



저작자표시-비영리-변경금지 2.0 대한민국

이용자는 아래의 조건을 따르는 경우에 한하여 자유롭게

- 이 저작물을 복제, 배포, 전송, 전시, 공연 및 방송할 수 있습니다.

다음과 같은 조건을 따라야 합니다:



저작자표시. 귀하는 원저작자를 표시하여야 합니다.



비영리. 귀하는 이 저작물을 영리 목적으로 이용할 수 없습니다.



변경금지. 귀하는 이 저작물을 개작, 변형 또는 가공할 수 없습니다.

- 귀하는, 이 저작물의 재이용이나 배포의 경우, 이 저작물에 적용된 이용허락조건을 명확하게 나타내어야 합니다.
- 저작권자로부터 별도의 허가를 받으면 이러한 조건들은 적용되지 않습니다.

저작권법에 따른 이용자의 권리는 위의 내용에 의하여 영향을 받지 않습니다.

이것은 [이용허락규약\(Legal Code\)](#)을 이해하기 쉽게 요약한 것입니다.

[Disclaimer](#)

Master's Thesis of Public Administration

**Social Media and Government
Responsiveness:
A Case Study of Bandung City, Indonesia**

**소셜미디어와 정부 반응성
인도네시아 반둥(Bandung)시 사례**

August 2018

**Graduate School of Public Administration
Seoul National University
Global Public Administration Major**

Agi Agung Galuh Purwa

**Social Media and Government
Responsiveness
A Case Study of Bandung City, Indonesia**

Academic Advisor Eom, Seok-Jin

Submitting a master's thesis of Public Administration

April 2018

**Graduate School of Public Administration
Seoul National University
Global Public Administration Major**

Agi Agung Galuh Purwa

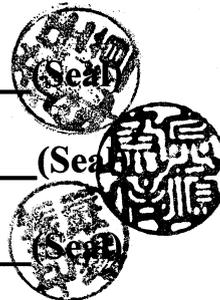
**Confirming the master's thesis written by
Agi Agung Galuh Purwa**

June 2018

Chair Im, Tobin

Vice Chair Kim, Soon Eun

Examiner Eom, Seok-Jin



Abstract

Social Media and Government Responsiveness A Case Study of Bandung City, Indonesia

**Agi Agung Galuh Purwa
Global Public Administration Major
Graduate School of Public Administration
Seoul National University**

Internet technology has transformed human life in many ways, from live and work, until the way countries and governments develop. It is undeniable that the internet is one of basic needs for living in modern society, from communicating between people, expanding social contacts, sharing ideas and point of views. This latest technology of the internet that focuses on interaction between people online is well known as social media, social networking site or social networking services (SNS).

In government perspectives, social media offers high possibility for increasing transparency, participatory, and collaborative work with their citizens, especially for local governments where most of social services are directly provided by them. The direct connection between governments and citizens through social media could accelerate the level of government responsiveness which refers to the degree of government's leaders respond to citizens' demands.

However, not all governments see social media as opportunity to enhance two-way communication between governments and their citizens vice versa. There are some regimes that perceive social media as a threat for their administrations. Therefore, some countries have restricted regulation to control social media and even some of social media already banned in those particular countries. This thesis focuses on the way in which governments see social media as opportunity to improve the level of responsiveness in local level. Moreover, the main research question of this thesis is: what roles are played by mayor in social media networks to increase government responsiveness with a case study of Bandung City, Indonesia.

Based on this research question, it is needed to evaluate government responsiveness by measuring the role of Mayor Bandung in social media and what kind of communication that Mayor Bandung dominantly share in his account. These evaluations can be done by applying two kinds of methods, namely: social network analysis and content analysis through Twitter activities of Mayor Bandung. Author collected data randomly from the Twitter network of the Mayor on August 8, 2017 and September 20, 2017 by running NodeXL application to examine all tweets contain hash tag “#Bandung” in each period of date in order to find differences or similarities of the features of the Twitter network structure and the Mayor’s roles in the network.

To evaluate Mayor Bandung’s account in terms of responsiveness based on his tweets activities, author applies categorization which previously developed by Sobaci and Karkin (2013). Each tweet from August 8 to October 10, 2017 was analyzed into one of 11 categories based on their contents. The 11 categories are as follows: information and news sharing, location and activity sharing, personal messages, direct communication with citizens, communication with elected and appointed, better public services, self promotion, invitation to events, personal opinion and perspective sharing, promoting participation and the unknown.

The results show that Mayor Bandung plays important role as a bridging hub in the Twitter network. In this way, the mayor plays the role of a brokerage among different clusters of citizens as well as the role of a hub within the network with the most connected users in the network. The mayor’s role as a bridging hub in Twitter network contributes to enhance the government’s responsiveness by overcoming the disconnection between citizens and his local administration. Therefore, social media especially Twitter account could be used as a channel for the citizens to communicate with their local leader directly and effectively.

However, although Mayor Bandung has higher bridging hub and plays important role in Twitter network, the Mayor himself mainly uses his account for sharing news and information rather than maintaining two-way communication regarding public services of his administration with the citizens. Therefore, it shows that the possibility of social media as a tool for improving responsiveness heavily depends on the personal traits of government leaders themselves.

Key words: Social Media, Government, Responsiveness, Twitter, Case Study.

Student ID: 2016-26245

Table of Contents

Abstract	1
List of Tables	5
List of Figures	6
Chapter I. Introduction	7
<i>I.1. Background and Purpose of Study</i>	7
<i>I.2. Scope of the Study</i>	8
<i>I.3. Research Method and Data</i>	9
<i>I.3.1 Social Network Analysis</i>	9
<i>I.3.1 Content Analysis</i>	9
Chapter II. Theoretical Background and Literature Review	11
<i>II.1. Social Media</i>	11
<i>II.1.1 Definition of Social Media</i>	11
<i>II.1.2 Purpose and Characteristic of Social Media Use</i>	12
<i>II.2. Government Responsiveness</i>	15
<i>II.2.1 Conception of Government Responsiveness</i>	15
<i>II.2.2 Government Responsiveness in Local Level</i>	17
<i>II.3. Social Media Use and Government Responsiveness</i>	18
<i>II.3.1 E-Government and Responsiveness</i>	18
<i>II.3.2 Social Media and Responsiveness</i>	22
<i>II.4. Literature Review</i>	26
<i>II.4.1 Pros and Cons Regarding Social Media</i>	26
<i>II.4.2 Social Media as Main Channel to Improve Connected Citizen with Government (G2C)</i>	28
Chapter III. Research Design	30
<i>III.1. Social Networks Analysis (SNA)</i>	30
<i>III.1.1 Conception of SNA</i>	30
<i>III.1.2 Methods of SNA</i>	31
<i>III.2 Case of Bandung Mayor’s Social Media</i>	33
<i>III.2.1 Social Media in Indonesia</i>	33
<i>III.2.1 Social Media in Bandung City</i>	35
<i>III.3 Data and Scope</i>	37
<i>III.3.1 Social Network Analysis by NodeXL</i>	37
<i>III.3.1 Content Analysis based on Sobaci & Karkin’s Categorization</i>	39
Chapter IV. Findings	42
<i>IV.1. Social Networks Analysis</i>	42
<i>IV.1.1 Visualization of the Twitter Network on August 8, 2017</i>	42
<i>IV.1.2 Centrality Measurement on August 8, 2017</i>	43
<i>IV.1.3 Visualization of the Twitter Network on September 20, 2017</i>	45

<i>IV.1.4 Centrality Measurement on September 20, 2017</i>	4	7
<i>IV.2 Content Analysis</i>	4	8
<i>IV.3 Synthesis</i>	5	2
Chapter V. Conclusions	5	5
<i>V.1. Summary</i>	5	5
<i>V.2 Limitations</i>	5	5
<i>V.3 Contributions</i>	5	6
Bibliography	5	8
Acknowledgement	6	4

List of Tables

- Table 1.** Number of followers for Twitter account of President, Vice President, Governor of Jakarta, Governor of West Java and Mayor of Bandung – Indonesia
- Table 2.** Structures of Social Media Networks by Smith (2015)
- Table 3.** Tweet categories and their descriptions based on Sobaci and Karkin (2013)
- Table 4.** The main group's topic in Twitter network on August 8, 2017
- Table 5.** Centrality measures of bridging hubs
- Table 6.** The degree to which the network is disturbed when bridging hubs are eliminated from the Twitter network on August 8, 2017
- Table 7.** The extent to which the betweenness centrality of other bridging hubs is changed when Mayor Ridwan Kamil's Twitter account is eliminated
- Table 8.** The main group's topic in Twitter network on September 20, 2017
- Table 9.** Centrality measures of bridging hubs
- Table 10.** The degree to which the network is disturbed when bridging hubs are eliminated from the Twitter network on September 20, 2017
- Table 11.** The extent to which the betweenness centrality of other bridging hubs is changed when Mayor Ridwan Kamil's Twitter account is eliminated
- Table 12.** Tweet Categories of Mayor Ridwan Kamil's Twitter Account
- Table 13.** Comparison of overall network structure in each time period

List of Figures

- Figure 1.** Digital Ethnography of Social Media by Brian Solis (2017)
- Figure 2.** World Map of Social Media by Vincenzo Cosenza (WEF, 2017)
- Figure 3.** The Most Famous Social Network Sites Worldwide (Statista, 2017)
- Figure 4.** Focal Domains for e-Government Initiatives (Heeks, 2010)
- Figure 5.** E-Government Index Worldwide by United Nations (2016)
- Figure 6.** Government, Citizen & Data Models through Social Media
(Chun & Reyes, 2012)
- Figure 7.** A Brokerage and A Hub in Social Network Analysis
- Figure 8.** Social Media Use in Indonesia (Hootsuite & We Are Social, 2017)
- Figure 9.** Visualization of the Twitter network of the Bandung City with the
#Bandung keyword on August 8, 2017
- Figure 10.** Visualization of the Twitter network of the Bandung City with the
#Bandung keyword on September 20, 2017
- Figure 11.** The case 1 of an administrative action handled through social media
in Bandung
- Figure 12.** The case 2 of an administrative action handled through social media
in Bandung
- Figure 13.** The case 3 of an administrative action handled through social media
in Bandung

Chapter I. Introduction

I.1. Background and Purpose of Study

What is the role of social media for local government? How to use social media in order to increase responsiveness of government in local level? These are research questions that this thesis aims to analyze.

Those questions become crucial for government nowadays, since most of countries around the world live in the era that citizen has access to internet and they could apply easily on tons of social media. Based on Hootsuite and We Are Social (2017) data, worldwide population is reaching 7.476 billion and around 50% of those population are internet users, namely 3.773 billion. The number of active social media users is 2.789 billion. It is around 37% from the population. In the case of Indonesia, its total population is reaching 262 millions. About 51% of them is active internet users or around 132.7 million people. Active social media users are 106 million or about 40% of Indonesian population. Many experts believe that this data of internet and active social media users will improve exponentially in the near future since these technologies become much more affordable and the internet infrastructure is getting better worldwide.

In governments perspectives, this trend offers high possibility for them to be more transparent, participatory, and collaborative with their citizen, especially for local governments where most of social services are run directly by them and they have close relationship with their citizen compare to higher level of governments (Avery & Graham, 2013). Many communication barriers that governments have experienced before could be eliminated by social media (Dixon, 2010). The direct connection between government and citizen through social media could accelerate the level of government responsiveness which is refers to the degree of public officials respond to citizens' demand (Yoon and Starling in Eom at al, 2015).

In this light, analyzing how governments deal with this global trend of social media and how government leaders are incorporating social media into their communication strategies are worthy to be investigated. In addition, local level government has direct relation with their citizen since most of services are running by local government compare to provincial and central government. In this way, the main research question of this thesis is: what is

role should be played by the government leader in social media to increase government responsiveness in Bandung City of West Java Province, Indonesia.

I.2. Scope of the Study

This thesis will focus on analyzing official social media activities of Mayor Bandung, West Java Province – Indonesia, Mr. Ridwan Kamil. Bandung City is widely known as one of leading electronic government city and using social media to engage with citizen in the city which already reach 2.5 million in 2015 (Indonesian Statistics, 2016). The Mayor - Mr. Ridwan Kamil described as ‘Twitter guy who became a mayor’ (Digital Market, 2014). His phenomena offer Indonesian an example of how social media could be used by active social media player to be elected as local leader, since Ridwan Kamil background is not politician but professional architect, lecturer at Bandung Institute of Technology and co-founder as well as activist of social movement called *Indonesia Berkebun* which focus on empowering urban society to optimize their land for green activities, especially gardening local vegetables (Berita Lingkungan, 2013).

In addition, from the election time to nowadays as a mayor, he has been using his personal social media accounts as a tool to interact with his citizen as well as to manage the city. Ridwan Kamil mainly use three social media namely: Facebook, Twitter and Instagram to be connected with the citizens. Moreover, since main purpose of this research is determining what roles should be played by Mayor of Bandung in social media to increase government responsiveness, this research will focus on his Twitter account - @ridwankamil.

Twitter has characteristic of direct conversation as well as useful for driving traffic regarding questions and complaint to the government. Furthermore, Twitter could be used to identify the role of particular account based on different kinds of networks structures compare with other social medias (Gilpin 2010 as cited in Stamati et al, 2014). This characteristic is really useful to measure the level of governments’ responsiveness. The analytical methodologies that are used in this thesis will be described in the next section.

I.3. Research Method and Data

I.3.1 Social Network Analysis

In order to explore the research questions, this thesis will use descriptive inductive methodologies with primary as well as secondary data. This study is conducted using qualitative data by elaborating social media implementation literatures especially that is related with City of Bandung and Mayor of Bandung. The quantitative data is analysed by using social network analysis (SNA) through social media that is used by the Mayor of Bandung in his daily activities, especially his Twitter account. Network analysis is a way to map and analyze patterns of connection or information flow between people online (Backstrom 2011, Burt 2001, Wilson, Gosling & Graham 2012).

The possibility of social network analysis contributing to measure the level of responsiveness of the government could be analysed by structural hole and the role of brokerage of social media (Eom et al., 2015). These roles could implement diverse interactions like sharing information as well as increasing number of actors to be linked to each other. In this way, when governments or mayors are using social media during governing activities, there is possibility for them to act as brokerage role and it will help them to enhance responsiveness and combat information asymmetry between civil servants and citizens vice versa. Therefore, they could have linked to each other responsively (Eom et al., 2015). This analyze will be conducted two times, August 8 and September 20, 2017 by running NodeXL application.

