

Retaining Users in a Commercially-Supported Social Network

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Abstract—A commercially-supported social network has become an emerging channel for an organization to communicate with and provide services to customers. The success of the commercially-supported social network depends on the ability of the organization to keep the customers in participating in the network. Drawing from the theories of information adoption, information systems continuance, and web usability, the author develops a model to explore how a commercially-supported social network can encourage customers to continue participating and using the information in the network. The theoretical model will be proved through an online survey of customers using the commercially-supported social networking sites of several high technology companies operating in the same sector. The result will be compared with previous studies to learn about the explanatory power of the research model, and to identify the main factors determining users' intention to continue using a commercially-supported social network. Theoretical and practical implications and limitations are discussed.

Keywords—Social network, Information adoption, Information systems continuance, Web usability, User satisfaction.

I. INTRODUCTION

THE increasing popularity and commercial success of social networking sites has led to the emergence of a new form of e-commerce. 'Social commerce' was used to refer to this phenomenon [44]. Social commerce can be defined as a form of commerce that is mediated by social media. It involves using social media which support social interactions and user contributions to assist in buying and selling of products and services online and offline. It was believed that social commerce represents potential opportunities for a company to combine commercial and social networking activities together thru interactive information technology infrastructure [19]. IT platforms and capabilities for social commerce were evolved from blogs (e.g. Twitter), to social networking sites (e.g. Facebook and Google+). For discussion purposes, this paper uses the term commercially-supported social network (CSSN) to refer to a social networking site that is used for the commercial purpose.

Evidence shows that online customers rotate purchases among multiple firms. Moreover, acquiring new customers could cost five times more than retaining existing ones [4]. This research intends to study users' continuing use of CSSN. This is an important issue in the context of online commerce, in particular companies are competing to attract and retain their online customers. The study attempts to build the theoretical logic that links factors that drive members to

continue using the information on a commercially-supported social network to online service continuance from the customer perspective. Practically, this linkage is important for the managers to retain their existing customers in order to attain success and sustainability. The rest of the paper is organized as follows. First, a theoretical background of the study is provided. Second, the research model and hypotheses are presented. Next, the research methodology is described. Then, the implications for research and practice are discussed. Finally, the limitations and conclusion are given.

II. THEORETICAL BACKGROUND

A. Information Adoption

The author uses information adoption model to assist in examining how customers are influenced to adopt the information obtained from a CSSN. Fig. 1 illustrates the information adoption model, the theoretical model of information adoption invented by [46], one of the very first researchers examining information adoption in an organizational context. Reference [46]'s model is adapted from the elaboration likelihood model (ELM), a model representing a dual-process of informational influence [39]. ELM states that a message can influence a person's attitudes and behaviors through two routes: central route and peripheral route. The central route refers to the nature of arguments in the message, and the peripheral route represents the issues or themes that are not directly related to the subject matter of the message. In the field of IS, information adoption considers information quality as the central route and source credibility as the peripheral route [46]. Information quality is the extent to which users think that information is relevant, timely, accurate, and complete [26]. Source credibility is defined as the extent to which users think that they can trust a piece of information [40]. The importance of information quality and source credibility has been proved relevant in prior IS research [16], [20], [45]. As can be seen from Fig. 1, the usefulness of information is a significant mediating factor between information adoption and information influence i.e. information quality and source credibility [12].

The information adoption model can be used to explain the motivations of users' initial intention to use the information on a CSSN. However, it cannot explain why users continue to use the information available on the network. Therefore, the information adoption model is used incorporated with the information continuance concept, to examine the motivations of users' intention to continue using the information on the CSSN.

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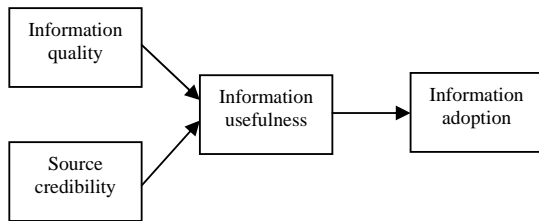


Fig. 1 The information adoption model

B. Information Systems Continuance

In recent years, many IS researchers has argued that the success of information systems depends on willingness of users to continue using the systems after initial adoption [9], [23], [27], [47]. Initial studies on IS continuance perceived continuance as an extension of adoption. These studies deployed the same theories as IS adoption to examine IS continuance (e.g., [25], [48]). It was argued that these studies ignored the post-adoption factors. In addition, the studies cannot explain why users withdraw from the systems after adoption. The IS continuance model should include post-adoption psychological motivations [9]. Reference [9] proposed to use the expectation confirmation/ disconfirmation theory [34] to describe why users decide to continue using information system. In this research, the confirmation/ disconfirmation factors are used to assess users' experience in using a CSSN and to explain why users decide to continue or discontinue using the CSSN.

