

Customer relationship management in retailing: A content analysis of retail trade journals

Joan L. Anderson^{a,*}, Laura D. Jolly^b, Ann E. Fairhurst^b

^a*Department of Apparel, Merchandising, Design, and Textiles, Washington State University, P.O. Box 642020, Pullman, WA 99164, USA*

^b*Department of Retail and Consumer Sciences, University of Tennessee, 110 Jessie Harris Building, Knoxville, TN 37996, USA*

Abstract

The purpose of this research was to increase knowledge and understanding of how retailers use business intelligence and data mining tools to implement customer relationship management (CRM) in retailing. Specific objectives were to (1) identify organization and infrastructure requirements for CRM effectiveness, (2) identify CRM objectives and goals of retail companies, (3) identify data mining tools utilized by retailers to perform CRM functions, and (4) identify CRM strategies used by retail companies. A keyword search within business databases using CRM and CRM identified publications with CRM content. Content analysis was used on articles ($N = 149$) drawn from *Stores*, *Chain Store Age*, *Harvard Business Review*, and *Retail Forward* over a 5 year period (2000–2005). Selected articles were stored as text files in QDA Miner, a computerized qualitative analysis tool. Key organization/infrastructure needs emerged focusing on data structure, organizational systems, technology structure, and data accessibility. Retailers goals/objectives and strategies focused on marketing, customer service, understanding customers through data analysis and increasing acquisition and retention through customer loyalty programs. Data mining tools identified supported marketing and customer analysis efforts. Findings provide insight into the challenges retailers face as they implement a more customer-centric business strategy.

© 2007 Elsevier Ltd. All rights reserved.

Keywords: Customer relationship management; Data mining

1. Introduction

Retailers face a dynamic and competitive retail environment. With increased globalization, market saturation, and increased competitiveness through mergers and acquisitions, retailers are seeking competitive advantages by better managing customer relations through database management. This is not a new concept but seeking competitive advantage through improving relationships with customers has taken on new life. “Companies recognize that customer relationships are the underlying tool for building customer value, and they are finally realizing that growing customer value is the key to increasing enterprise value” (Rogers, 2005, p. 262).

Retail companies seek to maximize relationships with customers. Thus, a shift in organizational thinking is

necessary as retailers embrace a “customer-centric” focus and implement strategies to support this focus. This shift in organizational culture challenges retailers to revise organizational systems and processes, identify customer-related metrics, and identify areas of strategic advantage.

Organizational systems and processes, especially those related to data and information management, are changing to respond to this shift toward “customer-centric” retailing. To address this customer focus, discussions of data management and availability, data warehousing, and data mining are occurring at various levels within retail companies from the boardroom to the store management level. A clear shift toward data-based decision making is evident.

In tandem with this shift toward customer focus and data-based decision making, customer relationship management (CRM) has emerged to allow retail companies to respond to shifting customer needs and wants using analytical tools in conjunction with their enterprise-wide databases. In a survey of 708 global executives, 82% of

*Corresponding author. Tel.: +1 509 335 8399; fax: +1 509 335 7299.

E-mail addresses: joana@wsu.edu (J.L. Anderson), ljolly@utk.edu (L.D. Jolly), fairhurs@utk.edu (A.E. Fairhurst).

those surveyed planned to employ CRM in their companies (Rigby & Ledingham, 2004). A recent CRM retail survey conducted for the national retail federation (NRF) by Gartner Dataquest reported that “nearly two-thirds of retail companies expect to increase their spending for CRM technology during the next 2 years” (p. 94). It was projected that by the year 2005, 92% of those surveyed would have CRM plans in place (Reda, 2003). Data mining technology can consolidate retail data, analyze and distribute data to users, capture data across multiple retail channels, and create “one view” of the customer. With the use of data mining tools, the plethora of data currently gathered and stored by retailers can be leveraged to gain customer and company insight to support CRM. With the dramatic changes in retail today, taking a customer-centric approach is necessary to stay competitive.

