A Comparison of UI/UX and Process for Major E-Commerce Platforms

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Abstract- **E-commerce is one of the important fields of the Web services, with the rapid developments of web service technology and the prevalence of new marketing concepts (e.g. O2O), a lot of companies begin to invest money and human resources in this area. Some traditional industries also seek for transformations through adopting E-commerce. E-commerce takes advantage of the fast-delivery on Internet, conveniently online experience, A successful E-commerce platform can attracts many online users, and not only enables users to have more convenient shopping modes and more promotional products and services, but also offers companies a low-cost and effective way of advertising. Big data are generated by the information of E-commerce mode and can further be used to conduct strategic applications and researches. Capacity and flexibility is the core of E-commerce. Therefore, this paper reviews several E-commerce platforms that have undergone successful enterprise transformation through analysis of UI, UX and Process, and summarizes some key functions in E-commerce platforms.**

I. INTRODUCTION

O2O(Online To Offline, also called Offline to Online) is a new business mode integrating the online shopping and the entity transactions. O2O through discount, providing information, services, reservations, etc. to push the offline stores' messages to the web user. Thereby convert them to their offline customers. This is suitable for the services and products they must shop at physical store, such as food, fitness, watching movies and performances. With the rapid development of Internet, e-business models in addition to the existing B2B, B2C, C2C business model. O2O has recently developed rapidly in the market. This consumption pattern has developed very mature, and has also been widely accepted [1, 2]. But some analysts pointed out that the e-commerce in the United States, the proportion of online consumer transactions accounted for only 8%. But the offline consumption ratio reached 92%. To attract the consumer online to offline store for consumption has vast space for development.

O2O and e-commerce complement and complement each other. Different user can view E-commerce from different perspectives. Therefore, E-commerce platform plays a very important role in this. E-commerce has allowed enterprise to create a market presence, and to enhance an existing market position, by providing their products or services [3, 4]. For instance, Target has used E-commerce successfully. This retailer not only has physical stores, but also has an online store where the customer can buy everything.

II. THE E-COMMERCE PLATFORM OF FORMATION

In this study, surveying a number of well-known e-commerce platforms. There has eBay, Taobao, Tmall, Magento, Yahoo and PChome [5-10]. We analyze these successful stories that help us find some key formations of the e-commerce platform, and we thereby come to understand some essential functions of EC platforms as well as their applications and forms of display. With the basis of a complete purchase process, we derive 10 key functions from an EC platform, as the block diagram below shows. This paragraph will then analyze the functions listed in the upper-mediate level of the diagram (blue bottom color) and explain these key functions.
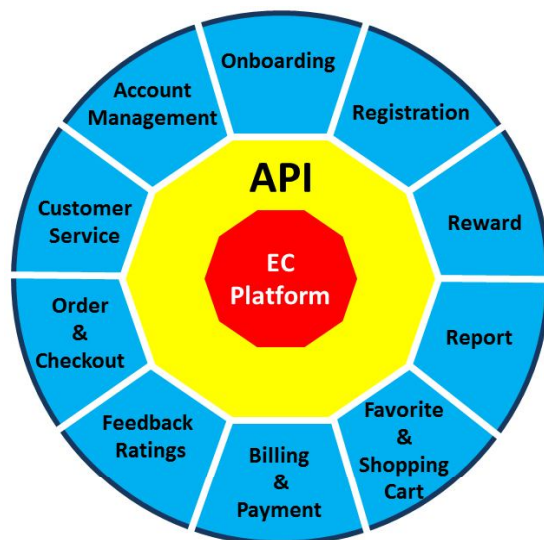
Figure 1. Architecture of E-commerce platform

A.   Registration

Registration is the way to accessing a platform and is one of the requisite functions on every major EC website. With the aid of the authentication system, registration management becomes more effective (less liable to the disturbance of random registration). Current ways of registration do not merely comprise the conventional method of allowing members to customize their accounts and passwords; moreover, many platforms start to employ OAuth to integrate and allow the admission of the accounts of other platforms such as Facebook and Google. In this latter method, the interface is designed to be user-friendly so as to increase registration and purchase. Product search will be made in the description of the third chapter

B.   Onboarding

This is one of the core functions of E-commerce platforms. Shelving refers to all the functional processes and page display of putting merchandises on shelves on the website. It has several sub-functions: adding product information, giving detailed introduction of the product, uploading images or audio/video, setting price (including suggested price and discounts), managing the numbers of the merchandise, providing different choices of payment, setting the specification and size of the merchandise, and offering FAQs of the merchandises. They include the product search. These functions have the corresponding UIs or processes of their own to operate.

