

# Critical Success Factors for Online C2C Auction Websites – A Consumer’s Perspective

Yu-Lung Wu<sup>1</sup>, Yu-Hui Tao<sup>2</sup>, Tien-Chin Wang<sup>3</sup>

<sup>1,3</sup>Department of Information Management

I-Shou University: ISU94-01-13

No.1, Sec 1, Syuecheng Rd., Dashu Township Kaohsiung County 840

<sup>2</sup>Department of Information Management

National University of Kaohsiung

Kaohsiung (833, Taiwan)

Due to the rapid growth in broadband Internet usage, online auction becoming a popular e-business model along market changes from the rigid traditional business transaction environment. In order to identify critical factors for succeeding in the future competitive market for the auction intermediary, this study adopted the Information, Communication, Distribution and Transaction (ICDT) model as a framework to collect important variables of Taiwan’s online auction Websites via the method of content analysis. Then, a questionnaire survey was conducted to customer-to-customer online auction consumers for identifying critical success factors and gauging their perception differences with the auction Websites. The results indicate that consumers cared the most on “trade safety”, “governance and order”, “reputation and scale”, “communication channel”, “information search”, “transaction process” and “copious information”. The impacts of consumer profile, Web behavior and shopping experiences and categories of auction items on these factors are also discussed with the implications.

Keywords: Online Auction, Auction Website, Critical Success Factors, ICDT Model

## 1 Introduction

As the Internet grows rapidly, traditional transaction mechanisms like auctions have been migrating to the online world [4]. Online auction allows direct interaction between buyers and sellers, and provides the users with options of almost all kinds of products [1, 12]. With the increasing popularity, online auction websites have been widely established due to the low entry barrier, which causes some concerns on service quality. However, it is critical to provide satisfactory services for consumers in online auction because the service applications will affect the user’s loyalty directly [4, 12].

This study investigates the characteristics of online auction websites and consumer’s perception for identifying the service items respected the most by users. Furthermore, understanding the relationship between consumer’s profile and website services can help website owners to develop better operational strategies and service contents. The remaining paper is organized as follows: online auction introduction and type are first introduced with the analysis model for auction services. Next, the research methodology, including the framework, sample, questionnaire and measurement are presented. Finally, the data and

analysis are then discussed, followed by conclusions and implications.

## 2 Background Review

### 2.1 Online Auction

An auction is “a market institution with an explicit set of rules determining resource allocation and prices on the basis of bids from the market participants” [11]. For sellers, the benefits of auctions consist of access to an international customer base to sell merchandise quickly, easily, at low cost and sometimes premium prices. Even old, damaged, returned, or refurbished merchandise can be traded. Furthermore, new markets are establishing and the company’s customer base can be enlarged [4]. For buyers, online auctions represent 24-hour availability seven days a week, instant gratification and interactivity [9].

Studies have summarizes the auction types in each category, including sealed-bid auctions, sealed double auction and open auction [3, 5]. The auction websites can be categorized to three business models from a consumer’s perspective, which includes B2B (Business to Business), B2C (Business to Customer),

