

# Innovation Strategy for Business to Business Market Penetration

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## Abstract

Strategies must align innovation capabilities to foster business model, since it mediates between the technology and the economic platforms domain. Here we consider the elements influential to technology innovation process in the context of a business to business technology-driven enterprise, considered within the perspective of technology maturity and organizational life cycle. The study subject was the Operacional Têxtil Ltda, a Brazilian textile systems automation enterprise, serving Latin-American textile industrial market. Main conclusions indicate the enterprise could be (a) an innovative business process generator and make this the leading strategy to compete; (b) an innovative product launcher and make this the leading strategy to compete; and/or (c) a technology-driven innovator using this strategy to improve market penetration.

**Keywords:** Innovation, B2B strategy, Marketing strategy, Technology-driven enterprise, Technology strategy

## 1. Introduction

Next generation enterprises, as posed by Jonash; Sommerlatte (1999), are under extreme pressure by today's hypercompetitive market. As effective competitive strategies depend on a firm's innovation capabilities, enterprises need to know where, or on what capabilities to invest to guarantee competition power in their operating environment. The endeavor to build core competences seems to be the obvious way. Nonetheless, the majority of enterprises, especially technology-driven enterprises (TDE), find it hard to identify what elements should be dealt with to establish the best corporate strategy. Obviously, success does not depend essentially on managing organizational key processes, but on how to sustain innovation – either in product or in business.

In a TDE environment, success depends on a coherent management of processes that lead to innovation. Executives have been trapped by the obsession of focusing the development of innovation without considering capabilities aligned to structures, context and organizational maturity as a whole. To identify and to introduce processes that combine key factor of success and technology innovation one needs to understand the organizational technology maturity cycle and the importance of market acceptance standards. Not perceiving these elements or barely understanding their role could lead to processes not congruent with corporate strategy, weakening effectiveness decreasing corporate competitive edge.

A winning corporate strategy requires considering the best way to consolidate especial capabilities contingent to the balance between product technology innovation and business technology innovation (Jonash; Sommerlate, 1999). Innovation in each way is distinctive and possesses specific requirements. For instance, if a technology-driven enterprise is in the verge of mass production, it should focus on business technology innovation, not necessarily on product innovation (Kampas, 2003). This is key to entrepreneurs and executives to boost direction and effectiveness to

corporate strategy. In the same context, corporate strategy will be effective only if it optimizes capabilities and resources available within the corporation.

To creating competence in business, through technology domain, would assure innovation capacity to corporations that “became an unavoidable need” if they want to succeed (Prahalad; Ramaswamy, 2003, p.12). It is not about adherence to traditional prescriptive strategies, such as cost reduction, efficient management, organization and control, re-engineering and outsourcing. It is essentially a way of generating value. And value in the one hand, is innovation by definition. If technology influences business in nearly all formats and all activities, on the other hand, innovation turns to be the strategy that supports continuous and profitable growth, independently of the business nature.

To expand market participation, besides considering strategies between the spectrum of premium price and low prices scaling up production strategies, B2B technology-driven enterprises need to know what and where the traps of a workable innovation strategy are. Using innovation to support corporate strategy to market penetration pushes the former to a higher level of importance in the process of building internal effective strategies. It seems obvious that innovation strategy becomes key to effective corporate strategies, requiring careful consideration of the process of technology innovation. The understanding of the nature and mechanics of this process is essential to support the logistics to carry effective B2B strategy market penetration.

### *1.1 Objectives*

Our target here is to identify and discuss, using a selected technology-driven enterprise, the process of technology innovation in product and in business, in the context of organizational maturity. The study is carried out examining the nature and the process of organizational ripeness that curbs the development of basic competences in the corporation. As a result we propose a representative model to product and business innovation processes. The model combines stages of organizational maturity with preferred focus on innovation to orient the appropriate strategy formulation.

## **2. Methodology**

The method used to carry out this study was the case study method. We explore in the case the process according to which is observed and analyzed. Yin (2005) would point this approach as to look for the how, in the phenomenon. The central social subject of the research was the founder and executive president of the enterprise Operacional Textil Ltda (OT). We also interviewed two senior employees, both system analysts, who have been with the company since its inception. Their contribution confirmed the company’s historical trajectory described by the executive president and the meaning of observed behavior in the routine processes of OT.

The social subject of this research is Operacional Têxtil Ltda., a textile systems automation enterprise. OT’s IT systems are to integrate management and manufacturing tasks at textiles companies. OT was established about 25 years ago and became a major player in this sector, in South America. Its payroll sums up over 120 employees from which, two thirds are technical specialists, such as textile technologists, IT programmers and systems analysts. OT first main system was the Dyeing Management System (DMS), a system dedicated to integrate and automate textile dyeing operations. Small, medium textile enterprises first adopted DMS. Lately, the system, improved and expanded in terms of its functions, was relaunched as Textile Management Systems (TMS), a system involving textile and management operations, business intelligence and customer relations. Big players in the textile industry sector, such as Vicunha Textil, currently the major textile company in South America, and one of the biggest in the world, adopted TMS as its central integrated management and manufacturing system. OT holds two subsidiaries in South America: one in Argentina and another one in Peru. The enterprise also carries on a vast portfolio of clients and strategic alliances with multinational corporations dedicated to build or share common IT solutions. Among important strategic allies, OT counts with J.D. Edwards, that historically has helped OT find the best set of integrated solutions, combining production and administrative operations. We choose OT as the social subject of this research because it fits the basic requirements that we stated for this study, which means, the subject should operate in the Business to Business market, be a technology-driven enterprise, and operate in the international market.

