

3-1-2008

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## Recommended Citation

Wunnava, Shalini and Ellis, Selwyn, "Disaster Recovery Planning: A PMT-based Conceptual Model" (2008). *SAIS 2008 Proceedings*. 6.  
<http://aisel.aisnet.org/sais2008/6>

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# DISASTER RECOVERY PLANNING: A PMT-BASED CONCEPTUAL MODEL (RESEARCH-IN-PROGRESS)

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## ABSTRACT

In today's information intensive and networked world, Disaster Recovery Planning (DRP) is a critical and significant activity. Yet, it does not always receive the attention it deserves. Therefore, it is critical to examine the factors that influence the undertaking of disaster recovery planning under the lens of the Protection Motivation Theory (PMT). Additionally, it is important to note that even if there is enough motivation to undertake disaster recovery planning, whether it is actually undertaken or not is largely dependent on the influence the Information Technology (IT) Professional is able to exert as an opinion leader within the organization. A model on disaster recovery planning is proposed suggesting threat and coping appraisals as the determinants and opinion leadership of the IT Professional as the moderator variable.

## KEYWORDS

Disaster recovery planning, protection motivation theory, opinion leadership

## INTRODUCTION

In today's information intensive and networked world, disaster recovery planning is a critical and significant activity. Yet, it does not always receive the attention it deserves because employees and other resources are focused on the day-to-day operations required to run the business. The daily operational activities are considered more critical and urgent than disaster recovery planning. Moreover, it is the inherent optimism of the human psyche that leads people to believe that the probability of a disaster striking is far removed and distant, therefore immediate attention and resources are devoted to the seemingly more pressing matters of the moment. Therefore, in such a scenario what motivates the undertaking of disaster recovery planning? This question is addressed by using the threat and coping appraisals suggested by the Protection Motivation Theory (Maddux & Rogers, 1983; Rogers, 1983). Additionally, it is believed that even if there is enough motivation to necessitate disaster recovery planning, whether it is implemented or not depends on the influence the IT Professional is able to exert as an opinion leader within the organization. Based on these two major beliefs, a model on disaster recovery planning is presented using the protection motivation theory and suggesting a moderator effect for the opinion leadership of the IT Professional. Currently this paper is a research in progress, which will be completed soon. Therefore, in the following section, the conceptual model is described along with a brief summary on the major theoretical concepts that have been applied.

## CONCEPTUAL MODEL DEVELOPMENT

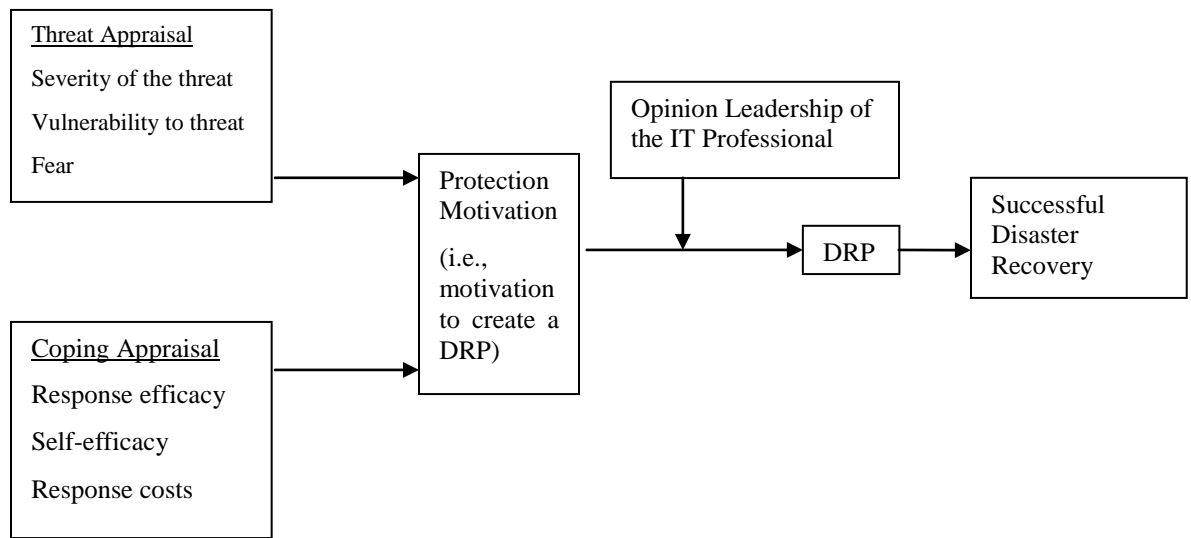
Disaster recovery planning is all about being prepared for potential disasters, so that when a disaster strikes, the mission-critical functions can be maintained or resumed. The probability of a firm's information systems being insufficiently protected against damage or loss is known as "systems risk" (Straub & Welke, 1998). According to Hoffer (2001), large companies tend to spend between 2% to 4% of their IT budget on disaster recovery planning. Hoffer (2001) also states that of the companies that had a major loss of computerized data, 43% never reopen, 51% close within two years, and only 6% survive in the long-term.

