Green marketing capability: A configuration approach towards sustainable development

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Abstract

Literature often shows that not all firms achieve similar outcomes in pursuing green marketing practices. Hence, what makes some firms more successful than others in formulating green marketing practices and achieving desired outcomes is of crucial importance. This study proposes that green marketing capability (GMC) is one of the factors that can explain this difference between firms. Based on resource-based view and dynamic capability theories, this research develops a theoretical framework to conceptualize and configure GMC. In doing so, this research specifically explores three research objectives: (1) what constitutes GMC, (2) how firms differ in their GMC configurations, (3) how such GMC configurations might lead to green marketing performance differentials. To answer these objectives, in a multi-industry setting, this study employs a multi-source data collection approach and uses managerial surveys (n= 158), objective financial information, and uses configuration (cluster) approach for data analysis. The findings show that firms can develop GMC in two ways: through green market sensing (comprising of learning and planning activities) and green market execution (encompassing marketing mix and cross-functional orientations). Based on GMC configurations, firms can be classified into three groups: *opportunity seekers* that excel in both sensing and execution capabilities and act as green market prospectors; *conservative compliants* that lag behind in both these aspects and act as green market defenders; and *critical adopters* that lay medium emphasis on green market sensing and execution activities and maintain a balanced "wait and see" approach. The results also show that firms can achieve the best possible green marketing performance by adopting an opportunity seeker's strategy. The study highlights several research and managerial implications for firms to adopt innovative GMC practices.

Keywords: cluster; configuration; development; future ecosystem; green marketing; marketing capability; marketing innovation; green marketing performance; sustainability.

1. **Introduction**

The recent Covid-19 pandemic crisis has brought back the debate on environmental sustainability over short-term profit to the forefront of business thinking and consumer priority. Despite a substantial body of research that explores how firms can reinvent their green marketing practices (e.g., Awan et al., 2021; Groening et al., 2017; Hudecheck et al., 2020; Ranjbari et al., 2021; Wang et al., 2019; White et al., 2019), how such practices can influence firm performance (e.g., Cronin et.al., 2011; Dangelico and Vocalelli, 2017; Gustavo et al., 2021; Papadas et al., 2019), empirical evidence shows that not all firms can enjoy the benefits of taking proactive green marketing practices. For example, firms such as L'Oréal with carbon neutrality achievements, and Toyota with their hybrid car models have achieved considerable revenue growth by focusing on green marketing and a broader sustainability agenda (Environmental Leader, 2021). However, firms such as Cisco although ranked 13th on the World's most sustainable organization list in 2021 has a much lower profit than firms such as Lenovo that ranked 78th (Corporate Knight, 2021 and Forbes, 2021). Existing research often fails to explain this discrepancy or provide explanations as to why some firms can attain considerable green marketing performance results despite focusing little on the green marketing agenda whereas some firms fail to capitalize on their substantial green marketing investments.

Research suggests that marketing capability, defined as the processes by which a firm acquires new resources and transforms existing resources to generate products and services of value to market, is one of the principal factors that can explain the performance differential when firms compete against each other (Amit and Shoemaker, 1993; Morgan, 2012). However, research to understand how firms can build and develop "green marketing capability (GMC)", is rather limited. We describe GMC as *the processes by which a firm can acquire and transform new and existing resources to create products and services that meet environmental needs of the business*. Although there is a significant body of research that explores green marketing concepts and constructs such as green marketing mix, green partnership, and corporate environmentalism (e.g., Awan, Kraslawski and Huiskonen, 2020; Banerjee, Iyer and Kashyap, 2003; Dangelico and Vocalelli, 2017; Papadas et al., 2019), there is little research to understand what constitutes GMC or how firms can develop such

capabilities to enhance green marketing performance. Thus, this study attempts to answer the following research questions:

RQ1: what constitutes GMC?

RQ2: how do firms differ in their GMC configurations?

RQ3: how such GMC configurations might lead to firms' green marketing performance differentials?

It is important to delve into these issues for the following reasons. First, past literature has often explored how a firm can develop its marketing capability to influence business performance using resource-based view (RBV) and dynamic capability (DC) theories (e.g., Day, 2011; Morgan, 2012). Such studies argue that firms achieve performance differential in a competitive environment with an idiosyncratic bundle of resources, capabilities to transform the resources into value propositions, and the way they adapt resource-capability frameworks over time according to the changes in the environment. Hence, there is no certainty that a resource rich firm will always be a winner. Firms with an inferior resource pool but superior capability for optimal transformation of resources into value propositions can also achieve higher performance. Although such proposition has been widely tested in areas such as new product development (Bruni and Verona, 2009), export marketing (Morgan, Katsikeas and Vorhies, 2012), its use is limited in the green marketing context. In particular, research is sparse on how firms can learn, adapt, and enhance their approach in a dynamic environment when the objective is to deliver products and services that meet environmental needs. Hence, conceptualization and what constitutes GMC using RBV and DC frameworks is under-examined. Second, despite a substantial volume of research that establishes the importance of adopting green marketing practices (e.g., Groening et al., 2017; Papadas et al., 2019; Wang et al., 2019), there is a discrepancy in the findings in terms of how this might lead to improvement in environmental performance as it depends on a firm's idiosyncrasies. Certain firms may develop a better capability to organize their marketing mix strategies around green products/ processes or have a better knowledge management infrastructure to handle green demands of their stakeholders or have a superior top management commitment to achieve environmental goals than others (such as Awan et al., 2021; Baker and Sinkula, 2005; Dangelico and Vocalelli, 2018). However, past research has often studied the impact of such capabilities on green marketing performance in isolation, and it is not

clear how such individual capability constructs can be integrated to develop a holistic understanding of stakeholder needs. Hence, there is a need for empirical studies that explore how firms differ in terms of their approach towards GMC configurations and how that might lead to green marketing performance differentials.

