



Ministry of Foreign Affairs

Market Analysis - Airport Sector Brazil

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Market Analysis - Airport Sector Brazil

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Reino dos Países Baixos

This report has been prepared by Marcelo Cantor, coordinated by Jörgen Leeuwestein and Robbert Appeldoorn of the Embassy of the Netherlands in Brasilia and published by RVO

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This report has the objective of providing the reader with a wide range of information on Brazil, with a focus on the airport sector.

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GLOSSARY

ABEAR	BRAZILIAN ASSOCIATION OF AIRLINE COMPANIES
ANAC	NATIONAL CIVIL AVIATION AGENCY
ASK	SEAT-KILOMETERS OFFERED
ATC	AIR TRAFFIC CONTROL
BAA	BRITISH AIRPORT AUTHORITY
BB	BANCO DO BRAZIL
BNDES	BRAZILIAN DEVELOPMENT BANK
CAA	CIVIL AVIATION AUTHORITY
CENIPA	AERONAUTICAL ACCIDENTS INVESTIGATION AND PREVENTION CENTER
CEF	CAIXA ECONOMICA FEDERAL BANK
CNI	NATIONAL CONFEDERATION OF INDUSTRY
COMAER	AERONAUTICAL COMMAND
CONAC	NATIONAL COMMITTEE FOR CIVIL AVIATION
DAC	DEPARTMENT OF CIVIL AVIATION
DECEA	DEPARTMENT OF AIRSPACE CONTROL
EVTEA	TECHNICAL, ECONOMIC AND ENVIRONMENTAL FEASIBILITY STUDY
O-D	ORIGIN-DESTINATION
IATA	INTERNATIONAL AIR TRANSPORT ASSOCIATION
INFRAERO	BRAZILIAN AIRPORT MANAGEMENT AGENCY
MD	MINISTRY OF DEFENSE
PAN	NATIONAL AIRWAYS PLAN
PPI	INVESTMENT PARTNERSHIP PROGRAM
PR	PRESIDENCY OF THE REPUBLIC
RPK	PASSENGER-KILOMETERS TRANSPORTED
SAC	CIVIL AVIATION SECRETARIAT
TECA	CARGO TERMINAL GUARULHOS AIRPORT

PREFACE

Brazil is the largest economy in Latin America and its continental size makes aviation essential to bring regions together, connecting from the smallest local communities up to its cosmopolitan state capitals. This is the reason why the country has by far the largest air transport market of the continent. Being an emerging economy, it acknowledges that airport development is instrumental to support the country's ambitions to expand tourism and global trade.

According to the recent report of IATA, "The value of air transport in Brazil", the aviation sector contributes US\$ 18.8 billion to Brazil's GDP and generates more than 800,000 jobs. With demand set to double over the next 20 years, the economic contribution of aviation to the Brazilian economy could increase to more than US\$ 8.8 billion per year with more than 1.4 million jobs.

Due to the growing transport capacity worries before the 2014 World Cup, when about 600,000 visitors were expected to travel to and in Brazil, the government decided to privatize the airports in six World Cup cities by means of public auctions. After these auctions, in two additional rounds of privatization, the concessions of 17 airports were transferred to private investors in the years 2017 and 2019. This resulted in significant improvements in quality and competitiveness of major Brazilian airports, increasing the level of satisfaction by both passengers and general users.

At present, the Brazilian government is planning to privatize another 43 airports in two auctions, with a total estimated investment of about US\$ 1.5 billion from private-sector sources and US\$ 170 million from government sources. The worldwide attention given to these opportunities is a positive signal that interested parties are engaged to work with Brazilian airports in the next 30+ years to come.

The Netherlands has a long trade history with Brazil. Many Dutch companies are doing business in Brazil, and several have been active in this country over a hundred years. The Netherlands is known for its knowledge and technology in airport management, operation and equipment. The Brazilian government and Brazilian companies see us as a reliable and competent business partner and Dutch companies are very welcome in this country.

This market study shows business opportunities for Dutch companies and knowledge institutes in both twelve already auctioned airports and upcoming airport privatizations. Brazil's airport sector presents several opportunities, ranging from innovative and sustainable SME products and services up to the development and management of an entire airport. This study also provides a realistic overview of the potential political, socio-economic and environmental risks of the indicated business opportunities through a comprehensive SWOT-analysis.

Of course, as in the rest of the world, Brazil's aviation sector is seriously affected by the Covid-19 pandemic. In the short term, this has an effect on air travel. However, I am convinced that after this challenging period, the Brazilian economy and its airport market will recover. Moreover, the past and upcoming concessions in Brazil offer a unique opportunity to enter one of world's largest aviation markets.

The Embassy in Brasilia, the Consulates-General in São Paulo & Rio de Janeiro, and The Netherlands Business Support Offices in Belo Horizonte & Porto Alegre are ready to support your business to enter the promising and challenging Brazilian market. Please feel free to contact us so we can provide you with updated information.

SPREAD YOUR WINGS AND FLY TO BRAZIL!



Cornelis van Rij
Ambassador of the Kingdom of the Netherlands in Brazil

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1. INTRODUCTION

Brazil is a country of continental expanse, populated by more than 210 million people, where aviation and its related tourism plays an important role in bringing regions together, facilitating economic and social development. With aircraft taking off or landing some two million times a year, aviation supports 1.1 million jobs and annually contributes USD 32.9 billion to the domestic economy. These already impressive figures, though, if compared to the Latin American region, can even be improved. While air transport contributes to only 1.4% of Brazil's GDP, it is 3% of GDP in Chile, 3% in Ecuador and 2.1% in Colombia. Over the past 5 to 10 years, several government actions were implemented to remove artificial barriers that were holding back industry in Brazil.

Brazil has 2,499 airports registered by ANAC (National Civil Aviation Agency), of which 1,911 are private and 588 are public. Ninety-eight percent (98%) of the country's air passenger movements (arrivals and departures) are concentrated in 65 airports (international, national and regional). Thirty-one of those airports are located in major cities with main regional terminals able to process over one million annual passenger movements. These findings are among the highlights of IATA's *'The Importance of Air Transport in Brazil'* (link to complete document available in Chapter 10).

Although the number of air transport-related jobs is significant, the quality of those jobs is even more important, as aviation sector jobs are recognized as being around 4.4 times more productive than those in the economy as a whole. The added value of aviation high technology content is another reason for the Brazilian Government to consider it as one of the priorities in the government's strategic plans to boost economic growth and further development of the country's infrastructure. Airport privatization is part of the government plans to focus on public resources in areas of direct social impact to population (i.e.: education, health, safety).

It is essential for Brazil's air transport sector to maintain airport competitiveness in order to achieve growth and development. Facing a demand for air transport that has doubled in the past ten years, public authorities and entities involved with the air transport system are cooperating to plan their actions in line with the country's economic growth perspectives and social development.

While Brazil's aviation sector faces many challenges, three topics emerge as particular priorities for government attention:

- Reduce high cost of doing business, especially due to levies on fuel costs and regulatory compliance costs, which increase travel costs, making aviation less accessible to price-sensitive consumers and first-time flyers,
- Resolve gaps or inefficient use of infrastructure, both in facilities and airspace, which create disruptions for travelers and additional cost to airlines,
- Equalize regulatory harmonization with global best practices and reduce excessive legal procedures for dispute resolutions that generate confusion for consumers and airlines alike, which constitutes a significant cost burden.

The growth of air transport poses additional challenges to airport infrastructure and air navigation services. Increased air connectivity with sustainable solutions requires optimal planning and management of air navigation capacity. It also requires improvements in airport services and infrastructure to prevent imbalances. Within the infrastructure domain, Brazil faces a challenge relating to airspace, airport efficiency and capacity that can cause major disruptions, adversely affecting both airlines and their customers.

Studies to modernize and outsource airports were started in the early 2000s by the Aeronautics Command, the governmental entity that has management and air traffic control responsibilities (through Infraero) over all airports in Brazil, with following main objectives:

- Implement best international practices in air navigation services regulation and provision,
- Implement a new ATC mindset,
- Improve airport operations as an integrated solution between airspace and main Brazilian airports, to allow better on-time performance,

- Develop and improve airports' efficiency and capacity with optimized use,
- Create ideal infrastructure to solve main issues to satisfy demand growth for next 30 years.

Since those early studies, public and private sectors have been engaged in identifying best practices. Governmental concessions of major airports in Brazil resulted from more than a decade of discussions, adjustments, changes and actions in legal, financial, strategic and social matters.

The first auctioned airport was designated in 2011 in Natal, Rio Grande do Norte, with its main airport granted for 25 years. From 2011 to 2018, five additional rounds of concessions occurred with 22 airports granted to the private sector. Starting in the first quarter of 2020, another two rounds have been planned, with 41 airports in the process of being granted through 2022.

In the past decade, a total of USD 3.86 billion were invested at 10 private managed airports. Overall, a total of USD 9.14 billion is expected to be invested by the private sector during the airport concession program, significantly fostering Brazilian aviation market growth in decades to come.

Today's numbers confirm that Brazil is seriously addressing outlined issues, increasing competitiveness in the local aviation market and bringing significant rewards to the sector. With demand set to double over the next 15 years, the economic contribution of aviation to the Brazilian economy could amount to more than USD 88 billion per year and the supporting of more than 1.4 million jobs.

Brazil's Airport Sector - Facts and Figures

- 2nd nation in the world by number of airports.
- 3rd domestic commercial aviation market.
- 110 public airfields receive scheduled flights*.
- 1,911 private aerodromes.
- 18 airports receive international flights*.
- 81 airports outside capitals with scheduled flights.
- 22 airports granted to private administration.
- 44 airports still managed by Infraero:
 - 22 airports under process of concession
 - 19 airports under feasibility studies
 - 3 airports in public private partnership
- 1.12 million tons of cargo transported in 2018*.

** Data from SAC Horus Systems - June 2019.*

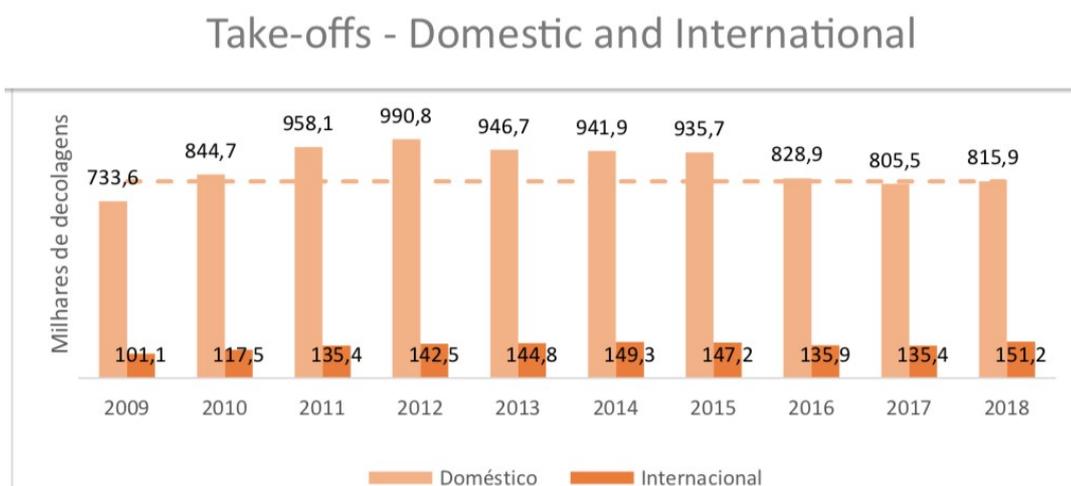
2. CHARACTERISTICS AND STRUCTURE OF THE BRAZILIAN AIRPORT SECTOR

2.1. Brazilian Air Market

Brazilian air market has had a steady historic growth of 8% per year, with exception of the years of in-country economic recession. In 2018, the Brazilian air market registered resumption in growth of takeoffs, in addition to domestic and international market; 967 thousand scheduled and non-scheduled flights were performed. The number of passengers carried increased for the second consecutive year, after falling in 2016, and reached 117.6 million domestic and international passengers, second largest in the series. Historic numbers show that aviation market recovers quickly after recession years.

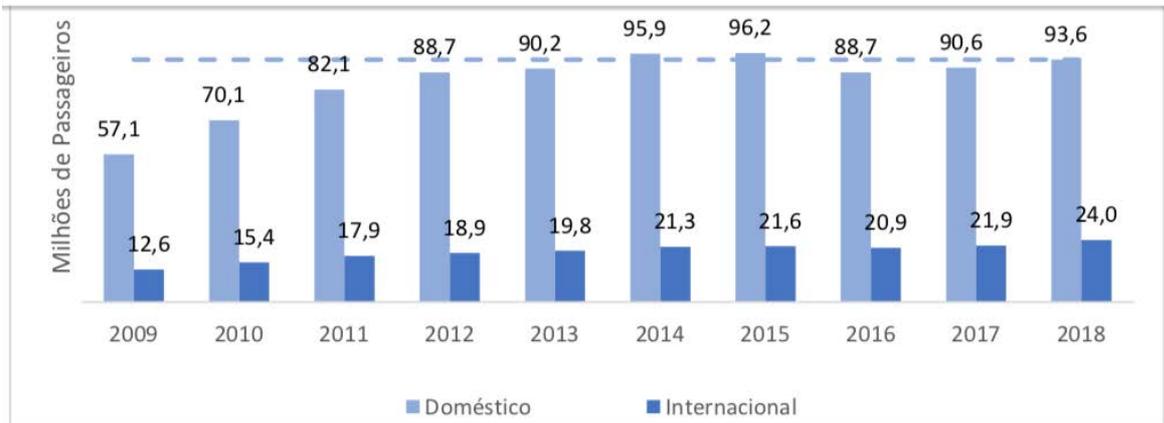


In the domestic market, 815.9 thousand flights were carried out and 93.6 million passengers were carried, up 1.3% and 3.3% respectively. Demand and supply measured by RPK (passenger-kilometers transported) and ASK (seat-kilometers offered) increased by 4.4% and 4.6%, respectively, indicating an increase in average travel distance. Aircraft utilization (RPK / ASK) was 81.3%, with little variation compared to 2017.

