Inclusive National Transport Network Design

Managing Director of Smart Infrastructure Research Center **Jonghak Kim**, Assistant Research Fellow **Junghan Baek**

Summary

1. **The government is pursuing the inclusiveness-based balanced land development policy 'for the country where all people live well everywhere' and at this time, the concept of 'inclusiveness' is required for national transport networks**

   - The Seoul-based one-pole national transport network system contributed to economic growth during the high growth period but may weaken local development potential during the low growth period

   - In order to improve the Seoul-based one-pole national transport network system, it is necessary to link between regional small and medium cities and between coastal areas

2. **In order to design inclusive national transport networks, the linkage types are divided into between large cities, between regional small and medium cities, and between coastal areas, and an MST* analysis was conducted to derive an appropriate network for each type**

   * MST (Minimum Spanning Tree) is a method of deriving a tree that links selected nodes (regions) with the shortest distance

   - The linkage areas (cities) by the linkage type were selected by population size and four scenarios were prepared for each type, which makes a total of 12 scenarios; a suitable transportation network for each scenario was derived by analyzing the 12 scenarios through MST

3. **The shape of shield (⊠) made by overlapping analysis results of each linkage type is proposed for the inclusive transport network design**

   - The following transport networks are derived: the linkage network between large cities is the shape of 入 (Chinese character) which connects Seoul, Gwangju, Busan, and more; the linkage network between regional small and medium cities is the shape of 人 (Chinese character) which connects Honam area, Gangwon area, and more; the linkage network between coastal areas is the shape of a square (□)

   * 入 (link to large cities) + 人 (link to regional small and medium cities) = X

   ⇒ X (large cities + regional small and medium cities) + □ (coastal areas) = ⊠

Future Tasks

① **(Establishment of a space-oriented national transport network)** As the large city-centered transport network generates mainly the demand for large city traffic, which continuously causes the alienation in other areas, the direction of national transport network establishment needs to be shifted from demand-oriented to space-oriented

② **(Establishment of national transport network linked between regional hub cities)** In order to secure growth potential focused on regional areas, it is necessary to establish a national transport network linked between regional hub cities

③ **(Establishment of a circular national transport network focused on metropolitan economic zones)** In order to promote regional development by enhancing the mutual accessibility of human and physical resources in the metropolitan economic zones, it is necessary to establish the shield shape (⊠) of the national transport network