



Knowledge management system and linked open data using the example of "population" and "migration": the experience of the CIS Statistical Committee

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Goals of creating a KMS-LOD in the CIS Statistical Committee

Data Hub

About the Data Hub

Unified information and analytical system

Knowledge management system and linked open data

CIS Statistics database



Knowledge Management System and Linked Open Data (KMS-LOD)

Knowledge Management System and Linked Open Data (KMS-LOD) it includes two subsystems:

1. subsystem "Knowledge management system in the field of statistical methodology of the CIS Statcommittee" (KMS);
2. The subsystem "System for preparing and distributing linked open data" (LOD).

Goals of creating a KMS-LOD is forming:

- **libraries** structured methodological materials;
- **glossaries** statistics terms;
- **Sets Linked Open Statistical Data** (LOSDs) based on CIS indicators, enriched with broad regulatory and reference information to ensure unambiguous meaningful interpretation of data, including in consumer information systems.

Achievement of the set goals is ensured by:

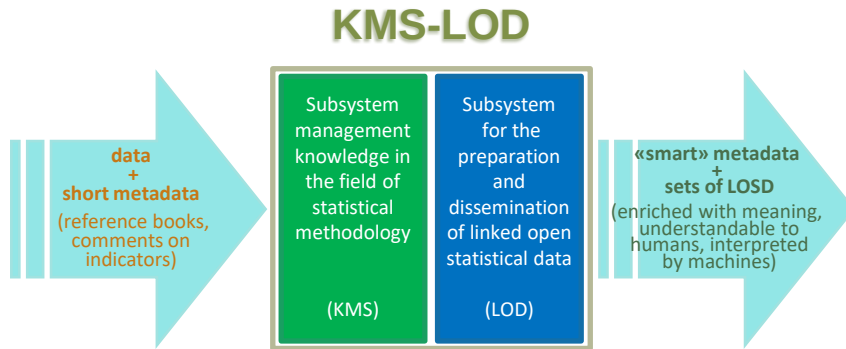
- Creation of a system of publicly available semantic models in the field of CIS statistics on the basis of national and international glossaries, classifiers, standards, as well as the formation of an environment for meaningful interpretation of SOSD on its basis.
- Building a knowledge management system based on publicly available semantic models, ensuring alignment and harmonization of statistical methodology in the CIS countries.
- Creation of semantic information resources, development of technologies for the distribution and application of SOSD.
- Improve the organization, integration and provision of data on the Internet, develop the ability to detect, search, navigate and compare statistics obtained from various sources using semantic methods.
- To raise awareness among consumers and data providers about the benefits of SOSDS and their potential application in digital ecosystems and services.

On the official website on the website of the CIS State Committee posted by information about the implementation of the project to create a Knowledge Management System and Linked Open Data (CMS-ODS).

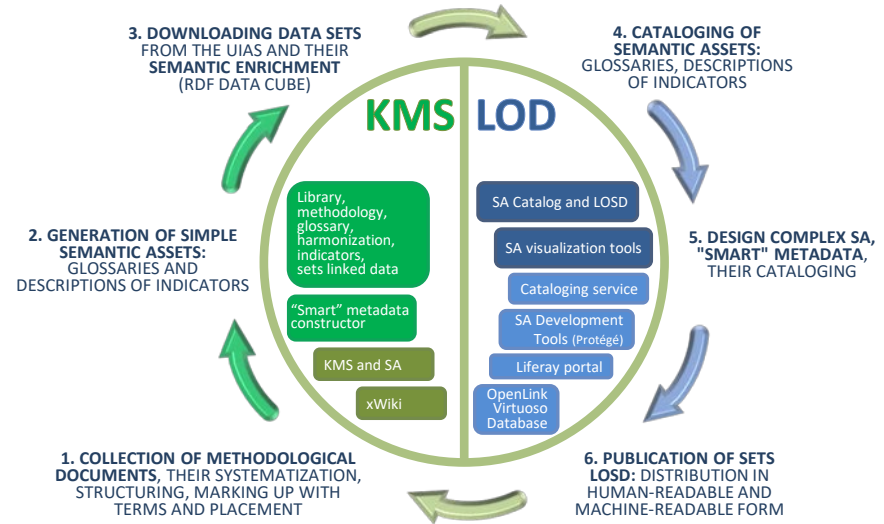


KMS-LOD technological cycle

KMS-LOD includes two subsystems: "Knowledge management system in the field of statistical methodology of the CIS Statistical Committee "(KMS) and "System for the Preparation and Dissemination of Linked Open Data" (LOD)



KMS-LOD technological cycle

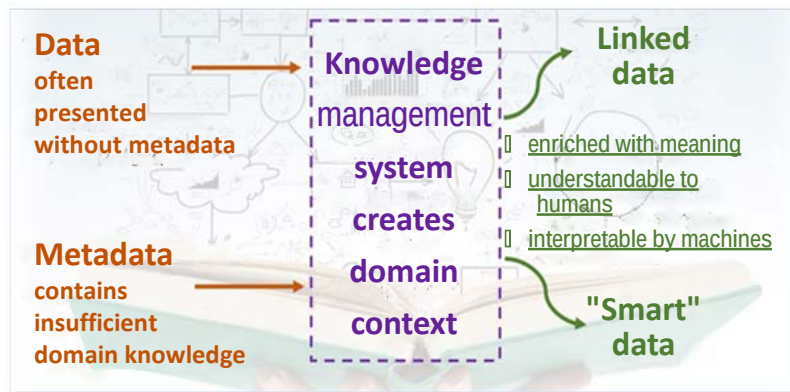




Data and Metadata Hub of the CIS Statistical Committee

About implementation International Statistical Data and Metadata Hub of the Statistical Committee CIS (Data hub)

Metadata is needed for consumers to use data source



About the Data Hub

Unified information and analytical system (UIAS)
Knowledge Management and Linked Open Data System (KMS-LOD)
CIS Statistics Database



Dear visitor!

