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Toward a "theoretical toolbox" for sustainability research in marketing

Brian L. Connelly · David J. Ketchen Jr. · Stanley F. Slater

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Abstract This paper provides a foundation for future marketing research on sustainability through the application of nine prominent organizational theories. Specifically, we consider the implications for sustainability offered by transaction cost economics, agency theory, institutional theory, population ecology, resource dependence theory, the resource-based view of the firm, upper echelons theory, social network theory, and signaling theory. We consider how each theory can help researchers to better understand the ways that firms engage in sustainable marketing and business practices, and we develop insights that emerge from simultaneous examination of complementary or competing theoretical perspectives.

Keywords Sustainability · Organization theory

The Center for Sustainable Enterprise (2010) defines sustainability as "a way of doing business that creates profit while avoiding harm to people and the planet." Progressive firms have made considerable investments in increasingly ambitious sustainability initiatives while trying to identify initiatives that generate both public benefits and corporate profits (Orsato 2006). The terms "sustainability" and "sustainable growth" have entered into the vernacular of academics, businesspeople, and policymakers alike as these constituencies have begun to believe that economic growth must account for its ecological and societal impact if it is to be sustained over time (Lodge 2001).

Peter Drucker may have been the first to place sustainability within the domain of marketing. While Drucker is primarily thought of as a management philosopher and scholar, he also is considered by many to be the father of the modern marketing concept (e.g., Day 1990; Webster 1994, 2009). Drucker argued that social and moral leadership are crucial components of management (Webster 2009). In particular, he noted that in pondering any action, management "has to consider whether the action is likely to promote the public good, to advance the basic beliefs of our society, to contribute to stability, strength and harmony" (Drucker 1955, p. 382). However, Drucker (1974, p. 350–351) also subscribed to the concept of "bounded goodness" (Smith 2009) which suggests that demands for social responsibility should be resisted when they impair the performance capability of the business, exceed its competence, usurp legitimate authority, or involve illegitimate authority.

Drucker (1974, p. 319) was one of the first to observe the change from where businesses were expected to minimize societal impact to where they were expected to "produce a good society." Marketing's responsibility for a firm's social impact can be found across a range of market activities such as product safety and product recalls, advertising that leads to health issues (e.g., obesity and smoking), and targeting vulnerable market segments (e.g., Smith 2009). Wind (2009) noted that Peter Drucker felt that society was changing so rapidly that the next generation of

B. L. Connelly · D. J. Ketchen Jr. (✉)
College of Business, Department of Management,
Auburn University,
415 W Magnolia Ave,
Auburn, AL 36849, USA
e-mail: ketchda@auburn.edu

B. L. Connelly
e-mail: bconnelly@auburn.edu

S. F. Slater
College of Business, Department of Marketing,
Colorado State University,
Fort Collins, CO 80523, USA
e-mail: stan.slater@business.colostate.edu

managers and marketers would face new opportunities and threats (e.g., pressure to become a sustainable enterprise) that would require the development of a new "theory of the business," (Drucker 1994). However, prevailing mental models of how business works limit the ability of managers to see emerging opportunities and threats and to reshape their theories of how, and whether, to address them (Wind 2009). Wind argued that marketing must bring in fresh perspectives, concepts, and theories to address the changing role of marketing in this rapidly changing environment.

Building on Drucker's concepts, Varadarajan (1992) was among the first marketing scholars to argue that sustainable business policies and practices were likely to increase in importance to the survival, growth and profitability of the business. Menon and Menon (1997, p. 54) advanced this position by suggesting that businesses can reduce environmental problems "by finding new ways to produce, package, and deliver goods and services to consumers and disposing or recycling the wastes created in the production or consumption of these goods or services." More importantly for marketing scholars, sustainability is now viewed as an effective way for the firm to differentiate its offerings and to achieve a position of competitive advantage (Menon and Menon 1997; Porter and Van der Linde 1995).

Menon and Menon developed a model of the antecedents and consequences of enviropreneurial marketing, a model that they assert (p. 54) "reflects the confluence of social performance goals, corporate entrepreneurship orientations, and marketing strategy." Their article focused more on introducing foundational concepts than on developing the theoretical underpinnings of their propositions. Banerjee et al. (2003) more thoroughly developed a limited number of these theories and conducted a partial test of the Menon and Menon (1997) propositional inventory.

However, we agree with Webster (2009, p. 22) that "marketing has been more data-driven than theory-driven," which emphasizes the need for a sound theory base to understand the interplay between sustainability and marketing. Thus, as in other areas of marketing, the theories that marketing scholars use to analyze and describe the sustainability practices of organizations remain underdeveloped (Carraher et al. 2008). As sustainability continues to grow as a central concern of organizations (Goldstein 2004), researchers must offer new insights that build upon what we know about sustainability and begin to develop a more holistic conceptualization of sustainability. Toward this end, our article draws on a set of well-established theoretical perspectives to articulate what they can offer about sustainability for marketing researchers. Relying on theories that have demonstrated their usefulness for explaining organizational actions should instill a measure of confidence in the insights derived from them (Lundberg 2004).

The overall goal of our paper is to inspire marketing scholars to consider how sustainability might fit into their own research agenda and to provide a broad conceptual foundation for that research. Recently, Ketchen and Hult (2007) used nine theories to develop the concept of best value supply chains, while Shook et al. (2009) leveraged ten theories to set an agenda for research on strategic sourcing. We take a similar approach by developing a "theoretical toolbox" that researchers can use to build knowledge about sustainability and marketing.

