

Quantitative Analysis of the Functional Characteristics of Urban Complexes Based on Station-City Integration: Fifteen Case Studies of European, North American, and East Asian Railway Stations

Authors : Dai Yizheng, Chen-Yang Zhang

Abstract : As station-city integration has been widely accepted as a strategy for mixed-use development, a quantitative analysis of the functional characteristics of urban complexes based on station-city integration is urgently needed. Taking 15 railway stations in European, North American, and East Asian cities as the research objects, this study analyzes their functional proportion, functional positioning, and functional correlation with respect to four categories of functional facilities for both railway passenger flow and subway passenger flow. We found that (1) the functional proportion of urban complexes was mainly concentrated in three models: complementary, dominant, and equilibrium. (2) The mathematical model affected by the functional proportion was created to evaluate the functional positioning of an urban complex at three scales: station area, city, and region. (3) The strength of the correlation between the functional area and passenger flow was revealed via data analysis using Pearson's correlation coefficient. Finally, the findings of this study provide a valuable reference for research on similar topics in other countries that are developing station-city integration.

Keywords : urban complex, station-city integration, mixed-use, function, quantitative analysis

Conference Title : ICCAE 2022 : International Conference on Civil and Architecture Engineering

Conference Location : Sydney, Australia

Conference Dates : February 24-25, 2022