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An Integrative Model For Multiple Strategies Formulation: The Contribution of Strategic Foresight

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Macroplan – Prospectiva, Estratégia e Gestão

Julho de 2011

Este artigo é parte da tese de mestrado da consultora Andrea Belfort e foi apresentado na 13ª Conferência Internacional Anual da Global Business and Technology Association (GBATA): "Fulling the worldwide sustentability challenge: strategies, innovations, and perspectives for foward momentum in turbulent times" (Istanbul, Turquia, 2011). O texto foi publicado nos anais do anais do congresso (páginas de 88 a 95).

Abstract

This article proposes an Integrative Model to enhance the interaction between strategy formulation and prospective approach. The model's formulation was based on solid theoretical foundations in the strategy and prospective areas, and was developed according to action research methodology, based on one of the author's conduction of the implementation of a strategic planning process. Tested during the corporate planning process of a business group in Brazil's electricity sector, the model seeks to consolidate a multiple strategy formulation process, enriched by support from scenarios, and constitutes an instrument for the management of uncertainty in decision-making.

Introduction

In order to deal with the high degree of dynamism, complexity and uncertainty of the corporate environment, organizations develop planning processes based on *prospective* approach, incorporating into the strategic discussion a plural reflection on the future, which seeks to incorporate the dimensions of economic, social and environmental sustainability. However, in corporate practice it is not usual to make extensive use of complex studies of scenarios when formulating the firm's strategies and defining its commitments, due to the decision-making difficulties encountered by managers when confronted with the diverse possibilities of these processes. In this way, when establishing their long term commitments, most executives select, as basis for their strategies, just one of the scenarios, neglecting the others. Beyond this, it is possible to observe that exists a distance between the processes of scenario construction and strategy formulation, as the authors discovered when analyzing various planning processes underpinned by scenarios performed in Brazil over the past fifteen years. For their inherent complexity, these processes are conducted as separate activities, with the first, which is devoted to the construction of alternative scenarios, having very little influence on the development of the second - the formulation of strategies -, especially when they are performed by different teams. Thus, the interface between the prospective approach and the strategy area constitutes, for this reason, a field open to investigation, both for the development of theoretical models exploring the richness of using scenarios for the formulation of strategies, as well as in the practical application of the models, in order to evaluate the possibilities of enhancing the integration of these areas in organizational practice. This article intends to contribute to this field.

The term *‘Prospective Stratégique’* has become widely used since the 1980's - especially in France - to explain the inter-relation between *prospective* approach and strategy. Godet and Durance (2007) argue that in successful firms, strategies are formulated aiming at anticipating and configuring products, services or even entire sectors of activity. Thus, the winners are those that are concerned with foresight and innovation and not those firms that concentrate on positioning themselves in today's markets. According to these authors, *Prospective Stratégique* is the art of anticipating possible futures to illuminate present action, preparing the organization not only to face expected changes in its environment (pre-activity) but also to provoke desired change on it (pro-activity). Focusing on decision-making and action itself, the *prospective* is close to strategy, preparing organizations to recognize and face changes, when necessary, or provoke them, when possible. Moving from anticipation to action, based on the knowledge generated during *prospective* reflection, the *Prospective Stratégique* or Strategic Foresight reaffirms its purpose of illuminating - in the present - the choices that determine the future of the organization. The main instrument to exercise a prospective analysis is the construction of scenarios, perceived by Godet (1983) as descriptions of possible futures, feasible or desirable for a system and its context, and of the path – or trajectory – which links them to the initial situation of that system. For Schwartz (1995), the technique of scenarios building constitutes a tool to explore the future in a world of great uncertainty, serving more precisely to organize the perception of alternative futures environments and to support the decision making process. For this, various scenario construction methodologies have been developed to perform *prospective* approach. They can be divided broadly into two schools: the French and the Anglo-Saxon. The first is characterized by a high level of sophistication and structuring, methodological rigor and the use of various analytical methods during the scenario preparation process, while intuitive and creative methods predominate in the second. Despite their methodological differences, both fulfill their role, developing scenarios that are plausible, consistent, realistic, qualitatively contrasting, challenging as a whole and useful for the strategic process (BELFORT-SANTOS, 2011). Scenarios have a wide use, ranging from improving the shared perception of the possible future evolution of the environment, based on the creation of a common organizational language and view of the future, to the making a highly effective contribution to the quality of decisions, formulation of strategies and organizational learning (VAN DER HEIJDEN, 1996; FAHEY; RANDAL, 1998; POSTMA; LIEBL, 2005). By improving their collective understanding of possible future developments of reality, executives question existing decisions, generate strategy options and formulate decisions, while learning in the course of this process. For this reason, various authors consider that the use of scenarios in strategic planning should focus on organizational learning and choose strategic conversation as the main instrument of this learning process, as it facilitates the creation of a shared mental

