A Proposal for Mapping the Methodology and How to Think Methodologically

Muhammad Hafizhurrahman
Martapura, Kabupaten Banjar, Kalimantan Selatan
blog: www.freedomengineersnotes.blogspot.com
e-mail: mhafizhurrahman@gmail.com

***Abstract*—This paper sequentially examines (1) the definition of methodology, (2) the classification of methodology, and (3) how to think methodologically. Methodology is defined as an orderly sequential and systematical step by step process to reach out our purpose. In terms of research, research methodology means an orderly sequential and systematical step by step process to answer the research's questions (research's purposes). Methodology is classified into 3 categories, they are (1) Conceptual Methodology, (2) Collectical Methodology, and (3) Statistical Methodology. In order to be able to think methodologically, we need to understand precisely about (1) Analytical Thinking, (2) Synthetical Thinking, and (3) Systematical Thinking.**

***Keywords*—The definition of methodology, the classification of methodology, how to think methodologically.**

I. METHODOLOGY

1. Definition of Methodology

Methodology is an orderly sequential and systematical step by step process to reach out our purpose. Methodology is all about the process, it is all about the how to do. In terms of knowledge, methodology means an orderly sequential and systematical step by step process to gain knowledge. In terms of research, research methodology means an orderly sequential and systematical step by step process to answer the research's questions (research's purposes), to sum up, it is all about how to do the research in order.

2. Classifications of Methodology

Methodology can be classified into 3 categories, they are (1) Conseptual Methodology, (2) Assessmental Methodology, and (3) Statistical Methodology. The sequential step by step flowchart for Methodology Mapping can be seen on Figure 1.

2.1. Conceptual Methodology

Conceptual Methodology is a methodology that focus on how to plan and organize the research step by step sequentially and systematically in order. Conceptual Methodology consists of 4 elements, they are (1) the purposes of research, (2) the outputs of the research, (3) the methods to do the research, and (4) the inputs that are needed for the research. Conceptual Methodology can be seen on Figure 2.