I.3.1 Content Analysis

The study empirically uses content analysis as the second analysis method by collecting, analyzing, and interpreting textual or visual data online, usually with the intent of quantifying patterns for comparison or to draw inferences across time (Krippendorff, 2012). This method is important in order to evaluate Mayor Ridwan Kamil's Twitter to improve responsiveness of Bandung local government based on his tweet's contents.

Author will apply categorization tweets which previously developed by Sobaci and Karkin in 2013. Each tweets from August 8 to October 10, 2017 are analyzed into one of 11 categories in term of their contents. The 11 categories as follows: information and news sharing, location and activity sharing, personal messages, direct communication with citizens,

communication with elected and appointed, better public services, self promotion, invitation to events, personal opinion and perspective sharing, promoting participation and the unknown.

Chapter II. Theoretical Background and Literature Review

II.1. Social Media

II.1.1 Definition of Social Media

Almost 4 billion people are connected to the internet nowadays. This number is still on going since this technology become much more affordable and internet infrastructure is getting better worldwide. With this huge number of users, the technology already transformed human life in many ways, from live, work, even the way in which countries and government develop (Mckinsey, 2011).

Furthermore, we could describe internet as one of basic needs for living in modern society, from communicating between people, expanding social contacts, sharing ideas and point of view with other person who has the same understanding about one or more particular issues within the system. This latest technology of the internet which focus on interaction between people online is well known as social media, social networking site or social networking services which have same abbreviation as SNS.

Social media commonly represents various social networks websites such as Facebook, Twitter, Instagram, Path, Myspace, Linkedin, Blogger, Google+, YouTube, WhatsApp, Line, Kakaotalk, VKontakte, Odnoklassniki, QZone and so on (Boyd, 2008; Boyd & Ellison, 2007; Hargittai, 2007; Lange, 2007; Fu et al., 2008; Tufekci, 2008; Livingstone, 2008; Steinfield et al, 2008; Kushin & Kitchener, 2009; Hinton & Hjorth, 2012; Luttrell, 2015; World Economic Forum, 2017).

In academia perspectives, they are many definitions about social media. For example, Boyd and Ellison (2007) specifically defined social media as web based services that allow individuals to a. Construct a public or semi public profile within a bounded system b. Articulate a list of other users with whom they share connection and c. View and traverse their list of connections and made by others within the system. Ten years later, Im (2017) defines social media as a platform for establishing social networks for sharing common interest as well as share ideas, activities, events within their networks.

Furthermore, Lutrell (2015) described social media as activities, practices and behavior among communities of people who gather online to share information, knowledge and opinions that make it possible to create and easily transmit content in the form of words, pictures, video and audio. In addition, Hinton and Hjorth (2012) mentioned social medias are becoming an integral part of identity, social and political management to build connections with other people, to stay in touch, to find support and answers to questions, to reinforce common ideas and values, to share news and other information and to be entertained. Based on these definitions, the main characteristics of social media are web-based services which provide individual with social networking functions and expanding new relation with other members within the system.

II.1.2 Purpose and Characteristic of Social Media Use

The previous chapter already defines the purpose of social media has social networking functions and expanding new relation with other members within the system. Since 2008, Brian Solis has been developing study regarding digital ethnography of social media which tracks social media and categorize them based on how they are used in every day life. He predicts that social media still continues to reshape the world, especially in terms of connectivity between people online.

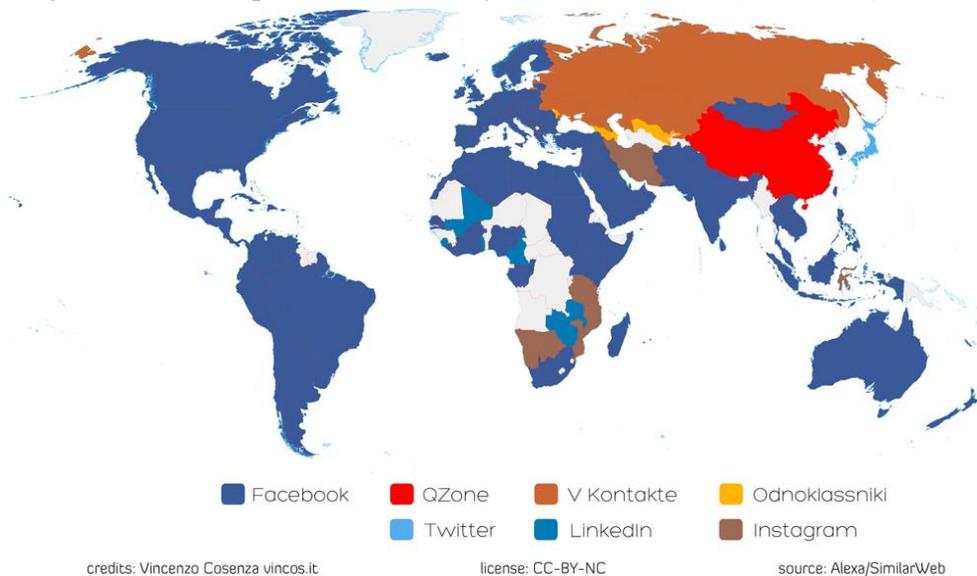
Figure 1. Digital Ethnography of Social Media by Brian Solis (2017)



Solis (2017) captures the trend of social media visually every year (see figure 1). At the center, it is the people with their online experiences. The next layer illustrates how to add value to networks and the experiences of others by listening, learning and adapting. The second layer is related with the impact of online engagement as measured by people’s social media use in their daily life. The outer layer is the reflection of the people engagement and what people think about it in the community based on social media use.

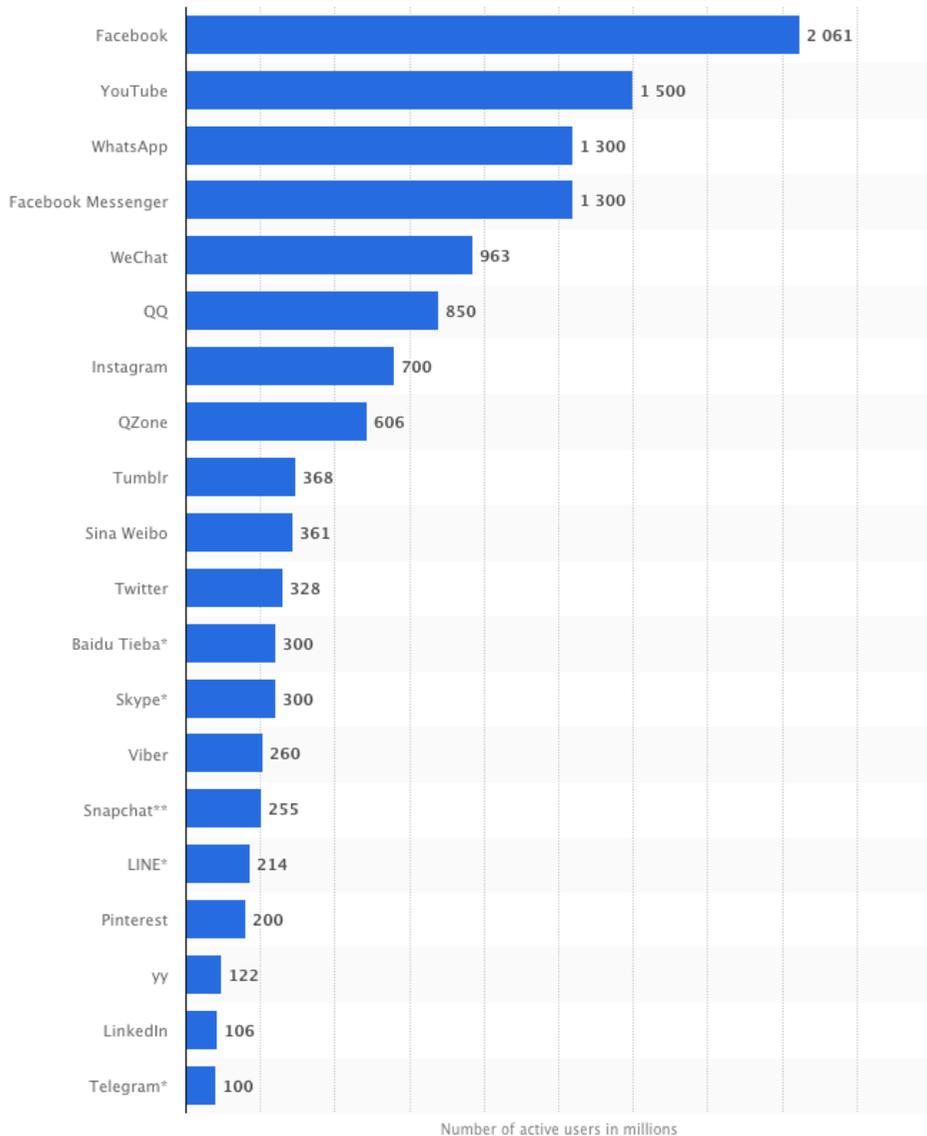
Based on the visualization, there are a lot of social media and different continents all over the world have their own characteristic of social media users. World Economic Forum (2017) published that Facebook is the world’s most popular social media with more than 2.07 billion monthly active users and 1.37 billion daily active users around the globe. Based on the same report, Cosenza (2017) analyzed the most popular social media by country based on traffic data from Alexa and SimilarWeb (see figure 2). He mentioned that LinkedIn become popular in several African countries. In addition, VKontakte and Odnoklassniki are popular in Russia. However, in China where Facebook, Twitter and Instagram are blocked, QZone is the top social media. Furthermore, Japan is the only country where Twitter is the most popular social networking platform.

Figure 2. World Map of Social Media by Vincenzo Cosenza (WEF, 2017)



In addition, Statista (2017) already published the most famous social network sites world wide which ranked by number of active users (see figure 3). Similar with the report from the World Economic Forum, Facebook established as the most popular social media and already surpass 2 billion registered accounts, followed by YouTube in the second place and WhatsApp in the third rank.

Figure 3. The Most Famous Social Network Sites Worldwide (Statista, 2017)



There are similarities between the most popular social media. Most of them have multiple languages options which enable users to connect people

with different geographical areas and nationalities. It also shown that the most famous social media are user friendly and usually display a high number of user accounts. The majority of social media with more than 100 million users basically developed in the United States. However, European social services like V Kontakte and Chinese social media such as Qzone have earned attraction in their areas due to local context and content (Statista, 2017).

Furthermore, each of social media has different characteristics and purposes as well. For example, Facebook and Google+ are really focused on share information between their member in the network and they are constantly pushing interaction through features like photo or status sharing. Other social media such as Tumblr and Twitter are heavily concentrate on rapid communication with limited characters within their system which well known as microblogs. Some social networks like YouTube focus on video's content. In addition, Instagram and Flickr they are popular for photos sharing.

This thesis focus on microblogging Twitter which has characteristic of direct conversation as well as useful for driving traffic regarding questions and answers in interactive ways. This social media could be used to identify the role of particular account based on different kinds of networks structures compare with other social medias (Gilpin 2010 as cited in Stamati et al, 2014). Twitter allows their members to share maximum 140 characters or less and photos to be read, clicked, followed, and re-tweeted. This social media mainly used for sharing thoughts and get involved in conversation. Hashtags (#) is a key tool on Twitter. This hashtag allows their member to reach a wider audience by getting involved in existing conversations. People searching for specific information will check based on trending hashtags as well.

II.2. Government Responsiveness

II.2.1 Conception of Government Responsiveness

The main conception about government responsiveness could be traced from the previous public administration theory which is mentioned by Frederickson in 1997. He emphasizes that government's responsiveness refers to the way in which government could enhance the capacity of clients (customers or citizen) to facilitate institutional adaption based on theirs need. This argument is strengthening by Osborne & Gaebler (1992) in their popular

book *Reinventing Government*, which describe that responding to various citizens' demands and providing better public services for citizens as customers should be the top priority of public agencies.

In line with classic definition, modern public administration expertise elaborated the importance of responsiveness for government in many literatures. Kingsley (2010) concludes social media interaction between citizen and government become two-way methods which emphasize on interactivity and co-creation of content that is really important. Therefore, there is no doubt that in current situation social media become really popular for governments, even governments are already use it for different purposes such as recruiting initiatives and public participation (Dorris, 2008), reaching out to citizens and other stakeholders as well as sharing information within and with other government institutions, sharing information in and across government agencies (Chang & Kanan, 2008) and supporting transparency (Jaeger & Bertot, 2010).

In this way, when it comes to interaction between citizen and government, social media could be definitely used as a tool to enhance responsiveness, such as reply instantly to queries, provide continuous updates of information and be prepared to engage with the public on emerging issues (Panagiotopoulos et al, 2017). The term of responsiveness for government institution could be defined as public administrators responding to citizens as well as how government professionally manage public organizations (Vigoda, 2002; Yang & Pandey, 2007).

In addition, some experts point out that government responsiveness refers to the degree of public officials could respond citizen's demand and how public officials' attitude of immediately following citizen's demands for change (Starling, 1986; Yoon, 2001; Eom et al, 2015) Furthermore, Bryer (2009) emphasize that government responsiveness is related with collaborative participation between government and citizens, especially the willingness of government to adopt social media tools that encourage collaborative citizens participation. This term already analyzed by Vigoda (2002) as partnership with citizens and Stivers (1994) as sharing information with and listening to citizens.

Furthermore, it is common sense that uses of social media in government could improve the level of responsiveness, especially in term of government's ability to react to the public. The conception of responsiveness

emphasizes the capacity to listen, facilitating an understanding the citizens and promoting new ways of engaging. Commitment to listening not only improves the government's ability to react but also enhances its role to create public value. This mentioned by Vigoda (2012) as a shift from administrative to collaborative responsiveness. Therefore, the ideal concept of government responsiveness could be defined as interaction where social media could support the government's efforts to be more proactive in two-way communications, between governments and citizens within the environment of social media.

