

# CRM-centric E-Commerce Web Application

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**Abstract**—The Internet revolution has led to the continuous rise in E-Commerce all over the world. With more and more people adopting, and becoming savvy with online commercial portals, it has become almost necessary for businesses to have intimate customer relationships with its user base. Various studies and publications have shown that targeting and maintaining loyal customers remains a considerable challenge for online enterprises. This paper describes a framework for a CRM-centric E-Commerce Web Application portal (CCECWA), which is designed around the concept of CRM, rather than using it as an add-on benefit. Here we have proposed a system of conducting E-Commerce, keeping at the forefront, the customers' demand for good quality reliable products while maintaining a profitable and sustainable business model using CRM's latent benefits. We believe this model framework has great potential and can be implemented for startups and other ambitious projects as well.

**Index Terms**—E-Commerce, Quality bar, CRM, e-CRM.

## I. INTRODUCTION

E-commerce is basically the process of doing business through computer networks. The main advantage of e-commerce over traditional commerce (brick and mortar) is the user can browse online shops, compare prices and order merchandise sitting at home on their PC. On the other hand, Customer relationship management (CRM) is a comprehensive set of processes and technologies for managing the relationships with potential customers and business partners across marketing, sales, and service (regardless of communication channel) [2]. CRM is quickly becoming one of the top strategies that many successful companies use nowadays [7]. Due to an explosion of customer information available, e-commerce has become highly competitive and consumers have become highly entitled. [8]. This paper describes a framework for offering a different type of E-Commerce web application by integrating a customer-oriented CRM system to provide a trusted & reliable experience for the customers. Simply stated, Customer Relationship Management - Centric Electronic Commerce is just the application of CRM methodologies to e-commerce through the Internet [3]. The main point of argument is the difference in real CRM and E-CRM. Unlike in traditional e-commerce, online portals have access to the minutest of the customers' details, often providing deep insights into inclinations and interests, as well as affinity for quality [6]. With a proven expectancy of greater profit has pushed many firms into taking up CRM projects and especially, ECCRM projects as a core module of their e-commerce establishment [11]. In the hey days of Internet e-commerce, markets witnessed general company investments into CRM nearly double at times, inevitably becoming equal to, and exceeding investments in ERPs [3]. With a disparity between the promised quality and the delivered quality, there's a need for transparency in the CRM process in the e-commerce domain [12]. This project is mainly about offering a different type of e-commerce web application by integrating a customer-oriented CRM system to provide a trusted & reliable experience for the customers. The proposed framework includes a new feature, the Quality Bar. Using this feature, customers can view what level of quality of products they can reasonably expect and rely on. Another feature of the application is the Smart Review, which provides different types of feedback from various certified reviewers. These drawbacks of the present system have been targeted in the proposed framework model as described in the paper.

## II. RELATED WORK

In mid 1990s, the base platform for CRM software began to emerge with Sales Force Automation (SFA) and Customer Information System (CIS) hybrids establishing a place for themselves in the market. By the early years of the 00's, a more comprehensive CRM system that manages all business relationships was suggested. In 2007, Sales force initiated a revolution in cloud based CRM systems and changed the industry with Force.com with unparalleled customization and integration. In the beginning of their online campaign, Coca-Cola needed an effective software program that could be tailored to fit as a component of a broader e-commerce and logistics environment. This solution could provide sales teams and clientage better transparency in sales and distribution media to recognize new vistas and potential sales opportunities. Synolia, an established solutions partner, modified and deployed the Sugar Professional Software as a Service – on a demand basis to almost 40 users in a quarter. Coca Cola now uses a comprehensive custom CRM solution attached to its e-commerce engine and logistics platform. Sales and marketing teams, and their heads now receive instant access to reports for different markets and customer bases through an integrated reporting generation mechanism [4].

According to new figures from the Indian commerce group ASSOCHAM, India's online purchasers invested almost 16 billion USD in 2 years ago (2013) [17]. To put the industry into view, Indian e-tailing industry was guessed to be almost 30 thousand crore rupees (i.e. USD 4.38 billion) in 2011 and slated to hit 53 thousand crore (i.e. USD 19 billion) this year [16]. For perspective, China's e-commerce expenditure allegedly topped an estimated \$265 billion in 2013 thanks to the country's half billion-plus netizens [17]. Ideally, CRM allows an enterprise or an organization in adapting its products and/or services to each of its customer preferences and nuances [14].

