



INTEGRATING SERVICE FAIRNESS INTO THE POST-ACCEPTANCE MODEL  
OF IS CONTINUANCE IN CLOUD COMPUTING

By

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### ABSTRACT

How information system (IS) users decide continued technology use has garnered much interest recently within service fairness contexts. Previous studies have discussed the significance of technology acceptance and IS continuance intention, and this study integrates service fairness into a post-acceptance mode of IS continuance (Bhattacharjee, 2001b). The post-acceptance model emphasizes the perceptual experience and cognitive beliefs of customers, which may importantly influence an individual's intention to continue to use an IS. In this study, the variables added from a consideration of perception of service fairness are multi-dimensional constructs based on Greenberg's (1993) four-component taxonomy of organizational justice or fairness. In this light, the four distinct fairness dimensions are systemic, configural, interpersonal and informational.

The study thus opens up new areas of research by integrating two streams of research on continued technology use and service outcomes. The model developed

in this research seeks to be useful in predicting post-acceptance customer satisfaction, which enhances continued use of an IS. The results of the four distinct service fairness dimensions demonstrated positive perceptions of systemic fairness, configural fairness and interpersonal fairness significantly enhanced satisfaction. The findings are consistent with previous research in organizational fairness. However, the relationship between informational fairness and satisfaction was negative and significant.

It is concluded in this study that information technology service provider organizations should place more emphasis on perceptions of service fairness as this may add a new set of tools for enhancing post-acceptance customer satisfaction, which contributes to continued technology use. This study offers a theoretical and managerial contribution to the post-acceptance and service literature by highlighting fairness issues as paramount to a system for analyzing services in an inclusive service delivery context. Limitations and future research directions are also discussed.

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## CHAPTER 1

### INTRODUCTION

#### 1.1 Introduction

Information technology (IT) service providers spend millions of dollars annually trying to retain current customers (Bhattacharjee, 2001b; Williams & Naumann, 2011). Failure to maintain or improve customer satisfaction in IT service delivery impacts customer intentions to continue to contact a service provider who manages and provides a particular technology for their customers. Note that there is a subtle distinction between continuing to use a technology versus continuing to obtain a service from a particular service provider, and a similar distinction between satisfaction with a service provider versus satisfaction with a technology. This research study focuses on satisfaction with a service provider in a context where the service is provided through a technology.

Continuance intention depends partly on maintaining or restoring customer satisfaction, which stems from customer perceptions of a number of factors. In an increasingly competitive marketplace, “a focus on the customer has become a major component of organizational strategies, regardless of whether the organization is in the service or manufacturing sector” (Ryan & Ployhart, 2003, p. 377)

While most prior information system (IS) research has attempted to explain user acceptance of new IT, recent research has focused on IS continuance or continued usage (Bhattacharjee, 2001b; Limayem, Cheung, & Chan, 2003; Limayem, Hirt, & Cheung, 2007; Oo Tha, Poo, & Yu, 2009; Premkumar & Bhattacharjee,

2008). The technology acceptance model (TAM) and expectation–disconfirmation theory (EDT) are the dominant theoretical frameworks explaining user acceptance and continuance of IT (Premkumar & Bhattacharjee, 2008). In addition, a post-acceptance model of IS continuance (PAM) (Bhattacharjee, 2001b) has been widely adopted in the continuance intention literature.

In practice, IS service provider organizations in a competitive market seek to meet or exceed customer satisfaction levels and keep customers using their systems, and to attract more customers and increase revenue. Customer satisfaction is influenced by numerous variables. Among these are organizational fairness variables, which influence customer satisfaction by exerting influence upon individual satisfaction.

This study examined whether continual usage in cloud computing can be determined by the variables in the post-acceptance mode of IS continuance and tested the four service fairness dimensions integrated into the post-acceptance model. The study employed Software-as-a-Service (SaaS) in the cloud computing environment as the IS application and SaaS users as the IS sample. Cloud computing has been widely adopted for both higher educational institutions and organizations. In addition, the SaaS market is growing and investments have been made in its technology by many developers and service providers. Lastly, cloud computing is an emerging technology enhancing subscribers' perceptions of SaaS as a long term partner.

## 1.2 Background

The current research examines two interrelated research streams to integrate the realm of service fairness with a post-acceptance model (PAM), and integrates Greenberg's (1993) four-component taxonomy of organizational justice or fairness into PAM. PAM seeks to explain user intentions to continue using an IS. The model was constructed on the assumption that a user's expectation toward using an IT system, after initial acceptance and use, should not be different from his/her expectations before using it, assuming their pre-acceptance expectations are confirmed when the IS system matches prior expectations (perceived performance equals expectations). Additionally, perceived usefulness and satisfaction are two constructs that directly influence IS continuance intention.

The four distinct fairness constructs are systemic (structural-procedural), configural (structural-distributive), interpersonal (social-distributive), and informational (social-procedural). Prior studies used the term 'justice' and 'fairness' interchangeably. Most authors used both terms (e.g. Lau & Sholihin, 2005; Lindquist, 1995). This dissertation uses the term 'fairness' for the purpose of consistency. This research seeks to place service fairness within the context of post-acceptance variables by testing its hypothesized relations with satisfaction that enhances continuance intention.

In addition, the present study seeks evidence to validate a measure of four service fairness dimensions in the integrated model, the service fairness scales assess (a) individual reactions to services rather than products; (b) individual perceptions or experiences with services rather than vicarious experiences; and (c) service delivery rather than service recovery.

### 1.3 Purpose of study

The purpose of this research is to examine post-IS technology use through the lens of perceptions of service fairness to explore the relationships between four service fairness dimensions and satisfaction.

The current study is an effort to achieve the following broad objectives. Points a) and b) are aimed at examining the theory to determine how it needs to be extended.

- a) Examine whether IS usage in a small and medium enterprise (SME), which use Software-as-a-Service (SaaS) enterprise in a cloud computing environment as a core application and in business processes, can be determined by the variables in the post-acceptance model. The effects of perceived usefulness and satisfaction should positively influence IS continuance intention.
- b) Examine the influence of perceived service fairness on customer satisfaction. Previous studies have not identified the relationships between four service fairness dimensions and post-acceptance satisfaction. This study will delineate the process from perceived service fairness to satisfaction as external customers who are important to their service provider and thus an important part of the organizational feedback loop (Clemmer, 1993).
- c) Justify, theoretically and empirically, the integration of post-acceptance model and Greenberg's (1993) taxonomy of fairness perceptions.
- d) Provide a validated, theory-driven measure that can be used as a tool for better integrating the disciplines of industrial or organizational

psychology and the service industry, as they apply to customer fairness reactions.

#### 1.4 Research questions

The research questions that arise from the background of this study are:

- 1) Can the variables in the post-acceptance model of IS continuance be determined in continual usage in cloud computing?
- 2) Are four service fairness dimensions distinct from each other?
- 3) How can four service fairness dimensions be integrated in the post-acceptance model, and how do they then explain post-acceptance satisfaction enhancing IS continuance intention?
- 4) Can an individual's perception of various dimensions of service fairness be strong enough to stimulate customer post-acceptance satisfaction?
  - 4.1) what are the relationships of systemic fairness to customer satisfaction?
  - 4.2) what are the relationships of configural fairness to customer satisfaction?
  - 4.3) what are the relationships between interpersonal fairness and customer satisfaction?
  - 4.4) what are the relationships between informational fairness and customer satisfaction?
- 5) Is satisfaction a significant factor in the relationship between service fairness and IS continuance intention?



## 1.5 Contribution of research

The research offers significant contributions by integrating theories of service fairness with the IS continuance intention domain. The results offer a better understanding of the vital and contentious nature of higher level of satisfaction in post-acceptance to enhance continuance intention through a combination of theoretical and empirical research efforts, and of practitioners in the service industry.

The expected contribution of the research is two-fold: academic and industrial practices.

### **Theoretical contribution**

The research will enhance the literature by offering insights into the role of customer experience for the formation of post-acceptance satisfaction with enterprise-oriented technology. The research will add to the literature in the following ways:

- a) This research proposes a theoretical integration with PAM by arguing that perceived usefulness, as well as satisfaction, is necessary for IS continuance intention. Satisfaction is contingent on customer perceptions of service fairness with a service organization provider who provides a technological product together with services.
- b) This research examines Greenberg's (1993) four-component taxonomy of organizational fairness: (a) systemic (structural-procedural), (b) configural (structural-distributive), (c) interpersonal (social-distributive) and (d) informational (social-procedural). The taxonomy of organizational fairness has been overlooked in IS post-acceptance literature.

### **Practitioners' contribution**

The outcome of this research will be of interest to IS service provider organizations. The findings concerning the effects of user experience on post-acceptance satisfaction will provide insights and guidelines for designing and delivering service that permeate the daily work of customers. For practitioners, this study may contribute to the following aspects:

- a) A gap in the literature exists regarding the link between various classes of service fairness and post-acceptance satisfaction that enhances continuance intention. Investigation of this gap can highlight the crucial factors in service fairness that influence individual customer satisfaction and can provide insights for management. In addition, it is crucial for managers to understand the degree to which customer perceptions of service fairness affect satisfaction with service organizations.
- b) By providing specifics about individual post-acceptance behaviors that are important for IS continuance intention, this study can offer insights on how an IT service organization can motivate and facilitate the desired behaviors of its customers.
- c) The service fairness scale will provide a useful tool, not only for organizations and scholars who seek to better understand customer reactions, but also for better integrating the disciplines of industrial or organizational psychology and the service industry.

In summary, this research provides a theoretical model of the antecedents to service fairness and usage continuance intentions. The study contributes to existing literature by harmonizing service fairness with PAM, additionally demonstrating the

effects of service fairness in post-acceptance satisfaction. This can be determined through the use of a customer feedback survey which explores issues relating to individual perceptions of fairness. Such information about the factors involved in post-acceptance satisfaction than enhances continuance intention is extremely useful to management teams that are in the midst of the current turbulent and competitive economy.

### **1.6 Organization of research**

This dissertation consists of five chapters: (1) Introduction, (2) Literature Review, (3) Research methodology, (4) Data analysis and results, and (5) Conclusion and Future Research.

The remainder of this dissertation is organized as follows. Chapter 2 reviews established theories and theory-based models that describe the theoretical foundation of this study: TAM, EDT, PAM, and Greenberg's (1993) four-component taxonomy of organizational fairness. Chapter 2 also presents the development of the research model with specific research hypotheses.

The first set of hypotheses ( $H_1 - H_5$ ) was developed to test whether the post-acceptance model can be applied in this research context. The second set of hypotheses ( $H_6 - H_9$ ) was proposed to test the relationship between each service fairness component (systemic, configural, interpersonal and informational) and satisfaction on the post-acceptance model.

Chapter 3 describes the research methodology utilized in investigating the integrated model comprised of IS post-acceptance model and four service fairness dimensions. The first section presents the research design, and population and sample

of the study. The second section discusses instrument development, measurement of variables, and a description of the pretest and pilot test. Next, the Delphi method was employed for content validity on the four service fairness dimensions and followed by descriptions of the data collection procedures and data analyses for the main study, which are then presented.

The pilot study demonstrated adequate internal consistency for the performance discrepancy measures. For the Delphi method, experts in the Delphi process provided evidence for content validity, and conceptual distinctions between the four service fairness dimensions. As a result of the Delphi process, ten of the twenty-two items were reworded to improve item clarity. These measures were used in the analysis of the structural equation model of the post-acceptance model, perceptions of service fairness and their hypothesized antecedents.

Chapter 4 provides a comprehensive analysis of the data results. The chapter reports the processes of data analysis and the results of statistical tests. Results of the analyses performed to test hypotheses formulated in chapter 2 are also presented. The chapter proceeds with a detailed statistical analysis of the survey data to discuss the sample characteristics, descriptive statistics of the variables, and the reliability and validity of the measures used in this research. The results of the confirmatory factor analysis (CFA) of the study are presented. Finally, structural equation modeling (SEM) was used to test the hypotheses in the study and CFA was conducted to test the fit of the measurement model.

The results of the main study of the four distinct service fairness dimensions demonstrate positive perceptions of systemic fairness, configural fairness and interpersonal fairness as significantly enhancing satisfaction; however,

interestingly, the relationship between informational fairness and satisfaction was a negatively significant perception.

Chapter 5 includes a discussion of research findings and implications. The first section summarizes research results. The second section presents the theoretical contributions and managerial implications. Finally, several limitations and future research directions will be addressed.

This research met the main objective by making a unique contribution to the supporting literature, one that will lead to a greater understanding between service fairness and post-acceptance satisfaction. Satisfaction is a critical factor that can lead to continued use of IS. In practice, this added knowledge can be translated into practical skill that results in a more satisfying service encounter. Like other research, this research has several limitations. Many potential directions of future work along this line of research are made available by the findings of this research.

## CHAPTER 2

### LITERATURE REVIEW

#### 2.1 Introduction: The Conceptual Model – A Synthesis of Two Theories

The post-acceptance model of IS continuance (PAM) was first proposed by Bhattacharjee (2001b). In PAM, constructs of service fairness are integrated into a new conceptual model that may explain more variance in satisfaction than previous models. Satisfaction remains the main construct influencing continuance intention.

The model used here consists of eight main variables (Figure 2.1) and tests the performance of the three constructs identified in PAM (Bhattacharjee, 2001b) (Upper part of Figure 2.1) as being influences on IS continuance intention. In addition to these three constructs, the research also hypothesizes that the degree of service fairness felt post-acceptance of a service is also an attribute determining customer satisfaction. The model demonstrates a relationship between service fairness, customer satisfaction and continued usage.

The second path of the model suggests that there will be a relationship between four service fairness dimensions (systemic, configural, interpersonal, and informational fairness) and satisfaction. The positive relationship between the four constructs of perceived service fairness and satisfaction has been well documented in previous research (Bowman & Narayandas, 2001; Smith, Bolton, & Wagner, 1999; Tax, Brown, & Chandrashekar, 1998). For convenience, Figure 2.1 presents the conceptual model and all hypothesized relationships to be tested. The following discussion develops this model.

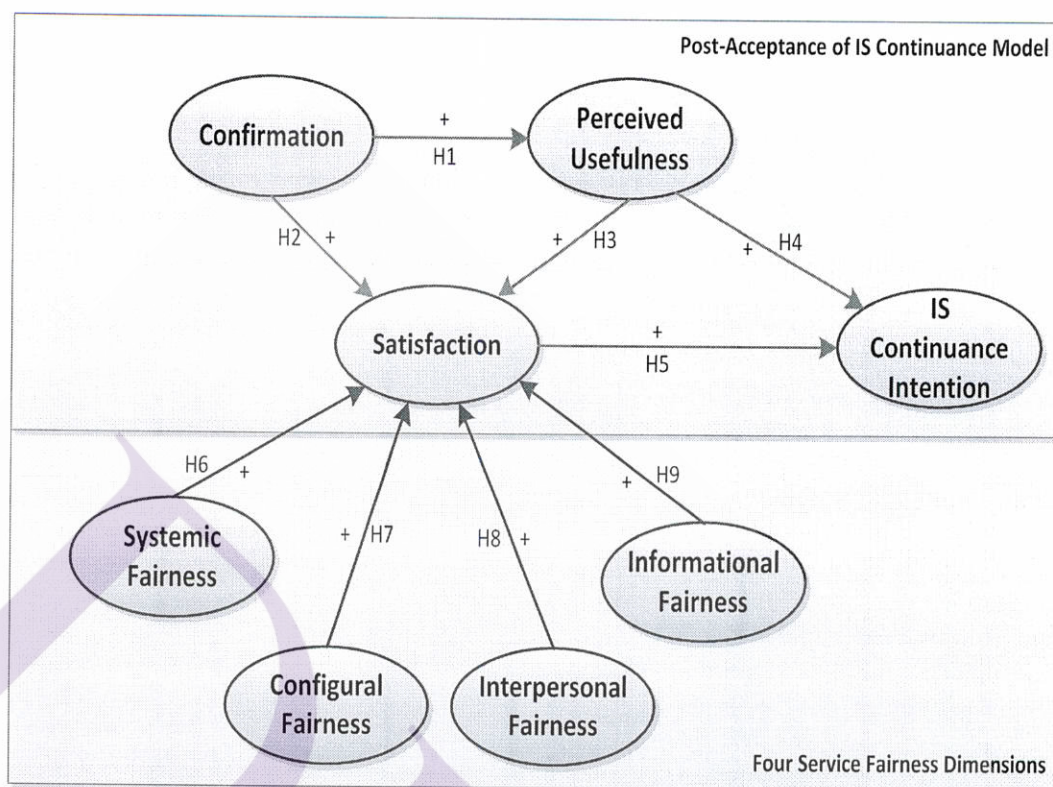


Figure 2.1 Conceptual Model

Source: Developed for this research

The remainder of this chapter reviews the literature relevant to the development and testing of the proposed model. It deals first with the literature on technology acceptance, followed by a review of expectation disconfirmation theory (EDT) and a review of the post-acceptance model of IS continuance (PAM). Following this, Greenberg's (1993) four component taxonomy of organizational fairness is discussed, which is composed of systemic (structural-procedural), configural (structural-distributive), interpersonal (social-distributive), and informational (social-procedural) fairness.

Recently, researchers in the area of information systems (IS) continuance have developed models and theories in three different directions.

- 1) The first track of research is to apply the technology acceptance model (TAM) to the research on continued use of IS. Research pertaining to this direction views post-acceptance as an extension of the acceptance process. The two main factors in pre-acceptance predictors for continued usage are usefulness and ease of use (Davis, 1989; Davis, Bagozzi, & Warshaw, 1989) (see Section 2.2).
- 2) In the second track, research clarifying established continuance theory and studies has been developed from expectation disconfirmation theory (EDT), which was originally developed by Oliver (1980a). EDT enjoys widespread acceptance in the marketing literature that seeks to explain and predict consumer satisfaction and intentions to repurchase products and services (Oliver, 1980a). The theory proposes satisfaction as the key to understanding IS continuance (Bhattacharjee, 2001b) (see Section 2.3).
- 3) The third track combines IS continuance theory with complementary theoretical perspectives on post-acceptance behavior (Bhattacharjee, 2001b). This track, which is PAM, was extended with new construct(s) and/or integrated with other models or theories to conceptualize an individual's post-acceptance behavior (see Section 2.4).

Each of these areas has its own distinct literature, with different methodologies prevalent in each.



## 2.2 Technology Acceptance Model

The acceptance of technology has wide-ranging significance in information systems (IS) and is the first step in determining IS success following initial user adoption. The technology acceptance model (TAM) is well-established and is based on an adaptation of the theory of reasoned action (TRA) (Ajzen & Fishbein, 1977; Ajzen & Fishbein, 1980), which is found mainly in the social psychology literature (Davis, 1989).

TAM is a well-validated model designed to predict individual technology adoption decisions and an individual's behavioral intention to use an IS system. The model is determined by two significant factors influencing individual decisions (Davis, 1989):

- 1) Perceived usefulness is defined as the extent to which a person believes that using the system will enhance his or her job performance.
- 2) Perceived ease of use is defined as the extent to which a person believes that using the system will be free of effort.

According to TAM, perceived ease of use also influences perceived usefulness. Many studies have empirically validated the claim that perceived usefulness is a stronger determinant of behavioral intention, while perceived ease of use is a relatively weak determinant (Venkatesh & Davis, 2000).

The TAM demonstrates that an attitudinal component is a mediating variable between the two constructs (1) perceived usefulness and perceived ease of use and (2) behavioral intention (Figure 2.2). Two meta-analyses confirmed that TAM is a robust theoretical model when explaining and understanding technology acceptance (King & He, 2006; Ma & Liu, 2004).

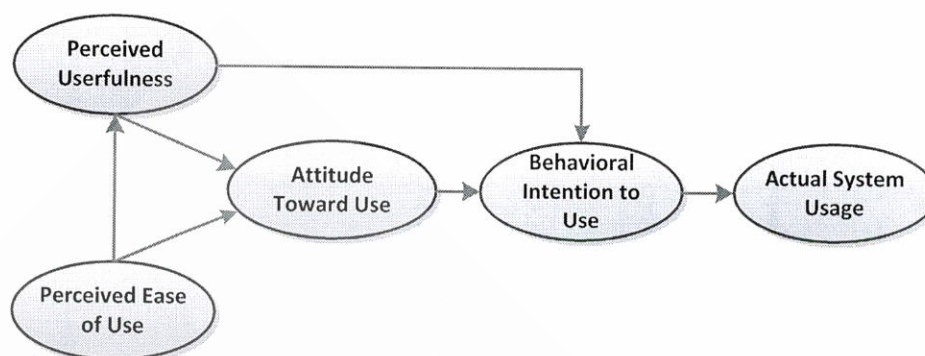


Figure 2.2 Technology Acceptance Model

Source: (Davis, 1989)

TAM has been replicated in various information technologies (IT) as in Table 2.1.

Table 2.1 TAM Replicated in Information Technology

Information Technology	Study
Spreadsheets	(Mathieson, 1991)
Computer resource centers	(Taylor & Todd, 1995)
Electronic mail	(Hubona & Burton-Jones, 2003; Szajan, 1996)
Enterprise systems	(Amoako-Gyampah & Salam, 2004)
Institutional online learning systems	(Gibson, Harris, & Colaric, 2008; Landry, Griffeth, & Hartman, 2006; Martins & Willi, 2004)
Internet banking	(Eriksson, Kerem, & Nilsson, 2005)
E-government	(Al-adawi, Yousafzai, & Pallister, 2005)
Wireless application protocol services	(Hung & Chang, 2005)
Mobile internet	(Shin, 2007)
Online banking	(Hua, 2009; Yeow, Yuen, Tong, & Lim, 2008)
E-commerce	(Ha & Stoel, 2009; Qiu & Li, 2008)
Instant messaging	(Lu, Zhou, & Wang, 2009)
Mobile payment services	(Schierz, Schilke, & Wirtz, 2009)
Enterprise resource planning	(Youngberg, Olsen, & Hauser, 2009)
Radio frequency identification	(Müller-Seitz, Dautzenberg, Creusen, & Stromereder, 2009)
Airline e-commerce websites	(Kim, Kim, & Shin, 2009)
Blogs	(Tsai & Yen, 2010)

Note: E = Electronic

Source: Developed for this research

TAM has proved to be useful in predicting intention toward use and has been validated in empirical research. Numerous researchers have extended TAM applications to understand user continuance usage intention and behavior (Hong, Thong, & Tam, 2006). Usage behavior is commonly labeled as post-implementation (Saga & Zmud, 1994) or post-adoption (Jasperson, Carter, & Zmud, 2005).

Several studies have integrated user satisfaction into the TAM model. Some theoretical models attempt to explain the relations between user attitudes, satisfaction and behavioral intention to use and system usage. In IS research, users' satisfaction is considered an important determinant in measuring IS success and use (DeLone & McLean, 1992; DeLone & McLean, 2003; Doll & Torkzadeh, 1988). In the IS success model (DeLone & McLean, 1992; Seddon, 1997), Seddon (1997) included perceived usefulness as a determinant of user satisfaction. Rai et al. (2002) extended the Seddon model in which perceived ease of use, perceived usefulness, and information quality are depicted as the antecedents of satisfaction (Rai, Lang, & Welker, 2002). Bhattacharjee (2001b) and DeLone and McLean (1992, 2003) view user satisfaction as an important indicator of IS success in the long-term (Bhattacharjee, 2001b; DeLone & McLean, 1992; DeLone & McLean, 2003). On the other hand, dissatisfied users, whose expectations are not met, will possibly discontinue using the system (Bhattacharjee, 2001b). Table 2.2 depicts previous studies on TAM extension with construct and integration with model or theory.

In the IS literature, technology acceptance theories have been widely recognized as predictors of initial user adoption (Mark & Vogel, 2009). Bhattacharjee (2001b) states that the IS post-acceptance model is similar to TAM on two counts: 1) "it employs individual cognitive factors for predicting (continued) IS use", and 2) "it

reflects the belief-affect-intention causality characteristic of most IS use theories” (p. 357).

TAM is a very popular model for explaining and predicting system usage. Numerous researchers have employed TAM to validate, extend, and apply TAM in various study settings. On the other hand, TAM has been widely criticized. Chuttur (2009) presents three limitations to the TAM model: 1) the methodology to measure system usage uses proxy data instead of actual use data, 2) the variables and relationships present within the model do not explicitly take into account some external factors which may have a direct influence on system usage (e.g. experience, level of education, and age), and 3) the theoretical foundation for the model is weak (Chuttur, 2009). For example, Bagozzi (2007) highlighted the poor theoretical relationship among the different constructs in TAM (Bagozzi, 2007).

Bagozzi (2007) feels that TAM focuses on each individual use with the concept of perceived usefulness and ignores the social consequences of IS use. He sees little research that has deepened TAM in the sense of explaining the perceived usefulness and perceived ease of use constructs, which has often “seduced researchers into overlooking the fallacy of simplicity” (Bagozzi, 2007, p. 244) and driven them away from scrutinizing specific determinants in different usage contexts. On the other hand, some observers see too much attention to such issues. Benbasat and Barki (2007) suggest that TAM “has diverted researchers’ attention away from other important research issues and has created an illusion of progress in knowledge accumulation. Furthermore, the independent attempts by several researchers to expand TAM in order to adapt it to the constantly changing IT environments has

lead[sic] to a state of theoretical chaos and confusion" (Benbasat & Barki, 2007, p. 211).

Additionally, TAM provides a limited explanation of observed continuance behaviors and views post-acceptance as an extension of the acceptance process but provides a basis upon which an improved model can be developed. From the research, it appears that TAM by itself and even with its extensions is somewhat weak in the ability to predict post-acceptance continued IT usage (Doong & Lai, 2008; Nathwani & Eason, 2005) or to explain discontinuance after successful acceptance (Bhattacharjee, 2001b).

The next section discusses EDT to assess post-purchase intentions regarding a product or service and to predict user intentions in continuing to use IT. The following section will discuss a model of post-adoption user behaviors toward intentions to continue the use of IT.

Table 2.2 Prior Research on Extended Technology Acceptance Model

## A. Extended TAM with construct(s)

Study	Theoretical-Base	Extended Construct / Model or Theory	Application	Population	Analysis
(Compeau & Higgins, 1995)	TAM	Computer self-efficacy	Computer use	1020 Canadian manager and professionals	PLS
(Liu & Arnett, 2000)	TAM	Playfulness	Electronic commerce	Webmasters	-
(Joo, Bong, & Choi, 2000)	TAM	Internet self-efficacy	Web-based instruction	152 junior high school students in Seoul Korea	-
(Moon & Kim, 2001)	TAM	Playfulness	Individual use of WWW	152 graduate students	CFA
(Suh & Han, 2002)	TAM	Trust	Internet banking	845 internet banking users	LISREL
(Hsu & Chiu, 2004a)	TAM	Internet self-efficacy	Filing income tax through WWW	276 MBA students in Taiwan	LISREL
(Hsu & Chiu, 2004b)	TAM	Playfulness	Continuance electronic services	157 computer users in Taiwan	LISREL
(Wu & Chen, 2005)	TAM	TPB, trust	On-line text e-service	1032 on-line income tax users	AMOS
(Deng, Turner, & Gehling, 2008)	TAM	Utilitarian and hedonic	Mobile Internet service on user satisfaction	-	-
(Wang, Xu, & Chan, 2008)	TAM	Computer self-efficacy	Facebook social networking	110 undergraduate students	PLS
(Hua, 2009)	TAM	Privacy policy and security	Online banking acceptance in China	110 under graduate students	ANCOVA
(Ha & Stoel, 2009)	TAM	E-shopping quality, enjoyment and trust	e-shopping	385 university students	AMOS

Note: TAM = Technology Acceptance Model; WWW = World Wide Web; TPB = Theory of Planned Behavior; PLS = Partial Least Squares; CFA = Confirmatory Factor Analysis; AMOS = Analysis of Moment Structures

Table 2.2 (continued)

## B. Extended TAM with theory or model

Study	Theoretical-Base	Extended Construct / Model or Theory	Application	Population	Analysis
(Dishaw & Strong, 1999)	TAM	TTF	Maintenance projects	60 maintenance project with working programmer analysts	Path analysis
(Koufaris, 2002)	TAM	Flow Theory	Web-based stores (bookstores)	300 international respondents	Linear regression
(Chen, Gillenson, & Sherrell, 2002)	TAM	IDT	Virtual store context	253 on-line consumers	LISREL
(Hung & Chang, 2005)	TAM	TPB and decomposed TPB model	WAP	267 WAP users	AMOS
(McFarland & Hamilton, 2006)	TAM	SCT as individual contextual specificity	Information technology	114 end-users from mid to large organizations	PLS
(Shih, 2006)	TAM	SCT assessing individual effects of self-efficacy	Computing learning	367 IT-related senior undergraduate students	LISREL
(Luo, Remus, & Chea, 2006)	TAM	Uses and Gratification (U&G)	Internet-based information services	#1-132, #2-225, #3-73 statistics classes students	PLS
(Wu, Chen, & Lin, 2007)	TAM	TTF, network externality, subject norm, computer self-efficacy and computer enjoyment	End user computing using IT	130 end user computing	LISREL
(Chang, 2008)	TAM	TTF	Web-based auction process	388 on-line auction experience users	Multi regression analysis
(Lu, et al., 2009)	TAM	TPB, Flow Theory	Instant messaging applications	250 high school, undergraduates and working professionals	ANOVA

Note: TAM = Technology Acceptance Model; TTF = Task-Technology Fit Theory; TPB = Theory of Planned Behavior; SCT = Social Cognitive Theory; U&G = Uses and Gratification; IDT = Innovation diffusion theory; WAP = Wireless application protocol; SEM = Structural Equation Modeling; PLS = Partial Least Squares; CFA = Confirmatory Factor Analysis; AMOS = Analysis of Moment Structures

Source: Developed for this research

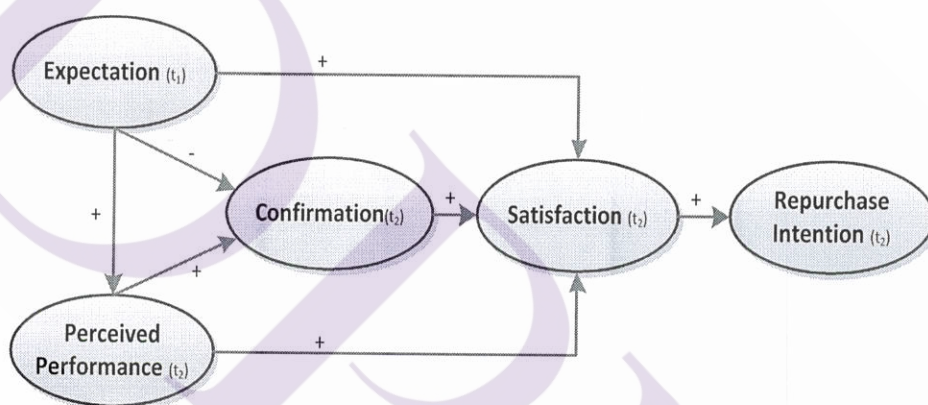
### 2.3 Expectancy Disconfirmation Theory (EDT)

Expectancy disconfirmation theory (EDT) is regarded as an extension of cognitive dissonance theory (CDT). EDT was proposed by Oliver (1980a), and enjoys widespread acceptance in the marketing literature. The theory explains and predicts consumer satisfaction and intention to repurchase products and services (Oliver, 1980a). The model is also called the disconfirmation of expectation theory (Swan & Trawick, 1981). Using the model, consumer intention to repurchase products and services is determined in a five-step process:

- 1) Consumers form an initial expectation of a specific product or service based on product information and on reports from other prior users.
- 2) Consumers accept and use a product or service, forming opinions based on their actual experience of its performance in comparison to previous expectations.
- 3) The initial expectations of consumers and perceived performance are compared. Consumers determine the extent to which their initial expectations were positively disconfirmed (perceived performance exceeds expectations), confirmed (perceived performance equals expectations) or negatively disconfirmed (perceived performance falls short of expectations).
- 4) Consumer satisfaction or dissatisfaction is determined based on the level of disconfirmation of initial expectations.
- 5) Consumer satisfaction or dissatisfaction levels influence consumer intention to repurchase or continue using a product or service.



Satisfaction is determined by the initial expectations of the product or service and confirmation of the extent to which user expectations are met during actual usage. The level of consumer satisfaction is therefore a positive function of the difference between expectation and perceived performance. Figure 2.3 depicts the ECT relationship. This dissertation used the term “expectation-confirmation theory (ECT)” referring to its theory as well as model, and “expectation-disconfirmation theory (EDT)” referring to its theory as well as model for the purpose of consistency. EDT is an alternative name for ECT.