To explore the research objectives, our study uses data from a multi-industry sample of manufacturing firms in Thailand. It collects data from two sources (primary survey of key informants in charge of green marketing practices using seven field interviews and 158 managerial surveys, and objective data on financials from company annual reports) and uses a configuration approach to analyze the data to address the above knowledge gaps. In doing so, this research makes both theoretical and methodological contributions. Theoretically, this study develops a framework to conceptualize and identify the constituents of GMC using RBV and DC as the backdrop. Hence, it extends research on marketing capability in the green context (such as Fiore et al., 2017; Ranjbari et al., 2021; Varadarajan, 2017). Second, many green marketing studies are either conceptual in nature (e.g., Chabowski et al., 2011; Cronin et al., 2011; White et al., 2019) or empirical but focus on a limited number of constructs (e.g., Leonidou et al., 2013; Papadas et al., 2019; Sadovnikova and Pujari, 2017). Our study proposes and empirically verifies the multidimensional nature of GMC. Methodologically, this study adopts a configurative approach (following Homburg, Jensen and Krohmer, 2008) in the green marketing context and demonstrates green marketing performance differentials of firms based on their GMC configurations.

We organize the rest of this article as follow: we begin by describing the background literature on GMC and its conceptualization. Then we explain how to identify the relevant domains and constructs of GMC. Next, we describe the taxonomic procedure, followed by the clusters of GMCs and their green marketing performance differentials. Finally, we discuss the findings and their implications, limitations of our study and recommendations for future research.

2. Literature Review

2.1 Implementation of Innovative Green Marketing Practices: Research Gap

Recent research suggests that innovative green marketing practices adopted by firms have become the backbone for them to embrace the future ecosystem and sustainable development (Awan et al., 2020; Cohen, 2020; Hudecheck et al., 2020; Fiore et al., 2017). Dangelico and Vocalelli (2017) define *'innovative marketing practices'* as *'the continuous innovations of planning, organizing, coordinating, implementing, and controlling the development, pricing, promotion, and distribution of products or services to meet the new challenges of the future ecosystem in a manner that satisfies: 1) customers, 2) organizational goals, and 3) ecosystem'*. Against this backdrop, innovative green marketing practices are conceptualized as the practices, policies, and procedures that firms need to adopt to offer products and services that accomplish the strategic and financial goals without compromising the environmental responsibilities (Leonidou et al., 2013).

Past research has used several paradigms to understand how firms can develop and implement innovative green marketing practices. For instance, Leonidou et al., (2013) using the classical marketing mix approach propose that firms need to invest in four aspects: green product, green pricing, green distribution, and green promotion to achieve payback benefits to their green marketing programs. Cronin et al. (2011) using a combination of internal functions and external stakeholder engagement approach posit that firms can develop their green marketing strategies in three ways: green innovation that involves developing goods/ services that meet the needs of environmentally conscious consumers; greening the organization that consists of having green champions within the organization; and greening the process by integrating with supply chain partners and forming green alliances. Sadovnikova and Pujari (2017) suggest that inter-firm strategic partnerships on green issues are key to achieve both environmental and economic objectives. They find that high-performance firms are better in combining marketing capability with environmental objectives when they create green strategic partnerships with other firms. Awan et al. (2021) propose the impact of knowledge acquisition capability and environmental investment on the ability of firms to innovate both green products and processes.

Nevertheless, most prior studies tend to examine either innovative green marketing practices or their role on sustainable development separately, so it is an urgent need to connect the two research streams together (Fiore et al., 2018; Papadas et al., 2019). For instance, more research is called for on how to utilize innovative green marketing practices to improve the performance of sustainable production and consumption in general

from the perspectives of governments, firms, and customers respectively (Wang et al., 2018; White et al., 2019). Given the current Covid-19 pandemic crisis backdrop, firms are calling for further studies on innovative green marketing practices for future ecosystems (Cohen, 2020; Hudecheck et al., 2020; Reeves et al., 2020).

Therefore, although there is significant body of research that explores how firms can adopt innovative green marketing practices, there is no consensus or uniformity on what the various facets of such practices are, how firms can integrate such practices both internally and externally with stakeholders, or what capabilities are needed to plan for and execute such practices toward accomplishing green marketing performance. In fact, research scholars (e.g., Chabowski et al., 2011; Cohen, 2020; Dangelico and Vocalelli, 2017), in their review studies on green marketing suggest that future research needs to investigate what capabilities (both internally and externally focused) firms need to create a marketplace advantage. This study attempts to fill this void by proposing GMC as one such missing link to integrate various innovative green marketing practices to achieve sustainability goals. Table 1 summarizes representative research with the findings in this area.