All in all, the term of responsiveness is basically related with government's ability to react to the public which emphasizes the capacity to listen, facilitating and understanding the citizens and promoting new ways of engaging. Since citizens nowadays are familiar with social media as modern channel to communicate with governments, therefore responsiveness could be seen from the way in which governments or government leaders could get involved in social media with their citizens in two-way communications method intensively. In addition, responsiveness is related with how much time that government needs to answer and solve their citizen's need. The fastest duration of this procedure is related with the most responsive government. Social media network is a channel to make two-way communications and fastest duration respond at the same time.

There is no doubt that correlation regarding social media in order to improve government responsiveness is mainly happening for the country which see social media as one tool to enhance two-way communications between citizens and their administration. It seems that most of countries which see those category is under democratic administrative system, which government responsiveness is pointed as the most crucial democratic value that government leaders should be achieved during the governing of their administration (Eom et al, 2015).

II.2.2 Government Responsiveness in Local Level

Regarding the implementation of social media by a government in local level to improve responsiveness, there are several papers which elaborated about this issue. According to research by Graham and Avery (2013), Facebook and Twitter were the predominant social media tool used by local governments to communicate with citizens in The United States of America. There also research from Eom et al (2015) which focus on Mayor of Seoul-

South Korea and public officials in social media networks to increase government responsiveness through Twitter.

Furthermore, Ellison and Hardey (2014) analyzed internet based communication in The United Kingdom Local Governments, particularly through Facebook and Twitter. In addition, Schellong (2008) analyzed how local social media help creating, managing and expanding an individual's social network as well as maintaining weak ties during disaster in Japanese Local Governments. There is also research by Bonson et al (2012) about the impact of social media and corporate transparency in European Unions Municipalities.

Based on the current literature generally social media gives local governments opportunity to improve their relation with citizen especially in developed countries like USA, South Korea, the UK, Japan and European Unions (EU), however there is limited research exists to the extent to which local governments are actually using social media in developing countries. In term of middle developing nations, there is a research paper from Sobaci and Karkin in 2013 regarding the use of Twitter by Mayors in Turkey which defined that indeed social media has the potential to make contribution to the improvement of public services. However, in general they found that Twitter mostly used by mayors for the purposes of self promotion and political marketing rather than the improvement of public services.

Therefore, analyzing how local governments are using social media to communicate with citizens and how local leaders are incorporating social media into their communication strategies in developing country is worthy of investigation. This research will add to the growing body of strategic communication research on social media, and the results of this study will give insight into how well local governments are meeting citizen expectations and advancing democratic principles through social media.

II.3. Social Media Use and Government Responsiveness

II.3.1 E-Government and Responsiveness

It is a widely belief that e-government has an important role to transform a better public services in all level of governments, from central to municipalities. In the beginning this system established to replace conventional approach from old-style government managerial which adopts

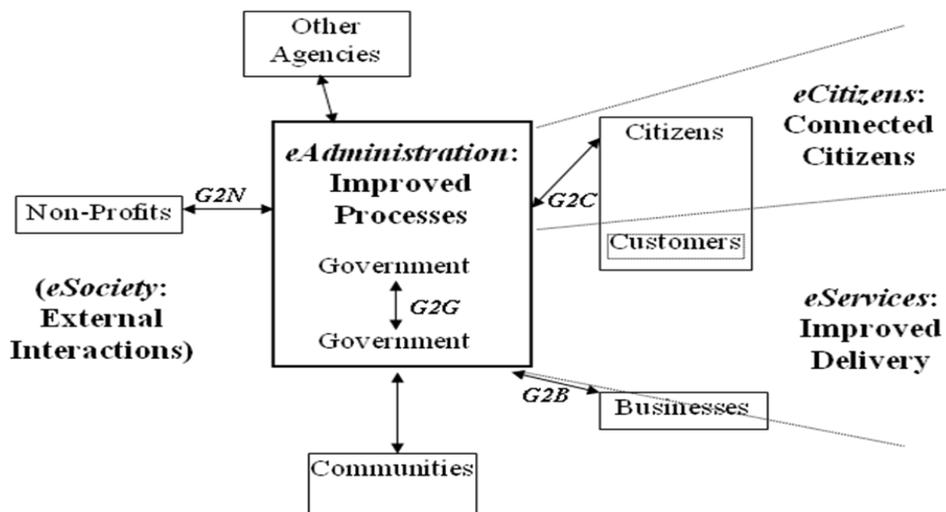
private sector techniques (Heeks, 2001). Indeed, in the comprehensive perspective there are many technical aspects in public sector that totally different with private sector. However, in general point of view the implementation of e-government offers new approach of way in which the public sector could be governed by e-government without replacing the older frameworks (Lane, 2000). Furthermore, e-government offers future public management system that involves flexible principles, reintegration, comprehensiveness and digitalization (Dunleavy et al., 2006).

In this way, development of e-government is mainly for enhancing better public management services (Lane, 2000), including the improvement of communication between governments and the citizens. These arguments are strengthened by several definitions, for example World Bank (2015) defines e-government as the use by government agencies of information technologies which have the ability to transform relations with citizens, businesses, and other arms of government in order to achieve better delivery of government services to citizens, improved interactions with business and industry, citizen empowerment through access to information, or more efficient government management. In addition, Reitz (2006) points out that e-government is the use of information and communication (ICT) for facilitating interaction between public authority, individual citizen, business, and non governmental organization.

Moreover, e-government can be recognized as means to reduce corruption, improve transparency, and to enhance democratization (Guo et al, 2009) and transforms from administration oriented to service oriented through innovation in modern governments (Torres et al, 2005). There is also Paola (2013) which describes e-government as systems that facilitate interaction and communication technology from government to citizens including citizen participation in government's activities. In addition, there is a comprehensive argument from Garcia and Reyes (2008), they analyze e-government as the selection, design, implementation, and use of information and communication technologies in government to provide public services, improve managerial effectiveness, and promote democratic values and participation mechanisms, including the development of a legal and regulatory framework that facilitates information, intensive, initiatives and fosters the knowledge of society.

Based on these definitions, one of the main point of e-government is digital communication with citizens to enhance their satisfactions. One of the indicator to achieve this target is responsiveness of the government in order to fulfill citizen's need. To achieve this target, e-government offering direct connectivity between citizen and government vice versa to enhance the level of responsiveness. In focal domains for e-government initiatives framework by Heeks (2010), this aspect covers G2C relation to improve connected citizens with government (shown in figure 4).

Figure 4. Focal Domains for e-Government Initiatives (Heeks, 2010)

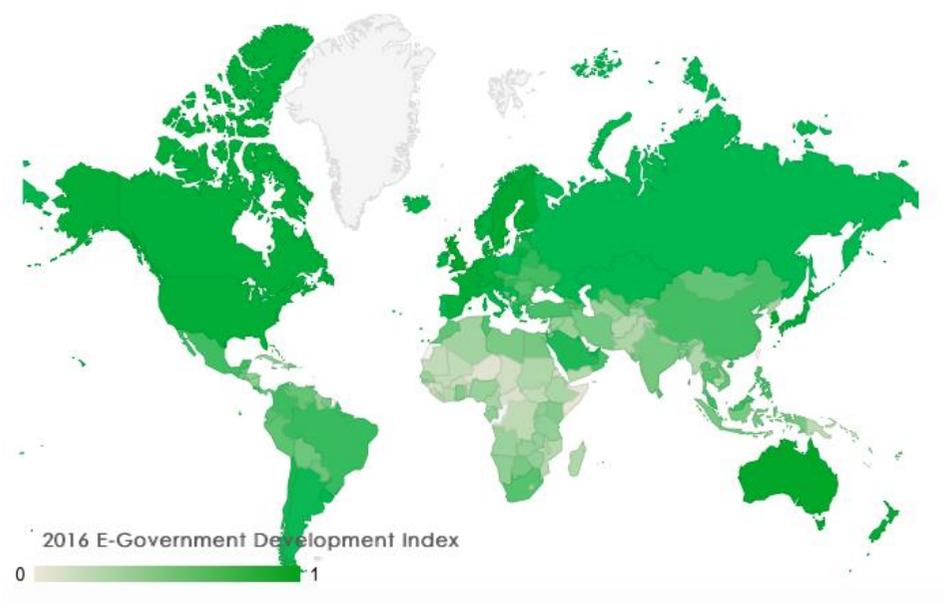


However, implementing e-government is not as simple as it designed. This is regarding the research by Heeks (2006) who evaluate that most e-government projects are failure, especially in developing countries. There are several obstacles for using ICTs effectively in order to improve the quality of public services online. Government needs to face high levels of uncertainty in implementing e-government services because of the complexity of the technology as well as wide diversity in the acceptance of technology by citizens (Gant et al, 2008). Consequently, government should overcome two main factors in order to be succeed, namely: significant population of citizens willing and able to adopt and use online services; and, developing the managerial and technical capability to implement e-government applications to meet the needs of citizens (Prattipati, 2003 as cited in Gant et al, 2008).

These two factors basically are measured by United Nations (UN) on e-Government Survey. The recent survey already published in 2016. Based on

the report, UN (2016) analyzes that even though there has been a rise in the number of countries that are using e-government worldwide, the gap between developing and developed nations regarding e-government is quite wide. For example, the report said in term of fixed and wireless broadband subscriptions have increased unevenly across regions, with Europe leading and coming closer to market maturation while Africa is still lagging behind. Those fact is still relevant with Norris argument sixteen years ago in 2001 which described that the cutting edge of internet technology have reinforced their lead in the new knowledge economy however the benefits of this technology have not yet trickled down far in many developing countries, especially in Africa and Asia (see figure 5).

Figure 5. E-Government Index Worldwide by United Nations (2016)



The main reason of this gap is most of developing nations have lower levels of readiness to provide e-Government services compare to developed nations. The main obstacles regarding this issue is not only related with the lack of resources and capabilities to build up the technological and managerial knowledge, but also government need to understand whether those technologies are convenience enough for citizens to apply it in their daily activities, especially when they need public services from their government. Generally, e-government could not grow in social or technological isolation instead they are embedded in an organizational, cultural, and institutional

context that influences the ways in which they are developed (Kling 2000 as cited in Gant et al, 2008).

In this way, based on those explanations the expertise's agree e-government has important point for the improvement of public services, especially to connect between government and citizen effectively. However, there are obstacles that e-government need to solve regarding this area as well. Especially, to make sure that the application is relevant with citizen's need. Considering that fact the majority of e-government's projects in many developing countries are failed, the growing users of mainstream social media nowadays could be used by governments in order to achieve better online engagement with their citizens. Furthermore, social media already well-known by the citizens compare to other channels that governments published based on the e-government initiative. It could be seen from the growth of social media users that authors already described it in previous chapter.

At the same time, using mainstream social media that citizens already familiar with would be efficient in term of government budget. Because using them as official channels are free of charge comparing to build the new e-government projects to improve the level of responsiveness between citizen and government. In this regards, social media could be seen as the main solution to achieve two-way communication between governments and citizens for improving the level of responsiveness and in the end could improve the quality of public services.

II.3.2 Social Media and Responsiveness

The way in which people connected in the internet through social media has made the governments to implement many innovations for delivering information and services as well as how they communicate with their citizens. This situation describes by many experts as the crucial role of internet nowadays and it would shape and deliver the government of the future (Castells 1996; Dunleavy et al 2006; OECD 2009; Lips 2011; Weerakkody and Reddick 2012; European Commission 2013 in Graham & Dutton, 2014).

Based on Graham and Dutton research in 2014, they found that since 2011 many governments especially in developed countries pronounced that they will become digital by default which using digital channels and platforms as the standard way for providing information and services to citizen, business

and other stakeholders of government. This digital government is the same term with electronic government to describe the application of information and communications technologies (ICTs) for improving the quality of public services and to increase citizen participation in democratic government (Davies, 2015). It also relevant with the term Government 2.0 which Meijer et al (2012) defines as a means to reinforce the relation between government and citizen in the information age nowadays.

Graham and Dutton (2014) found that many developed countries such as Anglo-Saxon and Scandinavian had started to implement strategies to achieve digital by default. Furthermore, they also found that some developing countries like India, Indonesia, Thailand and Vietnam have started to replace traditional human-based public service channels with digital channels. It seems that the domain of digital government not for advance countries only, many developing nations are catching up in order to survive in the era that castells (2000) describe as network society, because through internet there is no boundary within people around the globe who has online connection.

Regarding rapid growing of social media worldwide, many governments react differently because beside the positive aspect of social media, there also a negative side of this application that should be aware by the authorities. These situation is relevant with Im argument (2017), he mentions that nowadays governments are facing the era of social media could make integration, disintegration, interdependence and separation among different social entities at the same time. The cons see social media could make disintegration and separation which threat for government stability. Therefore, many governments implement strict regulation regarding social media, especially based on the facts that social media information could not be verified comprehensively. This channels could be used for spreading hoax or misleading information regarding sensitive issues which affect social and political condition of the nations.

Current research by Alcott and Gentzkow (2017) emphasize that social media platforms have dramatically changes conventional media because nowadays content of the news could be relayed among almost anyone without third party filtering, cover both stories, fact-checking and editorial judgment. In this way, any individual in some cases could reach many readers as mainstream reputable media. In this research, they confirmed that fake news was widely shared for both candidates during the US election in 2016 which

heavily tilted in favor of Donald Trump. The database contains 115 pro-Trump fake stories that shared on Facebook with a total of 30 million times, in contrast there was 41 pro-Clinton fake stories which shared a total of 7.6 million times.

