

Review

Green marketing consumer-level theory review: A compendium of applied theories and further research directions

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ABSTRACT

Marketing green products requires different approaches than marketing non-green products (e.g., to counteract consumer prioritization of self-interest and focus on the short-term vs. long-term). As a result, green marketing has a substantial body of academic research. The purpose of our paper is to synthesize and provide a comprehensive overview of individual-level consumer behavior theories in green marketing. We begin by defining the term *green marketing*. Next, we conduct a large-scale review of more than 20 consumer-level theories grouped into six categories. For each theory, we present its definition, application in green marketing, and suggestions for future areas of research. Despite the breadth of theories that we uncovered, most studies indicate that few consumers will pay more for green products and that behavior in one environmental context does not necessarily translate into comparable behavior in another context. Another important finding is a great disconnect between consumer green purchasing intention and actual green purchasing behavior. To address this challenge, we provide two groups of additional applicable theories that have not yet been applied to green marketing. These theory groups are behavioral intentions, or non-economic green purchase influencers, and instantiators, which moderate the motivation – green purchase behavior link. Managers can use our conceptual framework illustrating the relationship among these theories to help understand the stages in a consumer's green purchase process. Our study also can aid managers in developing tools to achieve a competitive marketplace advantage.

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1. Introduction

Academic investigation of green marketing has a long and rich history. Many hundreds of papers from multiple disciplines have examined various stages in the green purchase decision making process. Thus, this area needs and deserves a comprehensive review of theories that researchers have applied to green marketing and the knowledge that application of the theories has contributed. Currently, this accumulated knowledge is not present in an easily accessible form. To this end, we present a compendium of individual-level consumer behavior theories that academics have used in green marketing. We collect, categorize, describe, and present future research ideas for more than 20 theories. In addition, we introduce several existing individual-level theories that we feel could assist in explaining consumer green purchasing behavior.

The need to understand green purchasing behavior is especially timely due to environmental, scientific, and communication advances, such as the internet and social media, and increases in consumer awareness of and concern with environmental issues (Cohen, 2014) including population growth (The New York Times, 2015) and global warming (NASA, 2015). Many governments also have increased the number and scope of environmental regulations (e.g., EPA, 2015). The confluence of these factors has raised the level of environmental concern such that 71% of consumers said they, at least sometimes, consider the environment when they shop (Cone Communications, 2013). In response, firms have been adjusting their service and product offerings to be more environmentally friendly (Global Industry Analysts, 2012).

Marketing green products and services requires different strategies than marketing non-green products and services. *Ceteris paribus*, a majority of consumers will prefer an environmentally superior product over an inferior one (Bhattacharya and Sen, 2004); however, findings show that consumers often will not pay more for an environmentally superior product (Orsato, 2006). Surprisingly and disappointingly, even a positive attitude toward the environment does not correlate strongly with green purchasing (Ramayah et al., 2010). Deep-rooted consumer characteristics that may inhibit the adoption of green products include: 1)

prioritization of self-interest, 2) motivation by relative status (vs. absolute status), 3) unconscious social imitation, 4) focus on the short-term vs. long-term, and 5) low regard for distal or intangible issues (Griskevicius et al., 2012). Consumers also may be skeptical about the quality, efficacy, and availability of green products and services, as well as the firm's commitment to the environment (Gleim et al., 2013). Moreover, many green products and services are innovative, requiring consumers to adopt new behavior (Peattie and Crane, 2005).

In summary, green marketing faces the challenge of creating and marketing innovative green products and services combined with persuading consumers to consider numerous other stakeholders (including non-human others), and intangible issues (e.g., the future), while paying more for goods and services that may not be efficacious, produced by a firm with possibly untrustworthy motivations. Firms might seek to sell green products to a diverse population for competitive reasons, if not for environmental ones. These competitive factors, governmental legislation, and the unique challenges of marketing green when compared with non-green goods, create significant needs to identify factors that can influence green consumption, and present a general framework for green marketing and green consumerism (He et al., 2015; Marques and Simões, 2008).

The structure of our paper and contributions continues as follows. First, in Section 2, we define green marketing. Second, we use a “snowball” approach to gather consumer-level marketing theories related to green marketing (Section 2.1). We group the individual-level consumer theories researchers have applied to green marketing into six categories: values and knowledge, beliefs, attitudes, intentions, motivations, and social dimensions (Section 2.2). These theories originate from a range of disciplines including psychology, economics, philosophy, management, sociology, innovation, as well as marketing. To date, no other paper has presented these theories in a systematic, detailed, and comprehensive manner (see Fig. 1 and Table 2). Third, in Section 3, we present research applications of these theories and opportunities for future research using the theories. Despite the extent of existing research in green marketing, numerous promising directions remain open

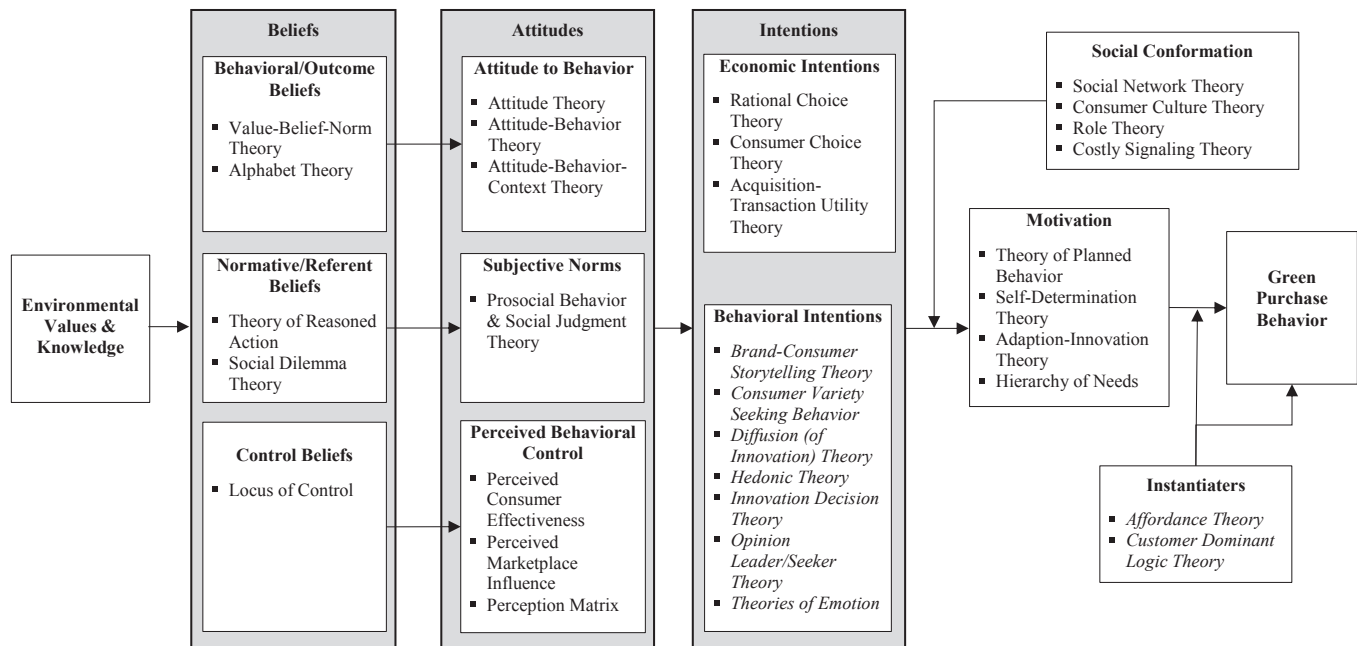


Fig. 1. General Framework of Green Marketing and Green Consumerism Theoretical Relationships. Note: Theories that researchers not applied in green marketing and consumerism research are italicized.

for future investigation. Thus, in Section 3.7, to further advance the field, we introduce marketing theories that green marketing researchers have yet to use. Section 4 presents a discussion of managerial and policy implications. Green marketing strategies can be highly contingent (Ginsberg and Bloom, 2004), thus the breadth of knowledge that we assemble creates a fertile foundation for practitioners and researchers. Finally, Section 5 presents a brief conclusion.

2. Background

Defining Green Marketing. Our definition of green marketing contains the basic elements of marketing (e.g., price and promotion) combined with the goal of reducing environmental impact (Oyewole, 2001), although not necessarily with the goal of reducing green consumption, rather to persuade the consumer to purchase green products and services (Hartmann and Apaolaza Ibáñez, 2006; Leonidou et al., 2013). We arrive at our definition after thorough review of existing literature (Table 1) and present it as follows:

Green marketing consists of actions directed to all consumers, and incorporates a broad range of marketing activities (e.g., price, planning, process, production, promotion, and people) designed to demonstrate the firm's goal of minimizing the environmental impact of its products and services.

2.1. Methodology and research design

The goal of our paper is to catalogue individual consumer-level theories applied within the green marketing literature for ease of application for both researchers and practitioners. We completed a comprehensive literature search with the purpose of providing exemplary published instances and studies integrating these individual consumer theories into green marketing research. Our search used the commonly employed snowball approach, starting with the term “green consumerism.” A snowball approach begins

with a handful of highly pertinent papers and then examines the references cited by those papers. In addition, we examined other publications that cited one of the pertinent papers. Each of these additional research articles, and in turn, may suggest additional papers to the list of research to pursue.

Once we had identified a theory that had been used, we started a new snowball search. To find further uses of a given theory, we searched for the term “green marketing” combined with the name of the theory. Because there are other terms similar to “green marketing,” we replaced “green” with “environmental” and “ecological.” We also replaced “marketing” with “advertising,” “consumption,” “pricing,” “promotion,” “channels,” “distribution,” and “consumer.” Thus, there are $3 \times 8 = 24$ search terms for each of the identified theories. These additional searches often produced new theories for us to investigate.

