CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

This chapter covers the method details and design of the study. It begins with the explanation and discussion of the research framework, and followed with the research Hypothesis. After that, the research design is described, and the selections of measures, sampling and the procedure of data collection are presented, as well as the data analysis techniques.

3.2 Research framework

This research framework is the basis on which the whole research project is conducted. In Chapter 2 the literature review has described the definition, application and the benefits of E-HRM, and the various potential factors influencing the adoption of E-HRM. The main aim of this chapter is to integrate these potential factors into one research framework and develop relevant hypothesis. In short, the factors influencing the E-HRM adoption among China's firms will be tested whether HR manager's attitude, HR manager's subjective norms, E-HRM's departmental relative advantage, compatibility, complexity, top management support, IT expertise and companies' industry pressure are able to discriminate between E-HRM adopters and non-adopters.

Figure 3-1 shows the research framework to be used in this study.

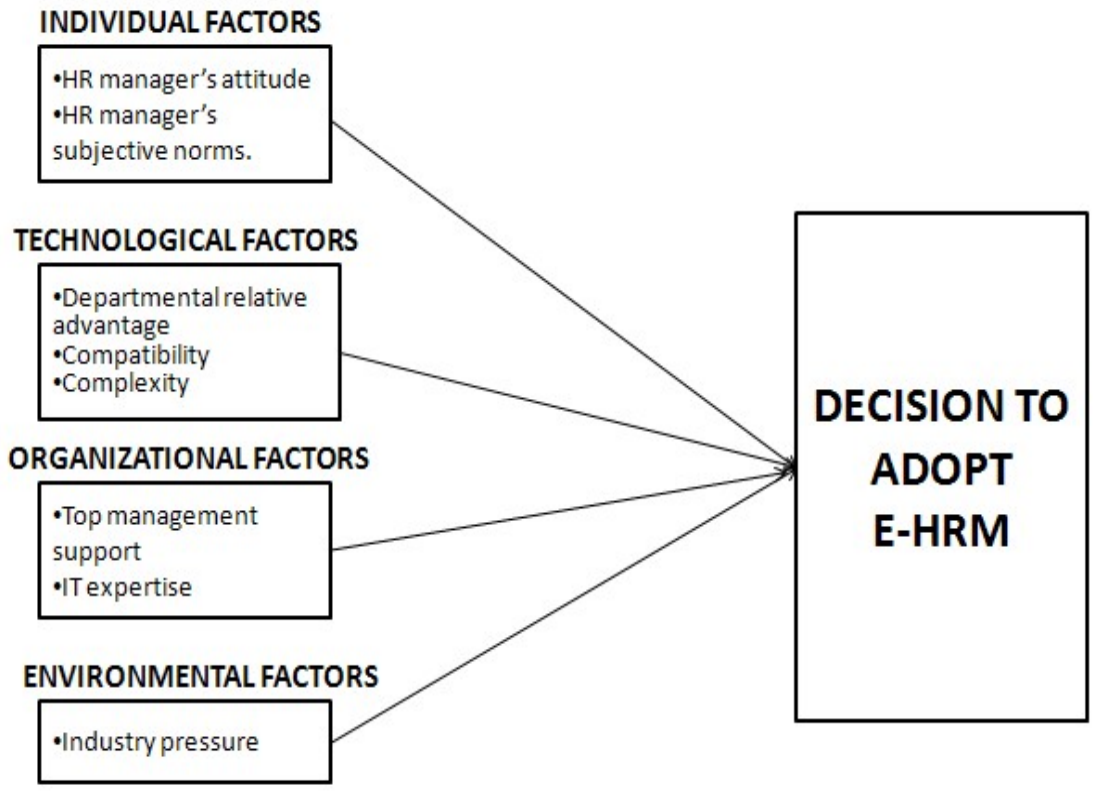

Figure3. 1: Research framework

The eight selected independent variables that may influence the decision to the adoption of electronic human resource management (E-HRM) among China's companies are HR manager's attitude, HR manager's subjective norms, departmental relative advantages, compatibility, complexity, top management support, IT expertise and industry pressure.

3.3 Research Hypothesis

Based on the research framework, eight Hypothesis will be developed for this study. The variables that will be used in the Hypothesis are:

Independent variables:

1. HR manager's attitude
2. HR manager's subjective norms
3. Departmental relative advantage
4. Compatibility
5. Complexity
6. Top management support
7. IT expertise
8. Industry pressure

Dependent variable:

1. Decision to adopt E-HRM

The Hypotheses that will be examined in this study are as follows:

Hypothesis one: HR manager's attitude is positively related to the adoption of E-HRM.

