

IMPACT OF SOCIAL INFLUENCE ON INDIVIDUALS' ADOPTION OF SOCIAL NETWORKS IN SMES

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Received 2013-07-17, Revised 2013-11-18; Accepted 2013-11-18

ABSTRACT

While prior studies focused on the determinants of adoption of technological innovation in large scale businesses, there is a lack of empirical research on this issue of acceptance of social networks in SMEs in emerging economies. This study addresses this lacuna by focusing on the social factors driving Indonesian SMEs' adoption of technological innovation. A theoretical model based on the extant literature and established theories in the relevant field is empirically tested in this study. Data were collected through a structured questionnaire and analyzed using correlation matrices and multiple regressions. The most striking finding of this study is that social factors which has been rarely explored in prior research in SMEs' context is instrumental in broadening our understanding SMEs' practice of technological innovation in an emerging economy. This finding has implications for SMEs and the government in designing an appropriate strategy for the implementation of technological innovation that are highlighted in the study.

Keywords: Innovation Adoption, Social Networks, Peers, Attitude, Usage Behavior, Indonesia, Facebook

1. INTRODUCTION

The Internet is the most significant invention in the information and communication technology area. Its capabilities to help business activities have attracted considerable attention and support from entrepreneurs, executives and investors. Talukder and Yeow (2007) argued that the Internet enables organizations to transfer the skills, information and knowledge in an effective and efficient way. The Internet has led to the advent of social media such as Facebook, Twitter, MySpace and LinkedIn. For smaller organizations Internet innovations provide several advantages that are very important such as reaching new markets, promoting their businesses, releasing new products, increasing the quality of communications and social online networks, using data from other areas and building strong relationships with new business partners (Coccia, 1997; Kaplan *et al.*, 1997). Currently, there are one billions active users of Facebook who regularly use Facebook accounts and so it is a potential tool for improving business performance (Laudon and Traver, 2011).

Established theories in ICT adoption have been extensively applied in Western economies. However, many of these theories have not been widely applied to developing countries. Saarekento *et al.* (2008) found that globalization of trade has contributed to both challenges and opportunities, specifically for smaller businesses in developing countries. It is therefore important to investigate the factors that influence SMEs in their implementation of ICT innovations and their impact on the organizational performance of SMEs. Talukder *et al.* (2008) argue that the performance improvement of organizations was strongly influenced by new technologies. Since the end of the 1990s the enormous growth in Information Communication Technology (ICT) has forced many organizations and businesses to re-assess their existing practices and consider adopting new methods, both for their customers and business partners (Oh *et al.*, 2009). The rising importance and proliferation of ICT constitutes a significant improvement in the information system within the organizations. Levy and Powell (2003) argue

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that SMEs through technology innovation will help them to exploit larger and wider markets and improve their customer base.

ICT adoption by SMEs is a growing area of interest in developing Asian countries. With the emergence of small and medium enterprises as a powerful force in both developed and developing countries, the issue of how new technologies are accepted and practiced is an area that requires more analysis (Oh *et al.*, 2009). Indonesia is a developing country where technology plays an important role in its economic growth. Therefore, this research is designed to fill that gap- to unveil the factors that influence SMEs in an emerging economy and its implementation of new technologies. SMEs' low rate of adopting technology innovation, particularly compared to large enterprises underlines the importance of this research. Due to the paucity of relevant studies, current study concerning adoption of ICT in SMEs is deemed suitable for examination (Shiels *et al.*, 2003). Research on ICT adoption in SMEs context in Indonesia is limited, especially in the context of social media that constitutes an important aspect of ICT innovation in business. This study is aimed to fill that gap.

