

# Methodology for evaluating the exploitation of distributed data providers

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Appointment: Obtaining information on the state of hardware and software for information systems

### Calculation method

Name of the indicator group	Weight coefficient	
K1 - Reliability of work for hardware and software	0.3	
K2 - Relevance of information resources	0.3	
K3 - Normative accessibility	0.05	
K4 - User information service level	0.25	
K5 - Ensuring rights to access to	0.05	
K6- Feedback from users	0.05	

**Note**: Further weighting factors can be clarified, for example, to reduce the contribution of the indicator Efficiency and increase the contribution of the indicator Information services

The rating of the center ( $\mathbf{P}_{center}$ ) is calculated by calculating the ratios of the values of each indicator (except  $K_4$ ) to the average value of this indicator for the system as a whole, taking into account the weight of each group of indicators:

$$P_{center} = 0.3 - ... + 0.3 - ... + 0.05 - ... + 0.25 * K_4 + 0.05 - ... - 0.05 - ... , K_{6a}$$

$$K_{1av} \quad K_{2av} \quad K_{3av} \quad K_{5av} \quad K_{6av}$$

**Reliability of data provider - DP**  $(K_1)$  is a relative value characterizing the percentage of time when DP software and other components of the center were operational.

The total working time of the DP  $(T_0)$  for the reporting period is the time in hours. The time spent on maintenance work  $(T_{prof})$ , in hours is excluded from the calculations.

Idle time  $(T_P)$ , in hours) is the period of time when DP or other component was not available:

$$K_1 = \frac{T_o - T_{prof}}{T_o}$$

The relevance of information resources is the compliance of the commitments of the DP with respect to updating the information resources declared in the resource description (attribute "Update frequency of the data source") to the actual date and time of the update in the system. Estimated daily.

The relevance indicator  $(\mathbf{K}_2)$  is the proportion of the number of actual resources  $(\mathbf{N}_a)$  in the total number of resources  $(\mathbf{N})$ , calculated as the average ratio of the number of regularly updated resources to the total number of updated resources for the reporting period according to the formula:

$$\mathbf{K}_2 = ----$$
,

**Regulatory accessibility of resources** is established by the owners of information in the Procedures and regulations of the centers of the system by assigning information to one of the categories: open, information provided under the contract - an agreement with the owner of the information. Regulatory accessibility ( $\mathbf{K}_3$ ) is estimated as the number of resources with "free information" ( $\mathbf{N}_d$ ) to the total number of resources:

$$K_3 = ----$$
,

The user service level indicator is equal to the sum of its components:

$$K_4 = K_{41} + K_{42} + K_{43} + K_{44} + K_{45}$$

The number of visits of all categories of users to the resources of DP ( $K_{proc41}$ ):

$$\mathbf{K}_{41} = \mathbf{K}_{\text{proc}41} / \mathbf{K}_{\text{av}41}$$

The number of downloads of information resources for viewing ( $K_{proc42}$ ) calculated on the basis of the number of requests to the DB tables from the IR centers:

$$K_{42} = K_{proc42} / K_{av42}$$

The number of downloads of geoservices prepared according to the information on DP ( $K_{proc43}$ ) is determined based on the number of links to the system:

$$K_{43} = K_{\text{proc}43} / K_{\text{av}43}$$

The number of deliveries of resources by subscription ( $K_{proc44}$ ) for the selected period:

$$K_{44} = K_{proc44} / K_{av44}$$

The demand of personal pages under the authority of the center - the number of visits ( $K_{proc45}$ ):

$$K_{45} = K_{proc45} / K_{proc armav}$$

Ensuring rights to access resources:

- The total number of registered requests for a specified period for obtaining permission to access resources ( $\mathbf{K}_{\text{gen5}}$ ).
- The number of outstanding requests  $(\mathbf{K}_{no5})$  for access to resources for a specified period.

The indicator of the rights to access resources is equal to:

$$K_{5} = \frac{K_{no5}}{K_{gen5}}$$

The number of requests received via the Feedback component with the number of:

- established facts of inadequate information services ( $\mathbf{F}_{nn6}$ ) comments on information resources;
- reasonable comments regarding the actions (inaction) of the administrators of the system nodes ( $\mathbf{F}_{oz6}$ ).