Theoretical perspectives applied to sustainability

Below, we summarize nine organizational theories that we believe are most pertinent for sustainability research and consider the key insights that emerge from each theory. We generally move from theories that arose in the middle of the twentieth century to more recently developed theoretical perspectives. Specifically, we consider transaction cost economics, agency theory, institutional theory, population ecology, resource dependence theory, the resource-based view of the firm, upper echelons theory, social network theory, and signaling theory, in that order. Table 1 summarizes the key premise of each theory and illustrates some potential implications of the theory for sustainability research.

Transaction cost economics

Transaction cost economics (TCE) has been a foundational theory for predicting when firms will undertake tasks under their own hierarchy or when they will leave the tasks to be performed by the market (Williamson 1975). TCE suggests that firms evaluate and compare the production costs associated with conducting a task or developing a product internally with the transaction costs associated with obtaining it externally. Transaction costs in this analysis are considered broadly, to include direct economic costs as well as search and information costs incurred in finding the best goods or services in the market, monitoring and control costs incurred to ensure proper behavior from the external source, and mediation or legal costs incurred should the external source act inappropriately. These costs are affected by such factors as the specificity of assets required to conduct transactions, uncertainty in the environment, bounded rationality of the decision-makers evaluating costs, and the potential for opportunism (Rindfleisch and Heide 1997).

TCE offers a rational view of explaining the behavior of organizations. In marketing, TCE has been used to explain market entry strategy (e.g., Forlani et al. 2008), buyer-supplier relationships (e.g., Ghosh and John 2009), and

Table 1 Key organizational theories and their implications for marketing research on sustainability

Theoretical perspective	Key premise	Key insights for sustainability
Transaction cost economics	Firms make decisions about activities in which they will engage by evaluating the total economic costs of the activity.	Firms will engage in sustainable practices when the economic rationale for doing so is clear to them. Technologies and processes that reduce the cost of implementation of sustainability initiatives will increase the likelihood of their adoption.
Agency theory	Managers (agents) and shareholders (principals) have divergent interests, so the principals must monitor the agents or incentivize agents to act in the interests of principals.	Some principals may have sustainability interests (e.g., concern for the environment) that run counter to managerial interests. Other principals may have only short-term interests, so managers must be aware of the potential for principal opportunism as well.
Institutional theory	To survive, organizations must earn legitimacy by conforming to institutional pressures prevailing in the environment.	Firms can improve their ability to survive and thrive by being aware of and conforming to emerging industry trends and policy changes about sustainability initiatives. There may be value in mimicry of successful sustainability initiatives that competitors are not attempting to model.
Organizational ecology	Organizations emerge, evolve, and die in response to changes in their environment.	New organizations and organizational forms will arise that are well suited to the triple bottom line. Organizations that do not adapt their processes to become more sustainable may be selected out of the population.
Resource dependence theory	Organizations are constrained by their external relationships, so managers act to reduce the power others have over them and increase their own power over others.	A firm's ability to implement sustainable practices may be constrained when it is dependent on others. The environment contains limited resources, so firms must learn to forbear and trust if they are going to coexist over time.
Resource-based view of the firm	The basis for sustainable competitive advantage resides in its resources and in how the firm structures, bundles, and leverages those resources.	Sustainability practices can provide competitive advantage. Firm resources are limited, so sustainability efforts should consider how they might be maintained or renewed over time.
Upper echelons theory	Firm outcomes arise largely from the decisions of a dominant coalition, and are therefore influenced by the cognitive bases and values of this group.	Decisions about sustainability are shaped by past practices and managerial backgrounds. More diverse top management teams may be more creative and proactive about sustainability efforts.
Social network theory	Firm outcomes are largely a function of the social networks in which the firm and its management are embedded.	Diffusion of sustainability practices occurs through networks of interconnected firms. Firms that reside at structural holes in their inter-firm networks may have a unique ability to learn about sustainability and reduce uncertainty of implementation.
Signaling theory	Firms use costly signals to communicate underlying qualities or intentions to those who may desire to know such information.	It is difficult for investors and consumers to know which firms are genuinely committed to sustainability, so firms may use costly sustainability initiatives to reduce information asymmetry.

sales force management (Anderson 2008). Thus, within the TCE perspective, firms base their choices about which sustainability practices they will implement mainly on the economic merits of market versus hierarchy costs associated with those practices.

From a TCE perspective, firms will be likely to engage in sustainable marketing, the development and marketing of products in such a way as to minimize negative effects on the physical and social environments or to improve the quality of those environments (e.g., American Marketing Association 2010), when the economic rationale for doing so is clear to them. This may involve educating decision-makers on two fronts. First is making them aware of the economic benefits of sustainable marketing. Conventional wisdom suggests that environmental concerns and corporate social responsibility (CSR) diverts managers from their primary responsibility of maximizing shareholder wealth and comes at an additional cost to the firm (Friedman 1970).

However, some scholars have challenged this notion (Agarwal and Berens 2009; Porter and Van der Linde 1995). A more comprehensive view of the balance sheet that includes both increased revenues and reduced costs also helps uncover the benefits of sustainable practices (Engardio et al. 2007). An organizational commitment to sustainability may provide access to new markets and customers. For example, by the end of 2008, General Electrics' Ecomagination program had produced 80 new

products and services, which generated $17 billion in annual revenue and delivered $100 million in cost savings to GE's bottom line (Magee 2009). Orsato (2006) describes how firms may reduce costs through greater efficiency when they maximize the firm's natural resources and eliminate waste and by-products generated by the firm. Similarly, a number of firms, such as IBM and Body Shop International, have taken steps to "green" their supply chains, limiting their purchases to suppliers that meet environmental performance criteria (Wycherley 1999).

