Information Technology Use, Strategy, and Subcultural Environments: An Exploratory Study of Brazilian Real Estate Agencies

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Resumo
O setor imobiliário Brasileiro está crescendo por várias razões. De um lado há um enorme déficit habitacional estimado pela Fundação João Pinheiro em 7,2 milhões. Por outro lado o governo tem aumentado o financiamento de casas populares porque 91% do déficit esta relacionado com famílias cuja renda é inferior a 5 salários mínimos. A política econômica do governo associada a um ambiente externo favorável para os negócios tem contribuído para reduzir as taxas de juros, criando oportunidades de negócio no setor imobiliário. Além disso, mudanças na legislação facilitam reaver o imóvel por falta de pagamento. Este período reduziu de 10 anos para 6 meses, criando uma maior segurança para o investido. Estes aspectos têm estimulado as instituições financeiras a investir no setor. As tecnologias de informação têm condições de ocupar um papel fundamental, no sentido de ajudar as empresas do setor a enfrentar os desafios do crescimento. Um estudo exploratório realizado sobre uso de tecnologia de informação no setor imobiliário Brasileiro indica que a estratégia e a dinâmica sub cultural têm um papel importante na adoção de TI assim como utilização da Internet. A questão mais ampla sugerida pelos resultados da pesquisa questiona modelos tradicionais do pensamento estratégico quando fatores sub culturais e tecnológicos são considerados.

Abstract
The Brazilian real estate industry is growing for several reasons. From one side there is a huge deficit in housing estimated in 7.2 million by Fundação João Pinheiro. The government is increasing funding to finance popular houses because 91% of the deficit relates to families with an income below 5 minimum wages. As a consequence of the economic policy and a favorable external environment, the interest rates in Brazil are decreasing, creating additional business opportunities. On top of that, legislation changed to facilitate recovering houses from people that stopped payments, reducing from 10 years to 6 months the recovering time. Financing organizations are now much more motivated to invest in the business. There was a significant increase in credit for real estate from 2003 through 2006. Technology Infromations is becoming a critical component of the managerial process to help the real estate companies in facing the new challenges. An exploratory study of strategy and information technology usage in the Brazilian real estate sector suggests that firm strategy and sub cultural dynamics play an important role in IT adoption and internet usage. The broader questions raised by these results suggest challenges to traditional models of strategic thinking when sub cultural and technological factors are taken into account.

Keywords: innovation adoption, IT management, real estate management

Área Temática: Inovação e Gestão Tecnológica

Theoretical Justification for Study

There is little doubt that technology influences culture (Diamond, 1995; Mandler, 1991; Marx, 1964) . There is little doubt that culture influences technology (Diamond, 2005; Collins, 1985; Kroker, 2005; Thompson, 1991). It is equally axiomatic that technology influences the functioning of organizations, and that organizations influence the generation and adoption of technology (Barley, 1990; Emery and Trist 1965; Morgan, 1986; Perrow, 1984). The dynamics of any of these main effects—culture on technology, technology on culture, technology on organization, or organization on technology-- are complex and have been the subject of decades of research and debate (Goodman and Sproull, 1990).

The interactions between information technology, organization, and culture are likely more complex still and remain relatively unexplored. Despite their intractability, they are nonetheless important. The dynamics of international competition play out ever more frequently at the interface between nations, organizations, and technologies, and failure to understand any of these interfaces can jeopardize even the most sophisticated technology and careful management (Blake and Jarvenpaa 1991). The present paper reports a preliminary effort to examine the relationship between the use of information technology, organizational strategy, and subcultural environments. While our research is exploratory and our results piecemeal, they point toward the existence of important relationships between variables and suggest theoretical directions for future work.

The modest, but increasing flow of scholarship on the IT-culture interface has established that there are consequential interrelationships between the two variables (Blake and Jarvenpaa, 1991; Shore and Venkatachalam ,1996; Watson, Ho, and Raman 1994). This scholarship has become increasingly sophisticated with time and has advanced progressively richer conceptual models and careful empirical studies (Calhoun, Teng and Myun 2002; Ford, Connelly and Meister; Simon, 2001; Veiga and Dechant 2001). One liability of this research that is generally admitted is its heavy reliance on models of culture --most notably Hofstede’s (1980)-- that assume homogeneity within nations. Ford Connelly and Meister (2003) also note an absence of theory building in IS scholarship on culture. This paper proposes a conceptualization of national cultural environment that includes subcultural variation and relates this variation to firm strategy and IT adoption. Saccol (2005), analyzes the integration between e-commerce and strategy at Magazine Luiza, one of the fastest growing companies in Brazil and Laboratorio Fleury, the top clinical tests lab in Brazil. Zilber and Vasconcellos (2005) show e-commerce as a strategic tool in the launching of Celta, by General Motors Brazil. This was the first time a car was launched in Brazil exclusively through the Internet. Further studies about IT, ecommerce and strategy were developed by Seybolda (1998), Stauffer (2000), Siebel (2001), Turban et al. (2000) and Plant (2000).

