



Available online at www.sciencedirect.com

ScienceDirect



Procedia Manufacturing 12 (2017) 183 - 194

International Conference on Sustainable and Intelligent Manufacturing, RESIM 2016, 14-17 December 2016, Leiria, Portugal

Green Marketing and Green Brand – The Toyota Case

Lídia Simãoab, Ana Lisboaac*

"Superior School of Technology and Management of Leiria, Polythecnic Institute of Leiria, Campus 2, Morro do Lena – Alto Vieiro, 2411-901 Leiria, Portugal

^bManagement for Sustainability Research Center, Polythecnic Institute of Leiria, Campus 2, Morro do Lena – Alto Vieiro, 2411-901 Leiria, Portugal

^cCentre for Rapid and Sustainable Product Development, Polythecnic Institute of Leiria, Rua de Portugal – Zona Industrial, 2430-028 Marinha Grande, Portugal

Abstract

The main aim of this study is to contextualize sustainability and call for its consideration in firms' management, namely via green marketing and green brand. Although the concept of sustainable development appeared in the 1970s, only recently has it been incorporated by firms. Development, to be sustainable, has to satisfy the needs of current generations, without compromising the ability of future generations to satisfy theirs. This requires a balance in managing social, economic and environmental aims, both current and future. Given the increasing evidence of environmental problems, the awareness of the need for sustainability has been expanding, at the individual and at the corporate level. Environmentally responsible firms obtain multiple benefits, such as cost reduction (due to the lower resource consumption, such as water or energy), profit increase (from recycling and residuals reuse), production process enhancement (given the cleaner and more efficient technologies), corporate image upgrading, improvement of brand awareness and value as well as performance. Oppositely, firms associated to non-sustainable actions are impaired in those areas. In the scope of a green strategy, a green brand obtains attributes and benefits related to the reduction of the brand's environmental impact. As such, it should promote the perception of an environmentally healthy brand and disclose such benefits to the more environmentally aware consumers. We present the case of Toyota, a brand with patent and acknowledged efforts in what regards sustainability. It is a worldwide reference of corporate responsibility and of a successful use of green marketing. The brand's challenge to reach important environmental goals until 2050, demonstrates its commitment and endeavor in multiple crucial aspects of sustainability management. Therefore, Toyota is in a prominent position as a "global green brand".

© 2017 Published by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).

Peer-review under responsibility of the scientific committee of the International Conference on Sustainable and Intelligent Manufacturing

* Corresponding author. Tel.: +351-244-843-313; fax: +351-244-820-310. E-mail address: ana.lisboa@ipleiria.pt Keywords: sustainability; green marketing; green marketing strategy; green brand

1. Introduction

Last century's accelerated demographic, technological and industrial development intensified the magnitude of human activity's effects in the environment [1]. In fact, environmental consequences such as global warming, ozone layer depletion, climate changes, biodiversity loss, acid rain, ground, water and air pollution became a global problem for humanity and life in general [2, 3]. For Costanza and colleagues [4] there are five clear evidences that our Planet is at the breaking point in terms of supportability: (1) human's biomass appropriation, (2) climate changes, (3) ozone layer depletion, (4) planet degradation and (5) loss of biodiversity. These current and future environmental impacts rendered sustainability issues as one of contemporary societies' most striking and worrying problems. Although the signals are not recent, environmental and sustainability questions only got into the international agenda in the 1970s. This global environmental awareness resulted from the disclosure and seriousness of various environmental accidents, the organization of events (and reports) with worldwide impact and the interest of organizations and governments as far as environmental issues are concerned. From then forward, the concern with the environment transcended frontiers and became global, attracting academic, business and social attention.

In this context, the concept of "sustainable development" emerges. This concept became widely known in 1987, through the publication of a United Nations document, the report of the World Commission on Environment and Development entitled "Our Common Future" [5]. Sustainable development was defined as the development that is able to satisfy the needs of current generations, without compromising the ability of future generations to satisfy their own needs. One thing to notice is that sustainability is seen within three pillars, (a) the environment, (b) the economy, and (c) the society, being organizations' social responsibility included in this trilogy [6]. In this regard, if a large part of the environmental disasters are related with firms' activities, then firms need to be part of the solution. Therefore, it's also up to firms' management to contribute to this goal. The challenge is to discover sustainable methods of manufacturing, consuming and living.

Marketing emerges as one of the strategic areas firms can use to make current and future social wellbeing and respect for the environment compatible with their operations. Green marketing focuses on developing and marketing products and services that satisfy customer needs while taking into account environmental sustainability [7]. It allows to build a bridge between what the markets and customers want and the firms' environmental-friendly engagements and technological offerings [8]. Firms can focus on developing new and "cleaner" products. Yet, if those products are perceived as of lower quality, overpriced, or fail to deliver on the environmental benefits, they will not attract customers, and result in a negative turn on firms' performance [9, 10]. Hence, firms with green marketing try to look for specific customer needs, environmental aware customer profiles and ways of incorporating these insights into its offerings [11]. While doing so firms can find ways to differentiate their products and even assist the foundation of known green brands.

