The role of individual-social-technology fit in online social network value development: an empirical study

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Abstract

Purpose – *The purpose of this study is to reveal the role of individual–social–technology fit in online social network (OSN) value development. The social software features (e.g. communication and interaction), social features (e.g. privacy and trust) and individual features (e.g. sense of belonging and self-disclosure) are considered fitting forms to describe the OSN value. Implications and suggestions are addressed.*

Design/methodology/approach – *The literature review on social software, the social and individual characteristics and the research gap with respect to OSN value is presented. The research arguments are then hypothesized, and research model used to describe the proposed role is examined empirically. The research targeted mobile phone users as the subjects, and the extent of the activities of these users on OSN for both work and studies. A salient investigation explores the moderation effect of gender. The research results are obtained, and the findings are revealed on the basis of 468 social software users.*

Findings – *The significant effect of individual–social–technology fit on OSN value development is presented through the satisfaction of both participation and sharing information, and knowledge about this fit is verified. The interplay of social software, social and individual features contributes significantly to individual–social–technology fit development, implying that OSN value development is not a single issue. OSN value development should be considered concurrently with technological, personal and social issues.*

Research limitations/implications – *The empirical study confirms that fitness analysis produces a systematic outcome, in which all elements (e.g. social, technology and individual) are required to cooperate with one another to maximize the OSN value. An individual adopts online channels to communicate with others; thus, the benefits may be a multidimensional issue instead of only a single information service issue. They also consider building an equal social relationship to be important, as it enables diverse propositions, maintains acceptable privacy and behaves on faith to enhance the fit of technology features and individual features to value development. The subjects also likely accepted the fact that emotion generation is important for the advantage of fit of technology features and social features, thereby likely benefitting OSN value development.*

Originality/value – *The OSN does not only add new values to the society but also brings new effects on social development, especially in terms of social cognition from virtual community formation, development and creation. Although existing studies in the literature present the important aspects and antecedents linked significantly to OSN value development, these studies also insufficiently discuss the effect of fit of these facets on OSN value development. This exploratory study mainly aims to propose and examine the individual–social–technology fit model through an empirical investigation. The main argument of the study is that when a positive and healthy virtual society is developed through social software, the individual and social characteristics, as well as the social software features, should be defined with a suitable fit to promote the social networking value.*

Keywords *Internet, Social behavior, Information society*

Paper type *Research paper*

1. Background

Advanced social software has greatly changed modern society, as shown by online social network (OSN) (e.g. Facebook, Fanpage and LinkedIn), social interaction (e.g. LINE, WeChat and Google Hangouts) and virtual business activities (e.g. mobile commerce and

location-aware services). The OSN generally produces values such as fostering information flow speed, consuming less time to response to customers' inquiries and improving information/knowledge sharing satisfaction. However, the value measure indices are still under development. Particularly, after the invention of Web 2.0, information and knowledge economics rapidly combined with participation economics (called parecon) (Hahnel, 2005). This economic type development is analyzed from the viewpoint of human nature behavior and psychology. It is believed that almost everyone has the natural tendency to desire participation in affairs, particularly those in online communities (e.g. self-disclosure). Through this required participation mechanism, participants do not only collaborate to share ideas or solve problems but also to satisfy their sense of participation. However, this mechanism implies that OSN develops values while also causing negative effects on privacy, security, Internet crime, Internet addiction and Internet fraud. Consequently, the degree of participation and sharing satisfaction varies because of the factors that influence use intention and willingness as well as the natural difference in the value perception of OSN.

A literature survey indicates that the facets that mainly influence OSN value development are task, social software, social theory and individual behavior (Carpenter *et al.*, 2011; Lu and Yang, 2014). The task facet refers to the work features related to online social site usage. The social software facet emphasizes on the technological availability of OSN (e.g. check-in, message alert and friend invitation). The social facet represents the needs and wants of social interactions (e.g. friendship, sharing and discussion). Finally, the individual behavior facet advocates both personal and cognitive behavior (e.g. personality and equality). OSN does not only add new values to the society but also brings new effects on social development, especially in terms of social cognition from virtual community formation, development and creation. Although existing studies in the literature present the important aspects and antecedents linked significantly to OSN value development, these studies also insufficiently discuss the effect of fit of these facets on OSN value development. For example, Lu and Yang (2014) reported that the effect of social–technology fit is superior to that of task–technology fit on the intention of users of social network sites. However, the importance of individual features on fit with respect to OSN value development still requires further investigation.

Social development via social software exhibits distinct features. For example, Vavpotic and Bajec (2009) argued that software development should carefully consider the social appropriateness aspect. Importantly, social software provides a virtual environment where interactions among users can develop values for either work or studies. For example, Keng and Ting (2009) investigated and confirmed the application value of Internet blogs from the viewpoint of customer value. Yu *et al.* (2012) compared social networking media (e.g. blogs and online forums) with traditional media (e.g. television) to examine the influence on the values and performance of an enterprise. The result suggests that social networking media greatly influence enterprise performance. To support this concept, Carpenter *et al.* (2011) indicated that problems should be discussed deeply in terms of whether social networking provides valuable social relationships or disperses valuable relationships in actual human life. Moreover, Camps and Marques (2014) reported that social capital significantly influences multiple types of innovation capabilities. Moreover, the individual behavior presented through the use of social network and participation preferences is controllable not only by others but also by the beliefs and value perception of people. For example, on the basis of rational choice theory, Taneja *et al.* (2014) found that the belief in the Facebook privacy control functions is significantly related to the attitude and intention of use. This finding implies that the cognition of consequence for an individual should be considered when the fit of multidimensional factors is developed.

