

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

This chapter presents the methodology that was employed in the study. The methodology provides a framework and a guideline for a researcher on how to accomplish his task. It is at the centre of any research endeavour. It specifically answers the question ‘how’ (Punch, 2003). Thus, the methodology outlines and stipulates how the research objective (s) will be realized. In this chapter, the following sections were explained: the research paradigm, the research design, the research process, location of the study, the population and sampling approach, data collection procedure, research instrument development and data analysis process. Finally, the summary of the present chapter was highlighted in the final section.

3.2 Research Paradigm

Research paradigms or philosophies are different worldviews or lenses through which researchers make sense of reality. They are essentially broad belief systems about the world and how it should be understood. In the social science domain, researchers have used several research philosophies to understand and explain social facts and how such realities are to be investigated. Guba & Lincoln (1994, p.105) defined research paradigm as the “basic belief system or worldview that guides the investigator”. Furthermore, Kuhn (1970) defines research paradigm as “the set of common beliefs and agreements shared between scientists about how problems should be understood and addressed’. Three major characteristics differentiate one research paradigm from the

other, namely ontology, epistemology, and methodology. Ontology is concerned with the nature of “reality” and how it operates. Epistemology deals with how this “reality” is understood and the relationship between the enquirer (knower) and the “reality” (knowable). While methodology is the general principle and technique used to investigate that “reality” (Lincoln & Guba, 2013; Mingers, 2003). The ontological and epistemological worldviews inform and guide the researcher’s choice of the methodological approach to be used in investigating a given phenomenon (Crotty, 1998).

Some of the most prominent research paradigms used in the social sciences are positivism, post-positivism, constructivism, and pragmatism (Creswell, 2014). Positivism has its foundation in the natural sciences and relies on sensory perceptions to make sense of the world. It is a worldview or paradigm that is ontologically atomistic, epistemologically positive, axiologically value-free, that is, the proponents of this worldview see reality as a distinct, separate, static, orderly phenomena that interact with each other (Collins, 2018; Miller & Brewer, 2003). They view reality as single, objective, and external which can only be studied, explored, and known objectively, through observation, measurement, and empirical analysis (Collins, 2018; Creswell, 2014). Neuman (2013 pg. 97) defines positivism as: “an organized method for combining deductive logic with precise empirical observations of individual behaviour to discover and confirm a set of probabilistic causal laws that can be used to predict general patterns of human activity”. From the foregoing, three important features of positivism can be discerned: (a) Social scientists adopt the scientific method to solve social science problems; (b) social scientists follow a hypo-deductive approach to explain associations of social phenomena; (c) and lastly, social science researchers objectively study social entities by testing hypotheses against empirical data (Miller &

Brewer, 2003). Quantitative research follows this paradigm to understand the social world. Research designs used in this context include experiments, surveys, correlation studies etc. The focus of this research design is on generalization and prediction. This present study is based on the positivist philosophy because it follows a hypo-deductive approach, explains associations between variables, develops hypotheses, collects quantitative data, and validate hypotheses against empirical data. Furthermore, the study objective is focused on prediction and generalization of findings.

The second worldview is post-positivism which is a modest and refined form of positivism. It follows the objectivity principle espoused by its predecessor but in a restricted manner (i.e., we can only talk about probability, not certainty, approximate truth not absolute truth). This worldview adjusts the pure positivism beliefs by espousing that only theories and scientific methods are not sufficient to discover the truth. Rather, theories with scientific methods and background, knowledge and values of the researchers should be applied together to find the truth. Thus, the post-positivist stands between positivism and interpretivism (constructivism) and indicates that a blend of quantitative and qualitative methods can be used for prediction and explanation of reality (Creswell, 2014). Although this paradigm is closely related to the positivist approach, it requires extra cost in terms of money and time (Tarhini, 2016).

The third paradigm is constructivism (interpretivism) which postulates a parallel set of assumptions about reality (ontology) and how it is known (epistemology). In this worldview, reality is relative and subject to the individuals concerned and the context in which these social actors exist. There is no single, objective reality 'out there' but a plethora of subjective realities constructed by the social actors involved. Epistemologically, the relationship between the knower and the knowable is not separate but fused in an incessant interaction between social actors and the world they

create. Reality is fluid and in the same way, knowing it is also subjective and interpretive based on the individual and context. In this paradigm, knowledge is not something 'outside' to be discovered by scientific tools and methods but rather it is created and generated within the time-space framework of its occurrence. The methodological approach used is usually hermeneutic (i.e., interpretative); it is more about understanding human actions than explaining or predicting them (Lincoln & Guba, 2013; Bryman, 2012). This worldview is value-based as opposed to the positivist stance of value-free. Qualitative research follows this paradigm to understand the social world. Research designs used in this context include grounded theory, ethnography, phenomenology etc. The focus of this research design is not generalization but understanding. This approach was not chosen because it goes contrary to the study objective.

The fourth philosophical view is the pragmatism approach. This approach main concern is the practicality and efficiency of theory or knowledge to solving real-life problems (Creswell, 2014). This paradigm stands like an umpire between the two previous worldviews, it does not take a particular stance on what counts as good research (Sekaran & Bougie, 2016). A pragmatist researcher considers both worldviews as instruments that can be utilized to generate useful knowledge, depending on the objective of the study. The emphasis of this philosophy is on real-world, practical research where different worldviews on research and the subject under study helps solve a research problem. Thus, for a researcher with this viewpoint, the worth of research depends on its real-life relevance; theory is only generated to support the real world. Pragmatism stands as a unifier between science and religion, theory and practice, the softness of the qualitative design and the hardness of the quantitative method (Scheffler, 2013). Instead of a deductive (as in quantitative research) approach or an inductive (as

in qualitative research) approach, pragmatists use an ‘abductive’ approach to research. The abductive approach implies moving back and forth between theory and data to arrive at a conclusion (Morgan, 2007). Similarly, pragmatism was not chosen because it is not aligned with the study objectives.

3.1 Research Design

A positivist approach, that is hypo-deductive, deterministic and which relies on empirical observation and measurement (Creswell, 2014) was used in this study. This approach follows the scientific method of inquiry and is aligned to the positivist paradigm. Tangible quantitative data were collected and measured to substantiate the hypotheses advanced. This approach is most suitable for surveys that deal with quantitative data; therefore, it was employed in this study.