Data mining has been defined as a statistical process of analyzing data stored in a data warehouse (Decker, 1998). A data warehouse is an extensive data repository consisting of information from all facets of an organization that is maintained to support decision making. Through data mining technology large databases can be explored to find relationships and trends previously unknown, to provide support for complex decisions. Retail databases often include such information as consumer shopping patterns and behavior, sales history, promotional information, inventory information, and pricing data.

Empirical research on data mining applications in the retail industry is limited. Studies have focused primarily on the e-commerce sector. Lee et al. (2001) analyzed click stream data to study online shopping behavior as well as visualization and data mining analysis techniques to analyze the movement of customers through websites as a means to better understand online merchandising. Path analysis has been used to study web traffic (Berkin et al., 2001). Data mining has been explored in optimizing inventory levels for electronic commerce, to analyze product performance of online stores and to analyze web-based shopping systems (Dhond et al., 2000; Lee and Podlaseck, 2000; Arlitt et al., 2001). Data mining research related to “bricks and mortar” or store-based retailing is limited. Two store-based retail studies identified were focused on product selection and assortment (Brijs et al., 2000). Clearly, the research on the use of data mining to implement CRM in retailing is limited.

Recent work in marketing suggests that paying attention to CRM can enhance firm performance. Cao and Gruca (2005) developed a cost-effective method for reducing adverse customer selection through CRM. The study resulted in a model for improved accuracy in new customer acquisition and more effective target marketing to increase customer lifetime value. Gustafsson et al. (2005) studied telecommunication services to examine the effects of customer satisfaction and behavior on customer retention. Results indicated a need for CRM managers to more accurately determine customer satisfaction in order to reduce customer churn. Jayachandran et al. (2005)

conceptualized and measured organizational routines that are critical for CRM. Results identified ways to improve the use of CRM technologies to enhance firm performance. Lewis (2005) identified new measures for a more accurate assessment of customer lifetime value. Mithas et al. (2005) studied the effects of CRM initiatives showing that CRM efforts improve a firm’s knowledge of their customers and in turn, improved customer satisfaction. They also determined that sharing CRM information with suppliers created gains in customer knowledge. Ryals (2005) found that CRM increases firm performance through the analysis of customer lifetime scores in two longitudinal case studies. Srinivasan and Morman (2005) analyzed the link between a firm’s strategic commitments and the rewards of CRM initiatives. Thomas and Sullivan (2005) used case study analysis to develop an initial marketing communications strategy for the multi-channel retailer.

Despite its apparent value, data mining and its application to CRM has not been systematically studied in the retail environment. Research on CRM and the use of data mining to support CRM is limited. The academic literature is virtually silent on this topic. In this emerging research area, current practice can provide insight for research and theory development. Thus, trade publications were chosen as a primary source of data since current retail practice is frequently reported in the trade literature.

The purpose of this research was to increase knowledge and understanding of how retailers use business intelligence and data mining tools to implement CRM in retailing. Specific objectives were to (1) identify organization and infrastructure requirements for CRM effectiveness, (2) identify CRM objectives and goals of retail companies, (3) identify data mining tools utilized by retailers to perform CRM functions, and (4) identify customer relationship strategies used by retail companies. Findings provide insight into the challenges retailers face as they implement a more customer-centric business strategy.

2. Methods

To conduct this study, content analysis of industry trade publications was used. Content analysis is a method of analyzing large text-based data sets to identify the frequency of keywords and phrases and to discern patterns within the data, articles from four retail trade publications were analyzed over a 5-year period. Information about CRM has been prevalent since the mid-1990s (Payne and Frow, 2005) but Frasquet et al. (2002) stated that a review of the literature over a 5-year period is sufficient to analyze trends. A focus on retail industry trade/management publications was used to ascertain the trends and strategies related to CRM use in the retail industry. Retail-specific publications that included the greatest number of articles focusing on CRM were used for analysis. An initial list of 34 publications was identified by an environmental scan. A keyword search using CRM and CRM identified the publications with CRM. Content stores, chain store age,