This case study involves the history of Operacional Textil from its inception. It is divided into three major phases: (a) the early years; at the time when OT launched the main system, the Dyeing Management System; (b) the consolidation years, by the time when OT launched the Textile Management System; and (c) the recent years, a latter period, when OT begins to expand to international market. The data were collected through interviewing OT’s owner and the main executives. Also OT’s internal documents were accessed.

## **3. An Applied Theoretical Basis**

Enterprises in general, and more typically, technology-driven enterprises present highly distinctive standards in life cycle, according to experts such as Adizes (1999); Greiner (1986). Adizes, for instance, describes nine stages of structural development in the life cycle of an enterprise. Stages involve infancy, adolescence, maturity, aristocracy,

bureaucracy and death. Adizes argues that maturity and senescence of an enterprise is linked to the relationship between adoption consolidation of rules and flexibility. As the organization matures, rules and formal procedures tend to increase and determine the types of internal structures are likely to consolidate. Rules limits power distribution and determine the format of the decision making process. An organization reaches maturity when it achieves a stable equilibrium between rules and flexibility among constituent areas.

Bernhoeft's (1997) perspective, however, is the organizational maturity as result of successful relationships established with market. The maturing stages are: creation, survival, success, growth and maturity. In each stage is driven by market hurdles that influence the maturity process. Maturity is reached as the organization builds a solid architecture of internal capabilities and external market relationships. So, everything in the organization is aligned to the needs of the organization's market relationship.

Greiner (1986) points out that the organization's life cycle are inflection points resulting from internal crises. That is, organization gets mature after successive internal crises. The nature of each crisis typifies the organization's stage of development. Each one leads to a new development stage. Greiner identifies five types of crisis and similar corresponding growth cycles. A leadership crisis, for instance, leading to a growth by orientation, would happen in small organizations, while a bureaucracy crisis, supporting growth by collaboration, would happen in established middle or big organizations. Another way of looking at this issue, especially on technology-driven enterprises, is applying Hruby's (1999) rationale of product technology maturing process. Hruby simplifies the organizations' life cycles into three stages only: beginning, normative and mass production. The beginning is chaotic and explorative. It is disciplined by the next stage, the normative, where norms rule the organizational dynamics, leading to a structural equilibrium and allowing for stable mass production stage.

In spite of specificities, the authors perspectives are clearly linked to each other. The rationale for establishing the stages seems to basically be the same, that is, the equilibrium between organizational flexibility and ruling. In Figure 1 Hruby's organizational life cycle for a technology-driven enterprise supports the rationale for the distinct phases in the evolution of the innovation process, either in product technology, or in business technology. Next we discuss each stage and its associated traps, proposing at the end, a representative model.

### *3.1 Product Technology Evolution*

Any technology product holds a singular life cycle. Hruby (1999, p.15) points to four stages for a new product technology. At the launching, the new product or technology may be unique. It becomes subsequently an exotic, then, a specialty, and finally, a commodity as the technology matures in time and evolves through incremental improvements and distinct advances in applications. This cycle represents the spectrum of technological application.

Hruby (1999) defines the **unique** product is a singular solution for a specific problem. It is handcrafted (there is no standard process to build it), based on technologies in state-of-the-art. An **exotic** product is like the unique, but still in the early stages of a serial production. As **specialty** the product is known and accepted by the market, but still in the stage of limited production. And finally, as a **commodity** the product is accepted by the market and produced in massive scale. In contrast with the earliest stages, sold under a premium price policy, as a commodity the product competes in lower price. The profit contribution margin of the product shrinks as it evolves from the unique to the commodity stages. In the unique and the exotic phases, the technology embedded in the product faces almost no competition, or because it still didn't attract much attention from market and competitors, or because it is complex and hard to be reproduced. In the specialty and commodity phases, however, market standards of acceptance are established. As the product penetrates market, it enlarges opportunities, by chance, to be copied and to have technology reproduced.

### *3.2 Ways of Technology Development*

Technology-driven enterprises need a permanent innovation platform. To build an effective innovation platform it is necessary to master the continuous changes in the clients' demand environment, that means, to become an ambidextrous organization (Reinmoeller; Baardwijk, 2005). Ambidexterity refers to external environment adaptation and internal alignment. Regarding corporate environment, Kampas (2003) asserts that external adaptation and internal alignment must be in consensus with cultural premises of the enterprise. Thus, to respond to client needs and demands one must to convene structure, resources, capabilities and cultural patterns in the organization. Adaptation without proper cultural premises consideration may lead to business failure (Kampas, 2003).

Changing cultural behavior in organizations depend on changes in individual believes and values, too. Schein (2004) assures that changing people's cultural behavior in an organization means to align individual premises and values to cultural norms. But culture in an organization is highly influenced by factors affecting the specific organizational life cycle. Therefore, to change its own culture, a technology-driven enterprise needs to know in what evolution stage it

stands. Kampas (2003) observes that cultural standards are related to the product development phases. For instance, specific type of cultural standards stipulates the dynamics and influence performance as the organization matures and becomes contingent to rules and regulations. Knowing and considering such patterns, thus, it is essential to formulate corporate strategies and stimulate product and business innovation. It is fairly logic, therefore, to understand that enterprises, where cultural norms influence scale production, tend to perform below acceptable in product innovation if they are scaling up production. Obviously, the inverse is also true, that is, enterprises where cultural norms are less influential in product manufacturing, stand more open and tend to be more innovative, either in product or in business innovation.

#### 4. Results - Maturing Stages and Traps

Based on the expert literature, we analyze the organizational maturing stages and implications for the innovation process in the context of B2B. The analysis of each maturing stage shows the type of challenges one must face and the kind of associated traps that must be consider to handling efficiently the process of innovation. To do so, we here consider the evolution of Operacional Textil, to illustrate the stages, traps and the resulting arrangements for innovation.

