Customer relationship management in the contract pharmaceutical industry: an exploratory study for measuring success

John F. Kros*

3121 Harold Bate Building
Department of Marketing and Supply Chain Management
College of Business
East Carolina University
Greenville, NC 27858, USA
E-mail: krosj@ecu.edu
*Corresponding author

Scott Nadler

3102 Harold Bate Building
Department of Marketing and Supply Chain Management
College of Business
East Carolina University
Greenville, NC 27858, USA
E-mail: nadlers@ecu.edu

Justin Molis

Marketing Synergist
JADAMCOMMERCE LLC
1309 Euclid Ave.,
Miami Beach, FL 33139, USA
E-mail: jadampotential@earthlink.net

Abstract: Managing customer relationships is a very important issue in business-to-business markets. This research investigates the growing number of available resources defining Customer Relationship Management (CRM) efforts, and how they are being applied within the Contract Pharmaceutical Manufacturing industry. Exploratory study results using face-to-face and telephone questionnaires based on four criteria for rating a company's CRM efforts are presented. Data was collected from large Contract Pharmaceutical Manufacturing companies in the US market. The results and conclusions are discussed relating how the Contract Pharmaceutical Manufacturing industry is implementing CRM including some potential steps to take when considering a CRM initiative.

Keywords: Customer Relationship Management; CRM; CRM success; e-healthcare; contract pharmaceutical manufacturing.

Biographical notes: John F. Kros, Assistant Professor of Marketing and Supply Chain Management, College of Business, East Carolina University. He holds a BBA, University of Texas, Austin, an MBA, Santa Clara University, and a PhD in Systems Engineering, University of Virginia. He has several years of industrial experience in electronics manufacturing.

S. Scott Nadler, Assistant Professor of Marketing and Supply Chain Management, College of Business, East Carolina University. His background includes a PhD in Marketing from the University of Alabama, over ten years of industry experience, and membership in a number of professional organisations in his field.

Justin Molis holds a BBA from East Carolina University has worked in the Contract Pharmaceutical Manufacturing Industry and currently runs his own marketing consulting firm and specialises in Beverage Marketing and Distribution.

1   Introduction to CRM

As the World Wide Web (the web) has developed into a major marketing channel, more companies are tailoring their products as well as their marketing processes to individual customers via the web using techniques such as Knowledge Management (KM), data mining, and Customer Relationship Management (CRM) (Kerin *et al.*, 2004; Metaxiotis *et al.*, 2004; Tanner *et al.*, 2005; Korukonda and Korukonda, 2006; Wickramasinghe and Schaffer, 2006). To manage this interface and the large amount of data collected, CRM technologies have grown in importance. In turn, implementation of CRM technologies has become a major capitol investment for many companies wishing to evaluate and manage important customer relationships more efficiently. Research on CRM is growing as the technology gains acceptance within organisations. Many diverse disciplines have been investigated regarding CRM implementation: consulting engineering (Filiatrault and Lapierre, 1997), financial services (Eriksson and Mattsson, 2002; Campbell, 2003; Leek *et al.*, 2004), food processing (Ragins and Greco, 2003), gaming (Kale, 2003), healthcare (MHS Staff, 2002; Paddison, 2002; Sternberg, 2003; Paddison, 2003), hotels (Piccoli *et al.*, 2003; Ragins and Greco, 2003), manufacturing (Leek *et al.*, 2004), and retailing (Kenyon and Vakola, 2003).

This proliferation brings us to a point brought out in the Ebner *et al.* (2002) research. They cite the argument that most implemented CRM systems have either failed or need improvements. Their claim is also supported by other studies in the industry referring to the difficulty some firm's experience in realising the benefits CRM vendors promote (see Dodge, 2001; Goldenberg, 2001; Rigby *et al.*, 2002). The cause of these failures and unrealised potential does not seem to point to the vendor's software, but poor training by CRM clients and a poor understanding as to the value of the underlying CRM system (Schroff, 2004).

