## CHAPTER II

THEORETICAL FRAMEWORK

2.1 Theoretical Framework

2.1.1 Crowdsourcing Model

Crowdsourcing is a method of acquiring good and services from a large, open, and highly developed group of people (Brabham, 2008). Upon the rise of information technology (IT), the usage of crowdsourcing significantly increased and been recognised as a source model emerging from IT. Hence, crowdsourcing is an online activity that is being participated and utilised by individuals, institutions, nonprofit organisations, and companies (Estelles-Arolas & Gonzalez-Ladron, 2012). The process of empowering crowdsourcing is as shown below:

Figure 2.1 Crowdsourcing Process
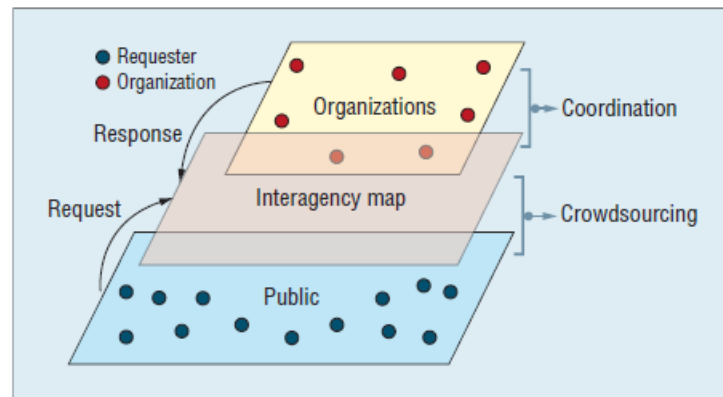
Source: (Gao & Goolsby, 2011)

Above flow shows how social media can be a tool to provide answers to the inquiries of the public. In other words, this crowdsourcing model provides the ability to manage messages from a variety of unstructured public sources (Gao & Goolsby, 2011). Social media, which is a new channel of communication,

especially in government organisations and the public is closely related to crowdsourcing and raises the opportunity to obtain real-time information via user-generated as a society (F. -Y Wang et al., 2007).

Crowdsourcing is the tool that can be used by different organisations to make the public participate in their respective activities. Hence, the quality of crowdsourcing depends upon the type of activity given by its provider and to the effect of its possible result. Hence, it is affected by the level of accuracy and comprehensiveness of the data obtained (Lukyanenko, Parsons, & Wiersma, 2014). Other that goods and services, language can also be a subject of crowdsourcing; the point is to collect and process growing data. The emergence of social media, crowdsourcing information, goods, and services became even more accessible as it creates fast and broader access to tons and various opportunities with minimal financial cost. Here are some of the factors that influence decision-making by crowdsourcing users:

Table 2.1 The Factors of Impacting Making of a Decision on Applying Crowdsourcing

Level	Factor
Task	Type of Task
	Interactions with the online community
	Openness
	Confidential Information
People	Number of Employees
	Resources
Management	Cost-Saving
	Coordination
Surroundings	Platform Accessibility

Sources: (Lenart-Gannsiniee, 2017)

Crowdsourcing has attracted the government because it offers a competitive advantage and knowledge beneficial to the organisation. Moreover, Table 2.1 shows factors that affect decision-making concerning the use of crowdsourcing. On the other hand, there should have an in-depth understanding of how crowdsourcing works as it can also lead to an end not similar to the desire of the implementor. Thus, the crowdsourcing model emphasised how an internet platform can develop into a way that facilitates the flow of information gained through telecommunications tools such as Facebook, Twitter, WikiLeaks, and Wikipedia. The use of crowdsourcing will also forecast the growth of information and telecommunications traffic through the Internet in the emerging future and become a temporary shadow of the dynamic growth of the next Internet-based platform.

2.1.2 Social Media Development

The development of social media is a part of information technology that influences communication technology. Both aspects are growing rapidly with the support of the Internet, which is also known as Web 2.0. Hence, Internet technology is ultimately changing the way people communicate. The population of Indonesia reached 256.2 million in 2018, and 55% of the population are active internet users, which is estimated to be 132.7 million people (WeAreSocial, 2018). Java Island dominates internet users by having 65% internet users, which greater compared to the summation of five other islands (Isparmo, 2016). With the widespread penetration of the Internet, it has both good and bad impact on society and government. At the government point of view, this is a positive

mechanism as it can be a tool that can be used to efficiently communicate with the public. Although the implementation of information technology by the government of Indonesia has been done several years ago, this fact is still unknown to the public.

