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SCENARIO BUILDING: FROM CROWDSOURCING TO THE CREATION OF A NEW BUSINESS MODEL IN BRAZIL

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ABSTRACT

This research shall analyse the implementation of a new product and an entrepreneurial business model in Brazil of the 90's and endeavour to trace cause and effect relations by means of the elaboration of scenarios. To ensure effectiveness, the methodology foresees a combination of inductive and deductive techniques. This choice arises from an understanding that it this is the best way to analyse a complex environment such as that of Brazil which, despite linguistic unity, comprises significant distinctions in each of its five regions. It is herein expected to bring forth an improved understanding of studies, related to the set up of information technology companies in the Brazilian territory, and pinpoint this market´s peculiarities to possible entrants, regardless of their segment.

Key Words: Free software. Technological innovation. Crowdsourcing in Brazil. Scenarios and new business.

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CONSTRUÇÃO DE CENÁRIOS: DO "CROWDSOURCING" À CRIAÇÃO DE UM NOVO MODELO DE NEGÓCIOS NO BRASIL

RESUMO

A presente pesquisa analisará a implantação de um novo produto e um modelo de negócios empreendedor no Brasil, na década de 1990 e buscará traçar relações de causa e efeito por meio da elaboração de cenários. Para sua realização, a metodologia prevê a combinação de métodos indutivos e dedutivos. Esta escolha foi feita por entender que é a melhor maneira de analisar um ambiente complexo como o brasileiro, que apesar da unidade lingüística, contempla distinções significantes nas cinco regiões. Espera-se trazer maior entendimento sobre os estudos relacionados à implantação de empresas de tecnologia da informação no território brasileiro e ressaltar as peculiaridades deste mercado para possíveis entrantes, independente de sua área de atuação.

Palavras-Chave: Software livre. Inovação tecnológica. *Crowdsourcing* no Brasil. Cenários e novos negócios.

1 INTRODUCTION

As of the ´90s, the opening of the economy and changes in the world technological scenario attracted new competitors and new innovation possibilities to Brazil (PORTER, 1992; 1986). In the IT segment (Information Technology), this becomes evident as of the analysis of the free software phenomenon, an open innovation built given the effort of practice communities (*crowdsourcing*), and its configuration as a feasible business model, during times marked by the proprietary hegemony of the *Windows* and Microsoft business models.

During this period, selling products which were bundled with open sources was a very difficult task. Those who accepted the challenge, not only had to provide proof of an open, free and shared product´s efficiency, but also that of the feasibility of a business model that perceived software as a service, in every way a standpoint that was entirely contrary to that practiced by the market leader. Despite this impairment, perspectives were favourable given that the demand for internet applications at lower costs increased. This positive evaluation of the business environment ensured that the proposal to develop products under a shared work environment, attracted the attention of players such as IBM, HP, Oracle, Novell and others (FRIEDMAN, 2007) in search of new opportunities to venture the corporate market.

Based on this information, this research poses to evaluate Alphalinuxbrasil´s (fictitious name) progress, and the challenges faced by a new entrant, to implement a new way of doing business based on the use of a *crowdsourcing* innovation. Issues under this analytical perspective comprise three aspects: 1) introduction of a new product concept, developed in an open manner via *crowdsourcing*; 2) the feasibility of implementing its respective business model; 3) the internationalization process of Alphalinuxbrasil at the end of 1990. The objective of this article is to understand how scenario analysis might have assisted the company towards being successful in this proposition.

2 THEORETICAL REVISION

2.1 MACROENVIRONMENT

The word scenario is employed in both the military and the business areas with views to ideating future environments, capable of creating long term perspectives that support decision making under uncertain conditions (SCHWARTZ, 2003; 2000). Despite the fact that scenario construction usually involves complex, dynamic and non linear environments, behaviour, on the other hand, tends to present standards that derive from the environment´s self regulation and self organization (BUARQUE, 2003). A classic scenario literature example (SCHWARTZ, 2003; 2000; VAN DER HEIJDEN, 2004) that illustrates the art of "imagining the unimaginable" in a complex environment, was Shell´s scenarios construction in the 70´s (SHELL, 1995). At the time, Royal Dutch/Shell´s team, lead by Pierre Wack, tried to discover events that would impact oil prices that till then had remained relatively stable since the Second World War. With scenario elaboration, based on political and economical events that took place then, Shell not only quickly reacted to the abrupt change in scenario, but further consolidated itself as the second largest world oil company during several years later. More than simply foreseeing the future, the construction of scenarios enables managers to reconsider possibilities, so as to deal with the environment´s uncertainties and dynamism, questioning in a sustainable manner, its assumptions (mindsets) to understand how the world functions (WACK, 1985; SCHWARTZ, 2000; VAN DER HEIJDEN, 2004; SCHOEMAKER, 1995). Wack (1985) emphasizes that scenarios work with two worlds: the world of facts and that of perceptions. Scenario builders examine facts but target the perceptions of decision makers with the objective of bringing strategic input that are beyond management´s thoughts. When dealing with mindset types, Van Der Heijden (2004) made special mention to three lines of thought to interpret the manner in which managers perceive their business: rational, evolutionary and process driven. The author defines the rational manager as one ground on the principle "forecast to control" (MINTZBERG, 1990 apud HEIJDEN, 2004), and this mindset is geared to the concept that there is a correct answer to be followed which can be calculated in terms of probabilities. The evolutionary manager does not formulate strategies given that belief resides in the fact that the environment is too complex, thus, decisions follow events and learning derives from acquired experience, in other words, the manager is always

on the rush, extinguishing fires. Finally, the author defines the process driven manager as being capable of looking at the company as if it were a living organism that constantly feeds him with bi-directional vertical information, with views to furthering organizational learning and openness to innovative suggestions. This type of manager takes the environment´s complexity into account, forecasts the future but is flexible to keep pace and establish learning connections. Learning links must be carefully analysed given that the manager´s mindset includes all the situations experienced which, despite not having direct relationship with the current moment, influence the decision maker, who might or not be benefitted by the same. The underlying reason for this is that often the manager shuts reality off in function of personal values or experiences (SCHWARTZ, 2003; 2000).