These examples clearly show that the pool of literature that addresses the many aspects of CRM implementation for business solutions is growing. Although, CRM research has been completed in the area of healthcare (Paddison, 2002; Paddison, 2003; Sternberg, 2003), there are few scholarly publications that focus on the study of CRM in the pharmaceutical industry. Albeit articles have appeared that mentioned CRM in the pharmaceutical industry, their focus has been more on pharmaceutical marketing, customer databases, electronic data interchange, and/or online services than in the area of CRM implementation, networked healthcare, physician interface, and/or electronic business strategy (Rao and Shenbaga, 2000; MHS Staff, 2001; Lerer, 2002; Rao, 2002; Bhalla *et al.*, 2004; Chen *et al.*, 2004; Lundstrom and Wright, 2005; Wen and Tan, 2005; Lin and Hsieh, 2006). In addition, a number of researchers have found that the current literature does not provide good explanations outlining measurement techniques for CRM success (Wilson *et al.*, 2002; Bland, 2003; Jain *et al.*, 2003). To ameliorate this situation, the authors attempted to identify the major areas described by researchers as critical for CRM success. Therefore, we investigated the success of CRM implementation within the contract pharmaceutical manufacturing discipline, juxtaposed with what has transpired in other disciplines implementing CRM solutions. To accomplish this, the paper deals specifically with technology initiatives and it examines them at the upper management level in addition to the employee perspective of buy-in and education. Before a discussion of what constitutes successful CRM, a discussion on what CRM is presented.

2   What is CRM?

Since this research emphasises the strategic aspect of CRM implementation, a definition proposed by Kellen (2006), President of CRM Strategy Blue Wolf, is used. Kellen proposes a definition that concentrates more on the long-term impact of CRM. His definition of CRM is as follows, "a business strategy aimed at gaining long-term competitive advantage by optimally delivering customer value and extracting business value simultaneously".

It should be noted that in the area of CRM software, application packages are bountiful and the technology does aid in the development of a new customer focused initiatives. Just as CRM itself has various definitions, the functionality of the many CRM software packages can be categorised in different ways. This paper recognises two categories of CRM software:

1   software that manages customer interaction

2   software that analyses customer behaviour (Elliot, 2000).

In that vein, several articles have discussed the growing demand for financial resources within companies to expand CRM efforts, specifically to purchase CRM software (Ebner, *et al.*, 2002; Schroff, 2004). In 1999, the market for CRM applications was optimistic and continued to grow with 1999 sales reaching $34 billion and projected sales forecasts of $125 billion in 2004 (Winer, 2001).

Organisational professionals also refer to CRM as relationship marketing and note that CRM primarily concerns itself with how organisations manage, respond to, and improve existing relationships with current customers for long-term profitability (Ryals

and Payne, 2001). Creating and maintaining the relationship with current customers relates to successful business ventures (Reichheld and Sasser, 1990; Morgan and Hunt, 1994). Moreover, consumers have also realised that competition among sellers, results in potential monetary advantages for personal consumption. When consumers realised they could bargain down prices or could find goods for better prices containing the same or better quality, settling on purchasing only one option no longer seemed reasonable. Providers of goods and services were forced to manifest enduring partnerships with their consumers in order to benefit from potential future growth (Dowling, 2002). The very essence of the customer's relationship importance reflected the necessary qualities the seller had to provide.

More recently with the advances in technology (software applications) the ability to watchdog customers and provide quality demanded services, has become a benchmark for leading companies to showcase. Software vendors that market CRM applications, such as sales force automation, database management, and knowledge management packages, now offer standard uploading ability in real time to commuting salespeople (West, 2001). The next section presents a discussion on recent CRM developments and provides a review of related literature.

3   CRM developments and review of related literature

The CRM concept, sometimes referred to as one-to-one marketing, was first academically proposed by Peppers and Rogers (1993). CRM, is also referred to as relationship marketing, lifetime-value marketing, and/or loyalty marketing, allows companies to create long-term, and mutually beneficial relationships with customers (Dowling, 2002). The ultimate anticipated result being greater customer loyalty with improved profit margins (Reichheld and Sasser, 1990; Davids, 1999). Experts propose that CRM contains the true strategic objective of linking together all aspects of a company's business and focusing them on building long-term, profitable customer loyalty, when designed successfully (Crosby, 2000).

By stressing the growing importance of CRM as a way to combine Information Technology (IT) and the development of a customer relationship, marketing strategists use this principle to unlock enterprise information so that it can be easily communicated to customers. This information, for example, encompasses accurate up-to-date, purchase orders, reservations, and warranty information (Winer, 2001). Companies such as Siebel, E.piphany, Oracle, Broadvision, Net Perceptions, Kana, and others have developed and begun to implement full service CRM products that do everything from track customers' web behaviour to predicting their future moves. Companies such as these point out that their CRM products synthesise all of a company's customer touch points; including e-mail, call centres, retail stores and sales reps to support subsequent customer interactions as well as to inform financial forecasts, product design and supply chain management (Winer, 2001; Yu, 2001).

Crosby and Johnson (2001a) have published research reporting in-depth findings on CRM principles containing strategy blueprints, and state the main driver of customer loyalty as brand commitment and offer a five step 'brand ladder' as a way to qualitatively measure the level of commitment.

