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Adoption of social media networks by Indonesian SME: A case study

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Abstract

We observed how an Indonesian SME using social media networks (Facebook and Twitter) for their business. The adoption of social media network to promote and conduct business in SMEs is quite new. We used Actor Network Theory (Callon 1999; Latour 2005; Law 1999) to explain the adoption social media networks due to its ability to explain the adoption phenomenon as an interactive process between organisations and its environment rather than focusing on individual factors that may affecting the adoption (Kautz 2004; Slappendel 1996). The qualitative approach was deemed appropriate for this study since the use of a process-based perspective required a thorough analysis and understanding of the social media networks adoption process. The qualitative approach with semi-structured interviews allowed us to explore in depth all the factors and the interaction of all stakeholders within a social media networks adoption process by Indonesian SME(Creswell 2003; Leedy & Ormrod 2005). As a result we found a number of factors that enable the success of using social media networks for supporting business.

Keywords: Actor Network Theory, SMEs, Indonesia, Social Media Networks, Twitter, Facebook

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1. Introduction

Small and Medium Enterprises (SMEs) arguably form a significant proportion of economic development in many countries including Indonesia (Aragon-Sanchez & Sanchez-Marin 2005; O'Regan & Ghobadiah 2004). We observed how an Indonesian SME adopted social media networks to support their business. The company we studied has been using Twitter and Facebook for quite sometimes. They also have been building a website as a main entry point to their company and center activities.

Typical adoption of innovation study used diffusion of innovation theory (Rogers 1995) to explain the phenomenon. Such approach have been heavily criticize due to pro innovation bias view and the tendency to focus more on factors (drivers and barriers) instead of the adoption process itself (McMaster 2001; McMaster & Kautz 2002). We used Actor Network Theory or ANT (Callon 1999; Latour 2005; Law 1999) to explain the adoption social media networks due to its ability to explain the adoption phenomenon as an interactive process between organizations and its environment rather than focusing on individual factors that may affecting the adoption (Kautz 2004; Slappendel 1996).

The qualitative approach with semi structured interview and observations is deemed appropriate for this study since the use of a process-based perspective required a thorough analysis and understanding of the IT-based accounting systems adoption process (Kautz 2004; Slappendel 1996). The qualitative approach with semi-structured interviews allowed us to explore in depth all the factors and the interaction of all stakeholders within social media networks adoption process (Creswell 2003; Lam, Boymal & Martin 2004). Observations allow us to see first-hand the actual use of social media networks in daily operations. Constant comparison based on grounded theory was conducted (Corbin & Strauss 2008; Glaser & Strauss 1967). We found pattern emerged that deemed important to be analyzed and explored further.

On the next sections we will discuss the theoretical based of our study along with the methodology justification. We also reveal our respondents profile continued by our findings. At the end we present our conclusions.

2. Adoption of Innovation within SMEs

Studies of the adoption of innovation can be considered as originating from the study of the diffusion of innovation (DOI) and more specifically diffusion of IT innovation (McMaster 2001; McMaster & Kautz 2002; Rogers 1995). The notion of diffusion is often associated with the effort to spread innovation to a greater audience using communication channels, while adoption is often associated with the decision to accept and use the innovation (Bøving & Bøker 2003; Brown 1981; Rogers 1995; Schon 1971). Innovation is associated with something new, such as ideas, artifacts or products (Rogers 1995) In this paper the use of social media networks into the organization to support business is considered as an innovation.

2.1. Definition of adoption

Basically there are three different definitions of adoption of innovation. The first refers to the Diffusion of Innovation (DOI) theory (Rogers 1995), in which adoption means decision to make physical acquisition of technical artefacts or a commitment to implement innovation with the emphasis being on the decision to adopt (Aiken, Bacharach & French 1980; Fichman & Kemerer 1993). The commitment to use the innovation is the result of a decision to make full use of an innovation or adoption (Rogers 1995). Rogers's diffusion of innovation theory was drawn mainly from communication theory. Accordingly, its main idea was concerned with the process of communicating the idea of innovation to the potential adopters. The main objective is to convey the innovation message and encourage the potential adopters to accept the innovation. Adoption would be achieved in the adopter's mind and it is not important how the innovation is actually put into use by the

adopter. This definition is insufficient to explain how the innovation actually being accepted and used.