Note: t1 = pre-consumption variable; t2 = post-consumption variable

Figure 2.3 Expectation-Confirmation Theory (ECT)

Source: (Based on Oliver, 1980a)

Expectation confirmation/disconfirmation theory has been studied in the context of many different products and services, including automobile repurchase (Oliver, 1993; Yoon & Kim, 2000), local public services (James, 2009), online auctions (Yen & Lu, 2008), restaurant service (Swan & Trawick, 1981), video disc players, hybrid plants (Churchill & Surprenant, 1982), and camcorders (Yoon & Kim, 2000).

In the IS literature, several researchers have adopted the predictive capacity of EDT to conceptualize and validate the theoretical relationship between acceptance and continuance behavior:

- 1) Individual acceptance behavior (intention to use IT), such as online or web customers (McKinney, Yoon, & Zahedi, 2002), and application service provider services (ASP) (Anjana Susarla, Anitesh Barua, & Andrew B Whinston, 2003).
- 2) Individual continuance behavior (intention to continue), such as e-negotiation systems (Doong & Lai, 2008), web-portals (Lin, Wu, & Tsai, 2005; Wu & Padgett, 2004), mobile internet services (Thong, Hong, & Tam, 2006), web-based server software platforms (Limayem, Cheung, et al., 2003), and e-learning systems (Hayashi, Chen, Ryan, & Wu, 2004a).

Table 2.3 summarizes previous research on extending EDT to IS usage and continuance.

The concept of EDT has also been examined and expanded in two ways to conceptualize individual continuance behaviors.

- 1) An extended model with added constructs. Researchers have extended the model to predict continuance intentions as determined by satisfaction and loyalty incentives using business-to-consumer services with online brokerages (Bhattacharjee, 2001a), website playfulness (Lin, et al., 2005), and enjoyment and ease of use (Thong, et al., 2006).
- 2) Extensive research has been conducted on the extended model behind online customers and web-based services. This includes areas such as

adding customer loyalty constructs to online customers

(Atcharyachanvanich, Okada, & Sonehara, 2007), perceived enjoyment of a website (Min & Shenghua, 2007), perceived ease of use when using mobile data services (Hong, Thong, & Tam, 2005; Hong, et al., 2006), and perceived utilitarian and hedonic performance when using mobile internet services (Deng, et al., 2008).

- 3) Integrating the model with other models. Hsu and his colleagues (2004) integrated social cognitive theory with EDT (Hsu, Chiu, & Ju, 2004). Bhattacharjee and Premkumar's (2004) study looks at integrating TAM with EDT to understand how user attitudes and beliefs change when they use different IT systems (Bhattacharjee & Premkumar, 2004).

Vatanasombut et al., (2008) extended ECT with TAM and commitment trust theory to study user continuance behavior with regard to web-based applications (Vatanasombut, Igbaria, Stylianou, & Waymond Rodgers, 2008). In the context of e-learning services, Roca et al. (2006) decomposed TAM and perceived performance components into perceived quality and perceived usability (Roca, Chiu, & Martínez, 2006).

Besides TAM, much research integrates Theory of Planned Behavior (TPB) with EDT. Hsu M. H. et al. (2006) extended a model of TPB by drawing two constructs from EDT – disconfirmation and satisfaction – to examine user continuance intentions in the context of online shopping (Hsu, Yen, Chiu, & Chang, 2006). Liao et al. (2007) also integrated EDM and TPB to predict and explain an individual's continued use of online services (Liao, Chen, & Yen, 2007).

While prior research has examined ECT with TAM or TPB independently in IT usage, Lee M. (2009) integrated ECT, TAM, TPB, and flow theory in explaining long-term e-learning usage intention (Lee, 2009).

Moving beyond EDT, the integration of TAM and TPB, several researchers have proposed integrated models to study individual continuance behavior, including the united theory of acceptance and use of technology (UTAUT). Areas studied include subject task value to study learners' continuance intention in web-based learning (Chiu & Wang, 2008), the thinking-feeling model to explore email user intentions to switch from their current service provider (Kim, Shin, & Ho Geun Lee, 2006), and the social capital theory to understand continuing usage of knowledge management systems (He & Wei, 2006). One study integrated ECT, TAM, Agency Theory, emotion factors and learning factors to look at continuance use of educational simulation games models (Tao, Cheng, & Sun, 2009). Liao and his colleagues (2009) proposed a new technology continuance theory (TCT), involving six constructs by integrating TAM, ECT, and the cognitive model (COG) (Liao, Palvia, & Chen, 2009).

Table 2.3 depicts previous studies on ECT and EDT extension with construct and integration with model or theory. The models (ECT and EDT) are determined primarily by their satisfaction with prior use of product or service (Oliver, 1980a, 1993). Anderson and Sullivan (1993) state that "Investing in customer satisfaction is like taking out an insurance policy. If some temporary hardship befalls the firm, customers will be more likely to remain loyal" (p.160) as a long-term consumers (Anderson & Sullivan, 1993, p. 160). Bhattacharjee (2001b) adapted ECT to propose a model of IS post-acceptance model using satisfaction as a main construct influencing IS continuance intention.

In the previous sections' discussion some of the conceptual models are getting pertly complex. Several researchers have preferred simple models to focus on the basics in theoretical based model, e.g., Bhattacharjee (2001b), used here.



Table 2.3 Previous Research on Expectation-Confirmation Model Extension

## A. ECT, ECM, and EDM extension with construct(s)

Study	Theoretical-Base	Extended Construct / Model or Theory	Application	Population	Analysis
(Deng, et al., 2008).	EDT	Cognitive absorption Perceived utilitarian	Mobile Internet service	-	-
(Bhattacharjee, 2001a) (Lin, et al., 2005)	ECT, TAM ECT	Hedonic performance Loyalty incentives Perceived playfulness	Online brokerages Web-portal	172 online bank users 300 undergraduate students from 3 universities	SEM SEM
(Hong, et al., 2005, 2006) (Thong, et al., 2006).	ECT ECT	Perceived ease of use Perceived enjoyment, Ease of use	Mobile Data Service (MDS) Internet Service	1826 MDS users 438 mobile internet service users	SEM SEM
(Atchariyachanvanich, Okada, & Sonehara, 2006) (Min & Shenghua, 2007),	ECT ECT	Customer loyalty Perceived enjoyment	E-commerce E-learning	1,125 Japanese online customers 131 undergraduate students	SEM SEM

Note: ECT = Expectation-Confirmation Theory; EDT = Expectancy-Disconfirmation Theory; SEM = Structural Equation Modeling

Table 2.3 (continued)

## B. EDT, EDM and ECM integration with model or theory

Study	Theoretical-Base	Extended Construct / Model or Theory	Application	Population	Analysis
(Hsu, et al., 2004)	EDT	Social cognitive theory	World Wide Web application	235 senior college students	SEM
(Bhattacharjee & Premkumar, 2004)	EDT	TAM	Computer-based tutorial, Rapid application development	Students	PLS
(Roca, et al., 2006),	EDT	TAM, Perceived performance (perceived quality and perceived usability)	E-learning	172 e-learning users from 4 international agencies of the United Nations	SEM
(Hsu, et al., 2006)	EDT	TPB	Online shopping context	250 in 1 <sup>st</sup> survey, 201 in 2 <sup>nd</sup> survey from college students in Taiwan	SEM
(Liao, et al., 2007)	EDT	TPB	E-learning	2014 students	SEM
(Vatanasombut, et al., 2008)	ECT	Commitment-Trust Theory, TAM	Online banking	1004 online banking customers	SEM
(Lee, 2009)	ECT	TAM, TPB, Flow Theory	E-learning	363 Web-based learning users	SEM

Note: ECT = Expectation-Confirmation Theory; EDT = Expectancy-Disconfirmation Theory; TPB = Theory of Planning Behavior; SEM = Structural Equation Modeling; PLS = Partial Least Squares

Table 2.3 (continued)

## C. Other integrated models to study individuals' continuance behavior

Study	Theoretical-Base	Extended Construct / Model or Theory	Application	Population	Analysis
(Kim, et al., 2006)	Thinking-Feeling Model	Thinking (Usefulness) Arousal) Feeling (Pleasure, Arousal)	E-mail Mobile internet service	1408 email service users	SEM
(He & Wei, 2006)	PAM, TAM	Social Capital Theory (SCT)	Knowledge management systems (KMS)	319 KMS users	PLS
(Chiu & Wang, 2008)	UTAUT	Subjective task	Web-based learning	286 web-based learning users	SEM
(Tao, Cheng, & Sun, 2009)	ECT, TAM	Agency Theory, Constructivism and motivation theory (learning factors and emotion factors)	Educational simulation games model	185 students	PLS
(Liao, et al., 2009)	ECT, TAM	Cognitive Model (COG)	University e-learning system	626 university students	SEM

Note: TAM = Technology Acceptance Model; ECT = Expectation-Confirmation Theory; SEM = Structural Equation Modeling; PLS = Partial Least Squares; CFA = Confirmatory Factor Analysis; UTAUT = United Theory of Acceptance and Use of Technology.

Source: Developed for this research



The initial user experience has an impact on IT usage. It is an important indicator of continuance. IS researchers have therefore recognized the need for further study of post-adoptive behavior by dividing post-adoption behavior into new sub-phenomena. Therefore, post-acceptance or continued usage research has increased in the current IS literature. Bhattacharjee (2001b) integrated TAM and ECT in IS research and proposed the post-acceptance model of IS continuance. Bhattacharjee was one of the first to conceptualize and empirically validate a theoretical model of IS continuance.

#### **2.4 Post-Acceptance Model of IS Continuance**

The post-acceptance model of IS continuance (PAM) proposed by Bhattacharjee (2001b) suggests that perceived usefulness and satisfaction directly influence IS continuance intention. The model was developed based on ECT deployed in the area of research into consumer behavior (Oliver, 1980b). The ECT model suggests that consumer intentions to re-purchase a service or good after the initial purchase are influenced by the level of satisfaction resulting from the consumption or use of their purchase. Therefore, the level of initial satisfaction is regarded as an indicator and a possible cause of consumer loyalty to an organization. The same principle is applied in IS service organizations. Hence, continuance behavior may be defined as explaining user intention to continue (or discontinue) using an IS, where a continuance decision follows an initial acceptance decision.

Bhattacharjee (2001b) asserts that it is less costly for an IS-based organization to invest in promoting the loyalty of existing customers than to find new ones, as the process of searching for these customers and setting up their accounts

contributes to business costs. This is aside from other costs incurred through convincing customers to use an organization's services because the organization would, in turn, need to encourage these new customers to stay. Such an effort results in costs arising from activities such as promotions and discounts. The post-acceptance model of IS continuance is the most widely cited and influential model in explaining this IS continuance intention (Cheung & Limayem, 2005). Figure 2.4 illustrates the key constructs and relationships of the model.



Figure 2.4 Post-Acceptance Model of IS Continuance

Source: (Bhattacharjee, 2001b)

The post-acceptance model (Figure 2.4) seeks to explain user intentions to continue or discontinue using an IS. The model was constructed on the assumption that a user's expectation toward using an IT system, after initial acceptance and use, should not be different from his/her expectations before using it, assuming their pre-acceptance expectations are confirmed when the IS system matched prior expectations (perceived performance equals expectations). At the same time, users will form judgments about benefits from perceived usefulness, and so their intention to continue

using an IS will be influenced by perceived usefulness and satisfaction. The model thus plays an important role in determining customer satisfaction, and also directly affects decisions to continue to use an IS. In other words, the model can be explained in the following steps:

- 1) Users form an initial expectation regarding an item's usefulness, which is confirmed (or not) when they accept and use.
- 2) When they accept and use the item, they then form perceptions of its actual usefulness.
- 3) They assess their satisfaction with regard to the item.
- 4) Finally, if satisfied and they think it is useful, users form an intention to continue to use the item.

Bhattacharjee (2001b) indentified PAM as a post-acceptance model by transforming the mixed pre- and post-consumption aspects from prior theories including usage behavior, which is commonly labeled as post-implementation (Saga & Zmud, 1994) or post-adoption (Jasperson, et al., 2005). Table 2.4 shows the distinctions between acceptance and post-acceptance behaviors in TAM and PAM respectively (Bhattacharjee, 2001b).

Table 2.4 Distinctions between Acceptance and Post-Acceptance Behaviors

Similarity	Dissimilarity
<ol style="list-style-type: none"> <li>1. Employs individual cognitive factors.</li> <li>2. Reflects the belief-affect intention causality quality of most IT usage theories.</li> </ol>	<ol style="list-style-type: none"> <li>1. TAM focuses on initial acceptance. PAM explains continuance behavior.</li> <li>2. TAM is probably better for initial trial (as 'acceptance' implies). PAM is a more sophisticated model from the perspective of post-acceptance variables, as these variables are in greater temporal proximity to continuance behaviors.</li> <li>3. TAM cannot provide reasonable explanations of the acceptance-discontinuous anomaly based on a common set of pre-acceptance variables.</li> </ol>

Source: Adapted for this research from (Bhattacharjee, 2001b; Davis, 1989; Doong & Lai, 2008)

Following a similar notion regarding the construct of intention in TRA (Ajzen & Fishbein, 1980), TPB (Ajzen, 1991), and TAM (Davis, et al., 1989), continuous intention is a measure of an IS user's intention to use an IS on a regular basis without stopping in the near future. According to Ajzen (1991), intentions "are assumed to capture the motivational factors that influence a behavior; they are indications of how hard people are willing to try, of how much of an effort they are planning to exert, in order to perform the behavior" (Ajzen, 1991, p. 181).

The concept of PAM was examined to conceptualize individuals' post-adoptive behavior and is classified in two ways:

1) *Extending PAM with new constructs*. Much prior IT research incorporated perceived ease of use from TAM into the model to study various contexts (Sørebø & Eikebrokk, 2008). Lee and Kwon (2009) proposed two new constructs, familiarity and intimacy, to examine how cognitive and affective factors

are inter-related and how they affect continuance intention (Lee & Kwon, 2009). Tan and Chen (2008) incorporated network externality to examine nonbank-issued programs (Tan & Chen, 2008).

In recent studies, Tsai and Yen (2010) integrated perceived function usefulness and perceived social usefulness into PAM to study blog usage (Tsai & Yen, 2010). Wang and his colleagues (2008) approached innovation with IT as a post-acceptance usage behavior to support individual task performance by integrating managerial and individual factors (Wang, Hsieh, Butler, & Hsu, 2008).

Numerous prior researchers incorporated a construct and a moderator into PAM. Limayem and his colleagues extended PAM as a way of considering habits as moderators of the relationship between continuance intention and continuing usage to investigate online web-based learning usage (Limayem, Hirt, & Cheung, 2003), world wide web usage (Limayem, et al., 2007), and Internet-based learning technology (Limayem & Cheung, 2008).

A number of studies have extended Limayem et al.'s (2007) model with the personalization construct (Mark & Vogel, 2009) and with critical mass (Barnes & Böhringer, 2009). One study applied computer self-efficacy (CSE) as a moderating variable and revealed that CSE does not have a significant effect on learning outcomes (Hayashi, Chen, Ryan, & Wu, 2004b).

PAM has been extended by various researchers to address issues related to the foci of their research. Limayem and his colleagues extended PAM by including a habit construct to better explain the automatic nature of IS continuance (Limayem & Cheung, 2008; Limayem, Hirt, et al., 2003; Limayem, et al., 2007), Wang & Datta incorporated commitment theory in order to understand IS continuance (Wang &

Datta, 2006) and Oo Tha, Poo & Yu (2009) added Sunk Cost Theory into PAM to study virtual learning environment contexts (Oo Tha, et al., 2009).

Such extensions are not needed for this research, where the focus is only on continuance. In this study, the basic PAM framework has been adapted by integrating service fairness to place the focus on satisfaction that enhances continuance intention. The study demonstrates that the basic PAM applies; otherwise there is no need to worry about whether the service fairness elements influence satisfaction. But the simple basic PAM is sufficient for this.

2) *Integrating the PAM model with another model or theory.* A recent study integrated the information adoption model (IAM) (Sussman & Siegal, 2003) with PAM to explain user continuance in virtual communities (Jin, Cheung, Lee, & Chen, 2009). Wang and Hsieh (2006) integrated IS infusion and symbolic adoption theory (SAT) with PAM to understand extended and emergent use in mandatory organizational contexts (Wang & Hsieh, 2006).

Several researchers have integrated PAM with another model, using a moderator. For instance, Datta and Wang (2007) proposed a comprehensive technology commitment model. This included affective commitment, calculative commitment, and normative commitment, combined with PAM. Technological inertia was added as a moderator on the continued use of IS (Datta & Wang, 2007). One study employed reputation, trust, and social ties to test with an e-learning community and the results revealed that reputation and social ties were found to be significant (Oo Tha, et al., 2009).

Numerous studies have compared TAM and PAM to explain IT continuance intention. For example, Premkumar & Bhattacharjee's (2008) study was

a longitudinal exploration of computer-based tutorial usage (Premkumar & Bhattacharjee, 2008). Hong and his colleagues (2006) studied user behavior in mobile Internet usage by comparing PAM, TAM, and extended ECM with perceived ease of use. They concluded that TAM and extended ECM explain continued IT usage behavior (Hong, et al., 2006).

Table 2.5 depicts previous studies on PAM extension with construct and integration model or theory.



Table 2.5 Previous Research on Post-Acceptance Model of IS Continuance

## A. PAM extension with construct(s)

Study	Theoretical-Base	Extended Construct / Model or Theory	Application	Population	Analysis
(Sorebo & Eikebrokk, 2008)	PAM	Perceived ease of use	Cash transaction system	500 waiters and shop assistants	SEM
(Tan & Chen, 2008)	PAM	Network externality	POS e-micropayment program	526 bank customers	Multiple regression
(W. Wang, et al., 2008)	PAM	Managerial and individual factors	Complex information technologies (ERP package)	200 ERP users	SEM
(Lee & Kwon, 2009)	PAM	Familiarity and intimacy	Online shopping services	Web-based service users	-
(Tsai & Yen, 2010)	PAM	Deconstruct perceive usefulness (function usefulness and social usefulness)	Blogs	110 blog users	PLS

Note: PAM = Post-Acceptance Model of IS Continuance; POS = Point of Sales; ERP = Enterprise resource planning; SEM = Structural Equation Modeling; PLS = Partial Least Squares



Table 2.5 (continued)

## B. PAM extension with construct and moderator

Study	Theoretical-Base	Extended Construct / Model or Theory	Application	Population	Analysis
(Limayem, Cheung, et al., 2003)	PAM	IS habit	Online web-based learning system	281 university students	PLS
(Hayashi, et al., 2004b)	PAM	Computer self-efficacy (CSE)	E-learning systems	110 university students	CFA
(Limayem, et al., 2007)	PAM	IS habit	World wide web	553 (1 <sup>st</sup> ), and 227 (2 <sup>nd</sup> –3 <sup>rd</sup> ) university undergraduate students	PLS
(Limayem & Cheung, 2008)	PAM	IS habit	Internet-based learning technology	505 students	PLS
(Mark & Vogel, 2009)	PAM	Habit, Personalization construct	Learning systems	22 university students	PLS
(Barnes & Böhlinger, 2009)	PAM	Habit, Critical mass	Web-based micro blogging service	131 Twitter users	PLS

Note: PAM = Post-Acceptance Model of IS Continuance; IS = Information System; SEM = Structural Equation Modeling; PLS = Partial Least Squares; CFA = Confirmatory Factor Analysis

Table 2.5 (continued)

## C. PAM integration with model or theory

<b>Study</b>	<b>Theoretical-Base</b>	<b>Extended Construct / Model or Theory</b>	<b>Application</b>	<b>Population</b>	<b>Analysis</b>
(Wang & Hsieh, 2006)	PAM	Symbolic adoption theory	Complex information technologies (ERP package)	385 ERP users	SEM
(Datta & Wang, 2007)	PAM	Technology commitment model (Affective, Calculative, Normative)	Webmail technology services	319 university students	SEM
(Jin, et al., 2009)	PAM	Information Adoption Model	Virtual communities (web-based bulletin board systems)	240 university students	PLS
(Oo Tha, et al., 2009)	PAM	Sunk Cost Theory (reputation, social)	E-learning	120 university students	SEM

Note: PAM = Post-Acceptance Model of IS Continuance; SEM = Structural Equation Modeling; PLS = Partial Least Squares; ERP = Enterprise resource planning

Source: Developed for this research

The discussions show that several conceptual models in previous studies are getting more complex. Therefore, this study used the basic PAM model as the theoretical based model, and extended the model from satisfaction, which is the main construct influencing continuance intention. Confirmation and perceived usefulness remain in the research model. Then, this study proposes a simple research model.

The following sections describe PAM and develop the concepts of fairness, especially as they might apply to service fairness contexts, and then state specific research hypotheses and their rationales. The research model in Figure 2.1 commences with confirmation, which influences perceived usefulness and satisfaction.

Confirmation is defined as individuals' perception of the congruence between expectation of use and its actual performance (Bhattacharjee, 2001b). Bhattacharjee's (2001a, 2001b) empirical studies established that the level of user confirmation influences the perceived usefulness in business-to-business e-commerce services (Bhattacharjee, 2001a), and also in online banking services (Bhattacharjee, 2001b). Several studies empirically validated the same positive correlation in virtual learning (Hayashi, et al., 2004b), web portals (Lin, et al., 2005), and in mandated environments (Sørebø & Eikebrokk, 2008). Confirmation in this study is defined as an individual user's perception of the congruence between expectations of application use and its actual performance.

Next, perceived usefulness is one of the two main constructs in TAM and is conceptualized as an important construct influencing a user's intention to adopt a system. Perceived usefulness also influences subsequent continuance decisions. Perceived usefulness is defined as individuals' perception of the expected benefits of

IS use (Bhattacharjee, 2001b). To understand this assumption, it should be remembered that usefulness assesses the degree to which an IS gives ease of use and/or access to increased performance, while post-acceptance satisfaction assesses the user's positive, indifferent, or negative experience of using the IS. Perceived usefulness, in this study, is defined as the degree to which an individual user believes that a particular system will enhance his or her job performance by reducing the time to complete a single task thereby leading to continued use.

At the acceptance stage, customers as users are uncertain about what to expect from a new system because they may have less information about the system. Due to this circumstance, customers may have low initial perceived usefulness of the system (Bhattacharjee, 2001b). Customers' initial perceived usefulness can be easily confirmed (or not) as soon as they have actual experience with the system. The customers may have varying confirmation experiences and satisfaction levels in different systems. On the other hand, customers may experience cognitive dissonance. Thus, customers often have the tendency to adjust their perceptions to be consistent with their perceived reality. However, if the use of the system generates worse results, the disconfirmation will negatively alter the pre-established perceived usefulness. These results suggest that confirmation can enhance perceived usefulness or positive correlation between confirmation and perceived usefulness may still hold. Therefore, the better confirmation experience they have, the higher the customers perceive system usefulness. The above discussion leads to the following hypothesis:

***H<sub>1</sub>***: The extent to which a user's expectations are confirmed is positively associated with a perceived level of usefulness.

Service organizations can benefit from increasing customer satisfaction by lower marketing costs and improved profits; reducing customer defection by 5% can increase profits from 25% to 85% (Reichheld & Sasser, 1990). Bhattacharjee (2001b) mentions that “long-term viability of an IS and its eventual success depend on its continued use rather than [its] first-time use.” (pp. 351-352), so satisfaction to foster continual use is critical.

Customer satisfaction is a widely researched topic in marketing and IS literature. Researchers have focused on understanding how users form perceptions of satisfaction, what factors or dimensions influence customer satisfaction, and how this impacts customer intention to continue to use technology.

In marketing literature, “satisfaction may be merely a judgment with cognitive and affective dimensions, whereas repurchase intention also has a behavioral component” (Mittal, Ross, & Baldasare, 1998, p. 35). Satisfaction literature has shown a significant link between satisfaction and intention to repurchase (Cronin & Taylor, 1992; Oliver, 1980b).

One of the definitions of satisfaction from Spreng, MacKenzie, & Olshavsky (1996) is “an affective state that is the emotional reaction to a product or a service experience” (p. 17). In the online context, e-satisfaction is a key determinant of technology acceptance and continued usage (Cenfetelli, Benbasat, & Al-Natour, 2008; Devaraj, Fan, & Kohli, 2002). Instead of focusing on the system’s functional characteristics, IS user satisfaction has come to be seen as an important factor. User satisfaction is therefore defined as the end-user’s perception when interacting with a specific application (Kwok, Land, & Stephens, 2009). Thus, satisfaction in this study is defined as an overall evaluation based on past experiences with system and services

over time, rather than transaction-based satisfaction, which is usually an immediate post-acceptance evaluative judgment (Oliver, 1993).

Levels of customer satisfaction result from many factors, although these are all grounded in the customer's experiences with services and a service provider.

Szymanski and Henard's (2001) studied effects on customer satisfaction, including expectations, disconfirmation of expectations, perceived performance, and affect and fairness (Szymanski & Henard, 2001). Other research has shown that equity/fairness has a significant impact on customer satisfaction (Oliver & Swan, 1989a).

A number of studies empirically validate that confirmation and satisfaction have a causal link (Oliver, 1980a; Oliver & Bearden, 1985; Oliver & DeSarbo, 1988).

The IS post-acceptance model finding that confirmation is positively related to satisfaction with IS use happens because confirmation implies a realization of the expected benefits of IS use. However, disconfirmation denotes failure to achieve expectation (Bhattacharjee, 2001b). This indicates that confirmation and satisfaction are closely related in IS contexts. On the other hand, "disconfirmation (perceived performance lagging behind expectation) denotes failure to achieve expectation" (Bhattacharjee, 2001b, p. 356). This confirmation-satisfaction association is supported through a number of IS continuance studies (e.g. (Bhattacharjee, 2001a, 2001b; Hayashi, et al., 2004b; Lin, et al., 2005; Liu & Ma, 2005; Sørø & Eikebrokk, 2008).

According to users' satisfaction, confirmation will influence satisfaction. As the customers continue using the system with improved results, the confirmation of better than expected results can influence users' satisfaction in a positive way. For instance, organizational customers using a mandated system have no power to decide whether or not to use the system, confirmation of outcome expectation may facilitate

their mental acceptance of positive evaluation of the system use. Thus, confirmation positively influences satisfaction. Therefore, this research proposes the following hypotheses:

*H<sub>2</sub>*: The extent to which a user's expectations are confirmed is positively associated with the perceived level of satisfaction.

In line with Bhattacharjee (2001b), this study assumes that confirmation of expectation and perceived usefulness from prior use are the main antecedents of post-acceptance user satisfaction. Bhattacharjee (2001b) found that "usefulness impacts attitude substantively and consistently during stages of IS use" (p.356) and showed that perceived usefulness influences the post-acceptance satisfaction of individual users. Perceived usefulness is thus a salient ex-post expectation (Bhattacharjee, 2001b).

According to PAM, post-acceptance satisfaction and perceived usefulness are significantly and positively correlated. The relationship between these two constructions has been validated empirically in previous research. Bhattacharjee's (2001a, 2001b) studies empirically assessed perceived usefulness, and asserts that it is a significant determinant of user satisfaction. Other research indicates that perceived usefulness was positively correlated with satisfaction in on-line training (Hayashi, et al., 2004b) and continuance of web site usage (Lin, et al., 2005).

Other previous empirical research shows that usefulness perceptions impact attitude substantively and consistently during both pre-acceptance and post-acceptance stages of IS use. Accordingly, post-acceptance perceived usefulness is adopted as the predictor of satisfaction in post-acceptance model. In accordance with these observations, the higher a user perceives the system to be useful, the more

satisfied which he or she will be with the system. Thus, the third hypothesis proposed is as follows:

**H<sub>3</sub>:** The perceived usefulness of IS use is positively associated with a user's level of satisfaction with the IS use.

Repurchase intention is established after having a service experience.

Kwok, Land, & Stephens (2009) identified relationship satisfaction as the relationship between a consumer and a given organization, and the relationship arises from continuing to use a company's products (Bolton and Lemon, 1999). Hence, long-term relationships between a company and a customer can be established based on loyalty, trust, and commitment to products and to the organization (Caceres and Paparoidamis, 2007).

Based on TAM, the perceived usefulness of the system can significantly influence an individual user's decision to adopt an IS. Bhattacharjee's (2001b) study showed that perceived usefulness influences a user's decision to continue to use an IS. Perceived usefulness is thus a salient ex-post expectation.

Enhanced job performance here means a reduction in the time to accomplish a given task. A user's level of satisfaction and perceived usefulness are two key determinants of continuance intention. Perceived usefulness will positively influence continuance intention and lead to his or her continuing to use the system. Therefore, this yields the fourth hypothesis.

**H<sub>4</sub>:** The extent to which a user perceives positive usefulness of the IS, is positively associated with intention to continue use.



IS views relationship satisfaction as a basis for the continued intention to use IS (Bhattacharjee, 2001b). User satisfaction is a significant factor in the IS context (Bhattacharjee & Premkumar, 2004; A. Susarla, A. Barua, & A. B. Whinston, 2003). Several IS researchers have developed instruments to measure user satisfaction (Bailey & Pearson, 1983; Ives, Olson, & Baroudi, 1983) or end-user computing satisfaction (Doll & Torkzadeh, 1988). User satisfaction is a significant factor affecting system usage, and it has the strongest and most direct effect on individual impact (Igarria & Tan, 1997).

Bhattacharjee (2001b) adapted ECT and validated the thesis that IS continuance intention is strongly predicted by an individual user's satisfaction while perceived usefulness is a second predictor (Bhattacharjee, 2001b). Other IS researchers have also found that user satisfaction is a strong predictor of system use (Baroudi, Olson, & Ives, 1986).

IS user continuance intention is thus identical to consumer repurchasing intention. The literature reveals that satisfaction influences future repurchase intentions in marketing research (Bitner, 1990; Oliver, 1981) and continuance intention in IS research (Bhattacharjee, 2001b; Chen, 2007; Chiu, Hsu, Sun, Lin, & Sun, 2005; Hayashi, et al., 2004b; Hsu, et al., 2004; Lin, et al., 2005; Oo Tha, et al., 2009). Consistent with these studies, user satisfaction with prior use of the system has a strong and positive impact on user intention to continue using the system. The more an individual user is satisfied with the prior usage experience, the higher the chance that he or she will continue to use the system. Thus, the relationship between satisfaction and IS continuance intention can be tested via the following hypothesis:

*H<sub>5</sub>*: A positive level of satisfaction with initial IS use is positively associated with continuance intention.

This section has shown that ECT was introduced in the field of marketing but has been successfully applied in the study of post-acceptance behavior in IS continuance intention. Satisfaction in PAM is the main criterion determining this continuance; many studies have provided empirical evidence to show that satisfaction is a significant factor influencing continuance (Bhattacharjee, 2001b; Chen, 2007; Hsu, et al., 2004).

The discussion now turns to an examination of service fairness examined from the standpoint of organizational fairness and with respect to its influence on user satisfaction.

## **2.5 The Structure of Organizational Fairness**

The literature on organizational fairness shows that previous studies emphasized organizational fairness as an important construct, which has been widely discussed in the field of organizational behavior (Beugre & Baron, 2001; Colquitt, Conlon, Wesson, Porter, & Ng, 2001). Prior studies used the term 'justice' and 'fairness' interchangeably. This dissertation uses the term 'fairness' for the purpose of consistency. Organizational fairness has also received attention in the context of employee perceptions of fairness in the workplace with regard to matters such as job satisfaction, complaint handling, dispute resolution (Nabatchi, Bingham, & Good, 2005), human resource management (Folger & Greenberg, 1985), customer satisfaction with services (Clemmer, 1993) and service management, including service delivery (Clemmer, 1993; Groth & Gilliland, 2001).

Organizational fairness may be defined as the perception of fairness by an individual in the working environment (Byrne & Cropanzano, 2001; Greenberg, 1990). Service fairness is an individual's perception of the degree of fairness in a service personnel firm's behavior (Seiders & Berry, 1998) or in a software service provider personnel behavior in IS context. Scholars have identified various dimensions of fairness. The first two-dimensional understanding of organizational fairness analyzed distribution fairness (the fairness of the outcomes of a particular decision) and procedural fairness (the fairness of the process which lead to the outcome) (Byrne & Cropanzano, 2001). Bies and Moag (1986) proposed interactional fairness (the fairness of interpersonal treatment) as the third dimension of fairness. Interactional fairness split off from procedural fairness, and refers to the perceived fairness of interpersonal treatment.

These three dimensions of fairness have been studied by several marketing scholars (Blodgett, Hill, & Tax, 1997; Goodwin & Ross, 1992; Tax, et al., 1998) to investigate service recovery and customer satisfaction (Chang & Hsu, 2007; Kau & Loh, 2006), service failures and complaints (Park, Lehto, & Park., 2008), employee versus supervisor ratings of performance (Netemeyer & Maxham, 2007), and customer satisfaction in service management and return intention (Clemmer, 1993). Over the years, various typologies and configurations, analyzed in either two or three dimensions, have been proposed in discussions of organizational fairness (Greenberg, 1993).