##### 4.1 The Beginning Stage

The beginning is the creation stage. The enterprise becomes a fact, through the launching of a new product or system. At its earlier times, enterprises expend a huge effort trying to put out a unique, state-of-the-art product. Normally they do so by jumping into a market opportunity, which give them a significant competitive advantage. Evans (2002) asserts that at this stage, endeavors are mostly focused on product engineering development or production processes. This was the case at OT. In OT's earlier years, people were free to work their own way to find the best and fastest solution to build the Dyeing Management System. DMS should respond to the needs of dyeing automation to textile industry. Individual freedom and the dynamics of specific needs lead organizational climate close to chaos. At this point, the focus was possible applications of DMS and market penetration.

The first idea was to develop DMS with applications for spinning, dyeing, knitting and woven fabrics processes, all at once. But sooner they perceived that focusing on one application would be more efficient. Dyeing management was the chosen focus. Five people were directly involved in designing, programming and testing the new software. As Mr. Kriek, a textile technician and OT's entrepreneur puts it:

*In the affair to simplify processes and get results, there was a great deal of divergence, among almost everything, from programming language to help routines. There was also high pressure, from early adopter to customize solutions that increased conflicts because of diversified ways to have them solved...*

Pressures for customization required answers that no specialist was able to find alone. Interaction would be the best way. Analysts, developers and programmers found more efficient technologies by socializing knowledge, even if apparently they give the impression of getting low effectiveness and productivity in the processes. The climate was individualistic, though. Not infrequently, conflicts spurred up, demonstrating a typical anarchist managerial model. Each professional focused his/her responsibilities and functions to develop the system. On the top of it, cultural norms were still not strong enough to curb individual behaviors.

Survival needs lead OT's strategy to stimulate breakthroughs to build the system, in order to cut time to market and to decrease development costs. OT's survival depended on a new crunch of technology domain. Market responses, however, demanded for expanded applications of DMS. OT decided to relaunch the system as Textile Management System (TMS), now adding other textile production (spinning, knitting, etc.) and administrative (business intelligence, e-procurement and others) functions.

Considering market responses, this period was valuable to adjust and increase TMS the market acceptance. Some of OT's most important clients, which were willing to pay the price for the novelty, used the system and pointed main inefficiencies. Most of them were related to the administrative functions, such as purchasing, human resources management and the likes.

At first, OT sought partnership and strategic alliances with other small enterprises, to accelerate the system development. OT could then rapidly incorporate administrative subsystems, such as accounting, financial, human resources and others. As OT expanded TMS applications, it faced problems in the internal structure. Needs for the system development, conflicts of power (groups and individual conflicts) and lack of formal rules, begun to shake the effectiveness of OT's business model. On the top of this, some of OT's partners started to sell separately the system modules developed in partnership with OT, undermining the market for the product as a whole. Clearly, cracks came to show in OT's business model.

OT stopped doing new alliances and imposed serious restrictions to the current ones. In fact, OT decided to run the development risks and incorporate all costs for developing the system by itself. The target then was to put out a system resembling an enterprise resources planning, specialized in the textile industry.

When the basic features of TMS were incorporated, market showed signs of acceptance. OT was discerning with success the set of basic characteristics that TMS should hold to be accepted by industry and, in turn, to be produced as a commodity. At that point, basic processes also needed to be standardized. To operate under standard processes OT's internal structure and business model needed to be changed too.

#### 4.1.1 Traps in the Beginning stage

The first stage of life cycle of a technology-driven enterprise appropriates the best environment for technology development. Evans (2002) and Christensen et al. (2002), suggest further that technology-driven enterprises must pursue disruptive or radical technological innovation to sustain business. At OT people were working hard on radical technologies to maintain OT's as an innovative business. The apparent chaos and internal disorder at OT resulted from a planned organizational flexibility in its earlier stage. The main trap in this context would be to take the natural organizational flexibility, as the necessary organizational behavior. Organizational flexibility can and must be controllable, to be effective. The main reason is that, in spite of being contingent to innovation, flexibility can turn into a conflicting factor if not appropriately used. As a conflict cause, flexibility can decrease productivity, increase operating costs and decrease general performance of the organization. Therefore, the flexibility trap must be prevented and voided through a conscious pattern of planned control.

#### 4.1.2 Interpreting Traps of the Beginning Stage

In the first life cycle stage organizations present a low market performance with a preferred focus on product development. Admissibly OT in this stage was in a low market performance situation because of the incipience of the enterprise. Not all attributes of the system, say, functionality, performance, compatibility and the likes, were complete and in place, to match textile industry needs. At the same time, standard processes to scale up TMS manufacturing were still not implanted. So, production costs were significantly higher than in a normal (scale up) production condition. Limitations on the product's spectrum of attributes (performance, compatibility, design, price, quality, assurance and the like) were partially compensated by the uniqueness of the system. Even so, it was not enough for immediate market acceptance and so uniqueness only could not guarantee OT's survival. Market penetration, therefore, was vital to OT, but it depends on the other system features. Thus, efforts should be concentrated on the system features and its ability to solve specific textile problems. OT's strategy was to stimulating creativity and divergence to develop a system that could better integrate administrative and production functions. To supply the strategy requirements, a flexible environment was necessary. And so, to avoid the flexibility trap of the first stage, OT needed to maintain the equilibrium between flexibility and ruling (the standardization process).