More importantly, OSN development is not only a technological problem but also involves related issues on individual values and social development, such as the motivation of using a social networking software, interactive mechanisms of virtual society and effects of virtual

trust and privacy. To address this issue, Mumford (2006) revealed the importance of a value system when discussing the design of a technological society. However, the characteristics of the system components require further explanation in terms of the fit of the facet interplay that involves individual features (e.g. cognitive and psychological behavior), social software features (e.g. functional supports) and social features (e.g. privacy, social member equality and trust). For example, Lin and Wang (2012) confirmed that task–technology fit influences system acceptance and continuous use of e-learning systems, but the individual factor is not involved. Moreover, the findings by Lu and Yang (2014) suggested that social constructs should be added in the task–technology fit model in terms of the context of online social site use. However, they did not emphasize the importance of the individual facet in the research.

This empirical study mainly aims to propose and examine the individual–social–technology fit model through an empirical investigation. The main argument of the study is that, when a positive and healthy virtual society is developed through social software, the individual and social characteristics, as well as the social software features, should be defined with a suitable fit to promote the social networking value. The rest of this paper is organized as follows: Section 2 presents the literature review on social software, the social and individual characteristics and the research gap with respect to OSN value. The research arguments are then hypothesized. Section 3 describes the research method, including the research model, sample and measures. Section 4 shows the data analysis, results and discussion. Section 5 presents the conclusion.

2. Related concepts and hypotheses

2.1 OSN value

Measuring social networking values can be performed through different methods, but a complete measurable index does not exist yet. The measure is usually set based on a specific context. There are two major types of value that OSN may produce from the tangible and intangible perspectives. Because the current research is an exploratory study and OSN value is still ill-defined in domains (e.g. industries and schools), the research considers the intangible one and, therefore, focuses on a process that contains two phases for Internet users to develop relationships with OSN; one is participation and another is information/knowledge sharing (Wasko and Faraj, 2005; Hartmann *et al.*, 2008; Ponomariov and Toivanen, 2009; Aljukhadar *et al.*, 2014; Oh *et al.*, 2014). This consideration is based on the theory of participation economics introduced by Hahnel (2005), called parecon. Participation satisfaction considers OSN value in different psychological aspects. For example, using social networks can help accomplish role playing and satisfy the self-realization or self-disclosure expectations of users. Generally, the OSN value takes place when a user is happy (i.e. high value) or unhappy (i.e. low value) with participation in OSN (e.g. fan page in Facebook). In the second phase, he or she then shares information/knowledge with friends and members. Doing so, likewise, he or she may be satisfied or not satisfied with the sharing. It should be noticed that it is beyond the current research context to define the consequences of sharing information/knowledge with satisfaction or dissatisfaction.

For example, Hsu and Tsou (2011) adopted information richness as the measurement index of experience sharing for online customers. However, it needs further examination to determine whether or not experience sharing links directly to actual purchase. Moreover, Ponomariov and Toivanen (2009) reported that knowledge capabilities are important for developing countries and emerging economies, implying that information and knowledge have economic values to help develop technologies and make valuable decisions. Moreover, Popovic *et al.* (2014) reported that information sharing serves as a significant moderator of information systems success dimensions in the business intelligence systems context. People who gain useful information and knowledge will potentially have economic values as well. Therefore, the satisfaction of social network users in sharing information/

knowledge provided by OSN may be viewed as one of the OSN values. Furthermore, in the business domain, See-To and Ho (2014) theorized that OSN provides behavioral alignment by which both OSN users and firms can communicate effectively and efficiently to develop values of new ideas in relation with the firm's product and service. This implies that information/knowledge sharing may serve as a mechanism by which both OSN users and firms can develop mutual values. However, OSN users may have different satisfaction degrees while sharing the same contents in OSN due to the various perceived value. For example, Aljukhadar *et al.* (2014) reported that information quality satisfaction is one of the factors that significantly influence the successful completion of information tasks. Oh *et al.* (2014) confirmed that appraisal support through information/knowledge sharing in OSN is important to satisfy friendships. Based on the arguments by Hsu and Tsou (2011), Aljukhadar *et al.* (2014) and Oh *et al.* (2014), the current study uses two indicators to measure OSN values: satisfaction on participation and satisfaction on information and knowledge sharing.