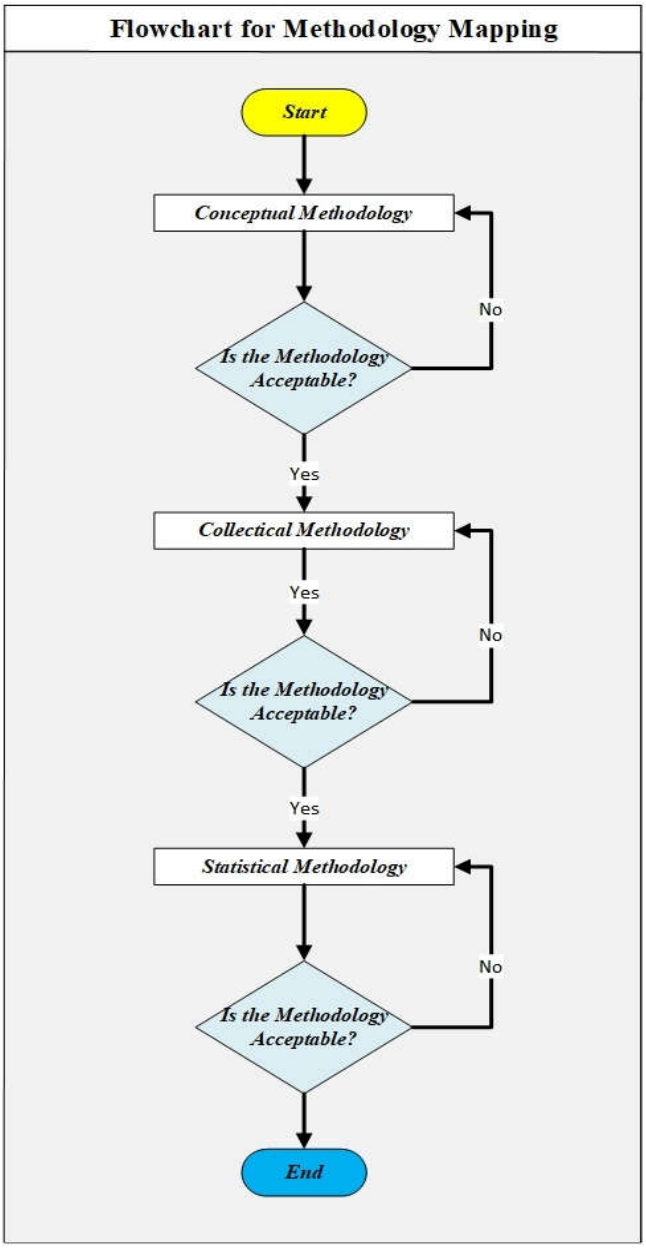

Figure 1. Flowchart of an orderly sequential and systematical step by step process for Methodology Mapping.

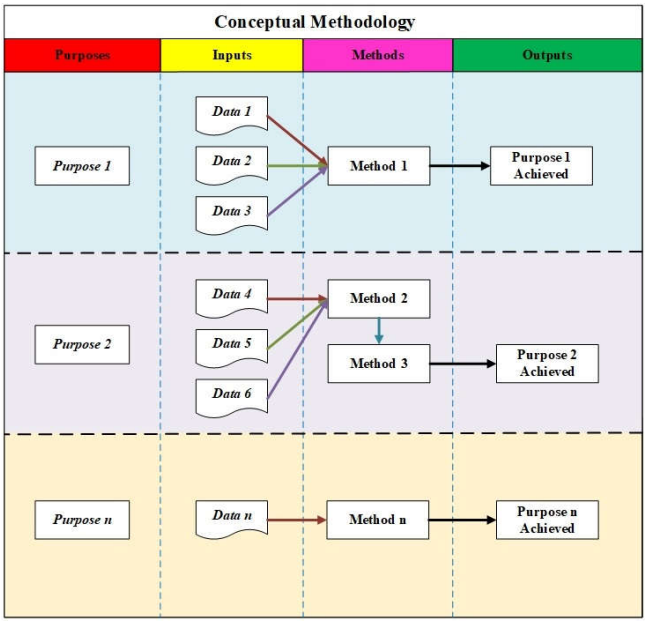

Figure 2. Conceptual Methodology that consists of (1) the purposes of research, (2) the outputs of the research, (3) the methods to do the research, and (4) the inputs that are needed for the research.

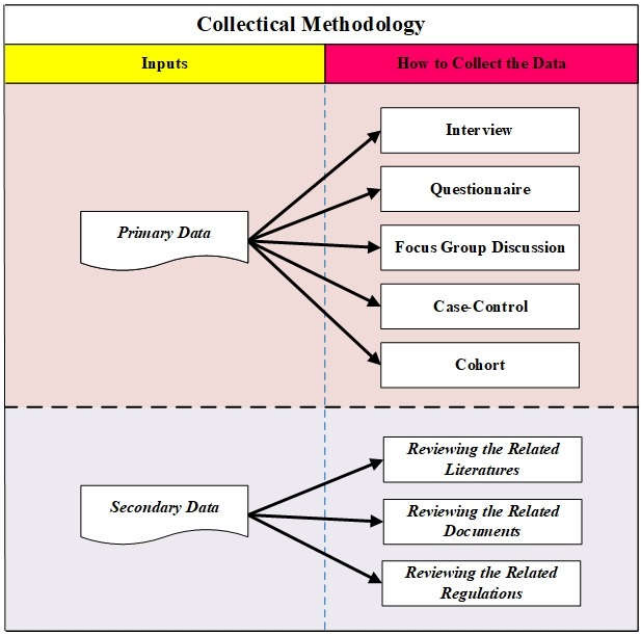

Figure 3. Collectical Methodology that divided into 2 categories, which are (1) how to collect primary data and (2) how to collect secondary data.

