TRIP Linhas Aéreas
Victor Rafael R. Celestino
May 2011

Summary | **TRIP Highlights**

Air Transport in Brazil

Regional Market

Major Challenges

TRIP Highlights

About TRIP Linhas Aéreas S/A

Foundation: 1998

Fleet concept: less than 110 seats

Destination: 82 (biggest air domestic network)

Domestic Market Presence: 21 States and Brasília

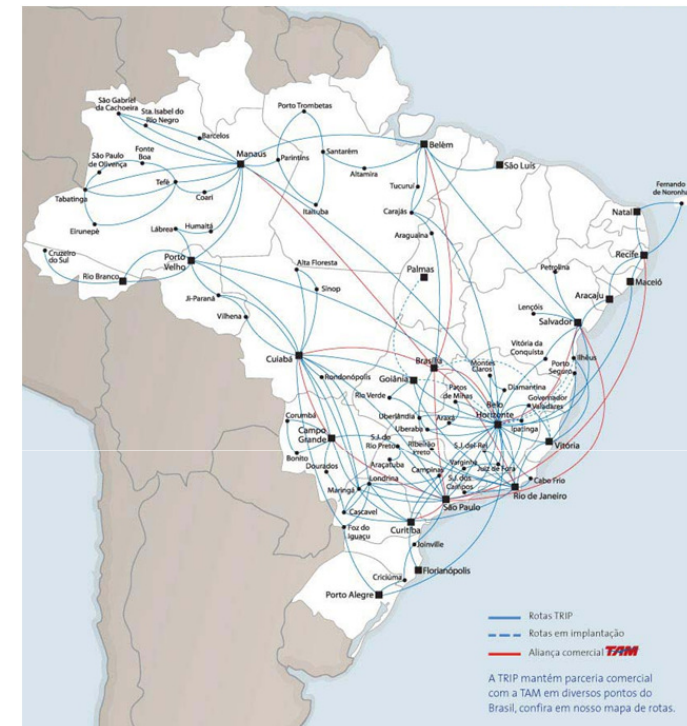**Third major company in terms of fleet:** 43 aircrafts

Employees: 2.800

Carried Passagers:

- **2009:** Aprox. 2 millions

- **2010:** Aprox 3,5 millions

Fly to more than 80 cities

Rotas TRIP
Rotas em implantação
Aliança comercial *TAM*

A TRIP mantém parceria comercial
com a TAM em diversos pontos do
Brasil, confira em nosso mapa de rotas.

Relevants Features

Aircrafts 48 to 110 seats

Revenue: "Full Web Based System"

Average fleet age: steady increase

Organizational Structure: lean and agile

Expansion of Routes:

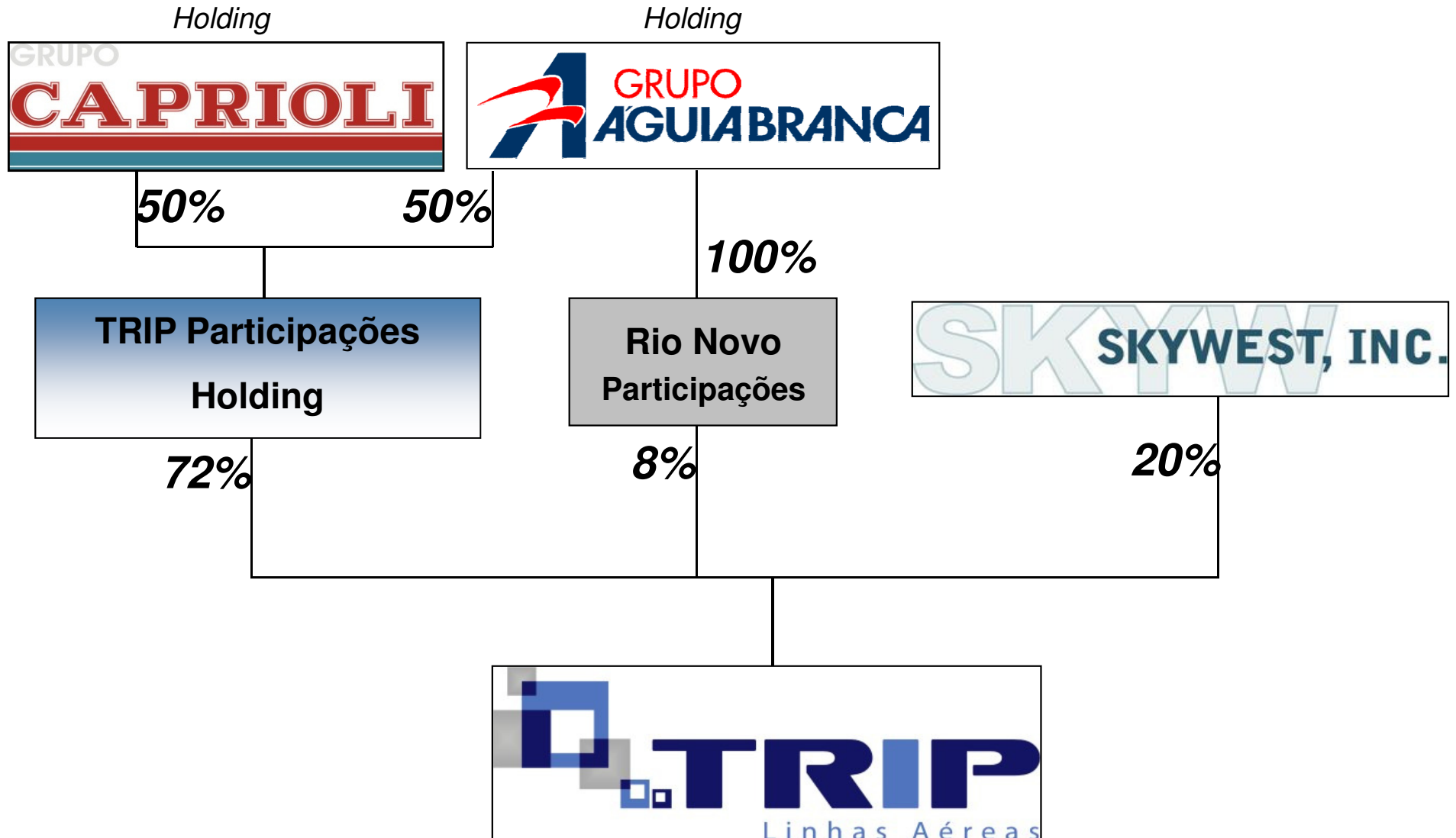-**2007:** growth of 40% (competitors increased 16% a the same period)

- **In 3 years: Aprox. 70%**

Headquarters: Campinas (Administrative offices) and Belo Horizonte (Operational)

Aircrafts suitable for Regional Aviation

Divulgação

Current Shareholders' Structure

Shareholders – Skywest

SKYWEST, INC.