Furthermore, the research design was a cross-sectional quantitative survey design (i.e., data was collected at one point in time). As opposed to longitudinal survey, cross-sectional surveys are amenable to time and cost constraints. The researcher employed a non-experimental field study survey. The survey research design is a suitable means for assessing opinions, social facts, beliefs, attitudes, and trends (Kerlinger, 1973). Also, survey design is a good way of measuring the relationship between variables (Punch, 2003). It is also used to measure the success or failure of an initiative or programme (Creswell, 2008).

Since this study is concerned with the examination of perceptions, attitudes and beliefs and their relative influence on general takaful adoption among MSMEs owner-managers, a survey design was deemed the most suitable strategy. Survey designs are amenable to time constraints; they can be administered and collected within a short period. Furthermore, quantitative surveys are less expensive, with the capacity of

collecting a broad range of data. And if properly administered, it yields a high response rate (Creswell, 2008). Even though survey design is one-sided, assessing only the opinions and views of participants, independent of the researcher's direct observation, it still provides useful insight for understanding and examining a broad range of issues in social science research (Punch, 2003). With limited resources, such a design will be suitable for a student researcher.

Additionally, the respondents in this study were the owner-managers and/or their representatives responsible for decision making. This present study seeks to examine the behavioural/adoption intention of MSMEs owner-managers towards general takaful and hence the justification for selecting owner-managers as respondents. It is presumed that those that are at the helm of affairs and are responsible for everyday decisions of the firm, will be the most appropriate respondents.

3.2 Research Process

The research process provides an outline and summary of the different phases and steps followed in a research study. Below (figure 3.1) is the depiction of the steps that was followed to attain the research objectives outlined in Chapter 1.

