

TRANSDISCIPLINARY PERSPECTIVES ON ENVIRONMENTAL SUSTAINABILITY: A RESOURCE BASE AND FRAMEWORK FOR IT-ENABLED BUSINESS TRANSFORMATION

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Appendix A

Methodological Details

The genesis of this study was several projects undertaken by the author, commencing in 2006, that identified IT as a potential source of solutions to address the challenges of environmental sustainability but that also found the issue had not engaged academic researchers in technology disciplines at a level likely to realize that potential. Work that had been undertaken, as a whole, focused on small parts of a large and complex problem from the narrow perspective of a single discipline.

Within its overall aim, this study seeks to synthesize the environmental sustainability literature to increase its accessibility by a diversity of policy, practitioner, researcher, and social activist audiences. Environmental sustainability is a complex and multifaceted issue but the literature to date is overwhelmingly discipline-oriented. Hence, the proposal that a comprehensive, transdisciplinary framework for business transformation based on synthesis of the literature could facilitate the level of transformation required in business, politics, and society. The framework for business transformation is transdisciplinary, rather than multidisciplinary (more than one) or interdisciplinary (several integrated), in that the objective is to present a conceptual model accessible to and applicable by stakeholders across and beyond academic disciplines. The study subsequently sought to show how this framework could be applied to assist fundamental change in prevailing practices that restrain technology-generated environmental degradation and to promote opportunities for technology-enabled solutions.

Recognizing the particular challenges inherent in a transdisciplinary literature review of a highly complex subject with nearly two million potential publications, the conceptual framework was developed in three phases. In phase one, a scoping review, each of the authoritative reports purposively selected for their relevance to the aims of the study (see listings of phase 1 sources in Tables 3 through 8) was analyzed to determine the specific problems to be the focus of this work and coded to identify the primary and secondary focal themes. The themes identified in each report were then grouped to form categories and subcategories. In phase two, the categorization from phase one was compared with academic research papers selected for relevance to the aims of the study from a selection of leading business and associated journals and from highly cited articles. The purpose was to ensure the problems and categories from phase one had relevance to business and had the potential for research contributions, as demonstrated by highly regarded research publications.

In phase two, the papers were selected by searching leading business journals (e.g., the Academy of Management journals, *California Management Review*, *Harvard Business Review*, *Management Science*, *Sloan Management Review*, and *Strategic Management Journal*) for relevant papers, seeking references within these papers, and searching for highly cited, relevant business-oriented papers through Scopus. This phase confirmed the problems, aims, and scope and revised and extended the categories and subcategories. Leading information systems and technology journals were also searched but few relevant papers were identified.

Phase three purposively extended the breadth of papers selected by searching for highly cited papers through Scopus that were relevant to the study but were from a broader range of disciplines. References within papers selected were also examined. Noting the potential limitations in using a single search engine, further searches were also made for highly cited references using Scirus and Google Scholar. The selection of papers was deemed complete when the developing framework was seen to meet the aims of the study: to contribute to achieving environmental sustainability by addressing uncertainties currently constraining progress in this goal through analyzing and synthesizing selected literature to develop a holistic, transdisciplinary, integrative framework to assist business transformation. With 1.9 million potential sources, development of the framework required a natural boundary for completion and this was set at the point of realization of the aims and scope of the study and the objectives in each phase.

In the 1940s, Ludwig von Bertalanffy proposed general systems theory as a means of examining complex problems with many elements. Rather than examining these problems narrowly in great detail, he analyzed the problem areas as holistic systems. A system is defined simply as “a complex of interacting elements” (Bertalanffy 1996, p. 294). The principles of system theory are general in that the theory is intended for broad application rather than being restricted to a specific discipline or domain. From its initial application in the field of biology, systems theory has been found applicable to complex problems in a wide range of disciplines, including anthropology, economics, geography, management, political science, psychology, and social science (Checkland 1993, p. 7).

