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การรักษาไว้ซึ่งพนักงานในอุตสาหกรรมเทคโนโลยีสารสนเทศ

Employee Retention in The information Technology Industry

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#### บทคัดย่อ

ทรัพยากรมนุษย์ถือเป็นหนึ่งในปัจจัยสำคัญที่สร้างความสำเร็จให้แก่องค์กร เนื่องจากพนักงานคือบุคคลที่สร้างผลผลิตและสร้างความได้เปรียบในการแข่งขันให้แก่องค์กรได้ โดยเฉพาะอย่างยิ่งในอุตสาหกรรมเทคโนโลยีสารสนเทศ ซึ่งเป็นอุตสาหกรรมที่ได้รับการยอมรับว่าเป็นอุตสาหกรรมสร้างสรรค์ที่สำคัญของประเทศไทย การวิจัยครั้งนี้มีวัตถุประสงค์เพื่อศึกษาปัจจัยที่มีความสัมพันธ์กับการรักษาไว้ซึ่งพนักงานในอุตสาหกรรมเทคโนโลยีสารสนเทศ ในการศึกษาครั้งนี้ได้นำทฤษฎีความมุ่งมั่นในตนเอง (Self-determination Theory: STD) และทฤษฎีพฤติกรรมตามแผน (Theory of Planned Behavior: TPB) มาใช้เพื่อเป็นแนวทางในการศึกษาวิจัยความสัมพันธ์ระหว่างตัวแปร โดยเก็บข้อมูลจากกลุ่มตัวอย่างซึ่งเป็นพนักงานที่อยู่ในอุตสาหกรรมเทคโนโลยีสารสนเทศในกรุงเทพมหานคร จำนวน 359 คน และนำแบบจำลองสมการเชิงโครงสร้างมาใช้ในการทดสอบสมมติฐาน โดยผลลัพธ์หลังการการปรับปรุงแบบจำลอง (Model re-specification) แสดงให้เห็นว่า การรับรู้ความรักความสัมพันธ์ (Perceived Relatedness), การรับรู้ความสามารถในการดำเนินการด้วยตัวเอง (Perceived Autonomy), การรับรู้ความเป็นคนเก่ง (Perceived Competence), ทศนะคติที่มีต่องาน (The attitude toward job), แรงกดดันจากสังคม (Subjective Norm), and การรับรู้ค่าตอบแทนจากการทำงาน (Perceived Financial Compensation) มีอิทธิพลทางบวกกับความตั้งใจที่จะดำรงอยู่ในองค์กร โดยภาพรวมของแบบจำลอง

สามารถใช้อธิบายความตั้งใจที่จะดำรงอยู่ในองค์การได้ร้อยละ 61.6 และสามารถอธิบายทัศนคติที่มีต่องาน ได้ร้อยละ 62.9 ส่วนการอธิบายและข้อเสนอแนะถูกนำเสนอในงานวิจัยนี้ต่อไป

**คำสำคัญ :** การรักษาไว้ซึ่งพนักงาน, ความตั้งใจที่จะอยู่ต่อ, ทฤษฎีความมุ่งมั่นในตนเอง, ทฤษฎีพฤติกรรมตามแผน, พนักงานในอุตสาหกรรมเทคโนโลยีสารสนเทศ, ประเทศไทย



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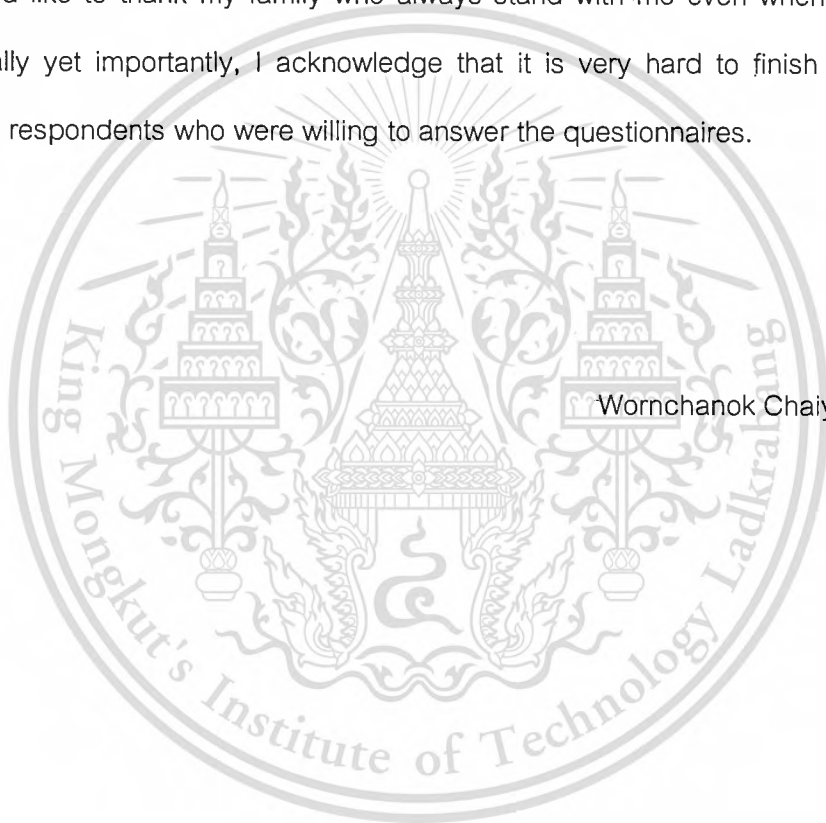
### ABSTRACT

Human resources are the key success factors of organizations because employees derive the outcome and the competitive advantage of organizations. In particular, the information and communication technology (ICT) industry is recognized as one important creative industries of Thailand. This research aims to study factors that have relationships with job-retention in the ICT industry. In this study, intention to stay is used to represent job-retention. The study employs Self-determination Theory (STD) and the Theory of Planned Behavior (TPB) resulting in a structure of relationships. 359 respondents who are ICT workers in Bangkok Thailand were asked. Structural equation modeling (SEM) is used to test the hypotheses. The results of the model after re-specification shows that perceived relatedness, perceived autonomy, perceived competence, the attitude toward job, subjective norm, and perceived financial compensation positively affect intention to stay. In addition, perceived relatedness, perceived autonomy, and perceived financial compensation positively affect the attitude toward the attitude toward job. The overall model can be used to explain intention to stay as much as 61.6 % and the overall model can be used to explain the attitude toward job as much as 62.9 %. Discussions and conclusion are addressed in this study.

**Keywords:** Employee Retention, Intention to Stay, The Theory of Planed Behavior, Self-Determination Theory, ICT Employees, Thailand

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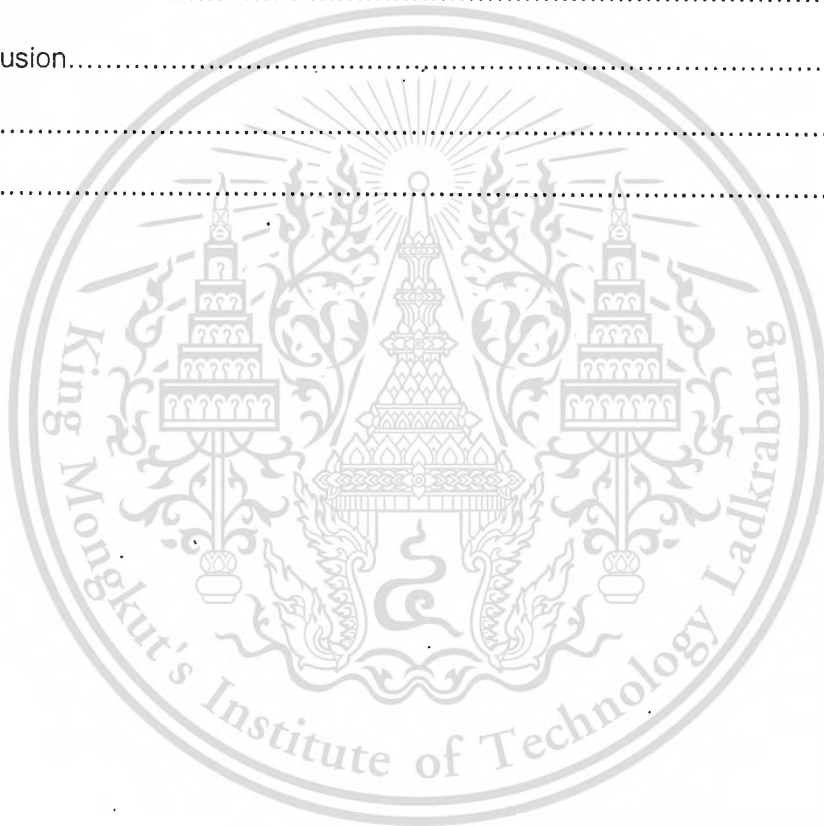
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# CHAPTER1

## INTRODUCTION

### 1.1 Research Background

It is generally accepted that human resources are one of the key important factors of organization success in both public and private organizations. The reason behind this is employees in all levels drive the organization to success and deliver competitive advantage. Employees operate the organization in various ways such as managing operation, directing and issuing policies, making decision, developing and researching new innovation, and sustaining organization's growth.

