Promoting sustainable development in higher education institutions: the use of the balanced scorecard as a strategic management system in support of green marketing

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Abstract

Purpose – Sustainability is understood as a complex and integrating area, involving the most diverse areas and fields of knowledge. Because of the innumerable socio-environmental challenges in the current scenario, a sustainable development that finds the necessary changes and advances for communities, industry and the various stakeholders involved is required. In this process of promoting sustainable development, universities stand out for being institutions capable of taking an analytical and questioning look at the directions of the society in which they are inserted and not just helping them to pursue them, serving as a model and living laboratory for the implementation of greener practices in cities. One of the actions that contributes to the consolidation process of a more sustainable university and the development of the green campus is the use of green marketing, understood as a set of all the practices that involve conventional marketing, focused on the search to reduce the negative impact or promote positive effects on the relationship between the institution and the environment. This paper aims, based on the balanced scorecard (BSC), to propose a strategic management tool as support for green marketing strategies, thus promoting, more quickly, the promotion of sustainable development in higher education institutions (HEIs).

Design/methodology/approach – Four universities were chosen, from the literature, in terms of best practices for sustainable development, where the main dimensions used by green marketing were mapped. Based on them, the BSC structure was adapted to enhance its strategies.

Findings – To achieve the objective of this work, this paper proposed an adaptation of the original BSC for better management of green marketing strategies for universities, based on four dimensions: community members, university members, product and strategy.

Originality/value – The main contribution of this paper is to propose a BSC as a strategic management system focused on the green marketing of universities to accelerate the promotion of sustainable development in HEIs.

Keywords Sustainable development, Green marketing, Balanced scorecard, Higher education institution, Strategic management system

Paper type Research paper

1. Introduction

The implementation of new environmental policies and the expansion of the knowledge level of the population about negative impacts caused by humanity on the environment resulted in an exponential increase in consumption and sustainable production (Kuo and Smith, 2018; Sima *et al.*, 2019). Adding to that, as a result of the constant deterioration in environmental conditions, there was an emergence of a more sustainable culture in a significant part of society (Symeonidou and Vagiona, 2018).

The promotion of sustainability in higher education institutions (HEIs) has a direct influence on the communities in which they operate because universities are responsible for the creation and/or transmission of information and scientific knowledge (Sachs, 2008). According to Alshuwaikhat and Abubakar (2008), it was from the United Nations Conference on the Human Environment, in Stockholm, in 1972, that the concern with sustainability gained visibility in the educational context. As training agents and social educators, they could not remain on the margins of environmental responsibilities, thus there is an adherence on the part of these HEIs in favor of the responsible use of natural resources. (Silva and Pinheiro, 2018). The HEIs' commitment to sustainable development can be seen by their involvement and commitment all over the world (Morais *et al.*, 2014; Oliveira *et al.*, 2016). Thus, HEIs have presented themselves as leading agents in the construction of a world geared toward this goal. In this sense, Casagrande Júnior and Deeke (2013); Baldin and Kolaceke (2016) state that, to serve as an example to the whole society, the HEIs have been trying to reflect on their physical infrastructure, in their decision-making process and especially in the pedagogical matters, all this movement aimed at environmental awareness. Grubba *et al.* (2017) also highlight that the legislative demands consolidate the moment the HEIs get into the issue regarding environmental sustainability, support the legal norms and raise the awareness of the academic community, all to promote environmental awareness and the importance of preserving the environment.

Humblet *et al.* (2010) complement that the HEIs must become "Green Campuses," integrating a community that is concerned with environmental issues, such as energy efficiency, the conscious use of resources, the commitment to environmental quality, thus educating for sustainability. Also, Leal Filho *et al.* (2015) state that the development of the green campus contributes to society because it is an integrated structure that promotes environmental awareness in various sectors because universities are incubators for new leaders. The literature presents numerous concepts for a sustainable HEI, all involving many similarities and trying to establish which are the most relevant strategies to be a sustainable HEI. In general, according to the researched authors, an HEI needs to act in an integrated way in the strategic dimensions existing in the university environment: teaching, research, outreach and campus management (Disterheft *et al.*, 2012; Berchin *et al.*, 2017; Guerra *et al.*, 2018); evaluation and reports (Lozano,

2006; Alshuwaikhat and Abubakar, 2008; Berchin *et al.*, 2017; Guerra *et al.*, 2018); institutional guidelines and sustainability experiences on campus (Disterheft *et al.*, 2012; Lozano *et al.*, 2013; Lozano *et al.*, 2015; Amaral *et al.*, 2015; Berchin *et al.*, 2017; Guerra *et al.*, 2018; Bizerril *et al.*, 2018; Aleixo *et al.*, 2018).

Other studies by Leal Filho *et al.* (2015), Amaral *et al.* (2015), Berchin *et al.* (2017), Silva and Pinheiro (2018) and Bizerril *et al.* (2018) demonstrate that there is no integration between the strategic dimensions of the university system in favor of sustainability. In many cases the actions are implemented in a compartmentalized way, applied in only some of the dimensions of the university system, that is, there is an absence of strategies and policies related to sustainability that covers all parts of the system of an HEI. As a result of this new culture, numerous terms appeared in the literature, such as "green marketing," "sustainable marketing" and "greener marketing" (Roy, 2013; Simão and Lisboa, 2017; Dangelico and Vocalelli, 2017). According to Roy (2013), green marketing has great complexity and a wide range of activities, such as product modification, changes in the production process, changes in packaging and modification of advertising.

Essentially, marketing is about meeting the needs and desires of consumers (Soares *et al.*, 2019a) in addition to representing a broad social activity (Keefe, 2004), an organizational function and a set of processes to create, communicate and add value to customers who manage the relationship with customers in a way that benefit the organization and its stakeholders (Simão and Lisboa, 2017; Kuo and Smith, 2018).

These needs and desires are increasingly unlimited, resulting in major impacts on people's lives, and consequently on the environment. Marketing strategies must take into account several issues, among them the perception of the market, which poses the issue of sustainability as an opportunity for companies (Nidumolu *et al.*, 2009). Some authors, such as Almeida (2002) present the idea that companies, regardless of their size, must have the capacity to mobilize and undertake, in addition to creating new ways for the production of goods and services that can generate more quality of life for an increasing number of people, bringing less use of natural resources and less environmental impact (Montenegro de Lima *et al.*, 2020).

Considering the research that points to the lack of integration between the parties, because sustainability policies must ensure that sustainable concerns are fully addressed throughout the university system, it is reasonable to assume the importance and the need to develop integrative forms of performance (Lozano *et al.*, 2013; Leal Filho *et al.*, 2015; Leal Filho *et al.*, 2019). Therefore, changes in the social, political and educational context concerning sustainable development, compel HEIs to seek strategic practices that allow them to achieve the desired performance, being challenged in their ability to respond to external and internal demands, articulating regulatory needs with its planning, through its own management tool, and establishing unifying connections between the teams, departments and campuses. Given the context and given the possibility of this tool to enhance and accelerate the objectives defined in the green marketing strategy for HEIs and, considering the need to deepen knowledge on a topic inserted in a relevant context for society, it was decided to carry out the present study with the following research question: "How do HEIs implement and execute strategic green marketing objectives to promote sustainable development?"

This is a qualitative study based on information from four universities considered a reference in green marketing based on a comparative analysis of five categories: external public, internal public, public opinion in general, product and strategy. When analyzing the HEIs in question and subsequently proposing the BSC tool aimed at green marketing, it is expected to contribute to the understanding of the role and usefulness of BSC as a strategic management system based on green marketing strategies to promote sustainable

development in HEIs with repercussions on the society in which it operates, as well as promoting a better understanding of the management of institutions based on sustainable development and strategic management.

The article begins with the characterization of green marketing in Section 2. Then, it goes on to detail the categories for implementing green marketing in HEIs. Subsequently, the relationship between HEIs and the use of the BSC and the complex organization that is the University is addressed. Then, the methodological procedures, results and discussion and conclusions are presented in Sections 3, 4 and 5, respectively.