The literature search covered a wide range of peer reviewed journals from marketing-centered journals such as *The Journal of the Academy of Marketing Science* and *The Journal of Marketing*, to interdisciplinary journals such as *The Journal of Business Ethics* and *Journal of Business Research*. After an exhaustive literature search using databases including: Google Scholar, JSTOR, EBESCO, Business Source Complete, covering more than 900 published papers, we identified more than 20 theories within consumer-level green marketing literature.

2.2. General framework

Fig. 1 presents a general framework, and relationships of the identified marketing and consumer theories. To provide coherence to the collection of theories, we draw upon features from many existing models, and incorporate topics including factors affecting relationship between attitudes and behavior (e.g., situational, sociological, and psychological factors), and barriers to environmental action (Ajzen and Fishbein, 1980; Hines et al., 1987; Kalafatis et al., 1999). Prior consumer decision making literature suggests six theory groupings: values and knowledge, beliefs, attitudes, intentions, motivations, and social conformation.

Table 1
Definitions of green marketing.

Reference	Definition
Stanton (1987)	"Green marketing, which seeks to bring the activities of firms into a new and more harmonious relation with the environment." (p. 3)
Polonsky (1994)	"Green marketing incorporates a broad range of activities, including product modification, changes to the production process, packaging changes, as well as modifying advertising... such that the satisfaction of these need and wants occurs, with minimal detrimental impact on the natural environment." (p. 1–2)
Walker and Hanson (1998)	"Green marketing refers to marketing practice which is characterized by a demonstrable concern for the environment within which this practice occurs and upon which it impacts, as well as for its various stakeholders." (p. 624)
Fuller (1999)	"Green marketing is the process of planning, implementing, and controlling the development, pricing, promotion, and distribution of products in a manner that satisfies the following three criteria: (i) customer needs are met, (ii) organizational goals are attained, and (iii) the process is compatible with ecosystems." (p. 4)
Oyewole (2001)	"Green marketing is the practice of adopting resource conserving and environmentally-friendly strategies in all stages of the value chain." (p. 239)
Hartmann and Apaolaza Ibáñez (2006)	"Green marketing typically emphasise the efficiency of cognitive persuasion strategies, assuming the consumer's high involvement regarding environmental issues to be a consequence of a growing environmental consciousness." (p. 676)
Alsmadi (2007)	"Green marketing is conducting all marketing activities within a framework of environmental responsibility... is a comprehensive and systematic process that seeks to influence consumer preferences in a way that encourages them to demand environmentally friendly products, and help them adapt their behavioral consumption patterns accordingly." (p. 342–345)
Pride (2008)	"Green marketing is a strategic process involving stakeholder assessment to create meaningful long-term relationships with customers while maintaining, supporting, and enhancing the natural environment." (p. 23)
Violeta and Gheorghe (2009)	Green marketing is 5Ps + EE, standing for planning, process, product, promotion, people and eco-efficiency. (p. 1344–1347)
Sharma et al. (2010)	"Green marketing is beyond the role of linking to green customers and marketing mix, and should expand to include other aspects of corporate demand management, such as predicting demand for environmentally-friendly products, positioning and demand stimulation for recycled and remanufactured products, generating demand for build-to-order products, and building competitive advantages from a focus on environmental priorities." (condensed from p. 338–341)
Polonsky (2011)	"Scholars define green marketing using a range of terms (e.g., green marketing, ecological marketing, environmental marketing, and even responsible marketing). These definitions have a common focus on the exchange process (i.e., choices and decisions), with a proviso that exchange considers and minimizes environmental harm." (p. 1311)
Liu et al. (2012)	"Green marketing identifies and satisfies green customers, and promoting environmentally-friendly products." (p. 581)
Leonidou et al. (2013)	"Green marketing refers to marketing practices, policies, and procedures that explicitly account for concerns about the natural environment in pursuing the goal of creating revenue and providing outcomes that satisfy organizational and individual objectives for a product." (p. 153)
<i>This paper</i>	<i>Green marketing consists of actions directed to all consumers, and incorporates a broad range of marketing activities (e.g., planning, process, production, promotion, and people) designed to demonstrate the firm's goal of minimizing the environmental impact of its products and services.</i>

Fig. 1 contains six applied theory groupings and two additional theory groupings that have yet to be applied to green marketing. We define these latter two theory groupings as behavioral intentions and instantiator theories, which we discuss at the end of this paper, and in Table 3. We acknowledge other possible theory groupings, and overlap among categories. In fact, several papers use a multi-theoretic approach when addressing issues in green marketing (e.g., Zepeda and Deal, 2009). For instance, numerous theories bridge or contain a combination of values, beliefs and attitudes, and rely on the common prediction chain: values- > beliefs- > attitudes- > behavior/action (e.g., Thøgersen and Ölander, 2002). That is, the consumer moves through a number of discrete cognitive and behavioral stages prior- and post-purchase (Schaefer and Crane, 2005). Thus, our groupings of theories are *descriptive*, not *prescriptive*.

The left half of Fig. 1 addresses values and knowledge, beliefs, and attitudes. Values and knowledge address an individual consumer's stable internal standards which may be applied to many situations (Rokeach, 1973). These items are the foundation for beliefs, which in turn, form attitudes, which predict behavior (Fishbein and Ajzen, 2011). Theories that involve values, beliefs, and attitudes (VBA) are closely related, and are classified as personality factors by researchers. VBA are better than demographic variables at predicting green consumer behavior (e.g., Cleveland et al., 2005; Roberts, 1996). In fact, there is evidence that subjective knowledge generated by beliefs and values plays the greatest role in predicting green purchase behavior (Amyx et al., 1994). In aggregate, a positive relationship between attitude and behavior has been identified in a meta-analysis of environmental issues (Hines et al., 1987). However, there are findings to the contrary; for instance, Balderjahn (1988) finds that *attitudes* toward pollution and ecologically

conscious living do not significantly affect environmental consumption *behavior*. Other researchers show that economic concerns (Kalafatis et al., 1999) and context-specific attitudes play a large role in the attitude-behavior link (Cleveland et al., 2012).

The right half of Fig. 1 presents theory groupings that may explain why attitudes do not directly result in green purchase behavior. Intentions present the first stage that occurs before green attitudes can translate into green purchasing behavior. Intentions describe the process by which consumers arrive at their product choices (Gowdy and Mayumi, 2001). Intentions based on economic issues have appeared in the green marketing literature (e.g., He et al., 2015), but intentions based on behavior (e.g., Theotokis and Manganari, 2015) have not yet been applied to green marketing (see Table 3). Motivations are the next intervening step before intentions can manifest as behaviors. Motivational theories consist of intra- and inter-individual characteristics and attributes that affect the strength and direction of intentions (Coad et al., 2009). However, the effect of intentions on motivations can be moderated by numerous social characteristics such as consumer culture (Strizhakova and Coulter, 2013), and role assumption (Han et al., 2009). And finally, facilitators or instantiators (see Table 3), help determine when motivation will result in green purchase behavior (e.g., Chaney, 2001). The final grouping, social confirmation, focuses on an individual's social behavior, individual and collective identity, and societal forces pertaining to green purchase behavior (Sih et al., 2009).

A comprehensive summary of the theories including definitions, references, current applications and future possibilities appear in Table 2. A more detailed description of each of the groupings appears at the start of each subsection of Section 3.

Table 2
Summary of theories applied to green marketing.

