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BUSINESS MODEL AS AN INDUCER OF DISRUPTIVE INNOVATIONS: THE CASE OF GOL AIRLINES

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ABSTRACT

This study investigates the internationalization process of Brazilian brand design firms. The following research question inspired the study: What are the characteristics of the internationalization of these firms? The study, of a technical nature, is based on secondary sources, complemented by personal interviews with specialists. The results show that the design sector in Brazil is still very fragmented, and that internationalization of design firms is incipient.

Keywords: Design, Internationalization process, Brazilian Brand Design Firms, Firms.

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INTRODUCTION

The business strategies must increasingly consider the innovation management as a key factor to reach competitive advantage. This is necessary because companies need to make constant investments to maintain its leadership given the increasing complexity of technology, the shorter product life cycles, and rapid changes in customer needs (Besanko et al., 2010). There is a path to innovation that affects the business and allows it to achieve profitable growth. It is the business competitiveness necessary to value creation that sensitize consumers, establish market differentiation, and reach new customers segments. It goes beyond the traditional requirements related to low cost, better management and control (Rodrigues et al., 2010).

In the search for competitive advantage, some companies exploit opportunities and create profitable positions that other companies ignore or fail to operate. Disruptive innovation is an example that affects established markets and dominant companies to present a new and creative way to operate or offer products and services (Christensen, 2000). Although, it usually offers a lower performance in the beginning, this type of innovation has lower cost to consumers, making it attractive for less demanding markets and a source of competitiveness for the innovators (Christensen & Bower, 1996).

In addition to innovation in products and services, should be given attention to innovation in the business model because companies must revolutionize how to design their business to better compete. It is necessary to seek alternative ways to manage the offered value attributes and focus on innovation as the model foundation and flexibility of business processes (Rodrigues et al., 2013). The Gol Airlines entered the market in early 2001 and adopted a disruptive innovation strategy to offer air transport services for a new customer segment, in addition to customers serviced by others companies. It is a well-known studied case that changed drastically the Brazilian airline industry.

Based on this case, this research investigates the role of the business model as an inducer of disruptive innovations. The business models of Bovet and Martha (2000), Applegate (2001), Chesbrough and Rosenbloom (2002), Osterwalder and Pigneur (2010), and Rodrigues, Maccari and Lenzi (2012) are studied according to the innovation implemented by Gol Airlines. We aim to 1) characterize the disruptive innovation and its determinants; 2) characterize and interpret the business model adopted by the company due to the characteristics of disruptive innovation; and 3) demonstrate how the business model can support the disruptive innovation processes.

This is a **qualitative research based on a single case study and the data collection was conducted by documentary analysis in publications on the Gol Airlines case**. An extensive literature review was conducted on disruptive innovation and the selected business models. Previous researches about the case studied were analyzed too. The results suggest that the Osterwalder and Pigneur (2010) and Rodrigues, Maccari and Lenzi (2012) business models are more adherent to the case. Furthermore, the suitable design of the business model can be a basis to support innovation processes.

This research is structured into five sections, considering this introduction. Second section presents a literature review of disruptive innovation and business models. Section three presents the methodological aspects of this study. Next section presents the analysis and discussion of the results. Finally, the last section presents the conclusion summarizing the findings of the research, the contributions for academia and practice, the limitations of the study, and suggestions for future works.

Literature Review Disruptive Innovation

Grounded on the Schumpteriano thought that the launch of a new product or service can determine a temporary monopoly on the market, innovation may have two dimensions. One is focused on their production and marketing processes, and another on the degree of novelty based on their enhancements or the creation of new ones (Zilber & Silva, 2013). The business survival depends primarily on sustaining innovations, which focuses on process improvements without changing the existing models or standards and are geared to demanding and established consumers (Rodrigues et al., 2010). On the other hand, innovations that break certain rules established by industry leaders allow the creation of new business segments and promote the disruptive innovation proposed by Christensen in the '90s.

Sustaining innovations are improvements to the products or services to maintain the customer

services and retain them without taken big risks (Zilber & Silva, 2013). This justifies the resistance of some industry leaders to invest in disruptive innovations, despite the likelihood of them to create a successful business (Rodrigues et al, 2010). Many companies become resistant to any change after a successful innovation because they do not realize that this success declines and loses its viability against alternative and competing innovations (Demo, 2010). Differently, disruptive innovations normally require broader organizational changes and often reach the organization's business model itself (Rodrigues et al., 2010).

Disruptive innovation usually begins in small companies with low profit margins and little or no concern with existing organizational structures (Christensen & Bower, 1996). They are more willing to innovate and to break established practices, since they are more disposed to seek new approaches, are more agile, and less bureaucratic than large companies. The latter's decisions are influenced by factors such as the effects of sunk cost, investments already made in certain technology, and resources and organizational capabilities, which reduces their interests on innovation (Besanko et al., 2010).

Disruptive innovations are those that bring or emphasize unexploited attributes of products or services already offered on the market, unlike traditional forms (Charitou & Markides, 2003). Generally, disruptive companies start up small and rarely gain attention from established competitors until they begin to grow and to win large market share. Many of them have improved their performance over time, increasing the number of customers who consume their products and services, thus attracting media attention and actors already established on the market (Christensen & Bower, 1996; Charitou & Markides, 2003).

