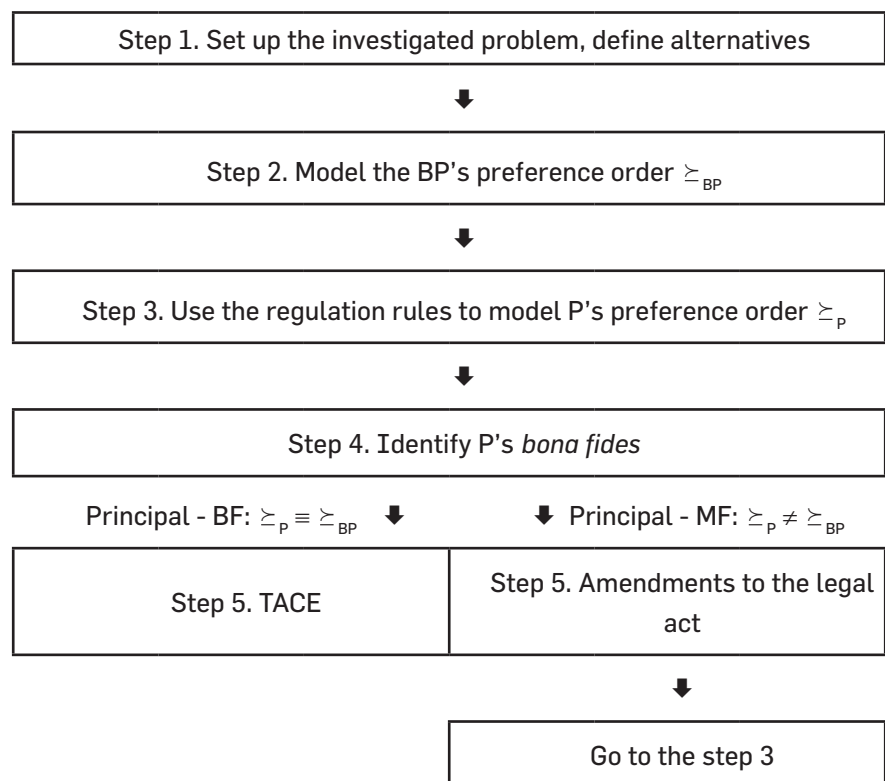


Fig. 1. The algorithm of extended anti-corruption expertise of a new regulatory tool

Let us move on to the consideration of anti-corruption expertise of a legal act, that applies regulatory tool for which there is an enforcement

practice. The enforcement practice can supply us information for modelling of APO and algorithm of extended anti-corruption expertise becomes more complicated than the algorithm shown in Fig. 1.

Suppose that, following the steps 1-4 of the above stated algorithm, we have revealed the *bona fides* of the principal. Let us move to the identification of the agency problem's existence.

If the accumulated legal practice does not give us reasons to consider agents as *mala fide*, we obtain the model that is trivial in terms of the agency relationships ($\succeq_p \equiv \succeq_A \equiv \succeq_{BP}$). Let us call this model the conflict-free one: agent has the opportunity to choose and is prone to selection of the optimal alternative for society.

When the assumptions for conflict-free model are true the need for traditional anti-corruption expertise disappears, and researchers tend to focus on the study of the effectiveness of public contracts, trying to identify the most completely sources of agency costs and assess their value [Laffont, Tirole, 1993], [Moszoro, Spiller, 2012].

Assume that the law enforcement practice allows us to identify the existence of agents who violate the rules and, possibly, policies of regulation: $\succeq_A \neq \succeq_p$. They are obviously *mala fide*: $\succeq_A \neq \succeq_p \equiv \succeq_{BP}$. Models based on the assumption of principal's *bona fides* and agent's *mala fides* ($\succeq_p \equiv \succeq_{BP}$, $\succeq_A \neq \succeq_{BP}$) are called models of bureaucratic [Jain, 2011, p. 3] or administrative (in the terminology of World Bank) corruption.

Models of bureaucratic corruption are most frequently used in the study of public procurement issues. Actually, in this case the agent is endowed with a discretionary power and a certain budget to carry out procurement. In this situation two of three necessary conditions of corrupt behavior arise [Aidt, 2003, p. F633]: the relevant public official possesses the authority to design or administer regulations and policies in a discretionary manner and this discretionary power can allow him the extraction of existing rents or creation of rents that can be extracted.