Most leading companies worldwide emphasize more on human resources than on other resources. For example, Google focuses on innovation development and it concentrates on employee recruitment as its slogan says "We hire people who are smart and determined, and we favor ability over experience". It implies that the company tends to hire people who are smart and who have high intention to succeed rather than people who have high experience. In addition, Google focuses on exchanging knowledge and ideas so that the company facilitates meeting between top executives and employees in all levels (google.com, 2016b). This initiative is a part of innovation development together with building feeling of becoming a part of organization. So, Fortune Magazine said that Google is one of organizations that people want to work for "2014 Best Company Work For." (google.com, 2016a)

However, in such organizations where many people want to work for, they attempt to attract people to work for them and make organization commitment so that they can maintain people not to leave the companies so soon. How employees commit to the organization

depends on many conditions such as perception of Supervisor support and perceived organizational support (University of Houston, 2015).

Similar research from John Hausknecht, Julianne M. Rodda, Michael J. Howard (2009) that studied 24,829 employees show that reasons that people want to continue working for organizations include job satisfaction, extrinsic rewards, organizational commitment, organizational prestige

Because of the need of information and communication technology (ICT), Thailand is a country that aims to develop its economics in the direction of digital economy; it needs ICT to guide the development. The nation put ICT in its national development plane during 2010 and 2020 that the nation wanted to bring Thai people to knowledge and wisdom; the economy would be sustained and lead the people to equality. However, one way to reach this objective is to have good human capital. ICT workforce must be able to have good knowledge and skills accepted as international level. If Thailand has this kind of workforce, the nation can expect a success outcome of developing the economy based on ICT. ICT itself is important for the creative economy since ICT can be extended to other creative industries such as animation, electronic commerce, and so on. Consequently, ICT would help Thailand successfully develops its economy.

The direction that the nation wanted to go is the wave of information era. The foundation of the requirement of this direction is human capital in which organizations must keep highly smart employees inside their companies. Job retention is very important because if organizations have no initiative to keep employees with them, they might face problems such as labor shortage and a lack of opportunities in producing innovation. When employees want to leave the organization they might produce little performance.

Studies in this area might help companies to maintain their employees which in turn the companies can success in their business. However, such studies have been conducted

very little in particular studies that address the ICT employee's job retention. Moreover, such studies will address the development of the nation within 2563 (moe.go.th, 2015)

Certainly, these studies can be used to develop human capital of the entire nation as a whole.

## 1.2 Research Question

What drive people have intention to stay in ICT companies?

## 1.3 Research Objective

This research aims to study factors that have relationships with job-retention in the ICT industry

## 1.4 Research Scope

This research focuses on factors that make ICT employees to stay with companies. The scope focuses on employees in Bangkok only because Bangkok has highest business activities in Thailand and it is the most crowded city in Thailand.

## CHAPTER 2

### LITERATURE REVIEW

This section describe prior literature that have been conducted and theories that might be able to answer the research questions.

#### 2.1 Review of Literature

Ertürk and Vurgun (2015) studied factors that intervene employee's work. They found that supporting factors, mental abilities, and intention to leave are important for employee's work intervention.

Yankeelov, Barbee, Sullivan and Antle (2009) investigated various factors of people and organization. They found that gender, race, and GPA have no relationship with job-resignation.

Adegoke, Atiyaye, Abubakar, Auta, and Aboda (2015) collected data and analyzed by using mixed methods. They found that nurses' job satisfaction has a significant effect on development of mother's health and new born babies. If nurses are not satisfied with their jobs, clients may suffer. Hospitals need to develop measures to reduce unsatisfied factors. In addition, hospitals need to motive nurses by applying non-monetary measures such as healthcare assurance systems, work supporting systems, job-security, and structure of career progress.

Cowin, Johnson, Craven, and Marsh (2008) studied by using structural equation modeling and found that the ways to keep employees in organizations are to give them advise, process re-engineering, an development of their skills to preform job-better.

## 2.2 Review of Theories

Self-determination Theory (SDT) (Deci, 1975; Deci and Ryan, 2000; Ryan and Deci, 2000a, 2000c) suggest that people are motivated by some forms of intrinsic, extrinsic, and intermediate motives. However, the major claim of this theory is that people have innate motivations that are related to the needs of autonomy, competency, and relatedness. If the three needs are fulfilled, people become self-motivated. If they, on the other hand, are not satisfied, motivation declines. The results of the increase or decrease in motivation lead to the increase or decrease in well-being (Deci and Ryan, 2000; Ryan and Deci, 2000b).

Autonomy refers to the experience of self-control and freedom. It is an important aspect of human motivation (Deci and Ryan, 2000). In this research, feeling (Ryan and Deci, 2000a) of autonomy is focused rather than the need of autonomy because organizations need to satisfy people's need of autonomy. Feeling of autonomy is the current state of feeling of employees relating to how organizations satisfy their need of autonomy. Feeling of competence refers to the degree to which people feel or perceive their competence. When employees do not have satisfied experience from learning what they want, they will not want to engage in the development of knowledge and skills they need for work (Deci and Ryan, 2000). For feeling relatedness, it means the feeling to be connected, loved, and cared by other members (Deci and Ryan, 2000). The need to study autonomy, competence, and relatedness is because they are important factors guiding people involvement in jobs. Autonomy, competence, and relatedness facilitate determination (Deci et al., 1996).

The Theory of Planned Behavior (TPB) (Ajzen, 1991; Fishbein and Ajzen, 2010) suggests that people are motivated to perform specific behavior because they have high intention to perform the behavior and they have high ability to control their behavior. The factors that determine behavioral intention are attitudes, subjective norm, and the ability to control behavior. Figure 2.1 shows the Theory of Planned Behavior.

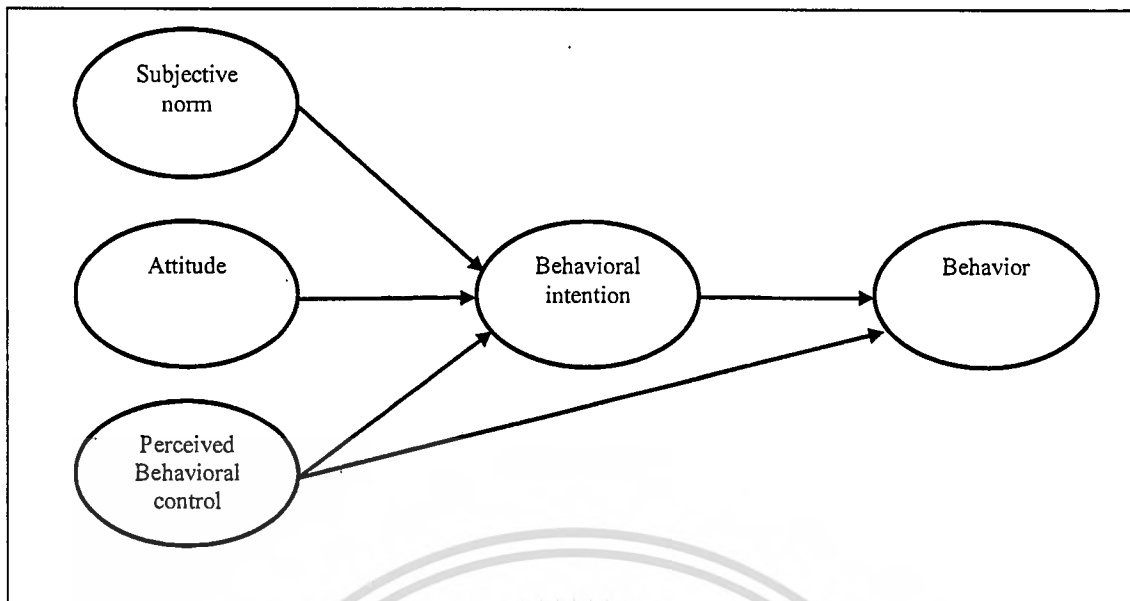


Figure 2.1 The Theory of Planned Behavior

Source: Ajzen (1991)

TPB is built upon the Theory of Reasoned Action (TRA) (Fishbein and Ajzen, 1975). TPB is the attempt to corroborate the use of perceived behavioral control to TRA. The concept of perceived behavioral control was taken from self-efficacy (Bandura, 1986). TPB provides a better prediction power.