Our intent is not to discredit or even critique approaches assuming cultural homogeneity, which we believe are useful for situations in which within country variance on important dimensions is greater than between country variance. Rather, we hope to advance a conceptual resource that is useful for situations—e commerce being one—in which within country variance is important.

Study Background

The present research arose out of a three nation study of e commerce adoption in Brazil, India, and the United States (Paul, 2005). Between June of 2004 and December of 2005 the authors made several trips to India, Brazil, and the US in an effort to assess cultural and national factors influencing e-commerce adoption in these three countries. A major finding of this preliminary study was that e-commerce diffusion, indeed Information Technology usage in general, not only varied between countries, but also varies considerably within countries. Further investigation suggested that in-country variance was a function of industry, strategy, and cultural factors, but most notably interaction between firm strategy and the nature of the target markets of companies.

By taking a preliminary look at the nature of e-commerce in Brazil and India we hoped to generate practical information and theoretical insights into the impact of national environments on e-commerce. Our research did yield some insights about the practice of e-commerce across these two nations, but this specific knowledge was overshadowed by the broader finding that involvement in e-commerce, and indeed IT adoption generally, was closely related to firm strategy, which was, in turn, shaped and constrained by the sub cultural dynamics of the countries studied. Specifically, we found that that B to C firms that were oriented to traditional sectors of the population avoided IT in favor of personalistic practices, while those addressing transitional sectors were late adopters, and firms oriented to post modern/post industrial enclaves aggressively sought out internet technologies and used them to compensate for their younger age, reduced customer pool, and smaller capital base.

In an effort to better examine these interactions we decided to single out the Brazilian real estate sector for more intense study. We chose this industry because our preliminary investigation suggested considerable interindustry variance in IT usage and a high likelihood that strategic and subcultural dynamics were closely related.

Glaser and Strauss (1967) and other specialists in the formulation of grounded theory have observed that exploratory studies should construct “purposive samples” consisting of cases which are as different from one another as possible. Real estate firms were interesting in this regard because they all serve a brokerage function within a single industry yet displayed considerable variance in their practices. We visited eight firms and studied three in some detail. In all, we interviewed 36 people, some of them several times, exchanged emails with scores more and generated 145 longhand pages of field notes. We began our interviews with general discussions the firm’s business model and internet use for commercial purposes and developed more focused inquiries about recurring themes that surfaced in our first interviews

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The Brazilian Real Estate Industry

The Real Estate Industry has several components as shown in Figue 1. the Developers are systems integrators. They buy land, design a project or contract a company to do it, Then, they contract a construction company, raise funding from financial sources and contract a real estate companies (focus of this paper) to sell the apartments. Developers may also perform all these tasks instead of contracting outside.

