

## SUSTAINABILITY-ORIENTED PORTFOLIO MANAGEMENT

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**Abstract:** In the last few years, sustainability has become one of the most important topics in society, and consequently in management, due to its impact on everyone's life and on any kind of industry or business. And, as its own nature reminds us, sustainability is related to preserving the rights for future generations to have the same access to the resources as we do nowadays. Thus, it is possible to foresee the importance of take sustainability issues into consideration for innovation and technology management, in order to make it possible to guarantee or provide these conditions in the future, mainly if we keep in mind the importance and relevance of the satisfaction of the several organizational stakeholders. This paper aims to highlight some aspects related to sustainability regarding to innovation management, especially aspects and concepts related to portfolio management and to state some theoretical propositions that should reflect the relationships between sustainability and portfolio management. These propositions are launched to be tested in future studies and this paper aims to bring contributions and reflections on this relevant subject, linking different theoretical streams.

**Key words:** innovation, sustainability, portfolio management, triple bottom line, stakeholders

### 1. Introduction

Since the 1970's, much has been discussed about natural and social problems all over the world. And along these discussions and attempts to eliminate or mitigate these issues, one word has risen: sustainability. In the last few years, sustainability has become one of the most important topics also in management, due to its impact on any kind of business or industry.

Two aspects should be emphasized here: firstly, as its own nature reminds us, sustainability is related to the future and to preserving the rights for future generations to have the same access to resources as we do nowadays. And, naturally, the use and development of technology could help mankind to achieve this desired situation in the forthcoming years.

Secondly, the continuous increase of stakeholders importance to organizations. Companies all over the world has been object of critics and pressure from stakeholders in order to be have a more responsible and ethic behavior. Once again, the proper use of technology can create unprecedented business opportunities to keep a firm profitable and also comply with regulation and satisfy its stakeholders.

Thus, it is possible to foresee the importance of practices in innovation and technology management on guaranteeing or providing these conditions in the future. This paper aims to highlight some aspects related to sustainability regarding to one of the areas of innovation and technology management, portfolio management, and to state some propositions that should reflect the relationships between sustainability, portfolio management and the knowledge's access or creation. The suggested propositions are to be tested in future studies and should bring contributions and reflections on this relevant subject, in order to establish basic relationships that could help the development of more balanced sustainability-oriented project portfolios.

In fact, the companies need to deal with one conflict in the day-by-day management – conciliate the efforts in the short-term, in order to guarantee its immediate survival, with the ones in the long-term, that enable the own company's continuity over time. The portfolio management theory sheds light to this controversial theme, suggesting the building of balanced project portfolios. Depending (i) on the necessary knowledge for carrying out the different nature of projects – based or new knowledge –, and (ii) taking into account the knowledge based view stream, it was possible to develop the theoretical propositions of this paper shown in the next pages.

### 2. Literature Review

#### 2.1. Sustainability and its impact on management nowadays

One fundamental aspect when the concept of sustainability is discussed is what it means and how it is interpreted (LÉLÉ, 1991). Maybe the most known definition related to this subject is the one created by the Brundtland Commission, that states that sustainable development “meets the needs of the present without compromising the ability of future generations to meet their own needs” (OECD, 1987).

Whatever is the definition taken, sustainability issues have gained importance within both theoretical and practical management related activities. Important authors have emphasized the positive results of including sustainable practices to management, such as sustainability-oriented innovation (PORTER; VAN DER LINDE, 1995; EPSTEIN, 2008) or a diverse marketing orientation from traditional approaches (HART; MILSTEIN, 2003; HART, 2007).

Hart and Milstein stress that a sustainable company is the one that contributes to sustainable development while creates, simultaneously, economical, social and environmental benefits (HART, MILSTEIN, 2003), what brings a new perspective of management and behavior to companies, acting in a sustainable basis.

Savitz and Weber, point that “Sustainability in practice can be seen as the art of doing business in a interdependent world. [...] Sustainability means operating a business in a way that causes minimal harm to living creatures and that does not deplete but rather restores and enriches the environment. [...] also respects the interdependence of various elements in society on one another and on the social fabric. Sustainability means operating a business in a way that acknowledges the needs and interests of other parties (community groups [...]) and that does not fray but rather reinforces the network of relationships that ties them together” (SAVITZ; WEBER, 2006; pp. x-xi).