In TPB, behavior refers to specific behavior that people perform. Behavioral intention refers as part of attitudes. It is a cause of human action (Robbins, 2005). Often times, behavioral intention is viewed as the cognitive components of attitudes and behavioral intention is correlated with feelings (Fishbein and Ajzen, 1975). Subjective norm is a predecessor of behavioral intention. Subjective norm means that when important people suggest to an individual about the behavior, the individual is likely to perform the behavior. Attitudes can be viewed as feelings of behaviors. If people like or love doing a specific behavior, they have high behavioral intention. Perceived behavioral control is the extend that people believe that they can control their behavior (Fishbein and Ajzen, 2010). However, in

order to represent job-retention, intention to stay is used to represent behavioral intention in this study.

The integration of SDT and TPB is possible because in the level of the three needs, feelings of autonomy, competence, and relatedness; they are the depictions of needs that individuals experience while they work. Figure 2.2 depicts the theoretical framework resulted from the integration of SDT and TPB. Based on the TPB and SDT, we obtain hypotheses as shown in figure 2.2.

Hypothesis 1: Perceived relatedness (PR) positively influences attitude toward job

Hypothesis 2: Perceived relatedness (PR) positively influences intention to stay (IS)

Hypothesis 3: Perceived autonomy (PA) positively influences attitude toward job

Hypothesis 4: Perceived autonomy (PA) positively influences intention to stay (IS)

Hypothesis 5: Perceived competence (PC) positively influences attitude toward job

Hypothesis 6: Perceived competence (PC) positively influences intention to stay (IS)

Hypothesis 7: Perceived financial compensation (PFI) positively attitude toward job

Hypothesis 8: Perceived financial compensation (PFI) positively influences intention to stay (IS)

Hypothesis 9: Perceived behavior control (PBC) positively influences intention to stay (IS)

Hypothesis 10: Subjective norm (SN) positively influences intention to stay (IS)

Hypothesis 11: Attitude toward job (Att) positively influences intention to stay (IS)

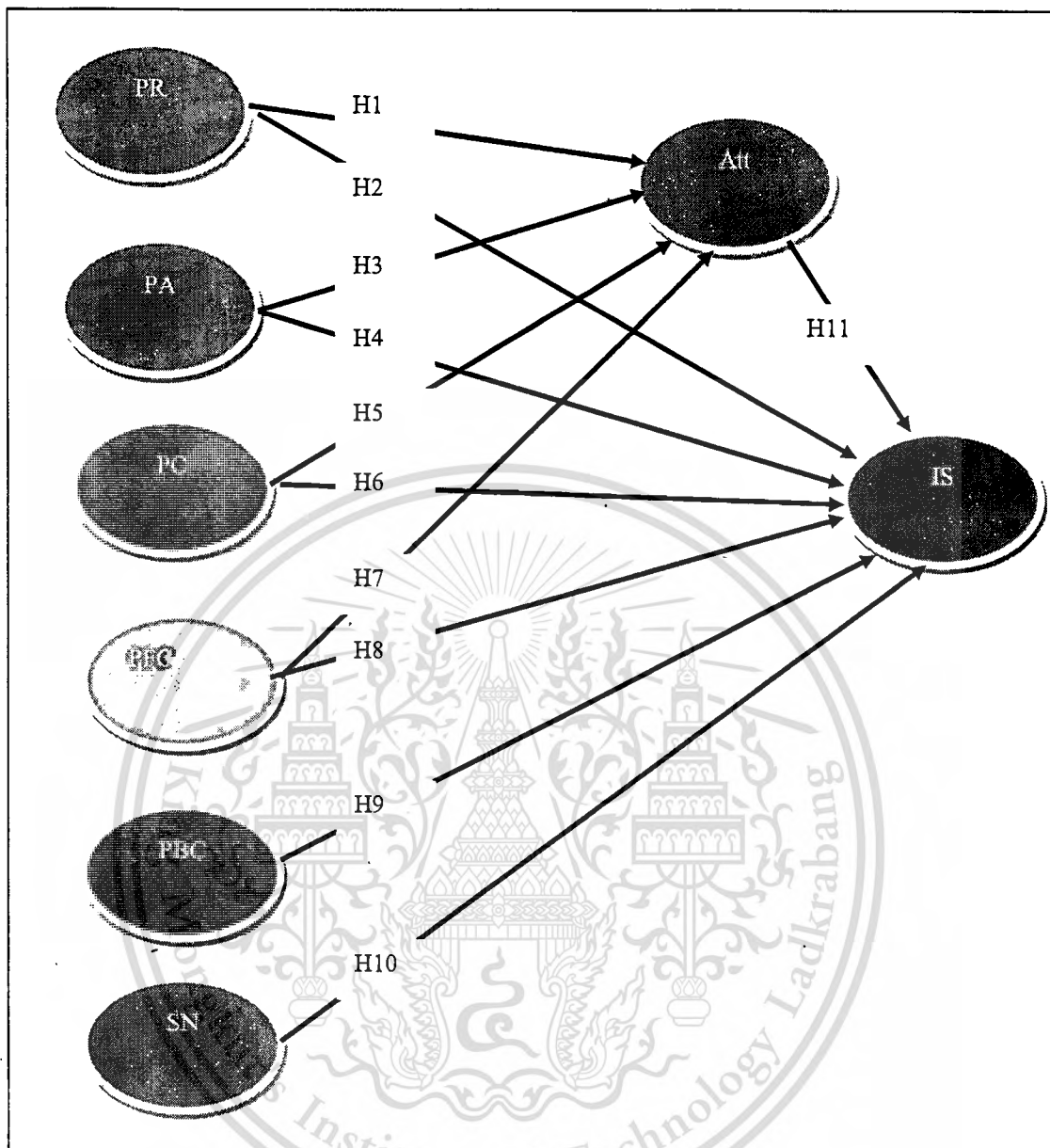


Figure 2.2 The Theoretical Framework

## CHAPTER 3

### METHODOLOGY

#### 3.1 The Process of Research Design

The research design of this study is a survey research. The causal relationships can be explained through a structure of relationships among theoretical factors. In this study, covariance based structural equation modeling is employed. However, in order to analyze a complex set of factors with a small sample size. The idea of latent variables is not employed. Rather all items are summed up. The process of research design can be divided in the following:

- 1) Problems and goals are determined. This research aims to study factors that have relationships with job-retention in the ICT industry.
- 2) Literature is reviewed in order to form hypotheses, conceptual framework, and operating system. Online literature databases were used in this research to review literature.
- 3) The measurement of each construct is developed. The measurement is a questionnaire that consists of multiple items per construct.
- 4) The units of analysis are determined. In this study, they are ICT practitioners working in Bangkok Thailand.
- 5) The sample size is determined.
- 6) The sampling method is a convenient sampling.
- 7) The pretest was conducted to develop instrument. The number of samples in this stage is 80 people.
- 8) Reliability and validity were assessed.
- 9) Data were collected

10) Analysis was conducted

11) Report was written.

The following sub-sections will describe key research design activities: sample size, sampling method, unit of analysis, the development of instrument, reliability and validity, and analysis technique in details.

### **3.2 Samples, Sample Size, Sampling Method, Units of Analysis**

The samples of this research were collected from IT practitioners who work in Bangkok Thailand. In terms of structural equation modeling the minimum sample size should be 300 samples (Prasith-rathsint et al., 2008). The sampling method is convenience sampling. The convenience sampling is used when the samples are difficult to find. In this study, ICT practitioners are generally difficult to find. The units of analysis are ICT practitioners.

### **3.3 The Development of Measurement**

The items are developed based on the theories: SDT and TPB. The quantitative approach is used to test a set of hypotheses. The samples are people who work in the ICT industry in Bangkok Thailand. The instrument in this study is a self-report questionnaire. The Likert type scales are used to measure respondents' opinions. The range of scale is between 1 and 7. The constructs and their measurement are depicted in table 3.1.

Table 3.1 The measurement of constructs.

Constructs	Items	Description	References
Intention to stay	IS1	I intent to continuously work for this organization in the future.	(Fishbein and Ajzen, 2010)
	IS2	I plan to continuously work for this organization in the future.	
	IS4	I will never leave this organization in the near future.	
	IS5	I do not want to leave this organization	
Perceived Autonomy	PA1	I worked in this organization as needs.	(Ryan and Deci, 2000b, 2000c, 2000a; Deci and Ryan, 2000; Deci and Vansteenkiste, 2004; Deci, 1975)
	PA2	In this organization, I can work on my idea.	
	PA3	In this organization, I have the authority to make decisions based on my opinion	
	PA5	I can freely solve problems that come from working.	
	PA6	I have the authority to operate without the restrictions from the organization.	

