Session 1. Technological Revolution and Future City

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- Three-dimensional Traffic Network based on the Automotive-ICT incorporation -

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Recently, there are various discussions about the transforming structure of the future city. Due to the population density ever growing today, issues about energy efficiency, economic efficiency in the cities are discussed as key issues and the roles of a small scale, compressed city are greatly emphasized. Especially, the increasing number of high rise buildings and mega-scale skyscrapers triggers a thought on how it may transform the existing transportation system. Transformation of city structures due to the high-rise buildings reminds us the need for new infrastructure other than the highways and railroads that could only move horizontally; the alternative being an infrastructure that could move vertically, or even perpendicularly. In a 'compressed city' where a horizontal and vertical structures of transportation exist in balance, this multitude of transportation structures could become fundamental for moving humans and all matters. Moreover, if the Information Communications Technology (ICT) and mobile technology incorporate into one, transportation network that previously monitored three-dimensional spaces could develop into an information based system, the Cybernated Cluster, and this may become a crucial game changer for the future city.

This argument is based on a research on 3D traffic network with vertical/horizontal orientation conducted by the Korea Transport Institute. Also, I will be presenting a summary about the existing 3D networks of the horizontally-oriented infrastructures and transports within the areas such as the underground, land and mid-air. The automotive technology and the mobile based ICT are the foundational ideas that could accommodate the fast growing development of a new 3D traffic network. In specific, there is a need to build and manage a new multi-level connections and transfer system, which is also 3D based, so that the system could incorporate various kinds of transports such as the self-driving car, vertical take-off and landing(VTOL), personal air vehicle(PAV) or a Heli-Auto, and an amphibious automobile. It is not so difficult to envision our future city utilizing the 3D traffic networks with such technological incorporation and development.