RESEARCH ARTICLE

Applying the reduce, reuse, and recycle principle in the hospitality sector: Its antecedents and performance implications

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Abstract

Although the literature on eco-friendly strategies followed by firms is abundant, the focus on the reduce, reuse, and recycle (3Rs) policies as the cornerstone of environmental sustainability is scarce. This study examines the 3Rs environmental strategy among 143 large organizations in the hospitality industry. We use the resource-based view (RBV) of the firm theory to test the strategy's determinants and its impact on business performance on a suggested conceptualization level. As hypothesized, green corporate governance and environmental management systems, along with slack financial resources, were found to positively influence the adoption of a 3Rs environmental strategy. In turn, the implementation of the latter leads to superior business performance, measured in terms of operating profits and Tobin's Q. The study has several implications on a theoretical, managerial, and public policy level where intriguing directions for future research are provided.

KEYWORDS
3Rs, environmental strategy, performance, RBV, sustainable development

1 | INTRODUCTION

In the last decades, evidence of environmental degradation has become abundant and gradually moved the relevant debate from the scientific to the public policy and corporate affairs discourse. Within this context, stakeholders aiming to control and mitigate environmental degradation represent wide-ranging institutions and organizations (Goworek et al., 2018). Among them, the prominence of consumers cannot be overstated (Shao & Ünal, 2019), as for all the wealth and prosperity delivered, industrial development has also

resulted in numerous environmental problems that require heightened attention by academics and practitioners alike (Kumar, 2016). With heightened attention on corporate responses to sustainability requirements, business research has looked into various aspects of corporate strategy aiming to improve environmental performance (Bhattacharyya & Cummings, 2015; Howard-Grenville et al., 2014). According to Walls et al. (2011), environmental performance is considered the outcome of a firm's environmental practices and its impact on the environment. These practices require developing specific capabilities and the allocation of resources to get incorporated into a company's strategy. Balancing a firm's resources for sustainability is challenging for all sectors and presents high complexity for the hospitality industry. Predominantly, the reason is the customer-facing nature of the sector, where customers have

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We consider the role of slack resources and green corporate governance mechanisms, in formulating and implementing a 3Rs environmental strategy. We find that the implementation of the 3Rs principle leads to superior business performance.

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multiple roles in supporting, hindering, and evaluating sustainability performance. Moreover, outside of the firm–customer dualism is the hospitality industry's role in protecting and enhancing its natural environment that most often forms the basis of its business proposition (Moyle et al., 2018; Pulido-Fernández et al., 2019). Environmental sustainability, and the ways firms engage with it, has been a core theme of a growing body of business literature (Leonidou, Fotiadis, et al., 2015; Papagiannakis et al., 2019; Trumpp & Guenther, 2017), a prominent part of which is dedicated to the hospitality industry (Cvelbar & Dwyer, 2013; Kallmuenzer et al., 2018; Weaver, 2005). Sustainability is often defined broadly, and even environmental sustainability captures a wealth of environmental issues and their managerial and technological responses, including those relevant to climate change, various types of air pollution, water degradation, resource exhaustion, waste management, etcetera (Eccles et al., 2012). This study focuses on a bundle of environmental strategies, better known as the "reduce, reuse, and recycle" ("3Rs"). The primary reason for this choice is that the 3Rs environmental strategy leads to savings in both materials and energy, which provide significant benefits for firms and the environment alike (Song et al., 2015). Although this argument holds for a wide range of industries, there is a further knack for the tourism and recreation industry.

It is specifically developments in the latter that present unprecedented challenges in how waste is being handled and its impact on the environment and corporate world. The latter is more profound after China, in early 2018, announced it would stop accepting 24 kinds of solid waste, including commonly used plastics, which have previously been shipped there for recycling (Brooks et al., 2018; Parker & Elliott, 2018). Exporting countries and firms consider finding new markets for their waste a severe challenge, and the number of earnings calls that mentioned "plastic waste" increased by 340% between 2017 and 2018 (Eling Lee & Matt, 2019). This crisis intensely affects the tourism industry, which has historically adopted single-use items in several customer-facing services, contributing to significant waste production (Mair & Laing, 2013). However, this time recycling is not the panacea in solving waste management as access to it has been limited by China's and Southeast (SE) Asia's import ban, and more significantly, it does not provide a holistic enough approach to materials and waste management.

Options beyond recycling are already becoming part of mainstream policymaking with outright bans of microbeads in the United Kingdom (DEFRA, 2018) and even more wide-reaching controlled use of plastic carrier bags (European Parliament, 2018) and ban of single-use plastic in the European Union (EU) (EU Commission, 2018). The issue has been widely explored in the environmental science and industrial operations literature focusing heavily on technological responses that impact various supply chain stages of waste production and management (Michele, 2018).

An emerging common thread in this literature is the strategic response of 3Rs. Essentially recognizing the limitation of recycling, this heuristic approach recommends that much before considering recycling, management practices must prioritize strategies to reduce and reuse materials. Aiming to cross-fertilize, the management literature with the 3Rs approach, in this study, we set out to (a) shed light on the determinants of 3Rs as a critical and underresearched environmental strategy among firms in the hospitality industry (e.g., hotels, restaurants, leisure, and cruise ships); (b) use the theory of resource-based view (RBV) and organizational capabilities theoretical paradigms to examine how certain resources and capabilities can be conducive in formulating a sound 3Rs environmental strategy; and (c) investigate how the implementation of this strategy subsequently affects both short-term (net profit margin) and long-term (Tobin's Q) business performance.

Our study has major contributions and seeks to fill a number of identified gaps in the existing literature. Firstly, it focuses on the hospitality industry, which, despite its eco-sensitive nature and crucial contribution to local economies, has not been the focus of previous 3Rs research empirical research. The particular industry is of paramount importance as the 3Rs have wide applicability on energy, water, and waste management practices adopted by firms' operations, providing the ground for its holistic examination.

Secondly, for the first time, the financial performance outcomes of the 3Rs strategy are explored. Those are examined in terms of profitability as an efficiency proxy of the company and financial market performance to reflect the reaction from the stock market. Ranta et al. (2018) indicate that studies remain silent on how the circular economy business model of 3Rs creates value for companies. In the same line, Ranta et al. (2018) indicate the lack of evidence on how the 3Rs circular economy business model can generate value for a firm. Therefore, our first main research question is as follows: What are the performance outcomes of the 3Rs strategy in terms of short-term profitability and long-term financial performance?