Epstein and Roy (2003) and Epstein (2008) summarized the main issues related to a sustainable approach to business, as being: Ethics; Governance; Transparency; Business relationships; Financial return; Community involvement and economic development; Value of products and services; Employment practices; Protection of the environment. According to the authors, these principles should guide an organization towards a sustainable performance. In order to accomplish that, the principles are supposed to have three attributes: (i) they make the definition of sustainability more precise; (ii) they can be integrated into day-by-day management decision processes and into operational and capital investment decision-making; and (iii) they can be quantified and monetized (EPSTEIN, 2008, pp. 36).

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## **2.2. Innovation Management and Portfolio Management**

According to Clark and Fujimoto (1991), developing better products faster and more efficiently than the competitors is fundamental for the companies in the new competitive arena, bringing significant benefits in terms of costs, quality, customer satisfaction and competitive advantages.

Best performers in this new environment are characterized for one adequate adjustment of the strategic objectives, structuring and conciliating their Research & Development (R&D) portfolio up to an optimal point, fitted to the goals of launching new products and services in one systematic way, and using efficiently the competences and resources available, both internally and externally. Their performance also depends on how well the technological players take part of the development of products and services, contributing to a long term orientation, providing new critical capabilities. Besides that, the learning of the innovation process accelerates the time to market, fulfilling the market requisites and product specifications, without sacrifice the quality aspects (SCHILING; HILL, 1998).

Although it makes sense, this task can be considered very critical, since companies frequently face ambiguities in their R&D choices. At the same time that companies are forced to provide solutions for the current customers, introducing products and services – from incremental or platform innovations nature – and generating cash flows in the short-term, complying in this way to the stakeholders expectations, they also need to focus on radical

innovations in the medium/long terms, in order to obtain diversification of products and markets, mitigating the risks of a turbulent environment and making it possible to achieve stakeholders satisfaction and sustainability. Unfortunately, although radical innovations in general show better potential cash returns, they possess longer maturation terms, higher investments and higher uncertainty levels compared to the incremental or platform innovations (TRITTLE, 2000).

Thus, it is reasonable to consider that for high technology industries positioned in the growth stages, it is necessary to manage simultaneously diverse categories of projects, creating one balanced and diversified portfolio, in order to obtain risks mitigation and profits maximization, and also to conciliate short and long term requisites.

One important part of Innovation Management is Portfolio Management. It can be defined as one dynamic management process, where an active list of projects is constantly updated and reviewed (COOPER et alli, 1997). Portfolio management encompasses some activities, like: (i) new projects are evaluated, selected and prioritized; (ii) existent projects are accelerated, killed or put in "hold"; (iii) resources are allocated and reallocated to the active projects.

The objectives of the Portfolio Management are: (i) establish the linkage of the projects within the business strategy, in order to maintain the business competitiveness; (ii) assure that only the best ideas could be transformed in projects, in order to maintain focus; (iii) manage the projects by means of balanced projects' families or programs; (iv) risks minimization and potential returns maximization; (v) efficient resources allocation, and finally (vi) one priority communication tool inside the company (COOPER et alli, 1997).

The main difficulties to manage the portfolio of projects, accordingly to Cooper et all (1997), are: (i) high level of uncertainty, as it deals with future events, not precisely predictable, mainly in turbulent environments; (ii) huge necessity of information caused by the dynamic nature of the process; (iii) lack of strategic alignment or strategic importance of some projects; (iv) competing projects situated in different stages and carrying on different information levels; (v) shared decision making process, and finally, (vi) lack of resources impose competition among the projects.

Regarding the existent methodologies for Portfolio Management, there are different techniques that help project evaluation, such as: Financial, Scoring models, Bubble Diagrams and Strategic Buckets (COOPER et alli, 1997).

Some questions rise immediately from this complex process. On one hand, the value maximization goal does not guarantee the strategic balance, e.g, lots of short term-short risk projects, concentrated in very few markets. On the other hand, one portfolio with accurate strategic orientation can sacrifice the short term financial profits. The conclusion is that traditional financial evaluations may not take into account strategic alignment and portfolio balancing. Thus, it is desirable to conciliate financial evaluation with another techniques, such as strategic buckets methodology and balanced allocation of resources (COOPER et alli, 2000).