#### 4.2 Normative Stage

As market acceptance increases, so increase requisites for scaling up, that is, increase the needs for standardization. Enterprises focus on organizing internal processes, determine workload priorities, standardize processes to decrease costs, increase productivity and expand market share. There is a good deal of investment in time and energy to set up appropriate rules and procedures to align activities and processes with the organization overall strategy. Under a managerial perspective, standardization would guarantee a more equalitarian distribution of power and a better circumscription of the limits regarding managers' responsibilities.

At OT, the normative stage begins when market established the basic set of standard features that the system should hold. Since the first clients required integration of functions for the system, OT focused on increasing integration of the system modules (first the modules for production and then the administrative modules). Besides the system features, a main challenge for OT was to develop the integration of its own processes to optimize its capabilities. Mr. Kriek expressed these challenges, pointing that:

*I didn't know that we, at OT, were in another stage that required first internal adjustments, before going out and compromising with our clients. Clients wanted quick answers and these [answers] required specific processes, for example, channeling quick to the right group or expert, to solve the problem...*

OT was gradually favoring standardization of internal processes. As OT incorporated in the TMS new features demanded by market (the first system's features grew from four or five to a more than ninety distinct applications, in the current TMS), those features required internal processes to speed operating processes and increase market value. Also, market value could be increased if internal routines could accommodate better the emulation in the TMS of inherited systems, thus reaching superior efficiency and competitiveness.

This experience helped OT understand the value and the needed discipline of standard processes to put out a system applicable to textile industry of any size. Learning from technical needs, OT redesigned its organizational structure to be more efficient and quick answerer. Then gradually procedures and standards were established to collimate efforts and decrease conflicts among system experts. As standardization of internal processes was consolidating, OT was able to better penetrate its market and expand shares, first in Brazil and then in South America.

#### 4.2.1 Normative Stage Analysis

The normative is by definition, a transitional stage. It begins when market standards of acceptance indicate the minimum requirements for the product to succeed. These standards then, limit the features of the product, indispensable for market massive acceptance. On the other hand, as the product becomes known and market accepted, similar products and surrogates are progressively mimicked in the market. Product novelty loses the initial impact and enterprises focus on to increasing availability and to expand market share. Focusing on production, however, means to reorient efforts to establish production standards to guarantee quality and productivity, that is, to guarantee organizational effectiveness. The economy of the competition changes to a different rationale, from premium (novelty) to a low price. Narayan (2000) identified the basic characteristics of the normative stage pointing that organizational maturity progresses as production structures and activities are normalized to determine the best logistics of the workplace towards decreasing costs. Narayan (2000) also notices that while product technology is incorporated, that is, a dominant design and set of processes are adopted, the predominant model defines the production profile. In the market interface, efforts increase from awareness of the product, to preference and then to purchasing decision.

At OT, market acceptance of TMS consolidates after OT decided to cut external alliances for product development and lead internal efforts to adjust TMS to market claims. Investments for system development internally required a natural expansion of human resources and an organizational redesign to accommodate growth. Administratively, a new structure was designed and implemented. The original organic structure of OT was kept, however, responsibilities and managerial limits of power were better defined. At the production, that is, at the software development level, new standard procedures and formal flow of communication were applied attempting to standardize workplace processes. Flexibility in the decision making process was restricted, allowing for rules to play a bigger and increasing role in the dynamics of OT.

#### 4.2.2 Traps of the Normative Stage

What traps could be hidden in the normative stage? Many traps could be hidden, from rigidity due to norms restrictions, to paralysis of entrepreneurial spirit. One important trap is the new role that the organization gives to control (to measure performance). Control, and its process, is a major change in the organization, in and tend to acquire a bigger and bolder status in the organization than it should. It becomes so important that it ends up self-contained and more important than other preceding administrative functions, such as planning. As a result, the augment and rigidity of control and the filtering of dissonant information creates a paralysis of the original paradigms unloading the existing entrepreneurial spirit and limiting the innovation ability of the people in the organization. The most important trap, nevertheless, seems to be the rigidity over organizational dynamics, originated in the emphasis on norms and regulations. Efforts to conform market standards of acceptance and to control performance increase the power of internal rules (bureaucratization) toward the conformity, pacifying the original dynamics. The enterprise bureaucratization plays against the nature of a technology-driven business, creating an imbalance between the needed flexibility and the required internal ruling to discipline productivity. The imbalance also surrogates the creative characteristics of the first stage (beginning), with the parsimony of this stage, pushing operating effectiveness to standardization of processes.

#### 4.2.3 Interpreting Traps of Normative Stage at OT

Growing to be a market standard is crucial to a technology if it is to become market successful. Market acceptance of a product may determine a trend in the competitive strategy of the enterprise towards mass production. Mass production, however, requires standardization of processes and products. It makes formal rules and procedures the foundation of the organizational performance. The order and rhythm of internal dynamics are established by rules that curb people's behavior and curb also the expected level of productivity (Utterback,1994). The flexibility of the first stage is gradually replaced by a system of rules, determining functions, decision making processes and production flows. The organization now needs to concentrate on conformity, rather than creativity, to gain market presence (Hill, 2002). At OT, the competitive strategy changed, deemphasizing values related to product novelty and highlighting values supporting standard procedures, hierarchy and compliance. The enterprise stressed organizational value attributes that help it compete, since scaling up means narrowing profit margins from individual product. In other words, OT concentrated on acquiring advantages from scaling up production by expanding client's portfolio, instead of advantages from product novelty.

### 4.3 Mass Production Stage

Mass production stage is characterized by organizational stability, where the enterprise acquires a dynamic equilibrium between rules and flexibility (Adizes, 1999), reaches maturity (Bernhoeft, 1997), and initiates a cycle of growth by collaboration (Greiner, 1986). Externally, as market standards of acceptance are established, the focus of the competences changes to increasing marketing management. Access value attributes, such as accessibility, availability and pricing are the essentials. Enterprise then competes based on cost leadership either on large or narrow scope markets. In this stage, the product becomes a commodity and must be produced and sold as such.