Thirdly, while it stresses the specific role of the 3Rs as an essential aspect of the firm's environmental practices, the role of the (1) slack financial and (2) slack human resources and capabilities sourced from (1) quality assurance policies and (2) green corporate governance are examined as facilitators of the strategy. Similarly, the control effects of internal factors influencing the adoption of a 3Rs strategy, namely, (1) country of origin and (2) establishment type, and external factors, namely, (1) firm size and (2) firm age, are explored. Therefore, the second main research question is as follows: What are the antecedents and factors that can facilitate a 3Rs strategy?

Following this introduction, the article continues with a brief review of the relevant literature within a hospitality industry context. The theory, conceptual model, and hypotheses development are therefore presented. Following this, we provide details about the data we used and the methodological approach. The next section provides the results of the data analysis with regard to hypothesis testing. The final parts discuss the findings, provide theoretical and managerial implications, and suggest directions for future research.

2 | THEORY, MODEL, AND HYPOTHESIS DEVELOPMENT

2.1 | Background research

The 3Rs principle as part of the circular economy is described as a mean to protect the environment, emerge sustainable development, and improve resource utilization efficiency. The principle is argued to promote the transition of the economic growth model from the traditional linear model to a circular one. Their main difference lies within the addition of reuse and regeneration features to achieve a closed resource loop within the circular business model (Yang et al., 2014). The 3Rs principle, through the years, evolved from a strategy of scarcity and poverty (Hot et al., 2020) to an indicator of sound resource management aiming to lessen the pressure on the global stock of resources (Nuñez-Cacho et al., 2018; Reh, 2013). The term is interrelated with the environmental proactivity of the firm found in corporate environmental sustainability literature with a partial exemption on recycling practices when those are mandatory imposed by the institutional environment and not proactively from the firm. It is considered a circular business model that provides a framework to formulate a sustainable business strategy (Vegter et al., 2020).

There are variations of the R frameworks within the literature, with authors adding R components depending on the study's purpose. The main variation refers to the 6Rs, where the additional concepts of recover (Govindan et al., 2016; Khan et al., 2020), remanufacturing (Diaz & Marsillac, 2017), and redesign (Khan & Haleem, 2021; Lu et al., 2012) are introduced. For the purpose of this study, we will focus on the 3Rs framework rather than its variations due to the restrictions imposed by the activities hospitality firms are engaged in. The concept is increasingly gaining traction within academia, industry, and policymakers applied in the macro (i.e., region and country) and micro (i.e., firm and consumer) levels of analysis (Ghisellini et al., 2016).

The applicability of the 3Rs strategy in the context of the tourism and hospitality industry can be centered in the areas of energy, water, and waste efficiency, which can lead to a subsequent reduction of their emissions and, therefore, improvement of their environmental performance. For this study's purpose, the definitions are adjusted accordingly to reflect the particularities of the hospitality industry. Table 1 summarizes the applicability of each of the 3Rs practices as identified by previous literature and the "Trip Advisor Green Leaders Programme," a filled questionnaire available to the users of the platform helping guests to understand the hotel's green practices. The first in the hierarchy term "Reduce" is associated with the minimization of waste, energy, and emissions generated before they occur and can be generic, producer, or consumer oriented (Reike et al., 2018). The reduce principle should be favored as it directly contributes towards the achievement of a circular system and eliminates the need for reusing or recycling (Ranta et al., 2018). Firms operating in the sector can reduce their energy use by improving the thermal insulation of

TABLE 1 Examples of applicability in tourism and hospitality industry

Areas of concern	Examples of applicability in tourism and hospitality	Source
Reduce		
Energy	• Improve the energy efficiency of the buildings • Use smart energy management systems related to temperature or lighting	Rodríguez-Antón, and Alonso-Almeida, M. del M. (2019); Trip Advisor Green Leaders Programme
Water	• Reduce stormwater runoff • Use smart energy management systems related to temperature or lighting	Rodríguez-Antón, and Alonso-Almeida, M. del M. (2019); Trip Advisor Green Leaders Survey
Waste	• Reduce wet waste (food) • Reduce solid waste • Reduce chemical waste (fertilizers and pesticides)	Pirani and Arafat (2016); Trip Advisor Green Leaders Programme
Reuse		
Energy/water	• Have a linen or towel reuse plan	Han and Hyun (2018); Trip Advisor Green Leaders Survey
Water	• Treating and reusing the wastewater	Wang et al. (2018)
Waste	• Reuse solid waste such as furniture, appliances, service items, and amenities • Reuse waste from leftover food • Use of furniture or beddings made from reused or recycled materials	Pirani and Arafat (2016); Rodríguez-Antón, and Alonso-Almeida, M. del M. (2019); Trip Advisor Green Leaders Programme
Recycle		
Water	• Separate wastewater from greywater, as the latter can be recycled for use together with rainwater	Atanasova et al. (2017); Rodríguez-Antón, and Alonso-Almeida, M. del M. (2019)
Waste	• Recycle paper, glass, cardboard, plastic, metal, and hazardous waste • Build establishments with easily recyclable materials and recycles building elements when buildings are rehabilitated	Singh et al. (2014); Rodríguez-Antón, and Alonso-Almeida, M. del M. (2019); Trip Advisor Green Leaders Survey

their facilities. In addition, the introduction of smart energy management systems can reduce their energy use for heating and cooling. The water use can be reduced by installing systems that can reduce the rainwater runoff and introduce smart water management systems (Rodríguez-Antón, & Alonso-Almeida, M. del M., 2019). The reduction of their waste can be achieved by reducing the main waste identified in the industry, such as food, packaging, and paper waste (Pirani & Arafat, 2016). For example, food waste can be achieved by redesigning menus to prevent food waste and using food distribution platforms. In addition, they can avoid the use of single-use plastics by promoting reusable containers (Pirani & Arafat, 2014). Finally, firms can reduce their fertilizers and pesticides use and choose combustible products to reduce their waste.

The second in the hierarchy term of "Reuse" is defined as the re-usage of a product, or part of it, after its first life cycle in its initial usage (Vasileios Rizos et al., 2017). Implementing "Reusing" strategies can subsequently contribute towards the achievement of "Reducing." Firms can benefit from it because fewer resources are required, which potentially can increase efficiency, reduce cost, and boost revenues. The principle is fundamental in service-oriented systems where the consumer does not pay for a particular product per se but a service. Practices centered on the "Reuse"-related element can refer again to all three major areas of concern, namely, (1) energy, (2) water, and (3) waste. Encouraging hotel guests to reuse their linen or towels can reduce energy and water consumption (Blose et al., 2015; Han & Hyun, 2018). Water savings can be achieved from treading wastewater systematically for reuse (Wang et al., 2018). Finally, reuse practices are widely adopted in treading waste. In particular, firms can engage in reusing furniture, white goods service items (i.e., crockery and cutlery), and products made from recycled materials to lessen the environmental footprint in the manufacturing industry (Rodríguez-Antón, & Alonso-Almeida, M. del M., 2019).

