



### CHAPTER 3

#### Research Methodology

This chapter provided the structure of this research methodology. The study was designed to consist of two main parts which were exploratory research and qualitative research. The chapter explained the research design, research method which comprised sample frame and procedure, data collection, and data analysis. Then, the proposed model was extended by conducting in depth interview with other stakeholders and analysis with the final conclusion.

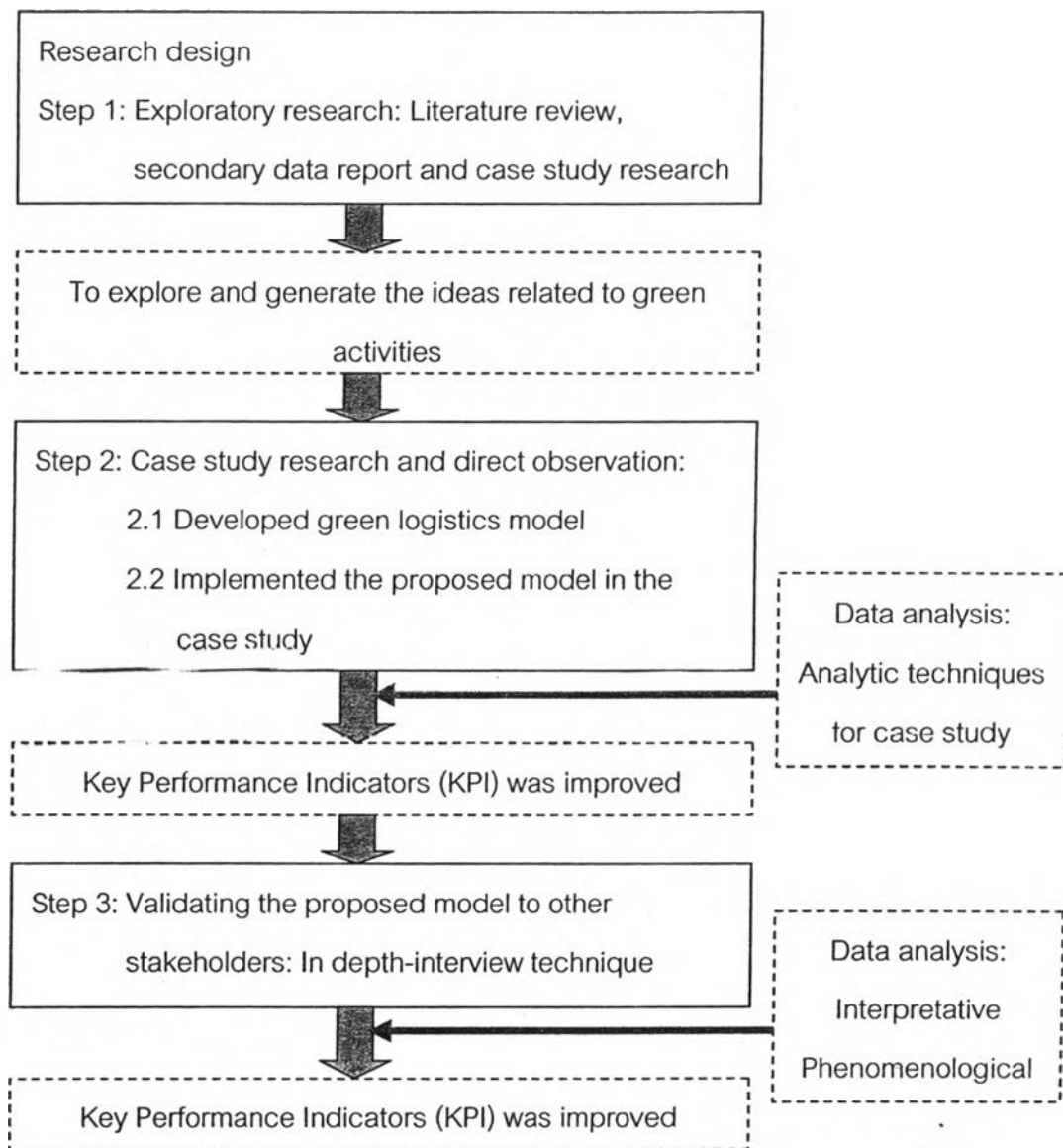


Figure 17: Research Methodology

### 3.1 Research Design

This study employed exploratory research and qualitative research. The exploratory research aimed to gather preliminary information and comprehension of an issue or situation that will help define problems (Kotler et al., 2006). The research process began with generating of ideas from the literature perspective to provide a historical view of the respective research areas and gathered all secondary data by desktop research, such as carbon emission report and Thailand health profile to understand more on empirical research, practices based evidence and relevant theory that relate to green definition, green supply chain management, green innovation, lean principles, and tailored strategy that offered insights into how to develop the proposed model. This research employed observing technique for the case study in order to establish general principles for exploring, investigate, and generate a new understanding (Voss et al., 2002). The research instrument used direct observing current practices of the case study company to understand more details of the values and beliefs held by members of the population and explore the activities that should be addressed to improve company environmental performances, determine the proper KPI related to green performance measurement.