1.1. Theoretical Framework

The study used the unified theory of acceptance and use of technology (UTAUT) as the basis of theoretical framework. The UTAUT was initially introduced by Venkatesh *et al.* (2003) to consolidate prior TAM-related studies (Marchewka *et al.*, 2007) and they integrated constructs of eight prominent models which are Theory of Reasoned Action (TRA) (Fishbein and Ajzen, 1975), Technology Acceptance Model (TAM) (Davis, 1989), Motivational Model (MM) (Davis *et al.*, 1989), Theory of Planned Behavior (TPB) (Ajzen, 1991), Combined TAM-TPB (C-TAM-TPB) (Taylor and Todd, 1995), Model of PC Utilization (MPCU) (Varela *et al.*, 1991), Innovation Diffusion Theory (IDT) (Rogers, 2003) and Social Cognitive Theory (SCT) (Compeau and Higgins, 1995).

The theory posits that the behavioral intention to use technological innovation is determined by performance expectancy, effort expectancy and social influence. The theory is well known for testing the moderating effects of users' demographics on the relationship between determinants of ICT and users' behavioral intention. Based on in-depth review of eight highly reputable models, UTAUT became a more powerful predictor of the probability of technology innovations success (Lu *et al.*, 2005).

UTAUT is also able to assist in the understanding of the determinant of technology acceptance in order to create management interventions. There are four objectives of UTAUT are: to examine the extant user acceptance models; to empirically confront the eight models; to formulate the Unified Theory of Acceptance and Use of Technology (UTAUT); and finally to validate UTAUT. Eight different models from previous studies have been provided to be reviewed in order to get an integrated view of user acceptance and to reveal how the usage of technology is strongly influenced by individual differences (Marchewka *et al.*, 2007).

1.2. Research Model

The research model is developed based on the theoretical underpinnings of the above. Three categories of dimensions have been developed and applied to SMEs in Indonesia. These are: Social factors, social network perception and social network adoption. A total of five boxes are developed to reflect these dimensions. Three of the boxes represent the determinants of social media adoption. The fourth box is concerned with employees' perceptions of social media innovation as a dependent variable in relation to determinants. At the same time this box also serves as an independent variable to the fifth box which is concerned with the dependent variable representing social media adoption behavior. The proposed relationships of all the variables in the theoretical model are shown in **Fig. 1**.

1.3. Hypothesis Development

1.3.1. Virtual Social Network

Social network is defined as the extent to which individuals are influenced by other individuals of other organizations (Lewis *et al.*, 2003). Prior studies also suggest that adoption of technological innovations is significantly affected by external counterparts (Khoumbati *et al.*, 2006). Some pressure on individuals within companies to adopt technological innovations could be perceived as coming from people in social networks, which include virtual networks (Talukder *et al.*, 2008). Virtual social networking is the newest development of the internet technology represents the sophisticated information and communication technology that accommodates communication between individuals virtually (Tao, 2011). The acceleration of the adoption of technological innovations can be achieved by communication sustainability between members within social networks.

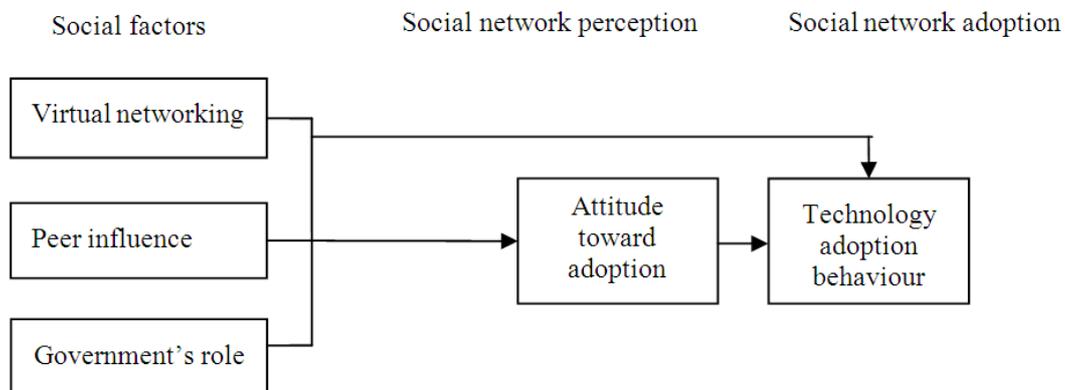


Fig. 1. Conceptual model

Sarker *et al.* (2011) argue that networks that are adopted by individuals within organizations can improve an individual's performance. Appropriate networks have also become crucial resources that provide social support to all individuals within organizations. To maximize the knowledge improvement about technology innovations and in order to generate attitude, individuals within organization can be assisted by excellent social encouragement and society communication (Kraut *et al.*, 1998). The spread of information about the benefit of adoption of technological innovations is significantly facilitated by participation of individuals within organization in informal communication within their social networks (Talukder *et al.*, 2008).

