Adoption of CRM in Higher Education

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ABSTRACT

This study examines the adoption factors for deployment of customer relationship management (CRM) in higher education institutions. While CRM is widespread in the corporate sector, its usage has been limited in higher education. With the rising service expectations, universities have to realign their strategies to serve students across their entire student life cycle. We used the case study approach to examine factors critical to CRM adoption in the higher education sector. The study is exploratory in nature, representing one of the first efforts to study CRM adoption in universities and colleges. Our findings suggest that groups with a clear understanding of student life cycle will be more likely to adopt CRM. We propose that a fit between the choice of CRM goal - strategic versus transactional CRM - and organizational factors will help determine the continuous adoption of CRM by higher education users.

INTRODUCTION

Customer relationship management (CRM) involves the deployment of strategies, processes, and technologies to strengthen a firm's relationships with customers throughout their life cycle – from marketing and sales, to post-sale service (Winer, 2001). While CRM is a widespread concept in the corporate world, it is a relatively new phenomenon in the higher education sector (Grant and Anderson, 2002).

In this paper, we examine the factors affecting the adoption of CRM technology in the higher education sector. Through a case study of a Midwest university, we intend to address three research questions: (1) What characteristics of an institution contribute to the adoption of CRM technology? (2) What factors influence adoption decisions? (3) What strategies can be applied to increase the success of CRM adoption in higher education institutions?

We use the innovation diffusion theory (IDT) (Rogers, 1995) and the unified theory of acceptance and use of technology (UTAUT) (Venkatesh et al., 2003) to guide data collection and analysis for this case study. This paper starts with a review of CRM research, its implications for colleges and universities, and research on IDT and UTAUT. It then presents the research methodology and data collection procedures. The paper concludes with a discussion of contribution of this research. Findings from this study will help us gain a better understanding of the specific needs of the higher education sector for CRM deployment.

LITERATURE REVIEW

Customer Relationship Management

CRM is an enterprise-wide initiative which focuses on developing and leveraging an in-depth view of customers across enterprise applications and business units. It promises to provide seamless integration of multiple business areas that touch the customer – marketing, sales, customer service and field support - through integration of people, process and technology (Satish et al., 2002). It is a combination of business processes and technology that seeks to understand a company's customers from the perspective of who they are, what they do, and what they like (Ryals and Knox, 2001). Along with other enterprise systems, such as enterprise resource planning (ERP) systems, companies are adopting CRM technologies to strengthen customer interactions and shifting their focus from business efficiency to business effectiveness (Sheng, 2002).

CRM in Higher Education

Higher education institutions are "student centric" organizations that encompass a wide range of student outreach and counseling activities such as admissions, academic advising, job placement and more.

While CRM usage is widespread in the corporate sector, higher education is far behind with CRM implementation (Grant and Anderson, 2002). Universities and colleges may benefit from CRM by improving student-facing processes (Chen and Ching, 2005), personalizing communications with students (Karimi et al., 2001), sharing information among departments (Chen and Ching, 2005), and increasing student retention and satisfaction (Bradshaw and Brash, 2001).

Student Life Cycle

Significant changes in the expectation of students, contribute to the relevance of relationship management strategy (Conant, 2002). While it might seem counter-intuitive to view students as customers, changes in the higher education sector necessitate this shift in thinking. Viewed from the CRM lens, the concept of customer life cycle can be mapped to the stages that a student progresses through when considering and using the services of a learning institution to form the student life cycle. Within a student life cycle, a student progresses though the following stages:

Suspect$\rightarrow$ Prospect$\rightarrow$ Applicant$\rightarrow$ Admitted $\rightarrow$ Enrollee$\rightarrow$Alumni

- Suspect: A suspect is any student who might be a potential candidate for the school.
- Prospect: A prospective student is at the information gathering and opinion forming stage.
- Applicant: A student is an applicant when he/she makes the decision to join the institution.
- Admitted: A student is admitted when the college makes a decision to accept the student.
- Enrollee: This is the stage where students become a part of the institution.
- Alumni: At this stage, students who are satisfied with their academic experience will develop long-term loyalty to their alma mater.

In view of corporate CRM activities, college student enrollment management activities of converting suspects to the admitted represent the marketing components of CRM; the conversion of admitted students to enrollees represent the component of sales; and the continuous enrollment and participation as alumni represent the retention and support components. However, student life cycle involves more complex interactions especially during the retention phase as academic programs, advising, and student life play critical role in student retention (Tinto, 2005).