The second step, analyzing and determine the proposed model that aimed to implement and examined this model within the ordering process and outbound logistics activities of the case study as exploratory case study types to explore an intervention and the real-life context in which it occurred and aimed a better understanding of the phenomenon with real life contexts of green logistics innovation (Baxter and Jack, 2008). This study attempted to address the features or activities of green logistics development process through case studies from different areas related to composites.

This study analyzed the case study evidences from various sources by analytic techniques (Yin, 2003). In Yin (2003) book described five techniques for analyzing the data of case studies which consisted of pattern matching, explanation

building, time-series analysis, logic models, and cross-case syntheses that would be effective in laying the groundwork for high-quality case studies. This study used a explanation building analytic technique which aims to analyze the case study data by building an explanation about the case, the procedure is mainly relevant to explanatory case studies to develop ideas for further study. The elements of explanations focus to explain a phenomenon to stipulate a presumed set of causal links about it, or "how" or "why" something happened (Yin, 2003).

The results were also analyzed and validated through the improvements of work efficiency, accuracy, and Key Performance Indicators (KPI) as a measurement tool. The improvements of green logistics performance indicator of case studies based on the basic purpose of green supply chain management performance measurement, or GSCM/PM concepts which are: internal control, internal analysis and external reporting (Hervan, Helms and Sarkis, 2005) and the ISO 14031 guideline which are designed for use in environmental performance evaluation with indicators in the three key areas:

- 1) Environmental conditions indicators
- 2) Operational performance indicators
- 3) Management performance indicators

The third step, with the outcomes would support to extend this proposed model to other stakeholders of pharmaceutical service providers by conducting the structured interviews with experts In the logistics service field of a pharmaceutical industry. A total of 20 interviews were conducted. In order to gain sufficient depth as well as width in the research, more details including the perception, strategy, green activities and logistics model that lead to logistics innovation methods were investigated. The sample included top 20 healthcare service providers based on value and volume of logistics transactions comprising 10 logistics distributors and executive manager of healthcare service institutions and 10 drugstores.

The interview questions design is based on open end questions and each question aimed to gain sufficient information of customer preconceptions toward

green issues and the proposed model and to validate the questions by using preliminary techniques by experts. Questions also focused on potential cost reductions, environmental impact, inventory control and procedural operations. For the depth-interview method it was held at the personnel work environment to minimize any disruption to the individual's work schedule. All individuals had the same questions asked in the same order. Individuals were also allowed to make any additional comments at the conclusion of the interview. Interviews were anticipated to last approximately one hour each.

The analysis for depth interview research consisted of considering responses in each topic as group, and drawing interpretive conclusions about commonly held beliefs, attitudes, or opinions. This study applied Interpretative Phenomenological Analysis (IPA); is an approach to psychological qualitative research with an idiographic focus, which means that it aims to offer insights into how a given person, in a given context, makes sense of a given phenomenon. Usually these phenomena relate to experiences of some personal significance - such as a major life event, or the development of an important relationship (Smith and Osborn, 2008). This analysis technique aimed to understand the proposed model to other stakeholders. Lastly, analyzing and presenting the conclusions. This research collected the information about the management system and KPI in 2007 which occurred before the implementation of the proposed model. The tailor-made proposed model was implemented in 2008. After completing the implementation, the authors observed and gathered information from January 2009 to June 2009

### 3.2 Sample frame

According to the data gathering from available secondary data of the Thai health care industry, all stakeholders, including pharmaceutical manufacturers, distributors, hospitals, clinics, drug stores and healthcare institution are connected

along the supply chain system and create an impact on the environment, which logistics distributors are the key factor regarding to operations and logistics activities and as the center of networking.

The sampling frame of this study design comprised an ISO 14000 certified pharmaceutical distribution company in Thailand, which was selected as an exploratory case study type (Baxter and Jack, 2008) and other sample was registered under Ministry of Public health as healthcare services service provider, which involved top 10 healthcare services providers and were classified into two groups, first was top ten expertise of distributors and hospitals and other top 10 drugstores. All samples were located in the Bangkok area. The selection of companies was based on value and volume of logistics transactions comprising with the secondary of the case study company and snowball technique. This was followed by interviewing the relevant key personnel involved in the set up of the company objective, plan and the authorization in the company, including department head, department manager, policy maker and business owners.

### 3.2.1 Sample procedure

As the case study research method was applied in this study, the selecting sample employed a single case study and developed the proposed model with empirical analysis to test the proposed model to gain a systematic way of looking at events, collecting data, analyzing information, and reporting the results (Baxter and Jack, 2008; Yin, 2002). This case study is based on one of the leading pharmaceutical distributors, which gained market share approximately 37.50% from the total Thai pharmaceutical market estimated at THB 99,100 million in the year 2008 based on IMS healthcare report, and 38% distribution coverage of 43,258 healthcare outlets in year 2006 based on the data of Thailand health profile 2005- 2007 report.

