

# PERSONAL INFORMATION BREACH AS A SERVICE FAILURE: EXAMINING RELATIONSHIPS AMONG RECOVERY EFFORTS, JUSTICE, AND CUSTOMER RESPONSES

*Research-in-Progress*

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## Abstract

*Information service users are required to provide personal information to service providers. Accordingly, Personal Information Breach (PIB) and side-effects have recently emerged. This study will seek answers to the following research questions: (1) In a PIB context, which types of PI are regarded as sensitive, and which recovery efforts are important?, (2) What effects do the company's recovery efforts have on perceived justice, and how do these relationships vary according to the type of PIB?, and (3) What are the relationships between justice and customers' responses? This study is significant since it views PIB as a type of service failure, and suggests a research model based on service failure/recovery processes and justice theory, and will empirically be tested. This study aims at strengthening its validity by employing a multi-method approach combining a survey and an experiment. Thus, the research findings will provide theoretical and practical contributions to information privacy areas.*

**Keywords:** Personal information breach(PIB), service failure, recovery efforts, perceived justice, satisfaction to service recovery, negative WOM, third-party action

## Introduction

The dramatic development of information communication technology (ICT) is spreading in ubiquitous information systems (UIS) environments using wireless Internet, smartphones and tablets. UIS environments are generating value-added services in combination with social networking services (SNS) and location-based services (LBS). To access such services, users are required to provide various types of personal information to the service providers. This information, including sensitive personal information, carries the risk of being randomly misused and abused, increasing the necessity of proper protections strategies (Lee et al. 2011) because personal information includes monetary values and can be illegally

traded and maladapted for spam mailing or phishing. Consequently, the number of accidents where personal information is breached by internal employees or hackers is increasing worldwide.

A service failure means not only an outcome failure related to a company's core service (e.g. a reserved hotel room is not available), but also a process failure related to flaws or a deficiency in delivering a certain service (e.g. a hotel employee's rudeness during check-in) (Smith et al. 1999). That is, service failures can be conceptualized as any unfavorable events happening between service providers and customers. In this vein, personal information breaches (a.k.a. data breaches, security breaches) to an unwanted third party should clearly be considered a type of service failure. PIB seems a more serious service failure than general offline services because the impact is broader—it damages many victims simultaneously, and it is extremely difficult to predict where and how the breached personal data will be used. Finally, service encounters are not any more limited to the events taking place with an employee and a customer present but are also possible where self-service technologies are employed (Meuter et al. 2000).

A current example of a global personal information breach is the leakage of 100 million Sony customers' personal information due to hacking in April, 2011. More serious was the fact that the company notified the victims about the incident six days later. The company's slow response and truth concealment aroused its customers' anger, and numerous lawsuits are currently in progress (Acohido 2011). And more recently, LinkedIn, the US-based leading social network site for business professionals, posted on their company blog that it had a data breach in June, 2012 (Finkle and Saba 2012). Also in Korea, for example, many large-scale personal information breach accidents occurred in 2011 at financial companies, Internet portal sites, and online game companies. A recent survey conducted by the Korean Consumer Agency revealed that 95% of consumers had experienced a personal information breach in the past year (Kim et al. 2011).

In a personal information breach (PIB), not only are the company's customers harmed, but it also hurts the company's reputation and can cause financial losses resulting from class lawsuits. PIB should be regarded as a serious crisis that may deteriorate the relationship between a company and the public (Moon and Lee 2009). To prevent this problem, active investment in security technology is important; however, in addition, more attention should be paid to proper service recovery methods in response to intentional data spills or hacking, which is always likely to happen.

In IS, there have been several studies on the financial effects of data breach (Cavusoglu 2004; Garg 2003), relevant systems and laws (Lee et al. 2011; Romanosky et al. 2011b), and one taking a corporate risk management approach (Gupta et al. 2011), (Moon and Lee 2009). However, there are very few studies that have considered personal information breach as service failure for customers or that have taken a research approach looking at companies' service recovery efforts after a breach incident, along with customers' perceptions and responses toward them. Thus, this study aims to make a theoretical contribution to the field of information systems privacy by being the first to apply a research framework regarding service failure/recovery, which has been extensively studied in the marketing area (e.g. Liao 2007; Smith et al. 1999), as well as justice theory, to the PIB context.