Constructs	Items	Description	References
	PA7	I have many choices to work in this organization.	
Perceived Competence	PC1	I am a person who has good knowledge, abilities, and skills.	(Ryan and Deci, 2000b, 2000c, 2000a; Deci and Ryan, 2000; Deci and Vansteenkiste, 2004; Deci, 1975)
	PC2	I can overcome obstacles to perform well.	
	PC3	I am good at work here	
	PC4	I am a person who always achieves the goal.	
	PC5	I always have confidence in the work.	
Perceived Relatedness	PR1	I feel a bond with colleagues.	(Ryan and Deci, 2000b, 2000c, 2000a; Deci and Ryan, 2000; Deci and Vansteenkiste, 2004; Deci, 1975)
	PR2	I feel warm and comfy when I work here.	
	PR3	I feel part of this organization.	
	PR4	My colleagues and I spent time together.	
	PR5	I have a good relationship with all co- workers.	
	PR6	My colleagues love me.	
Attitude toward job	Att1	I love the work I do.	(Fishbein and Ajzen,

Constructs	Items	Description	References
	Att2	I like my job.	2010)
	Att3	I enjoy\ the work I do.	
	Att4	I enjoy the work I do.	
	Att5	I feel good at this job.	
Perceived Financial Compensation	PFC1	I get paid well	
	PFC2	This organization pays well	
	PFC3	This organization pays good salaries	
	PFC5	I earn a good income from this organization.	
Subjective norms	SN1	People with influence think I should work here.	(Fishbein and Ajzen, 2010)
	SN2	People are important to me think I should work here.	
	SN3	I respect people who think I should work for this organization.	
	SN4	People whom I love think I should work for this organization.	
	SN5	I worked for this organization, because the people in society	

Constructs	Items	Description	References
		think it is very good.	
Perceived Behavioral Control	PBC1	My work I do is under my ability	(Fishbein and Ajzen, 2010)
	PBC2	I have never come across any difficulties that I cannot handle them.	
	PBC3	I am knowledgeable enough to deal with my job.	
	PBC5	I am confident in my experience and capabilities to accomplish my job	

### 3.4 Reliability and Construct Validity

For the reliability, Cronbach's Alpha was used to analyze the reliability. The minimum value of Cronbach's Alpha should be .6 (Hair, Black, Babin, & Anderson, 2010). For the validity, the items were analyzed by using exploratory factor analysis. The results of exploratory factor analysis should ensure factorial validity of constructs (Cook and Campbell, 1979).

### 3.5 The Analysis Technique

The maximum likelihood estimation is used to estimate parameters. IBM's SPSS and AMOS 21.0 are used in this research.

## CHAPTER 4

### RESULTS

This research aims to study factors that have relationships with job-retention in the ICT industry. This chapter describes the details of samples, validity, and reliability. Finally, the results of the study are shown.

#### 4.1 Descriptive Statistics of Samples

The total number of samples is 359 people. Hence, this research covers the minimum requirement of research. The samples consist of 199 men or 55.4 % and 160 women or 44.6 %. The majority of respondents have age between 20 and 30 years old (180 respondents or 50.1%), followed by respondents having age between 30 and 40 year olds (123 respondents or 34.3 %). 257 respondents (71.6%) earned a bachelor degree while respondents who earned a master account for 63 people (17.5 %)

Table 4.1 The characteristics of samples

	Frequency	Percent
Men	199	55.4
Women	160	44.6
20 and below	4	1.1
20 < age <= 30	180	50.1
30 < age <= 40	123	34.3
40 < age <= 50	44	12.3
above 50	8	2.2

Table 4.1 (Continued)

	Frequency	Percent
Below Bachelor	35	9.7
Bachelor	257	71.6
Master	63	17.5
PhD or above	4	1.1
Total	359	100.0

This study studied both ICT practitioners (255 people) and people working in the ICT industry (104 people). 55 programmers (15.4%), 35 IT supporters (9.7%), and 28 network administrators (7.8 %) were included in this survey.

Table 4.2 ICT practitioners and other jobs workers in the ICT industry

	Frequency	Percent
Network Administrator	28	7.8
SEO	4	1.1
IT Consulting	13	3.6
Programmer	55	15.3
Application network	7	1.9
Database	6	1.7
Hardware	9	2.5
IT Audit	5	1.4
IT project	21	5.8
IT Security	2	.6
IT Support	35	9.7

Table 4.2 (Continued)

	Frequency	Percent
MIS	6	1.7
Mobile/wireless communication	10	2.8
Software tester	6	1.7
IT Marketing	18	5.0
IT analysis	21	5.8
Other IT jobs	9	2.5
Other jobs in the ICT industry	104	29.0
Total	359	100.0

#### 4.2 Validity and Reliability

In terms of construct validity, factorial validity, convergent validity, and discriminant validity are used to determine the construct validity. Factorial validity is used to ensure that the items can be grouped according to the construct they represent. Average variance extracted (AVEs) is used to represent convergent validity. Convergent validity ensures that the item or measurement is a good representative of the construct. Discriminant validity is used to ensure that the construct being represented is different from other construct. In addition, reliability is assessed through Cronbach's Alpha and Construct Reliability (C.R.)

In terms of factorial validity, this study used Exploratory Factor Analysis with principal axial factoring to depict factorial validity. The rotation method is the Varimax rotation. Table 4.3 shows that the Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Bartlett's Test of Sphericity is significant.

Table 4.3 KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.952
Bartlett's Test of Sphericity	Approx. Chi-Square	16715.464
	df	703
	Sig.	.000

Table 4.4 shows the total variance explained by the components.

Table 4.4 Total Variance Explained

Factor	Initial Eigenvalues			Extraction Sums of Squared			Rotation Sums of Squared		
	Total	% of Variance	Cumulative %	Loadings			Loadings		
				Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	18.992	49.980	49.980	18.805	49.486	49.486	4.951	13.028	13.028
2	3.276	8.621	58.601	3.123	8.218	57.703	4.774	12.563	25.591
3	2.410	6.343	64.944	2.169	5.708	63.411	3.929	10.339	35.929
4	1.873	4.929	69.873	1.732	4.557	67.968	3.811	10.028	45.957
5	1.803	4.745	74.618	1.619	4.261	72.229	3.809	10.023	55.980
6	1.523	4.007	78.625	1.332	3.506	75.735	3.578	9.416	65.396
7	1.238	3.258	81.883	1.056	2.778	78.513	2.986	7.859	73.255
8	1.047	2.755	84.637	.875	2.303	80.817	2.874	7.562	80.817
9	.515	1.356	85.993						
10	.470	1.238	87.231						

Table 4.4 (Continued)

Factor	Initial Eigenvalues			Extraction Sums of Squared			Rotation Sums of Squared		
				Loadings			Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
11	.415	1.092	88.323						
12	.357	.939	89.262						
13	.335	.881	90.143						
14	.299	.786	90.929						
15	.288	.757	91.686						
16	.273	.718	92.405						
17	.237	.623	93.028						
18	.229	.603	93.631						
19	.208	.547	94.178						
20	.196	.515	94.692						
21	.191	.502	95.194						
22	.186	.488	95.683						
23	.179	.472	96.155						
24	.161	.423	96.578						
25	.148	.389	96.966						
26	.140	.370	97.336						
27	.137	.360	97.696						
28	.122	.321	98.017						
29	.114	.301	98.317						
30	.102	.269	98.586						
31	.094	.247	98.833						
32	.082	.217	99.050						
33	.076	.200	99.250						
34	.072	.189	99.439						
35	.063	.167	99.606						
36	.054	.143	99.749						
37	.049	.128	99.877						
38	.047	.123	100.000						

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Figure 4.1 shows the Scree Plot.

