

Korean Process Model and Generic System for Modernization of Official Statistics

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Abstract

NARASat is Korea's representative statistics production system built on GSBPM v4.0. And it is time to upgrade the system in order to provide timely service to various statistical needs in accordance with the changes in the current statistical environment. In this paper, KSBPM, a process model in Korea and NARASat, a generic statistics production system, will be introduced and achievements, challenges and future plans will be reviewed.

Keywords

GSBPM 4.0, KSBPM 1.0/2.0/3.0, NARASat

1. Background

Republic of Korea has a decentralized production system of official statistics. As of April 2019, 422 related agencies (including Statistics Korea) produce 1,142 official statistics and serve them to public. To make it easier for the public to find and use data, Statistics Korea has provided the integrated dissemination environment of official statistics. KOSIS(Korea Statistical Information System) and MDIS(MicroData Integrated System) are integrated web services for statistical data dissemination such as microdata and tables. Data users can find and use all official statistics through these web services at once.

In 2010, an integrated standard environment of statistical production phase was continuously required. The one reason is to acquire and maintain the capabilities required for production of official statistics. In Korea, each agency has a different organization and staff in charge of statistics. In addition, some agencies have statistical production system, but others do not. Moreover, it is common in Korean government and related agencies to change their staff's work every two-to-four years. Therefore, there is always a concern about the loss of experience and know-how in producing official statistics.

Another reason is cost-effective use of government budgets. Before 2010, the process of statistical production was managed individually by each agencies. Thus, generic system functions (such as CASI, CAPI, and questionnaire design) were developed repeatedly by each agencies. As a result, the budget was being spent inefficiently on the introduction of statistical production systems.

Statistics Korea is working to standardize the process of statistics and develop the generic system. In this paper, we would like to share our cases and experiences with others who are considering the statistical system based on GSBPM.

2. The Statistics Process Model in Korea – KSBPM

In 2006, through annual quality evaluation activities on official statistics, it was found that the common guidelines of statistical production process were needed. As a result, the guidelines for producing official statistics were developed and recommended to related agencies in 2009.

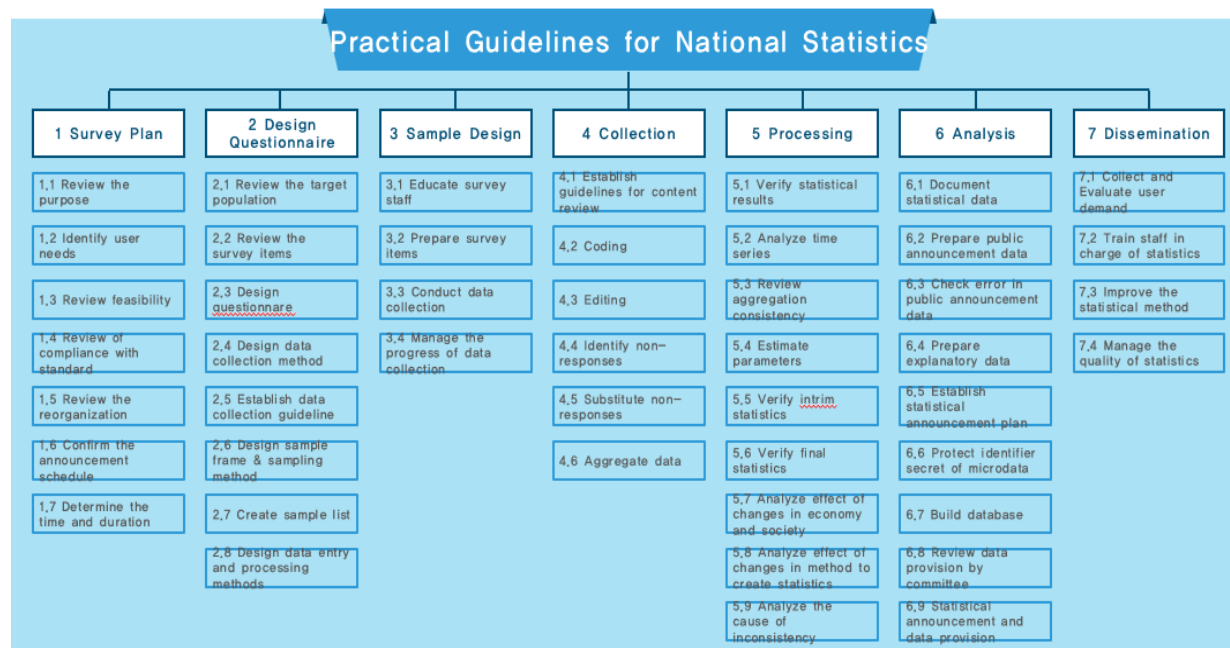


Figure 1. Statistical Work Guidelines

In 2011, KSBPM v1.0 was developed by comparing and adjusting the domestic guidelines with GSBPM 4.0 of ModernStats. Considering the needs of users, KSBPM described more detail in each process and improved easy to understand by using visualization such as flow-charts and graphs. KSBPM v1.0 was consist of 9 phases and 47 sub-processes. There were some differences between KSBPM and GSBPM. For example, KSBPM has the “pre-analyze budget” process in the “plan” phase. It is because Korea government demands a thorough budget-analysis report before starting a public project.