The second definition of adoption is from the works of Thong and Yap (1995), where adoption of IT is defined as using IT to support business. This definition has similarities with the third definition of IT adoption, which is using innovations as intended by the designer (Bøving & Bøker 2003). The difference is that Bøving and Bødker (2003) argued that modification of an innovation by a user in practice or by re-invention (Rogers 1995) was not supported by their findings, therefore it was concluded that not all use of innovation was equal and could be called adoption. Only a full use of innovation as intended by the designer without reinvention can be called adoption. On the other hand Thong and Yap (1995) did not differentiate between full use and modified use of IT in their studies. Still, these two definitions argue that unless the innovation is put to use, it is not an adoption. This argument is in line with Zaltman et.al. (1973), Damanpour (1987), and Damanpour and Evan (1984) they considered a new idea as innovation when implemented. It is not enough that the use of IT-based system is only accepted or decided upon without any physical implementation. Rogers (1995) noted that all activities until the decision is made to adopt innovation were mental activities and the implementation of the innovation required physical activities.

2.2. Actor Network Theory (ANT)

There are three different approaches to study adoption of innovations, which are individualist, structuralist, and interactive process (Kautz 2004; Kautz & Nielsen 2004; Slappendel 1996). Individualist and structuralist approaches are focusing on individual actors and organizations as unit of study. Accordingly, the focus of studies is mainly on factors such as individual characteristics, size of organizations, leader's characteristics, and the structure of organizations. In real life, those factors are not sitting in a container and staying still, there are evidence of interactions between individuals, organizations, and their environment. Interactive approach, on the other hand, offers a more comprehensive view which covers the interactionsIt can be said that interactive processes offer more comprehensive perspectives of innovation within organisations. Individuals' actions and the structure of an organisation would determine the adoption of innovation. The interactive process acknowledges that individuals might act within the organisation and its structure, yet at the same time organisational characteristics and its environment would influence the individual's actions. Within interactive process perspectives, Actor Network Theory (ANT) is one of the emerging theories that attempts to explain adoption of innovation as a result of interaction process (McMaster, Vidgen & Wastell 1997; Tatnall & Burgess 2004; Tatnall & Lepa 2003).

ANT is often accredited as the work of Michel Callon, Bruno Latour, and John Law (Callon 1999; Latour 1988, 1999, 2005; Sidle & Warzynski 2003; Tatnall & Burgess 2004; Tatnall & Lepa 2003). The key feature of ANT is Translation Process. The translation process consist of four stages (Callon 1986):

1. Problematisation. Key actors attempt to define the problem and roles of other actors to fit the proposed solution, which was made by the key actors. Key actors proposed solutions to the problems (Tatnall 2002). The key actors persuade the other actors that they all have the same interest and the answer to the problems is in the solutions proposed by key actors (Law 1999; Tatnall & Burgess 2004). The desired result would be the other actors would accept a set of specific conventions, rules, assumptions, and ways of operating defined by heterogeneous engineers which ultimately resulted in the formation of network (Latour 1988).
2. Interresement. Processes that attempt to impose the identities and roles defined in problematisation on other actors. The key actors and other actors enrolled in the new created network try to lock other non-enrolling actors. They gradually dissolve the existing networks and replacing them with new networks created by the enrolling actors (Tatnall & Burgess 2004; Tatnall & Lepa 2003). The enrolling actors try to stabilize the new identities for the other actors.
3. Enrolment. A process where one set of actors (key actors) imposes their will on others. The other actors will be persuaded to follow the identities and roles defined by the key actors. This will then lead

to the establishment of a stable network of alliances. The enrolment process includes among other things coercion, seduction, and voluntary participation (McMaster, Vidgen & Wastell 1997).