2. Literature review

2.1 Green marketing

The term green marketing originated in 1975 when the American Marketing Association developed a workshop on marketing and the environment (Simão and Lisboa, 2017; Kuo and Smith, 2018). Roy (2013) stated that although environmental issues (and consequently the idea of green marketing) have been on the agenda of society for a short time, they have been around for several decades. According to the author, green marketing started with the implementation of the Corporate Social Responsibility Reports which provided an overview of the environmental, social and financial impacts of companies on society. Consumers were able to monitor a company's practices more transparently, allowing them to choose those that deployed more sustainable practices (Roy, 2013). Table 1 presents some of the concepts found in the literature for the definition of green marketing. The table was adapted from Groening *et al.* (2018).

Table 1 shows that the concept of green marketing has evolved. In addition, over time, definitions of green marketing have come to consider it as part of an integrated system

Reference	Concept
Polonsky (1994)	"Green marketing incorporates a wide range of activities, including product modification, changes in the production process, packaging changes, as well as advertising modification [. . .] in such a way that the satisfaction of those needs and desires occurs, with a minimum negative impact on the natural environment ." (pp. 1–2)
Alsmadi (2008)	"Green marketing is conducting all marketing activities within a framework of environmental responsibility. . . it is a comprehensive and systematic process that seeks to influence consumer preferences to encourage them to demand environmentally friendly products and help them adapt their behavioral consumption patterns." (pp. 342–345)
Violeta and Gheorghe (2009)	"Green marketing is 5Ps + EE, representing planning, process, product, promotion, people and eco-efficiency." (pp. 1344–1347)
Nadanyiova *et al.* (2015)	"Green marketing is understood as a complete orientation in all business processes that have possible negative environmental aspects with a flow of corporate social responsibility." (p. 220)
Groening *et al.* (2018)	"Green marketing consists of actions aimed at all consumers and incorporates a wide range of marketing activities (for example, price, planning, process, production, promotion and people) designed to demonstrate the company's objective of minimizing the environmental impact of your products and services." (p. 1851)
Annamalai *et al.* (2018)	"Green marketing is an attempt to protect consumer well-being and the environment (nature) through the production, consumption and disposal of environmentally friendly products." (p. 217)

Source: Adapted from Groening *et al.* (2018)

Table 1.
Green marketing definition

composed of companies and consumers as we see in Alsmadi (2008) and Annamalai *et al.* (2018). Because of the increase in concerns related to the inefficient use of resources, the poor management of waste, the high use of fossil fuels, the increase in the emission of greenhouse gases and various other environmental problems, there came to be a perception that the importance and the need to implement actions at national/local and global levels that could deal with such challenges (Freidenfelds *et al.*, 2018). The growing worldwide concern with ecological problems has pressured organizations to increase their focus on the topic, through the development of their products and services and in their strategy of communicating with the market, through their advertising and publicity campaigns (Guimarães, 2012). Over time, sustainability has been recognized as one of the main issues of marketing strategy (Annamalai *et al.*, 2018), as a key innovation factor (Dangelico and Vocalelli, 2017) and as an increasingly relevant topic that influences the organization's market performance and its relationship with its stakeholders (Reilly and Hynan, 2014). It is in this scenario in which HEIs emerge as pioneers in promoting sustainable development, given that it is in these spaces where future leaders are educated, that they will be committed to developing the necessary actions to face the eventual challenges of humanity (Disterheft *et al.*, 2013; Xiong *et al.*, 2013; Yuan *et al.*, 2013; Beynaghi *et al.*, 2016)

In general, HEIs, through education, research and development of activities, act as important actors and promoters of sustainable development (Geli de Ciurana and Leal Filho, 2006), helping to discover new technologies that make societies, communities and businesses more sustainable and resilient around the world (Hess and Collins, 2018). In addition, these institutions are responsible for the development of numerous skills of professionals and academics, resulting in a human capital that will assist in the transition to sustainable development (Gholami *et al.*, 2015). For this sustainable development to be desired and achieved, there must be a strong commitment and institutional engagement with sustainability within the HEIs, presenting goals, objectives, mission, values and actions that are ethical and responsible (Guerra *et al.*, 2018).

In this sense, green campuses appear as a way of transforming HEIs into spaces that contribute to environmental awareness and preservation but also contribute to the social and economic development of universities (Geli de Ciurana and Leal Filho, 2006). The green campus is a complex task, as it involves structural changes in various areas of the university and affects not only students but all users of the campus. Tan *et al.* (2014) explain that it is a necessary process, as many universities have excessive consumption of electricity, affecting both the environmental and the economic spheres. Therefore, it is the responsibility of HEI managers to develop and apply environmental management strategies as the main tool for promoting sustainability, both as a competitive advantage and for creating a learning environment for society.

To this end, they must define and explore a series of sustainable strategies to raise environmental awareness and therefore generate knowledge, awareness and solutions that can help to face these challenges both in an academic universe and beyond university life (Thomashow, 2014). Planning is the initial stage and one of the most important, as it aims to survey the needs, as well as outline the objectives to be achieved. Having defined this, the second part is doing, involving training, awareness and the implementation of what was planned. Right after, we have the verification, that is the monitoring and measurement of the processes. In the end, a very important step, we have the action, which consists of improving the processes. For the efficiency and effectiveness of an Environmental Management Policy, it is essential that it be well structured and have responsible and committed people at its foundation. From this, the implementation

of initiatives, in which university users are fundamental because they cooperate for the green campus process.

2.2 Categories for implementing green marketing in higher education institutions

HEIs have a fundamental role in building awareness of the sustainability of their audience through different means (Hamid *et al.*, 2017). Thus, organizations can emphasize the importance of environmental concerns, such as sustainability, through green marketing, to their external audience (Juwaheer *et al.*, 2012). The external public is understood as a group of people, both natural and legal, who have some interest in certain organizations; however, who are not linked to them (Serra *et al.*, 2017).

Green marketing actions can be carried out in different media, such as social media (e.g. Facebook, Twitter and YouTube), institutional websites, events, publicity and advertising. Advertising can be considered as a practice that aims to draw the public's attention, aiming to influence them concerning products, policies, needs or plans (Serra *et al.*, 2017). For Dangelico and Vocalelli (2017) companies should explore the opportunities arising from new technologies, such as the Internet, for its green marketing practices. Accordingly, Reilly and Hynan (2014) suggest that companies that promote sustainability in their values and culture may be the first to adopt actions related to sustainability in social media. The advertisement is also another widely used tool for green marketing and aims to influence the behavior of consumers, making them search for companies and products/services considered green and which can have positive consequences for themselves and the environment (Rahbar and Wahid, 2011). It was observed in organizations the growing importance related to green marketing, especially in their advertisement campaigns (Guimarães, 2012). In the context of green marketing, advertisement seeks to influence the behavior of different audiences, positively changing their perception of companies and products/services (Rahbar and Wahid, 2011).

The use of social media for sustainability awareness is not yet a reality for many HEIs (Hamid *et al.*, 2017). However, there is an increasing number of organizations using social media as an effective marketing communication channel, including in the dissemination of sustainability practices and content (Reilly and Hynan, 2014). The use of social media by the HEIs can provide benefits, such as increased awareness of sustainability (Hamid *et al.*, 2017) and improve the image of the HEI (Soares *et al.*, 2019a).

All organizations, especially service companies, such as HEIs, need marketing actions for their internal public if they want to be successful in implementing marketing activities for their external public (Sarquis *et al.*, 2020). If an HEI seeks sustainable development, that institution must commit to sustainability, through goals and objectives, mission, values and ethical and responsible actions (Guerra *et al.*, 2018). When seeking to promote greater sustainability, these values need to be shared and communicated between the institution's employees and departments (Papadas *et al.*, 2017), with green marketing having an important role in this activity. Some of the marketing activities aimed at the internal public are institutional events and specific campaigns for the different units of the university (Sarquis *et al.*, 2020).

Internally, the target audience for marketing actions is any people, departments or business units in the organization that is involved in delivering on marketing promises (Sarquis *et al.*, 2020). Sustainability initiatives are generally driven by efforts within the organization, as the internal public is generally more concerned with an organization's sustainability actions than external stakeholders (Reilly and Hynan, 2014). For an organization to have an internal green marketing orientation, it is necessary to disseminate environmental values throughout the organization to incorporate a broader corporate green

culture. Green marketing actions can be carried out to educate and train the internal public for greater environmental awareness throughout the organization (Papadas *et al.*, 2017).

