

Electronic Commerce Customer Relationship Management (A Case Study of Petrochemical Industry)

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Abstract: Information Technology (IT) in recent years has become the major part of profitability, in industry, economy, and cultures; where, IT has accounted for 60% of industry in 2002. In the new millennium, Information Technology (IT) comes out very effective and is becoming evident in the both developed and developing countries. These areas especially within the field of information gathering in the broadest sense as well as developing and strengthening networks both internal and external to the surrounding environment. Moreover, E-transformation has become the silent revolution. The frenzy of the dotcom years has gone, but the quiet work of harnessing the Internet to derive efficiencies in both business and government, if anything intensified. The Internet offers solutions to the twin priorities in these harsher economic times: saving costs and reaching customers. In this article we will explain Electronic Customer Relationship Management and its impact on petrochemical industry, and we will suggest necessary recommendations for use of this important aspect of IT in Petrochemical Industry.

Key words: E-Commerce, IT, Petrochemical Industry.

INTRODUCTION

Today, in the beginning of the 21st century, the competition among customers and manufacturers has been increased. Therefore, Electronic Business plays an important role in the growth of industries profit. The term Electronic Business includes the exchange of information not directly related to actual buying and selling of goods (Aly, 2001). As you can see in Table (1), these are at least five reasons for tendency of developed and developing countries in using IT.

EC (Electronic Commerce) is "the use of transmission mediums (telecommunication) to engage in exchange, including buying and selling of products and services requiring transportation, either physically or digitally, from location to location" (Greenstein, 2000).

BI (Business Intelligence) is referred to the gathering of secondary and primary information about competitors, markets, customers, etc. CRM (Customer Relationship Management) is a fundamental critical component for planning and development of strategic applications. It is a new application of computer-based science in case of increasing the selling and revenue of organization (Corner, 2002).

Moreover, CRM is about creating a meaningful relationship with customers and satisfying their needs and it is important as understanding customers. SCM (Supply Chain Management) is a process that makes an opportunity for companies to buy, make, store, ship, and sell products and services. The supply chain management is profitable when communicating everywhere in the most efficient manner (Ferries, 2000).

Last but not least, EPR (Enterprise Resource Planning) refers to back office operations such as order entry, purchasing, invoicing, and inventory control. ERP systems allow organizations to optimize business processes while lowering cost. Furthermore, technology has an impact on the growth of business. Thus, the term Electronic Commerce is used frequently.

Although, the importance of CRM is the mutual benefit that refers to both customers and sellers. The key concept in customer relationship management is defined as three critical factors:

First, customers which are the major focus, and companies that have direct relationship with CRM. Second, it is not a one-to-one relationship, and the third, a co-creative approach which helps the integration of Customer Relationship management (CRM) and Customer Managed Relationship (CMR). These three aspects are helpful in order to understand CRM (Law, 2003).

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Discussion:

In this decade Knowledge-Economy has caused the services to be done inexpensive. Thus, it is inevitable. Whereas, K-Economy includes use of IT, computers, and Internet in all part of production, economy sections, E-Government and Electronic Commerce.

In general, K-Economy is a multiplier function effect of Information Communication Technology on business and strategy capabilities.

Capability = j

K-Economy = f ICT (Business + Strategy)

Capability = i

On the other hand, due to growth of Electronic Commerce, revolution has been happened in the worldwide shopping. The growth rate of Electronic Commerce is predicted to increase from US \$ 354 billion in 2001 to US \$ 10 trillion by 2005, with an annual increase of 70 percent per year (Ferries, 2000).

Therefore, customers loyalty plays a critical role in the world's E-market than ever before. Attracting and retaining customers is the most important responsibility of organizations. Those organizations, which focus on customer services and Customer Relationship Management (CRM) to serve customers as soon as possible, will be the long-term markets winners.

Electronic Commerce composes of three relationship type: "those between enterprise and Customers; those between and among enterprises; and those internal to enterprises." The relationships between enterprises and customers are the most critical one, and this relationship is related to CRM. The term customer relationship management gained widespread recognition in the late 1990s (Law, 2003).

In another word, CRM "is a functional, critical component for planning and deployment of strategic application such as supply chain management and electronic commerce (Ferries, 2000).