This article aims to present the link between sustainability and firm management, introducing green marketing and brand management as a relevant and integral element of this relationship. Additionally we present the case of Toyota as the example of a brand that has incurred in an acknowledged effort of sustainability, and has assumed a worldwide prominent position as a green brand.

2. Sustainability and Firms

2.1. Relationship between firms and sustainability

Development, environment and firms are connected [12]. Specifically, business management relates to sustainability [13, 14, 15, 16, 17, 18, 19, 20]. Business activities involve natural resources usage and waste management. From a sustainable perspective, it is desirable that firms, more than mere resource users, promote an efficient consumption and replacement of resources. Specifically, firms can adopt practices of resource efficiency and replacement, reuse and recycle materials, manage residuals (reduce and treat), manage water, soil and air pollution (prevent and treat), opt for energetically efficient policies, green processes and products (which represent lower environmental impact) and diffuse green practices (both internally and externally). However, what conduces firms to actually do so differs.

Some call the Governments intervention to force firms to take on environmental-friendly actions. Governments exert a fundamental role in diffusing the environmental preservation, given that they define the environmental norms and the regulatory mechanisms to preserve natural resources and quality of life [21]. And while the need of an environmental protective regulation is mostly accepted, it raises a dilemma: economy versus ecology [22]. Even though people want a livable planet, there is the belief that environmental regulation may prejudice competitiveness.

Others state that it is important to build an environmental management strategy inside the firm, so as to achieve organizational goals such as a moral obligation of being socially responsible; a legal obligation of comply with regulations; a need to maintain a competitive capacity in the market; and an operational cost reduction [7]. Furthermore, firms may benefit from innovations inherent to the adoption of ecological practices, or cost reductions resultant from implementing the environmental principles. In fact, to Donaire [16], implementing environmental practices became a worldwide trend, due to the fact that not only does it not represent an additional cost to firms, but it can also provide important benefits:

- Cost reduction resulting from lower water, energy and other resources consumption;
- Resource saving due to material recycling;
- Profit gain due to residual reuse;
- Detection of new raw materials and manufacturing processes;
- "Clean" manufacturing technology patents' sales;
- Firm image improvement and sales increase, due to of ecological products development and launch;
- Possibility of entering in the international market, increasingly rigid in regards to environmental restrictions;
- Greater facility of obtaining foreign financing;
- Greater acceptability of shareholders who prefer to invest in environmentally responsible firms.

Supporters of this last group recommend managers to incorporate environmental and social responsibility in their decisions, practices and into firms' strategies [19]. Researchers such as Chabowski and colleagues [14], Connelly and colleagues [15] and Luo and Bhattacharya [20], state that sustainable-lead options may positively influence brand image and knowledge, as well as firm reputation. Actually, the awakening of a more demanding and claimable consumer, partially reflects the changes occurring in society itself in what regards consumers' and society's expectations of firms [24]. As such, since consumers changed their attention focus from innovative products to sustainable products [23], it became relevant to differentiate through sustainability [13]. Conversely, firms associated to actions against sustainability will be negatively affected [17].

More than improving firms' reputation, and external image, a proactive environmental strategy may be seen as a management tool that aims to promote capabilities and competitive conditions [25]. This enhancement of organizational capabilities will, in turn help to enhance firms' competitiveness [26, 27, 28].

Concluding, firms tend to adopt environmental practices either to obtain business benefits or motivated by external players, such as the Government.

2.2. Firms commitment to sustainability

Firms that opt to incur in sustainable practices can choose to be more or less committed to them. According to Jabbour [18], there are three stages in what concerns firms' commitment to sustainability: (a) reaction, (b) prevention and (c) proactiveness. In the first stage, "reaction", firms consider environmental issues the epicenter of unnecessary costs. Therefore, they tend to focus on pollution control, since it is imposed by environmental legislation and market demands. In a second stage, "prevention", firms try to avoid environmental problems. Firms in such stage recognize that, cost-wise, it is preferable to alter processes and avoid pollution rather than deal with the effects of pollution. Finally, in the third stage, "proactiveness", environmental management is perceived to be strategic and a way to enter international markets and develop future sustainable solutions. Firms that are in this third stage opt to proactively develop preventive and corrective actions, applied to the organization as a whole and to the production chain in this stage, all functional areas work for the environmental issues, including human resources, finance and marketing [9].

The integration between environmental management and firms' functional areas (manufacturing, marketing, finance, human resources, and so on) shows firms' ability to use the environmental issue as a strategic focus. Particularly, the marketing area has a key role in applying this focus. It offers firms' conditions to develop and put into practice the innovative strategic and tactical actions referring to an ecologically proper management. Following this higher commitment, and involvement of the organization as a whole lead to the emergence of constructs such as green marketing

3. Green Marketing

3.1. Introduction to green marketing

In the literature there are several designations to reflect the relationship between marketing and sustainability: eco-marketing [29, 30, 31], environmental marketing [31, 32], green marketing [33, 34], sustainable marketing [31, 35] and greener marketing [36].