INSERT TABLE 1 HERE

2.2 Green Marketing Capability (GMC) and its Conceptual Domains

Literature often suggests the capability, defined as the process by which firms identify, acquire, and transform resources into value propositions is key to achieve competitive advantage and improve performance (Amit and Shoemaker, 1993). Based on this proposition, we broadly define GMC as *the marketing actions, processes, and initiatives that a firm needs to identify, acquire, and transform resources into value propositions meeting the environmental needs of the business.*

Organizational capabilities and their role in firm performance are widely studied using two theoretical foundations: resource-based view and dynamic capabilities theory. According to these, firms that possess resources that are rare, non-substitutable and have capabilities to identify, acquire and transform such resources based on the dynamic changes in the environment are likely to have better business performance (Day, 2011). Such theories suggest that successful firms need to have two important characteristics: the ability to understand

the requirements of the current and future markets, and the ability to translate such requirements into appropriate actions through proper resource acquisitions and deployments.

Such a two-pronged approach to understanding what makes successful firms distinct is widely used in marketing strategy literature. For instance, one stream of literature suggests that firms that are better in marketing strategy creativity and marketing strategy implementation tend to have superior business performance (Slater, Hult and Olson, 2010; Wang et al., 2017). Marketing strategy creativity involves how firms can plan and explore the environment to make their offer distinct from others in the market, whereas marketing strategy implementation is associated with the ability of firms to execute the strategic objectives through appropriate marketing actions. Another stream of literature prescribes that the success of firms depends on how competent they are to "explore the market" that involves capability on creativity, innovation, and experimentation; and "exploit the market" which corresponds to the activities carried out to implement learning from the exploration phase (March 1991; Varadarajan, 2017). Ambidexterity of organizations that involves both "*exploiting the present and exploring the future*" is widely researched as well (Slater et al., 2010). Morgan (2012) posits a conceptual framework on how marketing capabilities can influence firm performance by identifying four sub-constructs: architectural and dynamic marketing capabilities that broadly correspond to the planning and learning activities that go on within an organization; and specialized and cross-functional marketing capabilities that largely reflect the activities that firms do to implement such plans with stakeholders. In line with this, this study posits that GMC has two key conceptual domains: green market sensing and green market execution.

Green market sensing is the process that a firm follows to explore the changes in the environment, gather knowledge, identify the resources and competencies it needs to reconfigure its offering to fulfil the role of marketing in meeting the environmental needs of a business. It is one of the fundamental principles of dynamic capability theory where a firm needs to sense environmental changes, and plan how to respond to those changes by altering resource configurations (Fiore et al., 2017; Teece, 2009). Such market sensing abilities make firms learn about current trends in green marketing activities, predict the future and help in resource allocation strategies (Awan et al., 2020; Vorhies and Morgan, 2005). Firms with strong green market

sensing ability explore the current regulatory frameworks that governs the environmental footprints related to their offering, predict the future trends on how the industry needs to respond to such regulations, proactively innovates to make their products/ processes greener, and lead environmental responses (Varadarajan 2017; White et al., 2019). For example, in 2005, GE sensed that the industry norm regarding using clean energy and reducing harmful emissions would change and they launched the "Ecoimagination" range of products much ahead of competition earning them a distinct head start in the green race.

On the other hand, *green market execution* is the process that a firm follows to implement all the strategic environmental goals it has planned for its stakeholders by using marketing activities. Dangelico and Vocalelli (2017) explain this as marketing implementation where marketing strategy is transformed into necessary resource deployments. It is of prime importance as effective execution of planned marketing strategy is key to success (Awan et al., 2020b; Morgan, Katsikeas and Vorhies, 2012). Such market execution abilities follow the premise of the resource-based view that hinges on the application and utilization of resources rather than mere possession of it. For instance, Adidas has implemented 100% sustainable raw material policies to manufacture its product ranges by working with their suppliers, and complete recycling strategies by educating its customers through marketing activities. Table 2 below provides a synopsis of the literature that examines the configurations of GMC strategies and practices.

TABLE 2 HERE

2.3 *Green Marketing Capability (GMC): Constructs within its Conceptual Domains*

Green market sensing: Literature has conceptualized market sensing using numerous overlapping constructs. For example, Morgan (2012) proposes two constructs: architectural marketing capability that includes all *planning* related activities to achieve strategic marketing goals; and dynamic marketing capability that encompasses market *learning* which explains a firm's ability to learn about its customers, competitors, and the marketplace to understand current situations and predict future changes. Gabler, Richey and Rapp (2015) posit that firms can have a better sense of the market and its customers by developing the capability of market orientation that involves learning about the changes in customer needs and planning to address them through

improved value proposition. Strategic marketing literature suggests that firms formulate their business strategy in two stages: planning where firms follow rational and analytical processes to formulate goals and learning through information acquisition, processing, and dissemination (Mintzberg 1973; Sadovnikova and Pujari, 2017; Slater et al., 2006). Based on such arguments, this study proposes that green market sensing is composed of two sub-constructs: *green market planning* that involves formulating marketing activities to achieve environmental goals and *green market learning* that includes marketing activities to understand emerging environmental regulations and respond proactively by innovative propositions. Figure 1 below shows the conceptual model of GMC.

