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ABSTRACT

The Information Service Function (ISF) delivers IS services to internal customers (employees) to assist them in their information- and technology-related tasks. IS service failures are an inevitable event and the ISF must enact processes to recover from these failures. This article proposes a theoretical framework integrating literature from marketing, operations, and IT to depict an integrated model of internal IS service recovery where perceived service justice mediates the relationship between Internal IS Service Recovery Extensiveness (IISSRE) and IS service quality as well as predicts internal IS customer satisfaction and continued commitment to the ISF. This study contributes by establishing a theoretical foundation for IS service recovery that is uniquely contextualized for internal IS settings and by proposing a new construct that captures different aspects of the IS service recovery remedy. A list of propositions to guide future research is developed.

Keywords

IS Service Recovery, IT Service Management, Internal IS Service Recovery Extensiveness, IS Service Quality, Perceived Justice, Customer Satisfaction, and Commitment to the ISF.

INTRODUCTION

IS service failures are inevitable and the ISF must enact processes to recover from these failures. Hence, there is a need to understand how IS service recovery can be enhanced. The ISF should always be searching for ways to improve the level of service they deliver and in the case of failure understand the factors that will deliver satisfied and committed IS internal customers back to pre-failure levels. In an effort to gain this understanding, the objective of this paper is to propose a new construct and position it in a framework contextualized to the internal IS service recovery environment, theorizing its relationship with other key constructs deemed relevant to this context.

The paper proceeds to conceptually develop a framework of Internal IS Service Recovery. First, IS service recovery in the internal IS context is discussed. Next, a new construct is introduced that directly effects IS service quality, then the direct and mediating roles that perceived justice plays in achieving internal customer satisfaction and IS service quality are respectively argued, finally, the effects on the commitment to the ISF are described. We conclude with propositions describing the relationships among the previous topics.

SERVICE RECOVERY

There has been an extensive research on service recovery in marketing and operation management. Services involve the exchange of time, efforts, and money between customers and service providers (Carr, 2007). According to the service concept, customers and service providers have an expectation of what a service should be and what customers' needs it fulfills (Goldstein, Johnston, Duffy, and Rao 2002). Service failure occurs when service delivery activities fall below the customer's expectations (Zeithaml, Berry, and Parasuraman 1993). Service failure is inescapable (Dong, Evans, and Zou 2008) and a 'zero defects' service delivery is nearly impossible to achieve (Buttle and Burton 2001). The trick is how to make the best of such inevitable events.

Service recovery can be viewed as a group of activities through which a company attempts to address customer complaint regarding perceived service failure (Gronroos 1988). Research indicates that organizations have to understand the service recovery process and the way customers respond to service recovery efforts to retain satisfaction (Schoefer and Diamantopoulos, 2008). For example, Harris, Grewal, Mohr, and Bernhardt (2006) claim that customer satisfaction with service failure recovery has a greater impact on overall satisfaction than does any other individual aspect of the outcome of

the service delivery. Holloway and Beatty (2008) suggest that a good reliable service support, combined with fair policies, is critical in deriving satisfaction. Therefore, thoroughly understanding what the customer wants and expects assists in designing sound recovery mechanisms that vary according to the type of service, the type of customer relationship, and the target customer segment (Goldstein et al. 2002). Froehle (2006) argues that thoroughness, knowledgeableness, and preparedness of service providers are influential in creating a positive customer experience and increasing their level of satisfaction.

Internal IS Service Recovery

Relatively little attention has been given so far to service recovery in IS and even less in the internal IS service recovery context. IS Service failure can be characterized by incidents where information processing and delivery services are interrupted or compromised: a crash in the system, misrepresentation of data, slow network traffic, and inability to extract required information are some examples of IS service failure. McColl-Kennedy and Sparks (2003) conclude that service failure can be attributed to one of four major areas. These areas of service failure can be witnessed in IS services as follows: (a) problems with the service itself (a program shows a fatal error), (b) problems associated with the service provider (erroneous installation of a new system), (c) problems outside the service provider's control (electrical outage), and (d) problems related to customers (unintended deletion of data). No matter what the source of failure is, IS service providers have to recognize that they are responsible for dealing with the IS service failure and solving the problem.