The scenario builder is further concerned with the manner relevant data is collected. (WACK, 1985). Selection must be performed in a free manner, considering all possibilities, avoiding prejudices that might induce the process (VAN HEIJDEN, 2004). Queried teams must preferably be of multidisciplinary nature, so as to not privilege any kind of mindset, preserving scenario exemption from what shall be prepared. According to the author, in addition, both the company´s history and the group dynamics to discuss possibilities must be preserved, gathering the positive aspects of each strategic thought (evolutionary and rational). The methodology may be applied once the environment to be shaped and the actors that shall construct the probable futures, are defined.

For Buarque (2003, pg.30) scenarios are prepared as of a set of techniques and systemization, information organization and uncertainties treatment for the preparation of hypothesis process, which demonstrates the relevance of information ranking when building a scenario. This occurs because macro and microeconomic variables behaviour is not controllable but rather present a casual logic. It is up to the planner to be skilled in establishing and organizing logics bringing in a reasonable volume of relevant information to support decision making. The author classifies scenarios according to the exemption or planner´s desire to influence in the forecast future.

In as much as scenario planning for the implementation of business in Brazil is concerned, the existing differences between regions and the influence

that the country receives from other economies, calls for the need to consider its micro regions in a distinctive manner, keeping in mind their relation with the world macroeconomic environment. Each Brazilian micro region presents a distinctive character and the choice for this or that locality must converge with the company´s strategic objectives in pursuing competitive advantage.

2.2 MICRO-ENVIRONMENT: CREATION OF A COMPETITIVE DIFFERENTIAL IN IT

Prahalad (1990) compares a company to a tree that springs from its roots; it is fed by its skills; structured in its business units and whose fruit are its final products. Thus, the true source of competitive advantage resides in the manager´s ability in combining existing corporate techniques, with those that render individual power to the businesses, so as to speed up adaptation before changes in the environment. His metaphor serves the purpose of illustrating the success of some companies before changes in the political, economic and technological scenarios during the 90´s, after the opening of markets. Amongst the most relevant facts, worthy of mention are: economic liberalization, intensification of competition given the entry of new competitors in protected markets, the intensification of communication systems with the dissemination of the use of the internet, ease of access to information and reduction of knowledge barriers that now transpose country frontiers (FRIEDMAN, 2007). These alterations in the world scenario invigorated the economy, leading to a competitive rush focused on innovation and in entrepreneurial actions, capable of capitalizing these changes and bringing to light new business models (PORTER, 1992). In the case of Brazil, this environmental change was particularly challenging given that managers, used to operating under market reserve protection, were not in the habit of thinking their businesses in a strategic and competitive manner. Data from SEBRAE (Brazilian Micro and Small Company Support Service) demonstrates that 56% of São Paulo´s companies closed down before five years of activities due to the lack of adequate planning (WERLE, 2006). These numbers reiterate that, to establish an innovative business within or beyond frontiers, it is vital that the organization count on a clear understanding of the interrelationship between “strategy”, “organization” and

"environment".

2.3 TEMPORARY COMPETITIVE ADVANTAGE

As per innovation, internationalization also generated competitive gains, both by means of strategic geographical occupation, as via the possibility of cost reduction, ensured by access to cheaper labour and the increase of global scales, or due to related risk mitigation, given decreased local dependency or still, the proximity of new types of knowledge, core to the development of new technical skills (DUNNING, 2003, 2001; DAY e REBSTEIN, 1997; AUSTIN, 1990; PORTER, 1998). All these advantages are notorious, but due to the fact that they are external and beyond corporate control, they don´t, per say, ensure business sustainability, given that they are variables, and might be easily copied by any other market player set out to undertake meticulous benchmarking.

In the IT segment, environment changes and the rush for technological innovation enabled the emergence of the field itself, which thereafter became subject of strategic status treatment at organizations. However, the reduction in product life cycles, an output of this very same race, reduced the duration of acquired competitive advantages (DAY E REBSTEIN, 1997). This competitive advantage transience around innovation, contained major uncertainties as to the choice of adequate technologies, since IT managers, were unable to justify the high and regular investments to keep their areas updated.

2.4 SUSTAINABLE COMPETITIVE ADVANTAGE

Economic advantages connected to the macro environment, merely address a portion of a new entrant´s challenge (PORTER, 1986). The concept of sustainable competitive advantage (BARNEY, 1997; PETERAF e BARNEY, 2003; WERNERFELT, 1995) suggests that the true competitive advantage of a company arises from the organization and from the adequate exploration of superior internal resources, which are capable of limiting competition, generating greater economic value than its marginal competitor (PETERAF E BARNEY, 2003). The authors deem as internal assets all corporate tangible and non tangible assets,

i.e., its internal capabilities, knowledge, organizational formation and so forth. Resources can be grouped into four distinct capital type categories, namely: financial, physical, human and organizational (BARNEY, 1997), which shall only be capable of generating sustainable value if acknowledged as: valuable, rare, unique and hard to imitate, known for the acronym VRIO (BARNEY, 1991).

2.5 STRATEGIES

Whatever the current scenario, the choice of an adequate strategy considers both the internal and the external context, and this implies in the detailed ideation of the process, which in turn includes an increasing range of strategic decisions. Making further use of the tree metaphor, utilized by Prahalad (1990), decision starts with the selection of the site to plant the tree – domestic or foreign market; next, the type of tree capable of addressing that location, respecting the need for diversification or economic gain in scalability, as per when one chooses between a mono or polyculture strategy – multi-domestic or global strategy (PORTER, 1998; BARLETT, GHOSHAL E BEAMISH, 2000), and finally, if your operation shall take place by means of a competitive or a collaborative strategy. The characteristics of these four types of strategies shall be explained in suit.

2.6.1 Strategies: Global and Multi-domestic

In as much as the choice between global or multi-domestic operations is concerned, Porter (1998) emphasizes the question of greater importance to be evaluated in global strategies which is to know "when and how the international whole is greater than the parts" and, to this effect, reiterates the relevance of decomposing corporate activities according to the value chain.

