

The structure of sustainability research in marketing, 1958–2008: a basis for future research opportunities

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Abstract Recent changes in the business environment have prompted marketing scholars to pay particular attention to sustainability as a topic of inquiry. Despite the progress made in the study of sustainability, there is a paucity of research on the topic in premier marketing journals. To address this issue, we focus on marketing-related journals and assess the intellectual structure of sustainability research in detail. Drawing on social network theory, we perform an extensive co-citation analysis using multidimensional scaling to examine 76,342 citations made in 1,320 sustainability-focused articles from 36 journals over 51 years (1958–2008). This study specifies that the topics of citizenship behavior, stakeholder theory, corporate performance, and the triple bottom line are integral sustainability research areas. In addition, the results indicate five required topics for examining sustainability in the marketing context: external-internal focus, social-environmental emphasis,

legal-ethical-discretionary intent, marketing assets, and financial performance. Supported by the capabilities-based resource perspective, the sustainability-focused typology and framework advanced provide directed structure for future research.

Keywords Sustainability · Multidimensional scaling · Intellectual structure · Longitudinal analysis · Triple bottom line · Corporate responsibility · Corporate social responsibility · Corporate environmental responsibility · Corporate social performance · Corporate environmental performance · Marketing-finance interface · Bibliometric analysis · Social network theory

Introduction

In recent years, the topic of sustainability has captured unprecedented attention from researchers and practitioners. Referred to as “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (World Commission on Environment and Development 1987), sustainability is an approach firms are increasingly adopting to conduct business, thereby altering established norms and rules for firms worldwide (Engardio et al. 2007). More than ever, companies not only focus on obtaining economic benefits, but they also seek to deliver environmental and social benefits (Elkington 1998). The significance of this shift is evident with the proliferation of evaluative firm rankings based on corporate social performance (*Business Ethics* magazine’s “100 Best Corporate Citizens”), environmental performance (*Newsweek*’s “America’s Greenest Companies”), and corporate reputation (*Fortune*’s “World’s Most Admired Companies”).

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Responding to this change, researchers in a number of business and non-business fields have examined distinct aspects of sustainability. Relevant issues such as corporate social responsibility (CSR) (Brown and Dacin 1997), cause-related marketing (Varadarajan and Menon 1988), corporate citizenship (Maignan et al. 1999), enviropreneurial marketing (Menon and Menon 1997), and corporate environmentalism (Banerjee et al. 2003) have emerged as important topics specific to marketing research. Without question, considerable progress has been made to understand the importance of sustainable business practices in marketing and many other fields (Varadarajan 2010).

However, despite these advances, sustainability research has not become a widely studied topic in premier marketing journals. In fact, this research domain can offer an essential conceptual basis and respond to calls for renewed knowledge development in the marketing field (Yadav 2010). Taking the perspective that areas of scientific inquiry develop over time (Kuhn 1996), this study has four integral objectives: (1) to propose that future research distinguishes environmental characteristics of sustainability from social characteristics; (2) to increase the visibility of sustainability research in top-tier marketing research; (3) to propose a meaningful and relevant framework that synthesizes the sustainability literature with prevailing trends in marketing; and (4) to advance the application of bibliometric studies in marketing as a basis for contribution to theory.

To accomplish this, our study uses multidimensional scaling (MDS) to conduct a longitudinal bibliometric evaluation of the field's intellectual structure. This is done with 76,342 citations from 1,320 sustainability-focused articles in 36 academic journals over 51 years. Then, we relate the findings to advance a typology and framework specific to the sustainability context. Supported by the capabilities-based resource perspective, the typology is comprised of established sustainability topics: focus (external-internal), emphasis (social-environmental), and intent (legal-ethical-discretionary). Then, the typology is related to an integrated framework that establishes sustainability-influenced marketing assets as: (1) the result of capabilities-based resources; and (2) antecedents to financial performance.

The rest of this study is organized in four parts. First, we review extant marketing literature focusing on sustainability and provide an overview of social network theory as the underlying foundation for this MDS-based study. Then, we present details regarding the method and specifications of the analysis. This is followed by an overview of the results. We conclude with a discussion outlining future research recommendations, an integrated sustainability framework, and limitations of the current study.

Sustainability and marketing

Sustainability refers to “development that meets the needs of the present without compromising the ability of future generations to meet their own needs” (World Commission on Environment and Development 1987). In fact, this topic has become an attractive method for business to view its responsibilities through the Triple Bottom Line (TBL), a perspective based on three important dimensions: environmental quality, social equity, and economic prosperity (Elkington 1998). Similar to more established marketing research, these dimensions can be viewed as the basis for integral market-oriented resources, capabilities, and competitive advantage vis-à-vis marketplace competitors (Barney 1991; Hunt and Morgan 1995; Jaworski and Kohli 1993; Kohli and Jaworski 1990; Narver and Slater 1990; Slater and Narver 1995).

First, the environmental dimension focuses on firm activities that do not erode natural resources through corporate environmental management (Bansal 2005; Hart 1995). Then, the social dimension encourages firms to consider their impact on society and addresses issues akin to community relations, education support, and charitable contributions (Elkington 1998; Wood 1991). Finally, the economic dimension centers on the value creation and enhanced financial performance of a firm's activities (Bansal 2005). With competitive performance, firms can improve quality of life by employment (cf. Hart 1997) and by different products that fill customer demand (Bansal 2005). A number of studies in the marketing literature have examined the implications of these TBL dimensions on firm activities, customer responses, and overall performance.

Environmental dimension

Extant research examining the environmental dimension of sustainability has typically concentrated on the antecedents of environmental strategy integration (Banerjee et al. 2003; Menon and Menon 1997) and the performance outcomes of such initiatives (Baker and Sinkula 2005; Menon and Menon 1997). One example recognized the increased prevalence of environmental concern in the marketplace and examined environmentally responsible corporate purchasing (Drumwright 1994). Findings indicated that the presence of policy entrepreneurs, support of top management, and threat of regulation were integral for successful implementation.

This research topic was extended by the development of antecedents and consequences to environmental strategy integration (Menon and Menon 1997). In enviropreneurial marketing, additional antecedents were examined to measure the influence of regulatory power, competitive intensity, and internal polity. Furthermore, superior business

performance and corporate reputation were identified as important outcomes to enviropreneurial strategies. This provided the basis for the continued operationalization of environmental marketing strategy modeling. One example studied the importance of external and internal environmental orientation as well as corporate environmental strategy to suggest that top management commitment is the most influential driver of corporate environmentalism (Banerjee et al. 2003). Another study examined the tenets of the resource-based view (RBV) within the context of enviropreneurialism and found that such an orientation led to new product success and competitive advantage, but it also indicated that environmentalism and performance were not mutually exclusive (Baker and Sinkula 2005). As such, this provides a clear indication of the environmental dimension's importance for continued study in the sustainability literature.