Internal services have been defined as the services that unique departments or units of an organization provide to separate unique departments of unit of the same organization (Stauss, 1995 Yoo, Shin, and Yan 2006). Internal IS services can be defined as the information service that a department and organizational unit provides to one or more separate departments in the same organization. Kettinger and Lee (1994) view the ISF within the organization as the production and service activities performed using internal and external sources of information product and service delivery. Building on this definition, Ding and Straub (2008) assert that IS service is merely an extension of the concept of service. Therefore, ISF is considered as service providers who provide information related services to internal customers (employees). These internal customers can have similar service experiences to those of external customers (Gremler, Bitner, and Evans 1994). Due to this internal service relationship, failures are to be expected. These internal service failures must be recovered in order to provide the internal customer with satisfaction (Gremler et al.1994).

Internal IS customers are crucial for organizations; they perform the tasks required to fulfill external customers' needs and their actions ensure that the "next" operation in the business functions smoothly. Being considered as internal IS service recipients and consumers, employees' information needs should be met by their IS service provider. We use the term internal IS service recovery to refer to the recovery process that takes place in response to incidents where IS service failure occurs to internal IS service recipients (employees).

One unique characteristic that distinguishes the internal customer from the external customers is the fact that internal customers typically have few alternatives when it comes to selecting a service provider, even if they are supplied with dissatisfying service (Gremler et al. 1994; Johnston 2008). Although internal customers do have some discretion in the extent and enthusiasm they display in using organizational IS services, they usually do not have the choice to move to another service provider.

Carr (2006), after interviewing 22 IS users and 22 IS managers, reveals that failure to recover creates IS users who may ignore the IS department and seek informal assistance from other internal or external sources. While switching is not an option, the opportunity to offer negative word of mouth is often very high. Also, the enthusiasm to appropriate the IS services for its fullest intended purpose in future uses is to a large degree at the discretion of the internal IS customer. Research shows that it is not sufficient to just have sound technical systems, it is also necessary to ensure willingness and ability of employees to use the technology to prevent IS failure (Au, Ngai, and Cheng 2008). In some cases it is even possible to engage employees in the recovery process; whereby employees acquire the specialized skills and knowledge to participate in the process of service recovery (Dong et al. 2008). If employees do not feel that the IS service is delivered in accordance with their expectations or if IS service fails, employees' perception of workplace justice will suffer and their level of satisfaction will be negatively affected (Carr 2006; Maxham 2001).

PROPOSED THEORETICAL FRAMEWORK

The proposed theoretical framework (Figure 1) integrates past research (discussed below) that has linked Service Recovery to Perceived Justice, resulting in overall Satisfaction and Commitment. The framework also depicts the mediating role of Service Quality in the relationships between Service Recovery and Satisfaction as well as Perceived Justice and Satisfaction. This framework illustrates IS Service Recovery in the internal context as a starting point for future investigation and research.

The following is a discussion of the major components of the theoretical framework along with the logical linkages and proposed relationships.
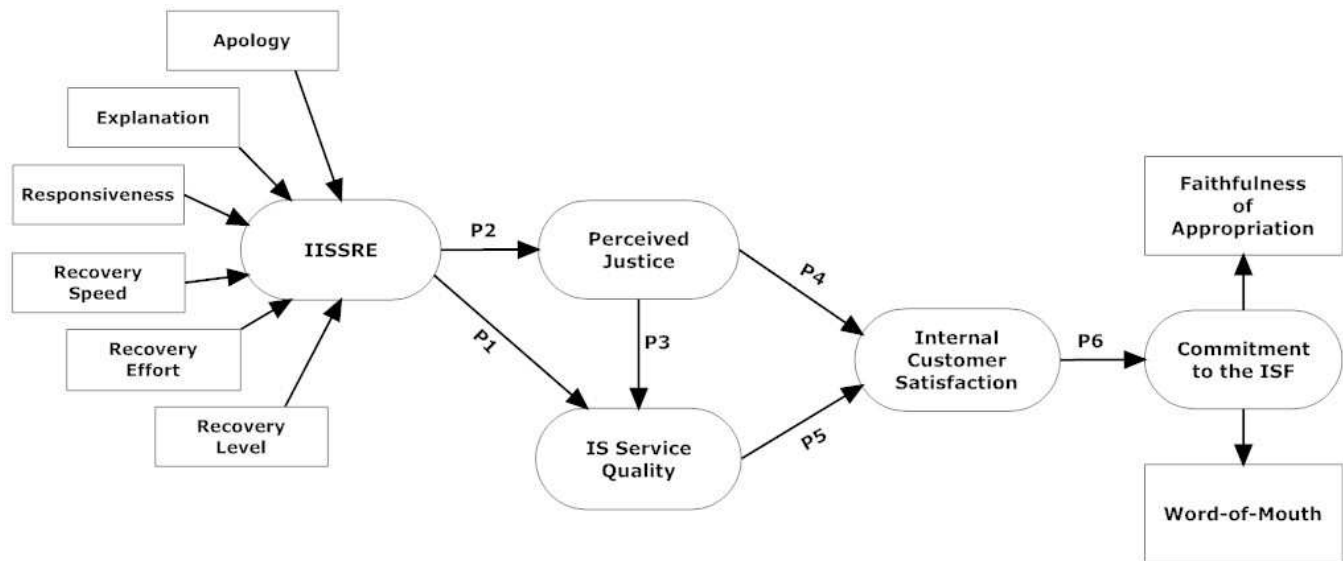