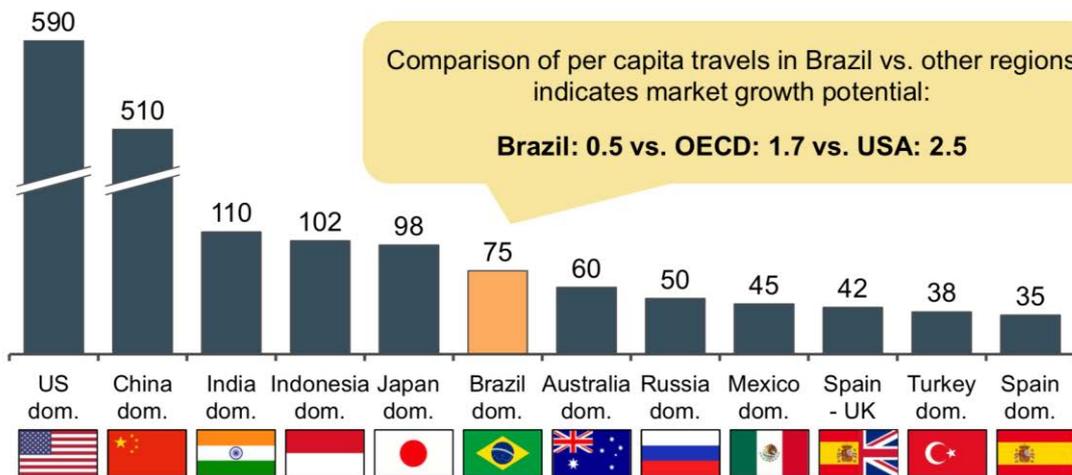


In 2018, the international market also posted supply and demand growth, totaling 151.2 thousand flights (+ 12%) and 24.0 million passengers (+ 10%), both recording highest values in series. Very similar behavior is observed considering the ASK and RPK indicators, resulting in a decrease in aircraft utilization, from 84.4% to 82.1%.

Paid Passengers - Domestic and International



Brazilian domestic market occupies sixth position in Origin-Destination (O-D) market ranking (75 million of passengers) with demand for growth.



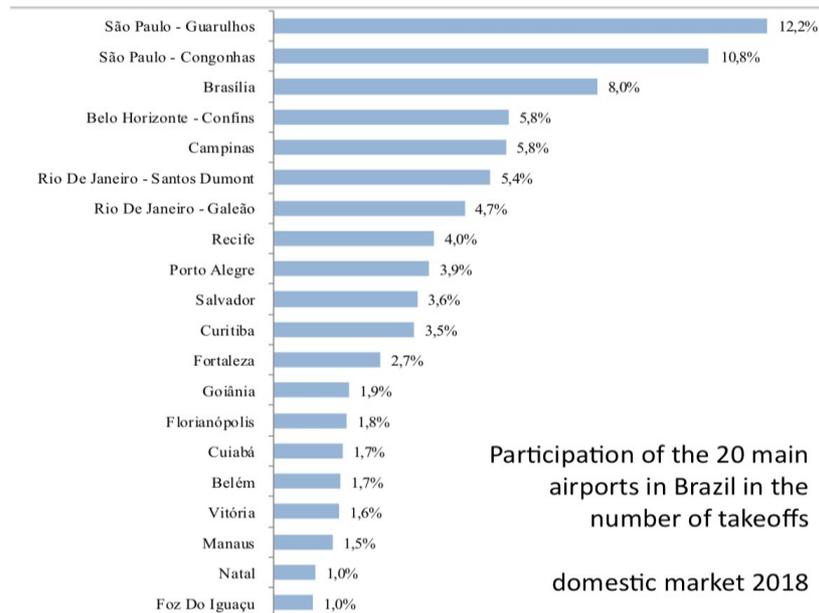
Δ 2018 vs. 2017



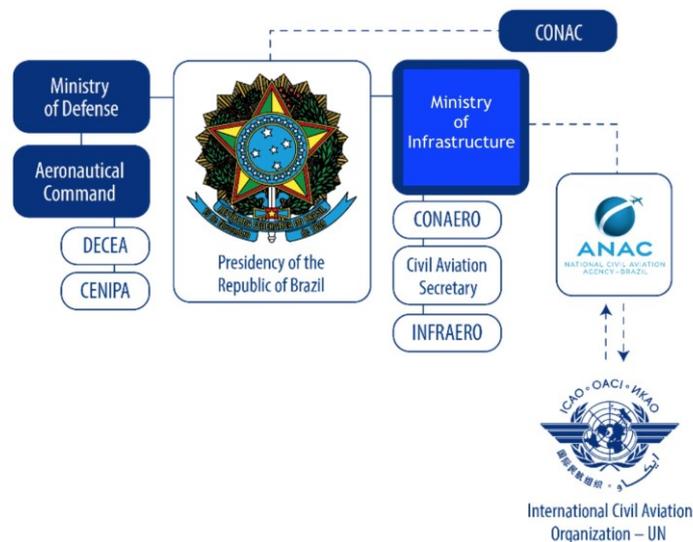
Notes: *O-D: Origin-Destination Markets
 Source: IATA, L.E.K. Research & Analysis

Airports and flights distribution

From a total of 2.499 existing aerodromes in Brazilian territory, 82.6% of flights in 2018 were taking off from one of 20 main airports.



2.2. Brazilian Civil Aviation Sector - Governmental Institutions



Conac - Advising body of the Presidency of the Republic for the formulation of the Brazilian civil aviation policy.

Ministry of Infrastructure - Through the Civil Aviation Secretary, the Ministry coordinates and supervises actions for the development of airport and aeronautical infrastructure.

Conaero - Consultative and deliberative commission composed by bodies that directly work with airport management in order to make airports more efficient.

Infraero - Public company responsible for 59 airports in Brazil, which holds 49% of the following airports: Guarulhos (SP), Viracopos (SP), Brasília (DF), Confins (MG) and Galeão (RJ).

Decea - Department of Airspace Control, subordinate to Aeronautical Command and the Ministry of Defense.

Cenipa - Aeronautical Accidents Investigation and Prevention Center, subordinate to Aeronautical Command and Ministry of Defense and responsible for the investigation and prevention of accidents.

ANAC - Brazilian civil aviation authority regulates and inspects civil aviation activities and airport and aeronautical infrastructure. ANAC is linked to the Ministry of Infrastructure. The agency is not hierarchically subordinate to the Ministry and it has administrative independence, financial autonomy and fixed mandate for its directors.

2.2.1. National Civil Aviation Agency (ANAC)

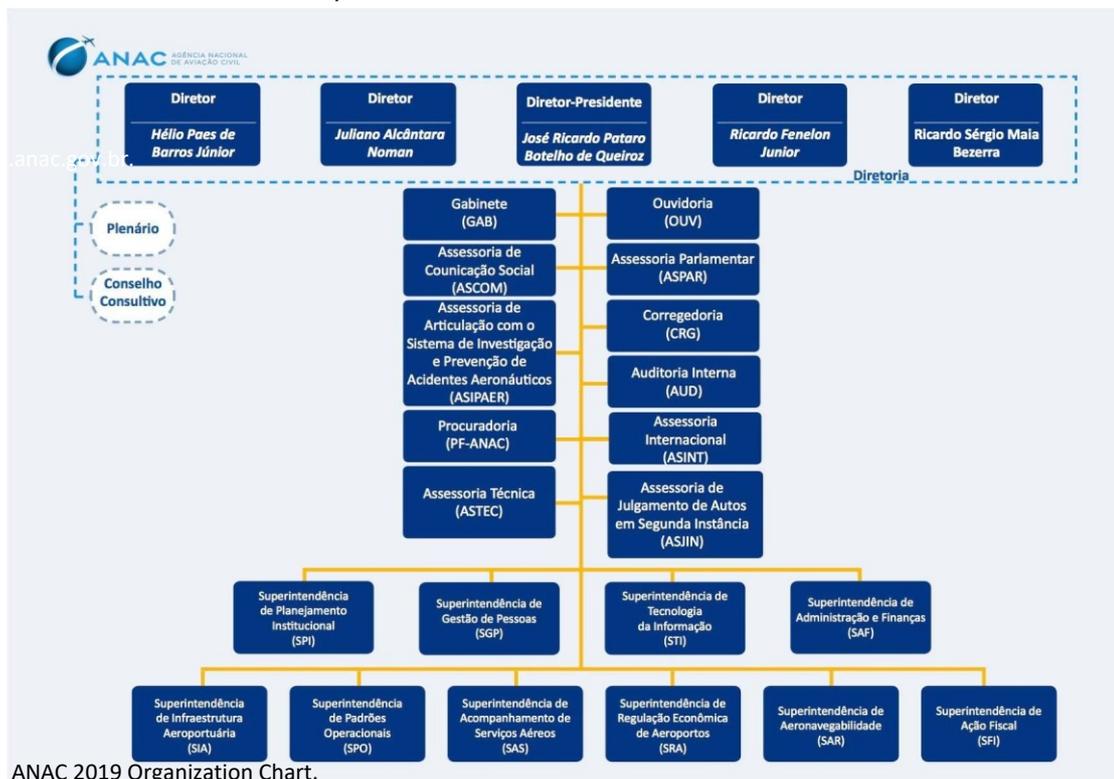


The aviation sector is controlled by ANAC, a regulatory agency established to regulate and inspect civil aviation activities as well as aeronautical and airport infrastructure in Brazil.

The agency was created in 2005 as new National Civil Aviation Authority, replacing extinct Department of Civil Aviation (DAC). ANAC is responsible for regulation, inspection and certification of aircraft, companies, manufacturers, aircraft maintenance organizations, aerodromes, schools and civil aviation professionals. ANAC works to ensure civil aviation safety and security, and to improve the quality of services, fostering a competitive market. The agency has nearly 2,200 employees.

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ANAC develops rules to promote safety and excellence of the Brazilian civil aviation market. The agency enforces compliance with rules aiming to prevent accidents and improving quality of services provided by air companies, civil aviation personnel and airports. The Agency also certifies and inspects aircraft, aircraft operators, aircraft manufacturers, aircraft maintenance organizations, airports, training organizations and civil aviation personnel. ANAC is linked to Ministry of Infrastructure, however it is not hierarchically subordinate to the Ministry and it has administrative independence, financial autonomy and fixed mandate for its directors.



ANAC 2019 Organization Chart.

2.2.2. Secretary of Civil Aviation (SAC)

The Secretary Civil Aviation (SAC) was created in 2016 with purpose of civil aviation administration, previously done by the Ministry of Defense, which main functions and attributes are to coordinate and supervise actions aimed at strategic development of civil aviation sector, airports and aeronautical infrastructure in Brazil. SAC is linked to Ministry of Infrastructure.

2.2.3. The National Airways Plan (PAN)

The National Airways Plan, or PAN, is an important milestone implemented by SAC for the Brazilian air transport sector. In addition to complying with legal provisions, it meets ICAO's (International Civil Aviation Organization) recommendations regarding the country's need to structure its civil aviation actions into strategic plans. It also highlights actions set, programs, policies and regulations listed as strategic to achievement of air transport objectives.

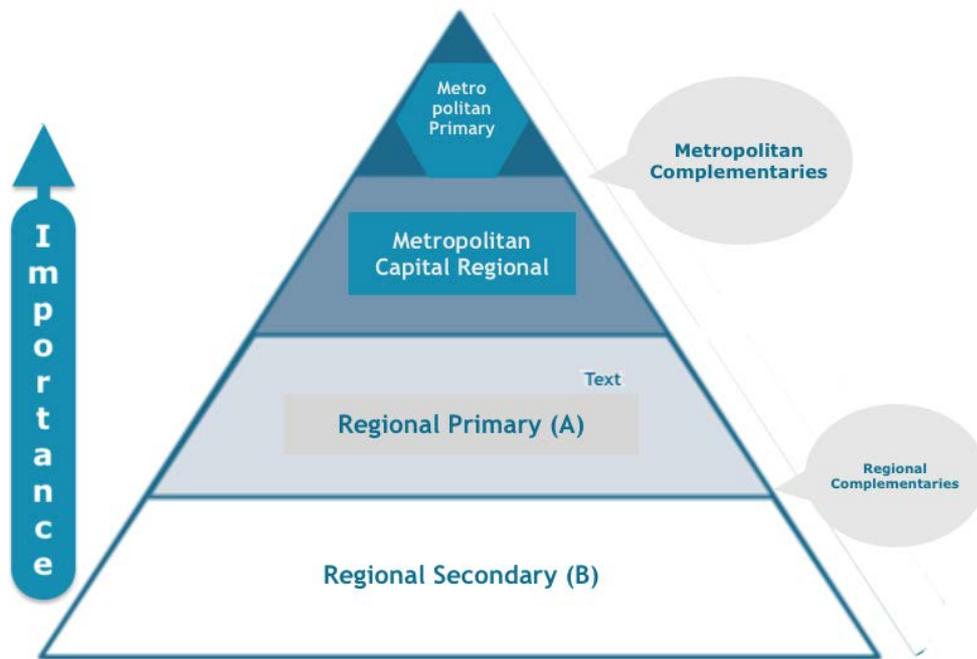
Premises of strategic objectives adopted in PAN were based on National Civil Aviation Policy (PNAC), National Transport Policy (PNT) and other documents that deal with transportation planning. Strategic objectives are:

- Safety,
- Guarantee of users rights,
- Quality and facilitation,
- Environmental conservation,
- Technical and institutional development.

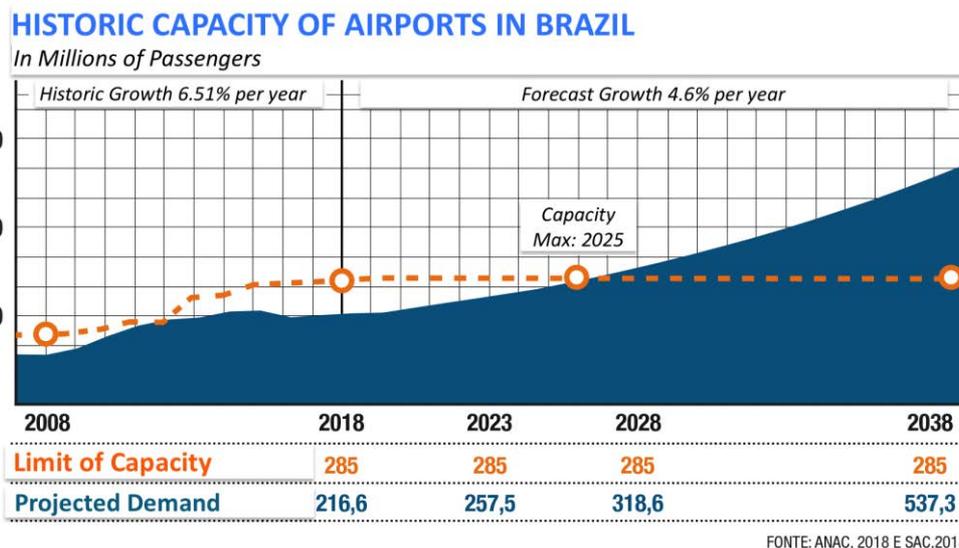
Objective is to develop more user-friendly airports to passengers, taking into consideration macro indicators such as Accessibility, Connectivity, Efficiency, Sector Development and General Cost Benefit Index, as described below:

Macro Indicator	Indicator Description
Accessibility	It represents the population degree of access to air transport network through an airport, and, consequently, to national intercity network. The higher the value, the greater the accessibility offered to population by that airport.
Connectivity	It represents the airport degree of connectivity in the network. The higher its value, the greater the options for displacement from that point.
Efficiency	It represents the airport efficiency level on the network, how much it contributes (reduction time) to a complete travel routine efficiency (intermodal), and consequently, travel costs, as well as efficient management of public resources considering investments to make its operations feasible.
Sector Development	It represents the airport development potential for the airline industry.
General Cost Benefit Index	Aggregate index composed of those described above, which represents a degree of contribution of airport's objectives to aviation sector.