Finally, "Recycle" refers to the conversion of organic materials into entirely new products. In terms of resource efficiency and transition towards a circular business model, recycling is considered the least sustainable option. Recycling is found to water and waste efficiency areas of concern. Water consumption can be reduced by separating the waste from the greywater, where the latter can be recycled for further use (Atanasova et al., 2017). As expected, recycling focuses primarily on waste management practices. That can refer to recycling consumables (e.g shampoo and soap), using easily recyclable materials and separating waste on site such as paper, glass, cardboard, plastic, metal and used oil (Singh et al., 2014).

Sustainability research in the hospitality industry has examined various topics. First, a body of research has focused on organizational knowledge, behavior, and attitudes against issues of sustainability and the environment (Pereira-Moliner et al., 2015; Singjai et al., 2018; Teng et al., 2012). Second, research has looked into the antecedents of eco-friendly behaviors and the obstacles that may prevent or slow down an eco-friendly strategy (Arun et al., 2021; Hsiao et al., 2018; Kallmuenzer et al., 2018; López-Gamero et al., 2016; Sharma, 2009). Third, a more extensive body of research is centered on issues pertaining to the environmental management practices of firms such as waste/water management, supply chain management, resource efficiency, and service eco-friendliness (Bergmann, 2016; Filimonau & de Coteau, 2019; Kasim et al., 2014; Kularatne et al., 2019) with some researchers relating their findings to environmental management schemes (Chan, 2009; Roe et al., 2014). Forth, a large body of literature addressed environmental marketing issues, such as offering green products/services and developing advertisement and branding campaigns that promote eco-friendliness (Font et al., 2012; Fraj et al., 2015; Hudson & Miller, 2005; Priporas et al., 2012; Rutter et al., 2017). A final line of research focused on how the firm's environmentally responsible actions influence business performance (Gil et al., 2001; Kularatne et al., 2019; Leonidou, Leonidou, et al., 2013).

Hospitality sector firms tend to be resource intensive with large energy and water consumption levels and often prone to single-use materials, which encourage disposal. Even though a wide range of sustainability issues has occupied hospitality sector's research, there is minimal mention of the 3Rs principle as a firm strategy (Rodríguez et al., 2020). Jaroszewska et al. (2019) employed structured interviews and a comparative analysis method to confirm Polish tourism small- and medium-sized enterprises' (SMEs') readiness to transmit from a linear energy management business model to a circular one based on the 3Rs principle. The majority of the existing literature studies analyzed the 3Rs practices employed by tourism and hospitality industry firms (Menegaki, 2018; Naydenov, 2018; Rodríguez-Antón, & Alonso-Almeida, M. del M., 2019).

Kasim et al. (2014) adopt the 3Rs approach to propose an innovative water management framework for hotels and other lodging firms by incorporating an additional R for "Reaching", referring to the mutual promotion and exchange of sustainable water management practices among stakeholders such as employees, communities, and customers. The study revealed that recycling water resources requires immense knowledge and technological skills; reusing necessitates high technological skills and limited knowledge, whereas reducing can be achieved with low technological skills and knowledge.

Another prominent issue faced by the tourism industry refers to the waste management of food and solid materials. Stylos and Vassiliadis (2015) compared the perceptions of four- and five-star hotel managers in respect to the concept of three-dimensional sustainability, identifying recycling as the most important practice in the reuse and recycle categories for both groups. In the same line, Teng et al. (2012) interview senior hotel managers, indicating waste reduction practices and eco-friendly customer communication practices as their priority.

Research on the financial performance outcomes of the 3Rs principle is nearly nonexistent. Pamfilie et al. (2018) study the implementation of circular economy business practices and their influence on the economic performance based on hotel managers' perceptions, indicating that hotels, as a result of improving environmental and social performance, can enjoy financial gains. Furthermore, hotels' adoption of 3Rs practices was found to positively influence customer satisfaction (Prud'homme & Raymond, 2013).

2.2 | Theoretical background

Our study is anchored on the RBV theoretical paradigm. The theory was purposely chosen to examine how specific capabilities serve to bind different resources to be organized effectively and efficiently (Day, 1994). The RBV has been adopted in numerous studies in the hospitality industry (e.g. Wu et al., 2010; Cohen & Olsen, 2013; Leonidou, Leonidou, et al., 2013; Božič & Knežević Cvelbar, 2016). The theory was initially introduced in a business context by Barney (1991), emphasizing the role of organizational resources and capabilities in achieving a competitive edge within the role of business strategy. Resources are considered both the tangible (e.g., physical equipment, raw materials, and financial reserves) and intangible (e.g., corporate culture, reputation, and intellectual capital) assets of a firm (Grant, 1991).

According to this theory, these resources need to be valuable, rare, imperfectly imitable, and nonsubstitutable to help in the design and implementation of the firm's strategy and ultimately achieve superior performance (Barney, 1991; Bharadwaj et al., 1993). However, to achieve this, the firm needs to have certain capabilities that are important in effectively and efficiently managing and configuring these resources into vital organizational processes (Peteraf, 1993). The capabilities of a firm are the skills developed to capture and manage those resources. Previous research has examined the role of different resources and capabilities as the antecedents sourced internally in the firm, which drive environmental strategies under the RBV paradigm (Leonidou, Leonidou, et al., 2013; López-Gamero et al., 2016).

Hart (1995) capitalized on the RBV theory by applying it within an environmental context. According to this theory, the incorporation of the natural environment into strategic management can be conceptualized in terms of the following three interrelated strategic capabilities: (a) *Product stewardship*: This encompasses the development and management process of a product in a way to have a low environmental impact life cycle; (b) *Pollution abatement*: This is distinguished in terms of pollution prevention and pollution control; (c) *Sustainable development*: The term is fostered around the social dimension of the natural RBV (NRBV) with a particular focus on emerging economies. In an assessment of the existing literature on NRBV, Hart and Dowell (2011) argue that the proactive nature of the aforementioned capabilities, as indicated by (Aragón-Correa & Sharma, 2003), can be incorporated into the NRBV theoretical paradigm to capture the dynamic and complex environments of business operations.

