

## Chapter 30

# The Value and Scope of GIS in Marketing and Tourism Management

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### ABSTRACT

*Geographical information systems (GIS) are the systems that store location-based data and analyze them. GIS originated from the conventional cartographic techniques of simply drawing maps with a pencil and board. Following the adoption of computer technology, GIS further evolved as a geo-referenced dynamic information system, which can today be considered as a multi-disciplinary instrument that links different disciplines like geography, computer science, remote sensing, civil engineering, statistics, marketing, and other social and behavioral sciences. In this chapter, GIS is defined and its importance and functions are described in detail. Usage of GIS in marketing is explained, especially its development in marketing theory. Also, the value and scope of GIS in tourism management with a view to understand the spread of GIS applications in tourism is explored.*

### INTRODUCTION

A geographical information system is at its simplest level a technology that enables decision-makers to explore the geographical dimension of data (Grimshaw, 1993). However, it was only after the emergence of GIS software in the late 1970s and 1980s that GIS started to be adopted as a useful tool employed by a wide range of disciplines such as environmental planning, property management, automobile navigation systems, urban studies, market analyses, business demographics (Chen, 2007) and quite recently, in tourism industry. Information that is required in marketing activities is gathered through some tools and geographic information systems are one of them. Its usage raises as its importance are realized in

DOI: 10.4018/978-1-5225-7033-2.ch030

marketing activities (Yener, 2017). By means of geographic information system (GIS), collecting tremendous data, storing them in database, updating when required, analyzing, drawing visible maps based on analyses, accessing the necessary information obtained as a result of analyses are possible. A GIS is essentially a digital map linked to a database management system which can be used for the purposes of displaying and querying information, carrying out spatial analysis and assisting in the decision-making process. Although GIS's emergence is not so old, its usage spreads rapidly in many different areas such as geography, criminology, archeology, education, tourism, management and marketing. With combination of geography and marketing disciplines result in emergence of a study area which is called geomarketing. Geomarketing is a recent discipline that combines the geographic visualization and analysis with marketing techniques, aiming at more efficiently attaining the ultimate goal of organizations. Important marketing activities such as segmentation, positioning and research can be performed more effectively through geomarketing.

## **GEOGRAPHIC INFORMATION SYSTEMS**

Geographical information systems (GIS) are defined as an integrated collection of software and data that is used to visualize and organize location-based data for the purposes of performing geographic analyses and creating maps (Wade and Sommer, 2006). GIS is capable of assembling, storing, manipulating, and displaying geographically referenced information (Coyle, 2011). It combines maps, tabular data and analysis capabilities. It allows users to take information, view that information spatially and analyze that information so users can reach conclusions through correlations (Elliot, 2014). As with most technologies, the effective use of GIS depends on the person using it, rather than the technology itself (Fung and Remsen, 1997). GIS is analytical so that able to answer such questions as: "what is adjacent to this intersection?", "what are the conditions like within 15 km. of this point?", "how far is the nearest water line?" (Black, Powers and Roche, 1994).

The first modern GIS system was used in 1962 in Ottawa, by the Canadian Department of Forestry to map land use and data about farming and wildlife. The designer of the system was Roger Tomlinson, who was asked by the Canada Land Inventory project to pursue his idea of using computers to combine maps and statistics (Coyle, 2011). The high cost of computer hardware limited the widespread use of GISs. As software and hardware have become more affordable, available and powerful, more researchers are realizing the potential of GISs (Elliot, 2014). In 2007, Tomlinson stated that he thought GIS would be implemented by just about every modern business, if the business was not using GIS it was going to be considered old-fashioned (Coyle, 2011). In its present form, GIS technology represents a software/hardware system designed to capture, manage, manipulate, and analyze geographic data (Star and Estes, 1990; Fung and Remsen, 1997) GIS has applications in many different areas such as geology, defense, population, environment and local governments (Bensghir and Akay, 2006). GIS is now a tool that finds application in most fields of human endeavor at local, regional and global levels (Musyoka et al, 2007).

GIS is an information technology that has experienced an expansion out of mainly the public sector into the competitive world of the private sector (Maguire, 1995). As businesses, such as large retail companies and advertising agencies, begin to see the benefits of this technology that assists in spatial-based decision making (Smith, 2005). GIS software continues to be popular as it allows users to manipulate

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