Only once activities are broken down into directly related to production, marketing, delivery and product or service support categories, shall decisions concerning the activities which must or not be centralized at headquarters be possible, enabling the company to take advantages of location, gains in scalability and local commitment (BARLETT e GHOSHAL, 2000). These categories

are variable and depend on the field of business, and its application also addresses domestic companies, given that strong and weak points are listed and ranked. Within a global strategy, the company shall define how it will configure activities and in what manner these shall be compatibilized. Strategic positions involve activities that define production and the variety of products and services that shall be offered at each market to meet the specific needs of clients.

2.6.2 Strategies: Collaborative or Competitive

Another important strategic decision is the choice as to the local *modis operandi*, if by means of competition or collaboration. Competitive strategies were explained by Porter (1986) when setting relationships between the company and its environment by means of five forces which, according to the author, drive competition within an industry (potential entrants, substitutes, buyers, suppliers and competitors). Later on (1992) the author updated his competitive model according to the diamond model proposition, whereby competitive advantages are taken into consideration *vis a vis* the location. As to collaborative strategies, typology varies according to purpose. If activities within a company complement each other in a cooperative manner and the objective is to increment competitiveness within the industry, the alliance is named as complementary strategy, but, when companies cooperate to mitigate competitiveness of a common rival, this strategy is considered one of collusion (EIRIZ, 2001). The author suggests that alliances fall under the following classification: 1) Commercial (groups of exporters, distribution agreements, representation agreements, purchasing centres, franchises, social support, etc); 2) Technique or Production (consortium, formation and/or technical assistance, subcontracting, joint production agreement, research agreement, development, patent licensing, etc; 3) Financial (company buy out, minority shareholding, joint venture, fusion etc). Barlett, Ghoshal and Beamish (2000) rank alliances according to the type of existing agreement and the level of interaction between parties, so as to identify the level of competition, or of existing cooperation, between the parties.

As to the evolutionary role, Tanure, Evans and Pucik (2007) emphasize

that a frequent evolutionary pattern of such operations is the rise of alliance networks, whereby companies are thereupon qualified to offer complementary services and products in their value chain. The IT segment calls this "delivering a global solution". The authors further state that, although alliances are an important way of ensuring success on the market, maintaining such an agreement has a transitory character, given the dynamics of market interests which generates corporate partnerships at a given moment and competitors at another. Furthermore, the existence of interests in common and the lack of loyalty between partners call on management to demonstrate high levels of tolerance.

3 METHODOLOGY

The methodology utilised in this article is that of single case study analysis and the objective is to enable the observation of real situations in a company of the IT segment, to identify threats and opportunities when preparing scenarios, so as to map hypothesis capable of sustaining decisions, concerning the implementation of a new business model, based on *crowdsourcing* during the ´90s. For Yin (2001) "the case study strategy may be utilised to explore situations where evaluated interventions did not present a simple and clear set of results" (p.34).

The execution of this study leads to the association of two factors: an external and an internal one. For the purpose of preparing a macro environmental evaluation, here a transversal cut of the Brazilian and world business environment in the ´90s was made. From this cut, emphasis was placed on the political, economical and technological factors deemed of relevance, capable of indicating self regulatory and self organizing patterns of the evaluated environment. (BUARQUE, 2003). This scenario analysis established a relation between the national and the international business environment at the time, combining inductive and deductive logic methods. The inductive structure was necessary because within it, events follow a temporal order with the cause and effect relations. As to the deductive method, it was employed because within the same, scenarios are presented by means of crucial descriptions and data

manipulation, that establish a "if/then" relation (VAN DER HEIJDEN, 2004), which enables the creation of hypothesis and the consequent search for cause and effect relations of actions. Buarque (2003) ratifies this choice for the preparation of scenarios upon suggesting that the combination of inductive and deductive methods is the most appropriate for the preparation of scenarios in complex environments, where regional differences and existing conditions in the environment´s subsystems are peculiar and call for evaluation in separate. Thus, research shall follow the logic structure exposed in the model below (Figure 1).

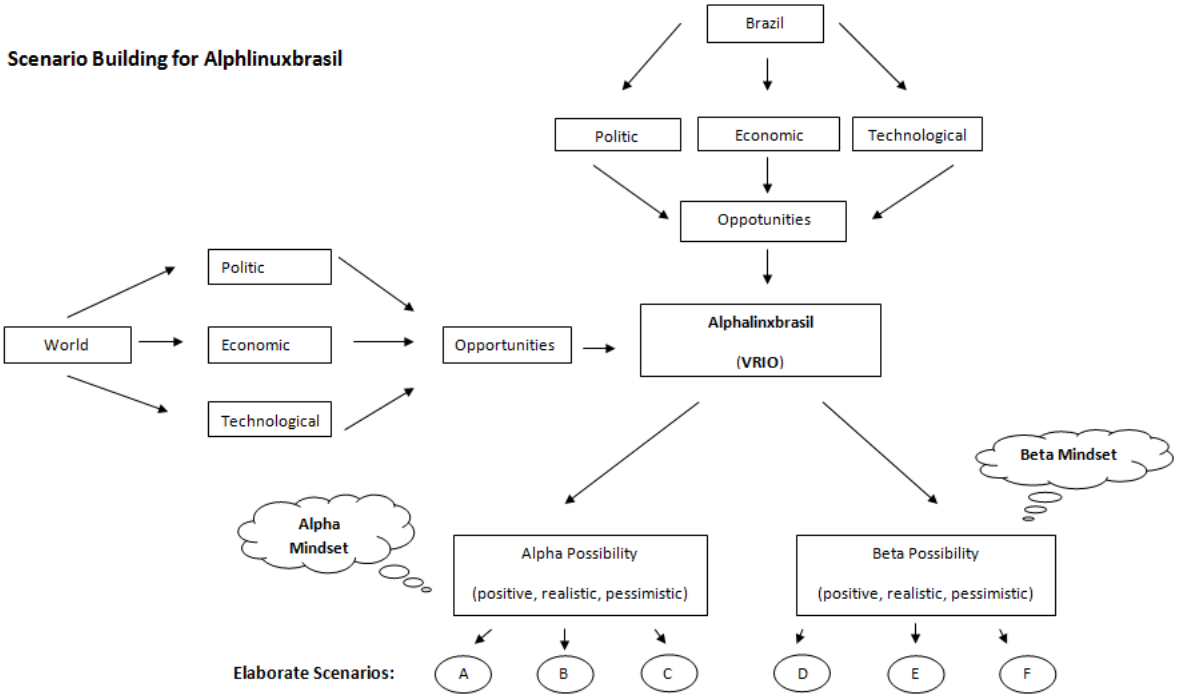

Figure 1: Alphlinuxbrasil´s scenario building methodology

Source: Prepared by the author

The figure indicates how Brazil and world political, economic and technological factors affect the company. These influences, when related to the unique competitive advantages of the company, generate a series of possibilities that might be understood in a variety of manners, according to the manager´s mindset, whether he is more conservative or more audacious. The choice for each type of manager (audacious or conservative) leads to the scenario possibilities: optimistic, realistic and pessimistic (WACK, 1985). These possibilities were evaluated in an inductive manner and their analysis served as