Nature, individuals, groups, organizations, political institutions, and society have all been classified as systems. “Human beings are open natural systems; so are the cells that compose our body and the ecologies and societies which we constitute jointly with our fellow human beings and with other organisms. Hence we are effectively embedded on the world of natural systems” (Laszlo 1996, p. 32). Technology is seen as a critical contributor to resolution of the major environmental challenge and has also played a role in development of systems theory. Developments in technology reinforced the necessity for systems thinking as the technology progressed from single machines to systems of networked machines that were applied to address problems crossing multiple disciplines. Technology is also classified as a system (von Bertalanffy 1996, pp. 3-5), so it shares some characteristics of natural systems (being holistic entities with differentiated processes that experience evolving development of special functions and provide integration internally and externally) although, at this stage, not all characteristics (self-creation and maintenance).

For the purpose of this work, the general systems approach appears applicable to the focal problems and solutions. Classification of nature, individuals, groups, organizations, political institutions, and society as systems appears useful as a means of framing analysis of the major challenge. In systems terms, each of the categories represents a whole entity that interacts with each other system. The categories and their constituent parts can be examined individually and as a whole. All categories can be examined collectively as a single whole. The capability to consider the problem as a whole provides the integrative focus necessary to accomplish fundamental transformation of current practices across categories. If a particular complexity is observed within and across several categories, then this may warrant its investigation from the perspectives of different disciplines. The accepted characteristics of systems can assist stakeholders actively seeking solutions with a multidisciplinary, transformative focus.

Categorization of the literature was concept-driven (Webster and Watson 2002) and organized around the theoretical framework presented above. For each relevant article, we noted the major focus and sub-foci of the study, the research methodology, and identified any research hypotheses for inclusion in the inventory of hypotheses. The results, including categorization of environmental sustainability for a range of stakeholders, are presented in the article organized by the guiding frameworks and conceptual matrices (Webster and Watson 2002).

Databases searched included JSTOR, ProQuest 5000, Scirus, Scopus, and (Google) Scholar.

Table A1. Literature Review: Distribution of Sources	
Source:	Selected
<i>Academy of Management Journal</i>	7
<i>Academy of Management Perspectives</i>	1
<i>Academy of Management Review</i>	8
<i>Accounting, Auditing and Accountability Journal</i>	1
<i>Accounting Review</i>	1
<i>American Economic Review</i>	1
<i>American Journal of Sociology</i>	1
<i>Annals of the Association of American Geographers</i>	1
<i>Annals of the New York Academy of Sciences</i>	1
<i>Annual Review of Ecology and Systematics</i>	1
<i>Annual Review of Environmental Resources</i>	1
<i>Authoritative Reports*</i> (problem/solution focus)	13
<i>Authoritative Reports**</i> (facilitation focus)	4
<i>Building and Environment</i>	1
<i>Business and Society</i>	1
<i>Business Strategy and the Environment</i>	3
<i>California Management Review</i>	3
<i>Corporate Environmental Strategy</i>	1
<i>Corporate Governance</i>	1
<i>Ecological Applications</i>	2
<i>Ecological Economics</i>	1
<i>Environment and Behavior</i>	1
<i>Environment and Planning A</i>	5
<i>Environment and Planning D: Society and Space</i>	1
<i>Environmental Impact Assessment Review</i>	2
<i>Environmental Management</i>	2
<i>Environmental Politics</i>	1
<i>Environmental Science & Policy</i>	2
<i>Environmental Science & Technology</i>	3
<i>Geoforum</i>	5
<i>Geographical Journal</i>	1
<i>Greenpeace</i>	2
<i>Harvard Business Review</i>	7
<i>IEEE Technology and Society</i>	1
<i>International Journal of Environmental Health Research</i>	1
<i>International Small Business Journal</i>	1
<i>International Journal of Environmental Technology and Management</i>	1
<i>International Journal of Sustainable Development & World Ecology</i>	1
<i>Journal of Accounting Research</i>	1
<i>Journal of Business Ethics</i>	1
<i>Journal of Business Venturing</i>	1
<i>Journal of Economic Perspectives</i>	1
<i>Journal of Industrial Ecology</i>	1
<i>Journal of Information Systems</i>	1
<i>Journal of Infrastructure Systems</i>	1
<i>Journal of International Business Studies</i>	2