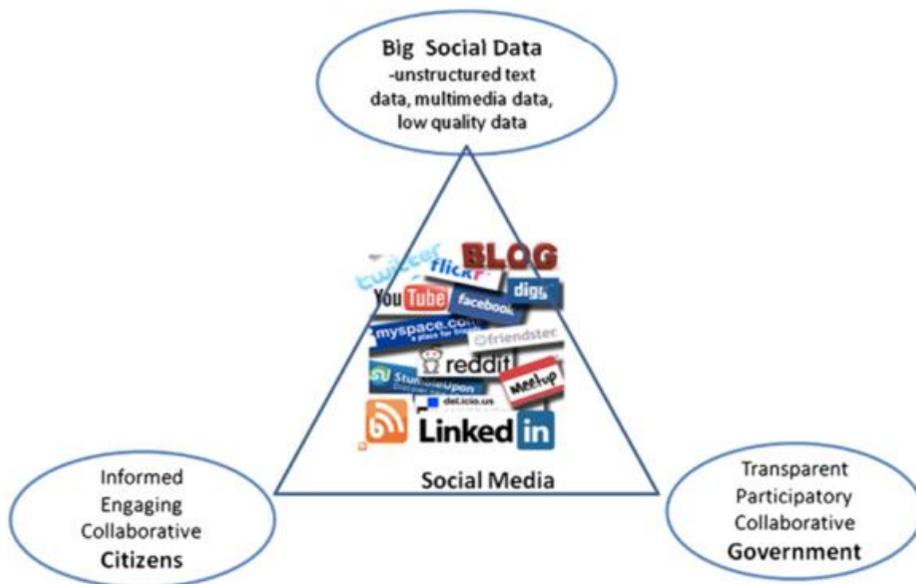
There is also a risk regarding privacy and crime, because many personal information could be shared easily through social media and some of people use it for their personal interest and fraud by hacking somebody's account, even worse some terrorist organizations recruit members and funding through social media. That situation is really possible these days because majority of social media users are not privacy experts (Raad and Chbeir, 2013) and the users are not only ordinary citizen but also for somebody who has plan for crime, violent even terrorism (Mahmood, 2013). In the real case, Anders Breivik-the Norwegian mass murderer had a Facebook and Twitter's account, as well as Abu Jundal-the Indian terrorist found to be using Facebook to recruit new members for his organization (Sharma, 2012 as cited in Mahmood, 2013).

Based on those cases, many governments react differently. For example, Hinton and Hjorth (2013) research found that since 2011 the Government of Canada implement regulation on how civil servants use social media and encourage them to be aware of potential risks. In addition, in the same year South Africa established guidelines for social media use by government organizations for strengthening transparency of government process, promoting public participation and interaction with citizens (Hinton and Hjorth, 2013). In contrast, China government has built social media censorship organizations with become the largest selective suppression of human communication in the recorded history of any country (King et al, 2014). In the extreme case, it almost impossible for citizens who live in authoritarian regime like North Korea to be connected on social media freely for their citizens (Yoon, 2015).

Based on the explanations above, governments in general have two main perspectives regarding social media. First see social media as opportunity to enhance two-way communications between governments and their citizens. On the contrary, there are some countries which see social media as a threat for their governments. Therefore, some of them have restricted regulation to control social media and even some of the social media already banned in those particular countries. This thesis will focus on the way of governments see social media as opportunity to improve the level of responsiveness in the local level.

The conception of government responsiveness itself is relevant with government, citizen and data model which is proposed by Chun and Reyes (2012). See figure 6. Based on the model, social media is in between of big social data, citizens and government. In term of big social data, it is undeniable that social media generates a lot of data from textual to multimedia, including image, video and audio. McKinsey (2016) described that internet traffic already reached 1 zetabyte or equivalent to 1 trillion gigabytes. The characteristic of big social data is unstructured text, multimedia and low quality which are really hard to analyze (Scarfi, 2012). Therefore, how governments could manage efficient storage, processing and analysis of big social data will improve their capability to implement policy based on public needs and opinion through social media.

Figure 6. Government, Citizen & Data Models through Social Media based on Chun & Reyes (2012)



In term of citizens' aspect, social media has main tool as provider user opinions. Furthermore, social media could promote democratic participation (Dorris, 2008), collaborative governance (Bryer, 2009) and engaging within the citizens to achieve well informed society (Chang & Kanan, 2008). Lastly is the government's aspect, especially the way in which social media could improve participation of citizens through government policy, even they could change decision making based on input from the citizens (Stivers, 1999; Panagiotopoulos, 2017), transform the governments' behavior and practices in

information sharing and services and supporting transparency (Jaeger & Bertot, 2010; Kingsley, 2010), and build collaborative partnership within and with other government institutions, sharing information in and across government agencies (Chang & Kanan, 2008).

In short, social media could transform government become more collaborative with other stakeholders, participatory approach based on citizens' sentiment and promoting transparency through open data and more responsive based on two ways communication within the system. Through this model, social media become main strategy for government in order to survive in the era of internet, including to enhance government responsiveness with the citizens.

At the beginning of this interactions, social media are likely to be used as an additional tool from existing channels that already used by the government. A long the way when social media become increases compare to other channels, government should be ready for the information policy or regulatory frameworks in term of using social media during governing process to answer public's expectation on responsiveness. This point is important, because there is a tendency that volume and complexity in the social media interactions could not fit with the formal policies as well as bureaucratic structure of the governments.

II.4. Literature Review

II.4.1 Pros and Cons Regarding Social Media

It undebatable that internet technology already transforms as one of important aspect for modern society, especially in term of the way people communicate each other with social media. They are tons of social media nowadays, however in this thesis author focus on microblogging Twitter. This social media has specific characteristic of direct conversation, therefore it is really useful for driving traffic regarding two-way communication between government and citizen that this thesis wants to elaborate. This argument is strengthening by experts which already mentioned in previous chapter I and II, especially in term of identify the role of particular account based on different kinds of networks structures compare with other mainstream social media (Gilpin 2010 as cited in Stamati et al, 2014).

Based on the exploration on chapters II.2 Government Responsiveness, social media could be seen as the main channel to improve the level of government responsiveness. The term of responsiveness itself is basically related with government's ability to react to the public which emphasizes the capacity to listen, understanding the citizen and promoting new ways of engaging. The main reason why author believe that social media could be seen in this aspect because citizens nowadays generally are familiar with social media. Several data already explored in Chapters II.1 and II.2 which define responsiveness could be seen from the way in which governments or government leaders could get involved in social media with their citizens in two-way communication method intensively. Furthermore, social media gives chance to reduce barriers in communications, especially in order to achieve fastest duration from governments to answer and solve their citizen's need.

However, those positive trends are mainly happening under democratic administrative system, which government responsiveness is pointed as the most crucial democratic value that government leaders should be achieved during the governing of their administration. Because from chapter II.3 Social Media Use and Government Responsiveness, there are pros and cons regarding social media. The pros see social media could improve participation (Stivers, 1999; Panagiotopoulos, 2017), supporting transparency (Jaeger & Bertot, 2010; Kingsley, 2010), building collaborative partnership within and with other stakeholders (Chang & Kanan, 2008) with real example from many developed nations, for example USA (Graham & Avery, 2013), South Korea (Eom et al, 2015), The UK (Ellison & Hardey, 2014), Japan (Schellong, 2008) and European Union (Boston et al, 2012).

In contrast, the cons see social media could threat for government and they implemented strict regulation regarding social media, especially based on the facts that social media information could not be verified. Therefore, this channels could be used for spreading hoax or misleading information regarding sensitive issues which will affect social and political stability of the nations (Alcott and Gentzkow, 2017). There is also a risk regarding privacy and crime, because many personal information could be shared easily through social media and some of people use it for their personal interest and fraud by hacking somebody's account, even worse many terrorist organizations recruit members and funding through social media (Mahmood, 2013). Therefore, somehow it is reasonable when China has the largest social media censorship organization in the world (King et al, 2014) which already banned Facebook, Twitter and

Instagram (World Economic Forum, 2017) as well as North Korea which banned all mainstream social media within their country (Yoon, 2015).

In this regards, generally governments have two main perspectives regarding social media. First see social media as opportunity to enhance two-way communication between governments and their citizens. Secondly see social media as a threat for their governments. This thesis will focus on the way in which governments see social media as opportunity to improve the level of responsiveness in the local level. The main reason about this argument already discussed in chapter II.2.2 Government Responsiveness in Local Level which mainly defined that most of current literatures about this conception are mainly in developed countries like USA, South Korea, the UK, Japan and European Unions (EU), however there is limited research exists to the extent to which local governments are actually using social media in developing countries.

II.4.2 Social Media as Main Channel to Improve Connected Citizen with Government (G2C)

Chapter II.3 Social Media Use and Government Responsiveness concludes that the main point of e-government is digital communication with citizens to enhance their satisfactions, especially regarding government responsiveness in order to fulfill citizen's need. To achieve the target, e-government offering direct connectivity between citizen and government based on Government with Citizen (G2C) framework which is proposed by Heeks in 2010. In addition, this chapters also defines that many expertise's agree e-government has important point for the improvement of public services (Lane, 2000; Dunleavy et al 2006), especially to connect between government and citizen effectively (World Bank, 2015; Reitz, 2006; Paola, 2013; Garcia and Reyes, 2008)

However, there is main obstacles that e-government need to solve regarding to enhance connectivity between governments and the citizens as well as to make sure that the application is relevant with citizen's need. Considering the fact that dominantly e-government's projects in many developing countries are failed (Heeks, 2010). In this way, the growing users of mainstream social media nowadays could be used as main channel for governments in order to achieve better online engagement with their citizens. Furthermore, social media already well-known and familiar by the citizens compare to other channels that government implemented based on e-

government initiative.

This approach would be efficient in term of government budget as well. All mainstream social media are free of charge even though when government want to use it as official account, comparing to build the new e-government projects to improve the level of responsiveness between citizens and governments. In this regards, social media strongly relevant as solution for achieving higher level of responsiveness based on two-way communication between governments and citizens that not could be achieved perfectly by e-government initiative in G2C's framework.

Chapter III. Research Design

III.1. Social Networks Analysis (SNA)

III.1.1 Conception of SNA

Derek et al (2011) in their book *Analyzing Social Media Networks with NodeXL* describe that social network analyst focus on the relationship among people. Therefore, this research concentrate on the connections that bind actor together, not exclusively on their internal qualities or abilities. Social networks itself have basic components such as nodes, edges, clusters and network density. Nodes represent the actors in the network; edges represent the connections or ties between actors; in the context of Twitter edges could represent many types of connections such as followings-subscription to others' account, followers-others' subscription to a user's account, mentions-user's mentions of others account comment, and replies-user's response to others' comment. Clusters or groups are blocks of densely connected nodes which rarely connected to other blocks. Then network density refers to the ratio of the number of edges in the network over the total number of possible edges between all pair of nodes. In this way, network density is to measure how well connected a network, when it has more ties and/or higher value, the average value of a tie is greater.

Actors have a structural position in a network which could identify by measurements of connectivity. In this thesis, author focus on the term centrality measurements. Centrality refers to how dominant the actors are connected in a network. Centrality defines the extent of an individual or organization is connected to others in their environment (Freeman et al., 1979; Wasserman & Faust, 1999 as cited in Eom et al, 2015). The types of centrality measurement which relevant to this study are betweenness centrality and degree centrality. Betweenness centrality measures the extent that the actor falls on the shortest path between other pairs of actors in the network. Degree centrality of a node is simply its degree which is divided into two categories because the relationships have a direction, namely in-degree and out degree centrality. In-degree centrality is based on ties or relationships that others have initiated with a user, in Twitter case is the number of users who followed that user. Out-degree is based on the relationships one has initiated with others, in Twitter case is the number of users that a user follows.

III.1.2 Methods of SNA

To analyze the possibility of Twitter account which is exclusively use by mayors could contributes to improve responsiveness, this study adopts the concept of a bridging hub which is proposed by Himelboim et al in 2014. They empirically measuring the bridging hub in the Twitter network which is originally consist from two aspects, a bridge and the hub. A bridge refers to the mediator who enables contact among the clusters in a network (Himmelboim et al., 2014). The bridge could obtain status by using a structural position that maintains the channels through which diverse actors in separate groups can be linked to each other. The index frequently used to measure how a bridge plays the brokerage role in a network is called betweenness centrality. The index shows how distant each actor is from each other, which is measured by the degree to which the other actor's network is disrupted as a result of eliminating one actor.

In addition, a hub refers to an actor who has connections with other actors in a network (Himmelboim et al., 2014). A hub centers is defining the frequency of connections with other actors, because it is necessary to consider the frequency of the actors' relationships also build relationships with many actors and interact with them in varied ways. A hub includes directionality in a direction-oriented relationship like in Twitter account. Therefore, hubs can be subdivided based on in-degree centrality or out-degree centrality, which reflect the directionality whether based on number of followers the Twitter account or following other Twitter account.

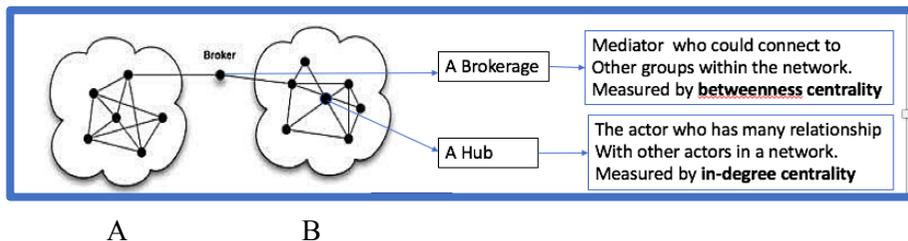
The suitable methodology to assess government responsiveness is social network analysis (SNA) by analysing the role of betweenness centrality and in degree centrality based on social media account that researcher want to elaborate (Eom at all, 2015; Himelboim et al, 2014). Basically, the concept has developed based on Granovetter theory in 1973. He described that in a social network, strong and weak ties made by broker. The broker could facilitate information stream and decrease information asymmetry among other actors. Strong ties refer to the connection among actors who always keep in touch and share information frequently, for example our inner circle like family and best friends. Strong ties have a tendency that they present a closed network and share the information in a cohesive way. In addition, weak ties are defining as the connection among actors who are not close and not contact frequently, for

example our outer circle like colleagues in the office and new friends. Weak ties tend to present information in a dispersed way (Granovetter, 1973).

Granovetter’s argument point out that strong ties are weak in term of spread the information outside their circle, in the contrary weak ties are strong in terms of spreading information among groups (Eom et al, 2015). Since strong ties comprise similar and close actors, it is likely that strong ties tend to keep information internally and they consume information for internal actors only. However, weak ties tend to spread their information to outside groups and accept new information from outside groups, connecting actors of separate groups without any hesitation. The second important regarding Granovetter’s argument is that weak ties can be strong only when they connect non-redundant groups (Burt, 1992 as cited in Eom et al 2015).

In Figure 7, the connection between actors in group A is concentrated to actors in the group A only. However, the relationships in which actor broker has in a network are extended to the group B. In this way, actor broker has plays as the brokerage, connecting the other actors in different groups and facilitating the flow of non-redundant information in weak ties (Song et al., 2004; Jang & Hwang, 2003; Burt, 1992 as cited in Eom et al 2015).