The dissemination of knowledge and the incorporation of an environmental culture throughout the organization helps employees to develop skills and capacities to implement successful environmental strategies (Papadas *et al.*, 2017). Organizations can benefit from creating events, such as workshops and seminars, to educate their audience about green initiatives (Juwaheer *et al.*, 2012). Keeping employees informed and involved in the organization's sustainability actions can also help retain talent (Reilly and Hynan, 2014). For this, it is necessary to create events, projects and actions aimed at promoting ideas, disseminating information and developing relationships between different people and functional areas (Sarquis *et al.*, 2020).

In the past few decades, and especially today, the attitude of organizations toward their public has changed (Gholami *et al.*, 2015). It is known that the interest of the general public has grown in knowing and identifying companies that are dedicated to not compromising the environment (Guimarães, 2012). Organizations need to communicate addressing the content of interest to their audience (Soares *et al.*, 2019a), and many expect organizations to have responsibility for the environment and invest in sustainability practices (Zahid *et al.*, 2018). Lidgren *et al.* (2006) recommend that HEIs become more actively involved in the dialogue with internal and external stakeholders about institutional sustainability goals and what they are doing to achieve them.

Adequate advances in teaching and research related to sustainability can be important, as, according to Symeonidou and Vagiona (2018), public participation plays a fundamental role in effective green marketing. Through the development of research activities, HEIs act as important actors and promoters of sustainable development (Geli de Ciurana and Leal Filho, 2006). Recently, with the discovery by companies in the market of environmentally conscious consumers, the launch of eco-friendly products has intensified, especially in developed countries (Zahid *et al.*, 2018), promoting the development of marketing practices related to sustainability. According to Cunha (2018), the product can be defined as the result of the activities developed by a firm offered to a market for attention, acquisition, use or consumption, which can be both goods and services. The application of green marketing tools and information related to sustainability plays an important role in changing people's behavior. Such tools facilitate people's perception and awareness of the attributes and characteristics of products related to sustainability and, as a consequence, they can change their behavior (Rahbar and Wahid, 2011; Juwaheer *et al.*, 2012).

Zahid *et al.* (2018) found a significant number of consumers concerned about the environment and whose consumption decision is influenced by the company's attitude toward the environment; they also noted that consumers with higher incomes are more likely to purchase products from organizations that have sustainable practices and actions. Accordingly, Juwaheer *et al.* (2012) suggest that marketers should emphasize green product strategies as these can have a positive impact on consumers.

Specifically related to HEIs, their products can be seen as their educational services (Sarquis *et al.*, 2020), such as research projects, courses, outreach, institutional programs and teaching. Investment in research and education, to assist in the development of a better-informed society, is one of the fundamental objectives of educational institutions (Yuan *et al.*, 2013; Gholami *et al.*, 2015). An HEI's role is to create a more sustainable future by integrating sustainability into various aspects of their activities (Gholami *et al.*, 2015). Green university practices can be carried out by incorporating sustainability into campus activities, such as teaching, research and infrastructure (Yuan *et al.*, 2013). Environmental issues are usually complex and, therefore, it is necessary to develop specific courses and

research programs, where environmental issues can be addressed through multidisciplinary lenses (Lidgren *et al.*, 2006).

Organizations increasingly consider sustainable development as a business strategy, given its possible benefit for their stakeholders and its increasing value for the market and society (Gholami *et al.*, 2015). An organization with greater strategic orientation related to green marketing may have more elements related to sustainability in its strategic decisions (Papadas *et al.*, 2017). Both the strategic planning (SP) and the strategic plan aim to understand the nature of the institution and highlight the relevance of the planning process, given that the characteristics of the educational institutions and their decision-making process define the institutional arrangements and activities that will be developed (Serra *et al.*, 2017).

When seeking sustainable development, it is necessary to develop strategic plans to achieve this objective. Strategic initiatives using green marketing can lead to better HEI performance (Papadas *et al.*, 2017). Lidgren *et al.* (2006) state that sustainability-related goals should be included in the universities' strategic plan and vision statements, with the aim that these goals be integrated into day-to-day work, both in written form and in the minds of employees. Yuan *et al.* (2013) point to Shandong University as an example, which clearly defined in its strategic plan its commitment to becoming a "'Green University" through the incorporation of sustainability into campus activities.

From this discussion, five main categories for implementing green marketing in HEIS were raised: external public, internal public, public opinion in general, product, and strategy. Then, indicators that evaluate these categories were searched in the literature so that HEIs can be analyzed in all points, as it is exposed below in Table 2.

2.3 Higher education institutions and their relations with the balanced scorecard
The assessment of organizational performance is a theme that has been present in the business administration literature for years. According to Lavieri *et al.* (2015), this area of knowledge is constantly evolving, searching for definitions, concepts and models that are increasingly efficient in measuring performance and in the strategic management of organizations. The focus of performance appraisal, until 1950, was only on measures of a financial nature, that is, the organizational performance was measured based on profit, sales and return on investment. However, between 1960 and 1980, the emphasis shifted to new dimensions, in addition to financial indicators, considering aspects such as operational efficiency, product quality and customer satisfaction (Nudurupati *et al.*, 2011). Kaplan and

Categories	Indicators	Authors
External Public	Advertising and marketing	Hoffman (1989); Guimarães (2012); Serra *et al.* (2017), Pereira Ribeiro *et al.* (2020)
	Events, social media, institutional website	Hoffman (1989); Reilly and Hynan (2014); Assimakopoulos *et al.* (2017), Hamid *et al.* (2017)
Internal Public	Events, environmental awareness campaigns	Papadas *et al.* (2017); Sarquis *et al.* (2020)
Public opinion in general	Advertising and research	Guimarães (2012)
Product	Research projects, outreach, institutional programs and teaching	Garcia (2000); Cunha (2018)
Strategy	SP and strategic plans.	Lidgren *et al.* (2006); Serra *et al.* (2017); Soares *et al.* (2019b)

Table 2.
Categories for implementing green marketing in higher education institutions

Norton (1996) corroborate that stating that non-financial elements gained importance in the assessment of organizational performance, becoming an important instrument for measuring results and, consequently, for supporting decisions and improving management, because "what is not measured, is not managed" .

The performance evaluation process involves monitoring changes in the organization's external and internal environment, ensuring compliance with the established objectives and goals, to compare planned and realized performance (Machado *et al.*, 2007). Sink and Tuttle (1993) add that it is essential for the organization to have control of the path it is taking to identify where it is and how far to reach where it wants to be, using performance evaluation as a continuous and integrated activity to measure results.

In this sense, the results of the organizational performance assessment can be used in SP, which is one of the main management tools (Robbins, 2003). Therefore, according to the author, the quality of the planning construction process contributes to the improvement of organizational performance, which is the main purpose of the SP. In his study, Robbins (2003) states that the overall results of 114 organizations that use SP are qualitatively better. According to Galvão *et al.* (2011) it is necessary to monitor the execution of the SP, through controls and indicators, to verify the organization's performance and serve as a source of information for making correct decisions in an environment of strong pressure.

However, given the complexity of measuring the execution of its strategy, one can note the difficulty of organizations in its implementation. Most of the formulated strategies are not successfully implemented. The biggest problem is not the strategy itself, but the ability to execute it, including little knowledge, data from customers, the market and the organizational strategy, fundamental variables to be considered in the implementation of company strategies and which they are presented in traditional models, which generally adhere to the financial dimension (Kaplan and Norton, 1996).

In this sense, the HEIs come into play. These institutions are differentiated organizations, with a complex organizational structure and that need to develop managerial capacities analogous to the corporate ones, however, without distorting their educational and social objectives. Organizations can be understood as complex, ambiguous systems and surrounded by paradoxes, characteristics present where there is a network of human interactions, and their systems often go beyond a rational, linear and predictable logic, directly impacting their management capacity. It turns out that in our society some organizations tend to be even more complex than others, such as churches, hospitals, artistic organizations and non-government organizations (NGOs) (Jarzabkowski and Felton, 2006). Universities are another good example for presenting characteristics such as:

> several areas of knowledge where courses are located, the most diverse, at various levels, decisions are usually collegial and political, where qualified and specialized professionals work, forming different interest groups (Meyer and Mangolim, 2006, p. 7).