Table A1. Literature Review: Distribution of Sources	
Source:	Selected
<i>Journal of Management Education</i>	1
<i>Journal of Operations Management</i>	3
<i>Journal of Political Economy</i>	1
<i>Journal of Retail and Leisure Property</i>	1
<i>Journal of Social Issues</i>	4
<i>Journal of Systems and Information Technology</i>	1
<i>Land Use Policy</i>	1
<i>Management Information Systems Quarterly</i>	2
<i>Management Science</i>	3
<i>Mechanical Engineering</i>	1
<i>MIT Sloan Management Review</i>	5
<i>Nature</i>	1
<i>Production and Operations Management</i>	1
<i>RAND Journal of Economics</i>	1
<i>Science</i>	3
<i>Sociological Perspectives</i>	1
<i>Strategic Management Journal</i>	8
<i>Systems Research and Behavioral Science</i>	1
<i>Theory and Society</i>	1
Total:	140

Source: Analysis of references included in Tables 3 through 8.

*Basel Convention 2009; Bodansky et al. 2004; Brundtland Commission 1987; EU 2003a, 2003b; Hoffman 2006; IPCC 2007, 2009; MEA 2005; NIC 2008; Stern 2007; UNFCCC 1992; WWF/Gartner 2008.

**Elkington 2009; GRI 2007; IBM 2008; McKinsey 2009.

Table A2. Literature Review: Distribution of Categories Across Disciplines							
Category/Discipline	Environmental	Societal	Governmental	Industrial & Alliances	Organizational	Individual & Groups	Total by discipline
Accounting				2	2		4
Ecology/Environment	10.5	6	6.5	3	2	1	29
Economics	1		4.5		3		8.5
Engineering	1		1	3		1	6
Entrepreneurship					1		1
Geography	1	2	4	2			9
Government	8	1	5				14
Information Systems	1				3	1	5
Management*	4	1	3	6	30	11	55
Medical Science	0.5		1				1.5
Psychology		4					4
Sociology		1	1			1	3
Total by category	27	15	26	16	41	15	140

*Includes strategic, functional and operations management.

Appendix B

Theories/Models Applied in the Selected Papers Reviewed

Table B1. Table of Theories/Models Applied in Papers Reviewed

Theories/Models	Category	Discipline	Citation
Balanced score card (Kaplan and Norton 1992)	Organizational	Ecology/Env	Figge et al. 2002
Catalytic innovation model for social-sector organizations	Societal	Management	Christensen et al. 2006
Championing	Individuals and Groups	Management	Andersson and Bateman 2000
Control theory, escalation of commitment, goal theory	Individuals and Groups	Management	Branzei et al. 2004
Dobson's (2003) model of ecological citizenship	Societal	Ecology/Env	Wolf et al. 2009
Explanation of cross-disciplinary collaborative projects	Industrial & Alliances	Ecology/Env	Laws et al. 2005
Explanation of an sustainability information matrix for IS	Organizational	Information Systems	Brown et al. 2005
Gap analysis: environmental assessment	Governmental	Ecology/Env	Cashmore et al. 2007
Gap analysis: impact of IT rebound effect	Environmental	Ecology/Env	Plepys 2002
Innovation diffusion theory	Organizational	Ecology/Env	Mir and Feitelson 2007
Institutional theory/resource-based view	Organizational	Management	Bansal 2005
Institutional theory/resource-based view	Organizational	Management	Sharfman and Fernando 2008
Institutional theory	Organizational	Management	Bansal and Roth 2000
Institutional theory	Organizational	Information Systems	Chen et al. 2008
Institutional theory	Organizational	Management	Delmas and Toffel 2008
Institutional theory	Organizational	Management	Jennings and Zandbergen 1995
Management theory, challenge to implicit values	Individuals & Groups	Management	Starkey and Crane 2003
Management theory/organizational theory	Environmental	Management	Gladwin et al. 1995
Organization-environment theory	Organizational	Management	Gladwin and Walter 1976
Resource-based view	Organizational	Management	Christmann 2000
Situational analysis	Environmental	Ecology/Env	Bodansky et al. 2004
Situational analysis	Environmental	Ecology/Env	Dunn et al. 2008
Situational analysis	Governmental	Ecology/Env	Ludwig 1993
Situational analysis	Governmental	Geography	Heidkamp 2008
Situational analysis	Individuals & Groups	Ecology/Env	Dylick and Hockerts 2002
Situational analysis	Individuals & Groups	Management	Elkington 2009
Situational analysis	Industrial & Alliances	Geography	Störmer 2008
Situational analysis	Industrial & Alliances	Management	Montabon et al. 2007
Situational analysis	Industrial & Alliances	Management	Quak and de Koster 2007
Situational analysis	Societal	Ecology/Env	Schoot Uiterkamp and Vlek 2007
Situational analysis	Societal	Psychology	Midden et al. 2007
Situational analysis	Societal	Psychology	Vlek and Steg 2007
Situational analysis	Societal	Psychology	Uzzell et al. 2002
Situational analysis but identifies theoretical challenges	Organizational	Management	Shrivastava 1995
Social capital	Governmental	Sociology	Woolcock 1998