4. Mobilisation. This is where the proposed solutions gain wider acceptance. The network would grow larger with the involvement of other parties that were not involved previously. This growth is due to the influence of actors.

When using ANT to investigate IT adoption, a researcher would focus on issues such as network formation, human and non-human actors, alliance, and network build up (Sismondo 2004; Tatnall & Burgess 2004). Stronger alliances would be likely to influence the decision to adopt or reject IT. In conclusion, ANT recognizes that adoption of innovation is initiated by individuals who build a network of individuals (in the form of an organization) and nonhumans (machine, tools, etc.) to adopt innovations. ANT is different from DOI (Rogers 1995) in several ways:

- It breaks the communication into stages (of translation).
- It considers the details of "resistance" (anti-program).
- It treats non-humans as actors.
- It explains success and failure with the same model.

ANT was originally developed to explain the diffusion of science into society (for example the idea of pasteurisation in Latour 1988). It is similar to Rogers's DOI. The difference is that Rogers's DOI viewed the adoption as merely a communication process; while ANT viewed adoption of innovation as involving a political game where an actor (who wants to spread the innovation) builds a network that will use the innovation. Some other examples are the works of McMaster (McMaster 2001; McMaster, Vidgen & Wastell 1997) and Tatnall (Tatnall & Burgess 2004; Tatnall & Lepa 2003). In those studies, the process of translation was believed to be richer and deeper in that it acknowledged the intertwining and inseparability of technical and social issues.

ANT is an example of a theory to explain how different stakeholders in an organization try to spread their ideas to the other stakeholders and influence them to accept the ideas. From the ANT perspective, an actor would build a network of power to overcome other networks of power so he or she could win and impose their ideas (Latour 1996, 1999, 2005). At the end, the actors would use the network to achieve their own goals. In the context of adoption of innovation, the ANT perspective could be used to show how different actors spread their ideas (innovation) to be adopted by others through the development of a network (McMaster 2001; McMaster & Kautz 2002; McMaster, Vidgen & Wastell 1997). When their ideas (innovation) are accepted by the other stakeholders in form of network development, then the actor could use the network to achieve his or her own goals. Non-human actors could be 'act' in different way than intended or imposed by the key actors.

In this light of ANT process, we will identify the actors and network they build, along with the process of network development (translation). We will draw from participants' own account of their adoption experience to explain the process. We mapped the participants' experiences into the translation's stages.

3. Research Method

IT adoption within SMEs is a complex socio-technical phenomenon (McMaster, 2001; McMaster and Kautz, 2002; Rogers, 1995; Slappendel, 1996). SMEs consist of individuals and other resources that interact with each other in their daily operations. By introducing an innovation (in this case IT) the interaction both within an SME and between the SME and its environment will change. Such complexity needs to be explored in its fullness. Any effort to reduce such complexity into mere numbers and figures could obscure the real picture. The outcome should provide a more complete picture drawn from the data collected by semi-structured interviews.

As discussed in the previous section, the qualitative approach allows the researcher to study the phenomenon in its context and with all its complexity (Leedy and Ormrod, 2005). It enables the adoption of social media

networks within SMEs to be explored beyond just the factors influencing adoption by Indonesian SMEs and also allows an investigation of the complexity of adoption process experienced by Indonesian SMEs.