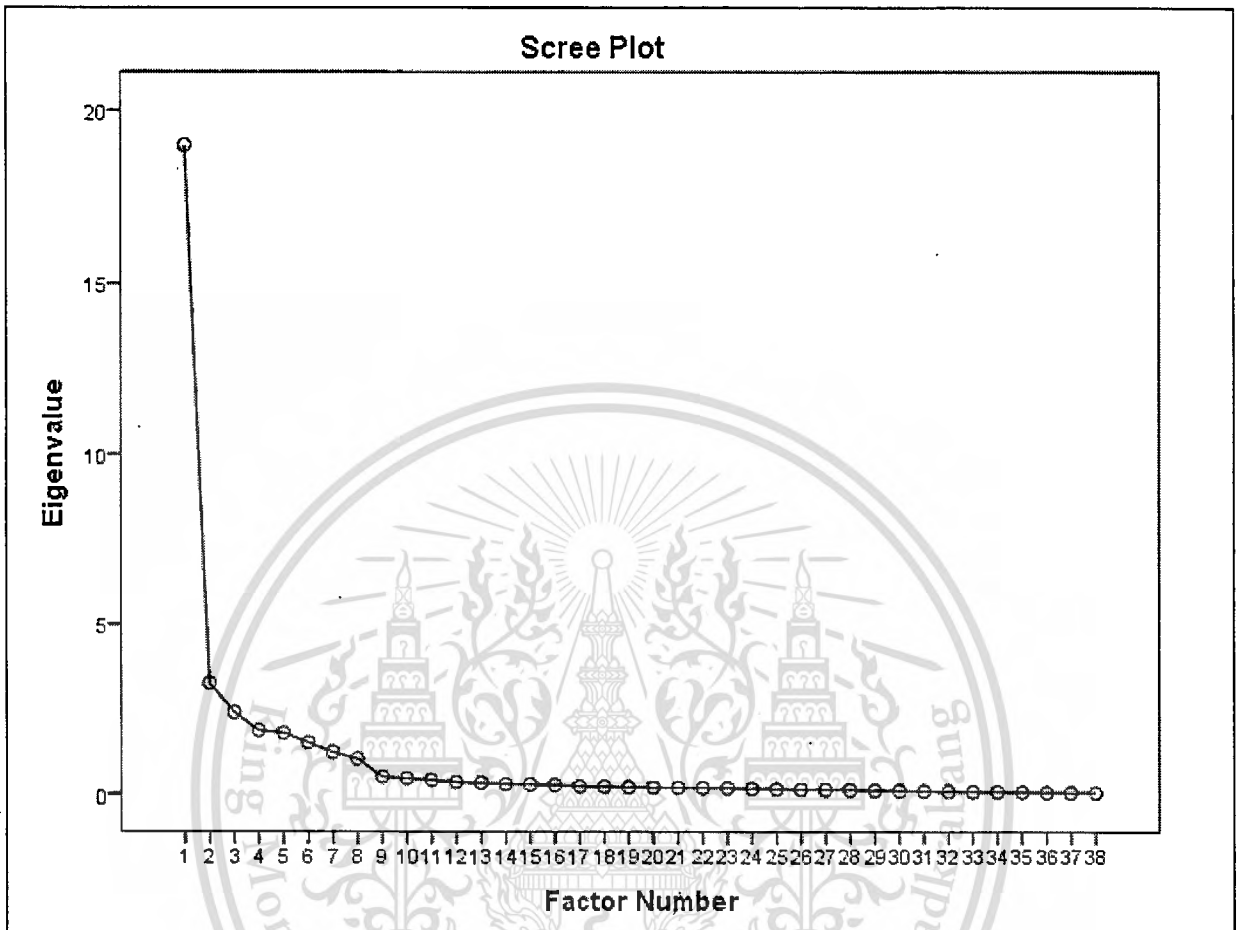


Figure 4.1 Scree Plot

Table 4.5 shows the results of exploratory factor analysis. Factorial validity is met because the items were grouped according to their designed constructs.

Table 4.5 Exploratory factor analysis (Principal axis factoring)

	Factor							
	PR	PA	PFC	Att	PC	SN	PBC	IS
PR4	.817							
PR2	.801							
PR1	.777							
PR5	.706							
PR3	.702							
PR6	.643							
PA3		.820						
PA2		.772						
PA5		.757						
PA6		.754						
PA7		.719						
PA1		.652						
PFC2			.887					
PFC3			.885					
PFC1			.871					
PFC5			.830					
Att3				.775				
Att2				.760				
Att1				.725				
Att4				.722				
Att5				.683				

Table 4.5 (Continued)

	Factor							
	PR	PA	PFC	Att	PC	SN	PBC	IS
PC1					.806			
PC2					.765			
PC4					.753			
PC3					.708			
PC5					.540			
SN2						.855		
SN3						.837		
SN1						.792		
SN4						.776		
PBC4							.756	
PBC3							.736	
PBC5							.677	
PBC1							.664	
IS5								.746
IS4								.705
IS2								.700
IS1								.672

Extraction Method: Principal Axis Factoring.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 7 iterations.

Table 4.6 shows the range, minimum, maximum, mean, and standard deviation of each item:

Table 4.6 Descriptive statistics of each item

	N	Range	Minimum	Maximum	Mean	Std. Deviation
IS1	359	6	1	7	4.88	1.531
IS2	359	6	1	7	4.77	1.538
IS4	359	6	1	7	4.41	1.669
IS5	359	6	1	7	4.53	1.632
PA1	359	6	1	7	4.80	1.291
PA2	359	6	1	7	4.72	1.348
PA3	359	6	1	7	4.55	1.419
PA5	359	6	1	7	4.72	1.353
PA6	359	6	1	7	4.41	1.399
PA7	359	6	1	7	4.39	1.353
PC1	359	6	1	7	4.93	1.151
PC2	359	6	1	7	5.05	1.155
PC3	359	6	1	7	4.78	1.148
PC4	359	6	1	7	5.12	1.176
PC5	359	6	1	7	5.18	1.215
PR1	359	6	1	7	5.32	1.296
PR2	359	6	1	7	5.17	1.317
PR3	359	6	1	7	5.05	1.353
PR4	359	6	1	7	5.05	1.276

Table 4.6 (Continued)

	N	Range	Minimum	Maximum	Mean	Std. Deviation
PR5	359	6	1	7	5.22	1.307
PR6	359	6	1	7	5.07	1.239
Att1	359	6	1	7	5.18	1.397
Att2	359	6	1	7	5.16	1.417
Att3	359	6	1	7	5.13	1.416
Att4	359	6	1	7	5.16	1.423
Att5	359	6	1	7	5.09	1.449
PFC1	359	6	1	7	4.60	1.463
PFC2	359	6	1	7	4.53	1.487
PFC3	359	6	1	7	4.52	1.477
PFC5	359	6	1	7	4.59	1.486
SN1	359	6	1	7	4.55	1.285
SN2	359	6	1	7	4.57	1.312
SN3	359	6	1	7	4.62	1.317
SN4	359	6	1	7	4.59	1.296
Valid N (listwise)	359					

For convergent validity, average variance extracted (AVEs) is used to represent convergent validity. Convergent validity ensures that the item or measurement is a good representative of the construct. Discriminant validity is used to ensure that the construct being represented is different from other construct. Table 4.7 represents that AVEs are all above 0.5 (0.65 - 0.90). The acceptable value of the AVE should be more than 0.5. Therefore,

convergence validity is met. IN addition, all the values of AVEs are more than the values of the squared correlations; this suggests that discriminant validity is met (Hair et al., 2010).

Table 4.7 Squared correlations and AVEs.

	IS	PR	PA	PC	PFC	PBC	SN	Att
IS	.77							
PR	.45	.73						
PA	.39	.31	.70					
PC	.29	.36	.29	.69				
PFC	.30	.20	.21	.12	.90			
PBC	.31	.40	.36	.53	.17	.65		
SN	.36	.31	.25	.20	.30	.23	.85	
Att	.43	.48	.35	.46	.24	.48	.23	.87

Note: Diagonal values are AVEs, and off-diagonal values are squared correlations

In terms of reliability, in this study, Cronbach's alpha was used to assess the reliability of items representing a construct. All Cronbach's alpha values are shown above .7, which is a recommended value by (Hair et al., 2010).