### 2.3. The Technology Strategy and its relation with the Innovation Portfolio

According to Griffin and Page (1997), companies can elect proactive technology strategies – prospector (equivalent to leader) or analyzer (equivalent to fast follower), or defensive technology strategies – defender (equivalent to follower) or reactor (equivalent to laggard). That choice depends on available competencies, capabilities and resources.

As per the authors, innovation leaders usually have more proactive strategies, and are more susceptible to adopt emergent and radical technologies, while reactors will adopt new technologies only when they are completely proven, at one mature stage, diffused and consolidated.

Griffin and Page (1997) carried out one research with 78 American companies from different sectors, analyzing the convergence among the innovation strategic posture and the deployment of resources in different kinds of projects, divided in the level of innovativeness power, as described in the Figure 1, by the following typology: new to the world, new to the firm, add to existing lines, improvements, repositionings and cost reduction projects.

		Market Innovation		
		Low	Average	High
Product Innovation	High	New to the company	-	New to the world
	Average	Improvements	Add to existing lines	-
	Low	Cost reduction	Repositioning	-

**Figure 1: Typology for projects characteristics. Source: Griffin and Page (1997)**

Then, they verified the resources allocation in those different project strategies, depending on the innovation strategy the companies were pursuing at that moment (according to construct definitions), as shown in the Table 1.

**Table 1: Resources allocation depending on the innovation strategy. Source: Griffin; Page (1997)**

Project Strategy	Business Strategy			
	Prospector	Analyzer	Defender	Reactor
New to the world	30%	6%	7%	0%
New to the firm	15%	16%	17%	8%
Add to existing lines	22%	42%	40%	48%
Improvements	11%	16%	11%	13%
Repositionings	8%	8%	9%	11%
Cost reduction	15%	17%	21%	12%
Sample	30	22	22	4

The results evidenced that the prospectors had in their innovation portfolio one significant amount of “new to the world” projects compared to the less proactive companies. And on the other hand, the analyzers, defenders and reactors companies had larger amount of incremental innovation projects compared to the prospectors.

Thus, it is possible to conclude that the more defensive the innovation strategy is, more aversion to the risk will be present in the company. This fact is easily understood if we compare different characteristics of R&D types, as shown in the Table 2.

**Table 2: R&D projects characteristics. Source: Fonte: Roussel et alli (1997)**

R&D type	Technical success probability	Time completion for	Competitive potential	Longevity of the competitive advantage acquired
Incremental	Very high, typically from 40 to 80%	Short 6 to 24 months	Moderated but necessary	Short and easily copied by the competitors
Radical	Moderate in the first stages, typically from 20 to 40%	Average 2 to 7 years	High	Long and patentable
Science	Difficult to evaluate in the first stages	High 4 to 10 years or more	High	Long and patentable

In short, according to the theory, Innovation Management, and more specifically, Portfolio Management, should be strategic oriented, in order to be effective, and it is also a complex and structured activity.

#### **2.4. Organizational Dynamic Ambidexterity and the Exploration-Exploitation Learning Capabilities**

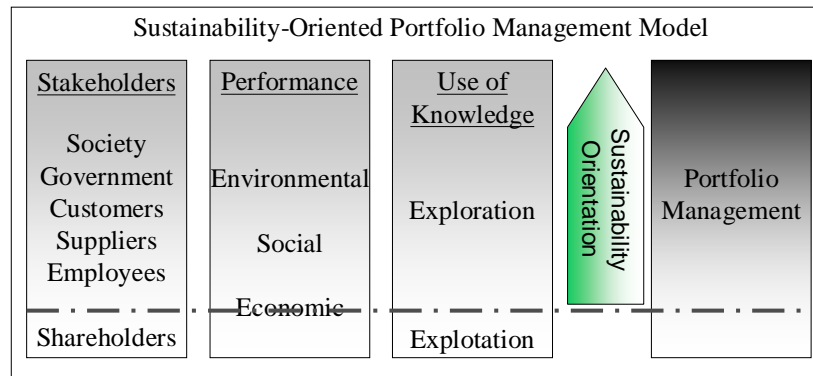
Since Schumpeter’s studies, in 1940’s, much has been discussed about the need for renovation in companies. Many studies done after that, it is known that companies can make new products based on the internal existent competences or through new competences that should be embedded. This dicotomic idea leads to the definition of exploitation, the former case, and exploration, the last (DANNEELS, 2002), following the terms created by March (1991).