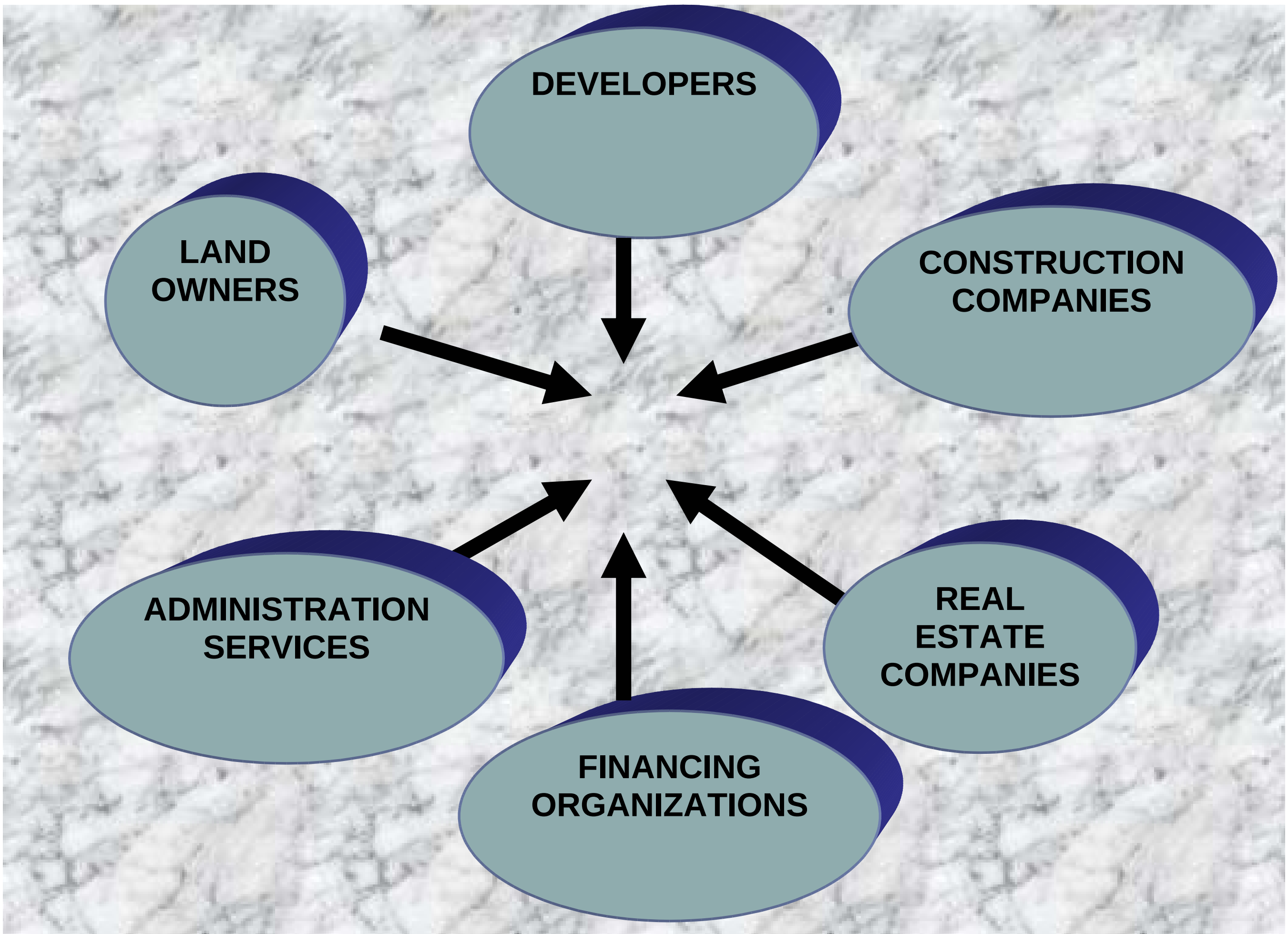

Figure 1 – Main Components of the Real Estate System

The real estate industry is growing for several reasons. From one side there is a huge deficit in housing estimated in 7.2 million by Fundação João Pinheiro. The government is increasing funding to finance houses because 91% of the deficit relates to families with an income below 5 minimum wages. The interest rates in Brazil are decreasing, creating additional business opportunities. Legislation changed to facilitate recovering houses from people that stopped payments, reducing from 10 years to 6 months the recovering time. Financing organizations are now much more motivated to invest in the business. Figure 2 shows the increase in credit for real estate from 2003 through 2006.