Table 4.8 Standardized Factor Loadings, Construct Reliability (C.R.), and Cronbach's alpha

Construct	Item	Standardized Factor Loading	C.R.	Alpha
IS	IS1	.961	.855	.938
	IS2	.976		
	IS3	.757		
	IS5	.786		
PC	PC1	.819	.801	.922
	PC2	.838		
	PC3	.826		
	PC4	.878		
	PC5	.784		
PA	PA1	.813	.806	.938
	PA2	.908		
	PA3	.927		
	PA5	.828		
	PA6	.758		
	PA7	.761		
PR	PR1	.802	.830	.945
	PR2	.893		

Table 4.8 (Continued)

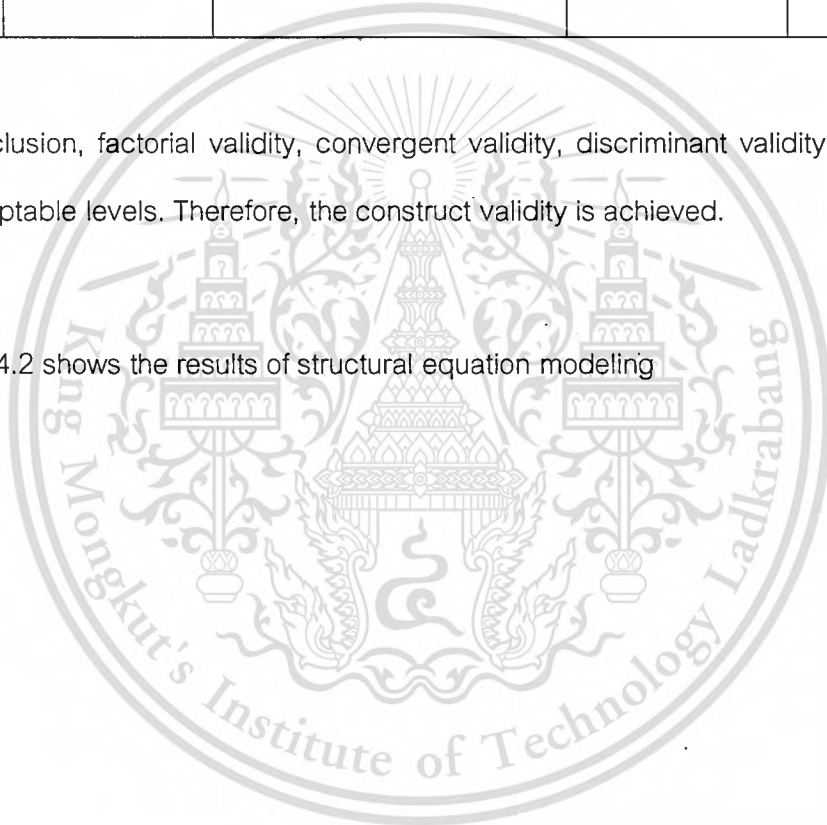
Construct	Item	Standardized Factor Loading	C.R.	Alpha
	PR3	.901		
	PR4	.900		
	PR5	.839		
	PR6	.772		
Att	Att1	.922	.926	.972
	Att2	.949		
	Att3	.960		
	Att4	.918		
	Att5	.906		
SN	SN1	.852	.912	.957
	SN2	.938		
	SN3	.962		
	SN4	.923		
PFC	PFC1	.962	.947	.975
	PFC2	.971		
	PFC3	.953		
	PFC5	.913		

Table 4.8 (Continued)

Construct	item	Standardized Factor Loading	C.R.	Alpha
PBC	PBC1	.86	.765	.940
	PBC3	.824		
	PBC4	.711		
	PBC5	.813		

In conclusion, factorial validity, convergent validity, discriminant validity, reliability are met the acceptable levels. Therefore, the construct validity is achieved.

Figure 4.2 shows the results of structural equation modeling



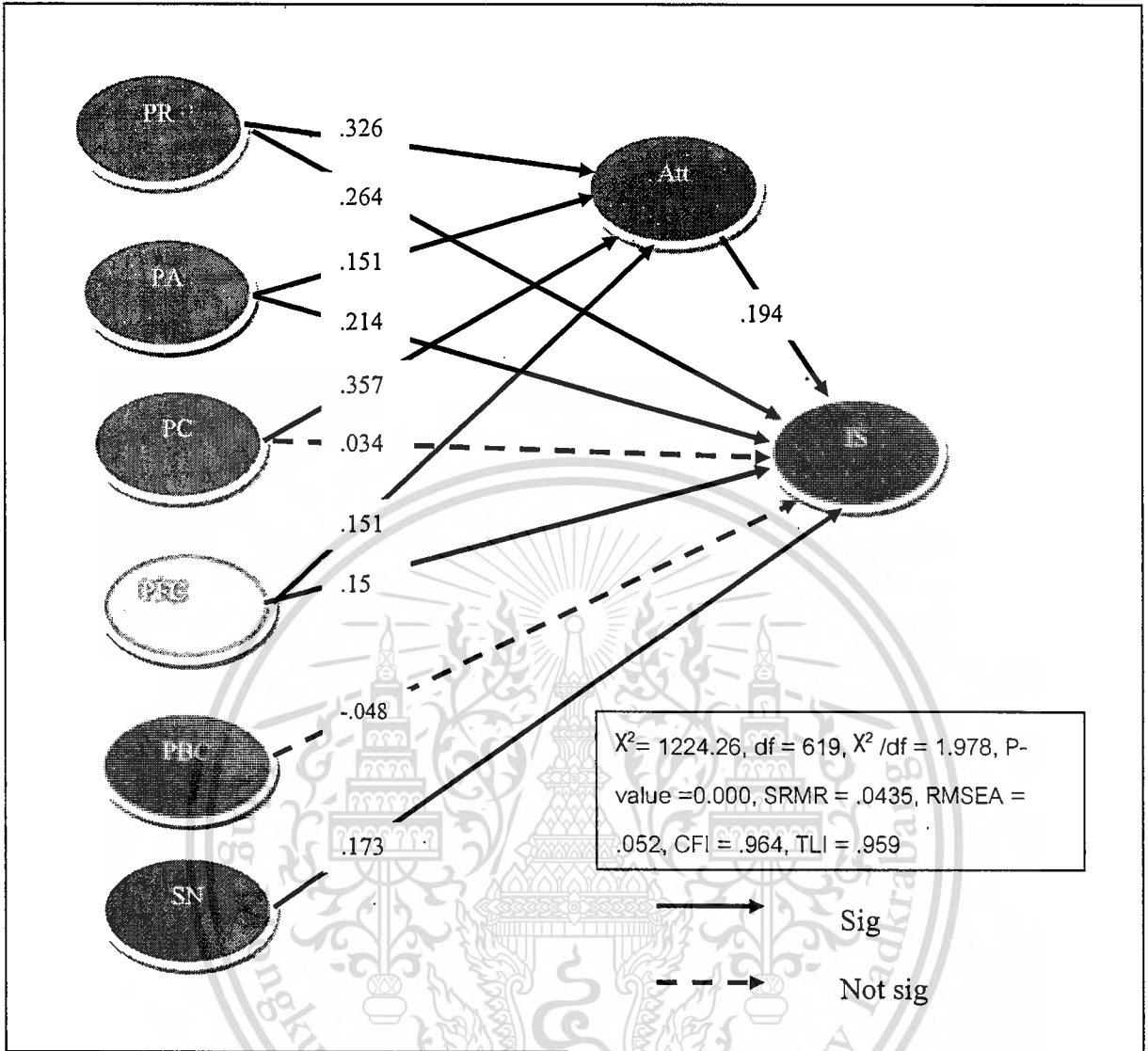


Figure 4.2 The results of structural equation modeling

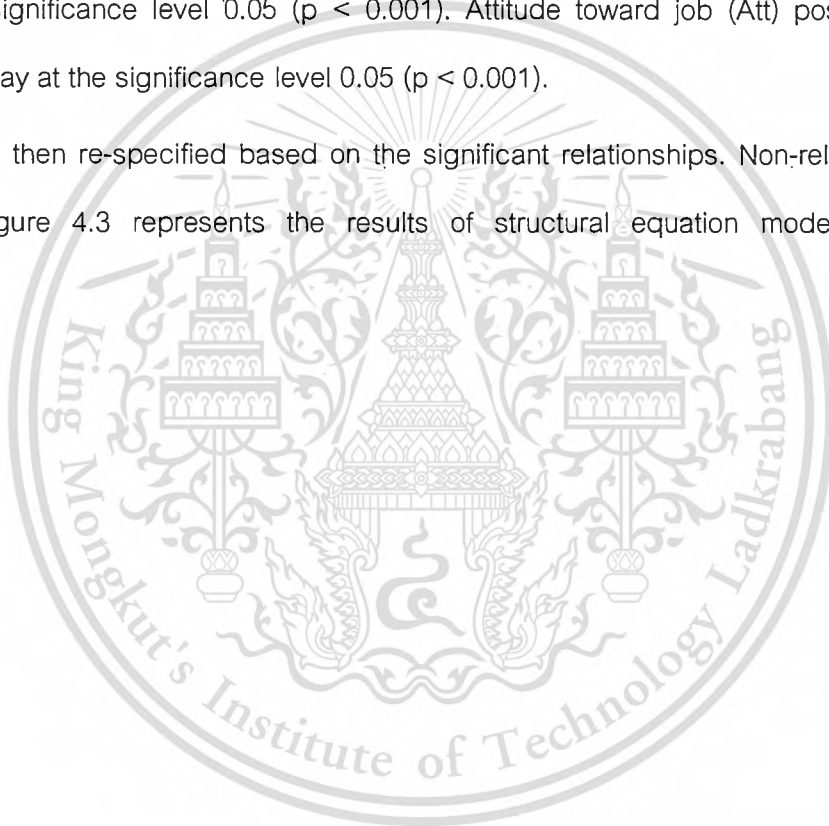
Table 4.9 Path analysis of the theoretical model