1   They have heard of it.

2   They understand how it's different from and better than other brands.

3   They are attracted to the brand's image and personality.

4   They feel ego-involved with the brand and identify with its values.

5   They feel attached to the brand and want to remain close with it.

Their work emphasises that managing the actual brand and treating it as a valuable asset is critical when implementing any effective CRM strategy (Crosby and Johnson, 2001b). Others report that critical success factors of CRM are based in technological initiative (Croteau and Li, 2001).

Furthering the approach that Crosby and Johnson used, Fayerman (2002) discusses the significant import of CRM as a relationship tool. He states that CRM is a complement to the branding strategy, but also holds technology importance. He believes CRM's strength lies in its required foundation: robust databases, network speed, Enterprise Resource Planning (ERP) automation of back office functions, internet acceptance, and communication technology.

4   What defines CRM success?

A review of both academic and practitioner literature illustrates the growth of CRM technology and its systems. Nearly 40% of high technology, aerospace, retailing, and utilities implemented some sort of CRM system by 2003. In addition, two-thirds of all telecom operators and half or more of all US financial services, pharmaceutical, and transportation companies either are creating a CRM system or already operating one as of early 2004 (Rao and Shenbaga, 2000). Although, the 60% failure rate of CRM initiatives has deterred some, the trend is to adopt and implement CRM in order to remain competitive (Davids, 1999).

As more firms attempt CRM implementation, a number of experts have begun to look for factors that determine CRM success (for an overview of these factors see Johnson, 2002; Rigby *et al.*, 2002; Wilson *et al.*, 2002). The question then raised is: What are the factors that breed CRM success in an industry adopting CRM to maintain supply chain continuity? None of the aforementioned studies could agree upon the broad factors that contribute to CRM success or failure. Therefore, we resolved to perform a study within the contract pharmaceutical manufacturing industry and compare the finding to the original works.

4.1   Success factors

As more firms attempt CRM implementation, experts continue to look for factors that determine CRM success. Many have recognised that, in order to allow for capital budgeting including CRM initiatives, there must be some way for upper management to concretely measure the ROI provided by the effort. However, most have found that a sufficient explanation outlining those measurement techniques currently does not exist. Many factors have been proposed or deemed significant in determining the success of a company's CRM programme. Some of these factors include the following (Lerer, 2002; Rigby *et al.*, 2002; Jain *et al.*, 2003):

- achieving a full understanding of what CRM is for the end user

- obtaining and maintaining CEO and board commitment

- educating and involving all end users

- thoroughly identifying customer needs and researching CRM tools and technologies

- looking at the big picture when faced with implementation cost

- successfully managing consultant and vendor relationships

- patiently allowing your CRM strategy to succeed

- keeping the entire process simple

- remembering when to outsource.

Others cite collaboration between the IT staff and managers or a focus on customers' needs as factors that play heavily in the success of CRM (Crosby and Johnson, 2001a; Croteau and Li, 2001). Wells *et al.* (1999) for example identified four key components for successfully reengineering IT systems for one-to-one marketing. The implementation of a CRM system is in fact a reengineering effort towards the goal of one-to-one marketing.

These key factors were determined from the overall best practices in other industries adopting CRM (Wilson *et al.*, 2002; Chen and Popovich, 2003). In general, it has been documented that four key factors that drive CRM best practices include:

1   a notion of use of internal resources and/or reliance on external relationships

2   needs research

3   upper management commitment

4   education.

Contract pharmaceutical manufacturers can glean from the best practices set down by others. The authors propose applying these four key factors to CRM success within the context of the contract pharmaceutical industry as the criteria for factor development herein.

After perusing the abundant opinions regarding how to measure CRM success in the healthcare and pharmaceutical fields (see Crosby and Johnson, 2001a; Croteau and Li, 2001; Lerer, 2002; Rigby *et al.*, 2002; Jain *et al.*, 2003) the authors formed four key areas: internal and external CRM management, CEO and board commitment, CRM and customer needs research, and end user education (see Figure 1). These areas parallel the research completed by Wilson *et al.* (2002) and Chen and Popovich (2003). The factors examine what areas are used to evaluate a current CRM initiative and illustrate best practices in implementing a fully functioning companywide CRM system. They take into account a broad range of ideas and include internal as well as external influences.

If the four key areas for CRM success in Figure 1 and four key factors that drive CRM best practices mentioned earlier are juxtaposed the following is concluded: Internal and External CRM Management lines up with a notion of use of internal resources and/or

reliance on external relationships, while CRM & Customer Needs Research matches with needs research, in turn CEO & Board Commitment is akin to upper management commitment, and finally End-User Education aligns with education.

