ORGANIZATIONAL STRUCTURES FOR E-BUSINESS IN THE AUTOMOTIVE INDUSTRY IN BRAZIL

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Abstract:

Although many established companies are well positioned to succeed at e-business thanks to strong brands, customer relationships and logistical systems, the toughest challenges of e-business are less strategic than organizational. The paper focuses on how companies in the "real world" tackle the challenge of doing business on the Internet in organizational terms and how e-business initiatives affect existing organizational structures in such companies. The concept of e-business is preferred to that of e-commerce because it is more all-embracing. E-business refers to all business transactions on the Internet between a company and its suppliers, partners and customers, as well as inside the company. The authors researched three case studies in the Brazilian automotive industry. The paper deals in detail with one of these relating to Ford Brazil. It concludes that e-business activities are integrated into the company, which has many e-business activities distributed without central coordination throughout its organizational structure.

Keywords: E-business, Automotive Industry, Organizational Structure, Internet

CONCEPTUAL FRAMEWORK

The emergence of the Internet and the phenomenon of globalization are closely related. For companies operating on a global scale and using world-class suppliers, with customers in many countries and partners of different nationalities, the Internet offers an opportunity to reach out more deeply into the marketplace and connect to more consumers. But how are companies that have long operated in the "real world" with physical facilities responding to the challenge of doing business in the virtual world of the Internet? Success in e-business depends on the adoption of appropriate management mechanisms. The extent to which e-business activities are integrated into a company's organizational structure is an element of the highest relevance and hence the focus of this paper.

Several definitions of e-business can be found in the literature. The definition adopted here is the one formulated by Cunningham (2001) who, like Weil & Vitale (2001), sees e-business as commercial transactions conducted by means of public or private networks, including public or private transactions that use the Internet as a vehicle for execution. Such transactions include funds transfers, buying and selling of goods and services via online exchanges, auctions,

product and service distribution, supply chain activities, and use of integrated enterprise networks.

As noted by several authors, including Patel (2000), Tapscott (2000), Slywotzky (2000), Plant (2000), and O'Connell (2000), the Internet has profoundly changed the way companies do business since it was deregulated and made widely available for use as a means to transmit data in the mid-1990s. The global nature of e-business technology, low entry cost, the opportunity to reach hundreds of thousands of people (projected for a ten-year horizon), the existence of standard protocols, interactivity, the wide range of possibilities and resources, and rapid growth of support infrastructures (especially the World Wide Web) have resulted in many potential benefits for organizations, individuals and society.

In a study conducted for Boston Consulting Group, Freeland & Stirton (2000) show that in theory companies already established in the "real world" are in a position to succeed in e-business. They already have key assets such as a strong brand, ongoing customer relationships, and logistical systems, all of which should theoretically give them an advantage over "pure-play" Internet companies.

In practice, however, traditional companies will not be able to leverage their existing assets unless they organize effectively for e-business. In fact, for large companies the most daunting challenges of e-business are organizational rather than strategic. A key aspect of organizing a traditional company for success in e-business is the degree of integration between e-business activities and the existing organizational structure.

E-business can be implemented by a company in the following three ways:

-A new business unit can be set up and staffed by professionals hired from outside the company or internally reallocated from other areas;

-Existing staff and areas can share routine activities with new e-business activities in a matrix-type structure;

-An entirely independent structure can be created as a separate entity from the core business.

In a discussion of whether it is best to integrate e-business with a company's existing physical structure in the "real world", Gulati & Garino (2000) coined the expression "Get the right mix of bricks and clicks". There is a vast range of permutations between implementing an e-business venture completely walled off from the rest of the company and total integration at the opposite end of the spectrum, they argue. It is not necessary to keep Internet initiatives separate from a company's traditional business activities. Indeed, many of the most innovative Internet players are integrating their virtual and physical operations. In their view, the key to success is how the integration process is managed.