Theory	Definition	Current Green Marketing Related Study and Theory Application	Future Research and Theory Application
Values and Knowledge			
Values	Values are a measurable set of standard, attitudes, or beliefs that affect specific situations (Schwartz, 1992).	<ol style="list-style-type: none"> 1) Three values predict green consumption: self-interest, social altruism, and biospheric altruism (1993). 2) Those who value self-transcendence, openness, and universalism are likely to engage in green consumer behavior while individuals who strongly value self-enhancement and conservation are unlikely to engage in green purchasing (Karp, 1996). 3) Change consumerist values at the individual or societal level (Nash and Lewis, 2006), but this may be difficult (Eagly and Kulesa, 1997). 	1) Can more values be framed to support (and thus increase) green consumerism?
Knowledge	Knowledge consists of two parts: subjective (beliefs) and objective (facts) (e.g., Pickett-Baker and Ozaki, 2008).	<ol style="list-style-type: none"> 1) Possible correlation between green knowledge and green purchasing behavior (e.g., Pickett-Baker and Ozaki, 2008). 2) Objective environmental knowledge may not translate into green purchasing behavior (e.g., Vicente-Molina et al., 2013) unless the knowledge is product specific (Martin and Simintiras, 1995). 3) Knowledge may not be that important in green product decision making (Wang and Hazen, 2015). 4) Some green consumers have less green-knowledge than non-green consumers (Laroche et al., 2002). 	1) Identify explanatory factors that mediate the knowledge - green purchasing link.
Beliefs			
Value-Belief-Norm (VBN) Theory	The link between values and norms is mediated by beliefs (Stern et al., 1993).	<ol style="list-style-type: none"> 1) Consumer skepticism of firm environmental claims negatively affects green consumer behavior (Albayrak et al., 2011). 2) Individualism/collectivism are antecedents of environmental attitude and commitment (Cho et al., 2013). 3) Used to explain consumer energy usage (Testa et al., 2016), the attitude-behavior gap in sustainable tourism (Juvan and Dolnicar, 2014), creating green consumption herd behavior (Nyborg et al., 2006), and prosocial behavior (Oreg and Katz-Gerro, 2006). 	<ol style="list-style-type: none"> 1) Theoretical compendium of which values are more likely to create environmental norms. 2) Are the common divisions of beliefs (i.e., behavioral, normative, and control) appropriate for green marketing?
Theory of Reasoned Action (TRA)	Behavior follows reasonably from individual's internal and external beliefs (Fishbein and Ajzen, 2011; Osterhus, 1997).	<ol style="list-style-type: none"> 1) Environmental knowledge (Polonsky et al., 2012), cultural norms (Chan, 2001), subjective norms, environmental concern (Smith and Paladino, 2010) positively affect green purchasing intentions. 2) Environmental norms mediate the effect of general environmental beliefs on green purchasing attitudes (Gadonne et al., 2011). 	1) Relying on TRA has been overtaken by emphasis on other theories that better explain actual behavior.
Locus of Control (LoC)	LoC has two dimensions; internal, where individuals believe their actions affect outcomes, and external, where individuals believe that the outcomes are beyond their individual-level of control (Kalamas et al., 2014).	1) Four distinct dimensions of environmental LoC (ELoC); two external dimensions - biospheric-altruism and corporate skepticism, and two internal dimensions - economic motivations and individual recycling efforts (McCarty and Shrum, 2001).	<ol style="list-style-type: none"> 1) Determine the antecedents of ELoC. 2) Can marketers manipulate the antecedents of ELoC to affect internal ELoC?
Social Dilemma Theory (SDT)	The extent to which an individual believes her behaviors can make a difference will impact the individual's actual (green) behavior (Gleim et al., 2013).	<ol style="list-style-type: none"> 1) Consumers infrequently consider all the potential costs of their decisions, and thus will not pay more for green products (Peloza, 2006). 2) Even acknowledgement of future consequences does not guarantee green purchase behavior behaviors (Ebreo and Vining, 2001), although impact of the purchase moderates this relationship (Joireman et al., 2004). 	1) Determine methods to encourage consumers to consider future environmental costs of their product choices and to develop accompanying theory to explain such behavior.
Perceived Consumer Effectiveness (PCE)	PCE links consumer perception and socially conscious attitudes. It does not describe all environmental behaviors, but specific individual ones such as green consumption (Roberts, 1996) or purchase of green products (Balderjahn, 1988; Lee et al., 2014).	<ol style="list-style-type: none"> 1) PCE affects support for government environmental regulation because individuals do not believe that their actions are effective (Ellen et al., 1991). 2) Findings in one environmental area may not be applicable to another green context (Peattie, 2001; Straughan and Roberts, 1999). 3) PCE mediates the effect of green altruism on green purchase intention (Lee et al., 2014), and the impact of media attention on consumer preference for green products (Thøgersen, 2006). 	1) Are there mechanisms to transfer green behavior in one domain to another?
Perceived Marketplace Influence (PMI)	PMI looks at a consumer's perception that her individual behavior will influence marketplace behavior.	1) PMI mediates the relationship between environmental concern and green consumption behavior (Leary et al., 2014).	1) Identify moderators

Table 2 (continued)

Theory	Definition	Current Green Marketing Related Study and Theory Application	Future Research and Theory Application
Perception Matrix	Two dimensions affect green purchasing perceptions: 1) the degree of confidence that the product offers environmental benefits to real problems, and 2) compromises (e.g., price premiums, lower performance, and channel availability) (Peattie, 1999).	<ol style="list-style-type: none"> 1) Classifications of different green products (Young et al., 2009). 2) New environmental product development (Pujari et al., 2003). 3) Conditions when compromise is likely to occur (Olson, 2013). 	<ol style="list-style-type: none"> 1) What is the mechanism that underlies green-consumerism compromises? 2) Investigating the threshold values of confidence and compromise for green products and services in various contexts.
Alphabet Theory	Alphabet theory is a framework that combines multiple individual consumer theories: Value-Belief-Norm theory (VBN), Attitude-Behavior-Context theory (ABC), Knowledge (K), Information Seeking (IS), Context (C), Habits (H), and Demographics (D) (Zepeda and Deal, 2009).	<ol style="list-style-type: none"> 1) Many factors can influence green purchasing (Testa et al., 2016). 	<ol style="list-style-type: none"> 1) Create a meta-level explanatory picture of green consumer behavior. 2) Add additional theoretical elements to this framework; for example, familiarity (F) and confidence (Co).
Attitudes			
Attitude and Attitude-Behavior (AB) Theory	Environmental attitudes are formed through beliefs, concerns, values, and intentions regarding environmental issues (Park et al., 2014; Schultz et al., 2004).	<ol style="list-style-type: none"> 1) General attitudes of environmental concern often do not predict specific behaviors (e.g., Bamberg, 2003). 	<ol style="list-style-type: none"> 1) AB theory has been replaced by ABC theory
Attitude-Behavior-Context (ABC) Theory	The link between attitude and behavior is mediated by context (Peattie, 2010; Stern, 2000).	<ol style="list-style-type: none"> 1) Attitude toward a specific environmental behavior rather than an environmental issue is the best predictor of future behavior (Fielding et al., 2008). Thus, generalizability is difficult. 	<ol style="list-style-type: none"> 1) How can consumer attitudes regarding one aspect of the environment be transferred to another?
Prosocial Behavior and Social Judgment Theory	Consumers will receive a warm feeling from patronizing an altruistic firm (Mohr et al., 2001). Consumer behavior is determined by green product purchasing and intentions (Cervellon, 2012).	<ol style="list-style-type: none"> 1) Greater public accountability positively influences green consumption (Green and Peloza, 2014). 2) Green hotel booking increased when a consumer had greater social relationships (Gao and Mattila, 2016). 3) Consumer behavior is determined by green product purchasing and intentions (Cervellon, 2012). 	<ol style="list-style-type: none"> 1) When are there positive halo effects (e.g., increased sales, WoM, and product performance perception) for a firm based upon its green products? 2) Examine the link between prosocial behavior and generativity, the belief that current behavior will affect future generations.
Intentions			
Consumer Choice Theory (CCT) and Rational Choice Theory (RCT)	CCT and RCT assume human rationality by which an individual seeks benefit maximization. Individuals' consumption behavior is subject to cost preference and institutional constraints.	<ol style="list-style-type: none"> 1) Consumer preference, reference groups, and the perceived social standing have a positive effect on individual green behaviors, while budget constraints and social responsibility consciousness have a negative effect on one's green choices (He et al., 2015). 2) Individual preference for forest carbon offsets is associated with cognitive, ethical, behavioral, geographical and economic factors (Torres et al., 2013). 3) Green consumption choices are consistent with utility maximization. Consumption behavior of reference people and past consumption behavior enhance utility maximization's role (Welsch and Kühling, 2011). 4) Individual tendency for green consumption will decrease as green price increased (Abaidoo, 2010). 	<ol style="list-style-type: none"> 1) Extensions of CCT and RCT to multi-attribute utility theory and conjoint analysis. 2) Examine green product choice when supply is scarce.
Acquisition-transaction utility theory (ATUT)	Individual evaluation of a product is determined by the acquisition utility, or the overall financial outlay and the transaction utility, and the perceived value of the product (Thaler, 1983).	<ol style="list-style-type: none"> 1) Price, perceived quality and psychological benefit construct the purchase utility. The greater the purchase utility, the more likely the individual will buy the recycled products (Bei and Simpson, 1995). 	<ol style="list-style-type: none"> 1) Extend acquisition utility and transaction utility functions to include brand loyalty, brand switching costs, visible messages delivered in stores, celebrity endorsements, and the perceived utility by social groups.
Motivations			
Theory of Planned Behavior (TPB)	TPB is a rational choice model where intention is the only direct psychological antecedent for behavior (Ajzen, 1991).	<ol style="list-style-type: none"> 1) Green behavior increases in the presence of perceived behavioral control, positive attitudes, and a high positive subjective norm (Albayrak et al., 2011). 2) TPB is used to explain that PBC and subjective norms may vary across cultures. 	<ol style="list-style-type: none"> 1) A straightforward interpretation of TPB may not capture the complexity of green consumer behavior. Investigate complementary factors when utilizing TPB to investigate individual green behaviors such as belief salience, behavioral habits, self-efficacy, moral norms, and affective beliefs.

(continued on next page)

Table 2 (continued)