Paths	Hypothesis	Standardized beta	P	R <sup>2</sup>
Att ← PR	H1	.326	< .001	.637
Att ← PA	H3	.151	.002	
Att ← PC	H5	.357	< .001	
Att ← PFC	H7	.151	< .001	
IS ← PR	H2	.264	< .001	.617
IS ← PA	H4	.214	< .001	
IS ← PC	H6	.034	.603	
IS ← PFC	H8	.150	< .001	
IS ← PCB	H9	-.048	.437	
IS ← SN	H10	.173	< .001	
IS ← Att	H11	.194	.002	

Table 4.9 suggests that perceived relatedness (PR) positively affects attitude toward job at the significance level 0.05 ( $p < 0.001$ ). Perceived autonomy (PA) positively affects attitude toward job at the significance level 0.05 ( $p = 0.002$ ). Perceived competence (PC) positively affects attitude toward job at the significance level 0.05 ( $p < 0.001$ ). Perceived financial compensation (PFC) positively affects attitude toward job at the significance level 0.05 ( $p < 0.001$ ). the R-square of the attitude toward job is .637, suggesting that 63.7 % of variance of the attitude can be explained by perceived relatedness (PR), Perceived autonomy (PA), Perceived competence (PC) and Perceived financial compensation (PFC).

Moreover, table 4.8 shows that perceived relatedness (PR) positively affects intention to stay at the significance level 0.05 ( $p < 0.001$ ). Perceived autonomy (PA) positively affects intention to stay at the significance level 0.05 ( $p < 0.001$ ). Perceived competence (PC) does not positively affect intention to stay at the significance level 0.05 ( $p = 0.603$ ). Perceived financial compensation (PFC) positively affects intention to stay at the significance level 0.05 ( $p < 0.001$ ). Perceived control behavior (PCB) does not positively affect intention to stay at the significance level 0.05 ( $p = 0.437$ ). Subjective norm (SN) positively affects intention to stay at the significance level 0.05 ( $p < 0.001$ ). Attitude toward job (Att) positively affects intention to stay at the significance level 0.05 ( $p < 0.001$ ).

The model is then re-specified based on the significant relationships. Non-relationships are removed. Figure 4.3 represents the results of structural equation modeling after re-specification.



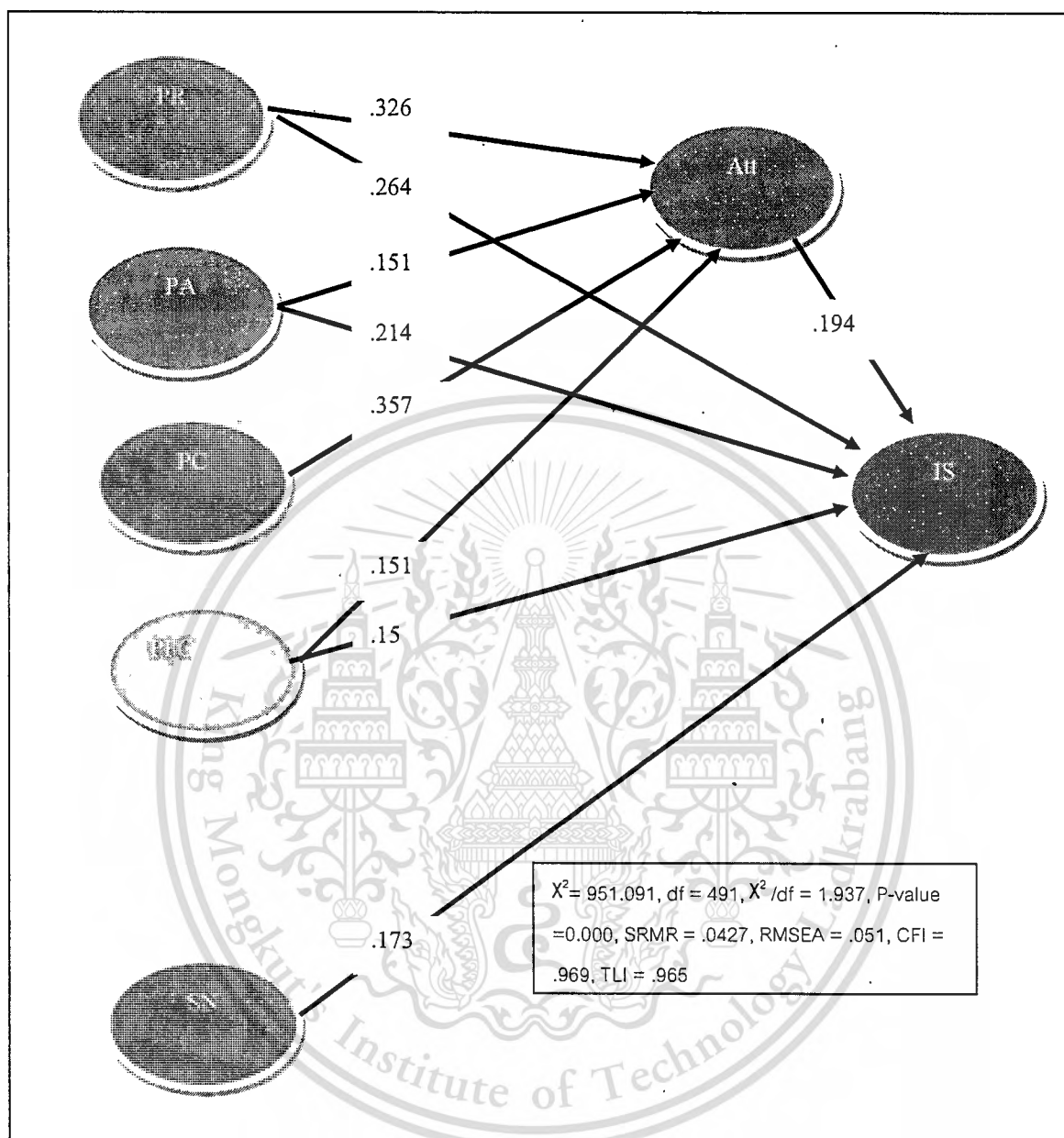


Figure 4.3 The results of structural equation modeling after re-specification.

Table 4.10 shows the standardized beta of each independent variable and the R-square of each dependent variable after the re-specification of the model.

Table 4.10 Path analysis of the theoretical model after re-specification

Paths	Standardized beta	P	R <sup>2</sup>
Att ← PR	.334	< .001	.629
Att ← PA	.152	.002	
Att ← PC	.334	< .001	
Att ← PFC	.153	< .001	
IS ← PR	.262	< .001	.616
IS ← PA	.207	< .001	
IS ← PFC	.147	< .001	
IS ← SN	.172	< .001	
IS ← Att	.194	< .001	

Table 4.11 presents the fit indices of the re-specified model.

Table 4.11 The fit indices of the re-specified model

Index	Value	Recommended value	References
Chi-square	951.091	N/A	
Df	491	N/A	
Normed Chi square	1.937	<5	Marsh and Hocevar (1985)
CFI	.969	>.90	Hair et al.(2010)
SRMR	.0427	<.08	Hair et al.(2010)
RMSEA	.051	<.08	Bollen and Long(1993)
TLI	.965	Approach 1	Hair et al.(2010)

Table 4.12 shows standardized direct effects, indirect effects, and total effects of attitude and intention to stay.

Table 4.12 Standardized direct effects, indirect effects, and total effects

	PFC	SN	PR	PA	PC	Att
Direct effect on attitude	0.153	0	0.334	0.152	0.343	
Indirect effect on attitude	0	0	0	0	0	
Total effect on attitude	0.153	0	0.334	0.152	0.343	
Direct effect on intention to stay	0.147	0.172	0.262	0.207	0	0.194

Table 4.12 (Continued)

	PFC	SN	PR	PA	PC	Att
Indirect effect on intention to stay	0.03	0	0.065	0.029	0.066	0
Total effect on intention to stay	0.177	0.172	0.327	0.237	0.066	0.194

According to table 4.12, perceived competence (PC) is the most influential factor for the attitude (Att). It has the standardized total effect at .343. Perceived relatedness (PR) is the second influential factor with the standardized total effect at .334. Perceived financial compensation (PFC) and perceived autonomy (PA) have the standardized total effects at .153 and .152 respectively.

