Enhancing Trust Equity by Web-Design Elements that Manifest Pro-Environment Commitments

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ABSTRACT

This research explores how manifesting a firm's commitments to green environment and ecological sustainability by web-design elements may build online trust equity for the firm. Using an exploratory analysis of websites, we have identified four categories of web-design elements that could manifest companies' commitment for green environment. Survey data indicates that these categories of web elements have the potential to change customers' opinions regarding a company.   To explore this potential, we propose a conceptual model that explores the relationship between the level of web vendors' pro-environmental commitment and online trust equity as moderated by their salient environmental beliefs.   The conceptualization uses the protection motivation theory as the overarching theory. This paper makes number of novel contributions. It is the first study to identify the categories of web-design elements that manifest companies' extent of pro-environment commitments.   It develops a theory-based conceptual model to examine the relationship between environmentally sustainable activities and online trust equity. Moreover, beyond legal compliance and cost reduction benefits, this research project seeks to examine if the commitment to green environment as manifested in web elements adds business value to companies in terms of trust equity in relationships with its stakeholders.

Keywords

Green, sustainability, online trust, trust enhancement.

INTRODUCTION

There is a growing global awareness of environmental issues. Protection of environment has become one of salient variables in consumers' purchasing decisions and life style choices. In a survey conducted on 999 shoppers, fifty percent of shoppers pointed out that they are willing to pay an extra price for "greener" products (Miller Zeller Inc., 2009). Businesses have started to develop initiatives to take into account the growing pro-environmental tendencies of their consumers. Brand identity is ranked one of the two main reasons for adoption of environmental sustainable initiatives by retailers in a practitioner survey (Retail Systems Research, 2009). In a survey of 370 marketing executives, 82% indicated increase pro-environmental messages in their marketing plans and 74% stated that they are using the Internet for their pro-environmental campaigns (Environmental Leader, 2009). Organizations are adopting environmental initiatives to decrease their ecological footprint due to regulations and cost reduction benefits (Wilson, 2009), but also due to moral reasons and customers' preferences (Bosavage, 2010; Chen et al., 2009). In a survey conducted in US, Australia, and New Zealand, 71% of IS professionals agreed that social responsibility is a main reason for adopting green initiatives, and 48% admitted that client's pressure is a major motivation to pursue environmental friendly plans (Molla et al., 2009). Moreover, the "green signaling" or "environmental goodness signaling" concept suggests that firms advertise their green initiatives in order to gain a green image and social recognition which will attract customers (Majumdar and Zhang, 2009). Evidence from the industry supports this argument. In a 2009 survey administered by the American Marketing Association, out of 270 corporate communications professionals contacted approximately 58% anticipated that their firms will emphasize corporate environmental sustainability in the following period, and roughly 43% anticipated that their firms will increase their promotion of sustainability initiatives (American Marketing Association, 2009). These statistics reveal that customers are a major force that drives companies to adopt environmental friendly strategies and policies.

With undisputed globalization of commerce through the Web, websites have become the "face" of companies, providing information about products, services, policies, business strategies to their consumers and investors. Trust is an intangible equity that reduces firms' business partners' costs in terms of allocating resources to avoid or monitor firms' potential unethical actions (Piercy and Lane, 2007). The extant literature in online trust has shown the critical role of online trust in a variety of business activities and domains, including purchase decisions, brand perceptions, and reputation (see, for example,

Cole 1998; Gefen et al., 2003; Lowry et al., 2008; Pavlou and Fygenson 2006; Zahedi and Song, 2008). Thus, online trust is a type of equity with high business value.

The question is whether companies' environmental commitments as manifested on their websites could enhance their online trust equity. If so, how should such commitments be incorporated in web-design elements in order to make a significant impact on people's perceptions of a company's pro-environment commitments and trustworthiness? These questions have not yet been adequately addressed in the literature. This study undertakes to fill this gap. Answering these questions could have major ramifications for environmental sustainability. First, it could provide a significant incentive for organizations to expose their stakeholders (consumers, investors, and potential employees) to their pro-environment initiatives. Second, it changes the global business environment by increasing competitive pressures for pro-environment strategies and bringing such strategies to the fore-ground of business conversations and decisions.