We are pleased to welcome you to the **International Statistical Data and Metadata Hub of the CIS Statistical Committee (data hub)**, which includes three systems:

1. Unified Information and Analytical System (UIAS);
2. Knowledge Management and Linked Open Data System (KMS-LOD);
3. Database of indicators of the CIS Statistical Committee "CIS Statistics" (CIS Statistical Committee Database)

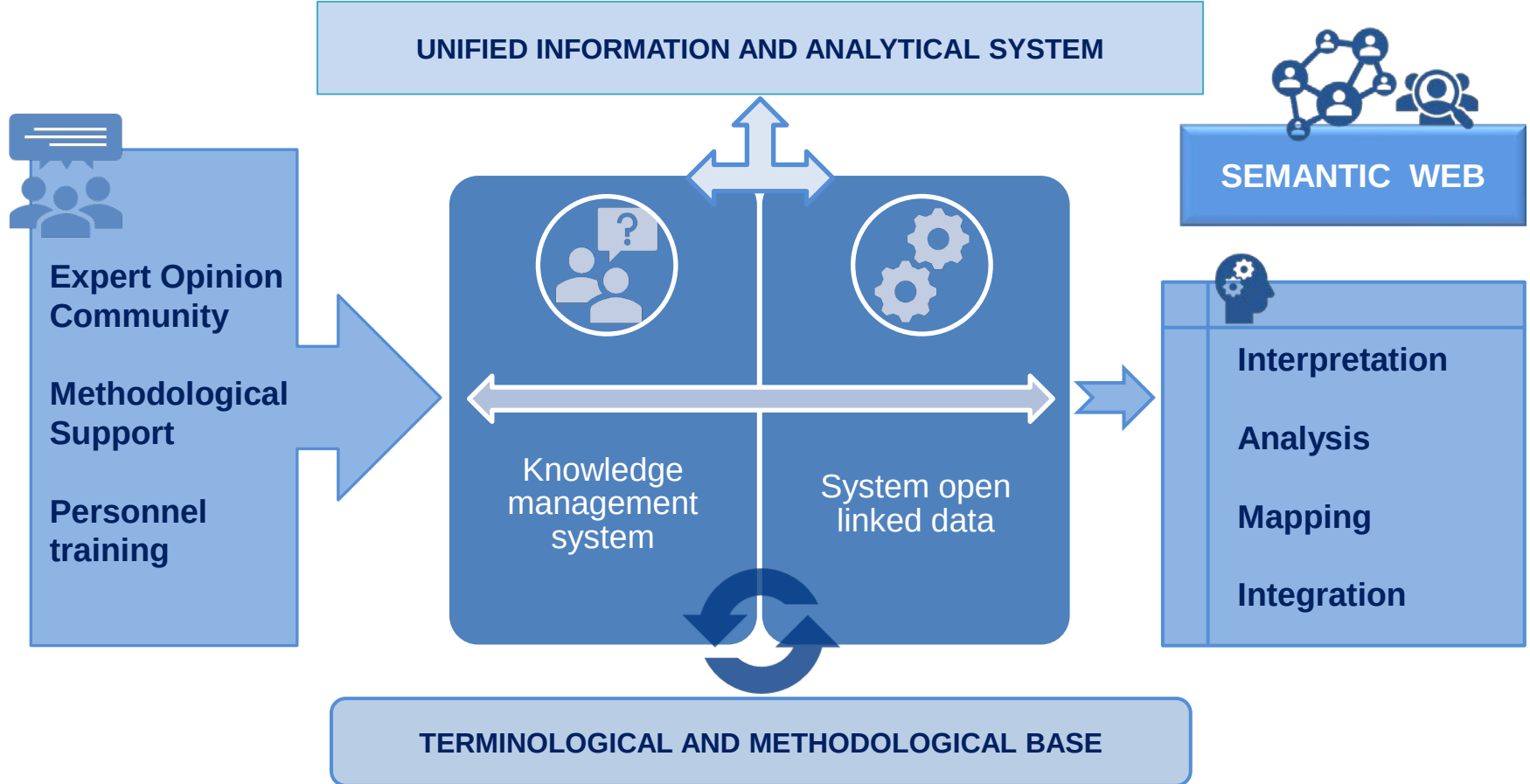
Goals and objectives of creating a data and metadata hub

- A SINGLE POINT OF ACCESS** TO DATA FROM THE CISSTAT COMMITTEE AND OTHER WORLD STATISTICAL RESOURCES
- OPEN** STATISTICAL DATA ACCESSIBLE TO BOTH HUMANS AND MACHINES WITH THE POSSIBILITY OF REPUBLICATION
- INTERACTIVE MULTIDIMENSIONAL ANALYSIS** WITH CONVENIENT VISUALIZATION, INCLUDING GEOSPATIAL DATA
- EXTENDED METADATA** (NORMATIVE AND REFERENCE INFORMATION + METHODOLOGY)
- A TOOL FOR IDENTIFYING AND SOLVING PROBLEMS IN HARMONIZING** METHODOLOGY AND TECHNOLOGY
- "SMART" METADATA** - DATA UPLOADING IN METADATA-SUPPORTING FORMATS (RDF, LD-JSON, SDMX)