Thus, a challenge for companies can be identified: how to conciliate these two approaches, since both are necessary to the company’s survival? Firms that are able to manage diferent uses of competences, exploitive and exploratives, are called ambidextrous organizations. To achieve this status, these firms need to balance between activities that contribute to exploration of new knowledge or capabilities, and activities that contribute to exploitation of the existing knowledge or capability base of the firm.

The next session has some ideas about the integration of Portfolio Management and Sustainability, a new subject and a new challenge to academics and practioners.

#### **2.5. How to conciliate Portfolio Management practices with Sustainability issues?**

Figure 2 summarizes the conceptual model used to build some theoretical propositions of this paper.



**Figure 2: Sustainability-Oriented Portfolio Management Model. Source: created by the authors**

In order to accomplish the aim of this study, there are four propositions in the sequence that associate a sustainable approach and portfolio management, according to the previous suggested model.

One of the fundamental concepts derived from a sustainable perspective is that organizations should pursue not only the economic bottom line but three (ELKINGTON, 1997; HARRIS; WISE; GALLAGHER; GOODWIN, 2001; SAVITZ; WEBER, 2006; PAVA, 2007), adding the social and environmental dimensions to their performance. The concept of “triple bottom line” hold three distinct dimensions: (i) economical – a sustainable economical system should be able to produce products and services in a continuous way, without causing tributary or financial problems to the several participants in its value chain; (ii) social – a social sustainable system reaches social fairness in creating income and opportunities, through social services, like healthy and education, and an equal treatment to all of its members; and (iii) environmental – an environmental sustainable system do not compromise the resources sources, renewable or not, making use of them in a parsimonious way, besides try to keep the biodiversity, the stability of the atmosphere and others ecosystems functions (HARRIS; WISE; GALLAGHER; GOODWIN, 2001, pp. xxix).

Despite the controversial positions of some authors (NORMAN; MACDONALD, 2004; NORMAN; MACDONALD, 2007), alleging the impossibility of its application, the discussion on the triple bottom line concept has increased since its first appearance (ELKINGTON, 2001). In order to contest the claims against the idea, some authors affirm that triple bottom line concept is a new view of the firm, or it would be “[...] a metaphor to remind us that corporate performance is multi-dimensional” (PAVA, 2007, pp. 108). In other words, “the triple bottom line captures the essence of sustainability by measuring the impact of an organization’s activities on the world” (SAVITZ; WEBER, 2006, pp.xiii).

According to Savitz and Weber (2006), it is recommended for companies to explore the “sweet spot”, i.e., the intersection between the natural interests of the company itself (profits, market share and so on) and the interests of other stakeholders (mainly environmental and social ones), creating good opportunities and results for both.

Thus, a sustainability-oriented company would be the one that continues develops by taking into consideration the economic, social and environmental dimensions of its processes and performance.

So, it is possible to formulate:

*Proposition 1: Sustainability-oriented portfolio management must have also environmental and social criteria for selection, besides economical criteria.*

Stakeholder, according to the its classical definition (FREEMAN, 1984, pp. 46), is “any group or individual who can affect or is affected by the achievement of the organization’s objectives”. Independently of the addopted definition, it is possible to perceive a huge number of stakeholders for every specific organization. Nevertheless, as Freeman (1984) points out, there is a necessity for legitimacy of these stakeholders regarding to the organization (and vice versa), with the consequently split in legitimate and generic stakeholders, as stressed by

Freeman (1984) and Mitchell, Agle and Wood (1997). Besides that, there will be a large number of variables that influence the relationships among stakeholders and firms, such as industry, size, location and others (FREEMAN, 1984). From the identification of the legitimate organizational stakeholders, it is possible to look at them as a part – and an object – of the strategy of the firm. So, each stakeholder-organization relationship should be managed in a strategic approach (FREEMAN, 1984; FROOMAN, 1999; 2002; BUYASSE; VERBEKE, 2003; FERNANDEZ-GAGO; ANTONIN, 2004).