The RBV was employed in various corporate sustainability studies, examining the role of financial and HRs as facilitators of an eco-friendly strategy that can directly influence the firm's business performance (Csete & Szécsi, 2015; Stabler & Goodall, 1997). The pertinent literature also argues that the availability of a surplus on slack resources is directly linked with managerial decisions (George, 2005). From a slack resources perspective, firms with higher available slack in place have an increased potential and flexibility to invest in sustainability causes (Boso et al., 2017). In regards to capabilities, researchers treat environmental management standards and

corporate governance as green capabilities that can improve environmental performance by reducing emissions (Russo, 2009; Zhu et al., 2013), leading to the adoption of circular economy business practices (Ortas et al., 2019; Scarpellini et al., 2020) such as circular eco-innovation (Scarpellini & Valero-Gil, 2020; Walton et al., 2020).

2.3 | The conceptual model

Figure 1 presents the study's conceptual model, which is anchored on the RBV of the firm and organizational capability theories. We consider the existence of green corporate governance and quality assurance policies' essential capabilities for hospitality industry firms to deploy the available financial and HR slack resources in order to achieve a competitive advantage by implementing a 3Rs environmental strategy. We also consider that the implementation of 3Rs practices leads to superior business performance, in both the short and the long term, as measured by profitability and financial market performance metrics.
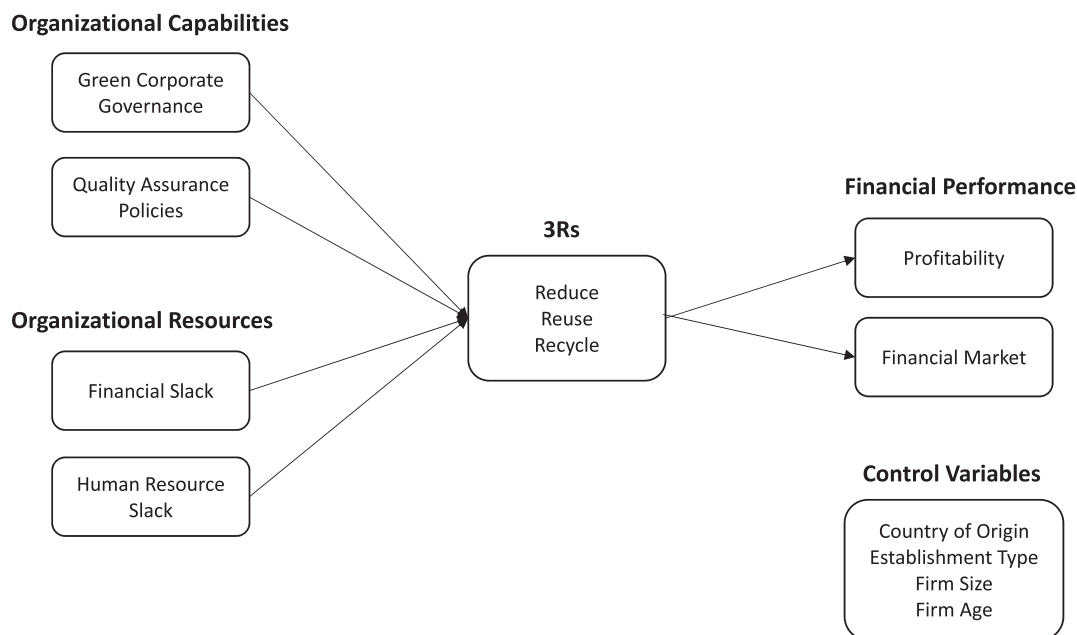
2.4 | Hypotheses development

The extant literature on strategic and environmental management identifies a comprehensive range of resources and capabilities that can help companies develop sound eco-friendly strategies and practices leading to superior performance results (Helfat & Peteraf, 2003). We examine two different types of organizational capabilities that can be incorporated with the examined 3Rs strategy, namely, (1) green corporate governance and (2) quality assurance policies.

The role of top managers in shaping an environmentally friendly strategy is challenging in chain firms operating multinational outlets due to the differences in legal, technological, and socio-cultural parameters among countries where a unique strategy should be adopted. The governance of a company administered by top management is considered as a critical determinant of a company's environmentalism (Banerjee et al., 2003; Leonidou, Christodoulides, et al., 2015; Leonidou, Katsikeas, & Morgan, 2013). It is the cornerstone of strategic decision making, relating among others to sustainability issues. That might include, but not be limited to, backing initiatives such as forming a specialized environmental management team to supervise on sustainability performance, training the company's personnel in environmental awareness and green initiatives, and providing compensation incentives for sustainability-related targets as in the case of reducing waste (Banerjee et al., 2003). On the basis of the above, we can hypothesize that,

H1. Firms with higher levels of green corporate governance are better positioned to develop an environmental strategy based on the 3Rs principle.

The landscape around quality assurance policies and the adoption of an International Organization for Standardization (ISO) system or an

Organizational Capabilities

Green Corporate Governance

Quality Assurance Policies

3Rs

Reduce Reuse Recycle

Financial Performance

Profitability

Financial Market

Organizational Resources

Financial Slack

Human Resource Slack

Control Variables

Country of Origin
Establishment Type
Firm Size
Firm Age

FIGURE 1 Conceptual framework

internal environmental management system (EMS) have changed drastically over the last decades. The initial view that practices are simply increasing the firm's costs (Molina-Azorín et al., 2015) has been progressively replaced by the view that adaption of environmental standards can provide firms with a sharp competitive edge (Hernandez-Vivanco et al., 2019; Papagiannakis et al., 2019; Scarpellini & Valero-Gil, 2020; Su et al., 2020). The implementation of certain quality assurance systems within a major subindustry (i.e., hotels) of the tourism sector was found to develop employees' capabilities and create an overall social responsibility culture (Benavides-Velasco et al., 2014). Molina-Azorín et al. (2015) found that quality and EMSs can create awareness of a continuous improvement culture. Previous research (Heras-Saizarbitoria et al., 2016) indicates that voluntary-adopted EMS proves to act as a sustainability-oriented capability suitable for reducing environmental impact and increasing competitive advantage (Demirel & Kesidou, 2019). We argue that,

H2. Firms adopting environmental quality assurance certifications at higher levels are better positioned to develop an environmental strategy based on the 3Rs principle.

In this manuscript, we examine two types of resources that play a crucial role in formulating eco-friendly marketing strategies, namely, human and financial slack resources. In the extant literature, these resources are regularly examined and consistently found to have a clear relationship to a firm's emergence and development (Bentley & Kehoe, 2020; Parida & Örtqvist, 2015).