Information and communication technology in this globalisation era became a way of government organisations to pursue government transformation towards good governance. With the help of social media, the government can be able to spread of information regarding local, national, and international issues efficiently. Social media has significant impact to the mass communication pattern in Indonesia. Social media favourable to the public as it is where political elites and large corporations crowdsource what interest the public (Rahmawati, 2013). The existence of social media can create a digital community that inhabits and coexists with real communities. With this, social media can generate interactions and allow the dissemination of information; and the creation of ideas and the formation of public opinions related to society and form of government.

2.1.3 Local Government in the IT Era of Social Media

The concept of public policy was developed in response to the increasing social struggle of the government to address social justice and welfare (Nyong'o, 1998). The public policy deals with social issues to identify government actions and its impact. Social media can transform government organisations into social government. Hence, ICT and social media transformed public discourse between the government and the public (Kavanaugh, et al., 2012). This transformation is an ability to enable organisational change, which requires program implementors

to develop a system, leadership, and changes in cultural or organisational factors (Klievink & Janssen, 2009).

This intergovernmental and state-based e-government interaction model in the United States, United Kingdom, and the European Union shows that the application of technology in government has been in place since the 1990s (Chadwick & Philip, 2009). Governmental organisations are one of the units that have considerable influence in running social systems (Vrients, 2009). Any government organisation has objectives and vison, which can only be realised with the help of the public, appropriate information, and sustainable resources. Hence, a government shall be capable of reproducing and maintaining itself, which is a common form in the development of technology systems using self-referential.

The United States of America government has adopted social media to share information among government agencies. The government disseminates information to the public to ensure that all the stakeholders are informed, which can be realised through the use of social media. The use of this technology has broadened the notion of participatory democracy and the digital market due to the large amount of information that can be collected. For the United States of America government, this is a social networking system that generates large-scale distributed collaboration is significant for information and creation of common good in governmental areas from local to federal level (Chun, Shulman, Randoval, & Hovy, 2010). This however is different in the case of South Korea. Hence, although social media is widely used in disseminating information on

important topics such as safety and health by the government, this initiative has less effect on the people of South Korea (Kieser & Leiner, 2009). This contradicts the contention that social media provides the public convenience in terms of communication.

Luhmann (2013) defines the social system as a maintenance system on the main boundary with three components in communication namely: information, speech, and understanding. Information is defined to have wide range; thus, communication chooses what will be communicated from everything that can be communicated. By speech, it refers to the form and reason of a communication: how and why something can be said (Luhmann, 2003).

This new paradigm makes government more transparent and accountable because with the existence of digitalisation democracy is deemed to be active and practised by the public. (Chun, Shulman, Randoval, & Hovy, 2010). Thus, this is a shift that comes with the government transformation using social media (Chun, Shulman, Randoval, & Hovy, 2010).

Table 2.2 Comparison of Traditional Government and Digital Government

Traditional Government	Digital Government
Information Provider (Information Sink)	Information Creation (Creation)
Service Provider Model	Models Require Services
Policy Enforcement Model	Policy and Negotiation Model
Decision Making Model/Governance Body	Joint Government

Source: (Chun, Shulman, Randoval, & Hovy, 2010)

Social media have differences with conventional media. First, social media enables users to interact freely as they should interact directly in the real world. Then, the spread of content interaction that occurs in social media is very wide because it operates using the Internet network. Secondly, the real interaction in the real world, interaction in social media can only occur when its users participate actively (Kholid, Husein, Mutiarin, & E.R, 2015). This social existence is a significant innovation in the concept of cyber democracy. The use of social media is perceived to reach the level of efficiency in the dissemination of information as well as in the process of real-time communication among its users which is an important argument in providing the public a venue where they can participate freely.

