To what extent is social media used in city government policy making? Case studies in three asean cities

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To what extent is social media used in city government policy making? Case studies in three asean cities

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Abstract. *Social media has a significant impact on political and social life, particularly in policy making. In order to examine social media use in policy making, the researchers obtained and analyzed data on Twitter or Facebook using a NodeXL program from January to June 2016 in three ASEAN cities, Bandung (Indonesia), Iligan (Philippines) and Pukhet (Thailand). Research found that Bandung City has made significant achievement at the engagement level by engaging with the city community in daily city affairs. Meanwhile, Iligan City and Pukhet City are still in the stage of transforming their respective internal organizations. The pivotal factors of social media use in three cities is top and middle leader role, legal standing for social media use, policy framework and internal change management*

Keywords: *Social local government, socialmedia use, networking, transformation, engagement.*

Raktažodžiai: *socialinė vietos savivalda, socialinės medijos naudojimas, tinklaveika, transformacija, įsitraukimas.*

Introduction

Because social media has a significant impact on political and social life, it is an academically worthwhile endeavor to focus on and examine social media (Sobaci, 2016, p. 3). However, there have been few studies on the relationship between social media and local government (Sobaci, 2016), particularly in ASEAN countries. Most studies have been done in USA (Campbell. et al, 2014), Europe (Klievink, B., & Janssen, M., 2009); Oliveira, & Welch, 2013; Bonson, et al, 2016), Israel (Live-On and Steinfeld, 2016), Australia (Freeman, J, 2016), Korea (Khan, G., et al, 2014), South Africa (Sevin, 2016) and China (Zheng, L., & Zheng, T, 2014, p. 373). Most of these studies found that all local government adopt social media in order to share information with the public. In short, all studies found that social media does not constitute an arena of discourse between local government and the public (Live-On and Steinfeld, 2016; De Rosario, et al, 2016; Freeman, J, 2016). One weakness in using social media for civic engagement is the lack of formal institutionalization in social media policy (Lovari, 2015). Another is a geographical factor between an urban area and a rural area (Freeman. J, 2016). However, future studies should analyze the evolution stage of local government in using social media.

Some limited studies on social media adoption in government organization have been done. There is no previous study on specific ASEAN cities. Zheng (2013) found

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that Chinese local government used Microblog at the early stage of information sharing. Mundy and Umer (2012) found social engagement in UK local government social media use. Oliveira and Welch (2013, p. 3) found that while there are some overall patterns of usage, there is also a good deal of variability in the use of different social media tools for different purposes depending on the type of department or agency. Moreover, the study of technology–task couples provides only one means of operationalizing the complex interplay between highly malleable technology and complex organizational systems (Oliveira and Welch, 2013, p. 3). In other words, interplay between technology and organizational system is affected by the capacity local government in adoption of social media. Technology is free from regulation. However, local government organization is basically based on rigid regulation. All previous studies on social media diffusion in local government have not focused on how local government use social media to advance organizational goals or how the relationship between internal organizational transformation readiness and social media use. To address these gaps in our knowledge, this study analyzes data gathered through network account, interview, internet searches to explore how three ASEAN cities involved the policy making use social media. The article addresses the following questions: to what extent do the three cities use social media in policy making? And to what extent do the three cities experienced evolutionary social media use?

Theoretical Framework

Social Media Use in Government Organization

Social media is defined as "a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange of User Generated Content" (Kaplan & Haenlei, 2010, p. 102). The development of social media tools over the last decade has altered modes of communications between governments and citizens in discussing daily in which those communications has opened ways for greater political participation, thereby creating a new social dynamic (Oginni,2015). Through virtual platform-user generated content, individuals or organizations are tied by one or more specific types of interdependencies, such as values, ideas, financial exchange, friendship, kinship, dislike, conflict, or trade Leavey (2013, p.14). In reality, the innovative tool brings together people of common value systems, visions, and aspirations to collaboratively form opinions on issues of concerns in virtually-connected environments. Social media is part of a wider trend in a communication landscape that is characterized by mass collaboration; it is responsible for a significant portion of time spent online. In the context of this study, social media refers to the online tools that permit real-time interactions and feedbacks; it is a broad term that goes beyond Facebook, Twitter, and LinkedIn to include e-government (Pinzón, 2013). In sum, social media will establish a form of

social (Web 2.0) governance (S-governance) in which individuals and organizations can participate through a virtual platform-user generated content to share visions and to articulate their aspirations collaboratively.