This study will seek answers to the following research questions, thereby making a theoretical contribution to privacy-related studies and highlighting practical implications that can help companies to effectively respond to PIB: (1) In a PIB context, which types of PI are regarded as more sensitive, and which recovery efforts (i.e. compensation and explanations) are most important?, (2) What effects do the company's recovery efforts have on its customers' perceived justice, and how do these relationships vary according to the type of PIB?, and (3) What are the relationships between perceived justice and customers' responses in the case of PIB?

## **Theoretical Background and Conceptual Framework**

### ***Types of Personal Information and Personal Information Breach***

Although it is difficult to distinguish personal information due to varying interpretations by nation, law, situation, and scholar, personal information is generally considered to encompass name, address, demographic information, lifestyle, shopping preferences, and purchase history (Nowak and Phelps 1995).

PIB refers to a case in which personal information, such as an individual's name, social security number, or credit card number, is lost due to a breach incident or is stolen intentionally and maliciously (Romanosky et al. 2011b). The leaked personal information is most likely to be abused by offenders or used for identity fraud in foreign countries. The credit card information of 2.2 million people leaked from Sony was found to be traded on underground Internet forums (Acohido, 2011).

### ***Personal Information Breach as a Service Failure***

The protection of customers' personal information significantly differs from management and protection of assets owned by a company. Corporate assets are mostly the outcomes of business activities, and damage from their leakage or loss remains within the corporation. In contrast, companies have an obligation to actively protect personal information because they have been entrusted by personal information providers with the rights to a series of relevant processes, from issuing and managing information to discarding such data (Lee et al. 2011). Accordingly, breach of personal information that the customer does not want made public should be considered a crucial form of service failure, even when the case is not directly related to the outcomes of the core service or does not cause material, tangible damage. In their study of service failure and recovery in an online retailing environment, Holloway and Beatty (2003) classified online service failure into six categories in order of frequency—shipping, website design, payment, security, product quality, and customer service problems. As such, they indicate that security problems related to PIB and frauds are the fourth most frequent type of service failure. A leakage of personal information is a particularly crucial form of service process failure because it involves personally identifiable information (PII) such as social security numbers, banking and credit information, and online account information, such as user IDs and passwords.

Service failure is closely associated with service recovery and company-customer relationship restoration. Thus, previous studies have been conducted with a focus on various interrelationships between the cognitive aspects (corporate efforts in service recovery and justice), affective aspects (positive/negative feelings, trust, and loyalty), assessment aspects (customer satisfaction), and behavioral aspects (repurchase intention and negative word of mouth) of service failure. Mainly informed by resource exchange theory (Brinberg and Wood 1983), mental accounting theory (Thaler 1985), and justice theory (Tax et al. 1998), the service recovery framework was generated by Smith et al. (1999); that is, when service failure occurred, the company's service recovery efforts recognized by customers as resource exchanges reduce the negative effect of service failure by increasing customers' perceived justice through mental accounting. And the types and magnitude of failure are also included as contextual factors into the service recovery framework (e.g. Liao 2007; Smith et al. 1999; Smith and Bolton 2002).

There have been many studies on service failure and recovery mechanisms in terms of the relationship between companies and customers in other fields. Representative studies include those conducted in the contexts of hotels, restaurants, or banks in the field of service marketing (e.g. Chebat and Slusarczyk 2005; DeWitt et al. 2008, Gelbrich 2010; Liao 2007; Schoefer 2005; Schoefer and Diamantopoulos 2008; Smith et al. 1999; Smith and Bolton 2002). With the recent development of a variety of information technologies, studies of service failure have been carried out in new research contexts, such as online shopping (Cho 2008; Turel et al. 2008), complaints about cellular-phone services (del Río-Lanza 2009), and organizational internal IS service (Carr 2007; Najjar et al. 2010).

