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***EBRD GPA TC FACILITY – SUPPORT IN ACCESSION TO THE
AGREEMENT ON GOVERNMENT PROCUREMENT OF THE WORLD
TRADE ORGANIZATION.***

***BELARUS: PUBLIC PROCUREMENT REPORTING MODULE FOR
THE NATIONAL EPROCUREMENT SYSTEM/S***

Deliverable 4

*Annexe 3: The methodology for calculating the key performance
indicators used in the web public procurement reporting module.*

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1 Document objectives

This document has been prepared under contract number C38651/327/45390, dated 27 March 2018 between the European Bank for Reconstruction and Development and the consultant – DATA PATH ANALYTICS LLC, Kyiv, Ukraine.

This paper aims to present key performance indicators for the web public procurement reporting module which evaluate public procurement processes in the Republic of Belarus and to introduce the methodology for calculating these indicators based on the [OCDS](#) data.

The provided information for each indicator is as follows:

1. Name;
2. Short description;
3. Visualisations and web pages where used;
4. Calculating formula based on OCDS data.

2 Data sources used for calculating the KPIs

The Belarus open public procurement data which have been used for calculating key performance indicators can be accessible by the following links¹:

1. <http://212.98.171.10:8110/belarus/releases> - public procurement tendering and contracting data (tendering API).

Moreover, APIs with catalogue information were developed:

1. <http://212.98.171.10:8110/belarus/catalogs/okrb> - Belarus common procurement vocabulary (Belarus Classification of Products by Economic Activities). Catalogue data source: icetrade database;
2. <http://212.98.171.10:8110/belarus/catalogs/finance-sources> – finance sources catalogue. Catalogue data source: icetrade database;
3. <http://212.98.171.10:8110/belarus/catalogs/sme> – small and medium-sized enterprises catalogue. Catalogue data source: icetrade database;
4. <http://212.98.171.10:8110/belarus/catalogs/currency-rates> – exchange rates data catalogue. Catalogue data source: <http://www.nbrb.by/APIHelp/ExRates>

Cost indicators are calculated considered with Belarus national currency. International currency values were converted to Belarusian rubles using exchange rates data catalogue.

¹ Links data is relevant on December 2018. These links may be modified by the system administrator later.

3 Mathematical conventions used in formulas

A combination of [JSONPath](#) and SQL syntax has been used to introduce formulas. A list of key functions is presented below:

- **count** — analogue of **count** in SQL
- **avg** — analogue of **avg** in SQL
- **count_unique** — analogue of **count distinct** in SQL
- **sum** — analogue of **sum** in SQL
- **where** — analogue of **where** in SQL
- **exists** — operation indicates that any data item is present
- **<>** — operator “not equal”
- **and, or** — logical conjunction and disjunction
- **not** — logical negation
- **in** — analogue of **in** in SQL
- **+, -, =** — addition, subtraction, and equality operators
- **{KPI name}** — indicator value (applicable when one indicator is used to calculate another indicator as a variable)
- **incremental_count** – beginning from zero increment count

4 Indicators

4.1 Number of procedures

- Name: Number of procedures;
- Short description: the total number of procedures which have been placed on the electronic public procurement portal;
- Visualisations and web pages where used: “Analytics for 7 days” (Current indicators), “Number of published notices” (Statistics);
- Formula:

```
count($.tender.id)
```

4.2 Number of lots

- Name: Number of lots;
- Short description: the total number of lots which have been placed on the electronic public procurement portal;
- Visualisations and web pages where used: “Number of lots for SMEs” (Statistics), “Share of lots for SMEs” (Statistics);
- Formula:

```
count($.tender.lots[].id)
```

4.3 Number of contracts

- Name: Number of contracts;
- Short description: This indicator presents the number of public procurement contracts which have been placed on the electronic public procurement portal;
- Visualisations and web pages where used: “Analytics for 7 days” (Current indicators), “Number of the published contracts” (Current indicators), “Popular goods due to number of contracts” (Statistics), “Contracts by competitiveness” (Statistics), Bubble chart (International participation);
- Formula:

```
count($.contracts[].id)
```

