

Essential issues of developing an independent commercial offers scoring technique

There are enough suppliers commercial bids scoring methods currently.

The most common methods are the following three methods used in Russia and the EU.

The first method is a method presented in "Methodological recommendations for scoring of tender bids and suppliers qualification participating in the orders placing contests for goods supply for state needs" according to the Ministry of Economy of the Russian Federation letter dated June 2, 2000 №AS-751/4-605 (hereinafter - the methodology of the Ministry of Economy of the Russian Federation).

The second method is the method presented in the «Practical Guide to contract procedures for European Union external actions » developed on the basis of EU and EDF Financial Regulations, hereinafter - the methodology of the EDF EU.

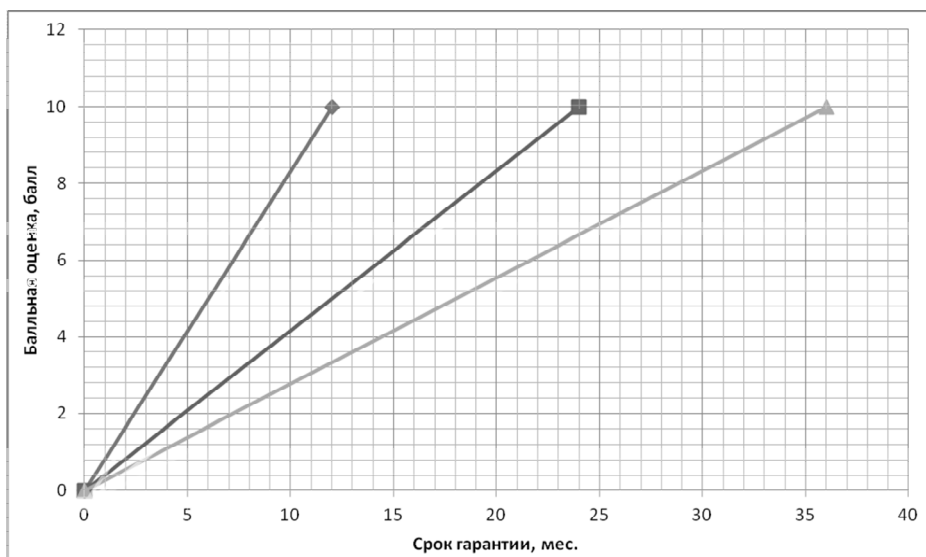
The third method is the advanced method presented in the *European Applied Sciences Scientific Journal*, #2, 2013.

These methods do not give the correct result *in case* if the supplier refuses to sign the contract when procurement procedure is conducting using the scoring method of commercial bids evaluation. This means the possibility of a different scores distribution in case if participant bid is not taken into account during the scoring. Different scores distribution is also possible *in case* of suppliers fraud when the supplier involved in the procurement procedure using two companies. The first one is the primary company and the second one is the false. The false company does not aim the contract obtaining. It is used to get more scoring by the main company and/or to get lower scoring by the other participants.

These three methods analysis shows the following feature. Each method gives 10 points to the best natural indicator of the commercial offers, i.e. it depends on the initial commercial bid indicators during the procurement procedure conducting.

It is possible to introduce *the angle of scores distribution curve*. This is the index that is determined by the coordinates of the best commercial bids points indicator.

It can be demonstrated in the following graph. This graph shows three dependencies for three different procurement procedures. The best natural indicators for «The Warranty Period» criterion are 12, 24 and 36 months. We can observe a different angle of each dependency.



The main reason of these three methods inadequately scoring in the situations described above is the best indicator coordinates and the angle of scores distribution curve change. In this case scores are changing correspondingly resulting in an uneven change of the other participants score.

The solution is to fix the coordinates of the best indicator point and to fix the angle of scores distribution curve correspondingly.

Thus it is possible to work out an **independent method of commercial bids scoring**. This method algorithm is following:

1. At the marketing research and documentation preparation stage procurement manager determines the best possible necessary products supply conditions from currently existing at the market. It is also necessary to determine each criterion weighting coefficients calculated based on the cost method. The weighting coefficients sum is equal to 1 and the indicators for such conditions are some kind of standard for necessary products supply. There are possible situations when the supplier will offer more favorable conditions which were not covered by the marketing research.

2. According to the developed evaluation criteria for the best possible supply conditions we fix 100 points score.

3. Commercial offers evaluation is determined in proportion to the participant natural indicator percentage change relatively to the best possible indicator which was defined during marketing research. The score may exceed 100 points and it can also be negative.

