CHAPTER III
RESEARCH METHODOLOGY

3.1. Chapter Introduction

This chapter presents the methods used in this study. It is divided into a few subsections—the type of research, research systematical process, research data sources and data collection method, data analysis technique, research objects, and validity testing.

3.2. Type of Research

This is a qualitative research since it investigates a recent phenomenon which is happening in society. By qualitative research, this study is aimed at analyzing the data for gaining deeper results and elaborating them in the discussion. Leavy (2014) briefly explain that qualitative research is used to study social patterns. Furthermore, according to Tracy (2013), by systematically-ordered qualitative research, we will be able to uncover the concealed issue in society better and proceed to the next level of communication in society. Moreover, qualitative research provides the researcher a chance to comprehend more how a phenomenon happens in a society, its impacts in the society, and is very useful in any kind of research topics (Tracy, 2013). In this study, specifically, the researcher intends to uncover the social phenomenon in social media and connect it to the recent financial issue. This will produce a relation between the behavior of the social media users with the recent financial issues, in which there will be a comparison between the social media's user's opinions with the official institution statements.

In relation to research data, the data in qualitative research can be in form

of an interview, group interview, document analysis, context analysis, visual method, and so on (Leavy, 2014). This study makes use of online data or virtual context which will be compared with other documents for further analysis (Tracy, 2013).

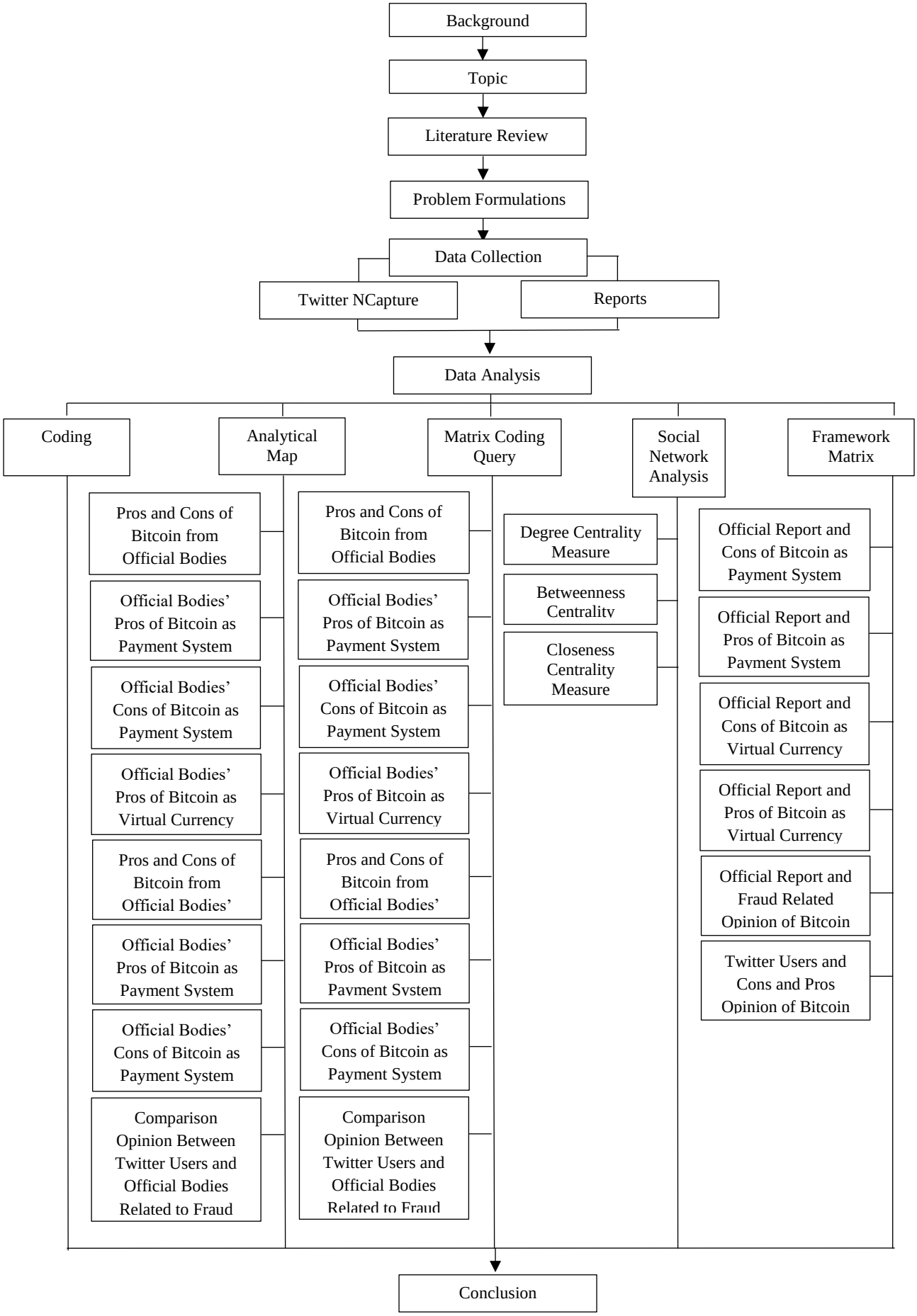
Furthermore, this type of qualitative research is using a content analysis. Content analysis is one of the qualitative data techniques to help textual data analyzation such as reports, newspaper, journal research, books, and so on (Leavy, 2014). This research used content analysis to analyze the official reports from the official bodies and Twitter users' tweets. Messinger (2012) defined content analysis as a kind of method to comprehend what the data try to tell us. Atkinson (2017) additionally defined a content analysis is when people trying to find something underneath a textual data, they should know the facts that they want to uncover from the text to facilitate the interpretation.