Findability
Accessibility
Interoperability
Reusability



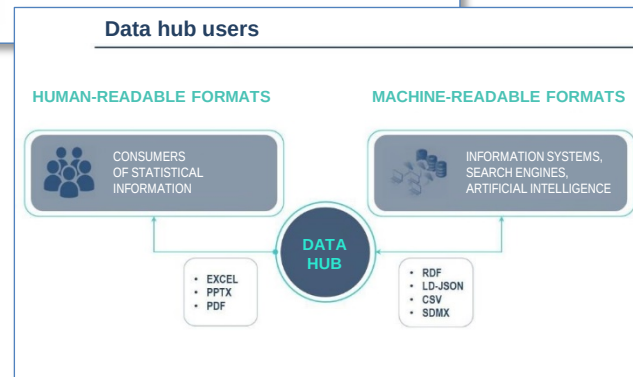
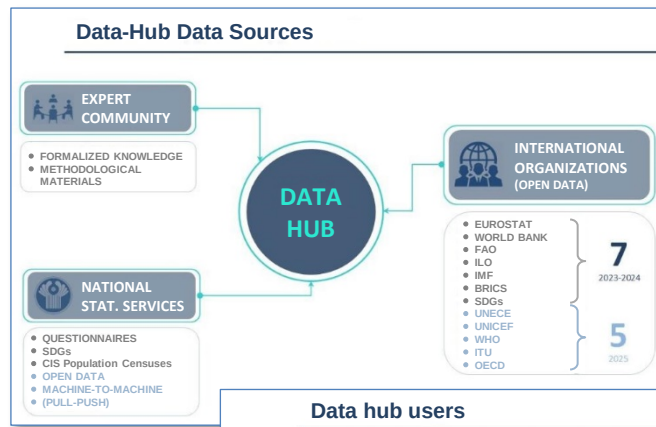
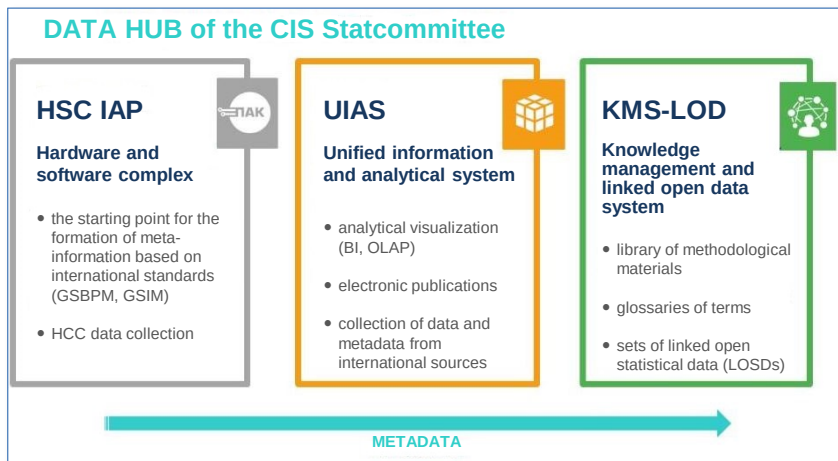
UIAS (Unified Information and Analytical System) of the CIS Statistical Committee





Knowledge management system and linked open data in the CIS Statistical Committee

KMS-LOD system as a component of the data-hub of the CIS Statcommittee operates on the basis of data sources of the data hub to provide information to users of the data hub.



Users can work with the CIS Statistics Committee's Database "CIS Statistics". It includes about 400 interactive tables on the main socio-economic indicators of the CIS countries. Indicators are regularly updated by section/topic of statistics.



Methodological materials on the KMS of the CIS Statistical Committee

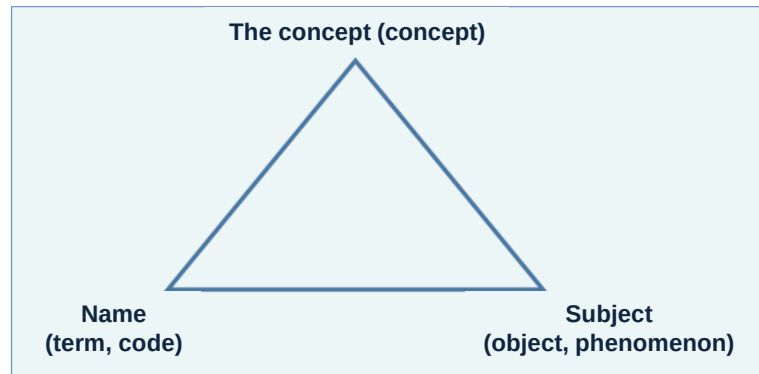
METHODOLOGY OF LOADING AND CLASSIFICATION OF METHODOLOGICAL AND ANALYTICAL MATERIALS IN THE CIS KMS

MATERIALS FOR CONTRACT № CIS-SD-CONS-05 dated MAY 03, 2023

METHOD OF GLOSSARY FORMATION IN THE KMS OF THE CIS STATCOMMITTEE

MATERIALS FOR CONTRACT
№ CIS-SD/24-CONS-2.3 dated July 24, 2024

Semiotic (sign, symbolic) triangle





Demographic statistics and migration indicators in the CIS-Stat Database

Indicators demographic statistics in CIS Statcommittee Database

Population

Number and natural population movement



Population size	Birth rate	Mortality rate
- Number of resident population (thousands of people, at the beginning of the year)	- Crude birth rate	- Crude death rate
- Number of population by sex and age group (thousands of people, at the beginning of the year)	- Age-specific fertility rates	- Age-specific death rates
- Average annual resident population	- Total fertility rate	- Infant mortality rate
- Number of marriages per 1000 people		- Mortality of children under 5 years of age
- Number of divorces per 1000 people		- Maternal mortality rate (number of women who died from the period, per 100,000 born complications of pregnancy, childbirth and postpartum alive)
- Natural increase (decrease) rate (per 1 000 population)		- Life expectancy at birth
- Number of women per 1000 men (as of the beginning of the year)		



Population migration

Migration

International migration

- **Number of people who have arrived in the country for permanent residence**, person
- **Number of people who left the country for permanent residence**, person
- **International migration of the population aged 15 years and older older by level of education of migrants - the number of arrivals in the country**
- **Migration growth** (thousands of people)
- **Migration risk factor growth rate** (per 10 thousand people population level, calculation based on current population estimates and migrations)
- **Arrival rate** (per 10 thousand people of the population)
- **Disposal rate** (per 10 thousand people of the population)

Domestic migration

- **Number of moves inside countries**
(for those who have arrived at a permanent place of residence)





Demographic statistics and migration indicators in the CIS-Stat Database

Based on the selected indicator characteristics (countries, years, etc.), a table is generated that can be saved in Excel or SDMX format

CIS Statistics Database

The CIS Statistics Committee's database of indicators, "CIS Statistics," includes a wide range of socio-economic indicators for the Commonwealth countries, updated regularly, by country and year.

