Chapter 2
City Competitiveness and Spatial Location

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ABSTRACT

This chapter discusses the importance of Information Technology to spatial location and city competitiveness. Understanding spatial location in urban networks can be informed by economic geography concepts, especially those with insights into how urban areas form and develop. Relative distance to markets and the flow of goods and services influences the spatial position of cities, shapes how urban settlements evolve, and helps explain their distribution. Concepts like accessibility and centrality—and strategies for measuring them—can be used to determine a good place to locate a business or transportation hub. This chapter makes a case for the importance of considering information utilities, especially telecommunication networks, as important part of economic geography, and ultimately the growth and competitiveness of cities.

INTRODUCTION

This chapter addresses one component of the geographical models used to evaluate and measure cities’ location advantages. The approach derives from the spatial analysis discipline, which emphasizes models and the importance of spatial location. The following discussion analyses how to describe and measure the spatial location in a manner that will contribute to understand cities competitiveness.

Cities are inter-related subsystems influencing each other. The economic analysis assumes inter-regional trade between them as a main component in competition analysis. The exchange of merchandise involves elements like goods and people’ transportation, traffic infrastructure - considering
traffic routes, networks, stations, bus terminals, airport terminals, etc.

New processes and information technology provide a continuing source of innovation requiring organizational changes. The importance of information leads to a condition where relationships between urban centers are important in determining competitiveness. A wide variety of interactions must be considered to define the capacity of an economy (national or local) to transform the opportunities for innovation in technological change in fact (Bradford, 1994).

The three concepts strongly linked to the traditional definition of the region (distance, contiguity in space and friction) have undergone changes with impact on the modern region (and the urban system). The reduction in transportation costs reduces the importance of these factors and results in the increasing of communication as a location factor. In the past, the size of the regions was an important criterion in its definition. The size also entered into obsolescence as a criterion. What matters today is the structural complexity of an organized territory (Boisier, 1994).

Distance is a relation between two points, considering a geometric space. A distance is defined in a metric system. The metric can be the Euclidian distance between two points or take a more complex metric system, like the energy needed to surpass this distance (Brunet et al, 1993). The metric defined in a space can indicate if two points are so close that the distance between them can not be noticed. In this case, those points are contiguous. A description of space as point’s connecting lines (that is usual for transportation and electric networks) correspond to the graphs mathematical model (as referred in Getis, 1989 and Jiang et al, 1999). In this conception, distance can be described by the effort needed to surpass it (as in Fotheringham, 1981 and 1983), sometimes expressed as friction of this space, resulting in a description of distance that can be called functional distance and can be measured in cost or time (Noronha, 1992).

To represent the urban system distance, contiguity in space and friction, the urban system has been diagrammed as a network. In this graph model, the transportation routes as lines and urban centers as nodes constitute the graph. In those models the spatial location of each urban center is considered one of the main factors. In the quantitative analysis, the distance can be measured in kilometers, time or cost to transpose the distance. The market size dimension is the population or income in the urban center.

The prerequisites for a modern region will be: flexibility and elasticity while facilitating factors in and out of networks with speed and timeliness. These important criteria suggest the structure of pivotal regions and organized complex territories identified in the scale of political-administrative division history (Boisier, 1994).

To have a better understanding of the urban system, there is a need for criteria and tools to evaluate those exchanges. In the competitive environment it is important to consider and measure information flows.

Economic conditions of global cities are based on the ability to store and process information and generate knowledge as stated by Castells (1998) and rescued by Abrahamson (2004). The argument presented is that the network to be described should be the connection between electric, telecommunication and transportation networks.

This approach can be applied in logistics, when deciding the best place to establish a deposit or to transportation procedures when describing the best place for a hub. It deals with a new spatial understanding where telecommunication flows are easier, more intense and should be considered in a more explicit way.

The information science advances and the evolution of spatial technology changed the spatial location and the spatial information. They became an asset and merchandise. Spatial location can be easily achieved through GPS devices, geoprocesing software’s and geospatial databases (e.g. GoogleEarth).