Harvard business review, and retail forward were identified as the most prominent publications that address CRM from a retail management perspective. Articles ($N = 149$) from the selected publications were included for analysis and stored as text files in QDA miner, a computerized qualitative analysis tool (Provalis Research, 2006). QDA miner allows for multilevel coding and for linking descriptive variables to each article. Articles were searched for keywords and phrases to identify organization and infrastructure requirements for CRM effectiveness, CRM goals and objectives, CRM strategies, and data mining tools utilized to perform CRM. Once keywords and phrases were found, the “key-word-in-context” (KWIK) tool was used to aid in understanding the meaning of the keywords and phrases within the context of the article and to note the prevalence of the keywords and phrases across the complete set of articles. QDA miner has been reported as a useful tool for analyzing text data and for establishing frequencies in marketing research (Bobier, 2006).

3. Results

3.1. Organization and infrastructure requirements for CRM effectiveness

Analysis of the article database revealed four general categories of organization and infrastructure requirements for CRM effectiveness (see Table 1). Data structure requirements were by far the most frequently mentioned issue consisting of 54% of the total mentions of organization and infrastructure requirements identified. Leading this category was the need for data integration (58%). Retailers cited the need for data integration at all levels of the organization from integrated customer data to integrated databases across multiple organizational locations. In addition, the need for quality data (19%) in real time (13%) was considered important. Finally, quality data analysis (6%) with multiplatform capabilities (2%) was identified as relevant.

Organizational systems were identified as another major area of organization and infrastructure needs (22%). Prominent in this category was the need for strategic implementation of CRM initiatives (28%). The need for proper training (15%) and the need for CRM to be an integrated part of corporate culture (15%) to insure success also figured prominently. It was noted that CRM requires a capital investment (8%) and requires a well-defined purpose (8%). Retailers cautioned that CRM involves a time commitment (5%) and creating a CRM team can prove beneficial (5%). Technology structures arose as another major category (18%). This included the identified need for central processing (22%) that is scaleable (16%) with an in-house database (16%). The need for system security (13%) and ease of use (6%) were also important. Finally, data accessibility issues figured prominently (6%). This included easy access (45%) with increased speed

Table 1
Frequencies for organizational and infrastructure requirements for CRM initiatives

Content analysis thematic categories	<i>N</i>	%
<i>Organizational and infrastructure requirements for CRM initiatives</i>	180	
Data structure	97	54
Data integration	56	58
Quality data	18	19
Real-time data	13	13
Quality data analysis	6	6
Multiplatform capacity	2	2
Other ^a	2	2
Organizational system	40	22
Strategic implementation	11	28
Proper training	6	15
Integrated part of corporate culture	6	15
Capital investment required	3	8
Well-defined purpose	3	8
Time commitment	2	5
CRM team	2	5
Other ^a	7	18
Technology structure	32	18
Central processing	7	22
Scaleable	5	16
In-house data base	5	16
Systems security	4	13
Ease of use	2	6
Other ^a	9	28
Data accessibility	11	6
Easy access	5	45
Increased speed	3	27
Customer access to personal data	2	18
Other ^a	1	11

^aOther includes a total of concepts mentioned in only one article.

(27%). Also mentioned was a rise in the need for customers to have access to their own personal data (18%).

3.2. CRM goals and objectives

Results showed that retailer goals and objectives for using CRM included improving marketing effectiveness (22%) with initiatives such as personalization (44%) and the use of real-time promotional efforts (19%). Additional marketing-related goals and objectives were the need to increase marketing effectiveness (15%), create incentives for customers (11%), and build brands (7%). Enhancing customer loyalty (18%) through general service enhancements (41%) and creating long-term relationships (18%) rose as another major category of CRM goals and objectives. Customer analysis (17%) through initiatives such as analyzing spending patterns (19%), tracking reactions to incentives (19%), and determining profitability (19%) were all relevant. Implementing customer acquisition and retention strategies (11%) such as customer loyalty programs (43%) and the mention of programs to increase acquisition and retention (29%) and improving

tactics to grow or drive business (10%) with the goal of increasing share of wallet (58%) and increasing sales (25%) were also significant. Specific CRM goals and objectives are listed in Table 2.