Fig. 2 illustrates IS continuance model proposed by [9]. According to Fig. 2, IS continuance intention is dependent on users' perceived information usefulness and satisfaction with prior IS uses. Perceived usefulness and satisfaction were affected by disconfirmation or expectation-performance discrepancy. The IS continuance model has been used extensively in IS research to study continuance intention after the initial adoption of information systems. Many studies used the model to examine the continuance use of Internet-based information systems (e.g., [21], [27]). The study of [24] and other studies (e.g. [11], [47]) employed the model to examine how to maintain active participation among members of online social networks. Fig. 3 illustrates the adapted continuance model proposed by [24]. This model was used to examine the factors driving members to continue using information on the Internet-based bulletin board system.

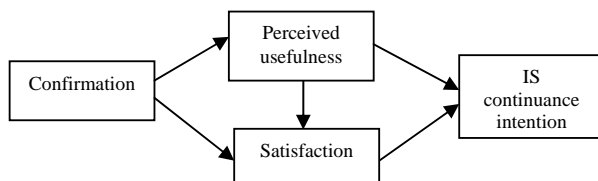


Fig. 2 IS continuance model

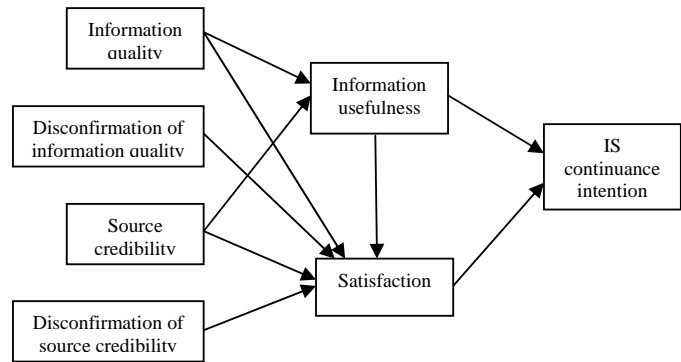


Fig. 3 IS continuance model: the case of internet-based bulletin board system

C. Web Usability

IS adoption theories suggest that perceived usefulness and perceived ease of use are two significant factors influencing IS adoption intention [1], [15]. However, previous IS research argued that ease of use has an "inconsistent effect on attitudewhich seems to further subside and become non-significant..." (e.g. [9]). Different from the prior research, the author believes that perceived ease of use can have significant impact on user's attitude. Accordingly, web usability is adopted as another factor assisting to explain why user continue or discontinue using a CSSN (see Fig. 4).

Past research has found that users' acceptance of an information system is contingent not only on its functionality but also on its usability [14], [18]. The concept of usability can be defined as "how well and how easily a user, without formal training, can interact with an information system" [8]. A web usability assessment evaluates the ease of use of a website and how well it enables users to perform their tasks efficiently. The usability of a website can be assessed in different ways. For example, [29] named attributes of web quality as accuracy, completeness, customization, ease of use, interactivity, organization, relevancy, reliability, search functionality, security, and speed. Reference [22] accented on two aspects: content and design. Reference [50] classified web quality factors into four categories: information, friendliness, responsiveness, and reliability. Reference [33] suggested criteria as, color and style, counter, currency, ease of navigation, finding contact information, finding main page, speed, uniqueness of functionality, and wording. Reference [7] defined factors as content, graphics, navigation, structure, unique features, user friendliness, usefulness, and web accessibility.

Some researches have been carried out to improve online usability by using five major categories of Microsoft Usability Guidelines (MUG) [37], [38]. The categories - content, ease of use, promotion, made-for-the medium, and emotion (challenge, plot, character strength, pace) - are proposed as relevant for designing business website [2], [49]. The other research use official guidelines such as those of the International Standard of Organization (ISO 9241-151:2008) or Department of Health and Human Services (HHS). The guidelines are for web developers and designers to apply

during the development process or for evaluation of a completed product.