Hypothesis two: HR manager's subjective norm is positively related to the adoption of E-HRM.

Hypothesis three: departmental relative advantages are positively related to the adoption of E-HRM.

Hypothesis four: Compatibility is positively related to the adoption of E-HRM.

Hypothesis five: Complexity is negatively related to the adoption of E-HRM.

Hypothesis six: Top management support is positively related to the adoption of E-HRM.

Hypothesis seven: IT expertise is positively related to the adoption of E-HRM.

Hypothesis eight: Industry pressure is positively related to the adoption of E-HRM.

3.4 Research design

The basic purpose of this study is to investigate whether the above eight independent variables influence the adoption of E-HRM among firms in northeast of China. Quantitative techniques are adopted in this research. Structured questionnaire was designed and sent to the target respondents. The questionnaire is composed of six sections, including sample characteristics, investigation of E-HRM adoption, individual factors, technological factors, organizational factors and environmental factors.

In this research the targeted sample was 200 subjects, and the population was the firms cross northeast of mainland China. The senior HR person, such as HR managers, senior human resource director, who should take part in the process of decision-making to the activities of E-HRM adoption, were the respondents of this study. The questionnaires were delivered only to the

eligible respondents, those who are working as HR person in China's companies. The ineligible respondents were removed when entering data.

3.5 Questionnaire development

The questionnaire applied in this research was adopted and adapted from previous empirical studies on innovation adoption conducted by some researchers. The following Table 3.1 shows the detailed sources of the questionnaire.

Table 3. 1: **Summary of the questionnaire**

Variable operationalization			
Variables	**Items**	**Description**	**Reference**
HR manager's attitude	*Att1*	*I believe that adopting E-HRM to my company is a wise decision.*	Harrison et al., (1997)
	Att2	*I believe that adopting E-HRM is helpful to my company's business.*	
	Att3	*I believe that E-HRM application contribute to HRM technical effectiveness.*	
	Att4	*I believe that E-HRM applications contribute to HRM strategic effectiveness.*	
HR manager's subjective norm	*Sub1*	*People who are important to me think that I should use E-HRM applications.*	Venkatesh and Davis (2003)
	Sub2	*People who influence what I do think that I should use E-HRM applications.*	
	Sub3	*Expert opinions influence me to use E-HRM application.*	

	Sub4	*People who influence my decisions think that I should use E-HRM application.*	
Departmental relative advantage	*Dep1*	*E-HRM will enable human resource personnel to accomplish tasks more quickly*	Moore and Benbasat (1991)
	Dep2	*E-HRM will improve the quality of the work of human resource personnel.*	
	Dep3	*E-HRM makes it easier for human resource personnel to do their work.*	
	Dep4	*E-HRM will enhance the job effectiveness of Human Resource personnel.*	
Compatibility	*Compa1*	*The changes introduced by E-HRM application are compatible with existing operating practices.*	Premkumar and Roberts (1999)
	Compa2	*Adoption of E-HRM application is consistent with our organization's values and beliefs.*	Premkumar and Ramamurthy (1995) Teo, Tan and Wong (1997) Grover (1993)
	Compa3	*E-HRM application is compatible with our organization's IT infrastructure.*	
	Compa4	*E-HRM application is compatible with our organization's computerized data resources.*	
Complexity	*Compl1*	*E-HRM is complex to use*	Grover (1993)
	Compl2	*E-HRM development is a complex process.*	Parthasarathy and Bhattacherjee(1998)
	Compl3	*E-HRM is hard to learn.*	
	Compl4	*Integrating E-HRM into our current work practice will be very difficult.*	Roberts (1999)
Top management support	*Top1*	*Top management enthusiastically supports the adoption of E-HRM.*	Premkumar and Roberts (1999)
	Top2	*Top management has allocated adequate resources for the adoption of E-HRM.*	
	Top3	*Top management is aware of the benefits of E-HRM.*	

	Top4	*Top management actively encourages human resource personnel to use E-HRM in their daily tasks.*	
E-HRM expertise	*Exp1*	*All human resources personnel know how information technology can be used to support HR functions.*	Thong (1999)
	Exp2	*All human resources personnel are computer-literate.*	
	Exp3	*There is at least one computer expert in the human resources department.*	
	Exp4	*Human resource personnel's understanding of computers is good compared with other organizations in the industry.*	
Industry pressure	*Ind1*	*It is a strategic necessity to use E-HRM application to compete in my industry.*	Premkumar and Roberts (1999) Grandon and Pearson (2004) Tan (1997) Grover (1993)
	Ind2	*The overall operational practices in my industry pressure me to adopt E-HRM.*	
	Ind3	*Competitors' adoption of E-HRM places pressure on our organization to adoption E-HRM*	
	Ind4	*Our organization actively keeps track of new and innovative uses of technology by competitors*	

3.6 Research instrument

A survey questionnaire was developed and pretested with ten MBA colleagues who work in different companies in Malaysia, which aims to gain feedback on wording, structuring, understanding of the questions, and the formats of all items. A slight modification was made according to the respondents' feedback.