The performance indicator  $(K_6)$  - the proportion of resources for which a negative user assessment was expressed, in the total number of resources is calculated by the formula:

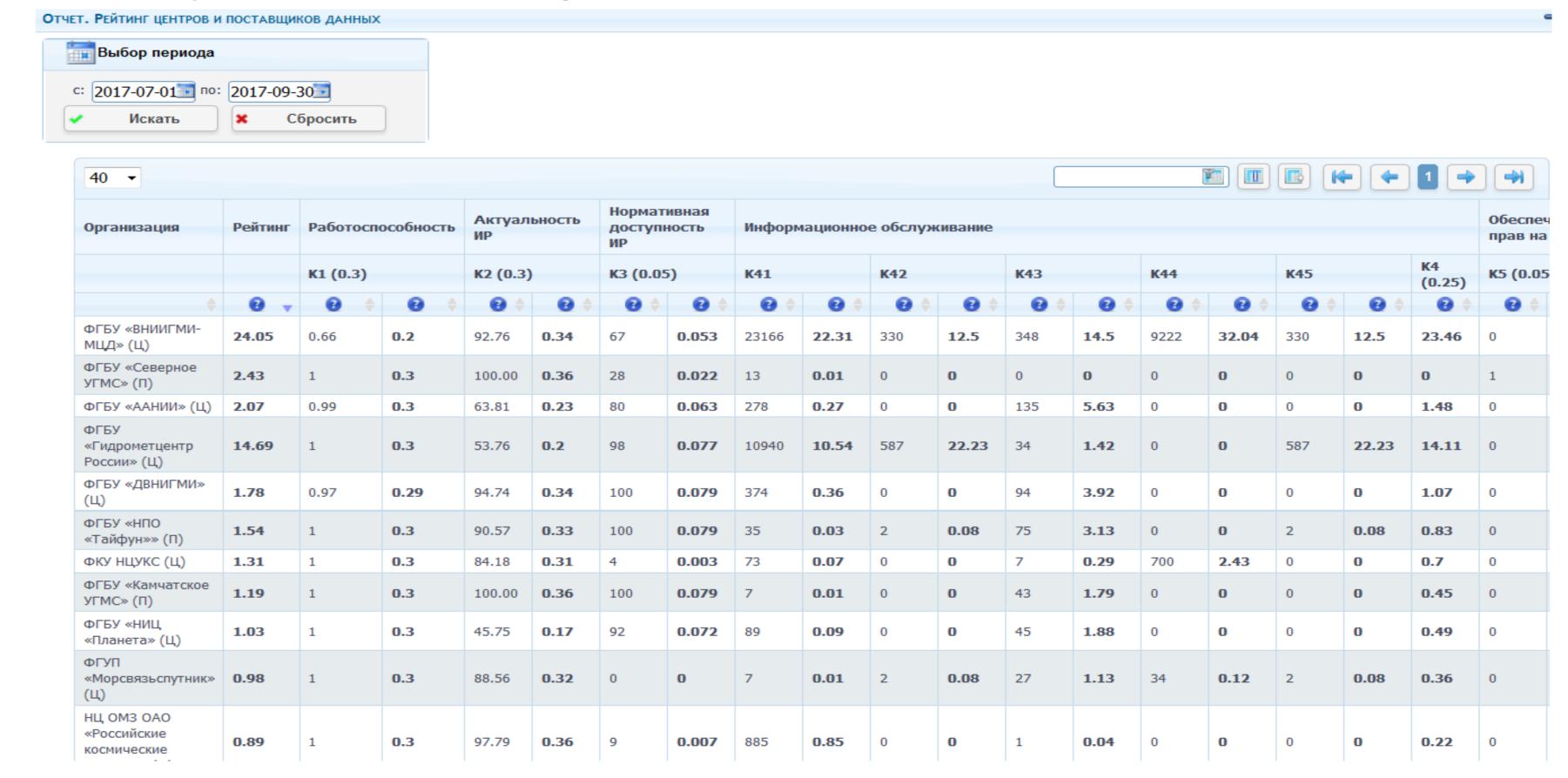
$$\mathbf{K_6} = \mathbf{F_{nn6}}$$

$$\mathbf{F_{nn6}}$$

*Note*: All indicators are obtained automatically.