Social media has been widely used by some States using the IT Development framework, which are: objective information technology, organisational forms, and institutional arrangements. The three-point IT Framework mentioned ahead that has been implemented in local government is called Fountain's Technology Enactment. The theory of Fountain's Technology Enactment (hereafter referred to as FTE) emphasises the influence of organisational forms and institutions on the design, development, and implementation that can be used in the local government units; hence, FTE is widely known to be focusing on information and communication technology (Grafton, 2003). FTE has deliberately explained the integration among technology, organisations, and institutions and uses theory of institutional to describe the use of information technology especially in local government. In this

context, the government becomes a regulator of information communication and technology of other stakeholders. Thus, the FTE theory is useful because the theory could help bureaucrats to plan, design making, and implement ICT.

Moreover, to achieve the objective adjudged upon FTE, system tools such as hardware, software, capability of resources, web applications and telecommunication systems shall also be meet, accordingly. The form of organisation referred to in the technology is classified on institutional arrangements that are divided into four categories such as:

Table 2.3. Classification of Institutional Arrangements in Technology Changes

| Cognitive	Cultural
Governmental	Socio-Structural

Source: (Fountain, 2001)

Preceding table shows that FTE has four categories that are mutually binded with each other. First is cognitively that is in reference to mental habits and cognitive models that influence behaviour and decision making. Second is cultural, which refers to symbols, narratives, meanings, and signs that accompany the culture of continuity. The socio-structural classification refers to social and government network relationships in which there will be behavioural restrictions through obligations, history, commitment, and joint tasks. While government is in reference to laws and regulations that limit problem-solving and decision-making

(Fountain, 2001). The enforced technology allows a number of outcomes, especially in terms of efficiency, effectiveness, and transparency. On the other hand, the results of enactment technology and subsequent organisational affect organisational and institutional forms.

The enforcement of FTE is expected to influence the organisational design, development, implementation, and use of technology. This idea is similar to other institutional approaches wherein institutions are regarded as the rulers and regulators that commit or omit action, which evolve over time due to the actions taken by the organisation and of the individuals within that the same organisation. Hence, FTE model analyses and learns from the data inputted by its users – in this case, the institutions or government institutions (Fountain, 2001).

Figure 2.2 Fountain's Technology Enactment Model
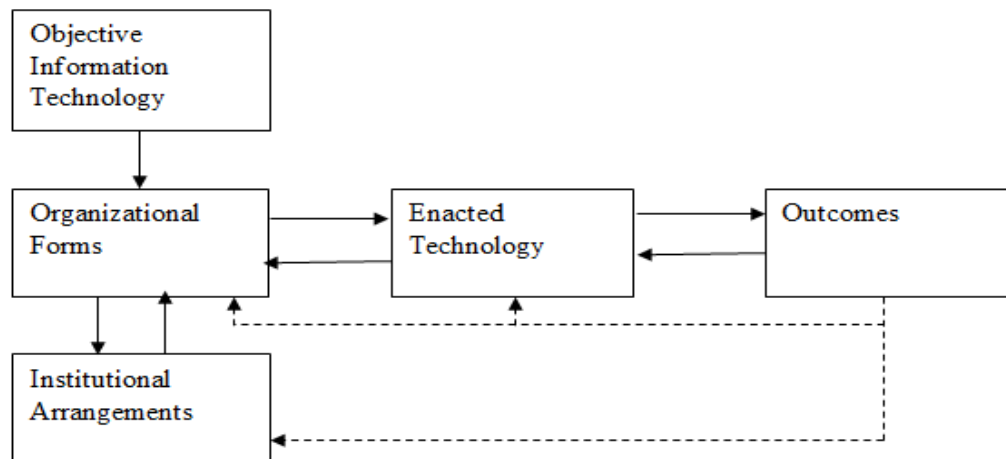
Notes: ——— influence

------- Affect

(Source: Fountain, 2001)

This fountain's technology enactment model will affect the organisation's form and other institutional arrangements that have been influenced by technology. This fountain model is being used by many organisations to improve service performance. According to Fountain (2001), explains that in the implementation of the application of technology, information and communication in the implementation of governance requires several components that must be adequate, including:

1. *Objective Information Technology*

This technology uses various tools such hardware, software, and work force, and web telecommunications system that has to be meet accordingly. Whereas, if this technology will be implemented properly, it can transform public organisation into a more efficient and effective organisation (Fountain, 2001).