model that underpins institutional action and takes into account environmental uncertainty to counteract the prevailing organizational view (DE GEUS, 1988; VAN DER HEIJDEN, 1996; FAHEY; HANDAL, 1998). Thus, strategic foresight reflection encourages the organization to embark on a double-loop learning process (ASHBY, 1952; ARGYRIS; SCHÖN, 1974), incentivizing the reassessment of values and its view of the future, thus leading to new corporate strategies. In academic literature, the strategy concept is understood from diverse perspectives, ranging from the purely rational view of the Design School (ANSOFF, 1965; 1991) and its followers of strategic planning and positioning, which advocate a unique strategy, exclusive and valuable for the company (Porter, 1991), to perceptions of strategy as resulting from adaptation and learning based upon the decision making daily practice, emerging, therefore, as a company's pattern of behavior over time (Mintzberg *et al.* 2000); or yet to views that consider it as multiple, representing options which the company should use as its interests or the environment changes. In the latter sense, Beinhocker (2006, p. 334) conceptualizes strategy as "a portfolio of experiments, a population of competing Business Plans that evolves over time". As seen, Beinhocker believes in multiplicity of experiences to reach a higher objective. However, analysis of planning processes under scenarios of large Brazilian companies in the last 15 years brings a reflection on the feasibility of several conflicting strategies simultaneously existing in the organization. It seems necessary, especially considering the maturity level of the strategic process of large corporations in Brazil, the identification of a grand strategy, one that indicates the direction to be followed and direct major business decisions. On the other hand, it makes sense to consider the arguments of Beinhocker by arguing that when a company is able to internalize and manage a variety of ways by which it can achieve a goal, this company is more likely to succeed in comparison with others that put their stakes *a priori* in a single direction. Thus, this paper proposes a new understanding of the strategy:90 ©Copyright 2011 by the Global Business and Technology Association Strategy comprises a set of grand choices (main strategy) and a portfolio of experiments (complementary or alternative to the main one) with a great potential reach, that guide the management of the present and the construction of the future over a long-term horizon, under conditions of uncertainty. Considering this understanding, it is necessary to develop a way of conceiving strategies, being them the main or alternative or complementary ones, and combining them so that they can help the company achieve its overriding objective, which is to survive and grow. The Integrative Model was proposed as an instrument to this process.

