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Understanding customer relationship management (CRM)

People, process and technology

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Abstract *Customer relationship management (CRM) is a combination of people, processes and technology that seeks to understand a company's customers. It is an integrated approach to managing relationships by focusing on customer retention and relationship development. CRM has evolved from advances in information technology and organizational changes in customer-centric processes. Companies that successfully implement CRM will reap the rewards in customer loyalty and long run profitability. However, successful implementation is elusive to many companies, mostly because they do not understand that CRM requires company-wide, cross-functional, customer-focused business process re-engineering. Although a large portion of CRM is technology, viewing CRM as a technology-only solution is likely to fail. Managing a successful CRM implementation requires an integrated and balanced approach to technology, process, and people.*

1. Introduction

In the mid-twentieth century, mass production techniques and mass marketing changed the competitive landscape by increasing product availability for consumers. However, the purchasing process that allowed the shopkeeper and customer to spend quality time getting to know each other was also fundamentally changed. Customers lost their uniqueness, as they became an "account number" and shopkeepers lost track of their customers' individual needs as the market became full of product and service options. Many companies today are racing to re-establish their connections to new as well as existing customers to boost long-term customer loyalty. Some companies are competing effectively and winning this race through the implementation of relationship marketing principles using strategic and technology-based customer relationship management (CRM) applications.

CRM technology applications link front office (e.g. sales, marketing and customer service) and back office (e.g. financial, operations, logistics and human resources) functions with the company's customer "touch points" (Fickel, 1999). A company's touch points can include the Internet, e-mail, sales, direct mail, telemarketing operations, call centers, advertising, fax, pagers,

stores, and kiosks. Often, these touch points are controlled by separate information systems. CRM integrates touch points around a common view of the customer (Eckerson and Watson, 2000). Figure 1 demonstrates the relationship between customer touch points with front and back office operations.

In some organizations, CRM is simply a technology solution that extends separate databases and sales force automation tools to bridge sales and marketing functions in order to improve targeting efforts. Other organizations consider CRM as a tool specifically designed for one-to-one (Peppers and Rogers, 1999) customer communications, a sole responsibility of sales/service, call centers, or marketing departments. We believe that CRM is not merely technology applications for marketing, sales and service, but rather, when fully and successfully implemented, a cross-functional, customer-driven, technology-integrated business process management strategy that maximizes relationships and encompasses the entire organization (Goldenberg, 2000). A CRM business strategy leverages marketing, operations, sales, customer service, human resources, R&D and finance, as well as information technology and the Internet to maximize profitability of customer interactions. For customers, CRM offers customization, simplicity, and convenience for completing transactions, regardless of the channel used for interaction (Gulati and Garino, 2000).

CRM initiatives have resulted in increased competitiveness for many companies as witnessed by higher revenues and lower operational costs. Managing customer relationships effectively and efficiently boosts customer satisfaction and retention rates (Reichheld, 1996a, b; Jackson, 1994; Levine, 1993). CRM applications help organizations assess customer loyalty and profitability on measures such as repeat purchases, dollars spent, and longevity. CRM applications help answer questions such as "What products or services are important to our customers? How should we communicate with our customers? What are my customer's favorite colors or what is my customer's size?" In particular, customers benefit from the belief that they are saving time and money as well as receiving better information and special treatment (Kassanoff, 2000). Furthermore, regardless of the channel or method used to contact the company, whether it is the Internet, call centers, sales representatives, or resellers, customers receive the same consistent and efficient service (Creighton, 2000). Table I provides a brief overview of some of the benefits that CRM offers by sharing customer data throughout the organization and implementing innovative technology.