INSERT FIGURE 1 HERE

Green market execution: Literature suggests various strategies that firms adopt to implement their marketing goals. For instance, Morgan (2012) argues that marketing strategy implementation requires two sets of capabilities: marketing program alignment that involves action-oriented tactics to translate strategic content into decision making through innovative *marketing mix program*; and resource deployment using a *cross-functional orientation* as marketing activities often overlap with other organizational functions. In the green context, Leonidou et al (2013) suggest that firms can achieve their green marketing objectives by implementing a 4P program: green product that involves developing eco-friendly products; green pricing that includes economic and environmental costs of production; green distribution that relates to developing an environment friendly supply and distribution chain; and green promotions that involves communicating with stakeholders in greener ways. A firm can implement its green strategy program using a three-pronged approach: green innovation where the firm develops new innovative green products/ services; greening the organization where the firm focuses on greening the process associated with the production of products/ services; and forming green alliances where the firm can choose to develop partnership with multiple stakeholders (such as customers, suppliers) to achieve its green objectives (Awan et al., 2020; Dangelico and Vocalelli, 2017; Gabler et al., 2015; Papadas et al., 2019). To summarize, all such execution efforts often require innovative marketing mix design and cross-functional coordination. Based on such arguments, this study proposes that green market execution has two sub-constructs: *green marketing mix program* that involves implementing marketing goals

of the organization towards environmental causes using product, price, promotion, and place strategies; and *green market cross-functional orientation* that involves integration of marketing capabilities across disciplines and coordinate with stakeholders to achieve environmental goals of the organization. Table 3 summarizes the GMC constructs and their literature sources.

INSERT TABLE 3 HERE

Based on this argument on the structure and composition of GMC, we propose:

P_1: Firms that adopt a strategic GMC structure holistically (composed of GM sensing: planning and learning; and GM execution: mix program and cross-functional orientation) can address their green concerns much better than firms that adopt its components in isolation.

2.4 *Green Marketing Capability (GMC) and Green Marketing Performance*

There is a significant body of research that demonstrates the positive influence of innovative green marketing practices on firm environmental performance (e.g., Awan et al., 2020; Banerjee et al., 2003; Groening et al., 2017). Such studies highlight that green marketing practices can improve firms' environmental performance through making products and processes greener, improved recycling and other environmental initiatives. At the same time, literature also suggests that the environmental benefits that firms accrue is largely dependent on how strategic they are in adopting green marketing practices (Baker and Sinkula, 2005; Herremans et al., 2008; Papadas et al., 2019). For example, firms that are classified as environmental leaders with high levels of environmental commitment from senior managers achieve higher environmental performance compared to firms that are environmental laggards whose primary objective is to meet environmental compliance. Environmental leaders adopt a proactive environmental stance to achieve competitive differentiation advantage or "environment is an opportunity". On the other hand, environmental laggards take a calculated and measured approach towards making environmental investments to comply with government directives. We argue that strategic adopters of a GMC approach are likely to have a significant understanding of the stakeholder requirements using their market sensing capabilities through planning and learning. They can thus respond to stakeholder requirements through effective execution of green marketing mix and cross-

functional capabilities more holistically. On the other hand, firms that use GMC as a more reactionary approach or focus on its individual components in isolation have inferior understanding of stakeholder needs and are likely to respond to it inadequately. Based on this argument, we propose:

P_2: *Firms that adopt a strategic GMC structure holistically (composed of GM sensing: planning and learning; and GM execution: mix program and cross-functional orientation) and in a proactive way can achieve superior green marketing performance to firms that adopt it in isolation and in a reactive way.*

3. Method

3.1 Research Setting

To empirically verify the GMC conceptual framework, this study chose manufacturing firms across different sectors in Thailand as the context for three reasons: (1) Ministry of Industries in Thailand has taken active initiative to develop manufacturing industries to target export markets and this has led to a surge in undesirable greenhouse emission, (2) United Nations Development Programme in association with the Thai government has launched several high profile initiatives to help manufacturers to cut down their greenhouse emission and promote green growth, (3) Thai government has created specialist investment funds for large, medium and small manufacturers to improve sustainable operations. Hence, it is critical to understand how manufacturing firms in an emerging market environment are making a balancing act between reducing the environmental impact of their business, complying with environmental legislation and at the same time improving their business potentials and financial growth. We chose manufacturing firms from a publicly available database maintained by the Thai Ministry. This list contains names, contact details of firms and classifications based on their environmental initiatives. We chose industries and firms therein from the whole spectrum to achieve representativeness of the sample.

3.2 Field Interviews

As there is a lack of empirical work that explains the structure and components of GMC, this study conducted exploratory qualitative fieldwork by interviewing seven managers chosen from industries included in our

sample. To ensure variability and generalizability of the data, the study chose industries and firms therein varying on size, age, time since the firms started their green initiatives, and the types of benefits the industries receive from government environmental funding schemes. We collected secondary information (such as financial statements, environmental reports, sustainability statements in press) to identify the levels of environmental initiatives that each of the seven firms adopted to ensure the sample covers a broad range.

All seven interviews were conducted online by one of the authors. Based on telephone appointments, the author interviewed key decision makers with job titles such as marketing managers, operations manager, and finance manager with sound knowledge of the green efforts undertaken by their respective firms and investments made in green initiatives. The researcher asked questions on the types of environmental initiatives adopted by their firms both pre- and post-pandemic, perceived benefits of adopting green strategies, and how marketing and product development departments are coping with environmental demands. Specific attention was given to their green marketing initiatives such as how they plan and incorporate green issues into product design, pricing, process, sourcing, and distribution with emphasis on increased focus post-pandemic. Each interview lasted for about an hour.

