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

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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.

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.

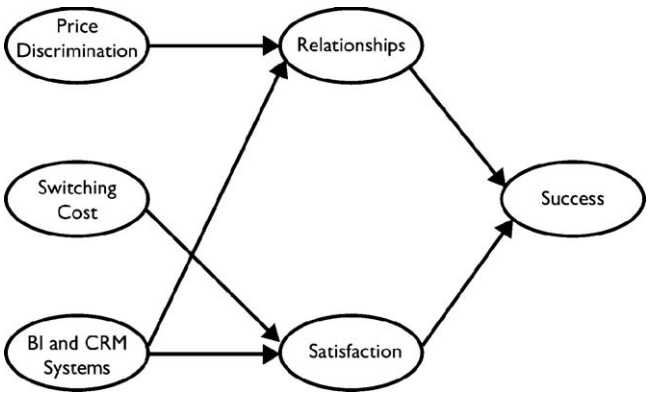

Fig. 1. Proposed model for BI and CRM.

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

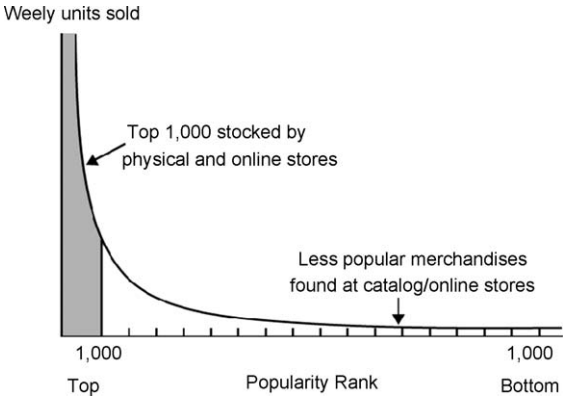

Fig. 2. Example of the long-tail phenomenon that allows catalogue and online stores to sell obscure merchandise.

collaborative filtering technique [6]. This technique determines which products customers are likely to purchase together in a shopping cart (a "market basket"). Once the retailer knows that customers who buy one product are likely to buy others, it can recommend other products. Brynjolfsson et al. [3] note the long-tail phenomenon (Fig. 2) of this recommender system in selling obscure products.

The "long-tail" is a colloquial name given to a product distribution curve at the long-tail end because the demand for the products is low (Fig. 2). This technique has helped Amazon and Netflix satisfy customers' demands for obscure products that traditional stores would not stock. Based on the above studies, the following hypothesis is proposed:

H3. CRM systems with BI increase satisfaction and customer relations.

3. Methodology

In this paper, the case study of Fingerhut Inc. is used to validate and compliment findings from existing research. In information systems (IS) research, case studies are more suitable for theory building when existing theory is limited [2]. Furthermore, IS theory and model development can be based on a single case or multiple cases. Although there have been some case studies indicating successes of companies such as Amazon.com, Wal-Mart, and NetFlix, there are virtually no studies which cover both success and failure occurring within a company in a short period of time. The key advantage of studying success and failure within a company is the ability to identify the impacts of a variable in the three following scenarios: (1) if it was applied, success or failure followed, (2) when it was removed, success or failure followed, and (3) after the company failed, removal or restoration of a variable that was previously applied or removed, particularly led to regained success.

This case study in this paper can be viewed as a single case or multiple cases. From a single company perspective, Fingerhut Inc. was selected because it was a successful major catalogue retailer before 1999 but failed shortly after because of various strategic errors. After the acquisition of Fingerhut, Federated management experimented with some of Fingerhut's key competitive advantages, after which Fingerhut still failed. Then after Fingerhut was resurrected in 2002, many of the strategies that had been removed by Federated were restored. Thus, this case study provides an opportunity to test and retest success factors. From the observation of strategy manipulation, success factors can be identified. If a strategy is removed and failure follows, and if the company becomes successful again after it is restored, it is likely a success factor. Similarly, if after a strategy is added and failure follows, then after it is removed and success follows, this strategy is likely to be a failure factor. If a strategy is used in both success and failure, there is no evidence of the impact of this strategy on the success or failure.

