DATA QUALITY MANAGEMENT
Prepared by Bureau of National Statistics of the Republic of Kazakhstan

Summary

The current mechanism of data stewards institute in the Republic of Kazakhstan does not ensure the quality of data, there is a conflict of interest, as the governmental authorities appoint data stewards from among the current employees of the agencies.

The operation of data stewards is not centralised and is aimed at providing information to users rather than at controlling the quality of this information.

In this context, an external (independent) data audit is required to ensure the quality (reliability) of data in administrative sources.

Therefore, the institute of data controllers is established, and their operation is centralised and coordinated by the Bureau of National Statistics of the Republic of Kazakhstan to ensure proper data quality.

The data controllers will identify poor quality data, report on incidents and keep permanent control of national registers and information systems assigned to them.

I.   INTRODUCTION

1.   New challenges and exponential data growth entail new demands and opportunities for statistical activities. In this context, it is increasingly important to establish the foundations for effective data management policies and to identify structures that can ensure that data can be accessed and shared while protecting confidentiality and ethical use.

2.   Therefore, a range of actions beyond the national statistical system are required to achieve the goal.

3.   Digitalisation of the whole process of statistics production and transformation of the national statistical system into the national data system will be the central vector of development of the statistical system of Kazakhstan for the next five years.

4.   The BNS has developed and approved the 'Roadmap for the Development of National Statistics and National Data Ecosystem for 2023-2025'.

5.   The main areas of national statistics development in the near future will include: improvement of methodological framework; digitalisation and use of administrative and alternative sources; organisational changes, including changes in the target architecture of interdepartmental cooperation.

6.   The methodological work will be focused on embedding the use of administrative and/or alternative sources of information and the capacity of big data processing into the official statistical methodology in order to improve the quality of statistical information and to reduce the costs of its collection.

7.	In order to implement these tasks institutional changes in the current legislation are necessary to create legal conditions for reforming the system of national statistics and national data management.

8.	Currently, the national statistical system is facing the task of creating a unified data management policy, corresponding to the modern needs and possibilities of practical implementation of the Data-Driven Approach to public administration.

9.	Like most national statistical offices around the world, the BNS intends to develop and utilise its capacity in the area of data management.

10.	To date, the first stage of the statistical system reform has been practically completed, which resulted in significant changes in the current legislation, in terms of defining the authorised body for data quality assessment, access to primary data from administrative and alternative sources, and data quality assurance.

11.	The draft law of the Republic of Kazakhstan 'On introducing amendments and additions to some regulatory legal acts of the Republic of Kazakhstan regarding national statistics and data management' has been prepared in order to institutionalise the proposed approaches.

12.	The draft law defines the role of the BNS as the authorised body to assess the quality of data, legal possibilities regarding the quality control of administrative sources. The amendments have been made to secure new competences of the BNS and ensure the possibility of obtaining primary data from the administrative and alternative sources.

13.	The draft law defines conceptual directions of national statistics development, which allows the revision and building of new processes of data collection, standardisation and quality control, and their digitalisation.

14.	The present report describes the role of the BNS in the process of data management.

## II.	AMENDMENTS TO THE LEGISLATION OF KAZAKHSTAN IN THE FIELD OF DATA MANAGEMENT AND QUALITY ASSURANCE.

15.	The improvement of the legislative framework is fundamental for the production of high quality statistical information, and is the main priority for many countries.

16.	The main regulatory legal act regulating the relations in the field of national statistics is the Law of the Republic of Kazakhstan 'On national statistics' dated 19 March, 2010. The wording of the Law corresponds to the Model Law on Official Statistics developed by the UN Economic Commission for Europe.

17.	The Law was adopted in Kazakhstan in 2022, stipulating the introduction of the data management concept in the Administrative Procedural Code.

*«**Data management** is a process related to the definition, creation, collection, accumulation, storage, distribution, destruction, support of data, as well as ensuring their analytics, quality, availability, protection.».*

18.	Among others, the Law aims at regulating legal relations in the field of facilitating access of state agencies to the data of state information resources, as well as introducing the authorised body for data management, represented by the Ministry of Digital Development, Innovation and Aerospace Industry.

19.	According to the competences stipulated in the Law, the Ministry manages and ensures the implementation of the state data management policy;

develops and approves data management requirements;

performs other competences.

20.   The provisions regarding data management requirements approved by the Ministry are binding for all state agencies, state legal entities, quasi-public sector entities (Organisations) in relation to all data collected and processed by them.

III.   DATA STEWARD

21.   In order to manage data, these Organisations shall appoint a Chief Data Officer (CDO), who is responsible for data management in the supervised industry and who is responsible for strategic directions and defining data management policies.

22.   The person responsible for data management within the organisation, so-called data steward, is appointed directly reporting to the Chief Data Officer (CDO), whose functions include the provision and implementation of data management processes related to the definition, creation, collection, accumulation, storage, distribution, destruction, support of data, as well as ensuring their analytics, quality, availability, protection.

23.   It should be noted that the current mechanism of data stewards institute does not ensure the quality of data, there is a conflict of interest, as the government authorities appoint data stewards from among the current employees of the Organisation.

24.   Furthermore, the operation of data stewards is not centralised and is aimed at providing information to users rather than controlling the quality of that information.

