

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

Many questions arise as Virtual Organization (VO) become the popular work form, in which some may have been studied and reported, while some may not, the purpose of this study attempts to analyze the influential external and internal factors in forming VO and the potential external and internal barriers from VO adoption in hotel management, and to compare a difference between managerial and supervisory position on attitude towards the different external and internal environmental factors influencing VO adoption in hotel management.

3.2 Research Design

This quantitative research addresses eleven key points as the research design: population, sample size, sampling method, process of gathering data, questionnaire design, questionnaire translation, validity and reliability of the questionnaire, data analysis and statistical testing, hypothesis testing, factor analysis, and independent T-Test, used in this study. Details are discussed as follows:

3.2.1 Population

The key informants for the study are the Managers (General Manger/ Assistant General Manager) and two Supervisors in any department, working in hotels (rated from 5-1 stars) located in Chiang Mai province. Since they are in the position to take the decision in applying or adapting new work model in the hotel industry, as the strategic planner, the result can show more tangible and concrete ideas of the potential factors, barriers in becoming virtual in their internal management.

Although one major benefit from teleworking include customer satisfaction in gaining the quick service from Virtual Teams (VTs) or from the company web-based program as a quick and reliable purchase channel and transaction, this study will not cover

customers as our research population, since they generally are not acknowledged whether which of their acquainting hotels are virtual or at least partially adopt such idea, as well as the standard of goods/services have changed due to virtual adoption. As a result, the responses from the customers might be irrelevant or invalid regarding the objectives of the study.

The registered hotels cover 186 hotels (Table 3.2.1.1) with majority in 3.5 rated-stars. However, this study only focuses on the 65 hotels, which comprise of 65 General Managers or equivalent positions and 130 Departmental Supervisors, as the research informants.

Table 3.2.1.1: Number of Hotels rated from 5-1 Stars, located in Chiang Mai Province

No. of Hotels Ranking from 5-1 Stars		
Stars 5-1	No. of Hotels	%
5 Stars	6	3
4 Stars	23	12
3.5 Stars	97	52
3 Stars	20	11
2.5 Stars	7	4
2 Stars	28	15
1.5 Stars	3	2
1 Star	2	1
Total	186	100

(<http://www.thai.tourismthailand.org>, January 2011)

3.2.2 Sample Size

Furthermore, since there was no record of the exact registered virtual enterprises in Chiang Mai apart from the total number of virtual enterprises nationwide, which was probably because the virtual concepts are new and there have been very few studies in this field in Thailand, this survey is, therefore, designed to gather data from number of hotels in Chiang Mai from official Tourism Authority of Thailand webpage , which

comprises of 186 places ⁶ (<http://www.thai.tourismthailand.org>), as Table 3.2.2.1. To gather the data, we have contacted hotels located varying by districts, to have the various objective feedbacks. Among the 186 places, there are 65 places in which majorly are located in Muang District, which have agreed to participate in this study during the field work (Jan-Mar 2011); 65% from 3-3.5 stars, 20% from 2-2.5 stars, and 15% are from 4-5 stars consecutively. Our informants in each hotel include 1 GM and 2 departmental Supervisors. In other words, we have distributed in total 195 surveys; 65 people in top management level and 130 people in middle management or supervisory level. We have obtained back 186 valid responses or 95% respond rates (See: Table 3.2.2.1).

Table 3.2.2.1: Respond Rates arranged by Stars (5-1) and Positions

No. of Hotels Ranking from 5-1 Stars			Positions				
Stars 5-1	No. of Hotels	%	General Manager or Managerial Positions (Required Size=65)		Supervisory Positions (Required Size=130)		Total
			Frequency	%	Frequency	%	
5 Stars	6	3	3	4.5	6	5	9
4 Stars	23	12	6	9.1	12	10	18
3.5 Stars	97	52	31	48.5	65	53.3	96
3 Stars	20	11	13	19.7	25	20.8	38
2.5 Stars	7	4	2	3.0	1	0.8	3
2 Stars	28	15	10	15.2	12	10.0	22
1.5 Stars	3	2	-	-	-	-	-
1 Star	2	1	-	-	-	-	-
Total	186	100	65	100	121	100	186

⁶ In this study, the information regarding hotel and its rating has been provided by Thailand Hotel Standard Foundation and Thai Hotels Associations, which was established in 1963, by the Board of Directors and hotel owners called "Thai Hotels Association". In addition, the hotel standard and stars classifications, which are applied in rating hotels, depends heavily on the facilities provides and how luxury is the hotel. Regarding the levels of the Thailand hotel standard and symbol, the hotel standard is divided into five levels and arranged in ascending order with one star (★) denoting the lowest standard and five stars (★★★★★) denoting the highest standard.