This research focuses on the opinions of Twitter users and official bodies, regarding the current financial issues and virtual currency technology called *Bitcoin* and its presumption of fraud. Furthermore, there will also a social network analysis to analyze the pattern of Twitter users' networks. In this research, the researcher will have secondary data of official bodies' reports, analyze the pros and cons of official bodies in general also related to fraud opinion. After that, the researcher will analyze the Twitter users' opinion on Bitcoin related to fraud and analyze how the pattern of their networks work using the social network analysis. Finally, the researcher will compare the opinions between Twitter users and official bodies.

3.3. The Systematic Process of the Research

The systematic process of the research is provided in a brief diagram, which shows how this research works, starting from how the ideas are gathered, the data are collected and analyzed to the conclusions are drawn. Figure 3.1 display the process.

Figure 3.1 The Systematic Process of the Research



The first thing to do before starting the research was looking for a research topic which was interesting. A topic of fraud was chosen. Since fraud topic has a wide range of study, that was why the researcher looked for a specific topic than just a fraud in general. As we know that these days, the cryptocurrency called Bitcoin is very popular and many people talked about the controversy of the invention in the financial system. There are pros and cons which emerged regarding Bitcoin, especially whether this invention is free from fraud or not. This would be the research's background on why the topic needs to be investigated. With the new social phenomenon that happened because of the invention of Bitcoin, the researcher has decided that the topic would be about the pros and cons of Bitcoin especially in its relation to fraud, and the research subject is the Twitter users. In order that the research results would be more objective and reliable, the official reports released from official bodies around the world are included. They are then compared with Twitter users' opinions. Another thing that the researcher wanted to uncover is the most influential user or account among the Twitter users and the impact of those Twitter users to the other users.

A further stage is reviewing related literature. The literature review would become the main ground which supports the topic. The literature used in this study related to *Fraud* and its *Fraud Triangle, Cryptocurrency, Bitcoin* and *Blockchain Technology, Social Media, Twitter,* and *Official Bodies.* The further description of the literature review can be read in **Chapter 2.**

Third, after reviewing the related theories, the researcher was starting to frame the problem formulations for this research. The problem formulations

included all the questions that need to be answered, from the how are official bodies' pros and cons in general discussion in Bitcoin invention—in this side, the researcher decided general discussion of Bitcoin as a payment system and as a virtual currency—and the pros and cons related to fraud, to the Twitter users' pro and con opinion in Bitcoin related to fraud. The complete questions of problem formulation are presented in **Chapter 1**.