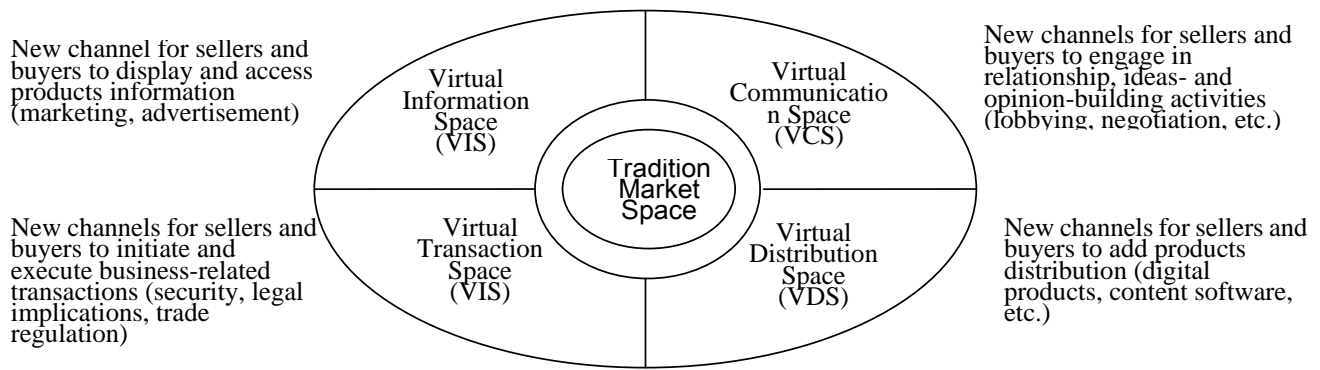


Fig. 1: ICDT model [2]

and C2C (Customer to Customer), and the last kind is more popular [3, 10].

Based on the above business models of auction websites, this study attempts to identify the critical success factors in operating a C2C auction Website in Taiwan.

### 2.2 ICDT Model

Angehrn [2] proposed an ICDT model as shown in Figure 1, which is intended to be used to deploy strategies and procedures for the industries, redesign the business activities, and develop new products and services. The ICDT model takes its name from the segmentation of the space of new business opportunities created by the Internet into four “Virtual Spaces”, including “Visual Information Space (VIS)”, “Virtual Communication Space (VCS)”, “Virtual Distribution Space (VDS)”, and “Virtual Transaction Space (VTS)”.

These segmentations emphasize that Internet has extended the traditional market space by providing new spaces in which economic agents can interact by exchanging information, communicating distributing, different types of products and services, and initiating formal business transactions. This research adopts this model to collect important variables emphasized by auction website consumers.

## 3 Methodology

### 3.1 Research Framework

The complete research framework is depicted as in Figure 2. For understanding the current status of online auction market in Taiwan, this study first collects important variables emphasized by auction Websites from the literature, in which the four segments in ICDT model are used as a framework for the method of content analysis. The coding and recording tasks will be performed by three graduate students majoring in Information Management independently. The stability between the three scores by three independent students is tested by test-retest method of Budd et al. [7].

Based on these collected variables, a questionnaire is then designed and a survey to C2C consumers is conducted on these key variables they regard. With the available questionnaire data, exploratory factor analysis is used to reduce these variables to fewer but critical factors, which is also easier to be analyzed later.

Finally, the hypotheses, as described in section 3.2, regarding the relationships between these new factors and user profile, Web behavior and shopping experiences, and categories of item preference are tested via the method of analysis of variance (ANOVA).