However, to produce such sorts of satisfaction, a fitting condition is required in which elements such as personal trait, social needs and supporting technology suit quite well. For example, an individual who loves to share his or her stylish photos with friends or in public (i.e. personal trait) will likely appreciate a channel by which the photos can be shown efficiently and effectively (i.e. supporting technology). Moreover, if such social needs as equality and diversity to develop relationships are satisfied, the participation satisfaction will be likely high. In this case, the personal trait is represented by individual feature (e.g. self-disclosure), supporting technology by social software feature (e.g. interaction and communication) and social needs by social feature (e.g. equality and diversity). Conversely, if three elements do not benefit each other, a use barrier may happen, and may likely lower the degree of satisfaction. For example, an online community (e.g. Facebook) that does not allow members' equality and social diversity will likely limit the use willingness of sharing photos with friends or in public. Likewise, the supporting technology of OSN that does not have the sophisticated functions for media presentation, user interaction, structural data management and ease of communication will be likely depreciated, even the community provides social needs of equality and diversity, and thus, the use is likely dissatisfied. Therefore, to address the antecedent that affects OSN values, the current study argues that the fit involving individual, social software and social features will influence both types of satisfaction (i.e. OSN values).

2.2 Fit analysis and technology adoption

Fit theories include the individual–task fit model (Edwards, 1991), personal–environment fit model (Werbel and Gilliland, 1999), task–technology fit model (Junglas *et al.*, 2008; Smith and Mentzer, 2010; Liu *et al.*, 2011) and tasks–individual–technology fit model (Goodhue and Thompson, 1995; Junglas *et al.*, 2008; Smith and Mentzer, 2010; Liu *et al.*, 2011; Aljukhadar *et al.*, 2014). These models demonstrate the importance of fit analysis to performance or value. Fit analysis theory focuses on a causal model. This theory explains value development by determining more suitable combinations from the factors involved (e.g. individual and task features). The findings and recommendations of fit analysis-related studies also support performance enhancement and policymaking. For example, the fit model that includes personal and technological characteristics and operating features is used to describe the performance of using the mobile positioning information system (Junglas *et al.*, 2008). Koo *et al.* (2011) proposed and validated a task–technology fit model for social communication technology. Recently, Aljukhadar *et al.* (2014) reported that the low fit of technology factors with task features ineffectively completes online tasks.

For OSN, the result of social interactional effectiveness is a fitting systematization outcome (e.g. social network value). This outcome is similar to the combination of a person's physical, mental, social and technological values from a fitting condition of various physiological and psychological systems to produce the best results. However, although

the literature emphasizes on the importance of OSN formation, usage intention and application, minimal attention is given to issues such as the effect of the interplay of elements and the associations of these elements on OSN value development. The current research argues that the fit presented by social software, social and individual features is the main antecedent that influences OSN value development. Moreover, utilizing social software also increases OSN value development (Davis, 1989; Goodhue and Thompson, 1995). Accordingly, three research hypotheses are presented as follows:

H1. Individual–social–technology fit significantly influences OSN value.

H2. Individual–social–technology fit significantly influences social software adoption.

H3. Social software adoption significantly influences OSN value.

2.3 Social software facet

Advanced social software facilitates OSN formation. Two phases generally exist in OSN formation: the technical comprehensiveness structure and its combination with the demand aspect of human behavior. The first phase aims to construct a rapid information flow pipeline, especially one that can carry multimedia contents. In the second phase, society members conduct social activities under this structure (e.g. ideas and experience sharing) based on the behavioral features of the members. Concurrently, the requirements for satisfaction in participation may be achieved through these activities. A literature survey indicates that four main social software features (or functions) are used to form social networks (McAfee, 2006; Wu *et al.*, 2010a, 2010b). These features are as follows:

1. *analysis and presentation*: used to support the demonstration of information and knowledge contents and behavior profile (e.g. knowledge ontology in Chen, 2010);
2. *storage and management*: used to store and manage information and knowledge contents and behavior profile (e.g. data management presented by Vezzetti *et al.*, 2011);
3. *networking and communication*: used to support the circulation of information and knowledge to enrich psychological satisfaction (e.g. e-life presented by Din *et al.*, 2012); and
4. *interaction and collaboration*: used to support the interaction and cooperation of network members to strengthen community cohesion (e.g. community cohesion in Wu *et al.*, 2010a, 2010b).

Social network has been developing its own timeliness and mobilization features. Particularly, the supporting features of social software have become important because of the non-linear thinking behavior and immersion of individuals. For example, an environment built by social software can provide supporting features such as virtual space, where users can develop satisfaction toward life (Oh *et al.*, 2014). The ultimate goal is to determine the way toward the actual values for both the present and the future (Mumford, 2006). However, when people are immersed in using social software, they are in a situation in which a person's perception becomes quite narrow; thus, the external stimulus unrelated to cognition is filtered out. The result may have positive values (e.g. immersion satisfaction) or negative problems (e.g. deviation from the current situation). Therefore, the current study argues that social software features contribute to the degree of individual–social–technology fit. Accordingly, the fourth hypothesis is presented as follows:

H4. Social software features significantly influences individual–social–technology fit.

2.4 Social facet

Social feature is a dynamic developing model that includes many invisible but looming present things (e.g. non-human things and multicultural and behavioral patterns). Exchange theory emphasizes that social interaction and formation are actually exchange

behavior. However, community members expect any OSN to have personal privacy, member equality and trust to develop satisfactions in both participation and information and knowledge sharing. This expectation increases the willingness to participate in social networks. The literature indicates that social theory has been widely used to explain the social value for virtual networks (Fournier and Lee, 2009; Wu *et al.*, 2014). However, OSN is a changing environment that may develop a new social model every time. From a macro point of view, healthy and stable consideration is the key to explanation of the main activities and motivations among the formation factors. For example, Castelfranchi (2001) emphasized that both unplanned cooperation and information sharing are kinds of social activities, indicating that OSN should be developed into a new social value mechanism (e.g. information symmetry). The contribution of social features to OSN value development requires further investigation (Mainela, 2007). For example, although Hu *et al.* (2011) found that information sharing is available in the online community (e.g. blogs), companies are unlikely to use information sharing to develop social relationships because of the concern on "virtual trust".