To view the interactive table, select an indicator from the "Topic Statistics" menu on the left, and select values in the table filters.

Statistical indicators

Permanent population (thousands of people, at the beginning of the year)

Period: Excel SDMX

Table Year

Countries	Year	1991	1992	1993	1994	1995	1996
Azerbaijan	Total	7 219	7 324	7 440	7 550	7 644	7 726
	Type of terrain	Total	Total	Total	Total	Total	Total
Armenia	Total	3 575	3 633	3 464	3 357	3 260	3 249
Belarus	Total	10 190	10 198	10 235	10 244	10 210	10 177
Kazakhstan	Total	16 358	16 452	16 427	16 335	15 957	15 676
Kyrgyzstan	Total	4 425	4 502	4 528	4 505	4 525	4 596
Moldova	Total	4 364	4 357	4 346	4 351	4 346	4 332
Russia	Total	148 274	148 515	148 562	148 356	148 460	148 292
Tajikistan	Total	5 361	5 506	5 567	5 580	5 634	5 701
Turkmenistan	Total	3 818	3 970	4 124	4 288	4 435	4 528
Uzbekistan	Total	20 613	21 112	21 608	22 098	22 467	22 912

Statistical indicators

Number of people arriving in the country for permanent residence, people

Last updated: October 19, 2025, 8:00 PM

Period: Excel SDMX

Table

Year Countries

Territorial Directory for Migration (14)

Possible values

Select all Deselect

- ☒ International migration - total
- ☒ Total for CIS countries (138)
- ☒ Azerbaijan (112)
- ☒ Armenia (107)
- ☒ Belarus (134)
- ☒ Kazakhstan (126)
- ☒ Kyrgyzstan (114)
- ☒ Moldova (130)
- ☒ Russia (126)

Apply Cancel

Ukraine 304

Other countries (excluding CIS countries) - total 2,936

Year	2022	2023
International migration - total	5 738	24 178
Total for CIS countries	2 786	12 410
Azerbaijan	0	580
Armenia	0	100
Belarus	20	106
Kazakhstan	232	160
Kyrgyzstan	70	4
Moldova	20	22
Russia	1 718	11 394
Tajikistan	12	2
Turkmenistan	210	62
Uzbekistan	230	26
Ukraine	274	634
Other countries (excluding CIS countries)	2 952	11 768

Since 2012, information on registration and deregistration at the place of residence in the Republic of Armenia has been based on the data from the State Population Register, provided by the Passport and Visa Department of the Republic of Armenia. Information on migration of the permanent population, population migration data has been estimated based on the data from the State Population Register, provided by the Passport and Visa Department of the Republic of Armenia.

Since 2014, the Republic of Moldova has been assessing migration based on the data from the State Population Register, provided by the Passport and Visa Department of the Republic of Moldova. Information on migration of the permanent population, population migration data has been estimated based on the data from the State Population Register, provided by the Passport and Visa Department of the Republic of Moldova.

Since 2011, long-term migration in the Russian Federation has included Russian citizens, foreign citizens, and stateless persons registered at their place of stay for a period of 9 months or more.



KMS of the CIS Statistical Committee. "Population" section

 Система управления знаниями Статкомитета СНГ

[About the system](#) [For experts](#) [About the section](#) [Indicators](#) [Models](#) [Glossary](#) [Methodology](#) [Harmonization](#) [Library](#)

Sections

- Industry
- Construction and investment in fixed assets
- Finance
- Population**
- Labor market
- General

[Home](#) / [Population](#) / [Population section](#)

Population section

Edited by [Andrey Shilin](#) 2025/06/25 14:57

[Edit](#) [+ Create](#) [More](#)

Population

Population is a section of demographic statistics that deals with the application of statistical methods to the collection, processing, presentation and analysis of data characterizing the size, composition, distribution and reproduction of the population or its groups.

Library

A library of methodological and analytical materials in the "Population" section, systematized for subsequent analysis and structuring, including: (1) methodological documents, (2) classifiers and international standards; (3) necessary sections of statistical dictionaries (explanatory, encyclopedic); (4) accompanying information necessary for forming the context of linked open statistical data (LOSD), including links to useful sources.

[Go to](#)

Methodology

The methodological materials of the "Population" section are the most important documents from [the materials uploaded to the library](#), structured and marked up using hypertext markup with related [glossary](#) terms and cross-references to methodological documents.

[Go to](#)

Section tags

Tags corresponding to glossary terms are written with a capital letter, arbitrary tags are written with a lowercase letter.

[Annulment \(of marriage\)](#) [Marriage](#) [Internal migration](#) [Intrauterine death](#) [Age](#) [dropped out](#) [Household](#) [Natural population movement](#) [Live birth](#) [Civil status records](#) [Immigration](#) [Maternal death](#) [International migration](#) [Migrant](#) [Migration](#) [Infant death](#) [Current population](#) [Population circumstances of resettlement \(reason\)](#) [Population census](#) [Perinatal period](#) [Permanent \(usual\) place of residence](#) [Permanent population arrived](#) [Recognition \(of paternity\)](#) [Causes of death](#) [Life expectancy \(expected\)](#) [Divorce](#) [Population register](#) [Registration of civil status acts](#) [Reproductive period](#) [Death](#) [Natural population movement event](#) [Working age](#) [Legalization](#) [Adoption](#) [Emigration](#) [Legal \(judicial\) separation](#) [Legal population](#)

Commonwealth of Countries

CIS

- [Azerbaijan](#)
- [Armenia](#)
- [Belarus](#)
- [Kazakhstan](#)
- [Kyrgyzstan](#)
- [Moldova](#)
- [Russia](#)
- [Tajikistan](#)
- [Turkmenistan](#)
- [Uzbekistan](#)
- [Ukraine](#)

Languages

- [Russian](#)
- [English](#)



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Healthcare and Disability

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Population size and natural movement