What happened at OT? After integrating all basic function required by the industrial textile market, OT ended up with a TMS with over ninety functions and respective modules, involving all administrative, infra-structure, commercialization (marketing/sales) and production features. An acceptable TMS could then be sold in the market, driving OT's attention specifically to market expansion. The focus of the business changed from internal adjustment to external marketing problems. Additionally, OT needed to modify perception of their clients in the textile industry, as expressed by the marketing manager:

*We had a major problem trying to convince them on the value of our system (TMS) over their information technology already in place. Words, spoken and written, were not strong enough. We needed something else...*

The strategy for OT's market penetration was to sell TMS on the basis of warranties of return. OT first evaluated the level of productivity and profitability of each client. Then, OT established the price of TMS based on the warranty that TMS would give a certain return (a percentage) after a specific period of the system implementation.

The process was quite simple. In despite being risky, the process was effective for OT in terms of closing sales. To do this, OT sends his expert to study the client processes and take a close view of costs and profitability rates. Then, studying the client's registers and the day-to-day operations, OT can evaluate its profitability. A report of current profitability would be produced and discussed with client to agree upon parameters, metrics and current values. Performance report considers, among other, macro factors, such as the business liquidity; the current costs (overall and by area); the volume of sales; and the products marginal contribution. Based on these data, OT determines an overall performance index of the company's business performance. A methodical analysis follows, to evaluate possibilities, constrains and facilitators considering a probable performance of the company if TMS would be in place. Then, a proposal is developed and proposed the adoption of TMS, for a trial period, indicating the expected decrease in operating costs by the end of that trial period.

The challenge, incorporated in the proposal, is that, if OT's system (TMS) would not reach the goals by the end of the trial period, then the client would not have to buy it or even pay for the trial expenses. The goals of the proposal involve mainly the measure of the increase in productivity, the decrease in costs and the overall quality, ensure by TMS. Each company has to previously agree upon the rates and the evaluating parameters given previously, as a condition for OT to determine the goals, in terms of quality assurance, costs and overall productivity of the company.

Pricing TMS on the basis of a return index and running the risk of going back home with no deal was a significant innovation in OT's business technology, specifically regarding marketing management. The confidence on the efficiency of TMS, that is, the proven superior performance of the software and specially, the success of each sale using this strategy, leveraged TMS sales and OT's market share in the textile sector. TMS has been quickly established itself as a standard production and administrative automation system in textile companies in South America.

OT also perceived that for market penetration on a mass production stage it needed a trustful trade mark to consolidate organizational image. OT also needed to shorten the image consolidating time to build name branding in the market. There was a clear need to quickly build the intangible attributes (system's trade mark and OT's image), and maintain, but not lessen, attention to fundament attributes (product technology, design, quality and similars). OT then went back to strategic alliances with national and international companies. The alliance with J.D. Edwards, for instance, gave the opportunity to stand before international clients (textile clients) and more aggressive competitors, helping consolidate TMS trade mark and increase its market share.

#### 4.3.1 Mass Production Stage Analysis

Mass production stage involves characteristics in the opposite end of a new product launching spectrum. At this point all market acceptance standards, regarding quality, price, functionality and usability, are in place. To mass product, processes must be standardized and product is marketed mainly through a mass market strategy. Contribution margins by piece are small, but market size can be enlarged. As the product becomes known and accepted, fierce competition fires up in the market context. Internally, besides process standardization, structures and functions are clearly defined and aligned, leading to a better organizational effectiveness. Emphasis is set on developing business process competences and on building balance between norm and flexibility, especially in market interface. The attention to

innovation changes focus from product technology to business technology. Access value attributes, such as, price, financing, accessibility, availability and impulse, are pursued as the fundament for business innovation. Besides pricing, branding becomes the preferred strategy for market penetration. If the first two stages concentrated in the business structure, this stage focuses mainly on market interface.

#### 4.3.2 Traps of Mass Production Stage

The basic trap of the mass production stage is the business systematization itself. Business systematization involves process standardization through well defined lines of hierarchy, division of work and productivity standards. Norms curb the decision making process. But, if for one, business systematization increases the organization capacity to compete in a mass production context, for the other, it could make business to become obsolescent. As pointed, the adoption of the norm as the pattern for decision making, the enterprise tends to decrease creativity, either to create new products (applications in the case in discussion), or to find new ways (processes) to manage, to model and to produce. It is easy to see that the effectiveness of a mass production strategy depends on a higher level of internal standardization. However, the enterprise can only concentrate on profit maximization through market expansion, if it does thoroughly the business systematization. And that is the remarkable trap. Revenue increase, other than through its own line of products, for example, are set aside or not pursued (at least, not vigorously) by the organization, because of a lessening endeavor to explore different format of innovation, such as the open innovation (CHESBROUGH, 2003). In the end, rules, norms and productivity standards turn out to be so important that a resulting normative aristocratic culture tends to restrict the capacity to create and innovate along the entire enterprise.

#### 4.3.3 Interpreting Traps of the Mass Production Stage

Business systematization through norms and regulations ends up to be the main responsible factor for decreasing creativity in the organization. It begins by slowing down product development and finishes by limiting business innovation. In the mass production stage, the challenges to be dealt with are not only the scale up production, the cutting costs or the market leadership. Technology-driven enterprises need to face a paradoxical issue, embedded in the process of norms and rules systematization. Once competitors jump in the same arena, competitive advantages for the leaders become difficult to be kept. What may hold leaders back is an easy and natural accommodation induced by the use of norms in the decision making process, administrative and production processes that states the internal dynamics by curbing people's behavior. In general, if the enterprise maintains course, competitive advantages will come only through innovation in business technology.