In 2016, Statistics Korea released KSBPM v3.0. KSBPM v3.0 covers the new paradigm of statistical production using administrative data and other big-data. This model adds the “check data availability” process to “plan” phase and integrates some sub-processes. As a result, KSBPM v3.0 is consist of 9 Phases and 45 sub-processes and improves the compatibility with GSBPM.

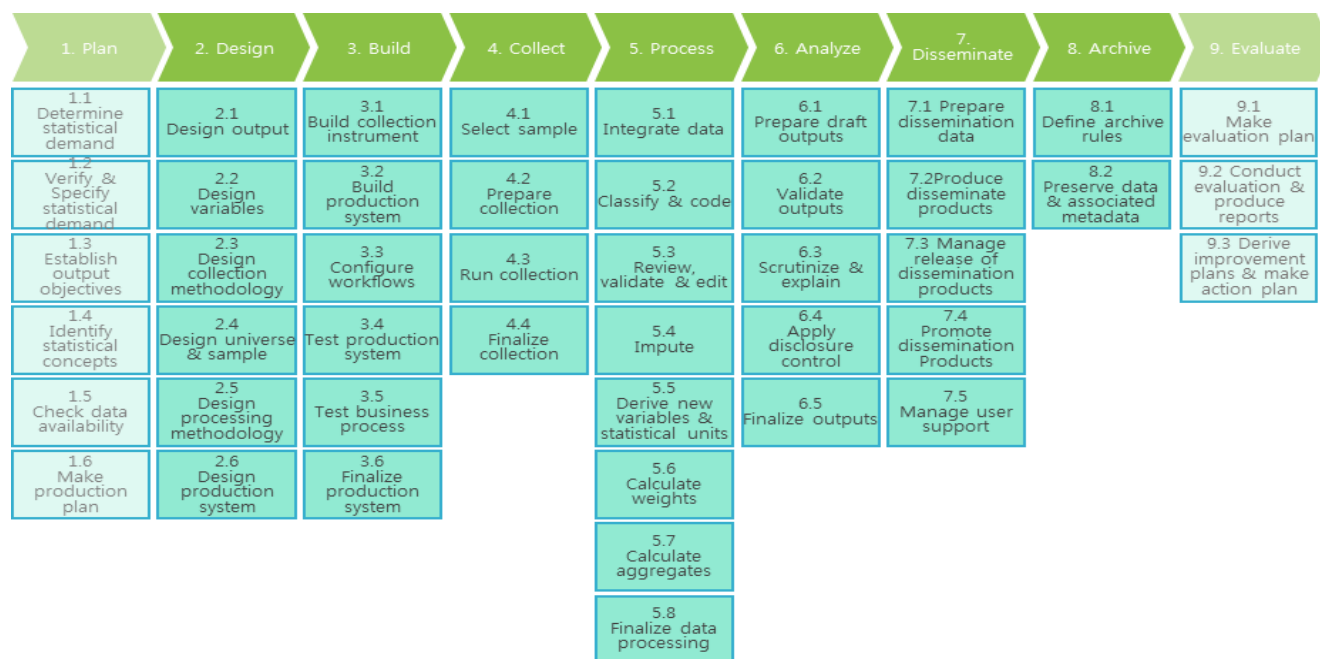


Figure 2. KSBPM v3.0

3. The generic statistics production system of Korea – NARASat

With KSBPM, Statistics Korea has developed a generic statistics-production system and provides it to related agencies for supporting official statistics production.

This project started in 2010. Statistics Korea made an information strategy plan for official statistics production. Under this plan, Statistics Korea developed a production system (, we called it NARASat,) and related common functions from 2011 to 2015. At the same time, Statistics Korea has been expanding production system supports to related agencies from 2011.

NARASat is an infra-system that automates the various tasks required for statistical production. It derives the statistics-production system by combining only the functions required by each official statistics from the function set of NARASat. It provides the common function sets necessary for whole production phases such as survey design, data collection, data processing and data management. In particular, NARASat supports various data collection methods such as CAPI, CATI, CASI as well as CADI (interviewing). And it can use not only desktop PC but also tablets and smartphones as a data collection tool.