Social dimension

As a second capabilities-based resource from which the firm may draw, CSR is one of the most prevalent topics concerning the social dimension studied in sustainability research (Lichtenstein et al. 2004; Robin and Reidenbach 1987). Since it has a focal role in marketing research related to social issues, CSR has been examined with cause-related marketing (Varadarajan and Menon 1988), customer response (Brown and Dacin 1997), and corporate performance (Luo and Bhattacharya 2006). In general, the roles of consumer choice, perception, and support (Barone et al. 2000; Handelman and Arnold 1999) as well as employee motivation (Drumwright 1996) have been important elements in the success of socially-focused initiatives.

However, relating the specific topic of CSR to corporate social performance (CSP) indicates a developing trend by studying the direct and moderating effects of sustainability's influence on performance measures (Luo and Bhattacharya 2006, 2009; Sen and Bhattacharya 2001). One approach has been to examine the influence of consumer-based CSR associations which "reflect the organization's status and activities with respect to its perceived societal obligations" (Brown and Dacin 1997, p. 68). Another approach has emphasized the moderating influence of brand competitiveness (Berens et al. 2005; Du et al. 2007) and perceived corporate motives (Ellen et al. 2006) on the CSR-performance relationship. Regardless of the approach, it is clear that consumer perceptions are viewed as integral to the performance of socially-based sustainability strategies.

Economic dimension

Among the three dimensions of sustainability, the economic dimension has received the most attention to date. More

specifically, previous studies have examined the relationship among marketing resources, capabilities, assets, and performance. One area has focused on identifying the marketing resources and capabilities required to develop a competitive advantage and contribute to performance. Drawing from the RBV (Barney 1991) and resource advantage theory (Hunt and Morgan 1995), several studies have found that organizational learning (Slater and Narver 1995), marketing expertise (Capron and Hulland 1999), enviropreneurial marketing (Baker and Sinkula 2005), entrepreneurial orientation (Luo et al. 2005; Zhou et al. 2005), and market orientation (Luo et al. 2005; Menguc and Auh 2006) are strategic capabilities-based resources leading to superior performance. An essential component to this process is the development of distinctive market sensing and customer response capabilities (Day 1994; Jayachandran et al. 2004; Li and Calantone 1998). In fact, many previous findings clearly indicate that firms lacking such capabilities are at a competitive disadvantage and, as a result, cannot contribute effectively to the economic dimension of sustainability.

Social network theory

Social network theory examines social structures as systems or networks of relations (Scott 1991). More specifically, a social network is a set of entities (e.g., individuals, departments, firms, or countries) connected to one another by a series of relationships that can be represented graphically by a set of nodes connected by lines (Lincoln 1982). Within this framework, a basic assumption is that structure is important (Borgatti et al. 2009). As such, the focus of this perspective is on relationship patterns as well as their causes and consequences (Tichy and Fombrun 1979). Such an emphasis on these ties makes social network theory appropriate for the study of co-citations. Using this approach, nodes represent influential scholarly works joined by the co-citations made in published research (Chabowski et al. 2010).

In fact, several properties characterize social networks. These properties include the transactional content of exchanges, the nature of the links between joined entities, and the structural characteristics of the network (Tichy et al. 1979). The transactional content refers to the flows or exchange from one entity to another. In the context of this study, such flows consist of knowledge, influence, and ideas (cf. Pieters et al. 1999).

The next property, the nature of the links made, primarily focuses on the strength of the relation between a pair of joined entities (Tichy et al. 1979), which in turn depends on the relation's intensity, reciprocity, intimacy, and duration (Granovetter 1973). Strong links are perceived

to carry overlapping knowledge, whereas weaker links circulate novel and different types of information. As such, weak links serve boundary-spanning roles, bringing together different networks and giving them access to otherwise unavailable information (Lincoln 1982). This suggests that within the context of an intellectual structure, a strong tie between a pair of influential works transfers similar information related to a particular research stream, while a weak tie exchanges divergent information from different streams of research, hence connecting distinct areas of study.

The third property of networks, structural characteristics, describes the general pattern of relationships that exists among the system's entities (Tichy et al. 1979). Lincoln (1982) indicates that these characteristics can be examined at several levels of analysis: global networks (e.g., density, clustering); dyads (e.g., reciprocity, symmetry); and individual nodes (e.g., centrality). By examining the structural characteristics of a social network, a more complete understanding of its content is possible.

A branch within network analysis receiving considerable attention is the identification of network subgroups. This can be accomplished by using either a positional or relational approach (Mizruchi 1994). Positional models mainly focus on centrality and seek to identify sets of structurally equivalent entities (Burt 1980). However, as the approach employed in this study, relational models are based on the intensity of the relationships between joined entities (i.e., number of times a pair of influential works are cited jointly) and categorize densely connected network regions as research clusters (Burt 1980; Mizruchi 1994; Scott 1991). Stated differently, these clusters refer to an

area within a network where the entities are more closely connected to one another than to other entities in the network (Tichy et al. 1979). As such, entities within a cluster are considered relatively similar even though they differ from members of other clusters (Mizruchi 1994). In the context of co-citation-based intellectual structure analysis, the clusters identified represent particular theories or research streams.

Still, an important trait of social network theory and intellectual structure studies is that the structure of an academic research area changes over time (Carley 1999). Therefore, it is necessary to study co-citation networks longitudinally to understand the influence of cited works in the sustainability literature. By analyzing this research topic in such detail, we adopt the Kuhnian perspective to indicate that fields of scientific inquiry typically undergo change after new research themes contend with established ideas. As shown in the following sections, a more complete understanding of the most influential research to date can provide insight into the structure of sustainability research and be a basis for future research opportunities. The result is a progression that synthesizes distinct research areas over time for a more developed research community.

Method

As indicated in Table 1, we examined 1,320 articles in 36 marketing-related journals. Using search terms approved by a panel of knowledgeable sustainability researchers (see Table 2), 76,342 citations were collected from the *Social Sciences Citation Index (SSCI)* (Hult and Chabowski 2008;

Table 1 Journals included in study

<i>Academy of Management Journal</i> (105)	<i>Journal of Consumer Research</i> (27)
<i>Academy of Management Review</i> (88)	<i>Journal of International Business Studies</i> (34)
<i>Administrative Science Quarterly</i> (27)	<i>Journal of Interactive Marketing</i> (1)
<i>California Management Review</i> (81)	<i>Journal of International Marketing</i> (14)
<i>Decision Sciences</i> (13)	<i>Journal of Management</i> (107)
<i>European Journal of Marketing</i> (21)	<i>Journal of Management Studies</i> (77)
<i>International Journal of Advertising</i> (4)	<i>Journal of Marketing</i> (43)
<i>International Journal of Market Research</i> (9)	<i>Journal of Marketing Research</i> (18)
<i>International Journal of Research in Marketing</i> (15)	<i>Journal of Product Innovation Management</i> (13)
<i>Industrial Marketing Management</i> (42)	<i>Journal of Public Policy & Marketing</i> (60)
<i>International Marketing Review</i> (19)	<i>Journal of Retailing</i> (25)
<i>Journal of Advertising</i> (35)	<i>Journal of Service Research</i> (10)
<i>Journal of Advertising Research</i> (13)	<i>Long Range Planning</i> (65)
<i>Journal of the Academy of Marketing Science</i> (35)	<i>Marketing Science</i> (13)
<i>Journal of Business-to-Business Marketing</i> (3)	<i>Marketing Letters</i> (4)
<i>Journal of Business & Industrial Marketing</i> (4)	<i>Management Science</i> (60)
<i>Journal of Business Research</i> (130)	<i>Organization Science</i> (47)
<i>Journal of Consumer Psychology</i> (7)	<i>Strategic Management Journal</i> (51)

Note: Values indicate the number of sustainability articles from each journal included in the analysis based on the search terms used.

