

From compact colonial villages to sparse metropolis: Investigating grid integration, compactness and form of the integration core in Brazilian cities

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Abstract

This paper explores three variables – grid integration, compactness, and form of the integration core – to investigate the spatial configuration of Natal, Brazil, focusing on its old town centre. Results are compared to the data resulting from the analysis of Brazilian urban settlements by the DIMPU/UnB and the MUsA/UFRN research teams. Syntactic modelling and GIS techniques are used to investigate the urban expansion of Natal, and new procedures are proposed for calculating integration cores and compactness values. It was found that the city's integration core “shifted” southwards, away from its original settlement, “stabilised” around the 70's, and expanded from then on, re-incorporating the old centre in its periphery and contributing to the maintenance there of a robust commercial “sub centre”. The diachronic analysis of compactness values suggests a pattern of cyclic growth in which expansion waves leave intermediary patches of low density that are, eventually occupied. It also demonstrates that the “modern” city is a great deal sparser than the “traditional” old centre thus confirming findings from the study of other Brazilian towns. It has been seen that the highest compactness is to be found in colonial settlements, and old city centres. On the opposite end of the scale, less compact, sparser grids occur in those designed under modernist guidelines and in metropolitan neighbourhoods scattered amidst unoccupied urban land. The study thus confirms hypotheses often presented in the literature but seldom demonstrated empirically, such as that of a positive correlation between measurements of “topologic” and “geometric” nature, and contributes to clarify nuances associated with cyclic stages of decay and/or vitality in Brazilian old town centres.

Keywords

Spatial configuration, grid integration, compactness, form of the integration core, Brazilian old town centres

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