If there is no consensus in what regards the designation of the marketing-sustainability relationship, hardly there is an agreement in what regards the birth of green marketing. The concept first appeared in the 1970s, when the American Marketing Association (AMA) developed a workshop about marketing and environment. That workshop resulted in one of the first environmental marketing books, entitled "Ecological Marketing" [30]. Following this event, ecological marketing was defined as "the study of the positive and negative aspects of marketing activities on pollution, energy depletion and nonenergy resource depletion" [30, p.1]. However, to Kotler and Keller [37], green marketing is positioned in the 1990s. For these authors, the green marketing movement only appeared after the creation of Planet Earth's day (April 22nd 1970). They state that the celebration of this day resulted in a boost of ecologically responsible products and marketing programs, as a way of firms to reply to consumers environmental concerns. Since then, several authors consider green marketing as one of the main trends of modern businesses [38, 39, 40].

3.2. Green marketing concept and its evolution

Green marketing consists in the activities conceived to produce and facilitate the commercialization of products or services to satisfy human desires and needs, yet causing a minimum impact in the environment [7]. Product and

package modifications, as well as changes in manufacturing processes and advertising, are some examples in this regard. To Peattie [33], green marketing is an administrative holistic process responsible for identifying, anticipating and satisfying consumer and society demands, in a lucrative and sustainable way. In this sense, one must acknowledge a relationship between morality and green marketing. The environment is assumed as part of a group of ethical questions that marketing needs to analyze and debate [41]. Hence, green marketing is part of the social responsibility.

A marketing concept that considers minimizing the impacts on the environment has an important role in satisfying customers' needs and obtaining firm outcomes [31]. As such, it is an integral part of the corporate strategy [42]. It implies adaptations of the traditional marketing mix (product, price, place and promotion) and establishes bonds with issues such as industrial ecology, environmental sustainability, social responsibility, product lifecycle analysis, material use and resource fluxes and eco efficiency. Green marketing leads marketers to go beyond the manufacturing internal processes or the external processes of bonding to consumers, and to consider the impact of manufacturing and consumption in society's quality of life and sustainable development [43]. Hence, green marketing success depends on firms' attending to the 4 Ss [33]:

- Satisfaction of consumers' needs;
- Safety of products and manufacturing to consumers, workers, society and environment;
- Social acceptance of products, manufacturing and complementary activities;
- Sustainability of products, manufacturing and complementary activities.

As a concept, green marketing evolved over time [44]. In the early 1970s, the concern was focused in pollution [45]. Then, in the 1980s new concepts emerged, such as clean technology, sustainability, consumption and creating competitive advantages. Whereas in the first stage the focus was on manufacturing industries, in the latter all services and manufacturing methods were included [45]. In the end of the 1990s, the emphasis is on building and maintaining sustainable relationships with customers and with social and natural environments [36]. With the increased global concern of environmental quality, green marketing has gradually acquired more importance and widened its scope. Following this trend, green marketing became viral, with concepts such as "eco-friendly" or "going green" gaining ground [46]. Furthermore, international firms, aiming to expand their market, increase their sales and benefiting from the positive image of their domestically established green brands, created international green marketing [46]. Hence, green marketing got more awareness and a wider and global scope.

Even though green marketing got a vast reach, not all firms fully apply it, even opting for ecological practices. Even firms with environmental operations tend to develop strategies that emphasize the ecological aspects in some of their activities rather than in all activities [47].

3.3. Green marketing strategy

In developing a green marketing strategy, firms must take into account two crucial aspects, to create a product that satisfies consumers' needs with a minimal negative impact in the environment and to generate a perception in consumers' minds, in order to evidence product quality and firm's commitment to the environment [42].

A green marketing strategy implies a qualitative change in the relationship between customers and firms. To satisfy the needs of ecological consumers, firms need to develop both the functional and the emotional benefits of the product. Most environmental concerns involves people's spiritual needs, which brings differences in comparison to a classic marketing strategy. The green marketing strategy involves a proactive posture and long term orientation [48]. This proactiveness aims to obtain a competitive advantage, by strategically positioning products in consumers' minds. To be able to do so, all value chain participants should be in synch with the green marketing goals. This requires all intervenient to cooperate and have an environmental conscience sense [49]. To obtain this advantage, a

green marketing strategy has to deal with some fundamental areas, such as market segmentation, green product development, green positioning, green price fixing, green logistics, adequate residual management, green communication, green partnerships development and having an adjusted marketing mix [49].

Hence, green strategy has a vast scope, not confining to brand management. Nevertheless, as a crucial aspect of marketing and firm strategic management, the brand strategic management plays an important role in what regards sustainability [50]. In this context, the creation and management of green brands is key in green marketing.

3.4. Green brands

Green brands are, first of all, brands. Therefore, we need to base our analysis in the brand concept. Brands are meaningful systems, incorporating values, ideas, associations, feelings and emotions which constitute a more or less cohesive identity [51, 52, 53]. With this in mind, brands allow to differentiate and protect products from competitors' similar products [54].