## Automated reporting by the example of the ESIMO

#### System centres rating



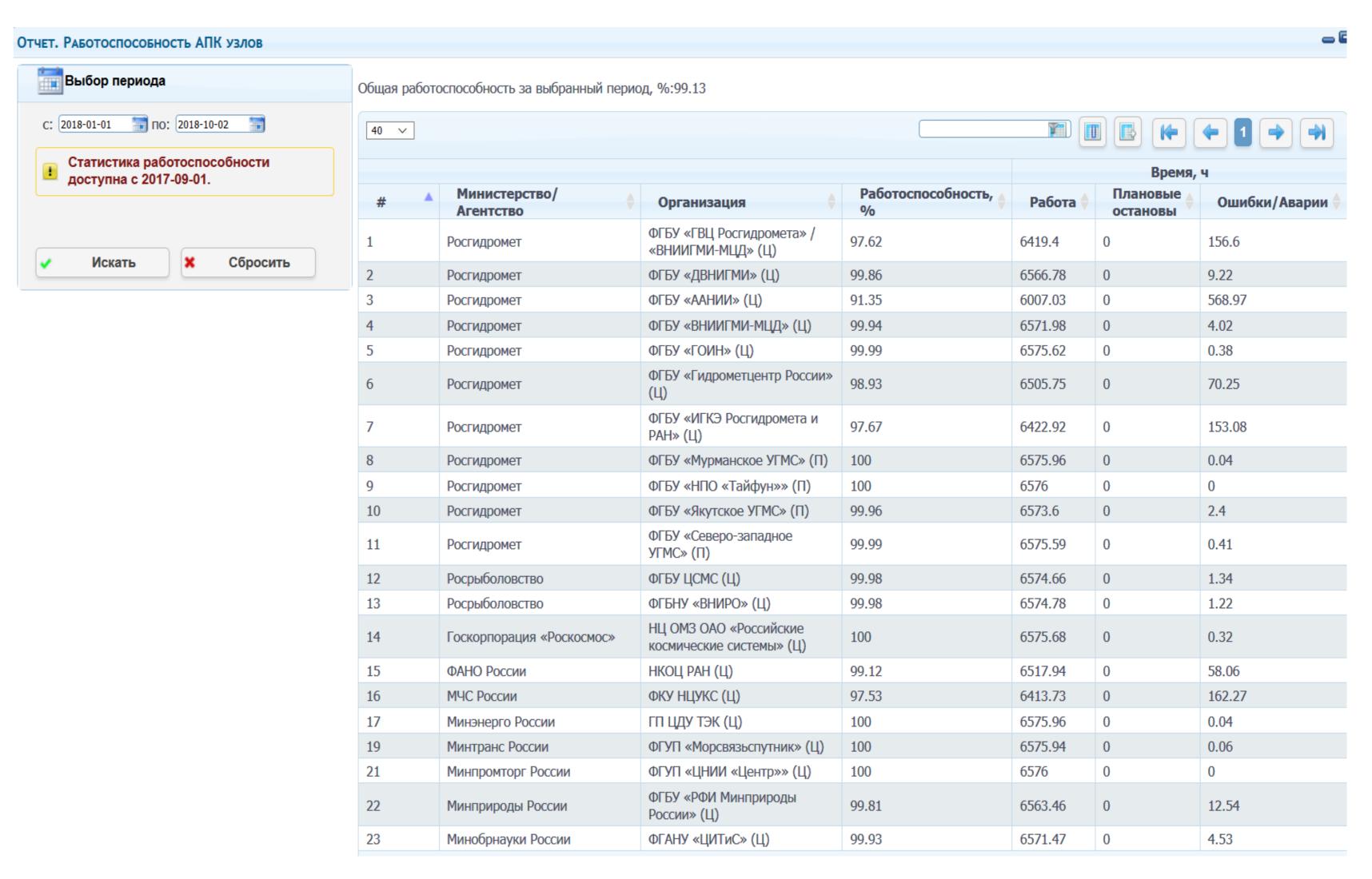
#### Indicators of work for system

indicators		Values	
	2015	2018	
Number of centers	19	18	
Number of organization DP	17	17	
Reliability of work for hardware and software, %	90,6	99	
General number of resources on portal of system	2863	3120	
Number of new resources	20	20	
Relevance of information resources, %	87,4	93	
Number of actual resources on moment of reporting.	-	3057	
Normative accessibility of resources, %	56,6	72,1	
General number visits to portal.	130673	219597	
Average number of resources downloads	6534	10902	
The proportion of viewed (downloaded) resources, in a total number of resources, %	0,59	0,66	
General number resources, deliveries by subscription	-	169041	
Regulatory accessibility of resources, number of outstanding requests	-	758	
The number of outstanding requests for access to resources for a specified period	0	0	

#### **Demand for resources**

Demand for resources			
Centre of system	Number resources	Number of downloads	The proportion of viewed (downloaded) resources
RIHMI-WDC	1620	115945	0,41
Hydrometeocentre of Russia	103	31919	0,65
CRI «Centre»	12	6225	1.0
FERHRI	334	13820	0,65
AARI	284	10128	0,3
Marine telecommunication	18	274	0,94
National center for management in crisis situation	22	1387	1.0
Center of monitoring for fishery ships	20	148	0,64
Russian satellites systems	69	4047	0,6
Institute of climate and ecology	74	5098	0,43
SOI	91	2457	0,45
Centre of energetic complex	17	1930	0,59
RIFO	46	9	0,06
Centre of IT and systems	13	300	0,92
Russian fund of information	27	120	0,39
Complex oceanographic center	50	761	0,22
Regional office of Rushydromet Murmansk	15	0	0
Regional office of Rushydromet Yakutsk	3	1	0,33
ESIMO	2883	218048	0,66

#### Reliability of work for hardware and software



#### References:

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