What does social (Web 2.0) governance mean? Social (Web 2.0) governance can potentially be traced to previous research. Serrat (2010) declared R.I.P for Web. 1.0. and promoted Web 2.0. In the following years, many scholars (Mergel, 2012; Bonsón, et al 2012) stated that social or wiki governance as having the following: 1) that governments' participation in social media may result in improved communication and citizen participation, more transparency, and transfer of best practices among government agencies; 2) that a good implementation strategy is necessary to realize these benefits and to avoid risks; and 3) that the implementation of social media highlights the importance of updating laws and regulations, and of promoting changes in government culture and organizational practices. However, Zeng and Zeng's (2014, p. 374) study in China found that a majority of messages in government micro-blog accounts were posted for self-promotion rather than service delivery. The forms, languages and timeliness of information posted tend to be monotonous, rigid and formal, and the interactions between governments and the public in government micro-blog accounts were mostly insufficient and preliminary.

Linder (2012, p. 449) used the term we-government (with co-production concept) and proposed three categories: Citizen Sourcing (Citizens to Government) -- the public helps government be more responsive and effective; Government as a Platform (Government to Citizen)—the computer-based services enables government to maintain its knowledge and IT infrastructure available to the public that paid for their development; and, Do it Yourself Government (Citizen to Citizen) -- in this informal arrangement, the government plays no active role in day-to-day activities but may provide a facilitating framework. By referencing to Mergel (2013), social governance has three dimensions: 1) representation; 2) engagement; and, 3) networking. Those forms can be seen as from the lowest degree of online engagement to more complex forms of network (Mergel, 2016, p. 147). The network dimension describes social media in the context of network structure with the following indicators (e.g., Freeman 2006, Granovetter 1973):

- Size (e.g., the size of the total (number of actors) or local network (degree)
- Connections (e.g., homophily , multiplexity, mutuality, network closure)
- Distributions (e.g., centrality, density, distance, tie strength)
- Segmentation (e.g., clustering coefficient, betweenness)

Some of these measures are relatively new and partially account for either actor or content characteristics (e.g., homophily, multiplexity), while others still focus on technical, relational or positional perspectives (e.g, degree, centrality).

Table1. **Dimension of Social Governance**

	Representation	Engagement	Networking
Dimension	Interaction	Feedback and contribution	Dialogue
Indicators	Comments, Likes,	Feedback or contributions (for example, to share stories, to rank ideas)	Size (e.g., the size of the total (number of actors) or local network (degree)) Connections (e.g., homophily, multiplexity, mutuality, network closure) Distributions (e.g., centrality, density, distance, tie strength) Segmentation (e.g., clustering coefficient, betweenness)

Social Media Adoption Use Adoption Stages in Local Government

Young Foundation's (2010) framework is composed of three steps: listen, participate and transform. Linder (2012, p. 449) proposed three stages: firstly, Citizen Sourcing (Citizens to Government – the public helps government be more responsive and effective; secondly, Government as a Platform (Government to Citizen) – the computer-based services enable government to make its knowledge and IT infrastructure available to the public that can help citizens improve their day-to-day productivity, decision-making, and well-being; and, thirdly, Do it Yourself Government (Citizen to Citizen) – the ease by which wired citizens can effectively self-organize today has opened up new opportunities for citizen-to-citizen co-production. Mergel (2013, p. 397) also deployed three stages of social media use: from the early stage till institutionalization. Lastly, Sobaci (2016, p. 17) developed the four-cycle stages that include listening, participation, transformation and evaluation.

A field work study on the evolution of social media use in government is limited. Only Linder's work is field work research based on co-production approach while the works of the other authors are review papers. Nevertheless, the above works are more or less similar. During the first stage or early stage of social media use, the local or central government only listen and promote their tasks without getting more involved with the citizens. At the second stage, all authors considered internal organizational transformation, on how units within the organization coordinate the chaos into a new unit to collect and analyze information based on daily activity (Mergel, 2013, p. 391) or organizational change (Sobaci, 2016, p. 12). At the last stage of evolution, government organization has already formalized institutions, work assignments, tasks, roles, and dedicated resource allocation with formal social media policies (Mergel, 2013, p. 392, Roengtam, S, et al., 2017). Indeed, speaking about the impact of social media on government organization it is necessary to assess whether the internal government organization could be efficiently transformed and whether it has an impact on citizens. With reference to Janowski's (2015, p. 222-224) model of evolution of government digitalization, a model of social media evolution with characterization of the phases