A brand is a complex and multidimensional concept that can convey up to six levels of meaning [37]:

- Attributes: the brand encloses a specific group of characteristics;
- Benefits: the brand's attributes should translate into functional and emotional benefits valued by consumers;
- Values: the brand communicates something regarding the firm's values;
- Culture: the brand may represent a specific cultural expression;
- Personality: the brand may transmit a specific personality, which is progressively built through marketing communications; it may reflect the type of person the brand would be if it was human;
- User definition: the brand suggests the type of consumer that buys or uses it.

Within brands, a green brand is defined as a specific group of brand attributes and benefits related to minimizing the brand's environmental impact and its perception as environmentally healthy [55]. As such, the green brand should provide benefits to the more environmentally aware consumers. To be able to succeed, the green brand needs to offer a significant eco-advantage over other brands and be aimed at consumers that are willing to value the environmental issues [56]. This means that a green brand has to communicate with its target group, since consumers' beliefs regarding the good ecological performance of the brand lead to positive attitude towards that brand [57].

Markets and customers tend to more easily accept appeals from brands perceived as green [58]. Furthermore, previous studies show that, in what concerns the respect for the environment, specific claims of a green product are stronger than general corporate claims [58]. These findings highlight both the development of a proper green brand positioning and the relevance of an active and differentiated communication of the brand identity and value proposition to its target group [59]. Actually, ecologically sustainable products will not succeed commercially, if the green brand attributes and benefits are not effectively communicated [60].

However, when communicating the brand, firms need to take into account some issues. On the one hand, firms need to ensure the brand's environmental compatibility to the specific product features and information. This is what is known as "functional positioning strategy" [61]. Yet, the mere consideration of technical features may not suffice; the brand's emotional associations are hugely important. Both cognitive and emotional mental processes, contribute to create brand attitudes [61]. Consequently, the brand needs to communicate both functional messages as well as emotional messages [55]. On the other hand, the choice and type of appeals is crucial. Vague and unfounded claims about the brand may have a negative effect on its reputation and lead consumers and buyers in general to become sceptic towards the firm's environmental value claims [49]. This is mainly true if the firm uses a purely emotional positioning strategy, ie, the environmental claims with no objective ground, once uncovered may induce consumers' negative reaction [61, 62].

Additionally, even though some authors suggest that green positioning is a crucial factor for a green brand strategy to succeed [32, 50], other authors point that green brands should present a third party certificate, namely an environmental, so as to have an independent intervenient assessing the brand's greenness [35, 57, 61, 63].

4. Toyota Case

4.1. History

Toyota was founded in 1937 in the automobile industry [64]. It is part of the Toyota Motor Company Ltd. of Kiichiro Toyoda. Kiichiro Toyoda had a dream, to produce automobiles. He was inspired by the mass production methods that appeared in Europe and American soil in the beginning of the XX century. Yet, the achievement of this dream was only made possible due to his father's success in developing technology to fabric automatic weaving machines. From weaving machines to automobiles, all the philosophy is based in the "do more with less" principle, which lead to the "just-in-time" system. This system allies reduced stocks to productive efficiency, which is possible via a rigorous production planning and waste management.

In the first decade Toyota reached 100.000 vehicles produced. Even though the war forced the company to slow down, it chose exporting to expand. Hence, in the 1950s, Toyota exports its first vehicle, the Land Cruiser, to the USA (1957) and opens the first external plant, in Brazil (1958). In the 1960s the brand strengthens its international position, particularly in the USA market due to the Corolla launch (1966). Additionally it begins commercialization in the European market and in 1998 Toyota inaugurates its European headquarters in Brussels (Toyota Motor Europe Manufacturing). From then on, Toyota is present in all passenger cars segments, with a wide product range, a high quality and innovative labels in terms of vehicles and motors to the Toyota and Lexus brands.

Nowadays Toyota Motor Corporation is one of the main automotive manufacturers, present in over than 160 countries. Undisputed leader in the Japanese and Asian market, Toyota is the main seller of non-American vehicles in the USA and the leader Japanese brand in Europe. One of its last milestones was being the pioneer in the hybrid vehicles market. Toyota launched Prius in 1997 in the Japanese market and some years later in the north-American and European market. In 2011 the revolutionary Prius reached 3 million units sold.

4.2. Organizational values and commitments

Since its foundation, Toyota has been defending and using guiding principles in a way to manufacture reliable cars and to develop and launch innovative and high quality products and services. To do so, Toyota developed five general principles that are fundamental to its corporate culture [65]:

- Always be true to its duties. To contribute for the firm's wellbeing;
- Always be zealous and creative, with an effort to always be updated;
- Always be practical and simple, avoiding lack of seriousness;
- Always give an effort to build a family and amicable work environment;
- Always respect spiritual issues and don't forget to be thankful every time.