Second is expanding decision-makers' view of transaction costs to provide a more holistic account of organizational benefits. It is here that the triple bottom line is informative (Savitz and Weber 2006). While TCE does well to explain bottom-line decision making from an economic perspective, it under-emphasizes the other two aspects of a firm's triple bottom line: environmental integrity and social justice. TCE appears to maintain an underlying assumption that markets operate on standard demand-supply curves based on factors such as quality, price, and service (Rindfleisch and Heide 1997). However, Berger et al. (2007) find these curves are often skewed by a "market for virtue" wherein both the supply and demand of socially responsible business practices have moderating effects on economic transactions. For example, a 2007 study by Landor Associates—the ImagePower Green Brands Survey—found that consumers perceived that green brands were of higher quality. Thus, a sustainability initiative that may appear to be a liability in a standard economic market analysis could actually be economically viable when accounting for the social consciousness of the market (Vogel 2005).

In all, there appears to be some consensus in the literature that sustainable practices have considerable economic benefits from a TCE perspective (Orlitzky et al. 2003). At this point, scholars would do well to move the discussion from "whether" sustainability is profitable to "when" it is profitable. Certain markets are likely to be more amenable to sustainability practices than others. While many major companies are moving in the direction of becoming better citizens of the world, industries may provide boundary conditions on the economic feasibility of sustainability initiatives. For example, when consumers must choose between product attributes (e.g., lower price, higher quality, improved performance) or the environment, the environment generally loses. However, there are market segments that are receptive to a green appeal. Thus, in those cases where consumers must make a sacrifice when purchasing an environmentally sustainable product, the firm must target the segments that have strong environmental values or are at least more willing than the average consumer to purchase environmentally friendly products (Ginsberg and Bloom 2004).

In an effort to reduce costs, other firms have adopted a "cradle-to-cradle" philosophy of product design in which products with their components can be used again and again with zero waste (McDonough and Braungart 2002). Also, Reinhardt (1998) describes how the decision to invest in cleaner technologies makes sense in certain circumstances, but not all. Firms that introduce processes and technologies that lower the overall costs of implementing and maintaining sustainable practices stand to gain (Nidumolu et al. 2009). Not only do they enjoy the benefits of sustainability under their own hierarchy (in their own firm), but they also are positioned to make those practices available to others. Thus, TCE highlights the potential benefits associated with innovations that reduce the costs of sustainable practices.

Agency theory

Agency theory explains firm governance by describing firm owners as principals that hire agents (managers) to carry out the business of running the organization (Jensen and Meckling 1976). A central element of this theory is the agency problem, which arises when agent and principal interests diverge. Because there is information asymmetry between agents and principals, there is some possibility the agents will act opportunistically, in their own interests rather than those of the principals. The challenge that has propelled research on agency theory is finding mechanisms that could potentially reduce the agency problem (Dalton et al. 2007). Solutions may be grouped into two broad categories: monitoring and incentives. Principals can either monitor agents directly or rely on third parties, such as an independent board of directors, to monitor for them (Heide et al. 2007). In either case, the goal is to reduce information asymmetry. Alternatively, principals may structure agent incentives, such as equity and bonuses, to encourage agents to embrace the interests of principals and direct organizational actions toward their mutual goals (Lal et al. 1994).

From an agency theory perspective, it is important to recognize that some principals may be concerned about corporate sustainability (Aras and Crowther 2008). This could include individual investors or mutual funds with interests in maintaining the natural environment (Schueth 2003). More generally, it could also include institutional investors with appreciable holdings that have less ability than individual investors to shift their investments without affecting the firm's share price. This class of investors has strong interests not only in short-term financial performance but also long-term strategies, the needs of other stakeholders, environmental impact, and the firm's relationship to communities in which they operate (Gompers and Metrick 2001). Agency theory highlights the impor-

tance of structuring incentives so that managers are responsive to these long-term interests of principals, and it also highlights the responsibility of boards for ensuring that managers make decisions that provide sustainable value (David et al. 2007). Empirical governance research has established that independent boards, activist investors with dedicated (long-term) holdings, and executive pay structures can all influence the extent to which firms engage in socially responsible business strategies (Bushee 2001; Johnson and Greening 1999).

At the same time, agency theory research has also revealed principals who have interests that conflict with other stakeholders and do not foster sustainable practice. Some investors move quickly in and out of investments and are so sensitive to current earnings that they are not interested in the long-term prospects of firms in their portfolio (Bushee 2001). These principals also have the ability to influence decision-makers and are likely to move them away from strategic competitive actions that are often associated with sustainability (Connelly et al. 2010b). Interestingly, event studies show that the stock market reacts significantly to both good and bad environmental announcements by firms (Ambec and Lanoie 2008). Moreover, Ceres, an alliance of investors and environmentalists that developed a report which rates the top global consumer brands on several environmental criteria, found that low-scoring companies are beginning to calculate and set targets on those criteria (Green 2008). However, when managers are faced with competing interests of principals their allegiance is divided and their ability to implement sustainability initiatives that may be unpopular with some investors is limited (Hoskisson et al. 2002). Some have suggested that such short-term investors are the worst kind of principals because they are themselves opportunistic, which may come at the expense of sustainable practices (Christensen and Anthony 2007).

This, however, puts scholars in the somewhat awkward position of arguing that some investors are "better" than others and that some principals have interests that managers should intentionally ignore (Bushee 2009), which runs counter to the popular business school mantra that managers' responsibility is to maximize shareholder value (however principals may define "value"). Recent research on the conflicting interests of principals (Arthurs et al. 2008) may indicate that managers' real responsibility should be to act in the interest of those whose interests coincide with the firm's long-term prospects, which likely includes investors who hold their securities over time, and other stakeholders such as employees, customers, and communities. Toward this end, firms such as General Electric and Whole Foods make their commitment to sustainability explicit in their "Values Statements."