In the pioneer research based on the assumptions of principal's *bona fides* and agent's *mala fides* Rose-Ackerman examined the situation in which a private individual attempts to corrupt a bureaucrat in order to obtain a government contract [Rose-Ackerman, 1975, p. 187]. In this case agent is considered as a potential "bribee," and the actual level of corruption is determined by how well the institutions governing the (corruptible) bureaucracy are designed [Aidt, 2003, p. F635].

Modern studies of bureaucratic corruption develop ideas Rose-Ackerman's paper and are usually associated with the modeling agency costs and / or analysis of the specificity of the asymmetry of information

between involved parties (eg, [Lambert-Mogiliansky, Majumdar and Radner, 2007], [Coppier, Piga, 2006]).

Thus, if the bureaucratic corruption has identified, modeling the behavior of agents is made to satisfy the aims of traditional anti-corruption expertise: to identify and eliminate opportunities for corrupt behavior and to assess and strengthen the incentives for agent's *bona fides*.

In the bureaucratic corruption model implicitly assumes that the political elite (*bona fide* principal) has developed regulatory rules relying solely on the interests of its principal, society. At the same time, consideration of the political elite as an agent hired by the society, naturally leads us to perception politicians as "...maximizing agents who pursue their own selfish interest rather than as benevolent agents seeking to maximize aggregate welfare" [Grossman and Helpman, 1994, p. 48]. Corruption, directly related to activities of the political elite, was called "grand corruption" [Rose-Ackerman, 1996], unlike petty corruption, which is treated in the bureaucratic model.

Trying to develop the typology of corruption models, A. Jain offers to consider examples of corruptive behavior in between bureaucratic corruption and grand corruption as two extreme forms, limiting the scale of corruption activity [Jain, 2011, p. 3].

In the extended anti-corruption expertise of a legal act, involving the use of regulatory tool for which there is certain enforcement practice, improvement the regulation rules, and, possibly, regulatory policy are heavily dependent on the specific agent behavior.

If we reject the assumption of principal's *bona fides* ($\succeq_p \neq \succeq_{BP}$) and continue to consider *mala fide* agent ($\succeq_A \neq \succeq_{BP}$), then, depending on whether the agent is prone to break the existing regulation ($\succeq_A \neq \succeq_p$) or not ($\succeq_A \equiv \succeq_p$), we must distinguish between two types of models.

In the "queue model" [Lui, 1985] and the "auction model" [Beck and Maher, 1986] corrupt bureaucrats try to correct pre existing government failures. In these models agent's actions violate accepted rules of regulation that allows us to identify differences in preferences of the principal and agent ($\succeq_A \neq \succeq_p$) and, correspondingly, the agency problem existence.

These models based on assumptions of *mala fides* of both: a principal and an agent form the class of "efficient corruption" models ($\succeq_p \neq \succeq_{BP}, \succeq_A \neq \succeq_{BP}, \succeq_A \neq \succeq_p$) [Aidt, 2003, p. F633].

As an example of this kind of corruption J. Nye views corruption of some factory managers in the Soviet Union, which gave some flexibility to the centralized planning system [Nye, 1967, p. 420], and Laffont and Tirole – some instructions of USA Department of Defense [Laffont, Tirole, 1993, p. 476].

It seems that in the case of an efficient corruption the modeling of agent's behavior must be primarily aim at to identify and eliminate the sources of regulation's inefficiency and, accordingly, to the conversion of efficient corruption into the bureaucratic one. In this case, the result of the anti-corruption expertise is a changing of both: regulatory legal acts and policy.

Nevertheless, the principal can create a system of incentives for the agent, which will warn the latter against taking any action in opposition to existing institutions. This kind of model ($\gamma_P \neq \gamma_{BP}, \gamma_A \equiv \gamma_P$) can be called a model of totalitarian corruption.

S. Huntington however believed that from the standpoint of interests of society's economic development, effective corruption is even preferable: "In terms of economic growth, the only thing worse than a society with a rigid, over-centralized, dishonest bureaucracy is one with a rigid, over-centralized and honest bureaucracy" [Huntington, 1968, p. 386].

Thus, in the case of a totalitarian corruption anti-corruption expertise should be reduced to a regulatory impact assessment and the identifying of what underlies the ineffective regulation: vertical corruption [Jain, 2001, p. 73-74] or bounded rationality [Simon, 1961, p. xxiv]. It should result in a changing of regulatory policy and practices of regulation, especially in terms of the expansion of discretionary powers and responsibilities of agents.