HeadQuarter: Saint George, Utah

Established: 1972

HeadQuarter: Atlanta, Georgia

Established: 1979

HeadQuarter: Houston, Texas

Established 1986
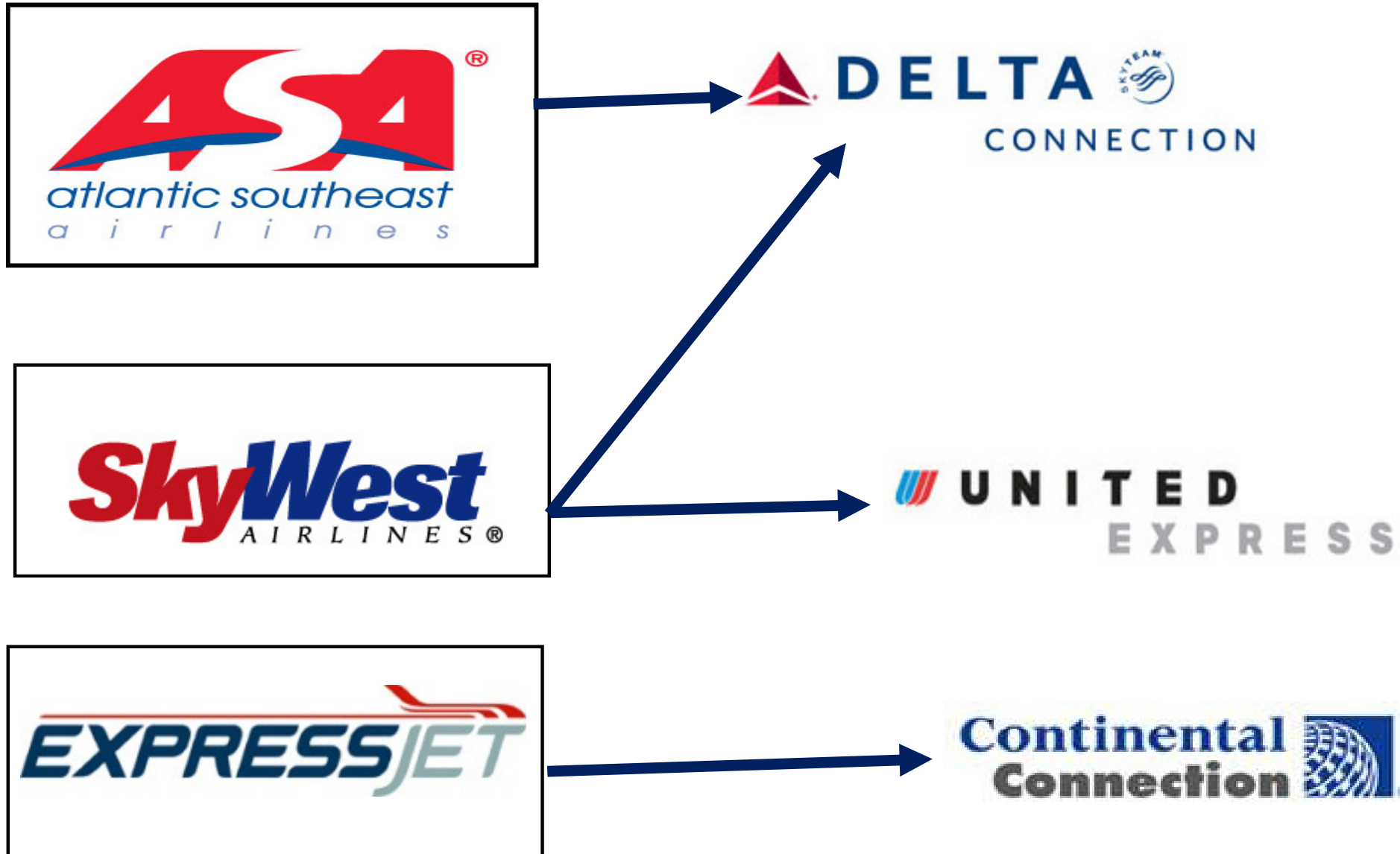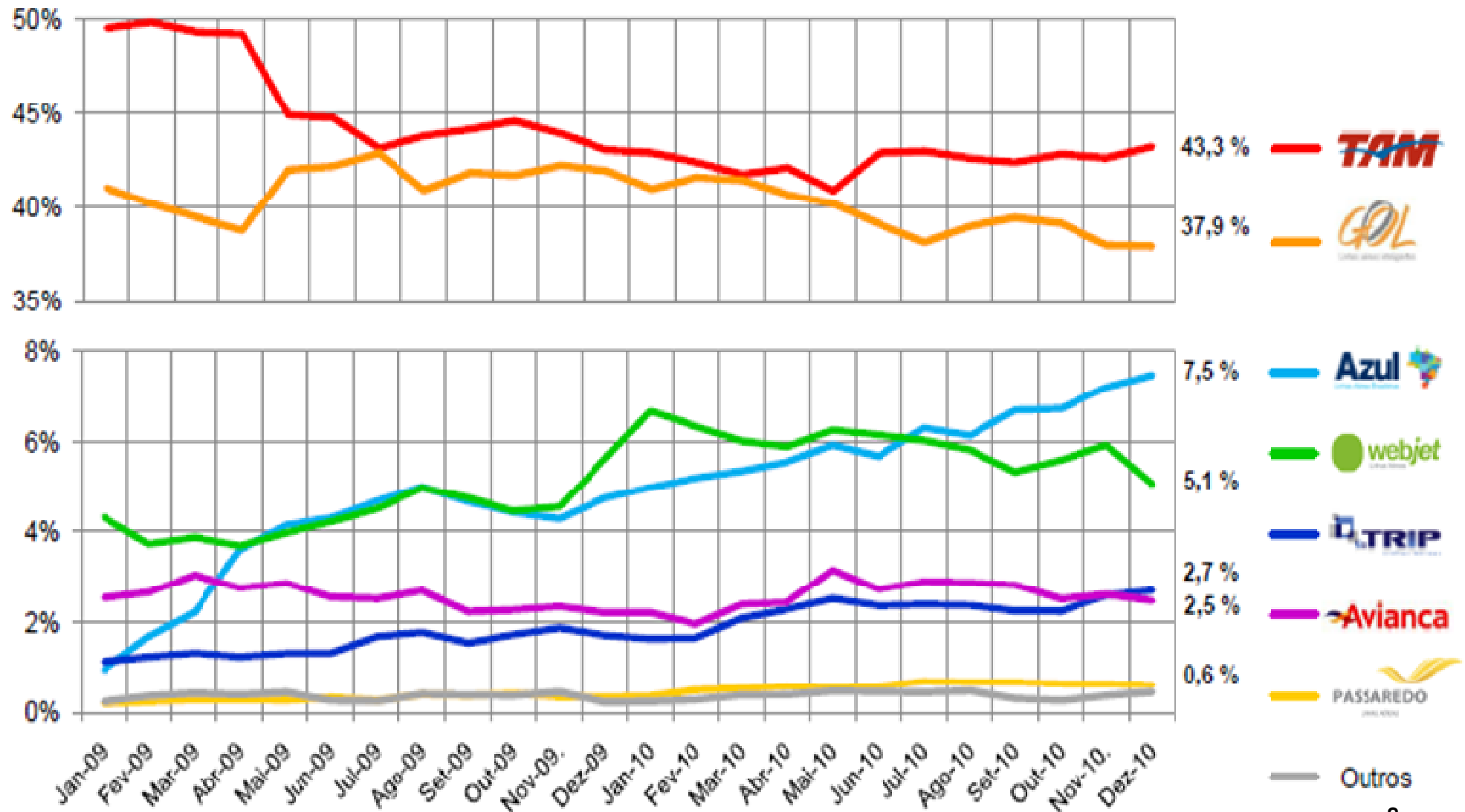
Nr. of employees: 18.235