3.3 Stages of Questionnaire Development and List of Measures

The study developed the questionnaire in three stages. In the first stage, this research combined a list of measures obtained from extant literature with the interview feedback to generate the items. Next, to improve the face validity, the researchers asked three marketing experts familiar with environmental marketing literature to evaluate the constructs and the items. Third, the study pre-tested the questionnaire with seven practitioners working on environmental management areas to comment on the suitability of the items, wordings, and overall comprehensiveness of the questionnaire. Based on such comments, the questionnaire was finalized. Table 4 provides the list of measures with their literature sources.

INSERT TABLE 4 HERE

In addition to the cluster variables, this study also considered four green marketing performance and four control variables as descriptive of the clusters without entering the cluster analysis. One of the principal

motivators for a firm to adopt GMC is to improve its business performance. For instance, our field interviews identified that firms tend to use green marketing initiatives both to increase their profits as well as to reduce the cost of environmental compliance. Vorhies and Morgan (2005) classify such objectives as performance effectiveness that explains how performance goals are achieved (like increasing sales, market share) and performance efficiency that focuses on return on the assets invested (such as ROA). Based on such arguments, this study classifies four categories of green marketing performance measures: increase in green product sales to existing customers and increase in market share in green product market (Morgan et al., 2012) that focuses on the effectiveness in profit-making objectives; and return on investment (ROI) from green product investments and reduction in environmental compliance costs (Fraj et al., 2013) that highlights efficiency in cost-saving objectives.

Apart from collecting these four green marketing performance measures from the survey of managers, this study also collected objective measures on return on assets ROA (ratio of net income to total assets) from the annual reports of the firms with a time lag for one year (t+1) since initiating GMC within their firm. This time lag for one year follows the argument obtained from the field interviews that it takes about one year for firms to reap the benefits of green marketing deployment and is also consistent with literature (e.g., Leonidou et al., 2013).

The four controls used in this study are firm size, age, industry type and competitive rivalry. Firm size and age often influence both the investments in green market activities and revenue/ profit potentials of firms (Sadovnikova and Pujari, 2017). Firm size measured using the number of employees and firms' age measured as the log of the number of years of their business operation are used in this study. The researchers used objective data from company annual reports and industry databases to obtain measures on size and age of firms. In addition, industry type and competitive rivalry that indicates the degree of competition in the industry often impact the performance of firms (Morgan 2012). We measure industry type with dummy variables and competitive rivalry using perceptual measures from the participants based on the scale suggested by Morgan et al., (2012). However, about 23% of the firms in our sample are privately owned and do not publish financial

statements in the public domain. For such firms, this study used the self-reported scores by managers to determine their size and age. ROA figures for these firms were unobtainable.

3.4 Data Collection

This study obtained a list of about 1000 manufacturing companies in Thailand from the database of their Ministry of Industries. This list categorizes companies into five levels based on their environmental commitment. The researchers contacted each of these firms over the telephone to identify the key informant knowledgeable about the green marketing initiatives adopted by their firms, explain the benefits they might receive from the study and explore their willingness to participate in the survey. About 350 firms were discarded at this stage due to reasons such as firm policy does not allow managers to talk about company policies, no suitable contacts were located, closure of firms, and refusal to participate in the study. Attention was paid to ensure adequate representation of industries and companies based on their size, age, and their membership across the five levels of environmental categorization as done by the Ministry.

The final survey was uploaded on an online survey platform and links of it were emailed to 650 companies with a personalized letter to the key informants explaining the purpose of the study, key benefits of participating in the study, and data confidentiality. To ensure appropriateness of the informants, we asked two filter questions: how familiar they are with green marketing initiatives with their firm: how competent they are to answer questions on green marketing initiatives within their firm both pre- and post-pandemic (5 = high, 1 = low). After two reminders and five months of fieldwork, the study received 158 fully completed returned questionnaires. We discarded 8 questionnaires as they scored less than 3.5 out of 5 as the composite score on informant quality. The effective response rate of the study is 24%. Past industrial research has often used such sample size to analyze firm approach (e.g., Talke and Hultink, 2010). The sample included companies from diverse industries such as food and drink, steel, electrical and chemical manufacturers; and respondents include CEOs, marketing managers and operations managers. Table 5 describes the sample characteristics.

INSERT TABLE 5 HERE

3.5 Non-response Bias

This study tested non-response bias by comparing means between early and late respondents (Homburg et al., 2008) in two ways. First, we assessed the difference on firm age and size (denoted by number of employees) between the early and late respondents using both self-reported data and secondary information collected from company annual reports and found no significant differences. Second, we compared the means of the overall green marketing performance measure between the early and late respondents and found no significant difference. This ensures the data does not suffer from a systematic non-response bias.

3.6 Common Method Bias and Validation Sample

Since the study collected both the GMC constructs and green marketing performance measures from the same respondent, so there is always a possibility of common method bias in the data. However, we assessed it in three ways. First, we used Harman's one-factor analysis to test possibilities of common method bias. The result reveals that the total variance of the single factor is less than 50% which is against a systematic bias (Podsakoff and Organ, 1986). Confirmatory factor analysis (CFA) of the single latent factor exhibited poor model fit ($x^2(189)$ = 1175.10; $x^2/d.f.$ = 6.21; *CFI/TLI* = .63/.59; *RMSEA* = .20; *SRMR* = .11). Second, we compared the mean difference between firm age and size based on self-reported data from the respondent and secondary data obtained from company annual reports and found no significant difference. In addition, the instruction sheet in the survey instrument clearly stated that there were no right, or wrong answers and assured confidentiality of the information provided.