2. **Enacted Technologies**

Enacted technology refers to the regulations and provisions governing the use of IT services within public organisation. Some of the statutes governing enacted technology are also used in outsourcing relationships or customisable functions, such as those developed by IT service providers. The current example is the use of electronic procurement services that connect public organisations with vendors or the private sector(Fountain, 2001).

3. Organisational Factors

In the organisational factors are in reference to the existence of trust, knowledge, and face-to-face meetings. This organisational factor is built on the cognitive and effective components of the interconnected parties. In this case, an organisational form will also be influenced by the active participation of both parties, whether corporate or public organisation (Fountain, 2001).

4. Institutional Arrangement

Institutional arrangement is a mechanism in integrating social or normative values. In the context of aligning the existence of basic assumptions raised jointly between public organisations and service providers. Existing laws and regulations refer to the formal arrangements made by the government in providing relevant legal framework (Fountain, 2001).

5. Outcomes

The outcomes referred to in this context is the performance of public organisations and its capability of generating valuable ends efficiently(Fountain, 2001).

The increasing use of social media also encourages interaction between the government and the public. This interaction with the use of social media is believed to affect internal bureaucracy system towards transparency and public accountability (Kaplan & Michael Haenlei, 2010).

Social media is an internet-based platform build under the ideology and technology comes upon Web 2.0, and which content comes from the user (Haelein, 2010); and enable the creation and exchange of "user generated content" (Kaplan & Michael Haenlei, 2010).

Furthermore, Vaccari (2013) stated five social media characteristics, to wit:

1. transparency that refers to social media open content because the elements and materials are intended for the public or a group of people;

2. dialogue and communication which is a facility for users to build flexible communication;

3. relations network that refers to the users who can form a good social network between individuals, individuals with groups, and groups;

4. multi opinion since social media allows each user to channel opinions and arguments in communicative forms; and

5. multi-form, where the form of social media content varies like video, image, or text.

Based on the characteristic above, the social media can also provide the government a broad capability to increase a public participation and engagement; hence, providing a modern way of expressing opinions concerning public policies, developments, and implementations. Accordingly, social media also promotes transparency and public accountability, which further lead to the decrease of corruption (Spiliotopoulou, Charalabidis, N Loukis, & Diamantopoulou, 2014).

Whereas, the utilisation of local government units on social media increases the knowledge of the public on issues concerning social welfare.

2.1.4 Crowdsourcing in Social Media of Local Government

Crowdsourcing is a method of collecting ideas and other relevant information that may catch the interest of the public. In cases of lack of manpower and insufficient resources, some organisations take advantage of crowdsourcing to finish a task with allowable period of time (Lenart-Gannsiniee, 2017). Withal, crowdsourcing is a megatrend that is being eyed by many public organisations towards good governance. Hence, the internet is a good avenue of crowdsourcing (Brabham, 2015). Listed below are some of the significant factors that crowdsourcing can provide (Lenart-Gannsiniee, 2017) :

a. enable to increase the society involvement;

b. making use of the virtual community's potential to crreate new products, services, and contents;

c. enables reporting problems;

d. becomes a discussion space for the citizen; and

e. enables designing a public space.

This advancement provides a new form of information and knowledge that support collaboration. The technology that occurs in crowdsourcing lies in the communications technology that connects communities virtually to local, national, and international scope. The technology being offered by crowdsourcing is the dissemination of information and information gathering in order to give the community the opportunity to participate on a large-scale discourse. The existing

crowdsourcing model in local government provides an opportunity for the community to have a sense of belongingness and involvement on the issues concerning their localities (de Vreede, Antunes, Vassileva, Gerosa, & Wu, 2016). Crowdsourcing can also alleviate the costs incurred to obtain information from the community as well as being a scalable way of accessing ideas that may be difficult to obtain through social media (Cox, 2011).

A crowdsourcing in social media is a way to collect an information that come from the public to resolve a certain problem of phenomena. Crowdsourcing is also a way to increase government productivity through utilising the internet, which also minimises expenses (Hetmank, 2013). Hetmank (2013) also included four main components in the structure of crowdsourcing, which are:

a. user management;

b. task management;

c. contribution management; and

d. workflow management respectively.