3.2.3 Sampling Method

This research uses the stratified random samplings for the sample selection. Since this method of sampling could captures key population characteristics, with a variety of attributes (<http://www.marketresearchworld.net>). In addition, this study is an outcome of ongoing research that combines insights from several sources and methods. To meet the objective, this study has developed a questionnaire that is relevant to the virtual work context and composed of a reliable set of measures. We circulated the questionnaires to two sets of the respondents; first group is to 65 hotel General Managers or Top Management level and the second is to 2 hotel Supervisors from any department of the sample hotels.

3.2.4 Process of Gathering Data

Prior to the questionnaire distribution, the issued University Letter has been sent to 195 hotels. The data for the study, is therefore, hinged on a survey questionnaire (See Appendix B, C) which the respondents are the personnel working in 65 hotels.

To ensure a high rate of return, the researcher administered the distribution and collection of the questions and briefly explained the purpose of the survey before distributing it. Statistical analysis of the data used SPSS package (Statistical Package for Social Sciences).

In addition, before the questionnaires were fully carried out, researcher conducted pilot test, for the first 30 surveys by contacting majorly the General Managers or Managerial positions (80%) and small number of Supervisory levels (20%). This is to ensure that the selective respondents understand well the contents in the questionnaire, especially, the terms related to virtual organization, for data validation and questionnaire development.

3.2.5 Questionnaire Design

The questionnaire is used to collect the primary data design and clarify the study objectives. The survey was composed of three parts: the first provides respondents' information; the second covers the first objective of the study and the third answered the second objectives accordingly. The questionnaire (See Appendix B, C) is partially referred to the previous researches, related to teleworking (Wei, 1970; Hill et al., 1998; Talukder & Trautch 2003).

Part 1: Respondent's information:

10 Close-ended questions were used, aiming to gather the demographic data of participants in terms of gender, age, educational background, average monthly income, experiences in VO, rate of importance of the virtual adoption in Thailand, awareness of business conduct through the VO worldwide, sources of VO awareness, type of the company ownership, and years of experiences. The rest 5 questions were asked with open-ended questions for respondent's choices and individual opinion regarding number of team members, office hours, flexible workplace alternatives and types, and the respondents' position and department in hotel (See Appendix B, C). Frequency and percentage have been applied as the measurement scale for descriptive information of the respondents.

Part 2: The questions related to the factors influence virtual formation in the organization:

This part, the content includes the significant aspects or influential external factors (Macro-ICT infrastructure factor, Transportation-related factor, Macro-global economy factor, Macro-environmental and political factor and Macro-legal factor) and internal factors (Relational factor, Structural factor, Individual factor, Financial factor, and Management competencies and strategic factor) for the informants to consider and adopt virtual model in their workplaces by rating the level of agreement factors from 1-5 or 'strongly disagree' to 'strongly agree'.

The measurement form of frequency distribution, mean and standard deviation, have been implemented, to finalize the overall level of agreement regarding external and internal factors influencing virtual formation. Factors Analysis model has been adopted to examine the pattern of correlation between the observed measures whether they are likely influenced by the same or different factors.

The influential factors applied in this study can be explained and aligned with the questionnaire questions, as the following:

External influential factors: Part 2, Q 1 - 10

- Macro-ICT infrastructure factor Q 1 - 2
- Transportation-related factor Q 3
- Macro-global economy factor Q 4 - 5
- Macro-environmental and political factor Q 6
- Macro-legal factor Q 7
- Micro-competitor factor Q 8
- Micro-customer factor Q 9 - 10

Internal influential factors: Part 2, Q 11-33

- Relational factor Q 11 - 16
- Structural factor Q 17 - 24
- Individual factor Q 25 - 30
- Financial factor Q 31
- Management competencies and strategic factor Q 32 - 33

Part 3: The questions related to the barriers inhibit virtual adoption in the organization:

This part explores the potential external and internal barriers that inhibit the entrepreneurs to form or restructure their organization to be virtual, and comprises of one main part of questions rating the level of agreement (Likert 5-point scale) regarding the respondents' opinion toward each barrier.