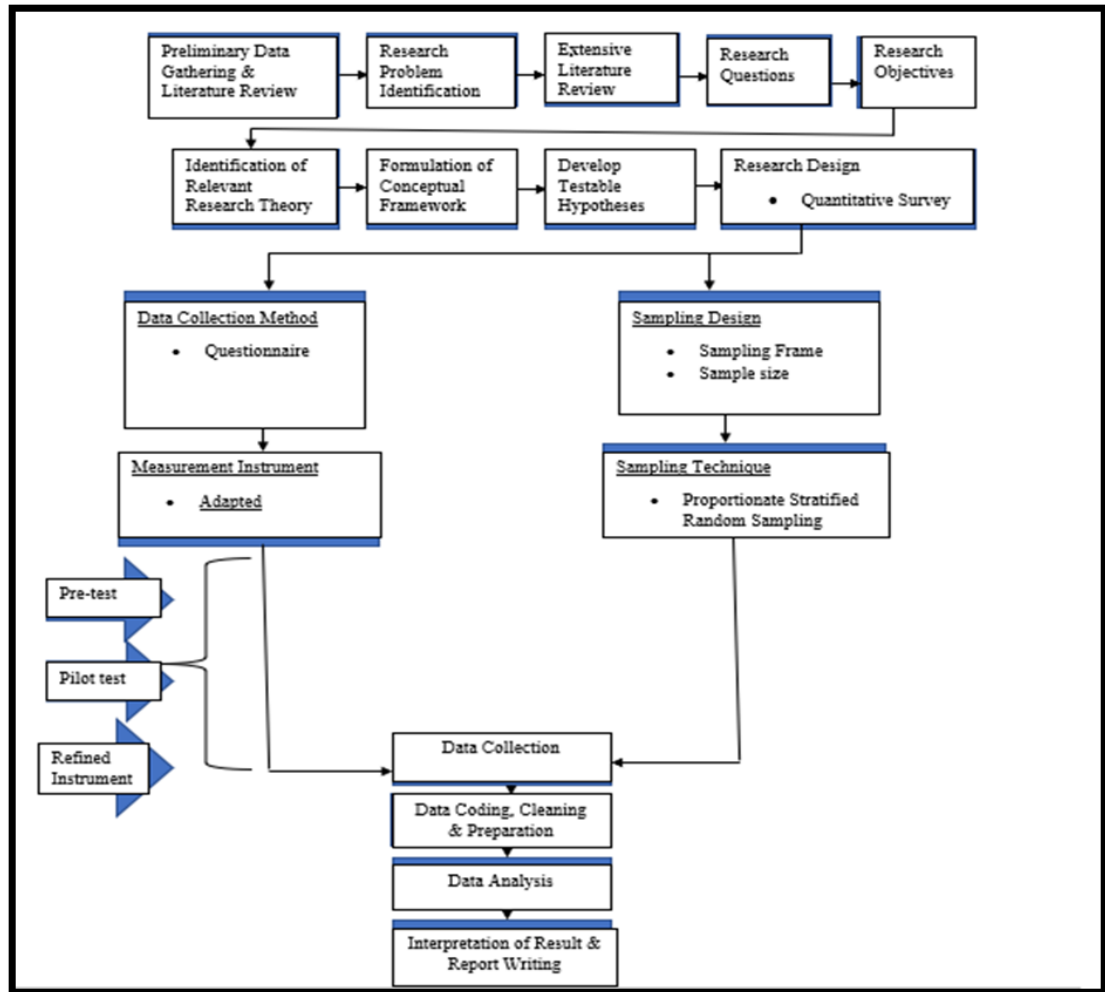


Figure 3.1: Research Process

3.3 Location of Study

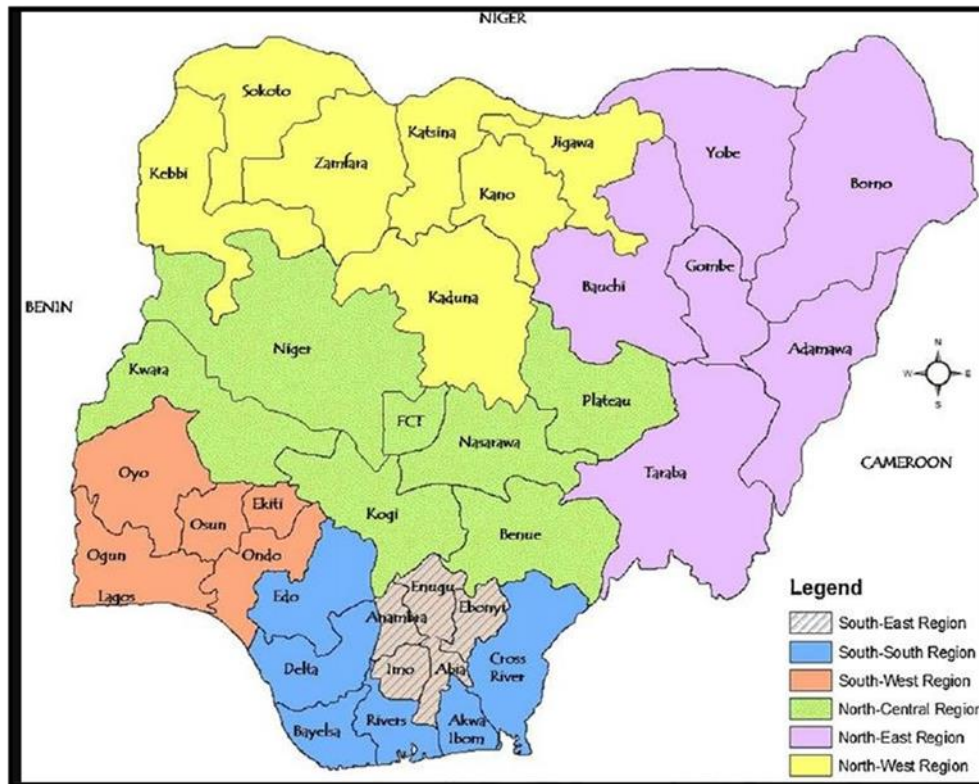
The study was conducted in the northern region of Nigeria, specifically the North-West region. The choice of the North-West part of Nigeria as the location for this study was based on the following factors:

1. First, the prevalence of MSMEs within the region compared to other regions in the north.
2. Secondly, the availability of branch networks of takaful operators in this region. With such a physical presence, the assumption is that there will be a

sufficient level of awareness of the prospects and benefits of takaful products and services.

3. Lastly, the large percentage of the uninsured and financially excluded population in this region based on the statistics available in the country's Central bank website (n.d.) and EFInA (2020, 2018).

The North-West region comprises seven states (i.e., provinces) as follows: Kano, Jigawa, Sokoto, Katsina, Zamfara, Kaduna, and Kebbi. The Hausa/Fulani socio-cultural values prevail in the North-West region. The Hausa/Fulani tribes are majorly Muslims, with few exceptions. Thus, two states from the region were selected as the location of the study. This choice was because the majority of the MSMEs in the region are concentrated in these two states. Secondly, the time and financial constraints associated with student research will limit further extension. Furthermore, the instability and insecurity of some parts of the region will restrict mobility and accessibility to some research sites. The states chosen were Kano and Kaduna, respectively. Each state capital was chosen as the site for the selection of the sample. As the majority of the MSMEs are situated in the state capitals, it is, therefore, most appropriate to select samples from the state capitals. Below is the map of Nigeria showing the six geopolitical zones and the states within (Figure 3.2). The North-West region is situated in the upper right of the map below depicted in yellow colour. The two states chosen in the North-West were Kano and Kaduna.



Source: Chukwuonye et al. (2018)

Figure 3.2: Map of Nigeria with the Six Geopolitical Zones

3.4 Population of Study

Sekaran & Bougie (2016) defined the population as “the entire group of people, events or things of interest that the researcher wishes to investigate”. Thus, the target population for this survey study were the MSMEs in the North-West (Kano & Kaduna) region of Nigeria. The number of MSMEs in the recent survey report by SMEDAN & NBS (2017) in the two states were 1,827,402 (Kano) and 1,934,037 (Kaduna) respectively. However, the bulk of these MSMEs operate informally and lack formal registration (SMEDAN & NBS, 2017). Also, there is no centralized database available for MSME information in Nigeria. Nevertheless, a list of MSMEs that were registered with government agencies (SMEDAN Kano Branch & Kaduna Investment Promotion Agency) was obtained. A similar approach was used by Oke (2019) to obtain a sampling frame of the target MSME population in North-Central Nigeria.

Since the MSME subsector in Nigeria share similar characteristics (Oke, 2019; SMEDAN & NBS, 2017), the formal list was considered as a general reflection of the MSME population. The list obtained provided the names, business addresses and contact phone number of the owner-managers of the MSMEs. Moreover, the formal list enabled the researcher to apply probability sampling technique (i.e., proportionate stratified sampling & systematic sampling). Probability sampling is one of the hallmarks of scientific research that supports the generalization of findings to the entire target population (Sarstedt, Bengart, Shaltoni, & Lehmann, 2018; Elfil & Negida, 2017). The total number of registered MSMEs in the two states combined is 880 (SMEDAN, n.d.; Kaduna Investment Promotion Agency, n.d.). The breakdown of the number of MSMEs by State is given below:

Table 3.1: Number of MSMEs Based on State

State	Number	Total
Kano	527	527
Kaduna	353	353
Total	880	880

3.4.1 Sample Size

A sample is a subgroup of the target population studied to generalize about the target population (Creswell, 2008). Previous researchers have provided guidelines for the selection of sample size (Sekaran & Bougie, 2016; Creswell, 2014; Roscoe, 1975; Krejcie & Morgan, 1970). Roscoe (1975), proposed a rule of thumb for determining sample size thus:

- Sample sizes larger than 30 and less than 500 are appropriate for most research.

- If samples are broken into subgroups, a minimum sample in each subgroup should be 30 and above.
- Research with multiple variables should have a sample size that is 10 times or more as the number of variables in the study.

Additionally, Creswell (2014) suggested a sample size of 350 subjects for a survey study. Krejcie & Morgan (1970) provided a table for sample size determination. Hair et al. (2014), recommended that the sample size should not exceed 400. Sekaran & Bougie (2016) suggested that a sample should not be too small (less than 30) nor too large (more than 500). Furthermore, Mooi, Sarstedt & Mooi-Reci, (2018, p. 47) contended that the level of precision is diminished as sample size increases. Moreover, Hair, Black, Babin & Anderson (2018) argued that large samples make statistical significance excessively sensitive, which can lead to Type 1 error (i.e., false positive). In essence, with a very large sample size, even weak relationships can reach significance levels; and a researcher would assume that these significant relationships found in the sample were indeed true of the population, when they may not be (Hair et al., 2018). The efficacy of a sample hinge on the careful selection of respondents rather than the large size of the sample (Memon et al., 2020). Also, very large samples can result in fatigue, mental imbalance, and errors during analysis.