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Library

Edited by Tatyana Evgenievna Tsurenkova 2025/05/12 14:48

Methodological documents

International organizations

- CIS.2025. Methodological notes to Questionnaire No. 12 of the CIS Statistical Committee
- CIS.2024. Review of CIS countries' experience in developing statistical indicators using best practices
- CIS.2021. On the practices of Commonwealth countries in the field of statistical indicators (material)
- UN_SD.2022. Handbook on Measuring International Migration through Population Statistics
- UN_SD.2022. Handbook of Civil Registration and Vital Statistics Systems
- UN_SD.2021. Toolkit for Assessing National Migration Data Capacities
- UN_SD.2017. Principles and Recommendations for Population and Housing Censuses
- UN_SD.2016. Handbook on the use of administrative sources and sample surveys
- UN_SD.2015. Principles and Recommendations for a Vital Statistics System
- UN_SD.2015. Principles and Recommendations for a Vital Statistics System
- UN_SD.2005. Handbook for the collection of data on fertility and mortality
- UN_SD.2002. Methods for Estimating Adult Mortality
- UN_SD.1998. Recommendations on Statistics of International Migration**
- UN_SD.1979. Recommendations on Statistics of International Migration
- EEC.2022. Methodology for the formation of official statistical information
- EEC.2020. Formation of official statistical information of the Eurasian Economic Union
- UNECE.2022. Using New Data Sources to Measure International Migration
- UNECE. 2015. Conference of European Statisticians Recommendations for the 2020 Population and Housing Censuses
- UNECE. 2011. International Migration Statistics: A Practical Guide for Countries of Eastern Europe and Central Asia

Belarus

- RB.2023. Methodology for calculating the main statistical indicators of population migration
- RB.2023. Methodology for calculating statistical indicators of natural population movement
- RB.2023. Methodology for calculating statistical indicators of population size and structure

Kazakhstan

- KZ.2019. Methodology for calculating birth rates
- KZ.2018. Methodology for calculating mortality rates
- KZ.2017. Methodology for calculating indicators of population size and structure
- KZ.2016. Methodology for preparing population forecasts
- KZ.2016. Methodology for calculating the main indicators of population migration
- KZ.2016. Methodology for calculating indicators of marriage (matrimony) and divorce (marriage)

Kyrgyzstan

- KG.2009. Methodological provisions on demographic statistics
- KG.2009. Methodological explanations

Russia

- RF.2024. Order of April 23, 2024 No. 161 On approval of federal statistical monitoring forms and instructions for completing them for organizing federal statistical monitoring of population migration
- RF.2021. Methodology for calculating the indicator "Infant mortality (per 1,000 live births)"
- RF.2013. Methodology for calculating the indicator "Life expectancy at birth (years)"
- RF.2013. Methodology for calculating the indicator "Total fertility rate (number of children born to one woman throughout the entire reproductive period (15-49 years) (units))"
- RF.2013. Methodology for calculating the indicator "Population size (people)"
- Russian Federation. 1996. Basic Demographic Indicators, Methods of Their Formation and Calculation

Data collection forms

International organizations

- CIS.2025. Questionnaire No. 12 of the CIS Statistical Committee

Russia

- RF.2024. Order of April 23, 2024 No. 161 On approval of federal statistical monitoring forms and instructions for completing them for organizing federal statistical monitoring of population migration

Dictionaries and encyclopedias

International organizations

- UN_IOM.2011. Handbook of Migration Terminology (Russian-English)

Russia

- RF.2011. Encyclopedia of Statistical Terms, Volume 5, Section 5.1. "Demographic Statistics"

[Organizations sources of information](#)



KMS of the CIS Statistical Committee. "Population" section

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Conference of European Statisticians Recommendations

Conference of European Statisticians Recommendations for the 2020 Population and Housing Censuses

Edited by [Andrey Abramovich Khalifin](#) 2025/07/17 15:35

SUBSECTIONS

Migration

TYPE

Methodological document

NAME

Conference of European Statisticians Recommendations for the 2020 Population [\(download_ru\)](#)

ORGANIZATION

[UNECE - United Nations Economic Commission for Europe](#)

YEAR OF RELEASE

2015

SOURCE (AUTHOR)

[Official website of the United Nations Economic Commission for Europe](#)

ANNOTATION

This document provides recommendations for conducting [population](#) and housing planning and selecting methodology to data processing and dissemination. It con [population](#) and housing characteristics, and approaches to ensuring the quality, c with global UN and Eurostat standards.

Population

Library

Order No. 161 of April 23, 2024 On approval of federal statistical monitoring forms and instructions for filling them

Order No. 161 of April 23, 2024 On approval of federal statistical monitoring forms and instructions for filling them out for organizing federal statistical monitoring of population migration

Edited by [Andrey Abramovich Khalifin](#) 2025/07/13 16:15

SUBSECTIONS

Migration

TYPE

Methodological document

NAME

Order No. 161 of April 23, 2024, On Approval of Federal Statistical Observation Forms and Instructions of Population Migration [\(download_ru\)](#)

ORGANIZATION

[Russian Federation - Federal State Statistics Service of the Russian Federation \(Rosstat\)](#)

YEAR OF RELEASE

2024

SOURCE (AUTHOR)

[Official website of the Federal State Statistics Service](#)

ANNOTATION

Rosstat's order approving new forms for federal statistical monitoring of [population migration](#) , effective July 1, 2024. The document includes forms for collecting daily information on arrivals and departures of Russian citizens, as well as foreign citizens and stateless persons, with detailed instructions for completing them. The introduction of these forms is aimed at improving the recording of migration processes and ensuring the timeliness and completeness of administrative data for official statistics.

Population

Library

Methodological provisions on demographic statistics

Methodological provisions on demographic statistics

Edited by [Andrey Abramovich Khalifin](#) 2025/07/10 14:03

SUBSECTIONS

Population size and natural movement

TYPE

Methodological document

NAME

Methodological Provisions on Demographic Statistics [\(download\)](#)

ORGANIZATION

[KG - National Statistical Committee of the Kyrgyz Republic](#)

YEAR OF RELEASE

2009

SOURCE (AUTHOR)

[Official website of the National Statistical Committee of the Kyrgyz Republic](#)

ANNOTATION

The Methodological Provisions constitute a comprehensive document defining the fundamental principles including a system of indicators for [vital statistics](#) , [migration](#) , and demographic load. The document estab conducting [population censuses](#) , rules for classifying demographic events, and methods for assessing de the area of state demographic policy.