Institutional theory

Meyer and Rowan (1977) describe how societies have many institutionalized rules that create a framework under which organizations make their decisions. These institutions serve as a set of working rules that are used to determine which firm actions are allowed or constrained and what payoffs will be assigned to those actions. Neo-institutional theory differs from historical institutional theory on the extent to which conformity to institutional norms is a result of conscious decision processes (March and Olsen 1984). However, both envision organizations within industries becoming homogenous in process and structure over time as they seek legitimacy by conforming to prevailing institutional rules. This process occurs via three main mechanisms: coercive isomorphism (pressure from regulators and actors on whom the organization is dependent for resources), mimetic isomorphism (imitation of other firms in a drive to reduce cognitive uncertainty), and normative isomorphism (pressures arising from social factors such as trade associations and the media) (DiMaggio and Powell 1983). In the marketing literature, a recent study by Humphreys (2010) drew on institutional theory to demonstrate how normative regulatory structures facilitate the adoption and acceptance of the casino gambling industry through the social process of legitimation. Institutional theory has also been used to explain the extent of marketing's influence within the firm (Homburg et al. 1999) and how internal factors may influence the degree of marketing strategy comprehensiveness (Atuahene-Gima and Murray 2004).

For institutional theorists, "sustainability" is a socially constructed concept (Jennings and Zandbergen 1995). Its meaning and methods will be refined and objectified over time, and organizations will be part of this process through their discourse and policies. Leaders in the movement to implement sustainable practices will be influential in defining what is legitimate (Scott 1995). For example, Monsanto is a chemical company that few would pinpoint as a likely candidate for establishing the "gold standard" for sustainability. Yet, this organization is raising the bar for sustainability by shifting the emphasis from pollution control and clean-up to spotting opportunities for revenue growth through innovation of sustainable new products and technologies (Magretta 1997). Similarly, Brazilian energy giant Petrobas had a dismal environmental record during the 1980s and 90s but now is a global leader in sustainability and renewable energy. They have launched the biggest environmental and operational safety program in Brazil's history, have pushed cultural change from the top down, and are becoming a world leader in biofuels (de Azevado 2009).

Such firms are establishing industry benchmarks and will be the focus of mimetic isomorphism as others seek to gain legitimacy by implementing sustainable practices. As firms emulate these industry leaders, their best possible outcome is competitive parity, not competitive advantage (Porter 1996); therefore, there is likely to be value in modeling sustainability practices that others are not attempting to model, such as those outside the firm's main industry. From the perspective of marketing scholars, an interesting question is, "How long does it take after an industry leader (e.g., GE, Procter & Gamble, Starbucks, Coca-Cola) legitimizes sustainable business practices and products for industry followers to adopt the same or similar practices?"

Institutional theory also describes the roles of coercive isomorphism in promulgating sustainability. This may arise, in part, from the same industry leaders. For example, Petrobas uses their clout in the Brazilian energy market to compel thousands of suppliers to improve their environmental performance (de Azevado 2009). Similarly, the chairman and CEO of DuPont initiated a range of sustainability initiatives in his own organization and also sits on the board of the U.S. Climate Action Partnership (Holliday 2001). This group not only provides a vehicle for advocating sustainable practices for the industry and helping to establish policy but has also proposed to the Senate Committee on Environment and Public Works a plan that would force companies to reduce their greenhouse gas emissions (Varchaver 2007). Firms that are attuned to the changing nature of regulative mechanisms as they relate to sustainability will be better positioned to conform and may even be able to be part of the process of establishing standards in the first place.

Organizational ecology

Organizational ecology uses the population of organizations as its level of analysis and examines the birth and mortality of firms within the population over long periods of time (Hannan and Freeman 1977; Sheth and Sisodia 2002). Population ecologists generally argue that organizational change comes about through selection rather than adaptation. For example, rates of founding and mortality are largely dependent on the number of organizations, or density, of the market. However, some have also suggested less deterministic versions of the theory that place greater emphasis on adaptation and finding a population niche, or serving a market niche, that increases the likelihood of survival (Amburgey and Rao 1996). The longitudinal nature of empirical analysis of this theory has emphasized the importance of firm reliability and accountability over time to ensure survival (Hannan and Freeman 1989). The most commonly studied correlates of survival, which have been examined in a wide range of industries, are firm size (smaller firms are more vulnerable as density increases competition), firm age (older firms reflect the environment at the time of founding and inertia makes them unable to adapt), and relational density (close ties to environmental institutions increase the likelihood of survival) (Singh and Lumsden 1990).

Organizational ecology offers a natural fit with research on sustainability because it draws attention to organizational characteristics and processes that help a firm survive over the long term. This theory encourages scholars to consider sustainability from a population perspective and therefore raises new research questions that may not be obvious at the firm level. The institutional environment that regulates sustainable business practice is changing rapidly (Rugman and Verbeke 1998). Firms that were founded and grew under old rules may find themselves burdened with the imprint of outdated modes for addressing sustainability. This may be particularly troublesome for firms that have grown large enough that they suffer from organizational inertia.

Organizational ecologists would argue that such firms are susceptible to environmental change and are likely to be selected out of the population (Hannan and Freeman 1989; Lambkin and Day 1989). Some would argue, though, that these firms could still survive if they are closely connected to institutions so that they can recognize impending environmental changes and are proactive in implementing sustainability initiatives (Shrivastava 1995). Thus, for example, the Hewlett-Packard Company (HP), which was famously formed in Packard's garage in 1939 when sustainability was hardly discussed, has gone through three major evolutionary phases, in the 1980s, 90s and 2000s, to fundamentally change their business strategies with a view toward integrating sustainability (Preston 2001). By proactively addressing, and sometimes even inventing, sustainable practices, HP may have kept itself from being the target of organizational selection processes that would have ultimately meant its doom. Adopting sustainable business practices may help avoid the types of costly setbacks suffered by Union Carbide in India, Royal Dutch Shell PLC in Nigeria and Unocal in Burma (Engardio et al. 2007). Another poignant example is the American Smelting and Refining Company (ASARCO), which was founded in 1899 and grew to be a member of the Dow Jones during a time when it was cheaper to pollute than to be sustainable. Burdened by unions and outdated business models, the firm succumbed to excessive litigation and went bankrupt in 2005, unable to sufficiently change business practices that were imprinted under old institutional rules.

