

## Chapter 5.11

# Customer Relationship Management and Knowledge Discovery in Database

**Jounghae Bang**

*Kookmin University, Korea*

**Nikhilesh Dholakia**

*University of Rhode Island, USA*

**Lutz Hamel**

*University of Rhode Island, USA*

**Seung-Kyoon Shin**

*University of Rhode Island, USA*

### INTRODUCTION

Customer relationships are increasingly central to business success (Kotler, 1997; Reichheld & Sasser, 1990). Acquiring new customers is five to seven times costlier than retaining existing customers (Kotler, 1997). Simply by reducing customer defections by 5%, a company can improve profits by 25% to 85% (Reichheld & Sasser, 1990). Relationship marketing—getting to know customers intimately by understanding their preferences—has emerged as a key business strategy for customer retention (Dyche, 2002).

Internet and related technologies offer amazing possibilities for creating and sustaining ideal customer relationships (Goodhue, Wixom, & Watson, 2002; Ives, 1990; Moorman, Zaltman, & Deshpande, 1992). Internet is not only an important and convenient new channel for promotion, transactions, and business process coordination; it is also a source of customer data (Shaw, Subramaniam, Tan, & Welge, 2001). Huge customer data warehouses are being created using advanced database technologies (Fayyad, Piatetsky-Shapiro, & Smyth, 1996).

Customer data warehouses by themselves offer no competitive advantages: insightful customer knowledge must be extracted from such data (Kim, Kim, & Lee, 2002). Valuable marketing insights about customer characteristics and their purchase patterns, however, are often hidden and untapped (Shaw et al., 2001). Data mining and knowledge discovery in databases (KDD) facilitate extraction of valuable knowledge from rapidly growing volumes of data (Mackinnon, 1999; Fayyad et al., 1996).

This article provides a brief review of customer relationship issues. The article focuses on: (1) customer relationship management (CRM) technologies, (2) KDD techniques, and (3) Key CRM-KDD linkages in terms of relationship marketing. The article concludes with the observations about the state-of-the-art and future directions.

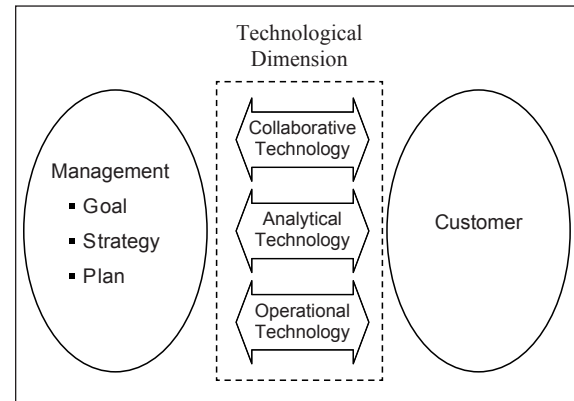
## BACKGROUND

### CRM Technologies

CRM is interpreted in a variety of ways (Goodhue et al., 2002; Winer, 2001; Wright, 2002). In some cases, CRM simply entails direct e-mails or database marketing. In other cases, CRM refers to CICs (customer interaction centers) and OLAP (online analytical processing), which is referred to as various types of online query-driven analyses for examining stored data. Overall, CRM can be seen as a core business strategy to interact with, create, and deliver value to targeted customers to improve customer satisfaction and customer retention at a profit. It is grounded in high quality customer data and enabled by information technology (Ang & Buttle, 2002).

Three core dimensions characterize buyer-focused CRM systems: customers, management, and technologies. *Customer* service and related issues must be included in the design, implementation, and operation of any CRM system. Organizations benefit from CRM only when such systems benefit

Figure 1. Alignment of three dimensions of CRM



their customers—using CRM merely as a sales or customer service solution is a recipe for failure (Davids, 1999). *Management's* articulation and tracking of customer relationship goals, plans, and metrics is an essential CRM component (Ang & Buttle, 2002; Greenberg, 2002). Successful CRM implementations rely on management goals, strategies, and plans that reflect customer commitment and promote a customer-responsive corporate culture at all levels of the organization (Ang & Buttle, 2002; Smith, 2001). *Technologies* for facilitating collaborative, operational, and analytical CRM activities are the manifest aspects of CRM (Goodhue et al., 2002).

*Collaborative CRM* systems refer to any CRM function that provides a point of interaction between the customer and the marketing channel (Greenberg, 2002). Web-based Internet, and in some cases mobile commerce systems, offer multiple “touch points” for reaching the customers. In employing the Web and mobile technologies, it is important to ensure that such technologies enhance older, preexisting channels (Johnson, 2002). *Operational CRM* systems refer to technologies that span the ordering-delivery cycle (Goodhue et al., 2002). Operational CRM is concerned with automating the customer-facing parts of the enterprise (Ang & Buttle, 2002). Since

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