Since there is no consensus among scholars about sample size, 400 MSMEs were randomly selected as the sample for this study. This is in line with Krejcie & Morgan (1970), Roscoe (1975), Creswell (2014), Sekaran & Bougie (2016) and Hair et al., (2014), who have suggested a sample size of not more than 500. Furthermore, Kline (2015), gave a general guideline for sample size when using SEM as follows: a sample size of less than 100 is considered "small", 100-200 units are considered "medium", and 200 or more is considered "large".

Furthermore, to reinforce the opinions for sample size advanced above by scholars, Yamane (1973) formula for sample size was used. The Yamane formula is often employed when the research population is finite. The formula also ensures true representation and reduces systematic bias (Abubakar, 2018). The formula is given below:

$$n = \frac{N}{1 + N(e)^2} \quad (3.1)$$

where n is the sample size, N is the population size, and e is the precision level (margin of error). Thus, the sample size for the study is:

$$\begin{aligned} n &= \frac{880}{1 + 880(0.05)^2} \\ n &= 275 \end{aligned} \quad (3.2)$$

To compensate for nonresponse and inaccurate responses, the sample size was increased by 20% (Abubakar, 2018; Liu & Liang, 1997). Thus, the total sample size after the 20% increase stood at 330. Hence, 400 samples were deemed adequate.

3.4.1.1 Sampling Technique

The sampling technique, whether probability or non-probability sampling, depends on several factors such as the extent of generalizability desired, the time and material resources available and the access limit to the population of the study (Sekaran & Bougie, 2016). In most instances, a trade-off between generalizability and time/cost considerations exists. Hence, in this study, a proportionate stratified sampling technique was used. The population of the study is spread across two states (Kano & Kaduna) in

the North-West region of the country. Therefore, to ensure that MSMEs in each state were included in the sample commensurate to their number, proportionate stratified sampling was employed. Thereafter, systematic random sampling was applied to select samples from each stratum. The systematic sampling process starts by selecting every n th element in the population beginning with a randomly selected element between 1 and n (Sekaran & Bougie, 2016). The n th element serves as the fixed interval of which the first element is selected at random. In this study, the fixed interval was set at 2 (i.e., every 2nd element was chosen). The calculation for the fixed interval was arrived by dividing the total study population by the total sample size (i.e., $880/400=2.2$ round down to 2). The benefits of using systematic sampling approach over simple random sampling include ease of selection, lower cost, high internal and external validity, and less time consuming (Sekaran & Bougie, 2016; Acharya, Prakash, Saxena & Nigam, 2013). Moreover, Systematic sampling is the most often used method of sampling in marketing and consumer behaviour survey research (Sekaran & Bougie, 2016). The number of samples for each stratum was calculated as follows:

$$\text{Sample size } (n) = \frac{n}{N \times \text{layer size}} \quad (3.3)$$

Thus, the sample size for each stratum is:

1. Kaduna = $400/880 \times 353 = 160$
2. Kano = $400/880 \times 527 = 240$
3. Total = 400

3.5 Data Collection Procedure

To realize the research objectives, data was collected through self-administered questionnaires distributed to the chosen MSME owner-managers. A cover letter was attached explaining the purpose of the study. Furthermore, ethical considerations such as privacy, confidentiality were assured in the covering letter. A survey questionnaire was used as the instrument for data collection. This choice was based on several factors such as cost considerations, size of the population, level of privacy and anonymity and the response rate required. A total of 400 questionnaires were distributed by hand to the respondents. Considering the time and financial limitations and the large sample size, the questionnaire serves as the most suitable instrument for the collection of data.

To achieve a high response rate, the researcher administered the questionnaires face to face, by meeting the respondents at their places of occupation. Furthermore, research assistants were employed to help the researcher administer the questionnaires. A Drop-off/Pick-Up (DOPU) method was employed to collect data from respondents. The DOPU method has been shown to reduce nonresponse bias of respondents by increasing the response rate (Allred & Ross-Davis, 2011).

A period of twelve (12) weeks (August 2021 to October 2021) was used for data administration and collection. Six weeks after administering the questionnaire, 236 answered questionnaires were retrieved from the respondents which were marked as early responses. Subsequently, 111 questionnaires were returned within the remaining 6 weeks which were marked as late responses. Overall, out of 400 administered questionnaires, 347 were retrieved. Thus, a response rate of 86.8% was achieved. However, 45 questionnaires were dropped because they did not meet the scope inclusion criteria. Furthermore, seven (7) questionnaires were discarded (3 questionnaires from the early response group and 4 questionnaires from the late response group) due to

incomplete responses, reducing the total valid responses to 295 (73.8%). Out of the 7 discarded questionnaires, 4 were from Kano and 3 from Kaduna, respectively.

The research instrument was adapted from previously established studies and modified to suit the research context. A pilot test and expert review of the questionnaire were also conducted before the main survey to ascertain the clarity, validity, and reliability of the measurement instrument.

3.5.1 Research Instrument Development

As mentioned earlier, the conceptualization and operationalization of the survey variables were adapted from previous related and validated studies in the innovation adoption literature. The measurement items of the main constructs of the study were designed based on previous behavioural/adoption studies. Utilizing measurement items from various validated sources is more apt to lessen the prejudice that could result from using a single source for all measurement items (Mandari, 2017). The main survey instrument consisted of 3 sections (A, B & C). The first section (A) consists of questions on the demographic profile of the respondents. The second and third parts (B & C) comprised of measurement items for the main constructs of the study (i.e., the independent & dependent variables). A 7-point Likert scale usually used in behavioural/adoption studies was used in sections B & C. Dawes (2008), Othman (2011), contended that 5-7-point Likert scales are seen to have more validity and reliability than Likert scales with lower points. This present study utilized a 7-point Likert scale against a 5-point Likert scale due to its higher level of accuracy in measuring the perceptions of respondents. A 7-point Likert scale has more variability than a 5-point Likert scale due to the larger options available (Dawes, 2008; Mandari,

2017). Table 3.2 shows the main constructs of the study, the pool of items generated for each construct and their sources.