C.   Account Management

The management of members' accounts is of great importance on any Internet platform. Issues regarding members' personal info, such as the proper managements of account numbers and passwords are highly substantial. For instance, in the member management of Yahoo Mall, the following functions are included for the members' uses: personal information maintenance (account number, password, address, and telephone), order and shipping information, order tracking, shopping cart, my favorites, bonus management, and customer service. Since these functions appear in elsewhere on the whole platform, I will explain them further in another chapter.

D.   Favorite & Shopping Cart

The shopping cart displays in a similar way as I envision. The shopping cart is used to let buyers temporarily save the items they want to buy and check out altogether after they finish shopping. The shopping cart usually includes the name of the item, image of the product, quantity of purchase, unit price of the product, shipping fee, and a function to remove the product from the shopping cart. As for the function of "My Favorites," there are mostly divided into two types: the favorite shop and the favorite product item. The customers can add their favorite shop(s) to "My Favorites" so that it is convenient for them to shop again next time. Also, they can put products they still hesitate about buying in the 'favorite product' area; that way, they can both keep an eye on the fluctuation of the price and make a quick purchase when they decide to buy. The displays of the functions in My Favorites and the Shopping Cart are quite similar.

E.   Order & Check Out

Two ways of order payment are offered on the EC platform of many shops. One is to pay separately to each different shop, and the other is to check out altogether all the orders from different shops. The differences of these two ways of payments will be discussed in later chapter. The display of function in the payment of an order mainly includes the name of the item purchased, quantity, unit price of the item, total price, and the information about the receiver (name, cell phone number, address, code of shipping). As for the order, many EC platforms nowadays will provide an axis of time displayed on the website, so that the buyers can clearly track the current statuses of their order and delivery.

F.   Billing & Payment

Most of billing & payment are the cooperation by E-Commerce platform with external cash flow. Such as credit card companies, third-party payment, cash on delivery, remittance, etc. These methods typically use API or otherwise connected in series, and the most are using the API. Because the API is more unified and convenience in series.

Another part of the refund. It must be combined with the above of the Orders & Checkout section. Refund usually involves many parallel problems. And it needs to go through many steps before they can confirm the refund. This is a big issue across many functions.

G.   Feedback Ratings

Feedback Ratings is extremely important in an E-Commerce platform. It is because that it involves the buying behavior. Many buyers reach the stores or buy some products at the first time. They are reference the feedback ratings of product or stores as a basis for credibility. Typically the higher feedback ratings can promote confidence rose and Increased willingness to buy. On the other hand, ascribed the feedback ratings can build the awareness of brand or business. And make the transition more successful about the enterprise.

H.   Reward

Reward is the many shopping's inducement, and it also the method that let the buyer increases repo rate. In addition to credit cards acquired through the company's own credit card reward. There has the other mechanism about the E-commerce platform's reward. Usually they have a formula to calculate the amount of consumption translated or get the reward points. For example, buying $100 can get one reward points or

obtained from a number of activities. And in use have their own way of exchange, such as full offsetting or partial offsetting. Also in the issuance and redemption of reward point has some corresponding security mechanisms that prevent those people with bad intention to steal or destroy data.

I. Report

Nowadays it's importance of intellectual property rights and increasing fraud incidents. Internet shopping is more vulnerable to encounter this type of problem. It is because that we can't see the items entity. If we encounter fraudulent product, we will return the product. In addition, we can also set a report mechanism that alert the platform to make appropriate treatment. On the other hand, an intellectual property right is also a very important issue. When the commodity infringes the intellectual property of others, we can directly to report online. And report by the platform's company or as impartial third party to assist unit. Therefore, the mechanism of prosecution process becomes very important. This part will be explained in later chapters.

J. Customer Service

Customer Service has the most associated between the E-commerce platform and customers. From product Inquiry to the whole platform all need a proper customer service system. It is responsible the dialogue pipeline with customer. Solve the purchase, member account, returns and other issues. The traditional methods have E-mail and online form. There has the instant online customer service that is similar the plug-in instant messaging software embedded in the site. It lets customer service staff can be more immediate service for users. In this part, some platform will add the feedback mechanism in to the customer service. It will be able to reach a certain level of customer service.