While organizational ecology describes survival-enhancing features and selection processes that arise from environmental change and density, it also deals with the

birth of new organizational forms (Hannan and Freeman 1977). Institutional rules pertaining to sustainability have gone through various stages and are still being formed as associations and governments integrate issues pertaining to the physical environment, society, and the economy (Stead and Stead 2008). Early rules revolved around environmental concerns (e.g., product take-back programs and emissions control). Later, the focus shifted to earlier intervention and emphasized product stewardship (e.g., green packaging and design for the environment), and recent notions of sustainability have encompassed more global objectives and an emphasis on futurity (Peattie 2001). As these changes occur, organizational ecology predicts that firms will arise to meet new challenges. Firms founded in more recent years may be vulnerable to competition owing to a liability of newness, but they will benefit from being imprinted with a view of sustainable business practice that is more modern and developed. In fact, many of the disruptive technologies and innovative processes that will be necessary to solve the problems of sustainability may be met by new organizations that are born, in part, to address such problems (Shrivastava 1995).

Resource dependence theory

Arising about the same time as the prior four theories, resource dependence theory (RDT) describes the sources and consequences of power in inter-organizational relations, which revolve around the control of vital resources (Pfeffer and Salancik 1978). This theory popularized the idea that power, not just efficiency or rationality, is important for understanding the actions firms take (Davis and Cobb 2009). It also describes how firms intentionally pursue strategies that will enhance their autonomy and seek to control resources on which others are dependent, because power and dependence are the obverse of each other (Dwyer and Oh 1987). In contrast to theories that grew around it, RDT lends greater emphasis to the firm's social context. Its core tenet, that organizations seek to reduce uncertainty by minimizing dependence on others for resources, has become nearly axiomatic for organizational scholars (Hillman et al. 2009). In the marketing arena, Christensen and Bower (1996) argue that due to the revenues they provide, the firm's customers strongly influence resource allocation decisions. In contrast, Slater and Narver (1998) argue that market-oriented firms, due to their ability to satisfy both extant and latent needs, are able to reduce customer power.

RDT introduces the intriguing notion that organizational strategies pertaining to sustainability may be determined more by power than by profits. This runs counter to much of the research on sustainability, which aims to justify its expense mainly from an economic perspective (Orlitzky et al. 2003). RDT holds the potential for uncovering benefits of sustainable business practices that are not obvious when viewing those practices through the lens of other theoretical perspectives. Firms may be motivated to implement sustainability initiatives if the result is additional freedom from dependence on others for resources. Sony provides an interesting example. Sony was dependent on an outside supplier for low cost cables for their Playstation product but, having found illegal cadmium in the cables, invested heavily to restructure their supplier network to avoid such dependencies (Engardio et al. 2007). At the same time, RDT also reveals how a firm's ability to implement sustainability initiatives could be constrained by resource dependencies. For example, catalog retailer Norm Thompson Outfitters sought to increase their use of recycled paper and paper from certified sustainably managed sources; however, they were constrained in the extent to which they could do so because there are a limited number of such sources. Norm Thompson Outfitters does not want to be overly dependent on any one source for a fundamental input (Marshall and Brown 2003).

RDT also explains why a firm might not fully exploit the situation when it controls a critical asset that others need to survive (Hillman et al. 2009). When one considers the totality of interdependent firms and the limited global resources they share, it may not always be in the controlling firm's best interest to leverage others' resource dependencies for maximum economic benefit (Lovins et al. 2007). There may, for example, be less tangible benefits ascribed to firms when they maintain a reasoned and prudent approach toward others that are dependent on them, because controlling firms will ultimately have dependencies of their own. What the firm loses in marginal economic benefit, they could gain in the forms of trust, reputation, and goodwill among a cadre of organizations that are connected in a vast, largely unobservable network of resource interdependencies.

Resource-based view of the firm

The resource-based view of the firm, which envisions firms as a bundle of resources, is probably the dominant theory for explaining differences in performance among firms today (Barney et al. 2001). "Resources" have been variously defined by RBV theorists, but can include financial capital, assets, human skills/knowledge, organizational processes, and technologies (Hofer and Schendel 1978). Marketing resources include the market sensing, customer linking, and channel bonding capabilities (Day 1994); brand equity, customer equity, and channel relationships (Srivastava et al. 1998); and the product development, pricing, marketing communications, selling, and market information management capabilities (Vorhies and Morgan

2005). The difference between providing short-term competitive advantage and that which is sustainable resides in the notion that these resources are heterogeneous in nature and not perfectly mobile (Barney 1991). Managers are not static in the RBV, but instead they are called upon to structure, bundle, and leverage their valuable resources in unique ways to maximize their contribution to providing sustained advantage (Sirmon et al. 2007).

The RBV shares some common terms with sustainability research, such as "resources" and "sustainable," making its application somewhat intuitive. According to the call for papers, this special issue of *JAMS* is concerned with sustainability as "meeting the firm's present needs without compromising the ability of future generations to meet their own needs," rather than the sustainability of competitive advantage. However, the two are not unrelated. The RBV suggests that competitive advantage may be sustained when the firm's resources are inimitable and non-substitutable (Barney 1991). This points to the importance of ensuring that a firm's inimitable and non-substitutable resources are nurtured, maintained, and renewed over time. For example, International Paper, the largest pulp and paper company in the world, is able to provide low cost paper and packaging products because they own millions of acres of forestland that provide the natural resources necessary for them to compete (Floyd et al. 2001). This forestland is a limited natural resource that is inimitable and non-substitutable. International Paper's ability to remain competitive going forward depends, in part, on their ability to nurture and maintain this forestland for future harvesting.