depends upon three binary variables: 1) internal transformation; 2) relationship between internal transformation with citizens, businesses and other stakeholders; and 3) and organization transformation with particular application context. In short, we can conclude that the evolution of social media use in government encompasses four stages: promotion (social media presence), transformation (social media impacting transformation), engagement (social media impacting government stakeholders) and impact (social media impacting policy making process). The model of social media use stages, furthermore, could be modelled into an evolution of social media governance.
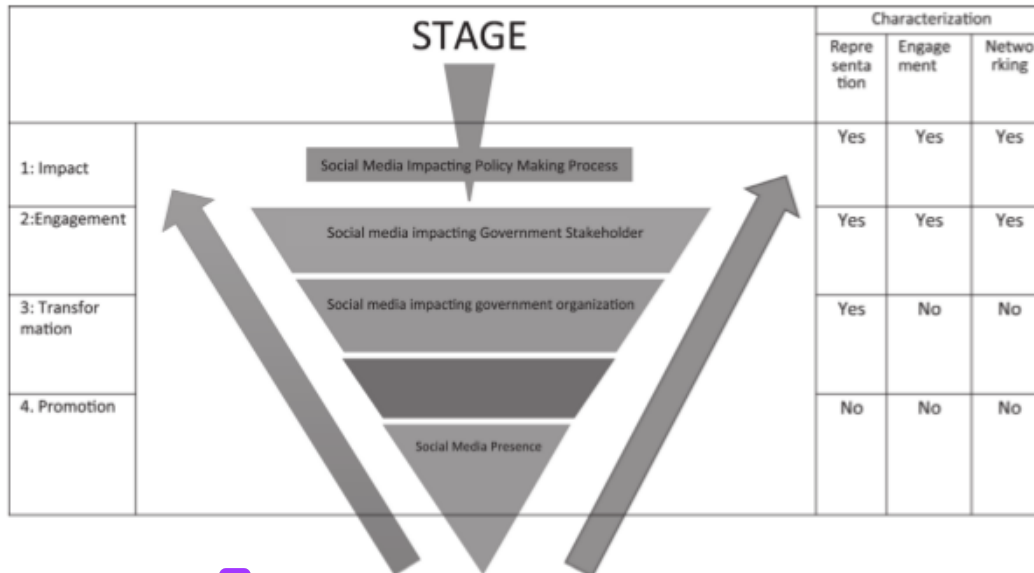

Fig 1. **Model of Social Media Adoption Evolution in Government Organization**

In this sense, research on social media use evolution in both local and central government, with a view to taking a closer look at the phenomenon and drawing a comparison between governments in different regions, is very challenging.

Research Method

Three cities have been selected as case studies, namely Bandung (Indonesia), Iligan (Philippines) and Pukhet (Thailand). These cities were chosen based on the current status of social media use in their respective city governments. Bandung is considered as a best case study city because it has quickly adopted social networking sites and the use of Twitter. In the Philippines, the national government has decided that social media publish consolidated crisis response information, as well as supplemental material to agency releases (like briefers on storm surges and flooding, guides to agency advisories, and public safety warnings). In Iligan City, this is done through the city's Facebook account — @LGUIliganCity | Facebook http://www.gov.ph/lag-

inghanda/socmeddirectory/). Facebook, in particular, gives users a high degree of social presence, making them the best tool for creating and nurturing small online communities managed by LGUs. They provide strong support for social interaction, social integration and the strengthening of *bayanihan* (heroism) spirit (Congjuico, 2014).