More importantly, the core concept of social theory is that any activity should balance the development and maintenance of social network and create new values for the activity. Generally, people who advocate social theory regard society (real or virtual) as a system (Mumford, 2006). In this system, the interactions of members are complicated, and any particular change affects the entire system. Social theory considers that a social system (e.g. OSN) should adjust and change constantly to remain more stable and balanced and to satisfy the expectations of members in value development. Therefore, social features (e.g. equality, trust) may affect the benefits generated by members' interactions. In contrast to the viewpoint by Lu and Yang (2014), who stated that social features and interaction are included in the research model of the authors, the current research argues that social features presented by social privacy, social equality and social trust contribute to the individual–social–technology fit to OSN value development. Accordingly, the fifth hypothesis is presented as follows:

H5. Social characteristic significantly influences individual–social–technology fit.

2.5 Individual facet

The individual–task fit model shows that personal feature is one of the important factors that affect fitness (Dennis *et al.*, 2001; Parkes, 2013). The fitting degree is affected by an individual's cognition, working and learning behavior and characteristics, which are particularly reflected through social software usage. On the one hand, this fitting degree in working and learning abilities can be generally enhanced by education and training on personal value cognition. On the other hand, individual features with relevant cognition (e.g. self-achievement and self-disclosure) highly contribute to the fit of social features and social software usage from the perspective of social network value development. For example, one of the research findings from the experimental study of Parkes (2013) shows that user attitude is affected by individual–technology fit. Generally, an OSN user who perceives a sense of belonging to an OSN (individual features) and believes that an OSN is a society with interpersonal trust (social features) more likely uses social software to interact with others (social software features) and develop OSN value. To address this concept, Carpenter *et al.* (2011) reported that the individual behavior of using Facebook is related to personal mass tendencies and motivations toward self-efficacy. Moreover, Rao *et al.* (2014) reported that emotion could be generated from OSN interaction, which likely affects the use willingness of OSN sties.

Fit analysis between individual features and social network compatibility cognition begins with the concepts of privacy, equality of society members, virtual trust and diversity values (Kwon *et al.*, 2007; Chen *et al.*, 2008; Tassier and Menczer, 2008). Therefore, a person with higher cognition of the concepts of Internet privacy, equality of society members, virtual trust and various value advocates in the Internet possesses a higher tendency to match

with technological and social features, thus improving the OSN value. For example, the research findings of Kwon *et al.* (2007) indicated that both Internet psychology and ethical issues of privacy and trust are the main reasons behind the willingness to use a geographical positioning system, which can bring new location-based networking values for OSN. This finding implies that OSN requires a perceived value in terms of privacy and trust. Moreover, Tassier and Menczer (2008) found that work inequality among members could be reduced in a dynamic OSN structure by enhancing the information symmetry through OSN. Therefore, the current research argues that individual features affect individual–social–technology fit to OSN value development. Accordingly, the sixth hypothesis is presented as follows:

H6. Individual features significantly influence individual–social–technology fit.

3. Method

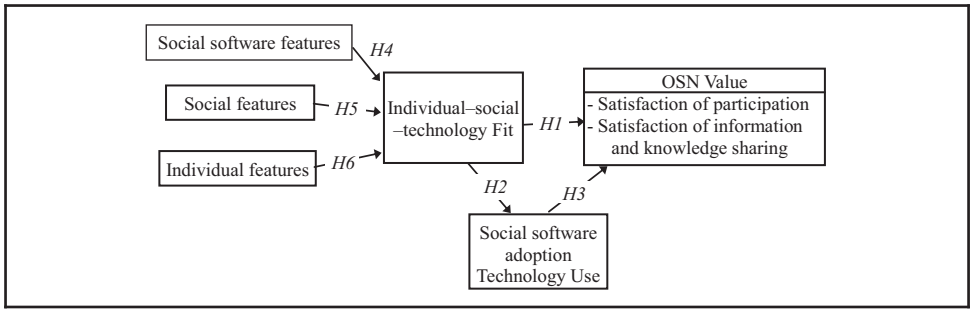
3.1 Research model

This study incorporates the social software, social and individual features with fit theory to develop the research model (Figure 1). Three independent variables (social software, social and individual features) and one dependent variable (individual–social–technology fit) are included. The study also examines the relationship between individual–social–technology fit and social software adoption. The measure, sample and data analysis are described below.