Table B1. Table of Theories/Models Applied in Papers Reviewed			
Theories/Models	Category	Discipline	Citation
Social capital	Individuals & Groups	Management	Bolino et al. 2002
Social capital	Individuals & Groups	Sociology	Coleman 1988
Social dilemma theory and individual decision making	Governmental	Geography	Crance and Draper 1996
Social movements theory Institutional change theory	Organizational	Management	Reid and Toffel 2009
Systems thinking	Governmental	Management	Espejo and Stewart 1998
Systems thinking	Industrial and Alliances	Management	Senge et al. 2007
Theory of planned behavior	Individuals & Groups	Management	Flannery and May 2000
Theory of planned behavior, moral theories in social psychology and economic theories of public goods	Societal	Ecology/Env	Turaga et al 2010
Value-belief-norm theory applied	Societal	Psychology	Garling and Schuitema 2007

Appendix C

Inventories of Hypotheses in Selected Papers Reviewed

Table C1. Inventory of Hypotheses—Organizational	
Category	Organizational across Subcategories
Reference	Bansal 2005 (<i>Strategic Management Journal</i>)
Discipline	Management
Method	Theory development through inductive analysis of qualitative study in two countries
Number	Hypotheses
H1	International experience will be positively associated with corporate sustainable development.
H2	Capital management capabilities will be positively associated with corporate sustainable development.
H3	Organizational slack will be positively associated with corporate sustainable development.
H4	Fines and penalties will be positively associated with corporate sustainable development.
H5	Mimicry will be positively associated with corporate sustainable development.
H6	Media attention will be positively associated with corporate sustainable development.
H7a	Fines and penalties and media attention will be of declining importance in explaining a corporate sustainable development over time.
H7b	Mimicry will be of increasing importance in explaining corporate sustainable development over time.
H7c	Resource-based variables will explain corporate sustainable development in both early and later time periods.
Results	Supported: H1, H5, H6; Not significant: H2, H3, H4; Partially supported: H7a, H7b, H7c.
Category	Organizational across Subcategories
Reference	Jennings and Zandbergen 1995 (<i>Academy of Management Review</i>)
Discipline	Environment
Method	Conceptual model and exploratory hypotheses to extend Institutional theory