grounding to evaluate which was the best path the challenging company ought to follow given that context.

The collection of data for the elaboration of scenarios made use of secondary data from the period under study, gathered from files contained in the sites of newspapers and technology magazines. The competitive advantages of the company were understood by means of primary data, obtained from testimonials gathered from four of the company´s former employees: two account managers from the São Paulo office who supplied data concerning the business environment; the marketing coordinator from this same office, who brought information as to products, partnerships and brand name consolidation and the São Paulo office´s general manager who accounted for the entire operation in the State, who, given the fact that he interfaced directly with headquarters, was well acquainted with the mindset of the company´s CEO.

4 THE ALFALINUXBRASIL CASE

Alfalinuxbrasil started its activities in Brazil in 1995, by means of the initiative of seven former Bank of Brazil employees who started the business supplying services to companies who wanted an internet services provider. It was the beginning of commercial internet in Brazil and most of the companies still didn´t quite know how to make it function, yet, needed the service. Furthermore, the lack of skilled resources to provide safe, reliable and stable access triggered a high demand for technicians capable of implementing access software. For Alphalinuxbrasil´s seven technicians, the choice fell upon Linux for two fundamental reasons: 1) Shareholders were familiar with the Unix environment; 2) Gratuity of the operational system. Until then, none of them knew much about Linux.

Given that it was a flexible platform, Linux addressed to taste customer customization needs however, with the increase in demand, pressure to perform installations faster also picked up. That was how the idea to launch the first Brazilian version of Linux emerged.

Due to the fact they were not able to estimate a precise demand for the product, 1.000 copies of Linux-BRA were produced, the company´s first Linux

version. At the time, this quantity seemed overestimated but the market was favourable and all the copies were sold out in a few months. The following year, Alfalinuxbrasil launched a new version, introducing new packages and some updates and this time, 5.000 copies were issued which were also rapidly sold out. The interest for solutions in free software expanded throughout the world, attracting the attention of sympathizing developers, companies and risk investors (FRIEDMAN, 2007). In 1998, IBM announced its plan to incorporate the Apache (free provider and free access to internet) in their new web server, the WebSphere, (FRIEDMAN, 2007) a fact that free developers considered an acknowledgement on the "Big Blue"´s part of free software´s efficiency and thus, by extension, of the work they developed. On the other hand, risk investors, keen on extending their own returns, were motivated by the expansion of the internet and all businesses that related to the same – it was the start of the bubble that would burst in the years to follow.

This scenario provided Alfalinuxbrasil with capital investments, whereby an American pension fund acquired 30% of the company, becoming its major shareholder (each partner only held 10% of shares). Contractual clauses forecast rapid expansion, with the opening of five branch offices, situated in Brazil´s leading capitals, two in Latin America and another in Central America targeting the mature American market. The fund´s perspective was that, in a short period of time, the company would expand by means of another capital investment inflowing from a technology company interested in the platform or be sold out, after a couple of years, to a new player interested in the Brazilian and Latin American market.

4.1 THE PRODUCT AND OTHER DISTRIBUTIONS

The operational system that gave rise to Linux was Minix, a Unix derivate owned by AT&T. That was how, in 1991, Linus Torvalds, a Finnish student keen on developing an accessible, free and adapted to the individual needs of each user operational system, launched a challenge via a discussion list on the web (Usenet). To set Linux up, Torvalds sustained this nucleus on top of Minix and linked it to tools from the GNU (free software project created to develop an

operating system that would be compatible with the Unix standard). The working system utilized for the development of this activity was that of collective help and it was up to Torvalds to coordinate group efforts to improve the operational system he had created. When he developed the Linux, Linus Torvalds had no intention of earning money with the system, proof being that it continues to be under the GPL license, i.e., anyone can use the programs therein, as long as one takes on the commitment not to make them closed for commercial purposes. This shared approach, comprising altruistic and isonomic ideologies, lead to some setbacks for companies that started the process of commercial exploration of the product, as will be discussed further on. Unix presented a series of advantages *vis a vis* its proprietary standard competitors - Windows or Mac OS.

In as much as disadvantages are concerned, price and the requirement to use heavy hardware platforms that were too expensive for most professionals, are the most relevant. This disadvantage was eliminated by Linux and incorporated as yet another competitive advantage for its dissemination both at corporations and amongst other users.

Despite all of the above advantages, the use of Linux was restricted to the technical environment for a few years because Windows had already positioned itself as market standard, offering its users a friendly and intuitive interface for work stations, whilst Linux still operated over lines of command. With the emergence of the internet, applications such as the Apache multiplatform that worked as a web server made the system become more functional, however, until the mid 90´s, even with the existence of several different interfaces, known as Windows Managers, none of them came close to Window´s level of functionality and integration.

Later on, the extension of Linux´s functionalities made commercialization feasible and at the end of the 90´s the major commercial distributors of Linux were: Red Hat (USA), SuSE (Germany), Mandrake (France) and the newly formed Alfalinuxbrasil (Brazil). Furthermore, there was a set of products developed by communities amongst which Debian, Slackware, Gentoo and Fedora, that, though not ideated for profit, are core to the feasibility and the innovation process of free software. Linux distributions appeared by means of some small innovations and one of the first versions focused on ease of use was

Red Hat, which served as inspiration for those other in Europe and that of Brazil. The company brought a differential - a package managing system - whereby each program included was transformed into a compacted package one could install via a single command, according to the needs of each user. This system kept the information of installed packages and it was easy to remove. It could be done even if the machine were running. The interface was not as yet as friendly as clicking on an executable and having a graphic installer, and furthermore, there were issues concerning package dependency, but it was far better than having to compile everything manually.

