



Quality Management System for Official Statistics of Korea

Statistics Quality Management Division



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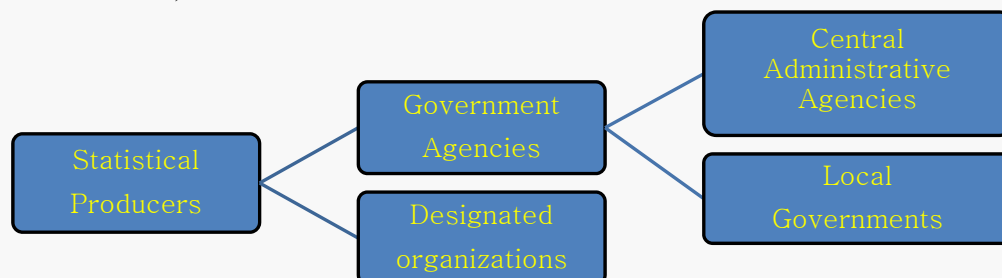
I . Overview

1. Definition

- Quality Management for Statistics : QMS
 - A comprehensive system of producing, publicizing and maintaining statistics to ensure customer satisfaction and economic efficiency and a method of generating statistics effective to the **users' goal and purpose**.

2. Background

(1) Decentralized Statistical System : Types of Statistical Agencies (Official Statistics Producers) in Korea



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※ Official Statistics Produced by Statistical Agencies

2018. 1. 31

	Number of statistical agencies	Number of official statistical products
Total	418	1,083
● Government agencies	306	894
- Central administrative agencies	46	385
• Statistics Korea	1	60
• Other agencies	45	325
- Local governments	260	509
● Designated organization	112	189
- Financial institutions	8	23
- Public corporations	32	55
- Research institutes	25	44
- Associations	26	31
- Other organizations	21	36

I. Overview

(2) Increased Importance of Statistics

- Statistics provide essential infrastructure to national governance
- Statistical Defect = failure of policy
- To perform an overall quality assessment for ensuring the quality of national statistics in all.

Financial crisis (Year 1997)
(Limited availability of financial statistics)

❖ Quality assessment system was introduced

as a unit within the Planning Division (in 1999)

I. Overview

3. History of Statistic Quality Management Division

- 1999. 4 : Reviewing QMS and Quality Assessment System (Subject : Statistics produced by KOSTAT)
- 2002. 7 : Statistic Quality Management Team
- 2005. 7 : Statistic Quality Management Division
- 2005. 12 : All of Official Statistics
- 2007. 4 : Statistics Law has QMS (Regular, Ad-hoc, Self-Assess, Improvement)
- 2013. 3 : Revision of Statistics (Regular : All → Main Statistics)

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I. Overview

4. History of Statistic Quality Management System

- Distributed Statistical production system
- Case studies of statistical quality management in the advanced countries (~2002)
- Pilot regular quality assessment conducted on the official statistics(2002~2005)
- Regular quality assessment of 1st phase conducted the official statistics, 585
- Legislation of the Quality Management System through the revision of the Statistics Law(2007)
Statistics Law has QMS (Regular, Ad-hoc, Self-Assess, Improvement)

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I. Overview

5. History of Statistic Quality Management System

- **Self-Assessment (2008~)**
 - Developing quality management system for the entire national official statistics by the statistical agencies itself
 - Based on DESAP(Development of a Self Assessment Program) developed and operated by Eurostat
- **Ad-hoc Assessment(2010~)**
 - Monitoring official statistics and performing in-depth assessment on statistics questioned as low level quality

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I. Overview

5. History of Statistic Quality Management System

- **New and Operation of Quality improvement consulting system(2011 ~)**
 - induce improvement in quality through consulting on the classification and sample design etc. for institutions lacking in statistical infrastructure
- **2nd phase of Regular Quality Assessment (2011 ~ 2014)**
 - Carried out regular quality assessment on the Key statistics (96 in 4 years)

Criteria of the key statistics :

Basic data on the establishment of national policies,

Statistics used as a population,

Statistics for international organizations(UN, OECD, etc)

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I. Overview

5. History of Statistic Quality Management System

- 3rd phase of Regular Quality Assessment (2015 ~)
 - improving QMS for collaboration and communication with the people to enhance the openness, sharing, and utilization of [public data\(administrative data\)](#)
 - Qualitative and Quantitative assessments according to the manual provided by the KOSTAT based on the metadata written by the statistical agencies

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Administrative Data

Administrative data refers to information collected primarily for administrative reasons. This type of data is collected by governments and other organizations for registration, transactions and record-keeping, usually when delivering a service.