PAN presents a new classification for Brazil's airport network, which is this matrix classification, by network function and by operating size, i.e. each airport is classified in two different ways. Figure below shows classification by function:

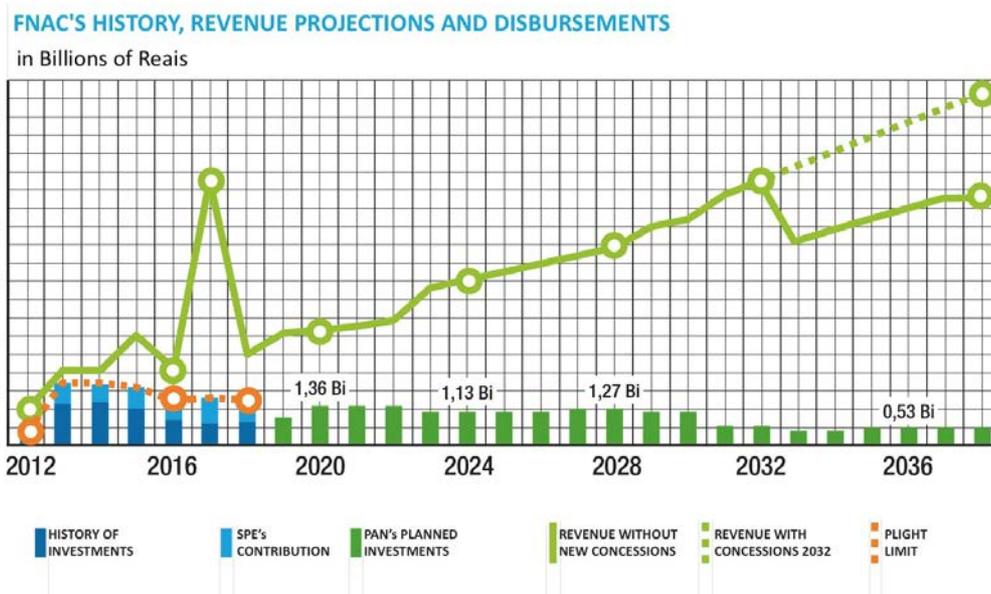


Based on this airport network classification and scenario analysis, it was possible to identify demand progress and need for increasing sector's capacity. Without the sector of infrastructure investment, demand could exceed installed passenger processing capacity by 2025, in a global analysis of currently available airport infrastructure, as shown in the figure below:



Thus, PAN estimates an investment need of around R\$ 25.5 billion over next 20 years. From these, R\$ 22.9 billion for airport infrastructure, R\$ 1.8 billion for aeronautical infrastructure, and 896 million for operational safety.

Analyzing investment funds sources, it is observed that R\$ 6.76 billion are foreseen in airport concession contracts, while remaining R\$ 18.7 would come from National Civil Aviation Fund, which has a projected collection of R\$ 143.6 billion over next 20 years.



2.2.4. Partnership Program for Investment (PPI)

The Partnership Program for Investment (PPI) is a government entity created to provide feasible ways to outsource public assets to private administration.

PPI comprises a task force formed by 70 technicians occupying 9 rooms on ground floor of Annex at Presidential Palace (Palácio do Planalto), dedicated to materialize all Federal Government concessions. Its physical presence 4 floors below where the Brazilian president presides shows its importance being at the center of executive power to facilitate coordination of ministries and obtain fast approvals.

A member of PPI since the first training group, Tarcísio Gomes de Freitas, became the current Minister of Infrastructure. The PPI infrastructure portfolio currently accounts for 74 of 103 projects in total.

One important action of PPI, that raised the quality of federal concessions in recent granted airports, was to seek out projects together with TCU (Federal Audit Court). PPI team pointed out inconsistencies in previous projects and anticipated many difficulties that could arise later, such as social and environmental impacts. Since then, order is transparent to the public, avoiding spectacular ads and only promise what can be achieved, of which the following actions are important to be recognized:

- Rigor - all projects started to be studied more rigorously and schedules for their implementation were done with realistic scenario and conservative forecast,
- In English - main documents of the concessions (studies, draft notice, contract) have been translated into English,
- Schedule - interval between publication notice and auction was increased from 45 to 100 days, to allow more time for investors, mainly foreigners, to make their analysis.

Inspiration by British model

PPI was inspired and based by the British model of Public Private Partnerships called IPA (Infrastructure and Projects Authority). Brazilian PPI's founding team studied a British model showing that UK has one of the world's most developed markets for investment in infrastructure with 600 billion pounds (approximately R\$ 3 trillion) in infrastructure investments scheduled to next 10 years, half of which will be private.

In Brazil, PPPs are just over 100, considering all types in various sectors. It is an applicable instrument for the Brazilian government to make investments in view of budgetary constraints.

Comparing PPI and IPA:

- Projects - IPA managed to make many PPP contracts because it standardized partnership contracts. In Brazil, there is still no basic model,
- Centralization - IPA centralizes public and private projects across the country and keeps track of them. PPI centralize all plans of federal concessions,
- Subnational entities - IPA conducts projects for all levels of government. PPI focuses on federal concessions. In 2019, PPI won attribution of providing technical and financial support for elaboration of projects by States and cities.

The PPI objectives are:

- Expand investment and employment opportunities and stimulate technological and industrial development, in harmony with the country's social and economic development goals,
- Ensure quality expansion for public infrastructure, with appropriate tariffs to users,
- Promote fair competition of partnerships and provision of services,
- Ensure legal stability and security of contracts, with guarantee of minimal intervention in business and investment,
- Strengthen State's regulatory role and autonomy of state regulatory entities.

Once ventures are qualified for the Investment Partnerships Program, they will be treated as a national priority. The organs and entities involved must act so that processes and acts necessary for structuring, liberation and execution of project occur in an efficient and economical way.

The PPI was created in two entities: PPI Council and PPI Secretariat. The Council is the collegiate body that evaluates and recommends to presidential office projects that eligible to integrate PPI, also deciding on issues related to execution of partnership contracts and outsourcing state assets. The Secretariat, linked to presidential cabinet, acts in support of ministries and regulatory agencies for execution of the activities programs.

Attributions of PPI Council

PPI Board will convene as necessary to discuss matters on the agenda organized by PPI Secretariat. Its main attributions are:

- To consider, prior to deliberation of presidential cabinet, ministries' proposals for inclusion of enterprises in PPI and regarding federal long-term investment policies through partnerships,
- Coordinate, monitor, evaluate and supervise PPI actions and support sectorial actions necessary for its execution.
- Perform duties assigned to:
 - Governing body of federal public-private partnerships (Law nº 11.079 / 04).
 - National Council for Integration of Transport Policies (Law 10.233 / 01).
 - National Privatization Council (Law 9.491 / 97).

Sectorial ministries

Forward propositions and projects for Council deliberation and their inclusion to Investment Partnerships Program,

- Promote technical and modeling studies of projects under its responsibility,
- Conduct bidding and monitor projects execution, with support of the PPI Executive Secretariat and regulatory agencies.

Attributions of PPI Secretariat

SPPI (Special Secretariat of Investment Partnerships Program) has a permanent presence, among its attributions:

- Secretary of PPI Council, receiving proposals from Ministries and structuring meetings' agenda,
- Advise President on PPI related matters, drawing up opinions and studies and proposing norms, measures and guidelines,
- Coordinate, monitor, evaluate and supervise PPI actions, also supporting necessary actions for project's execution by Ministries and regulatory agencies,
- Publicize PPI projects and liaise with investors and other stakeholders to the Program, including State and Municipal bodies.

Attributions of Regulatory Agencies

- Regulating economic sectors aiming at fostering competition and carefully addressing services quality provided by private agents,
- Following up the Ministries technical and modeling studies upon requesting and executing technical studies for projects within their competence,
- Supervising execution of concession and PPP agreements within their fields of action,
- Promoting contractual revisions and assessing claims of contractual rebalance in partnership agreements within their fields of action.

2.2.5. Brazilian Airport Management Agency (Infraero)

Infraero (Empresa Brasileira de Infraestrutura Aeroportuária), in short, is a Brazilian government corporation founded in 1973, being responsible for operating main Brazilian commercial airports. In 2011 Infraero's airports carried 179,482,228 passengers and 1,464,484 tons of cargo and operated 2,893,631 takeoffs and landings. It managed 63 airports, which represented 97% of regular air carriage activity in Brazil, 81 Air Navigation Stations and 32 Cargo Logistics Terminals. Infraero is present all over Brazil and employed approximately 23,000 employees (2013) and subcontracted workers nationwide, generating over 50 thousand jobs all over Brazil.

Infraero's work is performed with the company's own revenue, mainly generated by air cargo storage and custom duty, granting of airports commercial areas, boarding, landing and stay tariffs, and rendering of communication and air navigation auxiliary services.

On March 2010, Brazil's government announced adoption of airports concession model. Infraero became a concessionary rather than an airports administrator where it currently operates. Main consequence is that Infraero was able to open its capital and obtain resources necessary for infrastructure investments. In first auctioned airports, the government followed a strategy of selling 51% of Infraero's shares, to allow a smooth transition from company to private sector.

There is a real possibility of liquidation of Infraero, which will be based on the company's ability to remain competitive as a service provider. The Federal Government expects Infraero to sell its airports stakes of Guarulhos (SP), Galeão (RJ), Brasília (DF) and Confins (MG) around the third or fourth quarter of 2020, for which they are hiring consultancy services to evaluate their assets in the market.

Infraero still operates 44 airports (number after completion of 5th concession round), and government plans are to outsource these airport administrations to the private sector by the end of 2022 (end of current government mandate). Then, Infraero may operate within a new logic, a new portfolio, which is managing regional airports in partnership with states and municipalities.

The company is passing through a carve out process to become manager of small to midsize airports, or to explore new business in the aviation sector, conditional to government policies that provide business sustainability. Since the majority of these airports are in deficit, using National Civil Aviation Funds for their operation would cover the financial gap. Otherwise, Infraero or any other private entity will not be able to obtain financial stability in this market.

As part of the carving out process, the company implemented a Directorate for New Business (DN), linked to reinvention of Infraero, a new paradigm searching for new markets, a new partnership and relationship with suppliers for new airports.

2.3. Airlines Operating Domestic Flights

On June 17, 2019, the Brazilian Congress passed the Law 13.842, which amended the Brazilian Aeronautical Code by abolishing existing restrictions on foreign ownership and control in national airlines. The new code allows foreign airlines to establish Brazilian subsidiaries. Thus, the Brazilian commercial aviation market is expected to become more competitive than ever, reducing costs of flying, increasing number of passengers and flights. Currently, there are three major airlines in Brazil: Gol, Latam and Azul. Gol and Latam together hold more than 86% of total flights in Brazilian airports. Azul has been increasing its market share, especially after Oceanair (also known as Avianca Brazil) ceased its operations in May 2019.

The Brazilian Civil Aviation Authority (ANAC) recently reassigned airport slots that were formerly used by Oceanair at Congonhas Airport, which is Brazil's second busiest airport. These slots were assigned to Azul and two Brazilian regional airlines, Passaredo and MAP.

Other Companies

Airport concession is part of a broader policy that seeks to increase supply of air transportation services in Brazil. By auctioning in one "combo" large and small airports, the government sought to ensure investments and a good level of service for minors, attracting airlines interested in flying to those destinations.

Another clear signal of market growth is the increase of direct flights to other regions than the southeast region. In May 2019, for instance, the **KLM/Air France** group launched non-stop flights from Fortaleza to Amsterdam/Paris.

KLM/Air France is operating seven regular flights per week from Fortaleza to Amsterdam and Paris respectively (4 KLM and 3 Air France), but due the corona crises these flights are temporarily postponed.



Source: KLM 2019 www.klm.com.

Following the same strategy, new rules allow presence of up to 100% of foreign capital in Brazilian airlines. The Federal Government wants to attract other companies to operate in the Brazilian domestic market, intending to increase competition, which may result in lower prices and better quality of service.

ANAC already approved requests to the following airlines to enter the Brazilian market:

- Spanish group **Globalia**, which currently owns **Air Europa**, to set up a Brazilian subsidiary. This was the first case in which a wholly foreign-owned airline is to be authorized to operate scheduled flights within Brazilian territory.
- **Sky**, from Chile, the first low cost company in this new program to operate in Brazil. Company debuted in November 2018 with a route between Santiago (Chile) and Rio de Janeiro. Sao Paulo was the company's second fixed destination, with flights since December 2018.
- **Norwegian**, the second low cost company to operate in Brazil, was elected by Skytrax, ranked as the best long-range low cost airline in the world. Flights between Rio de Janeiro and London began in March of 2019.
- **Flybondi** from Argentina started flights between Rio de Janeiro and Buenos Aires on October 11th. The company calls itself an ultra-low cost operator. Flybondi faces the most competitive air routes in Brazil. They also make direct flights between Rio de Janeiro and Buenos Aires, competing on these routes with Gol, Latam, Aerolíneas Argentinas and Emirates Airlines. Flybondi operates at a secondary, formerly military

base in Buenos Aires, El Palomar Airport. According to their airline director, this option helps to reduce company costs.

- Chilean **JetSmart** started in Brazil in December 2019 with routes between Salvador (BA) and Santiago. The company also seeks flights from Sao Paulo and Foz do Iguacu to the Chilean capital. The company's expectation is that more than 100 thousand passengers will be transported the first year of Brazilian operations.

On Jan 2020, Spanish airline **Air Nostrum** sent representatives to the National Civil Aviation Agency (ANAC) to discuss beginning operations in Brazil. After being authorized as a Brazilian company, it may adopt another name to operate on regional routes. This is the second Spanish airline to request operating domestic routes in Brazil. Last year, Air Europa (through Globalia) also requested license for domestic operations.