Innovation Diffusion Theory (IDT)

IDT by Rogers (1995) emphasizes diffusion life cycle and addresses the differences in the pre- and post-adoption attitudes and beliefs. The innovation decision process leading to institutionalization of usage (Karahanna et al., 1999) may be conceptualized as a sequence of steps through which an individual passes from initial knowledge of an innovation (information), to forming a favorable or unfavorable attitude towards it (persuasion), to a decision to adopt or reject it (decision), to put the innovation to use (implementation), and to finally seeking reinforcement of the adoption decision made (confirmation) (Rogers, 1995). The IDT framework as highlighted below could enable us to examine CRM adoption through different stages of innovation life cycle.

Information→ Persuasion→Decision→Implementation→ Confirmation

Unified Theory of Use and Acceptance of Technology (UTUAT)
In addition to IDT, we used UTUAT framework which takes a more comprehensive view of technology adoption in an organization. The decision by a company to deploy a CRM system is in essence a technology adoption issue. Venkatesh et al (2005) present the unified theory of use and acceptance of technology (UTUAT) by integrating eight prominent but fragmented research models concerning user acceptance and usage of new technology. Unified theory identifies four determinants of user acceptance and usage behavior: (1) performance expectancy, (2) effort expectancy, (3) social influence, and (4) facilitating conditions. We used UTUAT to help us structure our research constructs and facilitate data collection.

RESEARCH METHODOLOGY
Because of the exploratory nature of this research, we used the case study method to examine CRM adoption in a single organization, a Midwest university. According to Lee (1989), case study method is well suited for exploratory studies where the sample sizes are relatively small. The case study method is particularly appropriate when the research and theory are at their early formative stage (Benbasat et al., 1987). According to Yin (1984), a single-case study approach is most useful when the phenomenon of interest, in this instance, user adoption factors and usage patterns, can not be clearly separated from the social, technological and organizational context in which they appear.

The case study strategy consists of defining the study focus, construction of framework to guide data collections, interviews, data collection and case analysis (Pick and Roberts, 2004). In our study, the unit of analysis is a department within a single institution. We included 37 members in nine departments/colleges. These groups provide a range of CRM adoption scenarios across different stages of student life cycle.

Data Collection Procedure
We used multiple sources of evidence to support the construct validity, including: structured email questionnaire, statement of business cases and other documents as appropriate. Internal validity has been ensured by constructing a detailed research framework with detailed steps. Reliability was addressed by adopting detailed case study protocol that documents the scheduling, interview procedures, recording, and follow-up questionnaire. The procedures for data collection involve the following steps:

Table 1. Participating departments

Department/ College	Number of Users	Adoption life cycle stage	Pre/post Adoption	Stage in student life cycle
Enrollment Management	6	Confirmation	Post-Adoption	Suspect, Prospect & Applicant
College A Admissions	5	Decision	Post-Adoption	Prospect
College E	6	Confirmation	Post-Adoption	Prospect & Applicant
College B	5	Decision	Pre-Adoption	Prospect, Applicant, Enrollee & Alumni
College D	3	Implementation	Post-Adoption	Prospect, Applicant, Enrollee & Alumni
College C	4	Implementation	Post-Adoption	Applicant & Enrollee
Student Affairs	3	Confirmation	Post-Adoption	Applicant & Enrollee
Financial Aid	2	Decision	Pre-Adoption	Applicant & Enrollee
College A Advising	3	Persuasion	Pre-Adoption	Enrollee

For each department, the research team conducted semi-structured interviews with the key decision maker and one or more users. Two parallel sets of interview questions were used for departments in the pre- or post-adoption stage, respectively. Based on IT diffusion adoption life cycle (Rogers, 1995), departments at a persuasion or decision phases were categorized as pre-adoption and those identified in the decision, confirmation and implementation phases were categorized as post adoption (Rogers, 1995).

An email survey questionnaire was sent to the interviewees, approximately two days after the interview. The questionnaire items were adapted from the UTUAT study (Venkatesh et al., 2003). Due to the small sample size, we only used the survey results to supplement interviews.

Participating Units
Users in nine departments participated in this study. Table 1 presents the diverse range of scenarios of CRM adoption at this institution. Each group of users is categorized based on the stage in adoption life cycle, pre- or post-adoption, and targeting students in terms of student life cycle.

FINDINGS
Research Case: Profile of the Target Institution
Our case study focuses on a Midwestern university which has metropolitan and suburban campuses. The university now supports well over 23,000 students and over 3000 faculty and staff. At the time of the study, the university had installed an enterprise CRM system (Enterprise CRM) as a part of enterprise resource planning (ERP) package, an Enrollment Management CRM (EM CRM), and two standalone CRM applications for two different colleges (College CRM). Therefore, the findings discussed below represent a diverse set of choices for CRM technology.