Administrative data are often used for operational purposes and their statistical use is secondary.

Statistical agency recognizes that there are limitations with administrative data and that these can create complications when compiling official statistics.

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II. Main Features

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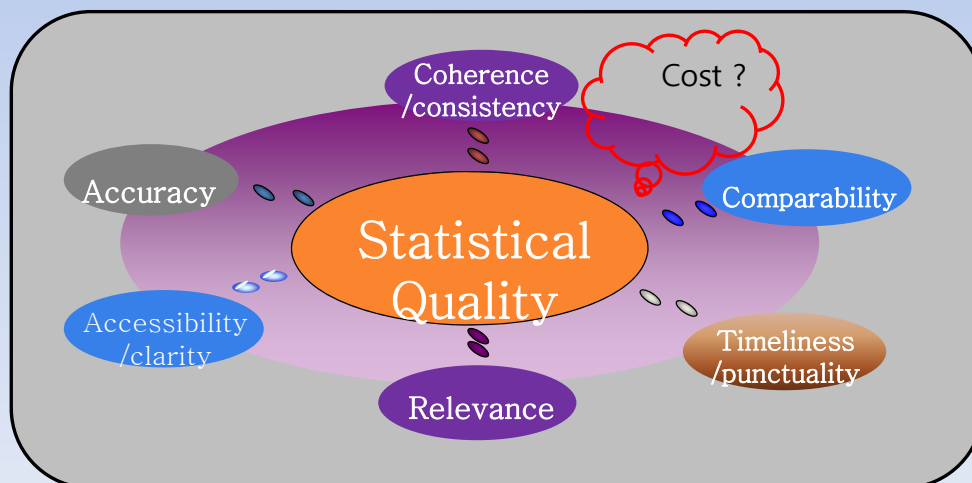
II. Main Features

1. Multi-Dimensions of Statistical Quality

(Quality of Statistics -Conventional)
Accurate and timely statistics



(Quality of Statistics - Modernized)
multi-dimensional concept



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Relevance – the degree to which statistics meet the needs of current and potential users

- * refers to whether the statistics that are needed are produced, and whether the statistics that are produced are needed.
- * covers the extent to which the concepts used (definitions, classifications etc.) reflect user needs

Accuracy – the closeness of statistical estimates to true values

Timeliness – this reflects the length of time between data being made available and the event or phenomenon they describe.

Punctuality – the time lag between the data that data were actually released and the target (often pre-announced) release data.

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Accessibility – the physical conditions in which users can obtain data: where to go, how to order, delivery time, clear pricing policy, convenient marketing conditions (copyright, etc.), availability of micro or macro data, various formats (paper, files, CD-ROM, Internet...), etc.

Clarity/interpretability – whether data are accompanied by sufficient and appropriate metadata, whether illustrations such as graphs and maps add value to the presentation of the data, and whether information on data quality is available.

Coherence/consistency – data from different sources, and in particular from statistical surveys of a different nature and/or frequency, may not be completely coherent in that they may be based on different approaches, classifications and methodologies. They may not, therefore, convey a completely coherent message to users, e.g. users may be confused if two different measures of the same variables are published with different values.

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Comparability – the extent to which differences between statistics are attributed to differences between the true values of the statistical characteristic, or to methodological differences.