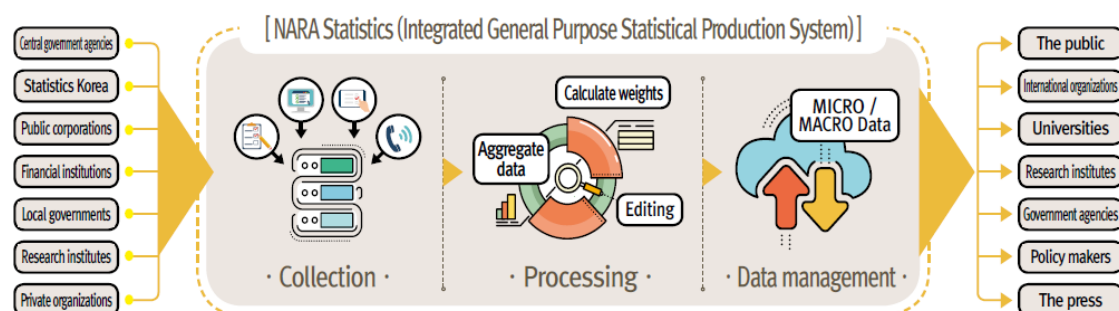


Figure 3. NARASat System Concept Map

4. Achievements and Challenges

Today, Statistics Korea helps the production of 459 official statistics from 245 related agencies with KSBPM and NARASat. In addition, Statistics Korea has improved and equalized the quality level of official statistics, regardless of the agency's capability. Moreover, Statistics Korea prevents overlapping investments in budgets and provides each production system of official statistics in an efficient manner.

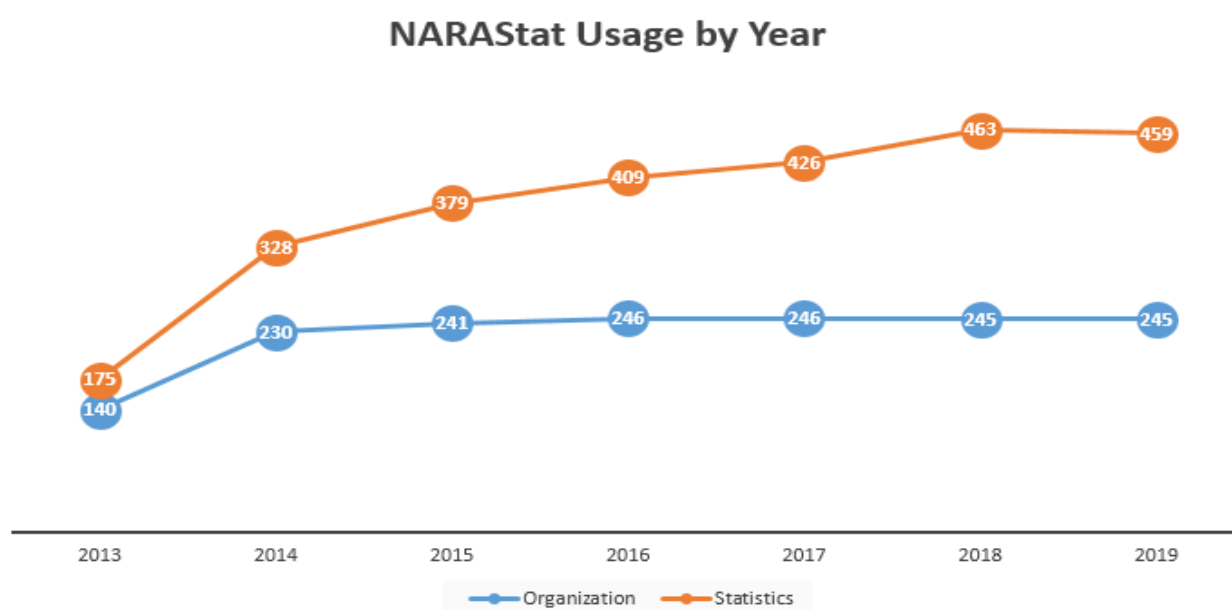


Figure 4. NARASat Usage Status

However, despite many achievements, there are also challenges for the future.

The first is efforts to clarify the KSBPM guidelines and to expand their use. The KSBPM is not a discipline, but a recommendation. Thus, many agencies still use domestic guidelines (developed in 2009) or their own process models. Therefore, KSBPM should be updated easier to use and more clearly to understand what the inputs and outputs is in each processes.

The second is the improvement of the NARASat system from the user's perspective. Some functions of NARASat, such as CATI, are not actually being used as much as expected. In addition, due to the complexity of NARASat, some agencies are using it only for limited tasks. A statistics-production system needs to provide a work-friendly and flexible environment when statisticians make changes survey items, error-check lists or data analyses.

Finally, much elaboration is needed to standardize what data to be archived and how to. In Korea, many agencies produce official statistics according to standard process supported by NARASat, but determines type and scope of archive data individually. The lack of standard management of archive data makes it difficult to link other (heterogeneous) data. In the end, it reduces the advantages of the intergrated production environment.

5. Future plan

Statistics Korea will strive to provide general-purpose statistical production procedures and systems that users are satisfied with. To this end, the user's requirements for KSBPM will be reviewed and continuously specified. Required inputs and outputs for each process will also be specified to increase the value of the final statistical output.

The general purpose system will provide the various functions necessary in the statistical production process, while improving them in a simple and convenient manner. To this end, GSBPM will enhance modularity of system functions in each phase. The relevant agencies will provide a service to select and focus on the Phase that requires system support.

It will understand and reflect the changes in GSBPM, GSIM in ModernStat. The results of GSBPM and GSIM's linkage activities in 2019 are expected to help shape and improve the country's statistical production procedures.

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