Number	Hypotheses
H1	The greater the association between <i>sustainability</i> and <i>modernity</i> that is made by the state, the more widespread the acceptance of the concept by organizations within the country.
H2	The greater the association between <i>sustainability</i> and <i>Gaia</i> (or its related concepts), the deeper the meaning and valuation of "sustainability" within an organization.
H3	In a societal field, as networks develop among organizations involved in sustainability, stratification also is likely to develop among the organizations, partly reflecting the power relations within the societal field.
H4	An organizational field for a sustainable value or practice tends to be local rather than nonlocal, centering on those communities with organizations most deeply involved in the value or practice.
H5	As different organizational and societal fields related to sustainability grow and become linked at the local, regional, and global levels, the chance of achieving ecological sustainability increases.
H6	The more coercive the pressure for diffusion, the more likely that the form or structure of the practice will be adopted by organizations in a field.
H7	The more coercive the pressure for diffusion, the less likely that its content or meaning will be adopted by organizations in a field.
H8	Mimicry is more likely than normative pressure to influence organizations in a field to adopt concepts and practices related to ecological sustainability.
H9	The more tightly coupled representational, constitutive, and normative rules are to sustainability, the more likely the institution will be perceived as unique and will have an impact on sustainability.
H10	The more tightly coupled an institution's activities and structures concerning sustainability, the more likely the institution will be perceived as unique and have an impact on sustainability.
H11	The greater the proportion of organizations in society that are devoted to sustainability, the more likely a new paradigm in society for sustainability is being developed.
H12	The more enclaves of organizations devoted to sustainable values and practices, the more likely a society will be able to shift to a new paradigm for sustainability.
H13	Ecological crises associated with an organization's activity undermine not only the legitimacy of that organization's activity, but also the activities of all similar organizations and the dominant social paradigm itself.
H14	Each crisis will give rise to new sets of organizational actors who begin to promote alternative paradigms.
Results	Not tested. Proposed to guide future work.
Category	Organizational/Awareness, Motivations
Reference	Reid and Toffel 2009 (<i>Strategic Management Journal</i>)
Discipline	Management
Method	Conceptual model and hypotheses tested by archival analysis and modeling
Number	Hypotheses
H1	A firm is more likely to engage in practices consistent with the aims of a social movement if it has been targeted by a shareholder resolution on a related social issue.
H2	A firm is more likely to engage in practices consistent with the aims of a social movement if other firms within the same institutional field have been targeted by a shareholder resolution on a related social issue.
H3	A firm is more likely to engage in practices consistent with the aims of a social movement if it is threatened by government regulation on a related social issue.
H4	A firm is more likely to engage in practices consistent with the aims of a social movement if other firms within the same institutional field are threatened by government regulation on a related social issue.
Results	Strongly supported: H1, H2; Supported: H3, H4.
Category	Organizational/Approaches
Reference	Chen et al. 2008 (<i>Journal of Systems and Information Technology</i>)
Discipline	Management
Method	Conceptual model and hypotheses

Number	Hypotheses
H1	Information systems automation can be leveraged to achieve eco-efficiency. The prevalence of such practices is driven by mimetic pressures.
H2	Through influences over the salience of ecological issues (through increased certainty, transparency, and emotivity), information systems contribute to the development of eco-equity through informing the users.
H3	Information systems contribute to eco-equity by informing downwards to build environmental awareness in organizations and the community; such eco-equity-oriented practices gain popularity mainly under normative pressures.
H4	Information systems contribute to eco-equity by informing upwards to facilitate the enforcement of environmental regulations.
H5	Through mimetic, normative, and coercive pressures, information systems transform industries to achieve eco-effectiveness. Hypotheses proposed, not tested.
Results	Not tested. Proposed to guide future work.
Category	Organizational/Implementation
Reference	Delmas and Toffel 2008 (<i>Strategic Management Journal</i>)
Discipline	Management
Method	Survey and archival analysis
Number	Hypotheses
H1	The extent to which corporate legal affairs departments influence facilities' environmental decisions is positively associated with the receptivity of facility managers to pressures from nonmarket constituents.
H2	The extent to which corporate marketing departments influence facilities' environmental decisions is positively associated with the receptivity of facility managers to pressures from market constituents.
H3	The receptivity of facility managers to pressures from market constituents is positively associated with their facilities' adoption of ISO 14001.
H4	The receptivity of facility managers to pressures from nonmarket constituents is negatively associated with their facilities' adoption of ISO 14001.
H5	The receptivity of facility managers to pressures from nonmarket constituents is positively associated with their facilities' adoption of government-initiated voluntary environmental programs.
Results	Supported: H1, H2, H3, H4, H5.
Category	Organizational/Motivations
Reference	Bansal and Roth 2000 (<i>Academy of Management Journal</i>)
Discipline	Management
Method	Interview, observation, archival analysis
Number	Hypotheses
H1	Issue salience will be positively associated with legitimation and competitiveness.
H2	Field cohesion will be positively associated with legitimation and negatively associated with competitiveness and ecological responsibility.
H3	Individual concern will be positively associated with ecological responsibility and legitimation.
Results	Not tested. Proposed to guide future work.
Category	Organizational/Motivations
Reference	Mir and Feitelson 2007 (<i>International Small Business Journal</i>)
Discipline	Environment
Method	Survey and analysis
Number	Hypotheses
H1	Environmental action will depend strongly on the owner-manager's perception and capability (knowledge and experience) to respond to environmental issues.
H2	Younger owners will be more aware of new environmental issues and solutions, while older owners are more likely to focus on efficiency (minimize waste and resource use) and less likely to explore environmental solutions.