3.2 Measure

As the data collection instrument, a questionnaire was designed based on the literature and research arguments (Table II). Each question was based on a five-point Likert scale. Bipolar descriptors were used for each question. Domain experts and specialists in social science, social software, human behavior and fit theory were consulted to improve the comprehensibility and readability of the questionnaire. For example, copies of the first version of the questionnaire were sent to one university professor for social science, one for human behavior and one for fit theory. Two copies were sent to software specialists for social software. The participants were asked to review the questions and modify them directly if necessary in terms of comprehensibility and readability. After two weeks, appointments were made to interview the participants to ensure that the modifications done were understandable. The questionnaires were collected after the interview to develop the final questionnaire. A pilot test was conducted with several individuals to ensure the comprehensibility and readability of the questionnaire again. Moreover, 26 items were developed to describe the variables. The basic information of the subjects included gender, age, time spent on OSN daily (hours), strength of relationship between OSN and job or daily life and educational degree.

Figure 1 Research model



3.3 Sample

The current research targeted mobile phone users as the subjects, and the extent of the activities of these users on OSN for both work and studies. To gather information more efficiently, the questionnaire was developed as an online questionnaire. The questionnaire was officially released for five weeks. The study simultaneously collected comments and suggestions from subjects who used any OSN. To determine the sample size, the study was set with a 95 per cent confidence level, 5 per cent sampling error, pre-trial maximum variance and approximately 70 per cent return rate, thus implying that the number of returned samples was not less than 400 as the basic requirement. Table I presents the sample statistics. A total of 535 responses were collected, but only 468 were valid (87.48 per cent). Among the responses, 288 were done by males and 180 were done by females. With respect to age, majority of the subjects (80.56 per cent) were between 20 and 29 years old, and 96.6 per cent obtained a bachelor's degree or higher. Moreover, more than half of the respondents reportedly spent about 1-4 hours on OSN daily.

4. Results

4.1 Reliability

The correlations of an item both to the total and to the Cronbach's α coefficient were used to verify the internal consistency reliability. The results of the corrected item–total correlation and Cronbach's α were used to improve the reliability of the factor analysis of each variable progressively. Deletion was performed if the value of the item to the total was less than or equal to 0.5 and if reliability would improve when the item was deleted. Table II presents the results. Reliability in all composites was acceptable. Exploratory factor analysis was conducted to derive the actual factors. Principal component analysis (PCA) was used for the factor analysis. The PCA and varimax of orthogonal rotation were performed to drive the final factors. The results are presented in Table III. The factor loading is between 0.609 and 0.887, which is greater than 0.5.

Table I Sample statistics

Valid returned samples N = *468* *Basic data*	*No. of samples*	*(%)*
Gender		
Male	288	61.54
Female	180	38.46
Age (years)		
Below or equal to 19	34	7.26
More than 19 and less than or equal to 29	377	80.56
More than 29 and less than or equal to 39	47	10.00
Equal to or above 40	10	2.18
Time spent on OSN per day (hours)		
Less than or equal to 1	74	15.81
More than 1 and less than or equal to 4	254	54.27
More than 4 and less than or equal to 8	102	21.79
More than 8	38	8.13
Strength of relationship between OSN and your job and daily life		
Not at all	94	20.09
Weak	92	19.66
Ordinary	183	39.10
Strong	80	17.09
Extremely strong	19	4.06
Degree of education		
Junior high school and below	2	0.43
Senior high school	14	2.99
College	311	66.45
Graduated	141	30.13

Table II Results of factor reliability

Variables	*Items*	*Facet Mean, SD, Cronbach's α*	*Item to total*	*Cronbach's alpha if item deleted*
Social software: Social network users perceive that social software features are important to OSN usage (McAFee, 2006; Wu *et al.*, 2010a, 2010b)	SSF1: To analyze and present the contents	4.032, 0.571, 0.716	0.433	0.688
	SSF2: To store and manage the contents		0.370	0.713
	SSF3: To link and communicate the contents		0.579	0.630
	SSF4: To help in the interaction and collaboration of the contents		0.512	0.652
	SSF5: Overall, OSN participation is important		0.527	0.657
Social: Social network users perceive that social features are important to OSN usage (Wasko and Faraj, 2005; Mainela, 2007; Fournier and Lee, 2009)	SF1: Personal privacy	3.943, 0.517, 0.769	0.453	0.758
	SF2: Members' equality		0.565	0.718
	SF3: Virtual trust		0.506	0.741
	SF4: Social diversity		0.580	0.713
	SF5: Overall, OSN is stable and balanced		0.617	0.705
Individual: Social network users perceive that individual features are important to OSN usage (Kwon *et al.*, 2007; Tassier and Menczer, 2008; Carpenter *et al.*, 2011; Parkes, 2013)	IF1: Self-achievement	3.725, 0.518, 0.792	0.579	0.752
	IF2: Sense of belonging		0.637	0.727
	IF3: Self-disclosure		0.594	0.744
	IF4: Overall, OSN receives positive beliefs		0.617	0.738
Individual–social–technology fit: Social network users perceive that the fit among social software, social and individual features is important to OSN value development (Goodhue and Thompson, 1995; Junglas *et al.*, 2008; Smith and Mentzer, 2010; Liu *et al.*, 2011; Koo *et al.*, 2011; Lu and Yang, 2014)	ISTF1: Convenient to participate in the society	3.936, 0.491, 0.759	0.555	0.704
	ISTF2: Suitable to interact with OSN users		0.591	0.685
	ISTF3: Helpful to perform social functions		0.578	0.691
	ISTF4: Overall, suitable for social value development		0.510	0.729
Social software adoption: Social network users perceive that social software adoption is important to OSN usage (Davis, 1989)	SSA1: Often uses social software for social interaction and communication	4.259, 0.509, 0.789	0.650	0.706
	SSA2: Often encourages people to use social software for OSN		0.591	0.805
	SSA3: Overall, has been using or will be using social software for online social activities		0.705	0.649
OSN value: Social network users perceive that OSN adoption possesses social values (Hartmann *et al.*, 2008; Hsu and Tsou, 2011; Oh *et al.*, 2014)	OSNV1: Satisfied with the information and knowledge shared in OSN	4.076, 0.411, 0.815	0.591	0.788
	OSNV2: Satisfied with OSN participation		0.693	0.741
	OSNV3: Satisfied with interacting with others in OSN		0.577	0.801
	OSNV4: Overall, benefits from using OSN		0.694	0.741
Please provide your comments and suggestions with respect to this questionnaire answering				