Figure 7. A Brokerage and A Hub in Social Network Analysis



From the point of view of social network analysis, a social media network could be defined as a weak tie because in general social media users (Twitter particularly) do not know each other closely and do not contact frequently but share information in a dispersed way. Furthermore, the actor who are playing as the broker in social media is in favorable condition because broker could connect to other actors who otherwise would be disconnected as well as receive and distribute broader and newer information quickly. In this way, when government leaders actively using social media during governing their area, it is likely that their brokerage role in social media will help to overcome difficulties in increasing responsiveness (Kavanaugh et al., 2012; Loader & Mercea, 2011; Margetts, 2009 as cited in Eom et al 2015).

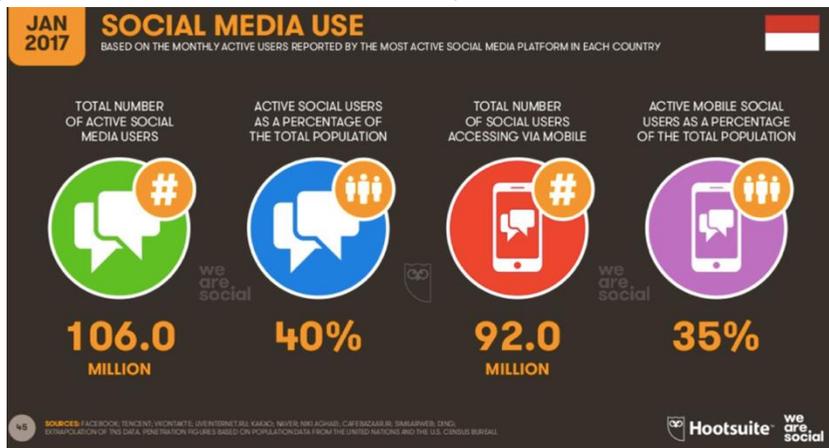
In addition, the hub is essential in term of in-degree centrality (Freeman, 1977, Wasserman & Faust, 1999 as cited in Himelboim et al, 2014). It happens because in Twitter the connections have a direction, whether one account following other or user follows another. In-degree centrality is based on connections that others have initiated with a user, therefore it depends on the number of users who followed the actor. From a public relation point of view, an actor could not reach users in other clusters are dependent on users who not only bridge users, but also have many relationships directed to them. Therefore, mediators in this term is the actor which has position as the bridge with high in-degree centrality or they call it the bridging hub. On Twitter, a bridging hub not only connects an actor with other actors which it cannot have direct relations. It also has a big number of users who follow it, as information it posts will spread to all followers. In short, a bridging hub on Twitter defined as mediator in terms of bridging which is measured by betweenness centrality and a hub based on the number of followers which is measured by in degree centrality.

III.2 Case of Bandung Mayor’s Social Media

III.2.1 Social Media in Indonesia

Global trend shows social media users increase exponentially every year. Nowadays 50% of global population are internet users and 37% from global population are social media users (Hootsuite & We Are Social, 2017). In the case of Indonesia has similar condition with global trend which consist 51% are active internet users and 40% from Indonesian population are social media users. As shown in figure 8.

Figure 8. Social Media Use in Indonesia (Hootsuite & We Are Social, 2017)



Moreover, one of international social media consultant, eMarketer (2016) analyzed that Indonesia will expand their achievement on the country's social network user to hit 110 million users by 2019. The most popular platforms among them are Facebook, Instagram, Twitter, Line, WhatsApp and Path. As the third most popular social media platform in Indonesia, Twitter in Indonesia has around 17 million users. In recognition of the importance of Indonesian market, Twitter already opened a branch Indonesia office since March 2015. Compare to other Southeast Asian countries, Indonesia is the leading which estimated in 2019 will reach 22.8 million users or around 17% user penetration.

In term of internet and social media regulation, there is no specific restriction from the government. All mainstream social media already used and accessed easily by citizens. However, there is Law Number 19/2016 which regulate Information and Electronic Transaction (*Undang-Undang No. 11 Tahun 2008 tentang Informasi dan Transaksi Elektronik/ITE*) to protect national interest as well as protecting public and private institution from cyber crime, defamation, blasphemy and online threats. The regulation gave authority to the Ministry of Communication and Informatics to ban suspected applications and websites which spread prohibited contents.

Previously the Ministry banned Bigo Live application because of nudity case and twenty-two websites which promoted religion fundamentalist and terrorism (Hukum Online, 2016), as well as telegram application for a short moment because the apps was used by religion fundamentalist and terrorism organization to spread their propaganda. However, after CEO telegram Pavel Durov came to Indonesia and he finally want to collaborate with the ministry to solve and counter the negative contents, then this application is working again (Kompas, 2017).

In this way, Indonesian government only regulate the content of social media not the social media itself. Therefore, Indonesia could be categorized as country which see social media as opportunity to enhance responsiveness and improve two-way communication between government and citizen. It is supported from the facts that most of governments institution from central to local governments in Indonesia at least have three official social media accounts, namely Facebook, Twitter and Instagram. Based on data from Ministry of Communications and Informatics (2016), in the central governments only there are 94 account Twitters, 34 Facebook and 18 Instagram.

However, there is no specific data for local governments which are consist from 34 provinces and 514 municipalities throughout Indonesia.

III.2.1 Social Media in Bandung City

Growing number of the social media users as well as supportive regulation from the government regarding social media are the main reason many politicians, government leaders and other formal institution in the governments are using social media as one of main channels to engage with their constituent and citizens in Indonesia. Therefore, the term of Twitterian or Twitter's account which has many followers in this country is not for celebrity or popular artist only but also for many politicians who are using their Twitter account actively to engage with their constitutions. See table 1.

Table 1. Number of followers for Twitter account of President, Vice President, Governor of Jakarta, Governor of West Java and Mayor of Bandung - Indonesia

Twitterian	Position	Followers
@jokowi	President Republic Indonesia	8.5 M
@Pak_JK	Vice President	2.6 M
@wagubDKI	Governor of Jakarta	17 K
@aheryawan	Governor of West Java	725.7 K
@ridwankamil	Mayor of Bandung	2.6 M

From Table. 1, Mayor Bandung City has bigger followers compare to his upper level Governor of West Java and has the same followers with the Vice President. It is reasonable for him to get more followers because Ridwan Kamil is widely known as professional architect, lecturer and co-founder as well as activist of social movement *Indonesia Berkebudayaan* who actively using Twitter before he got elected as Mayor of Bandung. This situation is in line with characteristic of Bandung population as the fourth largest internet penetration in Indonesia, after Jakarta, Surabaya and Bekasi. All the cities are in Java island based on data from Ministry of Communication & Informatics Republic of Indonesia in 2016.

During his tenure, Bandung-the capital of West Java Province is widely known as one of leading city in term of e-government together with Jakarta the capital of Indonesia and Surabaya the capital of East Java Province. Nowadays, Bandung already has Bandung Command Center (BCC) as

integration office for e-government system within the city, 10.000 free Wi-Fi access points, 300 free city applications for citizen and implementing open communication through social media channeling (Government of Bandung, 2016). Regarding Twitter users, Bandung become the top 6 city by number of posted tweets on Twitter worldwide in 2012 (SemioCast, 2012).

Based on interview with Oxford Business Group in 2015, Ridwan Kamil explained why his administration really focus on e-government and social media engagement with citizen *“Transparency is a cornerstone of my administration and we have instituted an open data policy which lays bare our budget for the public to examine. Our citizens can see exactly how much we spend, for which department and on what projects. I am also the only mayor in Indonesia using social media as a city management tool. Bandung is the sixth-most active city on Twitter per capita in the world, and we are committed to harnessing this for the betterment of the city. All government departments have accounts, allowing the public to complain, post photos and raise concerns. Departments must, when carrying out their work, present before and after photos, ensuring accountability”*.

Another interview by Digital Market (2014) Ridwan Kamil described that Twitter is most popularly used by citizens of Bandung, therefore it much easier for him to interact with them. In addition, during his tenure as Mayor, he has been using social media as a tool interact with his citizens as well as to manage the city efficiently. It is undeniable that during his leadership, each department in Bandung City already has Twitter account which is used for spreading information and conducting direct communication with citizens. During the interview, Ridwan Kamil said *“Suppose if a road is broken and has to be mended, the authorities are required to send a picture of the damaged road and then a picture after the job is done. This is a visual reporting system. We used social media to revolutionize this so that there is a check on the civic work that needs to be done, and there are filters to ensure that it is done.”*

All in all, it seems that the achievement of Mayor of Bandung regarding optimizing social media to engage with citizen is quite impressive. Unfortunately, until today there is no official document regarding the evaluation of the way of Mayor Bandung is using social media to communicate with his citizens. Does it really improve the level of responsiveness of Bandung local government? This is the main reason why researcher put this topic as well as the main research questions that this thesis aims to analyze. The next chapter

will be elaborated these aspects based on social network approach and content analysis theory.

III.3 Data and Scope

The study empirically uses content analysis and social network analysis. Content analysis is a method of systematically collecting, analyzing, and interpreting textual or visual data online, usually with the intent of quantifying patterns for comparison or to draw inferences across time (krippendorff, 2012). In addition, social network analysis is a way to map and analyze patterns of connection or information flow between people online (Backstrom 2011, Burt 2001, Wilson, Gosling & Graham 2012). In this study, social actors include any Twitter user who tweeted using the hashtag #Bandung. This includes individuals, government agencies and media. Relationships are created when users followed, replied or mentioned one another.

III.3.1 Social Network Analysis by NodeXL

The author collected all of the tweets from the Twitter network of the Mayor Bandung on August 8, 2017 and September 20, 2017. Author ran NodeXL to examine all tweets “#Bandung” in each period. In Twitter, hashtag “#” is the tagging service. For example, if a tweet mentioned “#Bandung,” it means that the user is tweeting about Bandung City. The main reason why data collection is divided into two time periods randomly (August 8, 2017 and September 20, 2017) with the same hashtag "#Bandung" in order to find differences or similarities of the features of the Tweeter network structure and the Mayor’s roles in the network in different periods.

To identify the bridging hubs, author analyzed the Twitter network of Mayor Bandung and found that the bridging hubs play a central role in the network. These bridging hubs are measured by actors who are in the top one percent in the network of betweenness centrality values and those who are in the top 10% of in-degree centrality values (Himmelboim et al., 2014). The more people depend on an actor to connect them with other people, the higher that actor’s betweenness centrality value becomes. In addition, another aspect of the operationalization of bridging hubs is high in-degree centrality which measured by the number of followers a user has among the other members of the specific topic network. To confirm the ability of the actor playing the role of the broker, author measured the degree of Twitter network disturbance that occurred in the

Bandung City services when the bridging hubs were excluded from the network during August 8 and September 20, 2017. The disruption eliminating bridging hubs are measured as the percentage change in the average network path distance, the percentage change in network density and the missing vertices.

In addition, to analyzes the structures of a social media network author applies social media clusters based on Smith et al., (2015) approach. They analyze that the structures are divided into six categories, namely: a) Polarized networks which contain the form of two big and dense clusters that have little connection between them. b) Tight networks feature smaller clusters of highly interconnected individuals with few disconnected as well as isolated participants. c) Brand networks which refer as a low density of connections with many isolated individuals who have no connection to other individuals. d) Community networks which many small clusters that form a handful of hubs with their own audience, influential individuals, and information sources. e) A broadcast network which has a distinctive hub-and-spoke structure therefore many individuals repeat what main news and media organizations tweet. f) A support network has a hub-and-spoke structure in which the hub account responds to many otherwise disconnected users, as well as creating outward spokes. See table 2.

Table 2. Structures of Social Media Networks by Smith (2015)

Structure	Cluster count and cluster size	Level of cluster interconnectivity	Isolates – unconnected nodes	Examples
Polarized	2 large	Disconnected	Few	Political controversy: divisive topics display separated “echo chamber” structure
Tight	2-6 medium	Connected	Few	Hobbies, professional topics, conferences. No “outsiders”; all participants are

				“members”
Brand	Many small	Few connections	Many	Brands, public events, popular subjects
Community	Many small and medium	Moderate connections	Few	Global media topics
Broadcast	1 large, some secondary	Inbound connections	Moderate	News and media outlets, famous individuals
Support	1 large, some secondary	Outbound connections	Moderate	Companies and services with customer support

III.3.1 Content Analysis based on Sobaci & Karkin’s Categorization

In order to evaluate Mayor Ridwan Kamil’s Twitter account in term of responsiveness based on his tweets activities, author applies categorization of his tweets which previously developed by Sobaci and Karkin (2013). Each tweets from August 8 to October 10, 2017 was analyzed into one of 11 categories in term of their contents, namely: information and news sharing, location and activity sharing, personal messages, direct communication with citizens, communication with elected and appointed, better public services, self promotion, invitation to events, personal opinion and perspective sharing, promoting participation and the unknown. See table 3.

Based on the categories, the mayor account could be defined as high degree in term of responsiveness when the percentage of category number 6 (six) is higher compare to other categories. The number 6 category is the tweets that help mayor to inform the public about local public services as well as tweets that include opinions, suggestions, criticism of citizen about the delivery of local public services.

Table 3. Tweet categories & their descriptions based on Sobaci and Karkin (2013)

No	Tweet Categories	Description
1	Information and news sharing	Information sharing and news about the public services offered or about event organized by municipality.
2	Location and activity sharing	Answers regarding mayors current location and activities they are involved in
3	Personal messages	Tweets about religious, national holidays, messages not related to public service such as information about birthdays, obituaries and wedding that mayors know about.
4	Direct communication with citizen	Personal communication that are not considered within the context of public service or improvement, such as congratulating, celebrating, supporting or criticizing.
5	Communication with elected and appointed	Communication of elected public officers, other mayors and appointed working within the municipality administration
6	Better public services	Tweets that help mayors to inform the public about local public services as well as tweets that include opinions, suggestions, criticism of citizen about the delivery of local public services.
7	Self-promotion	Tweets between mayors, the

		mayors' own party leaders and top officials of the party, such as photo of mayor taken with his own party leader, a link to complimentary news or article about the mayor or appreciative statements of the party leader or top party officials about the mayors.
8	Invitation to events	Inform the public of artistic, cultural or sportive events organized by municipality or other public institutions and that invite the public to attend those events.
9	Personal opinion and perspective sharing	Opinions about an issue or n incident that occupies the agenda of the country as well as statements about life that reflect the personal perspective of the mayor.
10	Promoting participation	Tweets that encourage participations of citizens in participatory mechanism such as municipality councils or city councils meetings.
11	Unknown	Tweets whose content are not clear.