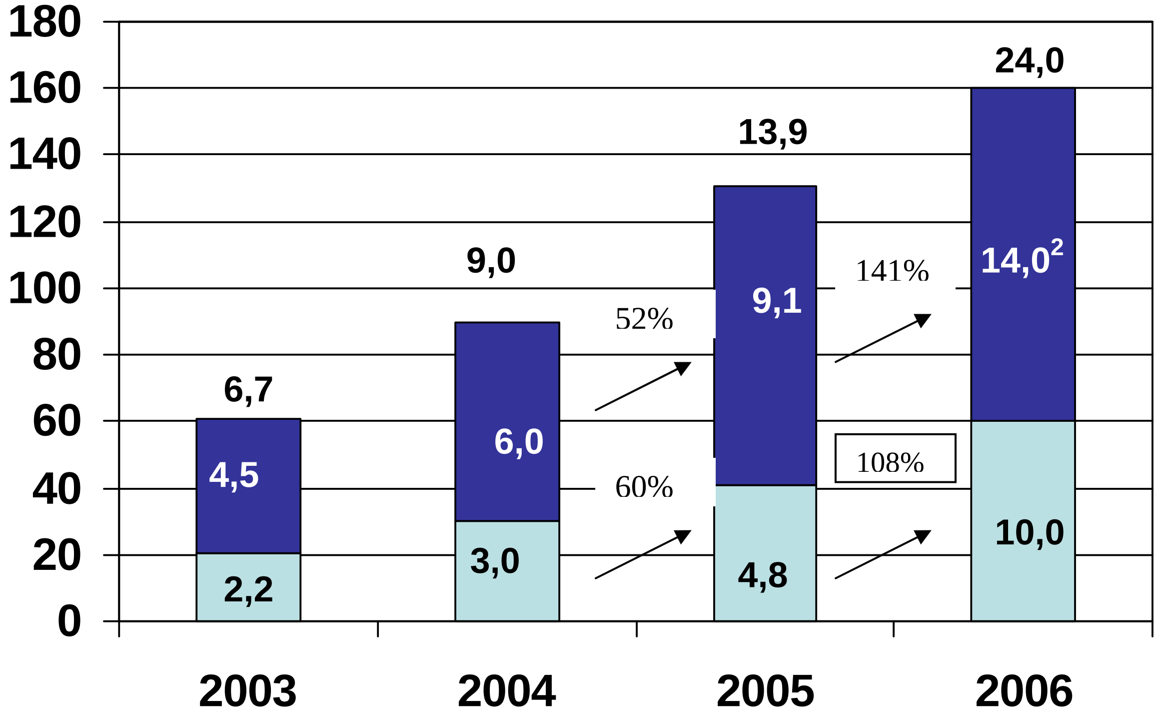

FIGURE 2 – CREDIT INCREASE TO THE REAL ESTATE BUSINESS

Like real estate brokerages everywhere, real estate agencies in Brazil locate potential buyers for sellers and facilitate negotiations between parties and eventually close the deal. In Brazil, the agency plays a more critical role in the actual nuts and bolts of the transaction, administering many details of the closing that are handled by specialized companies or attorneys in the US, for example. Real estate agencies also engage in management of rentals more frequently, given the lower proportion of Brazilians who own their own homes and the historical importance of real estate investment in a country with a long history of inflation and capital market uncertainty. Thus, real estate agencies—even the smaller ones—have historically engaged in tasks of greater complexity, demanding greater expertise than the majority of agents in the US, Canada, and Northern Europe. As a result, there are many large local and region agencies with multiple divisions, including legal departments, property management, sales, and financial analysis and investment. As the internet and other information technologies have developed, they have interacted with the strategies and capabilities of firms in the industry to yield interesting deployment and usage patterns. Our preliminary investigation suggested three types in particular. We have named them: *1. Face to Face 2. Full Service 3. The Internet Boutique.* Only more detailed research can confirm the adequacy of this typology or suggest other categories, but we find the current types useful for theory development.

Three Strategies

The **Face to Face Agency** eschews modern information technology. Indeed, it eschews almost any contact that is not personal in nature. Its agents prefer the rich, high context of face to face meetings both to convince sellers to list with them, buyers to buy from them, tenants to pay the rent on time, and to follow the delicate negotiations that may make or break a sale (see Daft and Lengle's 1986 discussion of channel richness). They shun even phone contacts, attempting to secure a physical meeting with clients whenever possible. They do minimal advertising of any kind, but invest in a central location with high foot and bus traffic and easy access to a large residential neighborhood. Although they do not post signs on the properties they are selling proper, the outside walls of their agency are covered with short descriptions of properties for sale or rent and their locations and asking prices, but they run almost no print ads in local newspapers, and do not own computers. Contracts, proposals, and bills are typed by hand on a manual typewriter. From the vantage point of a central location covering a residential neighborhood they cultivate an intensive personal network with residents and an in depth knowledge of the neighborhood and its physical assets. Most of their business comes from lower and lower middle class dwellings within a radius of 6 miles or so, and the average purchase transaction probably hovers around 20,000 US dollars.

The **Full Service agency** is large in size, internally differentiated, and handles transactions of many different kinds from all over the region. In addition to simple brokering transactions of existing properties, it may actively develop subdivisions and condominiums and finance their acquisition with the ultimate buyer. Historically it has been a major purchaser of advertising space in regional newspapers, placing large ads with the name and logo of the agency prominently displayed, and the details of properties offered listed under the firm's heading. All of there properties are prominently identified with signs bearing the company logo. While many of these firms belong to family dynasties, they tend to be professionally managed through bureaucratic mechanisms, at least at the middle to upper middle management levels. They frequently have a central office as well as branch offices in different neighborhoods or towns. Though they may have special strengths in a particular region or market segment—rural properties, upscale properties, apartment buildings, etc.—their major appeal comes from their breadth. Because they are large and visible, they appeal to owners who want a quick sale and they attract constant inquiries from qualified buyers.

These companies have long bureaucratized their sales and property management functions and have computerized contracts, bids, payments and any routine transaction. They also placed client and property records and descriptions into electronic format as reliable, user friendly programs became available. As the internet began to grow in Brazil, the more progressive of these firms began to open websites and place property information-- which was already digitized-- on the net. Now most of them list web addresses in their newspaper advertising and some post their listings to large web hosts like yahoo. Still, for the majority of these companies, the use of information technology is simply a response to market demand; growing numbers of customers are consulting the internet so it is wise to place information online to avoid loss of sales and to take advantage of prior digitization, which was also undertaken because other companies were doing so. They are unlike the Face to Face category which appears to make a strategic effort to avoid impersonal means of communication, but information technology is adopted as markets pose the threat of erosion of core business if new technology is not adopted.

