

## Association for Information Systems AIS Electronic Library (AISeL)

---

AMCIS 2004 Proceedings

Americas Conference on Information Systems  
(AMCIS)

---

December 2004

# Identifying e-CRM Entities and Their Keys for Successful Implementation in the U.S. Healthcare Field

Robin Wurl

*Penn State Berks/Lehigh Valley College*

Michael Bartolacci

*Penn State Berks/Lehigh Valley College*

Follow this and additional works at: <http://aisel.aisnet.org/amcis2004>

---

### Recommended Citation

Wurl, Robin and Bartolacci, Michael, "Identifying e-CRM Entities and Their Keys for Successful Implementation in the U.S. Healthcare Field" (2004). *AMCIS 2004 Proceedings*. 1.  
<http://aisel.aisnet.org/amcis2004/1>

This material is brought to you by the Americas Conference on Information Systems (AMCIS) at AIS Electronic Library (AISeL). It has been accepted for inclusion in AMCIS 2004 Proceedings by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact [elibrary@aisnet.org](mailto:elibrary@aisnet.org).

# Identifying e-CRM Entities and Their Keys for Successful Implementation in the U.S. Healthcare Field

**Robin Wurl**

Information Sciences & Technology  
Penn State Berks/Lehigh Valley College  
P.O. Box 7009  
Reading, PA 19610  
[robinwurl@psu.edu](mailto:robinwurl@psu.edu)

**Michael Bartolacci**

Information Sciences & Technology  
Penn State Berks/Lehigh Valley College  
8380 Mohr Lane  
Fogelsville, PA 18051  
mrb24@psu.edu

## ABSTRACT

Online customer relationship management (e-CRM) has gained tremendous popularity in the business world recently. This paper presents a framework for classifying entities in the healthcare field. It also describes planned work related to the investigation of critical success factors for some of the entity types.

## Keywords

Customer Relationship Management (CRM), Online Customer Relationship Management (e-CRM), Critical Success Factors

## INTRODUCTION

Customer relationship management (CRM) has garnered much attention over the past five years in particular. The ability to mine information from sales data and related sources has allowed CRM to gain popularity not only in the retail, but also in the business-to-business sales arena. The mining of information from data gathered online created the notion of electronic customer relationship management (e-CRM) that has been successfully used by all of the largest online retailers. Such tools offer charting, graphing, and ad-hoc query capabilities that allow data gathered online to create or enhance relationships with customers. Romano and Fjermestad (2003) state that “e-CRM concerns attracting and keeping economically valuable customers and repelling and eliminating invaluable ones”. Plakoyiannaki and Tzokas (2002) further define CRM in general to be “an IT enhanced value process which identifies, develops, integrates, and focuses the various competencies of the firm to the ‘voice’ of the customers in order to deliver long-term superior customer value, at a profit, to well identified existing and potential customer segments.”

This work will detail ongoing research being conducted on e-CRM for the healthcare field, an emerging area of electronic commerce in the U.S. as the “baby boom” generation ages. We define “health care” to include goods, services, and information related to the maintenance of health or the treatment of a condition. This opens up the broad spectrum of healthcare products and services, from over-the-counter medications to hospital care and everything in between, to scrutiny with respect to the application of e-CRM. Although the scope of this area may appear too broad, a novel classification scheme is proposed to allow analysis of each resulting segment of the field.

Customer relationship management for healthcare today in the U.S. reflects a move towards a patient-centered model. Liedtka and Whitten (1998) describe this change in focus that began in the 1990’s and continues to the present. A patient-centered focus defines different goals and behaviors for the various entities and organizations in the healthcare arena. Paddison (2003) explains that the CRM must do the following in the healthcare area to be effective: center on the customer, include a combination of integrated data and application programs, and be secure, yet open for use by multiple business applications. A classification scheme will be proposed that groups the main online entities in the healthcare field based on several key aspects of their online presence as well as the nature of their organizations. This classification scheme will provide in future research a means for identifying the critical success factors for each group in light of the online business environment and the nature of the healthcare field in general. The first section of this work will categorize online healthcare entities and provide a natural framework for further discussion.