Researchers in management and marketing have investigated the relationship between organizational fairness and satisfaction. The literature suggests that fairness could play a significant role in service failure and recovery (Huang &

Lin, 2005; Lewis & Spyropoulos, 2001; Smith, et al., 1999; Yang & Peng, 2009) and service management (Clemmer, 1993; Seiders & Berry, 1998). Several dissertations have also studied this relationship (Clemmer, 1988; Maxham, 1998; Severt, 2002; Tax, 1993). In service management, perceptions of fairness are important antecedents of customer satisfaction (Holbrook & Kulick, 2001). Clemmer's (1993) study found that service fairness leads to satisfaction and another study of hospital patient satisfaction found that equity and expectation affected satisfaction and return intention (Swan, Sawyer, Van Matre, & McGee, 1985). Table 2.6 depicts a summary of previous research on three fairness dimensions.



Table 2.6 Previous Research on Three Fairness Dimensions

Study	Variable name	Application	Population	Analysis	Notable findings
(Tax, 1993)	PJ, DJ and IJ on satisfaction	Complaint handling	Employees of 4 service firms	CFA, Path analysis	Distributive and Interactional justice related to trust, commitment, and satisfaction
(Smith, et al., 1999)	PJ, DJ and IJ on satisfaction with service encounter	Service setting (restaurants and hotels)	602 samples	Regression coefficients	Positive perceptions of distributive, procedural, and interactional fairness significantly enhance customer satisfaction
(Teo & Lim, 2001)	PJ, DJ and IJ on retail satisfaction and repatronage intentions	Retailing setting	215 undergraduates enrolled in a university in Singapore	SEM (LISREL)	PJ, PJ and IJ are positively and significantly related to customers' satisfaction with retailers.
(Maxham & Netemeyer, 2002)	PJ, DJ and IJ on satisfaction, WOM intent, purchase intent	A service or product failure and a recovery attempt	#1 – 3 surveys (1,356, 208, 692) banking service #2 – 3 surveys (746,617, 339 samples) homebuilder, sales, and service	Path analysis	PJ and IJ more influential firm satisfaction than DJ, satisfaction partially mediates the effects of justice on WOM intent and purchase intent
(Davidow, 2003)	PJ, DJ and IJ on satisfaction and post complaint customer behavior (word-of-mouth or repurchase intention)	Complained to a company and received a response	319 university students in an introduction marketing class	SEM (LISREL)	Word-of-mouth plays an important role in the complaint process affecting perceived fairness, satisfaction and repurchases intentions. Distributive fairness is the most influential fairness dimension but word-of-mouth has the large impact on satisfaction.

Table 2.6 (continued)

Study	Variable name	Application	Population	Analysis	Notable findings
(Kau & Loh, 2006)	PJ, DJ and IJ on satisfaction to trust, WOM and loyalty	Service recovery from mobile service provider	153 complainants and 275 non-complainants students and general public	Multiple regression	Complainants' level of satisfaction significantly affected by perceived fairness, outcomes of complainants (trust, WOM, loyalty) to be affected by satisfaction Working progress paper
(Huang & Lin, 2005)	PJ, DJ and IJ on satisfaction with explanation and overall company satisfaction	Employees' perceived fairness and organizational citizen behavior	-	-	DJ and IJ but not PJ had positive impacts on users satisfaction
(Kwun & Alshare, 2007)	PJ, DJ and IJ on user satisfaction with IS department	Information systems development process on user satisfaction with the IS department	123 middle-level managers	PLS	Agent-system model as procedural fairness (and distributive fairness) had more influence on satisfaction with appraisal feedback than components of interactional fairness perceptions. IJ not as important in off-line setting, PJ important in on-line setting, verify moderating effects of transaction experience, DJ showed the highest compliant frequency and significant difference in fairness dimensions
(Jawahar, 2007)	PJ, DJ and IJ on satisfaction	Appraisal systems	163 employees of a large retail chain	SEM (LISREL)	
(Chang & Hsu, 2007)	PJ, DJ and IJ on satisfaction with service recovery, repurchase intention, WOM intention, moderator (transaction experience)	Service fairness experience with on-line company	202 on-line customers	SEM (AMOS)	
(Park, et al., 2008)	PJ, DJ and IJ (Service failure setting and compensation)	A negative family travel experience	346 cases from 9 tourism industries	Critical incidents	

Table 2.6 (continued)

Study	Variable name	Application	Population	Analysis	Notable findings
(Klendauer & Deller, 2009)	PJ, DJ and IJ on affective commitment	Managers in corporate mergers	128 managers from 37 companies	Multiple regression analysis	Each fairness dimension correlated positively with affective commitment, only interactional fairness showed a unique relationship with it.
(Kim, Kim, & Kim, 2009)	PJ, DJ and IJ on satisfaction, trust, WOM, Revisit intention	Hotel service recovery	451 hotel guest	Path analysis	DJ on satisfaction stronger than PJ and IJ. DJ, PJ, and IJ have significant effects on trust.
(Yang & Peng, 2009)	PJ, DJ and IJ on satisfaction	A car warranty and claims setting	213 new car customers with failure/recovery with warranting period	Path analysis (AMOS)	All hypothesized relationships were found to be significant

Note: SEM = Structural Equation Modeling; PLS = Partial Least Squares; CFA = Confirmatory Factor Analysis; WOM = Word-of-Mouth; AMOS = Analysis of Moment Structures; Analysis of Moment Structures; DJ = Distributive Justice/Fairness; PJ = Procedural Justice/Fairness, IJ = Interactional Justice/Fairness

Source: Developed for this research

Greenberg (1993) proposed a four-component taxonomy of organizational fairness that is designed to emphasize the differences between structural and social determinants of fairness (e.g. policies, procedures, trust, respect, and shared information respectively). The distinction between these two determinants of fairness is based on the immediate focus of the just action. Each of the four components of the proposed taxonomy is formed by the intersection of the two categories of fairness (procedural and distributive) with the two focal determinants (social and structural) (Table 2.7).

Table 2.7 Greenberg's (1993) Taxonomy of Fairness Perceptions-1

Focal Determinant	Category of Fairness	
	Procedural Fairness	Distributive Fairness
Structural	Systemic	Configural
Social	Informational	Interpersonal

Source: Adapted for this research from (Greenberg, 1993)

The four specific fairness categories which these give rise to, have received empirical support; they are: 1) Systemic fairness (structural-procedural), 2) Configural fairness (structural-distributive), 3) Interpersonal fairness (social-distributive) and 4) Informational fairness (social-procedural) (Table 2.8). Each fairness category is discussed in detail from subsection 2.5.1 to 2.5.4.



Table 2.8 Greenberg's (1993) Taxonomy of Fairness Perceptions–2

	Procedural Fairness	Distributive Fairness
Structurally Determined	<b>Systemic</b> Procedural fairness accomplished by structural means - a standard of procedures used to make decisions.	<b>Configural</b> Distributive fairness accomplished by structural means – equitable under various conditions and focused on distributing the outcomes of a decision fairly.
Socially Determined	<b>Informational</b> Procedural fairness accomplished by social means – people receives knowledge about procedures throughout explanation.	<b>Interpersonal</b> Distributive fairness accomplished by social means – shows concern for individuals regarding the outcomes they receive.

Source: Adapted for this research from (Greenberg, 1993)

Several dissertations have used Greenberg's four-dimensional model to understand the complexity of performance appraisal and its management (Kotraba, 2003; Thurston, 2001; Walsh, 2003). Since fairness perceptions are context-dependent (Brady & Dunn, 1995; Colquitt, 2001), Namkung et al.'s (2009) study mentioned that "the conceptualization of fairness in an all-inclusive service delivery process would not be congruent with the service failure context" (Namkung, Jang, Almanza, & Ismail, 2009, p. 376).

Colquitt (2001) proposed a typology involving interpersonal fairness and informational fairness based on Greenberg's (1993) study. Scholars have studied the four dimensions of fairness in difference contexts, including service recovery (Mattila & Cranage, 2005), performance appraisal reactions (Jawahar, 2007), airport security (Sindhav, Holland, Rodie, Adidam, & Pol, 2006), stress (Judge & Colquitt, 2004), job satisfaction (Wesolowski & Mossholder, 1997), organizational citizenship (Lavelle, Rupp, & Brockner, 2007), employee motivation in training (Kang, 2007), and

perceptions of fairness as a mediator of knowledge contribution distinctions (Chang & Ho, 2009). Table 2.9 depicts a summary of previous research on four fairness dimensions.



Table 2.9 Previous Research on Four Fairness Dimensions

Study	Variable name	Application	Population	Analysis	Notable findings
(Sindhav, et al., 2006)	DJ, PJ, IPJ, and IFJ on satisfaction with the overall airport experience	Airport security	775 travelers	SEM (LISREL)	Consumers' fairness perceptions about a facilitating service have a significant and substantial effect on satisfaction with the overall experience.
(Chiu & Wang, 2007)	DJ, PJ, IPJ, and IFJ on bidding fairness, trust, repeat purchase intentions	Online auction sellers' survival and success	412 buyers in online auction	PLS	Trust significant positive predictor of buyers' intentions to repeat purchase, four-dimension fairness important components of bidding justice, and a strong positive effect on trust in the community of sellers.
(Liao, 2007)	Integrating fairness (DJ, PJ, IPJ, and IFJ) and customer service literature	Customer service employees' behaviors of handling customer complaints, or service recovery performance	658 samples	SEM (LISREL)	Perceived fairness and customer satisfaction with service recovery was positive and significant.
(Hassan & Noor, 2008)	The role of organizational justice in promoting extra role behavior (ERB): helping and voice	Organizational fairness and work behavior relationships in unique cultural contexts (Malaysia)	81 lower and middle level managers from a mix of 18 organizations	Regression	Regression result indicated no significant contribution of any organizational fairness factors on the two dependent measures (helping and voice)

Table 2.9 (continued)

Study	Variable name	Application	Population	Analysis	Notable findings
(Jawahar, 2009)	Fairness perceptions (DJ, PJ, IPJ, and IFJ) and pay satisfaction	Relationships between justice perception and pay satisfaction (pay level, raises, benefits and structure and administration)	151 technology professionals	SEM (LISREL)	DJ, PJ and IFJ were differentially related to pay level, raises, benefits and structure and administration. IPJ was not significantly related to satisfaction with raises.
(Hess & Ambrose, 2010)	Four factor fairness (DJ, PJ, IPJ, and IFJ) on satisfaction with complaint handling	Perceptions about product and service compliant experience	285 passengers waiting for flights at departure gates a major international airport	SEM (LISREL)	DJ, PJ and IPJ related to satisfaction, IFJ is not significant related to satisfaction, IFJ related to repurchase intention, trust with the organization, and negative word-of-mouth
(Shitbaoka et al., 2010)	Fairness (DJ, PJ, IPJ, and IFJ) effort-reward imbalance model (ERI), Kessler Psychological Distress Scale (K10) and job satiation using the visual analog scale (VAS)	To develop Japanese version of the measure of organizational fairness	229 full-time employees	Pearson's correlation coefficients and CFA	EFA supported the four factor structure model; Correlation coefficients between fairness, ERI, K10 and VAS
(Sudin, 2011)	DJ, PJ, IPJ, and IFJ of performance appraisal on satisfaction (last performance ratings, supervisor, performance appraisal system)	Human resources	229 employees	Correlation and regression	DJ and IFJ are significantly related to satisfaction with the last appraisal ratings; DJ, IPJ and IFJ are significantly related to satisfaction with supervision; and DJ and IFJ are related to satisfaction toward the performance appraisal system.

Note: SEM = Structural Equation Modeling; PLS = Partial Least Squares; CFA = Confirmatory Factor Analysis; EFA = Exploratory Factor Analysis; WOM =

Word-of-Mount; DJ = Distributive Justice/Fairness; PJ = Procedural Justice/Fairness; IPJ = Interpersonal Justice/Fairness and IFJ = Informational Justice/Fairness

Source: Developed for this research

In a recent study, Tatum and Eberlin (2007) compared structural fairness to the social dimensions of fairness within decision-making and leadership (Tatum & Eberlin, 2007), and Greenberg's theoretical framework describes organizational fairness components as fundamental. Each of the four categories in the taxonomy can be used to address a specific aspect of service delivery (Table 2.10).

Table 2.10 Greenberg's (1993) Taxonomy of Fairness Perceptions Applied to Service Delivery

	Procedural Fairness	Distributive Fairness
Structurally Determined	<p><b>Systemic</b> The service is to be served as fair, unbiased and consistently applied by not favoring any one person or group. Service receivers are held in queuing systems and served in order.</p>	<p><b>Configural</b> Individual receiver receives virtually the same services from the service personnel. Service receivers feel negative if they find that they receive fewer resources than others.</p>
Socially Determined	<p><b>Informational</b> Concerns the way service personnel or organizations communicate with their customers. Customers feel they have been given through degree of explanation before, during, and after throughout the service delivery process.</p>	<p><b>Interpersonal</b> Concerns the treatment that customers receive from their IT service provider or organization. Customers feel they have been treated fairly personal (i.e., polite, respectful, and attention) with the service personnel throughout the service delivery process.</p>

Source: Adapted for this research from (Greenberg, 1993)

### 2.5.1 Systemic (structural-procedural) fairness

Systemic (structural-procedural) fairness is based primarily on Leventhal's (1980) procedural fairness model, which "refer(s) to the variety of procedural fairness that is accomplished via structural means" (Greenberg, 1993, p. 83) and explains the procedures for structurally determined fairness to provide participant control over outcome processes. Organizational fairness scholars have studied this class of constructs, initially based on procedural fairness (Greenberg, 1993). Procedural fairness includes procedures and processes for making decisions (Tyler & Lind, 1992).

Clemmer's (1993) study revealed that perceptions of procedural fairness are affected by flexibility, waiting time and responsiveness, and efficiency. Other empirical studies support the view that perceptions of procedural fairness influenced overall satisfaction and word of mouth recommendations (Maxham & Netemeyer, 2003; Tyler & Folger, 1980), and had a positive effect on satisfaction (Clemmer, 1993; Ok, Back, & Shanklin, 2005; Smith, et al., 1999; Tax, et al., 1998). As such, service providers can implement a system to handle or to reverse problems before customer frustration sets in. Techniques to exploit procedural fairness could be used in technologically advanced services to increase online customer satisfaction in the e-business context (Cho, Im, & Hiltz, 2003).

In the service delivery context, systemic fairness refers to the policies and procedures utilized to handle the service delivery process. When customers perceive high systemic fairness, they will believe that an unfair outcome was merely an accident and will expect systemic fairness to occur the next time. That is, customers will be less likely

to terminate their relationship with the service provider and remain satisfied with the service. Additionally, the level of customer satisfaction will increase if the service provider provides advanced technology support to monitor and track their service, especially with on-line customers. Therefore, results support the concept of perceived systemic fairness that has a direct impact on customer outcomes. Customer feelings of having experienced a fair process can be used to increase customer outcomes (i.e. satisfaction), and this consideration leads to the following hypothesis:

**H<sub>6</sub>:** Perceptions of systemic service fairness will be positively associated with satisfaction.

#### 2.5.2 Configural (structural-distributive) fairness

Configural (structural-distributive) fairness explains the structural aspect of distributive fairness and “refer [s] to the variety of distributive justice that is accomplished via structural means” (Greenberg, 1993, p. 84). It is defined in this study as the extent to which the pattern of resource distributions are perceived as being fair under various conditions (Greenberg, 1993).

Distributive fairness is closely related to the outcome of service delivery and is related to the perceived fairness of restoring services to a consumer following a service failure, or the outcome of service failure events. Distributive fairness can be seen in the form of refunds, reimbursements, corrections to charges, replacements, repairs, and apologies (Kelley, Hoffman, & Davis, 1993).

Compensation for inconvenience caused by a service delivery problem can be expected, given prevailing perceptions of distributive fairness. Two previous studies in

the marketing literature concluded that compensation was positively related to satisfaction and repurchase intention (Conlon & Murray, 1996) and repurchase intent (Kelley, et al., 1993). Previous research found that distributive fairness had an impact on overall satisfaction, purchase intent and word of mouth recommendations (Maxham & Netemeyer, 2003), a positive effect on satisfaction (Clemmer, 1993; Ok, et al., 2005; Smith, et al., 1999; Tax, et al., 1998), and was critical in predicting customer satisfaction in the hospitality context (Martínez-Tur, Peiró, Ramos, & Moliner, 2006). Compensation leads to customers feeling that they have experienced a fair outcome (i.e. distributive fairness), which can lead to increased positive customer outcomes. In the context of satisfaction, then, distributive fairness influences customer satisfaction and perceived service quality (Oliver & Swan, 1989b).

In the service delivery context, a customer assesses services from the service provider. An individual customer feels that he/she has been treated equally with respect to the final service outcomes. The level of configural fairness will increase equally as the perceived service delivery process increases. The feelings of configural fairness can be important between the customers and the service provider.

An individual receives the same services from the service personnel as anyone else. Customers have negative feelings if they find that they receive fewer resources than others. Configural fairness is helpful in building a good relationship between parties and leads to their satisfaction (Greenberg, 1990; Seiders & Berry, 1998; Tax, et al., 1998). The following hypothesis is proposed to empirically test the aforementioned research questions.



**H<sub>7</sub>:** Perception of configural service fairness will be positively associated with satisfaction.

### 2.5.3 Interpersonal (social-distributive) fairness

Interpersonal (social-distributive) fairness is also a part of interactional fairness (Bies & Moag, 1986; Bies & Shapiro, 1987) and is involved in the social aspect of establishing distributive fairness (Greenberg, 1993). Interpersonal fairness is indeed the component of interactional fairness that refers to the kind, polite and proper treatment that service providers give to their customers. Interpersonal fairness can be accomplished by “showing concern for individuals regarding the distributive outcomes they receive” (Greenberg, 1993, p. 85) and concerns individual outcomes and a customer’s desire to be treated with courtesy, dignity, respect and politeness by others (Colquitt, et al., 2001; Greenberg, 1993). Thus, if service personnel are able to manage the quality of treatment in service delivery, the customer perceives a proactive effort based on honesty, respect and politeness, allowing negative feelings to be reduced and interpersonal fairness to increase (Clemmer, 1993; Smith, et al., 1999).

An interactional component is necessary for the determination of satisfaction and dissatisfaction in the context of service delivery (Bitner, Booms, & Tetreault, 1990). In Chang and Hsu’s (2007) empirical study, the treatment that an individual receives in off-line settings or face-to-face contexts is more important than in on-line contexts, and can increase or decrease customer complaints depending on how service personnel treat customers (Cho, et al., 2003). When customers perceive a fair interaction (i.e.

interpersonal fairness), increased positive customer outcomes can occur or when customers feel they have been treated fairly, with respect, sincerely and politely by the service provider personnel throughout the service delivery process, the level of customer satisfaction will increase. From this, the following hypothesis is developed:

**H<sub>8</sub>:** Perceptions of interpersonal service fairness will be positively associated with satisfaction.

#### 2.5.4 Informational (social-procedural) fairness

Informational (social-procedural) fairness involves the social aspect of establishing procedural fairness, and is part of procedural fairness (Erdogan, Kraimer, & Liden, 2001; Greenberg, 1993; Leventhal, Karuza, & Fry, 1980) and interactional fairness conceptually, informational fairness is one part of interactional fairness (Colquitt, et al., 2001; Greenberg, 1993). Greenberg (1993) commented on this, stating that “informational justice may be sought by providing knowledge about procedures that demonstrate a regard for people’s concerns” (p. 84). Perceptions of informational fairness are thus socially rather than structurally determined. Informational fairness is found in the form of honest, sincere, and logical explanations and justifications of the allocation processes. Informational fairness “focuses on knowledge of the procedures leading to outcomes” (Greenberg, 1993, p. 85). Offering an explanation that is both adequate and specific has been linked to increased perceptions of informational fairness (Folger, 1993).

The feelings of a greater exchange of information which pertain to the relationship between service providers and customers can be important in conflict

resolution (Kale, Singh, & Perlmutter, 2000), outsourcing of IT relationships, and potential disagreements and opportunism (Goo, Kishore, Rao, & Nam, 2009).

Therefore, in an IT service delivery context, informational fairness can take the form of any information provided by service providers. The customers are provided with information about services which they have received or with which they have been involved; customers need to be kept informed before and during changes to service processes. When customers perceive a fair information exchange (i.e. informational fairness); this can be used to increase customer outcomes. Information should be transparent. With respect to the service delivery context, high levels of informational fairness may be achieved by being truthful in all communications and tailoring the service provider explanation to customer needs. Customers feel they have been given satisfactory explanations before, during, and after the service delivery process. This can be used to increase levels of customer satisfaction. Thus, the hypothesis is:

**H<sub>9</sub>:** Perceptions of informational service fairness will be positively associated with satisfaction.

As discussed above, Greenberg's (1993) taxonomy of perceptions of fairness identified different dimensions of fairness. This leads to the question of whether an individual's perception of the various dimensions of fairness is strong enough to stimulate customer satisfaction and lead to the development of an intention to continue to use IS. This study applies a conceptual model in which the perceptions of service fairness are integrated with the PAM based on Bhattacharjee's (2001b) model (Figure 2.1).

## CHAPTER 3

### RESEARCH METHODOLOGY

#### 3.1 Introduction

This chapter presents the research methodology utilized in investigating the integrated model comprised of a post-acceptance model of IS continuance (PAM) and four service fairness dimensions. The research methodology for the present research is a field survey. Data were collected via a structured web-based questionnaire. A correlational study analyzed the relationship between independent and dependent variables, employing the structural equation modeling (SEM) technique.

The first section explains research methods in the study of the integrated model (Figure 2.1) and discusses the instrument development, measurement of variables, the pretest as expert checks (Phase I) and the pilot test (Phase II). Next, the Delphi method was employed for content validity on the four-factor model of service fairness (Phase III).

The second section discusses the methodology for the main study; sample, data collection and procedures including web-based survey and data analyses (Phase IV). The statistical analysis that is used in the present study is also discussed.

### 3.2 Research Design and Procedures

The following steps (Figure 3.1) were taken to prepare the instruments for the main study.

	Instrument Development			Methodology
	Phase I	Phase II	Phase III	Phase IV
<b>Goal</b>	Literature review, review available instruments and establish validity, readability of scale items, questionnaire refinement	Validation and reliability check	Content validity of four service fairness dimensions scale items and refinement	Exploratory and confirmatory factor analyses, and test of structural model
<b>Methodology</b>	<b>Review available instruments and develop initial set of items and expert checks</b> Qualitative Survey	<b>Pilot study</b> Quantitative Survey	<b>Delphi process</b> Delphi Survey	<b>Main study</b> Quantitative Survey
<b>Sample</b>	<b>Experts</b> (N = 7) 2-IS professors, 2-non-IS professors, 2-practitioners in ITSM, and 1-PhD candidate	<b>CRM-SaaS Users</b> (N = 60)	<b>Experts</b> (N = 10) Practitioners in IT service management	<b>CRM-SaaS Users</b> (N ≥ 400)

SaaS = Software-as-a-Service, CRM-SaaS = Customer Relationship Software-as-a-Service, ITSM = Information Technology Service Management

Figure 3.1 Research Procedures of the Study

Source: Developed for this research

Instrument development is the first part of the research design for this study and was comprised of three phases.

Phase I: An initial set of items and expert checks. Literature reviews were used to generate an initial pool of items. Expert checks were conducted to ensure the context validity of the measurement and the clarity and readability of the instructions and question statements.

Phase II: Pilot study. Following the expert checks, a pilot test of the survey instrument was conducted as a preliminary test of the survey questionnaire. The purpose of the second phase was to assess the reliability and validity of the measurement.

Phase III: Delphi process. Content validity, item clarity and conceptual distinction among the four service fairness dimensions were ensured through a Delphi process.

### **Phase I: An initial set of items and expert checks**

One set of questions was developed for the questionnaire. The questionnaire included items relating to all variables in the present research model, and some general questions such as the personal details of the samples.

The questionnaire consisted of four sections. The first section included screening condition questions as software usage. The second section consisted of post-acceptance model constructs including confirmation, perceived usefulness, satisfaction, and IS continuance intention. The third section consisted of four service fairness dimensions (systemic, configural, interpersonal, and informational fairness). The last

section of the survey instrument consisted of questions relating to the demographic characteristics of the respondents (Appendix A).

### **1) Operationalization of constructs and measurement of variables**

The constructs in the research model were assessed using multiple item measures. All construct measures are based on scales from the post-acceptance model, service fairness in social relationships and organizational fairness research. In order to make possible the inclusion of all constructs of interest into the questionnaire (four constructs in PAM and four constructs in service fairness), minor modifications which are described in subsection 1.1 and 1.2 were made on the validated measures from previous studies to fit the specific context of SaaS users in the present study. The study measured post-acceptance intention and service fairness with recalled information together with receiving service experience.

The study thus used a cross-sectional written survey comprised of structured scale items. The study used Likert scales of measures. Scale items were measured on the standard seven-point Likert scale free-choice format, which ranges from “strongly disagree” (1) to “strongly agree” (7) (Hair, Black, Babin, & Anderson, 2009). The Likert scale is consistently used in past-behavioral and service marketing research (Zeithaml, Parasuraman, & Berry, 1990). The following subsections report the development of all constructs (PAM in subsection 1.1 and four service fairness in subsection 1.2) in this research model.

### **1.1) Operationalization of the post-acceptance model of IS continuance variables**

These constructs are widely adopted in the post-acceptance intention-based information system (IS) research. Table 3.1 lists the items used to operationalize the variables in the research model adapted based on the existing literature with some modification and supplementation reflecting the specific user context and IS targeted. For one of the constructs, scale items based on the seminal work of Bhattacharjee (2001b) are fairly standard, and prior research has adapted the same instruments for several contexts: online web-based learning system (Limayem, Cheung, et al., 2003), Web-based micro blogging service (Barnes & Böhringer, 2009). Other scale items were based on other research (e.g. Davis, 1989; Mathieson, 1991; Spreng, MacKenzie, & Olshavsky, 1996). All items were reworded to relate specifically to the context of CRM-SaaS, called 'the software application' throughout the survey questionnaire (Table 3.2).

*a) Confirmation.* The confirmation construct was initially developed by Bhattacharjee (2001b) and is defined as user perception of the congruence between expectation in application use and its actual performance. Confirmation was derived from the work of Bhattacharjee (2001b), utilizing a three-item scale, the first two items examined perceived congruence of user experience and service level, and the third item assessed respondents' overall extent of confirmation. The internal scale reliability for the Bhattacharjee (2001b) measures on this construct is .82. The original items were measured on a seven-point Likert-type scale from "strongly disagree" (1) to "strongly agree" (7).



All items were adapted for their suitability for the particular context for this study. For example, 'My experience with using an online banking division (OBD) was better than what I expected.' was changed to 'My experience with using the software application was better than I expected.' and from 'The service level provided by OBD was better than what I expected.' to 'The service level provided by the software application service provider was better than I expected.'

*b) Perceived Usefulness.* Prior IS literature reveals that perceived usefulness is one of the most mature constructs in technology acceptance and post-acceptance. This study therefore adapted the measures from Bhattacharjee (2001b) which were originally based on Davis, F. D. (1989). This construct utilizes a four-item scale, the first three items tap into performance, productivity and effectiveness, and the fourth item assessed overall usefulness. The internal scale reliability for the Bhattacharjee (2001b) measures on this construct is .88. The original items were measured on a seven-point Likert-type scale from "strongly disagree" (1) to "strongly agree" (7).

All items were reworded to relate specifically to the CRM-SaaS context at work. For example, 'Using OBD improves my performance in managing personal finances.' was changed to 'Using the software application improves my work performance.' and from 'Overall, OBD is useful in managing personal finances.' to 'Overall, the software application is a useful tool at work.'

*c) Satisfaction.* Bhattacharjee (2001b) explained that the scales of satisfaction should be conceptualized as "affect toward the system itself", rather than "as a collection of beliefs about the information provided by an IS (e.g. accurate, format,

timeliness, reliability” (p.359). Satisfaction was measured at post-acceptance for overall satisfactions. As such, satisfaction items were adapted from Bhattacharjee’s (2001b) measure which was originally based on Spreng et al’s (1996) overall satisfaction scale. The internal scale reliability for the Bhattacharjee (2001b) measures on this construct is .87. The original items were based on seven-point semantic differential scales.

All items in this construct were modified to be consistent with other scales by rewording to ask for the respondents’ levels of agreement about each statement with seven response choices in a Likert scale anchor such as ‘I am very satisfied with the overall experience of using the software application’ and ‘I am very pleased with the overall experience of using the software application.’

*d) IS Continuance Intention.* The IS continuance intention scale from Bhattacharjee’s (2001b) study measures the individual respondent’s intention to continue system use rather than discontinuing or using alternative systems. Continuance intention has three items which were adapted from Bhattacharjee’s (2001b) measure which was extended from Mathieson’s (1991) behavioral intention scale. The three-item scale consists of two items measuring respondents’ intention to continue and the third item measure overall discontinuance intention.

The internal scale reliability for the Bhattacharjee (2001b) measures on this construct is .83. The original items were measured on a seven-point Likert-type scale from “strongly disagree” (1) to “strongly agree” (7).

All items were adapted for their suitability for the particular context for this study. Additionally, the two initial items remained and the third item was

modified from negative to positive wording from ‘If I could, I would like to discontinue my use of the ODB’ to ‘If I could, I would like to continue using the software application.’

Table 3.1 Bhattacharjee’s Original Post-Acceptance Model of IS Continuance Scale

Variable	Original Measures
Confirmation (3 items) which is a new scale developed by Bhattacharjee, (2001b)	<ol style="list-style-type: none"> <li>1. My experience with using OBD was better than what I expected.</li> <li>2. The service level provided by OBD was better than what I expected.</li> <li>3. Overall, most of my expectations from using OBD were confirmed.</li> </ol>
Perceived Usefulness (4 items) which was originally based on Davis, F. D. (1989)	<ol style="list-style-type: none"> <li>1. Using OBD improves my performance in managing personal finances</li> <li>2. Using OBD increases my productivity in managing personal finances.</li> <li>3. Using OBD enhances my effectiveness in managing personal finances.</li> <li>4. Overall, OBD is useful in managing personal finances.</li> </ol>
Satisfaction (3 items) which was originally based on Spreng et al’s (1996) overall satisfaction scale	<p>How do you feel about your overall experience of OBD use:</p> <ol style="list-style-type: none"> <li>1. Very dissatisfied/Very satisfied.</li> <li>2. Very displeased/Very pleased.</li> <li>3. Very frustrated/Very contented.</li> <li>4. Absolutely terrible/Absolutely delighted.</li> </ol>
IS Continuance Intention (3 items) which was extended from Mathieson’s (1991) behavioral intention scale	<ol style="list-style-type: none"> <li>1. I intend to continue using OBD rather than discontinue its use.</li> <li>2. My intentions are to continue using OBD than use any alternative means.</li> <li>3. If I could, I would like to discontinue my use of OBD.</li> </ol>

Source: (Bhattacharjee, 2001b)

Table 3.2 Adapted Post-Acceptance Model of IS Continuance Scale

Variable	Adapted Measures used in this study
Confirmation (3 items)	<ol style="list-style-type: none"> <li>1. My experience with using the software application was better than I expected.</li> <li>2. The service level provided by the software application service provider was better than I expected.</li> <li>3. Overall, most of my expectations of using the software application were confirmed</li> </ol>
Perceived Usefulness (4 items)	<ol style="list-style-type: none"> <li>1. Using the software application improves my work performance.</li> <li>2. Using the software application increases my productivity at work.</li> <li>3. Using the software application enhances my effectiveness at work.</li> <li>4. Overall, the software application is a useful tool at work.</li> </ol>
Satisfaction (4 items)	<ol style="list-style-type: none"> <li>1. I am very satisfied with the overall experience of using the software.</li> <li>2. I am very pleased with the overall experience of using the software.</li> <li>3. I am very content with the overall experience of using the software.</li> <li>4. I am absolutely delighted with the overall experience of using the software.</li> </ol>
IS Continuance Intention (3 items)	<ol style="list-style-type: none"> <li>1. I intend to continue using the software application rather than discontinue its use.</li> <li>2. I intend to continue using the software application rather than using an alternative.</li> <li>3. If I could, I would like to continue using the software application.</li> </ol>

Source: Adapted for this research from (Bhattacharjee, 2001b; Davis, 1989; Mathieson, 1991; Spreng, et al., 1996)

## 1.2) Operationalization of four service fairness dimensions variables

Service fairness is formed by four constructs: (a) Systemic fairness was measured as the perceived fairness of policies and procedures used to make decisions. (b) Configural fairness was measured as the perceived fairness of the outcomes that a customer receives from the service provider. (c) Interpersonal fairness was measured as honesty, respect and politeness towards customers showing concern for individuals regarding the outcomes they receive. (d) Informational fairness was measured in the form of sincerity and logical explanations and justifications of the allocation processes. The scales assess individual reactions to services and individual experience with service delivery for using the CRM-SaaS.

