AN ANALYSIS OF CUSTOMER AND SELLER VERIFICATION IN E-COMMERCE 2.0

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Nowadays, E-commerce 2.0 is taking the conventional E-commerce place. The new E-commerce infrastructure uses Web 2.0 technologies. It is based on user generated content. Each Internet user may sell or buy products and services and pay their prices online in a dynamic website. With the expansion of Internet, the number of cons and frauds increased and trade for ordinary Internet users became insecure. Since the Internet users are anonymous and are not recognized as real people or companies, commerce between them is not trustable, without trust commerce is impossible, therefore IT-professionals and Businesses started to find new manners for a trustable E-commerce. Inception of E-commerce 2.0 emerged new techniques, software and devices for user security. In this paper we analyze the techniques and approaches that accredit the anonymous Internet users on the Internet. There are available verification methods for both buyer and seller such as verification with credit cards, SMS authentication, payment after reception, user ranking methods, third party trust organizations and digital signature. This article compares these methods and discovers their weaknesses and strengths in building trust between buyer and seller according to a questionnaire based survey from internet users.

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1. INTRODUCTION

According to internet world stats in 2009, there are nearly 1802 billion internet users worldwide and from year 2000 to 2009, there were 399.3% growth in internet users [12]. The growth explains that internet is been widely used in our life. The realization of virtual space has brought a new digital economy which is an economy that is based on electronic goods and services produced by electronic business and traded through electronic commerce. An important element of digital economy and one of the most important impacts of the internet is the enabling electronic commerce [9]. With the development of the internet E-commerce has become an important model of business, however the security of e-commerce is a very important factor of its development [8]. Inception of web 2.0 created new opportunities for internet users to benefit from free internet content sharing. These opportunities increased the number of C2C electronic commerce; it is also called E-commerce 2.0 [11]. In a C2C E-commerce, both seller and buyer are anonymous, so verifying them is difficult. As a result, buyer and seller are not willing to commerce on the internet. According to [1] only 15% of internet users make purchases online. The main reason that users do not shop online is lack of trust. Ahuja [7] defined trust as an enabler that lets you undertake a potentially risky operation even though you know that it is potentially risky. Many researches have been done on this topic [1, 2] to find the essential elements that can build trust for customer and encourage them to shop online. In the first part of this article, we have an overview on trust building factors and available user verification methods. In the second part, we prepared a survey based on questionnaire from 100 university students; we analyze verification methods according to the survey statistic and discuss their weaknesses and strengths.

2. TRUST AND VERIFICATION METHODS

It is based on assumption that buyer and seller conduct in a business in E-commerce 2.0 with very little information about each other. Therefore there must be some methods to build trust between customer and seller. There are popular and well known verification methods and techniques that help E-commerce websites to build stronger trusts. In the following, we described the most important verification methods.
2.1. Trusted Third Parties

A third party or company which is well known for both customer and seller can be a trust issuing organization in order to verify Sellers. Most of the internet users are anonymous; they are not identified as trustworthy people. A trust issuing party can verify seller and buyer to build the needed trust between them. A trusted third party must be widely accepted, reliable, independent, and highly secure entity that generates trust through attestation or certification [7]. In the world of electronic commerce, TRUSTe and BBBOnline are examples of third parties who generate trust by attesting that websites conform to stated privacy policies. Sellers, who accept assurance company standards, use an assuror certified technology or agree to be bound by assurance company laws. The sellers then are permitted to display an identifying icon or assurance seal on their website. This icon can be clicked by user to receive visual confirmation of the seller. Dr Kathryn Kimsey and Mary McCord [6] explained that the sealed mark; contain three different categories that clarify the underlying content of the most seal,

1) Primary assurance
2) Process assurance
3) Technology assurance

Trusted third parties are standards for websites that guarantee the website integrity and trustworthy.

2.2 Digital Signature

Inception of trusted third party organizations emerged new opportunities where internet users can be signed digitally. Digital signature is a method which can identify the origin of a message and the message sender in the internet. According to [8] digital signature technology can ensure that information cannot be known by other sides except the sender and receiver. Information during transmission will not be tempered with; the recipient is able to confirm the identity of the sender. In current E-commerce systems, RSA public key encryption systems are widely used in digital signature technology.

2.3. User ranking

User generated content plays a significant role in the current and future E-commerce at the era of Web 2.0 [10]. For instance, eBay has enjoyed tremendous growth rates since its inception. In recent studies, it is shown that more than 75 percent of customers will consult a friend before deciding on the purchase of a certain product or service [4]. For example, eBay according to
buyers uses user ranking system to rank the sellers. In online marketing networks such as eBay, there are individual users in the network and therefore, there are connections between two users, when someone buys a product from a seller, the person will leave a feedback to the seller, which can be positive, neutral or negative. Many positive feedbacks for a seller could be extremely effective for customers to trust the seller, similarly, negative feedbacks could be extremely detrimental to the reputation and hence the popularity of products or services in the seller marketplace.