## CLASSIFICATION SCHEME FOR ONLINE HEALTHCARE ENTITIES

In order to assess the use of e-CRM by various entities in the healthcare field, it is useful to group them by their role or position in relation to the ultimate customer or patient. This classification scheme can be viewed in contrast to the one proposed by Puschmann and Alt (2001) that categorizes what they termed “healthcare portals” which are organized according to the services offered. Their three categories of healthcare portals are: Information, Sales, and Integration. An Information Portal simply provides healthcare information. The second type uses traditional sales process for prescription drugs and medical devices online. The final category, Integration Portals, connects participants in the healthcare arena such as insurance companies and hospitals to reduce transaction costs. While this classification is useful and provides a basic framework, we feel it lacks sufficient detail to allow an in depth analysis.

In contrast to the classification scheme detailed above, we propose a more rigorous classification scheme that defines entities by their motivation and the types of products or services they offer. The following taxonomy is proposed for online healthcare-related entities and includes every possibility for the nature of the provider (government or private) and what they offer (products, services, or information):

### I. SERVICE PROVIDERS

#### a. Public/Government Sector

- i. *Large facilities* - hospitals, nursing, mental health, forensic
- ii. *Small facilities* – clinics, nursing, hospice, mental health, forensic

#### b. Private Sector

- i. *Large facilities* - hospitals, laboratory, nursing, mental health
- ii. *Small facilities* – physicians' practices, clinics, laboratory, nursing, hospice, mental health
- iii. *Home* – nursing and hospice

### II. PRODUCT PROVIDERS

#### a. Public/Government Sector

- i. *Pharmaceuticals*
  1. Prescription
  2. Over the counter
- ii. *Healthcare products*
  1. Hospital – equipment suited larger facilities
  2. Clinics/Practices – equipment suited for smaller facilities
  3. Laboratories
  4. Home – specialized equipment for at-home health care

#### b. Private Sector

- i. *Pharmaceuticals*
  1. Prescription
  2. Over the counter
- ii. *Healthcare products*
  1. Hospital – equipment suited larger facilities
  2. Clinics/Practices – equipment suited for smaller facilities
  3. Laboratories
  4. Home – specialized equipment for at-home health care

### III. INFORMATION PROVIDERS

#### a. Public/Government Sector

- i. *Web Portals* – multi topic health care information website

1. provides links to other health-related websites
2. independent from any entities in other categories
- ii. *Specific Topic Web Portals* – single topic health care information website
  1. independent from any entities in other categories
- iii. *Hybrid Topic Web Portals* – website operated by one or more entities from other categories
  1. not directly used to market products or services
- iv. *Research Institutes* – agencies, academic centers, laboratories, pharmaceuticals, etc.

**b. Private Sector**

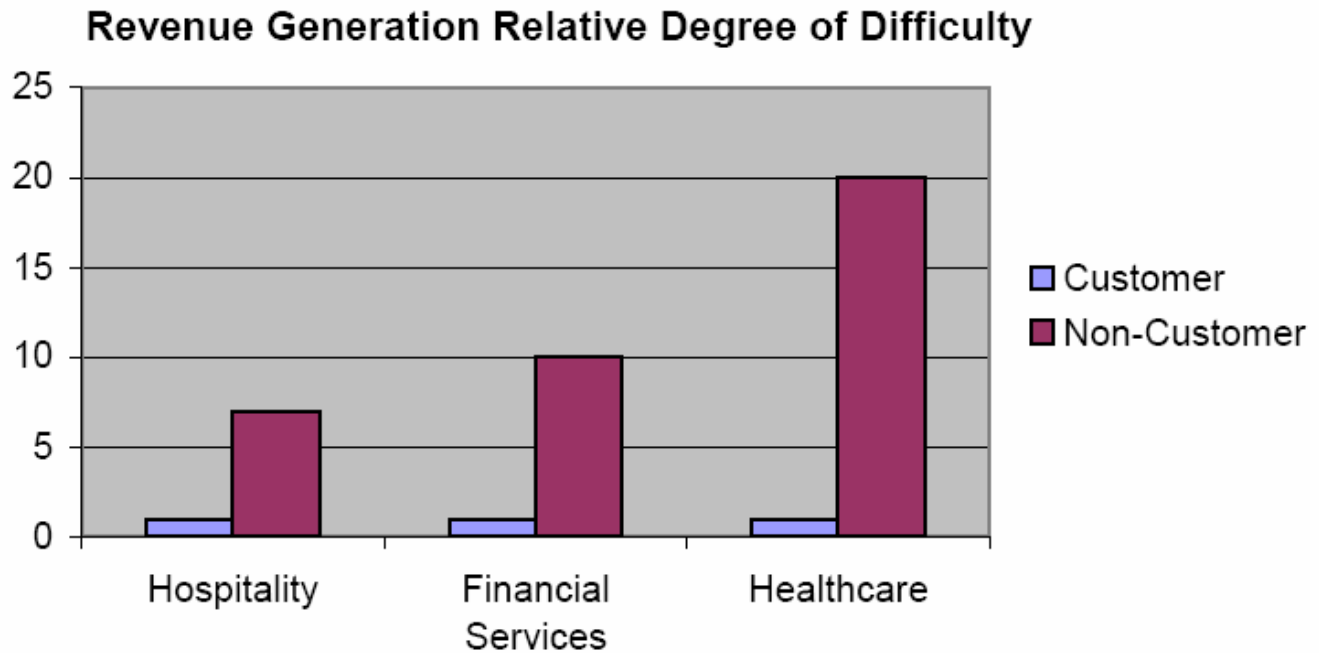
- i. *Web Portals* – multi topic health care information website
  1. provides links to other health-related websites
  2. independent from any entities in other categories
- ii. *Specific Topic Web Portals* – single topic health care information website
  1. independent from any entities in other categories
- iii. *Hybrid Topic Web Portals* – website operated by one or more entities from other categories
  1. not directly used to market products or services
- iv. *Research Institutes* – agencies, academic centers, laboratories, pharmaceuticals, etc.