In Toyota's corporate social responsibility policy it specifically defines the contribution to sustainable development, reflected in its guiding principles [65, 66]. These principles take into account the relationship the brand has with its business partners:

Honor the language and spirit of the law of every nation and undertake open and fair business activities;

- Respect the culture and customs of every nation and contribute to economic and social development through corporate activities:
- Dedicate the business to providing clean and safe products and to enhancing the quality of life everywhere through all of our activities;
- Create and develop advanced technologies and provide outstanding products and services that fulfill the needs of customers worldwide;
- Foster a corporate culture that enhances both individual creativity and the value of teamwork;
- Pursue growth through harmony with the global community via innovative management;
- Work with business partners in research and manufacture to achieve stable, long-term growth and mutual benefits.

4.3. Environmental challenges

In 2015 the brand announced their "environmental challenge 2050", which comprises six challenges [67]. They comprise developing new products and technologies, recycling, general resources, water and energy optimization, and the role of the brand as a facilitator to a better relationship with the environment.

• Challenge 1 – New vehicle Zero CO₂ emissions

This challenge's premise is to reduce new vehicle CO₂ emissions by 90%, considering the levels registered in 2010. To accomplish this challenge the firm needs to make conventional motors more efficient and popularize next-generation vehicles with low or zero CO₂ emissions. This includes hybrids, plug-in hybrid, electrical and fuel cell.

• Challenge 2 – Life cycle Zero CO₂ emissions

This challenge intends to eliminate CO₂ emissions in the product life cycle, including materials, parts and manufacturing of a Toyota vehicle. This implies to develop and adopt low CO₂ emission material and parts, as well as recycled biomaterials. The posture adopted by Toyota to accomplish this challenge is transversal to manufacturing and logistic activities, and includes methods of elimination and recycling waste in the end of the product's lifecycle.

• Challenge 3 – Plant Zero CO₂ emissions

 CO_2 emissions are also generated during the manufacturing process in plants. To help the Planet, Toyota strategically defined the aim to achieve zero CO_2 emissions at all plants. This implies the firm to focus in technological developments and alternative energy sources. Specifically, Toyota plans to promote renewable energy and hydrogen.

• Challenge 4 – Minimizing and optimizing water usage

It is very important to preserve global water sources, reducing the amount of water used to develop products, and recycling and reusing whenever possible. This challenge entails not only to minimize water consumption, but also to promote an effective wastewater management. To do so, Toyota started a policy of collecting rainwater in its plants and developed a purification method to reuse water or to treat it before sending it back to nature.

• Challenge 5 – Establishing a recycling-based society and systems

Toyota aims to promote forms of recycling and end-of-life vehicle treatments to contribute to an environmental friendly society. This entails working on key areas such as: optimizing the usage of ecological materials; conceptualizing the use of more durable parts and materials; developing more efficient recycling technologies and manufacturing vehicles from end-of-life vehicles.

• Challenge 6 – Establishing a future society in harmony with nature

Toyota operationalizes projects all over the world, in small or large scale, to defend its cause of "valuing and improving society lives". This nature conservation activities are planned beyond the Toyota group, in order to involve its business partners. As an example, it promotes initiatives in the areas of forestry, green urban systems, environmental grants and education.

4.4. Echoes of the "Toyota way"

Toyota's philosophy, known as "Toyota Way", reflects a proactive posture on sustainability and a close relationship with the market and the community. This way of seeing business echoes both internally and externally. Internally, even though the total number of vehicles sold reached a halt, the sales of hybrid vehicles has been rising (Fig.1).

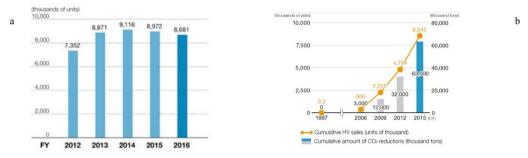


Fig. 1. (a) consolidated vehicle sales [65]; (b) cumulative hybrid vehicle sales and effect on CO₂ emission reductions [65].

Financially, both revenues and income have been increasing in the past five years (Fig. 2)

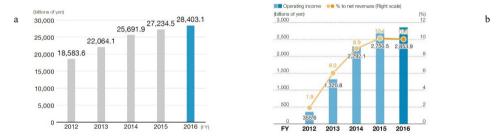


Fig. 2. (a) net revenues [65]; (b) operating income and ratio of operating income to net revenues [65].

Externally, the brand is considered one of the best global brands, reaching a brand value of 53.580 \$m and the number five spot in 2016 [68]. It is also classified as the top most valuable global car brand by advertising research firms WPP and Millward Brown (29.5 billion US dollars in 2016) [69, 70]. Furthermore, in what concerns sustainability, it has been gaining awareness as an environmentally responsible brand and featuring in best global green brands ranking published by Fortune in conjunction with the consulting firm Deloitte and Interbrand [71]. In 2011, 2012 and 2013 it was considered the number one brand in this ranking, dropping to number two in the 2014 ranking. It is also included in the top 50 green brands of Customer Loyalty Engagement Index [72]. More specifically, one of the brands models, Toyota Prius, is considered one of the nine green giants that exemplifies how

firms are turning sustainability into profitable businesses [73]. Furthermore, its sustainable mobility campaign titled "aim:zero emissions" is portrayed as one of the best practice examples by CSR Europe [74].