Establishing the research approach used in this study also establishes the selection of methods and tools to collect and analyse the data from research participants. As it is the intention of a qualitative research to study the phenomenon in its context, the methods used has to enable interaction with the research participants (Crotty, 1998; Leedy and Ormrod, 2005). In this study, the data comes from the participants' experience in adopting social media networks for their business. One method of collecting such data is the interview (Creswell, 2003; Gillham, 2000; Leedy and Ormrod, 2005; Yin, 2003). The semi-structured interview with open-ended questions is selected as the method to collect data for this study. The semi-structured interview allows the researcher to explore participants' experiences of IT adoption and to focus on the main issues, yet at the same time allows the interviewer to explore participants' responses further or to clarify issues emerging during the interview (Gillham, 2000; Leedy and Ormrod, 2005). We conducted interviews and observations to collect data. We interviewed PN's President/CEo and PN's staff. We observer their use of social media networks directly and analyzing all posting on social media networks accounts related to PN's activities.

Once the data is collected, content analysis can be used as an analysis tool. Content analysis is used to identify patterns and themes within the data (Boyatzis, 1998; Leedy and Ormrod, 2005; Neuendorf, 2002). From the analysis, stages of the adoption of IT within the participant's organization can be identified, along with other relevant information that may be important but does not directly relate to the adoption of IT. We mapped the result to 4 stages of ANT's translations.

4. The Company

PN[†] started as a website to accommodate photographic community started by CS and PR in late 2003. Initially it was intended as hobby for both CS (a professional photographer) and PR (an IT person and photographic enthusiast). Now it has been developed as one of the biggest photo community in South Asia. PN now has more than 300.000 registered and validated members with more than two million photos hosted on their websites. As PN grew, CS and PR realize that they could not rely on their spare time and resources to manage PN. Therefore they started PN as registered company and embarked on serious business venture. CS is appointed as president and CEO while PR acts financial director. They appointed IB (another photographic enthusiast and longtime member) as COO responsible for daily operations. Currently, PN has total of 21 persons to run the company including management. PR as financial director is not actively involved in daily operations. PR has his own business to attend to. However, on regular basis, PR is involved in significant financial decision which involved substantial cash outflow and inflow.

To generate income, PN has several business units. Their main income source is PN website itself, which generate income by accepting web advertisings in form of graphical ads banners and text ads. Recently they have been launching a Blackberry App of PN and planning to embed advertising as well. They also have e-Bay like facilities which members could sell their photographic related merchandise or advertise their photographic related business. Some members even pay to have their merchandise showed on primary pages. The website is developed and maintained by Information Technology Development Division. The second income source is event division. Event division responsible for holding photographic related events such as workshops, seminars, members gathering, photo hunting trip, etc. They accept assignment from sponsors and institutions as event organizer with a fee. The third income source is the shop. PN shop produce and sell various PN merchandise such as shirts, stickers, mugs, ashtray, etc. From time to time PN shop release a limited edition of

[†] All names (persons, organizations, and institutions) are not the real names.

merchandise package, which sold on premium prices. The fourth division is a digital photo related magazine. This magazine is free to download and published monthly. The digital magazine draws their income from advertisings. Currently the magazine is only having about 8000 regular downloader monthly. This is a small number for magazine circulations.

PN also has financial and administration department which deal with human resource management, payroll, taxation, financial matters, and cash management. Although on daily basis the financial and administration department work under COO supervision, the ultimate responsibility is to PR as financial director. PN also has marketing function to sell advertising spaces (on website, Blackberry App, and digital magazine). In the job, marketing has to coordinate with IT Development for providing support. And finally, PN has a person who responsible for managing PN presence in social media networks. PN organizational structure could be seen on Figure 1 below.