Notes: SSF = social software features; SF = social features; IF = individual features; ISTF = individual–social–technology fit; SSA = social software adoption; OSNV = OSN value

The model validity was confirmed on the basis of the following four requirements:

1. item loading greater than 0.5;
2. composite reliability or Cronbach's α greater than 0.7;
3. average variance extracted (AVE) greater than 0.5; and
4. square root of AVE for a factor greater than the correlation coefficient of the other factors.

The test results are shown in Tables IV and V. For example, the item loading of SSF3 (0.833) in the variable of social software features is greater than 0.5, and the Cronbach's α of SSF (0.739) is greater than 0.7. The AVE of SSF (0.6577) is greater than 0.5, and the square root (0.811) of the AVE is greater than the correlation coefficient of the other factors. Moreover, as the valid sample size collected is 468, the current research applied analysis technique of covariance-based structural equation model to derive findings.

Table III Factor analysis results

	Factors					
	IF	*SF*	*SSF*	*ISTF*	*SSA*	*OSNV*
IF2	0.743	0.003	0.124	0.112	0.117	0.214
IF5	0.688	0.161	0.105	0.351	0.204	0.205
IF4	0.687	0.109	0.131	0.268	0.069	0.115
IF3	0.680	0.248	−0.087	0.115	0.156	0.079
IF1	0.667	0.027	0.283	−0.150	0.311	0.089
SF1	0.107	0.805	0.028	0.042	0.247	0.156
SF2	0.065	0.786	0.154	0.147	0.106	0.174
SF3	0.146	0.702	0.171	0.195	0.069	0.159
SF4	0.135	0.652	0.292	0.307	0.123	0.164
SSF3	0.111	0.157	0.827	0.136	0.231	0.049
SSF4	0.181	0.085	0.801	0.107	0.086	0.206
SSF5	0.089	0.326	0.609	0.225	0.091	0.211
ISTF1	0.096	0.101	0.211	0.770	0.162	0.049
ISTF2	0.173	0.188	0.275	0.699	0.111	0.104
ISTF4	0.185	0.250	−0.021	0.684	0.175	0.069
SSA1	0.124	0.206	0.018	0.105	0.887	0.089
SSA2	0.079	0.211	0.201	0.189	0.859	0.113
SSA3	0.214	0.301	0.148	0.204	0.805	0.175
OSNV1	0.086	0.078	0.196	0.048	0.117	0.847
OSNV2	0.142	0.221	0.116	0.149	0.213	0.841
OSNV3	0.168	0.165	0.094	0.301	0.064	0.774
OSNV4	0.174	0.113	0.201	0.211	0.094	0.756

Notes: SSF = social software features; SF = social features; IF = individual features; ISTF = individual–social–technology fit; SSA = social software adoption; OSNV = OSN value

Table IV Validity of factor analysis

Factor	*Cronbach's α*	*AVE*	*Items*	*Loading factor*	t-*value*
SSF	0.739	0.658	SSF3	0.833***	17.542
			SSF4	0.803***	11.830
			SSF5	0.796***	11.834
SF	0.792	0.618	SF1	0.714***	10.012
			SF2	0.796***	17.961
			SF3	0.794***	13.849
			SF4	0.835***	23.184
IF	0.769	0.522	IF1	0.553***	4.008
			IF2	0.707***	8.258
			IF3	0.683***	8.388
			IF4	0.795***	13.626
			If5	0.841***	19.084
ISTF	0.691	0.623	ISTF1	0.800***	15.521
			ISTF2	0.834***	22.059
			ISTF4	0.729***	9.686
SSA	0.789	0.724	SSA1	0.852***	24.219
			SSA2	0.806***	16.710
			SSA3	0.893***	42.626
OSNV	0.815	0.648	OSNV1	0.773***	14.552
			OSNV2	0.853***	26.452
			OSNV3	0.739***	12.577
			OSNV4	0.849***	24.574

Notes: ***$p < 0.01$; AVE = average variance extracted; SSF = social software features; SF = social features; IF = individual features; ISTF = individual–social–technology fit; SSA = social software adoption; OSNV = OSN value

4.2 Findings

As the valid sample size collected is 468, the current research applied analysis technique of covariance-based structural equation model to derive results that are shown in Table VI. The explained variance of the independent variables to the dependent variables is