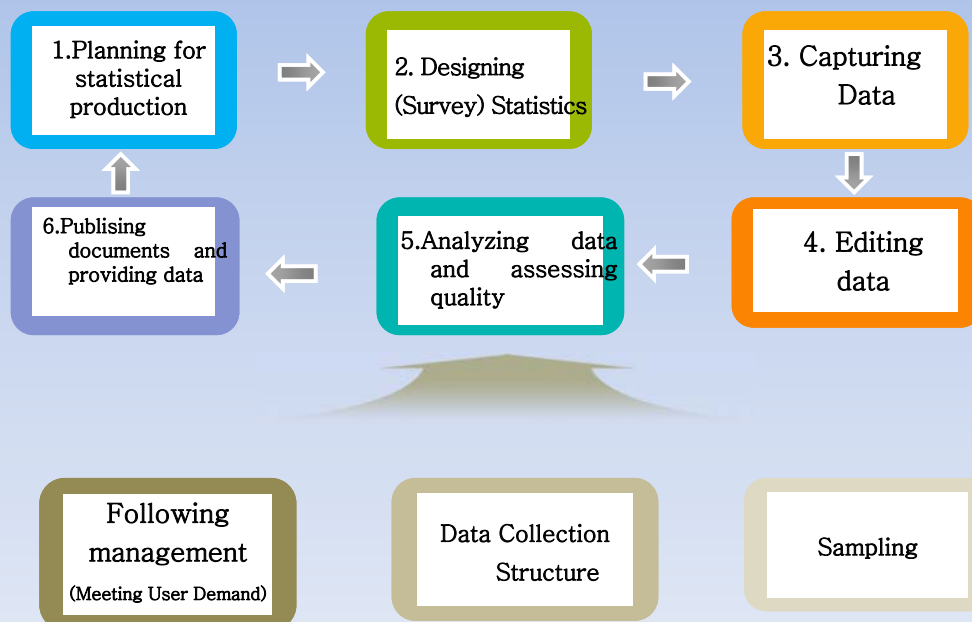
- * over time – the extent to which data from different points in time can be compared.
- * through space – to extent to which data from different countries and/or regions can be compared.
- * between domain – to extent to which data from different statistical domains can be compared.

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II. Main Features

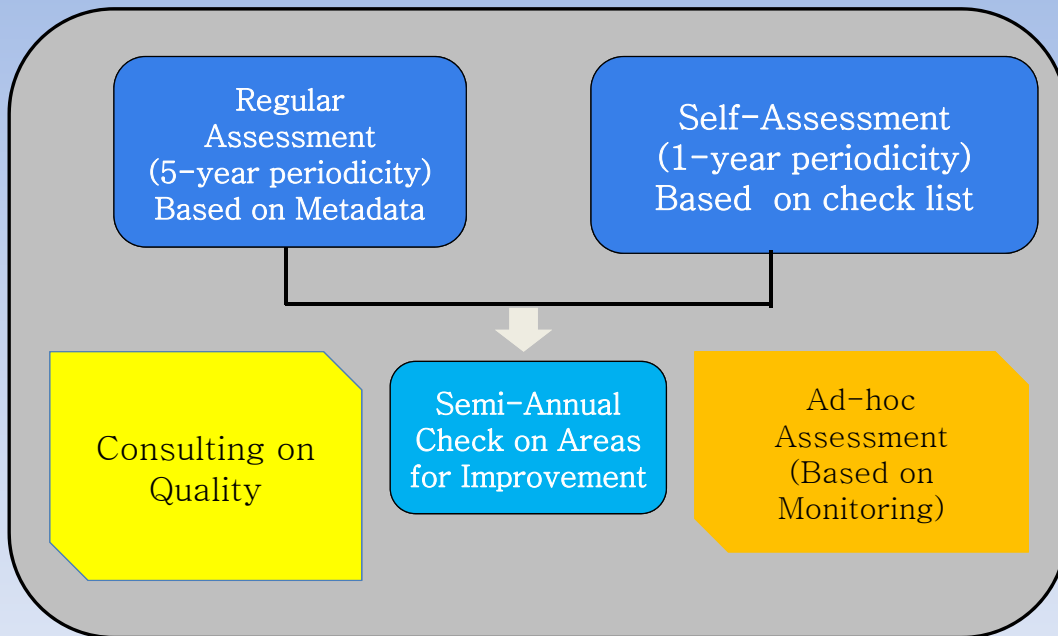
2. QMS oriented to the procedure of Statistics