Integrative model

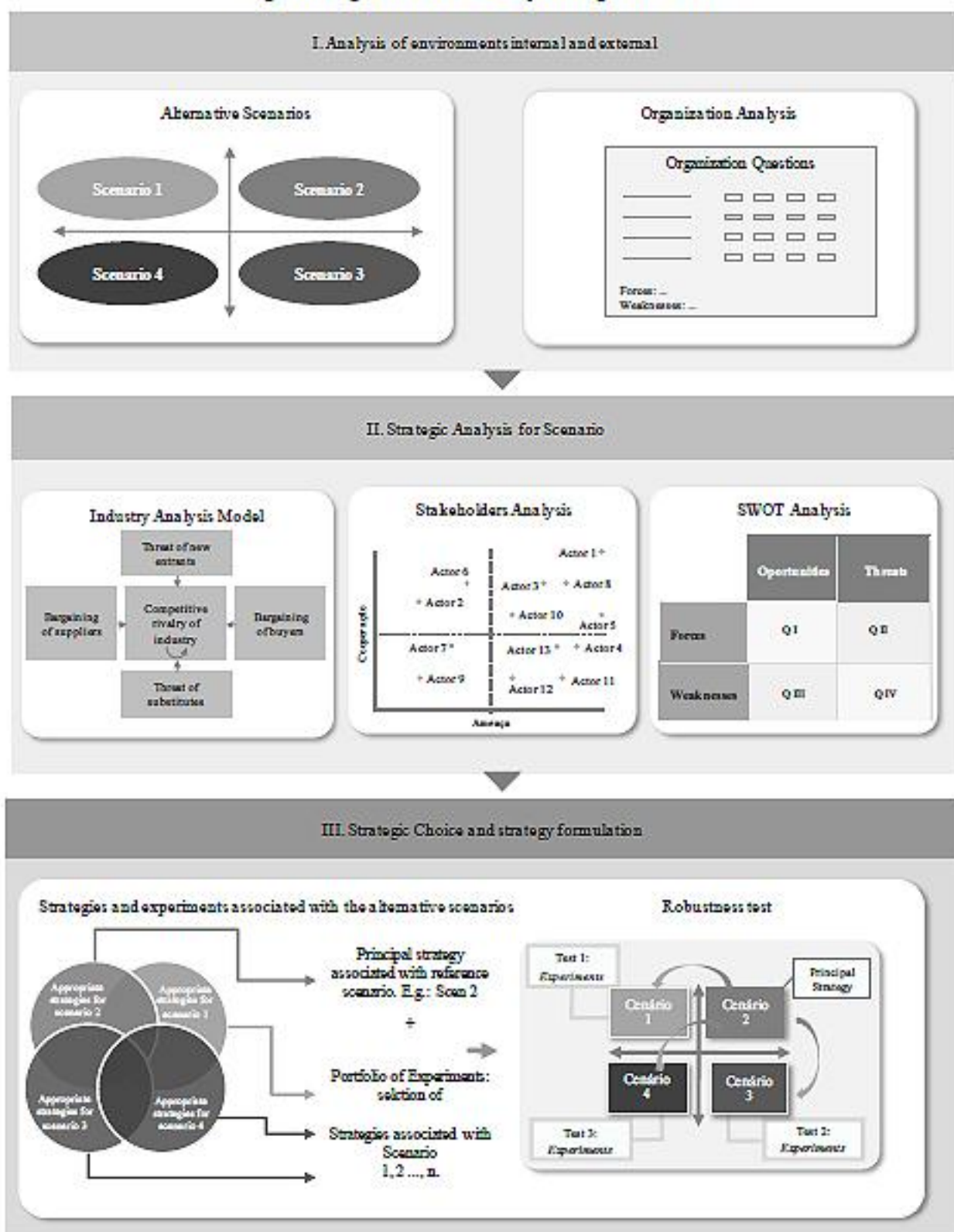
The Integrative Model aims to address a paradox of planning under scenarios: the creation and recognition of uncertainties versus their internalization and management in the sphere of strategy (LINDGREN E BANDHOLD, 2003). According to Brown and Eisenhardt (1998, p. 147):