4. Received scores are summed considering weighting coefficients for each criterion.

5. After the final score finding the participants are ranked in descending order.

Let's consider this method using the following example.

During the equipment purchasing the best possible supply conditions and scoring criteria for commercial bids evaluation were identified as follows:

1. «The Price» criterion. The best price according to marketing research results is 100 USD, the weighting coefficient is 0.7;

2. «The Warranty Period» criterion. The best warranty period according to marketing research results is 36 months, the weighting coefficient is 0.2;

3. «The Delivery Term» criterion. The best delivery term according to marketing research results is 8 weeks, the weighting coefficient is 0.1.

The following information is providing in the procurement invitation and in the documents for procurement procedures:

1. Participant bid with 100 USD price is estimated as 100 points according to «The Price» criterion.

2. Participant bid with 36 months warranty period is estimated as 100 points according to «The Warranty Period» criterion.

3. Participant bid with 8 weeks delivery term is estimated as 100 points according to «The Delivery Term» criterion.

Suppliers bids with the other commercial bids indicators according to these criteria are estimated by scoring. This score is calculated in proportion to the participant bids change concerning the above indicators.

Let's say we have participants bids with the following indicators.

Indicator	Company A	Company B	Company C	Company D
Price, USD	50	100	200	300
Warranty Period, month	48	36	24	12
Delivery Term, week	2	8	16	32

Let's calculate the participants score. Thus we should calculate this proportional percentage change in order to be positive for the cases of providing more favorable conditions in comparison to standard conditions and in order to be negative for the cases of providing less favorable conditions. At the same time we have to calculate this percentage change whichever the greater natural indicator value of commercial bid is the best or not.

Let's calculate the proportional percentage change and all companies c:

$$C_{A,Pr} = \frac{100 - 50}{100} \cdot 100\% = 50\% , S_{A,Pr} = 100 + 50 = 150$$

$$C_{B,Pr} = \frac{100 - 100}{100} \cdot 100\% = 0\% , S_{B,Pr} = 100 + 0 = 100$$

$$C_{C,Pr} = \frac{100 - 200}{100} \cdot 100\% = -100\% , S_{C,Pr} = 100 - 100 = 0$$

$$C_{D,Pr} = \frac{100 - 300}{100} \cdot 100\% = -200\% , S_{D,Pr} = 100 - 200 = -100$$

Let's calculate the same score according to «The Warranty Period»:

$$C_{A,War} = \frac{48 - 36}{36} \cdot 100\% = 33,3\% , S_{A,War} = 100 + 33,3 = 133,3$$

$$C_{B,War} = \frac{36-36}{36} \cdot 100\% = 0\% , S_{B,War} = 100 + 0 = 100$$

$$C_{C,War} = \frac{24-36}{36} \cdot 100\% = -33,3\% , S_{C,War} = 100 - 33,3 = 66,7$$

$$C_{D,War} = \frac{12-36}{36} \cdot 100\% = -66,7\% , S_{D,War} = 100 - 66,7 = 33,3$$

Let's calculate the same score according to «The Delivery Term»:

$$C_{A,Del} = \frac{8-2}{8} \cdot 100\% = 75\% , S_{A,Del} = 100 + 75 = 175$$

$$C_{B,Del} = \frac{8-8}{8} \cdot 100\% = 0\% , S_{B,Del} = 100 + 0 = 100$$

$$C_{C,Del} = \frac{8-16}{8} \cdot 100\% = -100\% , S_{C,Del} = 100 - 100 = 0$$

$$C_{D,Del} = \frac{8-32}{8} \cdot 100\% = -200\% , S_{D,Del} = 100 - 200 = -100$$

Thus let's tabulate the results.

Scores	Company A	Company B	Company C	Company D
The score according to «The Price» criterion	150	100	0	-100
The score according to «The Warranty Period» criterion	133,3	100	66,7	33,3
The score according to «The Delivery Term» criterion	175	100	0	-100