The fourth process is data collection. The main data in this research is the Twitter users' tweets and the official reports from the official bodies. The tweets were gathered using NVivo 11's extension tool called *NCapture*. NCapture was used to capture the activities of Twitter users on January 10th, 2018 through January 19th, 2018, using the keyword of 'Bitcoin Fraud'. For official bodies, the researcher gathered the official reports from their websites related to Bitcoin topics. When the data have already been collected, each kind of data should be imported to the qualitative research software called NVivo 11. In this research, the researcher used NVivo 11 Plus version, which is capable of processing the data from social media.

For official bodies' reports, the researcher began to look for the reports on the official bodies' website. There were supposedly reports released by the official bodies. As the topic is concerned with Bitcoin, the researcher searched for Bitcoin related reports. Having collected the reports, they were *imported* in PDF to NVivo 11, and the reports were grouped to each representative official body folder to facilitate data processing using *coding*.

The fifth step after data collection was the process of *coding* the data. Before

the coding began, the researcher needed to create *nodes* for each problem formulation. These nodes would make the process of coding easier, as the nodes made from the points need to be discovered from each problem formulation. The collected data were coded to each representative node, so there would be pictures of the events that are happening to answer problem formulations (Bazeley & Jackson, 2013).

When the coding was done, the next step was to create the *analytical maps* to facilitate reading the patterns from the nodes. By having many nodes and codes to analyze the data, the researcher decided to divide the analytical maps into some main parts as seen in figure 3.1. The analytical maps show how the nodes and the cases are connected by the line, creating a new view to the overall research analyzing. Since the analytical map sometimes has too many lines crossed between the nodes and the cases, the researcher made the *matrix coding query* table, to facilitate reading them. Thus, there would be tables which represent nodes and cases to understand, for example, who are the Twitter users who voiced a certain opinion. The crossed *cell* between cases and nodes would be based on a kind of *cell content* we want to show. In this research, the matrix coding query is also divided into some main parts as the analytical maps. Additionally, when the coding process was already done, to make a summary of the data that had been coded to each node, a *framework matrix* is made. In *the* framework matrix, it is shown, for example, how the case and the theme nodes are connected by the data that have been coded. This would help the researcher to understand how different opinions were voiced by the representative case regarding pro and con opinion of Bitcoin, especially in relation

to fraud.

Another analysis tool is the social network analysis tool. One of the objectives of this research is to know who the influential Twitter users in the network, and the impact that a certain user brings to the network. In order to be able to analyze it, the researcher used *Social Network Analysis* method. The SNA method in NVivo 11 could be processed from the Twitter NCapture Dataset, already filtered the tweet type to be 'tweets' only. The researcher looked at *Twitter Sociogram* tabs in Detail View, and there were two kinds of ways to analyze it; from the diagram and from the *centrality measures.* The centrality measure here included the *Degree Centrality Measure, Betweenness Centrality Measure, and Closeness Centrality Measure.*

These systematical process above it then used to draw the conclusions for the whole problem formulations.

3.4. Research Data Sources and Data Collection Method

There are two kinds of data sources for qualitative research; the primary and secondary data. For this research, the data that will be used are in form of secondary data. Secondary qualitative data is the data used in qualitative research which have already been there before or which later be expressed (Gläser & Laudel, 2008). The data could be in a form of previous research, survey, conducted by an individual or by which contain the current events or phenomenon happened in public (Hoffmann, 2017). Moreover, according to Silverman (2013), the secondary data could be acquired from the open view platform such as the internet (website, social media)

or any other media (television, radio, and so on). The use of social media is also described by Hoffmann (2017) where people who make some activities in their social media such as Facebook, Twitter, and LinkedIn, automatically will contribute the data that can be used by a researcher.

Therefore, in this research, the secondary qualitative data that will be used are in form of official reports and Twitter NCapture dataset, which comprises the tweets and retweets from Twitter users.