Other previous studies (Baldridge, 1983; Cohen and March, 1974; Weick, 1976; Millet, 1962) already identified the university as an atypical and paradoxically complex organization: ambiguous objectives, centered on the work of professionals, based on problematic technology, operates products difficult to measure, it lives with decision-making processes and forms of management that mix bureaucratic, political, collegiate and anarchic aspects, in addition to the vulnerability of the environment.

Going in search of strategic management mechanisms from a complex context such as those of the HEI, the BSC presents itself as a tool that has the potential to contribute effectively in this aspect, as it provides a holistic view of the organization, which happens through the definition of objectives, results' measures and performance vectors, in a cause

and effect relationship between its proposed structure called perspectives (financial, customer, internal processes, learning and growth), translating the vision and the organization's strategy on operational goals.

In the educational field, the first evidence of the use of BSC was released by O'Neil *et al.* (1999). According to the authors, the application of BSC in HEIs allows the introduction of evaluation measures to monitor their performance and verify their effectiveness, because these HEIs are increasingly responsible for the results of the services they offer as well as protagonists in sustainable development. Some HEIs present an adaptation of the original model, using different perspectives from those suggested by Kaplan and Norton (1996) because the BSC is a tool that can be adjusted, respecting the reality of each institution (Lima *et al.*, 2011). In a survey carried out with foreign and Brazilian HEIs, including public and private ones, it is observed that some perspectives were incorporated or adapted from the original model, with the following perspectives being highlighted in foreign institutions: Innovation; People; Stakeholders; Academic management; Resources; Community; Student learning; Image and recognition; Diversity; International business processes; Organizational development; Organizational climate; and Voters. In national institutions, the following stand out: Society; Market; Legal; Innovation; and Shareholders (Lima *et al.*, 2011). When related to the reality of public HEIs, according to Martins (2015), the educational perspective is at the top of the strategic map, then there are the financial, society, internal processes perspectives and, finally, the learning and growth perspective, demonstrating the relationship that must exist between the institution and the society that maintains it.

Ramirez (2011), on the other hand, presents the benefits of measuring intangible elements in universities, through the BSC, based on an analysis of the most important implementations of the tool in public universities in Spain. Thus, the aforementioned author presents at the top the perspective of learning and growth, followed by the perspectives of internal processes, customers and, at the base, the financial perspective. However, Lin *et al.* (2016) propose a model adapted from the BSC for HEIs that offer professional and technological education, with a view to the cooperation of this teaching modality in the industrial development of Taiwan. In this proposed model, the authors present the sustainability perspective as the main objective, then the stakeholder, and internal operations perspectives, and, finally, the learning and growth perspective.

Guerra *et al.* (2018) place at the top of the strategic map of a public HEI the perspective of sustainable development, followed by the perspective of teaching and environmental management processes, followed by learning and environmental growth, and at the base the perspective of economic and financial responsibility. As can be seen in the literature, there is no consensus on an ideal model to be implemented in public HEIs, which motivates each institution to adapt its perspectives, according to its reality and its focus (Dorweiler and Yakhou, 2005; Sayed, 2013; Dias, 2017). Regardless of the structure used, the use of BSC in educational institutions presents itself as a management tool that can contribute to strategic planning, in the realization of its mission and vision and control of its performance (Lawrence and Sharma, 2002; Dorweiler and Yakhou, 2005; Santos, 2008; Martins, 2015; Guerra *et al.*, 2018).

2.4 Sustainable development in higher education institutions and green marketing
While general awareness in sustainability issues has improved in recent years through mass media coverage, this knowledge is not always translated into actual sustainable practice. Studies indicate that there are many factors to engaging the community in sustainability (Too and Bajracharya, 2015): the consumer insight on green consumption processes beyond linear decision-making (Beatson *et al.*, 2020); the consumer purchasing patterns for greener

products could be exploited more within consumer groups that have strong environmental concerns. There are some strong demands for companies to promote green branding, eco-labelling and green packaging strategies to encourage a greener pattern of consumption (Juwaheer *et al.*, 2012). Overall, to evaluate green marketing actions, it is first necessary for HEIs to have overarching goals for integration of SD in education or to have a systematic follow-up of these goals in a plan (Finnveden *et al.*, 2020). The evaluation of these plans should consider both their process and their substance and should account for circumstances unique to higher education (White, 2014).

Campus sustainability plans include environmental aspects and, to a lesser extent, aspects of social equity. Campus operations receive more attention than academic or administrative aspects do (White, 2014). The ecological considerations can be integrated into campus strategic and statutory spatial planning (Orenstein *et al.*, 2019). A campus-wide master plan would enable a university and a city to apply sustainability principles to their physical and/or policy interfaces to systemically create change and achieve quantifiable targets (Barrella *et al.*, 2017). To accomplish sustainability goals, HEIs can define a set of strategic sustainability actions to drive movements toward sustainability and an assessment scheme to measure institutional performance throughout the implementation process of these actions (Casarejos *et al.*, 2017).

The triangle framework composed of sustainable development goals (SDGs), universities and communities greatly expand the way to realize SDGs (Zhu *et al.*, 2020). The HEIs plans should be a number of practices that align with SDGs in teaching, research, community engagement and campus operations management. The most obvious contribution from universities to SDGs is toward quality education (SDG 4). HEIs, including distance education institutions, can play an active role in implementing other SDGs as well. (Mawonde and Togo, 2019).

3. Methodological procedures

The first stage of the research corresponds to a search in the literature through the Science Direct, Scopus and Web of Science databases, because of its relevance to identify the analysis categories used for the implementation of green campus. The Boolean equation containing the keywords "Green campus," "Green Marketing" and "Sustainable development" was used. From that, it was possible to find articles that deal with more than one of the selected keywords at the same time. The research period was July 2018. As a way of summarizing the review of the literature process, Table 3 represents the number of articles found combining the terms. With the results presented in Table 3, it suggests that studies on the implementation of green marketing in HEIs to promote sustainable development are still recent themes, with few publications, and that need more studies in this area.

The second step was to identify in the literature the indicators that assess the categories found in the previous step (External Public, Internal Public, Public opinion in general, Product, Strategy), so that the HEIs to be selected could be analyzed in the related aspects,

Keywords	Science Direct	Web of Science	Scopus
Green Marketing + Green Campus	3	0	29
Green Marketing + Sustainable Development	372	75	449
Green Campus + Sustainable development	101	32	60
Green Marketing + Green Campus + Sustainable Development	3	0	0

Table 3.
Summary of the
number of articles
found

actions, practices or strategies aimed at sustainability communication. The third step was to select universities to be evaluated. Thus, in addition to obtaining the information in the previous steps, it was possible to identify four universities considered to be outstanding in the implementation of Green Campus. Table 4 presents the selected universities in their respective countries and the documents that were used in the analysis.

In the fourth stage, based on the information from the previous stages and based on secondary data obtained from the 4 selected universities, a comparison was made between them on sustainability communication actions, practices or strategies. The subsequent steps concern the readjustment of the BSC for use in the management of Green marketing aimed at sustainable development. With the result of the previous steps and based on the original BSC, the necessary adjustments to the new proposition were initiated, the first of which was to differentiate the so-called perspectives for a new structure as "dimensions" and the guiding questions for each dimension were adjusted. Then, what Kaplan and Norton (1996) called a strategic map was built, presenting the new dimensions, guiding questions and
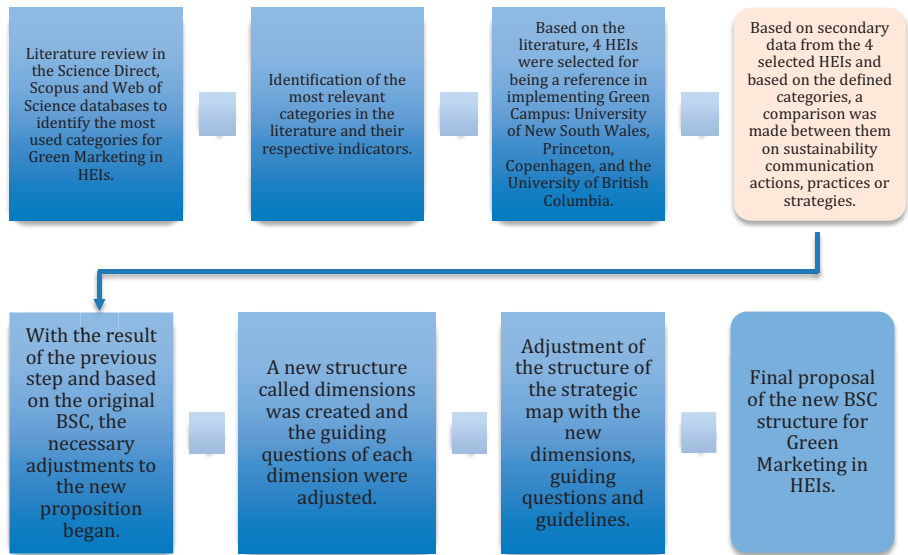

Figure 1.
Steps taken to adapt BSC

Source: Authors

University	Country	Information
University of New South Wales	Australia	UNSW management and control report for energy and water for several years
Princeton University	The USA	All information and reports on the implementation of Green Campus by Princeton University
University of Copenhagen	Denmark	Management and control report of the University of Copenhagen in Green Campus categories
University of British Columbia	Canada	Annual management and control report of the University of British Columbia

Table 4.
Universities selected for comparative study

drivers. Finally, the final proposal of the new BSC structure for Green Marketing in HEIs is presented. To have an overview, the steps taken to adapt BSC to the research objective are presented, as shown in Figure 1.