The final questionnaire includes six sections. Section A collected the sample characteristics, section B collected the information about status quo of E-HRM adoption, and section C-F comprised a series of statements to measure the independent variables.

The dependent variable, *decision to adopt E-HRM*, was measured as a binary value: whether the organization was implementing electronic human resource management (E-HRM) to support its HRM activities. A dichotomous measure was used because the purpose of this paper is to examine the factors that can distinguish E-HRM-adopted companies from the non-adopted ones. The independent variables were measured via a five-point likert scale ranging from "strongly disagree = 1" to "strongly agree =5" was applied for each statement.

3.7 Data collection procedure

After slight changes were made to improve the layout of the questionnaire, a total of 200 questionnaires were distributed (via email) to the HR managers who work in the companies located in the northeast of Mainland China. The respondent firms were randomly selected from China Business Directory (CBD) 2011. CBD contains a large number of companies that come from a variety of industries. The details of numbers of organizations sampled from different industries as well as their ownership forms are showed in Chapter 4.

The duration of the survey was about 30 days (from 1st October 2011 to 30th October 2011). The selected 200 organizations were called up first to give them a brief explanation about the survey, clarified the survey purpose and obtained their cooperation to join this survey, after that the survey questionnaire was directly emailed to the respondents with two weeks deadline. Due to the slow response rate, follow-up emails were sent and the deadline was extended to another two weeks. At the same time, in order to avoid low response rate, the survey questionnaires were also distributed to a few training centers which are operating HRM-related programs, the attendees were HR managers or senior HR person.

Later the gathered data were edited and checked for the consistency. If more than one fourth of the questionnaire wasn't completed by the respondents, it was not be included for data analysis. Blank replies were ignored as missing responses. The gathered data was analyzed using Statistical Package for Social Sciences Program (**SPSS**) Version 18.0.

3.8 Validity and reliability

The measurement model was assessed for validity and reliability. The content validity was determined to find out whether it was an adequately representative series of elements measured in line with the intended constructs. The reliability analysis was examined to measure the internal consistency by computing the

coefficient score for Cronbach's α, this is, to ensure each theorized element is gained from the items, and each dimension derived from the elements.

The analysis was performed in three steps. First of all, factor analysis (principal components analysis with varimax rotation) was conducted for the convergent and discriminant validity of all items measuring the proposed factors in the four contexts. Convergent validity is to examine whether the items strongly load on their related factors (loading exceed 0.50). Discriminant validity is to confirm whether each item loads more strongly on its related factor than on others. The next step, reliability for internal consistency was performed. Nunnally (1978) pointed out that the Cronbach's α above 0.70 is regarded good and acceptable for most research. Then the further multivariate statistical technique of discriminant analysis was applied for testing Hypotheses of this study. Kittipong (2009) applied multivariate statistical technique of discriminant analysis to examine the determinant factors affecting the adoption of electronic customer relationship management (E-CRM) among small and medium manufacturing enterprises (SMEs) in Thailand, and Teo et al (2007) also utilized discriminant analysis to differentiate human resource information system (HRIS) adopters and non-adopters in Singapore. Discriminant analysis is an appropriate statistical technique which allows scholars to examine the differences between two groups involving two or more independent variables, especially when the independent variables are interval data and the dependent

variable is categorical, such as adopters or non-adopters (Thong, 1995). Therefore, in this study the discriminant analysis was used to examine the effects of the proposed factors on the adoption of E-HRM, as well as the extent of importance of each factor in discriminating the organizations that adopt E-HRM from the ones that do not adopt E-HRM.

The questionnaire used in this study was translated into Mandarin by one professional English interpreter, and then the Chinese version questionnaire was translated back to English by another professional interpreter. Through comparing the translated English version and the original ones, minor changes were made to improve the Mandarin version until the two English versions were consistent.

3.9 Summary

This chapter presents the research methodology applied in this study. In the earlier section, the research framework is elaborately discussed and the research hypotheses were developed. And then the research design, questionnaire development, research instruments, data collection procedure, the introduction of validity and reliability are all presented step by step. In the next chapter, data analysis and findings of this research will be covered, which are obtained through using SPSS version 18.0.