1. Official Reports

   Official reports that the researcher used as the secondary data were released by official bodies. The first thing to do was to decide which official bodies whose reports will be used. The researcher then decided to take at least one official body from each continent, since not all the bodies provided a report which has the topic related to Bitcoin. The final reports were taken from Bank of England, Bank of Japan, Deutsche Bundesbank, European Central Bank, Federal Bureau Investigation, Federal Reserve Bank, Reserve Bank of New Zealand, Reserve Bank of Zimbabwe, and Government Accountability Office. The list of the reports used is in **Appendix C**.

   Using official reports is considered essential because they provided relevant information for this research. Since Bitcoin is relatively new in the financial world and the presence of journals talking about the Bitcoin are not in numerous amounts, official reports are the best decision. Moreover, official reports provided a general view without any prejudice, so that they should be used as

this research's secondary data.

2. Twitter Ncapture Dataset

The Twitter Ncapture dataset was generated from the activities of Twitter users, which include the activities of *tweeting* (voicing users' individual opinion) and *retweeting* (agreeing with another users' opinion). The dataset was generated from January 10th, 2018 through January 19th, 2018 via the researcher's Twitter account. Through the search box on Twitter, the researcher was looking for Twitter users' activities with the keyword 'Bitcoin Fraud'. Using NVivo's NCapture to capture Twitter activities, the data then were collected. For the range of date given before, the data were constantly updated. Later in NVivo 11 (Plus version), the dataset was filtered as the researcher would use the tweeting activities of the Twitter users. The data set from Top 40 Twitter users who have the highest number of tweets will be used as the main data.

For the tweets which were already captured by NCapture, the sources were *imported.* Since there were nineteen files NCapture datasets (captured from January 10th, 2018 through January 19th, 2018) that should be imported, those files were *merged* to one source. After they were merged, there was a total of 4296 records which were recorded from NCapture before. Those 4296 records consist of both tweets and retweets. In order that the data to be more reliable, the retweets data were excluded, that the research would use the tweets only. Tweets data are considered more reliable because when Twitter users tweeted something, it came purely from their opinion, and not depended on others' opinion just as retweets did. To exclude the retweets records, the researcher

filtered the data set in the ‘tweet type' column to be equal to tweets only. And then it would generate 1751 records which contain tweets type of data set. With 1751 records, the range of research data was still broad. Manage the broad range of data, then the researcher looked at the *chart* in Detail View which provides information on the Top 40 Twitter users with the highest number of tweets. Those Top 40 Twitter Users data, further, will be processed using *coding*. The list of Twitter users with its representative tweets can be seen in **Appendix F**.

3.5. Data Analysis Technique

Since the data used are in the form of reports and Twitter dataset, the analysis technique for this research would be in a form of content analysis and an Internet-mediated Research or IMR, which focus on online document analysis. For the Twitter users' dataset, the researcher also uses the IMR analysis since the internet is used as an intermediary (Anabo, Elexpuru-Albizuri, & Villardón-Gallego, 2018). Hine defined (as cited in Anabo et al., 2018) one of the IMR analysis methods includes an SNA method. Moreover, Leavy (2014) also classified the use of Twitter dataset as one of the data used in qualitative research to be an IMR method, focusing on online document analysis.

In this research, to help the researcher to analyze the data, the researcher used a qualitative data processor tool named NVivo 11 Plus. The software used to assist in data analyzation, such as NVivo 11 Plus, which is called *Qualitative Data Analysis Software* or QDAS (Bazeley & Jackson, 2013). The QDAS solely, according to Bazeley and Jackson (2013) helps the researcher in order to emphasize

on what the researcher is trying to find and analyze. In NVivo 11, there are three versions of NVivo 11 that a researcher can choose; NVivo 11 Starter, NVivo 11 Pro, and NVivo 11 Plus. Since the researcher would analyze the data taken from social media, and analyze its social network analysis, NVivo 11 Plus was used since it has all the features that support the needs of data analyzation. The data analysis scheme for this research can be seen from figure 3.1 above which include; *Coding, Analytical Maps, Matrix Coding Query, Framework Matrix, and Social Network Analysis.*