H3	Micro-enterprises with a more formal environmental management organization will be aware of environmental issues and practice better environmental behavior.
H4	Regulatory pressure will lead to environmental action in micro-enterprises to the extent of their capacity and affordable reliable access to environmental products and waste management services.
H5	Micro-enterprises will improve environmental behaviors in response to societal expectations, community or customer pressure or opportunities.
H6	Micro-enterprises are more likely to participate in environmental programs where financial assistance offers sector-wide assistance rather than individual firm loans.
H7	Micro-enterprises that are members of trade associations or franchises will be more aware of environmental issues and exhibit better environmental behavior than non-members.
H8	Diffusion of environmental products and practices in micro-enterprises is uneven and driven through individual contracts with larger firms, customers or suppliers.
Results	Supported: H3, H6; Not supported: H1, H4; Dismissed: H2, H5, H7, H8.
Category	Organizational/Performance
Reference	Christmann 2000 (<i>Academy of Management Journal</i>)
Discipline	Management
Method	Survey and analysis
Number	Hypotheses
H1	The higher a firm's use of pollution prevention technologies, the larger will be the cost advantage it gains from environmental strategies.
H2	The higher a firm's level of innovation of proprietary pollution prevention technologies, the larger will be the cost advantage it gains from environmental strategies.
H3	The earlier a firm's timing of environmental strategies, the larger will be the cost advantage it gains from environmental strategies.
H4	The higher a firm's level of capability for process innovation and implementation, the larger the cost advantage it gains from the use of pollution prevention technologies.
H5	The higher a firm's level of capability for process innovation and implementation, the larger the cost advantage it gains from the innovation of proprietary pollution prevention technologies.
H6	The higher a firm's level of capability for process innovation and implementation, the larger the cost advantage it gains from early timing of environmental strategies.
Results	Supported: H2, H4, H5, H6; Not supported: H1, H3.
Category	Organizational/Outcomes
Reference	Sharfman and Fernando 2008 (<i>Strategic Management Journal</i>)
Discipline	Management
Method	Archival analysis and modeling
Number	Hypotheses
H1	The higher the level of environmental risk management, the lower the firm's cost of debt capital for a given level of debt. 1a: The higher the level of environmental risk management, the higher the firm's leverage. 1b: The higher the level of environmental risk management, the higher the firm's tax advantage (shield) from debt financing.
H2	The higher the level of environmental risk management, the lower the cost of equity capital. 2a: The higher the level of environmental risk management, the lower the firm's non-leveraged equity beta (systematic risk). 2b: The higher the level of environmental risk management, the more dispersed the firm's share ownership. 2c: The higher the level of environmental risk management, the higher the percentage of institutional share owners.
H3	The higher the level of environmental risk management, the lower the firm's weighted average cost of capital.
Results	Supported: H1a, H1b, H2, H2a, H2b, H3; Not supported: H1; Inconclusive: H2c.