Adoption of innovations on information and communication technology can be accelerated by the usage of virtual social network as a media to communicate with other members within organizations and other members from other organizations (Talukder and Quazi, 2011). There is a significant relationship between interaction with social networks and individual's use of technology (Sykes *et al.*, 2009). Informal individual networks have a crucial impact on the transfer of knowledge process within organizations (Reagans and McEvily, 2003). Moreover, those informal social networks connect most members within the same organization or organizations in different industries (Frambach and Schillewaert, 2002). In virtual networking, individuals are able to learn about various innovations and practices that are useful to them (Messinger *et al.*, 2009). Therefore, various information and communication technologies are significantly useful for individuals and save the energy they use to seek information from various sources within organization. Thus, the following hypothesis was proposed.

Hypothesis 1

There is an impact of virtual networks on attitude toward technology adoption.

1.4. Peers

Peers can have an important role within organizations (Talukder and Quazi, 2010). They can contribute useful activities such as providing significant advice about individual performance and also discuss mutual; connection (Schillewaert *et al.*, 2005). Perception of value of technology can be formed through signals and messages that are delivered by peers (Talukder *et al.*, 2008).

Employees within organizations are significantly impacted by their counterpart's encouragement and motivation and moral support from peers. Basically, as social human beings, individuals within organizations also need communications and interactions with others. Specifically, they want to get advice from their colleagues when they have problems in their workplace (Lewis *et al.*, 2003; Yuan *et al.*, 2005). The importance and benefits of adoption of technological innovations within organizations reflects on the behavior of peers who enthusiastically involved in the process of adoption of technological innovations. That is why most employees within organizations are interested to observe their counterpart's activities and then to try to replicate what is done by their colleagues (Frambach and Schillewaert, 2002).

Further, adoption of ICT innovations can be well-executed through excellent communication between individuals within organizations that generate powerful synergies (Sykes *et al.*, 2009). Key persons within organizations have a significant role in influencing the

performance of their colleagues through their ability to influence other members within the organization (Sarker *et al.*, 2011). Moreover, external pressure created by colleagues can be categorized and assumed as social influences that influence individuals' decisions to adopt ICT innovations (Sykes *et al.*, 2009). Some earlier studies suggest that the key to success of technological innovations within organizations is significantly determined by quality of the communication and interaction between employees and their peers (Davis *et al.*, 1989; Sykes *et al.*, 2009). Therefore, the following hypothesis was developed.

Hypothesis 2

There is an impact of peers on attitude toward technology adoption.

1.5. Government's Role

The role of government is more important in the profit-oriented organizations that have limited access to financial resources, such as SMEs, which absorb a significant number of the work force around the country (Baum and Szivas, 2008). Furthermore, some relevant support from government for SMEs can vary from creating policies and operational direction and encouraging skill improvement to providing access to the high-end expertise (Baum and Szivas, 2008). Bozeman (2000) suggested some contributions that can be generated by governments to encourage the successful adoption of ICT innovations. Firstly, governments can involve university research and development departments in the program of encouraging individuals and organizations to adopt ICT innovations. Secondly, governments can organize and create good plans to support the development of civilian technology innovations. Thirdly, action is needed by government to synergize the government and university laboratories in generating technology innovations to be used by private sectors. Fourthly, Bozeman (2000) recommends intensive and continuous programs from both federal and university laboratories to develop technology-based economics.