1. ORGANIZATIONS SHOULD MANAGE ITS IMPACTS ON STAKEHOLDERS, PARTIES THAT ARE BEING AFFECTED BY ORGANIZATIONAL PERFORMANCE (FREEMAN, 1984; DONALDSON; PRESTON, 1995; FROOMAN, 1999; 2002; CARROLL; BUCHWOLTZ, 2000). THUS, A SUSTAINABILITY-ORIENTED COMPANY WOULD BE THE ONE THAT CONTINUES OBTAINS VALUE CREATION PROCESSES THAT FULFILL STAKEHOLDERS EXPECTATIONS, THROUGH ITS FINANCIAL AND COMPETITIVE SUCCESS, SOCIAL LEGITIMACY AND EFFICIENT USE OF NATURAL RESOURCES (FIGGE; SCHALTEGGER, 2000 APUD PERRINI; TENCATI, 2006). SO, IT IS POSSIBLE TO CONCEIVE THE FOLLOWING PROPOSITION:

*Proposition 2: Sustainability-oriented portfolio management have multiple stakeholders-related criteria selection, besides own company shareholders.*

For discussing the next propositions, it is necessary to recall the discussion on the kind of knowledge being accessed for innovation projects, explorative or exploitative. One strategic renewal theory should recognize that in order to a firm maintain the adaptability to the changing environment, it is required the joint use of competencies: both the existent internally (exploitative), added to new competencies for the firm (explorative).

March (1991) argues that there are second order competences, or in other words, explorative learning competences, that allow a firm to identify, explore and embed new technological or market-related competences, leading to a renovation on competences portfolio. The presence of a second order competence would mitigate the risk of historical dependencies, or in other words, the estagnation in past consolidated competencies, that could block the orientation to new products and markets, obstructing the renovation. (DANNEELS, 2002).

In that way, it is crucial searching for new competences through explorative learning, joining with the exploitative competences available internally, making it possible to one firm to become one ambidextrous organization. Danneels (2002) has achieved empirical support for that reasoning, studying multiple cases of five Business to Business (B2B) companies acting in one high tech sector, varying the age, size and diversification degree. He has verified the relationship between companies' product innovation dynamics and the missing firm competences for each development evolutionary stage. Then, using two dimensions, market (or customers) and technology, Danneels (2002) positioned the nature of needed competences, as shown in the Figure 3.

<b>Market</b>	Competence existing in the firm	Pure Exploitation	Leveraging market competence
	Competence new to the firm	Leveraging technological competence	Pure Exploration
	Competence existing in the firm	Competence existing in the firm	Competence new to the firm
	<b>Technology</b>		

**Figure 3: Nature of the innovation typology based on the competencies. Adapted from Danneels (2002)**

Danneels (2002) also has discussed the projects characteristics depending on the nature of the innovation, as shown in the Table 3.

**Table 3: Projects characteristics depending on the nature of the innovation. Adapted from Danneels (2002)**

<b>Characteristics</b>	<b>Nature of Innovation</b>			
	<b>Pure Exploitation</b>	<b>Leveraging market</b>	<b>Leveraging technological</b>	<b>Pure Exploration</b>

		competence	competence	
Market potential assessment	Relatively easy	Relatively easy	Relatively difficult	Difficult
Technological feasibility	Relatively easy	Relatively difficult	Relatively easy	Difficult
Influence from the current customers	Strong	Strong	Weak	Weak

**Table 3: Projects characteristics depending on the nature of the innovation. Adapted from Danneels (2002) (cont.)**

Characteristics	Nature of Innovation			
	Pure Exploitation	Leveraging market competence	Leveraging technological competence	Pure Exploration
Financial returns	Relatively certain	Relatively uncertain	Relatively uncertain	Uncertain
Needed scope of market search	Narrow	Narrow	Broad	Broad
Needed scope of technological search	Narrow	Broad	Narrow	Broad
Competence to be acquired	None	Technology	Market	Technology and Market
Project duration	Short	Medium	Medium	Long

Thus, to balance between the exploration and exploitation, it would be interesting to maintain a set of organizational activities, each of which contributes to a particular type of corporate renewal in the exploration-exploitation continuum (BURGELMAN; SAYLES, 1986; KEIL, 2002).

