



A model of customer relationship management and business intelligence systems for catalogue and online retailers

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ARTICLE INFO

Article history:

Received 5 September 2008

Received in revised form 24 March 2009

Accepted 9 September 2009

Available online 18 September 2009

Keywords:

E-commerce

Customer relationship management

Business intelligence

Data mining

Catalogue retailer

Online retailer

ABSTRACT

As more retailers evolve into customer-centric and segment-based business, business intelligence (BI) and customer relationship management (CRM) systems are playing a key role in achieving and maintaining competitive advantage. For the past ten years, the authors have had the rare opportunity of observing and interviewing employees and managers of three different management teams at three separate Fingerhut companies as they experimented with various ITs for their companies. When the first Fingerhut company peaked in 1998, as many as 200 analysts and 40 statisticians mined the database for insights that helped predict consumer shopping patterns and credit behaviour. Data mining and BI helped Fingerhut spot shopping patterns, bring product offerings to the right customers, and nurture customer relationships. By 1998, Fingerhut was the second largest catalogue retailer in the U.S. with revenues nearing \$2 billion. However, after Federated acquired Fingerhut in 1999 and made it a subsidiary, Fingerhut Net, it suffered great losses and was eventually liquidated. Finally, a new company, Fingerhut Direct Marketing, was resurrected in 2002 under a new management team, and it once again became successful. What went right? What went wrong? The paper concludes with CRM and BI systems success factors and a discussion of lessons learned.

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1. Introduction

The use of IT has created new ways for firms to exploit vast potentials of customer relationships that have never been exploited before. With growing competition from both traditional and online businesses, keeping customers satisfied, increasing potential sales, and maintaining customer loyalty become strategically important to business success. To improve and exploit customer relationships, business intelligence (BI) tools are used to assist CRM systems focus on decision support, market research, target marketing, customer service, and customer collaboration in products and services.

Despite numerous CRM studies, very little effort has been made in incorporating consumer preferences for customer satisfaction and relationships. Wang and Head [10] report that most research on consumer behaviour addresses the acquisition stage, while research in the retention stage is still in its infancy. This paper deals with this paucity of research, and presents case studies on the success and failure of customer relationships and business

intelligence. The paper identifies strategies and the successes and failures at Fingerhut Inc., the second largest catalogue mail order company in the U.S. in 1999, and addresses the following questions:

1. What are the impacts of price discrimination on customer relationships?
2. What are the impacts of CRM and/or BI systems on catalogue and online retailing businesses?
3. What are the impacts of high switching costs and/or lock-in strategies on customer relationships?
4. What is a successful outcome model for catalogue and online businesses?

2. Concepts and strategies

The continuous advance in IT has created novel ways for companies to gain competitive advantage through operational effectiveness and/or strategic positioning. Operational effectiveness can be achieved by reducing cost operations by having better technology, better people, better processes, better inputs, and better management. Strategic positioning is achieved by delivering improved value to customers which they cannot find from competitors. In general, there are four major categories of strategic value positions [1]:

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1. *Search and transaction cost efficiency*: enables faster and more informed decision making and greater economies of scale.
2. *Lock-in*: makes switching more costly for customers and partners.
3. *Novelty*: uses breakthrough technology to create new value for customer relationships, distinctive value chains, and new markets.
4. *Complementarities*: bundles goods and services to provide more value than offering them separately.

At the beginning of the e-commerce evolution, the potential of online business was so great that many believed that e-business was the new economy that would decide the success of the retailing industry. Many researchers warned about the coming threats to price and brands in the retail industry caused by online retailers. They feared that with price and cost transparency, consumers would use the Web to shop for products at the lowest prices. As consumers flocked to shop online, they found that only low-cost-high-quality online retailers survived.

We focus on two value positions that the three Fingerhut companies employed about the lock-in and novelty in using CRM and BI. Because the Mail Order Telephone Order (MOTO) business has many similar characteristics with online retailing business, we feel that research of online retailing business could apply to a company that runs a MOTO and online retailing business, such as Fingerhut.

Fig. 1 shows a model used to investigate the use of IT for success in catalogue and online retailing businesses, namely switching cost, CRM/BI tools, price discrimination, and their impacts on satisfaction and relationships as independent variables for business success. These three IT variables are studied because other popular strategies that businesses employ in the market place have been well discussed in the literature. The model depicts that these variables impact customer satisfaction and relationships which lead to success.