Figure 1 Key areas for CRM success
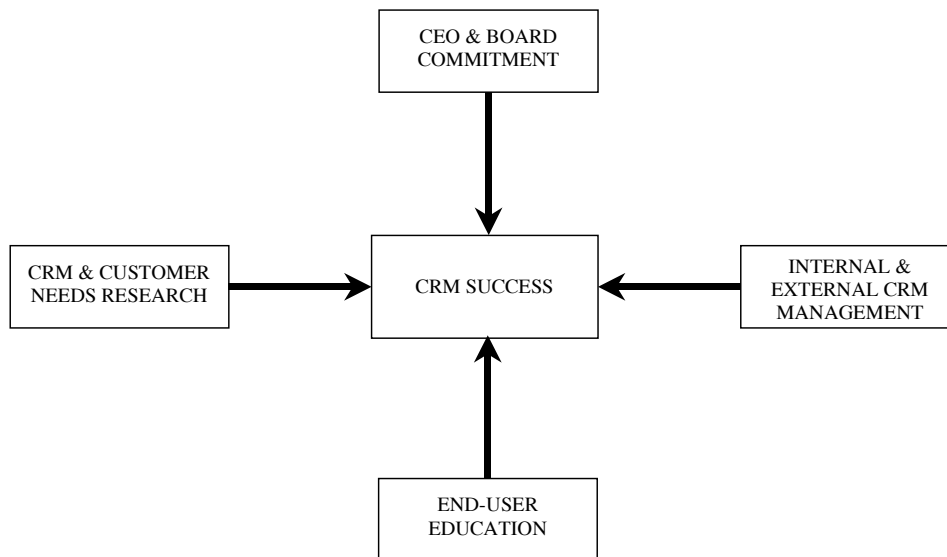
5 Methodology

To compare the findings of previous studies to the contract pharmaceutical manufacturing industry, we elicited responses using face-to-face interviews and telephone questionnaires from firms implementing CRM solutions based on the aforementioned four key areas. Respondents were asked to answer each question on a 5-point scale with 1 = Very Poor and 5 = Excellent.

An initial scan of the industry revealed numerous firms in the business of contract pharmaceutical manufacturing. Contract pharmaceutical manufacturers are classified under SIC code 2834. The US Department of Labor Occupational Safety and Health Administration (OSHA) defines those businesses contained in SIC code 2834 as primarily engaged in manufacturing, fabricating, or processing drugs in pharmaceutical preparations for human or veterinary use. In addition, OSHA stipulates that the greater part of the goods produced in this classification are finished in the form intended for final consumption, such as ampoules, tablets, capsules, vials, ointments, medicinal powders, solutions, and suspensions. Products of this industry consist of two important lines, namely:

1 pharmaceutical preparations promoted primarily to the dental, medical, or veterinary professions

2 pharmaceutical preparations promoted primarily to the public (US Department of Labor Occupational Safety and Health Administration, 2004).

These firms ranged in size from smaller privately held entities like Applied Laboratories Inc. to larger publicly held companies like Baxter Healthcare or DSM Pharmaceuticals Inc. The original list was pared down to include only the largest contract manufacturers in the USA. 'Large' was defined as a firm or its parent company with yearly revenues of more than $100 million. The list of the largest contract manufacturers was assumed to represent the firms in need of CRM solutions and capable of implementing and maintaining CRM solutions. The questionnaire was developed and administered to a selected sample of 42 contract pharmaceutical manufacturing firms. The Human Resources (HR) Department within each firm was the initial contact point. The HR department was chosen since all applicable permission and confidentiality agreements required could be obtained in the most efficient manner. In addition, the HR departments agreed to act as a conduit for information transfer to the proper firm officials such as Directors of Marketing and/or associates in the Commercial Operations Departments.

A response rate of 35.7% was obtained and in turn, our original assumption regarding CRM need and ability to implement was quickly enforced. The respondents represented the largest contract manufacturers and the firms that were not only in need of CRM solutions but also from a capital investment standpoint capable of implementing and maintaining CRM solutions. This work is strictly exploratory in nature. In order to fully realise and to determine if any statistical relationships exist, higher response rates would be needed.

6   Results and analysis

Mean responses to the questionnaire answers are given first, followed an analysis of each individual key area. Table 1 contains the mean response to the four key success factor areas for all respondents whether they had experienced successful CRM implementation or not.

Table 1   Questionnaire response summary statistics

| Success factor area	Mean response
Internal and External CRM management	2.8
CEO and Board commitment	3.6
CRM and Customer needs research	3.8
End-user Education	3.3

Note: A 5-point Likert scale was employed with 1 = Very Poor and 5 = Excellent.

From Table 1, it can be seen that the mean responses of the four key success factor areas are all above the average Likert score of 2.5. In could be concluded then that each of the four areas is somehow reflective of CRM success with CRM and customer needs research being most important and CEO and Board commitment a close second.