→ Metadata are vital for informing both producers and users about data quality

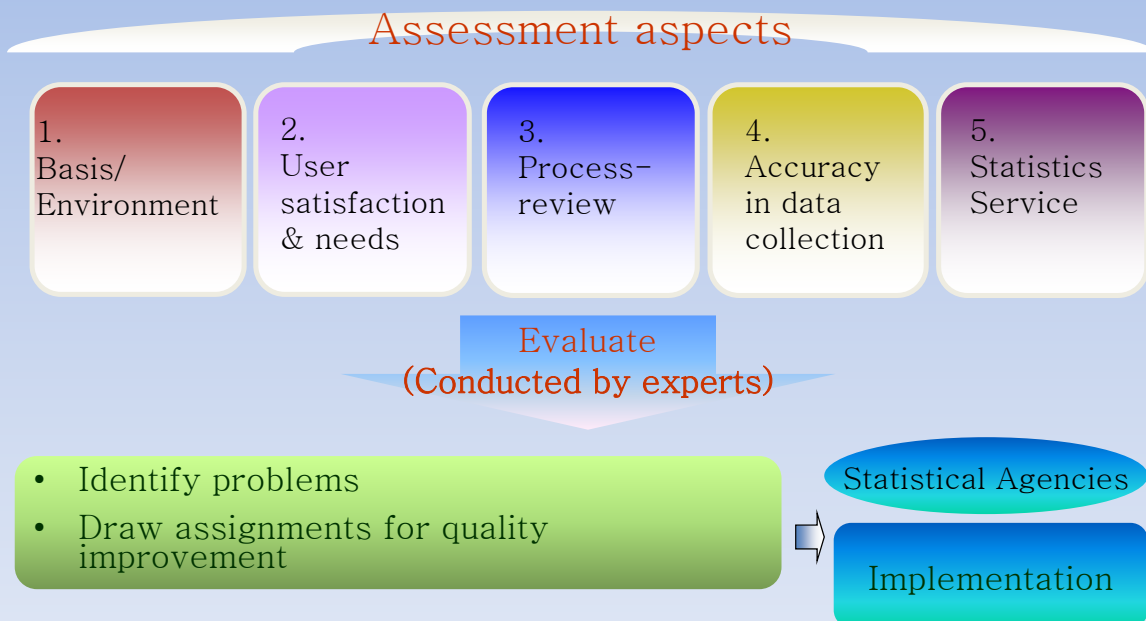


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3. Various types of Quality Management



4. Regular Quality Assessment(5-year periodicity, Key Statistics)



4-1. Contents of Regular Quality Assessment

Assessment on Basis for Statistics Production

- Statistical organization, HRM of statistical personnel, budget, external and internal infrastructure

Assessment on Meeting User Demands

- In-depth interviews with experts and general FGI to understand current user demands

Assessment on Detailed Procedures for Statistics Production

- Production plan, sample and standard design, data collection and aggregation, etc

Assessment on Accuracy of Collected Data

- Non-sample error or error-checks in data collection, efficiency of data collection

Assessment on Statistics Service

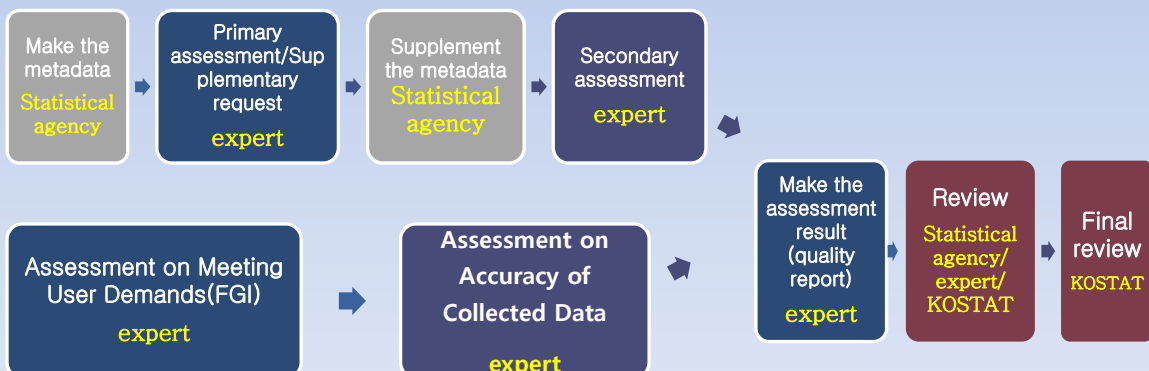
- Accessibility and clarity of statistics(statistics provision system, publications, numerical error of data, etc)