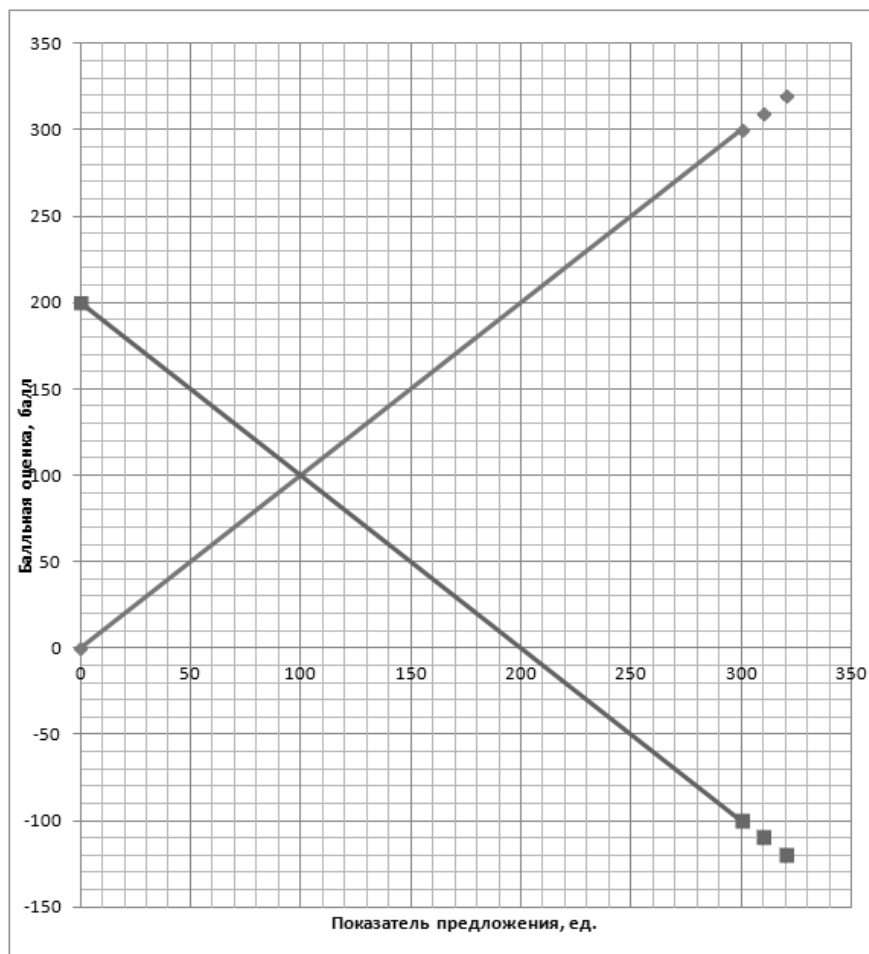
The scores according to weighting coefficients are follows.

The scores according to weighting coefficients	Company A	Company B	Company C	Company D
The score according to «The Price» criterion	105	70	0	-70
The score according to «The Warranty Period» criterion	26,66	20	13,34	6,66
The score according to «The Delivery Term» criterion	17,5	10	0	-10
Score sum	149,16	100	13,34	-73,34
Rating	1	2	3	4

This example data were selected to specifically show all possible variants of scoring. However such situation is practically impossible in practice because the markets are competitive and marketing research determine the best possible

necessary products supply conditions currently existing at the market. This ultimately leads to a slight spread of the participants bids indicators as well as less favorable indicators presence in participants bids. As the result calculated score is less than 100 points.

Common dependencies characterizing this method are as follows.



Herewith the dependence starting from the beginning of coordinates determines the case when the greatest natural indicator of the suppliers bids is the best. And decreasing dependence defines a case where the greatest natural indicator of the suppliers bids is the worst.

If selected supplier refuses to sign the contract during the procurement procedure using scoring method that means the possibility of a different scores distribution when commercial bid of the selected participant is not taken into account. During rescoring proposed method with absolute precision determines the winner. This is the participant who took second place at the initial assessment.

This is because any participant exception will not affect the other suppliers score in any form since angle of scores curve is fixed and scoring determines the same scores for the participants as at the original calculation.

There is the case of suppliers fraud when the supplier involved in the procurement procedure using two companies. The first one is the primary company and the second one is the false. The false company does not aim the contract

obtaining. It is used to get more scoring by the main company and/or to get lower scoring by the other participants. The proposed method does not allow to make such fraud because regardless of the particular suppliers unrealistic high indicators presence the other suppliers will get their scores based on comparison with standard indicators identified in marketing research conducted prior to the procurement procedure.

Thus this method can be considered as one of the most perfect because it combines a number of positive characteristics:

- linear proportionality of commercial bids natural indicators scoring;
- the simplest mathematical apparatus;
- the immutability of bids scoring calculation when excluding and/or adding participants;
- impossibility of any suppliers fraud.