In the proposed scheme, the definition of the categories, subcategories, and their entities allows the flexibility to look at any category from an online perspective. Although many of the categories may not currently lend themselves to an online presence, we believe that this classification scheme is robust enough that such categories could be included if and when a transition to an online environment is to occur. Unlike the scheme proposed by Paddison (2003) where online entities are contained in a dedicated online category, the proposed scheme is structured around an online framework and so this restriction has been removed.

**SUCCESS FACTORS FOR E-CRM IN HEALTHCARE**

What is the difference between traditional CRM and CRM tailored for the healthcare industry and what makes it ultimately successful? This is the subject of the ongoing research being conducted. Plakoyiannaki and Tzokas (2002) describe successful CRM as creating a corporate culture conducive to customer orientation, making customer value a key component of the corporate strategic planning process, and the collection/transfer of customer data to aid strategic and operational decision-making. This characterization is likely broad enough to include what one would consider success factors in the healthcare field as well. The differences become clear when we look at the structure of the healthcare industry in more detail. The main difference, and starting point, is the type of customer. Traditional CRM focuses on everyone in the marketplace, healthcare CRM is centered on the patient; and it is imperative to provide the kind of support patients need for their continued satisfaction, loyalty, and for their lifetime partnership with an organization.

There are, though, some difficulties in obtaining and keeping patients that are not present in traditional CRM. To whom patients give their business is often dictated by factors beyond the patient's control. Two examples of this are physician referral patterns and insurance restrictions. In addition, the healthcare field cannot generate demand for services because it cannot create diseases and health problems. It then becomes clear that marketing to non-patients is much more difficult than marketing to existing patients. A marketing organization called Customer Potential Management Marketing Group, Inc. (CMP) compiled statistics that show the relative degree of difficulty to generate revenue in three service industries given current customers versus non-customers. (CPM, 2003). Their results are shown in Figure 1. The figure shows that the relative difficulty in generating revenue from non-customers in healthcare is much higher than the other two service industries researched. Alternatively, there are some advantages in healthcare with respect to patient acquisition and retention. CPM (CPM, 2003) determined that between 75% and 80% of patients are likely to return to the same organization within the first two years after treatment. Another positive characteristic is that if a patient, his or her physician, or the patient's insurer has chosen a particular healthcare institution or business, then such a patient is 20 times more likely to respond than non-patients to the same marketing campaign. This identifies a potential success factor for e-CRM: identifying and properly contacting current customers either with email or some other electronic means.