Nr. of aircrafts: 696
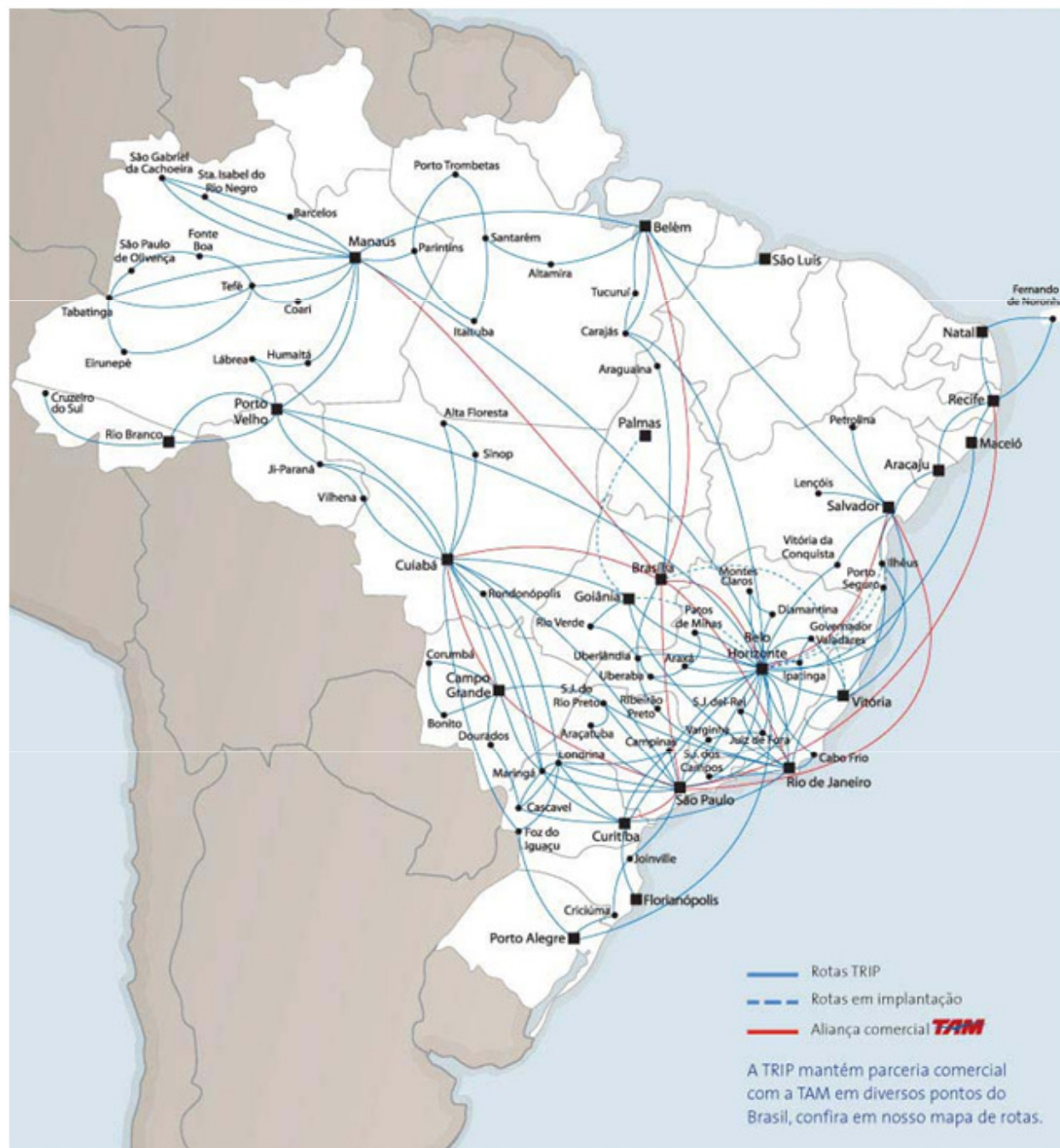
Destination: 225

Landing and Take off: 2.800 per day

Alliances of Skywest

MARKET POSITION

Source: EMBRAER

OUR NETWORK

Rotas TRIP
Rotas em implantação
Aliança comercial **TAM**

A TRIP mantém parceria comercial com a TAM em diversos pontos do Brasil, confira em nosso mapa de rotas.

ATR 42
46-48 seats

ATR 72
68 seats

EMBRAER 175
86 seats

EMBRAER 190
**110 Seats**
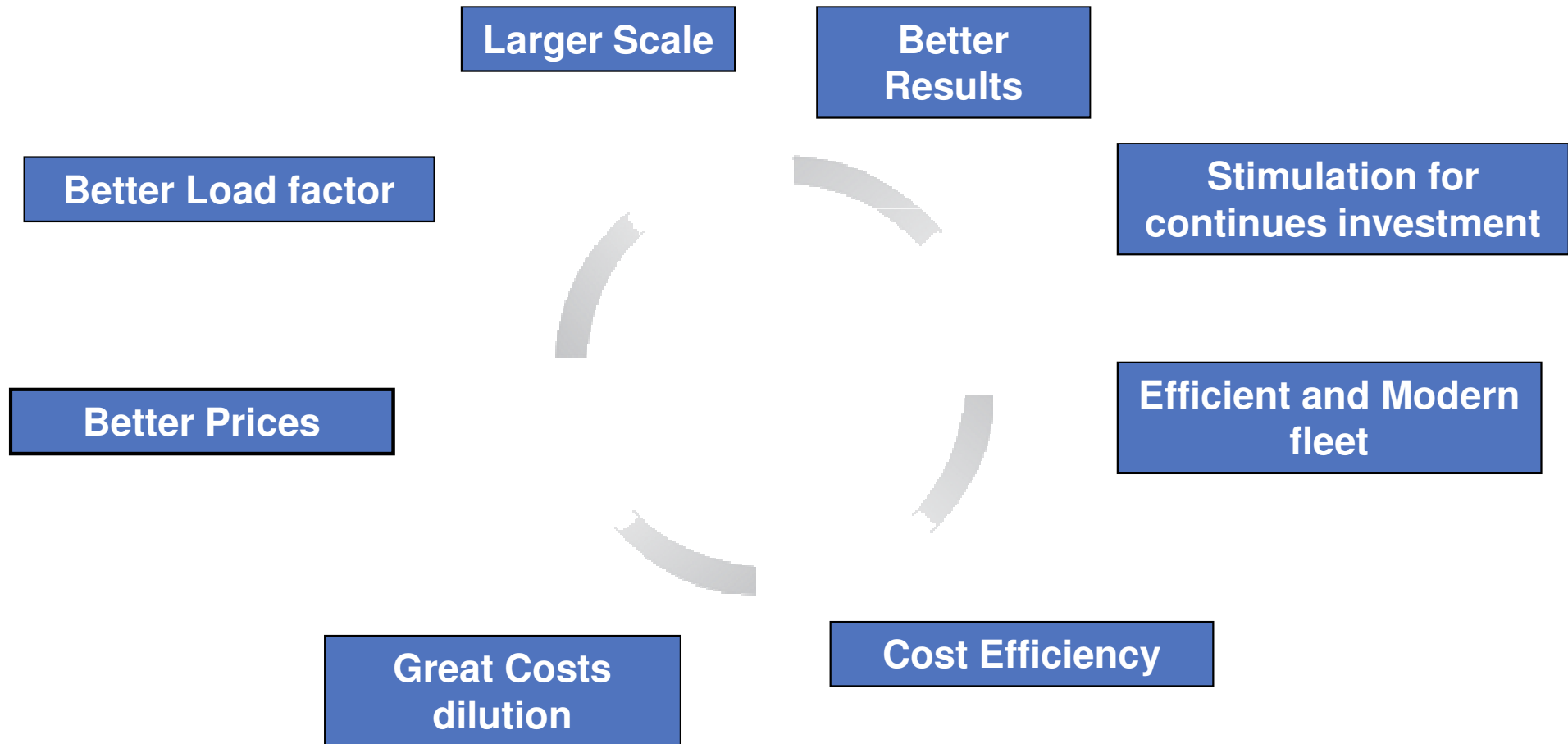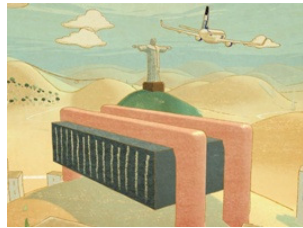
Air Transport in Brazil