Research performance, supplying applied research and technology to industry and developing policies, are activities that can be generated by government to support small and medium enterprises (Bozeman, 2000). By developing strong and adequate knowledge of the determinants of ICT innovations adoption, governments are also expected to make appropriate decisions that enable profit-oriented organizations to adopt ICT innovations (Bayo-Moriones and Lera-

Lopez, 2007). Governments can play a key part in assisting SMEs improve the economic growth and development of the country (Baum and Szivas, 2008). Policies that are introduced by government have to accommodate the interests of two parties, SMEs and large companies, equally.

A study by Balamoune-Lutz (2003) found that ICT innovations adoption is significantly determined by the policies that are introduced by government. However, low commitment and unlawful attitude of some people inside government push SMEs into a deep valley. SMEs are quite often assumed to be revenue centres for state authorities instead of a potential part of economic growth of the country (Smallbone and Welter, 2001). Due to the importance of ICT innovations in the current era, all governments around the world should be more active in their encouragement of SMEs and adoption of ICT innovations to generate new and innovative ICT-based projects (Fernandez-Villavicencio, 2010). Therefore, the current priorities to support SMEs such as developing relevant institutions (Smallbone and Welter, 2001) and inducing adoption of ICT innovations (Oh *et al.*, 2009) have to be implemented immediately. Moreover, selective interference to motivate and assist SMEs to adopt ICT innovations and to assist SMEs to achieve excellent performances is also urged (Smallbone and Welter, 2001). We, therefore, proposed the following hypothesis.

Hypothesis 3

There is an impact of government's role on attitude toward technology innovation adoption.

1.6. Perception Toward Social Network

Attitude can be defined as a personal feeling about how favorable or unfavorable is their performance of the behavior (Lam *et al.*, 2007). Attitude to technology adoption has been approached from two points of view. Firstly, scales can traditionally be used to measure attitude toward objects were adapted. On the other hand, scales have been specifically developed for the construct (Castaneda *et al.*, 2007). The original definition introduced by Fishbein and Ajzen (1975) clearly explained that attitude is the function of behavioral belief and evaluation of outcomes. Another definition of attitude is proposed by Bhattacharjee (1998), who defined attitude as a function of an individual's perception and belief regarding ease of use and usefulness of the ICT. Studies, such as Liao and Landry (2000) show that an individual's attitude toward the

acceptance of ICT innovations may have an impact on the intention to adopt ICT innovations (Talukder and Quazi, 2011). Therefore, the following hypothesis is proposed.

Hypothesis 4

There is an impact of attitude toward technology innovation adoption on technology adoption behavior.

2. MATERIALS AND METHODS

Data were collected from Indonesian SMEs including food, garments, agriculture, telecommunications, processing and commodities. The population of the study was taken from east and central Java where SMEs are particularly concentrated. The data for this study was collected from the senior managers of SMEs in Indonesia. The study considered Facebook as an innovative technology for SMEs to adopt in their business operations. The data for the study were obtained using a structured survey questionnaire. The samples were drawn from the list of SMEs appearing in the SMEs Association databases. A total of 1450 participants were selected using random tables. Questionnaires were then mailed to the target participants along with a reply paid envelope. After two follow-ups the total completed questionnaires stood at 363 of which 350 were deemed usable. The statistical techniques used to analyze the data included correlation matrices and multiple regression analyses.

3. RESULTS AND DISCUSSION

3.1. Demographic Information about Respondents

Table 1 summarizes the respondents' demographic characteristics. The participants are virtually equal in terms of gender representation-52% for males and 48% for females. It can be assumed that SMEs in Indonesia are being managed and owned relatively equally by men and women. Most participants were fairly young in that nearly 60% are in the 20-29 age bracket. This is followed by 35% for the 30-39 age group. This means that more than 94% of participants who managed SMEs and are familiar with innovations are fairly young, i.e., less than 40 years old. Most participants (56.6%) have a Bachelor degree and 40% graduated from senior high school. About one third (30%) of all participants own SMEs, followed by a mid-level manager at 28% and those at senior management level constituting 27.7%. Only 12.3% of participants are CEOs.

