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Topic (ii): Streamlining statistical production

"e-statistics" Integrated Information System

Prepared by Ms. Zhaidara Syzdykova, Agency of Republic of Kazakhstan on Statistics, Kazakhstan

In the conditions of modern development of infocommunication technologies there was a need to develop this infrastructure in Agency of Republic of Kazakhstan on Statistics.

Till 2010 not all statistical processes of Agency were automated. And that were automated, were based on the outdated technologies which aren't conforming to modern requirements in the field of information technologies.

The statistical reporting was given by respondents in bodies of statistics in paper form. It constantly brings to turns and production expenses. And each report on a certain statistical supervision was entered manually by statisticians in regions into separate local and program complexes (LPC).

The local and program complex is a local system of data processing which was developed on various platforms for each supervision separately, and their about 180. LPC accumulated data on each supervision in a separate DB. These local DB weren't integrated among themselves therefore automatically to compare data it wasn't represented possible. And it in turn doesn't give the chance to improve statistics and its quality.

The main lack of LPC is what even minor changes in methodology, attracts labor-intensive process of modification of some LPC. For example, addition of a new type of production in the qualifier. Time, manpower was spent for it. Besides, the existing system was automated partially, and it does system non-transparent.

Users received created statistical information on papers, in the form of collections and bulletins which were duplicated in limited quantity, there was no uniform place of storage. It is possible to tell that at the population and business access to statistics was limited.

In 2010 Agency began implementation of the project of the Integrated information E-statistics system. The project assumes the latest approach to full automation of internal processes, integration of all IS, and also increase of efficiency of activity of Agency.

All information systems within IIS "E-statistics" are developed with application of modern technologies, on one technological platform that provides the corresponding interaction of components.

Result of implementation of the project will be:

- 1 .decrease in load of respondents by introduction of the electronic statistical reporting;
- 2 .granting to users of clear and available information.

One more advantage of system is flexibility to any changes of methodological character. Essential difference of that was earlier is the process focused approach. That is the system is directed on automation of separate processes as collecting, storage, processing, distribution of data, distributing functions between separate components. It is connected with need of increase of efficiency of activity of Agency, decrease in financial, labor expenses and simultaneous improvement of quality of statistical information.

Within the project Metadata information system which is control center of statistical processes is created. It is the main tool providing coherence of all systems, unification and the description of indicators, algorithms of processing.

The purpose of formation of IS "Metadata" is ensuring satisfaction of requirements of various groups of users of statistical information, by means of development of system of statistical metadata, ensuring technological support of

processes of updating, expansion, adaptation, internal and external integration of all components IIS "E-statistics" from common "point".

The main objectives of IS "Metadata" are:

- 1) to centralize collecting, common storage of statistical metadata in common data warehouse;
- 2) to increase quality of statistical data, transparency of methodology;
- 3) to increase quality of data processing, using storage and production of statistical metadata;
- 4) quickly to react and quickly to adapt internal information systems at changes in methodology;
- 5) to automate the publication on a portal of results of statistical supervision, statistics;
- 6) to provide access to a wide range of users to statistical metadata;
- 7) to support data exchange and metadata with consumers of statistical information, with internal and external information systems and the international statistical organizations according to the international standards of an exchange of statistical data and metadata;
- 8) to avoid divergences and excess duplication of metadata, at the expense of maintaining/updating of metadata in a uniform source.

As object of IS "Metadata" the statistical indicators. For the first time IS "Metadata" will allow to centralize meta – description of statistics, methodologies of collecting, processing and distribution of statistical information on all formed statistics. That in turn will make statistical methodology transparent and available to the interested users.

Important feature of national system of metadata is that it is integrated into uniform information E-statistics system. The centralized maintaining and use of system of metadata will allow to simplify process of integration of information systems and information exchange both between government bodies within the country, and at the international level. For an exchange of metadata the Agency plans to introduce the SDMX standard which defines formats for an exchange of the aggregated statistical data and the metadata necessary for understanding of how these data are structured. For

this purpose we planned many actions for studying and introduction of this standard in the future.

IS "Metadata" consists of several blocks, as "The description of forms", "Data collection", "Registers", "Qualifiers", "Data processing", "Distribution", "Technical metadata". Each of these blocks contains the necessary description of indicators, algorithms of processing and distribution.

The special role in creation of system of metadata is played by a "human" factor. Introduction of IS "Metadata" demanded considerable shift upon transition from traditional data processing to new business processes. A lot of work on creation of standard and help metadata, work on the description of former statements of tasks under new requirements of system of metadata is carried out by Branch statisticians.

At the expense of automation and the coordinated functioning of all components of system through metadata efficiency increases, processing terms are reduced.

One more advantage of new information infrastructure is granting opportunity to respondents to hand over reports in an online mode directly on the Agency site, by means of information system "Data Collection in an Online Mode".

Data on the respondent are filled in automatically by the system. The respondent fills fields, at data input by system format and logical control and system is carried out points to it to mistakes. It provides completeness and purity of data. The report is confirmed by digital signature of the respondent and is accepted by system.

The accountant of the enterprise was given opportunity of delivery of the reporting without leaving an office. It reduces financial, labor, transport and temporary expenses for business.

Then data are processed in uniform system of Processing. In this system standard procedures of calculations are applied, adjustments, an imputation of data according to the description in IS "Metadata" are automatically carried out. Then all output information arrives in DB of the aggregated indicators which are displayed in IAS "Taldau". All users without restrictions have a free access to official statistical information on the Internet.

"Taldau" is an information and analytical system which gives to users absolutely new opportunities for the analysis of statistical information. This system has a set of different functions. For example, search of statistical information in a keyword, classification, the catalog of indicators, visualizes data in the form of cards, charts. For

example, if to choose the region, the system shows on it all information by that region available in a DB.

In system automatic creation of tables, schedules, charts on the chosen indicators is provided. By means of the tool as the master of charts, it is possible to change necessary parameters. The material adjusted thus can be kept in the Private office where automatic updating is conducted. Also various opportunities according to the analysis of data, for example, on correlation and the mathematical analysis are given.

As a result, users reduce time for searches of statistical information and operate with actual official data. Thus, possibilities of the versatile analysis of data are expanded.

For an operational interdepartmental exchange of administrative data in IIS "E-statistics" mechanisms of integration with IS of other state agencies are realized. Obtaining data provides updating of register systems of Agency which comprise the list of statistical units and form statistical information.

For the government bodies needing actual statistical information, by Agency it is provided such information from a DB of the aggregated indicators by IS integration.

Now in Agency the standard GSBPM, GSIM however architecture of IIS "E-statistics" aren't applied is approached to these standards. Therefore within cooperation with the World bank the staff of Agency starts studying experience of introduction of these standards, for their introduction further in Agency.

The taken direction of Agency in application of information technologies is positively estimated by the Country leaders and the further purposes of development and IIS "E-statistics" application already at interdepartmental level are designated.

With agency and further it is planned to work over improvement of the activity by a way of its automation.