So, considering by the sustainability focus that the new challenges in the future will be associated with the development of completely new products and services embodying better environmental and social technologies, it is possible to formulate:

*Proposition 3: Sustainability-oriented portfolio management should be positive related to exploration..*

And in the inverse direction:

*Proposition 4: Sustainability-oriented portfolio management are negative related to exploitation.*

### 3. Conclusions

#### 2

As previously stated, this paper aimed to emphasize the link between innovation management, especially aspects related to Portfolio Management and sustainability related issues. The four propositions point to the main aspects that should be taken into consideration if this approach is pursued: (1) decision and performance criteria should be environmental and social based, besides economical view; (2) performance criteria should be multiple stakeholders-oriented; (3) sustainability-oriented portfolio management should be positive related to exploration; and (4) sustainability-oriented portfolio management should be negative related to exploitation. By the model proposed in this study, a sustainability-oriented portfolio management could be analysed according to these criteria.

This model is being tested in a current study focusing on technological alliances. In this study, 20 alliance-based projects has been analysed and preliminary results point to different patterns, depending on the nature of the project.

For future studies, other points can be focused, like a triple-bottom-line projects assessment or a multiple-stakeholder projects assessment. It would also be important to have empirical data from leading companies that already have sustainability-oriented projects, products and services.

Sustainability is a long term issue. And the long term starts now. Pressure from stakeholders, scarcity of resources and higher levels of compliance are certain for the near

future. Thus, firms that seek for competitive advantage can differentiate to the other players. Combining technology projects, products and services with a sustainable concern may be a path to a better future.

### 3.

#### 4. References

- [1] BURGELMAN, R. A. ; SAYLES, L. R. Inside corporate Innovation. [M] New York:The Free Press, 1986.
- [2] BUYSSE, K.; VERBEKE, A.. Proactive environmental strategies: A stakeholder management perspective. [J] Strategic Management Journal; May 2003; 24 (5): 453.
- [3] CARROLL, A.B.; BUCHWOLTZ, A.K. Business and society: ethics and stakeholder management. [M] Cincinnati: South-Western College Publishing, 4th. Ed. 2000.
- [4] CLARK, K. B.; FUJIMOTO, T. *Product development performance – strategy, organization, and management in the world auto industry.* [M] Boston, Mass.: Harvard Business School Press, 1991.
- [5] COOPER, R. G.; EDGETT, S. J.; KLEINSCHMIDT, E. J. New Problems, New Solutions: Making Portfolio Management More Effective [J]. Research Technology Management, 2000, 43 ( 2).
- [6] COOPER, R. G.; EDGETT, S. J.; KLEINSCHMIDT, E. J. Portfolio management in new product development: Lessons from the leaders-II. [J]. Research Technology Management, Nov/Dec 1997, 40 (6) : 43
- [7] DANNEELS, E. The Dynamics of Product Innovation and Firm Competences. [J] *Strategic Management Journal*, 2002, 23: 1095–1121,.
- [8] DONALDSON, T.; PRESTON, L.E. The stakeholder theory of the corporation: concepts, evidence and implications. [J] *Academy of Management Review*,1995, 20: 65-91.
- [9] ELKINGTON, J. Caniballs with forks and knives. [M] São Paulo: Makron Books, 2001.
- [10] EPSTEIN, M. J. Making sustainability work: best practices in managing and measuring corporate social, environmental, and economic impacts. [M] Sheffield: Greenleaf Publishing Limited, 2008
- [11] EPSTEIN, M. J.; ROY, M. J. Improving Sustainability Performance: Specifying, Implementing and Measuring Key Principles. [J] *Journal of General Management*; Autumn 2003, 29 (1): 15-31.
- [12] FERNANDEZ-GAGO, R.; ANTONIN, M. N. Stakeholder salience in corporate environmental strategy. [J] *Corporate Governance*, 2004, 4 (3): 65.
- [13] FREEMAN, R. E. *Strategic Management: A Stakeholder Approach.* [M] Boston: Pitman, 1984.
- [14] FROOMAN, J. Stakeholder influence strategies. *Academy of Management.* [J] *Academy of Management Review*; Apr 1999.24, 2;
- [15] FROOMAN, J.. Stakeholder influence strategies. [M] University of Pittsburgh. Doctoral Thesis, 2002.
- [16] GRIFFIN, A.; PAGE, A. L. PDMA Success measurement project: recommended measures for product development success and failure. [J] *Journal of Product Innovation Management*, New York: Elsevier Science, 1997, 13: 478-496.
- [17] HARRIS, J.; WISE, T.; GALLAGHER, K.; GOODWIN, N. (Org.). *A survey of sustainable development: social and economic dimensions.* [J] Washington: Island Press, 2001
- [18] HART, Stuart L. *Capitalism at the crossroads.* [M] Upper Saddle River: Wharton School Publishing, 2nd Edition, 2007.
- [19] HART, S. L.; MILSTEIN, M. B. [J] *Academy of Management Executive*, May2003, 17 (2): 56-67.
- [20] KEIL, T., *External Corporate Venturing: Strategic Renewal in Rapidly Changing Industries.* [M] Quorum, Westport, CT, 2002.
- [21] LÉLÉ, S. M. [J] *World Development*, 1991, 19 (6): 607-621.
- [22] MACDONALD, C., NORMAN, W. Getting to the bottom of “Triple Bottom Line”. *Business Ethics Quarterly.* [J] Chicago: Apr 2004. 14 (2): 243
- [23] MACDONALD, C., NORMAN, W. Rescuing the baby from the triple-bottom-line bathwater: a reply to Pava. *Business Ethics Quarterly.* [J] Chicago: Jan 2007. 17 (1): 111.
- [24] MARCH, J. G. Exploration and Exploitation in Organizational Learning. [J] *Organization Science*,1991, 2 (1): 71–87.
- [25] MITCHELL, R. K.; AGLE, B. R.; WOOD, D. J. Toward a theory of stakeholder identification and salience: defining the principle of who and what really counts. [J] *Academy of Management Review*, 1997, 22 (4): 853-886