3.3. Data mining tools utilized by retailers for CRM

Discussion of specific data mining tools utilized by retailers in CRM was limited (see Table 3). However, a few notable tools emerged from the data. The most commonly mentioned tools were market basket and product affinity analysis (24%). Analyzing customer profitability ratings such as customer lifetime value (15%) and click stream analysis of online retail sites (15%) also figured prominently. More general references to advanced customer analytics (11%) for use in multi-channel customer tracking and marketing efforts were noted. The use of predictive analytics (6%) to determine customer’s response to direct-mail promotions or to predict a customer’s purchasing future based on past purchasing behaviors was mentioned.

Table 2
Frequencies for CRM goals and objectives

Content analysis thematic categories	N	%
<i>CRM goals and objectives</i>	123	
<u>Improving marketing effectiveness</u>	27	22
Personalization	12	44
Real-time promotions	5	19
Increase marketing effectiveness	4	15
Create incentives	3	11
Build brands	2	7
Other ^a	1	4
<u>Enhance loyalty by improving customer service</u>	22	18
General service enhancements	9	41
Create long-term relationships	4	18
Increase self-service	2	9
Create real-time customer data	2	9
Use shopping assistants	2	9
Other ^a	3	14
<u>Customer analysis</u>	21	17
Spending patterns	4	19
Tracking reactions to incentives	4	19
Determine profitability	4	19
Determine WHAT customers would buy	3	14
Click stream analysis	2	10
Determine WHY they bought	2	10
Increase customer interactions	2	10
<u>Customer acquisition and retention</u>	14	11
Customer loyalty programs	6	43
Programs to increase acquisition and retention	4	29
Other ^a	4	29
<u>Grow or drive business</u>	12	10
Increase share of wallet	7	58
Increase sales	3	25
Other ^a	2	17

^aOther includes a total of concepts mentioned in only one article.

Table 3
Frequencies for data mining tools utilized in CRM initiatives

Content analysis thematic categories	N	%
Data mining tools utilized in CRM initiatives	33	
Market basket/affinity analysis	8	24
Customer profitability ratings	5	15
Click stream analysis	5	15
Advanced customer analytics	3	11
Predictive analytics	2	6
Marketing automation (personalization and e-mail)	2	6
Key performance indicators	2	6
Abandon shopping baskets	1	3
Exception reporting	1	3
Decision trees	1	3
Linking transactions to exit surveys	1	3
Conjoint analysis	1	3
Customer migration analysis	1	3

Marketing automation through personalization and email (6%) was noted. Retailers are also using key performance indicators (6%) although there was no mention of the specific indicators. Other tools identified were analyzing abandoned shopping baskets, the use of exception reporting, decision trees using product categories and store types as key identifiers of frequent online shoppers, linking transaction data to customer exit surveys, conjoint analysis of survey data to help gauge customer interests and buying patterns, and customer migration analysis.

3.4. CRM strategies used by retail companies

The most prominent retail CRM strategies reported in the trade literature were related to marketing (32%) such as targeted marketing efforts (42%) and the use of e-mail and e-coupons to deliver shopping incentives (12%). Customer analysis efforts (19%) such as the use of analytical tools (53%), analyzing spending patterns (23%), and multi-channel customer tracking (23%) were also prominent. The use of customer loyalty programs (18%) followed in frequency. Implementing special customer services (15%) by offering general service enhancements (37%) and providing shopping assistants (17%) was also notable as a retail CRM strategy. (see Table 4).

4. Discussion

4.1. Linkage of CRM goals, objectives, and strategies

It appears that the goals and objectives for CRM identified by retailers in the trade press were articulated into actionable strategies. Retailers indicated a desire to improve marketing effectiveness through the use of CRM as the most prevalent goal/objective. The strategy that emerged as most prevalent was the use of CRM for marketing. Retailers also indicated a desire to enhance