Chapter IV. Findings

IV.1. Social Networks Analysis

IV.1.1 Visualization of the Twitter Network on August 8, 2017

Total Twitter network of Bandung City during August 8, 2017 has 238 users who tweeted using the “#Bandung” hashtag. The figure 9 shows overall structure with a line for each categories, namely: follows, replies-to or mentions relationship in a Twitter network. There is a circle for each tweet that is not in a category of replies-to or mentions which reflects high levels of internal connections. In addition, this kind of circle shows that almost everyone in this network has multiple connections.

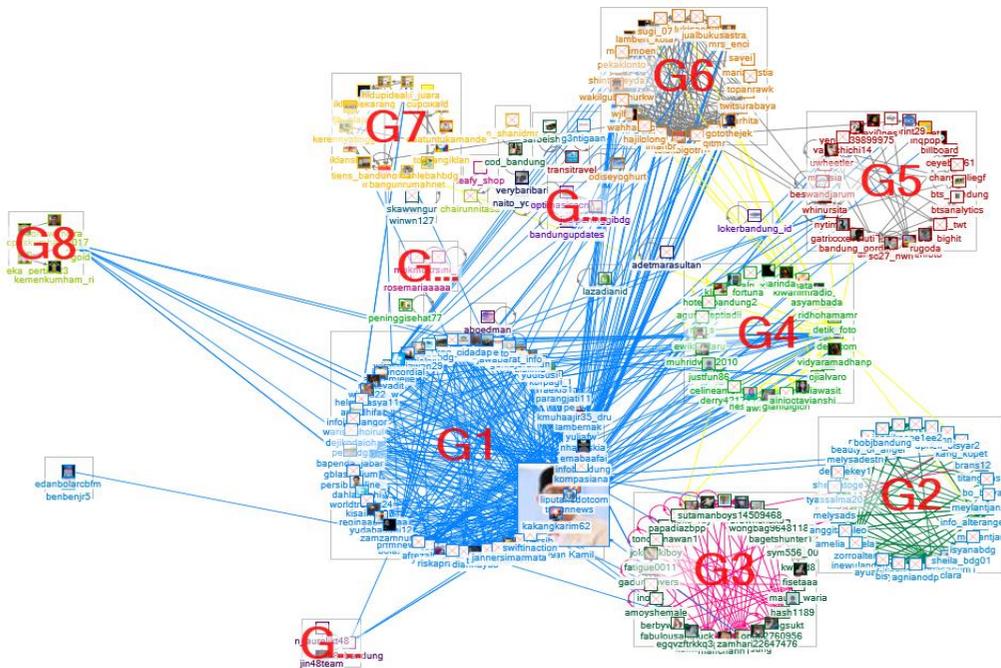
The networks also show that each of actors are basically aware of each other and communicate often which reflect on the dense networks between them. This Twitter network is composed of six densely interconnected groups. The groups in the conversation emerge as actors in the Twitter network who has different community interest. Hubs are the main actor at the center of groups and in this network Mayor Bandung in the center of G1 group which connected to the other groups mainly in G2, G3, G4, G5, G6 and G7. The network has several isolates which refers to actors who have no connections to anyone else in the network. In Twitter network terms, isolates are actors who use a hashtag or mention the same topic, however they are not following, replying to, or mentioning anyone else during the conversation about one particular topic in Twitter network.

Based on the table 4 and the figure 9, the network is divided into six main groups and Mayor Bandung is located in the G1 which the main topic in this network is related with sports especially regarding local football club in Bandung. There is also tweets about information and question about public services in this groups, particularly about local hospital services. In addition, for the other groups are divided into several topics. G2, G3 and G4 are mainly for news sharing because most of Twiterrian in this network are news channels. G5 is mainly for music lovers (hobbies) and G6 is for public services as well as dog lovers (hobbies), because in this network there is tweets related with those two categories.

Table 4. The main group's topic in Twitter network on August 8, 2017

Groups	Actors	Edges	Graph Density	Topic
G1	69	326	0,077	Sports (Football) & Public Services
G2	29	122	0,149	News
G3	28	98	0,106	News
G4	24	37	0,049	News & Public Services
G5	24	54	0,078	Music
G6	23	176	0,036	Public Services and hobbies (dog lovers)

Figure 9. Visualization of the Twitter network of the Bandung City with the #Bandung keyword on August 8, 2017



Source: NodeXL Social Media Network Map & Report for bandung from NodeXL Twitter Search Network

IV.1.2 Centrality Measurement on August 8, 2017

Table 5 shows the bridging hubs, the actors who are in the top one percent in the network in terms of betweenness centrality values and in terms of in-degree centrality. Among the bridging hubs, Mayor Ridwan Kamil's tweets centrality shows higher compare to other bridging hubs.

Table 5. Centrality measures of bridging hubs

Actors (Twitterians)	Betweenness centrality	In-degree centrality	Twitter account holders
ridwankamil	9783.134	55	Mayor Ridwan Kamil's account
detikcom	9234.032	53	Private News Channel's account (National)
infobmkg	8758.793	38	Official Account for Weather Forecast
infobdg	3144.221	39	Private News Channel's account (Local)

Ridwan Kamil's influence as a bridging hub is also could be seen by how much disturbance occurs in the Twitter network of the #Bandung if the bridging hubs are eliminated. As table 6 illustrates, when Mayor Ridwan Kamil's Twitter account is eliminated from the Twitter network during August 8, 2017, the percentage change in the average path distance among the actors in a network is exceptionally higher than when the other bridging hubs are eliminated. This shows that information exchange among the actors in the Twitter network of the #Bandung becomes more difficult if Mayor Ridwan Kamil is eliminated.

In addition, as illustrated in table 6, there is no difference in the percentage change in network density among the actors eliminated. However, 59 actors are excluded from the network when Mayor Ridwan Kamil's account eliminated from the Twitter network on August 8, 2017. This shows that Mayor Ridwan Kamil plays a high-degree network brokerage role. Since there is a total of 238 actors in the network, the exclusion of 59 actors from the network is substantial. In other words, this means that the actors, who cannot connect to each other without Mayor Ridwan Kamil, lead to a failure of increased responsiveness on the Twitter network of the #Bandung services, which accounts for 24.7% of all main actors.

Table 6. The degree to which the network is disturbed when bridging hubs are eliminated from the Twitter network on August 8, 2017

Actors eliminated	Percentage change in average path distance	Percentage change in network density	Missing vertices
ridwankamil	2.48	5.26	59
detikcom	-0.50	5.26	52
infobmkg	-0.59	5.26	38
infobdg	-0.71	5.26	39

Importantly, without Mayor Ridwan Kamil Twitter account, the betweenness centrality of other bridging hubs increases significantly (see table 7). The increased betweenness centrality of other bridging hubs is as large as Mayor Ridwan Kamil’s accounts. However, eliminating Mayor Ridwan Kamil’s Twitter account could make the rest of the actors vulnerable to disconnection, and such a change in the connection structure could cause other bridging hubs’ betweenness centrality to increase overall.

Table 7. The extent to which the betweenness centrality of other bridging hubs is changed when Mayor Ridwan Kamil’s Twitter account is eliminated

Actors (Twitterians)	Betweenness centrality (before)	Betweenness centrality (after)	Increasing rate (%)
detikcom	9234.032	11128.398	20.52
infobmkg	8758.793	10645.462	21.54
infobdg	3144.221	5096.367	62.09

IV.1.3 Visualization of the Twitter Network on September 20, 2017

The Twitter network on September 20, 2017 which has 127 Twitter users whose tweets contained the “#Bandung” hashtag. The network shows a line for each categories as well, from follow, replies-to, and mentions relationship within the system. There are several circles which represented for

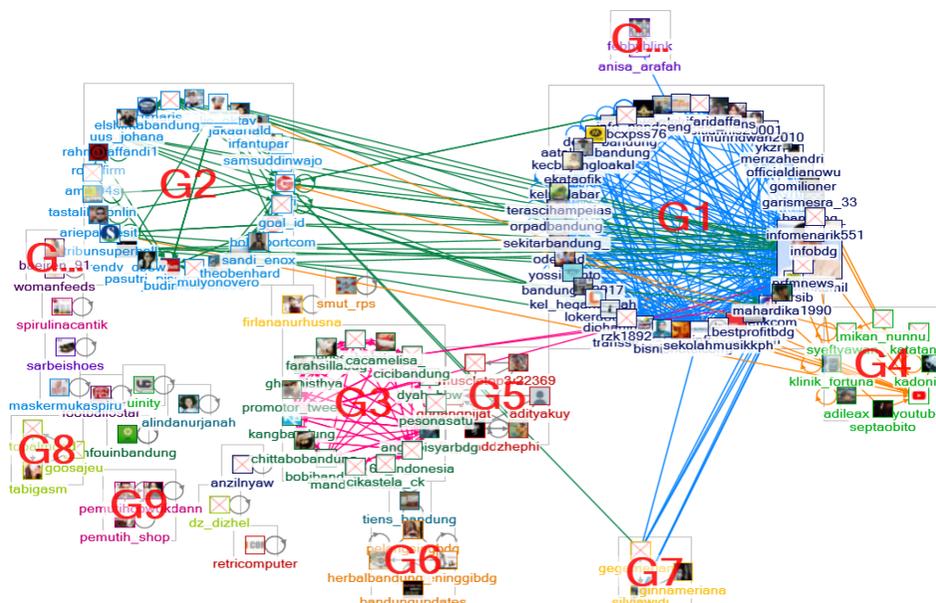
each tweet that are not in category of replies-to and mentions. This network is composed of two densely interconnected groups. Even in this network, Mayor Ridwan Kamil plays a dominant bridging hub in the center of G1 group which connected to the other groups mainly in G2, G3 and G4 (see figure 10).

Based on the table 8 and the figure 10, the network is divided into four main groups and Mayor Bandung is located in the G1 which the main topic in this network already switched to news. However, for the other groups basically still in the same topics which are mainly related with news sharing. G2, G3 and G4 are mainly for news sharing because most of Twitterian in this network are news channels, except for G4 because there is also tweets related with photography.

Table 8. The main group's topic in Twitter network on September 20, 2017

Groups	Actors	Edges	Graph Density	Topic
G1	43	301	0,136	News
G2	25	63	0,065	News & Sport (football)
G3	15	86	0,333	News
G4	18	11	0,125	News & Hobbies (photography)

Figure 10. Visualization of the Twitter network of the Bandung City with the #Bandung keyword on September 20, 2017



Source: NodeXL Social Media Network Map & Report for bandung from NodeXL Twitter Search Network

IV.1.4 Centrality Measurement on September 20, 2017

Table 9. shows the bridging hubs, the actors who are at the top one percent in the network in terms of betweenness centrality and in-degree centrality values, in the Twitter network on September 20, 2017. In this network, Mayor Ridwan Kamil plays a dominant bridging hub because the centrality indices of his tweets are far higher than those of the other bridging hubs.

Table 9. Centrality measures of bridging hubs

Actors (Twitterians)	Betweenness Centrality	In-degree centrality	Twitter account Holders
ridwankamil	3339.822	40	Mayor Ridwan Kamil's account
detikcom	2059.917	29	Private News Channel's account (National)
gnfi	1871.332	13	Private News Channel's account (National)
persib	1511.100	22	Official Football Club Channel's account (Local)

However, as illustrated in table 10 there is slight difference in the percentage change in network density among the actors eliminated. Then 47 actors are excluded from the network when Mayor Ridwan Kamil is eliminated from the Twitter network on September 20, 2017. This shows that during that time Mayor Ridwan Kamil has in the level of high-degree in term of network brokerage role. This means that the actors, who cannot connect to each other without Mayor Ridwan Kamil, lead to a failure of increased responsiveness on the Twitter network of the #Bandung services, which accounts for 36.4% compare to other main actors.

Table 10. The degree to which the network is disturbed when bridging hubs are eliminated from the Twitter network on September 20, 2017

Actors eliminated	Percentage change in average path distance	Percentage change in network density	Missing vertices
ridwankamil	0,06323554	-0,10757	47
detikcom	0,02172550	-0,05036	30
persib	0,027781403	-0,00518	22
gnfi	-0,06302417	-0,00482	14

Moreover, without Mayor Ridwan Kamil Twitter account, the betweenness centrality of other bridging hubs increases slightly (see table 11). The increased betweenness centrality of other bridging hubs, especially two accounts namely @detikcom and @gnfi. However, eliminating Mayor Ridwan Kamil's Twitter account could make the rest of the actors vulnerable to disconnection, and such a change in the connection structure could cause other bridging hubs' betweenness centrality to increase overall.

Table 11. The extent to which the betweenness centrality of other bridging hubs is changed when Mayor Ridwan Kamil's Twitter account is eliminated

Actors (Twitterians)	Betweenness centrality (before)	Betweenness centrality (after)	Increasing rate (%)
detikcom	2059,917	2370,039	0,150550726
gnfi	1871,332	2612,916	0,396286709
persib	1511,100	1624,344	0,074941433

IV.2 Content Analysis

Table 12 shows the tweets categories of Mayor Ridwan Kamil's Twitter account from August 8 to October 10, 2017 which has 53 number of tweets. During the time of analysis information and news sharing categories

has the higher percentage which reached 43.4%, followed by better public services 15.1% and in third position has two categories which have the same percentage of 13.2%, namely personal messages and direct communication with citizens.

It shows that the Mayor dominantly uses his Twitter account for category number 1 (one) which is information and news sharing instead of category number 6 (six) which refers to better public services. In addition, better public services category is related to improve the level of government responsiveness in social media.