Increasing number of clients from disruptive innovations is based on offering of benefits to non-users of products already offered on the market and promoting of increased conveniences, such as lower costs (Lindsay & Hopkins, 2010). Despite the resistant scenarios against these innovations, this increment is guided in so-called disruptive points and related to monitoring and awareness of potential customers' needs (Zucatto & Pinheiro, 2008).

Three factors can influence the implementation of these innovations and the organizational success: resources, processes, and values. Such capabilities can be present explicit and implicitly in organizations and should be evaluated together. Values are defined as patterns from which employees set priorities to make decisions. Well-defined values reflect processes, cost structures, and business models, which define the rules that employees will follow to achieve organizational objectives from available resources (Christensen & Overdorf, 2000).

Based on these capabilities, two strategies can be adopted to convert ideas into plans for new disruptive business: the creation of a new market as a basis for rupture, and the rupture of the predominant business model of lower product value (Christensen et al., 2002). By adopting the strategy of creating a new market organizations are willing to provide products or low-cost services that are simpler to use and not very different from similar that consumers are accustomed to dealing. Consumers need to realize that your life will be further facilitated through technology behind these products or services.

On the other hand, by opting for the strategy of disruption of the prevailing business model it is assumed that the products are good enough for the consumer's view. This being true, a new business model "disruptive" focused on the low-value product market should be implemented. It consists of a cost structure, operational processes and, distribution system where profit margins are smaller, but profitability is higher.

Finally, taking into account the importance of intellectual assets to generate disruptive business, such as patents, trade secrets and publications, the following actions can create these assets: i) awareness of each unit business to disruptive innovations opportunities; ii) creation of generators of these assets; development of disruptive business models associated with marketing approaches; iii) patenting of business methods and protection of innovation; mapping of new technologies and emerging companies in the market; iv) adoption of global market perspective, scanning infrastructure and different social conditions that can foster such innovation; v) maintain the focus on intellectual assets that can better meet the consumers' needs and not necessarily those assets that meet the majority of these consumers; vi) attention to publications that can provide information on competitors and the state of the art innovative proposals (Lindsay & Hopkins, 2010).

Based on the literature review presented here, it is possible to draw up a summary of the characterizing elements of disruptive innovation, among which are mainly: the search for reaching a new business segment and new target audience; the

proposition of benefits, convenience and low-value to customers; the inherent risk of changes and the need for maintenance of organizational intellectual assets.

Table 1 shows the synthesis of eight elements of the disruptive innovation and their main characteristics.

Table 1 - Disruptive Innovation Characteristics

Elements	Main Characteristics
1. Breaking of dominant rules	To change the way the market works to offer products or services not provided by competitors (or unexploited attributes).
2. Transformation / risk	To change widely processes and often the business model itself which may involves risks the investments already made.
3. Simplicity / facility and convenience	Products simple to use and not very different from already offered. Ease and convenience; Products good enough for the consumer.
4. Low-value / low-cost	Low-value and low-cost achieved by technology simplicity, process review and less dependence on specialized human and technical resources.
5. New segment / new customers	To offer benefits to non-users and increase convenience, usually at a lower cost. Focus on finding new customers.
6. Profitability	To increase number of customers by offering benefits.
7. Upward trend	Businesses are generally small in the beginning and have improved their performance over time.
8. Intellectual assets	To maintain intellectual assets, such as attention to opportunities, generators of ideas, mapping of new technologies, patents, and others.

Source: Created by the authors and adapted from the literature review

Business Model

The term business model became popular in the mid-1990s in order to characterize the way companies began to operate in the new market brought with the advent of the internet (Orofino, 2011). Over time, its application has expanded to guide and explain the actions taken in any type of company (Lobosco, 2014). Despite increased use and the range of studies being conducted since then, the concept of business model is still diffuse and is under discussion in different contexts and aspects (Siqueira, 2012). It is used as analogy as business management, business strategies and organizational models, sometimes in analysis of the different business segments, such as telecom, information technology, and so on.

The business model is an abstract concept that reflects the company's logic, that is, the way it traces to make money and establish its relationships with partners and target audience, beyond describing the value offered to the various customer segments (Osterwalder et al., 2005). It is also characterized by the arrangement of resources, internal capabilities and competencies in order to create and capture value (Rodrigues et al., 2013). This section presents a summary of the models proposed by Bovet and Martha (2000), Applegate (2001), Chesbrough and Rosenbloom (2002), Osterwalder and Pigneur (2010), and Rodrigues, Maccari and Lenzi (2012), which are presented later in the analysis of results.

Bovet and Martha business model

Bovet and Martha (2000) used the creation of value networks that satisfy customer needs to propose a business model that consists of five elements. The first element refers to the 'value proposition' that is the identification of the type of benefit that the organization is willing to offer to its customers through their products and services. Among them, it highlights the service delivery time, the customers' confidence that their needs will be met, and the effective resolution of the customer's issues.

The second is the 'scope' that is the set of critical activities to be developed by the organization itself or by partner, so the proposed value is effectively delivered to customers. For example, communication channels between the organization and customers in order to guide them in the use of products or services, to offer ongoing support to users, or to identify their satisfaction or dissatisfaction. The third element is 'make a profit' that comprises the steps

the organization will hold to realize the return on investment. For instance, organizational processes involving costs with assets and low financial investments.

The fourth element proposed is the 'strategic control' that describes what the organization will do to control and maintain or expand profits over time. It's involves, for example, brand management, customer relationship and supply partners, development of innovative designs and low price policies. Finally, the fifth element is the 'implementation' outlined as the human capabilities and technologies required to keep aligned the other elements.