Table 3.2: Main Constructs and their Measurements

Construct	Measurement Items	Source
Relative Advantage (RA)	1. Takaful products & services are cheap and affordable. 2. Takaful products & services are more profitable than conventional insurance schemes. 3. Takaful operators provide better business support services. 4. Takaful operators provide a better quality of service than conventional insurance. 5. Takaful operators (Islamic insurance companies) have more product options to choose from than conventional insurance. 6. Takaful is a more convenient way of protecting our business assets. 7. Overall, we find takaful products & services to be better than conventional insurance in protecting our business enterprise.	(Taylor & Todd, 1995; Atkinson, 2007; Jaffar & Musa, 2014; Yahaya et al., 2016; Mahdzan et al., 2017)
Compatibility (CP)	1. Takaful products & services fit well with the way we want to manage our business risk. 2. Takaful products & services fit well with our habit of risk management. 3. Takaful products & services are suitable for our business risk management needs. 4. Takaful products & services are compatible with our worldview and religious beliefs. 5. Takaful products & services are compatible with our business culture.	(Moore & Benbasat, 1991; Al-Jabri & Sohail, 2012; Yahaya et al., 2016; Mahdzan et al., 2017)
Complexity (CX)	1. <i>Takaful products & services require a lot of mental effort to understand. *</i> 2. Takaful products & services are difficult to comprehend. 3. Takaful products & services involves complex procedures. 4. <i>Using takaful products & services requires technical skills. *</i> 5. Takaful products & services are confusing.	(Moore & Benbasat, 1991; Taylor & Todd, 1995; Ntemana & Olatokun, 2012; Obeid & Kaabachi, 2016; Mahdzan et al., 2017).

Table 3.2, continued

Construct	Measurement Items	Source
Uncertainty (UC)	1. Subscribing to takaful products & services involve potential financial loss. 2. We worry that subscribing to takaful products & services will not protect our business from potential loss. 3. Takaful products & services will not meet our business expectations. 4. We fear takaful operators will not keep their commitment in the event of a loss by our business. 5. We fear that takaful operators that provide Islamic insurance are not Shariah-Compliant. 6. We fear takaful operators that provide Islamic insurance services do not have enough experience in insurance undertakings.	(Nor, 2005; Kaabachi, 2016; Yahaya et al., 2016)
Awareness (AW)	1. We are acquainted with the existence of takaful products & services for MSMEs. 2. We understand the difference between takaful and conventional insurance. 3. We know the basic principles & concepts applied in takaful. 4. We are aware that takaful is offered to both Muslims and non-Muslims. 5. We receive enough information from Islamic insurance companies about using Islamic takaful products. 6. We receive enough information from Islamic insurance companies about the benefits of takaful products to our business development. 7. We receive enough information from the government about the features & advantages of various takaful products. 8. We know the different takaful products available for MSMEs.	(Al-Somali et al., 2009; Jaffar & Musa, 2014; Yahaya et al., 2016)

Table 3.2, continued

Construct	Measurement Items	Source
Social Influence (SI)	1. Recommendations from reputable religious leaders influence our decision to use takaful products & services.	(Taylor & Todd, 1995; Ajzen, 2002; Venkatesh et al., 2003; Al-Somali et al., 2009; Amin et al., 2011; Jaffar & Musa, 2014)
	2. Recommendations from reputable public figures influence our decision to use takaful products & services.	
	3. We will consider using takaful for protecting our business if my parents recommend it.	
	4. It is expected by others that we should choose takaful for our business risk management.	
	5. Most people who are important to our business think we should use takaful for my business risk management.	
	6. Recommendations from staff & shareholders of our company influence our decision to use takaful.	
	7. Recommendations from our bankers & financial consultants influence our decision to use takaful.	
	8. Our friends & colleagues will expect us to use takaful for our business risk management.	
	9. We will adopt takaful if our business partners in the industry use it.	
Government Support (GS)	1. Nigerian government promotes the use of takaful among MSMEs.	(Tan & Teo, 2000; Amin et al., 2011; Ramanathan et al., 2014; Mandari, 2017)
	2. National Insurance Commission (NAICOM) encourages the use of takaful among MSMEs.	
	3. The Nigerian government regulations & laws related to the use of takaful products & services makes us feel comfortable.	
	4. The Nigerian government & National Insurance Commission (NAICOM) current efforts make us feel comfortable in using takaful.	
	5. The National Insurance Commission (NAICOM) has provided a clear framework guiding the operations of Islamic insurance companies.	
	6. The Nigerian government is active in setting up relevant facilities such as policies, programmes, and schemes so that MSMEs are well informed about takaful.	

Table 3.2, continued

Construct	Measurement Items	Source
Religiosity (RG)	1. We try to follow Islamic injunctions in all matters of our business undertakings. 2. We have a firm belief in all basic ideological dimensions of Islam. 3. We feel sorrow and dissatisfaction when we do something against our faith. 4. We will use takaful products and services due to its Shariah compliance. 5. Religious obligation motivates us to subscribe to takaful products. 6. As a business enterprise, we should be using takaful for our business risk management strategy.	(Worthington et al., 2003; Jaffar & Musa, 2014; Obeid and Kaabachi 2016; Al Balushi, 2018)
General Takaful Adoption Intention (AI)	1. We are interested in using takaful products in managing our business risk. 2. We intend to adopt takaful products & services in the future. 3. We expect to use takaful continuously to protect our business assets & liabilities. 4. We intend to adopt takaful within the next 6 months.	(Al-Somali et al., 2009; Amin et al., 2011; Al Balushi, 2018)

Note: Items marked in italic bold* were deleted due to low factor loadings (< 0.40)

3.5.2 Pre-test of Research Instrument

Before the pilot test, a pool of items was generated for each construct. This preliminary questionnaire was given to ten (10) reviewers comprising of academicians and MSME-owner managers to review. These reviewers provided useful inputs that were used to improve the quality of the questionnaire.

The rationale for the pre-test was to strengthen the content validity and face validity of the survey instrument by investigating the degree of relevance of each variable item and confirming the suitability of the items in the survey through the expert opinions of industry practitioners and academicians (Sekaran and Bougie, 2016). Generally, the reviewers were asked to give their feedback on the representativeness, clarity, ease of understanding and interpretation of the questions. Based on their feedbacks some items were reworded, others were replaced with more relevant items.

For instance, most of the items were reworded to relate the questions to the MSME owner-manager's business enterprise. Additionally, the last item (AI4) measuring adoption intention "*I will strongly recommend others to use takaful (Islamic Insurance) products & services*" was replaced with "*We intend to adopt takaful (Islamic Insurance) within the next 6 months*" based on expert feedback. A sample of the questionnaire sent for expert validation is attached in the Appendix (Appendix 1).

3.5.3 Pilot Study

After the amendment of the questionnaire, a pilot study was conducted to further enhance the quality of the instrument that was used for the main study. The questionnaire was administered to 30 randomly selected MSMEs. All 30 questionnaires were deemed useable for further analysis. A pilot study was deemed necessary to identify the potential flaws of the chosen method and the deficiencies of the survey instrument (Jackson, 2006).