In order to examine representation, engagement and networking in the three cities, the researchers obtained and analyzed data on Twitter or Facebook using a NodeXL program (Hansen et al., 2010) from January to June 2016. For the analysis of the city government's representation, engagement and networking strategy, data was collected on an intermittent basis because the Twitter API and Facebook limited the collection of data. In Bandung City, the data source included the Twitter accounts of a total of 32 Bandung government agencies. The data included basic information on Twitter or Facebook accounts such as the numbers of followers, followings, tweets, listed, and favorites. In addition, the contents of tweets were extracted, and to measure the strength of Twitter networks, these statistics were averaged across the data collection period. While in Iligan and Pukhet cities, official Facebook accounts were observed in order to analyze social media strategy.
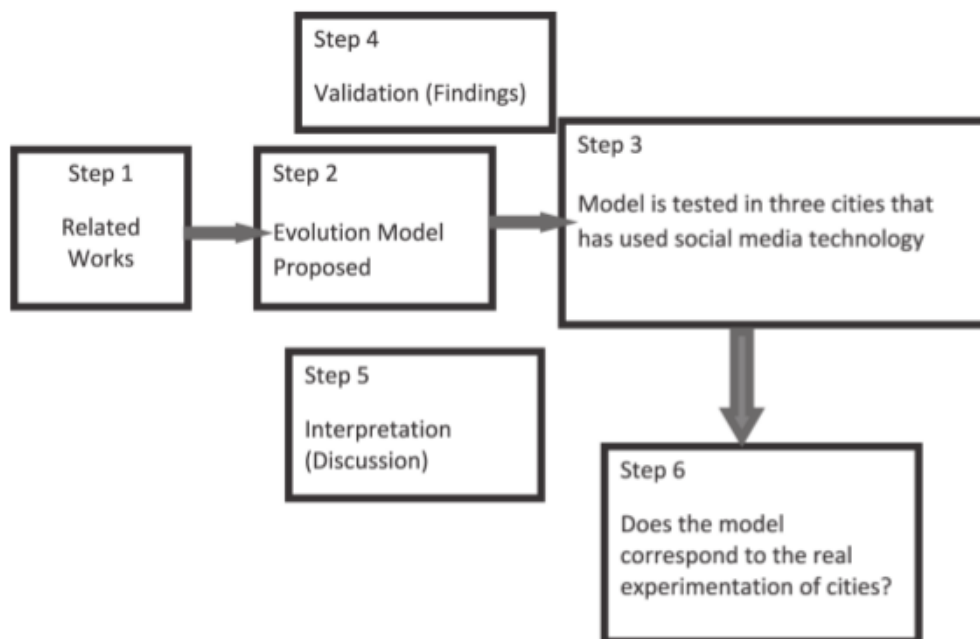

Fig.2. **Research Method Scheme**

Source: Modified from Janowski, Tomasz (2015). "Digital government evolution: From transformation to contextualization".Government Information Quarterly, Volume 32, Issue 3, Pages 221–236, doi:10.1016/j.giq.2015.07.001

Research Findings

Bandung

In Bandung City, the employment of social media to gain public engagement in public policy making process in the local government very much depends on the local leadership. The initiative to benefit from social media in supporting public policy making in Bandung Municipality was initiated by its incumbent Mayor, Ridwan Kamil, who was elected in 2013. One of his priority programs is to realize an open government concept that would establish a technological network called Bandung Smart City, which would lead to better delivery of public services. To achieve this program, Mr. Kamil has incorporated information and communication technology (ICT) within the structure of local governmental organizations that aims to improve their performance and public services. Mr. Kamil is indeed known as one of those Indonesian politicians who are active in social media, particularly in Twitter, and has been successfully building good reputation.

To examine the internal transformation in Bandung's governmental organization, Mr. Kamil encouraged the change of structures and internal workings of the government. The implementation of both social media applications of Twitter and LAPOR! within the organizational performance system is an initial step to realize Bandung City's 2016 development priority program Number 3 (three): Improvement of Public Service and Development of Local Governance based on Information and Communication technology. It is also a strategy to realize an open government concept that will lead to the achievement of a bigger plan that is Bandung Smart City. According to Mr. Kamil (2016), Smart city means "the utilization of information and communication technology (ICT) to connect, monitor and control a variety of resources that exist within the city effectively and efficiently in order to maximize service to the citizens".

However, these achievements on the integration of ICT into the organizational work structure are not yet established on a strong foundation. The utilization of Twitter as a communication media by all departments in particular, is not yet based on a powerful legal framework that is strongly binding. When asked about the legal basis of this program, the coordinating agency Communication and Information Agency (DISKOMINFO) suggested that there are no specific regulations such as a Regional Act or Mayor Decree. Instead, they only referred to the Act 14/2008 on Public Information Openness. This law provides for a general framework on information accessibility for the public. As a consequence, several potential issues occurred, such as the absence of a formal written standard operating procedure and guidelines for the organizational utilization of Twitter. Each agency can alone formulate their own SOPs and guidelines. In many cases, those agencies do not have any written SOP and guidelines, thus the work of the administrator are based on each administrator's

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individual judgment although there is a *what's app* (WA) group among those adminis-
trators which serves as the consulting body.

> "We don't have clear guidance, however, we frequently communicate each
> other via What's app group (WA). In this group, we share information and
> how to answer public complaints based on their authority. We also try to
> agree whether the information could be published or not. In short, although
> WA group is informal media sharing, we refer to Act No 14 Year 2008 on
> Open Public Information." (Hana, Social Media Coordinator/Secretary
> Radio Sonata)[1]

Another issue related to the internal workings in handling each social media
account and to the absence of a strong legal basis is the appointment mechanism of
staff as social media account administrator in each department. The position of social
media account administrator is not clearly stated and does not have a well-defined job
description. In many cases, such position is only an additional job given to staff that
already have other main functions, therefore specialization and training programs for
staff are not yet a priority. Thus, the effectiveness and efficiency of social media staff
is also problematic due to performance differences in all agencies that use Twitter as
work communication platform.