Frequency distribution, mean and standard deviation, have been implemented, to finalize the overall level of agreement. Factor Analysis, has been utilized, to examine the pattern of correlation between the observed measures whether they are likely influenced by the same or different factors. The influential barriers applied in this study can be explained and aligned with the questionnaire questions, as the following:

External potential barriers:

Part 3, Q 1 - 7

- Legal & regulatory barriers in specific States Q 1
- Unreliable systems and technical problem Q 2
- High telecommunication investment requirement Q 3
- Lack of awareness and exposure to the teleworking concept Q 4
- Lack of awareness of IT and language skills for new entrants Q 5
- High e-business competitive pressures Q 6
- Thai cultural values demote virtual interface Q 7

Internal potential barriers:

Part 3, Q 8-15

- Less management focus and willingness to apply VO Q 8
- Employee's feeling of isolation due to lack of social interface Q 9
- Problem related to trust building Q 10
- Organizational & Cultural barriers Q 11
- Reluctance to share information and knowledge Q 12
- Less self-motivated and sense of belonging Q 13
- E-commerce short-term profitability Q 14
- Home environment distraction Q 15

Table 3.2.5.1: Questionnaire Design and its Origin

Questionnaire No.	Content	Origin
Part 1: Q1 - Q5	Respondent Information: Gender, age, education, average monthly income, VO background,	Self-developed
Part 1: Q6 – Q8	Respondent Information: Importance and awareness of VO	Adapted from Talukder (2003)
Part 1: Q9 – Q15	Company ownership, Year of experiences, number of team members, office hours, allowing of remote task, respondent's position and department	Self-developed
Part 2: Q1	Rate the importance of significant aspects of the influential external and internal factors	Adapted from Hill, Miller, Weiner, & Colihan (1998); Talukder (2003)
Part 3: Q1	Rate the importance of significant barriers in forming VO	Hill et al. (1998), Talukder (2003)

3.2.6 Questionnaire Translation

As the hotel personnel deals the business with the use of English and Thai on daily basis. Therefore, the questionnaires used were written both in English and Thai with the brief explanation from the researcher of the purpose of the survey before any distribution (See Appendix B, C).

3.2.7 Validity and Reliability of the Questionnaire

Regarding the content validity, the questionnaire applied in this studied has been reviewed its detail alignment and language correctness by Dr.Tatikul Chaiwan, and Dr. Somboon Panyakhom. Factor Analysis has been majorly applied in this study in order to find the common factor and its correlation, by using SPSS.

As mentioned earlier that prior to the full survey, 30 pilot surveys have been conducted and shown high acceptable reliability of .943 for the overall 48 items in questionnaire part 2 and 3. The alpha coefficient for the 33 factors is .950 and .789 for 15 barriers, respectively, suggesting that the items have relatively high internal consistency. Since the reliability coefficient of .70 or higher is considered “acceptable”, the study have covered the rest of the survey and found a strong reliability as a result shown in Cronbach’s Alpha of 60 items in Part 2 and 3.

Moreover, the constructs were used, mostly in the survey (95%), in a respondents’ native-language version (Thai) and small portion (5%) of the General Manager or Management level in multinational companies use English version.

3.2.8 Data Analysis / Statistical Method used in this Study

Regarding the previous study by Hill et al., (1998); Talukder & Trautch (2003), this study will apply several applicable statistical techniques in each questionnaire part, as follows:

Table 3.2.8.1: Questionnaire Part and its Statistical Techniques

Questionnaire Part	Statistical Techniques
Part 1: Q1 – Q15	Descriptive Statistical Method: Frequency Analysis and Percentages
Part 2: Q1	Descriptive Statistical Method: Mean (\bar{x}) and Standard Deviation (SD)
	Factor Analysis: Test Hypothesis 1 (External and internal factors behind virtual adoption among hotel entrepreneurs in Chiang Mai province)
Part 3: Q1	Descriptive Statistical Method: Mean (\bar{x}) and Standard Deviation (SD)
Questionnaire Part	Statistical Techniques
Part 2, 3	Independent T-Test: Test Hypothesis 1, 2 (Difference perspectives of management and supervisors towards external and internal factors and barriers behind virtual implementation in hotel management)

T-Test has been implemented to check whether managers' and supervisors' points of view, related to external and internal factors of forming VO, are the same or different at the significance level, according to the Hypotheses 1 and 2, which will be discussed in Chapter 4.