With much success, software vendors such as Oracle, SAP, PeopleSoft, Clarify, SAS, and Siebel are racing to bring off-the-shelf CRM applications to organizations. Many of these are the vendors responsible for developing enterprise resource planning (ERP) systems. AMR Research estimates that the CRM market will top $16.8 billion by 2003 (Tiazkun, 1999).
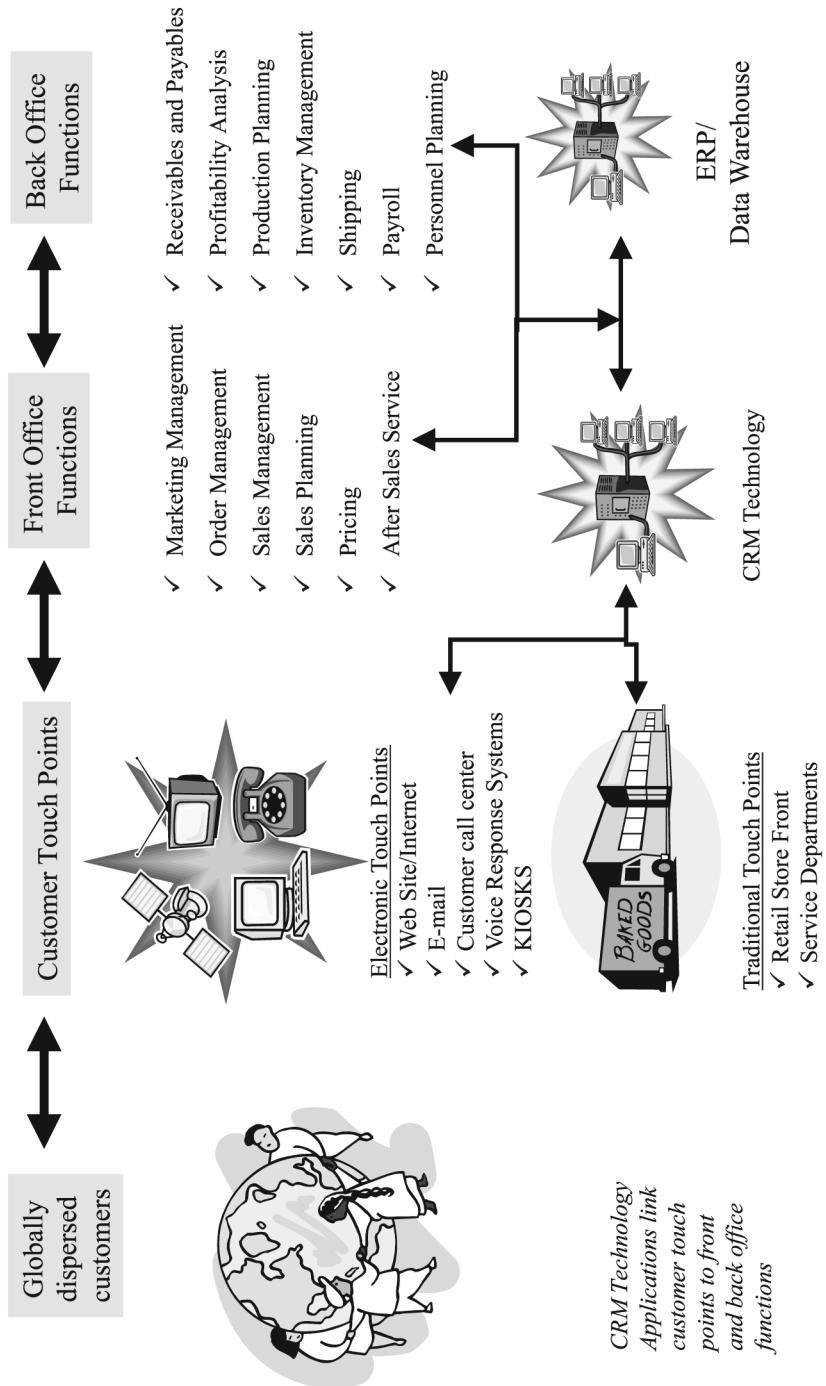
Figure 1.
CRM applications,
supported by ERP/data
warehouse, link front
and back office functions

Customer data sharing throughout the organization resulting in:	CRM innovative technology:
Superior levels of customer service	Extends capability to the customer for
Opportunities for cross-selling and up-selling	self-service and Internet applications
Vast information about customers' habits and preferences	Attracts existing and new customers through personalized communications and improved
Integrated and complete view of the customer	targeting
Improved targeting to segments and individual customers	Integrates customer and supplier relationships
	Constructs metrics to analyze common and
Efficient call centers/service centers	unique customer patterns

While there are many compelling reasons to consider a CRM strategy, caution and careful analysis is prudent. Hackney (2000) warns that although CRM software vendors may entice organizations with promises of all-powerful applications, to date there is no 100 percent solution. Possible risks such as project failure, inadequate return on investment, unplanned project budget revisions, unhappy customers, loss of employee confidence, and diversion of key management time and resources must be well thought out (Schweigert, 2000). In one example, a large telecommunications company rolled out a major CRM application to more than 1,000 sales reps in late 1999, at a cost of $10,000 per user, only to find a year later that fewer than 100 were using the system (Patton, 2001). Recent surveys further reveal that the average investment in CRM applications is $2.2 million dollars (CIO Research Reports, 2002), and that CRM implementation failure rate is as high as 65 percent (Apicella *et al.*, 1999).