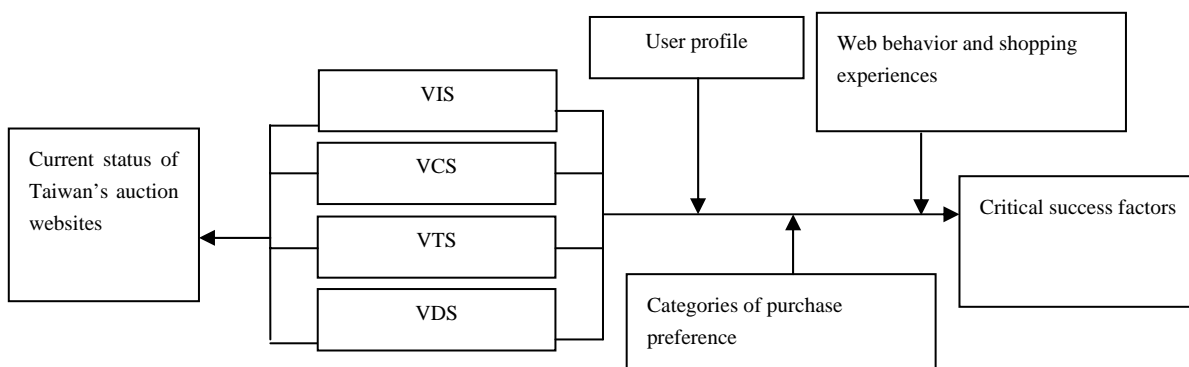


Figure 2: Research Framework

### 3.2 Research Hypotheses and Questionnaire

Thirteen traditional Taiwan’s auction Websites were investigated in this study, All of them have registered at more than one portal site, and are being updated regularly for providing appropriate online auction functionalities. They were classified into B2C, C2C, and hybrid according to their business model. Three belong to B2C, seven belong to B2B, and three belong to the hybrid model.

As seen in Table 1, 37 variables concerned by users in the literature were identified and classified into four segments of ICDT model (VIS, VCS, VTS, and VDS). The coding and recording produced were performed by 3 graduate students independently, whose stability was calculated to a value greater than 0.85. This large standard reliability coefficient demonstrates a good reliability of the coding task.

Due to the C2C model is more popular than others, this study aims at collecting information of the users with C2C auction experience. The data collection is conducted via a questionnaire with three categories of hypotheses as described below:

H1: User profile has no significant impact on the auction website factors.

H2: Web behavior and shopping experiences have no significant on the auction website factors.

H3: Categories of purchase preference has no significant impact on the auction website factors.

A questionnaire based on the above hypotheses and variables is designed accordingly to collect consumer data. The questionnaire adopts a five-point Likert-type scale on the questions, ranging from the lowest 1 to the highest 5.

Table 1: Variables of ICDT Segments

Segment	No.	Variable	Average	SD	Segment	No.	Variable	Average	SD	
VIS	1	Good brand reputation	4.42	0.90	VCS	19	Providing feedback evaluation mechanism	4.41	0.84	
	2	Great many auction items	4.54	0.82		20	Community-like discussion board available	3.60	1.06	
	3	Good category of auction items	4.40	0.87		21	Noticing the circumstance of bidding or alteration	4.34	0.86	
	4	Clear service definition	4.14	0.99		22	Automatic bidding agent	4.03	0.95	
	5	Good navigation for new users	3.93	1.07		23	FAQ	4.29	0.89	
	6	Neat and friendly interface	4.31	0.85		24	Offering alternative service channels to Website	4.23	0.85	
	7	Detailed specification of auction items	4.47	0.79		25	Offering interacting channels for buyers and sellers	4.44	0.85	
	8	Copious information	3.81	1.05	VTS	26	Security mechanism available	4.69	0.78	
	9	Easy listing and bidding processes	4.45	0.79		27	Becoming a member before trading	4.51	0.81	
	10	Many search methods available	4.45	0.84		28	Stringent member identification	4.50	0.81	
	11	Offering introduction of personal homepage	4.08	0.92		29	Providing several payment methods	4.47	0.78	
	12	Offering personal auction account management	4.39	0.84		30	Assisting in resolving the fraud cases	4.69	0.78	
	13	Announcing abuse behavior	4.43	0.86		31	Auction with free insurance	4.63	0.83	
	14	Announcing privacy property	4.42	0.92		32	Declaring illegal auction types	4.24	1.01	
	15	Smooth and fast registration processes	4.11	0.94		33	Ensuring the payment received by the sellers	3.97	0.97	
	16	Regular promotion activities	3.65	1.13		VDS	34	Providing delivery area	3.83	1.00
	17	Limited and commemorative goods available	3.30	1.13			35	Offering delivery by Website via third parties	4.24	0.92
	18	Adverting through mass media	3.24	1.11	36		Providing several delivery methods	4.44	0.82	
				37	Assisting in solving the delivery dispute regarding		4.46	0.93		

### 4 Result

The study used the format of interactive online questionnaire to collect consumer data. The call-for-volunteer was posted to major auction and BBS sites, and sent out via email forwarding method. There were a total of 295 responses received. After taking out the invalid responses, including non C2C consumers, 195 valid responses remained, which gives a good case-to-variable ratio (195:37□5.27:1) greater than the suggested rule of thumb ratio of 5:1 by Hair et al. [8].

