

The Television Shopping Service Model Based on HD Interactive TV Platform

Mengke Yang^a and Jianqiu Zeng^b

Beijing University of Posts and Telecommunications, Beijing, China

^a 15201646681@139.com, ^b 13718688489@139.com

Abstract

With the rapid development of Internet and television technology, users are not satisfied with the "one-stop" integrated service, they put forward higher requirements in time and interactive function. HD(High Definition) interactive TV platform as an integrated service platform by means of the network, communication, and video technology, can supply highly personalized and interactive shopping service for users. This paper focus the television shopping service based on HD interactive TV platform, does the research on the influencing factors to evaluate the television shopping service on HD interactive TV platform and then it comes to the conclusion that product quality, product price, product payment security, product payment ways, high-quality logistics service and other factors can influent the television shopping service based on HD interactive TV platform. So HD Interactive TV Platform should carry out the series of strategies from the point view of service providers, payment platforms and logistics to improve the interactive service quality.

Keywords: *HD Interactive TV Platform; Television Shopping; Service Model; Service Evaluation*

1. Introduction

With the rapid development of Internet and television technology, users are not satisfied with the "one-stop" integrated service, they put forward higher requirements on the service process in time and interactive function. How to shorten the user's waiting time become the new challenges to the information service companies, and it leads to the birth of interactive information service.

In the field of information service, interactive exchange of information exists between the user and the information providers. With the wide application of network technology in the field of information service, interaction between the user and the information service is

gradually strengthened. Interactive online consulting, interactive information retrieval, personalized service, video on demand and interactive service more frequently occurred.

The change and development of user demand for network era decides that the service mode of TV media and other information service should be oriented by user needs open and interactive. The factors of television shopping service should be decisive. A high-definition interactive platform makes the high-definition interactive digital TV user to participate in, communicate with the communication and information providers, and realize real-time interactive information communication.

To sum up, HD interactive TV service is a service combines video compression, transmission, storage, multimedia computer and network communication technology which takes high-definition digital TV as medium, provides highly personalized and interactive HD video service for users. The user can achieve the function of VOD video on demand, TV commercials, TV, video games, TV education in high-definition digital TV platform through the use of TV set-top boxes. The structure of current HD Interactive TV Platform is shown in Figure 1.

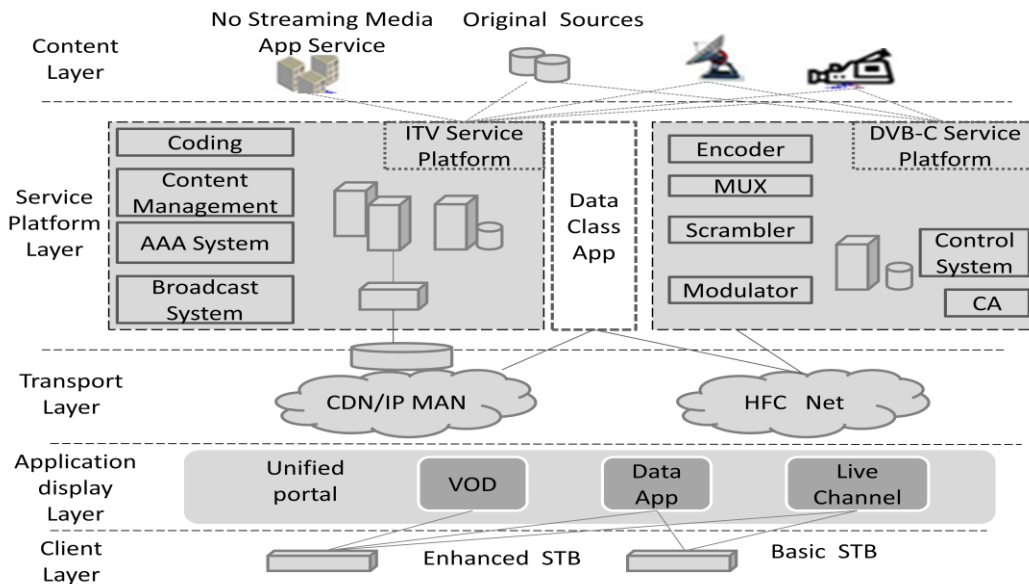


Figure 1. HD Interactive TV Platform

HD interactive platform is a service platform which provide commodity trading service based on HD interactive television, connect the upstream businesses and downstream users, and makes use of computer, network communication, and video technology. This paper focuses on the television shopping service model to explore the factors and evaluate HD interactive platform.

2. HD Interactive TV Shopping Platform

The HD interactive shopping platform makes HD-interactive digital TV as media, connects companies in upstream with user in downstream, and provides the goods trade service platform by using the computer, network communication, video technology. And digital home television shopping service mainly refers to that the users, service/information providers and electronic payment platform transfer information through interactive digital TV

platform; Cash flow flows from the user to electronic payment platform, and eventually to service/information provider, thus completing the whole transaction process.