According to these authors, whether to separate or integrate e-business is not a binary choice but a continuum with an infinite number of gradations. Integration offers many advantages for a company that is embarking on a new e-business venture. The benefits include cross-promotion, information sharing, increased bargaining power in negotiations with suppliers, economies of scale, and distribution efficiencies.

For Gulati & Garino (2000) the following factors should be taken into account when deciding on the degree of integration between e-business and a company's existing activities:

-Brand - Whether to integrate brands or keep them separate largely entails choosing between trust and flexibility;

-Management - Whether to integrate or separate management teams "hinges both on management attitudes and on the company's business model. An integrated team can better align strategic objectives, find and exploit synergies, and share knowledge. Separate teams can focus

more sharply, innovate more freely, and avoid contaminating one business model with another";

-Operations - Decisions about integrating operations should be based, among other things, on the strength of a company's existing buying power and the transferability of its information systems to the Internet;

-Equity - A separate legal entity (spin-off) can provide access to outside capital more easily and/or more cheaply.

According to Plant (2000), a historical examination of e-business strategy shows that many organizations have formulated excellent conceptual strategies for e-business but failed to deliver sound execution. In terms of organizational structure he notes the importance of "content owners", i.e. members of the organization who provide the information posted on the company's website or whose functions are affected by the website and its use (logistics, purchasing, and services, for example). He therefore suggests what he calls a "web-centered" structure in which the head of e-business is well-served by close and responsive relationships with other top management groups. This structure could be a functional unit run by a vice president of e-business to whom content owners report. It would basically be charged with integrating and developing Internet strategies. Alternatively it could be a traditional unit, such as Marketing, or a specialist function created specifically to address e-business and technology issues.

He also insists that a key to successful Internet strategies is the leadership shown by senior management. Two factors usually explain the failure of Internet initiatives:

Senior executives fail to understand the relevance of the Internet for their industry;

The organization is absorbed by other technical projects, such as implementation of ERP, to the exclusion of Internet projects.

Technological demands may also conflict with the successful implementation of e-business initiatives, requiring greater interaction between the CEO and CIO.

For Freeland & Stirton (2000), the organizational design of a new online structure created within an existing company leads to the question of integration: Should the new structure be inside or outside the "core organization"? There is no single answer to this question, according to the authors. Many organizational designs are possible, from totally separate independent companies to new business units fully integrated with existing business units and reporting to a common CEO or COO. The structure that makes most sense in the specific context depends on the company's e-business strategy and the business model pursued.

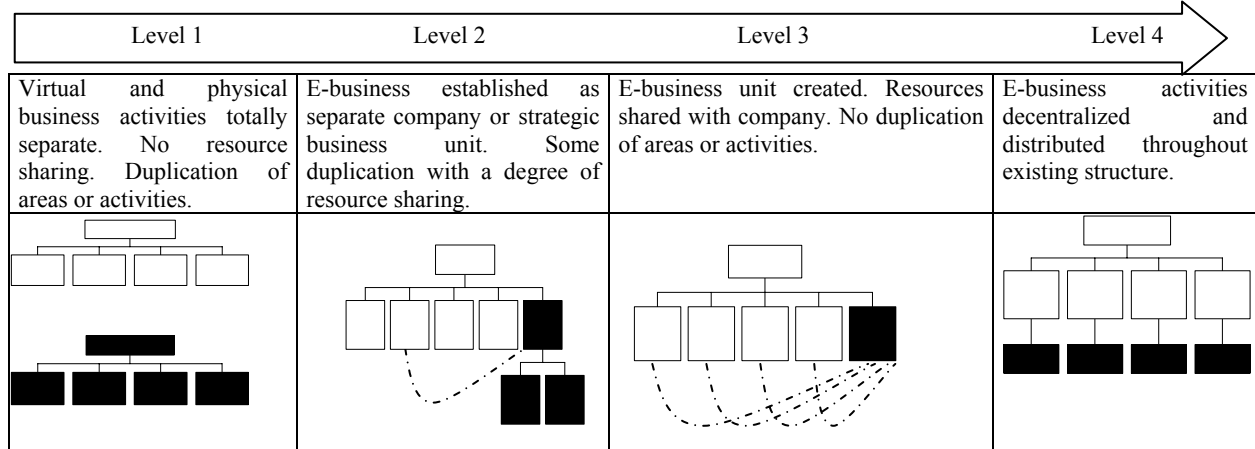The authors propose two strategic dimensions for choosing the degree of integration:

-Leverage, or the degree to which the e-business initiative stands to profit from existing assets in the core business. Will the new online business benefit financially from the use of core brands, assets, capabilities, infrastructure etc?

-Disruption, or the degree to which the new business will undermine the old.

On the question of governance, Freeland & Stirton (2000) suggest the creation of a small e-commerce center within the existing organizational structure and recommend giving this center the authority to take decisions.

Muritiba & Vasconcellos (2001) summarize as follows the possible organizational arrangements for a company that already operates in the "real world" and wishes to implement an e-business venture:

FIGURE 1: LEVELS OF INTEGRATION BETWEEN E-BUSINESS AND EXISTING ENTERPRISE STRUCTURE

Level 1	Level 2	Level 3	Level 4
Virtual and physical business activities totally separate. No resource sharing. Duplication of areas or activities.	E-business established as separate company or strategic business unit. Some duplication with a degree of resource sharing.	E-business unit created. Resources shared with company. No duplication of areas or activities.	E-business activities decentralized and distributed throughout existing structure.

Source: Muritiba & Vasconcellos (2001)

The study discussed here was based on the above perspective, using the model of integration levels proposed by Muritiba & Vasconcellos (2001) and summarized in Figure 1. They reviewed the adaptations or modifications in organizational structure required for the successful implementation of e-business by traditional "bricks-and-mortar" companies not born on the Internet. Specifically, the paper answers the question posed in a doctoral thesis by Zilber (2002): How has the automotive industry in Brazil incorporated e-business in terms of adapting or changing its existing organizational structures?

METHODOLOGY

The methodology of multiple case studies was used to develop this investigation. Zilber (2002) conducted three in-depth case studies focusing on the automotive industry and more specifically on vehicle manufacturers in Brazil. This industry was chosen for the following reasons:
-It is one of the largest industries in the Brazilian economy;
-It is highly competitive in the global context;
-Competition among auto makers is fierce;
-The industry is technology intensive;
-Investment in technological innovation encompasses both production systems and marketing methods;
Because Brazil has had automotive manufacturing plants for more than 50 years, the industry can legitimately be termed traditional in that it has long operated physical facilities and did not originate as an Internet player.
The paper deals with one of these cases: e-business implementation by Ford Motor Company's Brazilian subsidiary. Five managers were interviewed using a questionnaire designed to obtain answers to two basic questions for the study. The first question sought to identify the degree to which e-business activities were integrated with the company's core business, while the second related to the extent to which e-business activities were coordinated in the context of the overall organizational structure.

RESULTS

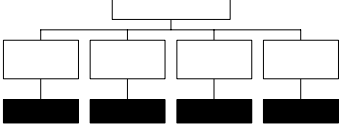## IMPLEMENTATION OF E-BUSINESS AT FORD BRAZIL

Ford Brazil's organization structure has undergone a number of changes over time. In 1999 there were several e-business projects in various areas of the company, without centralization. In customer service, for example, a supervisor performed certain e-business functions alongside routine or normal tasks. A similar situation prevailed in marketing, sales etc. All affected staff were at the level of supervisor or below in the management hierarchy. At the end of 1999, the U.S. parent company injected a significant amount of funds to boost e-business activities in the Brazilian subsidiary's e-business activities but supplied no guidelines as to what areas should be created or what projects developed.