Brazil has all the characteristics for a strong development of Regional Market

- **Country with large geographical dimension**

- **5th largest Global Population:** about 190 million of habitants

- **Non-existent, inefficient or non-preserved modal competitor**

- **Process of economic internalization in course:** expansion of business in remote areas

- **Low Air travel penetration:** passengers still traveling by bus

- **Airline market in Brazil is growing fast**

Brazil has all the characteristics for a strong development of Regional Market

- **The market has just moved from a government protect industry to a deregulated one:** beginning 2000/2001

- **Long distance Airlines (TAM & GOL) already focused and consolidated**

- **Specialization:** majors have grown and standardized on Narrowbodies aircrafts with a strategy to lower the CASK

- **Demand between city pairs:** Mostly constituted by traffic beneath 90 PAX/day

- **Airlines have not developed a wide distribution system:** there is a great concentration of players in high density markets
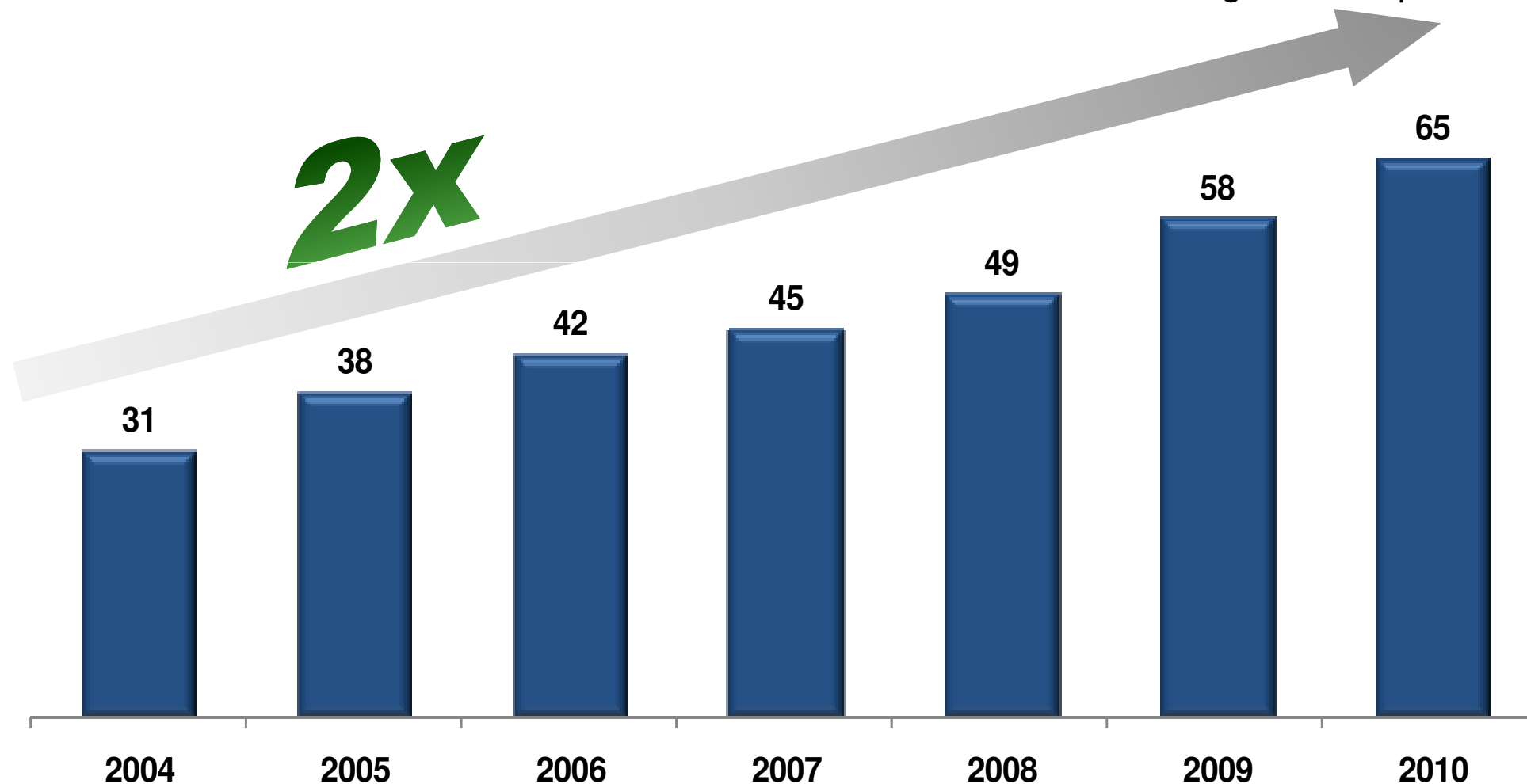
Number of Airports with regular flights
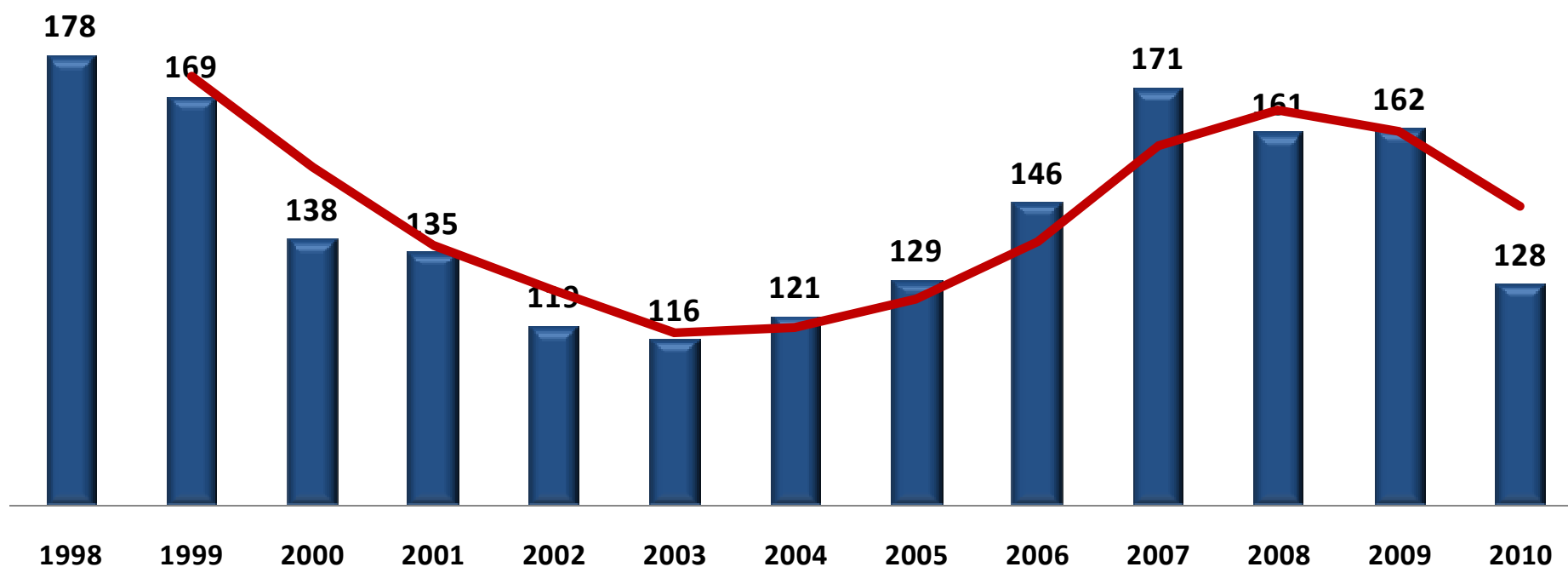
The result of increasing the size of aircrafts, in several markets of low and medium density, is observed by the number of airports underserved or completely unserved.
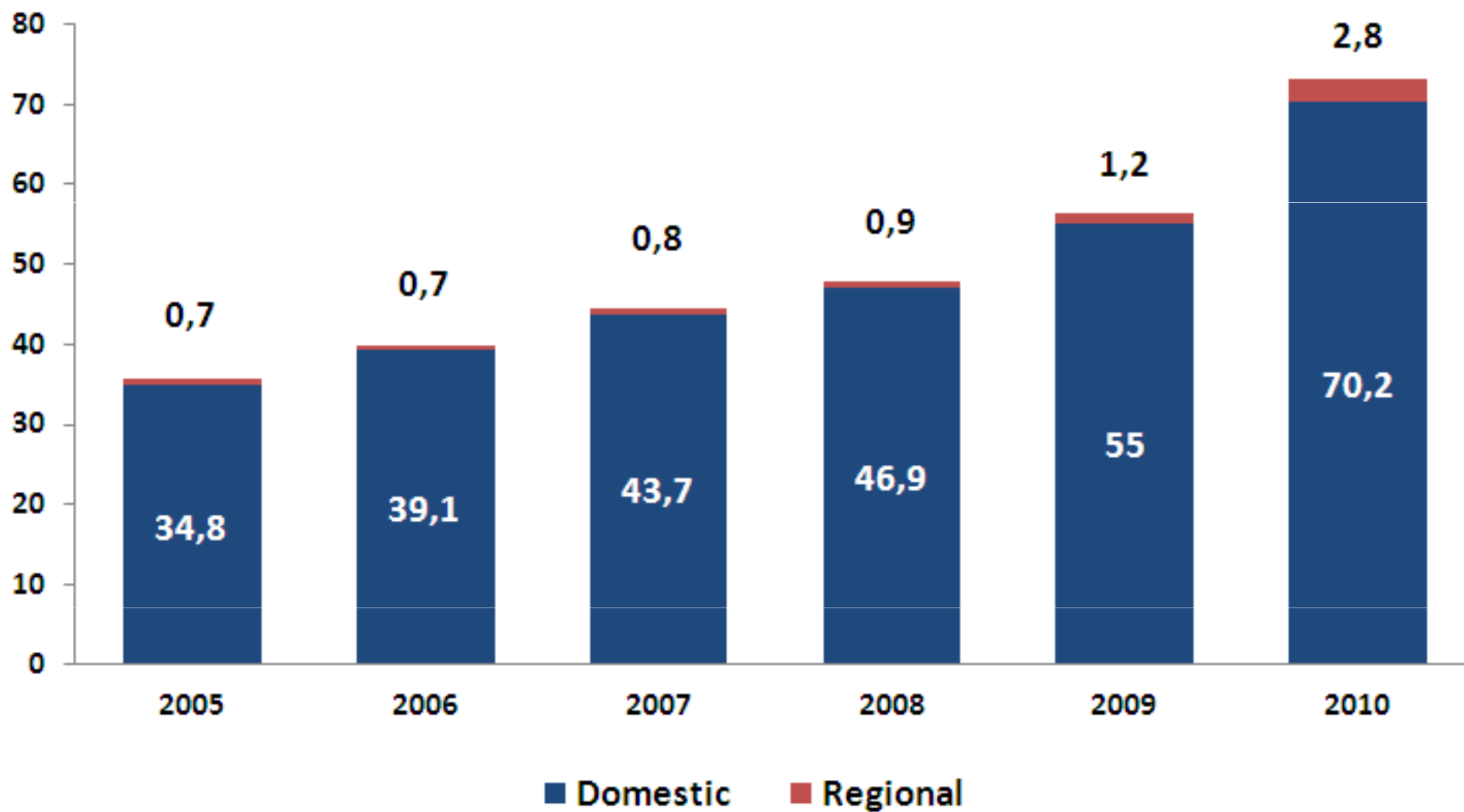
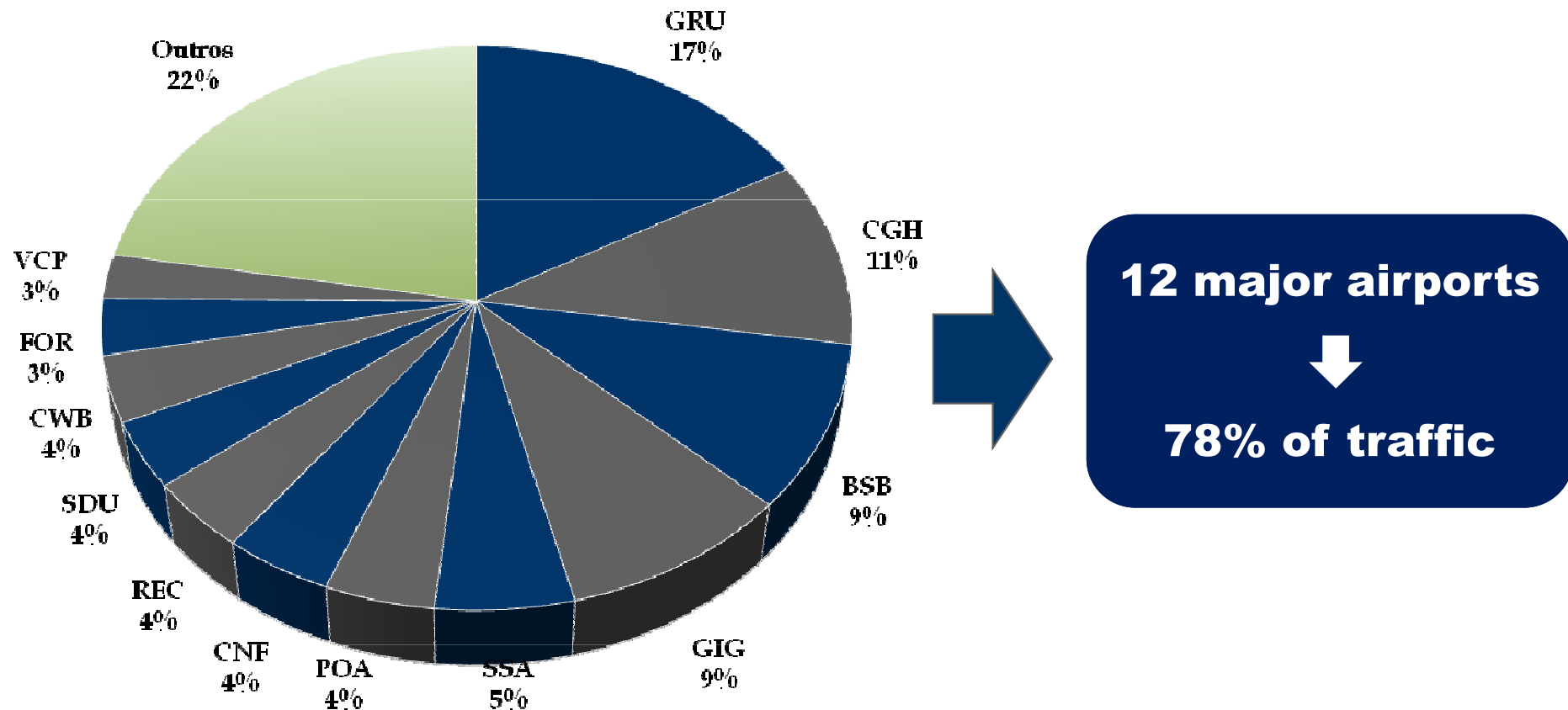Number of passengers has grown more than 100% since 2004
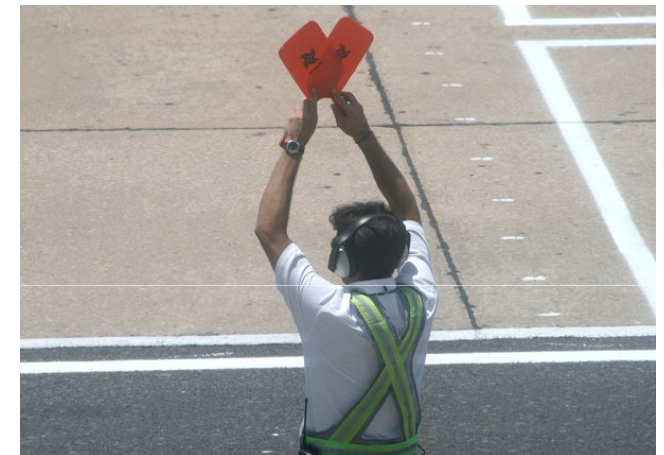
RPK – Brazilian Market