Theory	Definition	Current Green Marketing Related Study and Theory Application	Future Research and Theory Application
Self-determination theory (SDT)	SDT is a theory of human motivation toward active engagement and development in social contexts. Individuals are intrinsically and extrinsically motivated. Intrinsic motivation drives individual behavior because of inherent satisfaction, while extrinsic motivation drives individual behavior because of separate rewards.	<ol style="list-style-type: none"> 1) Extrinsic motivation including economic benefits and increased social reputation are found to be more effective than intrinsic motivation in encouraging individuals to behave green. 2) Lack of motivation due to individual skepticism and cynicism (e.g., perceived uncertainties in green product efficacy) may outline why consumers do not consume green products. 	<ol style="list-style-type: none"> 1) Investigate potential factors and forces that engender versus undermine the intrinsic and extrinsic motivation for consumers to purchase green products continually. 2) The strategies that might influence a consumer's cynical perception of green marketing strategies – from marketing ploy to sincere practice.
Adaptation-innovation Theory	Individual differences in decision making and problem solving are based on an individual dimension anchored by adaption and innovation.	<ol style="list-style-type: none"> 1) Innovators are market initiators of green product purchasing whereas Adaptors are slower to exhibit green buying behavior (Bhate and Lawler, 1997). 2) Innovators may not to maintain loyal relationships with a specific product or brand behavior (Foxall and Bhate, 1993). 3) AIT is used to explain differences in green products' acceptance across cultural groups (Bhate, 2002). 	<ol style="list-style-type: none"> 1) Future studies can investigate whether Adaptors and Innovators differentially react to the marketing mix of green products, namely promotions (e.g., advertising, social media), place and price. 2) Can an Innovator's proclivity to purchase new products for their novelty be translated into green product loyalty?
Hierarchy of Needs	Micro-level model that identifies five levels of individual's needs: physiological, safety, belongingness, esteem, and self-actualization. Lower levels of human needs must be fulfilled before individuals can think of higher levels of needs.	<ol style="list-style-type: none"> 1) Economic well-being and class position are positively related to environmental concerns (Leonidou et al., 2015; Van Kempen et al., 2009; Wong and Wan, 2011). 	<ol style="list-style-type: none"> 1) Can lower economic status consumers be motivated to focus on higher levels of need and adopt pro-environmental behaviors? 2) The willingness-to-pay for green products, based upon what level of needs the products address, may differ by socio-economic group.
Social Confirmation			
Consumer Culture Theory (CC theory)	CC theory addresses the dynamic relationship between the marketplace, cultural factors and consumer behavior (Arnould and Thompson, 2005).	<ol style="list-style-type: none"> 1) Consumer culture creates meaning for hybrid car brands in an online setting (Kadirov and Varey, 2013). Dynamic consumer culture results in transformative green online discourse on hybrid car consumption. 2) Global cultural identity has an enhancing moderating effect on the relationship between materialism and green tendencies (Strizhakova and Coulter, 2013). 	<ol style="list-style-type: none"> 1) Expanding studies to more traditional firms rather than online organizations. 2) Investigations could concentrate on the reverse influence direction where an individual's established values, meaning, and culture will influence his or her expectations of a firm or brand.
Role Theory	Individuals are members of social positions with expectations (Biddle, 1986) for their and others' behaviors.	<ol style="list-style-type: none"> 1) Females are more concerned about the environment and willing to pay more for environmental products (Han et al., 2009). 2) The female gender category positively moderates the relationship between attitude and pre-environmental behaviors (Wai and Bojei, 2015). 3) Green product consumers and green product non-consumers behave differently with respect to pro-environmental behaviors (Runyan et al., 2012). 	<ol style="list-style-type: none"> 1) Role-taking perspectives can examine the causal factors of each perspective and their responsive influence on individual consumers' green behaviors. 2) Use role theory to predict the characteristics of individual's green consumption behaviors for each role perspective. 3) Expand role theory's application in green marketing by investigating the interaction among the four RT constructs (consensus, conformity, role conflict, and role taking)
Costly Signaling Theory (CST)	Individuals may engage in certain socially visible behaviors to communicate their willingness or ability to incur costs to enhance their social status (Miller, 2011).	<ol style="list-style-type: none"> 1) Pro-environmental behavior may function as a costly signal because such behavior incurs additional cost (DiDonato and Jakubiak, 2016). 2) Situational factors including message detection and utilization, product visibility, purchase visibility, relative price, message detection, and utilization can support an individual's narcissistic tendencies through green purchases (Naderi and Strutton, 2014). 3) Status competition can be used to promote green consumer behaviors (Griskevicius et al., 2010). 4) Pro-organic behavior signals status and convinces others to behave more positively toward the signal sender (Puska et al., 2016). 	<ol style="list-style-type: none"> 1) How green consumption could function as communicative acts, or signaling in general?

Table 2 (continued)

Theory	Definition	Current Green Marketing Related Study and Theory Application	Future Research and Theory Application
Social Network Theory (SNT)	SNT describes social structures as a function of networks of relationships (Scott, 1991).	1) Existing SNT papers in green marketing focus on firms as central nodes in green marketing. Examination of consumer-to-consumer relationships in green marketing and consumer behavior is a significant gap in the current literature.	1) Creating and fostering networks of social collaborations between firms and consumers might positively affect green purchasing. 2) How SNT could explain green product or service diffusion within social groups or communities? 3) SNT could be integrated with RT to examine the effect of individuals' roles in their social networks on green purchase behavior and marketplace influence (see PMI). 4) Application of CST with social network theory, such as examining individual participants in complex social networks that incorporate green purchase behaviors, is a fertile direction for research.

3. The theories

3.1. Values and knowledge

3.1.1. Values

Values comprise relatively stable internal standards that can be used to guide an individual's decisions (Rokeach, 1973). An individual's set of values can be thought of as a summary of global attitudes or trans-situational goals which inform a much larger set of situational specific attitudes (Eagly and Chaiken, 1993). Values motivate as well as justify actions.

A value-basis theory posits that a general set of values predicts environmental attitudes (Stern and Dietz, 1994). Several findings support this assumption. For instance, Schwartz finds consistent results across countries, suggesting 11 measurable motivational value types along two dimensions, of which self-transcendence (altruism) and self-enhancement (self-interest) strongly correlate with environmental concern (Schultz and Zelezny, 1999; Schwartz, 1992; Schwartz and Bilsky, 1990). Individuals who value self-transcendence (altruism) and openness, and individuals who value universalism (protection for the welfare of people and nature) are likely to engage in green consumer behavior. Meanwhile, individuals who value self-enhancement (self-interest) and conservatism (resistant to change) are unlikely to engage in green purchasing (Karp, 1996). Stern et al. (1993) propose three values that predict green consumption: self-interest, social altruism, and biospheric altruism. They find that values of altruism and self-interest have positive and negative effects, respectively, on green consumer behavior.

Because values initiate the chain of factors affecting green consumer behavior, some papers advocate for firms and society to concentrate on changing consumerist values (Nash and Lewis, 2006). Three basic causes for value changes that future research could address are individual life-cycle, generational changes, and other periodic influences (Thøgersen and Ölander, 2002). In the short-term; however, it is very difficult to influence consumer values to the degree that consumers' environmental behavior will change (Eagly and Kulesa, 1997). Moreover, values need to be activated to provide motivation to pursue an activity.

This reality may be a major underpinning as to why marketers have found it difficult to change consumers' green purchasing

habits. Therefore, an important avenue for future research would be to investigate whether there are methods that could induce consumers whose values do not easily translate into green consumerism to become green consumers. In other words, is there a way to frame an argument such that consumers who strongly value self-enhancement/self-interest will engage in green purchasing?

3.1.2. Knowledge

Academic literature typically divides knowledge into two categories – subjective and objective. Subjective knowledge comprises individual feelings, experiences, and viewpoints. In other words, subjective knowledge is equivalent to beliefs. Objective knowledge consists of verifiable facts. Some studies suggest a correlation between green knowledge and green purchasing intentions (e.g., Biswas and Roy, 2015) or behavior (e.g., Pickett-Baker and Ozaki, 2008). However, objective environmental knowledge may not necessarily translate into green purchasing behavior (e.g., Vicente-Molina et al., 2013) unless the knowledge is product specific (Martin and Simintiras, 1995). Moreover, knowledge may not be that important in green product decision making; Wang and Hazen (2015) find that the perceived value and perceived risk in purchasing remanufactured products are influenced most by knowledge of product quality and cost, rather than green knowledge. In fact, some research finds that green consumers actually have less green knowledge than non-green consumers (Laroche et al., 2002). Thus, whereas knowledge of non-green products may influence purchase behavior, the link between knowledge and green purchasing is murky. Identifying explanatory factors that can mediate the knowledge - green purchasing link would benefit marketers and researchers. We suspect that beliefs (discussed next) and social influences (discussed later) may play a mediating role.

3.2. Beliefs

There are three main categories of beliefs: 1) behavioral or outcome beliefs, which influence attitudes toward behavior, 2) normative or referent beliefs, which determine subjective norms, and 3) control beliefs, which form the basis for perceptions of behavioral control (Fishbein and Ajzen, 2011). Green beliefs can stem directly from general values, such as the belief that humans

should protect the natural environment (Zepeda and Deal, 2009). Alternatively, some green beliefs are situational and may not originate from a deeply held value; for example, beliefs about the quality of green products (Van de Velde et al., 2009). There also are green beliefs that fall between general and situational beliefs, for instance, an individual might value healthy living and therefore, might believe that consuming organic food is better for her health (Zepeda and Deal, 2009). The following theories address the role of beliefs in green marketing and green consumer behavior.

3.2.1. Value-Belief-Norm (VBN) theory

VBN consists of a causal chain from values to beliefs which form norms. In green marketing, altruistic values contribute to the view that humans negatively affect the biosphere (beliefs), which lead to pro-environmental personal norms. That is, individuals activate personal norms motivating pro-environmental behavior (Stern et al., 1993). VBN uses beliefs as a mediator to better explain how environmental norms and attitudes are created for all types of consumers, rather than solely ardent green consumers (Stern et al., 1995a, b). Researchers have used this theory to show that consumer skepticism of firm environmental claims (e.g., concerns of green-washing) negatively affects green consumer behavior (Albayrak et al., 2011), and that levels of individualism/collectivism are antecedents of environmental beliefs and commitment (Cho et al., 2013). VBN has been used to explain the quantity of consumer energy usage (Testa et al., 2016), the attitude-behavior gap in sustainable green tourism (Juvan and Dolnicar, 2014), green consumption herd behavior (Nyborg et al., 2006), and pro-environmental behavior across 27 countries (Oreg and Katz-Gerro, 2006). VBN is not without its short-comings when used to explain green behavior; however, Kaiser et al. (2005) contrast VBN with the theory of planned behavior (TPB) (Ajzen, 1991) and determine that, as a separate measure, personal norms do little in determining green behavior. The authors conclude that the TPB may be a better predictor of green behavior (see section 3.5 Motivations).