Researchers might also use the RBV to highlight the notion that sustainability initiatives may be useful to firms insofar as they can provide competitive advantage (Rechenthin 2004). For example, Dow Chemical has worked to develop an eco-friendly Styrofoam that may be used for wall insulation. This is a unique product that helps builders meet increasingly stringent environmental regulations and is not offered by competitors. Developing an environmentally-friendly product line can often translate into sustained competitive advantage for the firm. From an RBV perspective, sustainability initiatives that reside at the intersection of social/environmental concerns and market opportunities may stand the greatest chance of success. Landor's 2009 ImagePower Green Brands Survey found that, despite economic concerns, approximately 75% of respondents said that they will maintain or increase their level of spending on green products to minimize their own environmental footprints. It may have been helpful if former CEO William Ford Jr. anticipated this trend before famously investing $2 billion overhauling Ford's River Rouge manufacturing complex, including the installation of a 10-acre grass roof to capture rainwater. RBV scholars might suggest it would have been more strategic to spend that money overhauling Ford's line of SUVs and pickup trucks with a view toward gaining competitive advantage via a line of environmentally friendly vehicles.

Upper echelons theory

Upper echelons theory describes a model wherein major organizational outcomes are largely a function of the decision making of top executives of the organization (Hambrick and Mason 1984). Empirical work examining this theory typically uses the physical characteristics of the upper echelon, such as age, ethnic and functional background, and education, as observable proxies for underlying psychological constructs that shape the way executives interpret environmental cues and how they respond to those cues. Research in marketing has focused on the characteristics of chief marketing officers that increase the likelihood of their presence in the top management team (Nath and Mahajan 2008) and the conditions under which the marketing organization has substantial influence (Homburg et al. 1999; Verhoef and Leeflang 2009). Bounded rationality is central to upper echelons theory. Because top management teams are faced with information overload, ambiguous cues, competing objectives, and changing institutional constraints, team members are forced to rely on their cognitive bases and values to arrive at consequential decisions (Carpenter et al. 2004). Also, these managers work together so that organizational outcomes derive from group processes and the management team's interaction with their environment (Cyert and March 1963).

Upper echelons theory is particularly useful for explaining organizational responses to the sustainability movement because what we know about sustainability has emerged and grown rapidly in recent decades (Peattie 2001). Information about the natural environment, in particular, has grown from a trickle to a torrent such that managers are faced with a host of issues and alternative solutions that did not even exist just 20 years ago (Stead and Stead 2008). As a top management team takes this information in, the responses of their organization will likely be a function of how they interpret the information and how their value system suggests they should respond. There are those who would detract from the prevailing view about the impact that people and organizations have on the environment, such that the information managers receive is ill-defined, complex, multi-sided, and sometimes unreliable (Etzion 2007). The likelihood this information will trigger an organizational response will depend on how it is received by the top management team, which in turn depends on the team's background and experiences with the issue. Upper echelons theory highlights the importance of bounded rationality as managers try to wrap their arms around

emerging social and environmental problems. This would suggest that institutions and associations concerned with promoting sustainable practices in organizations would do well to have a unified voice of consistent and reliable information so that top management teams can economize on their decision making about sustainable business practices.

One aspect of upper echelons theory that has received attention recently is how diversity on the top management team affects organizational outcomes (Knight et al. 1999). Dalton and Dalton (2005) suggest that having diverse viewpoints represented in boardroom discussions ultimately benefits shareholders since each board member can make a unique contribution based on having a differing background and perspective. The result is a broader consideration of issues, such as sustainability initiatives, and more effective decision making. In many respects, the concept of a board is built on the premise that multiple—and independent—viewpoints are necessary to best achieve the corporation's goals and objectives. This is particularly important for sustainability initiatives because in most industries there is no "standard" approach to implementing sustainability. A more diverse top management team would have different interpretations of information about society and the environment and may be in a position to develop more unique and creative solutions (Hambrick et al. 1996). Alternatively, a homogenous management team may be prone to groupthink and may not generate as many creative alternatives to sustainability problems, making them less likely to be pioneers of technologies and processes that foster sustainability.

Social network theory

Social network theory describes organizational outcomes as a function of the social relationships between organizations or individuals within organizations (Jones et al. 1997). In its simplest form, a social network is a map of all the relevant ties between organizations or actors in organizations, though there may be many different types of ties. For example, weak ties (e.g., acquaintances) and strong ties (e.g., close friends and family) carry different types of information and are useful in different ways (Granovetter 1973). Organizations make decisions based on information and influence that arise from the extent to which they are embedded in their social networks (Wuyts et al. 2004). This is a function of the number and type of their dyadic ties, which determines the firm's centrality. Dyadic ties can be useful for predicting how innovations and strategies diffuse throughout a social network. More developed versions of the theory incorporate the role of network structures to explain diffusion. For example, firms connected to other firms that are not connected to each other reside at structural holes (Burt 1992). Bridging structural holes in a social network provides unique benefits that organizations can use to their advantage (Ahuja 2000). Whether through the firm's direct ties or owing to its structural position, scholars have found that a firm's social network plays an important role in determining the activities in which firms engage (Borgatti and Foster 2003).