From another perspective, the case study of Fingerhut actually comprises multiple cases. Although Fingerhut is cited as one name, there are three separate corporate entities:

1. *The first Fingerhut*: Fingerhut Inc., a public company that was a direct mail order company until 1999 when it entered e-commerce. This company relied heavily on CRM and BI systems for revenues.
2. *The second Fingerhut*: Fingerhut Net, an online and catalogue retailer subsidiary of Federated, with emphasis on catalogue and online retailing, but CRM and BI systems from the first company were abandoned. This subsidiary operated from 1999 to 2002.
3. *The third Fingerhut*: a private company named Fingerhut Direct Marketing was started in 2002 with renewed emphasis on CRM and BI systems for catalogue and online sales.

Information about Fingerhut Inc. operations was gathered by interviewing former executives and employees. Because Fingerhut's major operation centres were nearby, the primary author had many opportunities to gather information from corporate guest speakers, company presentations, press conferences, and local media attention. In addition, since many former Fingerhut managers attended graduate level courses taught by one of the authors, assigned projects and case studies about the success and failure of Fingerhut revealed valuable insights. Other information was also collected via personal interviews with former Fingerhut executives, managers, and employees. They included several in-class discussions with former employees during the period of 2002–2007 (about 30 min each), one Fingerhut campus presentation, two in-depth interviews with two former Fingerhut managers from IT and Marketing departments (1 h), one on-campus interview with Mr. Tom Petters (15 min), the former Fingerhut executive and current President of Petters Group, and a small on-campus discussion with three Petters Group executives (10 min).

4. Case study: Fingerhut Inc.

Fingerhut Inc. opened its doors in 1948 to sell automobile seat covers in Minneapolis, Minnesota. In 1949, it entered the mail order business and began direct marketing car seat covers to car owners. As early as 1975, Fingerhut began to exploit the capabilities of Information Technology and developed sophisticated DM software. Thanks to the DM capabilities, Fingerhut offered deferred payment plans and extended credit to existing customers in 1981. Revenues reached $1 billion in 1988, and in 1990 Fingerhut Inc. went public with 6.3 million shares of stock. In 1995, Fingerhut began order-fulfilment contracts for Infochoice and Montgomery Ward Direct. With about 25 million packages shipped, Fingerhut became the second largest catalogue mail order company in the U.S., only after JC Penney. By 1997, revenues were close to $1.8 billion (Table 1). Decision Intelligence, a Marketing Research firm, estimated that in 1999 there were 5 million customers who had placed orders with Fingerhut during the 12 month period.

IT that supported Fingerhut operations in 1999 included two IBM 390 mainframes, a Hitachi multiprocessor supercomputer, 274 Sun Workstations, and over 500 Windows NT servers. Supporting Fingerhut's BI capabilities were the 7-terabyte Oracle database and BI applications, such as the Promotion Scoring System (PSS), and Mail Stream Optimization. By 1999 Fingerhut used the data of 31 million customers to personalize Web pages

Table 1
Old Fingerhut's five year earnings before acquisition by federated.

Earnings data in thousands	Fiscal year end					
	December 31, 1998	December 26, 1997	December 27, 1996	December 29, 1995	December 30, 1994	December 31, 1993
Revenues	$1,900,000	$1,798,617	$1,762,865	$1,814,853	$1,699,772	$1,652,244
Earnings before income taxes	N/A	$ 120,871	$ 64,991	$ 76,306	$ 70,926	$ 111,879

Source: SEC Form 10-K.

and target e-mail. Its DM application could analyse up to 2000 variables for a single customer. Each customer in the database had a profile with numerous attributes such as payment preferences, products interests, purchase history, even birthdays and anniversaries.

4.1. CRM and BI success at Fingerhut

Prior to 1999, Fingerhut's strategic value positions were customer "lock-in" and the novelty of DM capabilities. The first value position targeted sub-prime, low credit, and customers who needed extra credit to buy. In the United States credit market, "sub-prime" customer refers to a borrower that is not at the "prime" status and might be less likely to repay a loan. In general, a customer who may fall into sub-prime status because of bad credit or lack of credit history, or low income in comparison to debt, or being at or exceeding the credit card limit, or a combination of these conditions.

Fingerhut offered sub-prime customers a so called "closed-end" credit coupon system which allowed them to make instalment payments. In the early days, many major retailers offered layaway plans and local store credit. However, as retailer layaway plans gradually disappeared in the 1990s, more layaway customers switched to Fingerhut. In return for access to credit, Fingerhut charged customers a little more than average for its products. This system made the switching costly to Fingerhut customers because if they switched, they might have to finance their purchases through loan shark agencies and pay excessively high interest rates.