The fact that many consumers engage in both green and non-green behavior presents a challenge to VBN theory (McDonald et al., 2012; Peattie, 1999). Academics and practitioners would benefit from a comprehensive theoretical compendium of which value types are more likely to activate environmental norms and green behavior. Such a study could take the form of determining which beliefs have differential mediating impacts on the value-norm relationship.

3.2.2. Theory of reasoned action (TRA)

TRA is an expectancy-value model positing that behavior follows reasonably from an individual's beliefs (Fishbein and Ajzen, 2011). Internal beliefs and external beliefs (the subjective norms of others) can affect a consumer's green behavior (Osterhus, 1997). Subjective norms are useful in explaining public behavior where group norms may carry greater weight, such as negative repercussions for non-compliant behavior (Biswas, 2000). For instance, the purchase of products made from recycled materials or products that can be recycled easily is explained by the main effects and interaction of beliefs and anticipated negative outcomes from subjective norms (Biswas, 2000). Other researchers find that (1) environmental knowledge (Polonsky et al., 2012) and cultural norms such as collectivism and man-nature orientation (Chan, 2001) significantly affect attitudes toward green purchases; (2) subjective norms and environmental concern positively affect organic food purchasing (Smith and Paladino, 2010); and (3) environmental norms mediate the effect of general environmental beliefs on green purchasing attitudes (Gadenne et al., 2011).

A criticism of TRA is that it does not support the link between

behavioral attitude and actual behavior (Kim and Damhorst, 1998). In other words, TRA ascribes a strong link between attitude and action, whereas the relationship between environmental attitude and environmental behavior frequently is weak (e.g., Roberts, 1996). For instance, Ramayah et al. (2010) find that environmental attitude does not have a significant relationship with green purchase intention. Thus, we do not recommend relying solely on TRA to explain green marketing behavior. Instead, we suggest theories that have greater explanatory power in terms of actual green purchasing behavior. For instance, the theory of planned behavior, discussed later, addresses this shortcoming through perceived behavioral control (Bandura, 1997). However, many other personal and situational factors have been proposed (Mainieri et al., 1997), such as the availability of choice (Sheppard et al., 1988).

3.2.3. Locus of control (LoC)

LoC is one of many theoretical concepts that address individual-level perceptions of control. LoC is concerned with *perceptions* of control rather than *expectations* of control (Cleveland et al., 2012). LoC has two dimensions: internal, where individuals believe their actions affect outcomes, and external, where individuals believe that chance and powerful others play a role in determining outcomes that are beyond their own level of control (Kalamas et al., 2014). Since LoC is context specific, Cleveland et al. (2012) set out to determine green marketing specific areas of environmental LoC (ELoC). They describe four distinct dimensions of ELoC: two external - biospheric-altruism and corporate skepticism, and two internal - individual economic motivations (da Cruz et al., 2014) and individual recycling efforts (McCarty and Shrum, 2001). Interestingly, Kalamas et al. (2014) find a positive link between consumers who assign environmental responsibility to powerful others and green purchasing behavior, but a negative link between environmental responsibility and green purchasing behavior if environmental responsibility is assigned to chance.

For future research and as a matter of public policy, it would be beneficial to determine the antecedents of ELoC. An investigation of whether the antecedents of ELoC are malleable such that marketers can manipulate internal ELoC is an open question.

3.2.4. Social dilemma theory (SD theory)

A social dilemma occurs when individuals make choices that are optimal to them as individuals, but the overall outcome for society is not (Messick et al., 1983). Similar to environmental locus of control (ELoC), SD theory posits that the extent to which an individual believes her behaviors (self-efficacy) can make a difference in achieving environmental goals will impact the individual's actual green behavior (Gleim et al., 2013). Thus, a number of related characteristics - trust, in-group identity, perceived efficacy, and expectation of others' cooperation - have been found to differentiate between individual green and non-green behavior (Gupta and Ogden, 2009). However, SD theory explains why consumers often are not willing to pay more for green products, since they infrequently consider all of the potential costs of their decisions (Peloza, 2006). The reluctance to pay more for green products is a perennial concern as researchers search for explanations. Unfortunately, simple solutions to this problem, such as examining a consumer's orientation to the future, do not provide easy answers. In fact, even when consumers consider the consequences of their actions, it does not always result in pro-environmental behaviors (Ebreo and Vining, 2001). In fact, even when consideration of future consequences does affect pro-environmental behavior, it is moderated by the social values of the purchaser (Joireman et al., 2004). Thus, there is an imperative to determine methods to encourage consumers to consider future environmental costs of their product choices and to refine SD theory to explain such behavior.

3.2.5. Alphabet theory

Alphabet theory (VBN-ABC-D-K-IS-H) is a framework that combines multiple individual consumer theoretical elements: Value-Belief-Norm theory (VBN), Attitude-Behavior-Context theory (ABC), Knowledge (K), Information Seeking (IS), Context (C), Habits (H), and Demographics (D) (Zepeda and Deal, 2009). This framework proposes that demographics impact attitudes (values, beliefs, and norms), and are continually updated by information seeking behavior, knowledge, and context (e.g., availability, regulations, costs). In turn, the context and attitudes affect consumer habits, which finally impact behavior. The explicit use of the alphabet theory framework has not yet been widely adopted; however, the conceit that many factors can influence green purchasing is well accepted (Testa et al., 2016). For instance, Oreg and Katz-Gerro (2006) combine VBN, the theory of planned behavior, and cultural values, to explain pro-environmental behavior. Overall, these efforts have the goal of painting a complete picture of green consumer behavior – an effort that research should continue. Given the paucity of application of this framework, the number of questions future research could address is significant. This framework could examine a more systemic perspective on individual green behavior when compared with other single theory perspectives. Researchers also might introduce additional theoretical elements to this framework; for example, familiarity (F) and confidence (Co). However, the framework should not become so complex that investigation becomes difficult, with additional confounding variables.

3.3. Attitudes

Attitudes arise from beliefs and evaluations of behavioral outcomes (Ajzen and Fishbein, 1980). An ecological attitude is formed through the consumer's beliefs, concerns, values, and intentions regarding environmental issues and behavior (Schultz et al., 2004).

3.3.1. Attitude theory and attitude-behavior theory

Attitude theory and attitude-behavior theory often are used interchangeably with attitude-behavior-context theory, which we discuss next (Ajzen and Fishbein, 1977). In fact, it is now accepted that general attitudes of environmental concern often do not predict specific behaviors (e.g., Bamberg, 2003); thus, we do not recommend using attitude-behavior theory in a green marketing context.

3.3.2. Attitude-behavior-context (ABC) theory

ABC theory dictates that context mediates the link between attitude and behavior (Peattie, 2010). In other words, the attitude toward a specific environmental issue is the best predictor of the environmental behavior regarding that specific issue, rather than an overall attitude toward the natural environment (Fielding et al., 2008). For marketers and researchers, the highly specific nature of the attitude-behavior-context varies within individuals as well as across cultures (Zhao et al., 2014) and race (Johnson et al., 2004) making the generalizability of green marketing results difficult.

Future research also could examine whether and how consumer attitudes regarding one aspect of the environment can be transferred to another – perhaps framing environmental issues in terms of consumers' sense of responsibility rather than as a voluntary effort (Uusitalo, 2005). A multi-dimensional classification system for environmental behaviors and attitudes would advance understanding of the linkage between individual level green consumerism and ABC. One such approach was the New Environmental/Ecological Paradigm (NEP) scale (Dunlap and Van Liere, 1978), a multi-dimensional scale (Albrecht et al., 1982), but there is concern that it may be measuring generalized green beliefs that are

inaccurate predictors of specific green behavior, and thus has not been applied recently to a great degree (Stern et al., 1995a, b).

3.3.3. Prosocial behavior and social judgment theory

Academics apply the term 'prosocial behavior' in two different ways. First, it can refer to the company's prosocial behavior. In this instance, a company's behavior can have a positive effect on sales because consumers can achieve moral satisfaction from patronizing an altruistic company (Mohr et al., 2001). Second, prosocial behavior can refer to individual consumer behavior (Cervellon, 2012), i.e., focused on long-term and less self-interested behavior, compared with a more self-interested short-term focus (Griskevicius et al., 2012). Researchers explain consumer prosocial behavior by applying social judgment theory, through which an individual weighs latitudes of acceptance, rejection, and non-commitment (no opinion about a matter) in order to form an attitude (Cho, 2014). For instance, Green and Peloza (2014) find that greater public accountability positively influences green consumption. Similarly, Gao and Mattila (2016) found that consumers with greater social relationships were more likely to stay at a green hotel than consumers with lower levels of social relationships.

Griskevicius et al. (2012) outline several research topics using prosocial behavior as intrinsic motivation (Minton and Rose, 1997) for increasing sustainable/green behavior, which we second. These topics include emphasizing that humans exist together in a society, decreasing non-green consumption by shaming (decreasing reputation), and increasing green consumption by convincing consumers to emulate the behavior of others. Research has found that firm prosocial behavior (e.g., charitable donations) can have a halo effect, and can increase perceived product performance (Chernev and Blair, 2015) and brand attitude (Olsen et al., 2014). Thus, it would be beneficial to determine whether halo effects from green products exist and benefit the company. On the one hand, it is unclear whether there is a similar perceived product performance halo from green products, at least in part because consumers may believe that green products underperform their non-green counterparts (Ottman et al., 2006). Alternatively, reuse of shopping bags has been found to increase green product purchasing (Karmarkar and Bollinger, 2015). Finally, future research could examine the link between prosocial behavior and generativity, the belief that current behavior will affect future generations (e.g., Urien and Kilbourne, 2011).