*a) Systemic fairness.* Systemic fairness refers to the evaluation of the process used to derive outcomes or systemic fairness use policies and the procedures to achieve an outcome (Thibaut & Walker, 1975). This dimension was measured as perceived outcome fairness. Leventhal (1980) advises that procedures will be fair if there is no bias. In a service delivery setting as this study examines, systemic fairness refers to the policies and procedures utilized to handle the service delivery process.

The systemic fairness items of evaluation for the questionnaire were adapted from the seminal work of Leventhal's (1980) six procedural fairness rules: the consistency rule, the bias-suppression rule, the accuracy rule, the correctability rule, the representativeness rule, and ethicality rules. The accuracy rule has an important method called "record keeping", which is designed for personnel to use in monitoring the policies

and procedures to handle all reported software problems and following up on problems and services provided. The six procedural fairness rules are defined as:

- 1) Consistency: Procedures should be consistent across people and across time,
- 2) Bias suppression: Self interest or bias should be avoided in the process,
- 3) Accuracy: All decisions should be based on accurate information,
- 4) Correctability: There needs to be a system or mechanism to appeal decisions,
- 5) Representativeness: The process should be reflective of the issues and concerns of all involved, and
- 6) Ethicality: The process should maintain ethical standards.

The scale is evaluated in terms of whether a software service provider provides service consistently across people and organizations. Also included in the evaluation is whether or not the software service provider and/or software service provider personnel promote accuracy, suppress bias, are capable of performing their duties, behave in an ethical manner, and/or address an individual's concerns. Record keeping is for the accuracy rule. Leventhal (1980, p. 42) states that "record keeping is an important method for accurate monitoring of behavior..." For this study, within a specific context, the software service provider provides advanced technology support to monitor and track their service. An example item for record keeping was adapted as "The

software application service provider kept records of my problems concerning the software application.” and the other items for the questionnaire are presented in Table 3.3.

*b) Configural fairness.* Configural fairness represents an individual’s assessment of the level of fairness of outcomes achieved (Gilliland, 1993; Greenberg, 1990). A four-item scale for this variable was adapted from the seminal work of Leventhal’s (1980) study “based on needs, equality, contributions, or a combination of these factors” (p. 6).

In a marketing context, configural fairness can represent evaluations of product. In a service delivery setting as this study examines, service receivers may assess the service that they received from the software service provider. Configural fairness is defined as the extent to which an individual receiver feels he/she has been treated equally with respect to the final service delivery outcome(s). An example item based on needs and equality is ‘The software application service provider met the needs of all the individuals in my company equally.’ and the other items for the questionnaire are presented in Table 3.3.

*c) Interpersonal fairness.* Interpersonal and informational fairness perceptions are an important part of social and interactional fairness (Bies & Moag, 1986; Bies & Shapiro, 1987; Greenberg, 1993). Interpersonal fairness encompasses the social determinant aspects of outcomes (Greenberg, 1993). This form of service fairness concerns individual perceptions of service fairness by allowing those who receive service to evaluate the way service personnel treat them.

Interpersonal fairness has a social component as well as a distributive one, and can be considered as taking the form of any social rewards provided by the software application service personnel. Respect and propriety scales appear to be representative of the interpersonal fairness type (Greenberg, 1993). Service receivers were assessed according to respect and propriety. Scale items were adapted from Bies & Moag, (1986) and Maxham & Netemeyer (2003). Table 3.3 presents the items included in the scales, representing interpersonal fairness dimensions. An example item related to respect is “The software application service provider personnel treated me with respect.” and the other items for the questionnaire are presented in Table 3.3.

*d) Informational fairness.* Informational fairness focuses on the social perceptions of the service interaction rather than structurally determined ones. Informational fairness seeks to provide people with knowledge about procedures which show regard for people (Greenberg, 1993). This dimension is concerned with the quality of service interactions when communicating the procedural aspects of the service, and can take the form of truthful justification and logical explaining of service procedures thoroughly (Bies & Moag, 1986; Greenberg, 1993).

The four items for the questionnaire that address informational fairness appear in previous theoretical discussion and were adapted from Bies and Moag (1986) and Shapiro, Buttner, & Barry (1994). The items include statements that focus on the interpersonal behavior of the software service provider personnel. An example item is “The software application service provider tailored their explanation to my needs.” and



the other items for the draft questionnaire are presented in Table 3.3. These items were subsequently modified slightly, as described in the further discussion.



Table 3.3 Preliminary Descriptions of Measurement of Four Service Fairness

## Dimensions

Variable	Keyword	Measures used in this study
Systemic Fairness (8 items)	Based on six rules: consistency (item 1); bias suppression (item 2); accuracy and record keeping (item 3-5); correctability (item 6); Representativeness (item 7); Ethicality (item 8) (Leventhal, 1980)	<ol style="list-style-type: none"> <li>1. The software application service provider was consistent with the service procedure according to the agreement.</li> <li>2. The software application service provider provided a level of service to my company equal to that provided to others.</li> <li>3. The software application service provider dealt with my problems concerning the software application.</li> <li>4. The software application service provider understood my problems concerning the software application.</li> <li>5. The software application service provider kept records of my problems concerning the software application.</li> <li>6. The software application service provider was able to correct any problems that resulted from their own errors.</li> <li>7. The software application service provider personnel were capable of performing all the duties covered by the contract.</li> <li>8. The software application service provider behaved in an ethical manner.</li> </ol>
Configural Fairness (4 items)	Based on needs, equality, contributions, or a combination of these factors (Leventhal, 1980, p. 6).	<ol style="list-style-type: none"> <li>1. The software application service provider delivered the service to all individuals in my company without favoring any one group.</li> <li>2. The software application service provider delivered desired solutions to all individuals in my company without bias of any kind.</li> <li>3. The software application service provider delivered reasonable results to all individuals in my company regardless of their position.</li> <li>4. The software application service provider met the needs of all the individuals in my company equally.</li> </ol>
Interpersonal Fairness (6 items)	Consist of two factors: respect aspect and sensitivity (propriety) aspect (Bies & Moag, 1986; Greenberg, 1993) Item 1, 4, 5 and 6 were adapted from Bieg & Moag (1986) and item 2 and 3 were adapted from Maxham & Netemeyer (2003)	<ol style="list-style-type: none"> <li>1. The software application service provider personnel treated me with respect.</li> <li>2. The software application service provider personnel treated me with consideration.</li> <li>3. The software application service provider personnel treated me sincerely.</li> <li>4. The software application service provider personnel treated me in a polite and courteous manner.</li> <li>5. The software application service provider personnel showed awareness of my rights as a customer.</li> <li>6. The software application service provider personnel did not use improper or inappropriate language.</li> </ol>

Table 3.3 (continued)

<b>Variable</b>	<b>Keyword</b>	<b>Measures used in this study</b>
Informational Fairness (4 items)	Consist of one factor: explanation aspect of interactional fairness or justifications and being truthful (Bies & Moag, 1986; Greenberg, 1993) Item 1 and 4 were adapted from Shapiro, et al, (1994) and item 2 and 3 were adapted from Bieg & Moag (1986)	<ol style="list-style-type: none"> <li>1. The software application service provider offered reasonable explanations concerning the service.</li> <li>2. The software application service provider explained the service procedure thoroughly.</li> <li>3. The software application service provider was truthful in communicating with me.</li> <li>4. The software application service provider tailored their explanation to my needs.</li> </ol>

Source: Adapted for this research from (Bies & Moag, 1986; Greenberg, 1993;

Leventhal, 1980; Maxham & Netemeyer, 2003; Shapiro, Buttner, & Barry, 1994)

### **Expert checks**

According to Baines and Chansarkar (2002), pre-testing is essential in questionnaire design because it produces a huge impact upon all aspects of the design process (Baines & Chansarkar, 2002). A pre-test was conducted to refine the research instrument and was undertaken with the survey questionnaire along with a feedback questionnaire evaluation form (Appendix A). The feedback form asked participants to identify any ambiguous questions and measurements.

The questionnaire combined scales from IS and service fairness literature which related to IT, and service and satisfaction in marketing areas. The experts were academics and practitioners in service management. These included two IS professors, two non-IS professors in marketing and two business executives in the service management industry to assess the survey's logical consistency, ease of understanding, sequence of items, and contextual relevance. In addition, one doctoral candidate in IS field self-administered the survey and did a critical reading. IS and non-IS professors were expertise in their domain and research experience in instrument development such as service and satisfaction in marketing filed for non-IS professors. Two practitioners are working in business service organizations and responsible for IT service management at their present organization.

The approximate length of time measured for each respondent to complete the questionnaire was between 16 to 20 minutes. These tests provide the opportunity to refine the survey instrument and, as such, must be conducted prior to the initial data collection phase to validate the instruments, making sure the questionnaire works and is free from

errors to maximize response rates (Compeau & Higgins, 1991; Crouch, Housden, & Housden, 2003; Czaja & Blair, 1996).

The experts suggested adding some terms with definitions which are used throughout the questionnaire such as 'The software refers to the CRM software-as-a-Service which is used by your company', then rewording from 'the CRM Software-as-a-Service' to 'the software' and suggested to use 'the software' instead of 'the software application'. Further, some text was added to the questionnaire directions for clarification. Some items were sequenced for better understanding in Section 2 (experience using the software), for example, questions about software first instead of user experience with the software. In Section 3 (service interaction(s) experience with the software service provider personnel), many words with the same meaning were suggested for revising for more consistency and understanding such as changing the following phrase 'without favoring anyone group', 'without bias of any kind', and 'regardless of their position' to 'equally'.

For Section 4 (demographic characteristics of the respondents), the experts suggested adding a question about the number of employees at a participant's company and adding a 'sales representative' selection into the question asking participants' position in their organization. The last question in this section asked to which industry type the participant belonged. The experts provided comments and most agreed that the length of questionnaire and readability of the questions were good.

The returned comments and feedback were incorporated into the design of the pilot study and modifications were made accordingly. Following the expert checks, a

pilot test of the survey instrument was conducted. The purposes of the second phase were to assess the reliability and validity of the measurement.

### **Phase II: Pilot study to assess scale reliability**

For the pilot study, the questionnaire consisted of making revisions suggested by the expert checks and a further appraisal to refine the instrument. A small sample was chosen as a 'dress-rehearsal' of the implementation (Lewis, Templeton, & Byrd, 2005). The purpose of this round was to check the validity, reliability and variance of the dependent variable of the research model. The sample size for a pilot test may range from 25 to 100 (Cooper & Schindler, 2003). The sample was selected using the same criteria as for the target population (see Phase IV). A web-based survey was conducted via the internet and sent by an online marketing research survey company to their panel members (see Phase IV).

Recruitment e-mails were sent to 3,000 prospective U.S. nationwide panel members who were identified from a survey of company databases of full-time employees working in organizations. Each e-mail contained a hyperlink to the questionnaire and participants submitted responses online. The first response rate from prospective participants was 18.63% (559).

There were four screening conditions to collect qualification data from responding participants: (1) one of the CRM Software-as-a-Service (SaaS) listed names is used in their company, (2) their company has used the software more than 2 years, (3) they use the software at least once a week to everyday, and (4) they have contacted the

software service provider personnel for support. The use of these screening conditions resulted in retaining 60 usable questionnaire, at a response rate of 2.00%. The pilot survey questionnaire is presented in Appendix B.

The data obtained from the pilot study was examined for completeness of responses, reliability and construct validity by applying Predictive Analysis Software (PASW) Statistics version 18 (PASW is a registered trademark of SPSS Inc and formerly SPSS Statistics). The results of the pilot test discussed in the next sub-sections were examined and adjustments were made to the instruments based on the information gained from the respondents. Subsequently, some changes due to ambiguity were made to the final questionnaire.

#### 1) Sample Characteristics for Pilot Study

Table 3.4 shows the descriptive relative and actual statistics for the study demographics. The characteristics of the samples are as follows: males and females constitute nearly equal numbers. The majority of the pilot respondents (65%) are in the age range from 30 years to 50 years old. More than half of the respondents (58.33%) had over 11 years of working experience. Half of the responses were from operating staff (25.00%) and middle management positions (25.00%) in their organizations. Looking at company size, nearly half the participants (46.67%) responding to the questionnaire were from organizations employing between 51 to 500 employees. Respondents from 'business services' (33.33%) and 'service industry' (16.67%) made up the half of participants. In summary, the sample for the pilot constituted an experienced working-age

group and with responsibility at their present company who frequently use the software and interact with the software service provider.





Table 3.4 Demographic Characteristics of Participants in Pilot Study (N=60)

	Frequency	%
<b>Gender</b>		
• Male	32	53.33
• Female	28	46.67
<b>Total</b>	<b>60</b>	<b>100.00</b>
<b>Group age</b>		
• Under 30 years old	13	21.67
• 30 to 40 years old	25	41.67
• 41 to 50 years old	14	23.33
• Above 50 years old	8	13.33
<b>Total</b>	<b>60</b>	<b>100.00</b>
<b>Working experience</b>		
• Less than 5 years	8	13.34
• 5 to 10 years	17	28.33
• 11 to 15 years	18	30.00
• More than 15 years	17	28.33
<b>Total</b>	<b>60</b>	<b>100.00</b>
<b>Position at organization</b>		
• Operating staff	15	25.00
• Middle management	15	25.00
• Top Management	11	18.33
• Supervisor	10	16.67
• Sales representative	9	15.00
<b>Total</b>	<b>60</b>	<b>100.00</b>
<b>Number of employees at respondents' companies</b>		
• Less than 50	13	21.66
• 51 to 100	7	11.67
• 101 to 250	12	20.00
• 251 to 500	9	15.00
• More than 500	19	31.67
<b>Total</b>	<b>60</b>	<b>100.00</b>
<b>Industry type</b>		
• Business service	20	33.33
• Service industry	10	16.67
• Retail/wholesale/distribution	7	11.67
• Manufacturing	5	8.33
• Other	18	30.00
<b>Total</b>	<b>60</b>	<b>100.00</b>
Others: Association, Cable provider, Computer software (3), Education (2), Financial, Healthcare (2), Life Sciences, Management consulting (2), Non-profit organization, Research, Retail, Sales, and Security		

Source: Developed for this research

Table 3.5 presents the software usage for research organizations and respondents that reflect the state of screening condition questions. The CRM-SaaS name is used in responding participant organizations. There were respondents for 15 names. Salesforce.com was the most popular SaaS among CRM-SaaS (36.67%). Respondent organizations have used the software more than 2 years. The results show that a majority of the organizations have been using the software from 2 to 4 years (66.66%) followed by from 5 to 6 years (26.67%). The smallest group consisted of the organizations using the software more than 6 years (6.67%).

The participants use the CRM-SaaS at least 'once a week' or 'every day'. The bigger group (53.33%) used the software 'every day' followed by '2-3 times a week' (30.00%). At 16.67%, the smallest group of respondents used the software 'once a week'. All responding participants contact the software service provider and/or service provider personnel for support. The questionnaire asked about the respondents' experiences in service interaction(s) with their service provider and/or service provider personnel in person, by phone or email.

Table 3.5 Software Usage in Pilot Study (N=60)

	Frequency	%
<b>CRM software over the Internet is used in respondents' company</b>		
• Salesforce.com	22	36.67
• Netsuite CRM	10	16.66
• CRM-A	6	10.00
• Logica CRM	3	5.00
• SugarCRM	3	5.00
• 24SevenOffice	3	5.00
• LongJump CRM	2	3.33
• Others	11	18.33
<b>Total</b>	<b>60</b>	<b>100.00</b>
Others: Aplicor, RightNow CRM, Zoho CRM, ACT, Salesboom.com, CSA, 24SevenOffice and Junxure		
<b>Respondents' companies using the application</b>		
• 2 to 4 years	40	66.66
• 5 to 6 years	16	26.67
• More than 6 years	4	6.67
<b>Total</b>	<b>60</b>	<b>100.00</b>
<b>Respondents using the application</b>		
• Everyday	32	53.33
• 2-3 times a week	18	30.00
• Once a week	10	16.67
<b>Total</b>	<b>60</b>	<b>100.00</b>
CRM = Customer Relationship Management		

Source: Developed for this research

## 2) Reliability of measurement scales

Scale reliability was estimated by calculating the internal consistency of each multi-item scale as indexed by Cronbach's coefficient alpha ( $\alpha$ ). Values were well above the suggested cut-off of .70, indicating internal consistency (Hair, Black, Babin, Anderson, & Tatham, 2006; Nunnally & Bernstein, 1994).

Table 3.6 and Table 3.7 present the descriptive statistics for the measures used, including mean, standard deviation, internal consistency reliability, Skewness, and Kurtosis for each measure. The internal reliability for the measures ranged from .827 to .910 for the post-acceptance model (Table 3.6) and from .874 to .942 for the four service fairness dimensions (Table 3.7). Therefore, the results indicate reliability.

Table 3.6 Descriptive Statistics and Reliability Estimates of IS Continuance Measures in Pilot Study (N=60)

Variable*	Item	Mean	Standard Deviation	Cronbach's Alpha	Skewness	Kurtosis
<b>Perceived usefulness</b>	<b>4</b>	<b>5.77</b>	<b>.797</b>	<b>.875</b>		
	Usefulness_1	5.77	.998		-1.203	2.352
	Usefulness_2	5.72	.885		-.465	-.356
	Usefulness_3	5.72	.993		-1.221	2.732
	Usefulness_4	5.87	.853		-.754	1.135
<b>Confirmation</b>	<b>3</b>	<b>5.36</b>	<b>1.029</b>	<b>.827</b>		
	Confirmation_1	5.33	1.110		-.481	.153
	Confirmation_2	5.14	1.342		-.737	.815
	Confirmation_3	5.58	1.034		-.690	.434
<b>Continuance intention</b>	<b>3</b>	<b>5.64</b>	<b>0.997</b>	<b>.827</b>		
	Continuance_1	5.68	1.214		-1.121	.908
	Continuance_2	5.67	1.145		-.987	.938
	Continuance_3	5.58	1.109		-.950	1.036
<b>Satisfaction</b>	<b>4</b>	<b>5.47</b>	<b>1.108</b>	<b>.910</b>		
	Satisfaction_1	5.62	1.059		-1.114	1.786
	Satisfaction_2	5.53	1.200		-1.147	1.416
	Satisfaction_3	5.52	1.200		-1.106	1.344
	Satisfaction_4	5.20	1.493		-.987	.780

\* Measured on a seven-point Likert scale, and anchored at middle and endpoints (“Strongly Disagree”/“Neutral”/“Strongly Agree”)

Source: Developed for this research

Table 3.7 Descriptive Statistics and Reliability Estimates of Service Fairness Measures in Pilot Study (N=60)

Variable*	Item	Mean	Standard Deviation	Cronbach's Alpha	Skewness	Kurtosis
<b>Systemic</b>	<b>8</b>	<b>5.36</b>	<b>.995</b>	<b>.942</b>		
	Systemic_1	5.47	1.157		-.528	-.758
	Systemic_2	5.43	1.031		-.199	-.789
	Systemic_3	5.23	1.254		-.887	1.145
	Systemic_4	5.18	1.186		-.368	-.447
	Systemic_5	5.37	1.149		-.285	-.597
	Systemic_6	5.30	1.293		-.685	-.045
	Systemic_7	5.35	1.205		-.657	1.229
	Systemic_8	5.55	1.141		-.658	-.496
<b>Configural</b>	<b>4</b>	<b>5.36</b>	<b>1.001</b>	<b>.889</b>		
	Configural_1	5.37	1.119		-.704	.233
	Configural_2	5.37	1.262		-.788	.228
	Configural_3	5.38	1.091		-.339	-.529
	Configural_4	5.33	1.145		-.556	-.023
<b>Interpersonal</b>	<b>6</b>	<b>5.53</b>	<b>.892</b>	<b>.874</b>		
	Interpersonal_1	5.70	1.030		-.418	-.918
	Interpersonal_2	5.47	1.112		-1.329	3.206
	Interpersonal_3	5.52	1.000		-.468	-.541
	Interpersonal_4	5.50	1.127		-.587	.020
	Interpersonal_5	5.43	1.079		-.282	-1.009
	Interpersonal_6	5.53	1.432		-1.378	2.034
<b>Informational</b>	<b>4</b>	<b>5.44</b>	<b>.978</b>	<b>.880</b>		
	Informational_1	5.42	1.369		-1.213	1.905
	Informational_2	5.53	0.982		-.374	-.437
	Informational_3	5.53	0.929		-.232	-.771
	Informational_4	5.28	1.223		-.915	1.597

\* Measured on a seven-point Likert scale, and anchored at middle and endpoints ("Strongly Disagree"/"Neutral"/"Strongly Agree")

Source: Developed for this research

Four service fairness dimensions which integrate into the post-acceptance model were tested to see whether a specified set of dimensions are influencing response in a predicted way and to validate a four dimensions of the service fairness concept. Exploratory factor analysis (EFA) was used to check convergent validity and discriminate validity of the scale items. The results described and summarized responses by grouping variables which are correlated. The EFA results revealed a high correlation among all four variables and only three factors loading with many cross loadings, instead of four factors (Table 1 in Appendix F).

This suggested the need for additional questionnaire refinement on the fairness issues. Regression analysis was needed for the pilot sample to examine the relationships between four service fairness variables with satisfaction. This estimates the strength and direction of a linear relationship between two variables. The values of a correlation coefficient can range from -1 to +1. A positive correlation represents a direct relationship, indicating that two variables increase or decrease in the same direction, on the other hand a negative correlation represents an inverse relationship so that when one variable increases, the other decreases and vice versa.

The regression analysis results revealed two of four service fairness dimensions (systemic and interpersonal) were statistically significant ( $p < 0.05$ ) with satisfaction (Table 2 in Appendix F). The responses did not reveal dimensions in a way consistent with the four dimensions of the service fairness concept used here. The Delphi method was employed as a third phase to assess the content validity of four service fairness dimension scale items and refinement.

### **Phase III: Delphi Process for Context Validity on Four Service Fairness Dimensions**

The third phase helps determine content validity by consulting experts using a Delphi method (hereinafter referred to as Delphi) (Dalkey & Helmer, 1963). Delphi is a qualitative survey technique and was deemed to be the most appropriate method for this study because it allows for the gathering of subjective judgments which are moderated through a group consensus (Linstone & Turoff, 1975). The goal of this phase was to get a consensus from the experts. Content validity is defined as “the degree to which elements of an assessment instrument are relevant to, and representative of, the targeted construct for a particular assessment purpose” (Tojib & Sugianto, 2006, p. 238).

The Delphi survey is designed to structure group discussion (Goodman, 1987) and can be applied in any context that requires a group consensus for a specific topic of interest. The technique has gained popularity across many contexts such as knowledge management (Ekionea, 2009), health care (Whitman, 1990), business intelligence systems (Yeoh & Koronios, 2010; Yeoh, Koronios, & Gao, 2008), and high performance management systems (Murphy & Olsen, 2009).

Delphi has become an accepted tool in IS research (Addison, 2003; Brancheau & Wetherbe, 1987; Gonzalez, Gasco, & Llopis, 2010; Hayne & Pollard, 2000; Holsapple & Joshi, 2003; King, 2008; Schmidt, Lyytinen, Keil, & Cule, 2001; Tojib & Sugianto, 2006; Treiblmaier & Pinterits, 2010). Aladwani and Palvia (2002) used the same technique to refine their user-perceived Web quality instruments and achieve a consensus after three rounds (Aladwani & Palvia, 2002). Galliers (1992) points out that Delphi is “clearly of significant benefit in the rapidly changing world of information” (Galliers,



1992, p. 156). Table 3.8 lists several previous IS research studies of various numbers of rounds and sample sizes which are adopted from Skulmoski et al., (2007) (Skulmoski, Hartman, & Krahn, 2007).

Table 3.8 Delphi Method Diversity

Researcher	Delphi Focus	Number of Experts	Number of Rounds
(Brungs & Jamieson, 2005)	Computer forensic legal issues	11	3
(Wynkoop & Walz, 2000)	Rank the most important characteristics of high performance IT personnel	9	3
(Scott, 2000)	Technology management issues in new product development projects	20	3
(Nambisan, Agarwal, & Tanniru, 1999)	A taxonomy of knowledge creation mechanisms	11	3
(Duncan, 1995)	The critical elements of IS infrastructure flexibility	21	2

Source: Developed for this research

This study used the Delphi process to gain a consensus from ten panel members to determine service fairness items for each dimension. Delphi helps to avoid bias in how experts viewed the questionnaire (Dalkey & Helmer, 1963; Linstone & Turoff, 1975) and how they think items correspond with fairness concepts. The specific process for this study involved three successive rounds of anonymous input and composite feedback (Figure 3.2).

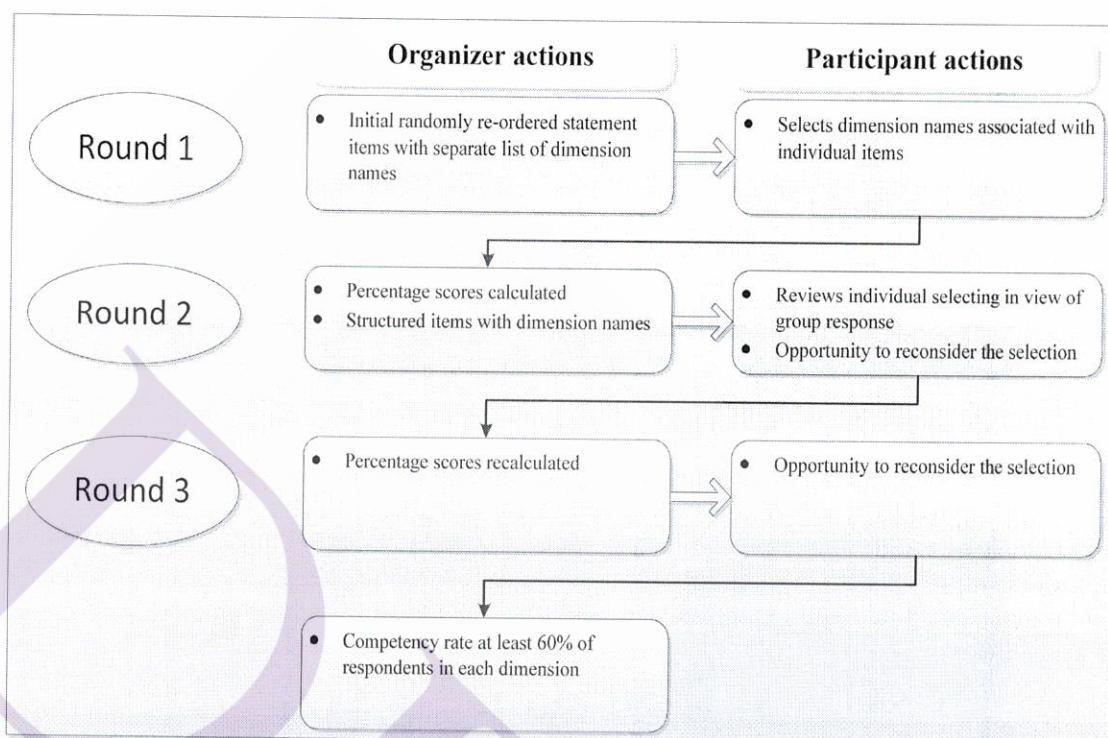


Figure 3.2 Main Stages of the Delphi Method

Source: Adapted for this research from (Broomfield & Humphris, 2001; Skulmoski, et al., 2007; Turoff, 1970)

### Procedures: Data Collection, Analysis Method and Results

The main steps of this process are:

*a) Administering the questionnaires.* The Delphi questionnaires were administrated using e-mail, which is fast and convenient, and can speed up the turnaround time between questionnaires. Each panelist member received the same survey design form and provided their feedback and comments directly onto the form. In this case, the panelists are international and live in different countries.

*b) Administration procedures.* Each expert received the questionnaire on the subject of the study and this involved 3 general steps or rounds (Figure 3.2):

1) *First round of the questionnaire: initial randomly re-ordered statement items with dimension names as a matrix-type questionnaire.* The first round of the questionnaire was administered to ten experts who have at least 5 years of practical experience working in an IT service management field. The experts' positions at their present companies are middle to senior management in small and medium-sized organizations in various industries. The panel members consisted of experts from native English speaking countries such as Australia, Canada, Ireland, the United States of America and the United Kingdom.

The experts are responsible for IT services in their organizations. All experts are customers of the service providers and work as relationship managers. Their primary objectives are to maintain and improve customer satisfaction and monitor their service provider as agreed to in the service level agreement (SLA). The experts start with reviewing a proposed SLA and negotiating the price for each service item until both parties sign the agreement. A meeting for reviewing services provided by the expert's service provider is required on a monthly basis to discuss the service performance in the previous month. A monthly service performance report, which is generated from a service tracking system, is discussed together with monthly customer satisfaction survey results. Other topics are included such as top-ten incidents, information sharing, communication packages, running project status, and issues escalation.

The experts received the first questionnaire together with a cover letter on the same day that the expert agreed to serve on a Delphi panel using the expert's preferred e-mail. The cover letter provided general directions by asking the panelist to read definitions of each service fairness dimension carefully before responding to individual statement items. The questionnaire begins with a list of items from the pilot survey which consists of twenty-two items with four different dimension names as a matrix-type questionnaire. Three open-ended questions asked the experts: (1) to clarify any statement items that invite ambiguous interpretations or are not well written; (2) to add new statement items to represent one of the four dimensions; and (3) to ask for additional comments and suggestions (Appendix C). The questionnaire asked the experts to indicate which dimension they considered each individual item to represent by selecting it and checking-the-box of the most appropriate dimension name.

Several experts sought clarification by email and were contacted by phone to provide more detailed information. While on the phone, some experts were interviewed by asking their roles, responsibilities, and interactions with their service provider.

The first round of Delphi was completed by ten experts. A consensus on the dimensions of service fairness was not reached from the first round survey according to the protocol, therefore another round was needed. Table 1 in Appendix D illustrates the items recorded on the consolidated percentages from the panelists that initially suggested comments and feedback (Table 2 in Appendix D). In analyzing the responses from the

initial questionnaire, the results were analyzed as percentages to determine general trends. A second questionnaire was then formulated and sent to experts.

2) *The second round of the questionnaire: statement item list by dimension names.* The responses to the first questionnaires were tabulated and calculated as percentages for each dimension and returned to the panel members to reconsider their selections.

The second questionnaire used the same items as the first round together with anonymous selections and comments derived from the first round. The panelist was instructed in round two to examine the same items as the first round and was asked whether he/she would like to revise his/her selection based on the responses of other participants or something that had not been considered initially.

The panelist was requested to come to a conclusion about the selected items, specifically focusing on the points of consensus. The goal of the second round was to reach a consensus about the redefined items of the relevant dimensions. An 80 percent consensus should be the goal (Green, Jones, Hughes, & Williams, 1999).

The results from round two of the questionnaire indicate a consensus for most of the items. Two items in systemic fairness dimension do not have a consensus and experts suggested some changes. Several items were asked to be clarified and explained. Some experts mentioned that some items were representing different dimension names and suggested some revisions in wording for more precise meaning such as (1) “reference to ‘individuals’ tends to cause me to focus on ‘interpersonal fairness’” and (2) “‘communicating with me’ is an interpersonal thing. ‘in all communications to my

company' would represent 'informational' and (3) 'me' means 'interpersonal'" (Table 3 in Appendix D).

Based on their responses, the two sets of items were refined. After conducting statistical analysis, a trend towards consensus was documented at the conclusion of the third round as the final phase.

3) *The third round of the questionnaire: final results.* The report of the second round was produced and proposed to the experts in order that they could come to a conclusion about the points of consensus. The report in this stage included items suggested to define in the second round were sent to the experts for their review and agreement in the third round. The experts were asked to review the statement and suggest further changes. The same experts responded to round three and, as consensus was reached according to the protocol, Delphi was concluded at this point.

The final stage of this process was a letter of gratitude and appreciation to the individual experts. Table 3.9 presents the final items for the further steps of the study.

Table 3.9 Revised Four Service Fairness Dimensions Items from Delphi Process

Item code	Statement item used in this study
<b>Variable name: Systemic fairness (8 itmes)</b>	
Systemic-1	1. The software service provider was consistent with the service procedure according to the agreement.
Systemic-2	2. The software service provider provided a level of service to me equal to that provided to other departments or companies.
Systemic-3	3. The software service provider kept complete and accurate records of my problems concerning the software.
Systemic-4	4. The software service provider has a knowledge-based system to provide solutions to my problems concerning the software.
Systemic-5	5. The software service provider effectively managed my problems concerning the software from initial notification though to reasonable resolution.
Systemic-6	6. The software service provider was able to identify and correct any problems that resulted from their own errors.
Systemic-7	7. The software service provider was capable of performing all the duties covered by the agreement.
Systemic-8	8. The software service provider behaved in an ethical manner in terms of fulfilling the spirit of the agreement.
<b>Variable name: Configural fairness (4 items)</b>	
Configural-1	1. The software service provider delivered the service to all individuals in my company equally.
Configural-2	2. The software service provider delivered desired solutions to all individuals in my company equally.
Configural-3	3. The software service provider delivered reasonable results to all individuals in my company equally.
Configural-4	4. The software service provider met the needs of all the individuals in my company equally.