Since 2014 up to the present, the number of followings has reached 10,096 and
followers are around 120,920 in all agencies. The Information Agency and Law and
Order Agency Twitter accounts are the two highest-followed. This fact means that
two agencies have actively responded to citizen complaints and demand for public
services, particularly neighborhood road rehabilitation.
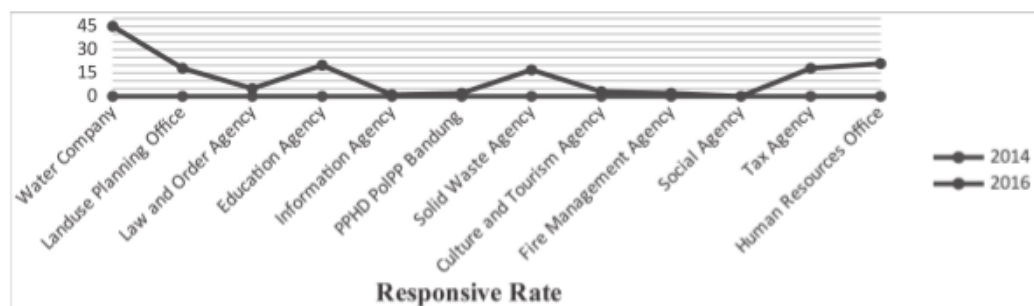
Responsive Rate

Fig 3. **Bandung Agencies' Twitter's Responsive Rate (%)**

Nonetheless, the institutions tended to maintain large numbers of mutual connec-
tions and engaged in close cooperation. According to the results for their network in-
dices, degree centrality shows that Infrastructure Agency (indegree = 5 and outdegree
= 112), Civil Order and Safety Agency (indegree = 5 and out degree = 112) are higher
than other agencies, implying that they were mutually connected and these mutual
connections existed across their whole networks. In terms of eigenvector centrality

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1   Interview on 10 February 2016

(also called eigencentrality) or to measure of the influence of a node in a network, Civil Order and Safety Agency, Transportation Agency and Infrastructure Agency are strongest in network influence. How do those agencies act as bridges along the shortest path? The Transportation Agency and Infrastructure Agency are the most important bridges in the network.

In terms of clustering coefficient (a measure of the degree in which nodes in a graph tends to cluster together), Mayor's Twitter and Information Agency are the highest node in making new networks which are also networked with each other. This means that Mayor Ridwan Kamil and the Information Agency are the strongest actors in the network. It is interesting that Ridwal Kamil, as mayor, used informal accounts namely @infobandung and @sekitarbandung (bandung update) as information-sharing outlets in campaigning for Bandung City programs. Those accounts are managed by a voluntary community organization that has supported Ridwan Kamil as a candidate for the mayoral position. The network in Figure 4 illustrates the connection between five institutions if one institution's hyperlink in its own tweet was also shown in the other institution's tweet. The width of the line indicates the frequency of such hyperlink
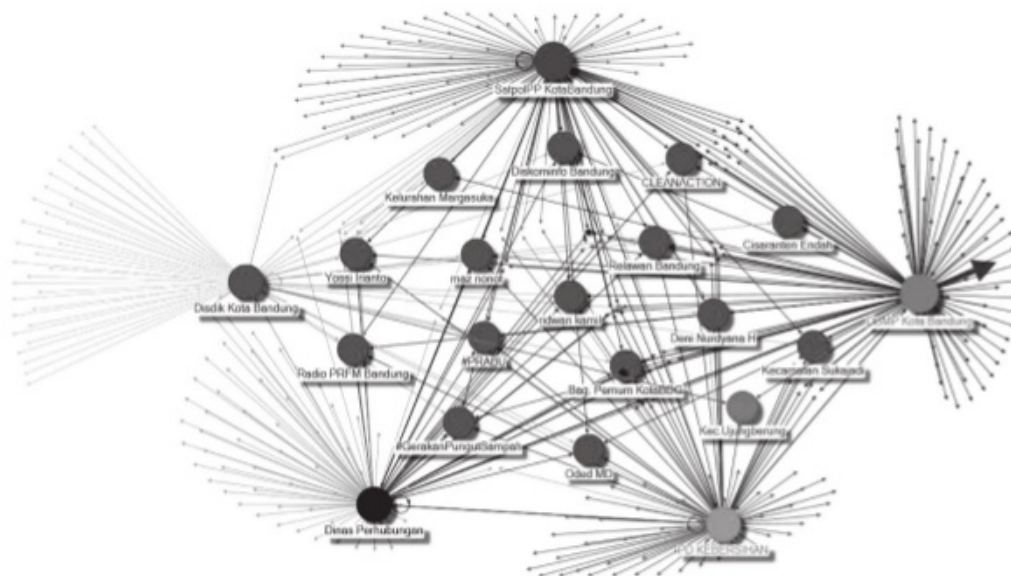
Fig 4. **Co-link diagram of** Bandung agencies **with Twitter accounts**