4. Results

4.1 Green marketing in higher education institutions
Based on the reading of sustainability reports, environmental management plans, sustainability plans, institutional websites and social media pages, information was collected for the five categories of green marketing: external public, internal public, public opinion in general, product, and strategy.

Regarding the category "External Public" Table 5 shows that among the four HEIs, the one that most performs actions, practices or strategies related to sustainability communication is Princeton University. It is the only one that has some strategies related to social media, such as blogs and LinkedIn group. In addition, Princeton University is the only one that promotes "green" events. This type of event uses recycled paper in its dissemination, uses only disposable cups and tries to provide (for its participants) food that is produced locally and is organic. It was also the only one that promoted a "green" communication/marketing course. The course taken by the university's sustainability manager was called "Communicating Sustainability: Critical Reports on Environmental Issues". The course aimed to teach students the skills necessary to produce short-form radio and video projects that cover environmental issues that concern students and the campus.

One strategy that was only present at the University of Copenhagen is the creation of a sustainability guide. This document can be very useful to disseminate the culture of sustainability, as it can be distributed to all stakeholders of the institution and, also, the digital document can be downloaded by anyone interested in the topic.

Six strategies were present at all universities. They are Facebook page, news website/newsletter, sustainability report, events on sustainability, an institutional website on sustainability and sustainability plan, or equivalent. One can conclude that they are the pillar strategies related to sustainability communication. A specific institutional website on sustainability is essential because all information on the topic is concentrated in one place.

Action, practice or strategy related to sustainability communication	University of New South Wales	Princeton University	University of Copenhagen	The University of British Columbia
Twitter account		X	X	X
YouTube channel		X		X
Page on Facebook	X	X	X	X
News website/newsletter	X	X	X	X
Blog		X		
LinkedIn group		X		
"Green" events		X		
"Green" communication/ marketing courses		X		
Sustainability report	X	X	X	X
Sustainability events	X	X	X	X
Virtual tour "green campus"		X		
Institutional website on sustainability	X	X	X	X
Sustainability plan or equivalent	X	X	X	X
Sustainability guide			X	

Table 5.
Comparison of actions, practices or strategies related to the communication of sustainability between four higher education institutions

www.

With this, users find the information they need more quickly and effectively. But, in addition to existing, these websites must be intuitive and easy to navigate. In this regard, all the universities surveyed stand out positively, as their sustainability websites are very intuitive and easy to navigate.

Concerning events on sustainability, all universities promote this type of event. Some have specific websites about their sustainability events (Princeton and Copenhagen). Others publicize this type of event on their Facebook page (Copenhagen). While others cite their events in their sustainability reports (UNSW). Finally, British Columbia promotes events called UBC Reads Sustainability. At these events, a series of speakers provide a forum for students and other members of the UBC community to learn about sustainability issues from world-renowned authors.

The publication of a sustainability plan or equivalent and a sustainability report are strategies that all researched HEIs have. A sustainability plan is a management tool that guides all HEI sustainability activities. The sustainability report, on the other hand, is the document that guides what was planned in the sustainability plan. In addition, it is an instrument for publicizing and disseminating the sustainability actions of a HEI. Regarding Twitter accounts, the only university studied that does not have one is UNSW. Because Twitter has 330 million active users (Statista Research Department, 2019) not having an account on this social media is a strategic mistake.

As for a specific sustainability YouTube channel, only Princeton University and British Columbia have it. Therefore, it is clear that all four research universities have several strategies related to sustainability communication. They can be considered models to be followed by other educational institutions that are still beginning to implement sustainability actions.

As a green marketing strategy for the "Internal Public" Category, the University of British Columbia seeks measures such as students' environmental awareness practices through the structure of university campuses, allowing students to have access to university campuses with a large concentration of trees and green spaces for integration among students. This allows its internal public to have sustainability experiences within the university campus, or through recycling practices, seeking to be a zero-waste university, besides, the university also presents practices aimed at better food consumption and less waste generation (University of British Columbia, 2018).

Sustainability is present in the 10 goals presented as the university's mission, vision and values, such as goal 5, which states that the university seeks to be recognized both on a local and global scale as a campus that not only promotes sustainability within the campus but in the whole community or with the inclusion of minority groups, which corresponds to one of the sustainable development objectives presented by the United Nations program (University of British Columbia, 2018).

Meanwhile, the University of Copenhagen seeks to present sustainability issues to its internal audience, through research projects, with the creation of several centers and with extension projects that enable students to experience sustainability issues in practice, through the exchange of experiences (University of Copenhagen, 2019). And Princeton University seeks to raise awareness among its external public about sustainable development through green marketing practices such as publicizing events that promote sustainability such as lectures with specialists in these areas, or through environmental awareness practices such as building green campuses, with a large green area that promotes coexistence among all students, and promoting travel so that students learn more about sustainable development (Princeton University, 2019).

The University of New South Wales presents, as green marketing strategies for the promotion of sustainable development, the dissemination and encouragement of events with scientists so that all students have access to information, in addition to practices focused on sustainability, such as recycling and student involvement in all activities, serving as environmental awareness practices (University of New South Wales, 2015).

About the "Public Opinion in General" Category, that is, when a specific HEI invests in environmental education, greener spaces, research in sustainability and other aspects of environmental sciences, these movements transcend the boundaries of the university, incorporating the institutional DNA and showing to the public and to society/community that the institution collaborates with sustainable development.

In this sense, the University of New South Wales, among the areas of activity of the university related to sustainability aspects, it is possible to highlight energy management and greenhouse gas emissions; water conservation; Waste Management; pollution compliance and prevention; transport; campus environment, biodiversity and open space; integration, communication and engagement. Within each of these areas of action, the university applies its research and advertisements that lead to sustainable movements and actions (University of New South Wales, 2015).

Princeton University has an image strongly related to aspects of sustainability, with a modern, green campus covered with gardens and patios, in addition to having environments that favor the accommodation of the student body and advances in teaching and research. Within the Campus Plan and the Framework for Development until 2026 and beyond, the university takes into account the development of areas such as resource conservation; greenhouse gas emissions; and research, leadership and education (Princeton University, 2019).

As for the University of Copenhagen, to achieve its objectives, seven areas of focus are taken into account, promoting collaboration between important university stakeholders: Communication and visibility; Sustainable construction and maintenance; Operations with environmental and energy awareness; Sustainable organization and behavior; transportation; Green IT; Green shopping. Among the topics and main goals, the following stand out: CO2/Climate; Energy; Materials and Resources; Pollution, chemicals and undesirable substances; Organization and culture; and Campus as a living laboratory (University of Copenhagen, 2019).

In the first component, British Columbia University seeks, through teaching, learning and research, to provide students with knowledge, skills and experience that will enable them to act as agents of change and sustainability, transforming them into responsible community leaders and global citizens. In the second component, the university seeks to commit itself to the creation of infrastructures that emphasize human and environmental well-being. In the third component, the university deals with the creation of a resilient and engaged community, which through collective and collaboration changes the university space, bringing a rich and diverse culture, respecting nature and the environment (University of British Columbia, 2018).