Although these above average responses do indicate that each of the four areas is reflective of CRM success, they do not explain differences between those companies reporting CRM success versus those companies not reporting CRM success. To control for differences in firms that reported CRM success versus those that did not report CRM

success, the respondents were split into two categories based on their assessment of CRM success or non-success. The authors found that the four key areas relate strongly to overall CRM success, as seen in Figure 2.

Figure 2   Overall CRM success – links to key areas
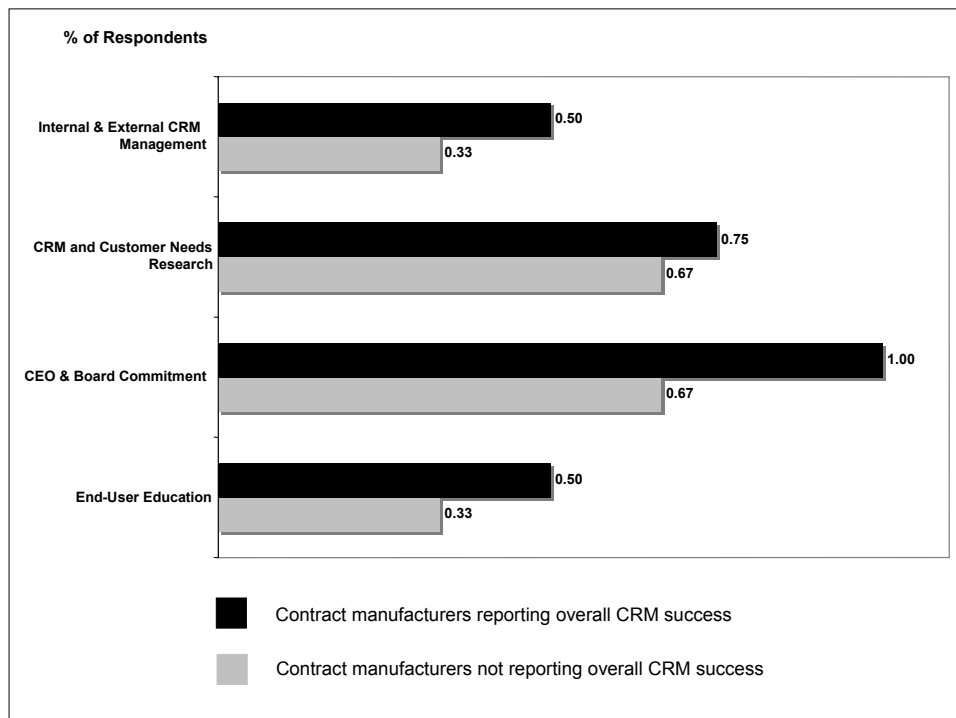
6.1   Key success factors discussed

6.1.1   Internal and external CRM management

It has been noted that a major stumbling block to successful CRM implementation is an organisation's failure to recognise the abundance of time and effort needed to get a CRM programme up and running. Cost is also often associated with the failure rate of CRM projects. Therefore, internal management of CRM implementation is an important factor for success. In addition, it has been noted that while external relationships can be expensive and fractious these partners are often the only ones that can see the bigger picture. In turn, external CRM management also becomes an important factor for success. Around half of the respondents reporting CRM success did agree with the importance of internal and external CRM management.

6.1.2   CRM and customer needs research

It is important to recognise that the CRM system is developed for essentially capturing the relevant information about the customer's needs. Logically, many report that identifying the companies CRM needs and the customer's needs are very important to CRM success. Since CRM implementation is unique to each company it is equally

important to research not only customer needs but also the tools and technologies the company itself requires. Research into tools and technologies available should be one of the first steps in designing the company CRM strategy.

Whether a company reported CRM success or did not report success CRM & Customer Needs Research registered significant percentages. This may point to the fact that when respondents research CRM they do so at the early stages of the system selection and find that once a decision to embark on CRM implementation is made emphasis turns to the management of that decision.

6.1.3   CEO and board commitment

Securing CEO and Board commitment to any initiative is important for setting strategic direction in all companies. All respondents from companies reporting overall CRM success detailed that they had received CEO & Board commitment. Equally telling was the CEO & Board commitment percentage for those companies not reporting overall CRM success. Around two-thirds of companies not reporting CRM success also had CEO & Board commitment but did not articulate success. It may be concluded that although CEO & Board commitment is necessary it may be more of a slogan and the real commitment comes from the employees directly implementing CRM. This point can be related to the area of internal CRM management also.