Applegate business model

Applegate (2001) examined how the new digital business models (e-business models) began to revolutionize the way of do business from the mid-90. The Internet has opened opportunities for companies to rethink their traditional business models that had been molded and systematized in most of the 20th century in the industrial age. New business models might be thought from the new dynamic that the information age began to provide.

A business model consists of three components that are interconnected: business concept, organizational capabilities, and value creation. The first sets out the business opportunities, products and services offered, and strategies to evolve and conquer. Organizational capabilities are built and made available through people and partners, culture and organization, and general management models. The value creation is measured by the return to stakeholders, financial performance, market gain and image. The definition is not new, but it changes the business rules and assumptions that form the mental models, which guide how to make decisions (Applegate, 2001).

In the e-business model world, changes the orderly sequence of the traditional value chain. The players may assume more than one role linked to a series of transactions between them and relationships that are more suitable to value creation on Web. Business networks are built from a combination of several business models that interconnect, efficiently leveraging the organizational capabilities of each stakeholder.

Applegate (2001) suggests 22 business models to the digital universe, though, already recognize some potential similarities between them. These models are divided initially into four groups: producers and distributors of products and services, and producers and distributors of infrastructure that support the first two.

Chesbrough and Rosenbloom business model

Organizations must understand the cognitive role of the business model adopted by them to convert new technologies into economic gains. This is to capture the value of their innovations, even when the opportunities presented do not fit with the company's current business model (Chesbrough & Rosenbloom, 2002). The role of the business model aimed at innovation should ensure that the essence of technological innovation translates into a business economically viable (Mesquita et al., 2012).

The business model proposed by Chesbrough and Rosenbloom (2002) is the way an organization aims to create value in the market by combining their products, services, image, logistics, human capabilities and operational infrastructure to run its business. It is based on the value proposition by the company that develops technology to consumers and has the opportunity to appropriate part of this (Osterwalder et al., 2005; Rodrigues et al., 2012; Mesquita et al, 2012). A successful business model creates a logical linking between technical capability and creation of economic value, which limits the subsequent search for new - and alternative - models to explore newer technologies (Joia & Ferreira, 2005).

The main proposals of their model are: 1) to articulate a value proposition that defines the value created and offered to customers; 2) identifying a market segment and subsequently profit generation mechanisms for the company; 3) to structure a value chain to create and distribute products and services with complementary assets to support the company's position in this chain; 4) to estimate the cost structure and potential profit of production; 5) company's position in the value network - suppliers/customers - with the inclusion of potential competitors; and 6) development of a competitive and innovative strategy that allow the company to obtain advantages over the competitors (Rodrigues et al., 2012).

Osterwalder and Pigneur business model

Osterwalder and Pigneur (2010) suggest that a business model describes the rationale of how an organization creates, delivers and captures value.

They proposed a Canvas model that consists of nine components related to four business pillars, namely: a) product/offer; b) customer relationship; c) infrastructure management; and d) financial aspects. **Table 2** presents a brief description of these pillars and components. The business model must be constantly reviewed in order to verify its maintenance and focus on goals set by the company. This review may also demonstrate the need for adjustment to improve the results.

Table 2 - Osterwalder and Pigneur Business Model Pillars and Components

Pillar	Component	Description
Product/Offer	1. Value Propositions	Establishes the value propositions and how to offer it; Search market differentiation and customer loyalty.
Customer Relationship	2. Customer Segments	Sets with whom, in which different segments and customer group the company intends to interact and meet.
	3. Channels	Focus on communication and customer contact, means of access, and the ways to deliver the value proposition.
	4. Customer Relationship	Defines the types of desired and established relationship for different customer segments.
Infrastructure Management	5. Key Activities	Describes the most important activities that must be performed to make the business model functional.
	6. Key Resources	Skills, assets and resources needed to maintain the business model.
	7. Key Partners	Network of suppliers and partners necessary for the performance of the business model.
Financial Aspects	8. Cost Structure	Describes the flow of revenue, pricing mechanisms, and costs involved.
	9. Revenue Streams	Shows how the company makes money from each customer segment.

Source: Adapted from Orofino (2011) and Siqueira (2012)

In analogy to the construction steps, this business model is like a floor plan of a company that allows its viewing drawings and representation of the business structure that is its operational and physical form (Siqueira, 2012). The graphical representation of the model illustrates the interconnections and exchanges between its different components and actors. The dynamics in **Figure 1** shows that the business model of an organization does not operate independently, but interacts with the strategies adopted and its components. It includes the costs and revenue planning, partnerships and key resources, attention given to target customers and, mainly, focus on maintaining established value proposition.