E-CRM applications are designed with the customer in mind and give the customer the entire experience on the web interface [12]. It's shown that personalized customer experience in the on-line world is causing an increasing demand to avail these services by more and more people [1]. In the e-commerce scenario, the customer's trust is a major important factor in attracting and retaining potential buyers [9], which is, incidentally, a fundamental target of e-CRM.

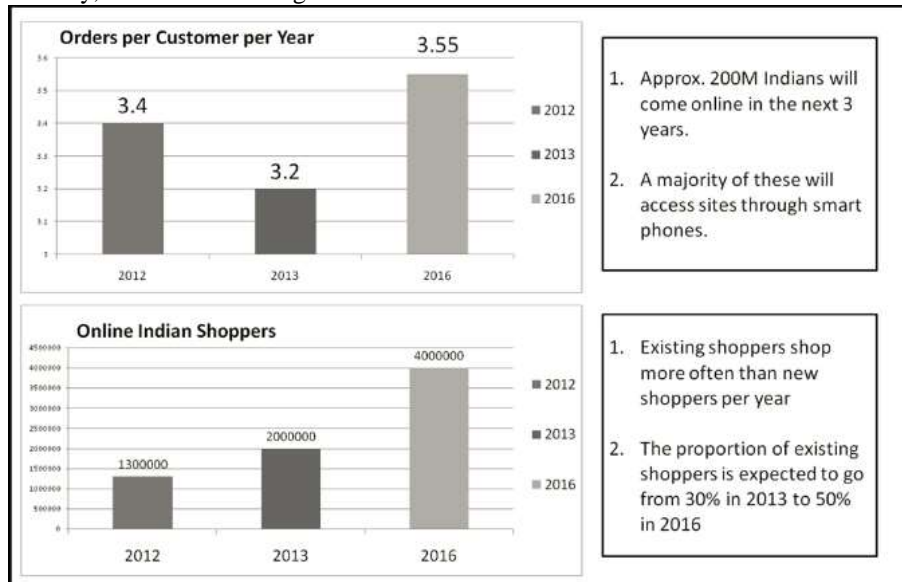


Figure1. Potential of Growth of E-commerce in India [17]

A huge advantage of integrating CRM would be the development of better relations with the existing customers, which will result in improved sales through better timed services by anticipating needs based on trends and history, identifying demand more efficiently by analyzing specific customer requirements, inter-marketing of various products by emphasizing and exploring alternate options. This would lead to improved marketing of the products/services by deliberating on improved concentrated marketing strategies designed specifically keeping in mind the audience's quality needs. The use of a customized technique and improved product/service reviews help to bring more exchange prospects. Subsequently, this would result in improved customer satisfaction and retention, ensuring that the good reputation in the market continues to expand.

### III. PROPOSED SYSTEM MODEL

In the proposed system, the CRM system in the application helps the site implicitly offer products according to the user's preferences, depending on their choice of price over quality or vice versa. Here, special importance is given to the users' preference of quality and costs. There's also a special Quality Bar feature that displays a quantitative measurement for the given product's quality, based on different factors, to accurately depict the estimated expected value for price, for the given item on sale. Quality Bar rating will be calculated using various inputs like expert's ratings, user's ratings, expert reviews and user reviews.

#### A. Quality Bar Feature

This feature includes a graphical bar that displays a quantitative measurement for the given product's quality,

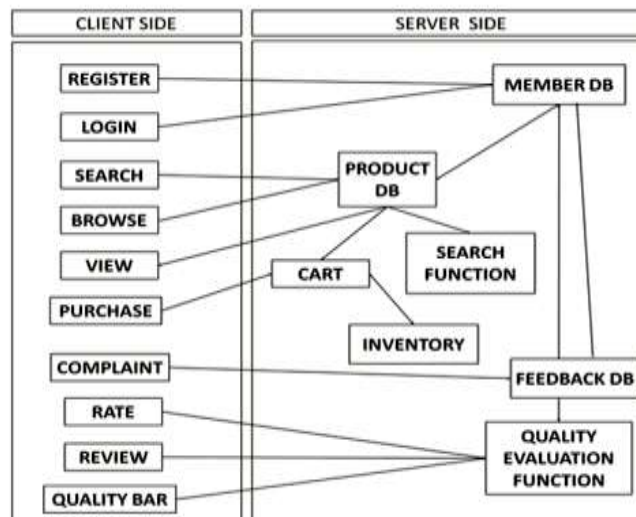


Figure2. Proposed System Design Diagram

based on different factors, to accurately depict the estimated expected value for price, for the given item on sale. This quality bar rating will be calculated using various inputs like expert's ratings, user's ratings, expert reviews and user reviews, using a Quality Evaluation Function.