4.4 Number of contracting authorities

- Name: Number of contracting authorities;
- Short description: this indicator presents the number of organizations which have at least one signed contract for purchasing goods (services/works) placed on the electronic public procurement portal;
- Visualisations and web pages where used: “Active contracting authorities” (Statistics), “Active suppliers and contracting authorities” (Statistics), “Geography of contracting authorities” (Statistics), “Regionality of contracting authorities” (Statistics);
- Formula:

```
count_unique($.parties[].id) where 'buyer' in $.parties[].roles[]
```

4.5 Number of procuring entities

- Name: Number of procuring entities;
- Short description: this indicator presents the number of organizations which have placed a procedure on the public procurement portal at least once;
- Visualisations and web pages where used: Number of contracting authorities with publications (Current indicators);
- Formula:

```
count_unique($.parties[].id) where 'procuring entity' in $.parties[].roles[]
```

4.6 Number of suppliers

- Name: Number of suppliers;

- Short description: this indicator presents the number of organizations which have at least one signed contract for providing goods (services/works) placed on the electronic public procurement portal;
- Visualisations and web pages where used: “Number of suppliers having signed contracts” (Current indicators), “Active suppliers and contracting authorities” (Statistics), “Geography of suppliers” (Statistics), “Suppliers by types of residency” (Statistics), “Geography of suppliers” (International participation), Bubble chart (International participation), “Geography of international suppliers by residency of contracting authorities” (International participation);
- Formula:

```
count_unique($.parties[].id) where 'supplier' in $.parties[].roles[]
```

4.7 Number of successfully concluded lots

- Name: Number of successfully concluded lots;
- Short description: this indicator presents the number of awarded lots;
- Visualisations and web pages where used: “Number of successfully concluded lots” (Current indicators);
- Formula:

```
{Number of lots} where $.tender.lots[].status = 'complete'
```

4.8 Number of contract positions

- Name: Number of contract positions;
- Short description: this indicator presents the number of positions in a contract which have been placed on the electronic public procurement portal;
- Visualisations and web pages where used: “Contracts by goods and services/works” (Statistics);
- Formula:

```
count($.contracts[].items[].id)
```

4.9 Number of enquires

- Name: Number of enquires;
- Short description: this indicator presents the number of potential bidders enquires about procedures placed on the electronic public procurement portal;
- Visualisations and web pages where used: “Requests for clarification for the last seven days” (Current indicators);

- Formula:

count(\$.tender.enquiries[].id)

4.10 Share of contracts financed by the budget

- Name: Share of contracts financed by budget;
- Short description: this indicator presents the share of public procurement contracts supported by funding from the state budget among all contracts which have been placed on the electronic public procurement portal;
- Visualisations and web pages where used: “Analytics for 7 days” (Current indicators);
- Formula:

{Number of contracts} where \$.contracts[].funds = ‘budget’
/
{Number of contracts}

4.11 The average number of contracts per contracting authority

- Name: Average number of contracts per contracting authority;
- Short description: this indicator presents the average number of contracts signed by contracting authorities;
- Visualisations and web pages where used: “Active contracting authorities” (Statistics);
- Formula:

{Number of contracts}
/
{Number of contracting authorities}

4.12 The average number of lots for a procedure

- Name: Average number of lots for a procedure;
- Short description: this indicator presents the average number of lots for the one procedure which has been placed on the electronic public procurement portal;
- Visualisations and web pages where used: “Average number of lots in a procedure” (Current indicators);
- Formula:

{Number of lots}
/
{Number of procedures}

4.13 Share of competitive procedures

- Name: Share of competitive procedures;

- Short description: this indicator presents the share of all procedures except the single source ones among all procedures which have been placed on the electronic public procurement portal;
- Visualisations and web pages where used: “Analytics for 7 days” (Current indicators);
- Formula:

$$\frac{\{\text{Number of contracts}\} \text{ where } \$.\text{tender}.\text{procurementMethodDetails} \neq \text{'singleSource'}}{\{\text{Number of contracts}\}}$$

4.14 The average number of unique subject matters in a procedure

- Name: Average number of unique subject matters in a procedure;
- Short description: this indicator presents the average number of unique subject matters for the one procedure which has been placed on the electronic public procurement portal;
- Visualisations and web pages where used: “Average number of unique subject matters in a procedure” (Current indicators);
- Formula:

$$\frac{\text{count}(\$.\text{tender}.\text{items}.\text{classification}.\text{id})}{\{\text{Number of procedures}\} \text{ where exists}(\$.\text{tender}.\text{items}[].\text{classification}.\text{id})}$$