Table 1. Demographic profile of participants

	Characteristics	Frequency	Percentage
Gender	Male	182	52.0
	Female	168	48.0
Age	20-29	208	59.4
	30-39	123	35.1
	40-49	12	3.4
	50-59	6	1.7
	60 and above	1	0.3
Education	Higher secondary	140	40.0
	Bachelor	198	56.6
	Masters	12	3.4
Position	Mid-level	101	28.9
	Top-level	97	27.7
	CEO	43	12.3
	Owner	109	31.1
Industry	Food	73	20.9
	Garment and clothing	167	47.7
	Processing	18	5.1
	Agriculture/agribusiness	5	1.4
	Telecommunications	7	2.0
	Miscellaneous	80	22.9
	TOTAL	350	100.0

Nearly half of the participants (47.7%) work in the garment and clothing industry, followed by food-related industry (20.9%), processing (5.1), telecommunications (2%), agribusiness (1.4) and others (22.9%).

3.2. Correlation Matrix

Table 2 indicates that the perception concerning SMEs' adoption of social media is significant for virtual social network ($r = 0.740$, $p < 0.01$), peer support ($r = 0.621$, $p < 0.01$) and government role ($r = 0.118$, $p < 0.05$). The analysis also revealed that SME's attitude toward technological innovation adoption is significant ($r = 0.333$, $p < 0.01$). All factor loadings are significant at an alpha level .01 and the factor loadings are fairly high. This also confirmed the convergent validity of the measurements.

3.3. Regression Analysis

Multiple regression analysis was carried out to test the proposed model. The result of this testing is shown in **Table 3**. In the case of attitude, it explained 59.7% of the variance in attitude and its associated F statistics (170.85) indicated it was significant at the $p < 0.001$ level. Virtual social network, peer support and government role are significant at the $p < 0.01$ level. Regression analysis was also carried out using attitude as the independent variable and usage as the dependent variable (**Table 4**).

Table 2. Correlations among study variables

	1	2	3	4	5	6	7	8
1. VIR	1.000	0.668**	0.304**	0.740**	0.232**	0.640**	0.755**	0.703**
2. PEE	0.668**	1.000	0.321**	0.621**	0.185**	0.318**	0.631**	0.621**
3. GOV	0.304**	0.321**	1.000	0.118*	-0.040	0.103	0.263**	0.081
4. ATT	0.740**	0.621**	0.118*	1.000	0.309**	0.531**	0.751**	0.724**
5. USA	0.232**	0.185**	-0.040	0.309**	1.000	0.209**	0.158**	0.350**

Legend: VIR = Virtual network, PEE = Peers, GOV = Government's role, ATT = Attitude, USA = Usage behavior, PRO = Profits, GRO = Growth, MAR = Market share

** . Correlation is significant at the 0.01 level (2-tailed)

* . Correlation is significant at the 0.05 level (2-tailed)

Table 3. Results of regression analysis with attitude as dependent variable

Independent variables	Unstand. Coef. B	Standard coef. β	T	R Square	F	Sig.
				0.597	170.853	0.000
Virtual network	0.612	0.612	13.228			0.000
Peer support	0.261	0.261	5.610			0.000
Government's role	-0.152	-0.152	-4.189			0.000

Dependent variable: Attitude toward social networking

Table 4. Results of regression analysis with usage as dependent variable

Independent variables	Unstand. Coef. B	Standard coef. B	T	R Square	F	Sig.
Attitude toward Innovation	0.309	0.309	0.070	6.096	36.839	0.000

Dependent variable: Usage behavior

The results show 9.6% of the variance and its associated F statistics indicating attitude had a statistically significant impact on the social media adoption behaviour of employees at the $p < 0.001$ level.

4. CONCLUSION

The main findings of this study were that virtual social networking is the most important variable that significantly and positively affects all other variables. It means that virtual social networks encourage the adoption of ICT innovations. The study also found that virtual social networking sites such as Facebook are becoming an effective tool to improve the adoption of ICT innovations in various organizations in Indonesia especially in its SMEs sector. The most fascinating result came from the analysis of virtual social networks as part of the social factors. The study found that virtual networks have a positive and significant impact on the attitude of individuals toward adoption of ICT innovations within organizations.