Reference [5] proposed four web quality dimensions: technical adequacy, specific content, content quality, and appearance, respectively. They invent 25-item instrument to measure user-perceived web quality. Since the instrument has undergone extensive validation and is easy to use, the author employs this instrument to measure the usability of a CSSN. However, because specific content and content quality is already included in information continuance model, only technical adequacy and appearance dimensions of this instrument are adopted as web usability factors influencing users' continuing using the CSSN.

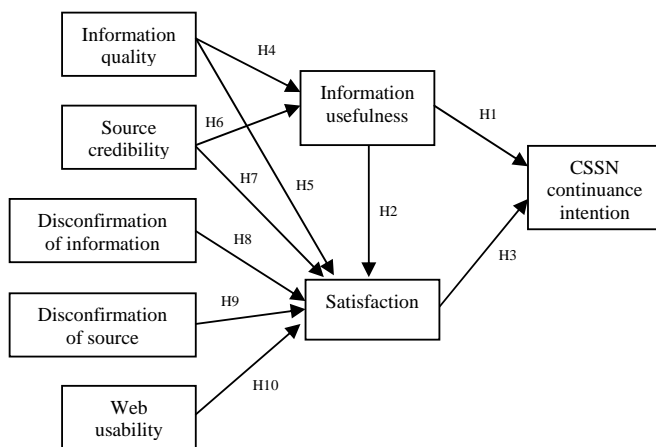


Fig. 4 Research Model: The CSSN continuance model

III. RESEARCH MODEL AND HYPOTHESES

This study explores the motivations of users to continue using a CSSN. Based on the information adoption model [46], [9]'s IS continuance model, [24]'s IS continuance model, and the web usability concept [5], a research model is created (see Fig. 4). Research hypotheses are discussed in this section.

A. Intention to Continue, User Satisfaction, and Information Usefulness

IS adoption theories posit that perceived usefulness significantly affects IS adoption intention [1], [15]. The usefulness impacts attitude "substantively and consistently during stages of IS use" [9]. Information usefulness is the degree to which the information is perceived to be informative, helpful, and valuable [46]. In the IS continuance model, perceived usefulness significantly affects both satisfaction and continuance intention. Additionally, prior IS research provided empirical support for the claim that perceived usefulness is positively correlated with satisfaction and IS continuance intention [9], [25], [27]. If users believe that the information on a CSSN is useful, they will continue using the information. Similarly, if users think the information on a CSSN is useful, they will be satisfied with the social network. Therefore, the author's hypotheses read:

H1. Users' perceived usefulness of information positively influences their intention to continue using information on a CSSN.

H2. Users' perceived usefulness of information positively influences their satisfaction with a CSSN.

According to the IS continuance model, users' satisfaction with prior IS use will lead to continuance intention [9]. The previous studies provided empirical support for this argument [21], [24]. In addition, many IS research in the context of computer-supported social networks have proven this proposition. It was found that users' intention to continue participating in a professional virtual community is highly affected by their satisfaction with prior usage of the community [11]. In addition, users' satisfaction plays a key role in determining the intention to continue using an expertise network [47]. It also showed that users' satisfaction largely affects the continuance in virtual communities [28]. Thus, based on the previous studies, the author assumes:

H3. Users' satisfaction with previous use of a CSSN positively influences their intention to continue using it.

B. Information Quality and Source Credibility

According to the information adoption model, information quality and source credibility are essential determinants of information usefulness [46]. Information quality captures the characteristics (e.g., timeliness, completeness and correctness) of the content contained in the information. People who perceive the higher information quality will more likely to perceive the information usefulness. High information quality is not only important to information usefulness, but also to users' satisfaction [17], [51]. For instance, in the findings provided by [42] and [32], information quality has a strong relationship with information usefulness and customers' satisfaction. The incomplete, inaccurate, or irrelevant information on websites will cause users to lose confidence in the usefulness of information presented on the online social networks, thus become unsatisfied with their usage experience, and withdraw from using the networks. Therefore, the author believes that information quality has strong impact on both information usefulness and users' satisfaction:

H4. Users' perceived quality of information positively influences their perceived information usefulness.

H5. Users' perceived quality of information positively influences their satisfaction with the system.

Source credibility can be defined as a recipient's perceptions of the expertise and trustworthiness of information providers. Information provided by credible sources or experts is believed to be reliable and useful [46]. This argument proved by several other studies. For example, [6] found that the more credible of the source, the more favorable of the recipient's reactions. Therefore, the author's hypotheses read:

H6. Users' perceived source credibility positively influences their perceived information usefulness.