3. OPPORTUNITIES FOR PARTICIPATION IN AIRPORTS SUPPLY CHAIN

3.1. Top 12 Brazilian Airports

This report highlights the top 12 airports in Brazil (in number of passengers) as it is focused on the largest array of business opportunities for investors. The list is provided and updated by ANAC:

#	Airport	Paid Passengers (2019) ^[1]	Concessionaire	Website	Status of Concession
1	Aeroporto Internacional de São Paulo - Guarulhos SP	42.248.207	GRU Airport	http://www.gru.com.br/pt/	Granted (20 Years) 11 Jul 2012
2	Aeroporto de Congonhas - São Paulo SP	22.281.896	Infraero	http://www.aeroportocongonhas.net/en/	For Auction 7 th Round (early 2022)
3	Aeroporto Internacional de Brasília DF	16.569.442	Inframerica	https://www.bsb.aero/br/	Granted (25 Years) 01 Dec 2012
4	Aeroporto Internacional Tom Jobim Galeão - Rio de Janeiro RJ	13.518.783	Riogaleão	http://www.riogaleao.com/	Granted (25 Years) 07 May 2014
5	Aeroporto Internacional de Confins Belo Horizonte MG	10.734.359	BH Airport	http://www.bh-airport.com.br	Granted (30 years) 07 May 2014
6	Aeroporto Internacional de Viracopos Campinas SP	10.199.171	Aeroportos Brasil Viracopos	http://www.viracopos.com/	Granted (30 Years) 11 Jul 2012
7	Aeroporto Santos Dumont - Rio de Janeiro RJ	8.933.777	Infraero	http://www.aeroportoosantosdumont.net/en/	For Auction 7 th Round (early 2022)
8	Aeroporto Internacional Guararapes - Recife PE	8.638.608	Aena Desarrollo International	https://www.aeroportorecife.net/en/	Granted (30 Years) 09 Oct 2019
9	Aeroporto Internacional Salgado Filho - Porto Alegre RS	8.106.869	Fraport Brasil S.A.	http://www.portoalgre-airport.com.br/en	Granted (30 Years) 31 Aug 2017
10	Aeroporto Internacional Dep. Luís Eduardo Magalhães - Salvador BA	7.351.020	Concessionária do Aeroporto de Salvador S.A. - CASSA	http://brasil.vinci-airports.com	Granted (30 Years) 31 Aug 2017
11	Aeroporto Internacional Pinto Martins - Fortaleza CE	7.087.627	Fraport Brasil S.A.	http://www.fortaleza-airport.com.br/en	Granted (30 Years) 31 Aug 2017
12	Aeroporto Internacional Afonso Pena Curitiba PR	6.396.277	Infraero	https://www.aeroportocuritiba.net/en/	For Auction 6 th Round (early 2021)

¹Numbers from January to December 2019.

3.2. Airport Concession Program

Privatization of the Airport Administration in Brazil

Brazil’s airport concession program aims to attract investments to expand, improve airport infrastructure, and consequently promote enhancements in services to air transport users in Brazil. The service quality levels determined for these airports, based on international standards, are contained in concession contracts managed and supervised by ANAC.

Airport concessions were mainly motivated by the need to expand and improve the infrastructure of Brazilian airports, which became insufficient to properly meet past demand growth (previous decade). The plans for outsourcing civil airports in Brazil started in 2003 with studies from Brazilian government agencies (Aeronautical Command, SAC, ANAC and Infraero), followed by third party analysis and specialized consulting services. It was stated that private companies would be granted concession to implement modernization, a solution to speed-up much needed renovations and upgrades, transferring to the private sector improvements and commercial exploration of main airports, which were managed by Infraero.

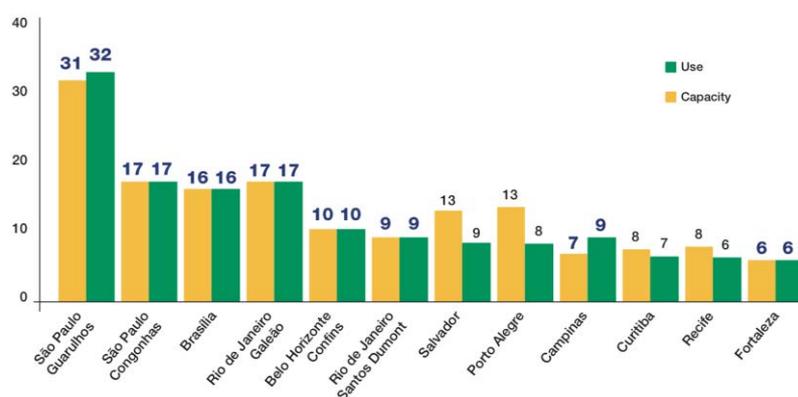
Government agencies performed market, environmental, engineering and intermodal related studies, including economic and financial evaluations. Results of these studies have set, for example, the minimum grant values for each airport.

Considering average growth rate of about 8.1% per year since 2003, there is a clear trend towards expansion of air transport, and declared capacity versus utilization, as illustrated in charts below.



Source: www.anac.gov.br.

Declared capacity vs. use in major Brazilian airports (in millions of passengers)



Sources: Infraero; concessionaires

3.3. Granted Concessions

Airport concessions started in 2011. The concession program was divided into phases, as the authorities called it 'rounds', each with its own public bidding.

The airport concession program aims to provide investments with quality and speed. Significant improvements in service delivery have been noticed since the first round of concessions in 2011, which led to significant investments in main airports of the Brazilian network, benefiting the entire airline network and reducing delays and cancellations to elevate standards to even better than international references.

From a managerial perspective, private management has brought many benefits, as the airport sector became more dynamic and intensive in providing services, permanently incorporating new practices and technologies.

Potential stakeholders include players such as airport operators, financial investors and other stakeholders. The basic premise will be a requirement for investments that are compatible with established service levels, which will portray actual needs of users over the contract lifecycle.

Bodies involved in granting airports to the private sector are the National Civil Aviation Agency (ANAC), as granting authority, and the Ministry of Infrastructure (Min Infra) responsible for elaboration of sectorial policy, to conduct approvals of Technical, Economic and Environmental Feasibility Studies (EVTEAs).

3.3.1. The First Round referred to the airport bidding process of Natal, capital of Rio Grande do Norte state (Governor Aluizio Alves International Airport in São Gonçalo do Amarante). On August 22, 2011, ANAC granted it to the bidding winner Consortium Inframérica, formed by Brazilian Engineering Group Engevix (50%) and Argentinean Group Corporación América (50%), (which operates 52 airports in 7 countries).

Inframérica Consortium is authorized to commercially explore facilities for 25 years (with one possible 5-year extension). As part of the concession agreement, Infraero holds no shares participation in this facility.

On March 5th 2020, Argentine group Inframérica announced the return of the Natal airport to the Federal Government. The operator will file a claim for compensation, under terms of Law 13.448/2017, which deals with friendly return of concessions and their subsequent re-bidding. Inframérica estimated investment of around R\$ 700 million in infrastructure works. The airport runway was built entirely with public funds. Inframérica was responsible for the construction of the passengers' terminal (with 42 thousand square meters of operational area and six boarding bridges).

Three factors motivated the Inframérica group to this decision: 1) the airport feasibility studies at the time of auction forecast 4.3 million passengers in 2019, but in reality, demand was 2.3 million; 2) for regulatory reasons, boarding fees were out of date and today they are 35% lower compared to airports of second and third rounds, which were bid in 2012 and in 2013; and 3) the ATC Control tower in Natal is the only one operated by a concessionaire, but it has air navigation tariffs that are equivalent to a quarter of the amount charged by Infraero or Decea towers.

ANAC statement: "the adhesion to re-bidding is a voluntary act of the concessionaire and consists of friendly return of asset, with consequent performing of a new auction and signing of concession contract with another company". The agency believes that this instrument "brings legal security to contracts, in addition to allowing users to continue providing services".

3.3.2. The Second Round was related to the auction that took place on February 6, 2012. The airports of Brasília DF, Guarulhos and Viracopos, in São Paulo were auctioned with winners: Consortium Inframérica won the concession of Brasília – "Presidente Juscelino Kubitschek" International Airport, to be explored for 25 year period, with one possible 5 year extension.

On the same auction, Consortium Invepar-ACSA composed by Brazilian Investments and Funds Society Invepar (90%) and South African airport operator ACSA (10%) won concession for São

Paulo/Guarulhos – Governador André Franco Montoro International Airport, authorized to explore the facility for 20 years, with one possible extension of another 20 years.

Finally, on the same day, Consortium Aeroportos Brasil composed by Brazilian Investments and Funds Society Triunfo (45%), Engineering and Investments Society UTC Engenharia e Participações (45%), and French airport operator Egis Avia (10%) won the concession for Campinas – Viracopos International Airport, to be operated for 30 years, with one possible extension of 5 years. These concession plans assured Infraero retain 49% shares of each privatized airport to a later sale, with objective to reduce risks to new private investors, prevent unemployment impacts and allow smooth flow of investments and future developments.

During the course of the first 5 years concession, investing in agreed upgrades to Viracopos airport, Aeroportos Brasil Group had suffered financial, administrative and legal issues that have forced the group to submit a restructuring proposal to ANAC. On Feb 14th 2020, a Judicial Recovery Plan was approved to return Viracopos airport concession to government for another auction. On February 27th 2020, Min Infra published a Public Call for Studies Number 1, related to this new bidding.

3.3.3. The Third Round: In 2013 comprised Antônio Carlos Jobim - Galeão International Airports, in Rio de Janeiro RJ and Tancredo Neves - Confins, in Minas Gerais.

The Group ‘Aeroporto Rio de Janeiro’, formed by Brazilian Conglomerate Odebrecht (60%) and Changi Airport Group (40%) paid R\$ 19 billion to win the concession. The contract was signed on April 2, 2014. In the first quarter of 2018, Changi became majority partner after buying Odebrecht Transport's stakes due to the company's involvement in investigations discovered by Federal police in “Lava Jato” corruption scandal.

It is noteworthy that announcement of Rio de Janeiro Airport concession was a change to the extent that declared amount of investment was less than auction value, as there were no immediate specifications for investments. For this airport, figures were R\$ 19 billion for auction and R\$ 12.43 billion for investment.

This round was concluded on November 22, 2013, with the auction of the Belo Horizonte Airport, in which airport auction was R\$ 1.8 billion and Infraero's investment R\$ 3.31 billion, granting the concession rights from 2014 until 2044. BH Airport was awarded to Group BH Airport, formed by Brazilian investment company CCR (75%) with remaining (25%) shared by Flughafen München GmbH (administrator of Munich Airport) and Flughafen Zürich AG (administrator of Zurich Airport).

These concessions were aimed at improving quality of services at these airports and accelerating execution of necessary works to meet air transport demands in sector's growth due to major events such as FIFA World Cup in 2014 and Olympic Games in 2016.

As lessons learned with achieved experience, ANAC has changed concession model in past few years. In previous model that involved airports of Viracopos, Brasília, Guarulhos, Confins and Galeão, after contract conclusion each granted airport was managed by a Special Purpose Entity (SPE), which stands for a new company formed by bidders winning consortium in partnership with Infraero, which holds 49% of each SPE.

Infraero, as federal public company, continued to manage other airports. As relevant shareholder, Infraero participates in SPE's main decisions, being accompanied by Civil Aviation Secretariat (SAC). Any dividends resulting from its shareholding in these granted airports would be used as investments in other airports of its chain. However, due to the current economic situation and because of overestimated and falsely optimistic forecasts of demand in feasibility studies, Infraero has not yet received dividends from its participation. The current government plan is to sell Infraero's holdings in these airports, perhaps with exception of Viracopos.

Previous concession model had the following pattern: BNDES released a bridge loan to granted concessionaire, which was investing while awaiting long-term credit, under advantageous conditions. And companies linked to private consortia were responsible to perform the work. In

Viracopos case, for example, Constran (UTC's arm) and Triunfo were responsible for the airport expansion. Both are partners of the company that manages the Viracopos terminal.

The studies that supported bidding, carried out by the government itself, also had raised optimistic assumptions that were not confirmed with the economic recession. The contractual rigidity in first rounds was also pointed out, in which investments were required throughout the concession, regardless of estimated materialization demand, which is without demand triggers, such as the second Viracopos track.

3.3.4. The Fourth Round: ANAC applied a new methodology in outsourcing terms to allow bidders obtain 100% shares, thus Infraero ceased to have mandatory 49% shares of each privatized airport. The fourth phase took place on March 16, 2017, which resulted:

- Deputado Luís Eduardo Magalhães International Airport in Salvador da Bahia won by French airport operator Vinci SA, contract valid for 30 years with one possible 5-year extension.
- Salgado Filho International Airport in Porto Alegre and Pinto Martins International Airport in Fortaleza were won by German airport operator Fraport, with 25 years grant contract for Porto Alegre and 30 years Fortaleza, both with option to one 5 years extension.
- Hercílio Luz International Airport in Florianópolis won by Swiss airport operator Flughafen Zürich AG, contracted for 30 years, extendable to another 5 years.

All winners had foreign airport operators. Investments will be spaced out throughout concession and, for any credit that one wishes to contract with Brazil's development bank BNDES, it is required to contribute 20% of equity in investment. The bridge loan from previous concessions was abolished.

In this new model, participants from previous auctions are now allowed to participate also in new auctions. A company is now able to buy all blocks, even if it already has exploration rights in other airports. As in previous rounds, participation of an expert airport operator expert is required, with a minimum stake of 15.0% in capital. In addition, it was necessary to prove background technical skills to operate (worldwide) airports of minimum 7 million passengers for Northeast Block and 3 million passengers for others.

The winner's selection of each auction is based on a group that pays the highest premium in cash of an established minimum installment. In this model, another novelty presented is that there will be no charge for annual fixed grants, only for the variable portion. This contribution will consider collection of a percentage of total future gross revenue from concessionaires and will be collected annually. There will be a five-year grace period for payment of variable installment, followed by increasing payments from 6th to 10th year.

This measure means a division of government demand risk with new concessionaires, which favors projects financing conditions. The non-payment grants in the first five years contract also provides financial impetus for companies to carry out necessary tasks, improve airports quality and comply with international standards as required in contract.

Regarding initial investments, ANAC established that future concessionaires should make necessary investments to improve service level and expand infrastructure, and that all airports should be able to operate by instrument without restriction, with minimum Code 3C aircraft of International Air Transport Association - IATA (Airbus 318, Boeing 737-700 or most Embraer aircraft).

Apart from initial investments, there are no fixed terms for contributions to contracts. Investments will be made according to the demand growth to maintain a certain level of comfort for passengers (IATA service level C).

Another novelty is that this contract model allows concessionaire to enter into an agreement with a low cost airline and offer a simpler terminal for carrying out cheaper flights with least services available. If necessary, contract changes are possible to incorporate these cases.

3.3.5. The Fifth Round

First concession round of current government

The possibility for Brazil to expand its infrastructure supported by ample available capital in search of good deals around the world is a priority in Brazilian Ministry of Economy plans. With a portfolio of important projects in areas of oil and gas, energy and transport infrastructure, the country draws international market attention.



First proof of this interest took place at the São Paulo Stock Exchange on March 15th 2019 public session for 5th round of airport concession, where 12 airports as regional clusters were included in 30 years grants of national privatization program. This 5th round attracted interest of Brazilian groups and 7 foreign operators: Germans Fraport and AviAlliance, French ADP and Vinci, Spanish Aena, Swiss Zurich and Chilean Agunsa.

These 12 airports weren't even best assets in roll of Brazilian 'to be granted' airports, but companies acted responsibly as low liquidity in world market has raised investor's interest. Quite possibly, operators envisioned opportunities to save on constructions and airport operations, which made it better deals.