It is becoming increasingly clear that stalled or failed CRM projects are often the result of companies lacking a thorough understanding of what CRM initiatives entail. Thus, this paper first presents the evolution of CRM to facilitate the comprehension of the implementation issues. It then sets out to explore the underlying critical components that can enable (or hinder) the successful implementation of CRM initiatives. A CRM implementation model that integrates the three key dimensions of people, process, and technology within the context of an enterprise-wide customer-driven, technology-integrated, cross-functional organization is proposed in Figure 2. The essential roles of these three dimensions are further elaborated in the subsequent sections following the evolution of CRM.

2. CRM evolution
Customer relationship management itself is not a new concept but is now practical due to recent advances in enterprise software technology. An outgrowth of sales force automation (SFA) tools, CRM is often referred to in the literature as one-to-one marketing (Peppers and Rogers, 1999). SFA software automates routine tasks such as tracking customer contacts and forecasting. The goal of SFA is to allow the sales force to concentrate more on selling and
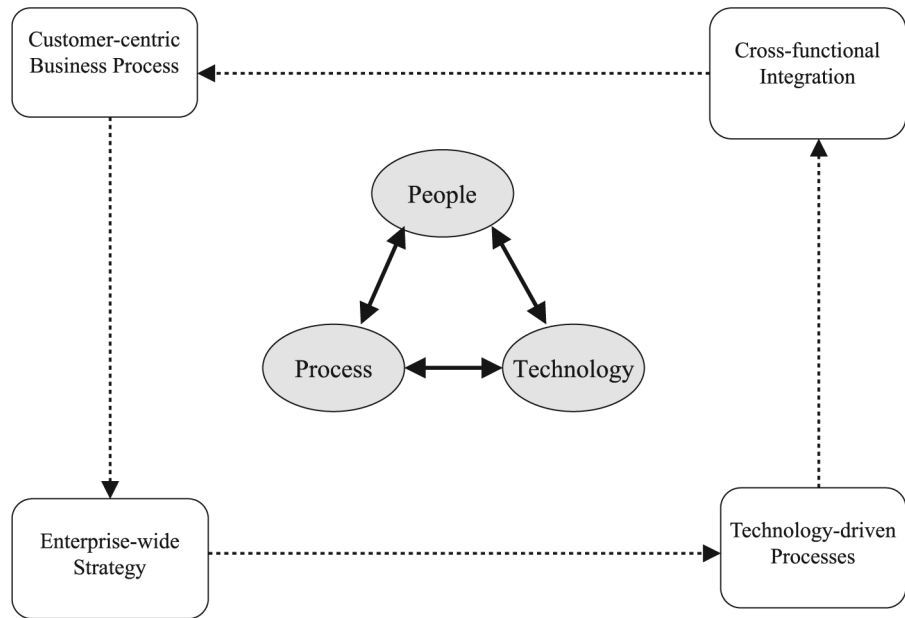
less on administrative tasks. It should be noted, however, that CRM also has its roots in relationship marketing which is aimed at improving long run profitability by shifting from transaction-based marketing, with its emphasis on winning new customers, to customer retention through effective management of customer relationships (Christopher *et al.*, 1991). Thus, CRM is a more complex and sophisticated application that mines customer data that has been pulled from all customer touch points, creating a single and comprehensive view of a customer while uncovering profiles of key customers and predicting their purchasing patterns. Technology that tracks and analyzes customer behavior allows companies to easily identify the best customers and focus marketing efforts and reward those who are likely to buy often. Acquiring a better understanding of existing customers allows companies to interact, respond, and communicate more effectively to significantly improve retention rates.

Innovations in technology, competitive environments, and the Internet are just several factors that make one-to-one initiatives a reality. Companies can develop these relationships to customize the shopping experience, better predict online buying patterns, entice customers with special offers or services, evaluate the economic advantage of each customer, and build long-term mutually beneficial relationships. The following examples highlight some of the benefits of CRM applications.

Ritz-Carlton, an upscale chain of hotels, records guest preferences gleaned from conversation with customers during their stay and uses them to tailor the

services that customers receive on their next visit at any other Ritz-Carlton in the world. Requests for items such as hypoallergenic pillows and additional towels are recorded for future use so that personalized goods and services can be added for repeat customers. Mining customer data allowed Bank One to significantly reduce turnover among its most profitable small business customers by assigning dedicated account managers (Conlon, 1999). The service industry, however, is not the only industry to harness people, process, and technology to manage resilient customer relationships. Dell Computer Corporation exemplifies CRM success by combining IT with front and back office operations. Every PC that Dell manufactures is already sold. From the Internet, Dell customers are able to configure their own system, from thousands of hardware and software combinations, with an easy-to-use ordering system that provides delivery dates as well as progress updates.