4-2. Procedure of Regular Quality Assessment

Assessment contents

Qualitative and Quantitative assessments according to the manual provided by the KOSTAT based on the metadata report written by the statistical agencies

Process of Assessment



❖ Writing of metadata on statistics
(by statistical agencies)

⇒ Assessment of statistical quality
(by external professional agency)

⇒ Quality report is written by experts

⇒ Final review (by KOSTAT)

* Metadata is information on overall procedures for statistical production with detailed methodology.

* Quality report can be used for quality assessment and user guideline. ([Example](#))

- The report is written by experts.

4-3. Result of Regular Quality Assessment

❖ Assessment of 500 statistical products
planned over 5-year period

❖ Expected outcomes

- Improvement of quality management capability and strengthened responsibilities of statistical agencies

⇒ Assuring the production of high quality statistics

- Prevention of misuse of statistics with use of detailed quality information

< Number of Statistical Quality Items >

Process Dimension	I. overview	II. Statistical Purpose	III. Designing	IV. Collecting Data	V. Administrative Data	VI. Encoding and Content Review	VII. Analyzing Data	VIII. Providing Data	IX. Basis/Environment	X. Reference	Total
Relevance	2	2	1		1			3			9
Accuracy			4	7	1	3	5		2		22
Timeliness/Punctuality								2			2
Comparability			1				1	1			3
Coherence								1			1
Accessibility/Clarity								7			7
Total	2	2	6	7	2	3	6	14	2	0	44

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V. Check list of Use of Administrative data

Producer has provided users with a detailed description of the administrative system and operational context.

Relevance

Explained why the data are collected, who by and how; explanations for classifications ...

Accuracy

- o Linking methods and matching rates of between administrative data and survey data etc...

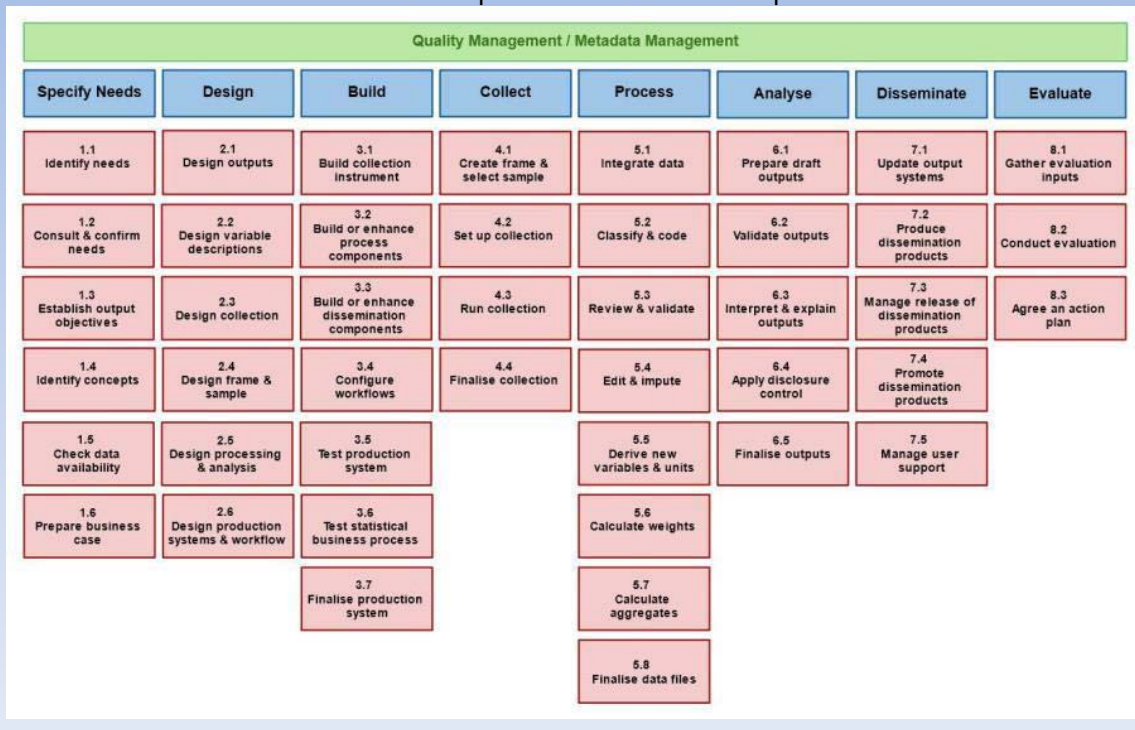
Identified and described potential sources of bias and error in the administrative system.