2.4. User verification with credit card

Each internet user conducting in an E-commerce can be verified with his/her credit card. This method is mostly used for buyer verification. The seller can use the buyer credit card information in order to verify the credibility of him/her. This type of verification is mostly used in online auction, online booking and hotel / ticket reservation. For instance, when a user attempting to bid an item in an auction website or reserve a ticket for a hotel or transportation, his credit card information can be used to check the person credibility and accountability. Verification by credit card is also been used for adult verification [13].

2.5. SMS Authentication

SMS authentication is a method used to verify internet user’s identity when they are completing a login task in an online activity. SMS authentication is widely used in important user identity authentication where the possibility of using fake identity is high. In this method, in order to authenticate the user identity, an SMS including a one-time pin number can be sent to the user registered phone number. The user must then enter that pin to the system to verify his identity as holder of the mobile phone.

3. SURVEY AND ANALYSIS

We distributed a questionnaire including 10 questions to 100 university students. Objectives of the questions were to identify the level of trustworthy of different verification methods. Participants of the questionnaire were in the age of 20 to 30 year old whom 64% were male and 36% were female. Almost all of the participants were university level students, 52% post-graduate and 40% undergraduate. 82% of the participant had already shopped online. 45% of the participants shop annually and 35% shops monthly that indicate most of them shop online regularly. According to the statistic, 56% of the participant shops
online between 10$ to 100$, 23% shop online between 100$ to 1000$ and only 2% shops more than 1000$. The result explains that the participants mostly shop online for cheap products and services. According to the responses, one third of the participants prefer to do not shop online because of security issues. These participants prefer to use conventional method of shopping instead of online shopping. The result indicates that available user verification methods are not fully successful to achieve buyers trust or internet users are not familiar with these verification methods. As the statistic explains, credit cards are much better known comparing to other payment methods. 58% of the participants prefer to pay their purchases with credit card. 27 % prefer PayPal and such third parties organizations and 14% prefer to transfer money via banks. Although it is visible from the statistic that some of the participants do not prefer to share their credit cards information with E-commerce websites and some of them still have problem with online payments, still most of the participants prefer to use credit cards.

3.1. Verification via Credit Card versus SMS authentication

Figure-1: Preference of verification methods

In order to compare the verification with credit cards and SMS authentication, we asked our participants to choose their preferred one. 76% of the participants prefer to verify their Identity using their mobile phone number where only 24 % prefer to give their credit card information. The result explains that most of the participants are not happy to share their credit cards information with E-commerce websites where they are more convenient to give their mobile phone number. Although SMS authentication is more expensive to implement it is more trustful. The benefit of SMS authentication is that, in case of using a stolen account, the hacker cannot complete the task, meanwhile the phone owner which is the real account holder will be notified by SMS that an activity is occurring in his/her account. There are numerous disadvantages using SMS authentication. For instance, if the proper phone device is not in the network range, the SMS cannot be received and therefore task cannot be completed by
the user. On the other hand, verification with credit card has other certain disadvantages. Despite the problem with insecurity and distrust for credit card holders, technically it is not safe for users to prompt their credit card information in an unauthorized website. Thus the verifying organization must be fully authorized and trustworthy. In addition credit card companies do not share their customer’s information with every organization requesting them. Therefore, the method can be used by limited Enterprise organization not all individual and small sellers.

3.2. The best Verification Method

A question was asked from the participants to indicate their main reason that they trust an E-commerce website. The question included trusted third parties, user ranking method and trusted friends as expected reasons. 49% of the participants chose trusted organization or trusted third parties as the best reason and 30% chose user ranking method and only 16% chose trusted friends as the best reason. The result indicated that trusted third parties are the most successful and popular methods in verifying E-commerce websites, retailers and small sellers on the internet. Although 49% percent believed that trusted third parties are more trustworthy, still user ranking method is better for C2C business models and E-commerce 2.0 websites and they got the second place with 30% popularity.
3.3. Payment after reception

Figure-3: Payment preferences

With all security systems and verification methods, it is still difficult to build a strong trust for all buyers. The problem that buyers receive their products and services after they pay product cost makes it hard for them to trust a seller. Although trusted organizations could build this trust for their customers, not all the sellers in an E-commerce 2.0 are able to build this trust. 64% of our participants prefer to pay the price of their products to the delivery person or postman after they receive their products. The result explains that in some cases payment after receiving the product is much more trustworthy than paying online and before receiving the product. However, Payment after reception is not applicable in most cases, such as worldwide shipping. Currently there is no regulation for this type of payment, thus a contract must be signed with delivery organization in order to receive the money from buyers and deposit it into sellers account. In addition, the process of payment face difficulties since the sellers may not be available at the time of delivery.

4. CONCLUSION

Internet users and those who conduct in an online shopping or paid online service, always need trust to make a business. Therefore, Businesses and IT professionals start to invent methods to build a trustworthy online market. Inception of web 2.0 involved anonymous internet users in online businesses. There are available and popular verification methods for both seller and buyer in an E-commerce that accredit and verify the trustworthy and credibility of buyers and seller in cyber marketplaces. In this paper we discussed popular verification methods and analyzed their strengths and weaknesses based on the result of a questionnaire survey from 100 young people. The result of the statistic explains the problems in online trust. In addition the result indicates the
weaknesses and strengths of the current verification methods that can lead us to further works.

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