

지속가능한 스마트시티 구현을 위한 도시설계 전략
Urban Design Strategies for Sustainable Smart City

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SUMMARY

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This study was inspired by the idea that urban design for the smart city should be different from that applied to existing cities. The revolution of mechanization powered by the steam engine, the revolution of mass production enabled by electricity, and the revolution of knowledge and information rooted in the computer and Internet had direct impact on citizens' lifestyles and the structural changes of urban space. In the era of the Fourth Industrial Revolution underpinned by artificial intelligence, the Internet of things, cloud, big data, and mobile, urban space should be planned and designed in a different way.

Korea has pioneered smart city policies and promoted relevant industries through, for example, ICT industrial clusters in the 1990s and ubiquitous cities in the 2000s. With these smart city policies, it has developed world-leading ICT technology and infrastructure. Now it is time to think about how to connect the technology and infrastructure to citizens' living space. This calls for an innovative shift from tech-centered Smart City 1.0 to space- and human-centered Smart City 2.0. This study represents the starting point of urban design for Smart City 2.0 and aims to present smart urban space guidelines as part of the urban design strategy to build a sustainable smart city.

The key outcomes from this study are as follows: First, the concept and principles of

smart urban design. In this study, the operational definition of smart urban design is given: “a method to create and manage socially, economically, and environmentally sustainable urban space using technologies from the Fourth Industrial Revolution, including digital, environmental, and materials technologies, or urban space as a result therefrom.” The five principles of smart urban design presented herein are “pursue the fundamental values of urban design,” “pursue resolving urban problems and improving functions,” “seek open design,” “seek human-centered space,” and “seek smartification in design and construction as well as design outcomes.”

Second, case studies of space-based smart city construction and management in Korea revealed their accomplishments and limitations from the urban design perspective. The findings suggest that smart city projects in Korea have focused on providing innovative technology-based smart facilities and services with the aim to resolve urban problems and improve functions. In most cases, there were limitations in terms of open design, i.e., flexible and loose use of space in preparation for future changes in technology. Also found from many cases were deterioration in the quality of urban space caused by smart facilities and services introduced without considering the fundamental values of urban design, such as aesthetic impressions, amenities, placeness, and convenience.

Third, design guidelines for smart streets and smart parks are presented. The focus here was on developing a manual on how to apply smart city technologies and services centering on urban space, which is in contrast to the conventional approach. It suggests design orientations and standards to select and apply smart technologies and services that help improve the quality of streets and parks where we walk, rest, play, and stay daily in terms of residence, safety, environment, energy, roads and transport, leisure, and amenities. Design palettes were developed for urban space design methods that feature a high level of completeness and greater ripple effects anticipated, looking forward to government agencies using them in their smart city policies and projects.

The smart city is a type of city that is based on a spatial form. Space is an interface between the city, humans, and smart technologies and services. Innovative smart technologies and services are provided to citizens through space, and relevant industries grow when they are contained in space. Urban space represents a unique value proposition of the smart city, serves as a node for the dispersion of information and services, and facilitates exchanges among citizens. To make a space- and human-centered smart city, continued research on and discussions of smart urban

design are warranted. And it should be underpinned by the government's and municipalities' smart urban design legislation, institutions, and policies.

Keywords :

Smart City, Urban Design, Street, Park, Guideline