The theory around slack resources implies that firms with strong financial performance are better placed to offer support for social and environmental sustainability causes (Waddock & Graves, 1997). This is because slack financial resources can absorb short-term turbulences

related to environmental expenditures, often seen as a major and sometimes insurmountable cost (Vilanova, 2007). Such resources are characterized as unabsorbed and uncommitted slack that can be made readily available for redeployment for the following year (Paeleman & Vanacker, 2015; Voss et al., 2008). Specifically, in the hospitality industry, it has been found that firms with a stronger financial position are more likely to be environmentally responsible than those in a weak financial position (Leonidou, Leonidou, et al., 2015; Shah, 2011), thus confirming the main trend. In fact, financial resources are critical in investing in green infrastructure and environmental strategies. In that line, Aranda-Usón et al. (2019) argue that the financial resources are crucial for implementing a circular business model based on the principle of the 3Rs.

Hence, we may posit that,

H3. The greater the availability of slack financial resources, the higher the likelihood of developing a 3Rs environmental strategy.

As opposed to financial resources, the HRs of a company (and particularly the HR slack) are considered as absorbed slack, while due to their idiosyncratic nature, their deployment can be challenging (Khan & Mir, 2019; Paeleman & Vanacker, 2015). Previous research found that HR slack positively influences the general corporate social activities, confirming the organizational theory's view of slack resources. Having an adequate number of employees engaged in green strategy is vital for companies operating in the recreation industry because such activities are labor-intensive.

H4. The greater the availability of slack HR resources, the higher the likelihood of developing a 3Rs environmental strategy.

The implementation of a 3Rs environmental strategy is expected to impact the firm's business performance positively. This can be explained either by reducing the cost associated with resources used within the firm or due to the value generated by the commercialization and marketing of the followed environmental strategy (Gupta & Kumar, 2013; Newbert, 2008). Because the more generalized view of the 3Rs environmental strategy includes strategies focusing on resource reduction, reuse, and recycling, this is expected to influence the firm's performance as consumers tend to prefer environmentally responsible firms (Kahraman & Kazançoğlu, 2019; Paparoidamis et al., 2019), which can have a favorable effect on the firm's short- (e.g., profits) and long-term (e.g., Tobin's Q) performance. A firm adopting such a strategy will be able to demand higher prices, target lucrative consumer segments, and capture a larger part in its current market segment (Claver-Cortés et al., 2007). The following hypotheses can therefore be made:

H5a. The firm's adoption of a 3Rs environmental strategy will have a positive impact on its profits.

H5b. The firm's adoption of a 3Rs environmental strategy will have a positive impact on Tobin's Q.

3 | RESEARCH METHOD

3.1 | Study context

We tested our conceptual model based on companies operating in the hospitality industry. The selection of the particular industry was based on four main factors. Firstly, the sector itself is underresearched compared with other industries such as manufacturing or resources. Secondly, the tourism industry over the years demonstrated remarkable resilience, despite the increasing threats of an uncertain economy, terrorism, and political instability. The broader sector generated 10.3% of the global gross domestic product (GDP) at US $8.9 trillion and offered approximately 10% of the global employment at 292 million jobs. The sector's international nature delivered nearly 28.3% of total global service exports and 6.8% of total global exports (World Travel & Tourism Council, 2019). Thirdly, the wide spectrum of activities performed by firms involved in the hospitality industry provides the ideal ground for a holistic approach to the application of the 3Rs principle. Finally, the sector is characterized by a wide base of eco-conscious consumers while there is direct contact with the eco-friendly practices adopted by the company.

3.2 | Sampling and data collection

The study was based on secondary objective data collected by the Thomson Reuters Eikon database (recently renamed as "REFINITIV"). The database adopts a four-stage evaluation process, combining algorithmic with human controls to secure its quality. The data are sourced from corporate public reports, which are subsequently validated by third-party auditing companies. To ensure reliability, we collected data for each company at their Bayesian model, because the conversion of the rating methodologies given by different environmental, social, and governance (ESG) data-independent agencies has often been criticized (Rafat & Salama, 2016).

The study used cross-sectional data where environmental metrics were adopted for 2016 and lagged financial performance data were used with reference year 2017. Financial slack data were introduced using 2015 to account for the financial situation of the firms in the year of the implementation of the strategy. The study focused on companies operating within the hospitality industry, having the following Global Industry Classification Standard (GICS) classifications: consumer services/consumer discretionary/consumer services/hotels restaurants and leisure. This led to four GICS subindustries, namely, (a) hotels, resorts, and cruise lines; (b) restaurants; (c) casinos and gaming; and (d) leisure facilities. The resulted sample comprised 183 firms of which 40 had to be removed because of either lack of environmental data or providing only online platform booking and review services. In total, the final sample of 143 firms represented 6.7% of the global travel and tourism revenue output generated in 2016, with 42.46% of them being large corporations registered in stock markets and covered under the Thomson Reuters database. It is essential to highlight that the global travel and tourism industry includes enormous subindustries, such as aviation, which we have not included in this study. Also, a large share of the hotels and resorts globally is based on small firms that are not stock market listed or archived in the Thomson Reuters database.

3.2.1 | Key variables

The selection and operationalization of the constructs were achieved following a rigorous methodology to ensure reliability, transferability, and relevance of these concepts within an interorganizational business context, focusing on the hospitality industry. Firstly, a complete list of the items included in the database was discussed with a panel consisting of three sustainability experts. The panel was asked to identify the most critical items that can act as antecedents for deploying an eco-friendly strategy. The capabilities identified were (1) green corporate governance and (2) quality assurance policies, whereas (1) financial and (2) HRs slack were the main resources. On a following up meeting, the operationalization of the constructs was defined. Besides green corporate governance where particular items were assigned, the measurement of the rest of the constructs was straight forward. In particular, the measurement of quality assurance policies was based on whether the company is a holder of an ISO 14000, ISO 9000, or other EMS certification. A summary of the items used, and their definition provided by the database, can be found in Appendix A.

To identify the items operationalizing the 3Rs, a content analysis of the definitions of the complete list of items found in the Reuters Eikon database using the keywords "Reduce," "Reuse," and "Recycle,"

as well as any other explanatory phrases implying such green dimensions, was performed. This led to the identification of seven items operationalizing this construct. Their application in the hospitality industry was cross-validated by relevant examples from the literature. In particular, eco-design products, product impact minimization, and take-back and recycling initiatives centered on eliminating all forms of waste that cannot be decomposed either by reducing reusing or recycling. Subsequently, items referring to resource reduction policies, water technologies or reduction of land environmental impact focus on improving the energy or water efficiency within the hotel premises. That is achieved by using resource-efficient buildings, producing renewable energy and using advance smart energy and water management systems. Finally, firms in the hospitality industry applied policies regarding sustainable packaging, referring to the prioritization of reusable containers and the use of biodegradable packaging.