6.1.4   End-user education

Education is reported as having the biggest impact on employee buy-in according to many industry experts. However, when the survey participants were questioned on end-user education the results are not dramatic. Only 50% of those reporting CRM success stated that end-user education was significant. In contrast, about one-third of those not reporting CRM success stated that end-user education was significant. Although the percentage for companies reporting CRM success is higher, it appears for contract pharmaceutical manufacturers end-user education does not play a large a role as previously thought.

6.2   Managerial implications for healthcare professionals

Cost pressures, less regulation, and more efficient distribution channels are bringing about change in the pharmaceutical manufacturing industry. Many contract pharmaceutical manufacturers are being forced to rethink their traditional methods of customer relationship building. The large pharmaceutical companies are finding that integrated CRM provides electronic support for key customer processes, such as sales and marketing, across a number of interaction channels. In turn, large pharmaceutical companies are driving the adoption of CRM across the industry as they discover the limitations of their traditional sales and marketing structure and begin to adopt CRM themselves.

Although many admit that CRM is still at times in the trial-and-error stage of implementation, most claim CRM is enhancing communication across all parts of the supply chain. The four key areas analysed here parallel overall best practices observed in other industries adopting CRM (Wilson *et al.*, 2002; Chen and Popovich, 2003). Contract pharmaceutical manufacturers can glean from the best practices set down by others. In

general, it has been documented that in general CRM best practices include a notion of use of internal resources and/or reliance on external relationships, needs research, upper management commitment, and education.

Almost all firms would agree that using internal resources that are often over-committed or using consultants with few implementation successes leads to wasted effort and money. Many agree that the most successful CRM implementations begin with identifying relevant internal and external customer needs, specifically objectives and strategies. A focused, phased approach to CRM tends to attain quicker buy-in by managers better than an overwhelming system that confuses and that sales representatives will not accept. Ultimately upper management commitment is a must, but it cannot be shallow. The commitment must be genuine and long term. Firms report that by tying results to incentive compensation, upper management included, increases CRM success. Finally, education is key and is linked to the idea of a phased approach. A good rule of thumb is to keep initial new functionality simple and follow a graduated rollout schedule. CRM systems are daunting and my dissuade field representatives from changing their behaviour unless given enough time to digest all the changes.

7 Conclusions and recommendations for future research

CRM implementation within the contract pharmaceutical manufacturing industry was investigated in this research. An exploratory study was completed using a questionnaire based on four key areas for rating CRM efforts: internal and external CRM management, CEO and board commitment, CRM and customer needs research, and end user education. When CRM success was reported its users attributed that success to managing internal and external relationships well, completing a high level of CRM and customer needs research, obtaining CEO & Board commitment, and to a certain extent end-user education.

End-user education and involvement was reported a major contributor to CRM success in previous studies. It was said that if the employees did not understand what the system was trying to capture or why the company was interested in capturing this data, there was no way the programme could live up to the original expectations. In turn, upper level management had to commit serious resources to ensure that employees that came in contact with the CRM system knew exactly what the programme was trying to accomplish, and how they could aid in every aspect of its function. For the contract pharmaceutical manufacturing industry, education does play a role in successful CRM. However, if a firm agrees to adopt a CRM solution due to market forces, end-user education may not be as significant as previously indicated.

Although respondents did deem CEO and Board commitment it did not appear that CRM programmes were living up to their expectations set forth by the CEO and Board in the eyes of the respondents. The need for CEO and Board Commitment and CRM end-users being directly involved with the information gathering process and not relying on outside consultants for the general customer needs and daily activity demands became apparent. In all, it appeared that the respondents believed that their CRM programmes were performing moderately well, but not at their expected potential. As more companies attempt CRM solutions it will be possible to fully realise the extent to which the Contract Pharmaceutical Manufacturing Industry is truly successful at implementing CRM.

This study was exploratory in nature. In order to fully realise the ongoing extent to which the Contract Pharmaceutical Manufacturing Industry is truly implementing CRM higher response rates would be needed. A longitudinal study should be designed with the distinct purpose of introducing the four areas for success identified here and then following up at a later date to see what their impact on the success of the company's CRM programme was. On a strategic level there are many questions that need to be answered with regard to the effects of CRM adoption on sales force structure, namely environmental (*e.g.*, the need for the face-to-face sales meeting) and cultural (*e.g.*, the ability to be flexible and adapt to new technology and processes). On an analytical level, CRM provides data that can be used to develop relationships. CRM has enabled sales forces to capture and share data on a level not seen in the past. However, there are limits on the amount and nature of the data that a sales force can actually incorporate into their daily routines without becoming overwhelmed.