It is easy to note that linear approach of Jain, which limits the scale of corruption activity by the bureaucratic corruption and grand corruption [Jain, 2011, p. 3], is not quite satisfied for constructing the typology of models of corruptive behavior due to, in particular, different forms of grand corruption.

Let us try to construct the typology of models of corruptive behavior, based on combination of assumptions about *bona/mala fides* of principal and agent. We combine the above models in the following table.

Table 1 - The main directions of corrupt behavior modelling

Principal	Agent	Model Title
<i>Bona Fide</i> $\gamma_P = \gamma_{BP}$	<i>Mala Fide</i> $\gamma_A \neq \gamma_{BP}$	Bureaucratic corruption $\gamma_A \neq \gamma_P$
<i>Mala Fide</i> $\gamma_P \neq \gamma_{BP}$	<i>Mala Fide</i> $\gamma_A \neq \gamma_{BP}$	Efficient Corruption $\gamma_A \neq \gamma_P$
		Totalitarian Corruption $\gamma_A = \gamma_P$

Principal	Agent	Model Title
<i>Bona Fide</i> $\gamma_P = \gamma_{BP}$	<i>Bona Fide</i> $\gamma_A = \gamma_{BP}$	Conflict-free model $\gamma_A = \gamma_P$

Analyzing Table 1, we see that is currently being implemented four directions of modeling corrupt behavior of five theoretically possible. We have: BM (principal is *bona fide*, agent is *mala fide*), M_1M_2 ($M_1 \neq M_2$), M_1M_2 ($M_1 = M_2$) and BB.

Let us consider the model MB, based on the assumptions of principal's *mala fides* and agent's *bona fides* ($\gamma_P \neq \gamma_{BP}$, $\gamma_A = \gamma_{BP}$) [Ivanov, 2014].

Definition 3. *Bona fide* agent's actions violating the rules of regulation created by the *mala fide* principal will be called quasi-corruptive behavior.

Definition 4. The model, which examines *bona fide* agent's behavior in institutional conditions created by *mala fide* principal, will be called quasi-corruption model.

It follows from the definition 3 that in conditions of quasi-corruption agents have discretionary power broader than in totalitarian case. Therefore analysis of the applying of this power may enable us to determine the main directions of the changing of regulatory policy and, respectively, regulation rules

The introduction of the model of quasi-corruption allows us to complete the construction of a typology of models of corrupt behavior, which is based on the methodology of the agency relationships.

Table 2 - The typology of models of corrupt behavior, based on the methodology of the agency relationships

Principal	Agent	Model Title
<i>Bona Fide</i> $\gamma_P = \gamma_{BP}$	<i>Bona Fide</i> $\gamma_A = \gamma_{BP}$	Conflict-free model $\gamma_A = \gamma_P$
	<i>Mala Fide</i> $\gamma_A \neq \gamma_{BP}$	Bureaucratic corruption $\gamma_A \neq \gamma_P$
<i>Mala Fide</i> $\gamma_P \neq \gamma_{BP}$	<i>Mala Fide</i> $\gamma_A \neq \gamma_{BP}$	Efficient Corruption $\gamma_A \neq \gamma_P$
		Totalitarian Corruption $\gamma_A = \gamma_P$
	<i>Bona Fide</i> $\gamma_A = \gamma_{BP}$	Quasi-Corruption $\gamma_A \neq \gamma_P$

Having finished the construction typology of models of corrupt behavior we can develop the algorithm of anti-corruption expertise of a legal act, which involves the applying of regulatory tool with accumulated enforcement practice (Fig. 2).