The averages and standard deviations corresponding to the factors are displayed in 37 variables. Most factors averages are over 4 out of the maximum value of 5, which strongly supports the importance of these factors to the subjects.

Before entering the factor analysis, Kaiser-Meyer-Olkin(KMO) test for sampling adequacy and Bartlett’s test for sphericity were used to examine the suitability of selected adoption variables for the factor analysis [6]. We used the principal components analysis with Varimax rotation method, which extracted the factors with original eigenvalue greater than 1. The study were total 7 factors extracted, which explained 66.461% of the accumulated variance. No variables was removed since the factor loadings are all greater than 0.3, We renamed these seven factors based on the joint-variable characteristics as much as possible, and the new factors-to-variables are displayed in Table 2.

We can also see that the overall reliability of these seven factors at a high level of 0.9582.

With the factors identified, we used analysis of variance (ANOVA) method to examine the relationship between user profile and these seven factors. These complete results of the hypotheses testing are displayed in Table 3.

### 5 Conclusion

This study investigated Taiwan’s C2C auction websites for understanding consumer’s perceptions on the critical success factors in operating an auction website. Base on the ICDT model was used to accommodate variables emphasized by users in the literature, in which these 37 variables were further reduced to seven critical factors using the exploratory factor analysis method. These critical success factors are trade safety, governance and order, reputation and scale, communication channel, search method, trading procedure and copious information. The implication for the C2C auction management is to provide a safety environment with quality services in order to build its reputation and maintain a large number of auction items, which help to minimize the uncertainties and risks in the future competitive market.

Among the user profile items, only gender, degree and living area have partial significant impacts on these critical factors. This implies the auction management should focus members’ gender, degree and living area more than the age, vocation and salary for developing personalized strategies to these consumers.

Table 2: Names and profile of the seven factors

Factor	No.	Segment	Average	SD	Reliability	Factor	No.	Segment	Average	SD	Reliability
Trade safety	26	VTS	4.5374	0.705	0.8802	Communication channel	24	VCS	4.3179	0.6249	0.8467
	30	VTS					28	VTS			
	31	VTS					21	VCS			
	37	VDS					22	VCS			
	32	VTS					23	VCS			
Copious information	16	VIS	3.6145	0.8066	0.8497	Governance and order	12	VCS	4.4188	0.7534	0.8245
	17	VIS					13	VIS			
	18	VIS					14	VIS			
	20	VCS					19	VCS			
	8	VIS									
Search method	4	VIS	4.2838	0.7198	0.8808	Reputation and scale	2	VIS	4.3936	0.6560	0.7489
	5	VIS					27	VTS			
	3	VIS					1	VIS			
	6	VIS					15	VIS			
	10	VIS									
Trading procedure	35	VDS	4.2325	0.679	0.8608	Overall reliability					0.9582
	34	VDS									
	36	VDS									
	33	VTS									
	9	VIS									
29	VTS										