1. Coding

Coding is a process to purge from the general idea to the detailed idea and to help emphasize what to analyze in research (Bazeley & Jackson, 2013). To put it simply, a *coding* is, "a way of gathering all the references to a specific topic, theme, person or other entity. You can code all types of sources and bring the references together in a single 'node'" (QSR International, 2015b). According to Saldana (2016) , there are six methods of coding's ground theory; In Vivo, Process, Initial (Open), Focused, Axial, Theoretical (Selective) coding. This research used Axial Coding as the basis of coding process, as it is suitable when a researcher wants to analyze a board range of data such as documents or reports. In the beginning of analyzation, the 'parent' nodes were made, and following the parent nodes, the child nodes (or the subs node) were made, until it came to an end; when the nodes cannot be described to a detailed way. This is in line with the aim of axial coding. As what cited by Saldana (2016) from

Strauss and Corbin, 1998:

> When no new information seems to emerge during coding, that is, when no new properties, dimensions, conditions, actions/interactions, or consequences are seen in the data.
> (Strauss & Corbin, 1998, cited in Saldana, 2016, p. 248)

There are many kinds of nodes, but the researcher only used two nodes; the *theme nodes* which represents the ideas to answer the problem formulations, and the *case nodes* which represents the units of observations (Twitter users, official bodies, and official reports list) and its attributes values, for example the attribute values for Twitter users are name of users, country, number of tweets, etc. (QSR International, 2015a). Case node for official bodies was added manually, the case node for official reports was added from sources which coded becoming new cases, and the case for Twitter users was added with *auto code wizard.* The nodes in this research were categorized by each problem formulation.

The first problem formulation is concerned with the opinion of official bodies related to Bitcoin as a cryptocurrency. The '*parents'* nodes were divided into two main nodes; talking about the opinion on Bitcoin in general view, consisting of the pros and cons in it and the second one was talking about the opinion on Bitcoin related to fraud, also consisting of the pros and cons in it. With those nodes, the researcher started to code the findings or related texts in the reports into the representative nodes. The second problem formulation was about the opinion of Bitcoin from Twitter users' eyes. The nodes itself were

slightly different from the nodes in problem formulation one. For the problem formulation two, the '*parents'* nodes were directly divided into pros and cons related to Bitcoin, in which the related fraud opinions were straightly stated. The tweets produced by Twitter users were then coded into the nodes which have already been categorized. The last one is the problem formulation three; the nodes were not about the pros and cons related to Bitcoin, but the researcher began to focus on the opinions between official bodies and Twitter users in related to fraud in Bitcoin nodes. The researcher was looking for the same nodes between problem formulation one and two that have a correlation with fraud and *merged* it into one node. Thus, the parent nodes consist of the same nodes between problem formulation one and two and the reminder two which were different between two problem formulations.

2. Analytical Maps

When coding all the sources has been completed, the next step was making *analytical maps* for each problem formulation. In NVivo 11, there are three kind of maps; the concept map, mind map, and project map. Here the researcher used project maps in order to achieve the purpose to understand what official bodies and Twitter users voice related to Bitcoin as a cryptocurrency, especially in its relation to the presumption of fraud. The project map will help us to visualize the data (QSR International, 2015d). As already described by QSR International, they have a visualization of nodes—the '*parents'* and the *'child'*—with its cases—the official bodies and the Twitter users. See figure 3.1 for the list of analytical maps in this research.

3. Matrix Coding Query

Sometimes, the project maps could be so complicated with many nodes connected to cases with lines, that it is going to be hard for the people to read the meaning of project maps. To overcome the difficulties, NVivo 11 also provides the *matrix coding query*, in which there is a further description of the coded texts. Bazeley and Jackson (2013) stated that by matrix coding query are not just able to know which cases contributed some coded nodes, but also able to compare between each coded node to understand what they are trying to tell us with *cell contents.* This research used two kinds of cell contents in order to describe the table shown on the matrix coding query. Those kinds of cell contents are '*coding presence'* and '*sources coded'.* The coding presence is used for 'Matrix Coding Query Based on Coded Source from Twitter Users' Point of View' (see table 4.7) and the source coded is used to show the matrix coding queries of official bodies and nodes in problem formulation 1 (see table 4.1, table 4.2, table 4.3, table 4.4, table 4.5, and table 4.6).