Grouped into three blocks, these 12 airports were awarded with an average premium of R\$ 2.158 billion, 986% more than total minimum bid of R\$ 218.7 million. Together, winning proposals from Northeast, Southeast and Midwest blocks yielded R\$ 2.377 billion to Federal Government, with following results:

- Northeast cluster, formed by airports Guararapes–Gilberto Freyre International Airport of Recife (SBRF/REC), Zumbi dos Palmares International Airport of Maceió (SBMO/MCZ), Santa Maria Airport of Aracaju (SBAR/AJU), Presidente Castro Pinto International Airport of João Pessoa (SBJP/JPA), Campina Grande Airport (SBKG/CPV) and Juazeiro do Norte (SBJU/JDO). Winner: Spanish airport operator AENA,
- Midwest cluster, formed by Marechal Rondon International Airport in Cuiabá (SBCY/CGB), Sinop (SWSI/OPS), Barra do Garças (SBBW/BPG), Rondonópolis (SWRD/ROO) and Alta Floresta (SBAT/AFL) airports. Winner: Brazilian consortium Aeroeste, formed by companies Socicam and Sinart, both already operating other facilities in Brazil,
- Southeast cluster formed by airports of Eurico de Aguiar Salles Airport of Vitória (SBVT/VIX) and airport of Macaé (SBME/MEA). Winner: Swiss airport operator Flughafen Zürich AG.

In one interesting example of auctions activities, the most disputed block was the Northeast (Recife, Maceió, Joao Pessoa, Aracaju, Juazeiro do Norte and Campina Grande airports). AENA led the way in written proposals to best offer selection with R\$ 1.850 billion. Next auction to select second competitor, done in speaker stage, fierce competition between Zurich and Nordeste consortium (formed by AviAlliance and Patria fund), made initial price of R\$ 173 million grow almost 11 times. There were 18 moves with live public audience in which one surpassed other successively, until Nordeste consortium gave up.

Zurich then tried to top 1st place of AENA, which until then was just watching disputes. It offered R\$ 1.851 billion, under shouts and applause of those who followed trading session at B3. A minute later, AENA offered \$1.9 billion, winning bid. The amount is 1.010% higher than minimum bid amount provided by government (R\$ 171 million).

5 rounds 22 airports		144.2 M pax/year	67.1% Participation
2011	1 st round	2.4 M	1.1%
	Natal	2.4 M	1.1%
2012	2 nd round	69.4 M	32.3%
	Guarulhos	42.2 M	19.7%
	Brasilia	17.9 M	8.3%
	Viracopos	9.3 M	4.3%
2014	3 rd round	25.6 M	11.9%
	Galeão	15 M	7%
	Confins	10.6 M	4.9%
2017	4 th round	26.8 M	12.5%
	Porto Alegre	8.3 M	3.9%
	Salvador	8.0 M	3.7%
	Fortaleza	6.6 M	3.1%
	Florianópolis	3.8 M	1.8%
2019	5 th round	19.9 M	9.3%
	Northeast Block	13.5	6.3%
	• Recife	8.2 M	3.8%
	• Maceió	2.2 M	1.0%
	• João Pessoa	1.3 M	0.6%
	• Aracaju	1.2 M	0.5%
	• Juazeiro do Norte	0.6 M	0.3%
	• Campina Grande	0.2 M	0.1%
	Central West Block	3.2 M	1.5%
	• Cuiabá	3.0 M	1.4%
	• Sinop	0.1 M	0.1%
	• Rondonópolis	44.5 K	0.0%
	• Alta Floresta	62.3 K	0.0%
Southeast Block	3.2 M	1.5%	
• Vitória	3.0 M	0.1%	
• Macaé	3.0 M	1.4%	
		149.6 K	0.1%

AENA signed a contract for 30 years, effective on Sep 2019. The group operates 17 airports outside Spain: Mexico, Colombia, Jamaica and United Kingdom. It will have 6 terminals in Brazil, including international tourist destinations such as Recife and Maceió. The company has already stated intentions to participate in future (6th and 7th) rounds of concessions.

This auction was so disputed because companies are aware of high potential in upcoming auctions, with important assets listed, operators sought to position themselves in Brazil. Scheduled concessions of 2020 and 2022 have influenced value, as well as the fact that there are no important assets available in Europe, Asia and Middle East.

Companies went to their limit in terms of capital return. Bidders stated that current concessions are more realistic about future economic scenarios, a slight improvement when compared to terms and estimations from previous bidding process in Viracopos Airport, which became unbalanced with the onset of economic downturn. (Image Source: BOVESPA 2019).

All contracts in the fifth round were based on a much more optimistic scenario. These 12 airports account for 9.5% of domestic market, with almost 20 million passengers/year. *(Percentages are rounded and based on open data of SAC and ANAC).*

On May 24th 2019, ANAC published approval of the auction bidding results. The process was approved during the agency 9th board deliberative meeting, validated proposals results, as well as qualification documentation submitted by winning companies.

3.4. Upcoming Concessions Rounds

In March 2019, Federal Government successfully tested model of 12-block concession auction, with high participation of foreign and national investors, showed positive results.

Brazilian airport concessions, on the basis of improvements for each round, have earned a good reputation in international market. The Brazilian government is currently in dialogue with consulting companies, law firms, investment fund managers and traders, to exchange ideas in what can be improved for the 6th round, scheduled for 4th quarter of 2020.

There are 3 main factors that pleased investors in recent past rounds:

Grants - part of the payments due to Brazilian government to be collected during concession will vary according to the airport passengers and cargo movement. It will be a portion of gross revenue. In older contracts, these payments have a fixed value in R\$ (Reais), which was in some cases a problem, due to the economic crisis or involvement of parties in the “Lava Jato” corruption scheme.

Investment - Contracts no longer require schedules fixed to milestones. Dealership decides what to do as long as it reaches user satisfaction level as promised to government.

Free competition - One or more companies can compete in all 3 blocks.

3.4.1. The Sixth Round

The Sixth Round of concessions is targeted for expansion, maintenance and operation of 22 airports, distributed in three blocks (shown on chart below), in line with the purposes of the National Privatization Plan (PND), the General Grant Plan (PGO) and National Civil Aviation Policy (PNAC). It comprises airports located in South Block, North Block 1 and Central Block, as follows:

South Block

With investments for 30 years of concession initially estimated by ANAC at R\$ 2.2 billion, Southern Block in 2018 handled about 12.1 million passengers at the following airports:

- Curitiba - Afonso Pena International Airport, located in São José dos Pinhais city, Paraná State,
- Foz do Iguaçu International Airport - Cataratas, in Foz do Iguaçu, Paraná State,
- Navegantes International Airport - Minister Victor Konder, in Navegantes, State of Santa Catarina.
- Londrina Airport - Governor José Richa, Paraná State,
- Joinville Airport - Lauro Carneiro de Loyola, Santa Catarina State,
- Bacacheri Airport, located in Curitiba, Paraná State,
- Pelotas International Airport - João Simões Lopes Neto, Rio Grande do Sul State,
- Uruguaiana International Airport - Rubem Berta, Rio Grande do Sul,
- Bagé International Airport - Comandante Gustavo Kraemer, Rio Grande do Sul.

North Block One

With investments for 30 years concession initially estimated at R\$ 1.1 billion, North Block I handled about 4.4 million passengers in 2018 in following airport:

- Manaus International Airport - Eduardo Gomes, capital of Amazonas state,
- Porto Velho International Airport - Governor Jorge Teixeira de Oliveira, located in the municipality of Porto Velho, Rondônia State,

- Rio Branco Airport - Plácido de Castro, capital, Acre State,
- Boa Vista International Airport - Atlas Brasil Cantanhede, capital of Roraima State,
- Cruzeiro do Sul International Airport, Acre State,
- Tabatinga International Airport, Amazonas State,
- Tefé Airport, Amazonas State.

Central Block

With investments for 30 years concession initially estimated at R\$ 1.7 billion*, Central Block handled around 7.2 million passengers in 2018 in following airports:

- Goiânia - Santa Genoveva Airport, capital of Goiás State,
- São Luís International Airport - Marechal Cunha Machado, capital of Maranhão State,
- Teresina Airport - Senator Petrônio Portella, capital of Piauí State,
- Palmas Airport - Brigadeiro Lysias Rodrigues, capital of Tocantins State,
- Petrolina Airport - Senator Nilo Coelho, Pernambuco State,
- Imperatriz Airport - Mayor Renato Moreira, state of Maranhão.

*Values provided by ANAC are initially estimated, subject to change after completion of Technical, Economic and Environmental Feasibility Studies (EVTEAs) of each airport/block). More information and instructions for participation are available in Chapter 10.

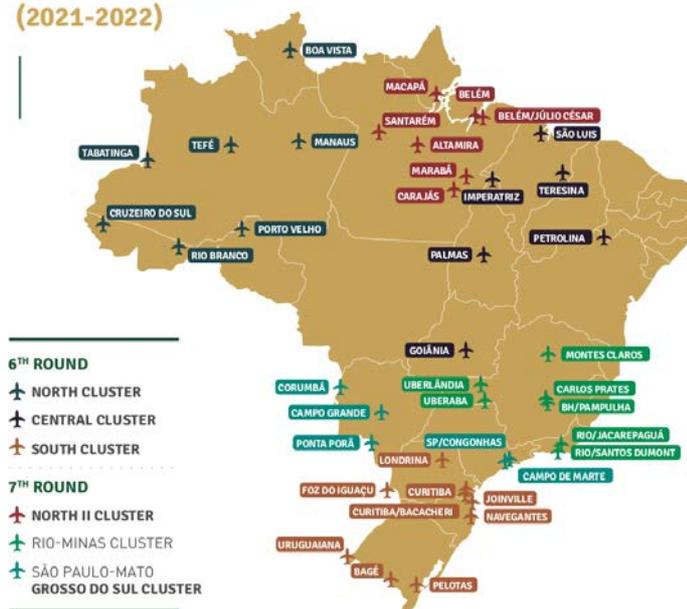
Study Phase - The studies phase process started with publication, on March 18, 2019, by Ministry of Infrastructure, of Public Call Notice No. 02/2019.

These 22 airports were recommended for qualification at Investment Partnership Program and included in National Privatization Program (PND) through CPPI Resolution No. 52 of May 8, 2019.

On June 3, 2019, Ministry of Infrastructure published Public Call for Studies No. 03/2019/GM, making public a list of qualified entities to present projects, surveys, investigations and technical studies that will support modeling concession for expansion, operation and maintenance of these airports related to South, North One and Central blocks. Eight interested parties were qualified, including companies and consortia, which had 150 days for development and presentation of Studies to SAC/Ministry of Infrastructure.

Delivery of Technical, Economic and Environmental Feasibility Studies (EVTEAs) was concluded on Oct 31st 2019. Five groups (from eight consortia and companies that were authorized by public call) delivered technical studies that will subsidize modeling for 6th round of concessions of South

6th Round (2019-2020) and 7th Round* of Concessions (2021-2022)



*7th round process is going to start after auction of 6th round in 2022

Source: SAC - Ministry of Infrastructure.

blocks (led by Curitiba Airport/PR), North One (Manaus/AM) and Central (Goiânia/GO). Auctions are scheduled for 4th quarter of 2020.

		3 Blocks	23.7 M	11%	Project Status: in Progress (2019-2020)
		22 airports	pax/year	Partic.	
6 th Round	South block	5.6%	12.1 M		Type of Initiatives: Private (PMI)
	Curitiba	2.6%	6.3 M		Federative Units: AC, AM, GO, MA, PR, PE, PI, RS, RO, RR, SC, TO
	Foz do Iguaçu	1.1%	2.3 M		Demand: 23.7 Million passengers / year (2018)
	Navegantes	0.9%	1.9 M		Database: May 2019
	Londrina	0.5%	1.0 M		Capex Investment: 5.0
	Joinville	0.2%	0.5 M		Involved Bodies: ANAC and MINFRA
	Bacacheri	0.0%	31.7 K		Term (Years) 30
	Pelotas	0.0%	33.5 K		Minimum grant: TBD
	Uruguaiana	0.0%	21.1 K		Phases completed: EVTEA Studies (Completed, Feb 7 th 2020)
	Bagé	0.0%	1.4 K		Current Phase: Public Hearing (ending Apr 1 st 2020)
	North Block One	2.0%	4.4 M		Following phases:
	Manaus	1.3%	2.8 M		- TCU Audit Court (2 nd Q 2020)
	Porto Velho	0.4%	0.8 M		- Bidding Documents (3 rd Q 2020)
	Rio Branco	0.1%	0.3 M		- Auction (4 th Q 2020)
	Boa Vista	0.1%	0.3 M		- Contract (1 st Q 2021)
	Cruzeiro do Sul	0.0%	84.2 K		
	Tabatinga	0.0%	64.5 K		
	Tefé	0.0%	33.3 K		
	Central Block	3.4%	7.2 M		
	Goiânia	1.5%	3.2 M		
	São Luis	0.7%	1.6 M		
	Teresina	0.5%	1.0 M		
Palmas	0.3%	0.7 M			
Petrolina	0.2%	0.5 M			
Imperatriz	0.1%	0.3 M			

SAC will select reference study for each of these three regional blocks.

In addition to economic and financial evaluation of South, North 1 and Central blocks, each set of reports from these 22 airports might include:

- Market studies,
- Engineering and related studies,
- Environmental studies,
- Economic and financial evaluation.

Five groups participated in study phase, three developed EVTEAs for all blocks, and only one delivered for South block, and two groups developed studies for North One and Central blocks. After selecting studies, next step was public hearings, which took place in first quarter of 2020.

Consultation on Economic Regulation of Airport Concessions

In view of organizations' experience involved with airport concessions or concessions in other sectors, ANAC invites interested parties to collaborate in shaping economic regulations that will apply to future concessions by making contributions based on following topics:

- Flexibility of tariff regulation and evaluation of criteria for submitting airport activities to average revenue ceiling,
- Deepening engagement of parties directly involved in airport planning decisions and utilization through supported proposal instrument,

- Flexibility of investments, with greater freedom for operators, together with airport users, to define “to be made” investments and “to be maintained” service level,
- Evaluation of concessions duration,
- Decentralization of regulation.