However, in and around 1997, there already was a set of relatively easy to use distributions, with simple installation systems and compatible documentation so that a person with some technical knowledge could install it. There was a latent opportunity for the development of Linux, given that the environment was favourable to the emergence of innovations, and the technological bubble expanded with the hunger of investors for new businesses. However, what could be the commercial application of a free software at the corporate environment and which type of opportunities could it give rise to? The answer lay in the rendering of services associated with the new system, a new concept in terms of software sales, that now was being delivered in the form of an aggregate service, that implied in the formation of a favourable environment to support it.

The case of Linux´s expansion in Brazil comprised a series of challenges to the shareholders, all sprung from technical backgrounds. Amongst the difficulties to tackle, some worth mentioning are: 1) This was a new business concept, involving a free of charge physical product, associated with a service, that was rendered by a small number of people, skilled in Linux, but most of them were not familiar with the corporate environment and its needs; 2) A strong "ecosystem" had to be developed in as much as the following were concerned: i) product (suppliers, compatible documentation, etc.), ii) marketing (dissemination modes and construction of the corporate image), iii) clients (corporative and domestic), iv) distribution channels (retail, distributors and training partners), v) technological partners (companies, educational institutions and communities), vi) professional training; 3) The company had to structure job

positions, functions, design common objectives and establish hiring policies; 4) Understand how to work with the updates (innovations) developed in the community and develop control measures on opened innovations; 5) The rapid internationalization process did not even foresee the need for local knowledge (business environment, internal policies, government relations, notions of appropriate locations, etc.) nor the duplication of the challenge presented in item 2 (full market development) for each new location.

Based on these challenges, this article proposes to understand how the construction of scenarios might have assisted the company in discovering the path to develop a sustainable business in the technological environment, both on the Brazilian market as in its project of insertion on the foreign market.

5 ANALYSIS

5.1 INTERNAL VARIABLES- VALUE CHAIN AND VRIO

The company´s value chain in 1999 is ground on four cornerstones: existing demand, customer needs, corporate internal skills and external influence variables and the logic sequencing of these factors, discussed in suit.

As mentioned earlier, at that time, there was great interest on the behalf of companies, for portals and internet applications. The world was in the "informatics era" and the use of these portals as a support tool, directly impacted their competitiveness. This increasing interest for technological resources and the fact that few were capable of understanding how this field worked, and thus, make correct decisions to increase corporate competitiveness, lead to the rampant increase of the IT segment that no longer was viewed upon as being a support area and took on a strategic position within corporations. Given that many technologies were not consolidated, most IT managers felt insecure as to the best solutions to implement, whether because of their market acceptance, or due to the availability of technical support. There was still another not less important issue to take into account: cost. At the end of the 90´s and at the beginning of the next decade, Microsoft modified its product sales strategy which, years earlier, consolidated itself as a market standard when it was

embedded, via OEM, into the hardware of most manufacturers. Given this event, the anti-hacking movement that had existed in Brazil since 1989, gained a powerful ally. Microsoft, in its corporate speech, justified charges under the argument that every innovation had to be compensated for, since it involved major investments in R&D, and, according to the company, this would be the only way to maintain corporate competitiveness and add value to society by means of the technological innovation. The campaign was perceived as an opportunity for a challenging operational system: Linux. This was due to the fact that the development of Linux, as of the work of a large group of developers spread throughout the world, in addition to enabling continuous innovation and speed in correcting possible product failures, was free of charge and protected users from incurring in hacking crimes foreseen in the Brazilian legislation. Since failures were rapidly mapped and corrected, the system was thought of as being safer and less vulnerable to virus attacks than that of Windows.

Notwithstanding all the positive characteristics displayed by the product, the largest challenge for Linux distributors was to face the market standard established by its competitor. Windows users were already used to its friendly interface and failures related to instability, blockage, etc., had already been incorporated by users. These factors increased the uncertainty of IT managers in changing operational systems. This became evident as of a statement made by one of Alphalinuxbrasil´s account managers who declared that: "the greatest difficulty faced by Linux was the fact that no one had heard of an IT manager who had lost his job for having installed Windows, but if the option for Linux did not prove to be 100% efficient...". The only way to neutralize this competitive advantage of Linux would be by means of creating a favourable environment, composed by several manufacturers, capable of supporting the application needs of customers. A factor that helped solve this setback was the fact that players from different parts of the Linux value chain, interested in both the reduction of R&D expenses and in the possibility of continuous innovation, started to support the development of the free software, starting the ideation of this environment. As to the external environment, the opening of the market and the technological race towards competitivity also lead to the increased interest of direct investors, attracted by the segment´s profit perspectives. These investments financed

entrepreneur actions in several parts of the world. The cause and effect relation of the described factors indicates the existence of two critical success factors for Alphalinuxbrasil: 1) Eliminate IT manager uncertainty with the creation of a favourable ecosystem for the development of Linux´s market; 2) Make best use of the demand for technological innovations and dominate its competitive advantage as related to continuous innovation, high added value and low cost.

5.2 EXTERNAL VARIABLES – MACRO AND MICROREGION OPPORTUNITIES

The observation of macro and micro regions identified global opportunities that impacted each city which was analysed, with views to opening subsidiaries. Each, in turn, is influenced by both the world scenario and respective countries and converts events into opportunities, as of their micro regional policies. The complexity of the scenario (BUARQUE, 2003) suggests that different characteristics might favour or impair the development of a company depending on the region of choice (PORTER, 1992; DUNNING, 2001; 2003). Considering that the challenge proposed by financial investors was the opening of eight subsidiaries, it is vital to rank localities so as to optimize investments with the opening of these subsidiaries.