In terms of the standardized total effect of intention to stay, based on table 4.11, perceived relatedness (PR) is the most influential factor determining the intention to stay. It consists of .262 standardized direct effect and .065 standardized indirect effect. The second influential factor is perceived autonomy (PA) that consists of .207 standardized direct effect and .029 standardized indirect effect. Attitude toward job is the third factor that positively affects intention to stay. It has the standardized total effect of .194 without the indirect effect. The fourth factor is perceived financial compensation (PFC) that has the standardized total effect on intention to stay at .177

Subjective norm is the fifth factor that positively affects intention to stay. It has the standardized total effect of .172 without the indirect effect. The less factor is perceived competence (PC) accounting for the standardized total effect of .066 without the direct effect.

## CHAPTER 5

### DISCUSSIONS AND CONCLUSION

The chapter describes discussions, limitations, and conclusion. Discussions cover theoretical and managerial discussions. Limitations suggest the weaknesses and point out future research. The conclusion section summarizes the entire research.

#### 5.1 Discussions

This study shows that perceived relatedness (PR) is the most influential factor determining the intention to stay. ICT workers intend to stay with their company because they feel related with other colleagues. They feel love, connectedness, and care are conditions that keep them with the company. It is an intrinsic motivation that the company should consider when it needs specific employees to stay with the company (Deci and Ryan, 2000). It might be the fact that in Asian culture, people keep a high relationship with each other. It may be different from the Western culture that autonomy and competence might play a better role.

The second influential factor is perceived autonomy (PA). Perceived autonomy is the feeling of employees to present how their organizations satisfy their need of autonomy. It means people need authority and freedom to accomplish their jobs (Ryan and Deci, 2000a). Perceived autonomy (PA) shows that workers in the ICT industry require freedom and authority at work. They do not like a stick chain of command. Companies that establish stick roles might not be able to keep their employees in their organizations for a long time. However, this is not the only one reason. Other factors can also play an important role. One should not ignore this fact if employees are the key of organization's success.

Attitude toward job is the third factor that positively affects intention to stay. A good attitude toward job in the organization is feelings of behaviors in the organization. When employees like or love doing their jobs, they will have high intention to stay with the organization (Fishbein and Ajzen, 2010). In this study, intention to stay is used to represent the job-retention. Like general behavior, working is a behavior in organization. It is governed by the attitude. If organizations have employees who do not love or like their jobs, it is likely that such employees will leave their organizations than employees who love to do their jobs.

However, the attitude toward job can be changed because there are factors that can enhance the attitude. This study shows that perceived competence is the most powerful factor influencing the attitude. The study suggests that if employees believe that they are good at working in their organization. Consequently, their attitude toward their job will be changed. They will like or love their job. How can companies improve employees' perceived competency? One simple answer is to provide them training or improvement of their skills. ICT works such as programmers and database administrators might need to update their knowledge because their technologies change rapidly. Such activities might improve employees' attitude toward their job.

In addition to perceived competence, perceived relatedness can be used to enhance the attitude toward job. Giving employees love and care will improve their attitude toward their job. Celebration, parties, and happy events to build good relationships among employees in the organization will help to improve perceived relatedness, which intern help to improve the attitude.

Perceived financial compensation and perceived autonomy can also be used to improve the attitude. Companies can improve their pay for employees but it is not better than improve employees' competence and relatedness that are more effective. Perceived

autonomy is the least factor but it is still a significant factor. Giving them control and power to do what they think and want will help them to improve their attitude toward job.

Turning back to intention to stay, the fourth factor that positively affects intention to stay is perceived financial compensation (PFC). As the effect on the attitude, perceived financial compensation can keep people stay with the company. Financial reward or perceived financial compensation is believed to be forms of extrinsic motivation. Financial rewards have a relationship with employees' performance (Kóminis and Emmanuel, 2007); so it is accepted that financial rewards can be used as a measure to improve employees' performance in other careers (Bruinsma, 2004; Ynalvez and Shrum, 2009). Hence, it is not surprised that perceived financial compensation will lead to the intention to stay.

Subjective norm is the fifth factor that positively affects intention to stay. Subjective norm is a factor that determines behavioral intention. Subjective norm means that the degree to which important people give opinions to an individual that he or she should do the behavior, the individual will highly possibly do the behavior (Ajzen, 1991; Fishbein and Ajzen, 1975, 2010). In this research, subjective norm is believed to protect employees to leave their job. For example, if important people say to ICT workers that their job is good or that they should not quite their jobs, then their intention to stay is high. This might be the notion that some organizations have good reputation so that general people believe that employees working in such organizations should be proud even though the employees might think in the opposite way.

Perceived competence (PC) is another factor influencing employees's intention to stay. It is the feeling of competence. It means the extent to which people feel or perceive that they are competence at work. If the employees do not feel that they have good knowledge and skills at work, they motivation will decline (Deci and Ryan, 2000). The results of this research show that when ICT employees have good competence, they tend to have high

intention to stay. Therefore, organizations should provide means to improve employee's competence. In addition, we can speculate that perceived competence can be used to improve employees' job performance.

However, in this research, perceived behavioral control is not found significant. It is the degree to which ICT employees believe that they can control their work (Fishbein and Ajzen, 2010). If considering the definition of perceived behavioral control, one can see that it is similar to perceived competence. Hence, when perceived competence is statistically controlled, the effect of perceived behavioral control is nullified.

## 5.2 Limitation

First, this research does not employ random sampling because getting ICT employees to answer the questionnaire is difficult. It is conducted by using purposive sampling. Even though doing so cannot be generalized to the entire ICT works in Bangkok Thailand, it can help to depict to some extent the characteristics of ICT employees in Bangkok.

Second, this research does not connect intention to stay and job performance. One cannot infer that if employees have higher intention to stay, it may help their employees have higher job performance. The results might be the opposite. Future research should investigate this issue.

Third, this research is conducted by surveying ICT workers. Generalization to other types of workers such as medical doctors or professors is limited. Hence, future research should focus on other professionals.

### 5.3 Conclusion

Human resources are the key success factors of organizations in all most public and private organizations because employees derive the outcome and the competitive advantage of organizations. This research aims to study factors that have relationships with job-retention in the ICT industry. This study focuses on ICT employees in Bangkok Thailand because Bangkok has highest business activities in Thailand and it is the most crowded city. This study integrates Self-determination Theory (STD) and the Theory of Planned Behavior (TPB) resulting in a structure of relationships. Constructs from both theories are perceived relatedness, perceived autonomy, perceived competence, the attitude toward job, subjective norm, perceived behavioral control, and intention to stay. Perceived financial compensation is also included in the model. This study asked 359 respondents who are ICT workers in Bangkok Thailand. Structural equation modeling (SEM) is used to test the hypotheses. The model is then re-specified. The results of the model after re-specification shows that perceived relatedness, perceived autonomy, perceived competence, the attitude toward job, subjective norm, and perceived financial compensation positively affect intention to stay. In addition, perceived relatedness, perceived autonomy, and perceived financial compensation positively affect the attitude toward the attitude toward job. The overall model can be used to explain intention to stay as much as 61.6 % and the overall model can be used to explain the attitude toward job as much as 62.9 %. These two figures are very impressive. However, perceived behavioral control is not significant because it is similar to perceived competence. If perceived competence is controlled, the effect of perceived behavioral control is invalidated. Generalization of this research is limited due to a lack of random sampling, connection to job-performance, and other professionals. Future research should focus on what is the relationship between intention to stay and job-performance. In addition, future

research should focus on how similar between ICT and other professionals such as medical doctors or professors.



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#### ผลงานวิจัย/งานสร้างสรรค์

ผลงานวิจัย/งานสร้างสรรค์ที่ตีพิมพ์เผยแพร่(ระดับชาติและนานาชาติ)

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### ผู้ร่วมโครงการ

1. ปัจจัยที่มีผลต่อความสำเร็จในการพัฒนาทรัพยากรมนุษย์ของธุรกิจเกษตรอินทรีย์เพื่อสร้างให้เป็นองค์การแห่งการเรียนรู้โดยรับการจากสาขาวิชาบริหารธุรกิจและพัฒนากการเกษตร ปีงบประมาณ 2552

2. ติดตาม ประเมินโครงการการจัดให้มีการบริการโทรคมนาคมพื้นฐานโดยทั่วถึงและบริการเพื่อสังคมโดยรับทุนจากสำนักงานคณะกรรมการกิจการโทรคมนาคมแห่งชาติ ในนามสำนักส่งเสริมและบริการวิชาการพระจอมเกล้าลาดกระบัง สถาบันเทคโนโลยีพระจอมเกล้าเจ้าคุณทหารลาดกระบัง

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