The second value position was the unique DM capability. In the early days, the DM system at Fingerhut was a batch system. With this capability, Fingerhut analysed and extracted information about buying habits and demographics in order to pinpoint products that might interest consumers, thus avoiding business with unprofitable customers. The DM capability could predict which customers would buy, how much they would spend, those who would be likely to pay bills, and those who would not. For many sub-prime customers who could not manage their spending and credit by themselves, Fingerhut credit agents gave individual advice to ensure that they would not fail. When they could not meet payment because of hardship, Fingerhut allowed payment modifications to avoid costly repossessing and collection. This win–win strategy required a lot of dedication and effort by Fingerhut.

Thanks to the behaviour prediction software, Fingerhut gained completed trust from their customers. For example, when a customer wanted to buy more than the limit allowed by Fingerhut, the credit agent first advised him/her to delay the purchase and improve credit behaviour, and then allowed the customer to make purchases after the situation was improved. Because of this one-on-one CRM marketing, sub-prime customers had confidence in Fingerhut's recommendation. "We wouldn't let them buy if we knew they could not pay the bill," said a former marketing manager. If the recommended products were not right for customers, they could be returned within a limited time without restocking fees. Therefore, customers could buy recommended products with confidence and trust. Commenting in a live interview on public radio about her good relationship and trust to Fingerhut, Sue – a customer who was disabled and lived on a $500monthly income – said: "I didn't seem to get behind, and if I did told them, 'I am going to be a bit behind, I'm moving,' they understood."

At Fingerhut's peak, it had as many as 200 analysts and 40 statisticians who mined the database for insights to occupy and maintain its novelty. As soon as data miners could identify significant new patterns in demographics and cluster behaviour, Fingerhut could reach customers with the right offerings at the right times, something that most competitors could not do. Fingerhut published about 25 different catalogues but shipped only the general merchandise catalogue monthly, and then began to track customer buying patterns and behaviours. After the orders were entered into the system, the recommender system searched for buying behaviour of other customers who ordered the same products, and suggested that Fingerhut should ship specialised catalogues to these customers. For example, if a customer bought cookware, Fingerhut would first follow up with specialised cooking and kitchen catalogues. Then telemarketers would call to follow up with other products, including products that were in the "long-tail" phenomenon—products of high margin and low demand. The recommendation system worked well with a good rate of repeat purchases. Through DM sequence analysis, Fingerhut found that customers who recently changed their residence were likely to triple their purchasing in the 12 weeks after their move, peaked in the first four weeks. Their selections often followed a pattern—new furniture, telecommunications equipment, and decorations, but seldom jewellery or home electronics [8]. Thanks to its DM capability, Fingerhut put more effort into selling furnishings and appliances to customers who moved. Because of the DM success, by 1998 its warehouses were stocked with an abundance of appliances and furnishings.

Another application of BI was the Mail Stream Optimization (MSO) using Torrent's systems' Orchestrate to optimize the number of catalogues mailed to individual customers. In order to reduce the cost of printing and mailing catalogues, Fingerhut needed to determine the right catalogues to be mailed to individuals and the appropriate mailing time periods. Previously, Fingerhut had built an application which scored Fingerhut's entire customer list with customer segmentation models for each catalogue; based on these scores, Fingerhut would create a mailing list for each catalogue. Because of similarities between catalogues, customers often received redundant catalogues to the point that the most profitable customers received most of the 100 plus available catalogues. However, removing a catalogue might cause the loss of up to 80% of potential sales generated from it. Fingerhut needed to analyse all the permutations of mailing over 100 catalogues and the impacts on profits from each permutation to determine the point where the savings from not mailing redundant catalogues would not reduce profits. With 1400 pieces of data for each of the 70 million customers, this was a time consuming task (22 days) for the existing PSS. With the MSO the processing time was reduced to 10 h, and thus the decision to reduce the number of catalogues mailed to customers could be accomplished more frequently. The savings on advertising expenses ranged from 5 to 8%.

Fingerhut also tracked the effect of word of mouth or viral marketing among its customers. For new customers who placed

orders but who were not yet in the catalogue mailing list, it tried to find the relationships between these customers and those who were already in the list. The associations discovered could be the same household address, the proximity of address, or the same family name. The software tried to answer the question: "Through whose catalogue or through whom did these customers make the orders?" Telemarketers then followed up with suggestions for more purchases, and made necessary corrections to the discovered associations when the information was not correct. By 1998, it was estimated that 10% of Fingerhut sales was from viral marketing. Fingerhut's DM was so successful that about 80% of the company's sales came from repeat buyers and viral marketing. "*We've never done business without some form of database marketing. It's the heart and soul of this company, and we wouldn't be in business without it*," said Andy Johnson, senior vice president of market development at Fingerhut in 1998.