3. The technology factor
Information technology (IT) has long been recognized as an enabler to radically redesign business processes in order to achieve dramatic improvements in organizational performance (Davenport and Short, 1990; Porter, 1987). IT assists with the re-design of a business process by facilitating changes to work practices and establishing innovative methods to link a company with customers, suppliers and internal stakeholders (Hammer and Champy, 1993). CRM applications take full advantage of technology innovations with their ability to collect and analyze data on customer patterns, interpret customer behavior, develop predictive models, respond with timely and effective customized communications, and deliver product and service value to individual customers. Using technology to "optimize interactions" with customers, companies can create a 360 degree view of customers to learn from past interactions to optimize future ones (Eckerson and Watson, 2000).

Innovations in network infrastructure, client/server computing, and business intelligence applications are leading factors in CRM development. CRM solutions deliver repositories of customer data at a fraction of the cost of older network technologies. CRM systems accumulate, store, maintain, and distribute customer knowledge throughout the organization. The effective management of information has a crucial role to play in CRM. Information is critical for product tailoring, service innovation, consolidated views of customers, and calculating customer lifetime value (Peppard, 2000). Among others, data warehouses, enterprise resource planning (ERP) systems, and the Internet are central infrastructures to CRM applications.

3.1 Data warehouse technology
A data warehouse is an information technology management tool that gives business decision makers instant access to information by collecting "islands of customer data" throughout the organization by combining all database and

operational systems such as human resources, sales and transaction processing systems, financials, inventory, purchasing, and marketing systems. Specifically, data warehouses extract, clean, transform, and manage large volumes of data from multiple, heterogeneous systems, creating a historical record of all customer interactions (Eckerson and Watson, 2000). The abilities to view and manipulate set data warehouses apart from other computer systems. Constantly extracting knowledge about customers reduces the need for traditional marketing research tools such as customer surveys and focus groups. Thus, it is possible to identify and report by product or service, geographic region, distribution channel, customer group, and individual customer (Story, 1998). Information is then available to all customer contact points in the organization.

Data warehousing technology makes CRM possible because it consolidates, correlates and transforms customer data into customer intelligence that can used to form a better understanding of customer behavior. Customer data includes all sales, promotions, and customer service activities (Shepard *et al.*, 1998). In addition to transaction details, many other types of data generated from internal operations can make significant contributions. Information related to billing and account status, customer service interactions, back orders, product shipment, product returns, claims history, and internal operating costs all can improve understanding of customers and their purchasing patterns. The ability of a data warehouse to store hundreds and thousands of gigabytes of data make drill-down analysis feasible as well as immediate. A corporate awareness survey conducted jointly by Cap Gemini and International Data Corporation (1999) found that 70 percent of US firms and 64 percent of European firms plan on building a data warehouse to support their CRM projects. SAS Corporation, a significant player in the data warehouse industry, has recently teamed with Peppers and Rogers Group to provide "CRM Resource", a weekly guide on industry-focused CRM. A brief outline of organizational benefits with a data warehouse are:

- accurate and faster access to information to facilitate responses to customer questions;
- data quality and filtering to eliminate bad and duplicate data;
- extract, manipulate and drill-down data quickly for profitability analysis, customer profiling, and retention modeling;
- advanced data consolidation and data analysis tools for higher level summary as well as detailed reports; and
- calculate total present value and estimate future value of each and every customer.

3.2 Enterprise resource planning (ERP) systems

Enterprise resource planning (ERP), when successfully implemented, links all areas of a company including order management, manufacturing, human

resources, financial systems and distribution with external suppliers and customers into a tightly integrated system with shared data and visibility (Chen, 2001). An overview of ERP systems is provided in Figure 3. Major enterprise systems vendors, who have been successful in the ERP market, are gearing up for the growing needs of CRM by aggressively forming alliances with, or taking over other software companies that have been operating in the CRM market. For example, J.D. Edwards entered into a deal with Seibel, a leading CRM company, in May 1999 and subsequently shut down its in-house sales force automation team. Peoplesoft acquired Vantive's CRM software in October 1999 to integrate with its own ERP systems. Through mySAP initiatives, users of SAP R/3 system can add Web-based CRM and SCM functions while leaving the core R/3 system intact (Xenakis, 2000). Oracle has taken the most drastic steps in forming a new bond between ERP and CRM. The new flagship ERP/CRM software package, called 11i, is heavily Internet oriented and allows users to seamlessly implement modules of CRM with a smaller ERP suite (Sweat, 2000).