At the enterprise level, the IT department has deployed one-to-one communication module of the enterprise CRM package. For example, offices of student affairs utilize online marketing tools of the Enterprise CRM package to maintain an active relationship with enrolled students, particularly students at risk. The enrollment management division has recently adopted an EM CRM, niche software designed

Table 2. CRM grid

		ORGANIZATION	
		Centralized	**Decentralized**
GOAL	**Strategic CRM**	Process Characteristics: Redefine existing processes and emphasize long-term relationship building with students Impact on student life cycle: Services students across the entire or significant portion of student life cycle Organizational Dependency: Service provider to other organizational units Role: CRM users and champion(s) Example: Enrollment Management	Process Characteristics: Redefine existing processes and emphasize long-term relationship building with students Impact on student life cycle: Services several stages of the student life cycle Organizational Dependency: Standalone organizational unit Role: CRM users Example: College E, College D
	Transactional CRM	Process Characteristics: Automation of existing processes. Short-term and tactical in nature Impact on student life cycle: Services limited activities or a single stage of the student life cycle Organizational Dependency: Service provider to other organizational units Role: CRM users and champion(s) Example: Student Affairs, Financial Aid	Process Characteristics: Automation of existing processes. Short term and tactical in nature Impact on student life cycle :Services limited activities or a single stage of the student life cycle Organizational Dependency: Standalone organizational unit Role: CRM users Example: College C, College A Advising,

specifically for the higher education sector, to manage student recruitment funnel (from suspect to admitted stages of the student life cycle). The College CRM tools are either in-house applications or standalone systems designed to support admissions process, which are either used alone or in conjunction with Enterprise CRM. For example, College A's admissions office used enterprise CRM and its own email application to target prospects for open house and other recruiting events.

Group Segmentation: A CRM Grid

Based on our initial assessment of the user departments and groups, we conceptualized a framework to synthesize and segment the participating groups. As shown in Table 2, this CRM Grid segments the participating units according to the nature of their organizational responsibility and structure (centralized versus decentralized) and the goal of CRM adoption (strategic or transactional).

Organization

Organization defines the structure of the division/college/department in this university. An organization can be either centralized or decentralized in terms of its ownership of CRM process. Centralized units are service providers to other departments or colleges. They support and collaborate with other colleges on core business processes like recruitment, student affairs, and alumni relations. In most cases, they were the owners of enterprise-wide CRM process and technology solutions. Their role was not only as users of the system but as champions as well. Decentralized units are colleges and schools that are autonomous administrative units. These colleges have their own departments to take care of recruiting, admissions, and student and alumni relations. Since this university did not mandate the usage of an Enterprise or EM CRM application, CRM adoption is voluntary and based on needs. Decentralized units have resources to build or buy their own CRM systems. They were mainly CRM users who would rely on vendors or centralized departments to support the backend operations and data integration.

Goal

Goal defines the purpose for using CRM application in this university. Strategic CRM is long-term in nature and requires user departments to redefine their existing process. The CRM scope is broadly defined and users who viewed CRM as a strategic tool catered to all or most part of the student life cycle. CRM was seen as an important competitive advantage and was used to strengthen relationship with students. Transactional CRM is short-term and tactical in nature. It supports automation of existing process and requires little or no process changes. The main aim of using CRM for transactional purpose was cost reduction and improvement of efficiency. CRM did not redefine their current operations and was used to support only narrowly defined activities involved in one particular stage of student life cycle.

Examples

Using the CRM grid, we identified four groups of CRM users. An example for each group is provided below.

- Strategic-Centralized: Enrollment Management is a centralized division that handles the recruiting and admissions operations for the university. At the time of our study, the group had just implemented a new EM CRM suite to centralize interaction points with prospective students from suspects to the admitted. The new system helped them create communication plan around the early stages of student life cycle and enabled recruiters to customize their recruiting strategies based on segmentation.
- Strategic-Decentralized: College E is a well-established college which manages most of its own operations like recruitment, admissions and student retention. The college decided to invest in its own CRM suite because it had some unique steps in recruitment process and the college staff felt that the current IS support did not meet their needs. The usage of the new CRM suite helped them streamline their student-related processes and freed up the staff's time to focus on face-to-face interactions with students.
- Transactional-Centralized: Student Affairs manages all activities pertaining to student retention such as housing. They work with other colleges to streamline their student retention activities. At the time of the study, the group was collaborating with Information Services department to champion the usage of Enterprise CRM in other colleges. Within its own departments, they used

it to streamline their existing communication operations, including online newsletter and event planning.
- Transactional-Decentralized: Admissions office in College A is responsible for graduate student recruitment. This college used the Enterprise CRM system to streamline its existing operations around event planning. Prior to using the Enterprise CRM systems, the college's admissions office communicated with students via postal letters, radio ads, and web banners. College A decided to use CRM to reduce costs and to personalize communications with prospective students.