25.   The BNS is in the process of developing a system of Digital Statistical Registers (DSRs), which will be updated on the basis of administrative data from the information systems of other government agencies. The purpose of this work is to reduce the reporting burden on respondents and to increase the reliability of statistical information generated on the basis of administrative data.

26.   In this regard, the analysis was carried out, which resulted in the identification of more than 300 different information systems that collect and store unstructured administrative data.

27.   This mechanism (data steward) and the availability of a large volume of data within government agencies does not guarantee the recording of relevant/correct data, which may lead to the risks of fragmentation and/or lack of necessary data for operational and strategic decision-making.

28.   The data quality assurance has a direct impact on the operational efficiency and decision making of the Organisation. Poor data quality can lead to errors in analyses, loss of public trust and poor reputation.

29.   An external (independent) data audit is required to address this issue of data relevance and to determine the quality (reliability) of data in administrative sources.

IV.   ESTABLISHMENT OF DATA CONTROLLERS INSTITUTE

30.   The quality management, monitoring and evaluation system is an integral part of the national statistical system, ensuring the compliance of the quality aspects of the official statistical information and processes with the national and international quality assessment standards.

31.   Currently there is no unified comprehensive policy of statistical information quality management in the republic, in particular there is a policy of statistical quality assurance, but there is no mechanism of quality assessment of administrative data information systems produced by the state agencies.

32.	It is necessary to ensure the integration with more than 300 information systems to turn to the use of administrative sources and accordingly to ensure the quality of administrative data held in the information systems of the state agencies.

33.	The following measures will be implemented in order to ensure the effective functioning of the data quality management system: development of quality management tools and implementation of quality policy; improvement of methodological requirements for auditing information systems of the state agencies by means of data controllers.

34.	The institute of data controllers, whose operation is centralised and coordinated by the BNS, has been established to ensure proper data quality.

35.	The data controller is a specialist of the state monopoly subject in the field of national statistics qualified and experienced in the relevant field and/or sector, having access to the relevant databases provided by administrative sources for the purposes of national statistics, **carrying out the quality assessment of administrative data.**

36.	In other words, the data controllers are not public officials, they are exclusively experts in the field of information technology having expertise and skills to work with the data in relevant fields and/or sectors, participating in the process of quality assessment of administrative data.

37.	The data controllers will identify poor quality data, report incidents and maintain continuous control of the national digital registers and information systems assigned to them by monitoring, analysing, reconciling and comparing databases of administrative sources with the data from other official sources containing the same data set.

38.	The initiative to determine the quality of administrative data within the framework of the state control over administrative sources through the institute of data controllers was supported by the Head of State of the Republic of Kazakhstan.

39.	The Bureau has developed the requirements (data quality assessment criteria) and the mechanism for conducting data audits in order to effectively assess the quality of data in information systems.

The appropriate amendments have already been made to the Law of the Republic of Kazakhstan 'On national statistics'.

## V.	MECHANISM TO MEASURE ADMINISTRATIVE DATA QUALITY

40.	The quality of data shall be measured by the BNS, based on the expert judgement of data controllers, as the extent to which the data set should meet the defined requirements and user expectations, and should apply to both data attributes and data quality processes. For this purpose, the following criteria for measuring the data quality have been developed and validated: accuracy, completeness, consistency, integrity, relevance, uniqueness, validity, timeliness.

41.	Among others, at the beginning of 2024 the Law on National Statistics stipulated a new procedure of control function in relation to administrative sources. According to this procedure the data quality measurement will be carried out by the BNS in the course of control function by means of remote control, periodical and unscheduled inspections.

42.	The data controller, when comparing databases, determines the criticality of data discrepancy and assigns the degree of data discrepancy in accordance with the gradation of violation as minor/significant violation.

43.	The BNS in its turn makes recommendations to the administrative source to eliminate minor violations, and in case of significant violations it issues instructions to eliminate them within the prescribed period of time, otherwise it calls for administrative liability.

## VI.	PERSPECTIVES OF DATA QUALITY

44.	All the ongoing reforms of the statistical industry in Kazakhstan are aimed at implementing effective policy of data management, reducing the terms of statistical information generation, as well as reducing the impact of human factors.

45.	The outcome of the national statistical system transformation will be the formation of a comprehensive national data ecosystem, which will benefit all data users, including public sector, citizens and business.

46.	The issue of data duplication in national databases will be addressed, the multiple administrative procedures of interaction with governmental agencies will be eliminated, and it will be the foundation for the debureaucratisation of the government machine.

47.	It will significantly improve the quality of information, the efficiency of decision-making and, what is also important, the level of trust among the users.

48.	In particular, the public sector will be able to increase the planning and forecasting accuracy, speed and quality of managerial decision-making within the framework of public administration tasks due to the use of 'big data' tools.

49.	The development of the unified systems of identification of observation units (registers) will allow Kazakhstan to move from traditional census methods to so-called register based censuses.

50.	For the representatives of business it means the reduction of unjustified and excessive administrative (reporting) burden, creation of mechanisms of wider access of business to microdata.

51.	All these measures will directly or indirectly increase public trust and engagement by saving time and money, reducing the burden on respondents, increasing the value of data and better communicating this value to the citizens. In particular, the list of public services for the population can be significantly expanded.

52.	The amendments to the current legislation together with the complex of practical measures in the field of statistical reforms will improve the efficiency of decision making in public administration, economic development, scientific and analytical activities on the basis of reliable data by using alternative sources widely.

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