STRUCTURED DOCUMENT

[Methodological provisions on demographic statistics](#)



KMS of the CIS Statistical Committee. "Population" section

Population / Glossary

Glossary

Edited by Tatyana Evgenievna Tsurenkova 2025/10/02 16:46

IRI
<http://purl.cisstat.org/Common/PopulationGlossary/>

DESCRIPTION

Glossary of the "Population" section

The glossary is a dictionary of highly specialized terms within the section and statistics. The glossary is implemented as a set of concepts with definitions (

EXPLANATION

In developing the glossary, the results of the analysis of documents and materials

SOURCES

The glossary is based on the following sources:

- Harmonization
- Methodology for calculating birth rates
- Principles and Recommendations for Population and Housing Censuses
- Principles and Recommendations for a Vital Statistics System (Third Revision)
- Handbook of Civil Registration and Vital Statistics Systems (First Revision)
- Handbook of Migration Terminology (Russian-English)
- Encyclopedia of Statistical Terms, Volume 5, Section 5.1. "Demography"

Glossary in RDF format [Download](#) [Catalog card](#)

Glossary contents:

ABCDEFGHIJKLMNOPQRSTUVWXYZ

A

- Annulment (of marriage)

Population / Methodology

Methodology

Edited by Tatyana Evgenievna Tsurenkova 2025/04/28 13:29

This section contains methodological materials "Population" i

Methodological documents

International organizations

- CIS.2025. Methodological notes to Questionnaire No. 1
- UN_SD.2015. Principles and recommendations for a vi
- EEC.2022. Methodology for the formation of official sta
- EEC.2020. Formation of official statistical information o

Belarus

- RB.2023. Methodology for calculating the main statistic
- RB.2023. Methodology for calculating the main statistic
- RB.2023. Methodology for calculating statistical indicat

Kazakhstan

- KZ.2019. Methodology for calculating birth rates
- KZ.2018. Methodology for calculating mortality rates
- KZ.2017. Methodology for calculating indicators of popu
- KZ.2016. Methodology for calculating the main indicato

Kyrgyzstan

- KG.2009. Methodological provisions on demographic statistics

Population / Harmonization

Harmonization

Edited by Andrey Abramovich Khalifin 2025/07/13 09:06

Harmonization is mutual agreement, systematization, unification, coordination, ordering, ensuring mutual compliance.

Harmonization of terms

Harmonization of the concept of "Natural population movement"
Harmonization of the concept of "Immigration"
Harmonization of the concept of "Maternal death"
Harmonization of the concept of "International migration"
Harmonization of the concept of "Migrant"
Harmonization of the concept of "Permanent (usual) place of residence"
Harmonization of the concept of "Life expectancy (expected)"
[Harmonization of the concept of "Population Register"](#)
Harmonization of the concept of "Registration of acts of civil status"
Harmonization of the concept of "Emigration"

Harmonization of classifiers and reference books



KMS of the CIS Statistical Committee. "Population" section

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Indicators

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Indicators and their descriptions

Number of permanent population

Primary disability

Linked open statistical data sets

Total permanent population by year

The number of initially recognized disabled persons under 18 years old, total, by disability group per 1000 people

0

Tags: [+]

Created by Tatyana Evgenievna Tsurenkova

Comments (0)

Attachments (0)

Story

Information

There are no comments for this page yet.

Population

Indicators

Number of permanent population

Total permanent population by year

Edited by Andrey Shilin 2025/07/10 14:11

Indicator: Permanent population

International name:

Publisher: CIS Statistical Committee

License:

Attribution 4.0 (CC BY 4.0)

Source:

The information is provided by the Methodological Explanations to the SDDS

Facts:

The facts in this set of the SDDS

Measurements used:

1. CIS countries

2. Reporting period

Unit:

Annually

Visual representation: Total permanent population by year in an interactive table.

Measurement table

Dimension 1: Directory of CIS countries

Dimension 2: Age Guide

Filter

Measure: Employed persons, people

List of years: 2014

Show table

Rotate the table

CIS Countries Directory

Age Directory

	15-24 years old	25-29 years old	30-34 years old	55-59 years old	60-64 years old	65 and older
Azerbaijan	505,700.0	644,800.0	2,970,700.0	337,800.0	120,900.0	23,000.0
Armenia	104,800.0	131,500.0	623,800.0	129,900.0	81,800.0	61,800.0
Kazakhstan	1,268,500.0	1,334,800.0	5,143,400.0	513,600.0	198,500.0	51,200.0
Kyrgyzstan	423,600.0	373,500.0	1,299,900.0	133,300.0	49,000.0	23,400.0
Moldova	94,500.0	151,100.0	726,100.0	121,600.0	59,900.0	31,600.0
Russia	6,019,000.0	10,345,000.0	45,310,400.0	6,406,100.0	2,628,400.0	830,300.0
Ukraine	1,500,300.0	2,562,700.0	13,290,000.0	ND	515,400.0	204,900.0

Data completeness:

Dataset URI: <http://purl.cisstat.org/data/Yserwen>



Linked open data in the CIS Statistical Committee

Linked Open Data (LOD) is structured data that is both open and linked. The main idea is to integrate the data presented in the network. Information is presented in a formalized form for accessibility of machine processing.



System for the preparation and dissemination of information systems

Login

About the SOD subsystem Catalog of SOSD EndPoint OpenAPI

Catalog of models and linked open statistical data

As the most effective way to present data on the Internet, the W3C Consortium recommends using *linked data* developed in accordance with [the rules of the Semantic Web](#) (SW, global semantic network) - a set of basic rules for presenting data on the Internet in a form that allows it to be adequately interpreted in information systems, taking into account the semantic meaning.