The final category, the **Internet Boutique**, consists of smaller firms that embrace IT innovations just as assiduously as the Face to Face firms avoid it. "Planeta Imoveis" is a good example of this business model. These have neither the benefit of a central location, strongly tied local social networks, and deep personal knowledge of a physically bounded market, nor the size, visibility, name recognition, and capital of the dominant Full Service agencies. Instead, they leverage information technology on the buyer side and personal attention to a small number of wealthy clients for whom a diverse estate portfolio is one of a number of financial holdings. They find many buyers by being highly active on a number of nationwide real estate sites used by executives and managers who are relocating. Because these clients are not physically located in town where they will purchase, they will miss the face to face agencies, and are neglected by the Full Service agencies who have little practice with or understanding of this type of client. They make sure their site is prominent, available, and user friendly and follow up on any sign of buyer interest by providing timely and exhaustive information and assistance. To their sellers, they can offer professional, sophisticated clients who are easy to transact with, willing to pay non discounted market prices, are in a hurry to close transactions, and are likely to be good renters if they do not purchase immediately. Use of digital photos and films may save considerable time for the clients. Such clients are of great interest to wealthy individuals who own high end real estate holdings that were not constructed as rentals or who own smaller parcels of land that will not accommodate large scale projects, but that can provide trouble free returns if developed by a trustworthy, market savvy professional who understands both the local market and national trends.

It is important to note here the success comes not just from an understanding of the internet, but by being on top of innovations in real estate and financial practice that are taking place in the country. The Internet Boutique agencies do not have the depth of expertise that the departmentalized Full Service possess, but they tend to be highly aware of current trends and are the first to pick up on innovations that do not require large amounts of capital or specialized expertise.

Figure 3 summarizes the three strategies. It should be emphasized that companies tend to combine these strategies in different degrees.