Table 3: Results of hypotheses testing

Research Hypotheses	Outcome
<b>H1: User profile has no significant impact on the auction website factors.</b>	
H1-1: User's gender has no significant impact on the auction website factors.	Partially Accepted
H1-2: User's age has no significant impact on the auction website factors.	Accepted
H1-3: User's vocation has no significant impact on the auction website factors.	Accepted
H1-4: User's salary has no significant impact on the auction website factors.	Accepted
H1-5: User's degree has no significant impact on the auction website factors.	Partially Accepted
H1-6: User's living area has no significant impact on the auction website factors.	Partially Accepted
<b>H2: Web behavior and shopping experiences have no significant on the auction website factors.</b>	
H2-1: History of internet usage has no significant impact on the auction website factors.	Partially Accepted
H2-2: Frequency of daily usage has no significant impact on the auction website factors.	Partially Accepted
H2-3: Frequency of online auction usage has no significant impact on the auction website factors.	Accepted
H2-4: Average daily hours of online auction usage has no significant impact on the auction website factors.	Partially Accepted
H2-5: Number of successful trading has no significant impact on the auction website factors.	Partially Accepted
H2-6: Average purchasing price on online auction items has no significant impact on the auction website factors.	Rejected
H2-7: Intention for future purchases has no significant impact on the auction website factors.	Partially Accepted
<b>H3 : Categories of purchase preference has no significant impact on the auction website factors</b>	
H3-1: Purchase preference on new or used item has no significant impact on the auction website factors.	Partially Accepted
H3-2: Purchase preference on item purpose has no significant impact on the auction website factors.	Partially Accepted
H3-3: Purchase preference on item category" has no significant impact on the auction website factors.	Partially Accepted

Based on the results of the relationship between Web behavior and shopping experiences and these critical factors, expect "average purchase price", all other have significant influence on certain critical factors. It implies that auction management needs to focus more on customizing contents and services for users with different needs since they probably would purchase anything worth buying since the price is the least to concern. This is an interesting finding since it also matches the insignificant profile item - salary. Further insightful investigation could be conducted on this price issue.

For the purchase preference, both the categories on the new or used items and the item category have partial impacts on the critical factors. In other words, the consumer's intention in using the auction item is not important compared to their preferences on item's condition (new or level of used) and category of items. This implies the auction Website need to discover members' purchase preferences from the transaction database for customized recommendation and description of the auction category and item.

As stated before, consumer's loyalty and trust needed to be maintained via good service quality based on their demands and needs. The results of this study may help C2C auction Websites to deploy appropriate strategies and services to their customers in the competitive market.

References:

[1] Choi, S. Y. and Stahl, D. O. and Whinston, A. B., The Economics of Electronic Commerce, Indianapolis: Macmillan.,1997  
 [2] Angehrn, A., "Designing mature internet business strategies: The ICDT Model," *European*

*Management Journal*, Vol. 15, No. 4, 1997, pp. 361-369.  
 [3] Beam, C., and Segev, A., , "Auctions on the Internet: A field study." Working Paper 98-WP-1032, 1998  
 [4] Becherer, R. C. and Diane, H., "Characteristics and internet marketing strategies of online auction sellers," *International Journal Marketing and Advertising*, Vol. 1, No. 1, 2004, pp. 24-37.  
 [5] Bichler, M. and Segev, A., "A brokerage framework for Internet commerce," CMIT Working Paper 98-WP-1031, 1998.  
 [6] Bryman, A., *Research Methods Organizational Studies*, Unwin Hyman, London. 1989.  
 [7] Budd, R.W., Thorp, R.K. and Donohew, L., *Content Analysis of Communication*, New York: The Macmillan Co. 1967.  
 [8] Hair, J. F. Jr., Anderson, R. E., Tatham, R. L. and Black, W. G., *Multivariate Data Analysis*, 5th Eds, London, UK: Prentice-Hall International. 1998.  
 [9] Hoffman, D. L. and Novak, T. P., "Marketing in hypermedia computer-mediated environments: Conceptual foundations," *Journal of Marketing*, Vol. 60, No. 3, 1996, pp. 50-68.  
 [10] Klein, S. and Robert, M. O., "The impact of the Web on auction: some empirical evidence and theoretical consideration," *International Journal of EC*, Spring, Vol. 3, No. 3, 1998, pp. 7-20.  
 [11] McAfee, P. and McMillan, J., "Auctions and bidding," *Journal of Economic Literature*, Vol. 25, 1987, pp. 669- 738.  
 [12] Wang, K. E., Wang, T.-G. and Tai, C.-F., "A study of online auction sites in Taiwan: Product, auction rule, and trading type," *International Journal of Information Management*, Vol. 22, 2002, pp. 127-142