LITERATURE REVIEW

Different disciplines studied the antecedents, classifications, and consequences of pro-environmental practices by firms. In the IS field, recent research shows that Green IT investments are influencing firms' profits beyond cost reduction mechanisms (Mithas et al., 2010). Also, environmental performance positively influences economic performance (Ryoo et al., 2011). Green IT announcements have positive impacts on customer's confidence in firm's growth (Babik and Iyer, 2011; Nishant et al., 2011). In addition, other fields such as marketing and management fields have examined the consequences of pro-environmental marketing and pro-environmental management strategies on individual's behavior (Peloza and Shang, 2011; Pulver 2007; Bridges and Wilhelm, 2008). Empirical studies in green marketing have examined perceptions of consumers regarding green marketing messages and posited that consumers in several countries are willing to pay premiums for environmental friendly products (Brugarolas et al., 2005; D'Souza et al., 2006; Forbes et al., 2009). However, the role of Internet in promoting and exposing corporate pro-environment has not been adequately explored, thus leading to the call for such studies (Polonsky, 2011). Our study addresses this gap by identifying the web elements that manifest the extent of corporate pro-environment commitments, their role in changing perceptions and increasing business values in terms of online trust equity. Furthermore, such influences could be moderated by individuals' beliefs about environmental threats and the capability and feasibility of coping with such threats. Hence we explore the following research questions:

RQ1: What are the web-design elements that influence perceptions regarding companies' pro-environment commitments?
RQ2: Do changing such perceptions add business value by increasing companies' online trust equity?
RQ3: What are the direct and moderating influences of stakeholders' beliefs regarding environmental threats and the ability to cope effectively with such threats?

EXPLORATORY ANALYSIS

In classifying pro-environmental commitment web elements, we employed an interpretive approach (Klein and Myers, 1999) by examining websites that contained web elements that manifested pro-environment commitments. Four categories of elements manifested pro-environment commitments, as shown in Table 1.

Cateory1	Company's website shows logos or pictures that represent the green environment (such as windmills).
Cateory2	Company's website states that the company is committed to protecting the environment or conserving energy.
Cateory3	Company's website reports that it has taken actions to protect the environment or conserve energy (such as recycling batteries, using recycled paper, or installing solar panels).
Cateory4	Company's website shows the production or use of products or services that protect the environment or provide clean energy (such as manufacturing solar panels or designing energy self-sufficient homes).

Table 1. Categories of Web Elements Manifesting for Pro-environmental Commitments

To validate these categories and explore whether they could change perceptions, we conducted a qualitative survey of 354 of students in a Midwestern university regarding changes in opinions about a firm's pro-environmental commitments when presented with each different scenario. The survey asked respondents whether the respondent's opinion about a company's pro-environment commitments changes if its website shows web elements in each one of four categories, and asked for an explanation after reading each scenario. A preliminary categorization of the survey responses is reported in Table 2.

Does it influence your opinion about the company?	**Cat1**	**Cat2**	**Cat3**	**Cat4**
Yes	58%	71%	78%	80%
No	37%	20%	19%	16%
Not sure/a little	5%	9%	3%	4%
Total	100%	100%	100%	100%

Table 2. Change in Opinions about the Company by Web-Design Element Categories

The preliminary results showed that the four categories have different impacts on individuals' perceptions about companies' pro-environment commitments. Of total respondents, 58% reported a positive change in their perceptions if they are exposed to logos or pictures. As the strength of manifestation increased from Category 1 to Categories 2-4, so did the perceptions of respondents. This preliminary result indicated that the web-design elements could potentially change individuals' perceptions. The question is what are the consequences of such changes in perceptions? Do such consequences have any business value? A theoretical framework should guide the answers to these questions.

CONCEPTUAL MODEL

Figure 1 shows the conceptual model for investigating the influence of web elements. Preliminary results from the exploratory investigation indicated that four categories of web-design elements could change individuals' perceptions regarding a company's pro-environment commitment. This influence should be investigated within a conceptual framework that shows the process by which such impact could produce business value. Hence, the starting point for the conceptual model formalizes the findings of the exploratory analysis:

H1. Web-design elements that manifest the extent of firms' environmental commitments influence individuals' perceptions of firms' pro-environment commitments.
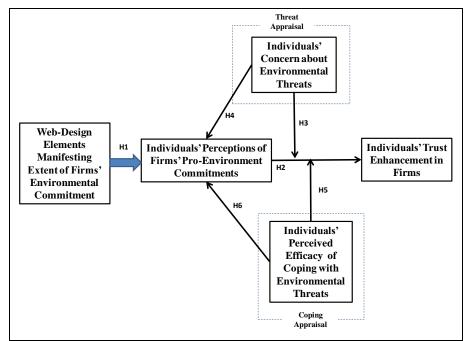

Figure 1. The Process of Trust-Equity Enhancement By Pro-Environment Web-Design Elements