Table 2 Sustainability search terms used for study

Inclusion search terms:	
Climate change (23)	Carbon (6)
People, planet, and profit (0)	Conservation (59)
Social, environmental, and economic (24)	EPA (3)
Base of the pyramid (2)	Triple bottom line (1)
Bottom of the pyramid (8)	Fair trade (26)
Corporate social responsibility (214)	Organic (43)
CSR (58)	Cradle (3)
Corporate social performance (242)	Citizen (312)
CSP (16)	Protectionism (12)
Stakeholder theory (136)	
Ethics (512)	
Green (226)	Exclusion search terms:
Human rights (136)	Socialism
NGO (19)	Socialist
Pollution (57)	Sustainable competitive advantage
Emissions (13)	Greenfield

Note: Values indicate the number of articles in our sample related to each sustainability concept. Values for each inclusion search term were determined by including this study's exclusion search terms. Totals do not equal the number of articles included in the study due to multiple search term applications in some articles.

McCain 1990; Ramos-Rodríguez and Ruíz-Navarro 2004). Articles qualifying for our analysis began in 1958 and continued through 2008. Based on a thorough examination of the literature, the “inclusion search terms” used included articles in the *SSCI* considered relevant to this study. Meanwhile, the “exclusion search terms” discarded the *SSCI* articles beyond the domain of sustainability research.

The data were split into three distinct time periods (1950s–1980s, 1990s, and 2000s) to facilitate analysis of the sustainability literature's longitudinal development (Cornelius et al. 2006). The first chronological separation at 1990 distinguishes early sustainability research (1950s–1980s) from more current studies on the topic (1990s and 2000s). This separation is justified by three events: (1) the chemical release in Bhopal, India, in 1984; (2) the World Commission on Environment and Development report published in 1987; and (3) the oil spill near Valdez, Alaska, in 1989. Taken together, these issues were a catalyst for a renewal in sustainability research beginning in the 1990s. The second chronological separation divides research published in the 1990s from the 2000s and reflects the requirement to evaluate longitudinally more recent sustainability research such that research development and advancement may be inferred (Carley 1999).

Following previous intellectual structure studies, we limited the scope of each time period to the top 25 influential

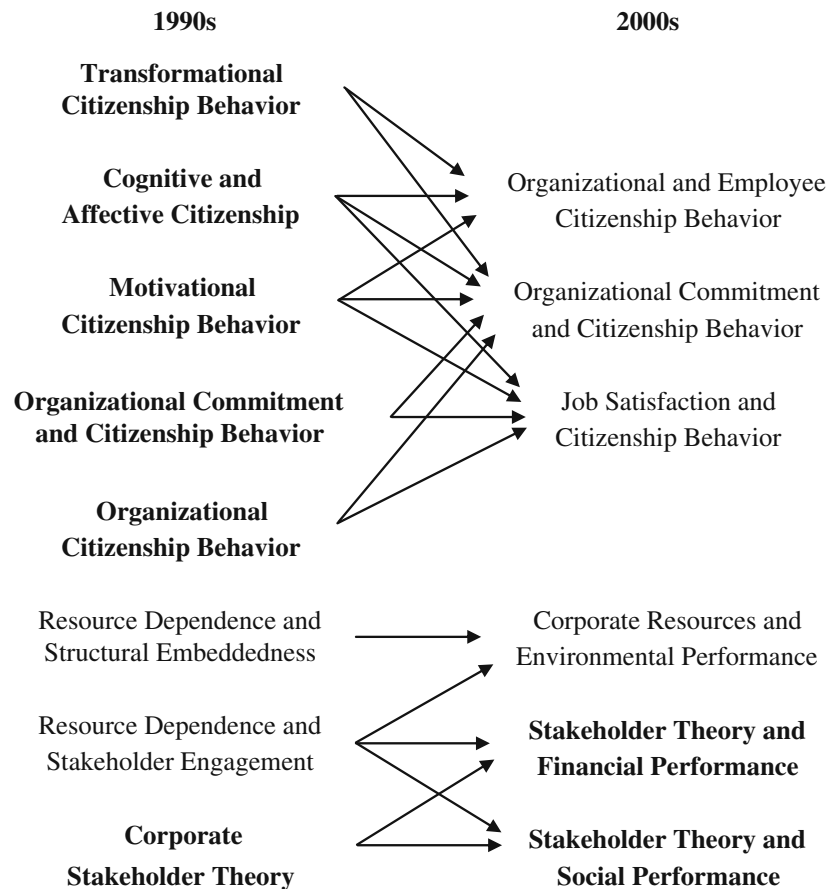
works. This is done to minimize model instability while maintaining the integrity of the findings and their relevance to the sustainability literature (Burt 1983; Ramos-Rodríguez and Ruíz-Navarro 2004). However, due to identical citation counts among some papers in each period's list of influential works, 31 influential works were included in the 1950s–1980s and 1990s analyses while 26 works were in the 2000s analysis. The use of co-citations is considered an objective measure of similarity in a research domain (Garfield 1979; McCain 1990). Therefore, co-citation matrices were developed for each time period and subsequently standardized and prepared for analysis. Each period's stress values ranged between 0.09 and 0.10 to indicate a good model fit (Ramos-Rodríguez and Ruíz-Navarro 2004). The standardized distance used to cluster the influential works into specific research topics was 0.25 (McCain 1986; Scott 2000; Small 1999). As a heightened form of research cluster, research cliques were examined based on possessing three or more influential works (Alba and Moore 1983; Wasserman and Faust 1994). To indicate the development of sustainability research shown in Table 3, predecessor and successor clusters were determined based on the longitudinal commonalities across research clusters (Cornelius et al. 2006; Hult and Chabowski 2008). The terms used to identify each cluster were validated by a panel of informed sustainability researchers.

Results

The first component of this section provides an overview of early trends in sustainability research during the 1950s–1980s (Fig. 1). The second part discusses important issues in the 1990s (Fig. 2). The last portion outlines the main themes during the 2000s (Fig. 3). In each subsection, we discuss the longitudinal relationship of sustainability literature trends as they relate to the research clusters determined in this study.