According to Straub and Welke (1998), one of the possible explanations for losses from computer abuse and disasters is the possibility that managers are unaware of the range of actions that can be taken to reduce risk. Straub and Welke (1998) believe that behavioral theories and other conceptual models can be used to offer insight into how managers can cope with systems risk. It is believed that behavioral theories/conceptual models can also be applied to offer insight into the motivating factors that influence organizations to reduce systems risk by undertaking disaster recovery planning. Straub and Welke (1998) reported that systems risk had been a back-burner issue for decades even among IT specialists, and disaster recovery

had dropped off the top 20 ranking in the key issues list by IT executives. This indicates that it might be important to study what could motivate disaster recovery planning. In order to study this, Protection Motivation Theory (PMT) is applied.

### Protection Motivation Theory

The Protection Motivation Theory states that the motivation of the stakeholders to protect themselves from harm is enhanced by the following four perceptions: (1) the severity of the threat, (2) their vulnerability to the threat, (3) self-efficacy, i.e., their confidence in their ability to cope with the threat and perform threat reducing behaviors, and (4) response efficacy, i.e., the ability of the response to reduce the threat (Maddux & Rogers, 1983; Rogers, 1983). According to the PMT, protection motivation is operationalized in terms of the “intentions” of the stakeholders to perform a recommended precautionary behavior and the intentions are influenced by the two sub processes of threat appraisal and coping appraisal (Maddux & Rogers, 1983; Rogers, 1983; Milne, Orbell, & Sheeran, 2002). The threat appraisal involves an appraisal of the severity of the threat and the stakeholder’s vulnerability to the threat (Maddux & Rogers, 1983; Rogers, 1983). In threat appraisal, the variables used are perceived vulnerability, perceived severity and fear arousal (Maddux & Rogers, 1983; Rogers, 1983; Milne, Orbell, & Sheeran, 2002). The coping appraisal involves an appraisal of the stakeholder’s self-efficacy and the response efficacy (Maddux & Rogers, 1983; Rogers, 1983). The variables used in coping appraisal are beliefs about response efficacy, self-efficacy, and response costs (Maddux & Rogers, 1983; Rogers, 1983; Milne, Orbell, & Sheeran, 2002). When an individual believes that the response will be effective and is confident of performing the recommended behavior and perceives the cost of disaster recovery exercise to be low, then he/she will be more likely to adopt the recommended coping response (Milne, Orbell, & Sheeran, 2002). Therefore, the protection motivation theory can be applied to study the motivating factors that influence organizations to implement disaster recovery planning. This is illustrated in the conceptual model presented in Figure 1. The variables used in this model are described in Table 1.



**Figure 1. Conceptual Model of DRP using PMT and Opinion Leadership**

Based on threat appraisal and coping appraisal, even if there is enough motivation for protection and therefore, undertaking of disaster recovery planning, it might not still be enough for actual creation and implementation of a disaster recovery plan. This suggests the possibility of a moderating variable. Therefore, opinion leadership of the IT Professional is proposed as a variable that moderates the relationship between the protection motivation for a disaster recovery plan and the actual development of a disaster recovery plan.