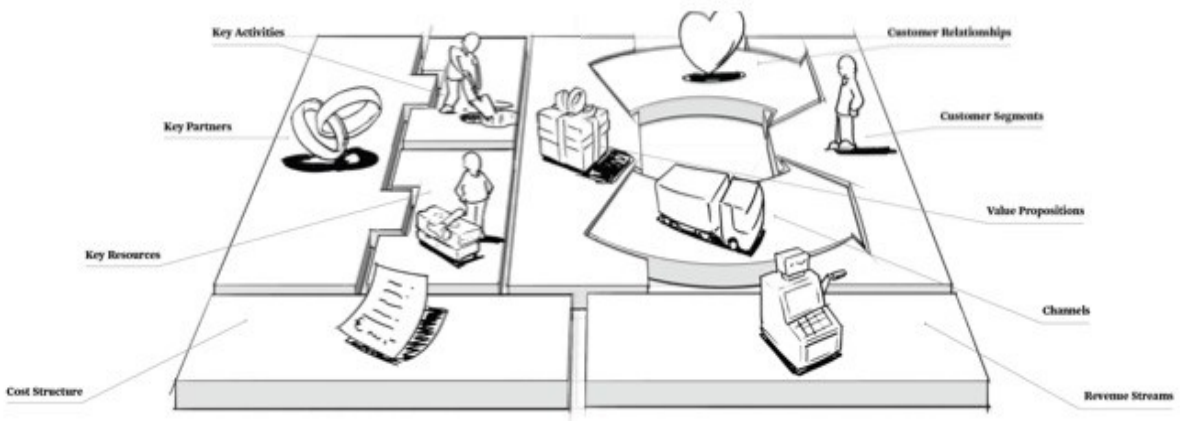

Figure 1 – Business Model Canvas
Source: Osterwalder and Pigneur (2010)

Rodrigues, Maccari and Lenzi business model

Rodrigues, Maccari and Lenzi (2012) suggest a business model focused on the interaction between the organization and market, and how it is structured to create positive results of this relationship. They propose three stages of organizational cycle for innovation. In the first, the focus is on the search for innovation and a new market. The valuables attributes are intended to expand the competitive advantages perceived when the novelty is the most important factor. With the increased use other companies are attracted to the production, which decreases the importance of novelty and increases the attributes' value.

While the product advances to a specialty stage and standardization, the profit margins reduce. At this stage, there is a need to strengthen the market relations and increase marketing performance through emphasis on basic attributes of the product such as design, technology, performance, support, compatibility, and others. Finally, in the mass production stage, the product becomes a commodity and entrepreneurial skills are directed to general administration and production management. **Figure 2** illustrates the innovation focus in organizational life cycle.

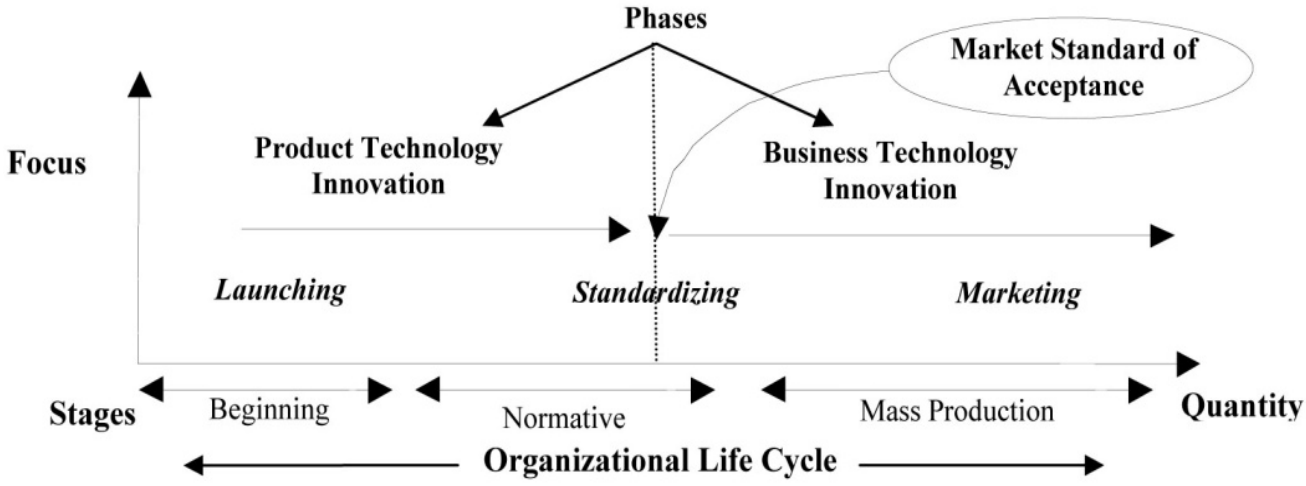

Figure 2 – Innovation Focus in Organizational Life Cycle
Source: Rodrigues, Maccari and Lenzi (2012)

They propose the combination of corporate, organizational and competitive strategies to set up a business model that is a propellant processes for innovation, as showed in Figure 3. Corporate strategies refer to the way organizations develop their skills, technical capabilities and processes resulting from the available resources and technologies. Competitive strategies associate with the way that companies stands in relation to market segments that they intend to achieve.

Organizational strategies are the structural shapes, divisions, communication channels, decision-making and empowerment that will enable them to interact with the market based on their skills, resources and internal expertise.

During the product technological innovation process, organizational and competitive strategies are usually neglected to ensure that the attributes of a new product win market shares. This phase focuses between corporate and competitive strategies. Since the product is accepted, the second phase is the technological business innovation and aims to expand the product market initiatives. In this phase, in which the positioning is among organizational and competitive strategies, the key skills are the business capabilities and flexibility, because through them it is possible to add value to the transaction process (Rodrigues, Maccari & Lenzi, 2012).