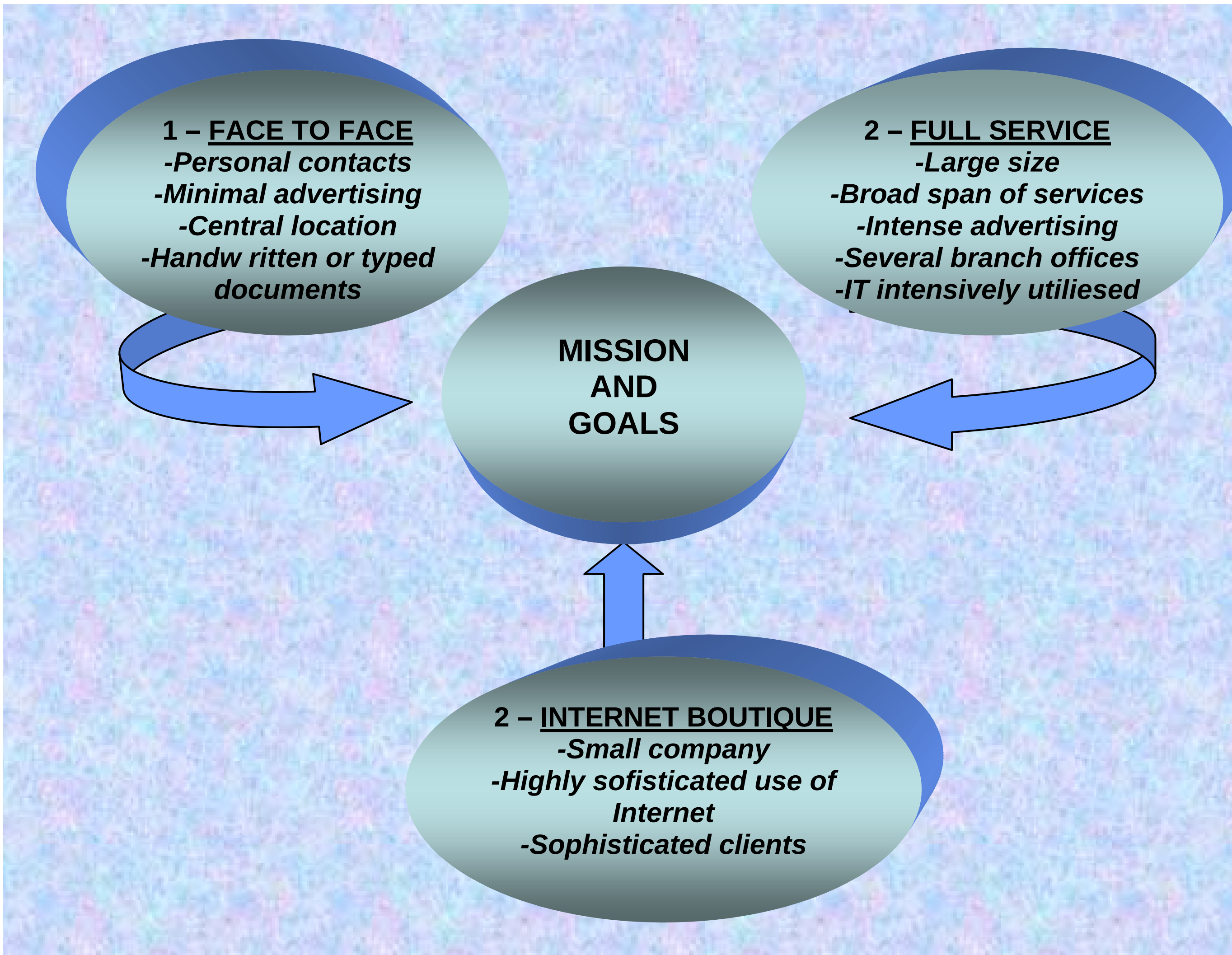

FIGURE 3 – STRATEGIES OF REAL ESTATE COMPANIES

Inducing Theoretical Categories

The simplest way to interpret these types is simply by speed of innovation. The first category flees innovation, the second embraces it when it sees no other alternative, and the third proactively seeks it out as a strategic tool. However a richer conceptualization occurs to us that seems to have the potential to yield a more complete explanation of our observations and to connect up with the broader literature on strategy. We are guided to this conceptualization by asking why the three types displayed their differential preference for information technology.

One obvious answer comes from Miles and Snow's (1975) classic strategy typology. To summarize a rich and complex model in terms that are most relevant to the question at hand, Miles and Snow posit that firms vary principally in terms of domain breadth and stability. Domain breadth refers to the number of different kinds of clients a firm serves, stability, to the speed of innovation needed to attend to the domain. The simplest strategy is that of the Defender, a firm that addresses a narrow customer base whose needs change slowly if at all. The Defender makes a long term commitment to serve its customer base in an efficient, and/or high quality manner using time honored methods that change little.

The opposite of the Defender is the Prospector. The prospector assiduously avoids commitment to any one category of customer and seeks to create change in an industry by being the first to market with new products. In this sense, the prospector seeks to excel in what Peter Drucker called "creating a customer."

The Analyzer is Miles and Snow's third type. The Analyzer scans the environment for demonstrably successful products that it can incorporate into its offerings without undue difficulty. It does not take on the risk of launching new, untried products, but it is willing to imitate an innovation that has become a proven money maker for a prospector. Along with these chosen strategies come a host of organizational features and tactical moves that space will not allow us to discuss here.

Our "Face to Face" realtors appear to fit the Defender characterization nicely. These are companies typically with a very limited domain in almost any conceivable way. Their territory is limited physically, they work with one kind of real estate (residential) only, purchasers and renters come from one dominant socioeconomic background, and even sellers tend to come from the same area and background. Their techniques and methods have not changed in decades, but they understand their target market in depth and use longstanding relationships to leverage a healthy business. Their fortunes are inextricably linked to those of the neighborhood they serve and any major change in the nature of their target neighborhood is likely to be disastrous for their business.

The Erosion of Miles and Snow.

As we examine our Full Service, and Internet Boutique categories, however, the picture becomes more complicated. The full service firms have broad customer bases and execute residential and commercial transactions, manage property, develop subdivisions and so on. Some companies are more specialized in one area more than others, but all tend to offer most of the same services in much the same way. From Miles and Snow's Domain Breadth/Stability perspective, there are doubtless companies that are more innovative generally, take more risks, introduce new types of properties, financial arrangements, and so on to a greater degree than others, but despite their differences, they are more or less invariant in their use of information technology and the internet, and for that matter, in terms of their organizational form and procedures. As a rule, all put their listings on line in sites that are more or less similar in their size, sophistication, reliability, and ease of use. They tend to departmentalize in similar ways, and while they doubtless vary somewhat in the speed and accuracy of their services, their work processes appear to be largely the same. Thus, a large cross section of Brazilian real estate companies would appear to be technologically and strategically invariant from Miles and Snow’s perspective. Most would likely be considered analyzers by virtue of a broad domain which entertains occasional innovations, mostly imitations of innovations that have been proven successful abroad.