Running an operation in a sub-prime market can be risky because many customers in this market may have unprofitable behaviours, ranging from frequent abuse of the return policy to frequent fraud. "One customer ordered 20 sets of bedding then returned 19 of them a few weeks later. When asked the reasons for return, she said she needed to try them all to find the one she liked the best." In order to combat losses from unprofitable customers, Fingerhut needed to identify them. In 1998, DM software found a cluster of over 1200 customers who had incurred over $3 million in losses each year. After the names in the cluster were identified, customer service agents with excellent communication skills contacted them. With some incentives and time allocated to pay off the remaining debts, Fingerhut was able to close all discovered unprofitable accounts.

4.2. Fingerhut's entry into e-commerce

By 1998, Fingerhut management saw the opportunity to expand its business online. Seeing the rapid revenue growth and soaring stock prices of many other online retailers such as Amazon.com, eBay.com, and Yahoo.com, Fingerhut management wanted to copy their success and remake Fingerhut into an e-commerce player. In the spring of 1998, Fingerhut hired William Lansing as its new president to help launch the online retail operations and boost catalogue sales. Lansing acquired other retailers such as PC Flowers&Gift.com, Popular Club, and Roxy.com, hired more employees, and then increased investment in e-commerce with more acquisitions. Thanks to the acquisitions, Fingerhut revenues reached $1.9 billion (Table 1).

4.3. Federated acquired Fingerhut and abolished the formerly used closed-end credit system

In February 1999, Federated acquired Fingerhut for $1.7 billion. Lansing was promoted to head Federated Direct, which included Fingerhut Catalogue, Fingerhut Net, and most Federated Net operations. He launched additional Web retailer sites and made more investments in Internet start-ups. After Fingerhut received order-fulfilment contracts with 22 companies, including eToys and heavyweight Walmart.com, *Fortune* magazine declared Fingerhut one of the "10 companies that get it" in its November 8, 1999 issue. In a bold move to boost sales, Federated abolished the closed-end credit system and BI applications by issuing credit cards and extending credit to four million sub-prime Fingerhut customers.

4.4. Results: the failure of Fingerhut Net

There were two major reasons for the failure of Fingerhut's entry into e-commerce.

The first was the transfer of credit decision making from Fingerhut to Federated Corporation. At Federated, customers periodically received credit extensions or had their store shopping cards upgraded to credit cards. This automated process was done by Federated's credit DSS. After Fingerhut's customer accounts were incorporated into Federated's credit system, Federated management replaced the closed-end credit system by issuing credits cards with generous credit to four million Fingerhut customers. Therefore, the CRM and BI systems that the closed-end credit system was abolished. With credit cards, former Fingerhut customers began to shop elsewhere for a better price. With more credit, they also received more Fingerhut promotions. Within a few months some found that the minimum monthly payment amount exceeded their ability to pay. Without room for payment negotiations, some accounts were transferred to a collection agency. As bill collectors began to call they became very unhappy with the retailer.

Another reason for the CRM failure was the failure of Fingerhut Logistics Software (FLS) which was created to handle orders outsourced by other companies. The software was overloaded during the 1999 Christmas season and caused problems such as lost orders, shipment delays, and shipments of incomplete orders. eToys, one of the companies that contracted Fingerhut to fill and deliver orders, suffered numerous order problems, such as incomplete order shipments and shipment delays. More customers became dissatisfied with Fingerhut services. Because of delays, eToys had to use express delivery services at great cost.

With heavy losses and volumes of customer complaints, eToys terminated its contract with Fingerhut by February 2000. Other companies that had hired Fingerhut and experienced order-fulfilment problems also terminated their contracts. Fingerhut's contracts to fill orders dropped from 22 to 8.

Fingerhut sales also dipped significantly in 2000 which caused Federated to suffer $795 million in losses from sales. Extension of credit and issuance of credit cards to sub-prime customers caused up to an additional $400 million in losses of unpaid credit. To stop further losses, Federated closed many of the Web sites that Fingerhut had launched earlier, but this could not stop the slide in stock values. Under pressure from stockholders and the board of directors, Federated decided to close its entire Fingerhut business in the spring of 2002. The customer credit unit was sold to CompuCredit Inc. of Atlanta, GA.