It soon became apparent that efforts were being duplicated to a significant extent and similar projects were being developed concurrently by different areas of the company. It was therefore decided to set up a central B2C unit that would report to the strategic marketing department. This unit would be responsible for choosing among the e-business projects proposed by areas throughout the company for funding under the budget available. The criteria for this decision were developed by the head of the strategic unit. Customer service set up its own e-business supervisory unit staffed by three analysts. Purchasing was also allocated a staff of three for e-business, among other functions. IT had a dedicated e-business structure with a staff of seven to respond to the various projects under way. More changes were introduced in late 2001 and early 2002. The dedicated e-business team in IT was dismantled and the professionals absorbed by corporate IT. The customer service e-business supervision team merged with another function that had no relation to e-business (warranty), merely in order to save money. The strategic e-business unit also took on other functions. In short, staff who had previously been dedicated to e-business were now obliged to share activities, and in some cases the e-business activities themselves were downgraded to lower hierarchical levels.

DEGREE TO WHICH E-BUSINESS IS INTEGRATED WITH THE EXISTING ORGANIZATIONAL STRUCTURE

Table 1 shows the degree of integration found for the organizational structure of e-business at Ford Brazil. The classification is based on Muritiba & Vasconcellos (2001). Level 1 integration corresponds to total separation of the e-business company from the bricks-and-mortar company. Level 2 corresponds to a standalone business unit, with duplication of some resources and sharing of others. Level 3 corresponds to subordination of e-business activities to a specific area of the company with resource sharing. Level 4 corresponds to decentralization with e-business activities distributed across various areas of the company, i.e. total integration with the core business activities.

TABLE 1: E-BUSINESS INTEGRATION AT FORD BRAZIL

Auto maker	Type of structure by degree of integration	Comments
Ford Brazil	**Level 4 integration**	E-business decentralized and distributed across several areas of existing company

Ford Brazil's organizational structure for e-business is totally integrated with its core activities. A number of e-business areas are dispersed across the company and there is no central coordination for e-business.
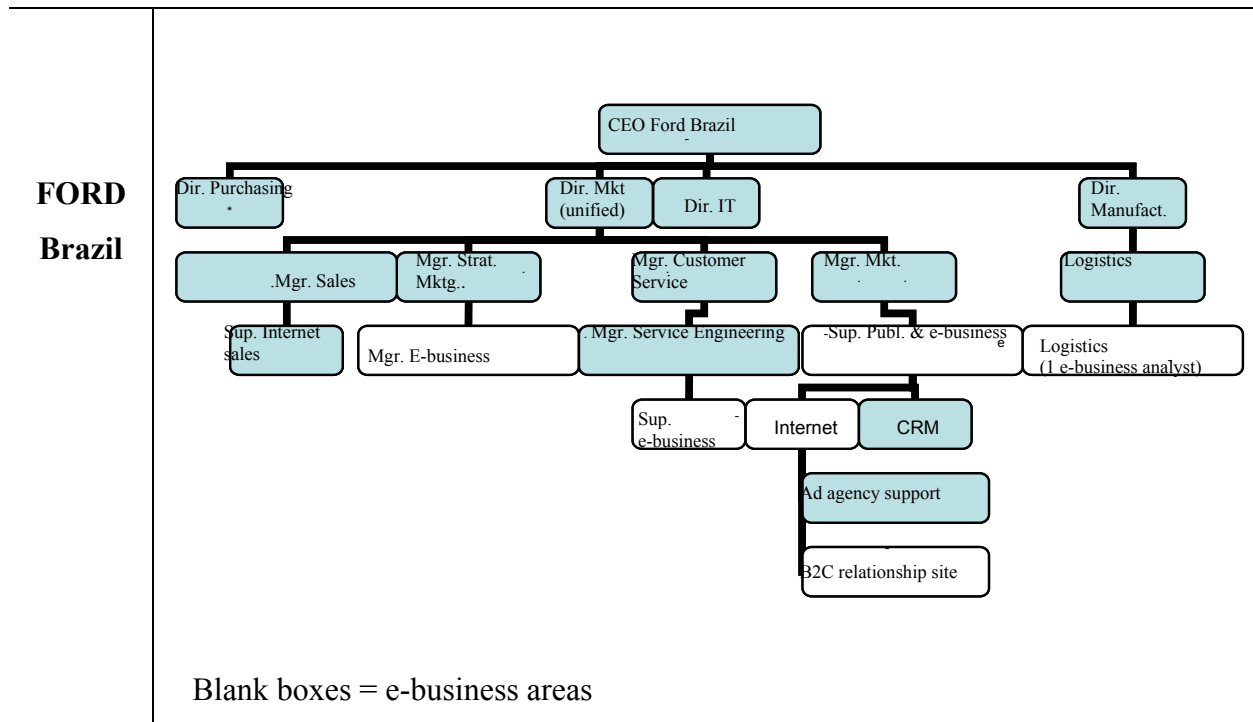
The fact that Ford's e-business is totally integrated rather than separate matches the conclusions reached by several researchers into e-business integration. Gulati & Garino (2000) suggest that four variables should be taken into account when deciding whether and how far to integrate: brand, management, operations, and equity. Branding is crucial for auto makers, who invest a significant proportion of their marketing efforts in activities designed to build brand awareness among consumers. Hence it would not make sense to create a separate e-business structure to perform brand-related activities. Similarly in the case of operations, an equally important factor for the automotive industry . Indeed, operations can be considered an auto maker's core business. Again, it would not make sense operationally speaking to separate e-business from the existing structure.