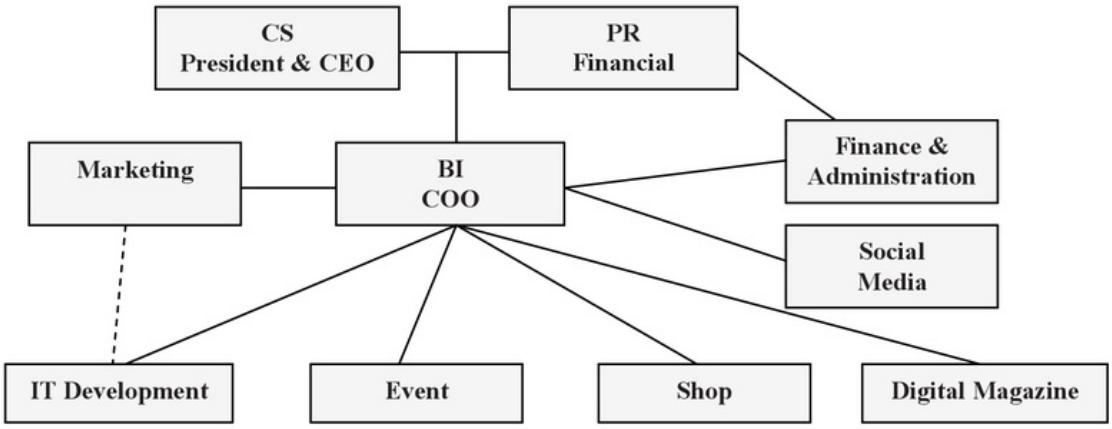

Figure 1. PN Organization Structure

PN has a strong presence on the internet with their website. However, PN also has Twitter account and Facebook page. The shop and digital magazine also has their own Twitter and Facebook account. Each PN employees also has Facebook and Twitter account. Facebook and Twitter has play major roles in PN business. Each member will tweet or posted on their Facebook walls every time PN has something new, such as an event that will be held in the near future, new merchandise on the shop, new edition of digital magazine, new picture uploaded to PN website that caught their attention etc. In turn each employees will relay (retweet Twitter post or reposted information on their Facebook wall) that information in their own respective account.

On the community side, PN has few moderators to manage the community. The moderators' duties are to oversee photos uploaded by members, posting in forums discussions by members, and to resolve any dispute regarding offensive comments and copyright violation. The moderators work voluntarily. Many of the moderators are well known photographic enthusiast or even professional photographers.

5. Translation Process

In this section we will map the process of translation within PN as suggested by (Callon 1986). We will discuss the process on each stage as follow,

1. Problematisation. Key actors attempt to define the problem and roles of other actors to fit the proposed solution, which was made by the key actors. The key actor in PN is CS, which is founder, and President/CEO of the company. To some lesser extend PR as founder and financial director is also act as

supporting actor. CS demands his staff to actively use social media networks. First, the social media networks used for personal purposes and off site communication. CS in his jobs as professional photographer and CEO of PN often travelling out of town and quite often overseas. During his trips he still wants to keep in touch with his staff using social media networks.

Most PN's member also actively using social media networks to communicate among them or with PN's Staff. CS then assigned each PN's staff to have their own social media networks account (at least Twitter and Facebook) and actively use them for promoting PN event, merchandise, and digital magazine as well as communicating with PN's members.

CS has a view PN presence in social media networks is a problem. He also defined other's PN staff roles in solving the problem, which is demanding them actively use social media networks for promoting PN and communicating with PN's members.

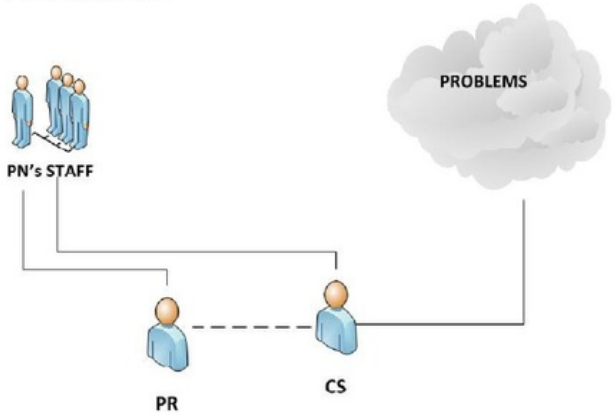

Figure 2. Problematisation

2. Interresement. Processes that attempt to impose the identities and roles defined in problematisation on other actors. In this stage CS not only assign duties to PN's staff. He actively promotes PN's social media networks channel to PN's members and all his acquaintances. Again, CS actively requests that PN staff use their social media networks for promoting PN. PN also has a staff dedicated to work with social media networks. This person is responsible for handling PN Twitter account (3 official twitter accounts), one Facebook page, and one YouTube channel. In his stage CS also rallied support from non-human actors, namely social media networks and PN website with all derivative applications (Blackberry App and planned for Windows Phone, Android, and iOS). PN's website is also equipped with facilities to share either photos or discussion forums posting into social media networks (Facebook and Twitter).