### ***Justice Theory***

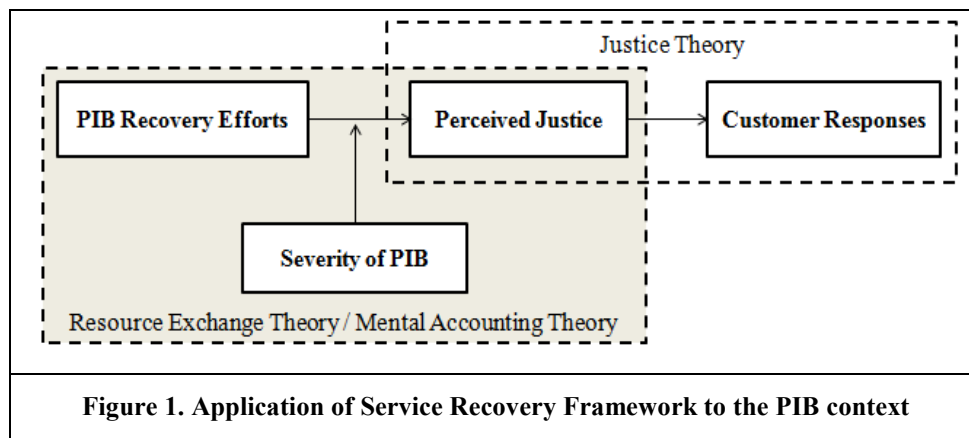
Justice, similar to fairness, can be defined as "a set of perceptions of fairness within an examined social system" (Colquitt et al. 2001). There are numerous views on the sub-dimensions of justice, but it is generally considered to consist of procedural justice, distributive justice, and interactional justice (Smith et al. 1999). As online information service environments have recently been popularized, interactional justice is usually divided into interpersonal justice, such as politeness and respect displayed during service delivery, and informational justice, which is focused on the explanations about the processes and results (Colquitt et al. 2001; Colquitt and Rodell 2011; Turel et al. 2008). Perceived justice has been used as a key construct in previous studies about service failure and service recovery efforts in many different contexts. Some examples of such studies focus on internal IS service recovery (Najjar et al. 2010), e-customer

service (complaining) (Turel et al. 2008), broadband Internet service (Liao 2007), retail banking (Chebat and Slusarczyk 2005), and restaurant and hotel (Smith et al. 1999; Smith and Bolton 2002).

The company's level of justice, as shown during the handling process, is an important determinant of service recovery. In PIB contexts, in particular, perceived justice is expected to play a more significant role for the following reasons. First, because personal information remains under the management of the company as long as the customers do not withdraw from the service, it is highly unlikely that they will reuse the service unless they are satisfied with the service recovery in terms of justice. Second, considering that most PIB cases are caused through hacking in Internet environments, it is more likely that users who have perceived injustice will actively engage in spreading negative word of mouth (WOM) through SNS or promote third-party actions through online communities than in cases of offline services.

### **Conceptual Framework**

Considering the concepts and theories discussed thus far, we developed service recovery framework in the PIB context. A company's service recovery efforts have positive effects on its customers' perceived justice, and perceived justice in turn plays a role in increasing customers' positive responses and reducing negative outcomes. During this process, the type of personal information will play a moderating role in the relationship between service recovery efforts and perceived justice. In other words, when personal information considered more sensitive is spilt, the severity of service failure will be greater. Thus, as PIB is perceived to be more serious, the influence of service recovery efforts on perceived justice will be smaller. This study's conceptual framework is displayed as a diagram in "Figure 1" below.



## **Preliminary Study**

### **Study Objectives and Study Design**

As a preliminary study before conducting an experiment as the main study, a survey was conducted of people with PIB experiences in order to examine (1) the sensitivity of each type of personal information and (2) the importance of each service recovery effort, and to verify (3) the psychometric validity of the measurement scales that will be used in a main experiment.

Those people who had experienced PIB within one year were surveyed based on measurement scales whose reliability and validity have been verified in previous studies. Whether the respondents had experienced PIB was determined in the form of a prescreening question using an online panel company's sample, so that only victims of PIB were allowed to participate in the survey. Finally, data of 312 respondents were used in the analysis; the sample characteristics are in "Table 1".

<b>Table 1. Sample Characteristics</b>			
<b>Attributes</b>		<b>Frequency</b>	<b>Percentage</b>
Gender	Male	138	44%
	Female	174	56%
Age	20-29	106	34%
	30-39	106	34%
	Over 40	100	32%
Breach Experiences	Once	28	9%
	Twice	94	30%
	Three Times	97	31%
	More than Four	93	30%
Action	No actions	21	7%
	PW change and continuous use	228	73%
	Exit	49	16%
	Others	14	4%

### **Preliminary Survey Findings**

The sensitivity, according to type of personal information leaked, was asked whereby respondents divided PIB into general and sensitive occurrences. The overall mean value of sensitivity was 6.20; results are in “Table 2” below.