This is an informative theoretical perspective for sustainability research because strategic initiatives in organizations may diffuse throughout organizational networks. For example, once firms implement a sustainable business practice, they may influence other firms with which they hold alliances or other managers that have ties to the firm to follow their lead (Gnyawali and Madhavan 2001). One way the firm's social network affects the likelihood of implementing sustainability initiatives is by providing information and experience that reduce uncertainty. Many organizational decisions are made under conditions of imperfect information, but the emerging nature of sustainability practices makes their implementation particularly uncertain and multifaceted (Starik and Rands 1995). There are few role models, approaches to sustainability vary considerably, and they often touch upon a wide range of organizational processes. Thus, managers may find their social networks particularly important to identifying and evaluating sustainability practices. Further, not all sustainability initiatives are successful (Smith 2003). There is some evidence to suggest that ties to firms with less emphasis on sustainability or with unsuccessful sustainability initiatives will have a suppressive effect on diffusion (Connelly et al. 2010a).

In addition to the influence of direct ties on the likelihood of implementing sustainability initiatives, a firm's structural position in its social network may also be important (Burt 1992). Being connected to firms that are themselves unconnected could offer advantages through the mediums of increased access to timely and novel information about sustainability practices, information arbitrage (leveraging information about sustainability from one context in another context), and brokerage (connecting or mediating sustainability practices between disconnected organizations in the network). Burt (2005) invokes the metaphor of *echo* to describe information acquisition in closed networks. Actors embedded in densely interconnected cliques are at risk of echo, which is the recapitulation, elaboration, and reinforcement of relatively isolated perspectives that become more homogeneous over time. Echo could filter and sanitize information, resulting in narrow points of view about how to implement sustainability. On the other hand, network positions rich in structural holes can provide access to a more cosmopolitan population of firms that have a wider range of experience with sustainable business practices.

Signaling theory

In 2001, George Akerlof, Michael Spence, and Joseph Stiglitz won the Nobel Prize in Economics for their work on information economics. Spence described how an informed party in a market characterized by information asymmetry could use signaling to communicate unobservable qualities. In his seminal formulation, Spence (1974) found that job applicants in the labor market attempt to reduce information asymmetry by signaling their underlying quality with education credentials. To be effective, signals must be observable and costly to imitate, such as a degree from a prestigious institution. This is because there may be individuals, or organizations, that would attempt to deceive by sending dishonest signals if they could do so with little cost. An alternative to costliness may exist when there is a penalty associated with false signaling. For example, while it is not costly and may generate short-term abnormal returns to preannounce the development and introduction of a new product (Sorescu et al. 2007), the penalty associated with false signaling may be a loss of credibility among buyers. Scholars have investigated how firms use retained ownership to signal firm value, product aesthetics to signal product quality, and top management team prestige to signal firm quality, among others (Bruton et al. 2009; Lampel and Shamsie 2000).

Signaling theory may be informative for understanding organizational activities with respect to sustainability. It is often difficult for buyers, suppliers, investors, and other stakeholders to ascertain the extent to which a firm's products and processes are sustainable (McDonald and Oates 2006). Respondents in the Landor Associates 2009 ImagePower Green Brands survey say that they "trust advertising to inform them about green products." However the firm may have incentive to deceive, otherwise known as greenwashing, if they wish to appear more committed to sustainable business practices than they actually are (Harrison and Freeman 1999). Therefore, costly mechanisms such as ISO 14000 certification, investment in environmentally friendly technologies, use of recycled or recyclable materials in products, identification of credible spokespeople, and clear product labeling and ingredient disclosure are all examples of signals that can communicate a commitment to sustainability to various stakeholders (Shrivastava 1995). Thus, from a signaling perspective, considerable investment in a grass roof for a manufacturing plant makes more sense insofar as it is highly observable and costly to imitate. As scholars explore sustainability investments from a signaling perspective, an important issue for investigation might be the effect that multiple, possibly conflicting, signals about organizational commitment to sustainability might have on consumers and investors (Menon and Menon 1997). Also, some signals may be more effective than others, so scholars might examine the efficacy of various sustainability initiatives in communicating the desired effect.

Receivers are also important in signaling theory. The extent to which signaling is effective depends, in part, on whether receivers vigilantly scan the environment for signals (Janney and Folta 2006). From a sustainability perspective, this highlights whether or not sustainability is important to consumers, suppliers, or investors (Jones et al. 2007; Schueth 2003). For example, Colgate-Palmolive signals their commitment to sustainability in part via a line of phosphate-free dishwashing detergent, but the success of this particular signal depends on the extent to which receivers (i.e., consumers) are attuned to looking for the signal. Similarly, organizations may be more inclined to invest in costly signals when they know receivers (i.e., investors in this case) are looking for those signals and are ready to act on them. Receivers can also engage in feedback to signalers, which improves the entire signaling process (Gupta et al. 1999). Thus, according to signaling theorists, we might expect a firm's efforts to signal commitment to sustainable practice to improve when customers and other stakeholders provide feedback about the effectiveness of those practices.

Discussion

Research implications

From a research perspective, we hope that our overview of an array of theories, combined with the articles of this special issue, will generate ideas and inspire academics to consider how sustainability might fit within their own research agenda. The theoretical development of research on sustainability is in its infancy. While scholars have begun to apply some of the theories we have discussed here (e.g., Jennings and Zandbergen 1995; Johnson and Greening 1999), most remain largely unexplored. We expect that sustainability research will progress and evolve as scholars begin to apply these theories, which will almost certainly generate new research questions and provide more explanatory value for sustainability practices that we observe in the marketplace.

We expect that researchers also will begin to combine multiple theoretical perspectives to uncover rich and complex ways of explaining firm behavior with respect to sustainable business practices. For example, a sustainability study that brings together upper echelons theory and agency theory could provide substantial insights. Agency-theoretic prescriptions can help identify the structures and incentives that align managerial interests with those of sustainably-minded principals. Adding upper echelons

theory to this formula could help describe how different types of managers would be affected by those structures and incentives. In fact, issues of alignment could take on new meaning in the context of sustainable business practice insofar as both principals and agents could hold a range of different views about how and to what extent the firm should implement sustainable practices. In this sense, agency theory might look toward an "agent-owner fit" that would describe the alignment, or misalignment, of their views about sustainability and the corresponding need for monitoring. Upper echelons theory could help describe the tendencies and preferences of managers with respect to sustainable practice, helping scholars to better understand how their interests may or may not align with various types of principals.