Intellectual structure of sustainability research, 1950s–1980s

As eight of the ten research clusters in Fig. 1 emphasized ethics during this period, there is little doubt of this topic's predominance in the early years of sustainability research. The two research cliques during this period focused on distinct facets of this issue: one clique emphasized the practical application of managerial marketing ethics (Cluster 6) while another research clique examined marketing ethics frameworks (Cluster 7). Indicating the prolific nature of this topic, research on the practical application of ethics in marketing included an emphasis on advertising and sales (Cluster 3) as well as sales management (Cluster 4).

Table 3 Longitudinal development of sustainability intellectual structure

Note: Bolded name indicates a research clique.

Still, the nature of the sustainability literature was not focused entirely on ethics during this first period. In fact, there were two topics somewhat isolated from the considerable research activity on ethics. One theme studied environmentalism and emphasized consumer energy consumption and conservation (Cluster 1). Another topic examined the importance of corporate culture and ritual (Cluster 10) in sustainability research. These research areas were attempts to determine the sustainability literature's boundaries very early. As a result, detailed topics relating to some of these early issues can be found in later periods.

Based on the method used for this study, a direct relation cannot be established between early (1950s–1980s) and later (1990s and 2000s) research on sustainability. There are very few common influential works to determine predecessor and successor clusters between the 1950s–1980s and 1990s. In fact, only one influential work emphasizing ethical managerial decisions in marketing was found in both periods (Ferrell and Gresham 1985). This discontinuity is explained best by sustainability research undergoing an initial development stage during its first decades. In contrast to the last two decades, the exact topics for this research domain were still

being established. For example, an early notion in sustainability research that social responsibility may not necessarily contribute to the purpose of the firm (Friedman 1962) provided the basis in subsequent periods to examine the relevance of corporate resources and profitability. These issues are discussed subsequently in greater detail.

Intellectual structure of sustainability research, 1990s

As indicated in Fig. 2, there were some noteworthy trends beginning in this period. First, the topic of CSR (Cluster 2) became related to research on ethics (Cluster 1) as well as profitability (Cluster 14). Second, sustainability research emphasizing resource dependence (Clusters 11 and 12) as well as competitiveness and profitability (Clusters 14, 15, and 16) introduced the economic element found to be scarce in the previous period. Finally, as a research clique in the 1990s focused on ethical decision making in marketing (Cluster 1), ethics continued as an integral component of the sustainability literature.

However, the most abundant research during this period focused on the theme of citizenship. In fact, six research

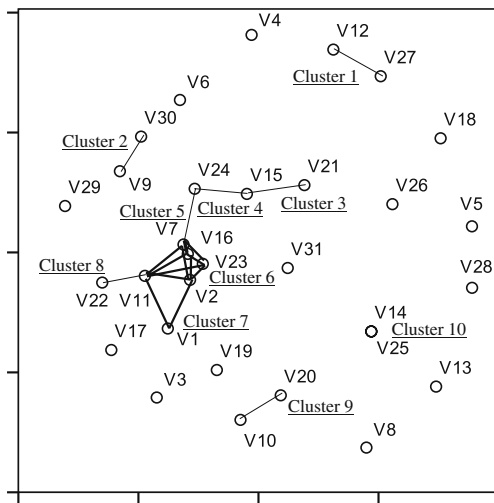


Fig. 1 Sustainability intellectual structure, 1950s–1980s

Notes:

Stress: 0.10; Standardized distance: 0.25; Bolded lines indicate research clique.

Cluster 1 (V12 and V27): Consumer Energy Consumption and Conservation; Cluster 2 (V9 and V30): Predictive Managerial Ethical Behavior; Cluster 3 (V15 and V21): Advertising and Sales Ethics; Cluster 4 (V15 and V24): Sales Management Ethics; Cluster 5 (V7 and V24): Dynamic Managerial Ethics; Cluster 6 (V2, V7, V11, V16, and V23): Managerial Marketing Ethics; Cluster 7 (V1, V2, and V11): Marketing Ethics Frameworks; Cluster 8 (V16 and V22): Ethical Marketing Manager Analysis; Cluster 9 (V10 and V20): Marketing Management Ethics Programs; Cluster 10 (V14 and V25): Corporate Culture and Ritual

V1 = Bartels (1967); V2 = Baumhart (1961); V3 = Blankenship (1964); V4 = Blau and Schoenherr (1971); V5 = Bowman and Haire (1975); V6 = Bowman (1976); V7 = Brenner and Molander (1977); V8 = Burns and Stalker (1961); V9 = Carroll (1975); V10 = Chonko and Hunt (1985); V11 = Crawford (1970); V12 = Cunningham and Lopreato (1977); V13 = Cyert and March (1963); V14 = Deal and Kennedy (1982); V15 = Dubinsky, Berkowitz, and Rudelius (1980); V16 = Ferrell and Weaver (1978); V17 = Ferrell and Gresham (1985); V18 = Friedman (1962); V19 = Hunt, Chonko, and Wilcox (1984); V20 = Kaikati and Label (1980); V21 = Krugman and Ferrell (1981); V22 = Laczniak (1983); V23 = Murphy and Laczniak (1981); V24 = Newstrom and Ruch (1975); V25 = Peters and Waterman (1982); V26 = Rawls (1971); V27 = Ritchie, McDougall, and Claxton (1981); V28 = Sturdivant and Ginter (1977); V29 = Tybout and Zaltman (1974); V30 = Zey-Ferrell, Weaver, and Ferrell (1979); V31 = Zey-Ferrell and Ferrell (1982)

cliques examined this internal organizational topic: citizenship and prosocial behavior (Cluster 4), organizational commitment and citizenship behavior (Cluster 5), organizational citizenship behavior (Cluster 6), cognitive and affective citizenship (Cluster 7), motivational citizenship behavior (Cluster 8), and transformational citizenship behavior (Cluster 9). After considering the influence of this research topic on our study’s last period, there is little doubt that citizenship research provides compelling insight into the importance of decisions made implicitly and explicitly within the firm.

In contrast, a research clique on corporate stakeholder theory (Cluster 13) examines the relevance of external organizational factors. Taken together with research on resource dependence and stakeholder engagement (Cluster 12), the lasting importance of the firm as an organization

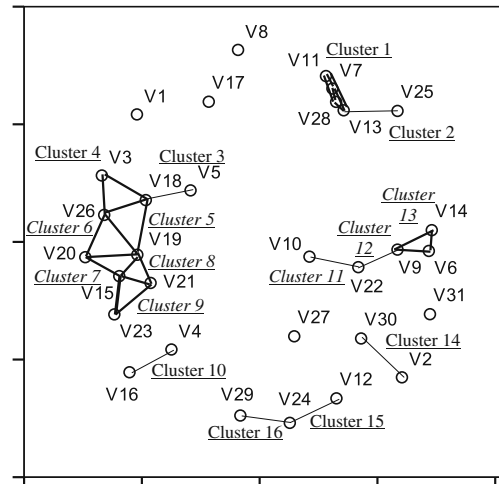


Fig. 2 Sustainability intellectual structure, 1990s

Notes:

Stress: 0.09; Standardized distance: 0.25; Bolded lines indicate research clique; Italicized name indicates predecessor cluster.