Moreover, related to ethic consideration, the individual responses are treated with strict confidentiality and data were used for statistical purposes only. Likewise, in this study, the data collection by conducting questionnaires is based on the following study variables: Independent Variables consisted of 12 potential factors and 15 possible barriers (See Conceptual framework).

According to the study, participants were requested to give a score from each statement of five selected attributes on the level of agreement by asking informants to indicate a mean value from “Strongly Agree (5)” to “Strongly Disagree (1)”. These dependent variables are essential and they are assumed as strongly associated with the independent variables as previously discussed. The rating attributes are adapted from the Likert Scale (Burns & Grove, 1997) which the overall level of agreement and correlation interpretation in factors and barriers can be explained as follows:

Level of agreement/ statement	Level of Influence/ statement	Level of Barriers scale in each statement
	4.21 – 5.00	Strongly Agree/ Very High
	3.41 – 4.20	Agree/ High
	2.61 – 3.40	Neutral/ Moderate
	1.81 – 2.60	Disagree/Low
	1.00 – 1.80	Strongly Disagree/ Very Low

3.2.9 Hypothesis Testing

Regarding to the objective 3, two research questions can be drawn as the following:

Research question 1: Do management position and supervisory position differ in their attitude towards the different external environmental factors influencing VO in hotel management?

Research question 2: Do management position and supervisory position differ in their attitude towards the different internal factors influencing VO in Hotel management?

Since the study will define whether or not two different job positions perceive similarly or differently, toward the external and internal factors influencing VO adoption in hotel management, in Chiang Mai province, two hypotheses have been set to be tested, as follows:

Hypothesis 1: There is a difference between management and supervisory position on attitude towards the different external environmental factors influencing VO in Hotel management.

Seven external factors, from the previous research, have been studied and applied in this study. They are Macro – ICT infrastructure, Transportation – related factor, Macro – global economy, Macro – environmental and political factor, Macro – legal factor, Micro – competitors, and Micro – customer.

Hypothesis 2: There is a difference between management and supervisory position on attitude towards the different internal factors influencing VO in Hotel management.

There are five internal factors, discussed in this study, comprising of Relational factor, Structural factor, Individual factor, Financial factor, and Management competencies and strategic factor.

3.2.10 Factor Analysis

The statistical techniques using for hypothesis interpretation are different related to the purposes. Factor analysis has been utilized for testing Hypothesis 1. Since it helps reducing the data and attempts to identify underlying variables, or factors that explain the pattern of correlation within a set of observed variables, therefore, it is the useful tool to screen the 12 variables for subsequent analysis, in this study. The analysis options applied in this study includes mainly Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) and Barlett's Test of Sphericity (Bartlett's Test), and Factor Extraction.

KMO and Bartlett's measures are the principal components analysis conducted prior to the factor analysis. In which KMO statistic varies between 0 and 1 and value at the

criterion of over .7 is a suggested minimum in this study. Also, factor analysis is appropriate when Bartlett's test is highly significant ($p < 0.001$).

Related to 'Factor Extraction', factors with Eigenvalues greater than 1 will be displayed. In other words, 2 external sub-factors and 3 internal sub-factors have been remained. The eigenvalues associated with these factors are again displayed in the columns labeled Extraction Sums of Squared Loadings. The values in this part of the table are the same as the values before extraction, except that the values for the discarded factors are ignored (hence, the table is blank after the 2 external sub-factors and 3 internal sub-factors) (Field, 2005). For the Rotation Sums of Squared Loadings, the eigenvalues of the retaining factors after varimax rotation are displayed. Component Matrix contains the loadings of each variable onto each factor. Loadings of less than .4 are suppressed in the output.

3.2.11 Independent T-Test

To test Hypothesis 1, 2; comparing point of views regarding factors implementing of VO in hotel management, among Managers and Supervisors, the independent t-test has been implemented. The variances are equal in both groups when P-Value ("Sig") is greater than 0.05 ($p > 0.05$), in other words, manager and supervisors perceive the factors and barriers similarly. By contrast, if the "Sig." value is less than 0.05 ($p < 0.05$), the variances or the perceptions regarding factors and barriers toward virtual adoption, are unequal.