Another interesting combination of theories is population ecology and signaling theory. Population ecology suggests that firms that adapt to changing sustainability norms and regulations will be more likely to survive. One problem that firms face, though, is that their underlying commitment to sustainability often is not readily observable by investors and other stakeholders. Thus, the likelihood of survival could be moderated by the firm's ability to successfully communicate their adherence to sustainability norms and regulations and distinguish themselves from firms that do not hold the same values. Signaling theory could help describe this moderating effect. Firms might use costly signals to communicate their unobservable values with respect to sustainability to their constituents in order to distinguish themselves from others. Combining these theories, then, would suggest that investments in sustainable practices that bring the firm into alignment with social norms will be more effective at building the firm's legitimacy and more likely to enhance the firm's ability to survive when those investments are costly and observable to organizational stakeholders.

In addition to complementary perspectives among the theoretical bases, there may also be contradictory views that arise as scholars examine sustainability through different theoretical lenses. For example, transaction cost theory indicates that firms will likely engage in sustainable business practices when the economic rationale for doing so is clear to them. Decision making frameworks, from a TCE perspective, are formulaic, describing a precise point at which sustainability initiatives should move from market to hierarchy. Other theories, however, suggest there may be value to investments that are, on the surface, economically inefficient. Signaling theory, for example, describes how the cost of sustainability investments could be justified owing to the information that they communicate to organizational constituents, even (or especially) when those investments do not provide a positive net present value to the firm. Similarly, institutional theory would suggest that investments in sustainability that bring the firm into alignment with normative, cognitive, and regulative norms provide benefits in terms of long-term survival that may not be captured in traditional economic analyses.

Interesting contradictions may also arise when simultaneously exploring resource dependence theory and social network theory. Resource dependence theory indicates that managers will attempt to reduce their dependencies on outside entities. Working from this perspective, scholars may tend to discount the value of inter-organizational ties that place the focal firm in positions of dependency. Social network theory, however, highlights inter-organizational relationships that could increase dependencies but also provide added value to the firm. For example, some ties connect managers to firms from which they may vicariously learn about sustainability initiatives that would ultimately reduce the uncertainty of implementing those initiatives in their own firms. Overlaying these two theories, therefore, could uncover a set of contingency relationships that would be non-obvious using either theory alone.

In addition to combining and contrasting the various theories described herein, there may be opportunity for expanding our research horizons by introducing an international dimension into the research questions derived from these theories. For example, we described how agency theory may be useful for explaining sustainability from the perspective of the principals and agents involved, but increasingly principals and agents may be located in different countries. Foreign institutional investors, and perhaps even more so sovereign wealth funds, are likely to have unique preferences about the nature and focus of sustainability practices (Aggarwal et al. 2005). This is not unrelated to institutional theory because the preferences of individual investors are likely to be influenced by the formal and informal institutions of their home country. Introducing an international dimension thus adds a layer of complexity into principal-agent relationships that could raise a whole new set of research questions about sustainability. Similarly, upper echelons theory provides a richer set of explanatory variables when we account for the increasingly diverse nature of home countries from which managers originate. Those whose formative years, experience, and education are associated with countries where sustainability has weaved its way into the fabric of society may have a heightened sensitivity toward sustainability issues and an increased capacity for assessing their effectiveness. This leads to our next section, which describes the implications of these theories for managers.

Managerial implications

From a manager's perspective, we hope this application of nine theoretical perspectives offers a comprehensive view

of sustainability. For managers, sustainability may be somewhat like the elephant of Indian legend that, when touched by blind men, is thought to be a water spout (trunk), fan (ear), pillar (leg), or throne (back). In the same way, managers may view sustainability mainly as an economic liability, a division that assesses environmental impact, a distinct market segment, or the development of a triple bottom line. These limited perspectives are at best incomplete and at worst misinformed. By elucidating the organizational theories that may be most pertinent to sustainability and considering how they might be applied, we believe our paper offers a richer conceptualization of sustainability that is managerially relevant and theoretically derived. Although the ideas laid forth in this paper are mainly aimed at empirical investigation, they also provide a foundation for managers to better understand how organizations make sustainability decisions.

Some managers are already following the ideas that emerge from the theories described herein. For example, Finnish oil and chemical firm Neste Oy appears to be adhering to the concepts put forth by signaling theory (Ramus 2001). The firm has gone well beyond Finnish environmental regulations, becoming ISO 14001 certified, implementing metrics from environmental audits that it publishes in its annual environmental report, and incorporating environmental objectives into the objectives of everyone from the Board of Directors down to line managers. These are all observable signals that communicate the firm's end-to-end commitment to sustainability to a wide range of organizational stakeholders. In another example, Sanyo seems to have applied transaction cost economics to arrive at the decision to offer rechargeable batteries packed in a container that doubles as a mail-back pack for recycling. Consumers receive a credit toward their next purchase when they return the batteries. Sanyo arrived at this decision when they learned from focus groups that consumers would reward the firm for efforts that encourage recycling. The popular business press contains numerous anecdotes similar to these, but systematic inquiry is necessary to determine the extent to which these theories explain various approaches to sustainability.

Conclusion

Sustainability has become a key concept to both organizations and marketing researchers. Looking to the future, ongoing debate about climate change, concerns about population growth, and related trends seem likely to make sustainability even more important to firms and the scholars that study them. We believe the nine theories discussed above provide a potent "theoretical toolbox" that will help firms and marketing scholars understand sustainability in the years ahead.

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