As a final test for potential common method bias, we also created a validation sample of firms based on their objective financial profitability results. About 23% of our sample firms are privately held and do not report their financial information in the public domain. For the remaining 77% of the firms, we collected objective measures on ROA from the Stock Exchange database of Thailand as well as the company websites at the period (t+1). Following Homburg et al. (2008), we compared the means of two constructs: green marketing performance (3.98 vs. 4.12, $p>0.05$) and competitive rivalry (4.32 vs. 4.98, $p>0.05$) between firms

that report their objective measures versus the ones that do not report such measures. There was no significant difference between them. We also compared the means of the green marketing performance (based on the aggregation of four perceptual measures as given in Table 4) with their ROA figures (based on their financial results) for the 77% of the firms. There was no significant difference. Hence, common method bias is unlikely to be an issue in this study.

3.7 Taxonomic Procedure

To explore how firms can be classified as per their response to GMC constructs and develop a taxonomy, we performed a multi-step clustering approach consistent with previous taxonomy works. There are three decision-making stages in the clustering approach. First, to determine the number of clusters, this study used a hierarchical clustering method using average linkage method as it is less susceptible to the effects of outliers (Hair et al., 1998). It was supplemented with Ward's algorithm after removing 14% of the observations as outliers using multivariate Mahalanobis distance $D^2/df>4$ (sig>0.001) (Punj and Stewart, 1983). Past studies suggest comparing results of both these approaches (e.g., Wong et al., 2010). Both clustering techniques resulted in a 3-cluster solution. To test the robustness of the 3-cluster solution, this study followed Homburg et al. (2008) to re-run the clustering algorithm with four independent random subsets with 65% of the data. In addition, we used percentage increase in agglomeration coefficient, where large changes indicate when distinct clusters are forcefully combined. All the methods showed strong support for the 3-cluster solution.

The second stage involves assessing observations to clusters. We followed the multi-stage procedure as suggested by Homburg et al. (2008) that involves Ward's method to determine the initial seed point followed by k-means clustering. Such fine-tuning of assigning observations into clusters where the initial seed is obtained from hierarchical methods followed by non-hierarchical methods such as k-means clustering is observed as a powerful combination (Hair et al., 1998).

The last stage assesses the stability of the cluster assignment. Using a random split sample procedure, the study divided the sample into two halves and ran the hybrid clustering (combining the hierarchical followed by the non-hierarchical process). Such a split sample technique to test the stability of a cluster solution is widely used in literature (Homburg et al., 2008). This research followed the method proposed by McIntyre and

Blashfield (1980). First, we cluster analyzed half of the data set using the hybrid process and its cluster centroids were identified. Next, we assigned each object from the second half of the data set into the nearest centroid calculated from the first half of the data set. Finally, kappa statistics were used to compare the two solutions. The results showed strong support for the 3 cluster solutions, and it was adopted for further analysis.

4. Results

4.1 Scale Validation

The study used confirmatory factor analysis (CFA) to validate the factor structure. Three items were removed during the scale purification process (please see Table 4). The CFA results showed significant overall fit for the model. The values of CFI= 0.93, GFI = 0.95, NFI = 0.96, TLI= 0.97, RMSEA= 0.08 are all within acceptable range (Hu and Bentler, 1999). The reliability of the constructs is adequate with minimum Cronbach's alpha= 0.91 and composite reliability= 0.81. The study tested convergent validity using standardized loading of the items. All items show loading 0.7 or above on their intended latent constructs with t-values >2.0. To test the discriminant validity of the model the study used the average variance extracted (AVE). All the AVE values exceed 0.5 (minimum= 0.69) with squared correlation between any two constructs less than the AVE extracted by the constructs. This indicates that the model developed based on theoretical bases is reasonably specified and suitable for use in further analysis.

4.2 GMC as a Holistic Strategic Configuration

The results show that GMC is a strategic configuration and composed of individual constructs. Firms that adopt the structure holistically can address the environmental challenges better than firms that adopt individual constructs in isolation. It also identifies three clusters based on how firms respond to GMC initiatives. Table 6 provides statistical and verbal descriptions of the clusters based on their GMC approach.

INSERT TABLE 6 HERE

Cluster 1 (Opportunity seekers): This cluster (34%) shows the highest range of initiatives across all constructs of the GMC-structure. It represents a group of companies that are leading both in terms of GM sensing and

GM execution. Such opportunity seekers see GMC as a source of competitive advantage and embrace GM planning and GM learning, as well as GM mix program and GM cross-functional orientation much ahead of others. Hence, such firms demonstrate a readiness to adopt green product/market opportunity.

Cluster 2 (Critical adopters): This cluster (40%) shows the average range of initiatives across the whole GMC-structure. Such firms demonstrate a "middle path" policy where they do not jump onto the GMC bandwagon but rather take a thoughtful approach by carefully balancing its pros and cons. It is likely that such firms value rather short-term resource efficiency objectives more than the opportunity seekers. Firms in this cluster exhibit a balanced approach to implementing GMC initiatives.

Cluster 3 (Conservative compliants): This cluster (26%) takes below-par initiatives across the GMC spectrum. With low levels of GMC sensing and execution activities, such firms demonstrate a totally reactive attitude towards any kind of green marketing planning, learning, marketing mix or cross-functional approach. Unsurprisingly, such firms often demonstrate short-term thinking with the sole objective of cost-saving or follow a compliant sustainability strategy. Firms in this cluster exhibit conservative and defensive approaches when implementing GMC initiatives.