Source: INFRAERO and DAESP (2010)

Only 12 airports represent 78% of passenger traffic. Opportunities for decentralization may arise in mid-sized markets

Infrastructure GAPs (12 majors)

AIRPORT	Runway	Aircraft Parking	Passenger Terminal
Current Restriction	*8%*	*42%*	*50%*
Guarulhos	🟡 2030	🔴	🔴
Congonhas	🔴	🔴	🔴
Viracopos	🟡 2020	🟡 2014	🟡 2014
Galeão	🟢	🟢	🟡 2030
Santos Dumont	🟡 2030	🔴	🟡 2030
Confins	🟢	🟡 2020	🔴
Brasília	🟡 2030	🔴	🔴
Porto Alegre	🟡 2030	🟡 2030	🔴
Curitiba	🟢	🟡 2030	🟡 2020
Recife	🟡 2030	🟡 2030	🟡 2020
Salvador	🟡 2030	🔴	🟡 2014
Fortaleza	🟢	🟡 2030	🔴

Groups: SP (Guarulhos, Congonhas, Viracopos), RJ (Galeão, Santos Dumont), Others (Confins, Brasília, Porto Alegre, Curitiba, Recife, Salvador, Fortaleza)

RESTRICTIONS: 🔴 Nowadays 🟡 Before 20 years 🟢 After 20 years

Source: ITA and DECEA (2010)

According to recents studies, major airports show congestion signs

19

Airline	ASK* growth 2010 vs 2009
TAM	12 %
GOL	13%
Azul	93%
TRIP	76 %
PASSAREDO	89%

Expansion Rate

12,5%

75%

* Available Seats Kilometers
Source: ANAC Brasil

Airlines have to make strong investments in fleet expansion

2000

2010

- Widebody (> 210 seats)
- Narrowbody (120-210 seats)
- Jet (< 120 seats)
- Turboprop
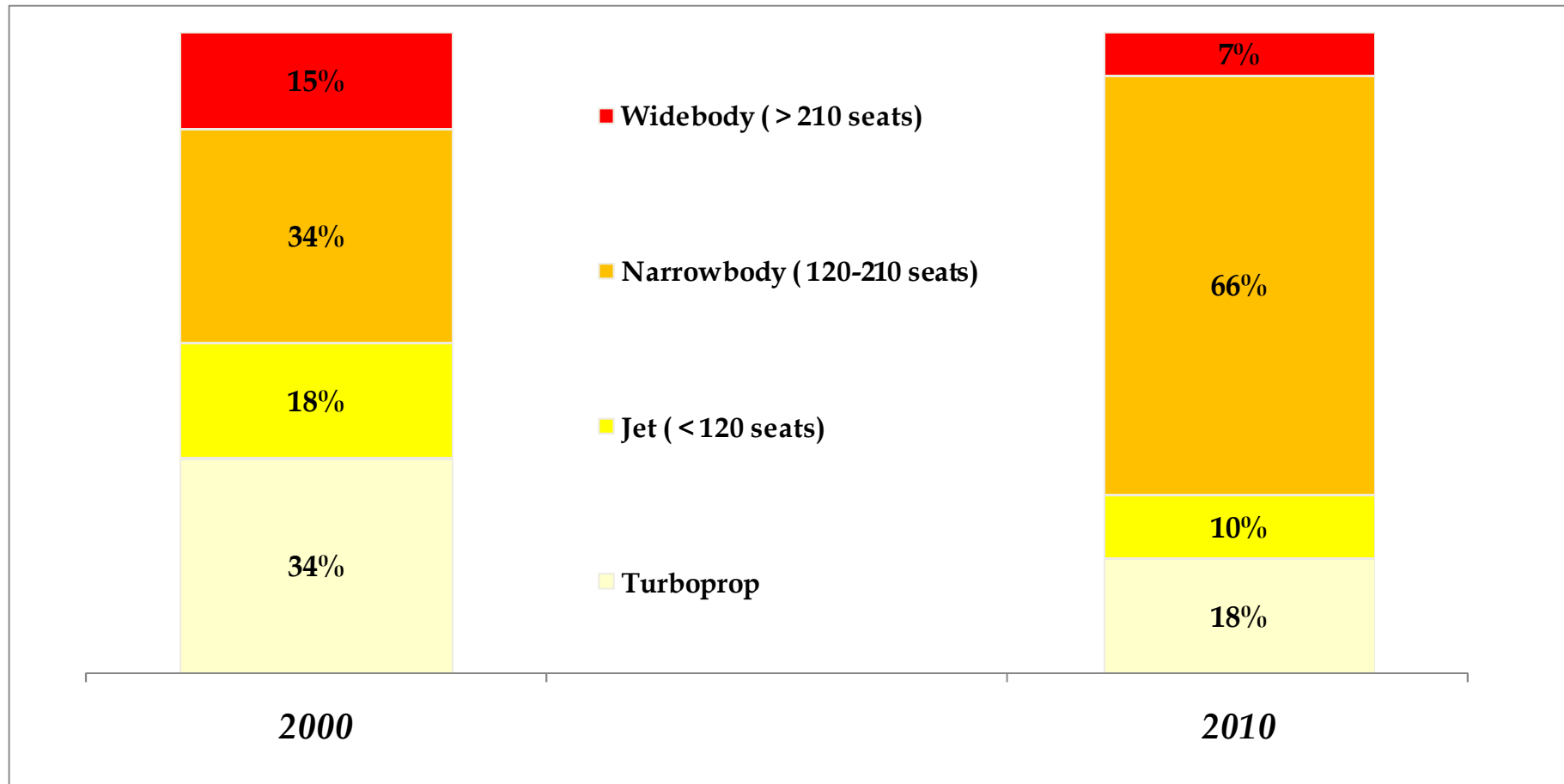
Source: Fleet PC (2010)