[Linked data](#) includes machine-readable metadata, making it self-describing. Linked data is supported by technologies such as [RDF](#), [SPARQL](#), [JSON-LD](#), [OWL](#), and others.

The preparation of linked data is based on modeling—the formalization of information describing data to accurately represent specific domain knowledge. Data modeling, a collaborative process between subject matter experts and developers, takes into account the context and relationships of the data. Well-defined context facilitates better understanding, proper reuse, and is crucial for establishing connections with other datasets.

The context formalized as a result of modeling is distributed as *data models*: (1) metadata, such as [XML](#), and [RDF](#); (2) general data models, (3) ontologies, (4) thesauri, (5) reference data, such as code lists, taxonomies, dictionaries, a glossaries. Data models prepared for repeated use, i.e., satisfying the requirements of technological independence and long-term availability (persistence), are called *semantic assets* (SA). Cataloguing of SA ensures the possibility of their reuse. SA in the catalog are described in accordance with the international [ADMS](#) standard ([ADMS-FW](#) profile). The content is available for viewing by experts in various visualization options, including a graph, as well as in a machine-readable form for information systems and services.

Linking data with semantic assets (SA) enables not only humans but also computers to unambiguously interpret its meaning. Publishing linked data facilitates data search and integration, while SW technologies provide an environment in which applications can query and manage data, create interfaces, and draw conclusions based on semantic relationships. SA describe data in the context of a subject area, form the basis for searching, collecting, comprehensively analyzing, and visualizing linked data based on its semantic properties, as well as for achieving semantic interoperability in the information exchange of distributed information systems as a whole.

Linked Open Statistical Data (LOSD) is linked statistical data published under [the open CC BY 4.0 license](#), facilitating its reuse. LOD ensures that linked open statistical data is ready for complex analysis of datasets from various sources.

The SOD subsystem ensures the maintenance and publication of the SA and SOSD catalogues, and provides access to the SA and SOSD in the form of downloadable files or through a single access point ([SPARQL Endpoint](#)).

Linked open Statistical Data (LOSDs) in the field of statistics are published using the CC BY 4.0 open license. This facilitates their reuse for free. Data models prepared for multiple use, i.e. meeting the requirements of technological independence and long-term availability (persistence), are called semantic assets (SA).

Applied standards and technologies

[FOAF \(Friend Of A Friend\)](#) is a dictionary of named properties and classes built using W3C RDF technology and the OWL language.

[Vcard \(The Electronic Business Card\)](#) is a data format for transmitting contact information in a standardized format, for example, to a telephone or mail service.

[OWL \(Web Ontology Language\)](#) is an ontology language for the Semantic Web (SW) that describes the classes and relationships between them inherent in Semantic Web documents and applications.

[Dublin Core™](#) is a set of Dublin Core metadata elements defined by the Dublin Core Metadata Initiative, including semantic vocabulary encoding schemes, syntax encoding schemes, and other related standards.

[RDF Concepts \(RDF 1.1 Concepts and Abstract Syntax\)](#)

[RDFS \(RDF Schema 1.1\)](#) is a set of classes and

[RDF Data Cube Vocabulary](#) – The RDF Data Cube

[SDMX \(Statistical Data and Metadata Exchange\)](#)

[SKOS \(Simple Knowledge Organization Model\)](#)

[SKOS-XL \(SKOS eXtension\)](#) is an RDF vocabulary

[XKOS \(SKOS extension for representing statistical data\)](#)

Educational materials

- [Methodology for uploading and classifying methodological and analytical materials in the CIS educational institutions](#)
- [Methodology for the formation of glossaries](#)
- [Presentation for training experts](#)
- [Presentation of the training seminar "Updated Methodology for Loading and Classifying Methodological and Analytical Materials in the CIS Statistical Committee's KMS" "User Work with the LOD Subsystem"](#)
- [Presentation of the training seminar "Methodology for the formation of glossaries of educational institutions"](#)