In developing the conceptual model, we rely on the protection motivation theory to conceptualize the consequences of changing individuals' perceptions through web-design elements. The protection motivation theory (PMT) is a fear appeal model that was suggested by Rogers (1975, 1983) to explain mechanisms used by individuals to deal with fear when they are forced to evaluate threats and cope with them. PMT was extensively used in different disciplines such as behavior related to disease prevention and health related problems, marketing, and political issues (Johnston and Warkentin, 2010; Liang and Xue, 2009). More recently, it has gained prominence in IS research in conceptualizing how individuals deal with IT security threats (Johnston and Warkentin, 2010; Liang and Xue, 2009; Chen and Zahedi, 2009; Zahedi et al., 2011). The extended PMT (Rogers, 1983) hypothesized that when individuals encounter fearful conditions, two mechanisms are activated by fear appeals (Witte, 1992). The first mechanism is the threat appraisal which refers to the individual's perception about the severity of the threat and the susceptibility to the threat (Witte, 1992). The second mechanism is the coping appraisal which involves the individual's evaluation of the response efficacy, perceived cost, and self-efficacy in dealing with the threat (Witte, 1992).

Applied to the fear for environmental deterioration, we argue that severity of threat to environment is manifested through concern about threats to the environment. We define concern about environmental threats as concern about the fragility of nature and humans' role in damaging it (Kim and Choi, 2005; Stern et al., 1999; Vaughan, 1993). Those who have a high level of environmental concern pay closer attention to firms' pro-environment activities and commitments, have a more

accurate perception about firms' extent of commitment and could be affected more strongly by higher levels of commitments. In other words, concern about the environmental threat sharpens individuals' eye to perceive the web-design elements, increases their sensitivity to the information conveyed by the web-design elements and alter their opinions once they are exposed to such web-design elements.

The second mechanism of coping appraisal also has application in individuals' perceptions of firms. If individuals believe that there is no way to stop environmental deteriorations, the costs of responding is too high, or there is inadequate skill needed to alleviate the environmental threats, then the level of their coping mechanism is quite low. They either see no positive outcome from taking pro-environment actions or do not believe such actions are necessary. Such individuals care less about firms' pro-environment activities, do not pay attention to web-design elements that convey information about such activities, and do not positively change their opinions as a result of exposure to such web-design elements. Therefore, threat appraisal in terms of concerns about environmental threats and coping appraisal in terms of the efficacy of dealing with environmental threats impact individuals' perceptions when exposed to web-design elements. They also moderate the effect of awareness caused by web-design elements in terms on enhancing their trust in the firm.

In this study we focus on three roles for individuals: online customers, investors seeking online information about the firm, and potential employees seeking information about the firm. We argue that individuals' perception of firms' pro-environment commitment enhances firms' trust equity in that it enhances trust in all these categories. Firms' "trust equity" impacts stakeholders across various roles. This level of impact is more far-reaching than just online customers surfing firms' websites. This assertion has support from the literature. Reviewing the literature from environmental psychology suggests the presence of a significant relationship between environmental awareness and pro-environmental related buying behavior (Scott and Willits, 1994; Stern et al., 1995). Recently in IS literature, Bansal (2010) found that environmental consciousness negatively influences the preference of purchasing paper books and increases a preference for e-books. It has been shown that corporate social responsibility in terms of pro-environmental strategies influence corporate image which in turn affects perceptions of customers, employees, and investors regarding the firm (Choi and Ng, 2010; Hart, 1995; Russo and Fouts, 1997). We argue that trust equity is the first to be enhanced by such a change in corporate image.

Online customers' trust visiting e-vendors for the first time has been examined as initial trust (Lowry et al., 2008, Zahedi and Song, 2008). Determined by personal disposition to trust or on institutional cues (McKnight et al., 1998), initial trust has been defined as the "the ability of the trustor to believe and rely upon the trustee without any firsthand knowledge of the trustee" (Lowry et al., 2008, p. 204). Online trust has been variously conceptualized in IS literature. Trustworthiness is viewed as a cognitive dimension (Gefen et al., 2003) which reflects "rational expectation that a trustee will have the necessary competence, benevolence, and integrity to be relied upon" (Zahedi and Song, 2008). Therefore, benevolence, competence, and integrity represent the trustworthiness beliefs (Lowry et al., 2008). Other research streams have suggested that the relationship between brand loyalty or price premiums and consumer perception of corporate social responsibility is mediated by consumer trust (Castaldo et al., 2009; Vlachos et al., 2009). Hence, we posit that

H2. Individuals' perceptions of firms' pro-environment commitments are positively associated with individuals' trust enhancement in firms.