Unbalanced fleet means low flexibility and high potential for unprofitability

Comparison – Average size of the aircrafts (BRA x USA)
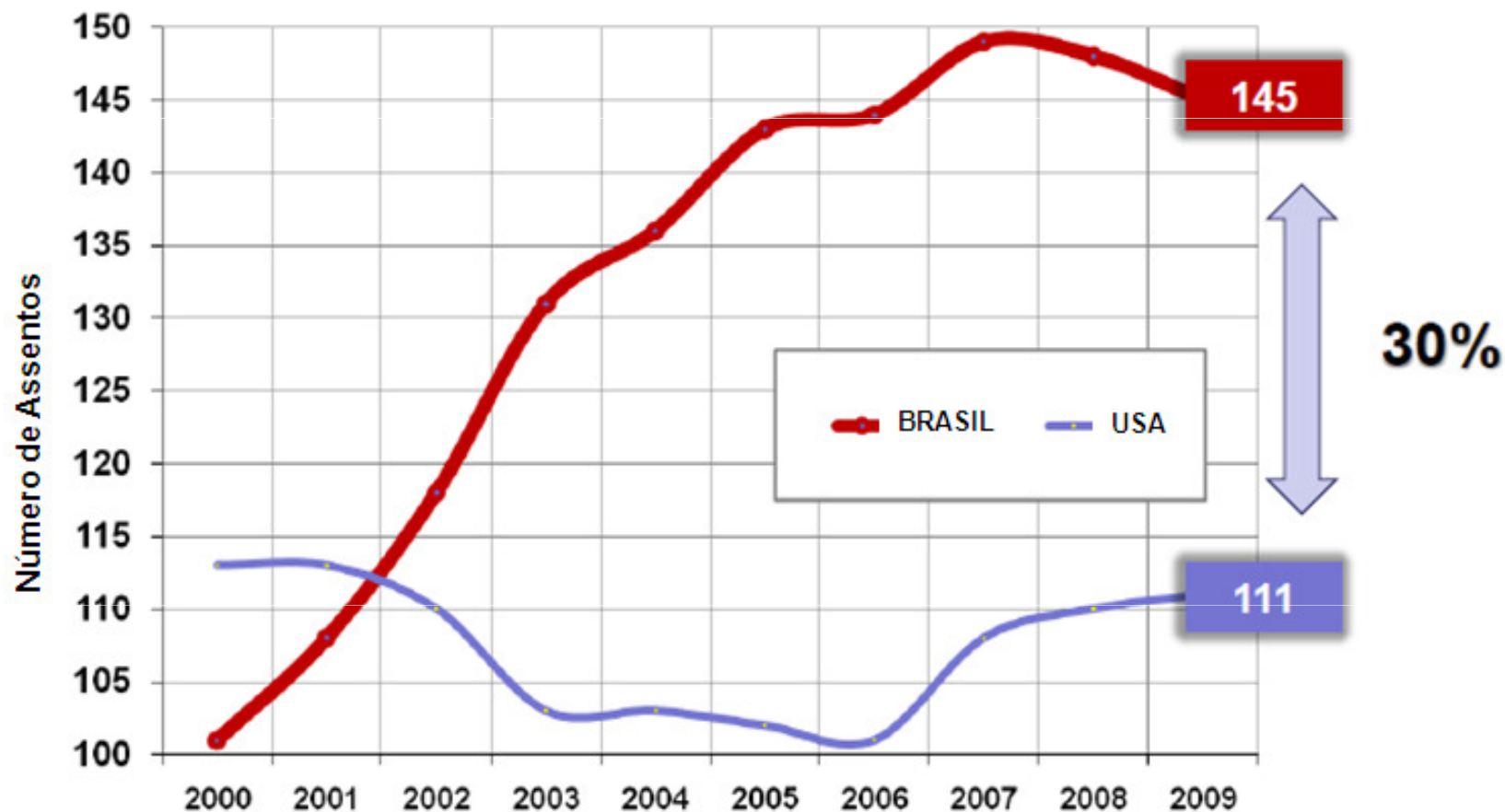
However load factors remain stable

Regional Market

TRIP's Market

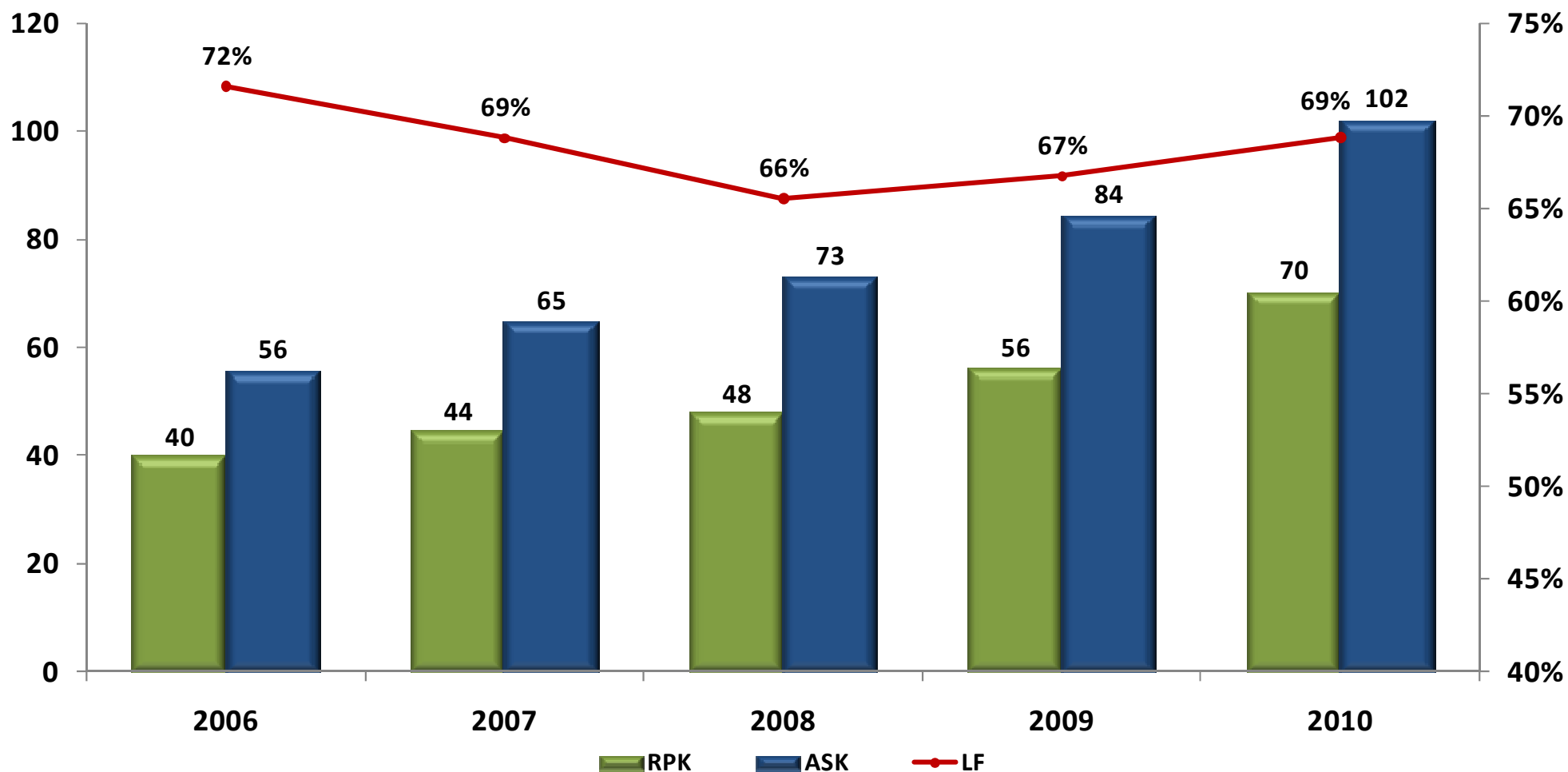✈ **Brazil:** According with the Brazilian aviation legislation, there is not a formal definition for a Regional Aviation Company. The Aviation companies are classified in scheduled airlines and non-scheduled airlines companies.

✈ **Worldwide concept:** it is defined by the number of seats in the aircraft (seat capacity): up to110 seats.

✈**Characteristics:** flights of low or mid density, as well as, for receiving passangers of others domestics and international airlines who come from bigger cities, carrying them to smaller cities (final destination).

Potencial growth of Regional Aviation

The Airplane transportation has a poor penetration in Brazilian market

65 million passangers use the airplane transportation.

Nowadays, more than 250 million of passangers use bus travels (inter+intra state), with interest routes which could be replaced by air travels.