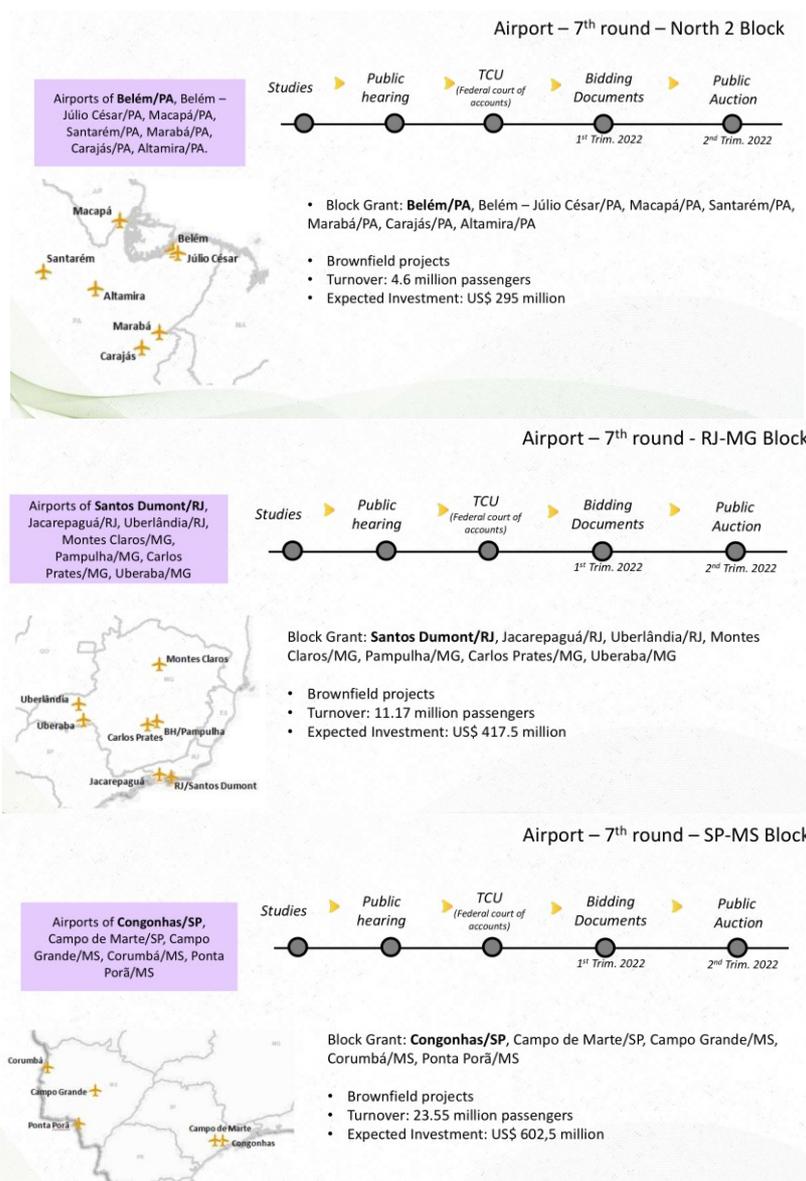
Public consultation is available at ANAC’s website for parties interested to contribute on relevant economic regulatory aspects to sixth round of concessions (see link in Chapter 10).

3.4.2. The Seventh Round

The exact number of airports to be auctioned in seventh (final) concession round, scheduled to take place in the first quarter of 2022, is not yet fully closed as talks continues about some small airports that might be eventually taken over by their states.

ANAC estimates 19 airports to be auctioned in 7th Round of Concessions with R\$ 5.28 billion investments in three blocks: Rio de Janeiro - Minas Gerais (7), North Two (7) and São Paulo - Mato Grosso do Sul (5 airports).

This final round, scheduled for Q1 2022 will include Brazil’s most profitable airports, two terminals considered as Infraero’s "cherry on the pie": São Paulo - Congonhas and Rio de Janeiro - Santos Dumont, with R\$ 3.5 billion forecast investment.



3.5. Disposal of Infraero Shares in 4 Granted Airports

During a 7+ years period of evaluation and studies, Brazilian government concluded a solid privatization plan, aiming to obtain best results in terms of airport efficiency, future developments, lowest fares to passengers, better utilization of terminals for both cargo and passengers, increasing quality to passengers and users. Past experience brought maturity to government improve its methods and release Infraero from shared management of previously granted airports.

The sale process of Infraero's shareholdings, co-responsible for operation of airport Sao Paulo GRU, Rio de Janeiro GIG, Brasilia BSB and Belo Horizonte CNF, is going through last phase (1Q 2020), with contracting of specialized consulting companies to perform studies, presentation of alternatives and support for bidding process. Later in 2020, there will be a public announcement of auctioning dates to sell remaining shares of Infraero.

3.6. Financing in Brazil for Investments in Airport Concessions

The Brazilian National Bank for Economic and Social Development (BNDES) provides financing conditions for airport concessions, as it has already done in airports of Salvador, Florianópolis, Porto Alegre and Fortaleza.

BNDES can support PPI (Partnership Program for Investment) through following actions:

- Assessing bankability of projects included in Program,
- Offering financing lines according to applicable credit requirements,
- Managing Supporting Fund to Partnerships Structuring (FAEP), which will procure advisers for integrated structuring of PPI projects,
- Managing National Fund for Privatization (FND) and conducting privatization procedures of state-owned enterprises included in PPI.

Financing Conditions: BNDES may finance up to 40% of project's financeable value based on Long Term Interest Rate (TJLP) index, for a period up to 15 years. Resources in TJLP will be used exclusively for mandatory investments to improve airport infrastructure, provided at 1st Cycle of Airport Exploration Plan (PEA). Reimbursement will be through Constant Amortization System.

The BNDES can complement its financial support by subscribing up to 50% of debentures value that are issued by beneficiary for project execution. Each project must have at least 20% of its own resources.

Credit amount will be determined according to the project payment capacity, observing compliance with minimum Global Debt Service Coverage Index (ICSD) of 1.30. Project guarantees may be shared only with other credits when they are used exclusively to finance project investments, and it is not possible to share guarantees for grants financing.

BNDES financing conditions are valid for winners of ANAC auctions in airport concessions (which does not necessarily imply in right to obtain financing). Once a concession is contracted, concessionaire have the rights to apply for credit through BNDES, which will perform analysis of applicant's registration, credit risk situation and potential guarantors, as well as all legal, economic and environmental aspects of presented projects.

The Caixa Econômica Federal (CEF) is a Brazilian government bank that also plays an important role in PPI, extending its own financing lines to projects, once credit requirements are met by the Special Purpose Entities (SPEs). CEF has a broader market presence to Brazilian organizations including SME's and thus has a strong presence in the country social development.

4. PRIVATE OWNED AIRPORTS

Investment opportunities in private-owned airports

Although Brazil has one of highest air traffic in the world, it still has poor private airport infrastructure, either in small or in its largest cities. One reason is that until recently, airport investments were exclusively state-owned.

Since 2010, airport concession movement grew when it became clear that large investments needed to meet rising demand would not come from government.

Nevertheless, privatization plans are focusing in bigger airports, as they are most profitable and economically sustainable. Domestic airports in big cities are operating in their limit capacity for landings and takeoffs, and becoming unfeasible and expensive to be used by private owners or air taxi companies.

The most critical scenario is São Paulo, Brazil's largest city and economic center of South America. With two congested airports (Guarulhos and Congonhas) and a third airport located in a region with limited flights, owners and customers of business aircraft were required to use distant runways without adequate infrastructure. Solutions are being offered by initiatives of private sector, such as new private airfields where aircraft owners can buy space or a hangar.

According to data from Brazilian General Aviation Association (ABAG), Brazil has more than 13,000 private aircraft in operation and is growing faster than commercial aviation. In less than five years, the fleet has increased by about 20%. This impressive number reveals a very positive trend towards development of the private national aviation.

Far from high costs of hangars rental and lack of space at public airports, private airports and aeronautical condominiums have become an option to attend aircraft owners. A true phenomenon from north to south, this real estate business model has been transforming lifestyle of aviators and executives that are main customers of private flights.

Catarina Executive Airport



In December 2019 “São Paulo Catarina Executive Airport”, the first business aviation airport in Brazil, received its operational approval, a country milestone. Brazilian civil aviation agency ANAC has granted 10 years renewable permission for commercial exploration of public air traffic.

About 60 km inland from Sao Paulo in the city of São Roque, the air terminal can receive flights up to Lineage 1000 jet size (Ultra Large Executive jet, 55.000 Kg payload). Created by JHSF, a company that builds and runs shopping malls, business complexes, hotels and restaurants, Catarina airport opened on December 16, 2019, after more than six years of construction.

The project was launched in 2008 with eyes on Brazilian economy growth as an option for business aviation. JHSF has chosen 2 million square meters of rugged terrain located 60 km west of capital to build a nearly 2,500 meter runway capable of handling large business jets such as Dassault Falcon 8X even on international flights.

It is expected that the new airport will be able to attract a large portion of business aviation customers as it will operate 24 hours a day, next to major highways that are 35 minutes away from downtown São Paulo by car. Its terminal also has helipads for customers who prefer to travel by helicopter, a 14 minutes flight to downtown São Paulo by helicopter.

As of today, the Catarina airport contains 60 aircraft aprons; JHSF recently announced plans to expand it to 200 aprons in 5 years.

On Mar 5th 2020, JHSF signed a R\$ 16 million rental contract for a 10 year period with Synerjet Corp, Latin America's distributor for Pilatus Aircraft, for Built-to-Suit (BTS) facilities at São Paulo Catarina airport for "Maintenance, Repair and Operation" (MRO) including PC-24 model to Latin America. Pilatus' MRO will be developed in a 3,000 m² hangar to be tailor built and equipped to offer Pilatus customers the "Pilatus Crystal Class". Rental terms are in order with square meter values recently verified by JHSF when hangars were built.

Santos Dumont Aeronautic Condominium



Another recent private initiative is "Condomínio Clube Aeronáutico Santos Dumont" (CCASD), a private airfield with space for hangars and small village for its associated members. Located in Elias Fausto, (18 km from Viracopos Airport), CCASD is surrounded by highways to neighbor cities such as Campinas, Vinhedo, Valinhos, Itu, Sorocaba, Americana and 110 km away from São Paulo capital.

Owners of private aircraft such as Phenom, Hawker, Citation and others from single engine class, might benefit with private hangars with a registered runway of 1,200 meters, duly approved by ANAC for landings and takeoffs, including night VFR conditions.

FCK Engenharia is a private group that designed Santos Dumont condominium incorporation to meet market needs of private aircraft owners.

Enterprise objectives comprise to put together in one location all vital needs being required by private aviation ownership with quality:

- Private aircraft hangar,
- Private leisure space personalized for the whole family,
- Landings and takeoffs, including VFR conditions, from a well-located runway, 1,200 meters long x 30 meters wide,
- MRO companies for executive jets,
- Aviation schools for single engine aircraft.

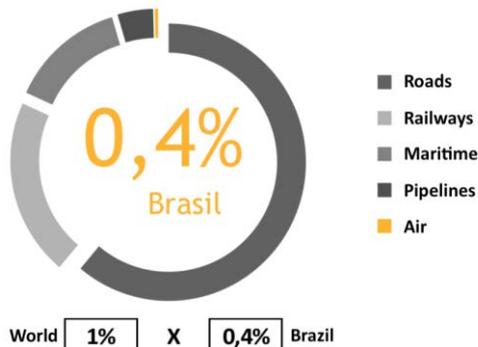
The CCASD has gone through a 4 years plan to achieve all necessary licenses and studies. On Q1 2020 it started ground works with implementation of runway construction and its support infrastructure.

The FCK Group welcomes investors and organizations interested in providing cost benefit automated systems for ATM, Taxi / Apron management, runway lightning and security systems.

Other opportunities are available for services suppliers such as MRO companies and Flying schools.

5. AIR CARGO IN BRAZILIAN AIRPORTS

5.1. Air Cargo Market



Due to Brazil's extensive territory, air cargo plays a strategic role in maintaining cargo supplies available to remote areas not served by paved roads. Nevertheless, air cargo in Brazil still holds unexpressive numbers (only 0.4% in weight) with good potential to grow. The main transportation mode is road with 61%, while the remaining 38.6% is served by railway, maritime and pipeline systems. In value, however, air cargo represents 14% of the domestic logistics market. Among all economic and industrial segments that use air cargo for the movement and distribution of goods, four of them are

expecting to experience increasing volumes: automotive, manufacturing, chemicals and healthcare.

During 2019, the occupation rate in aircraft cargo compartments was below 25%, showing plenty of room to grow. In 2018, air cargo firms carried 470.9 thousand tons, 10.5% higher than previous year and the most significant growth in seven years (Source: ANAC 2018).

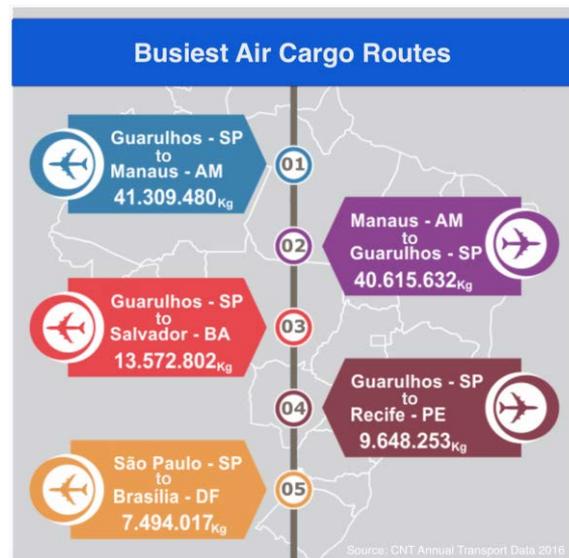
The biggest air cargo market share in Brazil refers to international freight and mail. In 2018, the total cargo transported by Brazilian carriers on international flights stood at 281.7 thousand tons, the highest indicator since 2000. Compared to 2017, the index showed a positive variation of 24.4%. In 2018, the main products exported by air were nuclear reactors, boilers, machines, pearls and precious stones, space devices, electrical materials, optical and photography devices. Imported goods were mainly machinery, pharmaceuticals and organic chemicals.

In recent years, the air cargo market has grown considerably, due to the benefits of speed and safety to both domestic and international shipments. High freight and logistics costs are the main reason for the low utilization of air cargo. The average value of each kilo exported by air is US\$ 9.40, which is very high in comparison to maritime (US\$ 0.30) and road (US\$ 2.20) transport. There are a few factors supporting the advancement of this market:

- Generation of new business through bilateral agreements,
- International market growth,
- Implementation of new investments and technological innovations,
- Increased use of air modal by some industry segments,
- Modernization and competitiveness of the granted airports with private sector.

The main commercial partner of Brazil's air cargo is the United States; in 2018 Brazil exported 34.6% by plane and received 17.6% of imports from USA. The largest number of imported products comes from China (18%). The United Kingdom, Germany, Switzerland and Mexico are among the main destinations for Brazilian exports by air (Source: Newspaper "O Estado de S. Paulo" 2019).

Despite air transportation growth, Brazilian total exports increased much more, especially in products with low added value that are exported by sea.



The increase in air shipment, however, potentially goes beyond stimulating the production and export of higher value products. The Brazilian Federation of Industries (CNI) has prepared a document for Brazilian governmental authorities with suggestions to improve the market, such as reducing time to release air cargo, standardizing procedures by public agencies and greater transparency in airport charges.

In addition, investments should be made in innovative technologies that assist in market development, especially in customer relationships. One important trend is how to facilitate customers' access to obtain fast responses and immediate solutions, providing real time automatic cargo pricing, including information on aircraft charter availability and pricing comparisons.