5. Conclusion

Environmental problems are increasingly evident and became a serious problem for the planet and life in general [2,3]. The awareness of these issues' globalness and seriousness pressures both individuals and organizations to change their attitude and behavior. In what regards firms, this need for a change is clear and has to be done both throughout the firm and involving the different stakeholders. In this context, green marketing has a key role given its transversal nature and potential vast reach. Opting for green marketing implies an internal and qualitative change in relationships between firms and customers. A green marketing strategy should focus, among other aspects, in segmenting the market, developing green products, creating a green positioning, applying a green logistic, adequately managing residuals, opting for a green communication, investing in green partnerships and having the adequate marketing mix [7].

More than thinking about sustainable products, firms need to think about sustainable solutions [43]. These solutions correspond to products, services or manufacturing models that not only minimize the negative impacts in terms of sustainability, but mostly, and above all, maximize the positive impacts. Further, when applying the basis of green marketing and green brands, firms address consumers' demand and needs and create "sustainable value" [75, 76]. As a result, firms can benefit from operational cost reduction, increased profits inherent to recycling and residual reuse, manufacturing process improvement due to cleaner and more efficient technologies, and enhanced corporate image, brand value and brand awareness [14, 15, 16].

Considering the foregoing, firms have numerous reasons to invest in green maketing and green brands. Firm managers and marketing managers, when creating their strategic plans, may take this into account. Bearing in mind the environmental regulations imposed by the Government, they can decide to merely convey to those regulations or to go beyond those actions and proceed to a deeper commitment with sustainability. Likewise, when opting to go green, it is crucial for firms to properly and actively communicate their brands and carefully choose their claims. Particularly, the literature suggests to focus on environmental value claims of both functional and emotional nature, and with an objective ground.

As an example of a brand that has committed to sustainability and has successfully applied green marketing, this article presented the case of Toyota. Toyota emerges as a benchmark due to its corporate values, principles, and practices, as well as the brand's prestige and awareness. In 2015 it established a challenge to achieve important environmental goals until 2050. The firm's and brand's commitment to this challenge lead the brand to a proeminent position as global brand, particularly as a global green brand.

In conclusion, although the origins of sustainability go back to the twentieth century, firms took some time to incorporate these concerns into their strategies and operations. There is still a long road to go, but nowadays the proative sustainable-caring posture is increasingly valued and accepted, due to society and customers increased awareness to these issues. The question now, more than altering processes and diffusing firms' environmental-friendly efforts, is to warrant that what is stated is in fact being done and that the environmental benefits are real. This is a critical issue now, especially in the light of a recent pollution-reduction scandal, in order to ensure the progress of the phenomenon [77]. Policy makers can have a relevant role in this matter.

Acknowledgements

The authors acknowledge the support of FCT (within the project UID/Multi/04044/2013), the Centre for Rapid and Sustainable Product Development and the Management for Sustainability Research Center.