The Infrastructure Agency, enhanced by Twitter, is the prominent agency in improving road quality. Due to the geographical spread of city, this agency had set up six Speed Response Maintenance Teams in 2013 in responding to information via Twitter, namely:Ujungberung Maintenance Unit Area; Gedebage Maintenance Unit Area; Cibeunying Maintenance Unit Area;Karees Maintenance Unit Area; Bojonegara Maintenance Unit Area; and Tegallega Maintenance Unit Area. The main function of

each unit is to urgently rehabilitate small-scale road damage on a 24-hour working time schedule, without being subject to normal procurement processes. Bandung citizens can report cases of damaged road to the Infrastructure Agency via *twitter* @dbmpkotabdg.
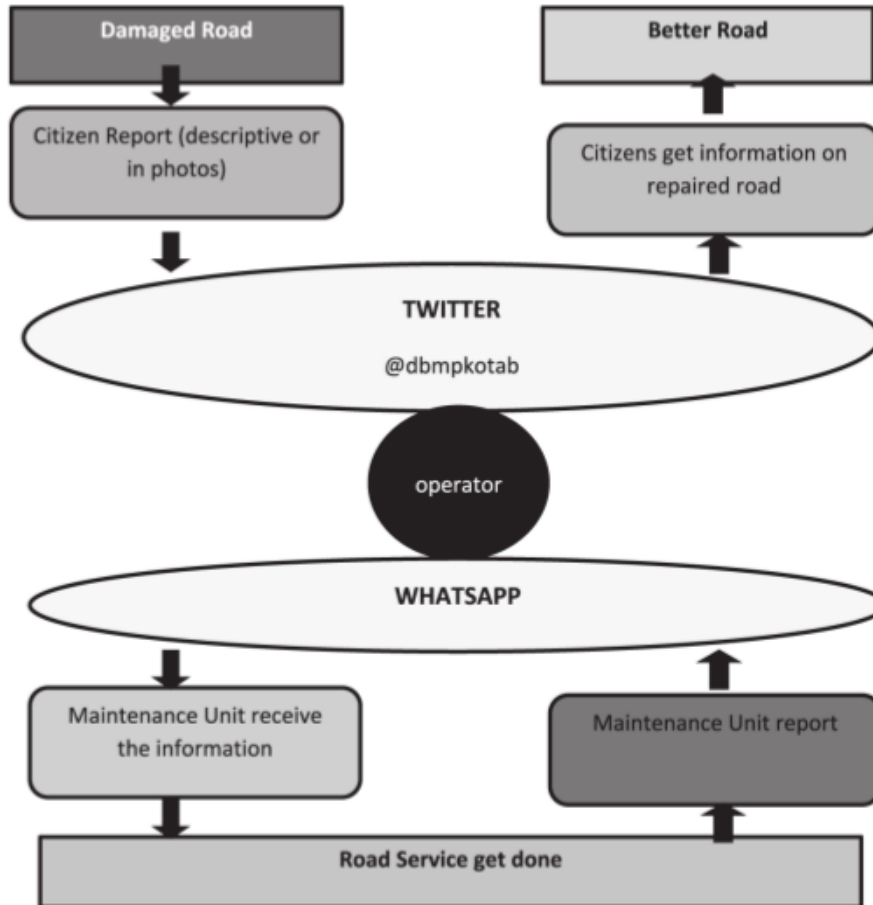
Fig 5. **Flowchart of Roadwork using Twitter**