Figure 1. Proposed Theoretical Framework for Internal IS Service Recovery

Dimensions of Internal IS Service Recovery Extensiveness

Past research on service recovery in the marketing and operations context presents several key dimensions seemingly important in theorizing IS internal service recovery. Most notably, Smith, Bolton, and Wagner (1999) identify apology, recovery speed, initiation and compensation as key recovery attributes. While it may hold that these attributes are valid for external customers, it can be argued that internal IS customers may require a different set of dimensions of IS service recovery. Based on conceptual consistency informed by past practical experience of the researchers within the IS service recovery context, pertinent dimensions of service recovery were adopted and others were adapted or substituted by more IS relevant attributes. For example, although compensation is considered an important recovery dimension associated with external customers' perceptions of distributive justice (Tax, Brown, and Chandrashekaran 1998), it was determined to be of less relevance in the internal service recovery setting; as an organization typically cannot offer a tangible compensation to its employees in the case of service failure to increase their perceived level of distributive justice and restore their level of satisfaction.

The resultant list of Internal IS Service Recovery Extensiveness attributes includes the following:

An *apology* may convey the service provider's politeness, empathy, and concern to customers who have experienced a service failure (Smith et al. 1999). A service provider who communicates recognition of service failure through an apology may enhance the customer's perception and evaluation of the incident.

An *explanation*, or a provision of the reason for a failure (Bitner, Boom, and Tetreault 1990), can help employees in understanding what has happened, why the failure has occurred, and what they can do to minimize the risk of future failure. Explaining why the service is unavailable, and assisting the customer in solving the problem by suggesting possible options can be enough to cause the customer to remember the event favorably (Bitner et al. 1990). Different IS internal customers will seek different levels of explanation and different levels of involvement. In the explanation activity, employees should be considered as partners, they can assist in the process of IS service failure prevention and sometimes an employee may suggest a course of recovery based on job experience (Dong et al. 2008).

Recovery speed should be contrasted from responsiveness. *Responsiveness* is the speed with which a complaint is recognized and a problem is identified, while *recovery speed* is the time in which problems are fixed, from the beginning of the actual recovery process until the issue is solved. It is important from the internal IS customer's perspective to solve the problem and recover from failure quickly, but the waiting time until the problem is identified and he/she starts receiving the remedy is also important. Johnston and Mehra (2002) show that a speedy response is vital for satisfying customers.

Recovery effort is the amount of perceived positive energy a service provider puts into resolving a problem in case of service failure (Folks 1984; Mohr and Bitner 1995). IS service customer may perceive that some service providers go beyond what might be expected dedicating tremendous effort solving their problem while other merely go through the motions with little or no positive energy. The best scenario would be if the service provider can initiate and complete the recovery process, engage employees in a value-adding process, and avoid wasting employees' energy. Dong et al. (2008) suggest that customers who participate in a co-created recovery process report higher levels of role clarity, perceived value in co-creation, and satisfaction with the service experience, however, most employees do not want to invest a lot of energy in an attempt to recover from service failure, especially if they perceive this energy investment as compulsory. Mohr and Bitner (1995) suggest that perceived service provider's effort has a strong positive impact on transaction satisfaction and is appreciated regardless of its impact on the outcome.

Recovery level is the degree to which a problem is completely solved and a failure is recovered. Smith and Karwan (2010) refer to this dimension as recovery comprehensiveness. An employee who lost his data will be more satisfied when he gets all his data back, not a portion of that data. Another example is an employee who is experiencing viruses and worms on her computer, she would consider the problem to be solved more thoroughly if she recovered from both of these malicious programs, not only one group of them. A follow-up for the recovery has been proven to be effective (Bell and Zemke 1987) to help formalize a sense of a more complete recovery, ensuring the problem was solved, the employee is back on track, and there are no negative consequences of the recovery process.