Table 12. Tweet Categories of Mayor Ridwan Kamil's Twitter Account

No	Tweet Categories	Number of Tweets	Percentage (%)
1	Information and news sharing	23	43.4
2	Location and activity sharing	1	1.8
3	Personal messages	7	13.2
4	Direct communication with citizen	7	13.2
5	Communication with elected and appointed	-	-
6	Better public services	8	15.1
7	Self-promotion	2	3.8
8	Invitation to events	3	5.7
9	Personal opinion and perspective sharing	2	3.8
10	Promoting participation	-	-
11	Unknown	-	-
Total		53	100

The following actual cases illustrate Mayor Ridwan Kamil's communication with citizen of Bandung in term of better public services category. The first case of conversations via Twitter account from August 8 to October 10, 2017 which has 53 number of tweets, author found that Ridwan Kamil's social network service account played the role of a broker between citizens and his administration. The first one regarding the question from citizen why his government implemented smart city application (figure. 11) Then, the Mayor said that it is *“to make (work) faster and efficient, the e-*

budgeting application last year could save government budget for almost 1 Trillion Rupiah from over budget that not really necessary. We have 400 more applications”.

Figure 11. The case 1 of an administrative action handled through social media in Bandung.

Indonesian Version	English Version
 <p>ridwan kamil  @ridwankamil</p> <p>kerja jadi lbh cepat/efisien. apps e-budgeting thn lalu bisa selamatkan apbd 1 trilyun dr budget siluman/mubazir. Kami ada 400 apps lainnya.</p> <p>Translate from Indonesian</p> <div style="border: 1px solid #ccc; padding: 5px; margin-top: 10px;"> <p>Mueeza @mawisquarepants Replying to @ridwankamil tujuan utama dr app smart city apa pak? By warga kolaka</p> </div> <p>9/20/17, 12:35 PM</p>	<p>Why your government implemented smart city application? By citizen of Kolaka (the name of one city in Indonesia)</p> <p>To make work faster and efficient, the e-budgeting application last year could save government budget for almost 1 Trillion Rupiah from over budget that not really necessary. We have 400 more applications</p>

The second question regarding electronic national identity card (*e-kartu tanda pengenal penduduk*) from citizen, the lady said that electronic identity card was not ready yet for almost a year. She also said to the Mayor when is the card will be ready? Then, the Mayor said “*there is not enough form for printing the card from Ministry of Home Affairs, we already asked the central government to solve this issue. I am sorry Madam*” (figure 12) This question is not related directly with his administration because is really depending on the solution from Ministry of Home Affairs and central government.

Figure 12. The case 2 of an administrative action handled through social media in Bandung.

Indonesian Version	English Version
 <p>belum ada kiriman blanko ktp utk cetaknya dari kemendagri. kami sudah dan akan minta terus menerus ke pusat. mohon maaf bu.</p> <p>Translate from Indonesian</p> <p>Ratna Dewi @verylucky lady88 e-ktp belum jadi juga... padahal uda setahun lewat :(Tau gitu ga usah upgrade, pake ktp biasa aja :(kapan ni pak @ridwankamil e-ktp jadi?</p> <p>9/22/17, 3:56 PM</p>	<p>The electronic identity card is not ready yet for almost a year. If I know it will happen, I prefer not to upgrade it and use the conventional one. When is the card will be ready Mr. @ridwankamil ?</p> <p>There is not enough form for printing the electronic identity card from Ministry of Home Affairs, we already ask the central government to solve this issue continuously. I am sorry Madam.</p>

However, when the citizen brought up the issue of the complaint to Mayor Ridwan Kamil and it is related with his administration and in the category of emergency, he could solve it properly. Because there is no case about this issue in the duration of analysis, author gives an example from different date, in March 23, 2017 when citizen report about flooding in his area (See figure 13). During that time relevant public officials adequately solved the flooding problem. Furthermore, the citizen is able to continuously interact with Mayor Ridwan Kamil and the public officials in charge of the problem via social media, which suggests that the problem is more effectively solvable using a social media platform. In this way, this case shows a political leader playing the role as a broker in a Twitter network. Mayor Ridwan Kamil increased government responsiveness by mediating among those who would not otherwise be connected to each other in order to deal with civil administration issues.

Figure 13. The case 3 of an administrative action handled through social media in Bandung.

Indonesian Version	English Version
 <p>freddie lim @foeklie</p> <p>Replying to @ridwankamil</p> <p>kang, tiap kali hujan jalan setrawangi raya depan setrasari mall selalu banjir, krn saluran dangkal dan sempit, mohon bantuan</p> <p>Translate from Indonesian</p> <p>3/9/17, 11:45 PM</p>	<p>Sir, there always flooding at Setrasari street in front of Setrasari Mall after heavy rain, because the water channels are narrow and shallow. Please help.</p>
 <p>ridwan kamil @ridwanka... · 3/9/17</p> <p>siap laksanakan ndan. twitter.com/johanted/statu...</p> <p>19 replies, 31 retweets, 234 likes</p>	<p>Ready to solve the problem.</p>
 <p>freddie lim @foeklie · 3/24/17</p> <p>Replying to @ridwankamil</p> <p>terima kasih selokan depan setrasari mall sdh dikeruk, tinggal pelebaran selokan dpn v htl dan pagar pengaman</p>	<p>Thank you, the water channels already dredged. I hope the channels will be widened in front of v hotel and safety fence.</p>

The limited examples of Mayor Ridwan Kamil’s Twitter account from August 8 to October 10, 2017 in term of his interaction with citizen for better public services because most of his tweets are related for information and news sharing which reached 43.4%, however for improvement in public services only 15.1%. In this way, although Mayor Ridwan Kamil has higher bridging hub and play key role in Twitter network, the Mayor himself mainly use his Twitter account for information and news sharing in his account.

IV.3 Synthesis

The major research findings associated with the overall structure of the Twitter network of Mayor Bandung’s account could be discussed in terms of the number of nodes, edges, clusters, and density. Two main characteristics are showed in table 13. First, considering that the Twitter network with #Bandung on August 8, 2017 and the Twitter network with #Bandung on

September 20, 2017 network, the previous date contains a far greater number of nodes, edges, and clusters rather than the latter. Second, network density is extremely low throughout each time period, which suggests that the Twitter network of the Bandung civil administration services is the category of weak ties.

Table 13. Comparison of overall network structure in each time period

Imported network	Number of nodes	Number of edges	Number of clusters	Network density
#Bandung (August 8, 2017)	238	1058	27	0.017
#Bandung (September 20, 2017)	127	586	24	0.027

The major research findings associated with the individuals who have a local network within the Twitter network of the Bandung services are as follows. Firstly, Mayor Ridwan Kamil's tweet centrality measures are the highest among bridging hubs in both cases. Although Twitter conversations during that time depended on how many actors that using hashtag (#Bandung), how many replied to and mentioned one another in their tweets and the political and social atmosphere at that time. However, in these two cases Mayor Ridwan Kamil played the role of a bridging hub in the Twitter networks.

Even when author eliminated Mayor Ridwan Kamil's Twitter account, it is clear that his Twitter account is the key-role in the Twitter network. Specifically, the percentage change in the average distance among actors and the number of actors excluded from the network increased sharply with the elimination of Mayor Ridwan Kamil's Twitter account than when removing any other bridging hub's Twitter account. Therefore, the findings define Mayor Ridwan Kamil as the most important actor in term of brokerage role in the Bandung City Twitter network.

Secondly, the result of content analysis of Mayor Ridwan Kamil's Twitter account from August 8 to October 10, 2017 shows that from total 53 number of tweets, information and news sharing categories has the higher percentage compare to better public services categories which means that the Mayor dominantly uses his Twitter for information and news sharing instead of better public services dialogues. Nevertheless, better public services category

is related to improve the level of government responsiveness in social media.

Moreover, during the time of analysis author could not find proper example of two-way communications in the category of public services which clearly could solve the problem responsively on his twitter account. However, author found it from different time on March 23, 2017 when a citizen reports about flooding in his area (see figure 13). This case could be seen as the real example which shown that through Twitter there is chance for all citizen who has Twitter account to reach their local leader within the network directly. In this way, this example reflects that a political leader could play the role as a broker in a Twitter network.

Chapter V. Conclusions

V.1. Summary

The main research question of this thesis is what roles are played by mayor in social media networks to increase government responsiveness. The research shows that Mayor Bandung plays the most important role as a bridging hub in the Twitter network. Furthermore, the mayor plays the role of a bridge between different clusters of citizens as well as the role of a hub with the most connected users in the network.

The mayor's role as a bridging hub in the Twitter network contributes to the enhancement of government's responsiveness by overcoming the disconnection between citizens and his local administration. Therefore, social media especially Twitter account could be used as one channel for the citizens to communicate with their local leader directly and effectively.

However, although Mayor Bandung has highest bridging hub and play key role in Twitter network, the Mayor himself mainly use his account for information and news sharing rather than maintaining two-way communication regarding public services of his administration with the citizens. In this way, it shows that the possibility of social media as a tool for improving responsiveness heavily depends on the personal traits of government leaders themselves.

V.2 Limitations

There are several limitation regarding the study. Firstly, the role of Mayor Ridwan Kamil as a bridging hub in comparison to those of other individuals who are bridging hubs, is really high. However, it is showed that the possibility of social media as a tool for improving responsiveness heavily depends on the personal traits of government leaders. Therefore, future analysis about how government leaders could manage their personal account to increase the level of responsiveness of their governments is needed.

Secondly, this thesis is only focuses on analyzing Mayor Ridwan Kamil's role as a bridging hub since his role as a bridging hub is higher compare

to the other actors. It is important to analyze the main reason why Mayor Ridwan Kamil's account has outstanding role compare to other government levels from locals, provincials to central level. For example, his followers are higher than Government of West Java, similar with the Vice President of Indonesia and compares with several Ministers in the central government.

The most limitations of this thesis is duration of the research which effectively only in two months. Future research can assess the interactions among different actors over an extended duration, which will provide more complex network phenomena, such as the changes in the composition of bridging hubs.

Furthermore, this thesis only focuses on one kind of social media namely Twitter. However, the Mayor himself has two other social media accounts, Facebook and Instagram. The mayor is really active for using both of these accounts as well. It is better for the future to analyze all of his social media comprehensively, to see the overall picture of Mayor of Bandung social media interaction to increase responsiveness in his government through all of his social media channels.

V.3 Contributions

Based on this research, it is clear that social media particularly Twitter could improve level of responsiveness of government as well as their leader by maintaining two-way communication regarding public services of their public administration with citizens. However, it also shows that the possibility of social media as a tool for improving responsiveness heavily depends on the personal traits of government leaders themselves.

Since there is no specific regulation regarding implementation of social media in government authorities, central government which has authority to regulate all level of governments from provincial to municipalities could encourage the local governments and local leaders to establish as well as manage official social media in order to increase the level of responsiveness of the governments in all levels simultaneously.

In addition, this direct communications channeling that automatically offers by social media could eradicate communications barriers among governments as well as between governments and their citizens in direct and effective way. This approach could save government budget compares to conventional channels, such as by official letter, face to face communications or implementing new e-government project.

Bibliography

Alexander R.M. Schellong, (2008). Government 2.0 An Exploratory Study of Social Networking Services in Japanese Local Government. Transforming Government: People, Process and Policy, Vol. 2 ISS 4, 225 -242

Allcott and Gentzkow (2017) Social Media and Fake News in The 2016 Election, Journal of Economic Perspective, Vo. 31, No.2, pp. 211-236

Berita Lingkungan (2013) The Co-Founder of Gardening Indonesia. Available in Bahasa Indonesia: <http://www.beritalingkungan.com/2013/09/sang-penggagas-indonesia-berkebun-kini.html>

Black, K. (2010) Business Statistics: Contemporary Decision Making. 6th edition, John Wiley & Sons

Boyd, D. & Ellison, N.B. (2007) Social Network Sites: Definition, History and Scholarship, Journal of Computer Mediated Communication, Vo.13, No. 11

Boyd, D. (2008) Can Social Network Sites Enable Political Action? International Journal of Media and Cultural Politics, Vol. 4, No.2, 241-244

Bryer (2006) Toward a Relevant Agenda for a Responsive Public Administration. Journal of Public Administration Research and Theory. 17(3): 479-500

Bryer T. A. (2009) Explaining Responsiveness in Collaboration: Administration and Citizen Role Perceptions. Public Administration Review. 69(2): 271-283

Chang, A., & Kanan, P. (2008). Leveraging Web 2.0 in Government. Retrieved of IBM Center for the Business of Government: <http://www.businessofgovernment.org/sites/default/files/LeveragingWeb.pdf>

Clickz (2016) Social media in Indonesia Big Numbers with Plenty Room to Grow. Available: <https://www.clickz.com/social-media-in-indonesia-big-numbers-with-plenty-of-room-to-grow/94062/>

Davies, Ron (2015) e-Government, Using Technology to Improve Public Services and Democratic Participation, European Parliamentary Research Service, Available: [http://www.europarl.europa.eu/RegData/etudes/IDAN/2015/565890/EPRS_IDA\(2015\)565890_EN.pdf](http://www.europarl.europa.eu/RegData/etudes/IDAN/2015/565890/EPRS_IDA(2015)565890_EN.pdf)

Digital Market (2014) Using Social media to Manage a City The Ridwan Kamil Way. Available: <http://www.digitalmarket.asia/2014/09/using-social-media-to-manage-a-city-the-ridwan-kamil-way/>

Dorris, M. (2008). Service Transformation in Government. Executive Challenges: Today, Tomorrow, and Beyond, 1, 25.

Dixon, B. (2010). Towards e-Government 2.0: An Assessment of Where e-Government 2.0 is and Where it is Headed. Public Administration and Management, 15, 418-454.

Dunleavy, P., Margetts, H., Bastow, S. & Tinkler, J. (2006) Digital Era Governance : IT Corporations, the State, and E-Government, Oxford University Press, New York.

Eom, S.J, Hwang H., & Kim J.H., (2015) How Do Social Media Make the Government More Responsive? Evidence from the Network Analysis of Twitter Use in Seoul, Korea. Graduate School of Public Administration, Seoul National University

E. J. Avery & M. W. Graham (2013) Political Public Relations and the Promotion of Participatory, Transparent Government Through Social media, International Journal of Strategic Communication, 7:4, 274-291

Exabytes Networks (2017) Are You Included as One Factor of High Internet Penetration in Indonesia? Available in Bahasa Indonesia: <https://www.exabytes.co.id/blog/apakah-kamu-salah-satu-faktor-penyebab-pesatnya-pertumbuhan-internet-di-indonesia/>

Frederickson, H. G. (1997). The spirit of public administration. Jossey-Bass Incorporated Pub.