The Internet Boutique also presents problems in terms of Miles and Snow’s typology. It is clearly the most innovative of the three, both in terms of IT usage and knowledge of innovations and trends in the national market, but does not generate much in the way of new products. Rather it brings up to date expertise to wealthy clients who do not have the resources or interest to stay abreast of industry developments, and brokers it’s knowledge of the local real estate market to out of towners who do not have the time or interest to study the particulars of the local market first hand. Thus, by Miles and Snow’s criteria, the Internet Boutique, has a somewhat narrower domain than the Full Service Agencies, but is somewhat more innovative, and much more aggressive as an adopter of IT innovations. Still, we suspect that Miles and snow would classify the internet boutique as an analyzer with a somewhat broad and somewhat instable domain. Moreover the domain of the boutique is likely narrower than that of the full service agencies, yet it would seem less stable at least insofar as the boutique undertakes more innovations. This leaves the Brazilian real estate firms we considered without any prospectors and with two different kinds of analyzers that appear to entertain rather different strategies. Figure - 4 compares research findings with the Miles and Snow´s model.

MILES AND SNOW´S MODEL	Defender	Prospector	Analyzer
	Narrow and Stable Domain	Broad and Unstable Domain	Hybrid Domai Broad and Stable
REAL STATE COMPANIES	Face to Face	Full Service	Internet Boutique
	Narrow and Stable Domain	Broad and Unstable Domain	Narrow and Stable Domain

FIGURE 4- MILES AND SNOW´S TYPES AND REAL ESTATE AGENCIES

We can think of three factors that together produce this result and that suggest possible amendments to Miles and Snow's model for third world contexts. The factors are: 1.) Differing rates of diffusion of innovation, 2.) Comparative resource concentration and scarcity, and 3.) Subcultural dynamics. The three factors are interrelated and mutually reinforcing.

Internet diffusion is quite uneven in Brazil by region. Eighty percent of internet access occurs in only three metropolitan areas and 90% of all hosts are located in greater Sao Paulo. This unevenness occurs with innovations generally and it is found not just by region but by class, education, and rural-urban location. Although this kind of maldistribution obviously occurs in the US and Northern Europe, we believe its impact is not so severe. One need only consider the US's 169 million internet users to Brazil's 11.9 million to sense that diffusion of this particular innovation is wider in the US. According to FGV/EAESP and ABINEE, the number of PCs in Brazil grew from 14 million (2001) to 40 million (June, 2007) and revenues of the IT industry grew from R$12,8 billion (2000) to R$29,4 billion in 2006. Similarly, because of a historically bimodal class structure, high internal and external debt, high population growth, high inflation, and slow rates of capital formation, resources for firm growth have been much harder to come by. Even today, despite lower inflation, interest on bank loans is many times higher than the US, equity markets area smaller and less robust, and personal liquidity is such that even if a firm is prosperous, its ability to acquire risk capital is much, much, lower than firms in the US, Europe, or parts of Asia. It is possible that such resource constraints prevent companies from deploying the kind of liquid assets that the uncertain innovations of the prospector require. It is likely safer to adopt the more conservative posture of watching large national firms or scanning the international scene for successful foreign innovations that might be successfully replicated in Brazil.

The Subcultural Model: Riesman's three Categories

The US has been industrialized for a century to a century and a half in some areas and the effects of this industrialization are quite broadly distributed. Brazil began industrializing in earnest around the 1950's and the effects of industrialization have varied tremendously by region and class. This unevenness results in sub cultural variation that may be best explained by the theory of cultural change first set forth by David Riesman (1950). Based on an in depth comparative history of economic change, culture, and personality, Riesman argued that societies evolve through three distinct cultural orientations, ***outer, inner, and other***. During the outer phase, subsistence agriculture is dominant and places limits on trade, travel, intellectual exchange, economic and population growth, and determines that most social interaction is carried on small communities. These communities are geographically bounded, highly traditional and inbred. Almost all interaction takes place in face to face settings in residences and relationships are only disrupted by death or severe conflict. Everyone knows everyone else and people are fully aware of behavioral norms, which are local in nature and have developed over generations of shared history. Deviance is met with shame and exclusion, but as long as people know their place and abide by traditions, they have a clear role in life and are protected from loneliness and misfortune by virtue of their position in the community.

The inner phase has its roots in increases in agricultural productivity which cause population growth and disrupt traditional communities by introducing offspring who can be fed by the newly more productive agriculture, but are no longer needed to help on the farm. They move to cities and supply labor for new industries, which first provide agricultural implements, and then turn to more sophisticated products, including transportation equipment which facilitates migration and urban development. Particularly the beginning of the industrializing inner phase is traumatic for those who are dislocated from tightly knit, traditional, rural communities to make their way in anonymous, competitive cities, where they work among strangers in large buildings by day, and return home to small dwellings surrounded by strangers by night.