Furthermore, a pilot study provides the researcher with the needed inputs to refine the questionnaire in terms of content, format, and scale. Also, the pilot test gives the researcher insight into key elements of the data collection activity such as the feasibility of the study, time frame, cost implication and clarity of questions (Naoum, 2002). Modifications were made accordingly based on the pilot test result.

Furthermore, to ascertain the reliability of the questionnaire items Cronbach's alpha coefficient test was employed in this study. Cronbach's alpha test is the most used statistical technique by researchers to measure the internal consistency of items that make up a scale (Sekaran & Bougie, 2016). Internal consistency reliability test measures the extent to which items "hang together" and can measure the same concept to the extent that the items are correlated with one another (Pallant, 2016).

The result of the Cronbach's alpha test showed that all items were within the threshold of acceptable reliability standards ranging from 0.858 to 0.953. The acceptable alpha coefficient benchmark starts from 0.60 which is deemed as average reliability while alpha coefficients of 0.70 and above are regarded as having high reliability (Hair et al., 2006; Sekaran & Bougie, 2016). The summary of the reliability test result is shown in table 3.3. Results from the table show that the Cronbach's alpha coefficients for the study constructs are all above 0.70. Therefore, having exceeded the required standard, all items were retained. Hence, the questionnaire was deemed appropriate to be used in the main survey.

Also, the demographic profile of respondents was captured in the pilot study. Most of the respondents were owners and managers and mostly within the age group of 30-40. The majority were male and relatively educated. Sole proprietorship and partnership were the main types of companies. The number of employees and years of business operation were mainly within 1-50 and 0-15 years, respectively. Predominantly, the respondents were Muslims and mostly married. Furthermore, more than half of the respondents were aware of takaful, and the majority have experienced loss in their business undertakings, however, many MSME owner-managers have not adopted takaful yet. Interestingly, most MSME owner-managers agree that takaful can support their business in the event of a loss.

Table 3.3: Summary of Reliability test for Pilot Study

Constructs	No. of items	Cronbach's α
Relative Advantage	7	0.879
Compatibility	5	0.919
Complexity	5	0.919
Uncertainty	6	0.875
Awareness	8	0.923
Social influence	9	0.929
Government support	6	0.858*
Religious obligation	6	0.946
Adoption intention	4	0.953*

3.6 Data Analysis

The researcher analysed the data of the study using both descriptive and inferential statistics. The data collected were quantitative. The analysis of quantitative data entails a process of summarizing and refining the data to arrive at a substantive conclusion about the way variables are related to each other (Punch, 2003). The following stages were followed to analyse the collected data.

3.6.1 Data Cleaning

In the first stage the data was cleaned, codified, and summarized for simplicity. The collected data was proofread while missing data and ambiguous responses were checked. Data was codified in numerical terms to enable statistical analysis. For example, all the variables (including respondents profile) were coded in numbers and the appropriate data measurement level was assigned (i.e., nominal, ordinal, interval or ratio). Thereafter the cleaned data was keyed into IBM SPSS version 23 software for further analysis.

3.6.2 Preliminary Analysis

The second stage of the analysis involved conducting some preliminary analysis to ascertain the quality and suitability of the data for the main analysis. The following analysis were done.

3.6.2.2 Non-Response Bias Assessment

The first step in the series of preliminary analysis was to check for non-response bias. Non-response (i.e., late-response) bias arises when non-respondents (late responders) vary systematically from other respondents (i.e., early responders) in a given sample (i.e., early responders) (Prince, 2012). Surveys are more susceptible to non-response bias (Sedgwick, 2014) which informs the need for such assessment. Besides, non-response bias is a threat to the achievement of external validity (generalizability) of research outcomes. However, non-response bias effect can be mitigated by having a high response rate from the respondents (Sedgwick, 2014). Likewise, statistical method through extrapolation is another way of reducing non-response bias. Extrapolation method involves inferring the unknown (non-respondents) from the known (late responders) and is built on the assumption that respondents who respond late are like non-respondents (Armstrong & Overton, 1977). In this study, non-response bias was reduced by ensuring a high response rate through the use of DOPU method. Furthermore, non-response bias was assessed through two statistical procedures: comparing the group mean and standard deviation of the early respondents with that of the late respondents and running Levene's Test for Equality of Variances (Armstrong & Overton, 1977). The results of the statistical tests are reported in chapter four.

3.6.2.3 Assessment of Common Method Bias

Common method bias (CMB) is one of the factors that hinders the application of rigour, particularly in behavioural research. Lack of rigour affects the quality, validity and reliability of study (Jordan & Troth, 2020; Podsakoff, MacKenzie & Podsakoff, 2012). Survey research employing self-report data and which uses single method of data collection are more prone to common method bias (Jordan & Troth, 2020). Therefore, to diminish the adverse effect of common method bias, two methods have been recommended in the literature (Jordan & Troth, 2020; Podsakoff et al., 2003). The first technique suggests the application of procedural remedies that should be embedded in the study design (for example, ensuring respondents anonymity). The second method recommended is to use statistical remedies such as the Harman's single-factor test. Thus, this study applied both procedural and statistical remedies. Further elaboration of the statistical remedy results is reported in chapter four.

3.6.2.4 Missing Values

The careful assessment of missing values is of utmost importance in the data analysis stage. Missing values if not examined thoroughly could complicate the data analysis process and may even lead to misleading result outcomes (Kline, 2011). Missing values can be (1) missing completely at random (MCAR), (2) missing at random (MAR), or (3) missing not at random (MNAR) (Rubin, 1976). MCAR is considered the least likely to produce biased results, while the other two are regarded to be systematic and may lead to biased outcomes if not properly handled (Kang, 2013). Researchers have suggested that missing values of 10% and below are inconsequential in influencing a study outcome (Cohen & Cohen, 1983). Furthermore, Tabachnick &

Fidell (2013) argued that missing values of 5% and below will not affect study outcomes.

However, if extreme cases of missing values are encountered (for instance 25% and above), researchers have recommended that the cases should be deleted (Sekaran & Bougie, 2016; Tabachnick & Fidell, 2013). A number of statistical techniques have been offered to deal with missing values. Some of these techniques include deletion (such as listwise deletion and pairwise deletion) and imputations (such as mean replacement and maximum likelihood) (Kline, 2011). A careful choice of an appropriate technique to address missing values is very crucial, otherwise, applying an inappropriate technique may complicate further statistical analysis and adversely affect the validity of study outcomes (Kline 2011). Hair et al. (2014) recommended that the mean replacement method can be used for missing values less than 5% per item. From the descriptive statistics of the missing values none of the items had missing values above 5%. Therefore, the mean replacement method was used in this study. The results of missing value analysis are reported in chapter four.