Iligan City

The Iligan City government has launched only one official Facebook account, LGU Iligan City. According to the results for their network indices, degree centrality and betweenness centrality shows that LGU Iligan City (indegree = 18 and outdegree = 0), is higher than other accounts. However, in terms of eigenvector centrality (also called eigencentrality) or to measure of the influence of a node in a network, there is no strongest node in the network (average .500). The picture below shows LGU Iligan City as a middle actor which accumulates all information from the community.
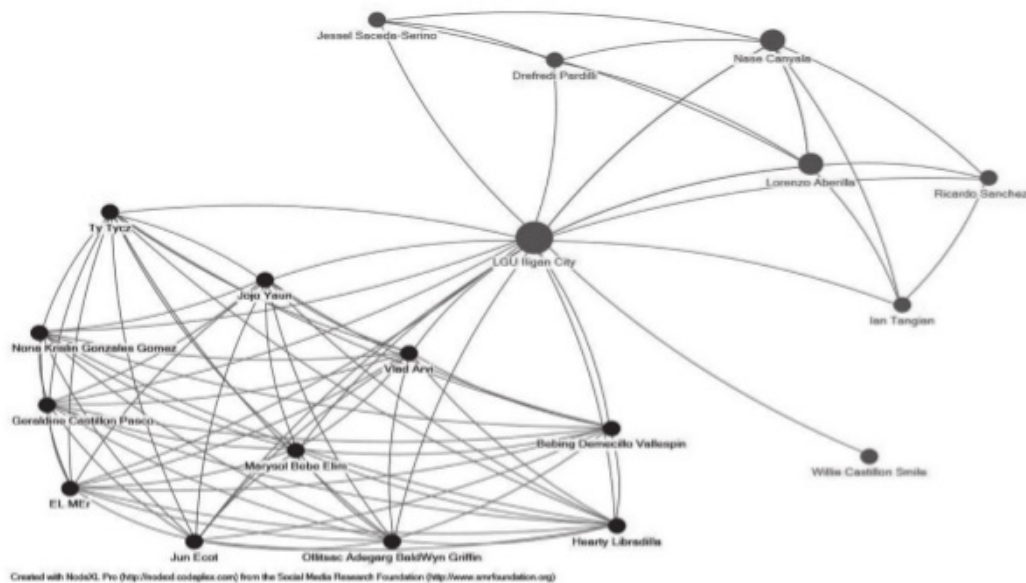
Fig 6. **Co-link diagram of Iligan city with Facebook accounts**

Pukhet City

In the Pukhet City government, there are three strong formal government officers' Facebook accounts namely *Suthan Phiroth*, "*Narongrit Thawornpaiboonbut* Phuket Municipality Officer", "*P'Kriang*" Phuket Municipality Officer, and "*Surachet PueakdangVichit* Municipality Disaster Prevention and Mitigation". According to the results of their network indices, degree centrality and betweenness centrality show that Pukhet City (indegree = 30 and outdegree = 13), is higher than other official government accounts and private citizens' accounts. However, in terms of eigenvector centrality (also called eigencentrality) or to measure the influence of a node in a network, the citizen node (between 1- 3) is stronger than government officers and municipality's node (.022) in the network. How do the agencies act as bridges along the shortest path? Based on betweenness centrality, it can be concluded that Phuket Municipality Officer (Public Relations Officer) account is the most important bridge in the network.

Fig 7. **Co-link diagram of Pukhet City with Facebook accounts**

From the network level properties, it is clear that Bandung agencies are well connected in a dense network of the follower-following relations compared with Iligan City and Pukhet City. The density of the network (4.46), i.e. the number of actual links divided by the number of possible links, shows that the network is very condensed. Moreover the clustering coefficient (i.e. the degree to which nodes in a network tend to cluster together) was much higher (4.46) than Iligan and Pukhet. In other words, Bandung agencies tend to be embedded in dense local neighborhoods (clusters).

Table 2. **Network level properties of Three ASEAN Cities' Facebook and Twitter networks**

City	No of Nodes	No of Links	Density	Average geodesic distance	Average degree	Clustering Coefficient	Average Betweenness Centrality
Bandung	345	2640	4,45	2,646	32	4,073	568,875
Iligan	81	87	0,245	1,429	4,421	0,444	9,1578
Pukhet	147	847	0,028	1,928	4,204	0,398	133,809

Discussion and Implication

Based on the previous findings, we can assume that the three cities have achieved different stages of social media use. Bandung City has made significant achievement at the engagement level by engaging with the city community in daily city affairs.

Meanwhile, Iligan City and Pukhet City are still in the stage of transforming their respective internal organizations.