In PMT, Rogers (1975, p. 98) defined protection motivation as "an intervening variable that has the typical characteristics of a motive: It arouses, sustains, and directs activity." Accordingly, individuals who experience the cognitive processes of threat and coping appraisals are assumed to initiate protection motivation intentions which will direct the process to mitigate threat, the danger control process (Witte, 1992). In the environmental context, studies revealed that perceived environmental threats and feelings of insecurity relates to the levels environmental awareness and concerns and pro-environment beliefs. Health risks associated with polluted air may be one such threat (Homburg and Stolberg, 2006). In a multi-study research, Fritsche et al. (2010) have found that conditions of general threat and focus on mortality may also change the level of cooperation, environmental awareness and pro-environmental behaviors. According to PMT, threat appraisal refers to the mechanism by which the individual will analyze the threat in terms of severity and susceptibility. In our study, perceived threat refers to concern about threats, which is defined as individuals' level of concern regarding the fragility of nature and humans' role in damaging it. In line with coping theory (Lazarus, 1993; Lazarus and Folkman, 1984), PMT suggests that cognitive processes form to react and respond to the threat initiated by the threat appraisal (Witte, 1992). The dependent variable in PMT models refers to protective motives and adaptive actions that include arousal beliefs, attitudes, behavioral intentions, and behaviors (Rogers, 1975, 1983; Witte, 1992). In extending the original PMT model, Witte (1992) suggested that the cognitive responses to external threat messages are moderated by both levels of threat appraisal and coping appraisal.

We contend that individuals' concern about threats to the environment moderates the impact of their perceptions of firms' pro-environment commitments on their trust enhancement. This moderation is such that the higher the level of concern the greater is the impact of commitments on trust. Furthermore, such a concern makes individuals more likely to become aware of a firm's commitments.

H3. Individuals' concern about environmental threats moderates the association in H2.
H4. Individuals' concern about environmental threats is positively associated with their perceptions of firms' pro-environment commitments.

Coping appraisal involves the evaluation of the perceived effectiveness of the recommended response, perceived costs of the response, and personal ability to perform the response (Witte, 1992). Perceived avoidability (Liang and Xue, 2009) refers to the subjective evaluation whether threats can be prevented. Similarly, the coping mechanism in PMT is reflected in the subjective evaluation of the ability to mitigate the threat (Cronin et al., 2011; Kim and Choi, 2005; Stern et al., 1999). This coping mechanism in the context of environmental threat is reflected in individuals' beliefs that companies' pro-environment commitments could make a difference and counter threats to the environment. Also, in line with environmental theories such as the value-belief-norm theory (Stern et al., 1999), ability to take effective and threat-reducing action influences the process of pro-environmental beliefs and behaviors. Therefore, we suggest that individuals' perceived efficacy of coping with environmental threats moderates the impact of their perceptions of firms' pro-environment commitments on trust enhancement. This moderation is such that the higher the customer's environmental concern the greater the impact of perceived pro-environment commitments on individuals' trust enhancement. Furthermore, individuals who believe in the efficacy of coping with environmental threats pay more attention to firms' pro-environment commitments. Hence,

H5. Individuals' perceived efficacy of coping with environmental threats moderates the association in H2.
H6. Individuals' perceived efficacy of coping with environmental threats is positively associated with their perceptions of firms' pro-environment commitments.

FUTURE WORK

This work continues in multiple directions: continuation with the study of detail of web-design elements for various levels of pro-environment commitments and the evaluation of the design structure. This investigation will illuminate the ways web-design elements manifest the extent and variety of pro-environmental commitments. It is critical to seek multiple approaches to evaluate web-design elements and to gauge individuals' preferences for the information such elements convey. The second direction of research is to empirically test the conceptual model through an extensive controlled lab experiment for various levels of commitment manifested by web-design elements and different types of stakeholders, including online customers, investors and potential employees seeking information to engage in transactions and partnership with firms. A third direction of future work is the investigation of the influence of trust equity in increasing stakeholders' loyalty and business intentions. Such studies show how IT designs in general and web-design elements in particular could promote a pro-environment business environment.

POTENTIAL IMPLICATIONS AND CONCLUSION

The theoretical and practical contributions of this research gain importance due to the increased attention to both environmental sustainability (Melville, 2010; Watson et al., 2010) and online commerce (Pavlou et al., 2007). However, no previous research has examined the relationship between environmentally sustainable activities and trust through using web-design elements. By examining this relationship, this paper contributes to a significant research stream which is business value of sustainable IT (Mithas et al., 2010).

Moreover, beyond legal compliance and cost reduction benefits, this study will offer insights to web vendors on how adoption of environmental policies improves firms' trust equity and offers opportunities for differentiation strategies highlighting improved performance. In a market characterized by increased competitiveness and globalization, economic sustainability requires firms' keen awareness of major shifts in stakeholders' preferences regarding environmental sustainability. Moreover, this work provides pro-environment advocates insights into web-design elements that promote pro-environment policies and the salient environmental beliefs that moderate and mediate the influence of such policies.

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