Ferries and Whipple define CRM as a relationship development process with the customer as the starting point for interaction with a company and other related parties, and the goal is to find a co-creative environment for all the parties to work together. In addition, CRM comprises the "practices, methods, and control systems that enable improvement in both effort and cost associated with acquiring, maintaining and creating loyal, happy, paying customers."

In General, There Are Five Major E-crm Research Areas:

E-CRM and markets; E-CRM and technology; E-CRM business models; E-CRM and knowledge management; and E-CRM human factors. These research areas focus on E-CRM from information system's perspective.

The most popular research area is E-CRM technology. There are three types of relationship management and customer relationship management technologies: "passive, active, and interactive." New knowledge and technologies are helpful for both customers and sellers.

The second most popular topic is human factors (Romano, 2003). This research area deals with virtual interactions among customers and between customers and enterprises. Customer emotional experience is effective on the main issues related to the human components of E-CRM such as: satisfaction, commitment, willingness to purchase, etc.

The third most important issue of research area in E-CRM is business models. Keen offers six necessities for developing a business models dealt with E-CRM:

"1) perfect one's logistic; 2) perfect one's long-term customer relationship; 3) harmonize one's channels; 4) build a powerful portal brand; 5) transform capital and cost structure and 6) build value-adding intermediation." (Chorafas, 2001).

The next popular research area is E-markets. Internet is not just media, it is a huge mall. "Traditional transactions may be thought of in three phases: information phase, agreement phase, and settlement phase." These interactions are helpful in developing the relationship among customers and between customers and business enterprises.

The least popular topic of E-CRM research area is Knowledge Management. Commitment, trust, culture, and social-embedded ness of knowledge are four important factors in KM related to E-CRM. Successful KM required a proper blend of business process, people and IT.

Figure(1) illustrates E - CRM research frame-work. It shows that not only the five research areas individually have impact on E-CRM, but also they are effective to each other. However, the influence of different research areas on the others different. For instance, technology and market are more effective on human factor than KM (Romano, 2003).

"CRM has advantages and disadvantages." CRM integrates sales, marketing, services, enterprise resource planning and supply chain management functions through business process, automation resources to maximize each customer contact." Therefore, paradoxes are the complexity of business environment in this century, and the fast growth of technology. Another paradox is that the structure of CRM has become old. The customer relationship is as old as the merchant trade. However, the concept of customer in CRM should be changed (Law, 2003).

On the other hand, there are many advantages on CRM. It provides manufacturers to do business on an easy environment, improves customers loyalty and focuses on real customer (Turban, 2002)

On the whole, in CRM the term "customer provides direction", the term "relationship gives the focus", and the term "management represents the approach." CRM treats different customers differently; thus, it focuses on customers behavior. For instance, it provides customers who pay more with better customer services.

CRM tries to develop business strategies via usage of IS/IT. The rapid growth of technology for sales and marketing goal is helpful in usage of IS/IT in CRM (Hinton, 2002). It deals with aspects that increase customers contact.

CRM is Divided into the Following Areas:

- Web marketing: the technologies include HTML/ HTTP, Java and web servers.
- CRM with data access: this section emphasizes on the interaction web-sites users and key decisions like client, network, server, application server, and security.
- CRM with transactions: this section is about characteristics of user-to-business CRM and it focuses on secure transaction (King, 2002).

CRM software should focus on "incoming and outgoing" customers. It should investigate the kind of customer and business opportunities in order to communicate in an effective way (Aly, 2001).

In short, CRM procedures are completely different from ERP procedures. CRM provides an efficient communication between the front desk and customers; also it manages this relationship with the back office and its functional processes.

The Differences Between the Old and the New Perspective of CRM Are Investigated in Three Different Areas:

- The orientation of customer in old perspective was in two different patterns dealing with customer relationship, and it composes of customer-to-customer, and customer-to-business. However, in the new perspectives the orientation of customer is dealing with customer-managed relationship and the instance of this view is customer (e.g., priceline.com) and customer-to-customer (e.g., eBay.com). The main point that customers should consider as a main point of relationship is the most critical issue in implementing companies communications.
- The pattern of relationship in the old view point is many-to-many and one-to-one, but in the new perspective this pattern is one-network-one which is equal to customer-network-company. The term network shows the existence of numerous relationships among the companies, internal and external customers.
- The third key dimensions are the strategies of management approach. The old perspective in this case is enterprise approach, customer behavior, and how to treat different customer differently. The new view towards this issue is co-creative approach. In this case companies have direct relationship with customers, and they try to maintain profitable clients (Wang, 2003).

