THE EFFECT OF TECHNOLOGY AND TECHNOLOGICAL ADVANCES ON CUSTOMER RELATIONSHIP MANAGEMENT

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ABSTRACT

Customers are the lifeblood of any company and the need to better manage customers has driven the development of Customer Relationship Management (CRM) strategies, techniques, and tools. Advances in Information Systems technologies have enabled and enhanced the use of these CRM tools, infrastructures, and strategies. The use of these tools, however, is not a fail-safe solution and a large percentage of the implementations fail. This paper focuses on the technologies enabling and enhancing the tools used to manage customers effectively and efficiently.

INTRODUCTION

Customers are the lifeblood of any organization and without customers, an organization will fail [1]. There are many strategies for gaining and maintaining customers, and Customer Relationship Management (CRM) has become a commonly used phrase for referring to these strategies for working with customers. Customer relationships are becoming a key strategic resource for business [5], driving the need for tools, techniques, strategies, etc. to better manage customers.

There have been many studies in recent years investigating the CRM phenomenon with almost as many viewpoints on how to approach CRM. Most of these studies focus on the overall business strategies involved, as well as the marketing perspectives on CRM. However, there appear to be few articles which focus on the technical aspects of CRM. The purpose of this paper is to introduce the reader to the concept of CRM, draw attention to some of the techniques used to implement CRM strategies, discuss the technologies involved in implementing a CRM initiative, and cover the areas and topics of research about CRM tools and technologies.

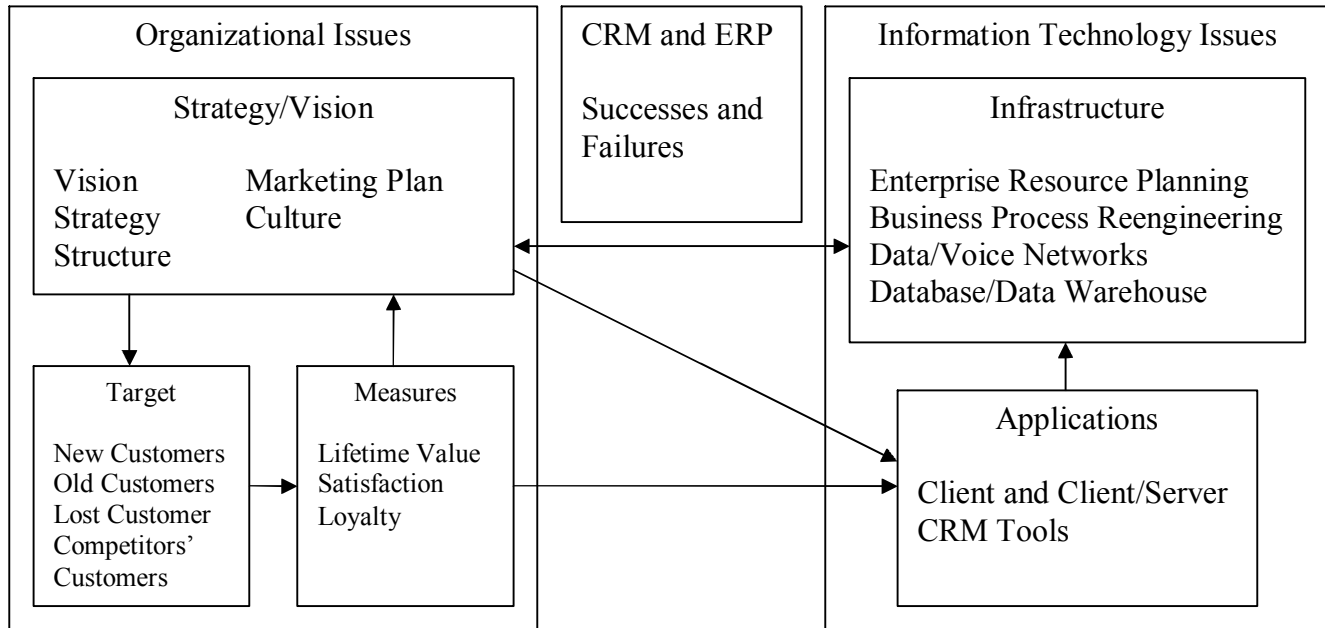## CUSTOMER RELATIONSHIP MANAGEMENT

Customer Relationship Management (CRM) is a broad and eclectic topic encompassing all aspects of a company's interactions with its customers [4]. CRM concepts have been around for many years and have been widely applied in marketing research. There have been many terms which refer to customer relationships and dealing with customers, making it difficult to get researchers to agree on what CRM really is [2]. Lately, the corporate vision and strategy aspects have been investigated in more detail drawing attention to the idea that CRM is more than just marketing [3].