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>> GSBPM(Generic Statistical Business Process Model)

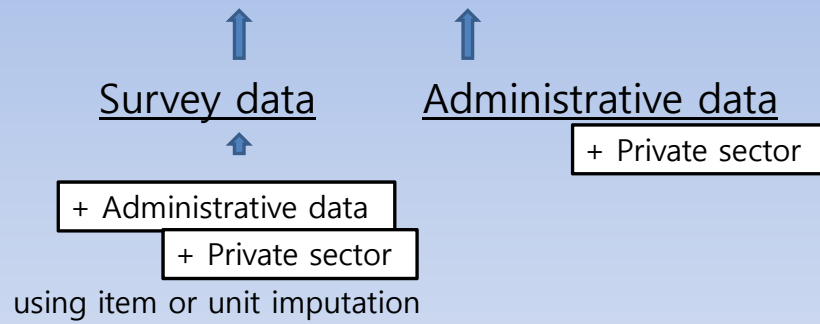
(<https://statswiki.unece.org/display/GSBPM/Uses+of+GSBPM>)

GSBPM provides a framework of standard terminology to describe and define the set of business processes needed to produce official statistics.




III. Case Study in Kostat

Statistics



Ex1. annual Income ← tax data
variable from HH

Ex2. Communication fee ← SK, LG, KT. Corp.
(Household Income and Expenditure Survey)

Process of using Administrative data



Agencies
(Public
Organizations)

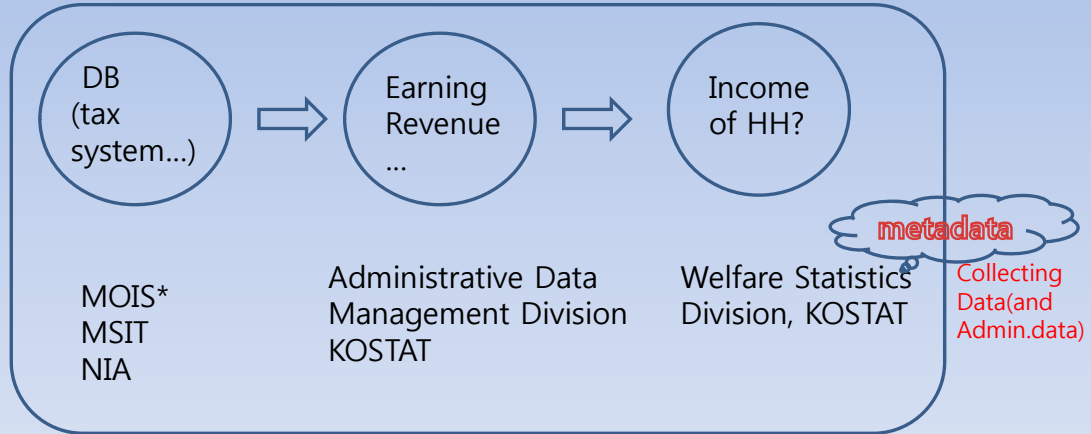
Administrative Data
Management Division
KOSTAT

Welfare Statistics
Division, KOSTAT

Quality Assurance of Statistics using admin.data

⇒ Quality Report

Who...What...How...



- * MOIS : Ministry of Interior and Safety (행정안전부)
- MSIT : Ministry of Science and ICT (과학기술정보통신부)
- NIA : National Information Agency (한국정보화진흥원)

♥ Thank You!!!