4.15 Share of successfully concluded lots

- Name: Share of successfully concluded lots;
- Short description: this indicator presents the number of awarded lots among all lots which have been placed on the electronic public procurement portal;
- Visualisations and web pages where used: “Percentage of successfully concluded lots” (Statistics);
- Formula:

$$\frac{\{\text{Number of successfully concluded lots}\}}{\{\text{Number of lots}\}}$$

4.16 The average number of contracts per supplier

- Name: Average number of contracts per supplier;
- Short description: this indicator presents the average number of contracts signed by suppliers;

- Visualisations and web pages where used: “Average number of signed contracts for a supplier” (Statistics);
- Formula:

$$\frac{\{\text{Number of contracts}\}}{\{\text{Number of suppliers}\}}$$

4.17 The average number of enquiries for a procedure

- Name: Average number of enquiries for a procedure;
- Short description: this indicator presents the average number of enquiries which have been submitted by potential bidders for the one procedure which have been placed on the electronic public procurement portal (it is only calculated for procedures with at least one enquiry submitted by potential suppliers);
- Visualisations and web pages where used: “Average number of requests for clarification for a procedure” (Statistics);
- Formula:

$$\frac{\{\text{Number of enquiries}\}}{\{\text{Number of procedures where exists}(\$.tender.enquiries[].id)\}}$$

4.18 The average number of unique subject matters for a supplier

- Name: Average number of unique subject matters for a supplier;
- Short description: this indicator presents the average number of unique subject matters for the one supplier in the contracts which have been placed on the electronic public procurement portal;
- Visualisations and web pages where used: “Average number of different subject matters” (Statistics);
- Formula:

$$\frac{\text{count_unique} (\$.tender.items.classification.id)}{\{\text{Number of procedures where exists}(\$.tender.items[].classification.id)\}}$$

4.19 The average number of procedures published per month

- Name: Average number of procedures published per month;
- Short description: this indicator presents the average number of procedures which were placed on the electronic public procurement portal during a month;

- Visualisations and web pages where used: “Average number of published notices per month” (Statistics);
- Formula:

<p>{Number of procedures} in 365 days</p> <p>/</p> <p>12</p>
--

4.20 Contracts value, BYN

- Name: Contracts value, BYN;
- Short description: this indicator presents the total value of contracts which have been placed on the electronic public procurement portal;
- Visualisations and web pages where used: “Analytics for 7 days” (Current indicators), “Contracts by competitiveness” (Current indicators), “TOP-10 Single Source Procurement Procedures” (Current indicators), “Total number of contracts' value (million BYN)” (Statistics), “Value of SMEs' contracts” (Statistics), “Successfully completed procedures by types” (Statistics), “TOP-5 Contracting authorities in competitive procedures” (Statistics), “TOP-10 non-resident countries of suppliers” (International participation), “Distribution of non-resident suppliers” (International participation), Bubble chart (International participation);
- Formula:

<p>sum(\$.contracts[].value.amount)</p>
--

4.21 Contracts positions value, BYN

- Name: Contracts positions value, BYN;
- Short description: this indicator presents the total value of positions of the contracts which have been placed on the electronic public procurement portal;
- Visualisations and web pages where used: “The largest purchases made” (Current indicators), “TOP-5 Subject matters” (Statistics), “TOP-10 Subject matters” (What do people buy in your region?), “TOP-5 Subject matters” (International participation), World map (Country of origin of the purchases), “TOP-5 Subject matters produced abroad” (Country of origin of the purchases);
- Formula:

<p>sum(\$.contracts[].items[].value.amount)</p>
--

4.22 Share of competitive contracts by contracts value, BYN

- Name: Share of competitive contracts by contracts value;

- Short description: this indicator presents the share of all contracts value except the single source procedures contracts value among the total value of contracts which have been placed on the electronic public procurement portal;
- Visualisations and web pages where used: “Contracts by competitiveness” (Current indicators);
- Formula:

```
{Contracts value} where $.tender.procurementMethodDetails <> 'singleSource'  
/  
{Contracts value}
```