2.1. CRM systems

CRM is important today because it is often much more expensive to acquire new customers than to keep them. However, as relationships develop in stages, IT provides good tools to automate, maintain, and exploit them from the beginning over the lifespan of the relationships. A CRM system is a repository of customer information which contains all customer profiles. In addition to the traditional database roles, it has the capability of personalising needs of individual customers by differentiating products or services for each unique customer. Popular strategies recommended to improve CRM include the use of BI for price discrimination, lock-in/high switching costs, and BI tools.

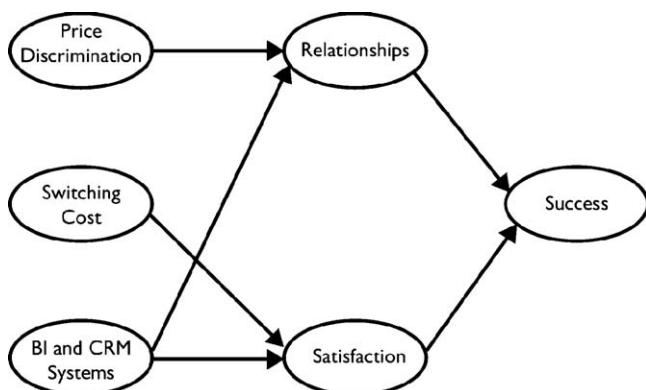


Fig. 1. Proposed model for BI and CRM.

2.1.1. Price discrimination

The price of goods and services are usually based on fixed and variable costs and demand curve. When the price for a product or service is set high, only a few customers are willing to buy; when the price is set lower, more people are willing to buy. Ideally, retailers like to maximize profits by selling products and services at the price each customer is willing to pay. Price discrimination refers to the ability to sell identical products to different people and groups based on their willingness to pay. In order for retailers to be successful in price discrimination, they must have the ability to identify the price that each individual or group would be willing to pay, as well as the ability to segregate and prevent customers from finding out what others are paying. Without these abilities, a price discrimination strategy would fail. For example, in 2000 Amazon tried price discrimination. Based on cookies collected from customers' computers, it offered lower prices to new customers. When regular customers found out that they were paying more for the same items they got angry and protested. In order to defeat the price discrimination scheme that Amazon was using, many customers deleted cookies that Amazon had used to identify them as regular customers. Faced with bad customer relations and negative publicity, Amazon apologized and offered refunds to angry customers [9]. The price discrimination attempt at Amazon in 2000 failed.

This study narrows price discrimination to the pricing schemes that rely on capabilities to identify customers who are willing to pay different prices, and the ability to prevent them from finding out what others are paying. Not included are pricing schemes that use sophisticated BI capabilities to identify customers' willingness to pay, for example, complementary, versioning, and discounts to groups such as corporate, government, AARP, and frequent buyers.

Despite the common belief that price transparency in the online market makes it difficult to implement price discrimination, surveys of consumer preferences, such as that of Muthitacharoen, Gillenson, and Suwan [7], show that price discrimination ultimately improves customer relationships. Therefore, the following hypothesis is proposed:

H1. Price discrimination improves customer relationships.

2.1.2. Switching cost

The survey of consumers by Wang and Head identifies perceived switching costs, satisfaction, and trust as key relationship mediators in customer relationship. This study also finds that higher switching costs lead to lower satisfaction. Thus, the following hypothesis is proposed:

H2. Higher switching cost leads to lower levels of satisfaction.

2.2. Business intelligence using data mining for competitive advantage

As companies expand their web of customers, they use BI to further mine the customer relationships. BI helps in consolidating, analysing, and providing access to vast amounts of data for business decision making. Major tools of BI include online analytical processing (OLAP) and data mining (DM). OLAP is a tool that supports multi-dimensional analysis, enabling users to view data in vast data warehouses in different dimensions that normal database queries would not be able to do as quickly. Data mining is the technology that allows searching through large amounts of data for meaningful patterns of consumer behaviour such as switching behaviours, fraud patterns, market basket analysis, and consumer trends.

An interesting DM application in retailing business is market basket analysis or recommender systems using an item-to-item

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