Thus, the results show that GMC is composed of four constructs (planning, learning, mix program and cross-functional orientation) in two broad domains (sensing and execution). Firms can be broadly classified into three clusters based on their strategic approach towards adoption of GMC. Conservative compliant (Cluster 3) firms often take a short-term, cost-saving approach to environmental compliance set by regulatory bodies as the focus of their green marketing practices, whereas opportunity seekers (Cluster 1) adopt GMC with a long-term goal to achieve competitive advantage and exceed others in terms of how they implement both GM sensing and execution capabilities. Therefore, firms are better off when they take a more strategic view of GMC as a holistic structure and implement all its components as compared to firms that focus on it as short-term and see constructs in isolation. The findings support our proposition P_1.

4.3 GMC Clusters and Green Marketing Performance Differentials

Table 6 also explains how the GMC clusters vary in terms of achieving their green marketing performance goals. It shows that following a proactive GMC approach leads to improved green marketing performance. It shows that opportunity seekers (Cluster 1) outperform in both aspects of green marketing performance: effectiveness (increase in green product sales and market share) and efficiency (ROI from green investments and reduction in environmental compliance costs) based on self-reported data on green marketing performance as well as secondary data on ROA obtained from annual reports. On the other hand, conservative compliants (Cluster 3) achieve the least. This is not surprising and is in consensus with research that shows it pays to be green (e.g., Leonidou et al., 2013 and Sadovnikova and Pujari, 2017). The results clearly highlight that being proactive in GM sensing and GM execution can improve both the profitability of firms as well as reduce compliance costs. Opportunity seekers see GMC as a source of competitive advantage. Therefore, they allocate appropriate resources to learn about changes in the regulatory framework and consumer preferences as well as executing such strategies with proper marketing initiatives. On the contrary, conservative compliants often engage in sustainability initiatives with an attitude of not losing the business license for not adhering to the environmental norms.

To explore the between-cluster performance differences further, this study controlled the four contextual factors (size and age of firms using objective financial data, type of industry using dummy variables and competitive rivalry using perceptual measures) and run four independent ANCOVAs with the four performance items as dependent variables. Based on the objective measure of ROA_{t+1}, there is a significant difference between the three clusters. Table 7 shows that performance differences between clusters by controlling the contextual factors are significant.

TABLE 7 HERE

Combining the findings (see Tables 6 and 7), opportunity seekers (Cluster 1) not only have a superior GMC approach (both in terms of sensing and execution) but also a superior green marketing performance as compared to conservative compliants (Cluster 3) firms. Thus, the results support proposition P_2.

5. Discussion

This study shows that firms need to adopt a strategic GMC cluster configuration by combining its constructs holistically to improve their green marketing performance. Firms in the first cluster (opportunity seekers) lead others in the way they embrace green issues in their overall marketing strategy. They are proactive in exploring potential needs of consumers, regulators and other stakeholders and implement them in their product-market design strategy with an objective of achieving and maintaining sustainable competitive advantage. Our findings also show that opportunity seekers are much better in both aspects of GMC (sensing and execution). This follows literature that shows firms adopting a strategic, long-term approach can both sense, plan, innovate and execute necessary product-market changes (e.g., Fiore et al., 2017; Sadovnikova and Pujari, 2017). In contrast, firms in the third cluster (conservative compliants) are reluctant to adopt sustainability as a central theme in their marketing strategy with a clear short-term objective of cost-saving and compliance with regulations. Our results show that such firms have significantly lower green marketing performance as compared to others. This is consistent with previous studies on enviropreneurial marketing strategy (Baker and Sinkula, 2005; Groening et al., 2017; Menon and Menon, 1997), and environmental management practices (Herremans et al., 2011; Montabon et al., 2007; Papadas et al., 2019). Firms in the second cluster (critical adopters) lie somewhere in between in terms of making a balancing act.

5.1 Research Implications

This study contributes to academic research in several ways. First, it explains the anomaly of why some firms have superior green marketing performance than others by proposing GMC as one such missing link. It offers a conceptualization and empirical verification of what constitutes GMC. Although, innovative green marketing practices is a well-researched area (e.g., Dangelico and Vocalelli, 2019; Groening et al., 2017; Gustavo et al., 2021), past studies have often addressed the role of such practices in isolation. Our study, using resource-based view and dynamic capability theories, integrated the role of such practices and addressed GMC as a combination of both in- and outward looking capabilities to understand the requirements of current and future markets, and to translate such requirements into appropriate green marketing practices. Firms can reap the

benefits with the implementation of GMC as its strategic objective to address the priorities of regulators', business and consumers' sustainability agenda in a new normal context where achieving sustainability is very high on the agenda. Past research has often explored green marketing using firms' idiosyncratic characteristics like top management commitment, environmental orientation or organizational citizenship behavior that are internally focused (e.g., Awan et al., 2020; Baker and Sinkula, 2005), or green marketing practices such as green marketing mix, green strategic partnerships or green marketing strategies that are externally focused determinants (e.g., Papadas et al., 2019; Sadovnikova and Pujari, 2017). However, research is limited that explores the combination of capabilities firms need to sense, scan and plan for the changes in the external market that might influence their future product-market strategy and proactively adopt, innovate, and implement such changes within the internal domain of the organization. This study addresses this research gap by conceptualizing GMC as two distinct constructs: GMC sensing consisting of GM learning and GM planning; and GMC execution comprising of GM mix and GM cross-functional orientation. In doing so, it contributes to the use of RBV and DC frameworks in the green marketing context.