   Non-human actors are not without their problems. For example, early 2012 PN deployed new design for the website. However on the launch day there were problem with the software and they had to postpone launching for another two weeks. Twitter also has it problems. It is known that twitter limited post from an account during certain period of times. During PN anniversary, PN's staff posted the name of each attendant, unfortunately in the middle of session the limit for PN's Twitter account had been reached. As result, the next two hours posting on twitter was halted and continued almost at the end of the event. Despite all the problems, social media networks proven to be favorable allies for PN.
3. Enrolment. A process where one set of actors (key actors) imposes their will on others. The other actors will be persuaded to follow the identities and roles defined by the key actors. This will then lead to the establishment of a stable network of alliances. The enrolment process includes among other things coercion, seduction, and voluntary participation (McMaster, Vidgen & Wastell 1997). In this stage, CS along with PN's staff, social media networks, PN website, and PN moderators formed a network. Non-

human actors become a positive feature of network formed. CS, PN's staff, and PN's moderators communicate internally using both PN website and social media networks. PN Moderators' role is to deal with members for community problems as describe earlier. While PN's staff deal with technical side and daily back office operations of PN. Most members would only know CS and the moderators and rarely know PN's staff. For PN's staff the process of using social media networks is somewhat mandatory since they need to communicate with PN's stakeholders through Twitter or Facebook. PN's moderators' involvement on the other hand is completely voluntary. However, they were quite loyal in managing and developing event defending PN as a community.

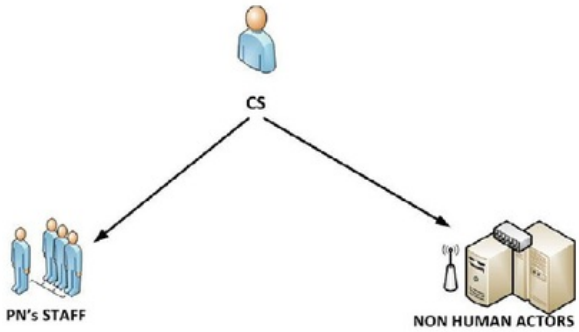

Figure 3. Interresement

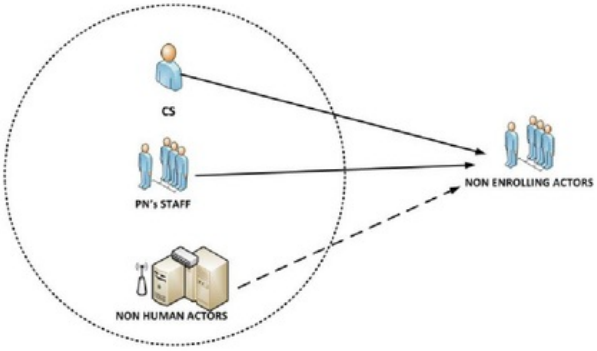

Figure 4. Enrollment

4. Mobilisation. This is where the proposed solutions gain wider acceptance. The network would grow larger with the involvement of other parties that were not involved previously. This growth is due to the influence of actors. The key success factors in this stage is two which are:
   a. Wide acceptance from other actors, especially non enrolling human actors.
   b. The ability of non-human actors and enrolling human actors to perform their pre-defined roles as intended. In other words, the accounting system is demonstrating its capabilities to solve the problems.

