# A New Model for Measuring Customer Utility Trust in Online Auctions

El-Sayed M. El-Kenawy
Communications and Electronics Engineering Department
Delta Higher Institute for Engineering & Technology, Talkha 35111, Egypt

Marwa Eid
Communications and Electronics Engineering Department
Delta Higher Institute for Engineering & Technology, Talkha 35111, Egypt

Alshimaa H. Ismail
Communications and Electronics Engineering Department
Delta Higher Institute for Engineering & Technology, Talkha 35111, Egypt

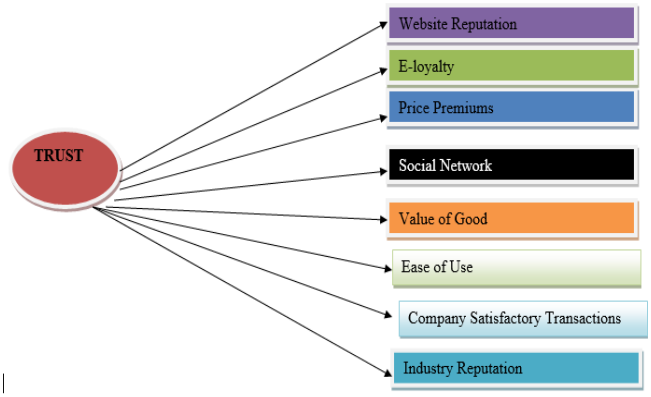
## ABSTRACT
Reports from the US Federal Bureau of investigation have indicated a lot of unethical activities taking place on the internet environments. Despite some technical challenges, ethical related complaints have elicited studies on trust in online commercial transactions like auctioneering. By looking closely on issues that are related to online trust, this study has developed a model that can be used to ascertain trust levels in various websites. The trust issues taken into consideration are Industry Reputation (Ri), Website Reputation (Wi), E-loyalty (Le), Price Premiums (Pp), Social Network (Sn), Value of Good (Vg), Ease of Use (Eu) and Company Satisfactory Transactions (St). In this respect, the level of trust in an auctioneering website has been equated to one's utility. Presumably, if one derives satisfaction from more goods at the company, it is evident that his trust level will be higher. The model has been found to be of good reliability and validity in measuring trust levels in a survey in this study.

## Keywords
Trust model Social networks, Online Auctions, Fraud

## 1. INTRODUCTION
Despite the fact that many sales by auctions are now being done online, by millions of internets users around the globe, there have been no literature that offer a precise understanding on how trust in the online auctions can be [1,2] Although online auctioneering has been dynamic in business-to-business (B2B) business-to-consumer (B2C) and consumer-to-consumer (C2C) models, most literatures have reduced parties involved into two: the seller and the buyer [3,4]

According to [5] online auction has been seen to benefit many vendors and buyers because it saves time, reduces the number of suppliers, standardizes the sourcing process, helps the organization to standardize contractual terms and conditions and ensures that both sellers and buyers transact at competitive prices. However, limitations such as possibility of fraud, limited participation, security, long cycle time and monitoring time have seen the participants distrusting some auctioneering websites. Trust has been defined as the general relationship that arises as a result of opinions or held attitudes towards others [6, 7,8].

## 2. FACTORS AFFECTING TRUST
Website Reputation: It has been evident that what auction participants think about the Auction Website's performance could be a source of trust or distrust [8]. Industry reputation: Collective information regarding the reputation of various players in a certain auction industry would affect the trust that people accord to a certain website [9].




**Figur1. The Formal Framework of the Trust Model**

E-loyalty: The trust of participating in online auction deals is also determined by a person's loyalty or trust in the general web transactions [10,11].

Price Premiums: Increases of prices of a product from the time a new bid is done will improve a website's rating [12,13].

Ease of use: the level of one's shopping enjoyment as marked by the ease of use will determine the trust a person will have in the online shopping [14,15].

Social networks and reference persons: Participant social networks and reference groups have been said to build the reputation of an auction [16, 17,18]

Satisfactory transactions: the online auctions. Satisfactory transactions are the main driving forces behind customer trust and loyalty [19, 20].

Value of good: The quality of the product, if bidders view a product with higher prices, they would think of a more profitable organization [21,22,23]. These factors are shown in Figure 1.

## 3. FIGURES/CAPTIONS
In a survey to experiment the implementation of this model, participants from Microhard's Online Auction were chosen for a discussion about their experience during online auctions with the company. A preliminary online chat with the thirty choices was done to learn if they potentially fitted the needs for the survey such as online auction experience, time spent on the internet, social networks and units of goods bought. Twenty individuals from those contacted took part in the survey by responding to the Company's online questionnaire. The results were as table 1 show.