Table 3. **Comparative Summary of Social Media Use in the Three ASEAN Cities**

Stage	Dimension	Bandung			Iligan			Pukhet		
		R	E	N	R	E	N	R	E	N
Impact	Outcome	Fair	Fair	Fair	Poor	Poor	Poor	Poor	Poor	Poor
Engagement	External	Far	Fair	Fair	Poor	Poor	Poor	Poor	Poor	Poor
Transformation	Internal	Good	Good	Good	Poor	Poor	Poor	Poor	Poor	Poor
Presence	Promotion	Very Good	Very Good	Very Good	Very Good	Very Good	Very Good	Very Good	Very Good	Very Good

R = Representation; E = Engagement N = Networking

In the case of the Quick Response Unit, Bandung City government made decisions of premises "planning". Planning is not designed decision, but "event-like" character of decisions. Public information, from social media, photo-based report, and short message, are supposed to be "event" or "multi event". All city agencies have to deal with immediate events that need to be solved in a not-so normal manner. With a wide city area of around 167.67 km2 (64.74 sq. mi.), a population of about 2,575,478, and 30 districts, the Infrastructure Agency has to solve and decide on complained-event through social media quickly (around one thousand see Fig. 4 above). Every decision is a product of earlier decisions and gives rise to ensuing decisions (Luhmann, 1995, p. 232). The city government decision is thus defined as a network of recursively connected decisions, without this connection there is no organization (Knudsen, 2005). These research findings confirm the previous research on an engineer-based organization, where the decision-making process is very strongly based on the information and facts (Mykkänen, et al, 2014). This is similarly with English local authority social media use which currently defines residents primarily as consumers of council services. It was found that there is little to encourage them to pursue online communication with any persistence when sustained interaction is not offered in a systematic manner and rarely takes place (Ellison and Hardey, 2013).

Many prior studies confirmed that social media has changed the understanding of how government agencies can translate existing practices into a new online environment (Mergel, 2013, p. 391). Information via social media must be based on events-like cases reported by netizens without normal patterns and planned reporting. Faced with these situations, city agencies need to collect all information in a systematic way in order to make quick decisions. Service system top management should hence try to

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strengthen the convergence of interests and direct the policies of each entity towards joint activities which seems easier than having the entire system supported by sets of joint value, management and operational support, i.e. technological infrastructures and in general IT communicating tools (Barile, S. & Polese, F. 2010; Widiyahseno, B, 2018). Practically social media use could be improved – this requires more extensive and complex ICT support than the existing active crowdsourcing approaches, which is based on the use of API of numerous Web 2.0 sources, in combination with advanced linguistic processing techniques (Charalabidis, Y. et al, 2014).

Conclusion

Based on the findings, we can assume that the three cities have achieved different stages of social media use.
1. Bandung has made significant achievement at the engagement level by engaging with the city community in daily city affairs. Meanwhile, Iligan and Pukhet are still in the stage of transforming their respective internal organizations.
2. The pivotal factors of social media used in three cities are top and middle leader role, legal standing for social media use, policy framework and internal change management. Those factors simultaneously affect the effectivity of social media use.
3. The social media use in local policy making in three cities is still at two and three stage of development.
4. Theoretically, this study shows that the evolution of social media use in government is comprised of four stages: promotion (social media presence), transformation (social media impacting transformation), engagement (social media impacting government stakeholders) and impact (social media impacting policy making process).

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**Kokiu mastu socialinė žiniasklaida naudojama miestų valdymo
politikos formavime? Trijų Pietryčių Azijos valstybių asociacijai
priklausančiuose miestuose atvejų studija**

Anotacija

Socialinė medija turi reikšmingą poveikį politiniame, socialiniame gyvenime ir ypatingai politikos formavime. Siekiant išsiaiškinti socialinės medijos panaudojimo galimybes politikos formavime, tyrime surinko ir išanalizavo duomenis Twitter ir Facebook socialiniuose tinkluose, naudodami NodeXL programą vasario – birželio mėnesiais 2016 metais, trijuose Pietryčių Azijos valstybių asociacijai priklausančiuose miestuose: Bandunge (Indonezijoje), Iligane (Filipinuose), ir Pukete (Tailande). Tyrimas atskleidė, kad Bandungo miestas pasiekė ypatingų laimėjimų vietos bendruomenės įtraukties į miesto problemų sprendimą atžvilgiu. Tuo tarpu Iligano ir Puketo miestai, vis dar yra vidinių organizacijų transformacijos etape. Lemiamos įtakos socialinės medijos panaudojimo veiksniais trijuose miestuose laikytini: aukščiausio ir vidutinio lygio lyderių vaidmuo, teisinė socialinės medijos panaudojimo aplinka, politinė situacija ir vidinė pokyčių vadyba.

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To what extent is social media used in city government policy making? Case studies in three asean cities