Table 3.9 (continued)

Item code	Statement item used in this study
<b>Variable name: Interpersonal fairness (6 items)</b>	
Interpersonal-1	1. The software service provider personnel treated me with respect.
Interpersonal-2	2. The software service provider personnel treated me with consideration.
Interpersonal-3	3. The software service provider personnel treated me sincerely.
Interpersonal-4	4. The software service provider personnel treated me in a polite and courteous manner.
Interpersonal-5	5. The software service provider personnel were aware of my rights as a customer.
Interpersonal-6	6. The software service provider personnel used proper or appropriate language.
<b>Variable name: Informational fairness (4 items)</b>	
Informational-1	1. The software service provider offered reasonable explanations concerning the service.
Informational-2	2. The software service provider explained the service procedure thoroughly.
Informational-3	3. The software service provider was truthful in all communications to my company.
Informational-4	4. The software service provider tailored their explanation to my needs.

Source: Adapted for this research from (Bies & Moag, 1986; Greenberg, 1993; Leventhal, 1980; Maxham & Netemeyer, 2003; Shapiro, et al., 1994)

This section summarized the further instrument development of the scale items for four service fairness dimensions from the pilot study and Delphi process. In the pilot study, EFA results revealed a high correlation among all four variables and only three factors loaded, instead of four (Table 1 in Appendix F). The Delphi method was used to help determine content validity by the ten panelist members in an IT service management field. The experts could come to a consensus with some suggestions to revise the scale items. Table 4 in Appendix D shows revised items. Some items got the consensus at the second round without any changes. Table 3.10 shows experts' feedback for the cross loading item in the pilot study.



Table 3.10 Second Round Feedback and Comments for Items that had Substantial Cross Loading

Expert	Item	Feedback and comments
Expert #1	Item 5	“my problems” means things relating to “me”. You might omit the word “my”
	Item 8	Behaved in an ethical manner in regards to who or what?
	Item 21	“communicating with me” is an interpersonal thing. “in all communications to my company” would represent “informational”
Expert #2	Item 4	I don’t find the question ambiguous, to me it refers to how the individual believes the service provider has the knowledge to understand the problem. Therefore Systemic fairness.
	Item 12	Indicates to me a level of consistent service delivery. Configural fairness!
Expert #3	Item 5	This was open to some interpretation – but I agree is now clear.
	Item 18	The choice of language (english, Thai) is a technical efficiency criteria...or do you mean “appropriate technical descriptions”?
Expert #4	Item 21	The reference to “me” tends to cause me to focus on “interpersonal” but Informational is OK.
Expert #5	Item 21	Consider to revise: The software service provider provided information at an understandable technical level to meet my needs.
Expert #6	Item 8	Ethics are really a personal judgment
	Item 21	‘me’ means interpersonal
Expert #7	Item 9	It is clear for Configural dimension and may remove “individual”.
	Item 12	Configural!
Expert #8	Item 9	Configural fairness
Expert #9	Item 14	My thought was that there could be some discussion between “me” and the “service provider personnel” there may be some “Activities” under consideration...
Expert #10	Item 5	I saw dealing with problem as configural as it elated to end result – has to be clarified
	Item 18	I assumed proper meant good information – could be better to say ‘polite’

Below (Table 3.11) are some revised items compared with the items in the pilot study for those items which showed the most problem in the pilot.

Table 3.11 Compared Revised Statement Items with the Initial Pilot Items

Item	Item in the pilot study	Revised item
Systemic-4	The software service provider understood my problems concerning the software.	The software service provider has a knowledge-based system to provide solutions to my problems concerning the software.
Systemic-6	The software service provider was able to correct any problems that resulted from their own errors.	The software service provider was able to identify and correct any problems that resulted from their own errors.
Systemic-7	The software service provider personnel were capable of performing all the duties covered by the contract.	The software service provider was capable of performing all the duties covered by the agreement.
Systemic-8	The software service provider behaved in an ethical manner.	The software service provider behaved in an ethical manner in terms of fulfilling the spirit of the agreement.
Interpersonal-6	The software service provider personnel did not use improper or inappropriate language.	The software service provider personnel used proper or appropriate language.

The experts did not provide any suggestion to revise some cross loading items (Systemic\_1, Systemim\_5, Interpersonal\_3, Interpersonal\_4, and Informational\_3). The items could come to conclusion about the point of consensus in round two or three.

#### **Summary for Delphi Process**

The Delphi results yield twenty-two items with four dimension names: systemic fairness (8 items), configural fairness (4 items), interpersonal fairness (6 items) and informational fairness (4 items). There are several revised items in systemic, informational and interpersonal fairness dimensions. The revised items were taken for the main study together with other items from the IS continuance model.

#### **Phase IV: Methodology for the Main Study**

The previous sections focus on the measurement instrument preparation, expert checks to identify any ambiguous questions and unclear direction, pilot testing to determine the validity and reliability of instruments used and Delphi method to determine the content validity for four service fairness dimensions by consulting experts. This section is methodology section for the main study to test the hypotheses. Data preparation and data analysis methodologies are described in detail.

##### **a) Sample**

There are many ways to determine the sample size. The current research used the published formula table developed by Yamane's (Yamane, 1973, p. 37). The sample size of this research requires 400 respondents. The unit of analysis in the present research for pilot testing and main study was an individual who uses CRM Software-as-a-Service (CRM-SaaS) in the cloud environment. In IS post-acceptance, it is generally agreed that cloud computing can be regarded as an emerging technology of IS (White, Brown, Deale, & Hardin, 2009; Yoshino, Komoda, & Oba, 2008).

There were three reasons for using a sample from SaaS industry.

Firstly, cloud computing is an emerging technology, which should enhance subscribers perceptions of SaaS as a long term partner (SIIA, 2004). Organizations use the SaaS as their core application and have service level agreement (SLA) that ensures the organization a specified level of performance & availability. IS continuance is a critical issue for this application, and user answers will reflect fresh experience using the software and interacting with the support services.

Buyya, R. and his colleagues defined cloud computing as follows “A Cloud is a type of parallel and distributed system consisting of a collection of inter-connected and virtualized computers that are dynamically provisioned and presented as one or more unified computing resource(s) based on service-level agreements established through negotiation between the service provider and consumers" (Buyya, Yeo, Venugopal, Broberg, & Brandic, 2009, p. 601). Cloud computing is typically divided into three levels of service offerings: Software-as-a-Service (SaaS), Platform-as-a-Service (PaaS), and Infrastructure-as-a-service (IaaS) (Bhardwaj, Jain, & Jain, 2010). This definition makes it clear that users depend heavily on services from an external service provider, making cloud computing an excellent context in which to examine these issues.

Secondly, the market of SaaS is growing and many developers and providers have invested in the technology. According to a recent Gartner research note, “The current market for Cloud services is \$46.4 billion. By 2013, the market will reach \$150.1 billion” (Pring, Brown, Frank, Hayward, & Leong, 2009, p. 1). International Data Corporate (IDC) - one of global providers of market intelligence estimates that the worldwide revenue associated with SaaS reached \$13.10 billion in 2009 and that it will reach \$40.50 billion in 2014, representing a compound annual growth rate (CAGR) of 25.30% (Mahowald, 2010). With such development, the advantages to tapping into this resource are clear.

Finally, the wide adoption of cloud computing for both higher educational institutions and organizations (White, et al., 2009). Academics and businesses represent a

significant demand on SaaS, making it an important current research and development subject (Candan, Li, Phan, & Zhou, 2009).

Also note that one key application of SaaS is in CRM systems. The CRM-SaaS is a Web-based application that hosts the software in the provider's data center, where subscribers can access to one copy of the software via their web browser through internet. SaaS CRM has been described from a number of different perspectives including business strategy and IT. From a business strategy viewpoint, "CRM is an approach or business strategy which provides seamless integration of every area of business that touches the customer" (Sathish, Pan, & Raman, 2002, p. 545); while several IT studies appear primarily interested in the implementation and technological aspects of CRM (e.g. Chalmers, 2006; Cooper, Watson, Wixom, & Goodhue, 2000). This specific application is used here to control variability that might possibly enter if a wide range of applications actually need substantially different levels of service support from the service provider.

With the preceding arguments, SaaS has already been on the market for some years and subscribers continue to use the application. The present research employs SaaS in the cloud computing environment as IS application and SaaS users as the IS sample. The study involved convenience sample of SaaS users.

#### b) Data Collection and Procedures

Data collection for this study was restricted to a single SaaS excluding games, social networks and Web 2.0 in order to limit the scope of software usage, service experience, and reduce software platform-related difference in response structure.

Different SaaS have different types of customers whose aspirations about the software usage are different. It is possible that different SaaS types will bring up significant differences in usage and services.

CRM-SaaS was restricted to business-to-business (B2B) as a key attribute of the software service provider for this research purpose. Major CRM-SaaS providers for small and medium enterprises (SME) are Salesforce.com, InteleCRM, Dataforce CRM, Netsuite CRM, and Rightnow CRM.

Web-based surveys are widely used and increasingly common. Participants in such surveys are invited to access a website and fill out a questionnaire. Some characteristics of paper and web-based surveys are coverage, time frame, sampling frame, sample size, speed, response rate, cost, and quality of data (Cobanoglu, Warde, & Moreo, 2001; Porter, 2004; Schonlau, Fricker, & Elliott, 2002; Tan & Teo, 2000). One of the distinctions between paper and web-based questionnaire designs is user interface. The design of the user interface has an impact on response rate and response errors. Web-based survey interfaces include the use of graphics, forcing answers, warning messages, progress indicators, and online-help (Crawford, Couper, & Lamias, 2001; Schonlau, et al., 2002). The potential for non-response bias is in conducting web-based survey (Fleming & Cook, 2007; Thorpe, 2002). The number of questions per page in the survey used for this study was kept at a minimum and the survey page is user-friendly. Therefore, this research employed a quality validated survey.

The web-based survey is an appropriate choice for this study due to the characteristics of the research subject (i.e., CRM-SaaS subscribers access the software via

Internet on a daily basis) (Armbrust et al., 2009). When the sample has easy access to the Internet then, they are more comfortable and likely to answer on the Internet. Moreover, several documented advantages to such a survey include high data quality, and a higher response rate (Bhattacharjee, 2001a; Couper & Miller, 2008; Porter, 2004). Therefore, web-based surveys may have no restricted geographical location, higher responses, and extract longer and more substantive quality answers than a mail survey (Bhattacharjee, 2001a; Porter & Whitcomb, 2007).

For the pilot test and the main study, an online professional marketing research and enterprise feedback management service was recruited to provide a means of conducting the online survey. The research service has access to upwards of over four million respondents worldwide. The panel members were recruited to pre-qualify data and use opt-in panel members who have a choice whether or not to take a specific survey.

There are some quality controls with an industry standard in checking for duplicate respondents' computer internet protocol addresses and domain spoofing. In addition, the research service online survey system put attention filters by removing 'click through' and respondents who were not paying attention to the survey by adding 'To show you are reading the questions, select "strongly agree" as your answer to this statement.' in sections 2 and 3 in the questionnaire.

The research service has a tracking system for checking respondents who have completed the survey, and it sent reminders to those who had not started the survey or thank you messages upon survey completion. The system assigns each respondent a

unique identification number to prevent respondents from taking survey multiple times.

These options have increased responses without annoying the panelists.

For the pilot test and the main study, the pre-qualification procedure ensures that

- 1) The respondents must use a CRM software over the Internet in their work place by asking the name of the CRM-SaaS used in the respondents' companies,
- 2) How long respondents' companies have used the software. The first year is normally a trial period and the second year is a subscription renewal. The respondents' organization should be using the software more than 2 years,
- 3) Respondents should use the software at least once a week for their work which is considered using the software as part of normal routine activity, and
- 4) The respondents have contacted the software service provider for support. If they have not had any interaction(s) with the software service provider and/or the software service provider personnel, then they will not qualify to take part in the survey.

c) Data Analysis for the main study

As for the questionnaire's survey data, statistical analyses were performed using PASW Statistics version 18 and SPSS Analysis of Moment Structures (AMOS) version 18 statistical software packages. Statistical analysis such as descriptive statistics,



$R^2$ , t-test and F-test were also performed. In addition, this study employs the SEM technique. Figure 3.3 illustrates the data analysis procedures for the study.

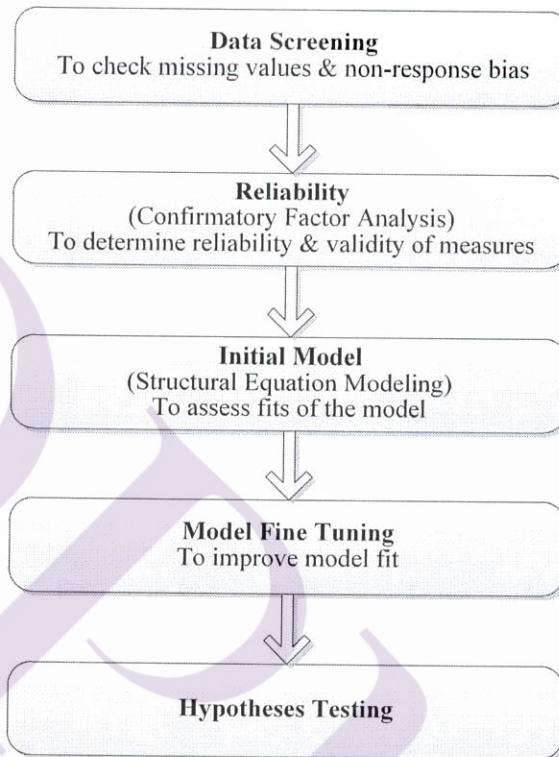


Figure 3.3 Data Analysis Procedure

Source: Developed for this research

First, the set of responses from the main study were screened and non-response bias was performance to examine the data. The data preparation, screening and non-response bias were to ensure that the data meet all SEM requirements. Then, the item and scale purification was performance, in particular exploratory factor analysis (EFA). Mean, standard deviation, and internal consistency reliability for each variable were analyzed.

Next, the constructs derived from this analysis are analyzed using confirmatory factor analysis (CFA) procedure. The validation of the measures in terms of reliability and validity was also assessed. The internal consistency reliability of the measures should be reached adequate levels of cut-off scores ( $> .70$ ) (Hair, et al., 2006; Nunnally & Bernstein, 1994).

### **Structural Equation Modeling (SEM)**

Structural equation modeling (SEM) is the statistical procedure for evaluating the combined relationship of multiple independent variables and consists of two sub-models: a measurement model and a structural model. SEM was employed for data analysis in this study for several reasons. Primarily, it can examine a series of interrelated dependence relationships simultaneously (Hair, et al., 2006). Secondly, it can easily assess validity and reliability of measurement (Anderson & Gerbing, 1988). Thirdly, it is highly recommended by experts as a rigorous and powerful statistical research technique for dealing with complex models (Anderson & Gerbing, 1988; Byrne, 2001; Hair, et al., 2006; Tabachnick & Fidell, 2007).

Focusing on the present study, one of the objectives is to propose a theoretical model that can explain and predict customer satisfaction in relation to service fairness perceptions. Thus, the robust research methods to test hypotheses, to analyze data, and to measure validity and reliability are required, of which SEM is able to fulfill. Hair et al. (2006) recommend that SEM is particularly useful when one dependent variable becomes an independent variable in subsequent dependence relationships. For example, based on the conceptual model (Figure 2.1), each service fairness dimension influences satisfaction. Furthermore, Mackenzie (2001) strongly supports the argument that consumer research can be improved by adopting SEM in estimating and testing complex systems of conceptual relationships.

#### **Measurement Model Evaluation**

The study measurement model is composed of 36 items measuring eight constructs. The measurement model was evaluated to refine the measurement in this study. A confirmatory factor analysis (CFA) using AMOS was conducted to assess the reliability and validity of measurements. A coefficient alpha of .70 was the minimum standard for reliability (Hair, et al., 2006; Nunnally & Bernstein, 1994). Factor loading of the observed variables for each latent variable were significant at  $p = .05$ , confirming convergent validity (Anderson & Gerbing, 1988). The measurement model was modified, and the overall fit of measurement fit was assessed through the fit indices provided by AMOS.

Convergent validity and discriminate validity were assessed for the measurement model. Convergent validity is the extent to which independent measures of

the same construct converge or are highly correlated. The convergent validity was assessed based on the level of significance of the factor loadings. If all the individual item factor loadings are significant, then the indicators are effectively converging to measure the same construct (Anderson & Gerbing, 1988). An assessment of the validity and reliability of each observed variable is carried out using the 3 indicators: individual item reliability using squared standardized loading (reported in AMOS as standardized regression weight), overall reliability using composite reliability, and average variance extracted. Standard errors are also given for the path coefficients. Critical ratio is the estimate divided by its standard error. Standard errors and critical ratios are given further for the variances of variables in the model.

The cut-off point of correlation regarded as “high” is controversial. Bagozzi and Yi (1988) recommend a standard loading of .6 or more, whereas Litwin (1995) proposes that a correlation coefficient between two sets of data with the levels of .7 or more are generally accepted as representing good validity. Hair et al. (2006) argue that the acceptable level should be at least .5 and preferably .7 or higher. In this study, a reasonable benchmark was a value greater than .6 because it was widely used in customer behavior research (e.g., Lai & Li, 2005). Another of the criteria to assess convergent validity is t-values or critical ratios, (the parameter estimate divided by its standard error). T-values of greater than  $\pm 1.96$  at 0.05 or  $\pm 2.58$  at 0.01 level demonstrate statistical significance (Byrne, 2001; Kline, 2005).

Once a CFA model fit was established for each of the constructs in the study, the convergent validity was assessed based on the level of significance of the coefficients.

The results of the convergent validity test are discussed in the CFA of each measure (Chapter 4).

Discriminant validity establishes that two or more constructs are separate and distinct from one another. If constructs are separate and distinct, then it can be established whether or not a predictive or causal relationship exists between them (Bryman & Cramer, 2005; Churchill & Iacobucci, 2002; Kinnear & Taylor, 1987). It suggests that the measure is not actually capturing distinctively if the correlations are too high. This study provides evidence of discriminant validity from two sources as follows:

First, a correlation index among variables was employed to evaluate discriminant validity (Kline, 2005). Hair et al. (2006) suggests that correlations of greater than .80 indicate problems, and those of greater than .90 should be further investigated. Kline (2005) recommends a demarcation point at .85 and Cummingham (2008) suggests a lack of discriminant validity which is greater than .80 or .90.

Second, discriminant validity was assessed for each pair of constructs by constraining the estimated correlation parameter between them to unity and then performing a chi-square difference test on the values obtained for the constrained and unconstrained models (Anderson & Gerbing, 1988). Bagozzi and Phillips (1982) mention that "A significantly lower  $\chi^2$  value for the model in which the correlations between latent variables are not constrained to unity indicates that those latent variables are not perfectly correlated and that discriminant validity is achieved" (Bagozzi & Phillips, 1982, p. 476). The results of the discriminant validity test were discussed in the CFA of each measure (Chapter 4).

### **Structural Model Analysis**

The structural model links the relationships among latent variables. The main issues in this part were evaluation of the overall fit of the modified model which was suggested by CFA results in the measurement model. The examination of the overall model fit was to test the hypothesized causal relationship in the research model. The results yielded by the AMOS statistical software packages in this study show estimated coefficients, standard errors, and t-values.

### **3.3 Summary**

Chapter 3 provides a thorough description of the methodology of the research design. The survey questionnaire preparation, study design, data collection procedures, measures, and experts check were presented. The pilot study and descriptive statistics results were explained. Delphi process was employed by consulting practitioner experts in IT service management fields.

Fourteen items were developed for PAM and twenty-two items for the four-factor model of service fairness. Empirical IS post-acceptance and service fairness were developed as well. The pilot study also demonstrated adequate internal consistency for the performance discrepancy measures. Additionally, experts in the Delphi process provided evidence for content validity, and conceptual distinction for the four service fairness dimensions. As a result of the Delphi process, ten of the twenty-two items were reworded to improve item clarity (Table 4 in Appendix D). These measures were used in

the analysis of the structural equation model of the post-acceptance model, perceptions of service fairness and their hypothesized antecedents.

Chapter 4 will present the results of the main study, and the method and results of the confirmatory factor analysis used to determine the underlying structure of the integrated model.



## CHAPTER 4

### DATA ANALYSIS AND RESULTS

#### 4.1 Introduction

The previous chapter illustrated the research design, measurement development, data collection procedures, and data analysis methodology of this study. The survey questionnaire for the main study was modified after the pilot test and the application of the Delphi method.

This chapter reports the processes of data analysis and the results of statistical tests. Results of the analyses performed to test hypotheses formulated in chapter 2 are also presented in this chapter.

The chapter proceeds with a detailed statistical analysis of the survey data using PASW Statistics version 18 to discuss the sample characteristics, descriptive statistics of the variables, and the reliability and validity of the measures used in this research. The results of the confirmatory factor analysis (CFA) of the study are presented using the SPSS Analysis of Moment Structures (AMOS) version 18 statistical software package. Finally, the results of the hypotheses testing are examined.



## 4.2 Response Rate and Non-Response Bias

### a) Response Rate

For the main study the Web-based survey for this research activated 'forced response' functionality, ensuring that each mandatory question was answered before the next page appeared. Therefore, there were no missing data in any of the completed surveys. However, there were no measures of the number of respondents who started but failed to complete the survey.

For obtaining the response rate, recruitment e-mails were sent to 31,015 prospective U.S. nationwide panel members who were identified from a survey of company databases of full-time employees working in organizations. Each e-mail contained a hyperlink to the questionnaire and participants submitted responses online. The invitation emails may have been filtered out by widely-used SPAM blockers or may have been inadvertently deleted by some respondents. The first response rate from prospective participants was 11.58% (3,591).

There were four screening conditions to collect qualification data from responding participants: (1) one of the CRM Software-as-a-Service (SaaS) listed names is used in their company, (2) their company has used the software more than 2 years, (3) they use the software at least once a week to everyday, and (4) they have contacted the software service provider personnel for support. The use of these screening conditions resulted in retaining 490 data sets at a response rate of 1.58%. Since the response rate was relatively low, tests for non-response bias were performed to examine the data.

#### b) Non-Response Bias

One important issue of sampling error is the problem of non-response bias. Non-response bias testing was conducted to ensure a representative sample. Lambert and Harrington (1990) defined non-response bias as the difference between the answers of non-respondents and respondents. In practice, because there is no data from non-responding people, researchers usually test non-response bias by assuming the last quartile of respondents to be most similar to those of non-respondents. The returned last quartile of the responses was compared with those of the first quartile. A t-test analysis was employed to check for differences between respondents and non-respondents (Lambert & Herrington, 1990).

The non-response bias was determined between early and late respondents of the pool of usable respondents. This study used Levene's test and independent sample t-test to examine the homogeneity of variance and equality of means. Theoretically, if  $p$ -value (significance) is less than 0.05 ( $p < 0.05$ ), then Levene's test indicates that variances between the two populations are not equal, in which case the t-test assuming unequal variances can be used. If  $p > 0.05$ , Levene's test indicates that equal variances can be assumed or homogeneity of variance exists, in which case the t-test assuming equal variances can be used. For independent sample t-test, if  $p > 0.05$ , then there are no differences in mean value between two groups of respondents.

The results presented in Appendix F – Table 5 indicate that t-tests on all items of the study showed no significant difference between the mean score of the two groups. There were only two differences in variance at 95% confident. Thus, equal

variances can be assumed for the most part too. Thus, it may be implied that respondents were not different from non-respondents. As a result, this indicated that non-response bias was not a significant problem and the survey was able to achieve an adequate data in this research.

### 4.3 Sample Characteristics

This section discusses the descriptive statistical analysis of the data collected from the main study using the PASW Statistics software. The completed survey provides data of demographic characteristics and control variables.

Table 4.1 shows the descriptive statistics for the study's demographics of the 490 respondents (N=490). The characteristics of the sample are as follows: males and females constitute 61.22% and 38.78% of respondents, respectively. The majority of the respondents (64.70%) are in the age range from 30 years to 50 years old. More than three quarters of the respondents (88.98%) had over 5 years of working experience. Nearly half of the responses (45.30%) were from operating staff (16.73%), supervisor (15.51%) and sales representative positions (13.06%) in their organizations. Looking at company size, half of the participants (50%) responding to the questionnaire were from organizations employing between 51 to 500 employees. Respondents from the business services industry (51.84%) made up the highest percentage of participants. In summary, the sample for the main study constituted an experienced working-age group and with responsibility at their present company who frequently use the software and interact with the software service provider.

Table 4.1 Demographic Characteristics of Participants in Main Study (N=490)

	Frequency	%
<b>Gender</b>		
• Male	300	61.22
• Female	190	38.78
<b>Total</b>	<b>490</b>	<b>100.00</b>
<b>Group age</b>		
• Under 30 years old	95	19.39
• 30 to 40 years old	215	43.88
• 41 to 50 years old	102	20.81
• Above 50 years old	78	15.92
<b>Total</b>	<b>490</b>	<b>100.00</b>
<b>Working experience</b>		
• Less than 5 years	54	11.02
• 5 to 10 years	144	29.39
• 11 to 15 years	110	22.45
• More than 15 years	182	37.14
<b>Total</b>	<b>490</b>	<b>100.00</b>
<b>Position at organization</b>		
• Middle management	143	29.18
• Senior management	125	25.51
• Operating staff	82	16.74
• Supervisor	76	15.51
• Sales representative	64	13.06
<b>Total</b>	<b>490</b>	<b>100.00</b>
<b>Number of employees at respondents' companies</b>		
• Less than 50	124	25.31
• 51 to 100	66	13.47
• 101 to 250	95	19.39
• 251 to 500	84	17.14
• More than 500	121	24.69
<b>Total</b>	<b>490</b>	<b>100.00</b>
<b>Industry type</b>		
• Business Services	181	36.94
• Manufacturing	96	19.59
• Services Industry	73	14.90
• Wholesaler/Retailer/Distributor	61	12.45
• Government (including Military)	13	2.65
• Other	66	13.47
<b>Total</b>	<b>490</b>	<b>100.00</b>

Source: Developed for this research

Table 4.2 presents the software usage for the study's research organizations and respondents that reflect the following screening conditions.

1) CRM-SaaS over the Internet name is used in responding participant's organizations. For this study, the CRM-SaaS was restricted to business-to-business software for small and medium enterprises. Different software may have different customers whose aspirations about the software usage are different. The software names in the first screening question are equivalent software and not vastly different in cost. Thus, the screening questions screened out vastly different software. There were responses for 61 names. Salesforce.com was the most popular SaaS among CRM-SaaS (17.55%).

2) Respondents' organizations have used the software for more than 2 years. The results show that a slight majority of the organizations have been using the software from 2 to 4 years (53.06%) followed by from 5 to 6 years (27.14%). The smallest group in the sample was organizations using the software more than 6 years (19.80%).

3) The participants use the software at least 'once a week' or 'everyday'. The bigger group (56.33%) used the software 'everyday' followed by '2-3 times a week'. At 9.18% the smallest group of respondents was using the software 'once a week'.

4) All responding participants contact the software service provider and/or service provider personnel for support. The questionnaire asked about the respondents' experiences about the service interaction(s) they had with their service provider and/or service provider personnel in person, by phone or email.

Taking into account all of the above descriptions and values, the responses can be described as appropriate samples for this study.

Table 4.2 Software Usage in Main Study (N=490)

Name	Frequency	%	Name	Frequency	%
<b>CRM software over the Internet is used in respondents' company</b>					
• salesforce.com	86	17.55	• Aplicor CRM	4	.82
• InteleCRM	33	6.73	• CLP Suite CRM	4	.82
• Netsuite CRM	22	4.49	• CRM Unleashed	4	.82
• Dataforce CRM	19	3.88	• RunCRM	4	.82
• CRM.COM	16	3.27	• Salesboom.com	4	.82
• Oasis CRM	16	3.27	• SalesMetric.com	4	.82
• eSalesTrack CRM	15	3.06	• SalesNet CRM	4	.82
• CoreCRM	14	2.86	• Sugar CRM	4	.82
• C2CRM	13	2.65	• WiredContact CRM	4	.82
• Empower CRM	13	2.65	• Centerbase CRM	3	.61
• Sage CRM	12	2.45	• ConcourseSuite CRM	3	.61
• WorkXpress CRM	12	2.45	• CRM ASP	3	.61
• Luxor CRM	11	2.24	• EBSuite CRM	3	.61
• Highrise CRM	10	2.04	• InterAction CRM	3	.61
• SalesGuru.com	10	2.04	• Rightnow CRM	3	.61
• Really Simple Systems	9	1.84	• Star CRM	3	.61
• Everest CRM	8	1.63	• WORKetc CRM	3	.61
• Full Spectrum CRM	8	1.63	• Your-CRM	3	.61
• Logica CRM	8	1.63	• Capsule CRM	2	.41
• CRM-A	7	1.43	• COMPLETExRM	2	.41
• StreetSmart CRM	7	1.43	• iportstant CRM	2	.41
• Infusionsoft CRM	7	1.43	• LongJump CRM	2	.41
• Lead Management CRM	7	1.43	• Spring CRM	2	.41
• OnContact CRM	7	1.43	• BlueCamroo CRM	1	.20
• OpenBox CRM	7	1.43	• CRMTra	1	.20
• 24SevenOffice CRM	6	1.22	• iCRM (Tariva)	1	.20
• Appshore CRM	6	1.22	• KiBs CRM	1	.20
• Commence CRM	6	1.22	• SalesJunction.com	1	.20
• Falcon eCRM	5	1.02	• sfCRM	1	.20
• Maximizer CRM	5	1.02	• Surado CRM	1	.20
• Zoho CRM	5	1.02			
			<b>Total</b>	<b>490</b>	<b>100.00</b>

Table 4.2 (continued)

	Frequency	%
<b>Respondents' companies using the software</b>		
• 2 to 4 years	260	53.06
• 5 to 6 years	133	27.14
• More than 6 years	97	19.80
<b>Total</b>	<b>490</b>	<b>100.00</b>
<b>Respondents using the software</b>		
• Everyday	276	56.33
• 2-3 times a week	169	34.49
• Once a week	45	9.18
<b>Total</b>	<b>490</b>	<b>100.00</b>

Source: Developed for this research

#### 4.4 Descriptive Statistics

Table 4.3 and Table 4.4 present the descriptive statistics for the measures used, including mean, standard deviation and internal consistency reliability (Cronbach's alpha) for each construct measure (see Appendix F – Table 3 and Table 4 for more details on minimum, maximum, skewness and kurtosis).

The internal reliability of the measure ranged from .830 to .938 for the IS continuance model (Table 4.3) and from .906 to .943 for the four-factor model of service fairness (Table 4.4). All the measures included in the questionnaire showed adequate levels of initial internal consistency reliability ( $> .70$ ) (Hair, et al., 2006; Nunnally & Bernstein, 1994).

Table 4.3 Descriptive Statistics and Reliability Estimates of IS Continuance  
Measures in Main Study (N=490)

Variable	Number of Items	Mean	Standard Deviation	Cronbach's Alpha
<b>Perceived usefulness</b>	<b>4</b>	<b>5.64</b>	<b>1.086</b>	<b>.938</b>
Usefulness_1		5.56	1.212	
Usefulness_2		5.63	1.214	
Usefulness_3		5.64	1.147	
Usefulness_4		5.74	1.158	
<b>Confirmation</b>	<b>3</b>	<b>5.40</b>	<b>1.011</b>	<b>.830</b>
Confirmation_1		5.44	1.199	
Confirmation_2		5.23	1.212	
Confirmation_3		5.52	1.095	
<b>Continuance intention</b>	<b>3</b>	<b>5.58</b>	<b>1.041</b>	<b>.893</b>
Continuance_1		5.59	1.155	
Continuance_2		5.53	1.139	
Continuance_3		5.63	1.148	
<b>Satisfaction</b>	<b>4</b>	<b>5.51</b>	<b>1.088</b>	<b>.929</b>
Satisfaction_1		5.61	1.112	
Satisfaction_2		5.58	1.170	
Satisfaction_3		5.54	1.205	
Satisfaction_4		5.31	1.300	

Note: Measured on a seven-point Likert scale, and anchored at middle and endpoints (“Strongly Disagree”/“Neutral”/“Strongly Agree”)

Source: Developed for this research



Table 4.4 Descriptive Statistics and Reliability Estimates of Service Fairness Measures  
in Main Study (N=490)

Variable	Number of Items	Mean	Standard Deviation	Cronbach's Alpha
<b>Systemic Fairness</b>	<b>8</b>	<b>5.50</b>	<b>0.991</b>	<b>.943</b>
Systemic_1		5.44	1.211	
Systemic_2		5.42	1.174	
Systemic_3		5.46	1.183	
Systemic_4		5.52	1.253	
Systemic_5		5.49	1.166	
Systemic_6		5.44	1.143	
Systemic_7		5.58	1.147	
Systemic_8		5.67	1.096	
<b>Configural Fairness</b>	<b>4</b>	<b>5.53</b>	<b>1.019</b>	<b>.906</b>
Configural_1		5.54	1.124	
Configural_2		5.53	1.162	
Configural_3		5.51	1.144	
Configural_4		5.51	1.185	
<b>Interpersonal Fairness</b>	<b>6</b>	<b>5.63</b>	<b>1.003</b>	<b>.937</b>
Interpersonal_1		5.66	1.175	
Interpersonal_2		5.57	1.155	
Interpersonal_3		5.56	1.157	
Interpersonal_4		5.64	1.157	
Interpersonal_5		5.62	1.119	
Interpersonal_6		5.72	1.144	
<b>Informational Fairness</b>	<b>4</b>	<b>5.55</b>	<b>1.030</b>	<b>.908</b>
Informational_1		5.57	1.119	
Informational_2		5.57	1.190	
Informational_3		5.57	1.144	
Informational_4		5.51	1.200	

Note: Measured on a seven-point Likert scale, and anchored at middle and endpoints (“Strongly Disagree”/“Neutral”/“Strongly Agree”)

Source: Developed for this research

#### 4.5 Measurement Analyses Results

The primary objective of a measurement model is to describe how well the observed indicators serve as a measurement instrument for the latent variables. In other words, the measurement model depicts the links between the latent variables and their observed measures.