In the OT case, once market accepted the basic set of TMS functional features, indispensable to increase productivity at textile companies, the major effort at OT would be to expand client's portfolio. OT then, decided to commoditize TMS. The structure or internal division of work was formalized by grouping similar features under a specific division. Internal focus of efforts detoured from designing and programming new applications to maintaining and producing (that is, emulating applications in the established ones). TMS went from a vertical and customized type of product at its launching, to a horizontal or shelf product one (generic type) changing a potentially innovative context. Now a customized ERP could pose a threat to TMS, unless OT anchored in a strategic control area, for instance, innovation in applications emulated in the established ones.

### 5. Lessons - Developing Competences

Since its inception OT evolved based on distinct roles of innovation in its business model. During the first stage (beginning), OT focused innovation on developing the TMS to launching a winner product (Figure 1). The major challenge was to build features useful to the specific nuances of the textile industry. The first version of the software went out to the market name-branded as Textile Manager (TM). Few corporations were willing to pay the price for the novelty. Feedback from first users allowed OT to redesign the software, increase integration and expand functions. The software was then re-launched as the Textile Manager System (TMS). The focus of the innovation was tangible and fundament value attributes related to functioning, designing, technology and quality. These attributes are linked to the first three stages of IT systems development (systems analysis, design and programming), a clear focus on product technology innovation.

In the second stage (normative), beginning after market reaction to TMS re-launching, OT's innovation focus diverted to conformant value attributes, such as, compatibility and performance. The gradual market acceptance of this version induced OT to initiate the internal adoption of norms and standards, mainly to speed up emulations and customizations required by clients. Standardizing norms, processes and structures was a must (Figure 1). At the same time, a noticeable diversion in IT systems building phases, meaning from product designing and programming to maintaining and producing phase, was slowly profiling the OT's business model.

Insert Figure 1 Here

At the third stage (mass production), TMS was market accepted. OT needed then to reshape its market interface, since mass production stage requires efficient marketing strategies (Figure 1). New competitors, such as Magnus, a system from Datasul Ltda. were launched at the time OT was in the middle of the standardization process. OT refocused its market position, by accelerating clients' applications in TMS, by increasing system's compatibility and by increasing customization, flexibility and processes. Internally, OT maintains emphasis on normalization to decrease TMS time to market as well as, to control cost production. Innovation changes from product technology to business technology (that is, to business model and attributes).

Innovation in TMS applications and quality characteristics kept OT from losing market leadership. Production, integration functions and flexibility in customization of TMS as well, quickly turned it the preferred system among the bigger textile companies in Brazil. Winning this market became then the passport to make TMS acceptable by medium and small textile companies, in the Brazilian and in the Latin-American markets.

### *5.1 Implication for the Business and the B2B Marketing*

Evolving from one stage to another implies managing changes in different ways. Contextual characteristics of the beginning stage are clearly different from the normative or the mass production stages. Analyzing what happened at OT, we found what is described in the Figure 2, pointed under different circumstances to specific events by many authors, such as Hruby (1999), Adizes (1999), Kampas (2003), Hagel III (2002), and Jonash; Sommerlatte (1999).

In the beginning stage, developers center attention on creating market most valuable features into the product: novelty and value attributes. The novelty speaks for itself, but value attributes must support the novelty to expand the perceived competitive advantages. For instance, tangible product value attributes such as functioning and performance, and fundament value attributes, such as, design, innovation and technology, are more supportive of advantages and should convince easily companies in needs of advantages in the B2B market. In this stage, the enterprise is more pro-active, as notes Kampas (2003), and product novelty and the weight of value attributes give to the developer most of the bargaining power, allowing for introductory prices with a higher profit margin (Figure 2). Novelty is more important in the product *launching*, where it comes out as an exotic peace. As the product reaches more enterprises, novelty decreases in importance and value attributes begin to count. Margins decrease while the product slips to a specialty and then differentiated categories.

Insert Figure 2 Here

In the normative stage, the required internal competences change in order to increase the ability to bolster and tight the industrial market relationships. Most product attributes of fundament, such as design, technology, quality, security, and some tangible attributes, such as, performance, technical support and compatibility, are critical for a superior marketing performance. B2B market, in general, accepts product novelty as a much bigger value as compared with product cost, because of the potential competitive advantage of the novelty. The extension of the bargaining power of the developer, however, is contingent to the perceived product value attributes to users, regarding the additional competitive advantages. Here, however, a much bigger attention must be given to the market accepted standards (Figure 2) by the developer, or the product will be accepted. At OT, the normative stage began at the time of the re-launching of TMS. OT incorporated to the first version of TMS, all suggested modification by the early clients and added some basic new application (mainly for administrative purposes), as the intuited market standards of acceptance. TMS became known for most of the textile industrial market in Brazil and some countries in Latin America. But as a textile genuinely oriented system, it was well differentiated from other rival industrial ERPs.

In the mass production stage, the product becomes a commodity and corporate competences turn to the administrative and production management standards (Figure 2). Production standards should guarantee the highest levels of operating effectiveness and productivity (PORTER, 1996). Administrative standards should determine the right competitive strategy, focusing mainly in the marketing strategy. Competitive strategy, generally, depends on top management vision, but the organization needs to develop a strategic thinking to collimate and impel efforts in the direction of the needed environmental adaptability. In this stage, corporate capacities relate to the access value attributes, such as price, financing, accessibility, availability and the like. They are the most important elements to be work out, because they define the profile of the business model for this stage. However, access value attributes are market oriented and also shape the marketing strategy for the industrial market to be served.