The *coding presence* cell content will give us the meaning of whether each case contributes some coding or not. Coding presence cell content is used in matrix coding query of Twitter users with problem formulation two's nodes. The researcher wanted to know the opinions that Twitter users had voiced. If Twitter users voiced an opinion, their cells would be on blue color and the word written was 'Yes', and vice versa. Meanwhile, the *source coded* cell contents will give us a meaning of how many sources in total coded to a node. When a node has many sources coded, it means that a node was supported with many

reports.

4. Social Network Analysis

Specifically, a Social Network Analysis is a method to study a connection between a specific person towards other specific persons, which in turn at the end of the study, we will be able to map and read their connections together with the outlines among them (Hanneman & Riddle, 2005). To put it simply, SNA is how we can include the social framework to know the outcomes of individual or group (Chung, Hossain, & Davis, 2005). Hanneman & Riddle (2005) also stated that in order to be able to analyze a social network, it is important for us to prepare a graphic—which is mentioned as 'sociogram' by the sociologists—which will give us a convenience to characterize social relations.

Guo (2012) gave similar thoughts about SNA which is more likely discussing and presenting affiliation between individuals, rather than discussing and presenting about an individual alone. Meanwhile, Singh et al (2016) explained that SNA is not more than just an explanation of social structure that happens to a person and others. Rice & Yoshioka-Maxwell (2015) added that when we want to understand about social phenomenon transformation, SNA would be the best method in understanding the process.

According to Scott (2000), in order to be able to read the connection and also the pattern between people which later will give us view about the relationship that they have, we surely need data which is called "Rational data".

Rational data—which include connection, ties, and contact—will give the researcher strong interpretation about how the connection between people is created and the outcome from that connection (Scott, 2000). Moreover, these days, the data source of social networks usually come from any kinds of social media such as Twitter, YouTube, Facebook, and Instagram (Singh et al., 2016).

In order to understand the SNA, there is a diagram called *Sociogram.* A sociogram is also a tool to know the social links between people and help the researcher visualize the connections which happen in a social community (QSR International, 2015e). There are two main parts of sociogram; part number 1 is a *vertex,* which represents a person, a group or entity. The vertex's shape usually has a round shape; while part 2 is *nodes* or *ties* which represents the relationship between the vertices. The nodes' shape usually formed a line (QSR International, 2015e). *Sociogram* itself is very helpful in order to figure out a real representation of the network patterns, because it will save our energies and times in understanding the patterns, and will easily give us a new perception in the network (Kim, Choi, Yan, & Dooley, 2011).

1. Twitter Sociogram

QSR International (2015b) states that Twitter sociogram is about the relationship between Twitter users—about who retweets who, or who replies who—and we will also be able to view which tweets have more impacts in a Twitter network. A Twitter network is created because each user has a different relationship in their network; each user can follow a different twitter account,

retweet different tweets, and reply different tweets (Parise et al., 2015). By Twitter sociogram, we can also see the social links which connect users; usually in terms of Twitter followers—who is more popular among the users in the network if we check at the number of followers of an account (Chan, 2013). Furthermore, in Twitter sociogram, we can know one's role from one's population. The round symbol which represents *vertex* and the arrow symbol which represents *edge*; these symbols represent a diagram or map to see the connection between Twitter users in Twitter sociogram.

2. Centrality Measure

Further analysis is related to the vertex and the edges will be further explained in *centrality measures* format. Scott (2000) discussed centrality in his book *Social Network Analysis: A Handbook*. Centrality mainly discusses who has the highest popularity among a group of people. It is divided into two kinds of centrality which are *local centrality* and *global centrality*. *Local centrality* is concerned with the interaction among a group of people in a direct way, while *global centrality* is related to the interaction among a group of people covering whole network community (Scott, 2000).