4.23 Share of competitive contracts by contracts positions value, BYN

- Name: Share of competitive contracts by contracts positions value;
- Short description: this indicator presents the share of all contracts positions value except the single source procedures contracts positions value among the total value of contracts positions which have been placed on the electronic public procurement portal;
- Visualisations and web pages where used: “Procurement methods” (What do people buy in your region?);
- Formula:

```
sum($.contracts[].items[].value.amount) where $.tender.procurementMethodDetails <>  
'singleSource'  
/  
{Contracts positions value}
```

4.24 Share of noncompetitive contracts by contracts positions value, BYN

- Name: Share of noncompetitive contracts by contracts positions value;
- Short description: this indicator presents the share of single source procedures positions value among all procedures which have been placed on the electronic public procurement portal;
- Visualisations and web pages where used: “Procurement methods” (What do people buy in your region?);
- Formula:

```
sum($.contracts[].items[].value.amount) where $.tender.procurementMethodDetails <>  
'singleSource'  
/  
{Contracts positions value}
```

4.25 Share of contracts positions value (with product from Belarus)

- Name: Share of contracts positions value (with product from Belarus);
- Short description: this indicator presents the share of produced in the Republic of Belarus positions of the contracts which have been placed on the electronic public procurement portal among all contracts positions;
- Visualisations and web pages where used: “% purchased subject matters originate from Belarus” (Country of origin of the purchases);
- Formula:

```
sum($.contracts[].items[].value.amount) where $.contracts[].items[].productCountry =  
'Беларусь'  
/  
{Contracts positions value}
```

4.26 Lots value, BYN

- Name: Lots value, BYN;
- Short description: this indicator presents the value of the procedures subjects of procurement;
- Visualisations and web pages where used: “Procedure of the week” (Current indicators);
- Formula:

```
sum($.tender.lots[].value.amount)
```

4.27 Share of contracts financed by budget by contracts value

- Name: Share of contracts financed by budget by contracts value;
- Short description: this indicator presents the share of contracts value from contracts supported by funding from the state budget among the total value of the contracts which have been placed on the electronic public procurement portal;
- Visualisations and web pages where used: “Percentage of contracts for budget funds” (Statistics);
- Formula:

```
{Contracts value} where $.contracts[].funds = 'budget'  
/  
{Contracts value}
```

4.28 Average contracts value per contracting authority

- Name: Average contracts value per contracting authority;

- Short description: this indicator presents the average value of contracts signed by contracting authorities;
- Visualisations and web pages where used: “Active contracting authorities” (Statistics);
- Formula:

$$\frac{\{\text{Contracts value}\}}{\{\text{Number of contracting authorities}\}}$$

4.29 Share of TOP-10% suppliers' contracts

- Name: Share of TOP-10% suppliers' contracts;
- Short description: this indicator presents the share of contracts which have been placed on the electronic public procurement portal and signed with TOP-10% suppliers by contracts value among all contracts which have been placed on the electronic public procurement portal;
- Visualisations and web pages where used: “Number of signed contracts per 10% of suppliers” (Statistics);
- Formula:

```
{Number of contracts} where($.parties[].id where 'supplier' in $.parties[].roles[]) in
TOP10%SuppliersList
where ($.parties[].address.countryName <> 'Беларусь' and 'supplier' in $.parties[].roles[])
/
{Number of contracts}

TOP10%SuppliersList:
SELECT ($.parties[].id where 'supplier' in $.parties[].roles[]) as supplier
GROUP BY supplier
ORDER {Contracts value} DESC
LIMIT count_unique(supplier)/10
```

4.30 Share of TOP-10% suppliers' contracts value

- Name: Share of TOP-10% suppliers' contracts value;
- Short description: this indicator presents the share of contracts value from contracts which have been placed on the electronic public procurement portal and signed with TOP-10% suppliers by contracts value among all contracts which have been placed on the electronic public procurement portal;

- Visualisations and web pages where used: “Total contracts' value accounts for 10% of suppliers” (Statistics);
- Formula:

```
{Contracts value} where ($parties[id where 'supplier' in $.parties.roles]) in  
TOP10%SuppliersList  
/  
{Contracts value}  
  
TOP10%SuppliersList:  
SELECT ($parties[id where 'supplier' in $.parties.roles]) as supplier  
GROUP BY supplier  
ORDER {Contracts value} DESC  
LIMIT count_unique(supplier)/10
```