Research needs to be completed that explores the interface of CRM data collection and the actual use of that data by a sales force. This type of research is directly related to the operational aspect of CRM. As firms adopt and implement CRM solutions, questions arise in the area of business function coordination (*e.g.*, how should Finance coordinate via the CRM system with sales). In the end, any research regarding sales must address the effects on performance that CRM adoption ultimately has.

References

Bhalla, G., Evgeniou, T. and Lerer, L. (2004) 'Customer relationship management and networked healthcare in the pharmaceutical industry', *International Journal of Medical Marketing*, Vol. 4, No. 4, pp.370–379.

Bland, V. (2003) 'Ten ways to improve your CRM', *NZ Business*, Vol. 17, No. 2, pp.31–35.

Campbell, A.J. (2003) 'Creating customer knowledge competence: managing customer relationship management programs strategically', *Industrial Marketing Management*, Vol. 32, pp.375–383.

Chen, I.J. and Popovich, K. (2003) 'Understanding customer relationship management (CRM)', *Business Process Management Journal*, Vol. 9, No. 5, pp.672–688.

Chen, J.C.H., Dolan, M. and Lin, B. (2004) 'Improve processes on healthcare: current issues and future trends', *International Journal of Electronic Healthcare*, Vol. 1, No. 2, pp.149–164.

Crosby, L. (2000) 'What to do before going 1-to-1', *Marketing Management*, Vol. 9, No. 4, pp.15–22.

Crosby, L. and Johnson, S. (2001a) 'Branding your CRM strategy', *Marketing Management*, Vol. 10, No. 2, pp.6–8.

Crosby, L. and Johnson, S. (2001b) 'High performance marketing in the CRM era', *Marketing Management*, Vol. 10, No. 3, pp.10–12.

Croteau, A. and Li, P. (2001) 'Critical success factors of CRM technological initiatives', *Canadian Journal of Administrative Sciences*, Vol. 20, No. 1, pp.21–34.

Davids, M. (1999) 'How to avoid the 10 biggest mistakes in CRM', *Journal of Business Strategy*, Vol. 20, No. 6, pp.22–26.

Dodge, J. (2001) 'CRM: girding yourself for the long haul', *eWeek*, October.

Dowling, G. (2002) 'Customer relationship management: in b2c markets, often less is more', *California Management Review*, Vol. 44, No. 3, pp.87–105.

Ebner, M., Hu, A., Levitt, D. and McCrory, J. (2002) 'How to rescue CRM', *McKinsey Quarterly*, Vol. 4, pp.49–58.

Elliot, M. (2000) 'Customer relationship management software', *IIE Solutions*, Vol. 32, No. 11, pp.44–50.

Eriksson, K. and Mattsson, J. (2002) 'Managers' perception of relationship management in heterogeneous markets', *Industrial Marketing Management*, Vol. 31, pp.535–543.

Fayerman, M. (2002) 'Customer relationship management', *New Directions for Institutional Research*, Vol. 113, pp.57–67.

Filiatrault, P. and Lapierre, J. (1997) 'Managing business-to-business marketing relationships in consulting engineering firms', *Industrial Marketing Management*, Vol. 26, pp.213–222.

Goldenberg, B. (2001) 'CRM projects: why the doom and gloom?', *eWeek*, 23 April.

Jain, R., Jain, S. and Dhar, U. (2003) 'Measuring customer relationship management', *Journal of Services Research*, Vol. 2, No. 2, pp.97–109.

Johnson, L. (2002) 'New views on digital CRM', *MIT Sloan Management Review*, Vol. 44, No. 1, pp.10–12.

Kale, S.H. (2003) 'CRM in gaming: it's no crapshoot!', *UNLV Gaming Research & Review Journal*, Vol. 7, No. 2, pp.43–54.

Kellen, V. (2006) 'CRM measurement frameworks', http://www.kellen.net/crmmeas.htm (retrieved 1 February 2006).

Kenyon, J. and Vakola, M. (2003) 'Customer relationship management: a viable strategy for the retail industry?', *International Journal of Organization Theory and Behavior*, Vol. 6, No. 3, pp.329–353.

Kerin, R.A., Hartley, S.W. and Rudelius, W. (2004) *Marketing: The Core*, New York, NY: McGraw-Hill.

Korukonda, A.R. and Korukonda, S. (2006) 'From buzzword to business strategy: the case for information and decision support systems in e-healthcare', *International Journal of Electronic Healthcare*, Vol. 2, No. 4, pp.362–377.

Leek, S., Turnbull, P.W. and Naude, P. (2004) 'A comparison of manufacturers and financial services suppliers' and buyers' use of relationship management methods', *Industrial Marketing Management*, Vol. 33, pp.241–249.

Lerer, L. (2002) 'E-business in the pharmaceutical industry', *International Journal of Medical Marketing*. Vol. 3, No. 1, pp.69–73.