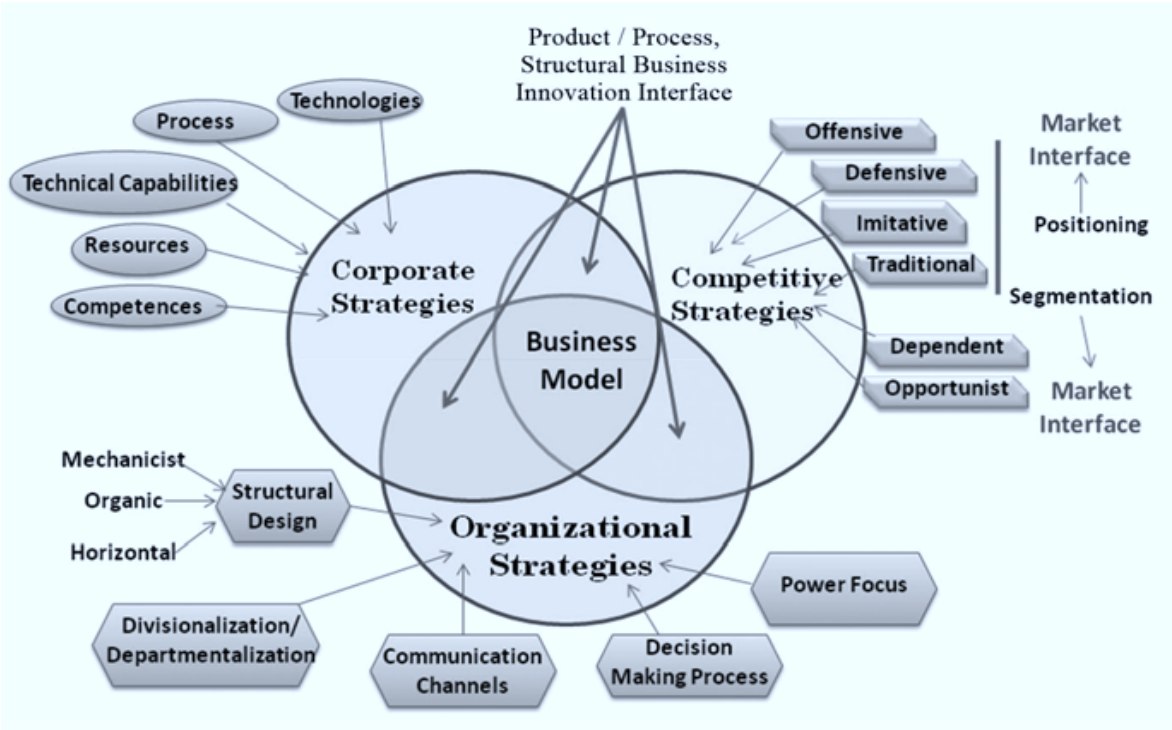

Figure 3 - Innovation, Strategy Integration and Business Configuration
Source: Rodrigues , Maccari and Lenzi (2012)

This section indicates that the characteristics of a business model are mainly related to three factors: 1) emphasis on the value proposition - what and for whom offer - in order to gain market differentiation and competitive advantage; 2) operation - how, how much, where and when offering - to structure the value chain, customer relationships, key activities, organizational capabilities, distribution channels and the business scope; and 3) financial aspects - focusing on capturing value and profit potential - for what - which provides the desired profit margins and revenue models of the company. Table 3 shows these main characterizing elements of a business model, according to the literature review.

Table 3 – Syntheses of Business Model Elements

Business Model	
Elements	**Aspects/Focus**
Value Proposition	What offer?
	Offer to whom?
	What market differentiation is expected?
	What is the business concept?
Operationalization	How to offer value?
	What are the organizational capabilities required?
	What relationship should be adopted?
	What key activities are required?
	What key resources are required?
	What partner network needed?
	What distribution channels deliver the value proposition?
	What is the value chain structure?
Financial Aspects	How is the cost structure?
	What is the revenue stream expected?
	What strategy control is expected?

Source: Created by the authors and adapted from the literature review.

Method

This is a **qualitative research based on a case study** method that allows retention of holistic and significant features of real-life events (Yin, 2010). This approach helps the researcher to understand and explain a phenomenon, and allows the analysis of subjective aspects, such as understanding the organizational context (Richardson, 1989; Godoi & Balsini, 2010). The focus of this study is the business model as an inducer of disruptive innovations.

The data collection methods used in this research were: a) bibliographic research about disruptive innovation and the business models of Bovet and Martha (2000), Applegate (2001), Chesbrough and Rosenbloom (2002), Osterwalder and Pigneur (2010), and Rodrigues, Maccari and Lenzi (2012); and b) documentary collection in publications about Gol Airlines and on the Web to support the detailed understanding of the case. The documents provide sources of stable, discrete and accurate evidence (Gil, 2007, 2009; Yin, 2010), but require intensive care in the analysis by the researcher as it can characterize intentionally distributed or transmitted information with advertising bias (Gil, 2009) .

The qualitative data analysis was initiated during the collection stage and allowed the identification of the elements and categories described in business models studied and in the innovation process developed at Gol Airlines. The elements and categories found were reduced to the simplification of their common characteristics, to identify patterns and abstraction, these procedures that enable explanation and the search for conclusions by the authors (Martins & Theóphilo, 2009).

Finally, the object of study is a Brazilian passenger airline based in São Paulo/Brazil. This case is relevant because it is a success story that broke a market paradigm and established a new business model in Latin America. It changed the airline industry and assured its growth rates ten times faster when compared to traditional companies like Southwest Airlines (Oliveira, 2009).