4.5. The new Fingerhut

When Fingerhut closed in 2002, most of its former customers had their accounts closed but they could not easily switch to other retailers, because other retailers had no interest, or the capabilities to run the sub-prime market left behind by Fingerhut Net. Seeing the open niche, FAC Acquisition Inc., led by Petters Group and former Fingerhut CEO Ted Deikel, repurchased the remainder of Fingerhut from Federated in the summer of 2002, with the following implications:

i. *Actions: Restoration of Novelty using BI/CRM for the New Fingerhut Direct Marketing*. The new Fingerhut management decided to restore the closed-end credit system that used CRM and BI capabilities. By November 2002, Fingerhut Direct Marketing division and a retail Web site were launched. By the end of the Christmas season, over 90,000 transactions were completed. In addition, the recommender was expanded to online shoppers (Fig. 3). Thanks to expanded BI capabilities, five million specialty catalogues were mailed to its customers in 2003 with sales revenues reaching $140 million. To further extend BI capability,

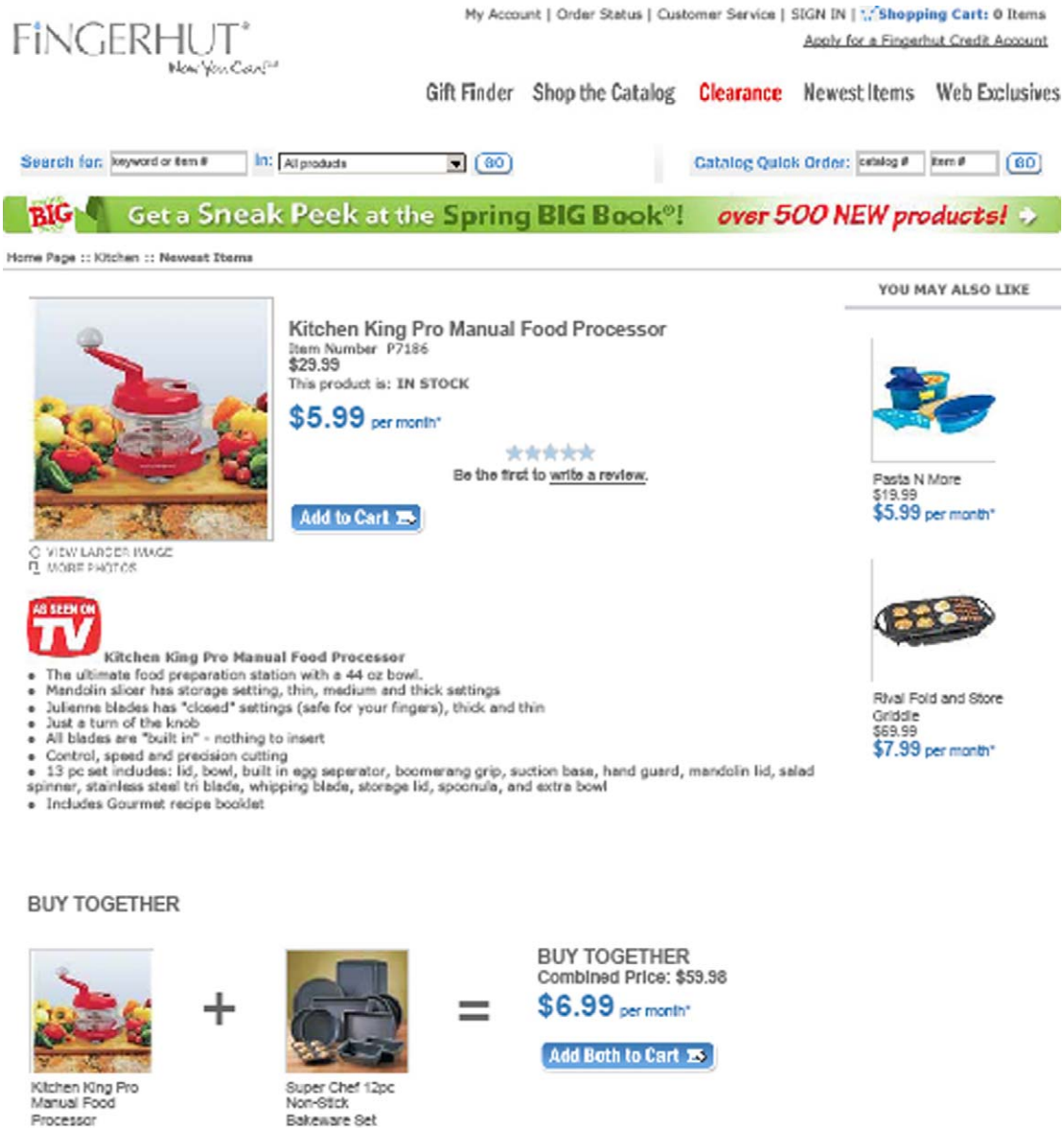

Fig. 3. Fingerhut's Online Recommender System.

Fingerhut licensed an SAS's Customer Intelligent suite-Marketing Optimization software in 2004.

ii. *Results*: *Back to profits with strong growth*. In 2005, Fingerhut employed about 400 employees. In 2006, Fingerhut employed over 700 employees. In 2007, Fingerhut employed over 800 employees. According to estimates from internetretailer.com, total revenues reached $440 million in 2007 and 500 million in 2008. Despite the economic downturn of 2008, the success of the new Fingerhut company proved that its business model was working well. For the period of 2005–2008, Fingerhut revenues continued to grow by double digits in both online sales and total revenues, exceeding the growth of the online retailing industry in each category (Table 2). The best click-and-mortar retailer, Walmart, reported 2008 sales growth at only 8%. In a corporate presentation, Petters Group executives confirmed that Fingerhut had returned to profits since 2006. In 2009, Fingerhut renewed the lease of its 1.2 million square-foot warehouse for another 15 years. Fingerhut profit grows, and Fingerhut management plans to turn it into a public company again.

4.6. Future CRM direction at Fingerhut: nurture and grow customers

One of the key competitive advantages that Fingerhut has over other retailers is their captive audience; Fingerhut finances many of their purchases. Fingerhut's future plan was to use BI and CRM to strengthen and expand its lock-in position in the market place by nurturing its own customers through the entire buying life cycle, from the times of low-income and low-credit to their movement into better income and credit levels. With its ability to lock-in