Another analysis that matches the findings for Ford Brazil is that of Freeland & Stirton (2000), who argue that when core assets and activities are leveraged by an e-business initiative, which then drives growth in the overall business, e-business activities will tend to be totally integrated into the company that originated the initiative.

DEGREE OF E-BUSINESS COORDINATION WITHIN THE EXISTING ORGANIZATIONAL STRUCTURE FOR E-BUSINESS

Table 2 below shows the degree of coordination among e-business activities at Ford Brazil.

TABLE 2: LOCATION OF E-BUSINESS AREAS IN FORD BRAZIL-
ORGANIZATION CHART

FORD

Brazil


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                              ┌─────────────────┐
                              │  CEO Ford Brazil │
                              └─────────────────┘
  ┌──────────────┐   ┌──────────────┐ ┌──────────┐        ┌──────────┐
  │Dir. Purchasing│   │  Dir. Mkt    │ │ Dir. IT  │        │   Dir.   │
  │      *        │   │  (unified)   │ │          │        │ Manufact.│
  └──────────────┘   └──────────────┘ └──────────┘        └──────────┘
        ┌──────────┐  ┌──────────┐  ┌──────────┐ ┌──────────┐ ┌──────────┐
        │.Mgr. Sales│  │Mgr. Strat.│ │Mgr. Customer│ Mgr. Mkt.│ │ Logistics│
        │          │  │ Mktg..    │  │  Service  │ │          │ │          │
        └──────────┘  └──────────┘  └──────────┘ └──────────┘ └──────────┘
  ┌──────────┐ ┌──────────┐  ┌──────────────┐ ┌──────────────┐ ┌──────────────┐
  │Sup. Internet│ │Mgr. E-business│ │Mgr. Service Engineering│ -Sup. Publ. & e-business│ Logistics│
  │sales      │ │          │  │              │ │          │ (1 e-business analyst)│
  └──────────┘ └──────────┘  └──────────────┘ └──────────────┘ └──────────────┘
                           ┌──────────┐ ┌──────────┐ ┌────────┐
                           │  Sup.    │ │ Internet │ │  CRM   │
                           │ e-business│ │          │ │        │
                           └──────────┘ └──────────┘ └────────┘
                                      ┌──────────────┐
                                      │Ad agency support│
                                      └──────────────┘
                                      ┌──────────────┐
                                      │B2C relationship site│
                                      └──────────────┘
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Blank boxes = e-business areas

As can be seen from the chart, e-business activities are located in areas across the entire organization without any central coordination.