Variables	Description
Severity of the threat	Perceived severity of a threatened event.
Vulnerability to the threat	Perceived probability of occurrence of a threatened event.
Fear	If the available coping responses are inadequate, then fear is aroused.
Response efficacy	Efficacy of the recommended preventive behavior.
Self-efficacy	Self-confidence or belief in one's own ability to perform the recommended preventive behavior.
Response costs	Costs associated with the response/recommended preventive behavior.
Intention	Intention of the stakeholders to perform a recommended precautionary behavior.
Opinion leadership	Opinion leaders consider themselves to be experts in a specific area of interest and their advice is sought by others.
Disaster recovery plan	Existence of a disaster recovery plan.
Successful disaster recovery	Whether the organization has successfully recovered from a particular disaster (e.g., Hurricane Katrina)

Table 1. Variables

### Opinion Leadership

An IT Professional could be considered either a trusted advisor or a resented overhead (Benton, 2007). However, on the day of disaster, the IT Professional will, definitely be in the spotlight (Benton, 2007). It can therefore, be inferred that ultimately the IT Professional will be responsible for systems recovery from the disaster. This indicates that whether an executable disaster recovery plan is developed or not is influenced by the opinion leadership ability of the IT Professional. Opinion leaders are those who are more influential than others within their social networks (Trepte & Scherer, 2005). According to Katz and Lazarsfeld (1955), opinion leaders consider themselves to be experts in a specific area of interest and their advice is sought by others (Trepte & Scherer, 2005). Hence, as illustrated in Figure 1, it is proposed that opinion leadership of the IT Professional acts as a moderator in the relationship between protection motivation for disaster recovery planning and actual disaster recovery planning. There are many existing scales to measure opinion leadership, but the scale developed by Troidahl and Van Dam (1965) will be used, as it seems appropriate to the study's goals. Further, it is proposed that the existence of an executable disaster recovery plan makes all the difference between a successful recovery and a disaster.

### CONCLUSION

It has been suggested that systems risk can be studied from the perspective of theoretical behavior models. Therefore, in this study, the motivation for disaster recovery planning is explained by using constructs from the protection motivation theory. It is also believed that motivation for disaster recovery planning is by itself not enough to ensure actual creation of an executable disaster recovery plan. Therefore, the moderator effect of opinion leadership of the IT Professional is recommended on the relationship between protection motivation for a disaster recovery plan and the creation of an actual executable disaster recovery plan. Finally, the veracity of the conceptual model will be examined by studying the businesses that were affected by hurricane Katrina in the states of Louisiana and Mississippi.

### REFERENCES

1. Benton, D. (2007). Disaster recovery: A pragmatist's viewpoint. *Disaster Recovery Journal*, Winter Issue, 79-81.
2. Hoffer, Jim. (2001). Backing up business- Industry trend or event. *Health Management Technology*. Retrieved January 16, 2008 from [http://findarticles.com/p/articles/mi\\_m0DUD/is\\_1\\_22/ai\\_68864006](http://findarticles.com/p/articles/mi_m0DUD/is_1_22/ai_68864006)
3. Maddux, J.E., & Rogers, R.W. (1983). Protection motivation and self-efficacy: A revised theory of fear appeals and attitude change. *Journal of Experimental Social Psychology*, 19 (September), 469-479.

4. Milne, S., Orbell, S., & Sheeran, P. (2002). Combining motivational and volitional interventions to promote exercise participation: Protection motivation theory and implementation intentions. *British Journal of Health Psychology*, 7, 163-184.
5. Rogers, R. W. (1983). Cognitive and physiological process in fear appeals and attitude change: A revised theory of protection motivation. In *Social Psychophysiology* (pp. 153-174). New York: J.Cacioppo and R.Petty, eds., The Guilford Press.
6. Straub, D.W., & Welke, R.J. (1998). Coping with systems risk: Security planning models for management decision making. *MIS Quarterly*, 22 (4), 441-469.
7. Trepte, S., & Scherer, H. (2005). What do they really know? Differentiating opinion leaders into 'Dazzlers' and 'Experts'. *Hamburg Social Psychology Research Papers*, 60, Hamburg: University of Hamburg, Institute of Social Psychology.
8. Troidahl, V. C., & Van Dam, R. (1965). A new scale for identifying public-affairs opinion leaders. *Journalism Quarterly*, 42 (4), 655-657.