3.6.2.5 Outliers

Another preliminary analysis that is necessary for researchers to consider is the assessment of outliers. Outliers are observations in the data that do not correspond with the rest of the dataset (Barnett & Lewis, 1994). These observations are called outliers because they have extreme value on one variable or a series of extreme values on two or more variables. Identifying and treating outliers prior to the main analysis is critical to avert distortion in the main statistical analysis and ensure the validity of study outcomes (Tabachnick & Fidell 2013).

Thus, the current study identified and treated multivariate outliers through the Mahalanobis (D2) distance test in SPSS as suggested by Tabachnick and Fidell (2013). The Mahalanobis distance (D2) values were compared to the critical chi-square value and the number of independent variables (i.e., 9) were set as the degree of freedom. A D2 value that is above the critical chi-square value suggests that the case is an outlier in the dataset. Additionally, to determine the degree of influence the outliers have on statistical outcomes, Cook's distance was calculated in SPSS. Tabachnick & Fidell (2013) recommended that cases with values above 1 should be removed while those with lower values should be retained for further analysis. The report of the outliers' assessment is presented in Chapter four.

3.6.2.6 Normality

Another important requirement of multivariate analysis is the normality of data distribution (Hair et al. 2014). Non-normal data distribution can threaten the validity of statistical results and subsequent findings of a study. Normality of data distribution refers to the symmetry, bell-shaped curve distribution having most of the data scores concentrated in the middle leaving smaller frequency scores at the two tail ends of the distribution (Pallant, 2016). Even though the current study employed PLS-SEM (a non-parametric data analysis technique) which is less stringent on the normality assumption of data distribution (Astrachan, Patel & Wanzanried, 2014; Hair, Sarstedt, Ringle & Mena, 2012), it is however highly suggested to investigate extreme deviations from normality (Hair, Hult, Ringle & Sarstedt, 2021). An extreme deviation from normality can significantly alter statistical tests results and thus affect the validity of research findings (Hair et al., 2014). In this study, normality assumption was assessed through statistical and graphical techniques as recommended by Hair et al. (2014). Statistical tests

(skewness & Kurtosis test) and graphical methods (histogram & normal probability plot) were conducted in SPSS to evaluate the normality assumption. The results of the analysis are reported in chapter four.

3.6.2.7 Multicollinearity

Multicollinearity is one of the assumptions that must be fulfilled in a multivariate analysis. Multicollinearity refers to the extent to which the independent variables in the research model are correlated (Hair et al., 2014). The presence of multicollinearity in a research model weakens the effect of the predictor variables on the outcome variable (Tabachnick & Fidell, 2013). Multicollinearity leads to erroneous effects of the predictor variables on the dependent variable which further weakens the validity of findings. In this study, multicollinearity was examined in SPSS by running the collinearity diagnostics test and correlation matrix as recommended by Hair et al. (2011). The results of statistical tests are presented in chapter four.

3.6.3 Main Analysis

The current study used Partial Least Square Structural Equation Modelling (PLS-SEM) for the main analysis. A two-stage process was used to validate the conceptual model and test the hypotheses advanced. The first stage consists of assessment of the measurement model (outer model) to check the validity and reliability of measurement scales as they relate to the underlying latent construct (Awang, 2011; Hair et al., 2014). The measurement model was evaluated by checking the individual items reliability (factor loadings), internal consistency reliability (Cronbach's alpha and composite reliability), convergent validity (average variance extracted) and discriminant validity (cross-loadings, Fornell & Larcker criterion and HTMT ratio).

The second stage involves estimating the structural model (inner model) to evaluate the relationship between latent constructs and test the hypotheses advanced by the researcher. The structural model was evaluated by assessing the path coefficients, coefficient of determination (R^2), the effect size (f^2), predictive relevance (Q^2), goodness of fit (GoF) of the model, and the out-of-sample predictive relevance (PLSpredict) (Hair et al., 2021). Here, PLS-SEM which is a variance-based SEM technique was used to analyse the relationships among latent constructs (the dependent, moderating and independent constructs) in the structural model. Also, it was used to confirm/reject the hypotheses proposed. The summary of research question and the corresponding method of data analysis is presented in Table 3.4. Further elaboration and results of analysis are presented in chapter four.

Table 3.4: Summary of Research Question and Method of Analysis

S/N	Research Question	Method of Analysis
RQ1	Do relative advantage, compatibility, complexity, uncertainty, awareness, social influence, government support, religiosity, and prior loss experience influence general takaful adoption among MSMEs owner-managers in North-West Nigeria?	Path coefficients (t-value & p-value), R^2 , f^2 , Q^2 & PLSpredict.
RQ2	Does religiosity moderate the impact of relative advantage, compatibility, complexity, uncertainty, awareness, social influence, government support and prior loss experience on general takaful adoption among MSMEs owner-managers in North-West Nigeria?	Path coefficients (t-value & p-value), R^2 change & f^2 .

3.6.4 Justification for Using Structural Equation Modelling (SEM)

The researcher prefers SEM to other alternative multivariate techniques, like multiple regression, due to the following reasons:

- SEM could address the issue of multicollinearity among independent constructs.
- SEM could evaluate the fitness of a measurement model together with the structural model.
- SEM could analyse the model with multiple independent variables as well as multiple dependent variables.
- SEM could analyse the effects of moderating and mediating variables in a model.
- SEM could model the error terms and handle the correlated errors among response items.
- SEM could analyse both First Order and Second Order Constructs in the structural model.
- SEM could include both observed variables and latent constructs in the structural model.

As a multivariate technique, SEM is robust, flexible, and capable of modelling complex conceptual relationships simultaneously, which other multivariate techniques cannot handle (Hair et al., 2006; Hair et al., 2014; Awang, 2011). In other words, SEM is more attuned to real-life situations which usually involves intricate relationships among constructs. There are two main approaches open to researchers when applying SEM: variance-based partial least squares (PLS-SEM) and covariance-based SEM (CB-SEM). Each method has its advantages and disadvantages. Knowing the distinctions

and similarities between the two approaches is essential in selecting which of the two methods is appropriate for a study.