According to Freeland & Stirton (2000), in the initial stage of e-business implementation many companies had several business units or functional areas performing e-business activities with relatively little coordination. The approach was to allow a hundred initiatives to flow in order to encourage experimentation, learning, and rapid response to competitive challenges. This is what we found in the case of Ford Brazil. This approach really did generate a large volume of e-business activities there. Indeed, the company won some awards from special-interest publications for the number of e-business initiatives generated.

E-business projects were not generated on the basis of a global corporate strategic plan. They had to be aligned with strategic goals in order to win approval, but they were not built into the company's overall strategy. The strategic aim was to generate a large number of e-business activities.

It was difficult to establish metrics that would genuinely reflect the results obtained in terms of a measurable increase in sales, for example, or cost savings in certain projects.

As for the question of e-business coordination, according to Freeland & Stirton (2000) many companies realized that decentralized e-business initiatives risked proving ineffectual, besides generating waste and duplication. This was what happened at Ford Brazil when e-business activities were first introduced. In a survey of hundreds of companies in several different industries, Freeland & Stirton (2000) detected a preference for setting up a small but powerful central e-business coordinating unit that reports directly to the CEO. This e-business center provides a strategic context and manages the portfolio of e-business initiatives.

At Ford Brazil this type of coordination never materialized. Once the amount of

duplication was recognized as a serious problem, the company set up a strategic e-business unit to allocate funds to Internet initiatives in different areas.

ANALYSIS OF CASE STUDY

In analyzing the data obtained from a review of the literature, the first step was to group findings on the basis of two key aspects: the degree of e-business integration with the company's core activities, and the degree of e-business coordination within the existing organizational structure for e-business.

The relevant factors in analyzing integration were brand strength, management, operations (according to Gulati & Garino (2000)), leverage, and disruption (according to Freeland & Stirton (2000)). The factors considered in analyzing coordination were duplication of e-business activities across areas; the need for a close and responsive relationship between e-business activities and other command groups within the company; the existence of many areas that are owners of e-business content; and the need for a strong connection between e-business activities and the company's global strategy.

In focusing on the degree of integration it was clear in this case that brand strength led to integration of e-business with existing core activities, since one of the salient features of an auto maker is precisely the association between brand names and products. Operations are totally integrated in any auto maker and so there could be no rationale for separating e-business from the "physical" side of the company. Management involves a series of departments and from this standpoint as well it is more convenient to integrate e-business.

If e-business leverages or is leveraged by the core business, it is advisable to integrate the company's virtual and physical activities, as was the case at Ford Brazil. Internet initiatives such as the creation of portals to enhance customer relationships and even direct sales of entry-level models via the Web boosted revenue and helped reach out to customers in the physical world. As for disruption, e-business is hardly likely to undermine the core activities of an auto maker.

Hence the decision taken by Ford Brazil was not to set up a separate company for e-business but to integrate e-business activities into the existing organizational structure.

As for the degree of coordination within the existing organizational structure for e-business, several elements could have led to a decision to implement a small central unit to coordinate e-business activities across the company, according to Freeland & Stirton (2000) and Plant (2000): duplication of e-business activities across areas, close relationships between e-business activities and other areas, the existence of many content providers, and the need for a strong connection between e-business activities and the company's global strategy. Nevertheless, Ford Brazil chose not to implement such a central coordinating unit formally as part of the company's organizational structure. Instead small e-business units or projects were set up in several regular departments across the company, and only budgeting decisions were made centrally.

The main function of the central unit was to prioritize projects. Set up in 1999, this strategic e-business unit first established parameters for deciding on the importance of projects presented by different areas. Some 400 e-business projects were submitted by different areas across the company. The strategic e-business unit, which consisted basically of one individual, developed criteria for prioritizing the various projects and finally chose 80 of them for implementation. Each of the projects selected was implemented by the area that presented it.