Beyond the categorization of the items by panel experts, cross-validation was employed from theoretical categorization identified in the literature to ensure robust and reliable construes generating informative and credible measures. "Green corporate governance" and "Quality assurance capability" composed of three items each, whereas the 3Rs strategy variable consists of seven items, all extracted from ESG Boolean data that were converted to numeric 1/0 values. The arithmetic mean of the items was therefore used, providing indices ranging between 0 and 1.

To assess the level of organizational resources, we used financial ratios from both Thomson DataStream and Eikon platforms. Following Waddock and Graves (1997), we employed previous financial year return on assets to capture the potential financial slack available for use. With regard to measuring HR slack, we used the quotient of the division between the number of employees and sales, without adjusting for industry norms because we focus on a particular industry (Mellahi & Wilkinson, 2010; Mishina et al., 2004).

We have selected two indicators to measure business performance from Thomson Reuters DataStream and Eikon Platforms in 2017, namely, net profit margin and Tobin's Q. Practitioners widely use net profit margin as an indicator of a company's management ability to generate profit relative to its sales, after relative costs of goods sold and expenses are subtracted. Tobin's Q is a ratio asserting the stock value of a company relative to the necessary cost to replace the existing company. It is a robust measure that is accommodating changes in accounting prices, forward-looking, and risk-adjusted (Inoue & Lee, 2011; Montgomery, 2018). We calculated Tobin's Q values using the sum of equity market value plus the liabilities book value divided by the sum of the equity book value and liabilities book value, giving the market value of the company over the replacement value of the book entity.

3.2.2 | Control variables

Our regression analysis consists of four variables to control for the possible effect of organizational resources and capabilities on the 3Rs environmental strategy and the impact of the latter on business

performance. Several studies support the significance of firm size on both sustainability and business performance, with large companies adopting environmental strategies more frequently than smaller ones due to higher stakeholder pressures (Dief & Font, 2010). Consistent with previous literature, we controlled for firm size using the log transformation of total revenues. Previous research also stresses the role of firm experience in influencing its sustainability efforts. However, there is no clear direction on whether this effect is positive or negative, which is an issue that our research aims to shed light on. In line with previous literature (Shu et al., 2015), we use a logarithmic transformation since the year of incorporation to control for the effect of a firm's age.

Although the companies included in our sample operate in the tourism and hospitality industry, we wanted to examine the control effect of specific sectors within this industry (i.e., hotels resorts and cruise lines, restaurants, casinos, and leisure facilities) because there are hints in the literature that they have different priorities concerning environmental initiatives. A final control employed is the type of country where the headquarters of the companies included in the sample are based, which was identified from the MSCI provider of equity indices. Countries were categorized into developed and emerging, expecting companies located in developed countries to more prone to adopting pro-environmental 3Rs practices.

4 | RESEARCH FINDINGS

4.1 | Model specifications

A preliminary analysis was initially performed to ensure that regression analysis assumptions were met. The hypotheses developed were tested using multiple hierarchical regression and ordinary least squares estimator by different designated nested models. The proposed technique indicates the impact of adding additional variables to the explained variance of the dependent variable. To examine the effect of different organizational resources and capabilities on the 3Rs environmental strategy adoption, we included the effect of the control variables on the 3Rs environmental strategy within Model 1. The direct effects of green corporate governance, quality assurance policies, financial slack, and HR slack on the 3Rs environmental strategy were incorporated in Model 2. The analysis was carried out using both the STATA and SPSS statistical packages to cross-validate the results.

The descriptive statistics and the correlation between the constructs employed are provided in Tables 2 and 3, respectively. All correlations between constructs included in the same models were well below the threshold level of .8. Moreover, variables were checked for multicollinearity (Stata' Collin' command), revealing no problems because the variance inflation factor was 1.419 at its peak, while the conservative cutoff recommended by literature is 2.5 (Hawn & Ioannou, 2016). Furthermore, we run a Durbin Watson test to check the level of independence between residuals for each of the main effects in the regression analysis, revealing values ranging between 1.767 and 2.320, which are within acceptable levels

TABLE 2 Descriptive statistics

Construct	N	Minimum	Maximum	Mean	SD
Green corporate governance	143	0	1.0	0.2	0.28
Quality assurance policies	143	0	1	0.12	0.25
Financial slack	112	−16	33.8	7.8	6.5
HR slack (10^5)	139	0.02	6.26	0.95	0.92
3Rs environmental strategy	143	0	0.57	0.15	0.14
Net profit margin	136	−16.8	32.25	9.38	7.97
Tobin's Q	125	0.65	6.65	2.14	1.1
Revenues [a]10^9	142	0.05	30.23	3.61	5.38
Number of years	143	2	132	27.1	21.89

Abbreviations: 3Rs, reduce, reuse, and recycle; HR, human resource.
[a]Revenues and number of years are used in their logarithmic scale during the analysis.

TABLE 3 Correlation matrix

	Construct	1	2	3	4	5	6	7
1	Green corporate governance	1						
2	Quality assurance policies	.117	1					
3	Financial slack	−.051	−.216*	1				
4	HR slack	−.221**	.198*	−.06	1			
5	3Rs environmental strategy	.344**	.324**	.115	.101	1		
6	Net profit margin	.264**	.046	.327**	−.139	.162	1	
7	Tobin's Q	−.058	−.116	.656**	−.009	.302**	.146	1

Note: Unstandardized coefficients are reported.
Abbreviations: 3Rs, reduce, reuse, and recycle; HR, human resource.
* $p < .1$. ** $p < .05$.

(Nieves & Haller, 2014). Finally, the results of both full models indicate significant regressions at the 1% level, leading us to conclude that our independent variables have a real effect on dependent variables.

Table 4 shows the results of the regression analysis indicating that the inclusion of independent variables in examining the link between the company's resources (potential financial slack and HR slack) and capabilities (green corporate governance and quality assurance policies) explained an additional 9.2% of the variance. The results support hypotheses H1 and H3 because green corporate governance ($\beta = .122$, $t = 2.529$, $p < .05$) and potential financial slack ($\beta = .004$, $t = 2.057$, $p < .05$) were found to have a significant positive effect on the 3Rs environmental strategy. Additionally, quality assurance policies were revealed to have a significant positive impact on the 3Rs environmental strategy ($\beta = .096$, $t = 1.722$, $p < .1$), thus accepting H2. It is worthwhile mentioning that when we treat missing values as a robustness test of our results, with the sample mean technique, capabilities related to quality assurance policies have a positive effect at a statistically significant level ($\beta = .137$, $t = 3.0533$, $p < .005$).