Significant differences exist between ERP technology and CRM applications. ERP serves as a strong foundation with tightly integrated back office functions while CRM strives to link front and back office applications to maintain relationships and build customer loyalty. ERP systems promise to integrate all functional areas of the business with suppliers and customers. CRM promises to improve front office applications and customer touch points to optimize customer satisfaction and profitability. While ERP systems address fragmented information systems, CRM addresses fragmented customer data. CRM applications are Web-enabled and designed to extend the data mining capabilities of ERP throughout the supply chain to customers, distributors, and manufacturers (Scannell, 1999). Organizations can use CRM analytical capabilities to predict and answer key business questions on customer intelligence and share the results across channels. Although ERP is not required for CRM, providing customers, suppliers, and employees with Web-based access to systems through CRM will only be beneficial if the underlying infrastructure, such as data warehouses and/or ERP, exists (Solomon, 2000). Companies with an ERP system, however, need to understand where they are in the implementation process, as well as assess where other technologies, such as data warehouses, fit in before plunging into CRM applications (Saunders, 1999).

3.3 Impact of the Internet

The explosive growth of the Internet has also brought new meaning to building customer relationships. Greater customer access to the organization, such as online ordering and around the clock operations, has set the stage for a shifting paradigm in customer service. A recent report describes how successful Web sites are in building lasting relationships with "e-customers" by offering
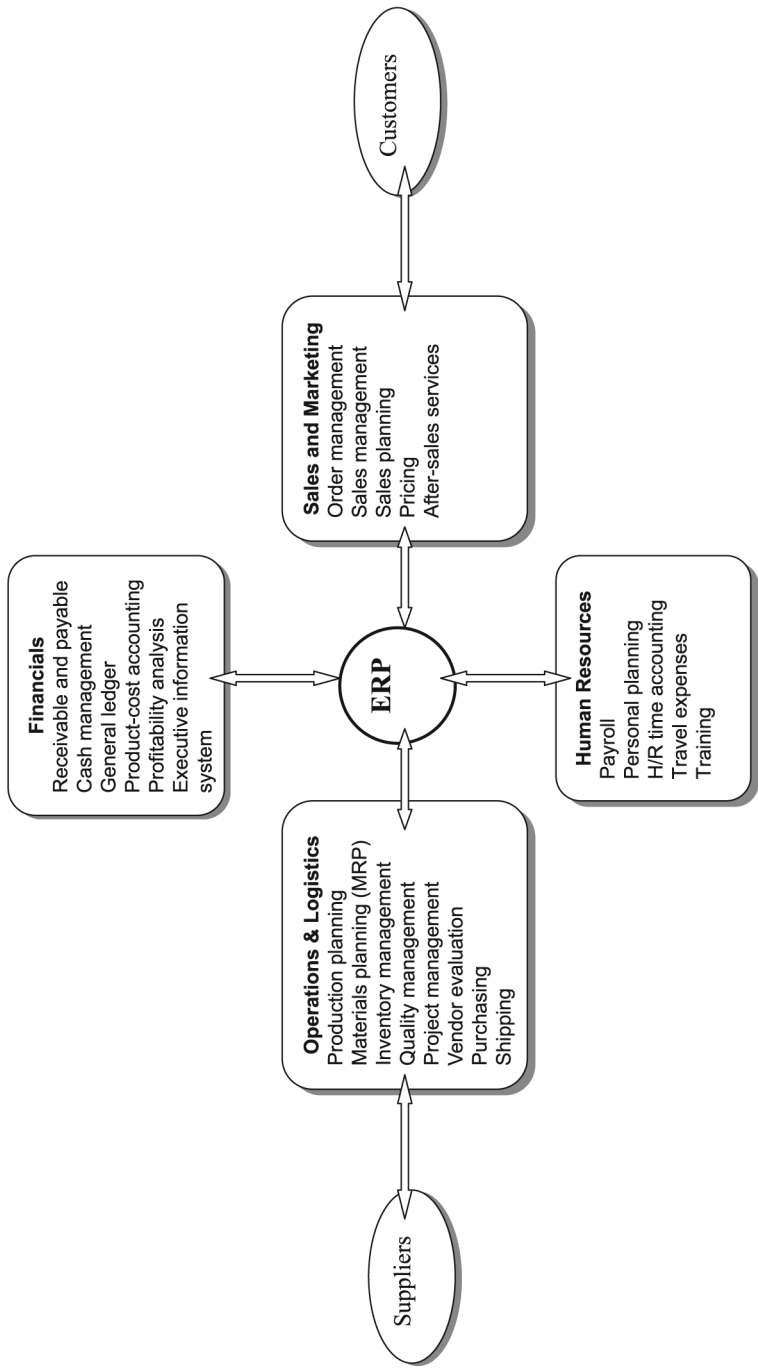
Figure 3.
An overview of
ERP systems