Table V Correlation coefficient among constructs

Construct	*AVE*	*SSF*	*SF*	*IF*	*ISTF*	*SSA*	*OSNV*
SSF	0.658	**0.811**					
SF	0.618	0.470	**0.786**				
IF	0.522	0.364	0.371	**0.723**			
ISTF	0.623	0.432	0.493	0.449	**0.789**		
SSA	0.724	0.543	0.450	0.385	0.495	**0.851**	
OSNV	0.648	0.492	0.640	0.443	0.589	0.581	**0.805**

Notes: Number on the diagonal (in boldface) shows the square root of AVE of each construct; SSF = social software features; SF = social features; IF = individual features; ISTF = individual–social–technology fit; SSA = social software adoption; OSNV = OSN value

Table VI Hypothesis test results

Hypothesis	*Path*	*SPC*	t-*value*	p-*value*	*Result*
H1	ISTF → OSNV	0.582	15.437***	0.000	Supported
H2	ISTF → SSA	0.489	12.114***	0.000	Supported
H3	SSA → OSNV	0.570	14.987***	0.000	Supported
H4	SSF → ISTF	0.415	9.844***	0.000	Supported
H5	SF → ISTF	0.476	11.696***	0.000	Supported
H6	IF → ISTF	0.415	9.848***	0.000	Supported

Notes: ***$p < 0.01$; SPC = standardized path coefficient; SSF = social software features; SF = social features; IF = individual feature; ISTF = individual–social–technology fit; SSA = social software adoption; OSNV = OSN value

acceptable (between 0.415 and 0.582). Moreover, all of the six hypotheses are supported. Table VII presents the moderating test results for gender. The discussion and implications are presented as follows.

4.3 Discussions and implications

Table VI shows the six hypotheses supported. The research confirms the significant effect of individual–social–technology fit on OSN value development, as presented by satisfying both participation and sharing information and knowledge. The interplay of social software, social and individual features contributes to individual–social–technology fit development. This finding indicates that OSN value development is not influenced by a single issue, and that OSN development is required to concurrently consider technological, personal and social issues. The research result agrees with our argument that fit theory is associated with OSN value development. This finding is obvious because early studies in the literature did not examine the effect of individual–social–technology fit on OSN value (Goodhue and Thompson, 1995; Junglas *et al.*, 2008; Liu *et al.*, 2011; Lin and Wang, 2012; Parkes, 2013;

Table VII Moderation test for gender

		Gender						
			Male			*Female*		
Hypothesis	*Path*	*SPC*	t-*value*	p	*SPC*	t-*value*	p	*Result*
H1	ISTF → OSNV	0.623	13.468***	0.000	0.510	7.908***	0.000	NS
H2	ISTF → SSA	0.505	9.904***	0.000	0.469	7.078***	0.000	NS
H3	SSA → OSNV	0.608	12.946***	0.000	0.512	7.954***	0.000	NS
H4	SSF → ISTF	0.406	7.504***	0.000	0.431	6.373***	0.000	NS
H5	SF → ISTF	0.477	9.169***	0.000	0.475	7.192***	0.000	NS
H6	IF → ISTF	0.467	8.925***	0.000	0.332	4.693***	0.000	NS

Notes: ***$p < 0.01$; SPC = standardized path coefficient; NS = not supported; SSF = social software features; SF = social features; IF = individual features; ISTF = individual–social–technology fit; SSA = social software adoption; OSNV = OSN value

Lu and Yang, 2014). Moreover, no moderation effect is found, according to Table VII. Examining this table deeply, the results show whether dividing the respondents into two different gender groups would have a significant effect or not. This assumption is valid because we aim to test whether the results would be twisted if gender is classified. According to Table VII, the final results are evidently not supported regardless of gender. This finding implies that our doubts on gender classification are invalid. Therefore, gender does not affect the results when the sample is discussed as a whole. The results obtained are supported, as shown in Table VI. This finding implies that the developed hypotheses (*H1* to *H6*) are unlikely altered by gender. Some implications exist.

According to the subjects of the current research, social software with features can likely help deliver online information services (e.g. mobile map) and develop online social relationships (Haefliger *et al.*, 2011). Moreover, the platform established using social software has unique characteristics that pertain to making the community updatable to maintain the most attractive state of the software at any time for the participants to continuously remain willing to be involved. The platform also brings benefits, such as increasing information visibility, stimulating creativity and providing ideas from a human perspective. Our empirical study confirms that fitness analysis produces a systematic outcome, in which all elements (e.g. social, technology and individual) are required to cooperate with one another to maximize the OSN value. Moreover, results about factors that influence the fit are presented in Table VI. Some implications are presented.

First, social software has a significant effect on individual–social–technology fit (Table VI). This finding supports our argument and those of McAfee (2006), Wu *et al.* (2010a, 2010b, Chen (2010), Vezzetti *et al.* (2011) and Din *et al.* (2012) that advanced social technologies with presentation, interaction, communication and collaboration features contribute to the fit of individual and social features and help develop OSN values. Notably, the capability of social software can develop a virtual environment that enables the growth of participation and sharing economy, aiming to develop OSN users' benefits, such as information and knowledge sharing. On the one hand, given the capability, an organization may search for net-enabled services to develop useful resources (e.g. new media and new processes) that improve the competitiveness of an organization in the modern, highly dynamic environment. On the other hand, an individual adopts online channels to communicate with others; thus, the benefits may be a multidimensional issue instead of only a single information service issue. For example, an individual may find social relevance, sincerity and information consistency easily from online communities, which are almost impossible in the actual world. Among *H1-H3*, we can conclude that individual–social technology fit contributes to OSN values. This conclusion indicates that explaining to OSN providers and society observers the use willingness of different social software by young generations is possible.