A combination of Exploratory Factor Analysis (EFA) and Confirmatory Factor Analysis (CFA) was utilized to assess reliability and the convergent and discriminant validities of the measures. Additionally, CFA was used to estimate the measurement model for each construct. The adequacy of the model fit was determined by several goodness-of-fit statistics: including a Chi-square, relative chi-square, Root Mean Square Error of Approximation (RMSEA), Standardized Root Mean Square Residual (RMR), Goodness-of-fit Index (GFI), and Comparative Fit Index (CFI). Table 4.5 presents fit indices and acceptable thresholds used for this research. Finally, a series of factor analyses were conducted to verify the structure of newly developed and/or extensively modified measures.

Table 4.5 Summary of the fit Indices and Acceptable Thresholds in This Study

Fit Index	Acceptable Threshold Levels
<b>Absolute Fit Indices</b>	
Chi-square ( $\chi^2_{(df, p)}$ )	Low $\chi^2$ relative to degrees of freedom with an insignificant $p$ value ( $p > .05$ ) (at the $\alpha = 0.05$ level)
Relative Chi-square ( $\chi^2/df$ )	2:1 (Tabachnick & Fidell, 2007) 3:1 (Kline, 2005)
Root Mean-Square Error of Approximation (RMSEA)	RMSEA $< .07$ (Values between .05 - .08 may also indicate satisfactory fit)
Standardized Root Mean-Square Error of Approximation (SRMR)	SRMR $< .08$ (Large values for SRMR when all other fit indices suggest good fit may indicate outliers in the raw data)
Goodness-of-Fit (GFI)	CFI $> .95$ (Values between .90 - .95 may also indicate satisfactory fit)
<b>Incremental Fit Indices</b>	
Normed Fit Index (NFI)	NFI $> .95$ (Values between 0 and 1 and NFI = 1 indicates perfect fit)
Tucker Lewis Index (TLI) (NNFI)	TLI $> .95$ (Values between .90 - .95 may also indicate satisfaction fit. Values greater than 1 may indicate overfit)
Comparative Fit Index (CFI)	CFI $> .95$ (Values between .90 - .95 may also indicate satisfactory fit. Values close to 0 indicate poor fit, CFI = 1 indicates perfect fit)

Sources: Adapted for this research from (Hair, et al., 2006; Hu & Bentler, 1999; Miles & Shevlin, 1998; Steiger, 2007)

To assess scale reliability, composite reliability and average variance extracted (AVE) were also assessed. Composite reliability is used to assess the consistency of a set of variable in that measurement. The desirable minimum level of composite reliability index is  $\geq .70$  (Hair, et al., 2006). Average variance extracted the overall amount of variance in the indicators accounted for by the latent construct. Average variance is quite similar to the composite reliability measure but differs in that the standardized loadings are squared before summing them. The desirable minimum level of average variance

extracted is  $\geq .50$  (Hair, et al., 2006). The standardized loadings are obtained directly from the AMOS output and the measurement error is for each indicator.

#### 4.5.1 Three variable groups for the Measurement Model

The proposed conceptual model of this research consists of a large pool of items; the total observed variables were divided into three groups from two theory-based models. The post-acceptance model was comprised of two variable groups. Each group has independent variables in some part of the model. For the third variable group, four service fairness dimensions are joint independent variables. The factors analyzed were analyzed separately to assess and purify the structure performance measure in CFA. Additionally, convergent validity and scale reliability were assessed for the measurement model. The three variable groups were structured and the results of the CFA can be described as follows:

##### **Variable groups 1: Confirmation and Perceived Usefulness as Independent**

###### **Variables**

The initial measurement of perceived usefulness and confirmation has seven indicators (four indicators for perceived usefulness and three indicators for confirmation).

The initial measurement estimation did not fit well compared to recommended fit indices and acceptable thresholds. The Chi-square ( $\chi^2$ ) values of 91.396 with 13 degrees of freedom was statistically significant at  $p = .000$ . The other fit statistics indicated that the model was not acceptable (GFI = .955, NFI = .968, TLI = .955, CFI = .972, Relative  $\chi^2 = 7.030$ , RMSEA = .111, Standardized RMR = .0308). The poor fit of

the model was revised by investigating modification indices or standard residuals (Hair, et al., 2006), and the model was then modified according to the recommendation of the modification indices.

To improve the model fit, one correlation errors were added between items on the variables within the same construct; no linkages were added outside the set of items representing the constructs, confirmation\_3 was eliminated to eliminate for cross-loading and not loading on a single factor, and the adjusted model was found to fit the data well ( $\chi^2_{(df=7, p<.000)} = 14.011$ , Relative  $\chi^2 = 2.002$ , GFI = .991, NFI = .994, TLI = .994, CFI = .997, RMSEA = .045, Standardized RMR = .0094). Parameter estimates of the final model were inspected and no problematic occasions were found. Thus, convergent validity was established. The item reliability ( $R^2$ ) of each item was greater than .50. Scale reliability also achieved acceptable levels (all composite reliability and average variance extracted for each construct was greater than .70 and .50 respectively which were both higher than the cut-off point) (Table 4.6).

Finally, four items for perceived usefulness and two items for confirmation were calculated using CFA, which was further tested with the structural model for hypotheses testing (Table 4.6).

Table 4.6 Goodness-of-Fit Measures and CFA Results of Variable groups 1

Overall goodness-of-fit measures						
Chi-square = 14.011; df = 7; $p = .000$						
Relative chi-square = 2.002;						
GFI = .991; NFI = .994; TLI = .994; CFI = .997;						
RMSEA = .045; Standardized RMR = .0094						
Model Fit Criteria $p > .05$ ; $.95 < \text{GFI, NFI, TLI, CFI} < 1.0$ ; $\text{RMSEA} < 0.7$ ; $\text{SRMR} < .08$						
CFA Results						
Constructs	Convergent Validity			Item reliability ( $R^2$ )	Scale Reliability	
	Standardized regression weight	Standard Error	Critical ratio (t-values)		Composite reliability	Average variance extracted
Acceptable level	$\geq 0.6$	Low	$\pm 1.96$ $\pm 2.58$	$\geq 0.5$	$\geq 0.7$	$\geq 0.5$
Perceived Usefulness	Usefulness_1	.878	n/a	n/a	0.770	
	Usefulness_2	.891	.032	31.799	0.794	
	Usefulness_3	.909	.035	28.263	0.827	.94
	Usefulness_4	.863	.037	25.713	0.744	.78
Confirmation	Confirmation_1	.871	n/a	n/a	0.758	
	Confirmation_2	.753	.050	17.587	0.568	.79

Note: n/a = no result available because of fixed parameter (regression weight = 1) to achieve identifiability, Variable groups 1 = Confirmation and perceived usefulness

Source: Developed for this research

### **Variable groups 2: Perceived Usefulness and Satisfaction**

The initial measurements of perceived usefulness and satisfaction have eight indicators (four indicators for each construct). The initial measurement estimation fitted well compared to recommended fit indices and acceptable thresholds. The Chi-square ( $\chi^2$ ) values of 42.695 with 19 degrees of freedom was statistically significant at  $p = .001$ . The other fit statistics indicated that the model was acceptable (GFI = .979, NFI = .989, TLI = .991, CFI = .994, RMSEA = .051, Relative  $\chi^2 = 2.247$ , Standardized RMR = .0153). Finally, eight items (four items for each construct) remained for a further test with the structural model for hypotheses testing (Table 4.7).

Table 4.7 Goodness-of-Fit Measures and CFA Results of Variable groups 2

Overall goodness-of-fit measures						
Chi-square = 42.695; df = 19; $p = .001$						
Relative chi-square = 2.247;						
GFI = .979; NFI = .989; TLI = .991; CFI = .994;						
RMSEA = .051; Standardized RMR = .0153						
Model Fit Criteria $p > .05$ ; $.95 < \text{GFI, NFI, TLI, CFI} < 1.0$ ; $\text{RMSEA} < 0.7$ ; $\text{SRMR} < .08$						
CFA Results						
Constructs	Convergent Validity				Scale Reliability	
	Standardized regression weight	Standard Error	Critical ratio (t-values)	Item reliability ( $R^2$ )	Composite reliability	Average variance extracted
Acceptable level	$\geq 0.6$	Low	$\pm 1.96$ $\pm 2.58$	$\geq 0.5$	$\geq 0.7$	$\geq 0.5$
Perceived Usefulness	Usefulness_1	.896	n/a	n/a	.803	
	Usefulness_2	.915	0.032	31.676	.837	
	Usefulness_3	.894	0.032	29.717	.800	.94
	Usefulness_4	.851	0.034	26.684	.725	.54
Satisfaction	Satisfaction_1	.866	n/a	n/a	.750	
	Satisfaction_2	.906	0.039	28.164	.821	
	Satisfaction_3	.910	0.04	28.385	.829	.93
	Satisfaction_4	.832	0.047	24.004	.692	.77

Note: n/a = no result available because of fixed parameter (regression weight = 1) to achieve identifiability, Variable groups 2 = Perceived usefulness and satisfaction

Source: Developed for this research



**Variable groups 3: Service Fairness Constructs (comprised of systemic, configural, interpersonal and informational fairness)**

The initial measurement model for service fairness is a four-factor model comprised of twenty-two indicators (eight indicators for systemic fairness, six indicators for interpersonal fairness, four indicators each for configural fairness and informational fairness).

The initial measurement estimation did not fit well compared to recommended fit indices and acceptable thresholds. The Chi-square ( $\chi^2$ ) values of 846.839 with 203 degrees of freedom were statistically significant at  $p = .000$ . The other fit statistics indicated that the model was not acceptable (GFI = .856, NFI = .922, TLI = .931, CFI = .940, RMSEA = .081, Relative  $\chi^2 = 4.172$ , Standardized RMR = .0332). The poor fit of the model was revised by investigating modification indices and/or standard residuals (Hair, et al., 2006). The model was then modified in accordance with the recommendation of the modification indices.

To improve the model fit, five correlation errors were added between items on the variables within the same construct; no linkages were added outside the set of items representing the constructs. Six items (Systemic\_4, Systemic\_6, Systemic\_7 and Systemic\_8, Interpersonal\_2 and Interpersonal\_6) were eliminated to eliminate for cross-loading and not loading on a single factor (loading on a different component) which were shown in the pretesting results.

The modified four-factor model of service fairness was found to have a model fit with high correlation among all four variables ( $\chi^2_{(df=92, p<.000)} = 214.492$ , Relative  $\chi^2 =$

2.331, GFI = .950, NFI = .971, TLI = .978, CFI = .983, RMSEA = .052, Standardized RMR = .0209). Parameter estimates of the final model were inspected and no problematic occasions were found. Thus, convergent validity was established. The item reliability ( $R^2$ ) of each item was greater than .50. Scale reliability also achieved acceptable levels (composite reliability and average variance extracted for each construct was greater than .90 and .71 respectively which were higher than the cut-off point) (Table 4.8). Finally, the four remaining items for each service fairness (systemic, configural, interpersonal and informational) were calculated using CFA which revealed higher factor loadings in most of the items, and preserving the theoretical content in the service fairness model (Table 4.8). These items were further tested with the structural model for hypotheses testing.

Table 4.8 Goodness-of-Fit Measures and CFA Results of Variable groups 3

Overall goodness-of-fit measures						
Chi-square = 214.492; df = 92; p = .000						
Relative chi-square = 2.331;						
GFI = .95; NFI = .971; TLI = .978; CFI = .983;						
RMSEA = .052; Standardized RMR = .0209						
Model Fit Criteria $p > .05$ ; $.95 < \text{GFI, NFI, TLI, CFI} < 1.0$ ; $\text{RMSEA} < 0.7$ ; $\text{SRMR} < .08$						
CFA Results						
Constructs	Convergent Validity			Item reliability ( $R^2$ )	Scale Reliability	
	Standardized regression weight	Standard Error	Critical ratio (t-values)		Composite reliability	Average variance extracted
Acceptable level	$\geq 0.6$	Low	$\pm 1.96$ $\pm 2.58$	$\geq 0.5$	$\geq 0.7$	$\geq 0.5$
Systemic Fairness	Systemic_1	.852	n/a	n/a	.725	.90 .70
	Systemic_2	.838	.037	26.010	.702	
	Systemic_3	.852	.042	23.528	.725	
	Systemic_5	.804	.042	21.535	.646	
	Configural_1	.814	n/a	n/a	.662	
Configural Fairness	Configural_2	.829	.044	23.809	.688	.91 .71
	Configural_3	.868	.054	20.141	.753	
	Configural_4	.855	.051	21.528	.731	
	Interpersonal_1	.838	n/a	n/a	.702	
Interpersonal Fairness	Interpersonal_3	.845	.043	23.251	.714	.90 .70
	Interpersonal_4	.855	.042	23.730	.731	
	Interpersonal_5	.818	.042	22.156	.669	

Table 4.8 (continued)

Constructs	Convergent Validity			Item reliability (R <sup>2</sup> )	Scale Reliability	
	Standardized regression weight	Standard Error	Critical ratio (t-values)		Composite reliability	Average variance extracted
Acceptable level	≥ 0.6	Low	±1.96 ±2.58	≥0.5	≥0.7	≥0.5
Informational Fairness	Informational_1	.805	n/a	n/a	.647	
	Informational_2	.839	.045	24.379	.704	.92 .70
	Informational_3	.848	.049	22.156	.719	
	Informational_4	.860	.051	22.599	.739	

Note: n/a = no result available because of fixed parameter (regression weight = 1) to achieve identifiability and variable groups 3 = Service fairness constructs (comprised of systemic, configural, interpersonal and informational fairness)

Source: Developed for this research

#### 4.5.2 Assessment of Discriminant Validity

Discriminant validity was assessed by the following two approaches.

First, discriminant validity was evaluated by using a correlation index among variables.

Table 4.9 shows a correlation matrix of variables. In general, the correlations were consistent with theoretical expectations. However, the relationships between informational fairness and systemic fairness (0.874), and informational fairness and interpersonal fairness (0.903) were slightly above the border line of 0.85 (Kline, 2005). In this instance, the relationship direction is relatively clear as both variables are in the same service fairness model.

Second, discriminant validity was assessed by conducting a chi-square difference test for every pair of estimate variables (one pair at a time). This was completed by comparing chi-square values obtained from an unconstrained and a constrained model, in which the correlation between two variables was set to be zero. If the difference is statistically significant, the discriminant validity for both variables is evidenced (Anderson & Gerbing, 1988). In general, all variables were found to have adequate discriminant validity (i.e. p-values < .01 for all  $\Delta\chi^2$ ). Table 4.10 presents the complete results of different chi-square tests. The results from the evaluation of all constructs provided substantial proof of the discriminant validity of the scales.

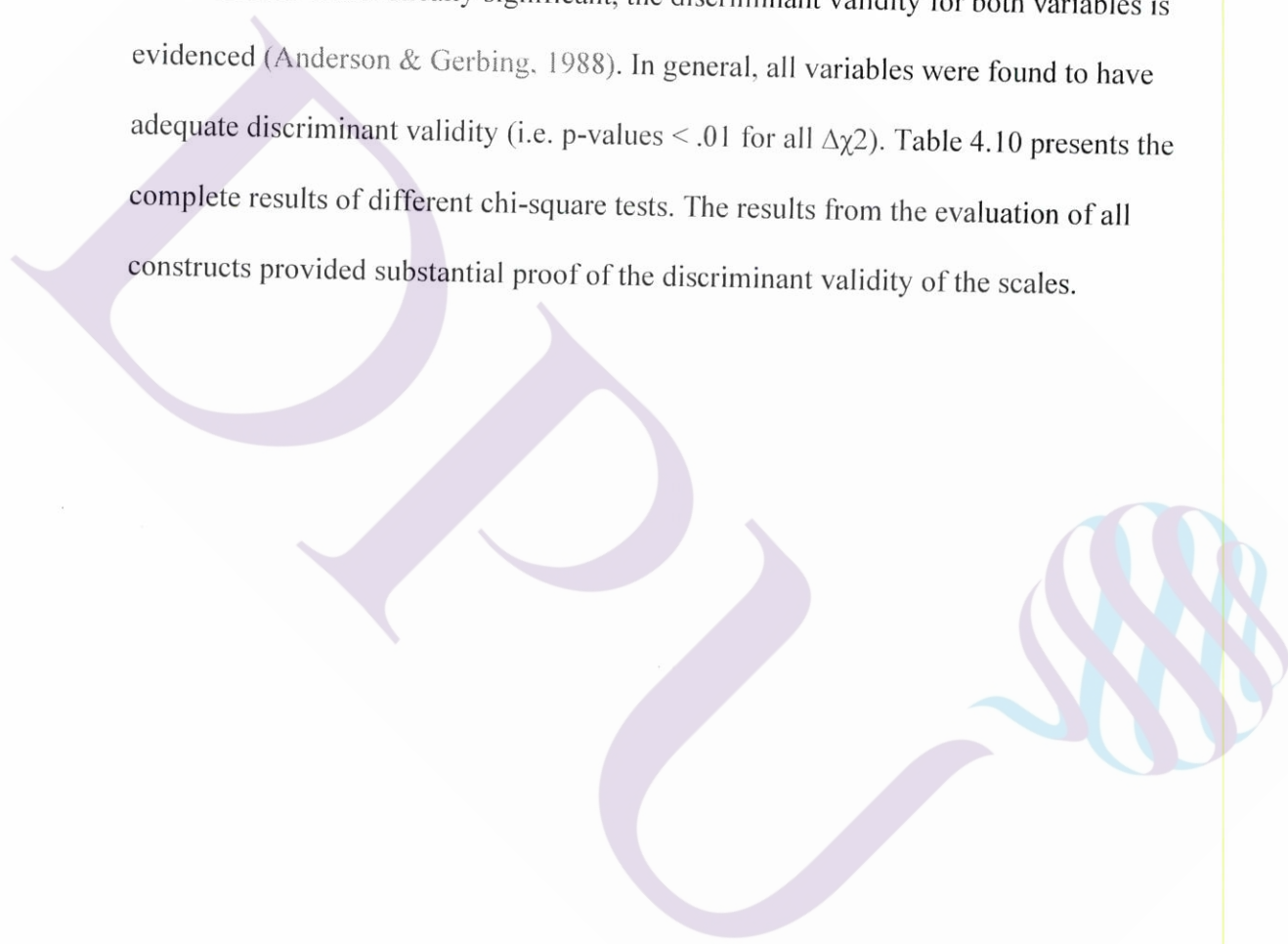


Table 4.9 Correlation Matrix of Variables

Variable	1	2	3	4	5	6	7	8
1 Perceived Usefulness	1.000							
2 Confirmation	0.776	1.000						
3 Continuance Intention	0.744	0.757	1.000					
4 Satisfaction	0.765	0.788	0.805	1.000				
5 Systemic Fairness	0.768	0.772	0.767	0.757	1.000			
6 Configural Fairness	0.680	0.728	0.716	0.753	0.809	1.000		
7 Interpersonal Fairness	0.710	0.717	0.707	0.701	0.864	0.801	1.000	
8 Informational Fairness	0.727	0.724	0.699	0.705	0.874	0.817	0.903	1.000

Source: Developed for this research

Table 4.10 Results of Discriminant Validity Test (Chi-Square Difference Test)

Variable	Unconstrained Model		Constrained Model		Difference	
	Chi-Square	df	Chi-Square	df	Chi-Square	df*
Perceived Usefulness - Satisfaction	46.987	20	88.823	21	41.836	1
Confirmation – Satisfaction	72.502	14	81.932	15	9.430	1
Systemic - Satisfaction	41.858	20	80.399	21	38.541	1
Configural - Satisfaction	100.380	20	117.549	21	17.169	1
Interpersonal - Satisfaction	30.355	20	75.560	21	45.205	1
Informational - Satisfaction	74.663	20	101.318	21	26.655	1

\*The critical value for df = 1

Source: Developed for this research

To this end, the first step has been conducted by assessing the validation of all measures such as convergent validity, item and scale reliability, and discriminant validity through the CFA measurement model analysis. The purified scales exhibit good model fits, significant path coefficients, and satisfactory reliability and validity. The results discussed above reveal that all measures satisfied all requirements and were qualified to proceed to the next step (structural model and hypotheses testing).

#### 4.6 Structural Model

According to Anderson and Gerbing (1988), if the analysis of the measurement model shows good model fit, the structural model can be analyzed with modifications of the measurement items. The examination of the overall model fit was to test the hypothesized causal relationships in the research model (Figure 2.1). This analysis was conducted with eight latent variables (six exogenous variables and two endogenous variables) and 29 indicators defined in the CFA.

The structural model in Figure 4.1 was analyzed using the measures that resulted from the previous measurement model analysis shown in Table 4.6, Table 4.7 and Table 4.8. The initially hypothesized model was accepted and the chi-square was significant (chi-square = 1533.550;  $df = 362$ ,  $p = .000$ , relative chi-square = 4.236) (Figures 4.1). The results of the analysis of path coefficients for the structural model are shown in Table 4.11. The relative effect (standardized regression weights) between independent and dependent variables shows a strong path (with statistical significance) except between informational fairness and satisfaction for negative (-0.849) results.

**Standardized Estimates**  
 Chi square = 1533.550; df = 362  
 Chi square/df = 4.236;  $p = .000$   
 GFI = .843; NFI = .895; TLI = .908; CFI = .918;  
 RMSEA = .081

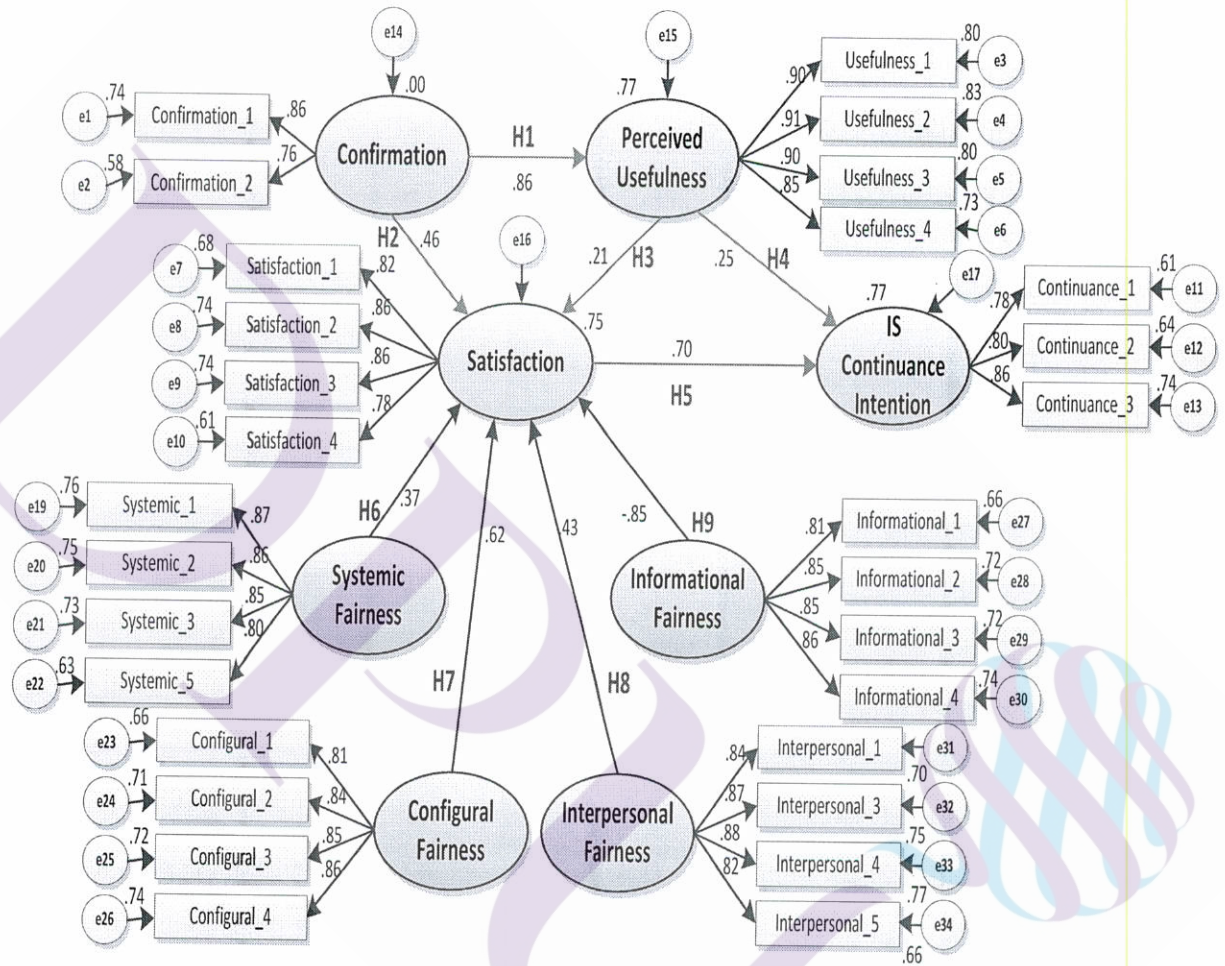


Figure 4.1 A Full Model Fit

Source: Developed for this research



Table 4.11 Standardized Path Coefficients

Outcome	Determinant	Hypothesis	Coefficients	P-value
Perceived Usefulness ( $R^2 = .735$ )	Confirmation	H <sub>1</sub>	.857	.000
Continuance Intention ( $R^2 = .774$ )	Perceived Usefulness	H <sub>4</sub>	.254	.000
	Satisfaction	H <sub>5</sub>	.702	.000
Satisfaction ( $R^2 = .753$ )	Confirmation	H <sub>2</sub>	.463	.000
	Perceived Usefulness	H <sub>3</sub>	.207	.023
	Systemic	H <sub>6</sub>	.371	.002
	Configural	H <sub>7</sub>	.623	.000
	Interpersonal	H <sub>8</sub>	.429	.049
	Informational	H <sub>9</sub>	-.849	.009

Coefficients - Standardized regression weights

Source: Developed for this research

## 4.7 Hypotheses Testing

### a) Post-Acceptance Model

Standardized estimates and standardized regression weights are presented in Figure 4.1 and Table 4.11. The first set of hypotheses (H<sub>1</sub> – H<sub>5</sub>) were developed to test if the post-acceptance of the IS continuance model can be applied in this research context. The hypotheses were to test the importance of perceived usefulness and satisfaction to explain the IS continuance intention.

The observed variables in the post-acceptance model are divided into two variable groups. The first variable group is consisted of confirmation and perceived usefulness as independent variables, and satisfaction as a dependent variable. The results of the analysis of path coefficient for the first variable group indicated that hypotheses 1 to 3 are supported. Significant positive relationships were found in the paths from confirmation to perceived usefulness (coefficient = 0.857), confirmation to satisfaction

(coefficient = 0.463) and perceived usefulness to satisfaction (coefficient = 0.207) (Table 4.11).

The second variable group consisted of perceived usefulness and satisfaction as independent variables, and IS continuance intention as a dependent variable. The results of the analysis of path coefficient for the second variable group indicated that hypotheses 4 to 5 are supported. Significant positive relationships were found in the paths from perceived usefulness to IS continuance intention (coefficient = 0.254) and satisfaction to IS continuance intention (coefficient = 0.702) (Table 4.11).

#### b) Four Service Fairness Dimensions

The second main objective of this research was to evaluate the four service fairness dimensions which were incorporated into the post-acceptance model. Hypotheses 6 to 9 were proposed to test the relationship between each service fairness component (systemic, configural, interpersonal and informational) and satisfaction on the post-acceptance model.

Among the second sets of hypotheses ( $H_6 - H_9$ ), the analysis of path coefficients results indicate that three of four hypotheses ( $H_6 - H_8$ ) are supported. The influence of systemic fairness (coefficient = 0.371), configural fairness (coefficient = 0.623) and interpersonal fairness (coefficient = 0.429) on satisfaction were positive and significant. However, informational fairness on satisfaction was negative and significant (coefficient = -0.849) (Table 4.11).

Squared multiple correlations indicate the extent of explained portions of endogenous variables. The impact of the endogenous variables is considered high. The

highest  $R^2$  appeared in IS continuance intention (77%) and the next highest  $R^2$  were shown in satisfaction (75%) and perceived usefulness (74%) and (Table 4.11).

#### 4.8 Key Findings

The research model (Figure 2.1) is an integrated model including the four service fairness dimensions (Greenberg, 1993) and the post-acceptance model of IS continuance (Bhattacharjee, 2001b). It may explain more variance in post-acceptance satisfaction that enhances IS continuance intention. The two procedures in Structural Equation Modeling (SEM) were a Confirmatory Factor Analysis (CFA) for the measurement models and the full model fit test. The following are the two findings that meet the objectives of this research:

##### a) Post-acceptance model for IS continuance

The first objective of this study was to examine if continual usage in cloud computing can be determined by the variables in the post-acceptance model of IS continuance. The post-acceptance model was developed by Bhattacharjee (2001b) to explain users' continuance to use IS based on the Expectation Confirmation Theory (ECT). Bhattacharjee (2001b) proposed two determinants of continuance to use: perceived usefulness and satisfaction, which positively influence IS continuance intention. The validity of the model was suggested by a number of studies in different research contexts but it has not been tested in cloud computing.

Initially five paths were hypotheses ( $H_1$  to  $H_5$ ) for the first objective. All five hypotheses tested were supported. The findings suggest that this research context

supports the post-acceptance model for IS continuance (Bhattacharjee, 2001b). Perceived usefulness and satisfaction are two main constructs and explain continuance intention to use IS in this research context.

#### b) Four Service Fairness Dimensions

The second objective was to test the four-factor model of service fairness (Greenberg, 1993) which was integrated into the post-acceptance model (Bhattacharjee, 2001b). Service fairness is defined as an individual's perception of the degree of fairness in the behavior of a firm's service personnel (Seiders & Berry, 1998). The service fairness in this study is comprised of four dimensions: systemic fairness, configural fairness, interpersonal fairness and informational fairness.

The results of the test of the four service fairness dimensions demonstrate positive perceptions of systemic fairness, configural fairness and interpersonal fairness as significantly enhancing satisfaction; however, interestingly, the relationship between informational fairness and satisfaction was a negatively significant perception. The results discuss more details in the next chapter.

#### **4.9 Summary**

This chapter presented the results of the statistical analyses of the descriptive data analysis, exploratory factor analysis (EFA) and confirmatory factor analysis (CFA). The results of the statistical analyses were performed to validate the measures in terms of reliability, convergent validity and discriminant validity. Reliability and validity of each

construct were examined. Structural equation modeling was used to test the hypotheses in the study and CFA was conducted to test the fit of the measurement model.

The results of the analysis of path coefficients support eight hypotheses. However, one of the hypotheses is not supported. A summary of the results of hypothesis testing is provided in Table 4.12.

In the next chapter the findings presented in this chapter are reviewed and include discussions of conclusions drawn from the analysis. In addition, there will be an examination of the academic and practical implications of the research together with directions for future research.