Table C2. Inventory of Hypotheses—Organizational Individuals and Groups	
Category	Organizational Individuals and Groups across Subcategories
Reference	Branzei et al. 2004 (<i>Strategic Management Journal</i>)
Discipline	Management
Method	Interview, survey analysis and modeling
Number	Hypotheses
H1a	The expectancy of success moderates the association between perceived performance and leader's commitment to environmental initiatives.
H1b	There is a negative association between perceived unsatisfactory performance and leaders' level of commitment to environmental initiatives.
H1c	There is a positive association between perceived performance gaps and leaders' level of commitment to environmental initiatives.
H2	Greater commitment to environmental initiatives by the organizational leader is associated with a higher level of perceived strategic commitment by the upper echelons.
H3	Higher strategic commitment to environmental initiatives by the upper echelons is associated with (a) greater diffusion and integration of environmental responsibilities among organizational members and (b) greater structural formalization of environmental responsibilities.
H4	Greater structural formalization of environmental responsibilities is associated with improved environmental performance.
H5	Greater integration of environmental responsibilities among organizational members stimulates bottom-up initiatives which inform the strategic views of the upper echelons.
Results	Supported: H1b, H1c, H2, H3, H4, H5; Marginal support: H1a.
Category	Organizational Individuals and Groups/Drivers and Managerial Decision-Making
Reference	Flannery and May 2000 (<i>Academy of Management Journal</i>)
Discipline	Management
Method	Interview, survey analysis and modeling
Number	Hypotheses
H1	Managers' decision intentions concerning the treatment of hazardous waste-water will be influenced positively by their attitudes toward wastewater treatment.
H2	Managers' decision intentions concerning the treatment of hazardous waste-water will be influenced positively by their assessment of support from important others.
H3	Managers' decision intentions concerning the treatment of hazardous waste-water will be influenced positively by their levels of self-efficacy.
H4	Managers' decision intentions concerning the treatment of hazardous waste-water will be negatively related to the instrumentality of their own organizational climates.
H5	Managers' decision intentions concerning the treatment of hazardous waste-water will be negatively related to their perceptions of financial cost considerations.
H6	Managers' decision intentions concerning the treatment of hazardous waste-water will be influenced positively by their levels of personal moral obligation.
H7	The intensity of harmful environmental consequences will moderate the relationship between the antecedents of the extended theory of planned behavior and managers' decision intentions concerning the treatment of hazardous wastewater. Specifically, we expected decision intentions to be influenced by the antecedents more when the magnitude of consequences is low than when the magnitude of consequences is high.
Results	Supported: H1, H2, H5; Not supported: H3, H6; Marginal support: H4. H7: Managers proclaimed more ethical and environmental decision intentions when consequences were of high magnitude. Cost considerations were a considerable influence at low magnitudes.

Category	Organizational Individuals and Groups/Managerial Decision-Making
Reference	Bolino et al. 2002 (<i>Academy of Management Review</i>)
Discipline	Management
Method	Review/Positioning
Number	Hypotheses
H1	Social participation will enhance structural social capital through the formation of network ties, the configuration of these ties, and the appropriability of the network.
H2	Loyalty, obedience, functional participation, and social participation will enhance relational social capital by increasing liking, trust, and identification among employees.
H3	Social participation and advocacy participation will enhance cognitive social capital through the development of shared language and shared narratives among employees.
H4	Social capital will be positively related to the performance of citizenship behaviors.
H5	Social capital will mediate the relationship between citizenship behavior and organizational performance.
Results	Not tested. Proposed to guide future work.
Category	Organizational Individuals and Groups/Championing
Reference	Andersson and Bateman 2000 (<i>Academy of Management Journal</i>)
Discipline	Management
Method	Survey analysis and interviews
Number	Hypotheses
H1	Frequent scanning behaviors and use of multiple scanning sources in identifying an issue will increase the likelihood of a successful environmental championing episode.
H2	H2a. Framing an issue as an opportunity will increase the likelihood of a successful environmental championing episode. H2b. Framing an issue as urgent will increase the likelihood of a successful environmental championing episode. H2c. Framing an issue as having local impact will increase the likelihood of a successful championing episode.
H3	H3a. Presenting an issue using drama and emotion will increase the likelihood of a successful environmental championing episode. H3b. Presenting an issue using powerful, meaningful, and clear metaphors will increase the likelihood of a successful environmental championing episode.
H4	H4a. Selling an issue using rational persuasion will increase the likelihood of a successful environmental championing episode. H4b. Selling an issue using consultation will increase the likelihood of a successful environmental championing episode. H4c. Selling an issue using coalition building will increase the likelihood of a successful environmental championing episode. H4d. Selling an issue using inspirational appeal will increase the likelihood of a successful environmental championing episode.
H5	H5. Championing activities will be more likely to result in a successful environmental championing episode when an organization's environmental paradigm is strong.
Results	Supported: H1, H2b, H2c, H3b, H4c, H4d; Not supported: H2a, H3a, H4a, H4b; Inconclusive: H5.

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