H7. Users' perceived source credibility positively influences their satisfaction with the system.

C. Disconfirmations of Information Quality and Source Credibility

Disconfirmation means the discrepancy between expected performance and perceived performance [34]. The expectation is negatively disconfirmed when perceived performance falls behind expectation, confirmed when perceived performance equals to expectation, or positively disconfirmed when perceived performance exceeds expectation. Positive disconfirmation and confirmation could lead to a user's satisfaction and continuance intention. In contrast, negative disconfirmation could lead to a user's dissatisfaction and discontinuance intention [34], [43]. Disconfirmation has been proved to have significant impact on IS users' satisfaction. It was argued that the more user's expectation is disconfirmed, the higher user's satisfaction with IS use [10]. In other words, positive disconfirmation positively affects users' satisfaction [9]. Based on the prior studies, it is believed that if users positively disconfirm their expectations regarding information quality and source credibility, the users will be satisfied with their usage experience. Therefore, the author presumes:

H8. Users' extent of disconfirmation of information positively influences their satisfaction with a CSSN.

H9. Users' extent of disconfirmation of source credibility positively influences their satisfaction with a CSSN.

D. Web Usability

Usability studies on online stores have focused on appearance and technical adequacy of a website to predict how easy it is for users to effectively achieve what they want to do [30], [37]. Appearance normally determines consumers' first impression [35]. Well-designed graphics, such as the size and the display of the text, will improve the consumers' online shopping experience and will positively affect their shopping behavior (e.g., [41]). In contrast, poor-designed graphic can lead to negative emotional reactions that interfere with consumers' willingness to continue browsing the website [35]. Technical adequacy concerns the technical aspects such as ease of accessing the site, layout of information, navigation aids, search facilities, site-maps, site availability, speed of loading, and validity of links [3]. It is crucial for a website to have a good structure and navigation unless potential customers may switch to another e-retailer [36]. Reference [13] found that a good navigation structure contributes to the level of trust users have on the website. This impression causes the consumers to infer positive beliefs regarding the quality of the website [31]. Therefore, based on the findings of prior research, the author hypothesizes the following:

H10. Users' perceived web usability positively influences their satisfaction with a CSSN.

IV. RESEARCH METHOD

The research model will be proved using the existing commercially-supported social networking sites of several local publicly-listed high technology companies operating in the same sector.

A. Data Collection Method

Data collection will be conducted by using an online survey. In order to avoid the understanding error of the translation from English to local language, a local language questionnaire will be used in the online survey.

B. Measures

To ensure contextual consistency, the constructs in the research model were measured by using multiple-item scales drawn from previous studies with minor modifications. Appendix presents the measures used in this study. Measure for information quality was from [26]. Perceived source credibility and perceived information's usefulness were measured using the items adapted from [46]. Items for measuring disconfirmation, satisfaction, and continuance intention were adapted from [9]. Web usability was measured using the items adapted from [5]. The scale items use a seven-point semantic differential scale. Items with low loadings on the corresponding construct will be deleted to enhance the reliability of measures.

V. IMPLICATIONS FOR THEORY AND PRACTICE

A. Implications for Theory

This is one of the few studies that explore the motivations of users' intention to continue using a CSSN. The research model is built upon the information adoption model [46], the IS continuance model [9], [24], and web usability concept [5]. The information adoption model, with the focus on information quality, source credibility, and information usefulness, helps to explain the intention of users to use information on the CSSN. Adapted from the information adoption model, the IS continuance model [9] is able to explain how users evaluate their experience in using information and how that evaluation affects their willing to continue using the information systems. The author incorporates web usability concept into the IS continuance model and explains how users perceive ease of use of a CSSN and how this perception affects their satisfaction with the CSSN and continuance intention to use the CSSN.

The model will be applied in the context of several high technology companies operating in the same sector. The result will be compared with previous studies to learn about the explanatory power of the research model, and to identify the main factors determining users' perception of information usefulness and satisfaction with a CSSN which then determines their intention to continue using the CSSN.