5.2. Main Cargo Airports and Airlines

Guarulhos is the main cargo airport in Brazil, followed by Viracopos and Confins. In 2018, Guarulhos transported 305.904 tons; 161.366 tons of imported cargo, which represents 9% more than in 2017 and 144.538 tons of exported goods, 7% more than in the previous year. In 2018, in Viracopos the total import and export of goods was 241.324 tons and in Confins the total cargo transport was 40.400 tons. Detailed information about volume and type of cargo transported can be found on the website of these airports, which is required for all major airports.

According to Brazilian Association of Airline Companies (Abear), in 2018 the top five air cargo transporters in Brazil were **Latam Airlines, Latam Cargo, Gol, Avianca** and **Azul**.

During 2018, **Latam Airlines** was Brazil's leader in cargo transportation in the domestic and international markets. Compared to 2017, the company registered an increase of 8.13% in local cargo transportation, to 127.3 thousand tons and the cargo exports increased 15.52%, to 133.7 thousand tons.

Latam Cargo faced a decrease of 9.43% in its cargo transport to the domestic market in 2018, totaling 35.6 thousand tons. In exports, there was an increase of 16.19%, to 85.9 thousand tons.

Gol increased its domestic cargo shipment by 6.27%, to 104 thousand tons. In international transport, Gol had a drop of 15.99%, to 2.1 thousand tons.

Avianca had an increase in cargo transportation to the domestic market of 21.83%, to 66.5 thousand tons. Transport to the international market advanced 93.29%, to 32.5 thousand tons. However, in early 2019 Avianca was prevented by ANAC to continuing its flights due to security risks and unbalances after the company requested judicial recovery in December 2018.

Azul achieved the largest growth in cargo market share; the company grew 42.99% in domestic cargo shipment reaching 57.8 thousand tons. In international cargo transportation, the advance was 64.37%, to 25.7 thousand tons.

5.3. Specific Opportunities in Selected Airports

Automation in Guarulhos cargo terminal

As a result of constant investments, between 2016 and 2019, import processing time at the Guarulhos cargo terminal decreased by 35%, from 85 to 55 hours. Another important benefit of the automation processes and procedures was an 84% time reduction for document release by dispatchers at Guarulhos Cargo Terminal (Teca), a drop from 12 to 2 hours. Other airports from "Top 12" list are evaluating solutions available in the market to implement automation processes in their cargo terminals.

Investments in BH Airport cargo

In 2019, cargo handling at Minas Gerais airports grew 6.4% compared to previous year. The Belo Horizonte International Airport, located in Confins (metropolitan region of Belo Horizonte) was responsible for 94.4% of transported volume in Minas Gerais state, totaling 40.4 thousand tons. This

5.75% increase results from investments of BH Airport in expanding logistics services to the terminal. The concessionaire has managed the airport terminals since beginning of 2014.

BH Airport continues to invest in cargo transportation through the main airport in Minas Gerais. Other investments include R\$ 14 million in 2017/18, and another R\$ 10 million in 2019. In this first phase, investments were aimed at optimizing cargo operations. Now, the focus has been on obtaining certifications and implementing systems to further leverage airport revenues from cargo logistics.

The first investments included expansion of the export and import areas; the installation of two new cold store chambers; the creation of a new cargo handling area for domestic cargo; and new offices for logistics operators and dispatchers.

Investments for 2020 include improvement of supply logistics services, especially for high added value cargo sectors. Also, the construction of a new building inside the terminal for customs warehouse will allow storage of imported goods and products in a customs zone accredited by the Federal Revenue Agency. BH airport will be the first airport in the country to adopt this system.



Source: 2019 Confins Airport - www.bh-airport.com.br.

6. TRENDS AND CHALLENGES FOR BRAZILIAN AIRPORT SECTOR

6.1. SWOT Analysis Airport Sector

This SWOT (Strengths, Weakness, Opportunities and Threats) analysis is based on extract data from public documents, public surveys and interviews with representatives of granted airports and government authorities in Brazil. Participants were asked to define their own, as well as other airports strengths, weaknesses, opportunities and threats.

In formulation of strategic alternatives for the airport sector as a whole, it was necessary to carry out an examination of internal and external environment through the SWOT analysis methodology (Strengths, Weakness, Opportunities and Threats), which means identifying organization's strengths and weaknesses, opportunities and threats environmental issues. Analysis of internal environment paid attention to strengths and weaknesses, available resources, skills and competences. From external environment analysis, external conditions, opportunities, threats, challenges and restrictions were extracted.

Airports characteristics of physical facilities, socio-productive resources, and political, economic and geographical environment were analyzed. Results are important to formulate future strategic roadmaps compatible with airport development policies, maximizing and enhancing synergistic capacity of airports in an integrated and systemic way in this development context.

Research on Passengers satisfaction - Historical Series

National Secretariat of Civil Aviation (SAC) publishes, on a quarterly basis, a permanent survey that measures passenger satisfaction considering 38 items of infrastructure, services and management items of 20 main airports in Brazil. The results allow Brazilian government to monitor operational performance of terminals and user's perception of services, in addition to offer bases for planning sectorial public policies.

The first survey was carried out in the 1st quarter of 2013 in 15 main airports. Later, in 2017 the survey list increased to 20 airports. Results are always published in the second month after each quarter. Survey confidence level is 95%, with 5% error margin. Results of historic surveys were also considered in this SWOT analysis. This report has focused on information about top 12 airports from this survey.

6.1.1. Strengths

Listed airports are the most important air hubs in Brazil and offer profitable conditions to attract airlines, and due to vast country dimensions, attract traffic volumes also from road transportations to benefit from expected growth in number of passengers for upcoming years. Additional factors of these airports:

- Top 12 airports are main hubs in their region to connect most of Brazil's cities by air. They are located in largest and most populous states with a potential market favorable to growth of its connectivity,
- Airports located in well-known tourist regions are boosted by local investments and contribute to its socio-economic growth,
- As South America's most extensive territory, its size and geographic conditions are privileged to air transportation,
- There is no competition with railways transportation. Brazil lacks public intercity and interstate railways,
- Advertisements in airport terminals have increased 287% (in advertisement space) and 158% (in value per add) in past 5 years.
- Landside areas in Brazilian airports are bigger than Europe's average. Concept of shopping at airports is starting to become reality in Brazil. There is an increasing demand and value for non-aviation revenues, such as rental areas (to commercial services, stores, food courts).

- Cultural aspects: some airport locations are also a leisure attraction to local population that enjoys spending family time (close to landside areas), at food courts or watching airplanes taking off or landing, a special class of airport users without any relation to flying.
- More flexibility with new rules to allow entry of “low-cost” airlines.
- Increasing number of alliances and partnerships with regional and world airlines, optimizing operations to Brazil’s connectivity.
- National taxes on aviation were reduced, better cost benefit to passengers.
- Code Share agreements between countries to benefit domestic and international airlines (example: Agreement Brazil - The Netherlands).

6.1.2. Weaknesses

The weakness factors in the main Brazilian airports are the evaluation of airlines performance and passengers’ experience in various items of infrastructure, attendance and services, as well as monitors performance of various airport processes such as check-in, security inspection, baggage restitution, among others.

These topics provide important references for airports administration, encouraging competitiveness between airports. The research is also considered by government authorities to create new procedures that improve passengers’ services and to provide transparency in airport services quality to society.

Airport processes survey is composed of indicators of passenger’s satisfaction and offered services. It also has indicators that monitor process time to which passengers are subjected.

Data collection about passengers’ satisfaction consists of face-to-face interview using a standard questionnaire, aimed to passengers’ boarding and disembarking at surveyed airports. The questions include indicators, grouped thematically, in addition to data for composition of interviewees’ profile. At questionnaire end, passengers still evaluate their general satisfaction with the airport.

In some of these airports, passengers and airlines suffer with long processing times and unreliable service levels (waiting time at the security control, turnaround times, etc.), which are currently being addressed and still have a lot of room for improvement.

The complexity of the communication between airports to exchange data for ground processes and process dependencies (e.g. transfer processes) still is considered to be a bottleneck, especially in relation to regional airports.

Passengers’ perspective of weakness factors:

- Excessive time consumed on passengers’ processing,
- Quality of boarding area or "departure lounge" is critical, needs expansion and modernization in most airports,
- Low quality, poor Wi-Fi connection,
- Lack or not enough power outlets to charge personal appliances,
- Costs of services and price of goods in airports are higher if compared to local market, thus reducing passenger and user consumption, affecting development of airport shopping concept,
- Baggage return to passengers is slow. Systems are out of date, undersized and not efficient, particularly in airports still to be granted.

Weakness factors, perspective from airlines:

- Despite high GDP value, there is still a low cargo movement at airports out of southeast area (with minor exceptions) although there is high demand from its local market, needs legal and economic regulations adjustments,
- Some airports in north and northeast region are main hubs but they are neither certified nor homologated for international passenger transport,
- Delays to implement airport industry concept by Infraero,

- Low investment capacity in past years, Public concession management (Infraero) is not investing in airports due to transition phase to private sector,
- There is no business vision in public concession, with little investment capacity and resistant to strategic changes,
- External factors can be minimized by technology investments, such as bad weather delays cause cancellations generating additional disbursement for airlines,
- There are no training schools to skill people for most of technical airport services, forcing companies to privately invest in training.

6.1.3. Opportunities

Low domestic competition

Airport sector in Brazil lacks modern technologies due to decades of low or scarce investments in infrastructure, resulting in limited local supply chain. Due to lower investment, Brazil did not develop in-house solid aviation supply chain; there is huge dependency of imported goods and services. If this is a problem for the sector, it is also an advantage to international companies that won't face local competition to their specific core business. Strong competitiveness comes from international suppliers, regardless of its location all suppliers are subject to same taxable fees.

Passenger-centric solutions

Less futuristic and more tangible, the adoption of 5G network has just started in Brazil and some airports (e.g. São Paulo Guarulhos) highlights the way airports are adapting to meet actual passenger demands.

Partnership in previous grants

There are lower risk opportunities in the 4 airports where Infraero will dispose its remaining shares (49% in each); parties have opportunity to enter a lower risk market, shared with a partner that has earned experience from recent years of development. However, this is an investment where existing partner already retains majority of shares, thus controlling future developments.

Sustainability

Brazilian regulating agencies are open to discuss implementation of innovative technologies that can improve energy efficiency both during construction, but mainly in daily activities and future maintenance of airports and services of airplanes. The current private groups contracted by ANAC in past concessions are beginning to implement energy savings solutions for their airports, with plenty of room for innovative sustainable technologies.

Airport security

Aviation and airport security solutions providers are partnering with leading IT companies to develop secure products and solutions at design stage,

- Incorporated electronic technology into terminal design (passengers' check-in),
- Multimodal air cargo transportation,
- Simplification of Customs regulations for "paperless" (e-AWB - e-Freight) transport.

Other niches of opportunities:

- Use and development of airport with concept of airport-industry and aero-shopping,
- Broader concept of airport-city, which would promote further development for a region.
- Partnerships of foreign airlines with national airlines to expand domestic air routes,

- Growing demand for universal exhibitions, sporting events and increasing movement of people in airport areas,
- The real estate market in airport's surroundings areas is becoming more valuable,
- Brazilian government and regulating agencies are open to discuss implementation of innovative technologies that can improve passenger experience,
- Airports public is expected to grow as Brazil becomes increasingly globalized. Air travel improves, becomes more accessible, and people begin to reposition life experiences on their priority list,
- Air traffic control optimization with infrastructure expansion: new runways and new terminals,
- Concession model evolution, adequacy of aviation law to international model brings opportunities to technical, engineering and legal consulting companies,
- There are ongoing studies to evaluate cost-benefits of digitalizing air-traffic control, a developing trend to improve transport safety aligned with airports aim of running flight operations on time to improve passengers' throughput. The adoption of remote-control centers to efficiently manage various airports traffic has emerged recently. This approach, if adopted, might generate strong investment opportunities for well-established players with redesigning future management of airspace control.

Investment / administration opportunity

In addition, the return of Campinas airport (Viracopos) concession to the government administration will result in a new auction and offers great investment opportunities in both cargo and dedicated terminals to airlines. Viracopos is a strong candidate to be the largest air cargo hub of Brazil. There is great potential for growth with lower investments, since heavy investments in infrastructure have been carried out recently.

Other positive factors:

- Growth of global demand for tourism,
- Interest of foreign airlines in investing in national airlines,
- New airport administration policy.

Agencies support against bureaucracy

Since the early stages of concession in 2011, the Brazilian government agencies have worked intensively to improve and facilitate regulations of future airport concession programs. For instance, ANAC provides support and detailed information to private sector either directly or through Brazilian government institutions. ANAC and SAC provide guidance to the interested parties with documents, booklets, web conferences and face-to-face meetings to assure that the companies feel safe and confident in understanding and complying with all Brazilian legal, economic and operational procedures.

6.1.4. Threats

Aviation sector in Brazil is passing through a huge renovation, thus subject to more constant changes for rules improvement. Any organization interested in investing in the Brazilian airport market should carefully investigate each business opportunity to comply with legal, financial and social-cultural and environmental aspects of that deal. In many cases, having either a local partner or an own in-country branch office is recommended to deal with daily activities and to be inserted in the local environment of a targeted business.

Although Brazil still holds a high degree of bureaucracy, there are signs of reduction; analysis from World Bank shows that Brazil is reducing wage bill (total amount paid to government employees) as a percentage of GDP and public expenditure, a positive result from Brazilian government privatizations.

There is a huge difference in bureaucracy matters from one sector to another. Some sectors, e.g. agribusiness, are world references of efficiency and productivity, while other sectors, e.g. public services, are still considered heavily burdened.

The airport sector is an environment heavily controlled by laws; Brazil's government is constantly changing regulations with the objective of reducing bureaucracy, and these changes, if not properly managed, can affect the plans and investments of airport administrators. It is important that airport consortiums and related companies maintain a close interaction with the regulating agencies and participate in the process of preparing new rules, providing advice and data to protect airport development.

The World's Bank produced a comprehensive diagnosis in July 2018, containing a summary of Brazil's primary challenges in economic and social development and pointing to a possible course of action to overcome them. That material is entitled "Public Policy Notes" and is available for consultation on the World Bank website. It covers the following topics: stabilization and fiscal adjustment, the tax system, intergovernmental fiscal issues, the pension reform, the State reform, productivity, credit markets, infrastructure, education, logistics & transportation, the labor market, ways to address the violence epidemic, climate change (NDC) and water resources management. Links to World Bank documents are available in chapter 10.

Although the construction and modernization of airports require environmental licenses, some threats could cause social impacts on the surrounding communities, once airports require significant consumption of public services and increase road traffic.

Other environmental impacts such as noise, air and water pollution are some of the implications resulting from the operation of airports which may constrain its further development.

In addition, increased public concern, regarding climate change, imposes more restrictions on carbon use and greenhouse gas emissions. As a result, many airports can no longer make full use of their capacity, especially when the mitigating cost is quite high. Even though most of the airports recognize the need of an environmental management strategy, not many airports have set specific targets for their performance.

