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A Study on the Improvement of Building Administrative Statistics and the Convergence of Spatial Information

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SUMMARY

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This study is meaningful as a study to find ways to upgrade current building statistics produced based on building administration information and to develop new building statistics in response to changing policies, market environments, and demand for building statistics in various fields.

□ Improvement of current building statistics

In order to improve the current building statistics, this study first reorganized the statistical explanation data and attempted to improve the current building statistics table. The current building statistics are provided on the KOSIS National Statistical Portal, e-Nara Indicators, and Statistics Nuri of the Ministry of Land, Infrastructure and Transport, but there is a problem that explanatory data for each statistic are inconsistent. Therefore, this study attempted to provide consistent standards and explanations between statistical presentation channels by presenting statistical explanation data and amendments to statistical items.

The current statistics on building status are published based on metropolitan governments and local governments with a population of 500,000 or more, which can

be produced by city, county, and district to understand the building status and characteristics of each local government and to establish building management policies. The current building permit and construction statistics provide building permit and construction status by number of buildings, total area, city, and year, but this study's statistical improvement plan cross-produced building permit and construction status by building structure, use, permit, and construction type. Compared with the current permission and construction statistics, it can be used in the building materials industry by identifying the current status of building materials by building use and contributing to the establishment of policies according to the size and economy of related industries.

□ Statistical Development and Pilot Production of New Buildings

The new building statistics consist of 11 types of building life cycle statistics, 10 types of building construction statistics, and 4 types of building status statistics, consisting of a total of 3 fields and 25 types of statistics. Building life cycle statistics are the first statistics developed and piloted in Korea, showing the status of permission, cancellation, construction, construction, construction, completion, incomplete, old, and loss of buildings from the permit stage to the destruction stage, and provide time and average usage period for the overall building life cycle. The construction statistics show the construction status of the new building by detailed structure, number of floors, and size, and the statistics show the use, number of floors, and structure of the entire building in detail.

The new building statistics produced were classified into state-approved statistics and other statistics by analyzing the status of building administration information and evaluating the reliability, necessity, and utilization of statistics by 4 points or more (out of 5 points). As the final national approval statistics, 9 types of statistics related to the life cycle of buildings, 1 type of building status statistics, 10 types of national approval statistics, and 14 other statistics (excluding construction cost statistics) were proposed as other statistics.

The new building statistics developed in this way contribute to the more accurate judgment of the building industry and the local economy from an industrial perspective, and can be used as scientific evidence to establish urban and building management policies suitable for the local situation.

In addition, by directly piloting new statistics, problems arising in the process of

generating and managing building administration information could be identified to identify information that needs to be improved in the future. Major types of information errors can be summarized as errors in building register information before the introduction of the building administration system, errors in information due to essential values and input methods, and difficulties in maintaining building register information due to the risk of property infringement. By identifying reliability according to the degree of information error, it is possible to suggest implications and development directions for future statistical development using construction administration information by checking actual statistical production information, improvement necessary information, and future utilization information.

□ Development and Pilot Production of Spatial Information Convergence Statistics

Spatial information convergence statistics were intended to respond to statistical demand due to changes in social conditions and environments by converging with information from other fields based on building administration information to produce building statistics by use area and building statistics in flood hypocrisy area. The statistics of buildings by use area are statistics produced using cadastral map, land characteristic information, and building administration information. As an alternative, three linkage methods for convergence between information were proposed, and as a result of a comparative review by alternative, the center point of land characteristics information was combined with spatialized architectural administration data based on PNU. Building statistics by use area can be used as useful basic data for urban planning according to the social, physical, and economic characteristics of each region, such as population decline and urban decline. The building statistics based on the flood trail are statistics produced by combining flooded information on areas affected by flooding due to typhoons, heavy rains, and tsunamis with building administration data. The submerged hypocrisy produced statistics by age, number of basement floors, total area, and use of buildings in the flooded hypocrisy area using SHP files provided by the Korea Land Information Corporation. The produced statistics may be provided as data for understanding the current status of buildings in areas where natural disasters are likely to occur, such as urban floods and landslides, and establishing building safety and management policies.

This study is meaningful in that it confirmed the possibility of linking space-mediated information by converging and actually producing two data with different attribute

information. The implications of the pilot production process are that the convergence between heterogeneous data requires a key to connect data, and if the spatial scope, information provider, and method of each data have consistent standards, convergence statistics between various fields will be possible.

Keywords :
Building Statistics, Statistics on Building Permission and Commencement Works, Statistics on Building, Building Life Cycle Statistics, Spatial Information Convergence Statistics