A Parametric and Comparative Study on Online Shopping System: Designing, Modeling and Analysis

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Abstract-- The Term Online Shopping is the most useable word in Present Technology Era, with the development of internet OSS emerged in a bright way. Basically This OSS is an ecommerce web model which enables the simplest way for consumers to perform shopping for consumer products. This paper completely covers analysis, design models of an online shopping system and also involves the comparative parametric study of various parameters. It also covers a parameter based comparison between Effectively used e-commerce websites in India.

Keywords — Online Shopping, Online Shopping System(OSS), consumer, e-commerce, Internet technology, Analysis models, DFD etc.

I. INTRODUCTION

Now a days The Internet is inherently global in nature, as it is globally accessible and crosses national boundaries to allow consumers around the world to participate equally. Today’s online shopping is becoming increasingly popular, First Internet Technology and then Mobile Technology has covered this OSS in a full way. Ten years ago, the internet was barely on anyone’s radar. Fast forward to today, and it’s the third-most shopped channel each week, after supermarkets and mass merchandisers, according to WSL Strategic Retail’s How America Shops® Megatrends 2012 report. Technology is reshaping the retail environment faster than ever, causing retailers and brands to rethink how they currently do business. Now a days There are large numbers of commercial Online Shopping websites offering large number of products tailored to meet the shopping interests of large number of customers. These online marketplaces have thousands of products listed under various categories. Of course, it facilitates online technology which is used to achieve online business development. At present, the growth rate of E-commerce is high due to the expansion of businesses towards online market. [2]

As This is a two way system from Customer to Firm and Firm to Customer.OSS Module has its double meaning having some point of view like customer and firm while based on optimized parameter as shown in Fig1.

This OSS has its transfer function based on optimized parameters which decides module to be a best in e-commerce field. Online consumers report that goal directed buying is facilitated online specifically because of [3]: (1) convenience and accessibility (2) unique and broad selection (3) availability of accurate and comprehensive information and (4) lack of sociality from salespeople, retail workers, spouses and kids.


II. SYSTEM REQUIREMENT ANALYSIS

As to make a final system consisting of various sub systems module with its interfacing architecture It needs to make an application is ease of use and to provide an interactive interface[7], The Modeling and System Analysis step is shown as in Fig.2 [1]
Fig2. Modeling and System Analysis setup

After based on user requirement and system based analysis it necessary to make initial DFD [Data Flow Diagram] at various sub module levels. Like at the very step of create context level diagram as shown in Fig.3.0

Fig3.0 Context Level Diagram

Once sub modules steps is decided, then Data Flow Diagram is created as per selected Data base like very 1st level DFD is shown in Fig.3.1.

Fig3.1 First Level Data Flow Diagram

As shown in Fig3.1 basic flow structure is to make a search by customer on data base system and make an order and when we go up to higher order DFD. We make interfaces in to a descriptive way like shown in Fig.3.2.

Fig3.2 Second Level Data Flow Diagram

After selection of item it will be added to payment channel as per given DFD shown in Fig.3.3.

Fig3.3 Third Level Data Flow Diagram

III. DESIGN GOALS

• The design of the web application involves the design of the forms for listing the products, search for products, display the complete specification for the product, and design a shopping cart that is easy to use.
• Design of an interactive application that enables the user to filter the products based on different parameters.
• Design of an application that has features like drag and drop etc.
• Design of application that decreases data transfers between the client and the server.

Main purpose of OSS design should be less time complexity, space complexity and easily interfaced and used by users. So it should be very user friendly. User case diagram is shown as in Fig.3.4.
As it is shown in the Use case diagram Interfaces of User login with Sub module sections is described in [one to one mapping] and those All are done in a single channel allocation rather than multichannel location.

**Architectural Design**

In this context diagram **Fig.3.5**, the information provided to and received from the 'Online Shopping' is identified. The arrows represent the information received or generated by the application. The closed boxes represent the set of sources and sinks of information.

In the system, we can observe that the user interacts with the application through a graphical user interface. The inputs to the system are the Search and Filter criteria provided by the user and a new review written by the user[6]. Also, the output is in the form of Repeater and grid views which present the users. with list of Products available. The users can view complete specification, view Images and reviews by other users.

**Parameters Which Makes Ossm Effective**

**Market Segmentation:**

In this competitive era of e-commerce[online marketing] its very necessary to plan a long time sustaining market segmentation policy, any business strategy should be based on understanding, meeting and even exceeding the needs of target segments.

This discussion of the best segmentation practices and likely advances encompasses following areas:

1. Use of segmentation in marketing and business strategy.
2. Decisions required for the implementation of a segmentation strategy.
3. Advances in segmentation research.
4. Impact of operating in the global information age on segmentation theory, practice and research.

Any firm like OSS enacts the segmentation strategy through:

- Data collections
- Application of Models and Framework
- Resource Allocation

With this There should be always focus on Market driven strategy, as modeled in Subsets form shown in **Fig.3.6**.

**Payment Gateway**

The problems associated with online shopping are more to consumer’s protection in transaction that requires privacy and trust between different geographical locations or countries.
There is increasing concern over online shopping because of insecurity, lack of customer’s protection and trust which are vital elements for a successful online transaction between countries, organization as well as individual.

Major problems faced by consumers is security, Secured system is needed enhance online shopping since consumers cares for their privacy and security.