Results

The Case of Gol Airlines

To understand the rapid growth of Gol Airlines it is necessary to review the context at that time. The national regular airline market was dominated by three large companies in the 80s, Varig, VASP and Transbrasil, and the first also had the monopoly of international flights. In the early 90 came TAM as new competitor in the domestic market. In the 90s there was also the opening of the market by the Federal government, and the beginning of the deregulation of the airline industry with the first rounds in 1992 and total liberation in 2001 (Binder, 2003; Coutinho & Sarti, 2006; Oliveira, 2009).

With the opening of the market, all companies started to operate internationally, however, due to a bilateral agreement between countries they had to compete with big American players. In late 1997, airlines were also authorized to reduce tariffs by up to 65%, which were previously controlled by the government. The fierce competition, the tariff war that broke out in 1998 and the Brazilian currency depreciation in 1999 reduced the demand and negatively affected the finances of these four major airlines (Binder, 2003; Coutinho & Sarti, 2006).

Gol began its operations in January 2001 with six Boeing 737-700 aircraft (Coutinho & Sarti, 2006; Gol, 2014). His partners were also shareholders of Áurea Group, the largest road passengers transport group in Brazil at the time.

They studied the cases of Southwest Airlines, JetBlue Airways, Jet Airlines and easy Rayanair and strategically choose to adopt the concept of low-cost, low-fare (Binder, 2003; Gol, 2014). With this model, the company closes its first year by increasing the number of aircraft for ten and reaching 4.7% of the domestic market share of RPK (Revenue Passenger Kilometres), which is an index that measures the number of paying passengers multiplied by the distance in miles traveled (Coutinho & Sarti, 2006).

With the worsening of the financial crisis due to the factors already described and added to the success of Gol's entry, the Transbrasil and VASP had their operations closed in 2001 and 2005, respectively. Varig, despite being one of the leaders in the 90s and have suffered less impact when compared to the last two, did not overcome the financial difficulties and was acquired by Gol in 2007. In April 2014 Gol had five brands (Gol, Varig Smiles, Fly Easy and Gollog), 147 aircraft Boeing Next Generation, 36.11% of the domestic market share and 14.40% internationally, with 67 international and 15 domestic destinations in South America, Caribbean and the United States (Gol, 2014). **Figure 4**

illustrates the evolution of the market share of RPK for airlines, with declining Transbrasil, VASP and VARIG, and the rise of TAM and Gol (Binder, 2003; Coutinho & Sarti, 2006, Relatório Consolidado, 2010).

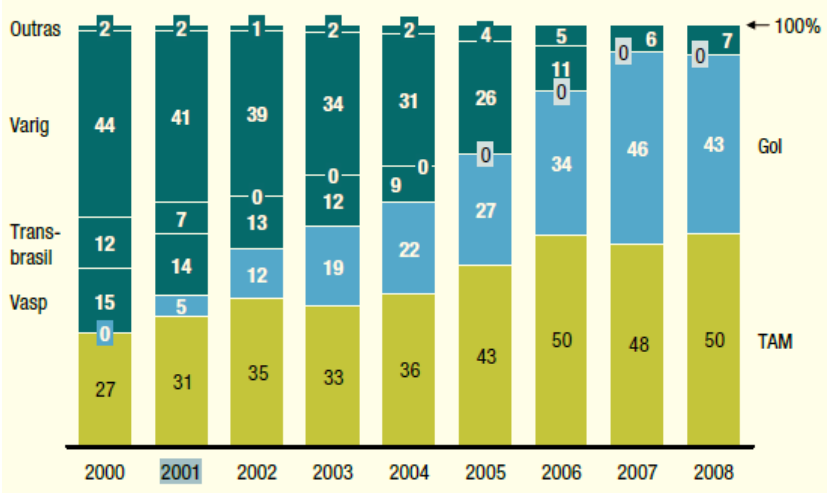

Figure 4 - Market Share Evolution (% de RPK) of the Air Market
Source: Relatório Consolidado (2010).

In short, the information gathered point to factors that contributed to the success of Gol, such as the growth of GDP (Gross Domestic Product) and passenger demand, market expansion opportunity with the inclusion of road transport passengers of social class B and C, the deregulation of the sector, weak competition and access to the Congonhas Airport in São Paulo since the beginning of its operation. A year after entry, the company still had access to the domestic airport in Rio de Janeiro/RJ. These airports are considered extremely strategic for offering significant competitive advantages (Binder, 2003; Oliveira, 2009).

The low-cost, low-fare model

The low-cost, low-fare model adopted by the company targeted the creation of a standardized operational structure, which focused on six critical components to the business success: 1) aircrafts configuration; 2) types of flight services; 3) the ticket sales approach; 4) human resources skills; 5) information technology (IT) support; and 6) operational route optimization (Binder, 2003). Connections and interdependencies between these six components are also relevant features of the business model.

The **standard configuration of new aircrafts** generated gains such as fuel economy around 11% when compared to other models used by competitors, reduced time and cost of maintenance, no need of hangar or parts inventory for the start of operations, reduced training costs by standardizing technical skills required to mechanical teams and crew (pilots and flight attendants), and culminated in maximizing economies of scale (Binder, 2003).

The **flight services for passengers** delivered a simpler menu, composed mainly of cold foods, such as water, soda, and cereal bars. Not having hot food reduced the need for internal equipment and operation costs considering the entire value chain, from the purchase and logistics in the ground, to the cleaning of aircraft. It has guaranteed physical space for installation of 12 more seats, expanding the maximum capacity of passengers per aircraft. The availability of flexible schedules, since the early morning until late at night, extended the service lane beyond the traditional business hours (Binder, 2003).