<b>PIB types</b>	<b>PI and mean value</b>
General Information Breach	name(4.97), address(6.10), home phone number(6.07), online account ID(6.14), e-mail address(5.90)
Sensitive Information Breach	social security number(6.68), mobile phone number(6.51), credit card number(6.72), bank account number(6.62), credit rating(6.31)

To determine which recovery efforts were considered important in the PIB context, customers were asked “to what extent of importance” they felt about each of the following service recovery efforts: compensation, response speed, apology (Smith et al. 1999), explanation (Liao 2007; Najjar et al. 2010)—all measured (1=not important at all; 7=very important). Initiation (organization-initiated or customer initiated), one of the recovery attributes in Smith et al.’s (1999) original framework, is excluded in this study because it does not apply to the PIB case. Customers typically cannot notice about breaches of their personal information before the company admits and notifies the accident; PIB recovery efforts are almost always organization-initiated.

Using exploratory factor analysis (EFA), two factors, compensation and other three concepts, emerged. Prompt handling was excluded because notification “without delay” is a prerequisite condition. Apology and explanation merged into one factor because both of them have interactional attributes, and the merged construct is named apologetic explanation. Therefore, compensation and apologetic explanation were included in the research model.

EFA was conducted with all the measurement items of research constructs including compensation, apology, explanation, perceived justice, negative WOM, third-party action. Measured by a single item, a satisfaction item was not included. In terms of factor loadings and Cronbach’s  $\alpha$ , the psychometric validity of research constructs were ensured; therefore, they will be used in the main experiment.

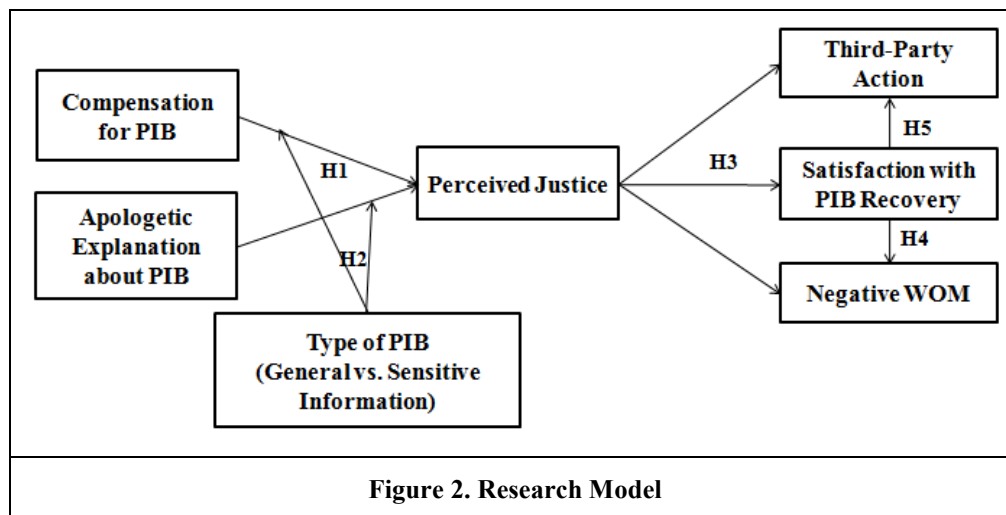
## Research Model and Hypotheses

Based on the PIB recovery framework and the result of the preliminary survey, the research model of study was generated as “Figure 2”.

### *Service Recovery Efforts and Perceived Justice*

Securing new customers costs companies more than five times the amount of retaining existing customers (Reichheld 1996). Thus, in cases of service failure, companies need to actively stop customer exits through appropriate responses. Service recovery efforts positively influence customers’ perceived justice. Among previous studies on this relationship, Smith et al. (1999) suggested compensation, response speed, apology, and initiation as the independent variables of perceived justice, and Liao (2007) identified problem solving, being courteous, and providing an explanation as the independent variables.

Based on the preliminary study results, compensation and apologetic explanation have been selected as antecedents of perceived justice in this study.