Table 4
Frequencies for CRM strategic uses

Content analysis thematic categories	N	%
<i>CRM strategic uses</i>	231	
<u>Marketing</u>	66	32
Targeted marketing	28	42
Email and ecoupons	8	12
Real-time promotions	6	9
Personalization	6	9
Increase effectiveness	5	8
Drive sales	4	6
Visual merchandising	3	5
Develop new campaigns	2	3
Increase share of wallet	2	3
Other ^a	2	3
<u>Customer analysis</u>	43	19
Analytical tools	23	53
Spending patterns	10	23
Multi-channel tracking	10	23
<u>Loyalty programs</u>	41	18
<u>Special customer services</u>	35	15
General service enhancement	13	37
Shopping assistants	6	17
In-store credit	3	9
Call center related	2	6
Post-order services	2	6
Additional loyalty card uses	2	6
New merchandise preview	2	6
Layaways	2	6
Other ^a	2	9

^aOther includes a total of concepts mentioned in only one article.

customer loyalty through improving customer service as another goal/objective. An emerging strategy was using the results of CRM to identify and implement special customer services. Increasing customer acquisition and retention was also linked to increased customer loyalty. Customer loyalty programs were a major CRM strategy implemented by retailers. Finally, retailers indicated a desire to better understand their customers through customer analysis and the resulting strategy identified were the use of customer data analysis to facilitate this goal.

4.2. Data mining tools linked to CRM strategies

It appears that a majority of the identified data mining tools could support marketing and customer analysis, the top two CRM strategies identified by retailers. Results in market basket and affinity analysis could allow for more targeted marketing efforts and help facilitate the identification of appropriate recipients of e-mail and e-coupon promotions. Customer profitability ratings allow retailers to identify their best and worst customers, better understanding customer segments and aligning strategies to enhance service options and marketing efforts to specific customer segments. Click stream analysis facilitates the understanding of online shopping behavior, a prominent customer analysis strategy (Dyche, 2002). Data mining

tools to perform advanced customer analytics and predictive analytics also allow retailers to fulfill this strategy. It is difficult to determine what the outcome of using key performance indicators may be without speculation since no detail was given as to the specific indicators that were analyzed. Although mentioned only once in the articles analyzed, other data mining tools can be linked to strategic efforts. Abandoned shopping baskets, decision tree use for online shopping behavior analysis, and the use of conjoint analysis to gauge customers buying patterns are all ways to perform customer analysis. Studying customer migration patterns may provide some insight into customer loyalty, a CRM strategy, and linking transaction data to customer exit surveys may provide information to enhance the customer experience, also identified as a CRM strategy.

4.3. Gaps in the identified use of CRM in retailing

Although it is interesting to discover CRM applications in goals/objectives, strategies, and the data mining tools retailers are using to facilitate these, uncovering areas where CRM is not reported as being used provides added value. Few retailers suggested CRM as a tool to look at segmentation of customers. Of the articles reviewed, only 7% identified segmentation as a goal/objective and 3% identified segmentation as a current CRM strategy. Product-related decisions using CRM information was also mentioned infrequently (2% of goals/objectives and 3% of strategies), pricing strategies and business planning issues were also lacking from the data. Retailers mentioned strategies involving pricing-related decisions in only 1% of the articles and business planning strategies in 3%. This indicates a lack of evidence of higher-level strategic uses reported in the retail trade press. Similarly, the data mining tools identified by retailers seem to focus on marketing and customer analytics, but there was limited evidence of use for creating and maintaining customer loyalty programs and special customer services, two prominent strategies identified by retailers. It appears that retailers are applying CRM to a limited range of problems and a limited range of strategies.

4.4. Emerging trends in retail data mining, CRM implementation, and future directions

Based on data from four retail trade publications, this research identified emerging trends in organization/infrastructure requirements, goals/objectives, retail strategies and data mining tools for effective CRM. Four major organization/infrastructure concepts emerged from the data addressing the issues of data structure, organizational systems, technology structure, and data accessibility. Five major concepts emerged as prominent based on the content analysis results relating to retail industry goals/objectives. Those were improving marketing effectiveness, improving customer service, customer analysis, increasing acquisition and retention strategies, and improving tactics to grow or

drive business. In the area of retail industry, strategies for CRM use, four major categories emerged; the use of marketing, customer data analysis efforts, customer loyalty programs, and special customer services. Overlap between goals and objectives and strategies exist in four areas, marketing, customer analysis, customer loyalty, and customer service. The identification of data mining tools to support these strategies was limited and focused on the categories of marketing and customer analysis.