5.3 SUBSIDIARY OPENING RANKING

Analysis of macro region opportunities in terms of each micro region´s competitive advantages and as to the critical success factors for the formation of partnerships and continuous innovation, leads us to the following sequence as to the opening of subsidiaries: 1) Curitiba headquarter – partner´s hometown, considered an IT technological centre; 2) São Paulo – Brazilian city with the highest concentration of income, focused on the rendering of services and with the greatest concentration of technology companies, potential allies; 3) Porto Alegre – the presence of a large number of Linux enthusiasts might point towards the presence of a large number of people capable of working with the operational system, something that is considered as being vital to assisting the common development of the software; 4) Mexico – city close to the largest international consumer market. Given understanding of the American mindset

and ease of penetration into other Hispanic markets, strengthening the strategic position in this locality would be of great use to Alphalinux; 5) Rio de Janeiro – the presence of large companies of the telecommunications segment and of the two major Brazilian internationalized companies (Petrobrás and Vale) would justify local presence for the rendering of services; 6) Federal District- emergence of incentive laws regarding the use of free software gives rise to good business opportunities with the government and other governmental institutions. This would justify corporate presence in this region with views to supporting implementations at these bureaus and the creation of such incentive laws; 7) Argentina – the good level of education of Argentineans could bring greater advantages to the acquiring of qualified labour, however, their dollarized economy could be a threat for the subsidiary whilst short of breakeven. After this period, exchange rates could be utilized to Alphalinuxbrasil´s advantage. 8) Colombia – the reduction of the country´s economic dependency on illegal resources could bring forth good opportunities for the company.

These macro and micro regional characteristics, when related to those internal to Alphalinuxbrasil, indicate that the success of the challenge proposed by the foreign investors depended on replies to two queries: 1) Are the conditions to work with the innovation ensuring the success of the business? 2) Is it possible to develop a sustainable environment for Linux in a short period of time? Thus, decision making resides in one of two choices: expand in a sustainable manner or take advantage of the moment´s opportunity. This lead to the development of six distinct scenarios relative to two types of mindsets: conservative and defiant or challenging, as pictured in Figure 2.

Choosing the most adequate scenario depends on each manager´s mindset, however, it is up to the planner to place emphasis on the characteristics of each option so as to support the manager´s decision making process. The detailing of each scenario shall be presented hence forth.

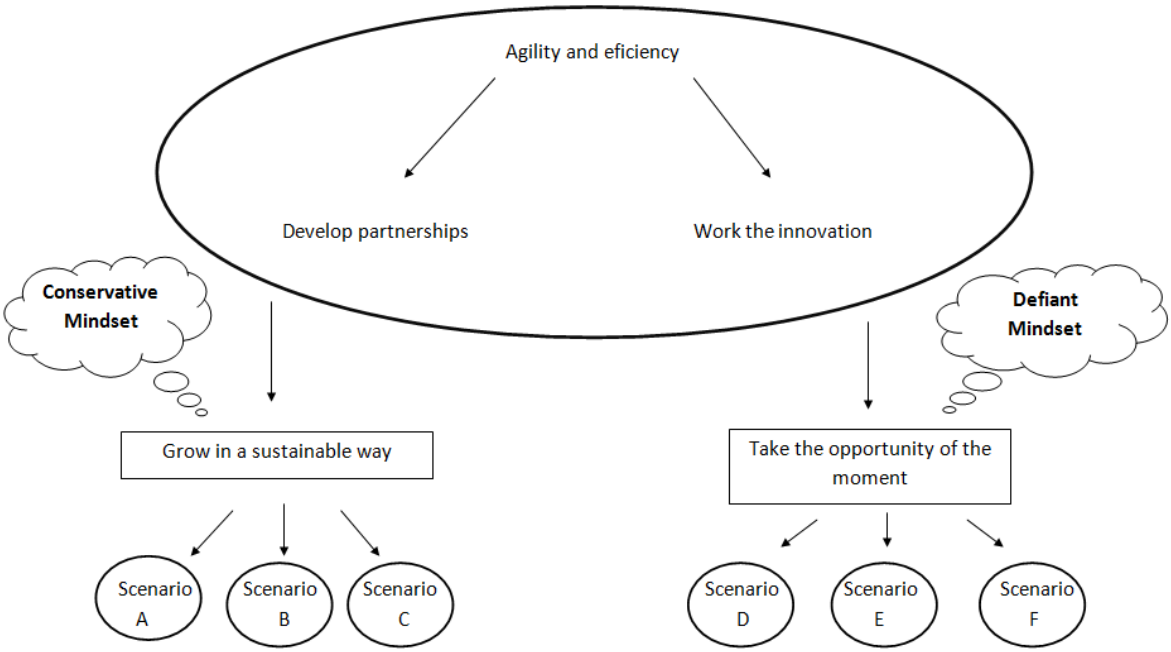

Figure 2: Alphalinuxbrasil´s scenario based strategic planning
Source: Prepared by the author

5.3.1 Sustainable Growth

Scenario A – Sustainable Growth is successful: Under this scenario´s perspective, if Alphalinuxbrasil chose a conservative profile, ground on its critical success factors, the company would realize that it would not be able to develop a sustainable environment that might enable the formation of strong partnerships, in a short period of time. It would have further evaluated that, given it wasn´t clear what kind of business model was to be offered to the market, it would have to extend negotiations with the foreign investors, choosing thus to grow, in a sustainable manner. The selection process to open new subsidiaries would abide to the analysis of the environment, which appeared to be most favourable for the development of its skills. For starters, it would define positions, functions, establish hierarchies for information reporting, evaluate local characteristics and select activities to be centralized at headquarters, delegating

power to each branch office in terms of local actions, making best use of each region´s potential as suggested by the multi-local strategy (PORTER, 1992). This measure would also support the definition of the professional profile to be hired by each subsidiary. Subsequently, Alphalinuxbrasil, based on microregion analysis, would chose the site to open the first unit, which should address the requirement of facilitating collaborative alliances with technological and commercial partners that would support its operation. Observing the way other players of the same value chain operate could give rise to indications on how to structure the business model in the region. To train the workforce, the company could create a training system with proprietary certification that would enable the dissemination to other training centers, co-responsible for the dissemination of this knowledge, which would expand the number of people qualified to operate the system, whilst at the same time increasing Alphalinuxbrasil´s revenues. This would start creating a favourable environment for the rendering of services in Linux. The opening of branch offices would occur on a gradual basis, as the company acquired knowledge in the business and identified the need to expand to other localities. If this option were the most adequate, Alphalinuxbrasil´s expansion process would be well succeeded and the company would consolidate its presence on the market, occupying strategic locations in Latin America.