Lin, B. and Hsieh, C. (2006) 'Critical factors for assessing service quality of online pharmacies: a research framework', *International Journal of Electronic Healthcare*, Vol. 2, No. 4, pp.398–414.

Lundstrom, W.J. and Wright, R.F. (2005) 'The CRM-physician interface: toward a model of physician relationship building', *Journal of Medical Marketing*, Vol. 5, No. 4, pp.316–324.

Metaxiotis, K., Ptochos, D. and Psarras, J. (2004) 'E-health in the new millennium: a research and practice agenda', *International Journal of Electronic Healthcare*, Vol. 1, No. 2, pp.165–175.

MHS Staff (2001) 'Will database marketing work in health care?', *Marketing Health Services*, Fall, pp.23–26.

MHS Staff (2002) 'Boosting the bottom line with CRM', *Marketing Health Services*, Fall, pp.39–40.

Morgan, R.M. and Hunt, S.D. (1994) 'The commitment-trust theory of relationship marketing', *Journal of Marketing*, July, Vol. 58, pp.20–38.

Paddison, N.V. (2002) 'Health care gets personal', *Marketing Health Services*, Spring, pp.35–36.

Paddison, N.V. (2003) 'Putting patients first', *Marketing Health Services*, Fall, pp.50–51.

Peppers, D. and Rogers, M. (1993) *The One to One Future*, New York, NY: Doubleday.

Piccoli, G., O'Connor, P., Capaccioli, C. and Alvarez, R. (2003) 'Customer relationship management – a driver for change in the structure of the U.S. lodging industry', *Cornell Hotel and Restaurant Administration Quarterly*, Vol. 44, No. 4, pp.61–73.

Ragins, E.J. and Greco, A.J. (2003) 'Customer relationship management and e-business: more than a software solution', *Review of Business*, Vol. 24, No. 1, pp.25–30.

Rao, S. (2002) 'Pharmaceutical marketing in a new age', *Marketing Health Services*, Spring, pp.7–12.

Rao, S. and Shenbaga, S. (2000) 'Developing customer databases', *Marketing Health Services*, Winter, pp.11–14.

Reichheld, F.F. and Sasser, W.E. (1990) 'Zero defections: quality comes to services', *Harvard Business Review*, September–October, Vol. 68, pp.105–111.

Rigby, D., Reichheld, F. and Schefter, P. (2002) 'Avoid the four perils of CRM', *Harvard Business Review*, Vol. 80, No. 2, pp.101–108.

Ryals, L. and Payne, A. (2001) 'Customer relationship management in financial services: towards information enabled relationship marketing', *Journal of Strategic Marketing*, Vol. 9, pp.3–27.

Schroff, K. (2004) 'CRM and the pharmaceutical industry: a necessary partnership', www.biotechmedia.com (retrieved 21 August 2006).

Sternberg, D.J. (2003) 'Guerrilla e-health', *Marketing Health Services*, Spring, pp.41–43.

Tanner, J.F., Ahearne, M., Leigh, T.W., Mason, C.H. and Moncrief, W.C. (2005) 'CRM in sales-intensive organizations: a review and future directions', *Journal of Personal Selling & Sales Management*, Vol. XXV, No. 2, pp.169–180.

US Department of Labor Occupational Safety and Health Administration (2004) Standard Industrial Classification (SIC) Systems Search http://www.osha.gov/pls/imis/sicsearch.html.

Wells, J.D., Fuerst, W.L. and Choobineh, J. (1999) 'Managing Information Technology (IT) for one-to-one customer interaction', *Information and Management*, Vol. 35, No. 1, pp.53–62.

Wen, H.J. and Tan, J. (2005) 'Mapping e-health strategies: thinking outside the traditional healthcare box', *International Journal of Electronic Healthcare*, Vol. 1, No. 3, pp.261–276.

West, J. (2001) 'Customer relationship management and you', *IIE Solutions*, Vol. 33, No. 4, pp.34–38.

Wickramasinghe, N. and Schaffer, J.L. (2006) 'Creating knowledge-driven healthcare processes with the intelligence continuum', *International Journal of Electronic Healthcare*, Vol. 2, No. 2, pp.164–174.

Wilson, H., Daniel, E. and McDonald, M. (2002) 'Factors for success in customer relationship management systems', *Journal of Marketing Management*, Vol. 18, pp.193–219.

Winer, R. (2001) 'A framework for customer relationship management', *California Management Review*, Vol. 43, No. 4, pp.89–106.

Yu, L. (2001) 'Successful customer-relationship management', *MIT Sloan Management Review*, Vol. 42, No. 4, pp.18–20.