—*The dilemma of the strategy in an uncertain, changing future involves balancing between the need to commit to a future while retaining the strategic flexibility to adjust to the future*. In order to deal with this paradox, a new understanding of the content of Strategy is proposed, considering that it should consist of multiple strands, rather than merely a single one, and cover the most relevant future possibilities, although a main direction should be maintained as the one to be pursued in principle. With this aim, the Integrating Model adopts the scenario technique as an inspiration for the preparation of the set of strategies. Each scenario is then analyzed in depth, using various strategic assessment techniques, in order to guide the choice of the main and additional strategies. As a matter of fact, based on one of the author's experience in the preparation of macroeconomic and sectoral scenarios in Brazil, and on the strategic foresight literature, it is possible to affirm that a set of well-constructed scenarios reflects the important alternatives in a sector or segment, translating the most plausible future possibilities over the time horizon analyzed. Thus, strategies designed for each alternative scenario should encompass a broad portfolio, which enables the company to act on various fronts to achieve its objective, internalizing the widest possible scope of market options. In this way, irreversible commitments are postponed until uncertainty is reduced, turning strategic decision-making under uncertainty into a continuous process (FRIEND; JESSOP, 1969). Certainly, no organization would be able to conduct all alternative strategies simultaneously with an equal commitment of resources, as it is impossible to conduct so many business plans at the same time when resources are finite. In other words, a company's planning process minimally requires a definition of the main path to be followed. Thus, the Integrative Model, which is presented in Figure 1, proposes:

- *using the alternative scenario-building technique to explore the most plausible future possibilities over the time horizon considered, exploring the variety of markets;*
- *analyzing these scenarios in depth, by means of strategic analysis tools commonly found in strategic planning processes. Among these tools, were chosen, for this model, SWOT analysis (strengths and weaknesses of the internal environment x opportunities and threats in each scenario), the structural analysis of industry and stakeholder analysis developed for each scenario;*
- *outlining a set of strategies that are appropriate for each scenario;*
- *selecting a scenario as a reference to define the main Strategy (or set of strategies);*
- *adding experiments (alternative or complementary strategies) based on the analyses and strategies outlined for other scenarios and submit the full set to robustness tests;*
- *instituting a process to monitor uncertainties and actions to manage the experiment portfolio.*

Thus, a differentiation process is built into the company, based on which a qualitatively distinct portfolio of experiments is generated and managed in order to guide the organization in the face of environmental uncertainties.

Figure 1: Integrative Model for multiple strategies formulation



The case of Eletrobras

The application of the Integrative Model in a real case was designed to assess the practical feasibility of the theoretical model previously defined, as well as to deepen it and enrich it with the results of the experience, thus contributing to the theoretical development of the subjects studied. Additionally, to the business system to which it was applied, the challenge was to improve its strategic planning process, integrating and modernizing it in order to introduce new concepts that could prepare the organization to deal with uncertainty. The Integrative Model served as a methodological basis for the Corporate Strategic Planning project of the Sistema Eletrobras, conducted by 'Macroplan - Foresight, Strategy and Management', a consulting firm where one of the authors, who coordinated the project, works. Eletrobras, holding of the Sistema Eletrobras, is a publicly traded company controlled by the Brazilian government, which leads a pool of companies for generation, transmission and distribution of electricity in Brazil. This system is formed by a holding company and 12 subsidiaries, six for generation and transmission of electricity and six for distribution, plus a research center. In addition, Eletrobras holds half the capital of Itaipu, the biggest hydroelectric dam in the world in power generation, with installed capacity of 14,000 MW, owned by the governments of Brazil and Paraguay. Altogether, the Sistema Eletrobras has a generating capacity of 39,500 MW of electricity - including half of the Itaipu power belonging to Brazil - which accounts for 37% of the national total. This amount is generated by 46 hydroelectric plants, thermoelectric and thermonuclear. The transmission lines are over 59,000 km in length, representing about 56% of the total lines of Brazil (ELETROBRAS, 2010a). The theoretical model was applied to the process of strategic planning of the Sistema Eletrobras by means of the action research methodology, turning this case study a field of analysis that allowed improving the theoretical model through analytical generalizations. Accordingly, with this research strategy, it was sought to explore in the best way the interaction between the researcher and the group members, in order to solve practical problems while developing the theory from the experience. Thus, repeated cycles of observation, analysis, proposal of new actions, negotiation with the group members and evaluation, as recommended by action research, characterized the whole process. Given its complexity, the proposed strategic planning process was implemented in four modules, namely: (1) scenarios construction, (2) analysis of the internal environment and application of tools of strategic analysis, (3) selection and formulation of strategy, including the setting of multiple strategies, and (4) consolidation and analysis of consistency and robustness of the Plan. As a result, in the Strategic Plan were defined: (a) the mission of the Sistema Eletrobras of "acting in the energy markets in an integrated, sustainable and profitable way; (b) its future vision for 2020, namely," to be the largest global enterprise system for clean energy, with a return comparable to that of the best companies in the electricity sector; (c) its organizational values, translated into "focus on results, entrepreneurship and innovation, value and commitment of people, and ethics and transparency," and its proposed benefits to their main stakeholders - shareholders, customers,

