

Chapter 13

City Structure in Transition: A Conceptual Discourse on the Impact of Information and Communication Technology (ICT)

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ABSTRACT

With the technological advancement of ICT, the cities of the world are becoming so dependent that ICT is challenging the conventional ideas and classic theories of city structure. The cities of the world are undergoing a transition that is caused by the shift of principle from 'physical movement' to 'virtual movement'. The state-of-the-art ICT featured by internet and e-commerce (Business-to-Commerce - B2C) is facilitating such shift which influences in changing the conventional ideas and structure of CBD, core business areas, city center, etc. Though the magnitude of influence on the transition process is yet to be known, there is an obvious transition that almost all cities of the world are experiencing. This book chapter conceptually discusses and portrays the potential changes in the conventional city structure by analyzing three classic city models (i.e., multi-nuclei, concentric and sector models), exploring the technological advancement in ICT and increasing dependencies on it and by drawing evidence from a pilot case study. This chapter argues that ICT induced change in the city structure, which we may call 'future city' or 'transitional city', would bring positive impacts on the physical and social environment, competitive land and transportation system in the city.

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INTRODUCTION

Information and communication technology (ICT) has increasingly become so important that everyday life cannot be thought of without it. The benefits of ICT have been spreading at a rate higher than ever and its effects are rooted to almost every aspects of everyday life such as from home, business, office and to every other domain (Aoyama, 2001; Abbate, 1999; Castells, 1989). There is a conventional wisdom that ICT and city planning are two different domains of knowledge that rarely have any mutual interdependence and inter-disciplinary effects (Aoyama, 2001; Audretsch, 1998). In many occasions, they are considered as two complete different disciplines without properly exploring and advancing the fact on the nature of their relationships and influences. It is evident, therefore, that there is a knowledge gap on the facts of their level of influences and its magnitude. Given this knowledge gap, this paper attempts to conceptually explore and analyze how the increasing dominance of ICT has been influencing to shape or re-shape the city structure. Though this paper draws a conceptual discourse, a pragmatic evidence of the current influence of ICT on a few aspects of the city structure is brought and analyzed to be able to open up a few windows of thoughts and scopes for further research on spatial planning. Among different areas of ICT, this paper explores the following two broad segments: e-commerce (B2C: Business-to-consumer) and online based multi-media, to explore and analyze their current and imminent effects on the city fabric.

CITY STRUCTURE AND ICT: A THEORETICAL CONSTRUCT

This section discusses and reviews literature on the typical city structure (e.g., location of CBD, development of sub-urban areas, location of industries, major commercial activities, and other

service facilities, etc.) and the advancement of ICT, particularly focusing on e-commerce (i.e., B2C). This will conceptually help to re-visit the conventional city structure and its hierarchy. Therefore, classic theories on city structure are discussed in this paper based on two approaches namely, ecological and economic approaches. Burgees', Hoyt's and Thunen's models are brought in to be able to understand the possible impact of ICT on the existing and popular wisdom of city structure and its hierarchy. This impact eventually demonstrates the power towards positive environmental changes, such as reduced number of trips, traffic congestion, low carbon emission, decreasing competition for acquiring high priced land in the CBD, etc.

Analysis of City Spatial Structure

The application of ecological approach for spatial structure of a city is a straightforward projection of ecological orientation directed to look for regular patterns of spatial distribution. This concept was first given by Burgess' in 1920s that was associated with a graphical description of ecological map of Chicago city, as a series of five concentric zones (Alshuwaikhat, 1988). Central Business District (CBD) which is known as inner most zone with all the dominant commercial activities, such as shopping areas, theatre districts, hotels, office buildings, banking districts and other businesses where land value is very high compared to other parts of the city. The next order zone often termed as 'zone of transition' which is easily identified by variety of changing feature of uses, such as residential areas, island-like cluster of first-citizen, homes persisting behind brick walls and iron fences, clinging tenaciously to the respectability that once marked in the entire area. Old structures may be still standing, but some signs of new usages and large apartment houses. The Third order zone is largely known as workingmen's homes of factory workers, laborers, low-income residents, etc. The Fourth zone is containing the large resi-

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