3.3.4. Perceived consumer effectiveness (PCE)

PCE describes behavior by linking consumer perception and socially conscious attitudes (Ellen et al., 1991; Kinnear et al., 1974). PCE does not describe general social concern but focuses on individual-level environmental concerns such as green consumption (Roberts, 1996), purchase of green products (Lee et al., 2014), investment in green mutual funds (Nilsson, 2008), and purchase of products in minimal/green packaging (pre-cycling) (Ellen, 1994). However, PCE may not affect group participation in environmental activities. For instance, individuals with low PCE are more likely to support government environmental regulation because they do not believe that their own actions are effective (Ellen et al., 1991).

PCE explicitly acknowledges that behavior in one environmental area may not apply to another area, placing an emphasis on context (Peattie, 2001), which has been found to be very effective in determining green consumer behavior (Straughan and Roberts, 1999). For instance, Chen and Chai (2010) find that attitudes toward environmental protection do not contribute to consumers' attitudes towards green products. Others show that PCE acts as a mediator of the effect of green altruistic values on green purchase intention (Lee et al., 2014), or of the impact of media attention on consumer preference for green products (Thøgersen, 2006). On one

hand, this mediation allows PCE to describe discrepant green marketing findings. On the other hand, it would be beneficial if future research could determine an underlying explanation of environmental behaviors where PCE in one area could transfer to another.

3.3.5. Perceived marketplace influence (PMI)

Recently, Leary et al. (2014) introduced PMI as a social force to parallel PCE, specifically within green marketing. PCE considers an individual consumer's beliefs in the effectiveness of her behavior; whereas, PMI examines a consumer's perception that her individual behavior can influence others' marketplace behavior. For instance, PCE addresses whether an individual believes that drinking tap water instead of bottled water is an effective green behavior. PMI focuses on whether this individual believes that her tap water drinking behavior will be adopted by others. Thus, consumers might question which green activities are worth pursuing because of their effect on the environment, and on the behavior of others (Shultz and Holbrook, 1999). Leary et al. (2014) find that PMI mediates the relationship between environmental concern and green consumption behavior. Thus, it would behoove researchers to examine moderators of this relationship.

3.3.6. Perception matrix (PM)

Peattie (1999) proposes that there are two dimensions that affect consumers' green purchasing perceptions. The first is the degree of confidence that the product offers true environmental benefits. The second is the degree of compromise in purchasing green versus non-green products. PM, like PCE, is context and product dependent. This theoretical perspective allows researchers to classify different green products (Young et al., 2009) and new environmental product development (Pujari et al., 2003). Other research examines conditions when compromise is likely to occur (Olson, 2013). Further research could examine how consumers make green-related compromises. Perhaps more importantly, manufacturers could minimize or remove the need for consumers to make compromises. For instance, The Honest Company changed the thickness of its baby wipes because consumers did not believe that a very thin green wipe was as effective (Greenfield, 2014). Investigating the threshold values of confidence and compromise for green products and services in various contexts is a fruitful area for research.

3.4. Intentions

Intentions are derived from predominant individual desires for satisfaction and formed by choices through which satisfaction can be achieved (Boella, 2002). Individuals' green purchase behaviors are transformed by their economic intentions and behavioral intentions. Existing theories that incorporate intentions explicitly within green marketing mainly focus on economic intentions. Such theories include rational choice theory, consumer choice theory, and acquisition-transaction utility theory.

3.4.1. Rational choice theory (RCT) and consumer choice theory (CCT)

Explanations and predictions of individual choices often are based on the assumption of human rationality by which an individual seeks to maximize her benefits (Tversky and Kahneman, 1985). Rational choice theory indicates that individual behaviors are due to individual cost preferences and institutional constraints such as the norms and customs of a given social context (Friedman and Hechter, 1988). Cost preferences refer to the opportunity costs in choosing one option over another. Consumer choice theory is a subset of rational choice theory, with a focus on consumer purchase

decisions (Hands, 2009). Many types of choice variables can influence green consumption and how green marketers might frame their activities. For instance, choice variables - cognitive, ethical, behavioral, geographical and economic factors - were used to model the determinants of local forest carbon-offset valuation in Guadalajara, Mexico (Torres et al., 2013).

Researchers have found instances when green consumption choices are consistent with utility maximization. For instance, RCT has been used to explain how the price of green products affects individual utility functions; green purchasing decreases as prices for green products increase (Abaidoo, 2010). Optimization of a consumer's utility was found to be positively related to the consumption behavior of her reference groups, past consumption behavior, green product variety, and negatively related to the quantity of green product consumption (Welsch and Kühling, 2011).

CCT and RCT can be used to provide additional insight into green marketing and consumerism. For instance, research has applied extensions of these theories to discrete choice and stated preference models for green products and services (e.g., Chen, 2001). However, while existing green marketing and consumerism studies are survey focused, research has not used experimentation methodology with CCT and RCT. For instance, the scarcity principle, where scarcity enhances the value or desirability of goods, could be examined in a green marketing context. Such an experiment could provide interesting results because the purchase decision process for green products can be more complex than for traditional products, but scarcity alters the decision-making process. That is, how will these two competing decision-making factors interact?

3.4.2. Acquisition-transaction utility theory (ATUT)

ATUT helps to explain individual product choice and purchase intention. ATUT suggests that individual evaluation of a product is determined by the acquisition utility, or the overall financial outlay and the transaction utility, and the perceived value of the product (Thaler, 1983). ATUT states that consumer purchasing behavior depends on the individual's perception of the difference between the received value (reference price) and the purchase cost (selling price) (Bei and Simpson, 1995). Bei and Simpson (1995) applied ATUT as an underpinning theoretical framework to investigate the determinants of consumers' purchase likelihood of recycled products. The results indicated that price, perceived quality, and psychological benefits construct purchase utility.

Several green marketing papers have referenced ATUT, but few have sought explicitly to apply ATUT. To date, researchers only have applied ATUT to recycled products. In the 20 years since Bei and Simpson (1995) published their findings, green products have become more diversified, complex, and commonplace. Product characteristics, such as eco-labeling, linkage to carbon footprints, and food miles, also may affect the utility of products compared with identical products lacking these labeling characteristics. Thus, future research could extend acquisition utility and transaction utility functions to include brand loyalty, brand switching costs, visible messages delivered in stores, celebrity endorsements, and the perceived utility by social groups.

3.5. Motivation

Motivation, which includes all aspects of activation and intentions, has two components: strength and direction, which determine why a behavior occurs (Ryan and Deci, 2000b). There is an academic dialogue in green marketing about how resources, ability, intrinsic (hidden) and extrinsic (overt) motives affect motivation in green consumerism (Coad et al., 2009).

3.5.1. Theory of planned behavior (TPB)

TPB is a rational choice model where intention is the only direct psychological antecedent for behavior (Ajzen, 1991). This intention is shaped by a combination of three consumer characteristics: 1) perceived behavioral control (PBC), a type of self-efficacy 2) attitudes of the behavior (see the previous attitude section), and 3) norms (see the previous beliefs section) (Albayrak et al., 2011). TPB can be thought of as adding PBC (control) to theory of reasoned action (TRA) (action). For instance, green behavior (receiving e-bills instead of paper bills by mail) increases in the presence of perceived behavioral control (a person's perceived control over her decision to receive e-bills), positive attitudes (protecting the environment is important), and a high positive subjective norm (people who are important to me believe e-bills are important) (Albayrak et al., 2011). Similarly, TPB was used to explain that PBC and subjective norms may vary across cultures (e.g., Kalafatis et al., 1999).

Some researchers argue that TPB lacks explanatory power in an environmental context, and that VBN is more appropriate because it takes into account internal (values) and external (norms) influences (Eagly and Chaiken, 1993). For instance, Gabler et al. (2013) take a TPB approach, but modify it with a factor that measures consumer confidence in actual green impact to explain green purchase behavior. Shaw et al. (2000) suggest that the centrality of the green issue to a consumer's self-identity should be an important addition to TPB. Tarkiainen and Sundqvist (2005) follow this tract and determine that the centrality of health consciousness affects attitudes toward organic food purchases. In other words, a straightforward interpretation of TPB may not capture the complexity of green consumer behavior. Future research could consider complementary factors when utilizing TPB to understand individual green behaviors, including belief salience measures, habitual behaviors, self-efficacy, moral norms, and affective beliefs (Conner and Armitage, 1998).

3.5.2. Self-determination theory (SDT)

SDT is a theory of human motivation toward active engagement and development in social contexts (Deci and Ryan, 1985). SDT stipulates that individuals have intrinsic and extrinsic motivations, which explain their interaction with the social environment (Ryan and Deci, 2000b). Intrinsic motivation drives individual behavior because of inherent satisfaction, while extrinsic motivation drives individual behavior because of separate rewards (Ryan and Deci, 2000a).

Researchers have used SDT to examine consumers' green purchase motivations (Koo et al., 2015) and product perceptions (Ku and Zaroff, 2014). For instance, extrinsic motivations such as financial benefits and increased social reputation encourage individuals to purchase green products. SDT argues that restraints to inner resources can limit various individual behaviors (Tilikidou and Delistavrou, 2008). An example of removing these limitations is to educate consumers on the benefits of green products. Firms can increase the perception that green behavior is of personal importance by aligning the product perceptions with personally held green values or beliefs (Cho, 2014). SDT also explains that skepticism and cynicism about the green attributes of products and firm motivation may elicit a negative effect on green product purchase motivation (Burke et al., 2014).

One avenue for future research is to detail the potential factors and forces that engender versus undermine intrinsic and extrinsic motivations for consumers to purchase green products. Further research also could study the strategies that might influence a consumer's cynical perception of green marketing strategies – from marketing ploy to sincere practice.