### **Compensation**

Compensating customers is one of effective service recovery strategies, and it leads to favorable customer responses (Grewal et al. 2008). Parasuraman et al. (2005) suggested compensation, as well as responsiveness and contact, is an important service recovery attribute in the online context. Tangible compensation, such as discounts, free merchandise, refunds, or coupons, affects perceived justice (Mattila 2006; Smith and Bolton 2002); especially, it is related to distributive dimension of justice (Smith et al. 1999).

In Korea, a local district court ordered the company to compensate its users whose personal information was leaked for the customers’ psychological damage although actual tangible loss did not occur (Heo 2009). However, in the PIB context, the relationship between compensation and service recovery has not been examined. Thus, we hypothesize:

*H1a: Compensation for PIB is positively related to perceived justice.*

### **Apologetic Explanation**

Apology is a communication way to convey politeness, empathy, and concern to customers who experienced service failure (Smith et al. 1999); it can enhance customers’ positive perceptions and evaluation (Najjar et al. 2010). Making an apology implies that the company admits responsibility for the service failure (Goodwin and Ross 1992). It performs a key role to mitigate the potential conflict between the service providers and the customers who experienced service failures (Hui and Au 2001). Especially,

in Korean (collectivistic) culture where the preliminary study was conducted, apology would appear to be even more important than in North American (individualistic) culture since conflict avoidance is one of the traits of a collectivistic culture.

In order to recover from service failure effectively, not only is instrumental support like compensation and emotional support like apology important, but also information support, such as explanation, should be considered (Gelbrich 2010). Through explanation, customers can understand what kinds of failure happened, why they occurred, and how it will be handled in the future (Conlon and Murray 1996), (Najjar et al. 2010). In this study, retrospective explanation about the reason of PIB, prospective explanation about the future plan for dealing with PIB (Gelbrich 2010; Mattila 2006), and the explanations about what kinds of PI are leaked will be considered. Based on the preliminary study, we named the merged construct 'apologetic explanation', considering simultaneously apology and explanation; thus, we hypothesize:

*H1b: Apologetic explanation about PIB is positively related to perceived justice.*

### **General Information and Sensitive Information**

There are many types of personal information, and customers' perceived magnitude of service failure in PIB contexts may vary depending on the information type. In some previous studies of service failure, the type of service failure (Smith et al. 1999; Smith and Bolton 2002) and magnitude and severity of service failure (Liao 2007; Smith et al. 1999; Smith and Bolton 2002) were measured as moderating variables through surveys or manipulated through experimentation.

Customers perceive it to be more risky to provide their personal information when the information is more sensitive. Although perceived privacy sensitivity varies according to individuals, it is reported that financial information and medical information are generally considered more sensitive than other types of information like personal purchase preference (Malhotra et al. 2004). Also in Nowak and Phelps' study (1992), the subjects were asked "how upset they are if their information were made available to marketers without their permission", in rank order, bank balance, medical records, annual income, social security number, and credit records were the most sensitive information indicated.

It can be assumed that customers' perceptions of the severity of service failure will vary depending on whether the leaked personal information is general or sensitive. However, perceived sensitivity in cases of unexpected leakage, as opposed to the provision of personal information to marketers, has not been practically examined.

In addition, differences are expected in the relationship between service recovery efforts and justice by the type of PIB. According to mental accounting theory, people tend to perceive losses from service failure to be larger than gains from the service recovery process (Smith et al. 1999). Therefore, if the severity of service failure is higher, the impact of service recovery efforts on justice will be lower. In the context of this study, a sensitive information breach is considered a more severe service failure, so it is predicted that service recovery efforts will have greater effects on perceived justice in the case of a general information breach, which is a less severe case.

*H2a: Compensation will have a greater (positive) effect on customers' perceptions of justice when a general information breach occurs than when a sensitive information breach occurs.*

*H2b: Apology/Explanation will have a greater (positive) effect on customers' perceptions of justice when a general information breach occurs than when a sensitive information breach occurs.*

### **Post-recovery Responses**

A company's service recovery efforts are aimed at increasing customer satisfaction and ultimately preventing customer exit and reducing negative behaviors such as negative WOM or third-party actions. Some previous studies have proved that justice increases satisfaction with service recovery in the service failure context (e.g. del Río-Lanza 2009; Liao 2007; Schoefer 2005; Smith et al. 1999).