CB-SEM focus is on confirmation and testing of established theories. Whereas, PLS-SEM focus is on prediction and theory development, though it is also suitable for theory testing and confirmation (Hair et al., 2011). Hair, Matthews, Matthews & Sarstedt (2017) recommended that your research goal should guide the selection of the SEM approach. If your research goal is identifying key predictors and extending existing theories, then PLS-SEM is most appropriate. However, if the objective of the study is comparison, testing or confirmation of established theories, then CB-SEM is most suitable. Also, the use of PLS-SEM is more appropriate when the path model is complex based on the number of constructs (above six) and number of indicators for each construct (above four per construct) in a model (Hair, Risher, Sarstedt & Ringle, 2019; Sarstedt, Ringle & Hair, 2017). The present study model consists of more than six (6) constructs and equally the number of indicators per construct exceed four (4), hence, PLS-SEM was used.

In recent times, PLS-SEM has enjoyed increased application in the fields of marketing and behavioural intention studies (Hair et al., 2011). PLS-SEM is a more robust and flexible approach than CB-SEM. PLS-SEM accommodates both theory testing and prediction and is therefore most appropriate for studies that contain both elements (i.e., theory testing and prediction) (Sarstedt et al., 2017). Furthermore, PLS-SEM works well with different range of sample sizes, complex models and has fewer constraints on data assumptions (Hair et al., 2011). This present study applied PLS-SEM because it fits well with the research objective (i.e., identifying key predictors and extending existing theories). IBM SPSS version 23 and PLS-SEM 3.3.3 software packages were used for data analysis. Figure 3.3 below shows the data analysis process.

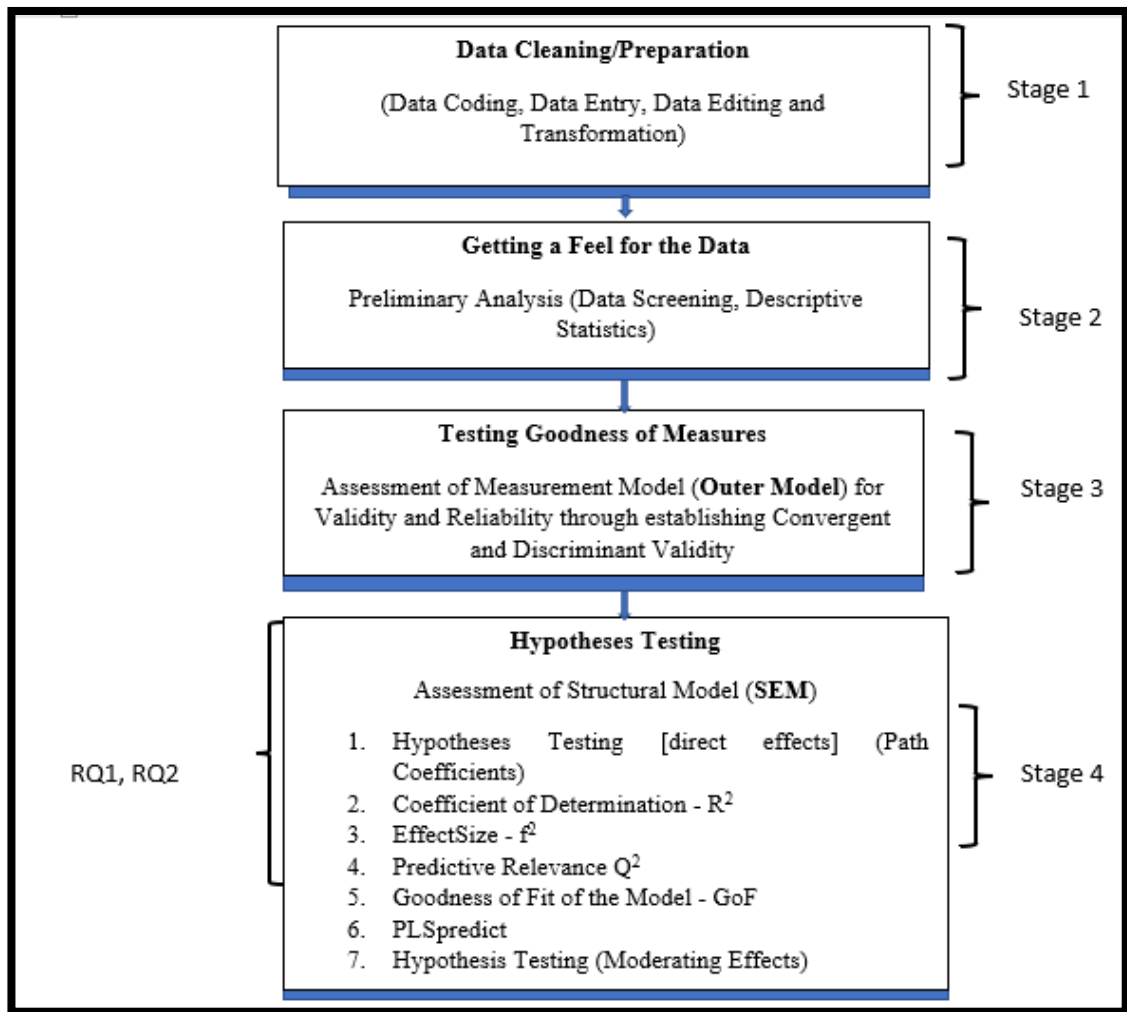


Figure 3.3: Data Analysis Process and Stages

3.7 Chapter Summary

This chapter explains in detail the methodological approach used in the study. First, the research paradigm was discussed and a justification for the choice of positivist paradigm was given. Second, the research design employed in the study was discussed. A cross-sectional quantitative survey design was used and the rationale for using such approach was given. Third, a diagrammatic depiction of the research process was presented which starts from preliminary data gathering/literature review and ends with the final thesis report. Fifth, the site of study, study population and sampling strategy were explained. Sixth, the data collection process starting from instrument development

and validation (i.e., through pre-test and pilot study) to the actual distribution and collection of questionnaires was discussed. Out of 400 questionnaires, 347 were retrieved of which 45 were dropped due to failure to meet scope inclusion criteria. Also, additional 7 were removed due to incomplete responses. The final valid responses deemed fit for further analysis amounted to 295. Finally, the data analysis process was described, including the rationale for choosing PLS-SEM against CB-SEM technique. The next chapter presents the results of data analysis.