At OT, marketing strategy relies on accessibility value, configuring an innovation in the business process. Instead of selling a product, OT sells results, a language that any industrial client would understand. To do so, OT negotiates with each potential buyer, why and how the deal (purchase of TMS) will be carried out. OT's strategy is to do a preliminary evaluation the current productivity and profitability of the client's business. The cost of each set of production process is determined and evaluated according to the ABC's cost accounting rules. Then, on the basis of the data evaluated, a

client's business performance index is set by OT for a pre-defined period. This period is long enough to If results were reached, the client would pay for TMS, if not, the deal would be canceled.

Clearly, in this stage, the rationale for doing business was far distinct from the rationale used in the beginning and/or in the normative stages. Since the bargaining power of the business switched from the developer (or offer) to the clients, the competition advantages became the benefits embedded in the business format. So value attributes, such as, accessibility should be supported by the right pricing and financing strategies, two critical value attributes to make the marketing B2B strategy work.

The evolution of the business model for technology-driven enterprises highlighted two distinct areas of innovation, the product and the business innovation strategy. The Figure 2 shows that, from the introduction up to the market acceptance standards, the enterprise corporate strategy should focus on developing technical capabilities, to better handle product value attributes, such as, functioning and/or compatibility features. Emphasis on corporate capacities (technical capabilities, corporate competences, technology domain, and the like) will reshape the business model and the market interface approach of the enterprise. In the Figure 3, we depict, in large traces, the implications of the effort on product technology innovation. During this phase, organizational and competitive strategies are basically neglected, because product features and novelty should win out the market. The business conforms to the needs (capacities) within the enterprise to provide the attributes considered essential to market acceptance. The main area for product technology innovation is the interface between corporate and competitive strategies (Figure 3).

Insert Figure 3 Here

After market acceptance has been consolidated, the enterprise needs business capabilities and flexibility to expand product shares in the market. This phase we call it business technology innovation phase (Figure 2). In this phase, technology-driven enterprises must control the fundamental ability to add value to the transaction process, through a reshaped business. Now market relationships get the most attention. Branding, market positioning and strategic alliances to assure control to and of desired market segments orient priorities, resources and investments. At first, the value of the innovation is learned from the competitive environment, through co-creative experiences (Prahalad; Ramaswamy, 2003) as the origin for value generation. So, organizational flexibility and business processes are critical for the enterprise to succeed. Therefore, innovation in business is concentrated in the interface between competitive and organizational strategies, as well as between organizational and corporate strategies, as shown in Figure 3.

The idea of co-creative experience pointed above, follows a similar concept to the open model of innovation (Chesbrough, 2007), using ideas available in the many sources of knowledge, mainly coming from buying experiences of costumers. The main issue here is to find ideas and key business processes to guarantee added value to the product. The value at this point is not product novelty, but a disciplined set of business and production processes and an optimized infra-structure now to curb market efforts.

At OT, the most recent application of TMS, such as, distance client training services and business process to sell TMS (purchase defined by the TMS index of returns), indicate an important innovation in business technology acquired by OT, both originated in co-creative experiences. Client distance training, for instance, became an excellent tool to identify weaknesses derived from the system complexity to ease the implementation of the system (ease of use value attribute was detected as one of the most important features of new products leading to market acceptance).

Lastly, to control the fundamentals of business technology innovation, technology-driven enterprises must evolve two administrative tools. One is the technical and the other is the competitive intelligence (Rodrigues; Riccardi, 2007). The technical Competitive Intelligence should boost the product technology innovation abilities of the enterprise. The competitive or business intelligence should boost the business technology innovation abilities. Both intelligence systems will provide consistent information for the decision making process about corporate capabilities and about the competitive environment, technological trends, chunks of knowledge and innovation locations in the world, client preferences, competitors strategies and trends of market segment preferences. The systems will help enterprises establish an efficient innovation and business strategy conducive to better marketing activities for continuous growth.

## 6. Conclusions

The analysis of a business to business technology-driven enterprise combined with organizational life cycle and technological maturity allows us to propose a Technological Maturity Model (Figure 2) supporting corporate, competitive and organizational strategies (Figure 3) that will assure superior marketing performance. A contextual analysis of this model induces to some important conclusions, configured at least to the studied context. First, we can state that the technology-driven enterprise studied does hold a well defined technology maturity cycle, determined by the relationship between rules and flexibility. As product is scaled up, rules and standardization of processes become consolidated. The dynamics of the organization loses flexibility, but it gains in productivity.

Second, the innovation focus changes according to the market standard of acceptance as a corner stone. For the analyzed organization, before that mark, innovation strategy focuses on product technology innovation. Internal competences stimulate innovation on value attributes related to the product only. After the market standard of acceptance, innovation strategy focuses on business technology innovation. Market feedback consolidates corporate competences, as well as organizational adaptation, to increase competitive effectiveness.

Third, in the analysis context, a technology-driven enterprise may opt for one of three strategies: (a) adopt product innovation strategy, making this strategy the basis to build continuity to its business (marketing through product novelty/innovation); (b) adopt business innovation strategy and to compete through it (marketing through business innovation); and (c) adopt a product innovation strategy, based on a product value attribute, but remain in the business technology innovation phase (scale up production) and make this the strategy to compete (marketing expansion through product innovation).

Fourth, lessons taken from OT strategic trajectory allow us to deduct that the comprehension of structural factors, either related to product technology maturation, or related to the organizational life cycle of a technology-driven enterprise would boost to establish a consolidated corporate strategy (Figure 3). The adoption of any strategy commended above should consider the organizational maturity stage. To be effective the innovation strategy must use internal competences accordingly. Internal competences, on the other side, reach a peak of effectiveness as the organization transits completely in one stage of maturity.