Regarding the "Product" category, the University of New South Wales played a significant role in this new environmental concept as an agent of change in sustainable training, with a focus on research. From actions and incentives to sustainable programs, students participate in practical activities in laboratories that give researchers at South Wales the title of record holder in studies of solar photovoltaic technologies, sustainable clean fuels, smart grids and energy-saving and storage (University of New South Wales, 2015).

At Princeton University, more than 30 students in the 2nd cycle of education are trained in renewable energies, most of whom are interns at non-profit organizations that have a direct connection to energy and the environment. This allows students to adopt this sustainable posture, improving the institution's image in the community. In addition to this benefit, the implementation of green marketing in Princeton brought several other incentives and this led the University to create a sustainability committee (Princeton University, 2019).

The University of Copenhagen features its main focus on intellectual creativity focused on the development of sustainable buildings, with a focus on infrastructure development and greening. Also focusing on research and outreach, the university launches ambitious initiatives to its researchers seeking to meet the challenges and needs of society with the participation of the entire community. A strong green marketing action in this HEI is in the communication strategy with messages aimed at reducing consumption. Such communication actions impact a large part of the community at the university and regional level, but also at a global level. Actions aligned with the implementation of sustainable research, make the association of the University of Copenhagen to the green spirit, directly impacting on its mission which is to become the greenest in Europe (University of Copenhagen, 2019).

Founded in 1908, British Columbia University is distinguished for offering acclaimed courses in the areas of Silviculture (the science that is dedicated to the study of natural and artificial methods of regenerating and improving forest stands and that includes the botanical study of species, in addition to the identification, characterization and prescription of the use of wood). With strong investments in research and outreach, Columbia has been carrying out social responsibility actions such as green marketing, implementing and publicizing sustainable actions with the local and global community. (University of British Columbia, 2018).

Regarding the "Strategy" category, the consistent view in the analyzed strategic plan is that South Wales intends to be Australia's global university, improving and transforming lives through excellence in research, education and commitment to the advancement of a just society. The Strategic Plan sets its horizon in 2025 and lists three strategic priorities: Academic Excellence, Social Commitment and Global Impact (University of New South Wales, 2015).

The Princeton University campus plan is extremely detailed. In terms of sustainability, the involvement of the environmental issue is a priority in its activities. In the initial considerations of the analyzed plan, several pieces of information are offered that form its sustainability plan. There is an entire section providing an overview of the sustainability framework, which incorporates environmental sustainability goals and strategies in the institution's planning. The objectives of this plan are focused on physical opportunities to advance important goals, having the idea that there is a comprehensive goal that is to further develop the "Ethos of sustainability". (Princeton University, 2019).

From the analysis of the University of Copenhagen Strategy 23, it was identified that the challenges of environmental sustainability are important for the institution, especially when it is stated that it is necessary to face a series of global challenges in areas such as climate, water, energy, health, migration, false information and security. It is also emphasized that increased computerization, increased internationalization and the introduction of new technologies affect markets, regulation and public spending, including on research and education (University of Copenhagen, 2019).

At the University of British Columbia, initially, it was identified that the consolidation of the analyzed plan involved a series of actors, which promoted a broad consensus to advance

its implementation. This planning process converged on three themes: inclusion, collaboration and innovation. However, significant progress will require clear leadership and strong action to allow changes in culture and practice to be implemented. The document highlights a student's statement that "the university has enormous potential and responsibility to contribute to solving global problems, such as climate change" (University of British Columbia, 2018).

4.2 Balanced scorecard to support strategic management for green marketing
The original structure of the BSC was developed to make the strategy of an organization to be executed and managed effectively, being "translated" to all organizational levels. For this challenge, it seeks to represent the organizational strategy from four perspectives: financial, customer, internal processes, and learning and growth. The proposed structure of the BSC presents a logic starting with the financial objectives (Financial Perspective) and relating them to the other perspectives. This "hierarchy" is because of the fact that it is understood that every private organization seeks to maximize the wealth of its shareholders. Thus, the other perspectives will enhance this search.

In the second perspective, that of the Customer, companies seek to identify the customer and market segments in which they wish to compete, providing added value that is perceived by their customer. This perspective allows companies to align their performance measures related to their specific customer and market segments. The third perspective, that of internal processes, has a much stronger link than the previous one because the strategic objectives (SO) of this perspective are derived and directed to the target customers, revealing new business processes in which the company must seek excellence. Finally, the learning and growth perspective, which identifies the infrastructure that the company must build to offer long-term growth and improvement from three main sources: people, systems and organizational procedures (Kaplan and Norton, 1996).

Interconnecting the four perspectives of the BSC, we want to form a cause and effect relationship, which collaborates to define priorities of projects to be developed and implemented to achieve the desired financial results because each perspective involves a specific set of adjusted indicators in relation to the characteristics and demands of the respective perspective. Therefore, the combination of financial and non-financial measures, external indicators and internal measures of critical business processes, innovation, learning and growth must be present. For better understanding and guidance on the use of the BSC structure, guiding questions are presented in each perspective, thus providing a more effective guidance for the construction of the management system (Table 6).

The authors Kaplan and Norton (1996) give some considerations regarding the possibility of adapting the BSC because other types of organizations and/or government and non-profit entities face difficulties with the original architecture of the BSC, in which the financial perspective is placed at the top of the hierarchy. Considering that financial success is not the main objective of most of these organizations, it is possible to reformulate the architecture (Kaplan and Norton, 1996). Other studies corroborate with Kaplan and Norton

Financial Perspective	To be financially successful, how should we be viewed by our shareholders?
Customers' Perspective	To achieve our vision, how should we be seen by our customers?
Perspective of Internal Processes	To satisfy our shareholders and customers, in what business processes should we excel?
Learning and Growth Perspective	To achieve our vision, how will we preserve our ability to change and improve?

Table 6.
Original structure of the balanced scoreboard: perspectives and guiding questions

when pointing out the applicability of the BSC in other situations, such as to measure and manage social and environmental objectives and with that, it is possible to reorganize the BSC for this purpose. These changes suggest the possibility for these organizations to have better monitoring of the planned strategies, reinforcing its commitment to sustainability based on the traditional BSC structure. Table 7 is presented with the new configurations, where the original BSC was adapted to a BSC destined for Green Marketing, renaming the perspectives to Dimensions and changing their respective guiding questions (Table 7).

Kaplan and Norton (1996) present a "second layer" of details to the BSC, that is, in addition to the perspectives and guiding questions, they add the "drivers" providing a level of detail that improves clarity and focus, at the same time as the BSC translates objectives into indicators and targets. To integrate these aspects (perspectives, guiding questions and guidelines) the authors developed what they call the Strategic Map - SM. For Kaplan and Norton (1996), it is common for the BSC to use graphic language, in which the mapping of a process is a simplified representation of the relationship of the activities of the process that facilitates the organization's communication (Figure 1).
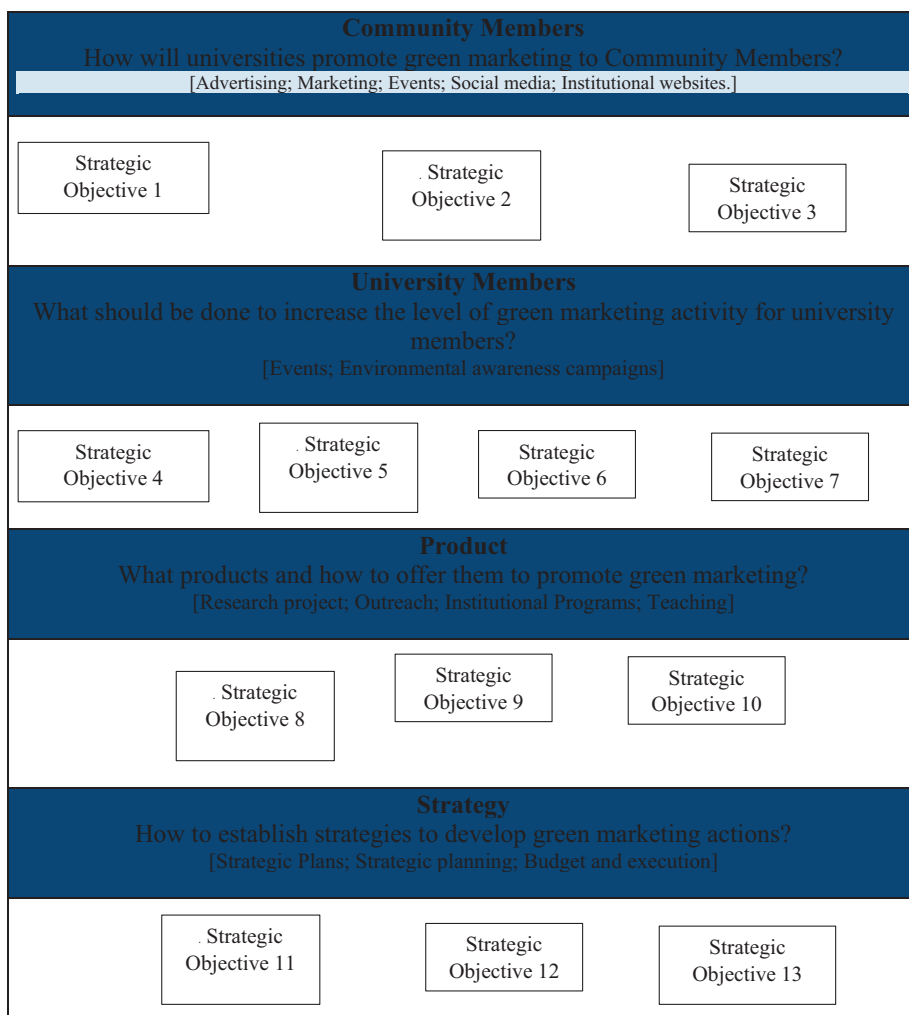
The purpose of the SM is to decode the complex processes of choice to which managers at all levels are exposed daily. It is through the SM that top management monitors compliance with the strategy. According to Kaplan and Norton (2004), the SM explains the strategy hypothesis, and each strategic objective becomes an integral part of a logical chain of cause and effect that connects the desired results of the strategy. It also helps organizations to see their strategies in a cohesive, integrated and systematic way and build the foundations of the management system for the implementation of the strategy effectively and efficiently; demonstrate the link between the formulation and execution of strategies, being instruments for shaping, narrating, visualizing, communicate and align the organization's participants around the adapted strategy.