Today, competitive advertising is one of the critical issues in CRM. Salesforce.com, upshot. NetLedger and sale.net are three examples in this case (Chorafas, 2001)

The figures bellow show services purchased among hosted customer and areas for improvement in CRM from the February 2003 Aberdeen Group report. They show that organizations, which address their CRM concerns, are interested in Customer Relationship Management hosted solutions (Hrkins, 2000).

The Impact of Crm and E-commerce in Petrochemical Industry:

Petrochemical industry is known as one of the largest worldwide industries by US \$ 1.7 trillion.

Globalization, development of transportation, customer service, the level of profit, and the ways of production are critical factors in growth EC. Therefore, transfer of technology in petrochemical industry was first through EDI and then it was completed by EC (e.g., virtual SCM, CRM, business intelligence, etc). In the last 5 years, there is vast investment in IT improvement of petrochemical industry, in order to optimize the ERP processes.

Introducing E-business in petrochemical industry has been effective in both inside and outside the organizations. The trading cycle, which is influenced by systems for E-business, is started "from pricing deals, contractual validation, shipping instructions and insurance and cargo tracking to reciprocal instruction on the receiving end."

The growth of E-commerce sites in petrochemical industry allows customer to shop online and track the shipment, until they receive their chemical orders.

According to Forrester research Inc. in Cambridge, Mass. electronic sales from petrochemical industry are forecasted to rise from an estimated US \$ 4.3 billion in 1998 to US \$ 178.3 billion in 2003 (see figure 5).

Ploymerland, a unit of GE plastics, as an example of a firm which is expected the growth of E-sale from US \$ 100 million in 1999, US \$ 450 million in 2000, and US \$ 950 million in 2001 (Kaneshige, 2001).

E-sale plays a critical role in reducing cost. For instance, Chematch, a petrochemical E-commerce site, which its products focus is on aromatic, methanol, plastics, and fuels, has been successful in reducing costs. It saves 10 to 25 percent of processing cost, and 3 to 12.5 percent of total transaction cost.

PlasticNet.com is one of the largest websites. It is plastic related online sales and E-services. It does more complex deals and saves a huge amount of costs.

Chemconnet, a petrochemical global trading site, which its product's focus is chemical and plastics, implements an innovative online trading services.

Many organizations have worked on the effects of CRM in E-markets, and how to improve and modify the ways of communicating with customers in order to increase E-sales. One of the sale policies in this case is to allow customers to order free chemical samples. Slide product, Inc. has used to policy to observe and maintain more customers. Another company which works on CRM is Chematch with allows customers to see "new headlines, and analytical market summaries."

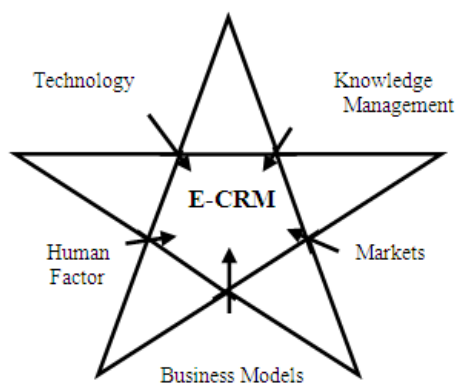


Fig. 1: E-CRM research frame work.

Customer Relationship Management (CRM)