services in traditionally impossible ways (Peppers and Rogers, 2000). Using a series of richly detailed case studies, they also contended that in the broad arena of business-to-business commerce, organizations would rise or fall on the basis of their capabilities to cultivate one-to-one relationships with their customers (Peppers and Rogers, 2001). Customers expect organizations to anticipate their needs and provide consistent service at levels above their expectations. In return, customers are loyal to the organization for longer periods of time. For instance, the American Airlines Web site builds customized customer views in real time allowing two million frequent fliers to have a unique experience each time they log on (Peppers and Rogers, 1999). Prior to the Internet, there was not a cost-effective way to tell millions of customers fitting a certain profile about an immediately available special fare. With the interactive capability of the Internet, American Airlines can do exactly that without having to tell everyone about every special fare. As a part of CRM, American Airlines offers loyal customers promotional fares and special discounts to partner businesses based on individual customer preferences.

4. Business process changes

Not long ago, companies with efficient facilities and greater resources were able to satisfy customer needs with standardized products, reaping advantages through productivity gains and lower costs. Mass marketing and mass production were successful as long as customers were satisfied with standardized products. As more firms entered the market, mass marketing techniques, where the goal was to sell what manufacturing produced, started to lose effectiveness. Target marketing, or segmentation, shifted a company's focus to adjusting products and marketing efforts to fit customer requirements. Changing customer needs and preferences require firms to define smaller and smaller segments.

It has become well known that retaining customers is more profitable than building new relationships. Consequently, relationship marketing was developed on the basis that customers vary in their needs, preferences, buying behavior, and price sensitivity. Therefore, by understanding customer drivers and customer profitability, companies can better tailor their offerings to maximize the overall value of their customer portfolio. In his seminal study, Reichheld (1996a, b) has documented that a 5 percent increase in customer retention resulted in an increase in average customer lifetime value of between 35 percent and 95 percent, leading to significant improvements in company profitability.

Customer relationship marketing techniques focus on single customers and require the firm to be organized around the customer, rather than the product. Customer-centric organizations seamlessly integrate marketing and other business processes to serve customers and respond to market pressures. Firms

that evolve to this stage will benefit from a marketing-manufacturing interface, resulting in the flexibility to meet changing customer needs efficiently and effectively (Prabhaker, 2001). Figure 4 demonstrates the change from weak to strong customer relationships based on changing marketing strategies of mass marketing, target marketing and customer relationship marketing.

Despite the technological perspectives discussed in the previous section, the philosophical bases of CRM are relationship marketing, customer profitability, lifetime value, retention and satisfaction created through business process management. In fact, Anton (1996) characterizes CRM as an integrated approach to managing customer relationships with re-engineering of customer value through better service recovery and competitive positioning of the offer. Couldwell (1998) further depicts CRM as a combination of business process and technology that seeks to understand a company's customer from the perspective of who they are, what they do, and what they are like. In fact, companies have been repeatedly warned that failure is eminent if they believe that CRM is only a technology solution (Goldenberg, 2000).

The statement "retaining customers is more profitable than building new relationships" is especially true in the changing Internet market. The Boston Consulting Group estimates that it costs $6.80 to market to existing customers via the Web, versus $34 to acquire a new Web customer (Hildebrand, 1999). A recent Deloitte Consulting survey of more than 900 executives across different industries also revealed that manufacturers that set goals for improving customer loyalty are 60 percent more profitable than those without such a strategy (Saunders, 1999). A CRM strategy can help create new customers, and more importantly, develop and maintain existing customers.

Customer relationship management is an enterprise-wide customer-centric business model that must be built around the customer. It is a continuous effort that requires redesigning core business processes starting from the customer perspective and involving customer feedback. The Seybold Group starts this process by asking customers what barriers they encounter from the company (Seybold, 1998; Seybold *et al.*, 2001). In a product-focused approach, the goal is to find customers for the products using mass marketing efforts. In a customer-centric approach, the goal becomes developing products and services to fit customer needs. In Seybold's work, five steps in designing a customer-centric organization were suggested:

(1) make it easy for customers to do business;

(2) focus on the end customer;

(3) redesign front office and examine information flows between the front and back office;