Based on the structure presented in Figure 2, serving as a guide for the definition of the SO of the HEIs, it is possible to build a SM. For this, the SM must present a logical architecture that is capable of graphically representing its green marketing strategy, its objectives and support areas, explaining the relationships between those involved in the execution of the strategy. It is understood that synergy is an element that provides an advantage in the operationalization of the SM, offering employees the perception of strategic vision, enabling them to act in a participatory manner in relation to the proposed objectives.

Figure 3 shows the complete SM of a hypothetical HEI where 13 objectives were extracted from the SP focused on Green marketing, which were allocated in their respective dimensions, meeting the guiding questions, as well as the drivers. The SM reading can be performed in a bottom up or top-down process. The reading is made using the terms "if" and "then," demonstrating the cause and effect relationships, between one strategic objective and another. Using Figure 3 as an example and in a bottom up reading we have: "If" the SO 12 and 13 are met, "then" there will be a greater possibility of compliance with SO 9 and 10. "If" SO 9 and 10 are accomplished, "then" SO 5, 6 and 7 are more likely to happen in the best possible way. "If" SO 5, 6 and 7 are met "then" SO 1 and 2 will be performed.

Table 7.	*Community members dimension*	How will universities promote green marketing to Community Members?
BSC's adapted	*University members dimension*	What should be done to increase the level of green marketing activity
structure for green		for university members?
marketing in	*Product dimension*	What products and how to offer them to promote green marketing?
universities	*Strategy dimension*	How to establish strategies to develop green marketing actions?

Figure 2.
Conceptual structure
of the strategic map
aimed at green
marketing

Source: Authors

Regardless of the structure used, the use of BSC in educational institutions presents itself as a management tool that can contribute to strategic planning, in the realization of its mission and vision and control of its performance (Lawrence and Sharma, 2002; Dorweiler and Yakhou, 2005; Guerra *et al.*, 2018; Pereira Ribeiro *et al.*, 2020).

4.3 Discussion
The category of the external public was chosen because it is a group of people, both natural and legal, who have some interest in certain organizations, but without a direct link, such as consumers, suppliers, unions, authorities and communities in the vicinity of the organization (Serra *et al.*, 2017). In the external audience category, the following indicators were selected:
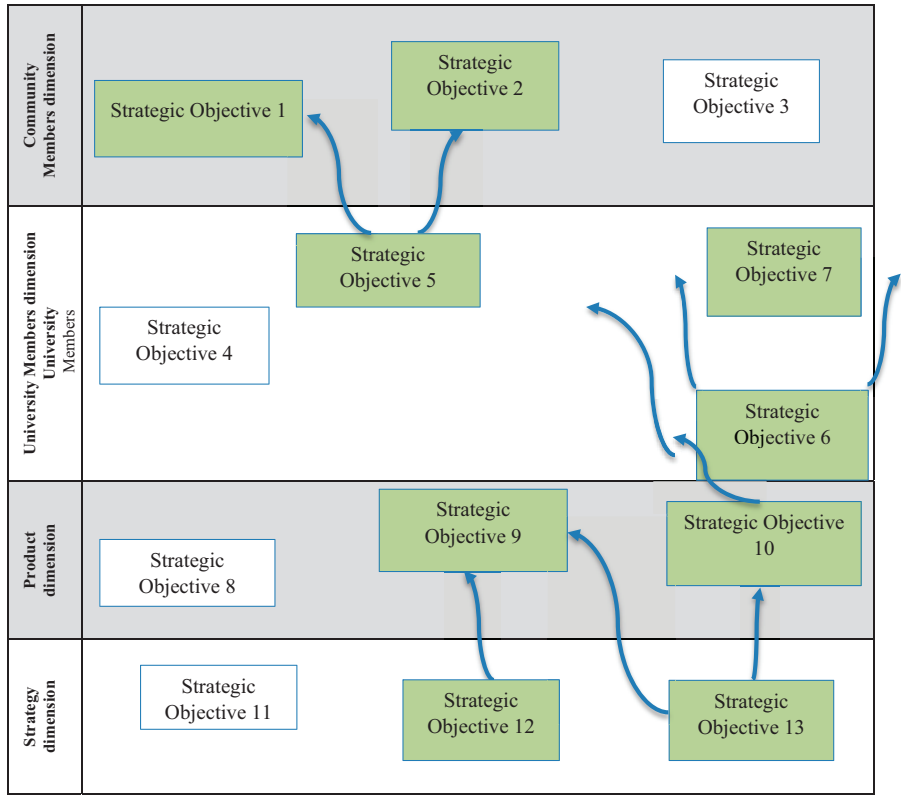
Figure 3.
Green marketing strategic map for a hypothetical higher education institutions

Source: Authors

publicity and advertising, events, social media and the institutional website itself. When it comes to advertising, it serves for dissemination to encourage people to buy certain products or services (Serra *et al.*, 2017), which can be a form of non-personal presentation and communication of an organization and its products by a sponsor who is identified and transmitted to an audience (Hoffman, 1989).

While advertising can be considered as an act or practice that seeks to attract the attention of the public, especially potential buyers, to influence them toward products, policies, needs or plans (Serra *et al.*, 2017). It is also the communications that can be both personal and impersonal that occur in the form of news with which a certain organization and its products are involved, which will be transmitted through the media without resulting in costs for the organization (Pereira Ribeiro *et al.*, 2020). When it comes to the media, the choice of which type to use is influenced by considerations such as the types of products or services that need to be advertised, and the target audience, the advantages and limitations that each media presents and its cost (Hoffman, 1989).

The main objective of the institutional website is to contribute to the promotion of a company, brand, products, services, in addition to being able to strengthen the relationship with the customer functionally and practically, being a virtual page, both static and dynamic, which presents as one of its functions the dissemination of products or services

offered, which was built to meet the demands of each organization, and the needs of its customers. It is, thus, considered as a very important tool for communicating the organization with its target audience (Soares *et al.*, 2019a). All four universities have an institutional website, intuitive and easy to navigate, specific to sustainability. The importance of a university having a website dedicated to sustainability lies in the fact that, according to Yuan *et al.* (2013), this is one of the factors related to the social responsibility of a "Green University."