In these settings, mistrust is rampant and violence, fraud, and extortion are common as people who do not share similar local traditions and backgrounds are suddenly forced together. People with self discipline, drive, and ambition tempered by respect for order and impersonal rules tend to prosper while those who are overly reckless or overly passive tend to become criminals, victims, or "failures"—the worst epithet the new society can award. The second generation in the transition to industrialization is raised in nuclear families by fearful, achievement oriented parents who produce offspring that are rule abiding, competitive, and hard working, if neurotic. They are governed by "inner" values inculcated in a strict nuclear family and they experience guilt if they fail, either in morality, or in performance. Societies which socialize a large proportion of people to "inner" values are highly efficient at producing and distributing a variety of standardized industrial goods with a minimum of theft, corruption, and transaction costs.

They also historically generate enough surplus wealth to provide many years of formal schooling to a majority of their citizens, and to make continuous large investments in science and technology. These changes in turn propel further social and psychological transformations. Prime among these is the development of mass media which com to dominate cultural life, educational institutions which create the principal forum for social interaction, and ever more rapidly advancing technology which automates much manufacture and occasions constant change in the production and delivery of goods and services. Concurrent with these changes are increasing globalization and cross cultural contacts, increasing participation of women in the workforce, reduced influence of nuclear family and traditional gender roles and expectations, and rapid diffusion of fads and information. Physical mobility and migration are also typical of this period.

According to Riesman, the net impact of these changes on human character is to produce an "other orientation," typified by chameleon like conformity to the norms of the immediate group, an absence of deeply held core values, superficiality, creativity, adaptability, impermanence, flexibility, sensitivity to others, tolerance, rootlessness, and high need for acceptance.

It is a fairly straightforward matter to identify the relevance of this typology for Miles and Snows' perspective in general and for the cases of IT deployment in Brazilian real estate agencies specifically. Riesman's first phase (Outer) would seem unlikely to generate much strategic variance of any type and little change. Markets are, by definition, local, fairly undifferentiated, and companies would be favored by adopting narrow and stable domains. Innovation is not comprehended, much less favored, and social interaction follows rich, traditional, face to face channels. Information technology, of almost any kind therefore, would be expected to be culturally unviable. At the other extreme, the other oriented society provides much more space for the prospector strategy, given the more abundant resources available for experimentation and the general openness of society and the willingness and capability of its members to assess and adopt change. The superficiality of social contacts, centrality of technology in society, role of the media, and rate of change are fully consistent with the perfection and diffusion of successive waves of information technology, and with its integration into business models and operations, and consumer practice. Differentiation and rate of change in the Other oriented society would also provide room for other strategic types, particularly analyzers that scan the environment for emerging standards or rapidly diffusing products to exploit by way of imitation. Schnaars (1997) argues that many times an imitation strategy is more effective than being an innovation leader. He supports his views analyzing what happened with innovation leaders in the long term, comparing with the performance of imitators. We expect that the industrializing Inner society would have some room for all strategic types, but particularly common would be companies that create major industries through a competence destroying innovation (electric lighting taking the place of gas or kerosene illumination for instance) and then exploit and perfect their fledgling innovation until they become defenders. The slower pace of change, comparative resource scarcity, and stable preferences and values of the populace would seem to favor this kind of firm.

Conclusions

Despite its tentative nature, we believe that our research points to a number of fruitful directions for future inquiry into the comparative management of information technology. Aside from the obvious tasks of identifying whether the patterns found are representative of the Brazilian real estate industry and adequately portray all of the major strategies for IT adoption, our results raise the question of strategy, subcultures and information technology usage in other industries and other national settings. Future studies should include the models of Rogers (1995) and Frambach (1999) on innovation adoption. As an extreme example, one might expect that even in the US there may be settings where a personalistic face to face strategy coexists with heavy e-commerce usage. The contrast between the business formula of Edward Jones brokerage and investment services and online brokerage firms may present one possibility. Edward Jones stresses lo tech, long term relationship building among repeat customers in small towns in an industry where impersonal electronic transactions are ever more common. A broader theory than our preliminary thinking might identify what national and industry factors would predict strategic possibilities for different patterns of information technology usage.

The relative paucity of “prospector” behavior observed in the IT practices of Brazilian real estate firms we considered presents another riddle with broader theoretical and empirical implications. To what degree does a “wait and see” attitude toward IT innovation reflect industry concentration, capital constraints, or other factors? One could posit many alternative explanations, from cultural considerations, to the existence of seller’s markets which burden firms with comparatively lesser pressures to innovate, but it will take much more detailed and systematic study than our present research allowed to advance credible arguments. Such research might provide practical insights as to how to remove barriers to innovation generation, adoption, and adaptation and how to formulate business strategies that effectively address subcultural variation within nations or regions.

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