government and society. Taking the main strategy of the system, associated with one of the designed scenarios, five strategic objects, associated with its business and markets, were defined: (a) to expand the generation, transmission, distribution and sale of electricity in a competitive and profitable way; (b) to maximize the participation of clean energy in the energy matrix of the system; (c) to selectively expand its international operations, focusing on the American continent; (d) to participate in the management of electric power programs of interest to the government, establishing targets for implementation and for economic-financial balance; (e) to ensure that the projects of the Sistema Eletrobras are vectors of sustainable development to their surrounding areas. These strategic objectives comprise 19 specific strategies. Another set of seven strategic objectives, related to management, were broken down into 23 specific strategies. Considering the other scenarios, four main themes have been defined to integrate the portfolio of experiments. They are: (a) electric transportation, including challenges relating to the supply network, storage capacity, reducing the cost of batteries and associated research and development; (b) revenue generation through the sale of carbon credits; (c) more water to the Northeast through the desalination process coupled with nuclear *©Copyright 2011 by the Global Business and Technology Association 93* generation and other energy sources; and (d) investment in smart networks - Smart Grid and PLC (broadband); and distribution. Clearly, in the whole set of experiments of this case study, a bias related to innovation could be observed. Other experiments related to hedging strategies were listed in the process but were not incorporated into the Strategic Positioning of the Sistema Eletrobras.

Implications for the organization

The model considers the need to implement a portfolio of experiments' management process. However, as this article focuses on the portfolio's **formulation**, considerations regarding the implications of the formulation of multiple strategies in the organizational environment are presented below, drawn both from literature and practical experience. Even if the organization privileges a main path, the portfolio of experiments increases its options. However, it is not feasible to keep many options open for a long time because many of them have a specific time horizon. Thus, at some point, it is necessary to decide whether the main strategy should continue to occupy this position, or whether another one has become more important and should therefore receive more investments. In addition, it is necessary to manage the portfolio of experiments to accelerate or cancel initiatives, or implement new options, at the appropriate moment. To achieve this, it is necessary to institute a strategy portfolio management process that considers not only organizational conditions and the evolution of initiatives, but also the evolution of the environment and competitors' movements. Although the portfolio of experiments, in principle, reflects existing market diversity, the pressure to

select these experiments (their continuity, acceleration or disposal) over time should internalize market parameters in the company. Thus, an important stage in the portfolio of experiments' management consists of monitoring the environment and especially the key variables on which the scenario's configuration was based. As regards the portfolio of experiments' management, monitoring the environment means being able to detect signals emerging from the contextual and transactional environments that may convey information about each experiment – or about initiatives that have not been included in this set – in order to facilitate decision-making regarding the organization's options. When implementing the Integrative Model, the monitoring of the environment based on scenarios constitutes a critical factor of success, given that the latter support the set of strategies' formulation. Based on the scenarios' main elements – trends and uncertainties – an assessment of the development of the real trajectory compared to the alternatives futures outlined should be undertaken, analyzing their impacts on the defined portfolio of experiments. It is also necessary to be prepared to capture signals that were not anticipated in the scenarios and that may have an impact on the strategy portfolio. Thus, the tracking of the external and internal environments emits potentially important signals that should be thoroughly analyzed in terms of the scenarios and set of multiple strategies. Additionally, in order to assess the evolution of the experiments, it is required to create an environment for the selection of the investments in the portfolio and for the rapid reallocation of resources aimed at fully developing the most promising experiment (Beinhocker, 2006). Thus, if it necessary to reorient the strategy, this should be done as promptly as possible. In this case, the investments that have already been undertaken accelerate this repositioning, giving the company an advantage over others that concentrate investments in one specific area.