Second, this study also makes a methodological contribution to green marketing literature. Using multi-industry data (comprising of both primary data using a managerial survey and secondary data from company annual reports), we show that firms can be classified into three types of GMC configurations: opportunity seekers, critical adopters, and conservative compliants. Past research has often made such classifications based on certain characteristics like knowledge acquisition, environmental commitment, green marketing strategies and environmental management practices followed within the organization (e.g., Awan et al., 2021; Cronin et al., 2011; Herremans et al., 2008). However, research that develops a taxonomy of firms based on their GM sensing and GM execution approach is scarce. This research addresses this gap, provides an empirical verification of GMC configurations, and uses configuration analysis in a green marketing context.

Third, this study demonstrates that there is a significant difference in green marketing performance (both in terms of effectiveness like long-term profit building and efficiency like short-term cost savings) between the three GMC clusters. Although there is substantial research on the influence of green marketing on firm performance (e.g., Leonidou et al., 2013; Papadas et al., 2019), there is often conflicting evidence both in

academic and practitioner literature. Our results show that a firm need to focus both on GM sensing and GM execution to improve its overall performance toward achieving a long-term sustainable development goal. The results of this study thus extend RBV and DC theories that suggest firms can achieve long-term competitive advantage through intangible capability development and re-configuring it based on the changes in the business environment as well as improving the opportunity for the future of the marketing ecosystem.

5.2 Practice and Policy Implications

This study offers three new insights for practitioners and policymakers in charge of setting up environmental policies/ regulations of the government in the context of a new normal of future marketing ecosystem. First, this research identifies that a firm can improve its green marketing performance (that includes increase in green product sales and market share and improve ROI and reduce environmental costs) in two ways: have better sensing of the market to learn and plan for any future market requirement changes and execute such strategies with improved green marketing mix program and better cross-functional coordination within the organization and with external stakeholders. Hence, our GMC conceptualization and empirical verification clearly offer managers the pathway to improve their existing green marketing initiative. In addition, a firm can benchmark its current initiatives with our GMC clusters (opportunity seekers whose primary objective is to use the environment as a source of differentiation, competitive advantage versus conservative compliants with cost-cutting, regulation following motives). By comparing itself with GMC leaders (or laggards), the firm can identify in which aspect of GMC (sensing or execution) they are lagging (or overspending on green activities).

Second, this study shows that the positive effect of GMC on performance is universal. Using both perception data from managers from firms belonging to multiple industries as well as their objective profitability data, the findings show that GMC has a significant positive effect on green marketing performance across industries irrespective of the inherent competitiveness within it or differences in size or age of firms. Often there is a misconception that resource intensive manufacturing industries are more prone to environmental regulations and need to be proactive to find greener product/ process solutions in comparison to less resource intensive industries. However, our results indicate that adopting a GMC configuration positively influences green marketing performance for all types of firms. Hence, managers who are forward

thinking and believe green marketing is a source competitive advantage can make necessary investments to improve their green market performance.

Third, the focus of policymakers is often to use environmental regulation and failure to adhere to it as a punitive measure on firms. A section of managers the study interviewed have repeatedly expressed that their firms comply with the regulations to avoid losing their license. However, the results of this study clearly indicate the strategic imperative of achieving a competitive advantage as the principal motivation of the best performing GMC cluster (opportunity seekers). Hence, policymakers must initiate appropriate regulatory and investment frameworks or incentive schemes that support firms' efforts to integrate proactive green marketing into their long-term objectives and future green marketing ecosystems.

5.3 Limitations and Future Research

This study has few limitations that future research can address. First, this study does not consider the marketing resource requirements that a firm needs to be a GMC leader. For instance, marketing capability development depends on available resources and its innovative transformation to value creation (Morgan, 2012; Varadarajan, 2017). Future research can incorporate how the availability of marketing resources such as knowledge, financial or reputation can influence firms' initiative towards GMC implementation. Second, this study does not consider the contingency factors that might lead to GMC formulation and implementation fit. For example, research shows that structural characteristics of organizations (such as centralization that explains the concentration of marketing decision-making activities versus specialization that involves how marketing activities can be assigned to a small group of specialists) influence how marketing activities are organized within firms (Vorhies and Morgan, 2003; White et al., 2019). Future research can explore the role of such factors in GMC configuration.

5.4 Conclusion

This study addresses three important research gaps: how firms can adopt green marketing practices through GMC to answer to the sustainability agenda that is the priority of stakeholders in the future marketing ecosystem? How can firms be classified based on their GMC configuration? Does it pay to adopt a GMC

approach within the organization? The findings suggest that GMC enhances the implementation of innovative marketing practices and performance toward sustainable development. It also highlights that there are two ways to develop GMC: the ability to understand current and future trends in the green marketing ecosystem, and the ability to implement such trends in green product market decisions. Using multi-industry empirical data, this study demonstrates that green marketing issues need to be considered as a source of competitive advantage rather than a regulatory hassle if a firm intends to improve its green marketing performance both in terms of cutting environmental compliance costs and raising profits, while reinforcing the firm's pathway to meeting the new normal and future of marketing ecosystems.

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