| **Customer** | **Utility (Units bought)** | **Industry Reputation (*Cp-Cn/Cp*)** | **Website Reputation (*Cp-Cn/Cp*)** | **E-loyalty (years spent on internet auction)** | **Price Premiums (profit levels of auctions)** | **Social Network (*average number of referrals*)** | **Value of Good (*average price*)** | **Ease of Use (*minutes to complete one transaction*)** | **Company Satisfactory Transactions (*undisputed transactions*)** |
|---|---|---|---|---|---|---|---|---|---|
| **1** | 100 | 10 | 100 | 2 | 300 | 1 | 1000 | 40 | 40 |
| **2** | 120 | 12 | 120 | 3 | 330 | 2 | 1500 | 35 | 40 |
| **3** | 95 | 9.5 | 95 | 2 | 290 | 1 | 980 | 40 | 40 |
| **4** | 200 | 20 | 210 | 5 | 350 | 5 | 2100 | 25 | 40 |
| **5** | 122 | 12 | 120 | 2.5 | 300 | 3 | 1020 | 33 | 40 |
| **6** | 150 | 15 | 140 | 4 | 400 | 6 | 1600 | 30 | 40 |
| **7** | 100 | 10 | 110 | 2 | 300 | 2 | 1000 | 39 | 40 |
| **8** | 80 | 7.5 | 80 | 1 | 280 | 1 | 850 | 45 | 40 |
| **9** | 98 | 10 | 100 | 1 | 300 | 1 | 1000 | 42 | 40 |
| **10** | 145 | 15 | 145 | 5 | 400 | 5 | 1500 | 31 | 40 |
| **11** | 244 | 24.2 | 243.6 | 8 | 450 | 8 | 2400 | 20 | 40 |
| **12** | 234 | 20.9 | 239 | 7.7 | 435 | 7 | 2350 | 20 | 40 |
| **13** | 216 | 22 | 220 | 6.7 | 316 | 7 | 2170 | 24 | 40 |
| **14** | 216 | 21 | 230 | 7 | 413 | 9 | 2380 | 10 | 40 |
| **15** | 422 | 40 | 410 | 11 | 810 | 15 | 4000 | 12 | 40 |
| **16** | 287 | 28 | 270 | 9 | 490 | 10 | 2920 | 18 | 40 |
| **17** | 385 | 38 | 380 | 10 | 500 | 13 | 3700 | 12 | 40 |
| **18** | 367 | 37 | 400 | 10 | 500 | 12 | 3590 | 13 | 40 |
| **19** | 290 | 28 | 300 | 12 | 480 | 12 | 2860 | 14 | 40 |
| **20** | 316 | 30 | 320 | 11 | 490 | 13 | 3090 | 13 | 40 |
| **Averages** | 209.4 | 20.5 | 211.6 | 6 | 406.7 | 6.65 | 2100.5 | 25.8 | 40 |

From the results shown in table 1, the model for the nominal utility is as follows:

*U= -25.707+5.379 Ri+ 0.245 Wi +0.975Le + 0.053 Pp + 0.676Sn + 0.016Vg+0.295 Eu +0 St + 0ε*

However, for one to get the real utility, Û, he must adjust the nominal utility, U, with the enduring trustworthiness, θ. Suppose that the exogenous θ = V2 the enduring real utility Û.

**Consideration of the Results of the Above Experiment**

**Individual customer Utility or trust in the Company**

The Nominal utility for the first customer;

*U= -25.707+5.379 (10)+ 0.245 (100) +0.975(2) + 0.053 (300) + 0.676(1) + 0.016(1000)+0.295 (40) +0(40) =98.909*

Suppose the enduring vector of company trustworthiness V2= 0.64 0r 0.82, the real utility, and thus the real level of customer's trust will be:

0.64(98.909) = 63.30176 units of goods.

His utility or trust in the Company's goods will be maximized when

*δ 2Û / δV2=0*

*Thus 2(98.909) = 197.818 units*

Average customer utility in the Company

*U= -25.707+5.379 (20.5)+ 0.245 (211.6) +0.975(6) + 0.053 (406.7) + 0.676(6.65) + 0.016(2100.5)+0.295 (25.8) +0(40) =209.524*

Since the vector of company trustworthiness V2= 0.64 0r 0.82 the real average utility will be

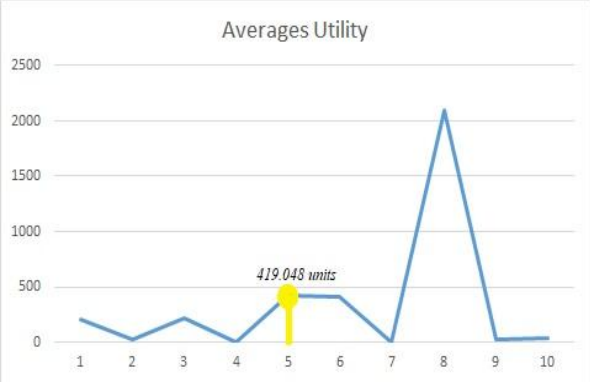
*0.64(209.524) = 134.09536*

However, it will be maximized at δ 2Û / δV2=0

*Û = V2 (209.524)*

*δ 2Û / δV2=2(209.524) =419.048 units*

Thus, the company average utility or trust will be maximized when its average customer utility reaches 419.048 units of goods sold. As shown in figure 2




**Figur2. Average Customer Utility Units**

## 4. CONCLUSIONS

Online auction has become particularly much vulnerable to individuals and companies due to unethical behaviors such as fraud. Together with technical problems, online auctioneering companies have to ensure that they eliminate them, to enhance trust in bidders. The study has also shown that the whole industry bidding environment is also likely to affect bidding tendencies in many participants. This puts pressure on the auctioneering firm to point out fraudulent companies and individuals to protect innocent bidders. However, individual attitudes, due to the number of years spent in bidding could also reveal the level of confidence one will have in online auction. However, the online auction and prices of goods under consideration will also impact heavily on customer utility and trust. Noting that the study has had several limitations, future models should incorporate them. Study items that are of rational nature, could be quantified using validly recognized scales in Social Sciences. The studies would also ensure that only real bidders, from different companies and industries are allowed to take the questionnaires. Further, the number of bidders and companies should be larger for more precise and universally accepted results. Finally, future models that consider units of several products are also welcome.

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