We propose the formative, second-order *Internal IS Service Recovery Extensiveness* (IISSRE) construct to evaluate the overall level of internal IS recovery evaluating the individual dimensions deemed to be relevant to IS recovery internally within the organization. IISSRE can be defined as the overall perceived thoroughness and depth of service recovery activities performed to respond to service failure. IISSRE acts as a summation of the individual dimensions of internal IS service recovery mentioned above, it also acts as a mediator between the dimensions of internal IS service recovery and perceived justice.

Table 1 presents the proposed set of IS service recovery extensiveness dimensions. This set may not be totally exhaustive, however, we find it is pertinent to the context of internal IS service recovery.

Proposed Dimension	Definition	Similar Attribute from Literature
Apology	a communication of the service provider's politeness, empathy, and concern to customers who have experienced an IS service failure	Apology (Smith et al., 1999)
Explanation	a provision of reason for an IS service failure	Explanation (Bitner et al., 1990)
Responsiveness	the speed with which a complaint about IS service failure is recognized and a problem is identified	Speedy Response (Johnston and Mehra, 2002)
Recovery Speed	the time it takes for IS failure to be fixed, from the beginning of the actual recovery process until the issue is solved	Recovery Speed (Smith et al., 1999)
Recovery Effort	the amount of perceived positive energy a service provider puts into resolving a problem in case of IS service failure	Effort (Folkes, 1984; Mohr and Bitner, 1995), Initiation (Smith et al., 1999)
Recovery Level	the degree to which an IS service failure is perceived as completely recovered	Recovery Comprehensiveness (Smith and Karwan, 2010), Follow-up (Bell and Zemke, 1987)

Table 1. Proposed Dimensions of Internal IS Service Recovery Extensiveness.

IS SERVICE QUALITY

Service quality must be a top management ongoing concern (Babakus, Yavas, Karatepe, and Avci 2003; Zeithaml 1988). Information systems departments are recognized as service providers that assist IS users in dealing with information (Pitt, Berthon, and Lane 1998). A modified model by DeLone and McLean (2003) included service quality as a component of IS success, and they claim that service quality may become the most important variable overall success of the ISF. IS service quality can be defined as an overall (perceived and objective) impression and assessment of superiority or inferiority of the IS service (Jia, Reich, and Pearson 2008). The role and responsibilities of the ISF have changed and broadened over the past years, from mainly developing and maintaining transaction processing systems to providing an overall effective service enterprise (Kettinger and Lee 1994; Pitt, Watson, and Kavan 1995). A broader aspect of ISF should include IS service recovery as one of the delivered services.

Miller, Craighead, and Karwan (2000) find that the higher the perceived service quality, the higher the service recovery expectations. Furthermore, recovery is a criterion of good perceived service quality (Sousa and Voss 2006). Sousa and Voss (2006) also found that perceived service quality must be gauged across multiple touch-points, including automated delivered services without human interaction and services delivered with human interaction. This can be extended and applied in IS on two possible specific IS service contexts (Ding and Straub 2008): (a) human delivered IS services and (b) IT-delivered IS services.

Proposition 1: An extensive IS service recovery can lead to a higher level of employees' perceived IS service quality.

PERCEIVED JUSTICE

The three aspects of justice theory (distributive justice, procedural justice, and interactional justice) have been linked with attributes of the recovery process and satisfaction in previous literature (Smith et al. 1999; Tax et al. 1998). Social exchange theory is the conceptual framework often used in the literature to describe the association between perceived justice and customer satisfaction in the event of service recovery after a failure (Smith et al. 1999; Tax et al. 1998).

Distributive justice refers to how the customer perceives an outcome (Wirtz and Mattila, 2004). Specifically, it revolves around the concept of equity in the relationship between service provider and service customer (Tax et al. 1998). Internally, distributive justice can be thought of in terms of equitable allocation of the costs of complaining and benefits to ego (McCollough, Berry, and Yadav, 2000). Distributive justice can also relate to the way in which internal customers view that they have been treated in comparison to others (McColl-Kennedy and Sparks, 2003).

Procedural justice refers to the customers' perception of how an outcome is achieved (Tax et al.1998; Zhu and Chen 2009). In case of failure, a timely and thorough recovery has a positive influence on how customers view the process as a whole (Smith, et al. 1999; Tax et al.1998; Wirtz and Mattila 2004).

Interactional justice refers to how customers are treated (Tax et al.1998). Positive perception of interactional justice can influence a customer's perception of service provider's empathy. Merely appearing to be listening to the customer can show concern and caring (Berry and Parasuraman 1997). Using the social exchange and equity theoretical frameworks, service provider's recognition of the failure incident can be perceived as a valuable redistribution of esteem in an exchange relationship, rewarding the aggrieved customer.