However, our results did not provide sufficient evidence to support the direct effect of HR slack towards an increased presence of the 3Rs environmental strategy (H4). That might be revealing of the idiosyncratic nature of HR slack (Bentley & Kehoe, 2020) in that its existence is not adequate to enhance the environmental strategy of a

company. The provision of tailored training and guidance across all levels of an organizational hierarchy is central for creating a long-term competitive advantage (Voss et al., 2008).

With regard to control variables, it was confirmed that larger companies exhibited a greater tendency to adopt 3Rs environmental strategies as opposed to their smaller counterparts. Larger firms are more vulnerable to reputational damages and risks associated with the environment as they have a larger environmental impact and wider regulatory and public visibility.

Our results (Table 5) indicate that the adoption of a 3Rs environmental strategy by the firm significantly affects both its short-term performance expressed in terms of net profit margins ($\beta = 14.593$, $t = 3.041$, $p < .01$) and long-term performance expressed in terms of Tobin's Q ($\beta = 2.227$, $t = 2.939$, $p < .01$), thus confirming H5a and H5b, respectively. These results reaffirm the view that environmental strategies can benefit different dimensions of the firm's business performance. This is in line with previous literature supporting that the adoption of environmental actions can increase sales, therefore improving profits through retaining and attracting customers as well as improving a firm's forward-looking performance (Bhattacharyya & Cummings, 2015; Dey et al., 2020; Leonidou, Christodoulides, et al., 2015; Niemann et al., 2019). Additionally, reducing and reusing certain products lead to decreased costs, which have a direct impact on short-term firm profitability.

TABLE 4 Resources and capabilities versus 3Rs environmental strategy

Constructs	Model 1	Model 2	VIF (Model 2)
Constant	−0.818**	−0.634**	
Controls			
Revenues (log)	0.100**	0.067**	1.338
Firm age (log)	0.028	0.016	1.126
Country of headquarters	0.002	0.029	1.142
Establishment type	−.016	−0.008	1.349
Main effect			
Green corporate governance		0.121**	1.255
Quality assurance policies		0.095*	1.355
Financial slack		0.004**	1.176
HR slack		0.018	1.419
Fit statistics			
R^2	0.202	0.294	
R^2 diff		0.092	
F model	6.265**	3.092**	
Durbin Watson		1.767	

Note: Unstandardized coefficients are reported.
Abbreviations: 3Rs, reduce, reuse, and recycle; HR, human resource; VIF, variance inflation factor.
*$p < .1$. **$p < .05$.

TABLE 5 Regression results of 3Rs environmental strategy and performance

Constructs	Net profit margin		VIF (Model 2)	Tobin's Q		VIF (Model 2)
	Model 1	Model 2		Model 1	Model 2	
Constant	23.881	36.288		0.231	1.968	
Controls						
Revenues (log)	−1.132	−2.611**	1.232	0.350**	0.136	1.219
Firm age (log)	0.792	0.255	1.082	−0.025	−0.096	1.046
Country of headquarters	−4.342	−4.377**	1.045	−0.415	−0.435	1.038
Establishment type	0.903	1.212*	1.038	−0.245**	−0.183*	1.048
Main effect						
3Rs environmental strategy		13.767***	1.299		2.227***	1.274
Fit statistics						
R^2	0.085	0.148		0.088	0.152	
R^2 diff		0.064			0.064	
F model	2.886**	4.31**		2.768**	4.089***	
Durbin Watson		2.082			2.232	

Note: Unstandardized coefficients are reported.
Abbreviations: 3Rs, reduce, reuse, and recycle; HR, human resource; VIF, variance inflation factor.
*$p < .1$. **$p < .05$. ***$p < .005$.

4.2 | Robustness tests

As a robustness check, we estimated multiple rival models in which we also included alternative and additional control variables of green practices suggested in the extant literature, such as the number of employees instead of revenues for capturing company size. We also rerun the models using the mean sample technique to account for missing data of the sample. The direct effects of the main variables examined were found to be robust in the alternative models. In order to maintain a sufficient sample size to variables' examined ratio (to allow us to test the main effects of independent variables simultaneously), we did not include these additional controls in our final hypothesis testing model.

5 | DISCUSSION, IMPLICATIONS, AND DIRECTIONS

One summary conclusion that can be derived from the previous analysis is that the environmental strategy centering on 3Rs plays an important role among firms in the hospitality industry, and its implementation can be beneficial for their success. Strategies focused on the 3Rs principle are particularly rewarding. Our findings indicate that hospitality firms can benefit financially in two different directions. Firstly, they can increase their profitability metrics because they can become more efficient. They can benefit from decreasing the energy and water resources required from their operation cost. That will lead to a direct decrease in their utility expenses, which is considered one of the industry's main burdens. Also, firms adopting a 3Rs strategy can reduce the volume of their inventories and achieve a direct reduction of the costs of goods sold. Certain reuse practices can also reduce the firms' capital expenditure when equipment and machinery are reused for other purposes. While improving their resource efficiencies and reducing their operational and capital expenditures by adopting 3Rs environmental strategies, firms can also benefit from increasing their revenues as a result of increasing their customer base with eco-friendly consumers.

Secondly, because the firms examined are registered in the stock market, our study indicates that implementing a 3Rs strategy can lead to a positive evaluation from the markets. That is achieved as a result of cultivating a green brand image, gaining the recognition of investors, thus increasing their firm value and achieving higher financial market valuation. At the same time, the proactive nature of the 3Rs strategy can keep them away from legal fees or fines imposed by their governments, protecting them from reputational damages.

However, the formulation of such a strategy requires a corporate governance scheme committed to a sustainability agenda and voluntary adherence to key environmental standards and certifications. The possession of the specific capabilities will exploit the resources available to adapt to the environmental changes. Our findings indicate that the adequate availability of financial slack resources is essential for adopting 3Rs strategies. However, the number of available employees as a function of the company's size was not found to facilitate a 3Rs strategy. That indicates that although the implementation of such strategies might require a sufficient number of employees, other factors such as their skills and expertise might be required. Finally, our study has also demonstrated that firm size can be conducive to environmental initiatives, such as those of reducing, reusing, and recycling.