References

- [1] P. Schultz, Environmental attitudes and behaviors across cultures, Online Readings in Psychology and Culture 8(1) (2002) 2-13.
- [2] S. Oskamp, A sustainable future for humanity? How can psychology help?, American Psychologist 55(5) (2000) 496-508.
- [3] S. Oskamp, Psychological contributions to achieving an ecologically sustainable future for humanity, Journal of Social Issues 56(3) (2000) 373-390.
- [4] R. Costanza, J. Cumbeland, H. Daly, R. Goodland, R. Norgaard, An introduction to Ecological Economics, CRC Press, Boca Raton
- [5] D. Mebratu, Sustainability and Sustainable Development: historical and conceptual review, Environmental Impact Assessment Review, 18 (1998) 493-520.
- [6] J. Elkington, J. Hailes, J. Makower, Towards the sustainable corporation: win-win-win business strategies for sustainable development, California Management Review, 36(2) (1994) 90-100.
- [7] M. Polonsky, An introduction to green marketing, Electronic Green Journal, 1(2) (1994) 1-1.
- [8] E. Rex, H. Baumann, Beyond ecolabels: what green marketing can learn from conventional marketing, Journal of cleaner production, 15(6) (2007) 567-576.
- [9] J.M. Ginsberg, P.N. Bloom, Choosing the right green-marketing strategy, MIT Sloan Management Review, 46(1) (2004) 79-84.
- [10] J.A. Ottman, E.R. Stafford, C.L. Hartman, Avoiding green marketing myopia: ways to improve consumer appeal for environmentally preferable products, Environment: Science and Policy for Sustainable Development, 48(5) (2006) 22-36.
- [11] J. Ottman, Green marketing: opportunity for innovation, NTC Business Books, McGraw-Hill, Illinois, 1998.
- [12] F. Borges, W. Tachibana A evolução da preocupação ambiental e seus reflexos no ambiente dos negócios: uma abordagem histórica, In: Encontro Nacional dos Estudantes de Engenharia de Produção, Porto Alegre (2005).
- [13] C. Armstrong, M. Lehew, Sustainable apparel product development: In search of a new dominant social paradigm for the field using sustainable approaches, Fashion Practice: The Journal of Design Creative Process and the Fashion, 3(1) (2011) 29-62.
- [14] B. Chabowsky, J. Mena, T. Gonzalez-Padron, The Structure of Sustainability Research in Marketing, 1958-2008: A Basis for Future Research Opportunities, Journal of the Academy of Marketing Science, 39(1) (2011) 55-70.
- [15] B. Connelly, D. Ketchen Jr, S. Slater, Towards a theoretical toolbox for sustainability research in marketing, Journal of the Academy of Marketing Science, 39(1) (2011) 86-100.
- [16] D. Donaire, Gestão ambiental na empresa, 2nd edition, Atlas, São Paulo, 1999.
- [17] S. Greyser, Corporate brand reputation and brand crisis management, Management Decision, 47(4) (2009) 590-602.
- [18] C.J.C. Jabbour, In the eye of the storm: exploring the introduction of environmental issues in the production function in Brazilian companies, International Journal of Production Research, 48(21-22) (2010) 6315-6339.
- [19] J. Karna, E. Hansen, H. Juslin, Social responsibility in environmental marketing planning, European Journal of Marketing, 37(5/6) (2003) 848-871.
- [20] X. Luo, C. Bhattacharya, Corporate social responsibility, customer satisfaction, and market value, Journal of Marketing, 70(4) (2006) 1-18.
- [21] A. Wilkinson, M. Hill, P. Gollan, The sustainability debate, International Journal of Operations & Production Management, 21(12) (2001) 1492-1502.
- [22] M.E. Porter, C. Van der Linde, Verde e Competitivo, In M.E. Porter, Competição. 1st edition. Campus, Rio de Janeiro, 1999.
- [23] H. Green, The Greening of the Corporation, Business Week, (Dec.11) (2008), available in www.actrees.org/files/Newsroom/bizweek_corpclimate.pdf (accessed 10 november 2016).
- [24] C. Sanches, Gestão ambiental proactiva, Revista de Administração de Empresas, 40(1) (2000) 76-87
- [25] T. Tachizawa, Gestão ambiental e o novo ambiente empresarial, Revista Brasileira de Administração, 9(32) (2001) 38-48.
- [26] A. Aragon-Correa, S. Sharma, A contingent resource-based view of proactive corporate environmental strategy, Academy of Management Review, 28(1) (2003)71-88.
- [27] M. Berry, D. Rondinelli, Proactive corporate environmental management: a new industrial revolution, Academy of Management Executive, 12(2) (1998) 38-50.
- [28] S. Sharma, H. Vredenberg, Proactive corporate environmental strategy and the development of competitively valuable organizational capabilities, Strategic Management Journal, 19 (1998) 729-753.
- [29] G. Fisk, Marketing and the Ecological Crisis, Harper and Row, London, 1974.
- [30] K. Henion, T. Kinnear, Ecological Marketing, American Marketing Association, Chicago, 1976.
- [31] A. Prakash, Green marketing, public policy and managerial strategies, Business Strategy and the Environment, 11(5) (2002) 285-297.
- [32] W. Coddington, Environmental Marketing: Positive Strategies for Reaching the Green Consumer, McGraw-Hill, New York, 1993.
- [33] K. Peattie, Environmental Marketing Management: Meeting the Green Challenge, Pitman Publishing, London, 1995.
- [34] J. Ottman, Greener Marketing, NTC Business Books, Illinois, 1992.
- [35] D. Fuller, Sustainable Marketing: Managerial–Ecological Issues, Sage, Thousand Oaks, 1999.
- [36] M. Charter, M. Polonsky, Greener Marketing: a Global Perspective on Greening Marketing Practice, 2nd edition, Greenleaf, Sheffield, 1999
- [37] P. Kotler, K. Keller, Marketing Management, 12th edition, Pearson/Prentice Hall, New Jersey, 2006.
- [38] W. Kassaye, Green dilemma, Marketing Intelligence & Planning, 19(6) (2001) 444-455.
- [39] S.W. McDaniel, D.H. Rylander, Strategic green marketing, Journal of Consumer Marketing, 10(3) (1993) 4-10.