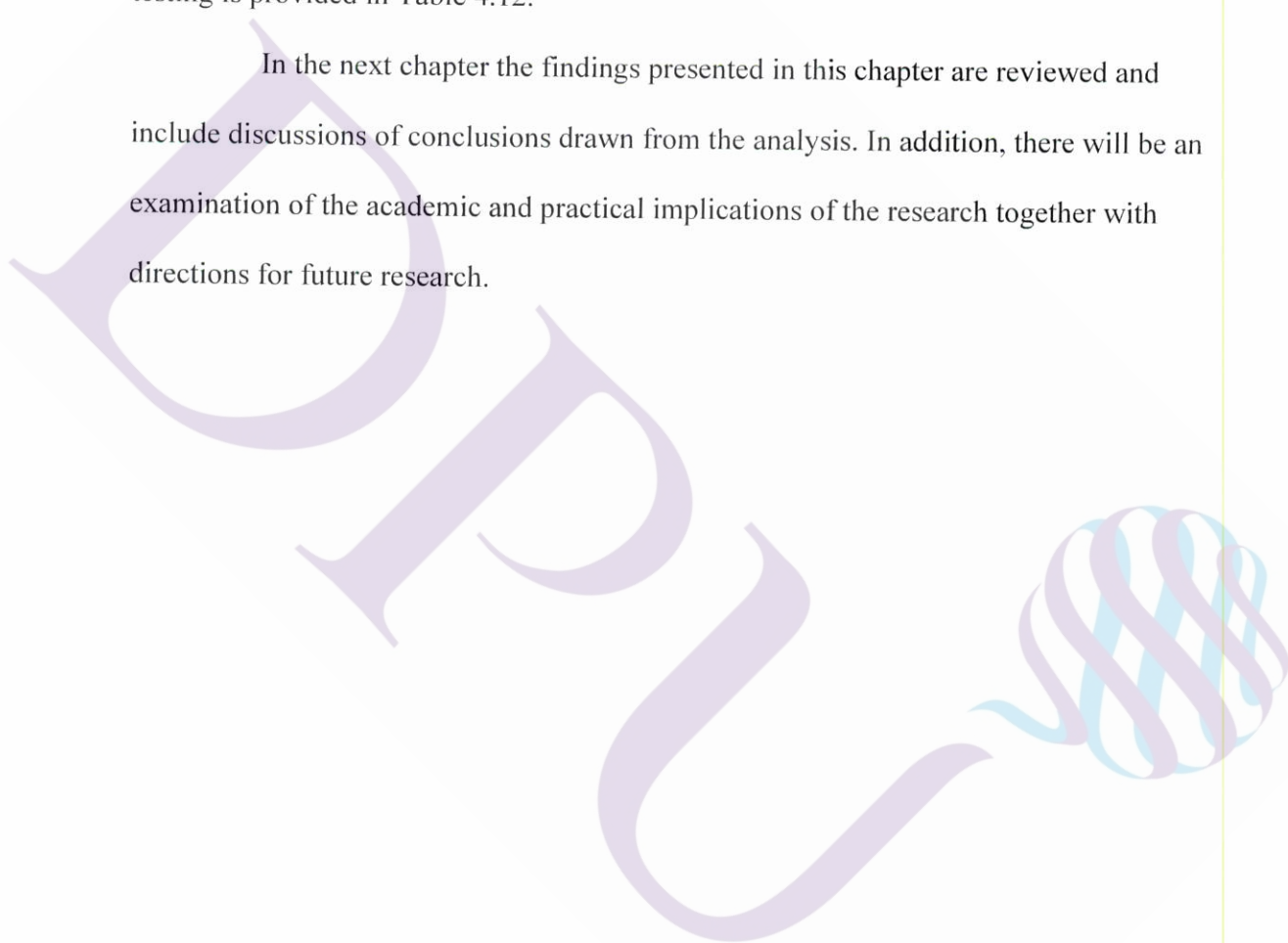


Table 4.12 Summary of Hypotheses Testing

<b>H<sub>0</sub> Number</b>	<b>Hypotheses</b>	<b>Exogenous Latent Variable</b>	<b>Endogenous Latent Variable</b>	<b>Hypotheses' Results</b>
<b>H<sub>1</sub></b>	The extent to which a user's expectations are confirmed is positively associated with a perceived level of usefulness.	Confirmation	Usefulness	Supported
<b>H<sub>2</sub></b>	The extent to which a user's expectations are confirmed is positively associated with the perceived level of satisfaction.	Confirmation	Satisfaction	Supported
<b>H<sub>3</sub></b>	The perceived usefulness of IS use is positively associated with a user's level of satisfaction with the IS use.	Usefulness	Satisfaction	Supported
<b>H<sub>4</sub></b>	When a user perceives positive usefulness of the IS, there is an intention to continue use.	Usefulness	Continuance	Supported
<b>H<sub>5</sub></b>	If a user has a positive level of satisfaction with initial IS use, there is continuance intention.	Satisfaction	Continuance	Supported
<b>H<sub>6</sub></b>	Perceptions of systemic service fairness will be positively associated with satisfaction.	Systemic	Satisfaction	Supported
<b>H<sub>7</sub></b>	Perceptions of configural service fairness will be positively associated with satisfaction.	Configural	Satisfaction	Supported
<b>H<sub>8</sub></b>	Perceptions of interpersonal service fairness will be positively associated with satisfaction.	Interpersonal	Satisfaction	Supported
<b>H<sub>9</sub></b>	Perceptions of informational service fairness will be positively associated with satisfaction.	Informational	Satisfaction	Not supported*

Note: \* The completely standardized path coefficients were statistically significant, but the signs were contrary to the hypothesized direction

Usefulness = Perceived Usefulness; Continuance = IS Continuance Intention; Systemic = Systemic fairness; Configural = Configural Fairness; Interpersonal = Interpersonal Fairness; Informational = Information Fairness

Source: Developed for this research

## CHAPTER 5

### CONCLUSION AND FUTURE RESEARCH

#### 5.1 Introduction

This chapter includes a discussion of research findings and implications. First, research results will be summarized. Second, the theoretical contributions and managerial implications will be presented. Finally, several limitations and future research directions will be addressed.

#### 5.2 Discussion

Based on the research findings presented in Chapter 4, the discussion in this section will focus mainly on how the results of this study support the research objectives and how the research questions asked by the study in Chapter 1 are to be answered.

The first objective of this study is to examine whether continual usage in cloud computing can be determined by the variables in the post-acceptance model. The results of the first part of the research model (Figure 2.1) with four hypotheses are supported. Perceived usefulness and satisfaction remain two main constructs influencing IS continuance intention.

The second objective as the second part of the research model (Figure 2.1) is to propose a theoretical model that can explain and predict individual satisfaction in relation to service fairness perceptions or in other words to explore the relationship between

service fairness and customer satisfaction that enhances to continued use of the system. The hypotheses proposed that all four distinct dimensions of service fairness can positively affect satisfaction. The findings show a positively significant path from systemic, configural and interpersonal fairness to satisfaction as in support of Mies and Moag (1986), Greenberg (1993, 1994), and Colquitt's (2001) findings. That is, satisfaction with the service delivery process is affected by the processes (systemic fairness), value outcome (configural fairness), and the respectful behavior (interpersonal fairness) of the service provider personnel toward customers.

The path from informational fairness (sharing of information) to satisfaction is negative and significant. It was the only one of four types of fairness that shows a contradiction in the hypothesized relationship of fairness. Informational fairness was measured with four items (e.g., "The software service provider offered reasonable explanations concerning the service", "The software service provider was truthful in all communications to my computer", and "The software service provider tailored their explanation to my needs"). Conceptually, informational fairness is one part of interactional fairness (Bies & Moag, 1986; Greenberg, 1993). This study expected informational fairness to be positively related to satisfaction. However, the informational fairness scale is notable due to its high mean, 0.55, and a relatively large standard deviation, 1.030.

There are many different possible reasons for the contradictory result between informational fairness and satisfaction.



- a) Some of the problems may come from multicollinearity. Table 4.9 shows high scores (0.874, 0.817 and 0.903) for the correlations of informational fairness with the other three service fairness dimensions.
- b) The negative impact may simply reflect a failure in the hypothesis, which was incorrectly stated because of a lack of understanding. The hypothesis indicates that informational fairness can positively affect satisfaction but the result did not reveal this.
- c) The hypothesis may be proposed correctly but the scale items may be measured incorrectly. The measurement didn't really test the hypothesis. This possibility is unlikely because the Delphi method was employed for content validity on the four service fairness dimensions with the experts.
- d) The fairness theory and the measurement were employed correctly but there is high variance in the population. This is also unlikely because the result reveals a strong relationship in the wrong direction.

In summary, the first and second reasons are more likely to explain the contradictory result. While this is an issue that requires additional research to understand, it should be noted that some prior studies have had similar problems showing a contradictory impact from various aspects of information.

One study in Internet banking found that information sharing has a negative impact on adoption. It seems that organizational customers view information sharing capabilities as a barrier instead of a benefit (Rotchanakitumnuai & Speece, 2004). Prior research has found negative and significant relationships between informational fairness

and an exchange relationship ( $r = -0.30, p < 0.01$ ) (Kim, 2009). Other research findings with not significant relationships are as follows: organizational fairness research between work and family conflict, and indirectly to job satisfaction (e.g., Judge & Colquitt, 2004), and between informational fairness and job satisfaction in allied health professional contexts (e.g., Rodwell, Noblet, Demir, & Steane, 2009). Another prior study found that perceptions of informational fairness were not significantly related to satisfaction with feedback (Jawahar, 2007).

Additionally, in literature addressing unfair (injustice) interpersonal relations and informational fairness, the discussion reveals more is unfair than fair (Bies, 2001). The relative interpretability of the four service fairness dimensions would be one probable explanation of negative result. Some researchers in fairness heuristic theory and uncertainty management theory remark that fairness dimensions have stronger effects when they are more interpretable. Both theories discuss a “substitutability effect” in which the more interpretable forms of fairness substitute for the less interpretable forms when creating global fairness perceptions (Lind & Van den Bos, 2002; Van den Bos, Lind, Vermunt, & Wilke, 1997).

In summary, fairness in service promises to be a fruitful arena for research. Others have empirically investigated customers' fairness perceptions (e.g., Clemmer, 1988; Clemmer, 1993; Conlon & Murray, 1996; Holbrook & Kulick, 2001) or presented a case for the relevance of fairness theory to customer context. Next, by fulfilling to the research objectives, this study is able to explicitly highlight the contributions of the

research to the theories and practitioners. These contributions are presented in the sections that follow.

### 5.3 Theoretical Contributions

One of the main objectives of this study is to make a unique contribution to the supporting literature, one that will lead to a greater understanding of the relationship between service fairness and customer satisfaction. Satisfaction is a critical factor that can lead to continued use of IS.

In academic terms, the study has explored the literature detailing the relationship between service fairness and customer satisfaction that enhances customers to continued use of an IS. The following section will highlight ways in which the results will add to the literature in different areas. This study makes several unique contributions.

First, the post-acceptance model of IS continuance was examined in a cloud computing context, which suggests that it is applicable in many contexts where services are delivered in the virtual world. The validity of the two main constructs, perceived usefulness and satisfaction, explain continuance intention to use IS in this research context.

Second, the four service fairness dimensions (systemic, configural, interpersonal and informational fairness) were empirically distinct from each other, indicating the need to consider all four dimensions, at least in this sort of context.

Fairness issues play an important role in satisfaction. The findings added support to previous research in finding that satisfaction and three service fairness

dimensions (systemic fairness, configural fairness and interpersonal fairness) have a positive and significant relationship. The research enhances the understanding of how systemic fairness, configural fairness and interpersonal fairness affect customer satisfaction.

Third, the conceptual model was examined to merge streams of research from service fairness satisfaction, information system, and consumer behavior in indentifying relevant theories and providing for its merger and extension.

Last, the findings add to the existing services marketing knowledge and research, and are likewise applicable to the service delivery process for many types of service providers. This research suggests that theories proposed by different leading researchers can be integrated into one model so that the prediction and understanding of customer satisfaction in the cloud computing environment is far more comprehensively grounded than by using only one line of research. Thus, this integrative model advances IS research. To conclude, this theoretical model provides an integration of existing research and a springboard for future systematic research in the area of customer satisfaction in the service industry.

#### **5.4 Managerial Implications**

The findings contribute to the available knowledge about the dynamic between service fairness and satisfaction that enhances to the continued use of IS systems. This added knowledge can be translated into practical skill that results in a more satisfying service encounter. Others such as practitioners in the service industry will find additional

use for this research to improve the level of customer satisfaction. This section will highlight how the findings of this research can be applied in the industry.

The more the business understands about the processes (systemic fairness), the value outcome (configural fairness) and the respectful behavior (interpersonal fairness), the more likely the business will be able to achieve overall fairness, and to maintain or restore the level of customer satisfaction. Consequently, being aware of and utilizing these types of approaches to customer satisfaction that enhances to continued use of the IS system. In short, by understanding these nuances the service provider gains multiple avenues for achieving initial customer satisfaction and restoring satisfaction after initial dissatisfaction, which maximizes the number of satisfied customers and maintains them.

The service providers must provide their service procedure consistently according to the agreement, especially providing a level of service to their customers equally in the same organization. A tracking system is an important tool to keep complete and accurate records of customer problems, concerning what the service provider has reported for their systems from initial notification though to reasonable resolution. This would be effective management of reported problems with the service.

For the value outcome, the service providers treated their customers equally which involved the feeling that the providers delivered the service to all individuals among customer organizations equally and met the needs of all individuals, not favoring any one group.

Fairness involves the social side of interpersonal relationships between the service provider personnel and customers; in other words, respect, sincerity and

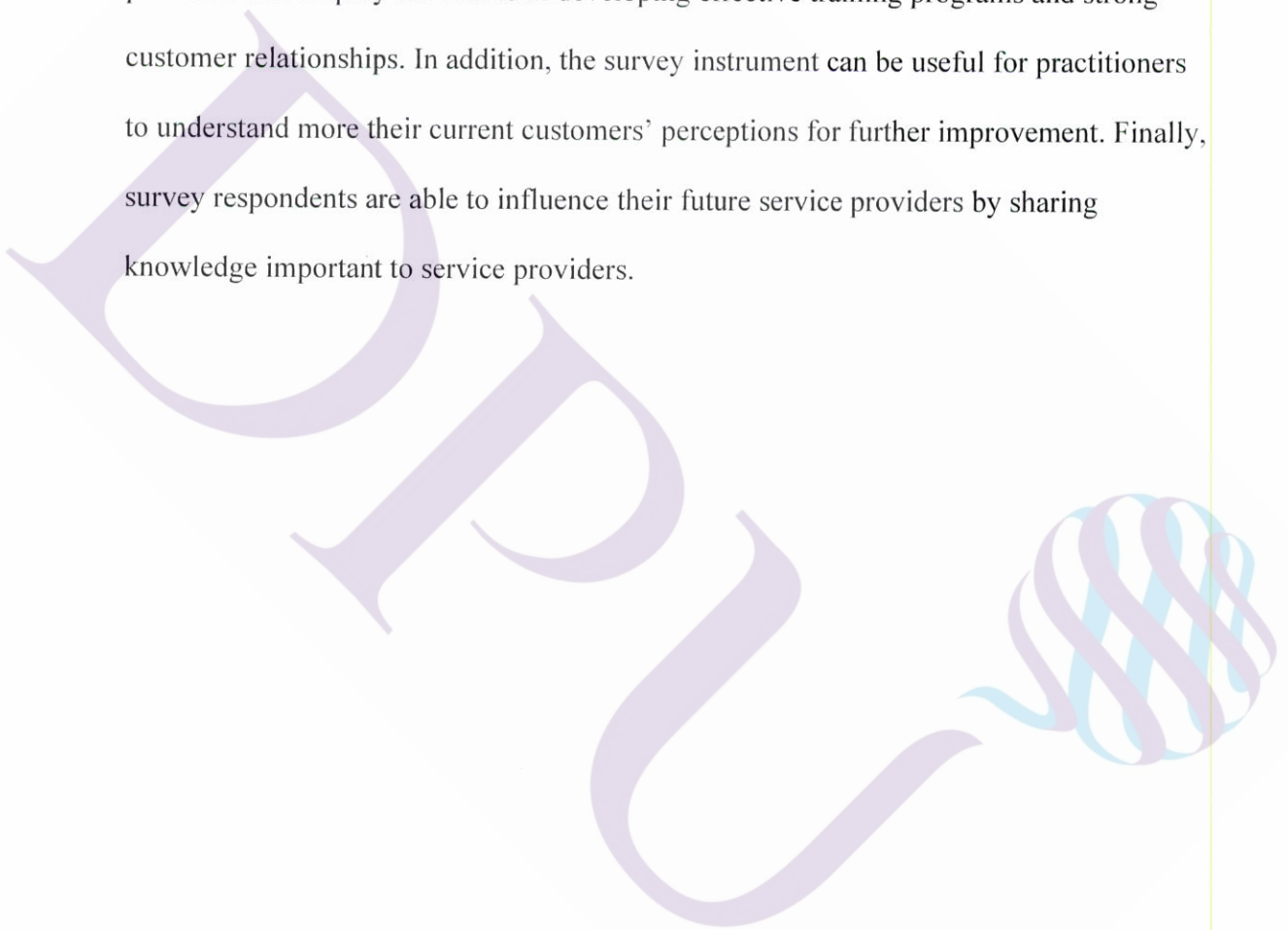
politeness towards customers and the awareness of customer rights by service customers. Frequently, service providers do not do enough to enhance relationships with their customers. Managers should incorporate respectful behavior into their employee-training programs. However, organizational practices and policies that support the efforts of employees must also be developed and implemented while ensuring that those same policies are perceived by customers as fair and impartial. Employees need to have the discretion necessary to satisfy the requests of the customer. It is likely that organizations that observe this advice will end up with more satisfied customers that enhances customer to continued use.

Additionally, a service provider will always struggle in determining exactly how customers evaluate them and arrive at their levels of satisfaction or dissatisfaction. Evaluation techniques vary across service encounters, fairness with individuals and across organizations. Businesses, therefore, must be prepared to render excellent service regardless of how the service is evaluated.

For practitioners, the above findings have important implications. Simple initial acceptance of the IS product and its associated service among new users does not guarantee continued usage. Ignoring post-acceptance user satisfaction can have consequences for an individual's behavioral intention to continue using an IS system. Satisfaction with associated service is a key factor in explaining continuance or discontinuance of IS after its initial acceptance. Continuance, i.e., customer retention, is essential for maximizing an IS service provider's revenue stream. The service providers

must take user satisfaction into account while developing the system and providing ongoing service.

Overall, the research can lead to increased profits and sustainability for service providers who employ its findings to refine the service delivery process. Service providers can employ the results in developing effective training programs and strong customer relationships. In addition, the survey instrument can be useful for practitioners to understand more their current customers' perceptions for further improvement. Finally, survey respondents are able to influence their future service providers by sharing knowledge important to service providers.



## 5.5 Limitations

Like other research, this study has several limitations. First, the Delphi process in this study substantially improved the four service fairness dimension scale items compared to the initial pilot study; however, the Delphi did not fully solve the problems as some scale items were eliminated during the step of refining the scales based on the initial CFA results. The scale items for the service fairness dimension apparently could still use some additional development if used again.

Second, the scope of this study limited in the context of Software-as-a-Service (SaaS) enterprise in cloud computing environment. It would therefore be beneficial to replicate the study in the context of public SaaS, Infrastructure-as-a-Service (IaaS) or Platform-as-a-Service (PaaS).

Third, this study employed one-sided survey response using external customers using SaaS in cloud computing environment. Further study using a dyadic survey could gain in-depth understanding on the responses from both customers and service providers. Additionally, in some organizations, the purchasing decision making process involves key decision makers and/or influences, future research could include these groups of people in the survey for better understanding on decision making processes.

Fourth, this study utilized quantitative approach through web-based survey, the further study using qualitative approach could extend in-depth understanding on how and why these service fairness dimensions influence customer satisfaction.



Finally, this research was cross-sectional surveyed at one period in time. The findings can only reflect that specific period in time. Since the information technology field is rapidly changing, the longitudinal study might be able to uncover differing relationships and minimize cross-sectional biases. A longitudinal design could compare IS users' pre-acceptance (or pre-use) and post-acceptance (or continuance to use) fairness perceptions and satisfaction to reveal the dynamic relationship between these two constructs. It could enlighten the causality of the hypothesized relationships.

## **5.6 Future Directions**

This study opens up new areas of research by interpreting two streams of research on continued technology use and service outcomes. Therefore, there are many conceptual and empirical considerations that might be improved in future studies. Many potential directions of future work along this line of research are made available by the findings in this study. The first research direction is to replicate the effects of the four service fairness dimensions on customer satisfaction in other types of IS environment. Although factors related to IS characteristics are not specified in the research model here, certain special factors may influence continuous IS usage. Testing the research model with different types of IS context will improve the generalizability of the empirical results of this study.

The IS in a large organizational context, where they have their own system and the IS service is for internal customers, is a potential environment to be investigated,. Organizational employees account for a large percentage of IS users. Studies of these

extrinsically motivated users may contribute many theoretical insights to the IS post-acceptance model. Further, it is valuable to investigate whether the beliefs and attitudes formed in the relationship with one type of IS can be carried to another type of IS in order to further augment continued use of IS systems.

The second research direction for future study based on or stemming from this study is to test the research model by trying objective data to customer perceptions. One sort of objective data can be obtained by analyzing the system log file from a service provider's tracking system or record keeping system. The customers of the service provider can then be surveyed to capture their perceptions of most of the factors in the research model. Participants would need to report their customer user account in the questionnaire, which would limit the response rate since some potential respondents may decline if they believe their anonymity is compromised. However, for those who did answer, the questionnaire results could be matched with the objective usage data in the tracking system log based on the customer's user account. The frequency, duration, and depth of the user's navigation of the system could be obtained from the tracking system log file. This may help the service provider to better understand their customers.

The third observable research direction this study prompts is an extension or expansion of the research model. Additional salient antecedent factors of behavioral-intentions battery (Zeithaml, Berry, & Parasuraman, 1996) would then be incorporated into the research model. The behavioral-intention battery consists of five constructs (loyalty, switch, pay more, external response and internal response) which are to measure customer behavioral and attitudinal intentions to have an understanding of the behavioral

pattern of the customers with respect to their continuance intention. Special attention should be paid to those factors related to the cloud computing environment. In addition to the behavioral-intentions battery, other potential mediating variables for trust in the service provider, perceived organizational support of the service provider and the organization, as a whole might be candidates for the unmeasured mediators. With regards to the outcomes of the model, other pro-relationship motivations and behaviors will be discussed. In addition, it may also be useful to study how to recover from service failures in technology mediated service encounters. This should be useful in developing appropriate resource decisions for the service function of cloud computing.

### **5.7 Conclusion**

In conclusion, this chapter provided a discussion of the findings, contributions, and future research considerations which materialized as a result of this study. The associated results were revealed and a detailed discussion followed. Afterward, a discussion of the theoretical and managerial implications from this research was presented. This chapter concluded with a discussion of areas of opportunity for future research.

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APPENDIX A



## Survey Instrument for Expert Checks

Dear participant,

Thank you for your participation in the research project. You are one of the participants we invited to take part in this study, and your participation is very important for the success of this study. The information you provide will be kept strictly confidential, and it will not be possible to identify the respondents and companies involved in this study. The data will be used for statistical purposes only and released in aggregated form (no individual will be identified in any way).

### General directions

1. There are no right or wrong answers to this questionnaire. Just select the circle which best describes your level of agreement about each statement.
2. This questionnaire is structured so that its completion will be as easy and quick as possible. The survey will take approximately 10 -15 minutes to complete.
3. This questionnaire asks about your experience using CRM software-as-a-Service (CRM-SaaS) and service interaction(s) you may have had with your software service provider and/or software service provider personnel (in person, by phone or email).

The questionnaire consists of 4 sections as follows:

Section 1: Information about your company and yourself

Section 2: Your experience using the CRM-SaaS

Section 3: Your service interaction(s) experience with the software application service provider and/or the software application service provider personnel (in person, by phone or email)

Section 4: Demographic data for statistical purposes only

Please read the directions for each section carefully before you respond to each statement. Your participation represents a valuable contribution to this study. Thank you again for your cooperation.



### Questionnaire

#### Section 1:

The selected item in the question below (question #1) will be referred to as the “software application” throughout this questionnaire.

Please tick the box  indicating the statement which best describes your organization.

**1. What kind of CRM Software-as-a-Service application uses in your organization?**

- |  |   |
|--|---|
| <input type="checkbox"/> 24SevenOffice                           | <input type="checkbox"/> Rightnow CRM   |
| <input type="checkbox"/> Aplicor                                 | <input type="checkbox"/> Salesforce.com |
| <input type="checkbox"/> CRM-A                                   | <input type="checkbox"/> Salesboom.com  |
| <input type="checkbox"/> Logica CRM                              | <input type="checkbox"/> SpringCM       |
| <input type="checkbox"/> LongJump CRM                            | <input type="checkbox"/> SugarCRM       |
| <input type="checkbox"/> Netsuite CRM                            | <input type="checkbox"/> Zoho CRM       |
| <input type="checkbox"/> Others ( <i>Please specify</i> ): _____ |   |

**2. How long has your organization been using *the software application*?**

- |  |  |
|--|--|
| <input type="checkbox"/> Less than 2 years | <input type="checkbox"/> 2 to 4 years      |
| <input type="checkbox"/> 5 to 6 years      | <input type="checkbox"/> More than 6 years |

**3. Approximately, how often do you use *the software application*?**

- |                                      |  |
|--------------------------------------|--|
| <input type="checkbox"/> Everyday    | <input type="checkbox"/> 2 to 3 times a week   |
| <input type="checkbox"/> Once a week | <input type="checkbox"/> Less than once a week |

**4. Have you ever contacted *the software application service provider* for support?**

- Yes  
 No
-







**Section 4:**Please tick the box  which best pertains to you.**1. Gender** Male Female**2. Age** Under 30 years 30 to 40 years 41 to 50 years 51 to 60 years More than 60 years**3. Year employed at present organization** Less than 1 year 1 to 5 years 6 to 10 years 11 to 15 years 15 to 20 years More than 20 years**4. Your position at your present organization** Top management Middle management Supervisor Operating staff Other: *(please specify)*: \_\_\_\_\_**5. What type of industry is your organization in?** Agricultural Construction Banking/Finance/  
Insurance Consulting/professional service Education/research Government Health care Hospitality/travel/tourism Manufacturing Media/entertainment/publishing Real estate Retail/wholesale/  
distribution Telecommunications Transportation/logistics Other: *(please specify)*: \_\_\_\_\_

**Additional comments and suggestions**

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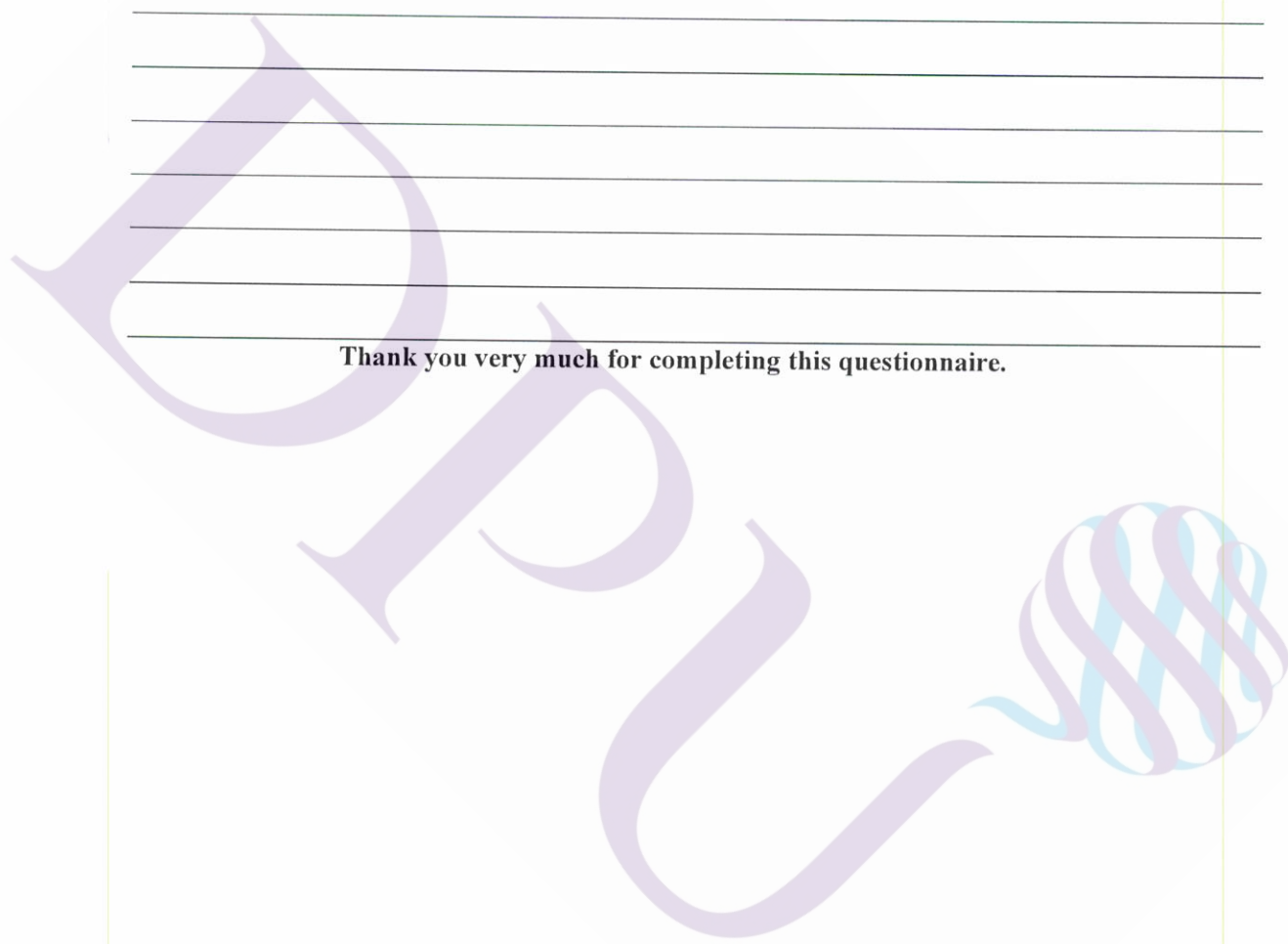
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**Thank you very much for completing this questionnaire.**



## Feedback Questionnaire Evaluation Form

Tick a box  and comment on each of the following:

**1 Approximately to complete the questionnaire?**

- 5 to 10 minutes       11 to 15 minutes  
 16 to 20 minutes       More than 20 minutes

**2 Length of questionnaire**

- | Very Poor                | Poor                     | Average                  | Good                     | Excellent                |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| (1)                      | (2)                      | (3)                      | (4)                      | (5)                      |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

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**3 Readability of questions**

- | Very Poor                | Poor                     | Average                  | Good                     | Excellent                |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| (1)                      | (2)                      | (3)                      | (4)                      | (5)                      |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

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**4 Are there questions you would suggest to be included?**

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**5 Any additional comments?**

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**APPENDIX B**



## Survey Instrument for Web-based Pilot Testing

Dear participant,

Thank you for your participation in the research project. You are one of the participants we invited to take part in this study, and your participation is very important for the success of this study. The information you provide will be kept strictly confidential, and it will not be possible to identify the respondents and companies involved in this study. The data will be used for statistical purposes only and released in aggregated form (no individual will be identified in any way).

### General directions

1. There are no right or wrong answers to this questionnaire. Just select the circle which best describes your level of agreement about each statement.
2. This questionnaire is structured so that its completion will be as easy and quick as possible. The survey will take approximately 10 -15 minutes to complete.
3. This questionnaire asks about your experience using CRM software over the Internet and service interaction(s) you may have had with your software service provider and/or software service provider personnel (in person, by phone or email).

Throughout this questionnaire:

“The software” refers to the CRM software over the Internet which is used by your company.

“The software service provider” refers to the company that provides the software to your company.

“The software service provider personnel” refers to the staff from the software service provider who provides support to you.

The questionnaire consists of 4 sections as follows:

Section 1: Information about your company and yourself

Section 2: Your experience using the software

Section 3: Your service interaction(s) experience with the software service provider and/or the software service provider personnel (in person, by phone or email)

Section 4: Demographic data for statistical purposes only

Please read the directions for each section carefully before you respond to each statement. As you proceed through this questionnaire, some of the statements in this questionnaire may seem similar, but please be aware that there are scientific reasons for every prompt/response in this questionnaire, so your responses to all of the statements are important. Kindly provide the response that best reflects your level of agreement.

Your participation represents a valuable contribution to this study. Thank you again for your cooperation.

**Section 1:** Information about your company and yourself, which will remain confidential.

Please select the most appropriate circle for each question.

1. Which CRM software over the Internet is used in your company?

- 24SevenOffice
- Aplicor
- CRM-A
- Logica CRM
- LongJump CRM
- Netsuite CRM
- Rightnow CRM
- Salesforce.com
- Salesboom.com
- SpringCM
- SugarCRM
- Zoho CRM
- Other (Please specify): \_\_\_\_\_

2. How long has your company been using the software?

- Less than 2 years
- 2 to 4 years
- 5 to 6 years
- More than 6 years

3. How often do you use the software?

- Everyday
- 2 to 3 times a week
- Once a week
- Less than once a week

4. Have you ever contacted the software service provider for support?

- Yes
- No

**Section 2: Your experience using the software**

Please **SELECT ONE** of the following 7 choices by selecting the circle which best describes your level of agreement about each statement: 1 = Strongly disagree; 2 = Disagree; 3 = Slightly disagree; 4 = Neutral; 5 = Slightly agree; 6 = Agree; 7 = Strongly agree.