Fu, F. et. Al (2008) Empirical Analysis of Online Social Networks in the Age of Web 2.0, Physical A, Vol. 387, 675-684

Gant et al (2008) Electronic Government for Developing Countries. ICT Applications and Cybersecurity Division (CYB) Policies and Strategies Department Bureau for Telecommunication Development International Telecommunication Union, Switzerland

Gil-Garcia, J. Ramon (2012) Enacting Electronic Government Success: An Integrative Study of Government-wide Websites, Organizational Capabilities, and Institutions. New York: Springer.

Graham M. and Dutton W. H (2014) Society and The Internet: How Networks

of Information and Communication are Changing Our Lives. Oxford University Press, United Kingdom.

Handley, D.M., and Moroney, M., (2010) Ordering Stakeholders Relationships and Citizen Participation: Evidence from the Community Development Block Grant Program. *Public Administration Review*. 70(4): 601-609

Hargittai, E (2007) Who Space? Differences Among Users and Non-Users of Social Network Sites, *Journal of Computer, Mediated Communication*, Vol. 13, 276-297

Heeks, R. (2001) Reinventing government in the information age, in : R.B. Heeks (ed.) *Reinventing Government in the Information Age*, Routledge, London, pp. 9 – 21.

Heeks, R. (2006) *Implementing and Managing eGovernment : An International Text*, Sage Publications, London.

Heeks, R. (2010) *Understanding e-Government – Handout*, e-Government course unit handout, IDPM, University of Manchester, Manchester

Hinton, S. & Hjorth, L. (2012) *Understanding Social media*. Singapore. Sage Publications

Hukum Online (2016) *The New Law and The Risk for Social media Users*. Available in Bahasa Indonesia:
<http://www.hukumonline.com/berita/baca/lt58636cf3cc4d7/uu-ite-baru-dan-risiko-hukum-bagi-pengguna-media-sosial>

Humphresys, A.(2016) *Social media, Enduring Principle*. Oxford. Oxford University Press

Hutt, Rosamond (2017) *The World's Most Popular Social Networks Mapped*, Available:
<https://www.weforum.org/agenda/2017/03/most-popular-social-networks-mapped/>

Im, Tobin (2017) *Public Organizations in Asia*. New York. Routledge

Kellerman, Aharon (2014) *The Internet as Second Action Space*. New York. Routledge

King, G., Pan, J., & Roberts, M. (2013). How Censorship in China Allows Government Criticism but Silences Collective Expression. *American Political Science Review*, *107*(2), 326-343.

Kingsley, C. (2010). *Making The Most of Social media: 7 Lessons from Successful Cities*. Philadelphia: Fels Institute of Government, University of Pennsylvania.

Kompas (2017) Telegram Could Be Accessed Again in Indonesia after the Banned Already Revoked, Available in Bahasa Indonesia: <http://tekno.kompas.com/read/2017/08/10/14002367/telegram-bisa-diakses-kembali-di-indonesia-blokir-dicabut->

Kushin, M.J. & Kitchener, K (2009) *Getting Political on Social Network Sites: Exploring Online Political Discourse on Facebook*, *First Monday*, Vol. 14, No. 11

Lane, J.E. (2000) *New Public Management*, Routledge, London.

Lange, P. G. (2007) Publicly Private and Privately Public: Social Networking on Youtube, *Journal of Computer, Mediated Communication*, Vol.13, No. 1

Lutrell R.(2015) *Social media, how to engage, share and connect*. London. Rowman & Littlefield

Livingstone, S. (2008) Taking Risky Opportunities in Youthful Content Creation: Teenagers' Use of Social Networking Sites for Intimacy, Privacy and Self Expression, *New Media Society*, Vol.10, No. 3, 393-411

Mahmood, Shah (2013) *Online Social Networks and Terrorism: Threats and Defenses, Security and Privacy Preserving in Social Networks*, Springer-Verlag Wien

Meijer et al (2012) *Government 2.0: Key Challenges to Its Realization*. *Electronic Journal of e-Government*, Volume 10, Issue 1.

Ministry of Informatics and Communications of Indonesia (2014) *Indonesian Internet User as the Big Sixth Worldwide*, Available in Bahasa Indonesia: https://kominfo.go.id/content/detail/4286/pengguna-internet-indonesia-nomor-enam-dunia/0/sorotan_media

Ndou (2014) *V. E-government for Developing Countries: Opportunities and Challenges*. *Electronic Journal on Information Systems in Developing Countries*. *EJISDC* 18, 1 (2004): 1-24.

Now Jakarta (2016) *Interview Pak Ridwan Kamil Mayor Bandung*. Available: <http://nowjakarta.co.id/interview-pak-ridwan-kamil-mayor-bandung>

Osborne, D. & Gaebler, T. (1992). *Reinventing government: How the entrepreneurial spirit is transforming government*. Addison-Wesley Public Co.

Oxford Business Group (2015) *Ridwan Kamil Mayor Bandung*. Available: <https://www.oxfordbusinessgroup.com/interview/obg-talks-ridwan-kamil-mayor-bandung>

Panagiotopoulos, P. et al (2013) *Social Media and Government Responsiveness: The Case of the UK Food Standards Agency*. 12th International Conference on Electronic Government (EGOV), LNCS-8074, pp.310-321

Paola, Espinoza Prado Regina (2013) *Implementation of E-government and Its Challenges: The Experience of Peru*. MA thesis, Seoul National University, Graduate School of Public Administration.

Pikiran Rakyat (2016) *Internet User in Indonesia Reached 132,7 Million*, Available in Bahasa Indonesia: <http://www.pikiran-rakyat.com/nasional/2016/11/24/tahun-2016-pengguna-internet-di-indonesia-1327-juta-orang-385753>

Raad and Chbeir (2013) *Privacy in Online Social Networks, Security and Privacy Preserving in Social Networks*, Springer-Verlag Wien

Reitz, John (2006) *C. E-Government. The American Journal of Comparative Law Vol. 54, American Law in the 21st Century U.S. National Reports to the XVII.*

Statistics Board of Bandung (2016). *Population*. Available: <https://bandungkota.bps.go.id/linkTabelStatis/view/id/18>

Smith, M. A., et al (2014) *Mapping Twitter Topic Networks: From Polarized Crowds to Community Clusters*. Pew Research Center. Social Media Research Foundation

Smith, M. A., et al (2015) *The structures of Twitter crowds and conversations*. In S. A. Matei, M. G. Russell, & E. Bertino (eds.), *Transparency in social media: Tools, methods and algorithms for mediating online interactions*. Switzerland: Springer.

Solis, Brian (2017) *Social Media Universe One Infographic Prism*, Available: <https://www.linkedin.com/pulse/2017-social-media-universe-one-infographic-prism-50-brian-solis>

Statista (2017) Most Famous Social Network Sites Worldwide Ranked by Number of Active Users, Available:
<https://www.statista.com/statistics/272014/global-social-networks-ranked-by-number-of-users/>

Steinfeld et al (2008) Social capital, Self-esteem, and Use of Online Network Sites: A Longitudinal Analysis, *Journal of Applied Developmental Psychology* Vol. 29, 434-445

Stivers, C. (1994) The Listening Bureaucrat: Responsiveness in Public Administration. *Public Administration Review*. 54(4): 364-369

Tufekci Z. (2008) Can You See Me? Audience and Disclosure Regulation in Online Social Network Sites, *Bulletin of Science, Technology & Society*, Vol. 28, 20-36

United Nations (2016) UN e-Government Survey 2016, Available:
<https://publicadministration.un.org/egovkb/en-us/Reports/UN-E-Government-Survey-2016>

Vigoda, E. (2000) Are You being Served? the Responsiveness of Public Administration to Citizens? Demands: An Empirical Examination in Israel. *Public Administration*, 78, 165-191

Yang, K., & Pandey, S. K., (2007) Public Responsiveness of Government Organizations: Testing a Preliminary Model. *Public Performance and Management Review*. 31(2): 215-240

Yang, K., & Pandey, S.K., (2011) Further Dissecting the Black Box of Citizen Participation: When Does Citizen Involvement Lead to Good Outcomes? *Public Administration Review*. 71(6): 880-892

Yoon, S (2015) Forbidden Audience: Media Reception and Social Change in North Korea. *Global Media and Communications*, Vol. 11(2) pp. 167-184

We Are Social (2017) Digital in 2017 Global Overview, Available:
<https://wearesocial.com/special-reports/digital-in-2017-global-overview>

World Bank (2015) e-Government,
Available: <http://www.worldbank.org/en/topic/ict/brief/e-government>

Wilson, S. (1979) Explorations of the Usefulness of Case Study Evaluations. *Evaluation quarterly*, pp. 446-459

Acknowledgement

I am grateful all blessing that Almighty God - Allah SWT has given to me, especially for sending me in my beloved family. Their unconditional love is everything and they are the one who always support my goals since the beginning.

My gratitude goes to my supervisor, Prof. Eom Seok-Jin for his useful feedback about my research, including dear friends Sofiarti Dyah Anggunia and Buddhi Sudrajat.

My learning experience has been affected by lecturers, staffs and students at Graduate School of Public Administration. My gratitude goes to all of them as well. Special thanks for program manager, fellow classmates, dormitory mates, Indonesian and Korean friends for our moment of togetherness.

I wish to extend my thanks to Korea International Cooperation Agency (KOICA) and Asia Development Institute (ADI) my sponsors which gave me opportunity to make my another dream to be a Master of Public Administration's graduate came true. I would like to thank Government of West Java for giving me the permission to study further.

Lastly, for the policy makers and government leaders that have been the target of this thesis. I hope this small work will give an input for the improvement of social media engagement between government and citizen vice versa.

소셜미디어와 정부 반응성

인도네시아 반둥(Bandung)시 사례

Agi Agung Galuh Purwa
서울대학교 행정대학원
글로벌행정전공

인터넷 기술은 인간의 생활과 직업에서부터 국가와 정부의 발전방식까지 여러 방향을 변화시켜 왔다. 인터넷은 사람들 간의 의사소통, 사회적 접촉, 생각과 관점의 공유 등 현대 사회의 기본적인 욕구 중 하나이다. 소셜 미디어, 소셜 네트워킹 사이트, 또는 SNS로 잘 알려져 있는 최신 인터넷 기술은 온라인에서 사람들 간의 상호작용에 초점이 맞추어져 있다.

정부차원에서 소셜미디어는 투명성, 참여, 협업을 높일 수 있는 계기를 제공하고, 특히 시민들에게 직접적으로 서비스를 제공하는 지방정부의 경우 그러한 효과가 더 크게 나타날 수 있다. 소셜미디어를 통한 정부와 시민 간의 직접적인 접촉은 시민들의 요구에 응답하려는 정치인들의 반응성을 높일 수 있다.

그러나 모든 정부가 소셜미디어를 정부와 시민 간의 소통을 강화할 수 있는 계기로 보는 것은 아니다. 행정에 위협을 주는 요소로 소셜미디어를 보는 정치체제도 있다. 따라서 일부 국가는 소셜미디어를 규제를 통하여 제한하고 있고, 완전히 금지하는 국가도 있다. 본 논문은 지방정부수준에서 정부 반응성을 향상시키기 위한 기회로 소셜미디어를 활용하는 방식에 초점을 맞추고 있다. 따라서 본 논문의 연구주제는 인도네시아 반둥시 시장이 정부 반응성을 높이기 위해 소셜미디어를 어떻게 활용했는지 분석하는 것이다.

위의 연구문제에 기초하여 반둥시 시장의 소셜미디어가 어떤 역할을 수행했는지와 그의 계정에서 주로 어떤 종류의 소통이 이루어졌는지를 통해 정부 반응성을 평가하였다. 평가는 두가지 방식으로 이루어졌는데 첫째, 소셜네트워크 분석, 둘째, 반둥시

시장의 트위터 활동 내용 분석을 수행하였다. 본 연구의 자료는 NodeXL 프로그램을 사용하여 2017년 8월 8일부터 9월 20일까지 반둥시 시장의 트위터에서 “#Bandung” 태그를 붙인 모든 트윗을 수집하였고, 이 기간 동안 차이점과 유사점을 찾기 위하여 트위터 네트워크 구조와 네트워크 내에서 반둥시 시장의 역할을 분석하였다.

반둥시 시장의 트위터 활동을 토대로 반응성을 평가하기 위해 저자는 Sobaci and Karkin(2013)에 의해 개발된 범주화 기법을 활용하였다. 2017년 8월 8일부터 10월 10일까지 각각의 트윗은 내용을 바탕으로 11개 범주로 유형화 하였는데, 각각의 범주는 다음과 같다. 정보와 뉴스 공유, 위치 및 활동 공유, 개인적 메시지, 시민들과의 직접 대화, 선거와 공약에 관한 소통, 더 나은 행정 서비스, 홍보, 행사 초대, 개인적 의견과 관점 교류, 참여 독려, 기타이다.

분석 결과 반둥시 시장은 트위터 네트워크에서 핵심적인 중개자의 역할을 수행하고 있었다. 시장은 다양한 시민 집단들 사이에서 중개자 역할을 하고 있을 뿐만 아니라 네트워크 내 연결 정도가 가장 높은 사용자들 사이에서 허브 역할도 담당하고 있다. 네트워크 허브로써 기능하는 시장의 소셜네트워크는 시민과 지방자치단체 간 소통의 허브로서 기능하면서 정부의 반응성을 증진시키는데 기여하고 있다. 따라서 소셜미디어는 시민들이 그들의 지도자와 직접 소통하는 효과적인 채널로 활용되고 있으며, 특히 트위터가 큰 역할을 수행하고 있다.

반둥시장이 트위터 네트워크내에서 허브로 기능하며 핵심적인 역할을 담당하고 있기는 하지만, 트위터를 시민들과 지방정부 간의 소통 채널로 활용하기 보다는 주로 뉴스와 홍보를 위한 목적으로 이용하고 있다. 그러므로 소셜미디어가 정부의 반응성을 높일 수 있는 수단으로 활용될지 여부는, 정부지도자의 개인적 특성에 따라 달라질 수 있다.

주제어 : 소셜미디어, 정부 반응성, 트위터, 사례연구

학번 : 2016-26245