- [26] O'REILLY III, C. A.; TUSHMAN, M. L. Ambidexterity as a Dynamic Capability: Resolving the Innovator's Dilemma. *Harvard Business School, Working paper*, 2007. [J] Available in: <http://www.hbs.edu/research/pdf/07-088WP.pdf>
- [27] PAVA, Moses. L. A response to "Getting to the bottom of triple bottom line". [J] *Business Ethics Quarterly*. Chicago: Jan 2007. 17 (1) : 105
- [28] PERRINI, F.; TENCATI, A. Sustainability and stakeholder management: the need for new corporate performance evaluation and reporting systems. [J] *Business Strategy & the Environment* (John Wiley & Sons, Inc): Sep/Oct2006, 15 (5): 296-308.
- [29] PORTER, M. E.; VAN DER LINDE, C.. Green and competitive: ending the stalemate. [J] *Harvard Business Review*, Sept./Oct., 1995, 73,(5): 120-134.
- [30] ROUSSEL, P.A., SAAD, K. N. S., BOHLIW, N. "P&D: Como integrar P&D ao Plano Estratégico e Operacional das Empresas Como Fator de Produtividade e Competitividade", [M] São Paulo: Makron Books, 1992.
- [31] SAVITZ, A. W; WEBER, K.. The triple bottom line: how today's best run companies are achieving economic, social and environmental success – and how you can too. [M] John Wiley & Sons. United States, 2006
- [32] SCHILLING, M.A.; HILL, C.W.L. Managing the new product development process: strategic imperatives. [J] *Academy of Management Executive*, 1998, 12 (13): 67-81.
- [33] TRITLE, G.L. ; SCRIVEN, F. V. ; FUSFELD, A. R. Resolving Uncertainty in R&D Portfolio. *Research-Technology Management*, [J] Nov-Dec, 2000. 43(6): 47-55.
- [34] WCED (WORLD COMISSION ON ENVIRONMENT AND DEVELOPMENT). Our common future. [M] Oxford: Oxford University Press, 1987.