OBSERVATIONS

Our study yielded a set of key criteria for adoptions of CRM technology as expectation (UTUAT, 2003).

Benefit Expectation

While CRM as a terminology was new to some user groups, most of them were using the technology in one way or another. One common factor that we found in all users, irrespective of their stage in the adoption life cycle, was the perceived or actual benefit of using CRM. An individual's perception of benefits attained through CRM influenced the group's decision to use it. For some of the users, the benefit was CRM's ability to have more personalized communication with the students, for others, cost saving was an important benefit.

Effort Expectancy

Effort expectancy is defined as the degree of use associated with the use of the system (Venkatesh et al., 2003) We found this to be a factor in many groups who decided against using Enterprise CRM, despite the fact that Enterprise CRM was available at no cost. Users expressed strong reactions to the effort required them to build new business processes into their existing operation. It was a decisive factor in two groups who decided to purchase their own CRM applications. Both groups perceived the existing Enterprise CRM system to be inadequate for strategic CRM and felt that it made their job more difficult.

Training Expectation

Training was seen as an important adoption factor among all users. Even users who were comfortable with technology expressed their desire to get trained prior to using the existing Enterprise CRM system. We found that training helped individuals who were initially intimidated by the system.

Collaboration and Support Expectation

Level of available support, especially from the university's IS staff, was seen as another important factor. We found that there was no social pressure to use the system, but all users wanted to be able to call for help when needed. Though the university had independent departments or units, they had to rely on IS staff for data integration, expert advise and hardware support. Most users felt that establishing a good relationship with the support groups helped them use CRM more effectively.

PROPOSITION

Based on our exploratory case study, we have postulated a CRM adoption model for the higher education sector (Figure 1). While there are many user acceptance models available, we believe that these models provide an overall perspective of user adoption which is not suitable to address the divergent needs and complex nature of the higher education sector. As we discussed earlier, departments within higher education have varied needs based on their goals and organizational factors. An appropriate fit between these two factors facilitates CRM adoption

This study uses the perspective that fit is a theoretically defined match between two related variables (Venkataraman, 1989) namely goal and organizational factors. Alexander and Randolf (1985) emphasize that fit, within a technology system context, exists when the organizational structure matches the required technology system. They have used this fit model as a predictor of performance.

Viewed from that perspective, our model proposes that the fit will be determined by the right combination of CRM goal (strategic or transactional) and organiza-

Figure 1. CRM fit model
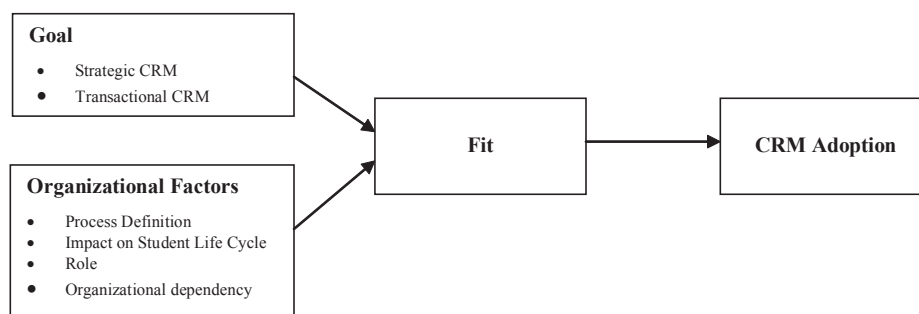
tional factors (process definition, organizational role and dependency). A match between these two variables will enhance fit thereby facilitating successful adoption. More specifically,

- An organizational unit with a clear concept of student life cycle is more likely to achieve long-term benefits from a CRM initiative. An organization with a tactical view about CRM can also benefit by focusing on automating specific activities or a single stage of student life cycle.
- Organizations with centralized responsibilities play a champion role in promoting CRM usage. An appropriate fit of these factors will help determine successful adoption. However, misfit occurs when the CRM concept and technology is promoted for process redesign while the organization aims only for transactional CRM, or when a transactional CRM is promoted to an organization focusing on broadly defined interaction process. Such gaps will result in rejection or early termination of CRM technology. While long-term adoption is preferred, short-term adoption can also contribute to strengthening an institution's interactions with students.

IMPLICATIONS AND NEXT STEPS

This case study has identified approaches to the adoption of CRM in the higher education sector. The conceptual model contributes to a better understanding of determining a CRM fit based on organizational factors and CRM goal. As more universities adopt CRM, determining an appropriate fit can facilitate successful deployment of CRM. This research will help to expand the understanding on adoption factors in this sector. Despite the comprehensiveness of the proposed research model, we acknowledge some limitations which call for additional research. This project is a single case study and while it was well triangulated, future studies should expand the scope to include multiple cases and an empirical test of the proposed conceptual model through a survey study.

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