To further study CRM in retailing, empirical research is needed to identify how retailers of various types and sizes are actually using CRM. An evaluation of current retailers through surveys and in-depth case studies is suggested to determine if the CRM approaches identified in this study are representative of retail practice on a broader scale.

References

- Arlitt, M., Krishnamurthy, D., Rolia, J., 2001. Characterizing the scalability of large web-based shopping systems. *ACM Transactions on Internet Technology* 1 (1), 44–69.
- Berkin, P., Beche, J.D., Randall, D.J., 2001. Interactive path analysis of web site traffic. *American Association for Artificial Intelligence, Proceedings*, 414–419.
- Bobier, D., 2006. Power tools. *Marketing Research* 18 (1), 41–42.
- Brijs, T., Goethals, B., Swinnen, G., Vanhoof, K., Wets, G., 2000. A data mining framework for optimal product selection in a retail super-market: the generalized PROFSET model. *Data Mining and Knowledge Discovery*, 300.
- Cao, Y., Gruca, T.S., 2005. Reducing adverse selection through customer relationship management. *Journal of Marketing* 69 (4), 219–229.
- Decker, P., 1998. Data mining's hidden dangers. *Banking Strategies* 74 (2), 6–14.
- Dhond, A., Gupta, A., Vadhavkar, S., 2000. Data mining techniques for optimizing inventories for electronic commerce. *Data Mining and Knowledge Discovery*, 480–486.
- Dyche, J., 2002. *The CRM handbook: a business guide to customer relationship management*. Addison-Wesley, Austin, TX.
- Frasquet, M., Molla, A., Gil, I., Vallet, T., 2002. Research trends in retailing: a comparative approach. *Journal of Retail and Distribution Management* 30 (8/9), 383–394.
- Gustafsson, A., Johnson, M.D., Roos, I., 2005. The effects of customer satisfaction, relationship commitment dimensions, and triggers on customer retention. *Journal of Marketing* 69 (4), 210–218.
- Jayachandran, S., Sharma, S., Kaufman, P., Raman, P., 2005. The role of relationship information processes and technology use in customer relationship management. *Journal of Marketing* 69 (4), 177–192.
- Lee, J., Podlaseck, M., 2000. Using a starfield visualization of analyzing product performance of online stores. *Data Mining and Knowledge Discovery* 4 (4), 168–175.
- Lee, J., Podlaseck, M., Schonberg, E., Hoch, R., 2001. Visualization and analysis of click stream data of online stores for understanding web merchandising. *Data Mining and Knowledge Discovery* 5 (1-2), 59–84.
- Lewis, M., 2005. Incorporating strategic consumer behavior into customer valuation. *Journal of Marketing* 69 (4), 230–238.
- Mithas, S., Krishnan, M.S., Fornell, C., 2005. Why do customer relationship management applications affect customer satisfaction? *Journal of Marketing* 69 (4), 201–208.
- Payne, A., Frow, P., 2005. A strategic framework for customer relationship management. *Journal of Marketing* 69 (4), 167–176.
- Provalis Research, 2006. Retrieved September 13, 2006 from <<http://www.provalisresearch.com>>
- Srinivasan, R., Morman, C., 2005. Strategic firm commitments and rewards for customer relationship management in online retailing. *Journal of Marketing* 69 (4), 193–200.
- Reda, S., 2003. Study shows CRM implementation outpaces planning. *Stores*.
- Rigby, D.K., Ledingham, D., 2004. CRM done right. *Harvard Business Review* 82 (11), 118–129.
- Rogers, M., 2005. Customer strategy: observations from the trenches. *Journal of Marketing* 69 (4), 262–263.
- Ryals, L., 2005. Making customer relationship management work: the measurement and profitable management of customer relationships. *Journal of Marketing* 69 (4), 252–261.
- Thomas, J.S., Sullivan, U.Y., 2005. Managing market communications with multi-channel customers. *Journal of Marketing* 69 (4), 239–251.