Table 2
New Fingerhut web and total revenues for the period of 2005–2008.

	2005	2006	2007	2008
Total revenues (millions)	$236	$373	$440	$500
Annual growth rate	–	58%	17%	14%
Online Revenues (millions)	$52	$82	$144	$165
Fingerhut online annual growth rate	–	57%	76%	15%
Online retailing industry annual growth rate	24%	34%	12%	11%

Sources: [4,5].
(–) denotes no data for 2004 to compute.

customers, Fingerhut CRM systems could decide when to extend, upgrade credit, or graduate its customers before they could switch to other retailers. The new Fingerhut is now working toward this ambitious goal. Its credit agents today are still working one-on-one with thousands of former customers who still have unpaid bills from the previous two Fingerhut companies in order to rebuild their relationships and grow them back.

In 2008, due to ongoing Federal criminal investigation, Petters Group gave up its interests and day-to-day operation of Fingerhut. Fingerhut recently received equity financing of more than $50 million of additional capital from Bain Capital and Battery Ventures. Currently, Fingerhut is upgrading its site search tools and investing more in customer behaviour analysis using BI software from Dotomi Inc. to retarget customers who stop buying.

5. Discussion

As an overview, the case study results failed to support Hypotheses H1 and H2 but supported Hypothesis H3. When Federated acquired Fingerhut and issued credit cards to existing Fingerhut customers, it created price discrimination between Fingerhut and Federated stores. However, customer relationships worsened because Fingerhut customers used the new credit cards to shop elsewhere. Thus Hypothesis H1 was not supported. Second, when Federated removed the existing high switching costs by issuing credit cards with extended credit to Fingerhut customers, they lost substantially. Furthermore, customers became unhappy when collection agencies called. Though Fingerhut's high switching cost helped to maintain customer satisfaction; thus, the results did not support Hypothesis H2. Finally, the use of BI and CRM helped customer satisfaction and relationships because it allowed Fingerhut to exploit customer buying power while avoiding costly defaults. Thus, this study supported Hypothesis H3. In the past, Fingerhut customer service reps frequently worked out an alternative payment option in order to avoid default whenever a customer was behind in payment. After Federated removed the BI and CRM capabilities, they suffered the loss of customer relationships and satisfaction.