3.5.3. Adaption-innovation theory (AIT)

Adaption-innovation theory is concerned with a personality dimension anchored by an ability to do things better (adaptive) and the ability to do things differently (innovative) (Kirton, 1976). Adaptors are concerned with order, precision, discipline and soundness, while Innovators think tangentially and challenge existing procedures. Innovators are not necessarily the initial purchasers of new products, although they are more likely to be risk-taking (Foxall and Bhate, 1993). Empirical evidence within green marketing literature suggests that individual consumer green adaption level and innovation level differences affect green product purchasing. Innovators are correlated with green buying behavior (Bhate and Lawler, 1997). However, because Innovators are risk takers, they may not maintain loyal relationships with a specific product or brand (Foxall and Bhate, 1993). That is, their proclivity to try new green products or engage in novel experiences may not translate into widely-held green behaviors or lifestyle changes. AIT also has been used by researchers to explain differences in green products' acceptance across cultural groups, due to population differences among innovators and adaptors (Bhate, 2002).

Perhaps surprisingly, AIT has not been used frequently in green marketing research. Future studies might extend the application of AIT to examine whether the green purchase decisions of adaptors and innovators are differentially affected by marketing mix elements, namely promotions (e.g., advertising, social media), place (e.g., distribution) and price. For example, because Innovators might try a green product out of a desire for novelty rather than its green qualities, future research could investigate how to engender brand loyalty in innovator's based on green product attributes.

3.5.4. Hierarchy of needs (HoN)

HoN states that human needs comprise five levels of a taxonomy: physiological, safety, belongingness, esteem, and self-actualization (Maslow, 1987). The HoN pyramid stipulates that motivation varies depending on the level of need. Individuals must fulfill lower levels of needs before they seek to address higher levels of needs (Van Liere and Dunlap, 1980). For example, at the lowest levels of needs (physiological and safety), consumers' green consumption behaviors are focused on immediate concerns such as clean air and clean water (Amine, 2003). As base level needs are met, individuals can address high-level needs for personal intrinsic growth (e.g., self-actualization), by contributing something beneficial to society such as addressing climate change (Choi et al., 2015).

Economic well-being and class position are related positively to environmental concerns (Wong and Wan, 2011). Low-income consumers tend to focus on more immediate base needs, with environmental concerns ranking low if at all on their list of priorities. Studies have shown that consumers from developing countries are not in a financial position to prioritize green consumption behavior (e.g., Van Kempen et al., 2009). In contrast, individuals with greater financial capabilities have greater eco-friendly attitudes (Leonidou et al., 2015).

Future research could continue the investigation into the relationship between economic status, HoN and green purchasing behavior. For instance, is it possible to motivate lower socio-economic-status consumers to meet higher level needs to promote societal pro-environmental behavior? Could education on environmental issues, at an early age, such as during elementary school education, lead to greater pro-environmental consumerism? Relatedly, the willingness-to-pay for green products, based upon which level of needs the products address (e.g., water safety vs. airplane carbon emissions) may differ by socio-economic group. Research also might examine whether consumer green consumption changes with income changes.

3.6. Social confirmation

Consumers make several decisions based on their social groups and pressures. To maintain social standing and affinity, individual consumers seek social confirmation of their intentions and choices. We address some theories where social norms and relationships are fundamental to green consumer behavior, including consumer culture theory, role theory, costly signaling theory, and social network theory.

3.6.1. Consumer culture theory (CC theory)

CC theory consists of perspectives that address the dynamic relationships between the marketplace, cultural factors, and consumer behavior (Arnould and Thompson, 2005). CC theory delves into the relationships between consumers' personal identities and social identities, cultural values and consumers' personal values, and the nature and dynamics of consumer behavior and the relationship to social culture dynamics (Rokka and Moisander, 2009). CC theory comprises five dimensions: socio-historic patterning of consumption, consumer identity projects, marketplace cultures, mass-mediated marketplace ideologies, and consumers' interpretive strategies (Arnould and Thompson, 2007).

Researchers have investigated CC theory's effect on value and meaning within the green marketing context. Value, meaning, and culture help define the cultural setting, community, or groups of consumers. Even though some researchers do not explicitly utilize the term Consumer Culture Theory, they do utilize consumer culture as a core construct. For example, Kadirov and Varey (2013) demonstrate that consumer culture creates meaning for hybrid car brands in an online setting by creating transformative green online discourse.

CC theory and global cultural identity theory, the extent to which an individual's identity focus is global rather than local, have been used to argue that global cultural identity has an enhancing moderating effect on the relationship between materialism and green tendencies (Strizhakova and Coulter, 2013). The results support the notion that national cultural identity will play a role if firms seek to ascribe materialistic values to green products.

Future CC theory investigation could widen its application to green marketing and consumerism. For example, research could investigate whether CC theory plays the same role with traditional firms compared to web-based businesses. Current CC theory in green marketing literature has focused on the firm generating the cultural context influencing individual consumption behavior. Future research investigations could concentrate on the reverse influence direction, where an individual's established values, meaning, and culture influence his or her expectations of a firm or brand.

3.6.2. Role theory (RT)

RT explains that individuals have social positions that create expectations for their own behaviors and others' behaviors (Biddle, 1986). The role that a person assumes helps to predict her behavior and others' expectations of behavior. RT both explains and predicts one's social behavior based on situations and identities. The fact that roles can emerge from a wide assortment of norms, beliefs, values, and attitudes creates subsets of RT. For example, functional role theory examines roles based on norms for specific social positions. Symbolic interactionist role theory is focused on individual behavior based on social interactions (Biddle, 1986). Other major role theories include structural role theory, organizational role theory, cognitive role theory, and gender role theory (Biddle, 1986; Teh et al., 2014). Much of the role research integrates four key concepts: consensus, conformity, role conflict and role taking. Consensus is used to denote expectation agreement held by various

individuals; conformity explains compliance to behavior patterns of various individuals; role conflict defines incompatible expectations for the behavior of an individual; and role taking describes the relationships between an individual and participation in social interactions (Biddle, 1986).

Gender role theory argues that women and men behave according to roles associated with their genders. For example, RT would argue that women are more nurturing, which aligns with their greater concern for the environment and willingness-to-pay more for green products (Han et al., 2009). A similar finding indicates the female gender category positively moderates the relationship between attitude and pre-environmental behaviors (Wai and Bojei, 2015). Role theory also has been used to explain differences in green behaviors among green product consumers and non-consumers with pro-environmental behaviors (Runyan et al., 2012).

Even with role theory's extensive literature stream, individual consumer-level green marketing research has not utilized all of the key role theory concepts; therefore, numerous research opportunities arise. First, researchers could use role-taking perspectives to examine their influence on an individual consumer's green behaviors. Symbolic interactionist role theory could be applied to the question of whether social interactions shift green purchase behavior. Second, because green marketing research typically incorporates more complex social and environmental dimensions beyond individual needs and wants, whether role behavior in traditional marketing scenarios is transferable to a green marketing context is an open question. Third, researchers could investigate the interaction amongst the four RT concepts. For example, how might consensus interact with conflict in a green consumption context?

3.6.3. Costly signaling theory (CST)

CST explains that individuals may engage in certain socially visible behaviors to communicate their willingness or ability to incur costs to enhance their social status (Miller, 2011). Pro-environmental behavior may function as a costly signal because such behavior incurs additional expense (DiDonato and Jakubiak, 2016). CST has been used as the theoretical link between narcissism and green consumer behaviors (Naderi and Strutton, 2014). Situational factors including message detection and utilization, product visibility, purchase visibility, and relative price, can support an individual's narcissistic tendencies through green purchases. These results suggest that individuals tend to purchase green products in the presence of others, to send a signal that they are dedicated environmentalists (Griskevicius et al., 2012).

Researchers have used CST to explain competitive altruism in green choices. Altruism might function as a costly signal associated with status, with these status-driven motivations influencing green product purchases. Altruism is a costly signal because it sends a message to others in the social circle that one is willing to spend extra money on causes that benefit the greater good. Findings suggest that status competition could be used by marketers to promote green consumer behaviors (Griskevicius et al., 2010). Research has used CST to examine how males signal their status to other males by purchasing organic food, typically a costly good. Specifically, the signal receiver respects the pro-organic signal sender to a greater degree. Moreover, pro-organic behavior also encourage others to behave more positively toward the signal sender (Puska et al., 2016). Future research directions might consider how green consumption could function as status signaling. That is, will a signal carry the same weight if the green good did not cost more than a non-green good?

3.6.4. Social network theory (SNT)

SNT describes social structures as a function of networks of relationships (Scott, 1991). SNT can be applied to networks of all sizes and scopes - from small social groups to broad global relationships (Kadushin, 2004). A social network contains objects (nodes) and relationships that link the objects (pairs). Node quantity determines social network complexity. The simplest social network contains two objects or nodes. In general, networks are subject to: 1) propinquity - the likelihood of a relationship between objects is positively related to the geographical distance of the objects, and 2) homophily - common social attributes (e.g., social class) (Kadushin, 2004). The greater the homophily, the greater likelihood a set of nodes have connections.

SNT posits that network characteristics help explain the diffusion of green purchasing behavior. Existing SNT papers in green marketing focus on firms as central nodes in green marketing (MacDonald and She, 2015). Examination of consumer-to-consumer relationships in green marketing and consumer behavior is a significant gap in the current literature. Creating and fostering networks of social collaborations between firms and consumers might positively affect green purchasing. Another important research question is how SNT could explain green product or service diffusion within social groups or communities. For instance, research could determine which social network characteristics have the greatest effect on green purchase behavior. SNT could be integrated with role theory to examine the effect of individuals' roles in their social networks on green purchase behavior and marketplace influence (see PMI). Finally, application of CST with social network theory, such as examining individual participants in complex social networks that incorporate green purchase behaviors, is a fertile direction for research.