The use of social media networks, backed by PN's website attracted new members to the networks formed by CS. Moderators and PN's staff attracts new member to enroll and interact through social media networks. It is now common for PN's members to communicate with PN's staff or moderators and expressing their opinions using social media networks.

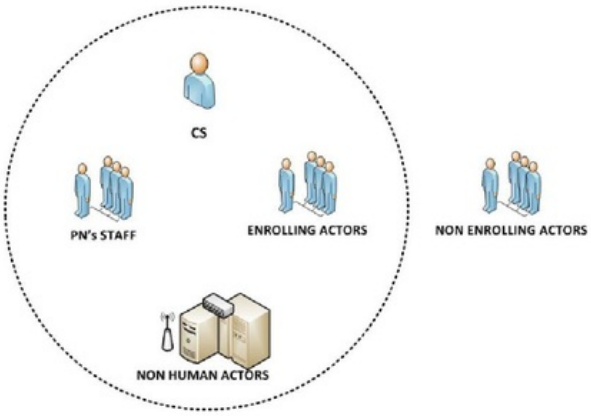

Figure 5. Mobilisation

6. Discussion

Actor Network Theory with its four stages of translations arguably could better explain the use of social media networks (McMaster, 2001; McMaster and Kautz, 2002; Tatnall, 2002; Tatnall and Burgess, 2004). By looking at the adoption process through translation, we could identify actors (both human and non-human). We also could observe how their action (or inaction) could lead to the successful adoption.

The key actors (CS) who initiated the use of social media networks mostly involved directly with the organizations' daily operations and actively use social media networks. As CS position as President/CEO with the highest possible authority in the organization, he could imposed his will to PN's staff and moderators. CS rallied PN's staff and moderators to work on two side of PN. Moderators are dealing with the community while PN's staff are dealing with back office operations. Not only that, both PN's staff and moderators are actively promote PN (events, new applications, new functions on the website, new merchandise, etc) using their own social media networks' accounts.

The key success factors for non-human actors are two. The first factor is wide acceptance from other actors, especially non enrolling human actors. In this case, PN's members accept and embrace the use of social media networks to communicate. In many cases, all the information posted on PN's Twitter account are retweeted by PN's member using their own Twitter accounts. The second factor is the ability of non-human actors and enrolling human actors to perform their pre-defined roles as intended. In other words, the use of social media networks is demonstrating its capabilities to support PN's business. For example, PN's merchandise often experienced a significant increase when promoted through social media networks and PN's website. Right now, PN's merchandise promotion are purely using PN's website and social media networks instead of more conventional media such as printed brochures and catalogues. Other example is events organized by PN. By promoting through social media networks, it has been successful in term of attendance. All past events were always sold out before the closing date. Right now, PN's website also provides registration facilities which made events' registration easier.

7. Conclusions

We have demonstrated in this article how Actor Network Theory could provide a better picture on adoption of social media networks within an Indonesian SME. Conventional adoption of innovation research would focus more on drivers and barriers and the characteristics of innovations. Actor Network Theory provides a

view where the adoption is a social process. A process where key actor tries to impose his view on the problems and his version of the solutions to other actors by building a network of human and non-human actors. The network is in form of the use of social media networks by PN and its members.

The network formation will be success if the key actors could entice other actors either human or non-human to join their new network. By forming new networks (using social media networks), the alliance dissolves the old network (the conventional communication media). Non-human actors need to perform their intended duties, otherwise the new network will crumble and failed to form. Some might say that the human actors responsible for making non-human actors to perform yet we could see from time to time that for some reason a computer and its applications simply does not work. The fact was the system failed to perform and the network failed to gain wider acceptance.

The study was conducted using organization as unit of study. Therefore the dynamic shown are on organizational level. We could gather more fact if we also looking at individual level. We also only interviewed PN's internal staff. We did not look at non-key actors especially the moderators and non-human actors. We might get a better understanding on what went wrong (or what went right for that matter) if we could study the failure of non-human actors performance which could have significant impact towards PN performance.

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