

The Walkability Index: towards a structured framework

Alain Chiaradia, Noah Raford, Seiji Takamatsu

Space Syntax Limited, UK.
a.chiaradia@spacesyntax.com.

Abstract

Space syntax traditionally captures the percentage of movement which is related to the grid itself; or natural movement. This depends upon a reasonable level of intelligibility, an even distribution of trips through-out the system, and a congruence of other variables such as major origins, destinations, and transport hubs. This relationship can be utilised to model and forecast movement patterns in the light of changes to urban configuration. In cases where trips are not evenly distributed or where major attractors are present, it may be necessary to include other factors in the model in order to account for deformations in the natural pattern of urban pedestrian movement.

This paper presents results from Space Syntax Limited's Walkability Index, a multiple regression analysis that was developed to deal with complex urban environments. This approach incorporates variables such as population density, distances to transit, landmark features, and the presence of retail and other attractors. The result is a new more robust forecast of pedestrian flows that better account for the relative variance and weight of these variables in complex urban environments.

This paper has two parts. The first part of this takes the form of a "state of the practice" literature review, suggesting three different but interacting domains of methods and approaches. These domains are; trip generation approaches, which analyse the demographic or attitudinal factors of why people walk and attempt to estimate movement volumes based on these factors, trip distribution approaches, which analyse the spatial morphology, attractor effects, ease of transit, and other factors that influence where people walk, and level of service approaches, which try to estimate walkability based on capacity, comfort, and security factors.

The second part presents three current case studies using the Walkability Index in the context of these approaches. These case studies demonstrate the principles of the Walkability Index and display how the use of this method can increase the accuracy and utility of the space syntax approach in a wide variety of environments. The paper then concludes with a discussion of how the Walkability Index fits into the context of other techniques and discusses opportunities for further improvement.

Literature

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