1. Using the software improves my work performance.
2. Using the software increases my productivity at work.
3. Using the software enhances my effectiveness at work.
4. Overall, the software is a useful tool at work.
5. My experience with using the software was better than I expected.
6. The service level provided by the software service provider was better than I expected.
7. Overall, most of my expectations of using the software were confirmed.
8. I intend to continue using the software rather than discontinue its use.
9. I intend to continue using the software rather than using an alternative.
10. If I could, I would like to continue using the software.
11. I am very satisfied with the overall experience of using the software.
12. I am very pleased with the overall experience of using the software.
13. I am very content with the overall experience of using the software.
14. I am absolutely delighted with the overall experience of using the software.

Section 3: Your service interaction(s) experience with the software service provider and/or the software service provider personnel (in person, by phone or email)

Please **SELECT ONE** of the following 7 choices by selecting the circle which best describes your level of agreement about each statement: 1 = Strongly disagree; 2 = Disagree; 3 = Slightly disagree; 4 = Neutral; 5 = Slightly agree; 6 = Agree; 7 = Strongly agree.

1. The software service provider was consistent with the service procedure according to the agreement.
2. The software service provider provided a level of service to my company equal to that provided to others.
3. The software service provider kept records of my problems concerning the software.
4. The software service provider understood my problems concerning the software.
5. The software service provider dealt with my problems concerning the software.
6. The software service provider was able to correct any problems that resulted from their own errors.
7. The software service provider personnel were capable of performing all the duties covered by the contract.
8. The software service provider behaved in an ethical manner.
9. The software service provider delivered the service to all individuals in my company equally.
10. The software service provider delivered desired solutions to all individuals in my company equally.
11. The software service provider delivered reasonable results to all individuals in my company equally.
12. The software service provider met the needs of all the individuals in my company equally.
13. The software service provider personnel treated me with respect.
14. The software service provider personnel treated me with consideration.
15. The software service provider personnel treated me sincerely.
16. The software service provider personnel treated me in a polite and courteous manner.
17. The software service provider personnel showed awareness of my rights as a customer.
18. The software service provider personnel did not use improper or inappropriate language.
19. The software service provider offered reasonable explanations concerning the service.
20. The software service provider explained the service procedure thoroughly.
21. The software service provider was truthful in communicating with me.
22. The software service provider tailored their explanation to my needs.

Section 4: Demographic data for statistical purposes only and this information will remain confidential.

Please select the most appropriate circle for each question.

1. **Gender**

- Male
- Female

2. **Age**

- Under 30
- 30 to 40
- 41 to 50
- Above 50

3. **Your working experience**

- Less than 5 years
- 5 to 10
- 11 to 15
- More than 15 years

4. **Position at present company**

- Sales representative
- Operating staff
- Supervisor
- Middle management
- Senior management

5. **Number of employees at your company**

- Less than 50
- 51 to 100
- 101 to 250
- 251 to 500
- More than 500

6. **What type of industry is your company in?**

- Business Services
- Government (including Military)
- Manufacturing
- Services Industry
- Wholesaler/Retailer/Distributor
- Other



**APPENDIX C**

## Survey Instrument for Delphi Method

Dear participant,

Thank you for your participation in the research project. You have been identified as an expert and will be one of five panel members who are all business executives in the information technology (IT) service management industry to take part in this study. Your participation is very important for the success of this study.

The purpose of the questionnaire is gather data which will be used to determine the features of service fairness. Each expert will be asked to respond to statements which relate to different aspects of services provided by software service providers.

Data for this study will be collected in two or three rounds. Each round will consist of a set of questionnaire. Round one will consist of the 22 statements and will take approximately 10-15 minutes to complete. The questionnaires in rounds two and three will each take approximately 10 minutes to complete.

Please read the following general directions and definitions carefully before you respond to each statement. As you proceed through this questionnaire, some of the statements in this questionnaire may seem similar, but please be aware that there are scientific reasons for every prompt/response in this questionnaire, so your responses to all of the statements are important. Kindly provide the response that best reflects each statement.

### **GENERAL DIRECTIONS**

1. There are no right or wrong answers to this questionnaire. Just select one of the dimension names for each statement
2. This questionnaire asks about CRM Software over the Internet and service interaction(s) experience between users and the software service provider and/or the software service provider personnel (in person, by phone or email).

Throughout this questionnaire:

- “The software” refers to the CRM software over the Internet.
- “The software service provider” refers to the company that provides the software.
- “The software service provider personnel” refers to the staff from the software service provider who provides support.

Your participation represents a valuable contribution to this study. Thank you again for your cooperation.

Please indicate the extent to which you consider each individual statement is representative of the dimension with which it is associated, by ticking the most appropriate dimension name. The definition of each dimension is provided to assist you in the judgment process as follows:

**Service fairness** is an individual's perception of the degree of fairness in a service personnel firm's behavior (Seiders & Berry, 1998). The service fairness in this study comprises the following four dimensions.

Dimension Name	Definition
<b>Systemic fairness</b>	<i>Systemic fairness</i> refers to the evaluation of the process used to derive outcomes or uses; policies and the procedures to achieve an outcome which is fair (no bias) (Thibaut & Walker, 1975). This dimension has six procedural rules: consistency, bias-suppression, accuracy, correctability, representativeness, and ethicality (Leventhal, 1980). Record keeping is important so that the process can be monitored if necessary.
<b>Configural fairness</b>	<i>Configural fairness</i> represents an individual's assessment of the level of fairness to outcomes achieved based on needs, equality, contributions, or a combination of these factors (Gilliland, 1993; Greenberg, 1990; Leventhal, 1980). <i>Configural fairness</i> is defined as the extent to which an individual receiver feels he/she has been treated equally with respect to the final service outcome(s).
<b>Interpersonal fairness</b>	<i>Interpersonal fairness</i> is defined as showing concern for individuals regarding the manner in which outcomes reflect aspects of respect and sensitivity (Greenberg, 1993).
<b>Informational fairness</b>	<i>Informational fairness</i> is defined as providing enough information or knowledge about procedures and services that demonstrate regard for people's concerns (i.e. explanation, justification and being truthful) (Greenberg, 1993).



<b>Service interaction(s) experience between users and the software service provider and/or the software service provider personnel (in person, by phone or email)</b>				
Please indicate which sort of fairness each individual statement belongs to by ticking the box <input checked="" type="checkbox"/> in one of the four boxes.				
<b>Statement</b>	<b>Systemic Fairness</b>	<b>Configural Fairness</b>	<b>Interpersonal Fairness</b>	<b>Informational Fairness</b>
1. The software service provider personnel treated me sincerely.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. The software service provider behaved in an ethical manner.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. The software service provider understood my problems concerning the software.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. The software service provider was consistent with the service procedure according to the agreement.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. The software service provider offered reasonable explanations concerning the service.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. The software service provider dealt with my problems concerning the software.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. The software service provider delivered the service to all individuals in my company equally.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. The software service provider provided a level of service to my company equal to that provided to others.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. The software service provider met the needs of all the individuals in my company equally.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. The software service provider personnel treated me with consideration.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. The software service provider delivered reasonable results to all individuals in my company equally.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. The software service provider personnel were capable of performing all the duties covered by the contract.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. The software service provider personnel treated me with respect.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Statement	Systemic Fairness	Configural Fairness	Interpersonal Fairness	Informational Fairness
14. The software service provider explained the service procedure thoroughly.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
15. The software service provider personnel did not use improper or inappropriate language.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. The software service provider was truthful in communicating with me.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. The software service provider delivered desired solutions to all individuals in my company equally.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. The software service provider kept records of my problems concerning the software.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. The software service provider was able to correct any problems that resulted from their own errors.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. The software service provider personnel treated me in a polite and courteous manner.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. The software service provider tailored their explanation to my needs.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. The software service provider personnel showed awareness of my rights as a customer.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### CLARITY

If you think there any statement items that invite ambiguous interpretations or are not well written, please indicate which ones and briefly state the reasons why.

Statement Number	Reasons

### COMPREHENSIVENESS

Are there any statements that you think should be added to the above pool that are important for representing one of the four dimensions of fairness? Please write them in the space provided below.

Dimension Name	Statement
Systemic fairness	1.
	2.
	3.
Configural fairness	1.
	2.
	3.
Interpersonal fairness	1.
	2.
	3.
Informational fairness	1.
	2.
	3.

**ADDITIONAL COMMENTS AND SUGGESTIONS**

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**APPENDIX D**

## Delphi Method Results

Table 1 Compared First and Second Round Results (N = 10)

Item	Item code	Round	Systemic Fairness	Configural Fairness	Interpersonal Fairness	Informational Fairness
1	Systemic-1	Round 1	80%	20%	0%	0%
		Round 2	90%	10%	0%	0%
2	Systemic-2	Round 1	30%	50%	10%	10%
		Round 2	70%	30%	0%	0%
3	Systemic-3	Round 1	50%	20%	0%	30%
		Round 2	85%	5%	0%	10%
4	Systemic-4	Round 1	20%	10%	20%	50%
		Round 2	60%	10%	0%	30%
5	Systemic-5	Round 1	20%	70%	10%	0%
		Round 2	70%	30%	10%	0%
6	Systemic-6	Round 1	60%	40%	0%	0%
		Round 2	90%	10%	0%	0%
7	Systemic-7	Round 1	60%	10%	20%	10%
		Round 2	80%	0%	10%	10%
8	Systemic-8	Round 1	30%	50%	20%	0%
		Round 2	80%	15%	5%	0%
9	Configural-1	Round 1	20%	50%	20%	10%
		Round 2	10%	80%	0%	10%
10	Configural-2	Round 1	10%	50%	30%	10%
		Round 2	0%	85%	5%	10%
11	Configural-3	Round 1	10%	40%	30%	20%
		Round 2	0%	85%	15%	0%
12	Configural-4	Round 1	10%	50%	30%	10%
		Round 2	10%	85%	5%	0%
13	Interpersonal-1	Round 1	0%	0%	100%	0%
		Round 2	0%	0%	100%	0%
14	Interpersonal-2	Round 1	0%	0%	90%	10%
		Round 2	0%	0%	90%	10%
15	Interpersonal-3	Round 1	0%	10%	90%	0%
		Round 2	0%	0%	100%	0%
16	Interpersonal-4	Round 1	0%	0%	100%	0%
		Round 2	0%	0%	100%	0%
17	Interpersonal-5	Round 1	30%	0%	40%	30%
		Round 2	0%	0%	100%	0%
18	Interpersonal-6	Round 1	10%	0%	60%	30%
		Round 2	10%	0%	70%	20%
19	Informational-1	Round 1	0%	10%	20%	70%
		Round 2	0%	10%	0%	90%
20	Informational-2	Round 1	20%	20%	0%	60%
		Round 2	10%	10%	0%	80%
21	Informational-3	Round 1	0%	10%	60%	30%
		Round 2	0%	0%	30%	70%
22	Informational-4	Round 1	0%	20%	20%	60%
		Round 2	0%	0%	10%	90%

Table 2 First Round Feedback and Comments (N = 10)

Feedback and Comments from the First Round	
Clarity	
Expert #1	All statements are clear and unambiguous
Expert #9	Generally, the questions are well crafted with the definitions
Comprehensiveness	
Expert #3	Systemic fairness: Allows the process to eliminate ambiguity to drive predictable, repeatable and standardized delivery results.
Expert #3	Informational fairness: Is based upon open and honest transparent information sharing?
Additional Comments and Suggestions	
Expert #1	No additions required. The statements will deliver the objectives of the survey
Expert #5	Suggest item 21 (Informational-3): The software service provider provided information at an understandable technical level to meet my needs.

Table 3 Second Round Feedback and Comments (N = 10)

Second Round - Feedback and comments		
Expert	Item	Feedback and comments
Expert #1	Item 5	“my problems” means things relating to “me”. You might omit the word “my”
	Item 8	Behaved in an ethical manner in regards to who or what?
	Item 21	“communicating with me” is an interpersonal thing. “in all communications to my company” would represent “informational”
Expert #2	Item 2	I don't find the question ambiguous, to me it refers to how the individual believes they are being treated the same as others receiving the same service. Therefore <b>Systemic fairness.</b>
	Item 4	I don't find the question ambiguous, to me it refers to how the individual believes the service provider has the knowledge to understand the problem. Therefore <b>Systemic fairness.</b>
	Item 12	Indicates to me a level of <b>consistent</b> service delivery. <b>Configural fairness!</b>
Expert #3	Item 2	The statement could relate equally to the statement that the service level is fairly allocated.
	Item 5	This was open to some interpretation – but I agree is now clear.
	Item 11	It could also refer to the way the software is configured.
	Item 18	The choice of language (english, Thai) is a technical efficiency criteria...or do you mean “appropriate technical descriptions”?
Expert #4	Item 22	The statement indicates that the SSP understood the needs and responded by changing their response so that the feelings of the customer are considered.
	Item 3	This is Ok and specifically spelled out as record keeping in Systemic, I just missed it
	Item 21	The reference to “me” tends to cause me to focus on “interpersonal” but Informational is OK.
Expert #5	Item 21	Consider to revise: The software service provider <u>provided information at an understandable technical level to meet my needs.</u>
Expert #6	Item 8	Ethics are really a personal judgment
	Item 21	‘me’ means interpersonal
Expert #7	Item 9	It is clear for Configural dimension and may remove “individual”.
	Item 11	Also, Configural and may remove “individual”.
	Item 12	Configural!
Expert #8	Item 9	Configural fairness
	Item 20	Informational fairness
Expert #9	Item 10	Generally, this question is fine based on the definition. I was overlooked it, as I was thinking that “Desired solution” was applied to a function, which may not necessary be agreed by all individuals.
	Item 14	My thought was that there could be some discussion between “me” and the “service provider personnel” there may be some “Activities” under consideration...
	Item 17	In my opinion, unless the “Customer” known his right, Otherwise, it could be informational that the service provider would highlight to this “Customer”
	Item 20	Overlook...mixed up with “Systemic fairness” & “Informational Fairness” Generally, this question is definitely meant for “informational Fairness”



Table 3 (continued)

Expert #10	Item 3	I saw record keeping as informational – needs to be clarified
	Item 5	I saw dealing with problem as configural as it elated to end result – has to be clarified
	Item 18	I assumed proper meant good information – could be better to say 'polite'

Table 4 Revised Statement Item

Item Label	Statement item
Systemic-2	The software service provider provided a level of service to me equal to that provided to other departments or companies.
Systemic-3	The software service provider kept complete and accurate records of my problems concerning the software.
Systemic-4	The software service provider has a knowledge-based system to provide solutions to my problems concerning the software.
Systemic-5	The software service provider effectively managed my problems concerning the software from initial notification though to reasonable resolution.
Systemic-6	The software service provider was able to identify and correct any problems that resulted from their own errors.
Systemic-7	The software service provider was capable of performing all the duties covered by the agreement.
Systemic-8	The software service provider behaved in an ethical manner in terms of fulfilling the spirit of the agreement.
Interpersonal-5	The software service provider personnel were aware of my rights as a customer.
Interpersonal-6	The software service provider personnel used proper or appropriate language.
Informational-3	The software service provider was truthful in all communications to my company.



**APPENDIX E**

## Survey Instrument for Web-based Main Study

Dear participant,

Thank you for your participation in the research project. You are one of the participants we invited to take part in this study, and your participation is very important for the success of this study. The information you provide will be kept strictly confidential, and it will not be possible to identify the respondents and companies involved in this study. The data will be used for statistical purposes only and released in aggregated form (no individual will be identified in any way).

### General directions

1. There are no right or wrong answers to this questionnaire. Just select the circle which best describes your level of agreement about each statement.
2. This questionnaire is structured so that its completion will be as easy and quick as possible. The survey will take approximately 10 -15 minutes to complete.
3. This questionnaire asks about your experience using CRM software over the Internet and service interaction(s) you may have had with your software service provider and/or software service provider personnel (in person, by phone or email).

Throughout this questionnaire:

- “The software” refers to the CRM software over the Internet which is used by your company.
- “The software service provider” refers to the company that provides the software to your company.
- “The software service provider personnel” refers to the staff from the software service provider who provides support to you.

The questionnaire consists of 4 sections as follows:

Section 1: Information about your company and yourself

Section 2: Your experience using the software

Section 3: Your service interaction(s) experience with the software service provider and/or the software service provider personnel (in person, by phone or email)

Section 4: Demographic data for statistical purposes only

Please read the directions for each section carefully before you respond to each statement. As you proceed through this questionnaire, some of the statements in this questionnaire may seem similar, but please be aware that there are scientific reasons for every prompt/response in this questionnaire, so your responses to all of the statements are important. Kindly provide the response that best reflects your level of agreement.

Your participation represents a valuable contribution to this study. Thank you again for your cooperation.

**Section 1:** Information about your company and yourself, which will remain confidential. Please select the most appropriate circle for each question.

**1. Which *CRM software over the Internet* is used in your company?**

<input type="radio"/> 24SevenOffice CRM	<input type="radio"/> EBSuite CRM	<input type="radio"/> Oasis CRM	<input type="radio"/> Sugar CRM
<input type="radio"/> Aplicor CRM	<input type="radio"/> Empower CRM	<input type="radio"/> OnContact CRM	<input type="radio"/> Surado CRM
<input type="radio"/> Appshore CRM	<input type="radio"/> eSalesTrack CRM	<input type="radio"/> OpenBox CRM	<input type="radio"/> Tustena CRM
<input type="radio"/> B-kin CRM	<input type="radio"/> Everest CRM	<input type="radio"/> Qasper CRM	<input type="radio"/> WiredContact CRM
<input type="radio"/> BlueCamroo CRM	<input type="radio"/> Falcon eCRM	<input type="radio"/> Really Simple Systems	<input type="radio"/> WORKetc CRM
<input type="radio"/> C2CRM	<input type="radio"/> Full Spectrum CRM	<input type="radio"/> Rightnow CRM	<input type="radio"/> WorkXpress CRM
<input type="radio"/> Capsule CRM	<input type="radio"/> Highrise CRM	<input type="radio"/> RunCRM	<input type="radio"/> Your-CRM
<input type="radio"/> Centerbase CRM	<input type="radio"/> iCRM (Tariva)	<input type="radio"/> RYO CRM	<input type="radio"/> Zoho CRM
<input type="radio"/> CLP Suite CRM	<input type="radio"/> StreetSmart CRM	<input type="radio"/> Sage CRM	<input type="radio"/> Other
<input type="radio"/> Commence CRM	<input type="radio"/> Infusionsoft CRM	<input type="radio"/> SalesAhoy CRM	
<input type="radio"/> COMPLETExRM	<input type="radio"/> InteleCRM	<input type="radio"/> Salesboom.com	
<input type="radio"/> ConcourseSuite CRM	<input type="radio"/> InterAction CRM	<input type="radio"/> salesforce.com	
<input type="radio"/> CoreCRM	<input type="radio"/> iportstant CRM	<input type="radio"/> SalesGuru.com	
<input type="radio"/> CRM ASP	<input type="radio"/> KiBs CRM	<input type="radio"/> SalesJunction.com	
<input type="radio"/> CRM Unleashed	<input type="radio"/> Lead Management CRM	<input type="radio"/> SalesMetric.com	
<input type="radio"/> CRM.COM	<input type="radio"/> Logica CRM	<input type="radio"/> SalesNet CRM	
<input type="radio"/> CRM-A	<input type="radio"/> LongJump CRM	<input type="radio"/> sfCRM	
<input type="radio"/> CRMTrak	<input type="radio"/> Luxor CRM	<input type="radio"/> Soffront CRM	
<input type="radio"/> Dataforce CRM	<input type="radio"/> Maximizer CRM	<input type="radio"/> Spring CRM	
<input type="radio"/> Deskera CRM	<input type="radio"/> Netsuite CRM	<input type="radio"/> Star CRM	

**2. How long has your company been using *the software*?**

- Less than 2 years
- 2 to 4 years
- 5 to 6 years
- More than 6 years

**3. How often do you use *the software*?**

- Everyday
- 2 to 3 times a week
- Once a week
- Less than once a week

**4. Have you ever contacted *the software service provider* for support?**

- Yes
- No

**Section 2:** Your experience using the software

Please **SELECT ONE** of the following 7 choices by selecting the circle which best describes your level of agreement about each statement: 1 = Strongly disagree; 2 = Disagree; 3 = Slightly disagree; 4 = Neutral; 5 = Slightly agree; 6 = Agree; 7 = Strongly agree.

1. Using the software improves my work performance.
2. Using the software increases my productivity at work.
3. Using the software enhances my effectiveness at work.
4. Overall, the software is a useful tool at work.
5. My experience with using the software was better than I expected.
6. The service level provided by the software service provider was better than I expected.
7. Overall, most of my expectations of using the software were confirmed.
8. I intend to continue using the software rather than discontinue its use.
9. I intend to continue using the software rather than using an alternative.
10. If I could, I would like to continue using the software.
11. I am very satisfied with the overall experience of using the software.
12. I am very pleased with the overall experience of using the software.
13. I am very content with the overall experience of using the software.
14. I am absolutely delighted with the overall experience of using the software.

**Section 3:** Your service interaction(s) experience with the software service provider and/or the software service provider personnel (in person, by phone or email)

Please **SELECT ONE** of the following 7 choices by selecting the circle which best describes your level of agreement about each statement: 1 = Strongly disagree; 2 = Disagree; 3 = Slightly disagree; 4 = Neutral; 5 = Slightly agree; 6 = Agree; 7 = Strongly agree.

1. The software service provider was consistent with the service procedure according to the agreement.
2. The software service provider provided a level of service to me equal to that provided to other departments or companies.
3. The software service provider kept complete and accurate records of my problems concerning the software.
4. The software service provider has a knowledge-based system to provide solutions to my problems concerning the software.
5. The software service provider effectively managed my problems concerning the software from initial notification through to reasonable resolution.
6. The software service provider was able to identify and correct any problems that resulted from their own errors.
7. The software service provider was capable of performing all the duties covered by the agreement.
8. The software service provider behaved in an ethical manner in terms of fulfilling the spirit of the agreement.
9. The software service provider delivered the service to all individuals in my company equally.
10. The software service provider delivered desired solutions to all individuals in my company equally.
11. The software service provider delivered reasonable results to all individuals in my company equally.
12. The software service provider met the needs of all the individuals in my company equally.
13. The software service provider personnel treated me with respect.
14. The software service provider personnel treated me with consideration.
15. The software service provider personnel treated me sincerely.
16. The software service provider personnel treated me in a polite and courteous manner.
17. The software service provider personnel were aware of my rights as a customer.
18. The software service provider personnel used proper or appropriate language.
19. The software service provider offered reasonable explanations concerning the service.
20. The software service provider explained the service procedure thoroughly.
21. The software service provider was truthful in all communications to my company.
22. The software service provider tailored their explanation to my needs.

**Section 4:** Demographic data for statistical purposes only and this information will remain confidential.

Please select the most appropriate circle for each question.

**1. Gender**

- Male
- Female

**2. Age**

- Under 30
- 30 to 40
- 41 to 50
- Above 50

**3. Your working experience**

- Less than 5 years
- 5 to 10
- 11 to 15
- More than 15 years

**4. Position at present company**

- Sales representative
- Operating staff
- Supervisor
- Middle management
- Senior management

**5. Number of employees at your company**

- Less than 50
- 51 to 100
- 101 to 250
- 251 to 500
- More than 500

**6. What type of industry is your company in?**

- Business Services
- Government (including Military)
- Manufacturing
- Services Industry
- Wholesaler/Retailer/Distributor
- Other



**APPENDIX F**



## Descriptive Statistics and Reliability Estimates

Table 1 Factor Loadings by EFA for Pilot Study

Item code	Component		
	1	2	3
Systemic-1	.564	.577	
Systemic-2	.813		
Systemic-3		.843	
Systemic-4	.673	.598	
Systemic-5	.736	.542	
Systemic-6	.470	.727	
Systemic-7	.705	.489	
Systemic-8	.714		.429
Configural-1		.664	.431
Configural-2		.771	
Configural-3	.759		
Configural-4	.626	.553	
Interpersonal-1	.688		
Interpersonal-2	.529	.848	
Interpersonal-3	.515	.557	
Interpersonal-4	.454	.623	.454
Interpersonal-5	.714		
Interpersonal-6	.425		.901
Informational-1		.740	
Informational-2	.815		
Informational-3	.565	.538	
Informational-4		.789	

Note: loadings less than .40 are not shown.

Source: Developed for this research

Assessment: The four service fairness elements are not distinct, which suggested the need for further development of the questionnaire items.

Table 2 Regression Coefficients for Pilot Study

Model <sup>a</sup>	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
1 (Constant)	5.685	2.081		2.732	.008	1.515	9.855
Systemic	.667	.116	1.198	5.757	.000	.435	.900
Configural	-.015	.179	-.014	-.084	.933	-.373	.343
Interpersonal	-.351	.141	-.359	-2.491	.016	-.633	-.069
Informational	-.110	.197	-.097	-.559	.578	-.504	.284

a. Dependent Variable: Satisfaction

Source: Developed for this research

Assessment: Two of four key relationships do not work, which suggests the need for further development of the service fairness questionnaire items.



Table 3 Norminality of Data of IS Continuance Measures in Main Study (N=490)

	Mean	Standard Deviation	Minimum	Maximum	Skewness	Kurtosis	Cronbach's Alpha
<b>Perceived Usefulness</b>	<b>5.64</b>	<b>1.086</b>					<b>0.938</b>
Usefulness_1	5.56	1.212	1	7	-1.307	2.247	
Usefulness_2	5.63	1.214	1	7	-1.062	1.161	
Usefulness_3	5.64	1.147	1	7	-1.175	1.923	
Usefulness_4	5.74	1.158	1	7	-1.139	1.532	
<b>Confirmation</b>	<b>5.40</b>	<b>1.011</b>					<b>0.830</b>
Confirmation_1	5.44	1.199	1	7	-0.824	0.756	
Confirmation_2	5.23	1.212	1	7	-0.501	0.184	
Confirmation_3	5.52	1.095	1	7	-0.677	0.305	
<b>IS Continuance Intension</b>	<b>5.58</b>	<b>1.041</b>					<b>0.893</b>
Continuance_1	5.59	1.155	1	7	-0.909	0.952	
Continuance_2	5.53	1.139	1	7	-0.752	0.564	
Continuance_3	5.63	1.148	1	7	-0.832	0.505	
<b>Satisfaction</b>	<b>5.51</b>	<b>1.088</b>					<b>0.929</b>
Satisfaction_1	5.61	1.112	1	7	-0.894	0.801	
Satisfaction_2	5.58	1.170	1	7	-1.104	1.461	
Satisfaction_3	5.54	1.205	1	7	-1.093	1.398	
Satisfaction_4	5.31	1.300	1	7	-0.820	0.670	

Source: Developed for this research

Table 4 Norminality of Data of Service Fairness Measures in Main Study (N=490)

	Mean	Standard Deviation	Minimum	Maximum	Skewness	Kurtosis	Cronbach's Alpha
<b>System Fairness</b>	<b>5.50</b>	<b>0.991</b>					<b>0.943</b>
1. Systemic_1	5.44	1.211	1	7	-0.977	1.349	
2. Systemic_2	5.42	1.174	1	7	-0.602	0.225	
3. Systemic_3	5.46	1.183	1	7	-0.750	0.536	
4. Systemic_4	5.52	1.253	1	7	-0.961	0.885	
5. Systemic_5	5.49	1.166	1	7	-0.734	0.393	
6. Systemic_6	5.44	1.143	1	7	-0.522	-0.083	
7. Systemic_7	5.58	1.147	1	7	-0.733	0.242	
8. Systemic_8	5.67	1.096	1	7	-0.691	0.168	
<b>Configural Fairness</b>	<b>5.53</b>	<b>1.019</b>					<b>0.906</b>
1. Configural_1	5.54	1.124	1	7	-0.666	0.183	
2. Configural_2	5.53	1.162	1	7	-0.720	0.367	
3. Configural_3	5.51	1.144	1	7	-0.804	0.765	
4. Configural_4	5.51	1.185	1	7	-0.849	0.906	
<b>Interpersonal Fairness</b>	<b>5.63</b>	<b>1.003</b>					<b>0.937</b>
1. Interpersonal_1	5.66	1.175	1	7	-0.824	0.342	
2. Interpersonal_2	5.57	1.155	1	7	-0.733	0.336	
3. Interpersonal_3	5.56	1.157	1	7	-0.634	-0.052	
4. Interpersonal_4	5.64	1.157	1	7	-0.567	-0.347	
5. Interpersonal_5	5.62	1.119	2	7	-0.505	-0.590	
6. Interpersonal_6	5.72	1.144	1	7	-0.746	0.231	
<b>Informational Fairness</b>	<b>5.55</b>	<b>1.030</b>					<b>0.908</b>
1. Informational_1	5.57	1.119	1	7	-0.525	-0.365	
2. Informational_2	5.57	1.190	1	7	-0.841	0.522	
3. Informational_3	5.57	1.144	1	7	-0.544	-0.347	
4. Informational_4	5.51	1.200	1	7	-0.799	0.448	

Source: Developed for this research

Table 5 Results of Levene's Test and Independent Sample T Test

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Usefulness_1	.538	.463	.023	488	.982	.003	.110	-.213	.218
Usefulness_2	.961	.328	-.327	488	.744	-.036	.110	-.252	.180
Usefulness_3	.057	.811	.086	488	.932	.009	.104	-.195	.213
Usefulness_4	.002	.961	-.836	488	.403	-.088	.105	-.293	.118
Confirmation_1	.237	.627	-.779	488	.437	-.084	.108	-.297	.129
Confirmation_2	.019	.891	.470	488	.638	.052	.110	-.164	.267
Confirmation_3	.718	.397	.613	488	.540	.061	.099	-.134	.255
Continuance_1	.002	.968	.136	488	.892	.014	.105	-.191	.220
Continuance_2	.221	.639	.032	488	.974	.003	.103	-.199	.206
Continuance_3	3.093	.079	.914	488	.361	.095	.104	-.109	.299
Satisfaction_1	5.197	.023	.176	488	.861	.018	.101	-.180	.215
Satisfaction_2	2.727	.099	.406	488	.685	.043	.106	-.165	.251
Satisfaction_3	8.811	.003	.740	488	.460	.081	.109	-.133	.294
Satisfaction_4	2.592	.108	.352	488	.725	.041	.118	-.190	.272
Systemic_1	.111	.739	-.098	488	.922	-.011	.109	-.226	.204
Systemic_2	.276	.599	.403	488	.687	.043	.106	-.166	.251
Systemic_3	2.689	.102	-.144	488	.885	-.015	.107	-.226	.195
Systemic_4	.889	.346	.463	488	.643	.053	.113	-.170	.275
Systemic_5	.108	.743	-1.200	488	.231	-.126	.105	-.333	.081
Systemic_6	.035	.851	-.143	488	.886	-.015	.103	-.218	.188
Systemic_7	2.577	.109	.022	488	.983	.002	.104	-.202	.206
Systemic_8	.000	.994	-.496	488	.620	-.049	.099	-.244	.146
Configural_1	.001	.977	-.894	488	.372	-.091	.102	-.290	.109
Configural_2	3.256	.072	.225	488	.822	.024	.105	-.183	.230
Configural_3	.844	.359	.115	488	.909	.012	.104	-.191	.215
Configural_4	.980	.323	-.422	488	.673	-.045	.107	-.256	.165

Table 5 (continued)

	Levene's Test for Equality of Variances		t-test for Equality of Means						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
Interpersonal_1	.527	.468	-1.654	488	.099	-.175	.106	-.383	.033
Interpersonal_2	.264	.608	-.837	488	.403	-.087	.104	-.292	.118
Interpersonal_3	.322	.571	-.990	488	.323	-.104	.105	-.309	.102
Interpersonal_4	.427	.514	-1.911	488	.057	-.199	.104	-.404	.006
Interpersonal_5	1.010	.315	.254	488	.799	.026	.101	-.173	.225
Interpersonal_6	.671	.413	-.527	488	.599	-.054	.103	-.258	.149
Informational_1	.059	.808	-.500	488	.617	-.051	.101	-.249	.148
Informational_2	.001	.970	-1.041	488	.299	-.112	.108	-.323	.099
Informational_3	.073	.787	-1.479	488	.140	-.153	.103	-.356	.050
Informational_4	.187	.665	-1.056	488	.292	-.115	.108	-.328	.099

Note: Independent samples test for equality of means between early respond group and late respond

Source: Developed for this research

Assessment: No significant difference in any mean only two differences in variances between early and late questionnaire returns. This suggests that there is little problem with non-response bias, according to this standard check.

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