III. DISCUSSION AND CONCLUSION

A. Discussion

The main structure of the consolidated chapter described only for basic functions and concepts. In fact, these are quite extensive in this text. Some of these features are listed in the discussion for the development and application of its direction in this chapter.

The first come the onboarding. Onboarding as a general platform for the product was added to the network. There are many web platforms to start uploading some different items, such as Taobao and Yahoo already onboarding lot of service on their platform. For example, we want to find a plumber to repair the toilet; we do not have to search the plumbing slowly as the traditional way. Just enter the location and it will show the most suitable plumbing base on location. This service not only save time, it also helps plumbing advertise. This is the next application about onboarding the service. Further courses are also able to upload. Multiple onboarding's concept speculated will become a trend. E-commerce driven by other industries and it becomes another business model.

Furthermore is the part of member management. This part is not only a member information management, it also combination of orders, billing, payment, feedback ratings, customer service, report, reward and other mechanisms. We can maintain these information easier at the same when maintaining the member account. Using account as the interface to connect all function and it can effectively improve the whole management efficiency. Most of the platforms have gradually taken this approach.

The third issue is report. How to plan a proper report process is also a major problem. It's very important to prevent those people with bad intention to disorderly when the platform opens to accept report. Some platforms will set a minimum threshold for the number of report. If it does not reach this threshold, then the report will be ignored. It also set up a complaints pipeline to avoid misjudgment of the situation. The following figure is a simple schematic flow.
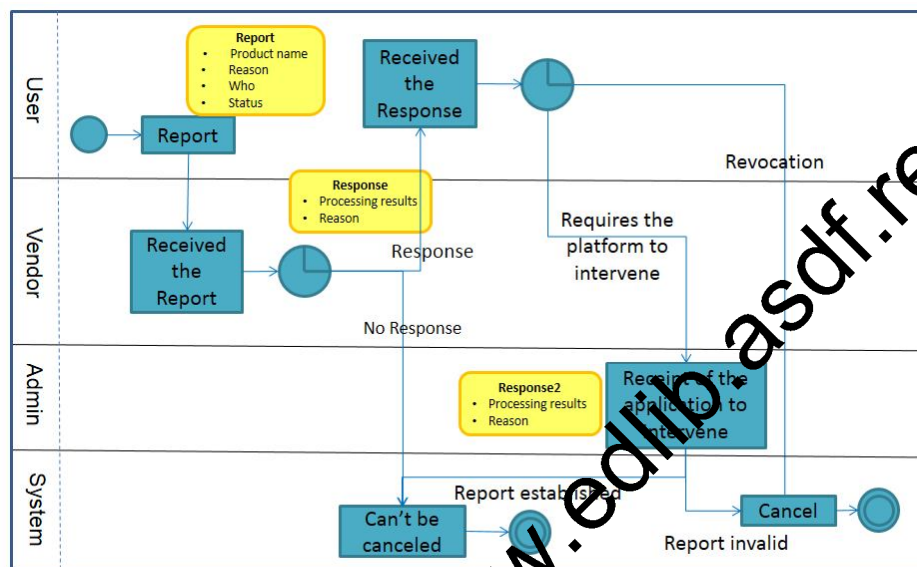
Figure 2. Example of report process

The other one is the topic of product search. It has a lot of knowledge and the need to spend a lot of effort to study. Search accuracy is often the focus of everyone, and the followed by the search speed. Currently the based approach is the use of word segmentation system first. Then it uses the key word detection technique to determine, and comparison the product name with database. Finally display the correct results and sort them. But usually the accuracy of word segmentation is very important and it needs good thesaurus to support. So sometime it will rely on big data technology. Combine big data and machine learning or artificial intelligence techniques to improve search accuracy.

The last one is about the whole E-commerce platform. In order to adapts the environment that changing rapidly. Most of stores seek corporate restructuring that base on web service. Therefore E-commerce platform needs to be more flexible and quickly applied to different areas [11]. We recommend made use of the concept of Small Systems Service (S3) [12]. Use S3 method can quickly build a suitable service platform. And it can quickly reuse the features that have high homogeneity. Finally it races the efficiency and speed about system builder.

B.   Conclusion

This study analyzes the essential function of the E-commerce platform, and lists the key features and to expand. Explain the basic concepts of each function and some process operations. Finally, the discussion section presents some of the key technical issues about the platform. This study also analysis of these issues in the future trend or direction as a reference.

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