A study on the number of CRM articles published, revealed only 14 articles dealing with CRM were published before 2000, and none prior to 1990. Since 2000, however, we have seen an almost exponential growth in the numbers of CRM articles published each year. Three primary subject areas of journals provided the articles – Information Systems, Management, and Marketing. These journals can give us an indication of the general research trend for each of the three major fields of study addressed in this study. In addition, the study revealed four primary areas of focus for CRM articles – Strategy,

Growth and Importance of CRM, Success/Failure of CRM, and the importance of Information Technology to CRM.

Based on the findings of the study, a two sided CRM research framework was developed (Figure 1). The first side of the framework deals with strategic and operational issues. This area has multiple sub areas which cover topics such as marketing initiatives, corporate strategy, corporate culture, corporate vision, etc. It also contains the types of customers being targeted, such as new customers, repeat customers, competitors' customers, and lost customers, as well as specific measurements of customers, such as lifetime value, customer satisfaction, customer loyalty, etc.

FIGURE 1: CRM RESEARCH FRAMEWORK

Organizational Issues	CRM and ERP	Information Technology Issues
Strategy/Vision Vision Marketing Plan Strategy Culture Structure	Successes and Failures	**Infrastructure** Enterprise Resource Planning Business Process Reengineering Data/Voice Networks Database/Data Warehouse
Target New Customers Old Customers Lost Customer Competitors' Customers **Measures** Lifetime Value Satisfaction Loyalty		**Applications** Client and Client/Server CRM Tools

The second side of the framework deals with the Information Technology aspects of CRM and includes the two broad areas of Infrastructure and Application. Infrastructure focuses on corporate wide information processes and systems, while Application deals with the software which is used for CRM. The focus of this study is on the Information Technology side of the research framework.

All areas of the research framework interact with each other. Corporate strategy and vision drive the marketing plans which, in turn, focus on specific customers. To make effective and efficient use of the applications, a solid infrastructure is needed. This infrastructure, in turn, drives the corporate structure, or is driven by the corporate strategy. Successes and failures is a last area of concern in CRM literature. Success and failure issues are seen across all areas of CRM.

TECHNOLOGY'S IMPACT ON CRM

The focus of this study is the impact of IT technologies and advancements on CRM. With the rise in interest and importance of CRM, many applications have been developed to help companies better understand and cater to their customers. But while IT is a critical CRM enabler, it is not simply an application, but is also an infrastructure and a transformation enabler [2]. Technology by itself is not a solution to all an organization's woes. Even those researchers who do not view technology as contributing significantly to creating better customer relationships, however, still agree that information

technology is a necessary condition for achieving successful CRM and advantage over their rivals. Three primary IT technologies appear to be the focus for most of the IT related CRM research articles published to date. These three areas are: the Internet (or eCRM), data mining and data warehousing, and Enterprise Resource Planning (ERP) initiatives. These articles, however, have not shown the impact of technology on CRM.

IMPLICATIONS AND CONCLUSION

This study has found that there are several areas of interest in the technical side of CRM; however, there appears to be little research on the actual impact of these technical aspects on CRM, providing us with ample directions for future research. Some areas of interest include emerging technologies that are leading to new channels of communications between customers and organizations. Very few studies included infrastructure (data and voice networks, intranets, extranets, etc.) as part of CRM. Investigating the impact and importance of the technical infrastructure in an organization could lead to some significant research and should be pursued in more detail.

Information Technology in and of itself, however is not sufficient, leading to a broad area of research to examine the types of organizations, organization structures, strategies, and cultures are best suited for successfully implementing a CRM initiative and becoming a customer-centric organization. These studies might be related to the ERP/BPR studies, since ERP/BPR often affects and is affected by the organizational infrastructures.

In conclusion, research on the technical aspects of Customer Relationship Management is only beginning. Through this paper, we hope to increase the awareness of the need for technical CRM research and we have provide a basic framework for classifying and pursuing CRM research; however, there are many avenues for future research and this paper only scratches the surface of the potential streams of research.

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