Cluster 1 (V7, V11, V13, and V28): Ethical Decision Making in Marketing; Cluster 2 (V13 and V25): Social Responsibility in Marketing; Cluster 3 (V5 and V18): Prosocial Organizational Behavior; Cluster 4 (V3, V18, and V26): Citizenship and Prosocial Behavior; Cluster 5 (V18, V19, and V26): Organizational Commitment and Citizenship Behavior; Cluster 6 (V19, V20, and V26): Organizational Citizenship Behavior; Cluster 7 (V15, V19, and V20): Cognitive and Affective Citizenship; Cluster 8 (V15, V19, and V21): Motivational Citizenship Behavior; Cluster 9 (V15, V21, and V23): Transformational Citizenship Behavior; Cluster 10 (V4 and V16): Organizational Citizenship and Social Exchange; Cluster 11 (V10 and V22): Resource Dependence and Structural Embeddedness; Cluster 12 (V9 and V22): Resource Dependence and Stakeholder Engagement; Cluster 13 (V6, V9, and V14): Corporate Stakeholder Theory; Cluster 14 (V2 and V30): Corporate Social Responsibility, Relational Contracting, and Profitability; Cluster 15 (V12 and V24): Agency Costs and Competitive Strategy; Cluster 16 (V24 and V29): Transaction Costs and Competitive Strategy

V1 = Anderson and Gerbing (1988); V2 = Aupperle, Carroll, and Hatfield (1985); V3 = Bateman and Organ (1983); V4 = Blau (1964); V5 = Brief and Motowidlo (1986); V6 = Donaldson and Preston (1995); V7 = Ferrell and Gresham (1985); V8 = Fishbein and Ajzen (1975); V9 = Freeman (1984); V10 = Granovetter (1985); V11 = Hunt and Vitell (1986); V12 = Jensen and Meckling (1976); V13 = Jones (1991); V14 = Jones (1995); V15 = Moorman (1991); V16 = Niehoff and Moorman (1993); V17 = Nunnally (1978); V18 = O’Reilly and Chatman (1986); V19 = Organ (1988); V20 = Organ and Konovsky (1989); V21 = Organ (1990); V22 = Pfeffer and Salancik (1978); V23 = Podsakoff, MacKenzie, Moorman, and Fetter (1990); V24 = Porter (1980); V25 = Robin and Reidenbach (1987); V26 = Smith, Organ, and Near (1983); V27 = Thompson (1967); V28 = Trevino (1986); V29 = Williamson (1975); V30 = Williamson (1985); V31 = Wood (1991)

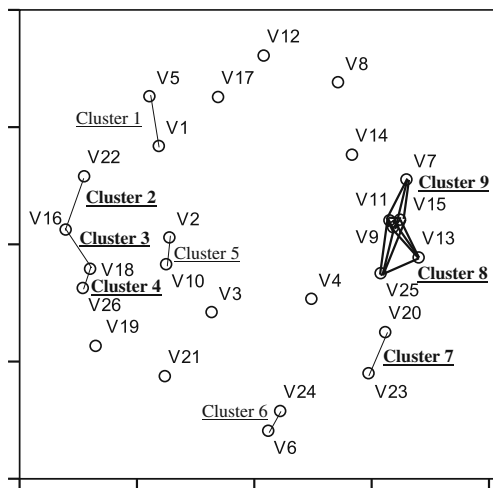


Fig. 3 Sustainability intellectual structure, 2000s

Notes:

Stress: 0.09; Standardized distance: 0.25 Bolded lines indicate research clique Bolded name indicates successor cluster.

Cluster 1 (V1 and V5): Moderation and Mediation Effects; **Cluster 2** (V16 and V22): Organizational and Employee Citizenship Behavior; **Cluster 3** (V16 and V18): Organizational Commitment and Citizenship Behavior; **Cluster 4** (V18 and V26): Job Satisfaction and Citizenship Behavior; **Cluster 5** (V2 and V10): Structural Equation Modeling; **Cluster 6** (V6 and V24): Corporate Social Responsibility and Consumer Response; **Cluster 7** (V20 and V23): Corporate Resources and Environmental Performance; **Cluster 8** (V9, V11, V13, V15, and V25): Stakeholder Theory and Financial Performance; **Cluster 9** (V7, V9, V11, and V15): Stakeholder Theory and Social Performance

V1 = Aiken and West (1991); V2 = Anderson and Gerbing (1988); V3 = Armstrong and Overton (1977); V4 = Barney (1991); V5 = Baron and Kenny (1986); V6 = Brown and Dacin (1997); V7 = Clarkson (1995); V8 = DiMaggio and Powell (1983); V9 = Donaldson and Preston (1995); V10 = Fornell and Larcker (1981); V11 = Freeman (1984); V12 = Hofstede (1980); V13 = Jones (1995); V14 = McWilliams and Siegel (2001); V15 = Mitchell, Agle, and Wood (1997); V16 = Moorman (1991); V17 = Nunnally (1978); V18 = Organ (1988); V19 = Organ and Ryan (1995); V20 = Pfeffer and Salancik (1978); V21 = Podsakoff and Organ (1986); V22 = Podsakoff, MacKenzie, Paine, and Bachrach (2000); V23 = Russo and Fouts (1997); V24 = Sen and Bhattacharya (2001); V25 = Waddock and Graves (1997); V26 = Williams and Anderson (1991)

within a larger network of organizations provides considerable opportunities to contribute to sustainability research further.

Intellectual structure of sustainability research, 2000s

The last period included in this study gave greater insight into the recent trends in sustainability research. As found in Fig. 3, CSR continued as an integral research area (e.g., Cluster 6). Additionally, methods topics such as moderation and mediation effects (Cluster 1) as well as structural equation modeling (Cluster 5) indicate a maturation of the general research domain.

The importance of citizenship continued in the 2000s as well. However, the concept expanded to include the importance of organizational and employee citizenship behavior (Cluster 2), organizational commitment and citizenship behavior (Cluster 3), and job satisfaction and citizenship behavior (Cluster 4). As such, this indicates the development of citizenship-focused research into an essential sustainability topic.

Likewise, a shift in externally-focused research on stakeholders was noteworthy due to a greater emphasis on firm resources and competitive performance. As noted in the two research cliques with this theme, stakeholder theory was extended in this period to include issues related to financial performance (Cluster 8) as well as social performance (Cluster 9). Still, the importance of corporate resources and environmental performance (Cluster 7) in the sustainability literature confirms the importance of the TBL (e.g., Elkington 1998) during this period.