B. Implications for Practice

Emerging web technologies and their popularity have led to the emergence of a new kind of online service delivered by a website such as online blogs and communities. Many organizations have realized the potential of social networks in supporting the commercial activities. An increasing number of companies are making more time and effort in their online service websites in order to effectively provide service to customers. Faced with this situation, IS managers are attempting to formulate the strategy for keeping their existing

customers in using their CSSNs. The results of this study will reveal the factors that drive consumers to continue using a CSSN. The research findings enable the managers to retain their existing customers in order to attain success and sustainability.

VI. LIMITATIONS

First, the research results might be affected by the nature of business sector and the background of the respondents. Future studies will investigate different types of companies and compare the results for better generalizability of the research model. Second, in the case of low response rate, research results could be influenced by non-response-bias. Third, the addition of factors, for example social factors, could be useful in further explaining the continuance intention in using a CSSN.

VII. CONCLUSION

The study aims to explore the sustainability of a CSSN. It focuses on the theoretical logic that links factors that drive members to continue using a CSSN to online service continuance. The research model is built upon the information adoption model [46], the IS continuance model [9], [24], and web usability concept [5]. The result of this study provides some advices to IS managers to organize a CSSN in order to retain their customers in using the CSSN, and thus be able to attain success and sustainability.

APPENDIX

1. Perceived information quality (PIQ)

Please provide your evaluation of the quality of information

- PIQ1: inappropriate/appropriate
- PIQ2: inapplicable/applicable
- PIQ3: irrelevant/relevant
- PIQ4: out-date/current
- PIQ5: not timely/ timely
- PIQ6: incorrect/correct
- PIQ7: inaccurate/accurate
- PIQ8: incomplete/complete
- PIQ9: The information sufficiently satisfies my needs (disagree/agree)
- PIQ10: The information covers my need (disagree/agree)
- PIQ11: The amount of information is neither too much nor too little (disagree/agree)

2. Disconfirmation of information quality (DIQ)

Please provide your evaluation of your perceived quality of information compared to your expectations in terms of the given features:

- DIQ1: The information is appropriate
- DIQ2: The information is applicable
- DIQ3: The information is relevant
- DIQ4: The information is sufficiently current
- DIQ5: The information is sufficiently timely
- DIQ6: The information is correct
- DIQ7: The information is accurate
- DIQ8: The information is complete

DIQ9: The information is sufficiently complete for my needs

DIQ10: The information includes all necessary values

DIQ11: The amount of information is appropriate.

3. Perceived source credibility (PSC)

Please provide your assessment of the people who post information in terms of the given features

- PSC1: not very knowledgeable/very knowledgeable
- PSC2: not expert/expert
- PSC3: not reliable/reliable
- PSC4: not trustworthy/trustworthy

4. Disconfirmation of source credibility (DSC)

Please provide your evaluation of the people who post information compared to your expectations in terms of the given features:

- DSC1: To be knowledgeable
- DSC2: To be expert
- DSC3: To be reliable
- DSC4: To be trustworthy

5. Satisfaction (SAT)

How do you feel the overall experience with this commercially-supported social networking site?

- SAT1: very dissatisfied/very satisfied
- SAT2: very displeased/very pleased
- SAT3: very frustrated/very contented
- SAT4: absolutely terrible/ absolutely delighted

6. Information usefulness (IU)

The information posted in this site are

- IU1: uninformative/informative
- IU2: invaluable/valuable
- IU3: useless/helpful

7. Web usability (WU)

Please provide your evaluation of the ease of use of the site

- WU1: The web site looks secured.
- WU2: The web site is always up and available.
- WU3: The web site has valid links (hyperlinks).
- WU4: The web pages load fast.
- WU5: The web site has many interactive features.
- WU6: The wWeb site is easy to access.
- WU7: On _____'s web site, one can find contact information (e.g. e-mail addresses, phone numbers, etc.).
- WU8: On _____'s web site, one can find firm's general information (e.g. goals, owners).
- WU9: On _____'s web site, one can find details about products and/or services.
- WU10: On _____'s web site, one can find information related to customers' policies (e.g. privacy and dispute details).
- WU11: On _____'s web site, one can find information related to customer service.
- WU12: The web site looks attractive.
- WU13: The web site looks organized.
- WU14: The web site uses fonts properly.
- WU15: The web site uses colors properly.
- WU16: The web site uses multimedia features properly.

8. Continuance intention (CI)

How do you intend to continue using this site in the next few weeks?

- CI1: I intend to continue using this site rather than discontinue using it.

CI2: I would like to discontinue using this site (reverse coded).

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