(4) foster customer loyalty by becoming proactive with customers; and

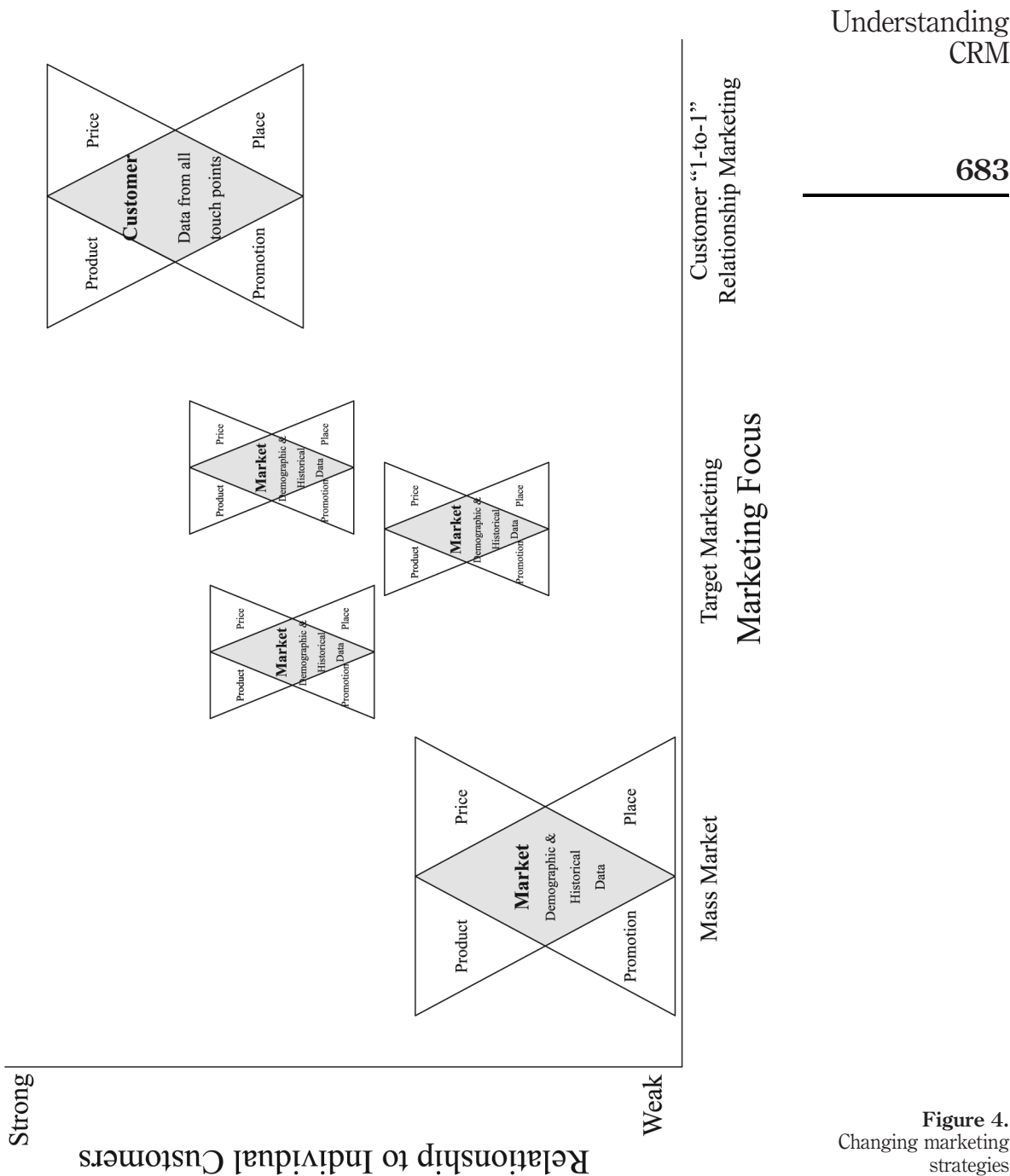(5) build in measurable checks and balances to continuously improve.

Figure 4.
Changing marketing
strategies

The goals of a customer-centric model are to increase revenue, promote customer loyalty, reduce the cost of sales and service, and improve operations. Optimizing customer relationships requires a complete understanding of all customers; profitable as well as non-profitable, and then to organize business processes to treat customers individually based on their needs and their values (Renner, 2000). Within the paradigm of business process re-engineering, Al-Mashari and Zairi (1999) offer a holistic view of success and fail factors. Specifically, change management, management support, organizational structure, project management, and information technology were highlighted. Companies considering CRM implementation can also benefit from addressing these five BPR issues.

5. People changes

Implementation of enterprise technology, such as CRM and ERP, requires changes to organizational culture (Al-Mashari and Zairi, 2000). While both technology and business processes are both critical to successful CRM initiatives, it is the individual employees who are the building blocks of customer relationships. There are several underlying dimensions surrounding management and employees that successful CRM implementations require.

Top management commitment is an essential element for bringing an innovation online and ensuring delivery of promised benefits. Top management commitment, however, is much more than a CEO giving his or her blessing to the CRM project. Customer-centric management requires top management support and commitment to CRM throughout the entire CRM implementation. Without it, momentum quickly dies out. Furthermore, top management should set the stage in CRM initiatives for leadership, strategic direction and alignment of vision and business goals (Herington and Peterson, 2000). This view was reinforced in a recent META Group Report (1998) that singled out top management support and involvement as a key success factor for CRM implementations.