Regarding social media, they are web-based communication and information channels, where consumers can engage in behaviors that can be consumed in real-time or not, regardless of their spatial location (Assimakopoulos *et al.*, 2017). It was observed that the four HEIs have common actions related to the communication of sustainability in their social media, such as having a Facebook page. However, other actions are carried out only by one (Group on LinkedIn) or two (specific YouTube Channel on sustainability) universities. It is necessary for each institution to understand its audience and which social media they use so that they can carry out more efficient communication strategies, as, according to Hamid *et al.* (2017), it can be advantageous for HEIs to create profiles on social media that focus on publications with content related to sustainability actions conducted by the university.

The product is considered as the complete result presented by the activities developed in a program, which can be presented both in the form of goods and in the form of services (Cunha, 2018). In the product category, the indicators of research projects, outreach and institutional programs were raised, when dealing with research projects, it is understood that it is an instrument that helps to achieve the objectives of the program and that involves a set of operations, limited in time, that result in a final product for improvement or extension of the original (Garcia, 2000).

Regarding the product issue, it is observed that universities are very similar because they are centers of innovation for sustainable development through teaching, research and outreach. It is noted that all institutions make large financial investments in research for sustainability and take advantage of the use of green marketing for their promotion. From the moment that they turn to sustainable development, a value chain is born where environmental management has a clear role of disseminating the institutions without leaving the environment aside. These efforts to meet the ecological concerns of society end up driving changes in the behavior of everyone involved in the process (Tambosi *et al.*, 2014). Such observation is in agreement with Juwaheer *et al.* (2012) who observed that information related to sustainability in products has a significant and positive impact on consumer behavior.

It appears that all institutions promote academic debate on sustainability, in addition to disseminating to governments, environmental agencies and the population about developed sustainable programs. The use of green marketing as a tool for publicizing programs contributes significantly to brand recognition through perceived quality (Aaker, 1991). The educational campaigns developed by universities also serve the goal of educating, informing and mobilizing society for sustainable behavior, drawing attention and consequently encouraging responsible attitudes (Lima *et al.*, 2020).

All universities analyzed, adopt reactive environmental behaviors with specific sectors of the environment; proactive behavior, that has prevention as a principle through new processes integrated into the environment; innovator behavior, with the adoption of environmental responsibility and eco-commitment, which work with stakeholders to formulate strategies in search of change. It is also noted that associated with proactive behavior, they make use of advertising as a marketing tool to directly reach those involved

in the process. Given the above, the institutions must continue adopting green marketing strategies in their planning, seeking to further strengthen the brand, not to mention the influence that the development of the important projects carried out by the analyzed institutions has done so much in the academic universe, in the community and worldwide (Lima *et al.*, 2020).

Regarding the indicator corresponding to the program, it can be understood as a set of activities that were organized to be carried out within a specific budget and schedule available for the implementation of policies or for the creation of conditions that allow the desired political goals to be achieved. Regarding advertising, it appears that marketing activities must be developed to address environmental issues and become important factors in the company's positioning. It is one of the main factors for green marketing communication (Guimarães, 2012).

Regarding the strategy category, it can be considered as an administrative technique that has the function of ordering people's ideas, in a way in which it is possible to create a path to be followed, in addition to choosing the actions to be carried out over time to achieve the expected future vision. In the strategy category, the following indicators were taken into account: SP and strategic plans. Both seek to understand the nature of the institution and give due importance to the analysis of the planning process because the characteristics of the university organization together with the decision-making process define the institutional arrangements and as a consequence the activities that will be developed (Serra *et al.*, 2017). At the four universities, different themes and levels of deepening related to sustainability were identified in the strategy category, in line with the literature (Lidgren *et al.*, 2006; Yuan *et al.*, 2013) which suggests the need for a commitment by HEIs to sustainability at its strategic level.

It is important to note; however, that there is no single way to create a green marketing strategy suitable for all institutions. Each strategy must be developed considering different conditions, such as the institution's particularities, its market, competing institutions, etc. Consequently, the HEIs that best understand these characteristics will be better prepared and will benefit from a more correct approach to green marketing.

It is necessary to point out that, although analyzed separately, the five categories are interconnected and can influence each other. Such a connection is also suggested in the literature, as in the case of Juwaheer *et al.* (2012), where there was a positive correlation between effective green marketing strategies and the intention to purchase and use green products by customers.

4.4 Sustainable development in higher education institutions, balanced scoreboard and green marketing

The interconnection between sustainable performance, the BSC performance assessment tool and green marketing actions in HEIs occurs through joint and planned actions. The green marketing categories found in Table 2 of this article – external audience, internal audience, public opinion in general, product and strategy – must relate to integrated actions as shown in Figure 3. Thus, the categories of green marketing correspond to the perspectives of the BSC adapted to HEIs.

The green marketing indicators in Table 2, related to the strategic objectives of the BSC, as shown in Figures 2 and 3. Thus, Figures 2 and 3 show the complete strategic map of a hypothetical HEI where 13 objectives of the SP focused on Green Marketing were extracted, which were allocated in their respective Dimensions, meeting the guiding questions, as well as the drivers.

The actions of HEIs that assist in promoting sustainable development when communicated through green marketing allow them to be known by the community. The construction of the BSC as a way of evaluating green marketing actions allows HEIs to monitor their development and to publicize their sustainable development achievements. In this way, the permanent communication channel created by green marketing can be constantly measured, evaluated and fed back through the BSC.

4.5 Implications for research, practice and society
The implications to research, practice and society are as follows:

- This paper has provided some insights on green marketing strategies and the various managerial implications have been fully addressed to favor the consumption of greener products in HEIs.
- This investigation into the BSC as a strategic management system in support of green marketing expands the literature beyond the green marketing gap and highlights the importance of aligning the BSC and green marketing with sustainable development in HEIs.
- These insights have relevance to different stakeholders of the HE sector and can help alter consumption practices making them more sustainable.

The research is useful to different stakeholders of the HE sector because it provides a novel approach to integrating multiple stakeholders (academic and administrative staff, students and community members) in a process of performance monitoring. The strategic sustainability actions formulated and the assessment scheme are confirmed through a practical and realistic BSC for assisting HEIs to effectively achieve their green marketing targets and goals.

As a managerial contribution, the study shows HEIs managers the relevance of adopting actions related to sustainable development in their strategic plan/planning. Because of the interest of its stakeholders in the subject (sustainable development), these actions can generate positive consequences, such as improving the image of the HEI, promoting greater engagement of the internal and external public with a HEI, and to assist in the perception of its positioning as a Green University in the public opinion in general.

It is known that sustainable development is becoming increasingly relevant, and for certain stakeholders it is essential that for the associations to have a responsibility toward the environment and to invest in sustainable development practices. Given the importance of the topic, companies' sustainable development actions are being increasingly disseminated. For this, the use of tools that assist in structuring green marketing actions, such as the case of BSC, can contribute to the development and dissemination of the sustainable development practices of associations. Through the BSC's Adapted Structure for Green Marketing, HEIs will be able to systematize their green marketing actions to achieve their objectives, such as educating and training internal and external audiences for greater environmental awareness, benefiting the institution, community members and society in general.

5. Conclusion
The objective of this article was to adapt a strategic management tool presenting categories for the implementation of green marketing strategies to accelerate the promotion of sustainable development in university programs and activities. After identifying and

selecting the categories related to green marketing, it was possible to set up a BSC capable of assisting in the assessment of environmental sustainability concerning marketing actions.

Four international universities had their documents analyzed, where five main categories and indicators were collected for each one. From the analysis of these categories, one can analyze the relationship between sustainable development and green marketing. Specific marketing work is favored when organizations have significant results. Broad advertising through marketing can drive new projects, initiatives and sustainable partnerships. Therefore, it is expected to consolidate green strategies based on strategic plans, which demonstrate the practices necessary to develop interventions in universities and in society and, consequently, develop and export a true environmental sustainability strategy.

It was possible to build a model to measure green marketing. Thus, this study seeks to assist in the complexity of the challenges related to environmental sustainability and the development of green campuses concerning marketing actions. The limitation of the research consists of the five categories created from the literature and verified in the HEIs analyzed. Thus, the development of this article allows the analysis and adaptation of HEIs to green marketing practices. As a suggestion for future studies, the authors recommend that each category and indicator be analyzed in different works and applied as a case study in different HEIs, to analyze whether there are green marketing practices that are better accepted than others.

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