Second, the social features presented through the expectation of equality, privacy, trust and diversity reveal the significant effect on individual–social–technology fit. This finding is consistent with the argument by Vavpotic and Bajec (2009) that social appropriateness is one of the most import factors linked to online community development. Moreover, it is particularly obvious to that by Hu *et al.* (2011) that social feature presented by trust should be considered to foster information sharing value and that by Lin and Wang (2012) that online social site use is associated significantly with social characteristics. The subjects reveal that, although capability for advanced social media technology enhances social capital resources, OSN users believe that equality, privacy, trust and diversity are irreplaceable regulations to maintain a healthy OSN, thus fostering OSN values. From the viewpoint of socialization, our empirical research findings reveal that users accept OSN to play a significant role in influencing social value development (e.g. information and knowledge sharing). At the same, they also consider building an equal social relationship to be important, as it enables diverse propositions, maintains acceptable privacy and behaves on faith to enhance the fit of technology features and individual features to value

development. To date, loyalty in the online community is generally weak. More experiences and understanding the combination of technological capability and personal value perception of online community may be necessary (e.g. virtual social experience). These social features are sometimes vague to cast on each individual, but these features show significant results. Whether an action is normal or not is still clear in the current society, given that people tend to follow social norms to obtain better fitness.

Third, the individual features presented through the sense of belonging, self-achievement and self-disclosure in the current research reveal the significant effect on individual–social–technology fit. Individual features are considered according to the perspective of human intrinsic characteristics to express affection while using OSN. The subjects likely accepted the fact that emotion generation (e.g. sense of belonging) is important for the advantage of fit of technology features and social features, thereby likely benefitting OSN value development. This finding supports the concept by Carpenter *et al.* (2011) that use behavior of Facebook is associated with personality presented by self-efficacy and self-achievement. It is also consistent with that argument by Parkes (2013), who reported that technology should consider individual perception to develop positive attitude toward adoption willingness. Similar finding by Rao *et al.* (2014) reported that emotion could be generated from OSN interaction. Individual features, including various stimulated emotions, are considered to likely affect online social behavior, thus influencing the willingness for OSN value development. Given the differences in individual traits, this topic remains one of the most interesting topics for future research. The intrinsic values of humans are sometimes unclear. Therefore, increasing the epistemic value of each person helps in the relationship between individual features and individual–social–technology fit.

Finally, our findings reveal that a healthy OSN that can develop social value steadily possesses a fitting structure among social software, social and individual features. They suggest that a healthy OSN should emphasize not only on maintaining the balance but also on forming a fitting structure among the three facets. OSN value providers can broaden the use of advanced social media technology (e.g. human–machine interaction and emotion exploration) toward this aim to increase OSN functions, develop relevant regulations of online society development to enhance beliefs and trust and deepen the understanding of human intrinsic cognition and satisfy users' needs and wants. Therefore, we can conclude that everything is interrelated and inseparable. When a small change occurs in a certain field, dramatic modifications may occur. Furthermore, given that the data used in the current study were collected from online communities in Taiwan, the applicability of the findings is limited. The culture and habit of using OSN in Taiwan may differ from those in other regions or countries. In addition, the culture or customs differ significantly from every region. The behavior or actions may differ as well. Although the goal remains as target, the path to take or the choice to make along the way differs. For example, the perception on social and individual features of the Taiwanese may differ from those of other nationalities.

5. Conclusion

This research has briefly described the importance of fit analysis represented by social, technology and individual features with respect to OSN value development. Previous literature showed various theoretical fit models, such as the technology–performance, technology–task fit and social–technology fit models (Lu and Yang, 2014). However, minimal attention was given to the effect of the individual–social–technology fit model on OSN value development, particularly when social appropriateness and individual intrinsic characteristics are involved. OSN development is distinct, as it involves a virtual socialization process. Therefore, information about the thoughts and concerns of OSN users should be explored. Research results revealed that OSN value development is not simply a technical issue but is also a social and individual psychological issue. It also involves the interplay of all these issues. Fit theory is used to demonstrate the effect of individual–social–technology fit on OSN value development. Social software, social and

individual features are considered the antecedents of fit. The results agree with our research arguments and expectations. Findings of this study are remarkable because early studies focused mostly on the fit of social–technology, individual–technology and task–technology, with limited attention to the interplay of individual, technology and social facets to describe OSN value development. From the real-world perspective, OSN has been changing the role individual, organization and society plays with respect to value proposition because it is forming a new behavior among parties. However, many unknown details regarding the value development must be explored and identified, while virtually dealing with virtual society formation, development and value creation, such as behavior relevance, social relevance, psychology relevance and technology relevance. Moreover, the current research does not consider and compare the effect of individual–social fit, individual–social software fit and social–social software fit on the OSN value. Further innovative solution and practical investigation are necessary.

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