Beforehand, Freeman (1979) already explained how significant the centrality is in a social network, and the centrality itself can be seen from the graph with the point of centrality located in the middle of the graph—that is, explained how the most important this individual to his or her networks. Freeman (1979) also explained the core points in centrality measure; *Degree* related to local centrality, *Betweenness*, and *Closeness* related to the global

centrality.

According to QSR International (2015d), we should understand the score of centrality measure in order to get a deep analysis. The score of centrality measures according to QSR International that we should understand are; *Degree centrality*, *Betweenness,* and *Closeness.*

1. Degree Centrality Measure

Degree centrality will help us determine which individual has the highest influence and who is the most popular among others (QSR International, 2015h). Similar to the definition described by QSR International, Bloch, Jackson, and Tebaldi (2016) defined degree centrality measure discusses the popular users among the networks. Scott (2000) added that for degree centrality, it consists of two kinds of degree lines called *Indegree*—numbers related to lines or edges which directly designate the centrality point, and *Outdegree*—numbers related to lines or edges which directly designate reserve way from the centrality point. Leydesdorff, (2007) stated that degree centrality measure is about the flow of information in a vertex.

2. Betweenness Centrality Measure

The betweenness centrality measure on a number of networks which stand between two other networks will likely become the influencer of the information to the other networks (Freeman, 1979). By checking out the vertex, a vertex in a network which can connect two or more different network groups will produce higher betweenness centrality measure (Yan & Ding, 2009). Leydesdorff (2007) explained that the betweenness centrality will measure

which vertex become the center of information, in the sense that if the vertex is not present, the networks which depend on that certain vertex will crumble into a different vertex. A similar idea was proposed by Ponzi, Zilioli, Mehta, Maslov, and Watson (2016) which discussed the dependence of a vertex on other vertexes if it is related to the information flow as if a vertex will become an influence to other vertexes.

3. Closeness Centrality Measure

As stated by Freeman (1979) above, *closeness* in centrality measure serves to measure centrality in a global way. Leydesdorff (2007) briefly described the closeness as the distance between one vertex to another. QSR International (2015d) defined *closeness* as to how fast the information can spread over individuals. Freeman (1979) further explained that closeness centrality explains how a network depends on the other network related to the movement of the information. According to Borgatti (2005), the closeness centrality measure is related to a condition when the information reaches to the next destination (or network). According to Yin et al. (2006) as cited in Yan and Ding (2009) closeness centrality is the duration that it takes information flows from one vertex to the other vertex in a network.

In relation to the analysis of Twitter users' opinions, NVivo 11 Plus offers a few advantages for the researcher to conduct the SNA. Here, the analysis will be done from the Twitter users' *sociograms* and the *centrality measures*. The Twitter sociogram can be found in tabs of Detail View, or the default display will show the Twitter sociogram. In sociograms, how Twitter users are

connected can be seen. Meanwhile, in order to be able to look for centrality measure, the display can be changed. By centrality measure, the Twitter users with the highest number of measures can be known, because the default view of centrality measure shows all the Twitter users. In this research, specifically, the Top 40 Twitter users have been picked for analysis. They are then sorted from the highest to the lowest number at each measurement.

5. Framework Matrix

The framework matrix is a set of tables which give us information about the texts that are already coded to each node. In official bodies-related framework matrices, the rows are about the cases, and the columns are about the nodes. While in Twitter users-related framework matrix, the rows are about the nodes, and the columns are about the cases. Not only the texts which are already coded to each node, but we can also see the coded texts from each official report and Twitter users' dataset. This will help us to analyze and compare the coded text from each case all at once, without opening the nodes one by one (QSR International, 2015c). This would be easier if we convert it to excel, thus we could not have to open the NVivo 11 software in order to check out the summary of the text coded. The list of the framework matrices for this research can be seen in figure 3.1, while the tables of framework matrices are presented in **Appendix E**.