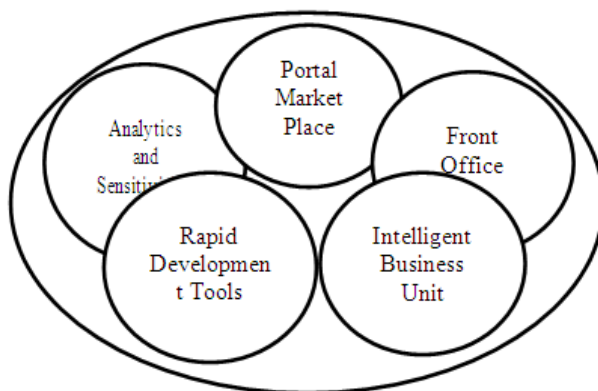
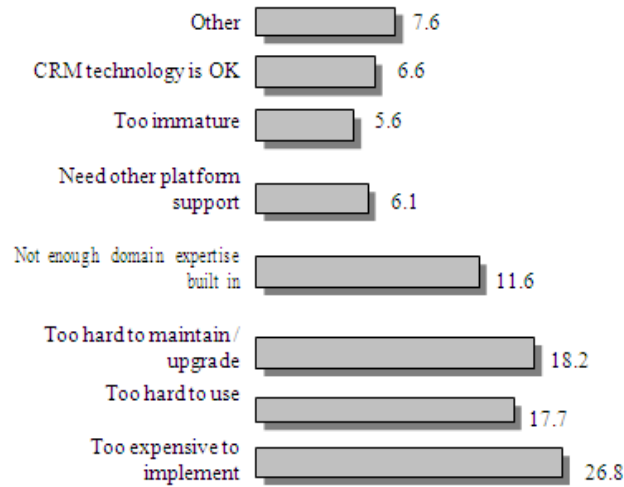
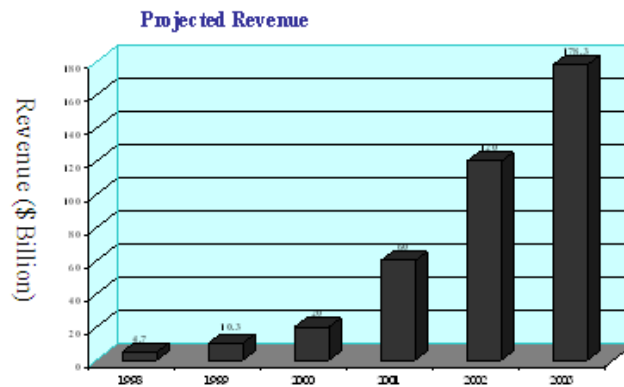


Fig. 2: Component parts of Customer Relationship Management Software.



Source: Aberdeen Group February 2003

Fig. 3: Areas for improvement in CRM.



Source: www.forrester.com

Fig. 4: Projected Revenue of EC in Petrochemical Industry.

Table 1: Reasons for developed and developing countries using IT.

| Reasons for developed countries using IT | Reasons for developing countries using IT |
|--|--|
| Reducing costs up to 35% | Access to information 34% |
| Services to customers up to 32% | E-mail and fast communications up to 35% |
| Increasing sale up to 18% | Internet price compared to other media up to 17% |
| Marketing up to 13% | More marketing facilities 6% |
| | Better promotion data base 4% |
| Others 2% | Others 4% |

On the other hand, the Electronic Business formula is composed of five important factors: EB= EC+ BI+ CRM+ ERP+SCM

Table 2: (Services purchased among hosted solutions customer and areas of CRM.

| | Sales (%) | Marketing (%) Service (%) | Customer | Call Center (%) | Field Services (%) | Other (%) |
|-----|-----------|------------------------------|----------|--------------------|--------------------|-----------|
| Yes | 87.2 | 84.4 | 98.6 | 91.7 | 88.9 | 1 |
| No | 12.8 | 15.6 | 10.4 | 8.3 | 11.1 | 0 |

Source: Aberdeen Group January 2003

Conclusion:

In sum, IT investments directly support the generation of revenue and/or profitability in today's business, and industries, such as Petrochemical industry. Of course, there are certain types of IT services and products that generally find their way into these funds, such as CRM, and ECRM applications.

Moreover, knowing the fact that Information Technology is considered as the major part of profitability in both industry and economy in recently, and knowledge Economy causing the service to be done inexpensively. Thus providing IT projects is an essential for any business and industry.

Although, from the providers point of view, the expectations of clients can be highly unrealistic. Therefore, one has to provide an industry, such as Petrochemical Industry the following process for E-commerce (e.g., Electronic Commerce Customer Relationship Management) more effectively as follows:

- 1- Present in the Global network via sending Information online.
- 2- Contacts: Increasing contacts between the supply Chain and Demand, through personal strategies.
- 3- Transaction: via introducing the marketing channel, gathering the potential and available relevant business intelligence.
- 4- Transformation: with using this tool, we can determine the problem finding of time scheduling, improving the supply chain and better customer relationship.

Future Study:

For future study it is suggested to use this case study for other major industries such as steel, machinery, transportation and electronics.

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