

1. **Objective of These Guidelines**
 2. **Definition of Terms**
 3. **Basic Principles to Create and Provide Mobile Spatial Statistics**
 4. **Procedure to Create Mobile Spatial Statistics**
 5. **De-identification Process**
 6. **Aggregation Process**
 7. **Anonymization Process**
 8. **Providing Mobile Spatial Statistics**
 9. **Measures to Manage Employees and Contractors**
 10. **Procedure to Terminate the Use of Operational Data**
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1. **Objective of These Guidelines**

The objective of these guidelines is to provide the basic points to be observed when creating and providing mobile spatial statistics.

2. **Definition of Terms**

The meanings of the terms in these guidelines are as follows.

Mobile spatial statistics

This refers to the statistical information created from operational data generated in the process of providing telecommunications services for the purpose of developing and improving the social information infrastructure, from which particular individuals cannot be identified. It is created by subjecting the parts of operational data such as location and attribute data to the de-identification, aggregation, and anonymization processes, and it is supposed to be provided for sectors such as public, academic research, and industry.

Operational data

This is a generic name for data generated in the process of providing telecommunications services, and includes location and attribute data.

Location data

This is the part of the operational data that indicates the location of mobile phones and other devices, and includes accompanying information such as the data generation time.

Attribute data

This is the part of the operational data that includes data provided by subscribers when they, for example, subscribe to telecommunications services and the country number obtained from the roaming information.

De-identification process

This is a process to strip the operational data of identifiers such as names, phone numbers, and dates of births, and the process includes removing identifying data, rounding numeric values, and performing conversion to non-reversible code.

De-identified information

This refers to the information obtained by the de-identification process.

Aggregation process

This refers to a process to derive statistical information about groups through statistical estimation from the de-identified information, including estimation of the distribution of the number of people, estimation of the number of people on the move, and estimation of the composition of the number of people based on attributes such as gender and age.

Aggregation results

This refers to the information obtained by the aggregation process.

Anonymization process

This refers to a process to strip the aggregation results of the numeric values for areas with a small number of people.

3. Basic Principles to Create and Provide Mobile Spatial Statistics

- (1) Mobile spatial statistics shall be created in accordance with the creation procedures specified in Sections 4 and 7 as statistical information from which individual telecommunications service users cannot be identified.
- (2) Mobile spatial statistics shall be provided in accordance with the provision policies specified in Section 8.

4. Procedure to Create Mobile Spatial Statistics

- (1) Mobile spatial statistics shall be created by subjecting the operational data to the de-identification, aggregation, and anonymization processes.
- (2) Data provided as mobile spatial statistics shall be subjected to all three processes described above.
- (3) The above three processes to create mobile spatial statistics shall be performed automatically and the corresponding system shall be managed in accordance with the internal regulations.

5. De-identification Process

- (1) De-identification process strips the operational data of identifiers such as names, phone numbers, and dates of birth, and assigns non-reversible code^{*1} for the aggregation process.
- (2) A secure one-way function shall be used to generate non-reversible code for the above aggregation process in order to prevent re-identification of the de-identified information from the non-reversible code.

- (3) For example, a keyed hash function^{*2} based on a hash function^{*3} recommended by evaluation projects, evaluation organizations, etc.^{*4} inside and outside Japan shall be used as the above one-way function.
- (4) A system to strictly operate and manage keys^{*5} for the keyed hash function shall be established by appointing persons to manage the keys in the organization.

*1 This is a code generated from input information, which has the property that the input information used for generation cannot be back calculated from that code.

*2 This is a kind of hash function that can enhance security using a secret key for function processing.

*3 This is a kind of one-way function that has the characteristic that the input string cannot be traced back from the output string. This function converts an arbitrary length of string to a fixed length of string, which has the characteristic that the same corresponding string is output for the same input.

*4 For example, Cryptography Research and Evaluation Committees (CRYPTREC) in Japan and National Institute of Standards and Technology (NIST) in the US.

*5 These are electronic parameters used for the keyed hash function processing.

6. Aggregation Process

- (1) This process aggregates the de-identified information to statistically estimate the distribution of the number of people, the number of people on the move, and the composition of the number of people based on attributes such as gender and age.
- (2) Aggregation results obtained by the aggregation process shall not include the non-reversible code for the aggregation process in Section 5.

7. Anonymization Process

- (1) This process strips the aggregation results of the areas with a small number of people.
- (2) This process shall be performed using an appropriate technique from the viewpoint of the usefulness of the aggregation results and personal identification prevention by reference to the use cases in public statistics and technological development trends inside and outside Japan.

8. Providing Mobile Spatial Statistics

- (1) Use of the mobile spatial statistics for a purpose that is offensive to public order and morals shall be prohibited and the purposes of using such information shall be defined in the terms and conditions of the provision contract.
- (2) Publication and reprovision of the mobile spatial statistics by the receiver shall be defined in the terms and conditions of the provision contract.

9. Measures to Manage Employees and Contractors

- (1) An information manager in the organization in charge of creating and providing mobile spatial statistics (hereinafter referred to as the information manager) shall implement the necessary and proper supervision for employees and other people who handle the mobile spatial statistics to ensure security management is performed in line with these guidelines.
- (2) When contracting a job to create and provide mobile spatial statistics to a contractor, the information manager shall implement the necessary and proper supervision for the contractor to make sure the mobile spatial statistics are managed securely.

10. Procedure to Terminate the Use of Operational Data

- (1) When a customer requests termination of the use of operational data for the mobile spatial statistics, use of operational data involving that customer shall be terminated.
- (2) When a customer who requested termination of the use of operational data permits resumption of its use, operational data involving that customer generated after permission was granted may be used to create mobile spatial statistics.