- [40] D. Pujari, G. Wright, Developing environmentally conscious product strategies: A qualitative study of selected companies in Germany and Britain, Marketing Intelligence & Planning, 14(1) (1996) 19-28.
- [41] A. Crane, Marketing and the natural environment; what role for morality?, Journal of Macromarketing, 20(2) (2000) 144-154.
- [42] A. Menon, A. Menon, Enviroprenerial marketing strategy: the emergence of corporate environmentalism as market strategy, Journal of Marketing, 61(1) (1997) 51-67.
- [43] K. Peattie, M. Charter, Green Marketing, In Baker Michael (ed.) The Marketing Book, Butterworth-Heinemann, Burlington, 2003.
- [44] A. Fathi, A.H. Sheikhian, K. Doaee, Green marketing, Tadbir Monthly Magazine, (2007) 17-173.
- [45] K. Peattie, A. Crane, Green marketing: legend, myth, farce or prophecy?, Qualitative Market Research, An International Journal, 8(4) (2005) 357-370.
- [46] L. Simons, A. Slob, H. Holswilder, A. Tukker, The Fourth Generation. New Strategies Call for New Eco-Indicators, Environmental Quality Management, 11 (2006) 51-61.
- [47] K. Peattie, Green marketing, London: Pitman Publishing, 1992.
- [48] F.G. De Bakker, Corporate Culture and Environmental Practice: Making Change at a HighTech Manufacturer, Edward Elgar, Northampton, 2009
- [49] K. Peattie, Trappings versus substance in the greening of marketing planning, Journal of Strategic Marketing, 7 (1999) 131-148.
- [50] H. Meffert, A. Bierwirth, Corporate Branding, 2nd. edition, Gabler, Wiesbaden, 2005.
- [51] J. Chandler, M. Owen, Developing Brands with Qualitative Market Research, Sage Publications, London, 2002.
- [52] L. Collins, C. Carey, The Crisis in Branding or do Brands Have a Future?, Proceedings of the Market Research Society Conference, MRS, London. 1983.
- [53] P. Farquhar, J. Han, P. Herr, Y. Ijiri, Strategies for leveraging master brands, Marketing Research, 4(3) (1992) 32-43.
- [54] G.S. Low, C.W. Lamb Jr., The measurement and dimensionality of brand associations, Journal of Product and Brand Management, 9(6) (2000) 350-368.
- [55] P. Hartmann, V.A. Ibanez, J.F.F. Sainz, Green branding effects on attitude: functional versus emotional positioning strategies, Marketing Intelligence and Planning, 23(1) (2005) 9-29.
- [56] L. Kaman, Opportunities for green marketing, Marketing Intelligence & Planning, 26(6) (2008) 573-586.
- [57] F.J. Montoro Rios, T.L. Marinez, F.F. Moreno, P.C. Soriano, Improving attitudes toward brands with environmental associations: an experimental approach, Journal of Consumer Marketing, 23(1) (2006) 26-33.
- [58] I. Phau, D. Ong, An investigation of the effects of environmental claims in promotional messages for clothing brands, Marketing Intelligence and Planning, 25(7) (2007) 772-788.
- [59] D. Aaker, E. Joachimsthaler, Brand Leadership, Free Press, London, 2000.
- [60] G.M. Pickett, N. Kangun, S.J. Grove, An examination of the conserving consumer: implications for public policy formation in promoting conservation behavior, In M.J. Polonsky and A.T. Mintu-Wimsatt (Eds), Environmental Marketing: Strategies, Practice, Theory, and Research, The Haworth Press, New York, 1995.
- [61] P. Hartmann, V.A. Ibanez, Green value added. Marketing Intelligence & Planning, 24(7) (2006) 673-680.
- [62] H. Meffert, M. Kirchgeorg, Green marketing, Routledge, London, 1994.
- [63] H. Imkamp, The Interest of Consumers in Ecological Product Information Is Growing Evidence From Two German Surveys, Journal of Consumer Policy, 23 (2000) 193-202.
- [64] Toyota, Company profile (2016), available in www.toyota-global.com (accessed 14 november 2016).
- [65] Toyota, Sustainable management report (2016), available in www.toyota-global.com (accessed 15 november 2016)
- [66] Toyota, Guiding principles (2016), available in www.toyota-global.com (accessed 14 november 2016).
- [67] Toyota, Toyota environmental challenge 2050 (2015), available in www.toyota-global.com/sustainability/report (accessed 15 november 2016).
- [68] Interbrand, Best Global Brands rakning, Interbrand, 2016.
- [69] MillwardBrown, BrandZ top 100 most valuable global brands, 2016, available in http://www.millwardbrown.com/brandz/top-global-brands/2016 (accessed 2 december 2016)
- [70] S. Daneshkhu, Tech groups lead game of snakes and ladders, Financial Times, June 8 (2016)
- [71] B. Dumaine, Is Apple "greener" than Starbucks?, Fortune, June 24 (2014)
- [72] R. Passikoff, Top-50 Green Brands--Chosen By Their Customers, Forbes, April 22 (2015)
- [73] E.F. Williams, Green Giants: How Smart Companies Turn Sustainability into Billion-Dollar Businesses, American Marketing Association, 2015.
- [74] CSR Europe, Sustainability Branding and Positioning, Best Practice Examples, CSR Europe, 2008.
- [75] S.L. Hart, M.B. Milstein, Creating sustainable value, The Academy of Management Executive, 17(2) (2003) 56-67.
- [76] F. Figge, T. Hahn, Sustainable value added—measuring corporate contributions to sustainability beyond eco-efficienc,. Ecological economics, 48(2) (2004) 173-187.
- [77] K. Mathiesen, A. Neslen, VW scandal caused nearly 1m tonnes of extra pollution, analysis shows, The Guardian, September 23 (2015)