2.2. Collectical Methodology

Collectical Methodology is a methodology that focus on how to collect the data as inputs for the research. Collectical Methodology can be classified into (1) how to collect primary data and (2) how to collect secondary data. Firstly, regarding on how to collect primary data, there are 5 methods, they are (1) interview, (2) questionnaire, (3) focus group discussion, (4) case-control, and (5) cohort. Secondly, in order for collecting secondary data, there are 3 methods, they are (1) reviewing the related literatures, (2) reviewing the related documents, and (3) reviewing the related regulations. Collectical Methodology can be seen in Figure 3.

2.3. Statistical Methodology

Statistical Methodology is a methodology that focus on how to analyze the empirical data and interpret the result of the analyzes to conclusion. Statistical Methodology can be called as Statistics. Statistics can be classified into 2 categories, they are (1) Descriptive Statistics and (2) Inferential Statistics. Statistical Methodology (Statistics) including descriptive statistics and inferential statistics can be seen on Figure 4.

2.3.1. Descriptive Statistics

Descriptive statistics is statistics that is used for describing population. Descriptive statistics can be classified into 4 catagories according to how it is used, they are (1) if the statistics is used for measuring frequency (count; percent; and frequency), (2) if the statistics is used for measuring central tendency (mean; median; and mode), (3) if the statistics is used for dispersion or variation (range; variance; and standard deviation), and (4) if the statistics is used for measuring position (percentile ranks; quartile ranks).

2.3.2. Inferential Statistics

Inferential statistics is statistics that is used for testing and predicting. Descriptive statistics in general can be classified into 5 catagories, they are (1) linear regression analysis, (2) analysis of variance, (3) analysis of co-variance, (4) statistical significance, and (5) correlation analysis.

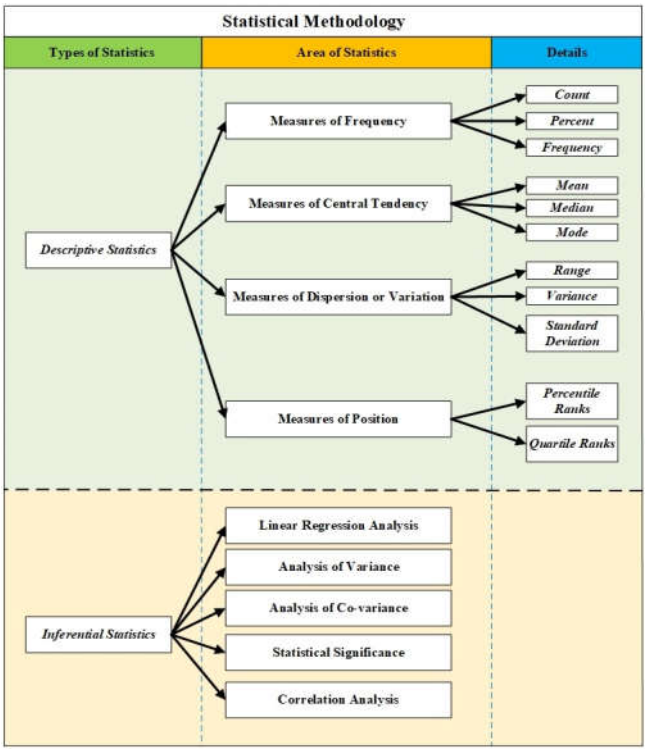

Figure 4. Statistical Methodology or we can called as Statistics divided into (1) Descriptive Statistics and (2) Inferential Statistics.

II. HOW TO THINK METHODOLOGICALLY

1. Definition of Thinking Methodologically

Thinking methodologically means thinking in sequentially and systematically in order and disciplined. There are 3 abilities that are needed in order to be able to think methodologically, they are (1) Analytical Thinking, (2) Synthetical Thinking, and (3) Systematical Thinking.