5.1 | Implications

Our findings have important theoretical implications. First, we treat organizational resources and capabilities as antecedents that can facilitate the formulation of a 3Rs environmental strategy and ultimately lead to superior business performance. To the best of our knowledge, this is the first time that the 3Rs principle has been the focus of an industry's environmental strategy in a holistic manner. The hospitality industry, with its multifaced sustainability challenges, lends itself to this conceptual approach. Furthermore, we contribute to the slack resources theory by examining different types of slack and how they can be used to formulate an eco-friendly strategy. Whereas the potential financial slack was found to be easily absorbed and converted into a competitive environmental strategy, HR slack is a stickier kind of slack that can be transformed into a competitive advantage under training and knowledge transfer to the employees.

The study also has important implications for managers. First, we stress that firms in the hospitality industry should install robust corporate governance mechanisms that will facilitate sustainable thinking in the organization. They also need to obtain quality assurance through environmental certifications. These, coupled with securing adequate financial and HRs, will help them to embed sustainability deeper in organizational practices.

Consequently, managers should take all the necessary steps to train and increase the environmental awareness of their employees for the broader adoption of a pollution prevention-oriented strategy, such as the 3Rs principle. That could be assisted by schemes awarding employees' engagement and systematic training on sustainability initiatives. Furthermore, managers should formulate knowledge exchange collaborations across the industry as well as governmental and nongovernmental bodies and cultivate customer eco-awareness as a way to promote and market such strategies successfully. The wide spectrum of activities performed by firms involved in the tourism and recreation industry provides the ideal ground for a holistic approach where firms could team up with other members of the supply chain to endorse the perfect example of a circular economy at a smaller scale. It is noteworthy that the companies implementing the 3Rs strategy also communicate it to their stakeholders; thus, managers should promote their eco-friendly determination, which will lead to a substantial improvement in their profitability and financial market valuation.

Policymakers have an imperative role to play in the formulation of a strategy based on the principle of the 3Rs. Provision of financial assistance in the form of tax credit mechanisms, or subsidies, and regular environmental assessments could initiate or enhance tourism and recreation industry firm's green strategy. In the same line, provisions of subsidies to encourage the adoption of EMSs such as ISO 14001 or EMAS will help firms to acquire the necessary resources and capabilities to form a sound environmental strategy. Institutional reforms should incorporate educational programs to provide employees with the required technical expertise to implement 3Rs strategies and the required infrastructure to support the smoother adoption of such mechanisms. Finally, governments should embrace information campaigns on the benefits of broader adoption of the 3Rs strategy in the sector, recognize industry leaders, and reward them.

5.2 | Limitations and future directions

There are certain limitations in our study that could potentially provide new roadmaps for future research. Firstly, although we use

a comprehensive source of secondary data, the fact that the 3Rs environmental strategy was treated as a whole limits our analysis for treating each of the 3Rs as distinguished dimensions. Hence, being able to understand their disaggregated contribution to the firm's business performance would provide useful insights, not least in terms of how close they reach to a circular economy paradigm. Through qualitative research, scholars in the field would be able to identify the specific role played by each of the 3Rs on the firm's business performance.

Second, to obtain a more holistic view of the link between the 3Rs environmental strategy and performance, future research could benefit from the inclusion of additional performance measures, such as those relating to customer, product, and market related metrics (Tajvidi et al., 2017).

Third, while the sample size and industry coverage have been satisfactory in this study, better insights could be obtained from a larger sample, as well as from the inclusion of additional subsectors of firms operating in the broader tourism industry. This will become gradually possible in the following years, as secondary data archiving will be more comprehensive.

Fourth, examining the moderating role of both external (e.g., regulatory intensity) and internal (e.g., organizational culture) factors on the link between antecedent variables and the propensity for 3Rs environmental strategy would enrich this study. Similar moderators can also be used on the association between strategy and performance.

Finally, our research assumes that environmental practices are adopted and implemented uniformly across the whole chain of subsidiaries of a multinational firm. Hence, it would be useful to investigate how the firm's 3Rs environmental strategy is standardized or adapted across countries and find out the country impact on business performance at the subsidiary level.

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ENDNOTES

Abbreviations: CSR, corporate social responsibility; EMS, environmental management system; H&S, health and safety; ISO, International Organization for Standardization.

Abbreviation: 3Rs, reduce, reuse, and recycle.

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APPENDIX A.

CONSTRUCT OPERATIONALIZATION AND EXPLANATION

Construct	Item	Explanation
Green corporate governance	Environment management team	Does the company have an environmental management team?
	Environment management training	Does the company claim to provide regular staff and business management training for its managers?
	Sustainability compensation incentives	Is the senior executive's compensation linked to CSR/H&S/sustainability targets?
Quality assurance policies	ISO 14000	Quality management system name
	ISO 9000	
	EMS	

APPENDIX B.

3RS CONSTRUCT OPERATIONALIZATION, DEFINITION, AND EXAMPLES OF APPLICATION

Item	Definition	Examples of application
Eco-design product	Does the company report on specific products that are designed for reuse, recycling, or the reduction of environmental impacts?	• Reuse solid waste such as furniture, appliances, service items, and amenities
Product impact minimization	Does the company reports about take-back procedures and recycling programs to reduce the potential risks of products entering the environment, or does the company report about product features or services that will promote responsible and environmentally preferable use?	• Reduce chemical, food, and solid waste • Reuse food and solid waste
Resource reduction policy	Does the company have a policy for reducing the use of natural resources or to lessen the environmental impact of its supply chain?	• Improve the energy efficiency of the buildings • Use smart energy management systems related to temperature or lighting • Have a linen or towel reuse plan
Land environmental impact reduction	Does the company report on initiatives to reduce the environmental impact on land owned, leased, or managed for production activities or extractive use?	• Improve the energy efficiency of the buildings • Use renewable energy sourced electricity
Water technologies	Does the company develop products or technologies that are used for water treatment, purification, or that improve water use efficiency?	• Reduce stormwater runoff • Use smart water management systems • Treating and reusing the wastewater
Take-back and recycling initiatives	Does the company report about take-back procedures and recycling programs to reduce the potential risks of products entering the environment?	• Use of furniture or beddings made from reused or recycled materials. • Building establishments with easily recyclable materials in the future and recycles building elements when buildings are rehabilitated • Recycle paper, glass, cardboard, plastic, metal, and hazardous waste
Policy sustainable packaging	Does the company have a policy to improve its use of sustainable packaging?	• Prioritize reusable and durable containers for packaging • Use biodegradable or reusable packaging