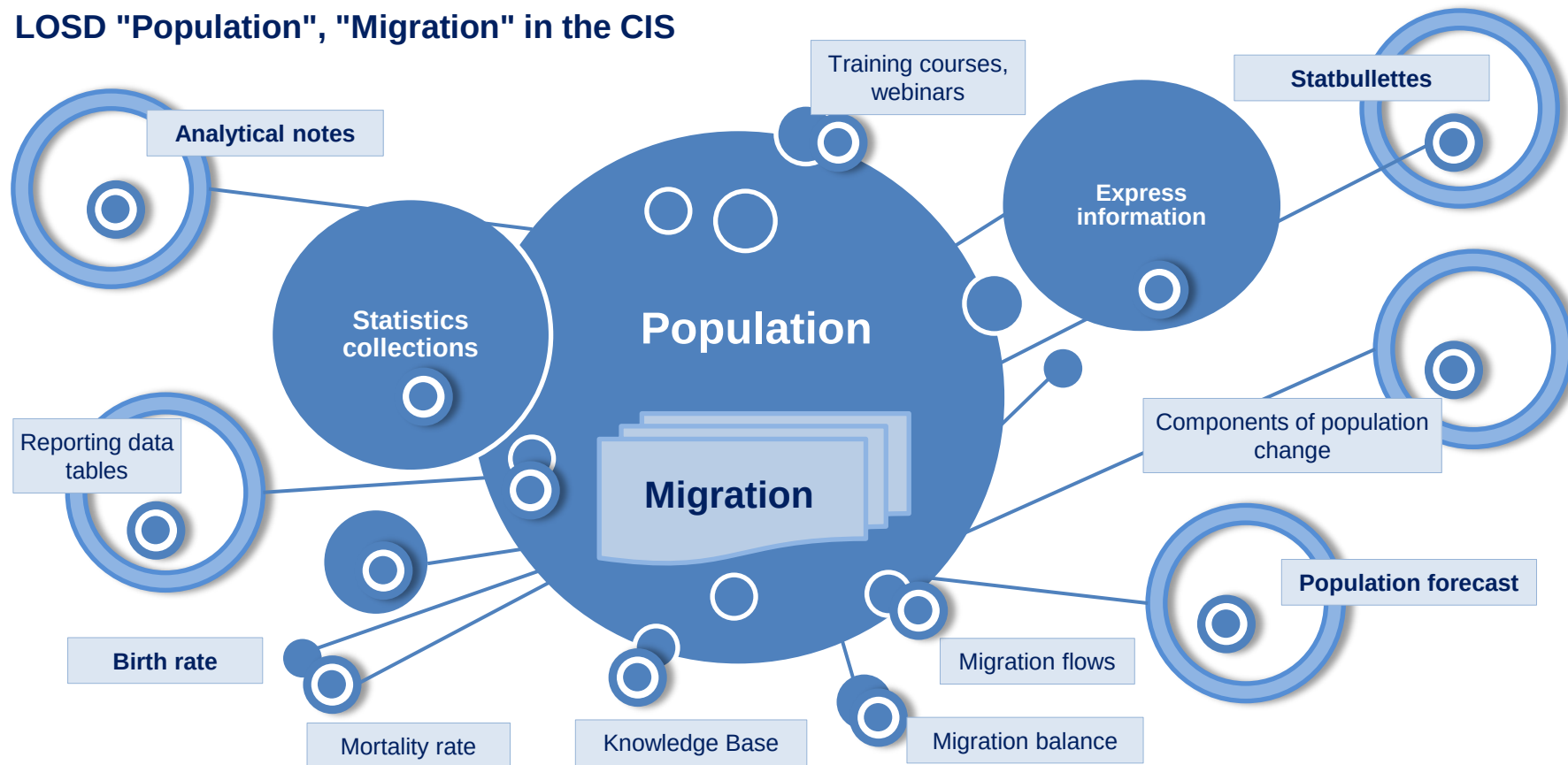
For experts

- [File storage](#)
- [Forum](#)



Conditional scheme of related open statistical data

LOSD "Population", "Migration" in the CIS





Description of semantic assets, represented as graph models

The number of unemployed, total, by year

Card Content

The number of unemployed, total, by year

Return to contents

Copy link

▼ Statistics

Vertex - 163
of which: external elements - 0
Ribs - 292

▼ Detailing by element

name: The "Measurement" component
type: <http://purl.org/linked-data/cube#ComponentSpecification>
label: Component "Dimension"
dimension: http://purl.cisstat.org/data/NumberUnemployedY#dimension_measure_org

▼ Legend

The dataset (observations) is highlighted in orange.
The dataset specification is highlighted in blue-green.
The dataset specification component is highlighted in dark brown.
The measurements are highlighted in dark red.
The measurement values are highlighted in light green.
The observation is highlighted in light blue.
The remaining nodes are highlighted in light blue.

Visualization of semantic assets and linked data sets in the form of descriptive tables and graphs.

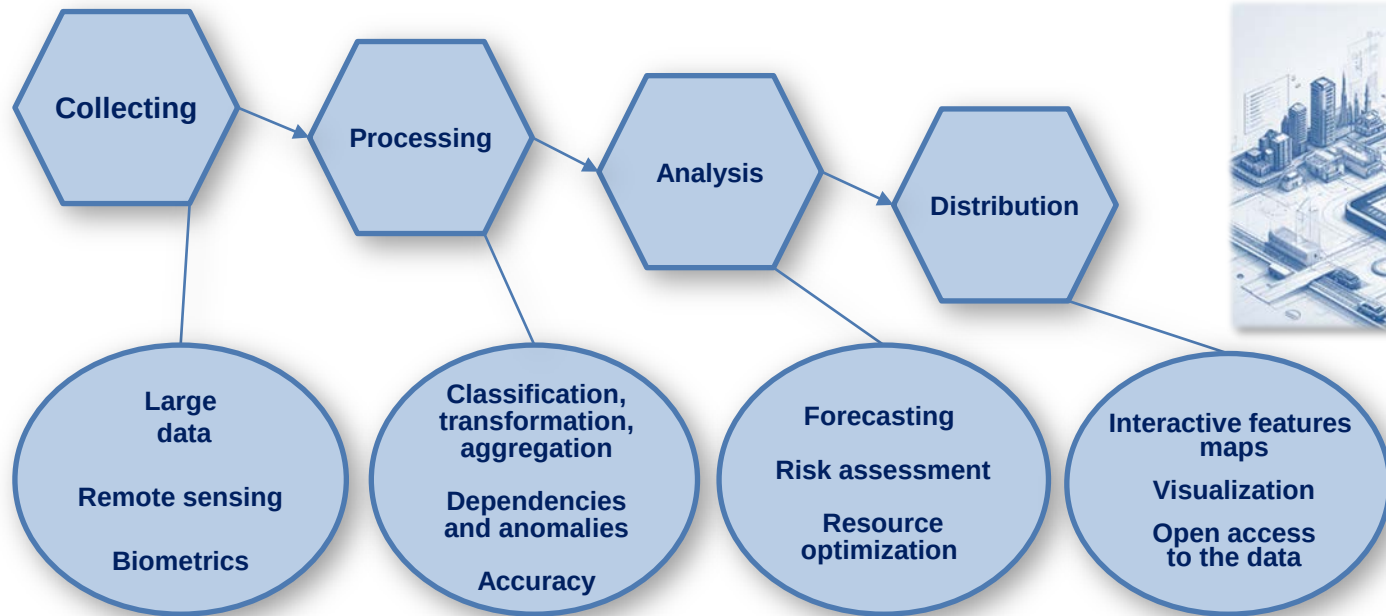
LOD technology solutions:

Data and metadata representation based on semantic asset development and semantic network creation



Possible applications of AI technologies in population and migration statistics

Application of Artificial intelligence technologies in data collection, processing, and analysis, dissemination of statistical information on population and migration



Ethical and legal aspects: data confidentiality, transparency of algorithms, equality in data application



Thank you for your attention!

www.new.cisstat.org