2. Analytical Thinking

Thinking analitically means thinking by breaking down the elements of thinking. Instead of Analytical Thinking, we can also use other nomenclatures such as (1) Deductive Thinking, (2) Divergent Thinking, (3) Sequential Thinking, and (4) Chronological Thinking. They are the same because they have the same meaning. How to think analytically can be seen in Figure 5 and the example of the implementation of analytical thinking can be seen in Figure 6.

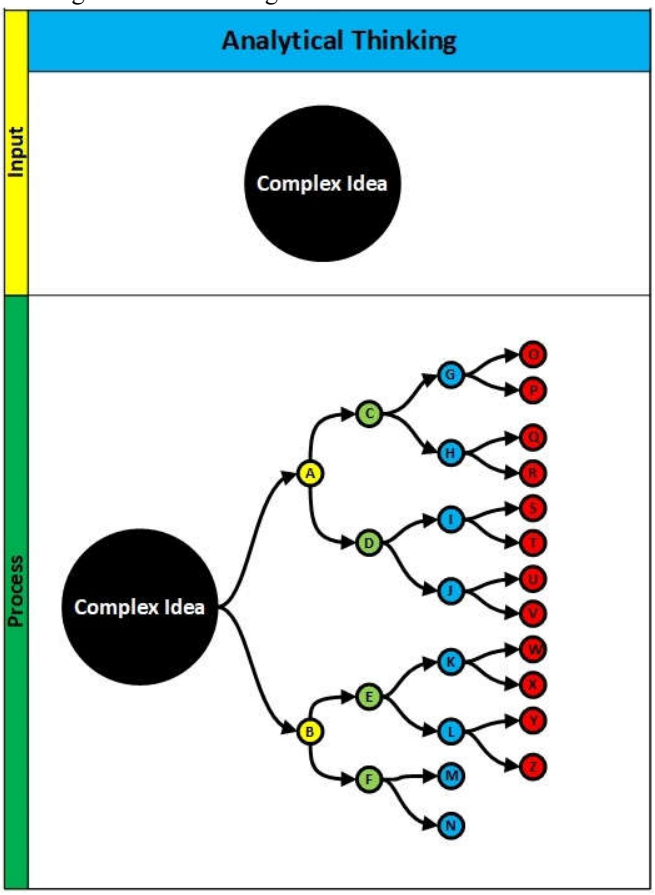

Figure 5. How to think analitically.

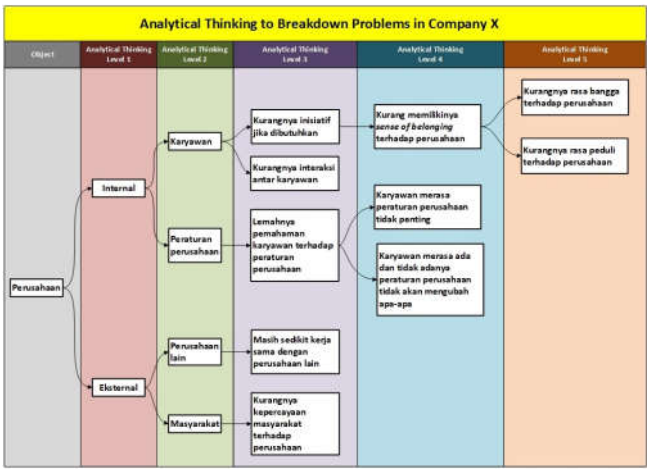

Figure 6. Example of the implementation of analytical thinking.