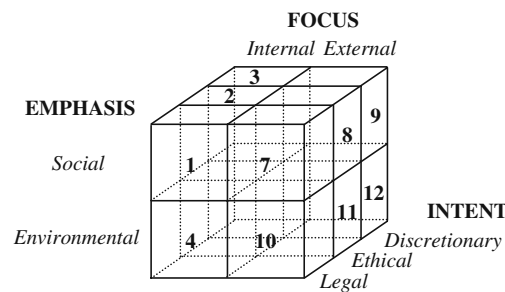
Discussion

The three parts in this section provide the basis for considerable discussion of the sustainability literature. Based on an integrated sustainability-focused typology (see Fig. 4), specific future research recommendations are proposed to provide an agenda for sustainability research (see Table 4). This is accomplished by relating sustainability's current intellectual structure to recent research trends identified in the 2000s (Burrell 2002; Kuhn 1996). Then, we develop a sustainability-specific framework as a possible basis for continued research in this area (see Fig. 5). Finally, limitations related to our study are presented. Taken together, these three parts synthesize the conceptual contribution possible to advance knowledge in both the sustainability literature and the marketing field (Yadav 2010).

Future research recommendations

Considerable research on sustainability provides the opportunity to make a substantial contribution to mainstream marketing theory. Many recent studies have proposed and examined frameworks assessing specific aspects of this research area. However, few have been based on bibliometric analysis and subsequently justified by recent trends in the literature. Therefore, the underlying basis for our future research recommendations examines the three inter-related processes that convert resources to sustainable competitive advantage. First, resources can develop into capabilities (Barney 1991). Second, capabilities can become a competitive advantage (Day 1994). Finally, competitive advantage can develop into a sustainable competitive

Fig. 4 A three-dimensional sustainability typology



Capabilities-Based Resource	Position	Sample Topic	Sample Study
external-environmental-discretionary	12	Voluntary regulatory cooperation	Buyse and Verbeke (2003)
external-environmental-ethical	11	Development of environmental solutions for customers	Sharma, Iyer, Mehrotra, and Krishnan (2010)
external-environmental-legal	10	Pollution reduction legislation compliance	Nehrt (1998)
external-social-discretionary	9	Cause-specific donations	Dean (2003)
external-social-ethical	8	Taking responsibility in product safety crisis	Siomkos (1999)
external-social-legal	7	Product safety requirements adherence	Morgan (1988); Tse (1999)
internal-environmental-discretionary	6	Alignment of employee environmental concerns with firm strategy	Bansal (2003)
internal-environmental-ethical	5	Development of environmental solutions for suppliers	Drumwright (1994)
internal-environmental-legal	4	Waste disposal requirements compliance	Rothenberg (2007)
internal-social-discretionary	3	Employee volunteer programs	Bhattacharya, Sen, and Korschun (2008)
internal-social-ethical	2	State of ethical workplace conditions	Kaptein (2008)
internal-social-legal	1	Employee safety guidelines	Buehler and Shetty (1974); Foote (1984)

advantage (Day and Wensley 1988). However, the dynamic nature of competitive resource development is dependent on three integral capabilities: intelligence generation, dissemination, and responsiveness (Eisenhardt and Martin 2000; Jaworski and Kohli 1993; Kohli and Jaworski 1990; Narver and Slater 1990; Teece et al. 1997). As a result, this allows the firm to utilize its resources and capabilities more effectively and create a competitive advantage. Also, this suggests that financial performance can influence future allocations of resources and capabilities in the firm (Day and Wensley 1988). We rely on this capabilities-based resource approach to advance future research recommendations and develop an integrated and theory-based framework for further examination in the sustainability literature.

In fact, the capabilities-based resources a firm develops can be integrated into a three-dimensional framework that relates a firm’s sustainability focus (external-internal), emphasis (social-environmental), and intent (legal-ethical-discretionary) to marketing assets. Then, based on this perspective, the marketing assets developed can influence financial performance. Finally, due to the iterative nature of strategic performance and capability configuration in firms, financial performance then is related to the future focus, emphasis, and intent of the firm. As such, the dimensions of

sustainability receiving performance-focused support tend to be those which most effectively influence marketing assets and financial performance in the future.

Concerning the external and internal sustainability issues related to the organization (Maignan and Ferrell 2004), external features have focused on stakeholders (Choi and Wang 2009; Laplume et al. 2008) and include topics centered on cause-related marketing (Arora and Henderson 2007; Hart 1997; Krishna and Rajan 2009; Simmons and Becker-Olsen 2006), external risk management (Godfrey et al. 2009; Lash and Wellington 2007), and activism-motivated strategy (Den Hond and De Bakker 2007; King and Soule 2007). Meanwhile, internal aspects relate to citizenship behaviors (Matten and Crane 2005) as well as the intrafirm adoption of clean technology or pollution prevention programs (Hart 1997). They may also include the organizational culture established and implemented by leadership, management, and employees (Abela and Murphy 2008; Christmann 2004; Goldstein et al. 2008; Heugens et al. 2008; Maxham et al. 2008; Waldman et al. 2006). Taken together, this indicates that both external stakeholders (Choi and Wang 2009; Harrison et al. 2010) as well as the organization itself (Matten and Crane 2005) can increase competitive and lasting resources for the firm. As such,

Table 4 Recent trends in sustainability research and future research recommendations