The positive and significant influence of virtual networking on individual attitude within organizations brings a strong message; that by maximizing virtual social networks in communication, many advantages can be achieved by individuals within organizations in terms

of adoption of ICT innovations. Some advantages that can be achieved are time saving, cost saving, increasing area of coverage, enabling the finding of new opportunities, opening of new market and leaving geographical constraint behind. Virtual social networking is the newest development of the internet technology and represents the sophisticated information and communication technology that accommodates the communication among individuals virtually. Individuals within virtual networking are able to exchange information and helps generate economic activities.

ICT adoption will be instrumental in improving the organizational performance of SMEs. Sound research devoted to identification of drives of ICT adoption will significantly contribute to improvement of an organization's attitude and the attitude of its employees' toward using ICT innovation at work. This research will benefit Indonesia SMEs by providing guidelines to improve their financial targets and improved business performance will significantly contribute to the country's economic growth in the long term. ICT innovations, particularly Facebook used for business purposes and economic activities, would be very useful for individuals and their organizations because Facebook does not apply membership fees to its audiences. This virtual network technology is an effective tool for communication and

currently attracting many companies to promote their products and services virtually using Facebook sites.

4.1. Implications for Managers

The results provide important implication for managers. The results suggest that managers should focus their attention on the importance of technological innovations for individual employees. They should provide required support, particularly by providing continuous training and appropriate incentives for actively participating on the ICT adoption process in general and Face book in particular. The training should be extensive and the nature and extent of training are to be determined through extensive consultation with the management, experts, academic researchers and ICT based government agencies.

4.2. Implications for Organizations

As SMEs are benefited from implementation of technological innovation such as Face book, the organization should develop a clear policy on integrating ICT innovation into their business strategy. The policy should pay greater attention to differentiate SMEs usage record of ICT adoption from the competitors in order to uniquely position firms' commitment to embrace new technology in their operation. Organizations can also take the advantage of new ICT technology such as Face book to minimize cost of communication as Face book does not cost any money to the organization. Furthermore, Facebook has the potential of reaching customers, suppliers and stakeholders across borders. Thus, Facebook can play a pivotal role in the effective communication of day to day affairs of SMEs to the target market virtually without any cost to the organization and help an organization increase its performance.

4.3. Implications for Governments

As the adoption of ICT innovations are considered one of the key factors for improving an organization's performance, governments in general and Indonesian government in particular can learn from the findings of this research and design programs to help SMEs to implement ICT innovations into practice. ICT innovation and its usage in SMEs are strategically important for Indonesia as SMEs make significant contributions to the economic development of the country in terms of income generation and job creation. Historically Indonesian SMEs are not financially capable of driving and implementing the growing and dynamic ICT innovation. Hence governmental involvement is considered crucial

for the survival and growth of the struggling medium and small sized organizations. Government can facilitate the adoption process directly through offering financial assistance as well as involving universities and other research organizations to provide infrastructural help for the overall development of ICT implementation. More specifically, government can involve its science and technology in providing technical support along with employee training facilities to motivate SMEs to continuously adopt an updated version of social media.

4.4. Limitations and Future Research

While conclusive and convincing results have been generated by the in-depth analysis of the data, this study like any other research does have some limitations that are to be worth noting. This study collected data from one single island in Indonesia, yet ignored others such as Sumatera, Kalimantan, Bali, Lombok, Sulawesi and Nusa Tenggara. A future study on this topic should include them in the sample frame so that a general comparison can be made. There are thousands of SMEs throughout Indonesia and future research can use a broad based sample drawn from all the islands in Indonesia to increase the generalizability of the findings at the national level. Another limitation is that this study collected data from one single point in time. Future research can use a longitudinal approach to capture the changes that would occur in the long-term in terms of integration of ICT innovation into organizational setting. Toward making the findings generalized at the international level, future research can be based on data collected from other emerging economies in the region such as Malaysia.

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