Scenario B – Sustainable Growth is partially successful: This scenario considers that regardless of the preparation described previously, Alphalinuxbrasil would not have had the time to consolidate itself on the market, because of having taken too long to open branch offices and thus having lagged behind best timing, i.e., the opportunity presented by the moment. Therefore, other distributors would have observed business opportunities, and would have entered the Latin American market. This would fraction the market, and part of the investments undertaken by the company to develop the same, such as qualifying the labour, promotion of the operational system and customer sensibilization might have been absorbed by the defiant, at a lower cost. Therefore, natural selection would take place and Alphalinuxbrasil would not be able to resist, or still, could face significant difficulty to maintain its competitive advantage. However, since part of investor resources would have been preserved given the opening of few branch offices, the shareholders, still capitalized, would

be able to choose to remain or not in the segment.

Scenario C – Sustainable Growth is not successful: In this scenario, Alphalinuxbrasil would prepare itself as described in the previous situations, would start its market development process but much like scenario "B", time consumed to take this conservative decision would impair the efficient consolidation of the company. Other distributors would observe the business opportunities and would enter the Latin American market. This distributor, because it would have initiated the business model in a more mature and demanding market, would already know the business model to be implemented and its technological partnership model would have been easily extended to Latin America. In this case, the market defiant would make use of investments made by Alphalinuxbrasil, in as much as labour force qualification, operational system promotion and customer sensibilization is concerned, and, since it would already have mastered both the knowhow and the how to, it would establish itself rapidly on the market, bringing major turmoil to the company. Under this perspective, Alphalinuxbrasil would succumb but, since part of investor resources would have been preserved given the opening of few branch offices, shareholders, still capitalized, would be able to chose to remain or not in the segment.

5.3.2 Taking advantage of market opportunities

Scenario D – Taking advantage of market opportunities is successful: Under this perspective, if Alphalinuxbrasil would choose a bolder profile, evaluating the opportunities of the moment, such as: a) Corporate shortage of cheap solutions; b) High demand for technological innovations; c) Need to acquire safe, scalable and mature platforms; d) Emergence of laws in Brazil requiring governmental institution preferential use of free software; e) Anti-hacking movement; f) Interest of other manufacturers that were part of the Linux value chain to develop solutions based on open platforms, etc.

They would have evaluated that the cost of losing the moment´s opportunity could be high and that competitors, on identifying such opportunities, could enter to dispute this very same market share and this would dilute the chances of the company in establishing itself in Latin America.

Therefore, shareholders would analyse their internal capabilities and, because they had been rendering Linux services for some years, they would have enough grounding to systemize this process. The knowledge they would have acquired concerning clients and service quality standards could be replicated to internal and external multiplying agents. Shareholders would also consider that, since they´d already started to develop their own distribution of Linux, this might be utilised as a competitive advantage given that the product operated in the local language. The shareholder´s bold management profile would have made them take advantage of the Brazilian environment and of the world context to establish eight subsidiaries in a short period of time, as foreseen in the agreement with the foreign investors. This strategy of obtaining local competitive advantages (DUNNING, 2003; 2001) was similar to that followed by other distributions which had established themselves in the American and European markets. To extend this advantage, subsidiaries would have been located in strategic places for Alphalinuxbrasil, such as Brazil, Mexico, Colombia and Argentina. The Brazilian subsidiaries would concentrate at the country´s major economic centres: São Paulo, Rio de Janeiro, Federal District, Porto Alegre and headquarters would have been in Curitiba, hometown of the shareholders. The cultural and geographical proximity of the countries and the cities (all Brazilian) would facilitate the process of adaptation of the business and of personnel allocated to work in these regions. Labour attraction and training needs would flow with ease and Alphalinuxbrasil, given simultaneous presence in various countries, would find it easier to establish global partnerships. These factors would make local opportunities be duly capitalized upon and would also create a strong barrier for any competitor.

Scenario E – Taking advantage of market opportunities is partially successful: Under this scenario, as in the previous one, Alphalinuxbrasil would strictly follow the investor´s challenge but despite cultural similarities and geographic proximity, the company would not be able to coordinate in a harmonic manner its internal processes. Despite this difficulty, the company would proceed and start the process of developing local markets. To facilitate the coordination of branch offices, keep control of the operation, and standardize services offered, headquarters would have centralized decisions concerning

market approach. Considering that the shareholders, originally from the technical area, were not familiar with the business peculiarities of the regions, in as much as manners of attracting labour, legislations, local manager mindsets, etc., is concerned, large sums would be spent in an attempt to consolidate the company on the market. With the lack of experience, many errors could occur and there would be a greater risk of weakening cashflows. If this were to hold true, shareholders would be obliged to sell out their stock positions. In this phase of scarce resources for investment purposes, should an external competitor appear who´d perceive the good opportunities of the Latin American market, it could make use of the investments made by Alphalinuxbrasil, such as: qualification of the labour force, product dissemination and customer sensibilization. Should this take place, the company, in a fragile condition given the lack of financial capital, would succumb, or would face difficulties to maintain its competitive advantages, which would induce shareholders to let go of the shares left and abandon the decision domain of the company, once having received the last possible investment in capital. Thus, under the new management, the company might have survived and maintained or not, some of the shareholders as collaborators. The shareholders who´d not occupy key technical areas would have abandoned the business with no capital.

Scenario F – Taking advantage of market opportunity is not successful: This scenario foresought that Alphalinuxbrasil would strictly comply with the challenge posed by the foreign investors, but market evaluation errors would lead to a major weakening of the company´s cash flow. Thus shareholders would be obliged to close down subsidiaries at great loss. Since the shareholders would no longer have control over the operation and the other external investors would not be familiar with the segment, after some time, the company could be bought out by a competing Linux distributor, interested in the Latin American market. Given that Alphalinuxbrasil´s local action would have created a favourable environment for the development of Linux related products and services, the competitor would not face impairments to establish itself on the site. Under this last perspective, none of the original shareholders would remain in the company.