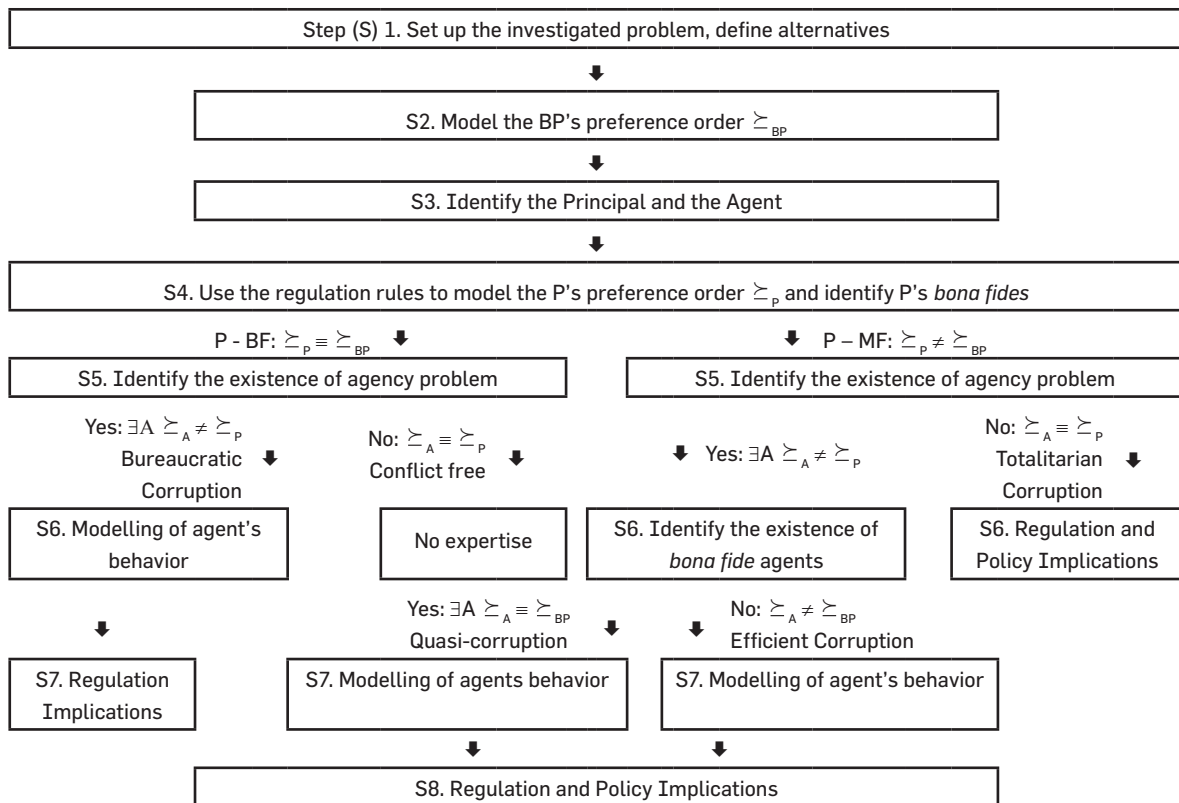


Fig. 2. The algorithm of extended anti-corruption expertise of a new regulatory tool with accumulated enforcement practice

>> 3. CONCLUDING REMARKS

The paper proves a necessity of changing the approach to anti-corruption expertise. The analysis of opportunities for *mala fide* behavior of agents and evaluation of incentives for their *bona fide* behavior must be supplemented by assessment of quality of regulation proposed by the principal (*ex ante* impact assessment).

In the paper two different algorithms of anti-corruption expertise have been introduced: first one is applied to the new regulation tool (Fig. 1), second one – to the regulation tool which has been used and some information on agent's reaction is available (Fig. 2). In both cases the expertise starts from the modelling of society's preferences and comparing them with the principal's preferences generated by the proposed regulation.

The paper refines the typology of models of corrupt behavior (Table 2), based on the methodology of the agency relationships, proposed in [Ivanov, 2014] and clarifies interdependence between type of corruption and aims of agent's behavior modelling in the process of extended anti-corruption expertise.

The implementation of main steps of the algorithm of extended anti-corruption expertise of a new regulatory tool with accumulated enforcement practice (Fig. 2) can be found in the [Ibid] where quasi-corruption model was introduced and applied to the examining of case of using English auctions in RF public procurement. In that paper following steps of the algorithm in question were realized:

- the basic principal's preference order was modelled (step 2),
- given assumptions the *mala fides* of principal was proved (step 4),
- the incentives of *bona fide* agents were examined (part of step 7),
and amendments to the regulatory policy (avoiding of applying auctions to the purchasing of differentiated goods) and rules (introducing Dutch auction, increasing of price thresholds and some others) were proposed (step 8).

And implementation of the algorithm at whole for the different issued of public procurement (the scoring rules, the level of price thresholds and so on) at the agenda.

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