The unknown unmanned threat

Managing operational disruptions that impact business continuity and revenue generation is a key focus for both airports and airlines. With adoption of new technologies, stakeholders have improved their responses to such disruptions. However, the rapid evolution and penetration of off-the-shelf unmanned technologies, such as drones, is posing a significant challenge. The potential remote nature of disruptions makes the perpetrator 'unknown', adding complexity to the threat.

Airports across Brazil are evaluating latest developments in the world to invest in counter-UAS [unidentified aerial systems] technologies that cause minimal flight disruption and they are expected to invest more heavily in the future. Suppliers are leveraging experience and expertise traditionally associated with the defense sector to create tailored solutions for aviation industry.

Autonomous solutions

Continued growth in passengers' traffic and 'Amazon effect' on logistics is driving adoption of more autonomous aviation solutions based on artificial intelligence, enhancing airport security-screening operations. Increasing reliance on seamless security processes at airports and digitalization of travel authorizations is susceptible to high-impact incidents (affecting security and business continuity) if networks hosting these digitized solutions were to be breached.

Improving air-traffic control

Routes between São Paulo and Rio de Janeiro involve their four airports. Traffic growth is pushing air-traffic control infrastructure and capacity further towards their limits and is becoming a big challenge in an incredibly congested airspace, exacerbated by the technical complexity of

integrating unmanned aircraft systems into civilian airspace. All other Brazilian airports do not have major issues airspace congestion issues.

- QAV tax reduction: Liabilities adequacy to international standard. Airports in Brazil still operate in a highly regulated environment.
- Strong presence of European competitors already established in Brazil (Spain, France, Germany, Swiss, etc.)
- High number of players introduced to market, which leads to continuous distortions in cross border competition of airports. High competition expected in upcoming auctions.
- Unpredictability of regulatory adoptions that might harm the overall airport business. Difficulties to comply with tightening safety and security regulations.
- Tightening regulatory environment on global sustainability and carbon emission in context of the role and responsibility of the aviation sector.
- Growing costs of energy supply and limited funding opportunities.



Evolution of the airport's positive evaluation

Percentage of passengers that voted as Good or Very Good, average score 4 or 5 (maximum)



6.2. SWOT Matrix

S Strengths

- Top 12 airports are main hubs to connect most of Brazil's cities by air.
- Brazil lacks intercity / interstate railways. There is no competition with flights.
- Bigger landside tourism in Brazil's airports, extra non-aviation revenues.
- New rules to allow entry of "low-cost" airlines for alliances, partnership, lease exclusive terminals.
- Advertisements in airport terminals have increased (in value and space).

W Weaknesses

- Excessive time consuming on passengers' processing.
- Passengers' experience (Wi-Fi, connection with passengers, A/C chargers, toilets).
- Baggage claim (improve area, timing, identification).
- Some airports not homologated for international passenger transport.
- No schools to skill people for most of technical airport works.
- Poor logistics infrastructure to air cargo, which increase processing time and costs.

O Opportunities

- Local aviation supply chain has plenty of room for development.
- Increasing airport-city and airport-industry concepts.
- Brazilian government and regulating agencies are open to discuss implementation of innovative technologies that can improve passenger experience.
- Increasing value of airport real estate market.
- Investments opportunities in airports returning to ANAC to be re-auctioned.
- Increasing number of new airlines entering Brazilian market.
- Increase of air cargo operations in Brazil, good perspectives for Viracopos and Confins airports.

T Threats

- Brazil Airports still operate in a highly regulated environment.
- Bureaucracy and complexity in governmental and judiciary systems.
- Strong presence of already established European competitors in Brazil (Spain, France, Germany, Swiss, etc.).
- High competition expected in upcoming auctions. Many alliances already formed.
- Growing costs of energy supply and limited funding opportunities in upcoming rounds of concession.
- Cultural and language barriers have to be addressed.
- Social impacts to communities in nearby airports areas.
- Covid-19 effects over the aviation sector could postpone airport auctions.

7. BUSINESS OPPORTUNITIES FOR DUTCH COMPANIES AND RESEARCH INSTITUTIONS

7.1. Business Opportunities in Brazilian Airports

Innovative Solutions

Brazilian aviation specialists notice the excellent reputation of Dutch organizations as competitive developers and suppliers of innovative solution. They also recognize the Dutch skillfully applied technologies, new methods and competitive products, which are key elements to conquering business in the Brazilian market. There is also a strong presence of Dutch culture in aviation business implemented by KLM, which has been flying to Brazil for decades (since October 18, 1946), with direct flights to São Paulo, Rio de Janeiro and Fortaleza for passengers and KLM Cargo to São Paulo Viracopos.

Many opportunities are available in different sectors of the Brazilian airport market for providing products, goods and specialized services, with a focus on improving cost benefit investments to airports, fulfilling requirements set by ANAC in concession agreements and enhancing airport passenger experiences. To facilitate understanding, we can split the market based on its potential business by three specific segments:

A - Limited market: Mainly comprised of airports currently managed by Infraero that are passing through adjustments to be part of next two concessions rounds. These opportunities are limited to emergency projects or 'gap fillers' to keep airport operating until the effective transition of administration to private sector. In some extent, there are good opportunities for technical consulting services hired by one of Brazil's government agencies.

B - Good potential: Those 22 airports already granted to private sector that now passes through major renovation plans, expansion and modernization as established in the concession agreement. Highlighted airports in this group:

- i. São Paulo Guarulhos airport, which has among its partners Invepar and Airports Company South Africa, granted in 2013 for 20 years concession.
- ii. Rio de Janeiro Galeão airport, managed by Changi International Airports Group (51%) and Infraero (49%).
- iii. Brasilia airport, where since 2012 Inframerica is the private partner holding 51% concession stake to operate, renovate and expand airport site for 25 years.
- iv. Campinas Viracopos airport is managed by Aeroportos Brasil (51%) and Infraero (49%). However, opportunities might be carefully investigated because this consortium recently fought ANAC for rebalances in concession contract. Viracopos seemed to become more attractive business provided ANAC and Aeroportos Brasil entered into agreement terms to launch a new auction to private sector. This case needs further investigation.
- v. Belo Horizonte Confins airport, managed by consortium formed between CCR and Zurich AG. Project for the Belo Horizonte Airport modernization, expansion and maintenance foresees considerable investments during 30 years concession. BH Airport relies on experience of its shareholders to transform the airport into a true "airport city".

All above-mentioned airports have assured a possible 5 years contract extension at the end of their current term.

C - Best opportunities: Of the total of 41 airports, planned to go for auction in 6th and 7th concession rounds (late 2020 and early 2022), the best opportunity is the Congonhas airport in Sao Paulo. More details in section 3.4: 'Upcoming Rounds of Concessions'.

Considering existing plans for 22 airports already granted, and requirements for next 41 airports to be granted, there are demands in following areas of expertise:

- i. Innovative solutions (software tools) for airport management

- ii. Smart software IT solutions for integration
- iii. Air Traffic Control systems and software.
- iv. Ground traffic management,
- v. Manufacturers (SME's and large Industries) acting in aviation supply chain of competitive products for Airport Terminals, Passenger and Cargo handling, Heavy Constructions (Runway and Pavements),
- vi. R&D entities willing to cooperate in international projects with projects in innovative and sustainable solutions for airports
- vii. Airport management groups interested in exploring South American market
- viii. Investors willing to enter commercial aviation sector in Brazil

Products/Services:

- ix. Developers of smart solutions to enhance in-ground passenger experiences
- x. Automated Time reducing boarding process
- xi. Cyber-security Technologies
- xii. Biometrics
- xiii. IP based communication (software & hardware)
- xiv. Blockchain Cooperation
- xv. Airport Assistance Apps
- xvi. Commercial partnership
- xvii. Voice Recognition systems
- xviii. Known Traveler Digital Identity
- xix. Passenger interface systems and equipment, applied at terminal until boarding flights.
- xx. Face recognition systems
- xxi. Management Tools for Aprons, aircraft in patio / taxing.
- xxii. Drug detection systems
- xxiii. Environmentally friendly Bird control
- xxiv. Systems for improvement of simultaneous utilization of air runways.

7.2. Role of the Dutch Government

There is a longstanding and solid business relationship between Brazil and The Netherlands. The Netherlands has a good reputation in Brazil, partly based on to the Dutch presence in Brazil in the 17th century. Formal diplomatic relations were established in 1828. KLM Royal Dutch Airlines opened its first route to Brazil back in 1946 and now operates Sao Paulo, Rio de Janeiro and Fortaleza routes. The Dutch government agencies help entrepreneurs, NGOs, knowledge institutions and organizations to access RVO instruments, networking, local know-how and compliance with the Brazilian laws and regulations.

The Netherlands diplomatic network in Brazil consists of the Embassy in Brasilia, the Consulates-General in São Paulo & Rio de Janeiro, the Netherlands Business Support Offices in Belo Horizonte & Porto Alegre plus 11 Honorary Consulates spread across the country. The Dutch diplomatic network is amongst others fostering Dutch companies and organizations to improve cooperation between the Dutch and Brazilian aviation sector for more than thirty years.

The Brazilian government is aware of the Dutch knowledge and technology. There is a solid relationship between the Brazilian Ministry of Infrastructure, ANAC and Infraero with the Dutch diplomatic network in Brazil, which helps in obtaining the most accurate and updated information in current and future programs. Proves of this solid bilateral cooperation are the recent signatures of the Air Service Agreement and of the prorogation of the MoU on Civil Aviation. In addition, the diplomatic network has a detailed sector insight and excellent contacts with Brazilian airport consortiums, companies and knowledge institutions.

The Dutch diplomatic network in Brazil provides support with actions in different levels, including but not limited to:

- Trade missions and technical visits to both countries,
- Technical seminars, sector specific workshops and matchmaking sessions,
- Trade fairs with the participation of Dutch companies and research institutions at a Holland Pavilion,
- Market entrance through RVO instruments,
- Market reports and updated information on the developments in the aviation sector.

8. COVID19: GOVERNMENT ACTIONS TO SUPPORT AIRLINES AND AIRPORT ADMINISTRATORS

The Brazilian Ministry of Infrastructure took measures to postpone payment for fixed and variable contributions in contracts scheduled for 2020 to airport administrators, with possibility of settlement by December 18, therefore without impacting the fiscal year.

There will be a postponement in collection of air navigation tariffs and concession fees from airport concessionaires without incurring any fine, with an extension in reimbursement obligations by companies.

In addition to these measures, the government is also providing new financing lines for these companies to be granted by the federal banks Banco do Brasil, Caixa Econômica Federal (CEF) and the Brazilian Development Bank (BNDES).

The concession programs gain even more importance for the economic recovery after corona crisis. The Ministry of Infrastructure estimates a R\$ 250 billion private investment with the auctions of infrastructure projects scheduled until 2022. However, forecast on future concession rounds, its investment plans and actions on health prevention are being reviewed to adapt to the new reality.

In referring to new concessions (rounds 6th and 7th), up to date (May 2020) there is no change in planned schedule. However, the auctions could be postponed, depending on the duration of the corona crisis and the willingness capacity of foreign companies to invest in this difficult time. The government also recognizes that the projected demands of passengers and freight in these airports have to be reviewed before their auction.

In 2020, scenarios for airports global recovery are highly dependent on the recovery of passenger numbers. According to IATA, no one can safely predict how long it will take for the industry to bounce back, but aviation experts are hoping for a return to 80% of pre-COVID19 levels in two to three years.

The government is aware of these factors and its impact in the projected demand for future auctions and it is now evaluating changes in the concessions plans to adapt it to the new reality.

9. CONCLUDING REMARKS AND RECOMMENDATIONS

In Brazil, as well as worldwide, airports and airlines are changing their decision-making processes from product-centric to passenger-centric. Products and processes are evolving to adapt to changes in passengers' travel preferences and their access to technology. Airports are adopting technologies that can help expedite passengers' transactional activities such as check-in, baggage screening, security and customs. In turn, a positive travel experience is leading to an increase in non-aeronautical revenues for airports and their stakeholders.

After decades with a lack of investments, Brazil started a big concession plan for airports and thus occupied an important position past 5 years in global market of airport development. In years to come, Brazil will continue playing an important role with expansion of its concession plans adding more than 55 airports to the private sector throughout the country. Most of these airports are major local hubs, being out of date for decades, allowing implementation of modern sustainable and innovative technologies to cope with today's reality.

The growing concern on sustainability and CO₂ reduction in new concessions development plans offer opportunities in niche markets such as bio fuels, CO₂ compensation programs and energy reductions.

Past concessions (2011 to 2018) have granted 22 airports to the private sector. Accordingly, selected groups or concessioners are investing in settled agreements and have great potential as buyers of innovative solutions to improve passengers' experience, reduce operational costs to airlines and improve safety and security.

With the concessions program, a total of USD 3.86 billion were invested into the first 10 privately managed airports. Overall, USD 9.14 billion is expected to be invested by the private sector during the course of the airport concession program, fostering growth of Brazilian aviation industry for decades to come. From 2020 until 2022, another 2 rounds of concessions are planned with 41 airports to be granted, an expected injection of \$ 5.0 billion in investments.

Main attributes to private sector:

- Provide solutions for Implementation of best international practices in air navigation services, regulation and provision,
- Create a new ATC mindset,
- Improve airport operations as an integrated solution between airspace and airports to allow better on-time performance.
- Solve main issues of demanding growth in years to come, creating ideal infrastructure in a profitable matter to provide development and improvement of airport efficiency, sustainability and capacity with optimized use.

Positive numbers from previous grants confirm that Brazil is achieving success by increasing competitiveness of the local aviation market with significant rewards to aviation sector.

The Corona virus has caused a temporary dip in aviation movements. However, despite the fact that the pandemic peak in Brazil has not yet been reached, there is already a slight increase in flight numbers, both national and international. Above all, the extensive territory of Brazil requires aviation to continue functioning during and after the pandemic. With demand set to double over the next 15 years, aviation annual economic contribution to Brazilian economy could increase to more than US\$ 88 billion per year, amounting to more than 1.4 million jobs supported.

A solid proof that Brazil's airport market profitable business is that all international groups (winners of previous grants in Brazilian airports) are committed to participate in future auctions to expand their local presence with new concessions.

It is highly recommended that the Dutch government, companies and organizations should react quickly to become well acquainted with the Brazilian airports ecosystem.

Brazilian aviation sector authorities welcome Dutch knowledge and expertise from its companies and research institutes to foster development of better, greener and more passenger friendly airports. This goal can be achieved through innovated, sustainable and cost effective solutions with support of the Dutch diplomatic network in Brazil.

In most cases, an important risk mitigation factor is to have either a local partner or an own in-country branch office to deal with daily activities in the local environment of the target business. This strategy allows positive interaction and better development of social, cultural and business skills.

Brazil's airport sector is full of business opportunities, ranging from innovative and sustainable SME products and services, up to the development and management of an entire airport. This is the right moment to explore the country that offers the world's largest aviation market.

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