The **tickets sales** were made available directly to the end customer via Internet or 0300 without the need for intermediaries. In addition, the client did not need to pull out its ticket in a local pre-defined by the company, unlike in the sales process of competitors. The ticket could be printed by the customer, given convenience for him and cost reduction for Gol. Finally, the integrated check-in for purchasing and ticket printing in one place allowed the company a 15% lower selling cost in relation to competitors (Binder, 2003).

The characteristics of the Gol operating model allowed the hiring of different **skilled human resources** and fewer per aircraft. Despite the number of crew not vary greatly among airlines due to market regulations, its lean ground operation allowed to have a number of ground staff 50% less than the

competitors. The company also opted for more experienced pilots to reduce aircraft insurance costs and began hiring young and cheap professionals to administrative and ground operations.

There was also investment in **systematization and automation** of most of the company's operations and, for that reason too, the IT department has always been considered strategic for the company. The online ticket sales solutions and digital availability of flight schedules for pilots are two results of this strategy (Binder, 2003).

These five components that just discussed contributed to the sixth component: **optimization of operational routes**, with respect to the total time of flight a day and stops in the ground. In its first year, the aircraft flew on average 10.5 hours per day, against a variation of 8 to 9.5 hours per day from the competitors. The less downtime in the ground was around 20 to 30 minutes, compared to an average of 35 minutes of competition, which contributed directly to the company's results (Binder, 2003).

Summarizing, considering all the information presented here, it was possible to identify six critical structural components that allowed the operationalization of the low-cost, low-fare model by the company. Table 4 summarizes these components and suggests a route to this research providing the structural elements that will be faced with the characteristics of the business models described in reference.

Table 4 – Structural Components of the Low-cost, Low-fare Model of Gol Airlines

Structural Components	Details
Aircrafts configuration	Aircraft Model Standardization
Flight services for passengers	Simple menu and flexible hours.
Tickets sales	Internet or 0300 without intermediaries.
Human resources	Fewer employees, more experienced pilots and younger staff.
Information technology	Strategic area focusing on systematization and automation.
Operational routes	Optimized with less downtime in the ground and longer flight time.

Source: Created by the authors.

It is important to understand the period of time that established the disruptive innovation and sustaining innovation in Gol Airlines. Oliveira (2009) suggests two stages for the positioning of Gol on the market: a low-cost phase, and a low-fare and low-cost phase. The first phase was from the start of operations in 2001 until mid-2002 and the second phase, from this last period to nowadays. Amorim (2007) demonstrated that the company could no longer be characterized as low-fare and it changed its position in the second period as a mainly low-cost company (Gol, 2014).

In this research, the analysis performed to investigate the business model as an inducer of disruptive innovations are based mainly on information that relate to the period 2001-2002, when Gol Airlines still remained true to its structural components described in Table 4. In addition, the 2001-2002 period is what best characterizes the disruptive innovation that broke paradigms of the market at that time (Oliveira, 2009).

Business models versus the structural components of Gol Airlines

This section presents the analysis for each business model studied in the light of disruptive innovation performed by Gol Airlines, comparing the theoretical rules previously described and the structural components shown in the low-cost, low-fare model.

Applegate business model x structural components - This business model has a strong emphasis on digital media, with the presence of companies on internet to operate and carry out their business. This characteristic indicates the need of IT investments to support the systematization, automation, and safety of operations. The sale of tickets to customers directly on the Internet is adhered to the proposal of Applegate. The value creation was possible for stakeholders, especially customers who now have the convenience and direct access to purchase tickets, without intermediaries, in addition to the benefit of low cost flights. The IT

support should also be considered compliant because from it was possible to operationalize the availability of a website for the purchase of airline tickets.

Osterwalder and Pigneur business model x structural components – This business model is mainly characterized by the attention given to the pillars product/offer, customer relationships, infrastructure, and financial aspects. In the case studied, there are important signs of these characteristics. First, the communication channels and the type of relationship were defined considering the customer segment - the social classes B and C. The evidence showed that the value proposition was achieved, since a new segment of customers now has access to air travel.

In terms of infrastructure there was alignment and definitions of essential resources (pilots, mechanics, and crew), network of partners (suppliers), and key activities (ground services, simplified menu). Finally, the low-cost model emphasized guidelines for standardization and consequent cost savings in fuel, maintenance, and training, among others. Given the evidence, it appears that the components of this business model have a strong presence on the disruptive innovation element of Gol Airlines. In addition, the evolution of its market share and its market competitiveness bring evidence that the structural components established by the company in its business model were kept.

Chesbrough and Rosenbloom business model x structural components - Chesbrough and Rosenbloom (2002) present in their model an increased focus on market value creation from the combination of products, services, image, distribution, organization of people, and operating infrastructure. The value proposition has an important role because the company has interest in part of it. Another relevant point is that company should fit their business model to new and changing scenarios, since it considers the capacity for adaptation and renewal as the key point of a business model (Luciano, 2004).

The structural components of the low-cost, low-fare of Gol show converging characteristics to the Chesbrough and Rosenbloom model, such as, the articulation of a value proposition, segment identification, creation of income-generating mechanisms and, competitive and innovative strategies. Thus, it is understood that this model also has elements compatible with the case study and the disruptive innovation performed by Gol in the period 2001-2002.