$$\text{QEF Value} = 0.6(\text{User ratings}) + 0.4(\text{Expert Ratings}) \quad (1)$$

Quality Evaluation Function is a simplistic algorithm used to calculate the relative Quality Bar value by the formula giving weight to user ratings and expert ratings.

- (a) *User ratings* are those reviews submitted by individual members who have bought the product or have proficient knowledge on it.
- (b) *Expert ratings* are those reviews submitted by certified quality evaluation experts who have bought the product or are qualified to review it.

#### B. Smart Review Feature

This feature involves providing reliable reviews from experts of the particular products obtained from dependable sources on the web, as well as interested individuals who can provide insights regarding user experience and expected quality. With these comprehensive opinions, the application will provide reliable and realistic representations of products and their quality so customers can rely on the information provided to them. Furthermore, this will empower the customer to make intelligent informed investment decisions.

#### IV. FLOWCHART

(This is a sample of a general action flow sequence)

- User can then easily register as a new member on the site through a web interface.
- By using search feature, user can look for any particular product they wish to view and the search results are displayed and viewed by user accordingly.
- Users have the ability to apply any special filters to narrow search results.
- Using quality bar feature, user can apply more specific constraints on searches.
- Once the user has found a product they wish to buy, they can use the add-to-cart feature so the item is added to the shopping cart.
- This process is repeated for every item the customer wishes to buy.
- Then after adding all items to shopping cart, user can choose to checkout and select payment options as per their ease.
- Once the user shipment details are entered into the system, the order is placed.
- As per customer's choice, either they are logged out or returned to shopping site.

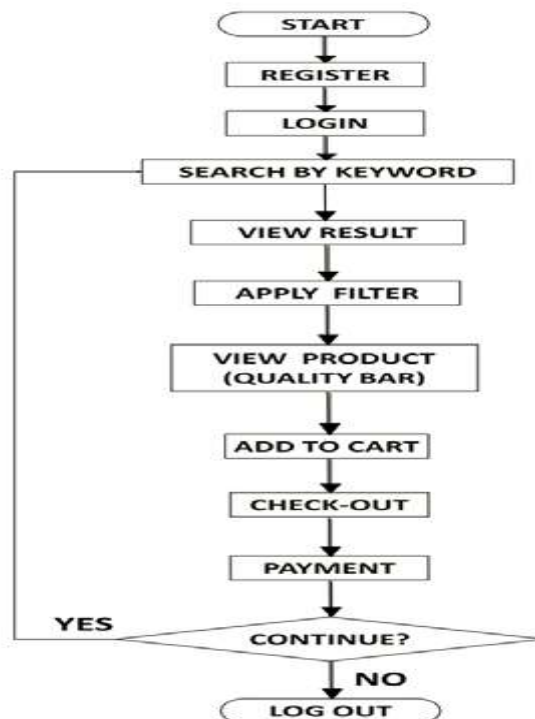


Figure3. Flowchart Diagram

## V. SUMMARY

The special case made here was a new look at the application of online commercial activities, being CRM centric, as opposed to normal e-commerce applications. The potential is huge for conducting and applying extensive CRM to an everyday online e-commerce portal with the aim of providing customers with true-to-cost, excellent quality, best-priced products. Being a web-based application framework, the CCECWA aims to take advantage of modern front-end and back-end technologies to provide reliable and feasible services to its customers. The use of quality bar, expert review system, (optional) bargain chat and other features helps us achieve our target and helps deliver excellent products and a better service. We believe this model framework is complete and ready for implantation to prototype stage. To be effective, the management of this model implementation must have an integrated approach embodying strategic direction.

## VI. FUTURE WORK

Our goal is now to take this model framework and construct a full working prototype based on the requirements and specifications stated in the documentation. If time constraints permit, additional features might be added as beta trials of the finished project.

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