6 FINAL CONSIDERATIONS AND RESEARCH LIMITATIONS

The introduction of Linux in Brazil, at the end of the 90´s, was marked by a series of mishaps which could have been mitigated by the adequate analysis of scenarios and of the company´s competitive advantages, both in terms of product implementation and as to the market challenging business model.

Given the characteristics of the business that foresees the sale of added value to the product, the company should have adopted a multi-domestic strategy (PORTER, 1992), capable of ensuring greater flexibility to subsidiaries upon decentralizing its operations. This measure would have empowered subsidiaries with greater autonomy to make best use of local opportunities, increase their profitability and ensure a strategic position without restraints posed by headquarters. The facts that testify in favour of this choice are: adaptable nature of the rendering of services which can and should vary according to the internal needs of the client and of its segment and the scalable nature of the product. The profit centres should also be distinct given that one cannot allocate the same weight to markets such as that of Rio Grande do Sul and of São Paulo, for instance. As to the mode of operation, considering that one of the critical factors of success was the creation of an ecosystem that would be favourable to the operation, the use of a collaborative strategy (TANURE, EVANS AND PUCIK, 2007) including manufacturers and other players of the IT value chain, was of vital importance to the company.

Thus, within the scenarios presented, it is understood that scenario "A" would be the most adequate for the shareholders since because it was more conservative, it preserved the inexperienced profile of the company´s shareholders and their lack of knowledge in formulating a new business model still unheard of, within the country. To this, one should add the lack of knowledge as to the business environment in the foreign market, something that called for greater caution so as to expand the company´s knowledge as to their business and its relationship with the foreign market. Under a gradual approach, foreign partnerships, which would offer sustainability to the business, could have inclusively been an extension of those formed in Brazil.

The opening of subsidiaries could have started in São Paulo, given that

this city concentrated most of the technology oriented companies, the second critical factor for the creation of a safe business ecosystem. Another factor was the diversity of its business environment, which offered great possibilities for the rendering of services. This branch office, given its geographical proximity, would be able to meet the corporate needs of Rio de Janeiro and, for start up purposes, the governmental demands of Brasília. So that this might take place in a favourable manner for Alphalinuxbrasil, its role would be clearly defined as that of attracting both strategic and commercial partnerships, and its capacity to generate demand would be adequately explored. Headquarters in Curitiba, the hometown of the shareholders and an acknowledged technological centre (INFOEXAME, 2002), could have concentrated the core R&D activities, the second critical factor of success, thus making best use of its major potential. Headquarters could still, given its geographical proximity, serve as a link to another major Linux developer - Rio Grande do Sul. With the centralization of marketing activities, headquarters would promote initiatives to extend the use of the software on that market whilst at the same time strengthening the company´s brandname.

Once the company expanded and the two units reached the breakeven point, the possibility of opening an office in the Federal District, to meet governmental demands with its specificities and requirements - entirely different from those of the corporate market - would be considered. Entering new markets would take place later on, after the consolidation on the local market and, upon analysis of data, the best location to set up a foreign subsidiary would be Mexico since this is the country that concentrates the greatest number of qualities required for Alphalinuxbrasil´s expansion, both given its ease of access to other Hispanic countries and for its geographical proximity and knowledge of the mindset of the mature American market (DUNNING, 2003; 2001). The needed opening of the other subsidiaries might emerge after these four consolidations, respecting the demands of the company and the local macro-economic conditions.

At the end of the ´90s it was widely known that there was a vast opportunity for the development of free software, given that the world scenario was favourable and this suggested that the pace be accelerated so as to occupy

strategic positions. To this, one should add the information that other Linux distributors were trying to establish themselves in other localities, such as USA and Europe. A report prepared by the IDC, in 1999, announced that the installed Linux base comprised 25% of the existing operational systems on the market and evaluated that this system´s world revenues and that of other open source platforms would expand from 42 million dollars, in 2000, to 7,8 billion dollars, in 2005. This kind of data, plus risk prone mindsets (SCHWARTZ, 2000; SCHOEMAKER, 1995; PETERSON, et al., 2003; VAN DER HEIJDEN, 2004; BUARQUE, 2006) hastened decision making. This is what drove Alphalinuxbrasil´s shareholders to selecting scenario "E". Given this choice, the company did not have the financial capacity to sustain its competitiveness either within the country nor abroad and to maintain its operations it had to receive capital investments from groups from different segments, experiencing the management of several managers who changed the company´s nature and eliminated the existing culture. In 2005, the company merged with an European distributor that remained competitive, operating in a specific market niche. Currently none of the original shareholders are at the company.

Nowadays, hardly any company disregards the relevance of Linux. It´s importance to corporations expanded so much that in 2007, the operational system reached its maturity gathering around it, in addition to the joint efforts of communities and developers, over 70 companies, amongst which: AMD, Cisco, EMC, Fujitsu, HP, Hitachi, IBM, Intel, Motorola, NEC, Nokia, NetApp, Novell, NTT, Oracle, Siemens, Unisys and Sun Microsystems. Some of these, in 2007, came together around the Linux Foundation, an institution that hires the inventor, Linus Torvals, and poses to develop, protect and standardize Linux.

The construction of scenarios is not a scientific activity, however, its application for the interpretation of the current movements and future performance enables, as in science, the explaining of the past. This article expects to contribute with the understanding of scenario construction in the information technology environment, however it does present some limitations relative to the deeper understanding of the second critical success factor, brought to light by the research - innovation, which poses as a differential, the fact of being open, and vital, to the perpetuation of the business. This fact was

not contemplated by the framework of this research but may serve as inspiration for future projects such as: a) Evaluation of the importance of the organizational structure and distribution of functions and positions in an IT company to support knowledge and innovation; b) Management of the knowledge concerning players that work with open innovation; c) Development of efficient methods to ensure constant innovation of the open product; d) Creation of added value for the execution of efficient technological partnerships in open products; e) Methods for the selection of markets to address and strategic positioning of open technologies; f) Selection of the best operational method for companies that utilize open technologies – global or multi-domestic; g) Detailed analysis concerning efficient control over technological innovation and added value based business model.

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