TV shopping model is a marketing model without store connecting the media and the goods retailing. It conveys commodity information through TV, Internet and other channels, and consumers make order through TV, phone and accept distribution home service. HD interactive shopping model is a new model to realize the family shopping through the high definition television technology, and through the interactive way. (It shows in Figure 2)

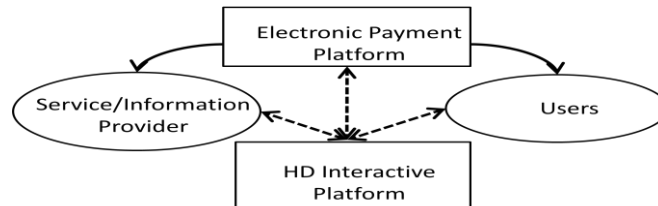


Figure 2. Participant's Relationship on the HD Interactive TV Platform

According to the above service model, the main bodies involved in the HD interactive platform construction evaluation model in this paper mainly include:

Users: As customers on the HD interactive Digital TV Platform, users mainly complete activities such as receiving information, information retrieval, payment and so on.

Electronic Payment Platform: Electronic Payment Platform is an online payment system set up by each big banks and other financial institutions. It establishes a connection with B2B platform, and provides support services such as online payments, cash flow, fund settlement, the inquiry statistics, etc.

Service/Information Provider: As service/information provider of the HD interactive Digital TV Platform, they complete service/information release, sales and other activities through the HD interactive Digital TV Platform.

3. The Service Model Based on HD Interactive TV Platform

3.1 The Influence Factors of Television Shopping Service based on HD Interactive TV Platform

This paper put forward the concrete assumption which may affect the users' evaluation, and then sums up the influence factors of users' service evaluation and build the basis of service evaluation index system and a scientific and rational evaluation of service model through conducting a questionnaire survey and analyzing data by SPSS.

Product ordering. When users ordering products in high-definition interactive platform, ordering service may affect users' evaluation in many ways of high-definition interactive platform .First of all, ordering interface is clear, including that the specific number, order goods prices and other tips are clearly displayed; secondly, the ordering process is efficient and convenient and the interface is easy to understand and easy to operate; lastly, the function should be very human, for example, related products, VOIP telephone enquiring, 24 hours the product order etc are all factors which may have influence.

Product payment. Payment security, paying approaches diversity, payment technique support and others can affect users 'evaluation in the HD interactive platform .Specifically, payment security includes high-definition interactive digital television payment platform is to

ensure users' safety. The diversity of paying approaches refers to that user can choose convenient payment channels according to their own needs , including cash on delivery, POS payment, bank payment. Payment technique support includes whether interface design payment is humanity, whether the payment confirmation is clear; it also includes the simple payment process, easy operation, and stable, rapid and corresponding payment system.

Logistics and distribution. In the evaluation of logistics and distribution service, there are three factors including logistics and distribution service, logistics service standard and logistics cost. Specifically, the logistics and distribution service selection refers to the high-definition interactive platform which can choose the delivery time, the delivery address, delivery mode etc. Logistics and distribution service standards refers to the attendant service attitude, delivery timeliness, packet loss rate, commodity goods and commodity packing damage rate, commodity packaging privacy, distribution process accident information. Logistics cost includes distribution costs which is based on the user distribution range, the weight of the commodity and other factors.

3.2. The Service Evaluation System of HD Interactive Platform

According to this study, the influencing factors of family shopping based on the model are divided into three categories, as shown in Figure 3:

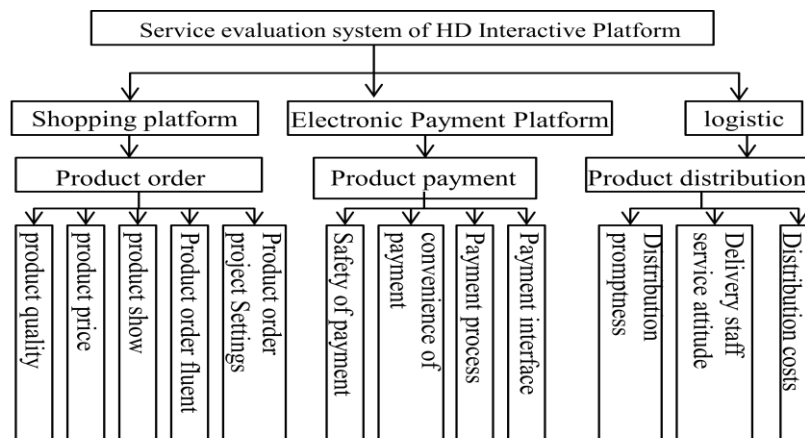


Figure 3. Service Evaluation Index System of HD-interactive Platform

As is shown in Figure 3, there are 13 impact factors which can evaluate the service of HD-interactive Platform. Firstly, the product order project setting, product order fluent, product show, product price and product quality are the five important factors which can evaluate the proceeding of the product order; Secondly, the payment interface, payment process, convenience of payment and the safety of payment are the four important factors influencing the product payment. Thirdly, there are three major factors influencing the product distribution of the platform, which are the distribution costs, delivery staff service attitude and the distribution promptness. And then this paper put forward the research hypothesis of service model based on HD interactive platform, which is shown in Table 1:

Table 1. The Research Hypothesis of Service Model

Serial Number	The research hypothesis
H1	Positive correlation between reliable product quality and customer service evaluation
H2	Positive correlation between preferential price and customer service evaluation.
H3	Positive correlation between the trusted product exhibition and customer service evaluation.
H4	Positive correlation between smooth product display and customer service evaluation.
H5	Positive correlation between clear product order interface and customer service evaluation.
H6	Positive correlation between convenient and efficient ordering products and customer service evaluation.
H7	Positive correlation between humanized product ordering function and customer service evaluation.
H8	Positive correlation between safety products payment and customer service evaluation.
H9	Positive correlation between diversified product payment way and customer service evaluation.
H10	Positive correlation between clear product payment interface and customer service evaluation.
H11	Positive correlation between convenient product payment process and customer service evaluation.
H12	Positive correlation between payment system stability and customer service evaluation.
H13	Positive correlation between logistics and distribution options and customer service evaluation.
H14	Positive correlation between high quality logistics and distribution services and customer service evaluation.
H15	Negative correlation between logistics cost and customer service evaluation.

3.3. Model Validation

In this paper, the final eleven variables are used to study the influencing factors of high-definition interactive platform which is based on service through three steps.

Step 1: Since the definition interactive digital home shopping services and Internet e-commerce, traditional TV shopping has some relevance and similarity, we form the preliminary measurement items according to the evaluation factors of traditional TV shopping by drawing on previous research, each variable measurement adopts from 5 level Likert scale.

Step 2: Before the formal large-scale questionnaire, this study conducted a pre investigation in small range, and we have a talk with the professional who knows the

high-definition interactive platform, and then we provide the basis for the correction and improvement of measurement items.

Step 3: Fixing ambiguity or express ambiguity may questionnaire items by small scale and investigation, such as the problem is difficult to understand, coil a language is too long, not on the questionnaire to clear, and a preliminary exploratory factor analysis to remove inappropriate items. Exploring analysis which is using principal component analysis, and using the Varimax for factor matrix rotation, then we are in accordance with principle that the factor of Cranach 's alpha value not less than 0.5 and the characteristic value is greater than 1 to extract the common factor. In the factor analysis, the original15 questionnaires is add to 48 measurement items, from the variables X5, X10 and X15, we deleted 3 unqualified measuring project after adjusting . As shown in the following table, the factor loading the latent variables are greater than 0.7, internal consistency index is more than 0.7.

Table 2. The Results of the Variables Explored Factor

Variables and measurement items	Factor in accordance	α
X1 Reliable product quality		0.9361
(1) Purchasing products by the high-definition interactive platform is without fake	0.962	
(2) Purchasing products by the high-definition interactive platform is without no defect	0.957	
(3) Products' quality problems can timely return	0.954	
X2 Preferential price		0.8684
(4) Compared to other electronic commerce channels, high-definition interactive platform provides products at lower prices	0.925	
(5) Promotion is satisfied	0.851	
X3 Product display authentic		0.8215
(6) Product appearance is same as display image	0.804	
(7) The performance quality products is not exaggerate	0.832	
X4 Clear product display		0.7942
(8) Product display is clear	0.764	
(9) Product display can fully show the product information	0.773	
X5 Order the clear interface		0.7481
(10) When you ordering goods, merchandise selection and quantity is convenient operation	0.743	
(11) The order of the goods amount, number and other information is clear	0.851	
(12) Changing order is a simple operation	0.736	
(13) The history of the order convenient query is showed clear	0.714	
X6 Ordering is a convenient and efficient process		0.8341
(14) The ordering process is a simple, convenient and quick operation	0.693	
(15) If the numbers of system error is too many, it will give up the order	0.702	