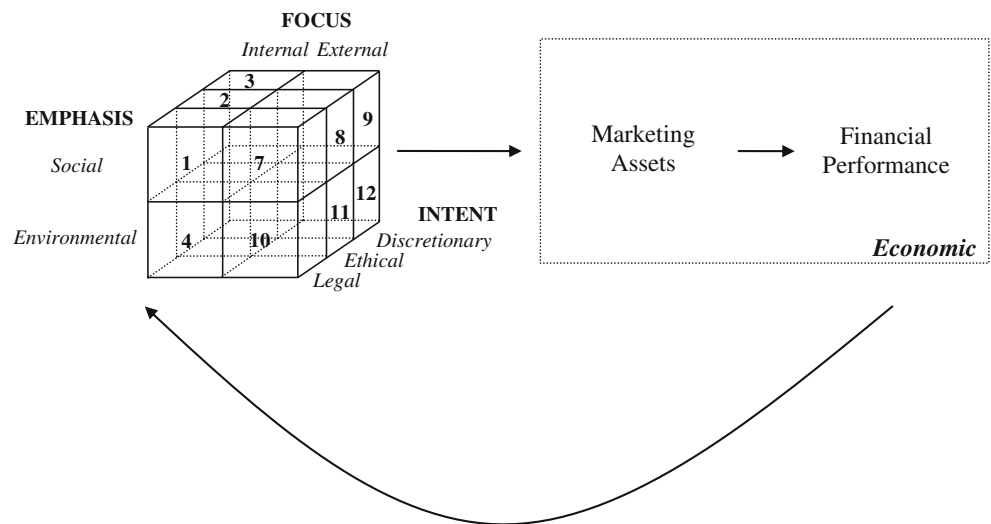
Themes	Recent research trends	Future research recommendations	Possible measurement opportunities
External-Internal Focus			
External	Increased emphasis on external stakeholder-related issues as well as financial and social performance	Investigate the capabilities-based resources which are developed internally and externally to create marketplace advantage for the firm	Stakeholder activities, stakeholder-driven strategies, external risk management, activism-motivated strategies
Internal	Research on organizational citizenship with a particular focus on employee behavior and satisfaction	Examine the interaction effects between the external-internal focus of sustainability-based capabilities and other dimensions (e.g., social-environmental emphasis)	Citizenship behaviors, organizational culture, top management commitment, employee motivation, corporate identity
Social-Environmental Emphasis			
Social	Growing interest in stakeholder theory and issues related to social performance	Distinguish between socially- and environmentally-focused issues to examine the influence of each on marketing outcomes and competitive advantage	Stakeholder orientation, stakeholder activities, stakeholder-driven strategies, stakeholder performance, institutional orientation, social sponsorships
Environmental	Increased focus on the corporation's responsibility concerning environmental issues Research relating corporate resources and environmental performance	Explore the relative importance of socially- and environmentally-focused practices in shaping customers' attitudes and their behaviors toward the firm	Environmental orientation, environmental responsiveness, environmental strategy, environmental risk management
Legal-Ethical-Discretionary Intent			
Legal	Emphasis on legislators and regulators as important stakeholders that influence marketing activities	Incorporate the different levels of responsibility (i.e., legal, ethical, and discretionary) into the analysis to examine their relative effects on sustainability-based marketing assets and firm performance	Political accountability, regulatory compliance, political strategies, regulatory controversies
Ethical	Focus on citizenship behaviors among organizations and employees		Ethical leadership, ethical climate, top management ethical sensitivity, code of ethics content
Discretionary	Research examining organizational commitment as well as measuring environmental and social performance		Institutional actions, charitable donations, corporate philanthropy, employee volunteer programs
Marketing Assets			
	Examination of the role of corporate social responsibility in the brand process and the improvement of brand equity	Examine the influence of sustainability-based resources and capabilities on different marketing assets	Brand equity, corporate reputation, customer satisfaction, corporate social performance, corporate environmental performance, weighted average cost of capital
	Focus on how the actions and strategies implemented by the organization impact corporate reputation	Develop distinct socially- and environmentally-focused measures of sustainability-based marketing assets	
Financial Performance			
	Increased interest in examining stakeholder theory and financial performance	Examine the relationship between sustainability-based marketing assets and financial performance	Return on assets, return on equity, return on sales, profitability, sales turnover, sales growth, cash flow change, Tobin's Q, Altman's Z
	Emphasis on resource dependence and overall corporate performance	Investigate other sustainability-related determinants of financial performance	

future sustainability studies should examine in tandem the external and internal capabilities-based resources creating a marketplace advantage for the firm.

Then, a firm can develop competitive capabilities-based resources with a social or environmental emphasis (Brown and Dacin 1997; Christmann 2000; Reinhardt 1999;

Sharfman and Fernando 2008). As a profound insight resulting from our analysis, the clear distinction between social and environmental resources and capabilities is imperative for the enrichment of the sustainability literature. There is little doubt the multifaceted nature of CSR (cf. Sen et al. 2006) is indeed a capabilities-based resource (Choi and

Fig. 5 Integrated sustainability research framework



Capabilities-Based Resource	Order of Influence on Marketing Assets
external-environmental-discretionary	12
external-environmental-ethical	11
external-environmental-legal	10
external-social-discretionary	9
external-social-ethical	8
external-social-legal	7
internal-environmental-discretionary	6
internal-environmental-ethical	5
internal-environmental-legal	4
internal-social-discretionary	3
internal-social-ethical	2
internal-social-legal	1

Wang 2009; Godfrey et al. 2009; Luo and Bhattacharya 2006; Strike et al. 2006). However, this has led the CSR concept to be examined as both a socially- and environmentally-based construct (Aguilera et al. 2007; Ellen et al. 2006; Godfrey et al. 2009; Matten and Moon 2008; Scherer and Palazzo 2007; Yoon et al. 2006). Therefore, we suggest that future researchers distinguish capabilities-based resources as either social or environmental (Christmann and Taylor 2006; Hart 1997; Lockwood 2006). With a renewed focus on the responsibility of corporate activities, sustainability research has the opportunity to develop further and contribute to marketing research as a whole.

In addition, the economic performance provided by marketing assets is a result of capabilities-based resources that create a positional advantage in the marketplace (Day 1994; Elkington 1998). Measures such as CSR, social causes and sponsorships, and environmental risk management have been linked independently to marketing assets (e.g., customer satisfaction, brand equity, and corporate reputation) in the past (Arora and Henderson 2007; Du et al. 2007; Krishna and Rajan 2009; Luo and Bhattacharya 2006; Sen et al. 2006; Sharfman and Fernando 2008; Simmons and Becker-Olsen 2006). Meanwhile, sustainability-based mar-

keting assets have been studied with a dual social and environmental emphasis of CSP (Hull and Rothenberg 2008; Waddock and Graves 1997; Wood 1991). However, we propose that socially- and environmentally-focused measures of marketing assets be separated in future studies (Christmann and Taylor 2006). This is based, in part, on the emerging distinction between CSP (Heugens et al. 2008) and corporate environmental performance (CEP) (Russo and Fouts 1997). In fact, performance measures related to social accountability and climate competitiveness are distinct and, therefore, should be separated when examining the positional result of sustainability activities (Christmann and Taylor 2006; Lash and Wellington 2007).

Additionally, a firm can develop competitive resources and capabilities based on whether the intent is legal, ethical, or discretionary (Carroll 1979). Legal issues related to sustainability can address compliance with pollution legislation (Nehrt 1998), waste disposal requirements (Rothenberg 2007), product safety regulations (Morgan 1988; Tse 1999), or employee safety guidelines (Buehler and Shetty 1974; Foote 1984). Also, ethical topics include taking responsibility for a product safety crisis (Siomkos 1999), developing environmental solutions for customers and suppliers

(Drumwright 1994; Sharma et al. 2010), or evaluating the state of ethical workplace conditions (Kaptein 2008). Meanwhile, discretionary issues may focus on voluntary regulatory cooperation (Buysse and Verbeke 2003), cause-specific donations (Dean 2003), and employee volunteer programs (Bhattacharya et al. 2008).

Finally, economic and financial performance measures the influence of sustainable competitive advantage within a capabilities-based resource model (Day and Wensley 1988; Elkington 1998). Typically the sum of material damage and gain (Den Hond and De Bakker 2007), topics such as climate change, CSR, employee perceptions, and stakeholder orientation have been examined as direct antecedents to financial performance (Arya and Zhang 2009; Choi and Wang 2009; Godfrey et al. 2009; Lash and Wellington 2007). Considerably fewer studies have tested sustainability-influenced marketing assets as precursors to financial performance (Krishna and Rajan 2009; Luo and Bhattacharya 2006). Even though CSP has been posited and found to give the firm a positional advantage that leads to increased financial performance (Heugens et al. 2008; Hull and Rothenberg 2008), the influence of multiple sustainability-focused marketing assets on financial returns has yet to be examined thoroughly. Therefore, more research is required on this topic to advance sustainability and marketing research.