As in most major change efforts, objections and disagreement among various functional departments that arise in the process of business reengineering and CRM implementation can only be solved through personal intervention by top management, usually resulting in changes to corporate culture. The META Group Report (1998) concluded that investing in CRM technology without a customer oriented cultural mindset is like throwing money into a black hole. Dickie (1999) also warns against starting a CRM project if senior management does not fundamentally believe in re-engineering a customer-centric business model.

CRM projects require full-time attention of the implementation project team with representatives from sales, marketing, manufacturing, customer services, information technology, etc. Cap Gemini and IDC found that top management and marketing and sales management are generally the initiators of a corporate

CRM project (1999). In addition, project teams require not only sponsorship by top management but also a project champion that can persuade top management for continuous change efforts (Al-Mashari and Zairi, 1999). In general, project teams assist companies to integrate their core business processes, combine related activities, and eliminate the ones that don't add value to customers.

A functional organization often takes "ownership" of customer data. Many departments and individuals see customer handling as a sales or marketing function, and regard the release of their data to another function as a loss of power. A customer-centric model requires sharing the data enterprise-wide; this usually requires a fundamental paradigm shift in the culture to sharing information and knowledge. Especially in organizations where tradition has established separate goals and objectives, top management must not take a passive role in change efforts. Silo-based organizational myopia must be replaced with a customer-focus so departments will collaborate rather than compete with each other. Many of these changes efforts can be aided by effective communication throughout the entire project and reaching all levels of employees.

CRM initiatives require vision and each and every employee must understand the purpose and changes that CRM will bring. Re-engineering a customer-centric business model requires cultural change and the participation of all employees within the organization. Some employees may opt to leave; others will have positions eliminated in the new business model. Successful implementation of CRM means that some jobs will be significantly changed. Management must show its commitment to an ongoing company-wide education and training program. In addition to enhancing employee skills and knowledge, education boosts motivation and commitment of employee and reduces employee resistance. Additionally, management must ensure that job evaluations, compensation programs, and reward systems are modified on a basis that facilitate and reward customer orientation. After all, how people are measured will determine their behavior.

6. Conclusion
Somewhere along the turn of the twentieth century, buyers and sellers lost their intimate relationships. Prior to the Industrial Revolution, sellers knew their customers, many times by name, and generally understood their needs. Mass production built a wall between buyers and sellers where the main concept was to find customers for standardized products. Customers are more empowered today than ever before and the Internet is accelerating the trend toward greater customer empowerment. CRM applications attempt to focus on the customer first, specifically one customer at a time, to build a long-lasting mutually beneficial relationship.

Customer relationship management is a comprehensive approach that promises to maximize relationships with all customers, including Internet or

"e-customers", distribution channel members, and suppliers. Getting to "know" each customer through data mining techniques and a customer-centric business strategy helps the organization to proactively and consistently offer (and sell) more products and services for improved customer retention and loyalty over longer periods of time. Peppers and Rogers (1999) refer to this as maximizing "lifetime customer share", resulting in customer retention and customer profitability. On the other hand, advanced customer data analysis also allows a company to identify the customers it does not want to serve. Beside the technological advances, CRM initiatives represent a fundamental shift in emphasis from managing product portfolios to managing portfolios of customers, necessitating changes to business process and people. As companies start to re-engineer themselves around customers, individual employees must also come to terms with changing business process, organizational culture and, thus, the ways they view their customers and how they treat them.

Organizations today must focus on delivering the highest value to customers through better communication, faster delivery, and personalized products and services. Since a large percentage of customer interactions will occur on the Internet rather than with employees (Bultema, 2000), technology must adapt to the changing and unpredictable market. Organizations that implement CRM and e-business applications will have the greatest gains (Lange, 1999). The future of CRM is e-relationship management or eRM that will synchronize cross-channel relationships (Saunders, 1999). It is also envisioned as an "e-partnering ecosystem" with a complex network of partners that operate as an interconnected whole, spanning entire markets and industries (Creighton, 2000; Siebel, 2001).

CRM implementations and the changing effect of the Internet offer abundant research opportunities. The identification of some implementation issues in this study raises several important research questions. In particular, what are the roles of suppliers and supply chain partners in CRM? How does e-CRM strategies affect brick and mortar companies? What business processes, integration challenges, and organization structures are common throughout successful CRM implementations? Research in these areas will contribute to building thriving customer relationships and long-term corporate survival. Years of academically researched topics of relationship marketing and customer retention are now practical and cost-effective to implement due to emerging technology. It is time to put academic theories to practice.

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