Chapter 4.52
Opportunities for Data Mining and Customer Knowledge Management for Shopping Centers

Charles Dennis
Brunel University, UK

David Marsland
Brunel University, UK

Tony Cockett
Brunel University, UK

ABSTRACT

Shopping centers are an important part of the UK economy and have been the subject of considerable research. Relying on complex interdependencies between shoppers, retailers and owners, shopping centers are ideal for knowledge management study. Nevertheless, although retailers have been in the forefront of data mining, little has been written on customer knowledge management for shopping centers. In this chapter, the authors aim to demonstrate the possibilities and draw attention to the possible implications of improving customer satisfaction. Aspects of customer knowledge management for shopping centers are considered using analogies drawn from an exploratory questionnaire survey. The objectives of a customer knowledge management system could include increasing rental incomes and bringing new life back into shopping centers and towns.

INTRODUCTION

Shopping centers are an interesting topic for knowledge management — relying on interde-

pendency between owner, retailers and shoppers. Why are shopping centers important? Firstly, planned shopping centers comprise a substantial part of the UK economy, employing over three-quarters of a million people and playing a 'key role in the investments of pension funds' (Davies et al., 1993; OXIRM, 1999). Shopping centers are therefore important not just to customers, but also employees and indeed to many others because of the investments of their pensions. Secondly, retail and shopping centers form the heart of UK towns and create a focus for the community. Shoppers tend to follow the provision of attractive shopping areas. Improving shopper satisfaction can lead to changes in population, expenditure, residence patterns and bring new life to run-down areas (Dennis et al., forthcoming 2002b). The findings of the research could be applicable to traditional high streets and towns as they are to purpose-built shopping malls — if there is in place some form of central administration such as Town Center Managers. This chapter considers the possibilities for shopping centers to make their offer more attractive using techniques of data mining and customer knowledge management.

DATA MINING AND CUSTOMER KNOWLEDGE MANAGEMENT IN THE RETAIL CONTEXT

Data mining has been defined as:

"The process of exploration and analysis, by automatic or semi-automatic means, of large quantities of data in order to discover meaningful patterns and rules." (Berry and Linoff, 1997)

Berry and Linoff (2000) list six data mining activities: (1) classification; (2) estimation; (3) prediction; (4) affinity grouping or association rules; (5) clustering; and (6) description and visualization. Retail studies have included many other techniques (e.g., sequence-based analysis; fuzzy

logic; neural networks; fractal-based algorithms (Rao, 2000; Rensselaer Polytechnic Institute, 1999). Nevertheless, Berry and Linoff's six categories serve our purposes here.

Data mining has many uses, but the aspect of most concern here is what is usually known as 'Customer Relationship Management' (CRM). Good CRM means: (1) presenting a single image of the organisation; (2) understanding who customers are and their likes and dislikes; (3) anticipating customer needs and addressing them proactively; and (4) recognizing when customers are dissatisfied and taking corrective action (Berry and Linoff, 2000).

Some UK retailers recognize the potential of data mining in discovering customer knowledge. For example, Halfords and Sainsbury's uses Brann Viper software, Tesco and John Lewis Dunn Humby (Computer Weekly, 16 January and 29 May 1997). Most, though, jealously guard their customer knowledge capital. The authors argue that dissemination of this knowledge to a shopping center owner could result in meeting shopper requirements better.

Since the mid-1980s, there has been an increasing recognition that "knowledge is a fundamental factor behind an enterprise's success" (Wiij, 1994) — a statement that applies in the retail industry as in others. This chapter will consider shopping center customer knowledge management from Wiij's (1998) third, broadest focus: "all knowledge activities affecting success … using knowledge assets to realize their value." The specific concern is with customer knowledge management — the management and exploitation of customer knowledge. There are two aspects of this knowledge: (1) knowledge about customers; and (2) knowledge possessed by customers (Rowley, 2001). The empirical study reported here concerns the first aspect, but we will conclude with a recommendation for further research on the second.

Richards et al. (1998) argued that the marketing success of an enterprise is founded on "a continuous dialogue with users, leading to a real

Related Content

Evaluation of Investments in Open Innovation Ventures
 (2018). *Effective Open Innovation Strategies in Modern Business: Emerging Research and Opportunities (pp. 103-124).*
www.irma-international.org/chapter/evaluation-of-investments-in-open-innovation-ventures/205009

A Framework for Implementing a Computer-Based Knowledge Management System in Healthcare Organisations
George Marambaand Hanlie Smuts (2022). *International Journal of Knowledge Management (pp. 1-30).*
www.irma-international.org/article/a-framework-for-implementing-a-computer-based-knowledge-management-system-in-healthcare-organisations/313640

Virtual Witnessing in a Virtual Age: A Prospectus for Social Studies of E-Science
Steve Woolgarand Catelijne Coopmans (2006). *New Infrastructures for Knowledge Production: Understanding E-Science (pp. 1-25).*
www.irma-international.org/chapter/virtual-witnessing-virtual-age/27284

Developing a Big-Data-Based Model to Study and Analyze Network Traffic
Mahesh Pawar, Anjana Panday, Ratish Agrawaland Sachin Goyal (2019). *Big Data and Knowledge Sharing in Virtual Organizations (pp. 198-223).*
www.irma-international.org/chapter/developing-a-big-data-based-model-to-study-and-analyze-network-traffic/220791

Knowledge Integration
Hans Berends, Hans van der Bijand Mathien Weggeman (2008). *Knowledge Management: Concepts, Methodologies, Tools, and Applications (pp. 1615-1624).*
www.irma-international.org/chapter/knowledge-integration/25204