Negative WOM has been regarded as an important behavioral dimension of service recovery’s outcome in previous literatures (Strizhakova et al. 2012; Van Vaerenbergh et al. 2012). The growth of the UIS environment and SNS has enhanced the influence of negative WOM, and its spread through Facebook, Twitter, and blogs, in particular, may have great effects on a company’s reputation. In other words, a company’s inappropriate responses to PIB can lead to customer dissatisfaction, even when a potential customer was not a direct victim of the PIB, leading to a negative view of the corporation and promulgation of negative WOM.

Some customers dissatisfied with the company’s service recovery efforts may attempt third-party actions such as lawsuits and accusations (Schoefer and Diamantopoulos 2008). Hence, hundreds of suits against firms for the unauthorized disclosure of personal information have been brought (Romanosky et al. 2011a). In Korea, some PIB victims are seeking collective actions by forming a virtual community to file lawsuits. Furthermore, thanks to the advancement of the Internet, plaintiffs can easily be recruited by lawyers as victims in cases of PIB, so the number of plaintiffs involved in the lawsuit and the amount of compensation that may be shouldered by the company can increase geometrically (Heo 2009). Such class lawsuits are likely to bring great losses in terms of time and cost and negatively influence the company’s reputation. Based on these points, the following hypotheses have been established:

*H3a: Perceived justice increases customer satisfaction with PIB recovery.*

*H3b: Perceived justice negatively affects negative WOM.*

*H3c: Perceived justice negatively affects third-party action.*

*H4: Customer satisfaction with PIB recovery decreases negative WOM.*

*H5: Customer satisfaction with PIB recovery decreases third-party action.*

## Research Method

### Experimental Design

Through the preliminary survey, two salient recovery efforts, compensation and apologetic explanation, were selected, and will be treated in the main experiment. The experiments will take a between-group, 2 (general vs. sensitive PIB) x 2 (low vs. high compensation) x 2 (low vs. high apologetic explanation) design as shown “Table 3”. As for each scenario and PIB notice, the content validity will be secured through consultations with information privacy experts. The experiments will be conducted in the following order: (1) Asking general questions regarding PIB experiences; (2) Providing scenarios involving PIB (general vs. sensitive information); (3) Random presentation of one of four recovery profiles (PIB notices); (4) Instructing the subjects to read the assigned notice and answer the questions about justice and the dependent variables; (5) Carrying out a manipulation check on service recovery efforts; and (6) Assessing the realism of the scenarios and notices.

		Sensitivity of PI			
		High		Low	
		Compensation			
		High	Low	High	Low
Apologetic Explanation	High	Group 1	Group 2	Group 3	Group 4
	Low	Group 5	Group 6	Group 7	Group 8



## Expected Contribution

### *Theoretical Contribution*

This study is significant in that it firstly views PIB as a type of service failure occurring in the service delivery stage, and suggests a research model based on in-depth literature reviews of service failure/recovery processes which have been extensively studied in the fields of marketing and applied psychology and justice theory which has been examined in the area of organizational behavior, and will empirically be tested. This study aims at strengthening its validity by employing a multi-method approach that combines a survey and an experiment. Thus, the results of this study are expected to make numerous theoretical contributions in various research areas, including information privacy. Furthermore, if the results vary according to the type of PIB, contributions may also be made to mental accounting theory.

### *Practical Implications*

With increased corporate social responsibility and ethical duties, higher-level response strategies beyond primary service recovery efforts to prevent customers' negative behavior and exit are necessary to enhance corporate image in the long run. Along with the recent emergence of PIB as a serious social issue, relevant regulations for reinforcing the responsibility of companies, and protecting consumers are being tightened. Nevertheless, developments in security technology or privacy-related regulations and laws are not enough to perfectly prevent PIB incidents. Therefore, practical implications need to be provided by determining the interrelationships between companies' efforts to restore their relationships with customers, customers' perceived justice, and behavioral intention. More specifically, practical guidelines can be generated for communication between companies and customers in the case of PIB by determining whether companies' remarks on compensation, sincere apologies, and detailed explanations actually increase customers' perceived justice, as well as by defining the outcomes of such perceived justice.

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