Conclusions

The reflection on scenarios opens up various strategic formulation possibilities, running the scope from the choice of a desired or more probable scenario to the adoption of robust strategies – appropriate to the range of plausible scenarios or multiple strategies - that jointly explore all scenarios, or even including the decision to maintain a flexible stance without assuming long-term commitments. However, whatever the strategy chosen, the contribution of strategic foresight is optimized when the whole set of scenarios is considered, whether during 94 ©Copyright 2011 by the Global Business and Technology Association the complete strategy formulation process or during its management. The Integrative Model here proposed uses the set of scenarios to formulate multiple strategies, and seeks to put environmental uncertainty at the heart of strategy. The adoption of multiple strategies permits the integration of two currents of the literature: the traditional one, that proposes the definition of a single strategy, exclusive for the organization in its segment and the heterodox current,

based on learning and experimentation, that envisions various possible strategies in contexts characterized by complexity and uncertainty, although it is impossible to define, *a priori*, which is the best. In order to integrate these currents, the set of strategies proposed should contain a main choice to guide the organization, and a portfolio of additional, complementary or alternative strategies that add flexibility and warranties if the main direction ceases to be the most appropriate one. The application of the Integrative Model to the Strategic Planning of the Sistema Eletrobras demonstrated its feasibility in a real case, allowing the analytical generalizations applicable to a case study in order to extend the theoretical knowledge in the field studied. Moreover, with this experiment it was possible to express the real possibility of amplifying the contribution of prospective analysis for the formulation of multiple strategies and for the management of uncertainty in decision making, adopting methods that use scenarios throughout the strategic planning process. For the Sistema Eletrobras, various evaluations brought evidence that the entire proposed planning process, with emphasis on the Integrative Model, constituted an invaluable contribution to the improvement of its corporate planning. Furthermore, they made clear that the use of alternative scenarios and the analysis of various methods of strategic evaluation by means of scenarios have brought a deeper awareness, for the participants, of the various future possibilities and of the challenges and opportunities in each of these alternatives. This appraisal has also showed that the process generated alternative views of how to overcome these challenges and capture opportunities, and that the design of the portfolio of experiments brought innovations to the planning of the system and might substantiate the adoption of proactive posture desired by the group. The use of multiple strategies protects the firm against a single and risky bet in intensely uncertain environments, while the explicit preference for a main strategy provides the organization with a predominant unity of direction. The Integrative Model essentially internalizes the management of uncertainty in decisionmaking, for although a main choice is prescribed, it is clear - given uncertainty - that this choice is not definitive and requires the analysis of alternative paths and strategic reorientation mechanisms if necessary. Thus, strategic decision-making under uncertainty becomes a continuous process and irreversible commitments are postponed for as long as possible until either uncertainty is reduced or environmental circumstances require the company to define its position. Working in the midst of such diversity is no easy task and requires the development of an open organizational culture, in which most members of the team will concentrate on the main Strategy, while others will try to develop alternative paths. To achieve this, the firm needs to recognize this plurality, create an environment favorable to it and develop creative and bold teams that will dedicate themselves to the experiments. In order to manage a multiple strategy portfolio, an organization must be ready to perceive change at an embryonic stage, internalize it and unhesitatingly change or adjust the main direction chosen. It requires boldness, together with an awareness of the risks assumed and associated with mechanisms of protection in the face of uncertainty. It thus truly requires the management of uncertainty.

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