Further, running sub-prime credit business without good BI and CRM can lead to disastrous consequences. The lack of BI caused large banks to offer mortgages to sub-prime customers who were not able to pay. The lack of CRM caused them to foreclose properties at large loss. As local banks sold their mortgages to remote loan servicing companies and sold the mortgage derivatives to investment banks, CRM was reduced to a toll free telephone number and a payment address. As a consequence, when customers were behind in payments, banks lacked the ability to renegotiate the terms of payment to avoid foreclosures. In order to improve CRM/BI capabilities of lenders, the Obama administration has recently provided financial incentives to lenders to renegotiate mortgage terms and reduce payments for problem borrowers. This CRM capability is similar to the one that Fingerhut used on its customers who were behind in payments. The final model for BI and CRM is illustrated in Fig. 4.

Although there were three separated entities of Fingerhut in this study, only Fingerhut management could experiment with the variables that led to success or failure of each entity. As such, we could only observe limited key success or failure factors from managerial experimentation. Furthermore, since parts of BI results may involve trade secrets, as well as social and legal issues, it was difficult to know the full impacts of BI on its success. Despite that many of its BI successes have been widely publicized, Fingerhut has not been subjected to major lawsuits, social issues, or consumer backlash (as has happened to many companies who have used BI to exploit buyers, such as Walmart and Amazon.com).

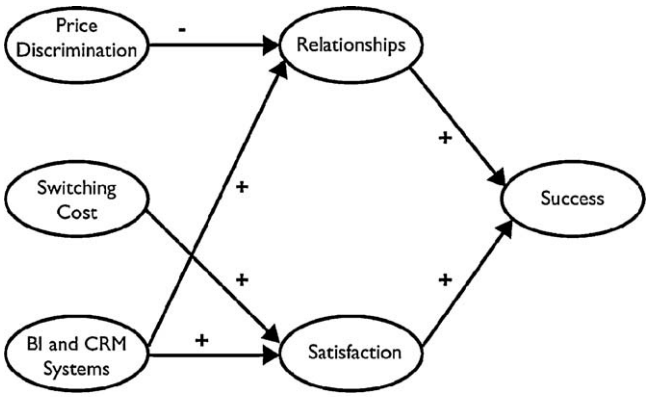

Fig. 4. A BI and CRM model for catalogue and online retailers.

6. Lessons learned, insights, and success factors

As e-commerce evolves, new visions and paradigms emerge. How do conventional management strategies and processes compare with the experience gained from the successes and failures at Fingerhut? And how do conventional management strategies and processes compare with the experience gained from the CRM successes and failures at Fingerhut? The lessons learned were:

1. *The use of BI and CRM at Fingerhut reduces the threats of price and cost transparency and disintermediation*. Early e-commerce visions predicted that price and cost transparency would cause customers to move to retailers who offered lowest prices, and that direct sales would eliminate intermediaries. With innovation in OLAP and DM, Fingerhut was able to lock-in customers in the sub-prime market, predict buyer patterns, and maintain customers' trust and loyalty. DM also allowed Fingerhut to focus its efforts on nurturing buyer behaviours. This was a win–win strategy which resulted in customer satisfaction and trust while bringing more profits to Fingerhut.
2. *High switching costs do not hurt customer satisfaction*. Because Fingerhut tailored its products and credit services to its customers, customer satisfaction level and loyalty was high. It was only after Federated extended credit beyond customers' ability to pay that customers became dissatisfied. As we have seen in the credit market recently, sub-prime mortgage lenders who offer credit beyond customers' ability to pay also suffer failure.
3. *Price discrimination among sales channels hurt customer relationships when lock-in and high switching costs are removed*. After Federated gave former Fingerhut customers credit cards, they shopped elsewhere for lower prices.
4. *Success in the catalogue mail order business does not guarantee success in online e-commerce*. Pundits predicted that it would be easy for catalogue mail order companies to move into online retailing because they operated without physical stores. However, having past experience in order fulfilment and in running businesses without physical stores does not automatically translate into success in online business. Fingerhut's major causes of failure were

a. *Abandoning BI*. Whether a business is a purely digital or a brick-and-click, the business must know how to develop and maintain BI to support strategic CRM strategies. Before its

Table 3
Factors that influenced success and failure of Fingerhut before acquisition, between 1999 and 2000, and after resurrection.