Integrated sustainability framework

As shown in our capabilities-based resource perspective, effective marketing activities inherently are focused on the market (Rust et al. 2004). Even though a firm's marketing efforts may include a focus on the supply chain, innovation, and customer, the marketplace evaluates the results of these efforts to provide specific marketing assets (Srivastava et al. 1998, 1999). As a result, sustainability-related capabilities focusing externally tend to be more easily assessed by customers, consumers, and the marketplace. Therefore, external sustainability resources should have a greater influence on marketing assets than internal capability-based resources.

The difference between social and environmental sustainable resources and capabilities is more subtle. Compared to social initiatives, an emphasis on environmental issues in companies is recent (Funk 2003). In fact, the importance on environmental initiatives has been indicated as pivotal for future corporate competitiveness (Nidumolu et al. 2009; Sharma et al. 2010). Even though the importance of socially-focused responsibility measures remains considerable, the recent emergence of environmental issues as a predominant topic in sustainability indicates that environmental capabilities should influence marketing assets to a greater degree.

The intent of a corporate strategy can be specified based on whether initiatives are legal, ethical, or discretionary (Carroll 1979). The importance of legality is that the rule of law is upheld, maintained, and supported by business activities (Basu and Palazzo 2008). Meanwhile, the relevance of ethical behavior in and by firms indicates an ability to exceed legal expectations (Kaptein 2008). Still, the significance of discretionary activities demonstrates the opportunities companies have to contribute actively and—at times—unexpectedly to specific betterment initiatives that promote a greater cause (Menguc and Ozanne 2005). As such, discretionary intent should have the most profound influence on marketing assets vis-à-vis ethical or legal intent. However, based on the notion that an emphasis on legality provides the base minimum required from a company, ethical intent should have the second strongest influence on marketing assets while legal intent should be least influential.

To provide sufficient value to future research, the three aspects of sustainability discussed (focus, emphasis, and intent) must be integrated for further examination. As specified, there are 12 possible conditions for capabilities-based resources focusing on sustainability including external-internal, social-environmental, and legal-ethical-discretionary measures. The external-internal focus of sustainability initiatives has the highest priority because it is a clear indication of corporate strategy (Maignan and Ferrell 2004). Therefore, externally-focused sustainability efforts will influence marketing assets more heavily (positions 7–12) than internal initiatives (positions 1–6). Meanwhile, a social-environmental emphasis has second priority due to its role as the implementation of sustainability tactics (Nidumolu et al. 2009). This suggests that environmental topics (positions 4, 5, 6, 10, 11, and 12) will influence marketing assets more than corporate social projects (positions 1, 2, 3, 7, 8, and 9). Finally, legal-ethical-discretionary intent has the least priority due to general expectations in the marketplace (Carroll 1979). Based on the influence of a firm's sustainability strategic intent, discretionary initiatives rank highest (positions 3, 6, 9, and 12), while ethical projects rank second (positions 2, 5, 8, and 11) and legal programs rank last (positions 1, 4, 7, and 10) in influence on marketing assets.

As a result, we propose the most influential position (external-environmental-discretionary) on marketing assets results from the visible, applicable, and proactive nature of corporate initiatives (Buysse and Verbeke 2003). In contrast, the least influential position (internal-social-legal) stems from the minimum requirements required and achieved by the company (Buehler and Shetty 1974). However, since both the typology and framework have yet to be examined in sufficient detail, future researchers must validate the prioritization outlined above. There may be conditions under which the external-environmental-

discretionary position (position 12) is not influential on specific marketing assets. Additionally, the internal-social-legal position (position 1) may not always have the weakest influence on marketing assets. As a result, rigorous testing in different conditions is required.

In fact, sustainability initiatives may influence a variety of marketing assets. For instance, socially-focused resources and capabilities likely exert notable influence on CSP (Ruf et al. 1998). Similarly, environmentally-focused sustainability measures may affect CEP to a considerable degree (Russo and Harrison 2005). However, noticeably less research has compared these relationships in a specific model. In addition to CSP and CEP, marketing assets which could be evaluated include the firm's weighted average cost of capital (WACC), customer satisfaction, brand equity, and corporate reputation (Luo and Bhattacharya 2006; Sharfman and Fernando 2008). These marketing assets, in turn, should influence a firm's financial performance (e.g., ROA, sales, Tobin's Q, Altman's Z, etc.). Therefore, we propose considerable effort be made in future sustainability research to comprehensively evaluate the mediating influence of marketing assets.

Additionally, the capabilities-based resource perspective suggests that financial performance can influence a firm's future resource and capability allocations. Thus, within the context of our framework, the result of financial performance on the focus (external-internal), emphasis (social-environmental), and intent (legal-ethical-discretionary) of sustainability initiatives is likely to maximize future returns. Therefore, financial performance is more likely to influence the capabilities-based resource positions which have greater influence on marketing assets (e.g., external-environmental-discretionary). However, this too has yet to be examined in great detail.

Limitations

At least four limitations were identified in the current analysis. First, some research journals with a specific emphasis on sustainability-related topics (e.g., *Journal of Business Ethics* and *Business Ethics Quarterly*) were not included since they were beyond the marketing theme of this study. Other journals with a marketing focus (e.g., *Journal of Macromarketing*) did not appear in our dataset because citation data were unavailable through *SSCI*. Even though we included other peer-reviewed marketing journals with a specific emphasis on sustainability (e.g., *Journal of Public Policy & Marketing*), there is the possibility that relevant content may have been excluded from our analysis. As such, researchers may aim to include these academic journals in future studies of the sustainability literature.

Second, the keywords used may not have been a complete list of possible search terms emphasizing sustainability topics. The knowledgeable researchers of this study

followed previous bibliometric practice and included many predominant topics in sustainability as a basis for our analysis (Hult and Chabowski 2008), but there may be other search terms which could result in more articles for the analysis. Therefore, continued research could use this study's keywords as a basis for future bibliometric studies on sustainability. However, depending on the scope of such analysis, other search terms may be required.

Third, the international nature of sustainability research was beyond the focus of this study. Though acknowledged as a phenomenon that crosses national boundaries frequently (Weitzel and Berns 2006), international issues focusing on topics such as corruption (Cuervo-Cazurra 2006; Kwok and Tadesse 2006; Luo 2006), corporate irresponsibility (Strike et al. 2006), institutional pressures (Husted and Allen 2006), and international standards (Christmann and Taylor 2006) were not examined in great detail. As such, additional research may find these topics to be fruitful areas to advance the sustainability literature.

Lastly, there may be limitations related to our implementation of social network theory. This study evaluated the current state of sustainability research with co-citations as an objective and quantitatively rigorous measure of similarity (Garfield 1979; McCain 1990). However, since our method is based on past research and knowledge development, our capacity is limited to anticipate all possible future research trends. By identifying recently published works as indications of new contributions to the sustainability literature (Burrell 2002; Kuhn 1996), our analysis incorporated recent research phenomena as a basis for future research recommendations. Though a quantitatively-based social network evaluation, there may be other research trends that went undetected in our analysis and may develop into new sustainability-specific paradigms.

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