3.6. Research Objects

The objects for this research are the presumption of fraud in Bitcoin opinion;

the opinions are from official bodies and Twitter users. The opinions from official bodies would be a ‘ground' opinion of Twitter users, as the opinions were voiced by the experts in the financial world. The presumption of fraud in Bitcoin opinion from official bodies is used to answer problem formulation 1; the presumption of fraud in Bitcoin opinion from Twitter users is used to answer problem formulation 2, and the last one is about the comparison of opinion between official bodies and Twitter users.

3.7. Validity Testing

The validity testing in qualitative research is similar yet quite different from quantitative research, that what made Guba in 1982 developed more comprehensive measurement to asses qualitative research (Bryman, Emma, & Bill, 2018). According to Guba (1982), the validity testing for qualitative research consists of four things; *Credibility*, *Transferability*, *Dependability*, and *Confirmability*. These four things are a part of ‘*Trustworthiness’*, which refers to how qualitative research is trustworthy. Moreover, (Bryman et al., 2018) alternatively categorized qualitative research’s and quantitative research’s validity testing as follows; *Credibility* equal to internal validity, *Transferability* equal to external validity, *Dependability* equal to reliability, and *Confirmability* equal to objectivity. In order to understand the validity testing for this research, the four things are explained below.

1. Credibility

Bryman et al., (2018) described credibility in evaluating qualitative research as something that makes other people think our research is credible

enough or confirmed or not. Guba (1982) recommended to evaluate the credibility, a researcher may depend on some ways; *prolonged engagement at a sit, persistent observation, peer debriefing, triangulation, a collection of referential adequacy material, and member check.*

For this research, the researcher would depend on *triangulation* and *collection of referential adequacy material*. According to Guba (1982), triangulation is a condition when a researcher used different methods in order to make analyzation. In this case, the collection of referential adequacy material could mean *'raw data collection'* that can be processed and analyzed. Triangulation in this research happened when the researcher used two kinds of data analysis technique; the content analysis and Internet-mediated Research (IMR) analysis and when the researcher used two kinds of different sources; the official reports and the Twitter users' dataset. Finally, the collection of referential adequacy material happened when the researcher used the raw data collection of Twitter users' activities (which later became a Twitter users' dataset).

2. Transferability

The next validity testing presented by Guba is transferability. Leavy (2014) described transferability as the capability of researchers to share their research findings to the public. Geertz (as cited in Guba, 1982) described when researchers want to be able to share their findings in a correct way, they should be able to do a *'thick descriptive data'*. Guba (1982) then explained that 'thick descriptive data' means the researcher can provide the

data that could be associated with other data.

In this research, the transferability happened when the researcher provided the figures and tables, along with the findings that could be described in the research. The figures and tables would be used to facilitate transferability process.

3. Dependability

Guba (1982) explained that dependability means the researcher should act as an auditor for his or her research; when auditors are about to audit something, they conduct an auditing process systematically that they depend on the someone or something to review whether they already conduct a great audit or not. Leavy (2014) described the dependability is depending on the third person of his or her research's analysis. Meanwhile, Bryman et al., (2018) further explained the meaning of 'auditor' in research as already described by Guba, means someone who can make sure that the research has already been conducted according to the qualitative research standard.

Thus, in this research, the dependability happened when the researcher had a direct consultation with her thesis supervisor in order to keep the research conducted according to the qualitative research standard. Another thing is when the researcher was still on the step of processing the data, sometimes the researcher asked her friends who also had qualitative research to share the knowledge on performing data procession with NVivo 11 software.

4. Confirmability

The last validity testing is confirmability. Confirmability means that the objectiveness in conducting the research and delivering the finding should be presented (Guba, 1982). On the other hands, when the researcher wants to deliver the findings and discussions, the researcher should have a critical mind—that he or she cannot be biased on drawing conclusions (Leavy, 2014). This qualitative study makes use of official reports of official bodies as ground theories in order to be more objective. By doing so, there will be no bias in discussing the findings. Additionally, before the final of analyzing the data, in order to make the analyzation is confirmed, the researcher consult the findings and the coded source to her thesis advisor. The list of the coded source and findings that already confirmed by the researcher's thesis advisor can be seen from the framework matrices in **Appendix E and Appendix F.**