Success/failure factors	Actions that led to success or failure of three Fingerhut entities		
	Success (before 1999)	Failure (1999–2001)	Success (after 2002)
Lock-in value position with closed-end credit system	Used	Removed	Restored
Free to shop elsewhere with credit cards	Not allowed	Added	Removed
BI used to tailor ability to buy	Used	Removed	Restored
CRM used to handle problematic accounts	Used	Removed	Restored
Price discrimination among channels	No	Added	Removed

entry into e-commerce, Fingerhut's two strategic value positions were the lock-in on a set of ''sub-prime'' customers who were willing to pay a premium for its goods and services, and its novelty in data mining. When Federated phased out the closed-end credit system and issued credit cards with extended credit to four million Fingerhut customers, it destroyed Fingerhut's value position that relied not only on DM to predict customers' ability to pay their debts, but also on customised one-on-one marketing. Further, Federated destroyed the lock-in value position that Fingerhut held for many decades. There are a few reasons for this. First, as new credit scores of these customers showed up in credit reports, they were likely to be lured away by competitors for extra cards with better credit terms. Furthermore, many customers used the new credit cards to shop elsewhere. Worse, many spent more than they could afford and caused up to $400 million in losses to Federated in unpaid credit

b. *Poor supply chain integration*. Because online order fulfilment requires linkages between front offices and back offices, well-integrated front and back office systems are crucial. The system must ensure the availability of inventory before accepting order and setting delivery date to customers. Fingerhut suffered heavy losses in 1999 and lost the customer loyalty because of the failure of its order-fulfilment system

Fingerhut's key success factors, ranked by importance in this case study are:

1. *Good lock-in value position*. Fingerhut enjoyed the lock-in value position that it could offer products and services at a premium. After this advantage was removed in 1999, Fingerhut failed.
2. *Sophisticated business intelligence tools*. BI allowed Fingerhut to tailor its credit to its sub-prime customers, nurture them, and exploit the market.
3. *Good CRM handling of problematic accounts*. With good CRM, Fingerhut could tailor its services to its customers. Even when customers were behind, service reps could work out a solution for customers to catch up and avoid costly forfeiture. Today, many financial institutions suffer heavy losses from sub-prime mortgage foreclosures because of the lack of a BI that can predict customers' ability to pay and the lack of good CRM services that allow customers to renegotiate and modify loan payment terms. Learned from the success in handling sub-prime accounts from retailers such as Fingerhut, major banks in the U.S. have began to allow renegotiation and modification of mortgage loan payment to avoid costly foreclosure. Financial success at these banks has been reported for the first half of 2009, but much more expansion in BI and CRM capabilities are needed
4. *Autonomy of power for subsidiary to handle special market*. Because of Fingerhut's unique value positions in the sub-prime market, it was necessary for Federated to allow greater autonomy to Fingerhut to handle its unique operations. After Federated made decisions on how Fingerhut would handle its sub-prime customers, Fingerhut failed.

Table 3 summarises key CRM/BI factors that existed in the successes and failures of Fingerhut. After Fingerhut in became profitable in 2002, the new management restored strategies that helped Fingerhut's success in the past (closed-end credit, BI, and CRM) and removed factors that harmed its success (credit cards and price discrimination among channels.)

7. Conclusions

With rapid advances in technology, enterprises today frequently search for new ways to establish value positions. Overall, the success, failure, and rebirth of Fingerhut confirms the need for BI to support CRM successes, and challenges some conventional wisdom about switching costs, price discrimination, and the threat of disintermediation. It appears that the recent findings of Muthitacharoen et al. and Wang and Head regarding switching cost and price discrimination cannot apply to the real world, at least not to Fingerhut. Businesses must be careful in their use of price discrimination among sales channels. Because the failures of Fingerhut's order-fulfilments system was just a tactical short-term problem, it was more likely that the removal of the strategic position that relied heavily on BI and CRM was the main cause for the failure of Fingerhut and Federated in 2001.

Today, Fingerhut is back in business as an independent private company. For the past four years, it has achieved spectacular success in its re-entry into online business, 57% in 2006, and 76% in 2007 and even 14% during the recession of 2008. Using the same business model with which it had success in the past, it has been successful. As technology advances, opportunities exist for Fingerhut to further expand its strength in business intelligence and CRM.

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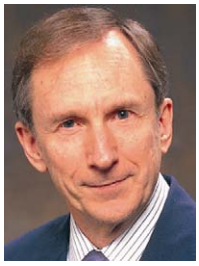

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