

DSS implementation in the UK retail organisations: a GIS perspective

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Received 12 November 2000; received in revised form 8 August 2001; accepted 24 November 2001

Abstract

Geographical information systems (GIS) are becoming more prevalent in both day-to-day and strategic decision-making by retailers. Given the array of internal and external databases they use and integrate, and the human and organisational development needed, a most apposite description of how a GIS may be introduced for retailing decision-making is “system implementation”. There is little published work on GIS implementation as applied to retailing. Retailers wishing to understand the critical success factors of implementation cannot assume that studies from other industries can provide simple generalisations. This article presents exploratory case studies developed using a grounded theory approach, reflecting GIS implementation experiences of British retailers. Three major retailers who have already developed and utilised their GIS to varying degrees are used in a case study.

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Keywords: Decision support systems; DSS implementation; IS implementation; IS success; Implementation success; Grounded theory; Case study research

1. Introduction

Geographical information systems (GIS) have rapidly developed as input to decision support systems (DSS) employed by retailers; they have become vital to support decisions made by retailers for both operational day-to-day such as sales promotion activities and long-term strategic decision-making (e.g. the location of new stores). GIS have developed to support an array of marketing mix decisions based upon an awareness

of where customers reside in relation to the store and an understanding of their purchasing behaviour. Tonks [5] argued that the relative advantage of a GIS lay in its ability to locate new customers through its discriminatory power. In other words, the GIS is capable of merging numerous retailers’ internally-generated databases with databases produced by ‘external’ sources (e.g. geodemographic databases at a national level). The use of these ‘external’ databases allows a far more powerful analysis of existing internally-generated databases. The system is also able to produce more effective presentations of the database analyses [40,41]. Moreover, Sleight [33] has pointed out that, “*The ability of geodemographics to link to research data is undoubtedly one of the strengths of the technique*”. He further supported his point by terming GIS

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“a common thread” to link to various marketing mix activities together. These overlaying features thus create a variety of analytical models.

The availability of geodemographic databases at a national level, for example, in the UK, the National Readership Survey (NRS), is also a major factor in changing retailers’ desires to utilise GIS. Databases are also becoming more portable (from mainframe to CD-ROM) at relatively lower price. Such data would be vastly more expensive if retailers sought to generate it themselves. As competition faced by retailers becomes more intense, as signified by the publication of league tables showing market share and profitability, the need has grown for retailers to understand their existing and potential customers. The need to analyse and interpret markets using creative and accessible technology has grown. This helps to explain why retailers are moving their focus towards GIS technology. Besides fundamental store location decisions, GIS has been employed by retailers in all sorts of marketing mix decisions, such as direct mailing and sales forecasting [25]. In short, GIS are established as giving competitive advantage, enhancing organisational planning, and decision-making in a wide array of functions. There are two key advantages of using GIS:

1. magnificent discriminatory power, i.e. the ability to describe and track individual consumer behaviour in great detail, and
2. the ability to represent characteristics of customer attitudes and behaviour geographically and visually.

There is no doubt that the use of GIS has increased in the retail sector. In understanding the phenomena of GIS adoption there, it appears that the primary focus has been on its applications and benefits, with limited emphasis upon the issues around its implementation [21], which is a vital issue for retailers who wish to utilise its well-publicised applications and benefits. A GIS cannot just be ‘installed’ like a piece of software; the retailer should be aware of many issues to achieve success. The implementation of a GIS has many similarities to the implementation of DSS, many of which have never reached the benefits claimed when the system was purchased. This begs the question of what happened in the period from conception to full employment of the system [3,6,13,16,22]. The reasons why studies dealing specifically with GIS

implementation are significant may be epitomised as follows:

1. Despite the popular and increasing significance of GIS technology in retail organisations, little effort has been made to identify the successful GIS implementation process or individual factors of success. Most research efforts are not found in retailing but in other more developed areas, e.g. local governments. It appears that the primary focus has been on the system applications with lesser concern on implementation. Some of the “received wisdom” about issues leading to successful GIS implementation needs to be critically evaluated. Managers accountable for GIS implementation cannot presume that the significant factors of success (and failure) are equally significant in retailing [34,39].
2. There is little research on GIS implementation in retailing in the United Kingdom. The insights from other geographical settings may be generalisable but, given the specific competitive nature of the UK retail market and the nature and quality of databases available in the UK, these extraneous factors be important.

The purpose of this paper is to describe the characteristics of successful (and failed) GIS implementation processes as experienced by UK retailers. This article presents the results of exploratory case studies developed through the utilisation of a grounded theory approach. Three major retailers were studied. The cases reflect the experiences of market leaders and retailers that struggle to emulate their success.

2. The present state of GIS implementation research

GIS implementation has only been studied within the past 15 years. Most studies have focused on applications, such as site decisions and spatial analysis [12,15,24,28], and determining appropriate promotional media, e.g. door-to-door distribution of leaflets through postcode clustering [4,31]. Another area of development has focused on the benefits of the system, e.g. doing things that are hard to quantify in cash terms but seem better because efficiency is likely to be

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