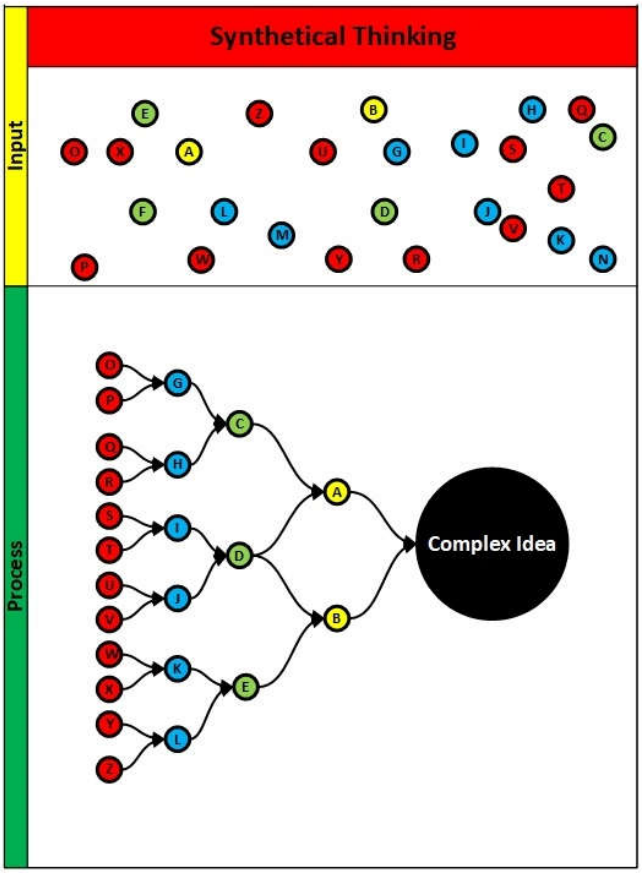

Figure 7. How to think synthetically.

3. Synthetical Thinking

Thinking synthetically means thinking by combining the elements of thinking. Instead of Sythetical Thinking, we can also use other nomenclatures such as (1) Inductive Thinking and (2) Convergent Thinking. How to think synthetically can be seen in Figure 7.

4. Systematical Thinking

Thinking systematically means thinking by breaking down the elements of thinking and recognise the cause and the effect and then draw that (cause-effect) relation. Instead of Sythetical Thinking, we can also use other nomenclatures such as (1) Holistical Thinking and (2) Comprehensive. How to think systematically can be seen in Figure 8.

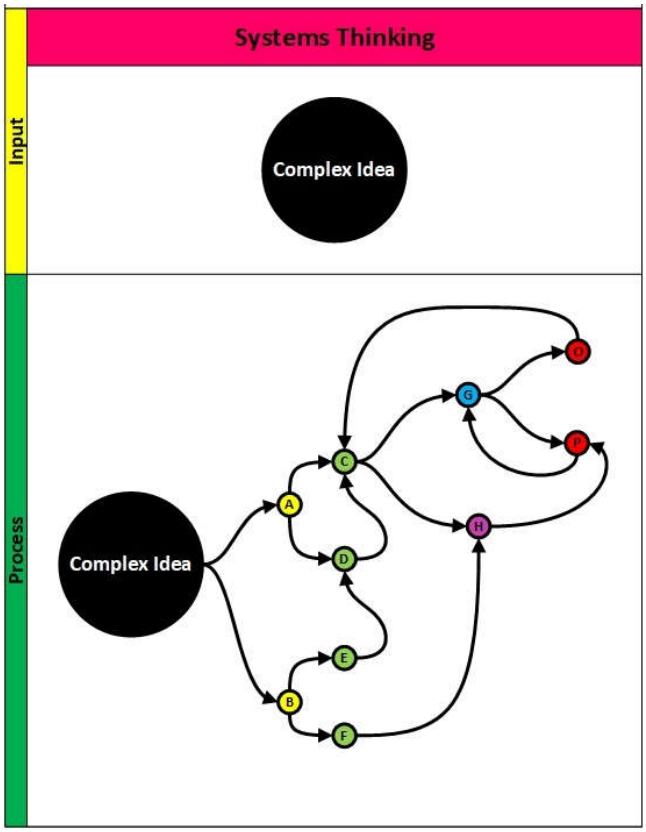

Figure 8. How to think systematically.