The strategic e-business unit was set up when the U.S. parent company decided to invest

4.5 million dollars in Ford South America for the implementation of e-business projects, albeit without establishing any guidelines. The idea was to create several e-business activities. This attitude generated a large volume of e-business activities but somewhat hindered effective decision making and appraisal of activities in terms of measuring the results obtained.

CONCLUSIONS & RECOMMENDATIONS

With regard to the degree of integration between e-business and core activities at Ford Brazil, the total integration observed matched the recommendations found in the literature. Brand and operations, which according to Gulatti & Garino (2000) are key factors when deciding how far to integrate, justify this type of structure in the case of automotive manufacturers. Brands are fundamental for auto makers, and it would not have made sense for Ford Brazil to disconnect from its brand name by setting up a separate company to handle e-business initiatives. Similarly, because operations are the core business for auto markets, again it would not have made sense for Ford Brazil to separate e-business operations from the existing structure.

With regard to the degree of coordination, Ford Brazil distributed e-business throughout the company's organizational structure, did not use central coordination, and ascribed decision making authority to middle management. This is the structure recommended by Freeland & Stirton (2000) for the initial stage of e-business implementation in traditional companies, where the goal is to generate a large number of activities without a clear direction. This "experimentation" stage, as they call it, corresponds to what we observed at Ford Brazil.

The advantage of this model is that it allows e-business activities to be tailored to the specific needs of each area. The drawbacks include loss of synergy and duplication of resources. In the case of Ford Brazil, significant gains could be achieved if the company set up a central e-business coordinating unit that could establish an e-business model for the entire enterprise, while also maintaining decentralized units that require different treatment. Implementation of a system for assessing the impact of e-business on company results would make a positive contribution and enable a database of successes and failures to be built up, leading to a gradual improvement.

REFERENCES

CUNNINGHAM, Michael J. (2001). B2B: business-to-business: como implementar estratégias de e-commerce entre empresas, Rio de Janeiro, Ed. Campus.

FREELAND, GRANT D. & STIRTON, SCOTT (2000). "Organizing for E-Commerce", discussion paper, The Boston Consulting Group Inc., downloadable from www.bcg.com/publications/files/organizing%20Ecommerce%20Apr%2000.pdf

GULATI, RANJAY & GARINO, JASON (2000). "Get the Right Mix of Bricks & Clicks", Harvard Business Review, pp. 107-114, May-June.

MURITIBA, SÉRGIO NUNES & VASCONCELLOS, EDUARDO P.G. (2001). "Estrutura Organizacional Como Diferencial Competitivo em Negócios Eletrônicos: Estudo de Caso em uma Empresa do Ramo de Internet", graduation paper, University of São Paulo School of Economics, Management & Accounting (FEA/USP), supervisor Prof. Eduardo P.G. de Vasconcellos.

O'CONNELL, BRIAN (2000). B2B.com: Cashing In On The Business-To-Business E-Commerce Bonanza, Holbrook, MA, Adams Media Corporation.

PATEL, KEYUR & McCARTHY, MARY PAT (2000). The Essentials of E-Business Leadership – Digital Transformation, New York , McGraw-Hill.

PLANT, ROBERT (2000). E-Commerce: Formulation of Strategy, NJ , Prentice Hall.

PORTER, MICHAEL E. (2001). "Strategy and the Internet", Harvard Business Review, pp. 63-78, March.

SLYWOTZKY, ADRIAN J. & MORRISON, DAVID J. (2000). How Digital is your Business?, New York, Crown Publishing Group.

TAPSCOTT, DON et al (2001). Capital Digital, São Paulo, MAKRON Books.

WEIL, PETER & VITALE, MICHAEL R. (2001). Place to Space – migrating to e-business models, Harvard Business School Publishing Corporation, USA.

ZILBER, SILVIA NOVAES (2002). "Fatores Críticos para o Desenho e Implantação de E-business por Empresas Tradicionais" , Ph. D. thesis, University of São Paulo School of Economics, Management & Accounting (FEA/USP), supervisor Prof. Eduardo P.G. de Vasconcellos.