3.7. Other theoretical perspectives

As our discussion of social network theory illustrates, we have identified several consumer-level theories that researchers have yet to apply to green marketing. (Table 3). Each entry in Table 3 includes a general conceptualization of the theory or constructs. Like the other theories reviewed in this paper, these theories originate from several disciplines including psychology, economics, and innovation.

We categorize these theories into two broad groups: *behavioral intentions* and *instantiators*. The first group of theories can help to determine how non-economic intentions might affect green product purchasing. Consumer variety seeking behavior and opinion leader/seeker theory, may explain the *impetus* to motivation, while innovation decision theory and diffusion of innovation theory can help to explain the *spread* of green consumption. Hedonic theory suggests that companies may be able to leverage consumer desire to attain pleasure while avoiding pain. In other words, companies could focus on how green products can help the environment (pleasure); therefore, the consumer need not feel guilt by contributing to a consumer society (pain). At the same time, companies can create complex narratives to increase engagement and loyalty (brand-consumer storytelling theory).

The second group of theories, *instantiators*, addresses possible facilitating effects that can moderate the motivation – green purchase behavior link. These theories can help to explain further how motivation results in actual green purchase behavior. For example, customer dominant logic theory suggests that companies can encourage customer co-production of green products and should incorporate the consumer viewpoint in their value chain management. Affordance theory might help explain why consumers initially choose green products. These theories that researchers have yet to apply to green marketing provide opportunity for

insight.

4. Discussion and managerial implications

The combination of the amount of research on consumer green purchase behavior and the relevance of green marketing in today's society has created the need and opportunity for a comprehensive review and categorization of the state of existing research provided here. Moreover, there is a need to provide additional avenues for future research using existing theories while suggesting additional theories that researchers could use to help explain individual consumer green purchasing behavior.

We can make a few general observations based on our comprehensive literature review. First, academic researchers have taken many different theoretical approaches to understanding green consumer behavior. In fact, we were surprised at the breadth of theories employed. Second, there is significant evidence that few consumers will pay more for green products and that environmental behaviors in one context do not necessarily transfer to other contexts (Summers et al., 2016). While these findings may be dispiriting, we hope that researchers will view these insights as an opportunity and motivation to conduct further research to understand and address these challenges. It also should be noted that we use the term 'product' in our paper because most studies examine physical products; however, studies examining services find congruent results. Third, multiple theories and inter-relationships amongst theories may help to further understand the systemic nature of complex green consumerism.

Our work also has insight for managers interested in cultivating green customers. The numerous theories used in green marketing may appear overwhelming, but we construct a framework that indicates the flow between theory groupings (Fig. 1). This framework can be useful for managers and decision makers when developing strategies to address consumers at various stages in the green product decision making process. Managers can identify specific stages in the green product purchasing process for given customer segments, and develop strategies to move them to the next step.

This paper provides application of theory from academic literature and terminology that might be useful to managers in identifying concerns they face when seeking greater adoption of green consumer practices. Practicing marketing consultants and decision makers also may find the works referenced in our paper useful in bridging gaps in the theory and practice; entrepreneurial decision makers also may be able to create competitive advantages by expanding on these insights.

Finally, the field of green marketing would benefit from examining actual behavior instead of purchase intentions and hypothetical scenarios (McDonald et al., 2012) for three reasons. First, consumers' willingness to pay a premium for green products is very low (Laroche et al., 2001). Second, there is a strong potential for biased responses to green product surveys, since most consumers indicate preference for green over non-green products that is not supported by corresponding behavior (Griskevicius et al., 2010). Third, there might be barriers for consumers to achieve green behavior such as the lack of a wide variety of available green products at reasonable prices (Young et al., 2009).

5. Policy implications and conclusion

Regulators and public policy makers also play an important role in various stages of our green consumer theory framework. Regulators are responsible for setting various standards and reporting requirements for organizations and products (Marques and Simões,

Table 3
Future theoretical directions for green marketing research.

Theory	General Conceptualization	Potential Application	Reference
Behavioral Intentions			
Brand-consumer storytelling theory	A major principle is that human memory consists of stories. Consumers relate products and brands in terms of stories by using them as props or anthropomorphic identities to produce stories.	<ol style="list-style-type: none"> 1) Effectiveness of storytelling in green product promotion. 2) Creating visual storytelling art in green packaging. 	Schank (1999), Woodside et al. (2008)
Consumer variety seeking behavior (CVSB)	Individuals tend to seek diversity in their consumption choices	<ol style="list-style-type: none"> 1) Whether, why, and how consumers seek variety in their green product or service choices. 2) Measures that specifically relate green individual characteristics to CVSB, that is, measuring individuals' variety seeking tendency with respect to green products, may be required. 3) Variety seeking measures and reinforcement behaviors can be developed to encourage individuals' green consumption. 4) Measure whether CVSB holds when comparing consumer purchase tendencies of products with multiple green attributes versus singular green attributes. 5) CVSB can be used to explain brand switching from regular brands to a green brand, i.e. can consumers be satiated in the green seeking behavior from regular products. 6) CVSB model might be used to identify relationships among competing products (green and non-green products). 7) CVSB can also be brought into cultural analysis in green marketing and consumerism on a global scale. 	Farquhar and Rao (1976), Vermeir and Verbeke (2006)
Diffusion (of innovation) theory	Diffusion models the timing of adoption of an innovation. Diffusion is composed of multiple actors/stages: innovators, early adopters, early majority, late majority, and laggards.	<ol style="list-style-type: none"> 1) Factors that contribute and influence the diffusion of green innovations for customers. 2) A diffusion theory model of adoption and substitution for boarder customer base and successive generations of green products. 3) Identify whether green consumption will transform to other green behaviors, e.g.: integration with halo effect or spillover effect. 	Norton and Bass (1987), Doshi and Ratcliff (2016)
Hedonic Theory	Hedonic theory focuses on happiness and individual well-being through pleasure attainment and pain avoidance. Happiness consists of: life satisfaction, the presence of positive mood and the absence of negative mood.	<ol style="list-style-type: none"> 1) Use hedonic theory to decide willingness-to-pay for green products. 2) Integration of hedonic theory with emotions and motivations in green consumption behavior. 3) Integrating hedonic theory and affordance theory in green product design. 	Lerman and Kern (1983), Ryan and Deci (2001)
Innovation decision theory	Five stages individuals experience when making a decision about adopting an innovation: knowledge, persuasion, decision, implementation and confirmation	<ol style="list-style-type: none"> 1) Customer-centric view of characteristics and barriers of green innovation 2) Do green innovation adopters have the same characteristics and behaviors of non-green innovation adopters? 	Rogers (1983), Reinders et al. (2010)
Opinion leader/seeker theory	Opinion leaders are important disseminators of information communications. Opinion leaders emphasize personal influence in the consumption process.	<ol style="list-style-type: none"> 1) Utilizing opinion leader and seeker framework to examine word-of-mouth marketing effectiveness, both online and offline, of green products. 2) Integration of opinion leader and seeker theories with diffusion theory: investigating the diffusion of green innovations using opinion leaders. 3) Integration with role theory to expand leader and seeker theories to a leader-seeker exchange framework in green marketing. 	Chaney (2001)
Theories of Emotion	1) Theories of emotion are concerned with a variety of emotional experiences, including anger, gratitude, guilt, hopelessness, pity, pride and shame.	<ol style="list-style-type: none"> 1) Investigate the relationship between consumers' perceived consequences of green behaviors and the corresponding self-motivators. 2) Do emotional experiences affect green purchase behavior? 3) How long do the effects of emotion on green purchase behavior last? 	Weiner (1985)
Instantiators			
Affordance theory	An affordance is a precondition of an available activity for an actor in an environment. Actors are organisms that receive and behave given their surroundings.	<ol style="list-style-type: none"> 1) Design-oriented research: analyses of specific affordances and interfaces of green products and consumers to encourage sales. 2) The impact of perceived green technology affordances on consumer green consumption behavior. 	Shaw and Bransford (1977), Gibson (2014)
Customer dominant logic theory	Business purpose is to acquire customers and satisfy their needs.	<ol style="list-style-type: none"> 1) The role of customer-dominant logic in green individual consumption behavior. 2) Integrating customer perspective into green value chain management. 3) Investigating customers as green co-producers. 4) Integrating green product-dominance and customer dominant strategy in green initiative effectiveness. 	Drucker (1974), Lusch and Vargo (2014)

2008). The role of policy makers as external influences of consumers in developing beliefs, supporting attitudes and intentions, are all potential research directions. For example, regulators can play a strong role in consumers' perceived effectiveness of their actions on the environment. Regulators set various environmental consumer standards, such as recycling content and environmental performance measures, which can go a long way in building stronger consumer perceptions of the environmental effectiveness of products, leading to greater purchase intentions and behavior. In the latter stages of the framework, economic intentions theories support the efficacy of governmental subsidies versus fines; 'carrots' rather than 'sticks.' Such policies are especially evident in such big purchase items that include tax rebates for purchase of electronic vehicles. Since the government participates as an actor within social networks and consumer cultures, it can greatly influence these networks and cultures through regulatory mechanisms; e.g. truth in advertising regulatory policies. Whether policies will affect consumers at other stages in green purchasing may depend on application of different incentives for consumers with varying levels of environmental consciousness (Garvey and Bolton, forthcoming).

We hope that our paper can serve as a resource for both academic researchers and marketing practitioners seeking to further understand and advance the field of green marketing and consumerism. Marketing plays a large role in influencing human engagement with concern over impact on the environment. Given the great concern about climate change and environmental sustainability, we look forward to additional work in green marketing, especially at the consumer level.

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