Bovet and Martha business model x structural components - The standardization of aircraft configuration opposes the model proposed by Bovet and Martha. In this model, the client and organizational flexibility are defined as basis to support the demand for products and service highly customized. Because of the structural component related to standardization of activities, aircrafts, and services, Gol Airlines has no strong customization in providing their services, although it is concerned with its customer's needs.

The Gol's activities clearly show that scope is an element in its business model, since delivery of customer value, the practice of low-cost, low-fare, and the services offered to passengers are emphasized. Similarly, the sale of tickets via Internet or 0300, automation of operations, and hiring of skilled professionals also represent the use of human capabilities and technologies to deliver value proposition as provided by the element implementation of this model. The use of sales channels is associated with strategic control element, which is focused on the search for maintaining and increasing the organization's profits over time, through the offering facilities to customers.

Rodrigues, Maccari and Lenzi business model x structural components - The purpose of this model as a point of intersection between corporate, competitive and organizational strategies allows us to suggest that the business model of Gol was the supporter of disruptive innovation achieved. Initially the company shareholders analyzed similar cases in the international market to define its actions and so adopt its competitive strategy and market segmentation. Critical components, such as, aircraft configuration, processes optimization, and the types of services and human skills reflect the adoption of the corporate strategy. As organizational strategies, it focus on Internet as sales channel, decision-making process based on rules, and especially the adopted value proposition - low-cost, low fare.

This analysis suggest the adherence of the Rodrigues, Maccari and Lenzi (2012) business model to that adopted by the company to enter and succeed in the market for passenger transport services. Evidence indicates a dynamic business model, driving innovation in case studied. The rules and the standardization of services may have brought less flexibility in adapting to traditional customer's needs. On the other hand, it made possible the use of air transport to new customers, especially those customers less demanding in terms of service.

Comparative table

Considering all the associative analysis made in the preceding paragraphs, it was possible to make a comparison between the business models and the components of innovation implemented by Gol Airlines, as summarized in **Table 5**.

Table 5 – Business Models relates to the Low-cost, Low-fare Structural Components of Gol Airlines

	Business Model Gol's Innovation Elements	Applegate	Osterwalder & Pigneur	Chesbrough & Rosenbloom	Bovet & Martha	Rodrigues, Maccari & Lenzi
Value Proposition	Low cost; Flexibility; Standardization.	-	X	X	-	X
	Focus on less demanding public and non-users.	-	X	X	X	X
	New customer segments.	-	X	X	X	X
	Low Cost - Low Fare.	-	X	-	X	X
Operationalization	Digital channels: Direct relationship on internet	X	X	-	X	X
	Most skilled resources and younger staff.	-	X	-	-	X
	Partnerships; Suppliers.	X	X	X	X	X
	IT support; Systematization, Simplification and Automation.	X	X	-	X	X
Financial Aspects	Cost reduction by standardization and expertise.	X	X	-	X	X
	Profitability by sales volume. More customers	X	X	X	-	X
	Delimit and retain a new customer segment.	-	X	-	X	X

Source: Created by the authors.

Conclusion

As stated by Christensen (2000, 2002), disruptive innovations break dominance rules and allow the creation of a new business segment, and it is the main focuses of Gol Airlines to enter the market with a low-cost, low-fare model, which increased the sale of airline tickets targeting road transport passengers of social classes B and C (Binder, 2003; Oliveira, 2009). The analysis of the major business models in the literature, in the light of this innovation, indicated that structural components of its implementation process are present in the business model adopted by the company. The data showed that successful innovation was dependent on prior definition of: 1) competitive strategies, so that in the initial phase was clear what the value proposition definition and segment to be adopted; 2) corporate strategies, so that the phases of expertise and differentiation of the product/service could be matching of skills, technologies and key resources; and 3) organizational strategies, so that the company could focus on the value proposition and attention to the rules for decision making when defining the price, cost, and production.

The core of this research was to investigate the role of the business model as an inducer of disruptive innovations, and seek to characterize and interpret the business model adopted by the company due to the characteristics of its disruptive innovation.

Based on the elements identified in the data collection phase, two business models have shown adjustments to the case studied: Osterwalder and Pigneur (2010), and Rodrigues, Maccari and Lenzi (2012). Both need to bring prior definition of components related to the value proposition, customer segment, customer relations, skills and key resources to conduct a process of innovation.

The results of this study reinforce that the appropriate design of the business model of a

company can be the basis for sustaining innovation processes. This perspective was emphasized by Rodrigues, Silveira, Kono and Lenzi (2013) and Rodrigues, Maccari and Lenzi (2012) by claiming that the successful way to compete with innovation depend on how companies conceive their business. In this sense, the main contribution is to allow advances in theoretical knowledge on this subject and bring new insights from the case studied.

On the other hand, this study adopted a qualitative approach with the use of a single case study, in a very specific and regulated context, as the aviation sector, which constitutes a limitation to generalize the results. In addition, the adoption of the company documents as sources of evidence, mainly from secondary data, can omit details about the reality of it or explore not very accurate information, which originally had advertising purposes.

Based on the organizations needs that face an intense competitive scenario, it is crucial to know the strategies and elements involving disruptive innovations (Christensen and Bower, 1996). Thus, considering the Gol Airlines specificities and the sector in which it is embedded, it is suggested undertake future research to evaluate scenarios and organizations in other segments where there was also breaks of market paradigms. May be it will be possible to identify similarities and differences to the case used in this study.

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