Security such as the use of digital signature and certificates could be helpful in controlling risk of fraud for online-based transactions. Improved security system for online shopping could reduce unworthy behavior of consumers’ with increase intention for online transaction

Response Time/User Exp./User-Friendly Behavior

These three parameters are correlated and well interfaced with each other, because these parameters make a parallel synchroization between front end to back end. [5]

Therefore from user point of view Its necessary to have a single channel comparison shopping so that user could get a maximum amount of benefit, like as described below:

Comparison Shopping

While it is important to look at what motivates customers to return to a retailer, it is also important to look at what factors are taken into consideration when current or prospective shoppers are comparison shopping. When comparison shopping, consumers take product price and shipping charges almost equally into consideration. The resulting purchase decision may then be that the shopper chooses to buy from a retailer who does not offer free or discounted shipping if the total price including shipping is less than that of a retailer offering free or discounted shipping. Product price and shipping charges were rated as the most important factors in comparison shopping. Shipping speed, consumer reviews, retailer reputation, and delivery time flexibility are all taken into account by consumers when comparison shopping, but at a lower rate than product price and shipping charges.

Factors Taken into Consideration, When Comparison Shopping are described as shown above in Fig.3.7.

As per data searched and studied As seen above, 60% of online shoppers say that an estimated or guaranteed delivery date is important at check-out. Because online shoppers have a range of time they are willing to wait for the delivery of their orders, retailers that offer a range of delivery time options allow themselves to appeal to a wider range of customers. While 48% of customers stated that they are not willing to wait more than 5 days for most of their purchases, 23% said that they would be willing to wait 8 days or more.

Shipping and Delivery :

Shipping and delivery are key components in the online shopping experience. Online shoppers expect a variety of delivery options to be available, with more than half expecting both economy ground and ground, and just under half a 2-3 day air option. When looking at what shipping option they choose most often, online shoppers select the most economical option two-thirds of the time, and the fastest option only 2% of the time. A quarter of shoppers indicated they most often chose a faster ground option for a nominal fee. One-third of online shoppers say they “most often” choose to pay a nominal fee for faster delivery when making a purchase, A graphical comparison regarding delivery of items is shown in Fig.3.8

Fig.3.8 Bar graph comparison

Now when it comes about comparison between top most running e-commerce famous websites in India, It becomes very typical to collect very latest updated statistics, certainly parameters comes in to picture varies very dynamically[6], Parameters used for making a comparison are done considering as per customer point of view as well as firm, some of the parameters are like service support delivery, Discount & pricing, Shipping cost ,Seller & credibility, For e.g. We collected latest data from various resources of two top most e-commerce website running in India like Flip cart & Amazon.
As per study Social media agency WATConsult has released a report on the social health of e-commerce brands in India at the 3rd WATSummit. The report extensively tracks the social media sentiments of eight leading ecommerce brands, Flipkart.com, Amazon, HomeShop18.com, Jabong.com, Myntra.com, Snapdeal.com, Yebhi.com and EBay. in.

Based on the multiple scoring parameters of the analysis, Myntra.com, HomeShop18.com and EBay. in come forward as the scorers among the top 8 e-commerce players in the industry. The report analyses the social media and online trends of the e-commerce portals on parameters like Social Reach, Engagement, Growth, Response Time, Content Type and Audience Quality. The report also analyses the share of voice, brand sentiment, online reputation, source and keywords for each player in the online space.

As it is very familiar, In present era Social Networking sites has a great connection and impact on the marketing of e-commerce website. They provide a direct link with easier interface to make system compact. Snapdeal.com, Homeshop18.com and Myntra.com are e-commerce players with faster growing base on Face book and Twitter. However EBay India boasts of the highest engagement on Face book and Twitter followed by Homeshop18.com and Myntra.com. There are comparative study among e-commerce websites defined as below:

- Homeshop18.com tops the chart as e-commerce player with the highest YouTube growth but Yebhi.com has the highest YouTube engagement.
- The top three players with high overall social media engagement are Myntra.com, EBay India and Yebhi.com.
- Homeshop18.com is the brand with the fastest response time on Facebook and Twitter. The top 3 players with high overall response time are Homeshop18.com followed by Myntra.com and Flipkart.com.

<table>
<thead>
<tr>
<th>S.N.</th>
<th>Parameter</th>
<th>Flip cart</th>
<th>Amazon</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Service support delivery</td>
<td>2-4hrs, 1 day delivery @99 items</td>
<td>2-4hrs, 1 day delivery @90 items</td>
</tr>
<tr>
<td>2.</td>
<td>Discount &amp; Pricing</td>
<td>25-40 % on promotional period</td>
<td>10-25% on average</td>
</tr>
<tr>
<td>3.</td>
<td>Shipping Cost</td>
<td>Free for an unlimited time</td>
<td>50 Rs./on delivery less than 500</td>
</tr>
<tr>
<td>4.</td>
<td>Seller &amp; Credibility</td>
<td>Good seller like croma retail, JMJ</td>
<td>WS retail</td>
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IV. CONCLUSION

An Compact OSS model has been studied, designed, analyzed in terms of DFD, Architectural , Sub modules interface with multichannel location, This Model is very user free, A Parametric study also has been carried out being consider in this model based on the effective parameter [ data studied and taken for Top most e-commerce website running in India]

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REFERENCES