(16) Order processing in a timely and efficient manner	0.741	
X7 Ordering function has an user-friendly settings		0.7584
(17) Ordering goods in 24 hours	0.823	
(18) The system will promote related products or facilities according to the purchase of the product	0.859	
(19) In order to confirm the product before, it will give a phone call to ask detailed product information	0.762	
X8 The security of payment		0.8023
(20)Payment platform has high security, it can guarantee the security of user accounts	0.903	
(21) Consumers' information and personal information will not be leaked	0.866	
(22)The user payment is required by the safety certification	0.765	
X9 The diversification of means of payment		0.9017
(23) The platform can support the installment payment, cash on delivery payment	0.711	
(24) Bank which is supported by the platform is used wildly	0.713	
(25)Using the terminal POS machines is safe and convenient		
X10 Payment clear interface		0.8541
(26) To set the default account on the payment platform	0.724	
(27) When paying, the amount of the payment and account balance information are showed clear	0.753	
(28) After the completion of payment, payment information and the account balance information are all showed clear	0.748	
X11 Convenient and efficient payment process		0.7463
(29) The payment process is a convenient and efficient, simple operation	0.866	
(30) The refund process is a convenient and efficient, simple operation	0.792	
(31) Changing the default account process is a convenient and efficient, simple operation	0.726	
X12 Payment system is stable and smooth		0.7910
(32) Multiple payment system error will lead to abandon the purchase	0.921	
(33) Repeating change information system error will lead to abandon the purchase	0.869	
(34) Payment platform, timely response	0.855	
X13 Logistics distribution selection diversity		0.8169
(35) Choosing self delivery, platform party free logistics, third party logistics distribution mode	0.765	
(36)Choosing the delivery time, location, contact address, consignee by yourself	0.801	
(37) The platform can save the user common information, such as contacts, delivery address, consignee, and set as default	0.726	
(38)Changing the delivery address and the way to contact is	0.714	

convenience and high efficiency		
X14 Logistics service quality		0.8005
(39) If the packet loss, users of platform service would be effected	0.929	
(40) If the goods damaged, users of platform service would be effected	0.903	
(41) The distribution of staff good service attitude	0.867	
(42) Good packaging	0.749	
(43) Timely delivery	0.871	
(44) To track the delivery schedule, delivery way accidents timely contact with the client	0.729	
X15 Logistics and distribution costs		0.7628
(45) When the distribution cost is higher than the average level, it will reduce the quantity of users of the platform service	0.701	

By using questionnaires to collect data, this study attests those hypotheses through factor analysis and it proves that the research hypothesis of service model based on HD interactive platform is valid. The relationship among the main participants forms a service model based on the HD-interactive Digital TV Platform and the main bodies involved in the HD-interactive platform that is a construction of service evaluation due to mechanism of HD-Interactive Platform's Service Evaluation Model has been set up. It is a new model to provide the home shopping directly and realize economic objectives for operators.

4. Conclusions

Through the research of service model based on HD interactive platform, we have come to the conclusion that there are several factors influencing the HD interactive television shopping service including product quality, product price, product ordering process, payment safety, product diversity payment, product payment process, payment system, logistics service quality, logistics costs and so on.

Based on the service evaluation model, this paper put forward several innovative strategies from the point view of information / service providers, payment platforms and logistics.

On HD interactive TV shopping platform, the relationship between the various providers is simultaneously co-exist with some competition, but the overall aim is to provide services to consumers and to create value. Meanwhile, the user and the provider should form a good partnership, and a good and harmonious cooperation can lead to the formation of a benign economic environment. On the other hand, since service provider's value come directly from the demand of users, it means to quickly capture the user's needs and feedback for the whole platform for both providers have a positive effect.

HD interactive TV shopping platform should pay attention to ensure the security of payment platform and user account security, make consume information and personal information not be leaked in the whole process. At the same time, user demand for payment diversity requires payment platform able to support installments, cash on delivery payment, and use the POS terminal paid in cash.

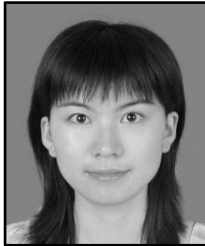
Logistics is a part in direct contact with the users and its sensory evaluation of the user is the most direct, so for the entire service evaluation model, the logistics is a very important part of it. The platform should assure that the distribution time, consignee, contact information and address should be chosen freely. The real-time monitoring of the distribution

process, the loss compensation mechanism and so on is also necessary. Convenience is arguably one of the basic requirements for logistics. If the logistics speed can be higher than the average level of logistics, the user will get a higher rating.

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Authors



Mengke Yang, she is A Ph.D. Student of College of Economics & Management in Beijing University of Posts and Telecommunications, has been involved in the research of information technology management ,enterprise growth and competitive for years .



Jianqiu Zeng, he is a graduated as a Doctor from University of Cambridge, is now a professor of College of Economics & Management in Beijing University of Posts and Telecommunications. He has been involved in the research of technical and economic management, competition ability and strategy for about 30 years, and published more than 10 books like “Globalization and Competitiveness in the Telecom Industry” and 116 papers on International Journals.