**Figure 1 – shows relative difficulty generating revenue in healthcare given existing patients versus non-patients**

In addition, a very powerful source of new patients in healthcare is by personal recommendation. Having a patient-centric approach to conducting business and CRM creates this type of new business. Before an understanding of a patient-centric model was developed in healthcare, more traditional CRM strategies were employed, not surprisingly with disappointing results. One unsuccessful strategy was to look at the "buying patterns of non-healthcare services" and another was to examine "customer demographic variables such as age, gender, marital, and economic status"; see (CPM, 2003). Success for each category of entities of the proposed classification scheme hinges on several factors, some of which are unique to a given category. The general trend towards a patient-centered model for health care, though, does link some of the factors to all of the proposed categories. Bose (2002) succinctly defines the nature of a customer-centric firm in general in that "a customer-centric firm is capable of treating every customer individually and uniquely, depending on the customer's preference". In e-CRM for healthcare entities, the ability to collect individual customer's information is the first and most obvious of these success factors. Wells, et al. (1999) put forth that a key component for reengineering information systems for one-to-one marketing is the ability to collect customer information. This requirement would apply to all of the proposed categories for the most part, but would be extremely relevant to members of the Products and Services categories. The collection of customer information online presents several problems from an online marketing point of view. These problems include creating the proper web interface to collect the information, determining how much information to collect, and the proper validation and filtering of information that is collected online. "How a company uses customer information is fundamental to the success of CRM. However, the primary tools for processing information such as marketing automation, data warehousing, and data mining only work as part of the larger business process; see (Berson, et al., 2000). The sources for data can be both internal and external, but must be aligned with objectives for the CRM system; see (Alshawi, et al., 2003).

Another requirement for the success for all types of entities is the ability to conduct e-CRM in the face of the regulations of HIPAA (Health Insurance Portability and Accountability Act) and other state or local regulations on the exchange and use of health-related information. As Paddison (2002) explains, only a limited number of the actual regulations covered in HIPAA deal with marketing. The spirit of these regulations allow for the following types of communications between a healthcare entity and a consumer or patient; see (Paddison, 2002): (1) description of the entities participating in a healthcare network, products or services provided by the entity, or plan benefits, (2) deal with an individual's treatment, (3) provide information necessary for case management and care coordination recommendations for alternative treatments, therapies, healthcare providers, or care settings, and (4) common healthcare communications that individuals expect to receive as part of their care such as appointment reminders, prescription refill notifications, etc.

## CONCLUSION

The focus of future work will be the development of case study analyses for entities in each of the categories so as to ascertain critical success factors. An optimistic view of the future work would include entities in many of the subcategories as well, particularly in the Service and Information categories. Currently, research relationships are being established with representative entities from each category in order to collect information regarding their use of e-CRM. An example of such efforts includes a hospital in a medium size Northeastern U.S. city (population between 100,000 and 200,000) which has agreed to provide information on its current and planned uses of e-CRM.

## REFERENCES

1. Alshawi, S., Missi, F., and Eldabi, T. (2003) Healthcare Information Management: The Integration of Patients, *Logistics Information Management*, 16,3/4, 286-295.
2. Berson, A., Smith, S., and Thearling, K. (2000) Building Data Mining Applications for CRM, McGraw Hill.
3. Bose, R. (2002) Customer relationship management: key components for IT success, *Industrial Management and Data Systems*, 102,1/2, 89-97.
4. Liedtka, J., and Whitten, E. (1998) Enhancing Care Delivery Through Cross-Disciplinary Collaboration: A Case Study, *Journal of Healthcare Management*, 43:2, March/April, 185-205.
5. Paddison, N. (2002) Where do we from here: Some new twists on the road to HIPAA compliance, *Marketing Health Services*, 22, 3, 14-17.
6. Paddison, N. (2003) Closing the gap in market share, *Healthcare Financial Management*, 57, 5, 44-49.
7. Plakoyiannaki, E., and Tzokas, N. (2002) Customer relationship management: A capabilities portfolio perspective, *Journal of Database Marketing and Customer Strategy Management*, 9, March, 228-237.
8. "PRM – Making Better Patient Connections" (2003) White paper, Customer Potential Management Marketing Group, Inc.
9. Puschmann, T., and Alt, R. (2001) Customer Relationship Management in the Pharmaceutical Industry, *Proceedings of the 34<sup>th</sup> Hawaii International Conference on System Sciences*.
10. Romano, N., and Fjermestad, J. (2003) Electronic Commerce Customer Relationship Management, *Information Technology and Management*, 4, 233-258.
11. Wells, J., Fuerst, W., and Choobineh, J. (2002) Managing information technology (IT) for one-to-one customer interaction, *Information and Management*, 35, May, 54.