Service recovery literature suggests a strong relationship between perceived justice and the act of recovery (Smith et al. 1999; Tax et al. 1998). Similar to the formative construct of systemic fairness developed by Carr (2007), we propose an aggregate second order indicator of *Perceived Justice* consisting of distributive, procedural, and interactional justices (Greenberg 1990). Perceived Justice will have a direct effect on Internal Customer Satisfaction and a mediating relationship between IISSRE and perceived IS service quality.

Proposition 2: An extensive IS service recovery can lead to a higher level of employees' perceived justice.

Proposition 3: When employees perceive a higher level of justice after an IS service failure, they also perceive a higher level of IS service quality.

INTERNAL IS CUSTOMER SATISFACTION

Organizations must concentrate on the concept of internal suppliers and internal customers (Hauser, Simester, and Wernerfelt 1996). The ISF is considered an internal supplier and service provider of information to employees. The quality of the delivered service should be the basis of the employees' evaluation the performance of their internal supplier. *Internal IS Customer Satisfaction* is the overall judgment of the level of satisfaction with the IS service level. Increases in IS Service Quality been shown to have a direct positive effect on Internal IS customer satisfaction (e.g., Kettinger and Lee 1994).

Proposition 4: Employees' perceiving a greater sense of justice after an IS service failure will have a higher level of satisfaction.

Proposition 5: A higher level of perceived IS service quality after an IS service failure, will improve internal customer satisfaction.

COMMITMENT TO THE ISF

IS department should maintain a positive relationship with internal IS users to achieve mutual benefit. Satisfied IS users tend to show more commitment to ISF (Carr 2006). The importance of such commitment can be best thought of in terms of the consequences associated with it. We propose word of mouth (WOM) and faithfulness of appropriation as two possible reflections of the construct *Commitment to the ISF*.

WOM is one of the most influential channels of communication in the marketplace (Allsop, Basset, and Hoskins 2007). Satisfaction was found to be an important factor behind the likelihood of a positive WOM (Ladhari 2007). When internal IS users perceive IS delivered services level as being less than they expect, they are more likely to wander around telling other users about their dissatisfaction with the IS service, on the other hand, a positive WOM may result from a pleasant experience with the ISF. A healthy organizational atmosphere is a one where every department and unit believes in the other, employees trust the resourcefulness of one another, and a coherent whole is formed to support organizational performance.

Faithfulness of appropriation is concerned with whether IS services are used in accordance with their objectives (Chin, Gopal, and Salisbury 1997). Schwarz and Chin (2007) refer to this concept as: "the psychological state of fully comprehending the intentionality of the technology". This psychological acceptance implies conformance with IS strategy that is driven by a belief in the role ISF plays in the organization. A faithful appropriation occurs when IS users continue to follow the spirit of the IS delivered services, which will strengthen the level of commitment to the ISF.

Proposition 6: Improving internal customer satisfaction after an IS service failure results in committed employees to the ISF.

DICUSSION: AN INTEGRATED FRAMEWORK

When IS service failure occurs, the ISF can influence the extensiveness of the remedy given to internal IS users by paying attention to certain dimensions of IS service recovery. An extensive IS service recovery can increase IS users' perception of the overall IS service quality. IS Users who believe that they have received a reasonable treatment for recovery tend to experience a higher level of justice than those who have received less-than-expected treatment.

Internal IS customer satisfaction is influenced by their perception of the quality of the IS service they receive. Moreover, when IS users perceive that ISF has provided them with suitable and equitable remedies to recover from IS service failure, a sense of perceived justice can increase their level of satisfaction with the IS service delivered by the ISF.

IS users who are satisfied with the IS service will show a more positive attitude to there is service provider. This can result in a commitment to the ISF and the services it provides. A satisfied IS user will spread a positive word-of-mouth about his/her experience with the ISF and will appreciate the role ISF plays in the organization, this appreciation can lead to IS users who supports the ISF and the IS strategy by using the IS delivered services in the way they are intended..

CONCLUSION

'Stuff' happens! Just like any other service, IS services are doomed to fail. ISF has to ensure internal IS customers use information seamlessly and are kept satisfied even when services fail. A proposed model of internal IS service recovery is offered including a new construct labeled Internal IS Service Recovery Extensiveness (IISSRE). The effect of IS service recovery on perceived justice and perceived IS service quality is outlined and the mediating role of perceived justice on IS service quality is also considered. While 'Stuff' will keep happening, we hope that the proposed Framework for Internal IS

Service Recovery will provide an opportunity for future research to empirically test and validate the proposed relationships and establish an avenue for practice to quickly clean up the mess and regain committed customers.

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