Finally, the effectiveness of the innovation strategy, as consequence of the integration of corporate, organizational and competitive strategies, is dependent on the synchronism with the organization life cycle (beginning, normative, mass production). It also depends on the exploration of corporate competences related to each product life cycle (exotic, specialty, differentiated, commodity). For instance, the adoption of product innovation strategy to reach the market and subsidize marketing strategies, must promote structural flexibility. The related organizational competences to be stimulated involve an entrepreneurial, divergent, exploratory and creative climate. Conversely, if the option is for a business innovation strategy, then attention should be given to standardization of administrative, business and production processes, that is a decrease in structural flexibility. In any case, the stages of structural maturity, the product life cycles and the technology innovation phases should be synchronized to increase business performance.

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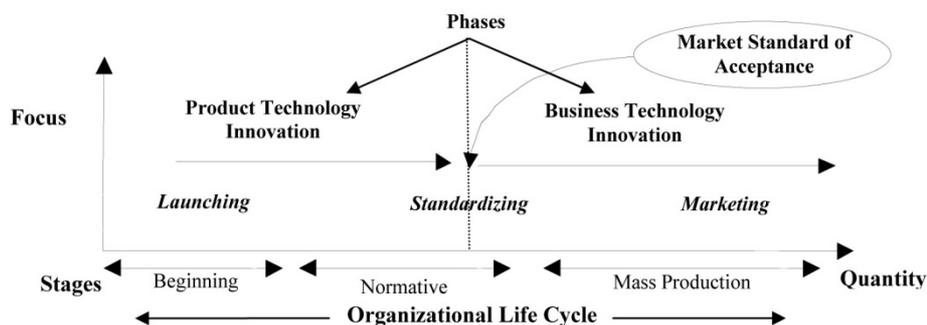
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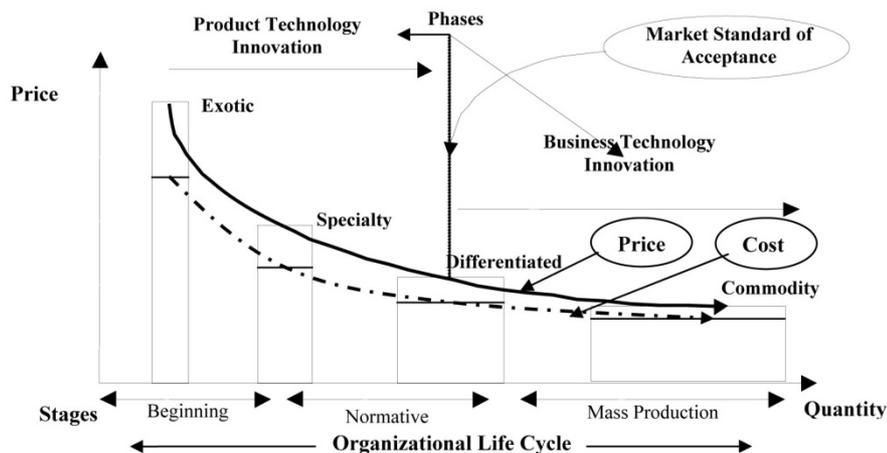
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Source: Based on Hruby, F.M. *Technoleverage*. New York: AMACOM, 1999; Adizes, I. *Managing Corporate Life Cycles*. Englewood Cliffs: Prentice, 1999.

Figure 1. Innovation Focus in Organizational Life Cycle



Source: Based on Hruby, F.M. *Technoleverage*. New York: AMACOM, 1999; Kampas, P. Shifting Cultural Gears in Technology-Driven Companies. *MIT Sloan Management Review*, v.44, n.2, 2003; Hagel III, J. *Out of the Box*. Harvard Business School Publishing, Cambridge, 2002.

Figure 2. Innovation Process in a Technology-Driven Enterprise

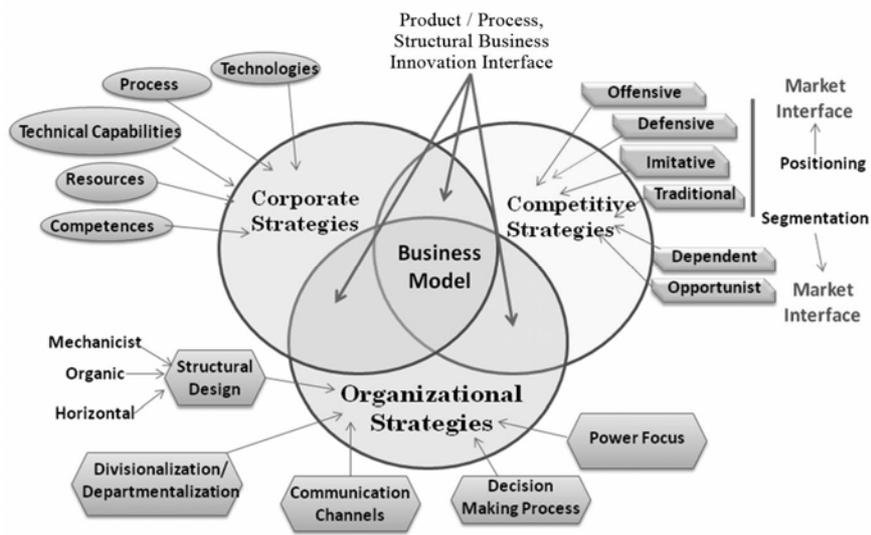


Figure 3. Innovation, Strategy Integration and Business Configuration