Since 2008 the influence of social media has entered the local government unit through activities that primarily run to generate new ideas and develop innovative solution. Although the implementation is still slow, the vitality of crowdsourcing has been known to the government; like its significance in urban planning (Brabham, 2015). According to (Rouse, 2010) organisational crowdsourcing significantly affect knowledge due to the tons of information it can provide.

2.2 Research Model

The framework design of this study focuses on two things: crowdsourcing variable as independent variable and fountain on IT as dependent variable. The figure below describes the research framework model.

Figure 2.3 Research Model
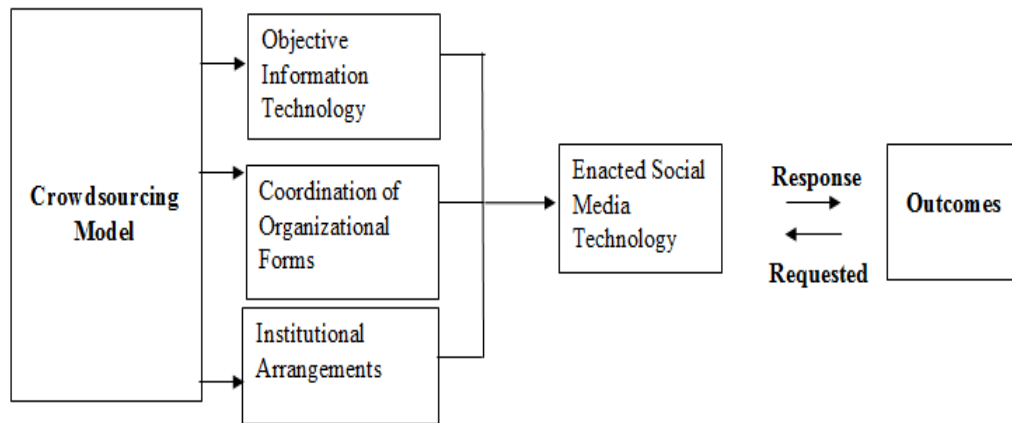
Based on the theory of Fountain (2001) and Brabham (2008), the research model of this research implies that crowdsourcing influences object information technology, coordination of organisation forms, and institutional arrangement. As such, the three factors recently mentioned is theorised to influence enacted media technology. Finally, the proponent of this research submits that enacted media technology and outcomes reflects each other.

2.3 Hypothesis

This study tests the following hypotheses:

H1. crowdsourcing is adopted through social media by local government units;

H2**.** objective information technology espouses social media in local government;

H3. crowdsourcing influences coordination of organisation form in enacted social media;

H4. institutional arrangement espouses crowdsourcing; and

H5. the information contained in crowdsourcing has effect in policy making.

2.4 Conceptual Definition

The conceptual definition is used to describe abstractly about events, group circumstances or individuals who are the centre of attention in the social sciences (Sugiono, 2008). For this study, the following concept are used; hence, defined as follows:

1. crowdsourcing is a method of collecting ideas and other relevant information that may catch the interest of the public;

2. fountain technology enactment emphasises the influence of organisational forms and institutions on the design, development, and implementation that can be used in the local government units; and

3. social media is an internet-based platform build under the ideology and technology comes upon Web 2.0.

2.5 Operational Definition

The operational definition of this study describes the instruments used to answer some questions about how the city government of Surabaya uses social media through the model of crowdsourcing. Instruments used are as stipulated in the table below.

Table 2.4 Operational Definition

No	Instruments	Elements	Indicators
1	Crowdsourcing	Task	1. Type of task 2. Interactions with the online community 3. Openness 4. Confidential information
		People	1. Number of the employees in the government 2. Resources
		Management	1. Cost saving 2. Coordination 3. Integrated system
		Surroundings	Platform accessibility on Internet
2	Fountain's Technology Enactment	Objective Information Technology	1. The system operation 2. Hardware composition 3. Software integrated 4. Ability of the user
		Coordination of Organisational Forms	1. Trusting employee 2. Knowledge ability of IT 3. Integrated system between organisational form and employees
		Institutional Arrangements	1. Cognitive 2. Culture 3. Governmental Form 4. Socio Structure
		Enacted Technology	1. User generated ability 2. Information system of the government
		Outcomes	1. Performance of public organisations 2. Efficiency Value