Air Travels per Habitant

Canada	US	Australia	Chile	Mexico	Argentina	Brasil
2,69	2,24	2,10	0,37	0,36	0,36	0,34
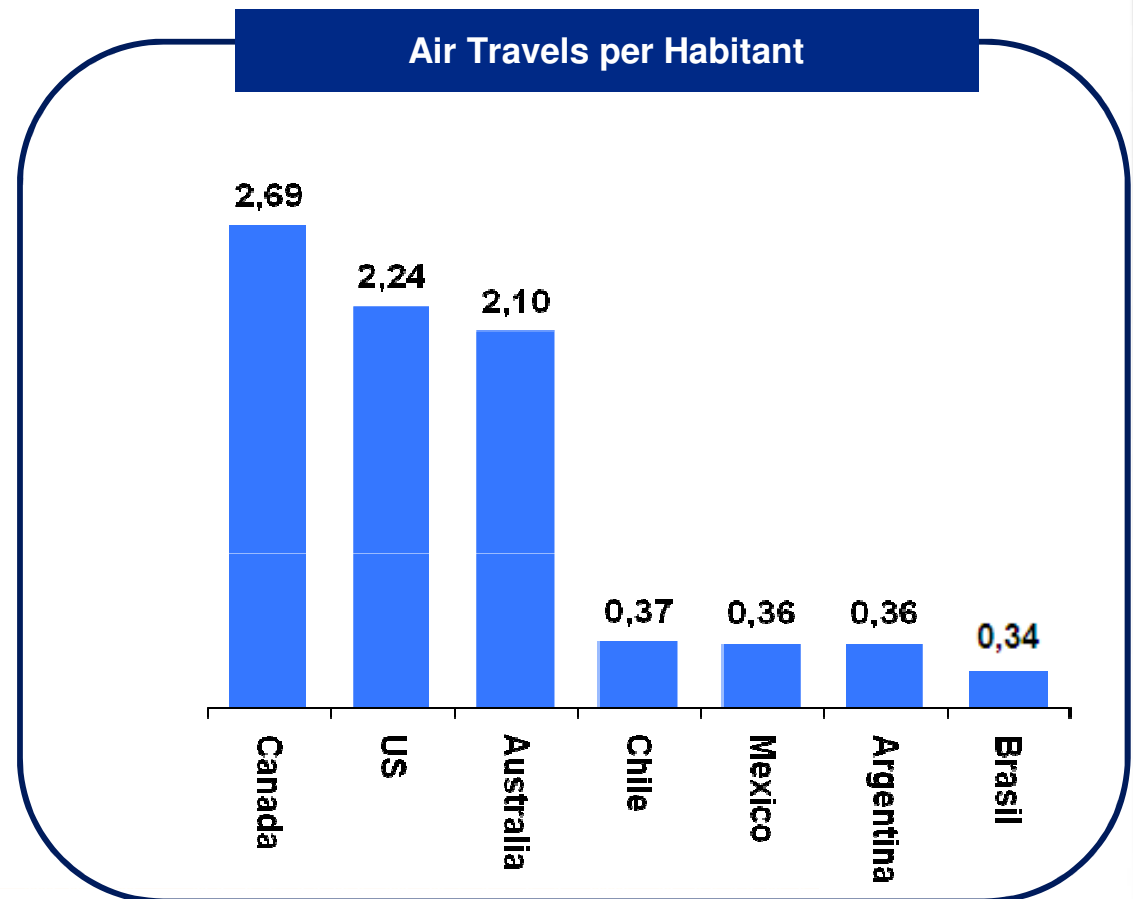
Source: ANAC

Turbo-prop's X Regional Jets: different costs for each stage length
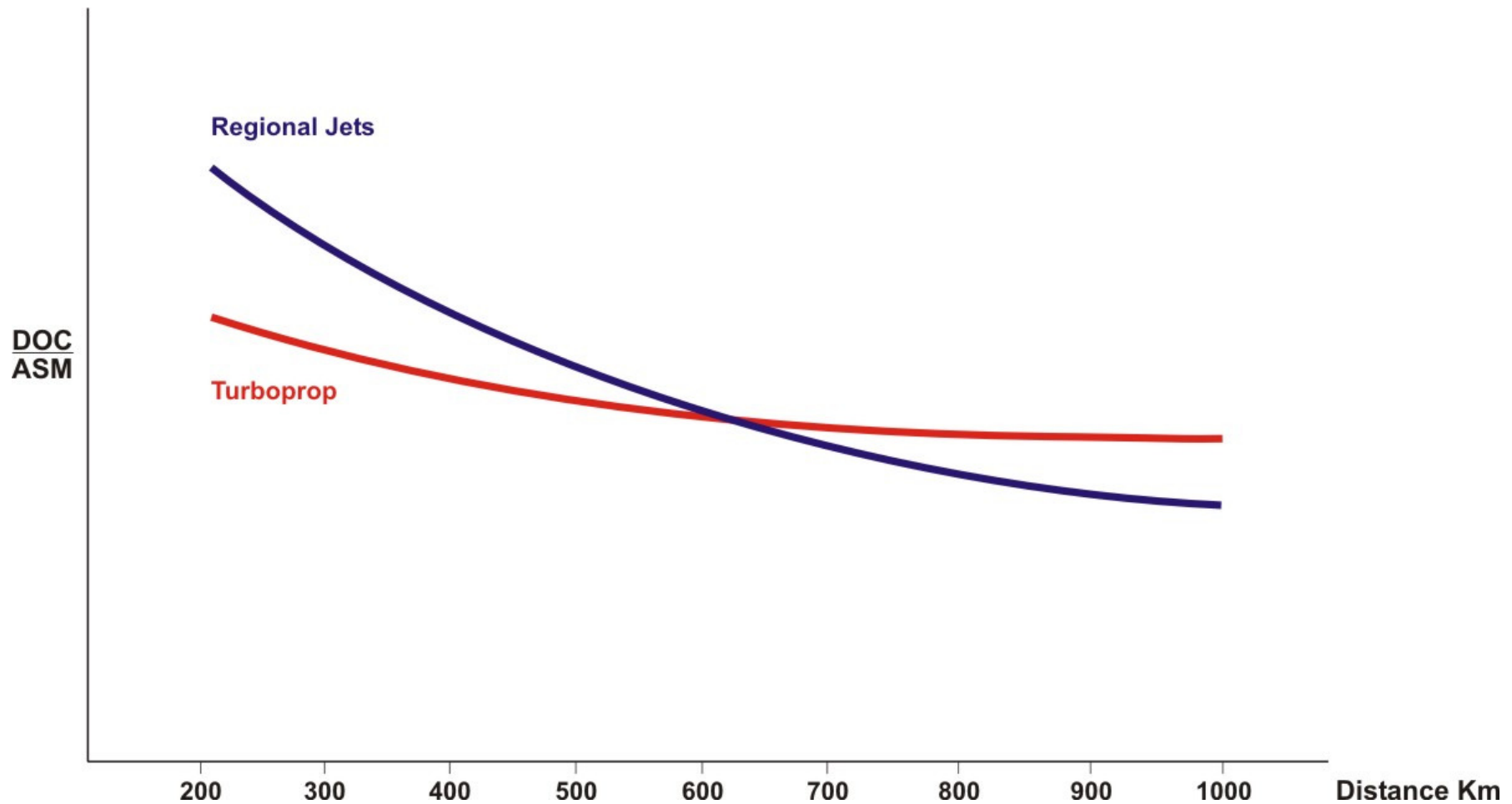
Declining CASK, with jets advantage from 600 KM stage lengths

What does the market offer ?

63% of the destinations have less than one daily frequency

Bar chart — Mercados (%) vs Daily Frequency:
- 0.5<: 44%
- 0.5-1: 19%
- 1-2: 14%
- 2-3: 7%
- 3-4: 4%
- 4-6: 6%
- 6-10: 3%
- >10: 3%
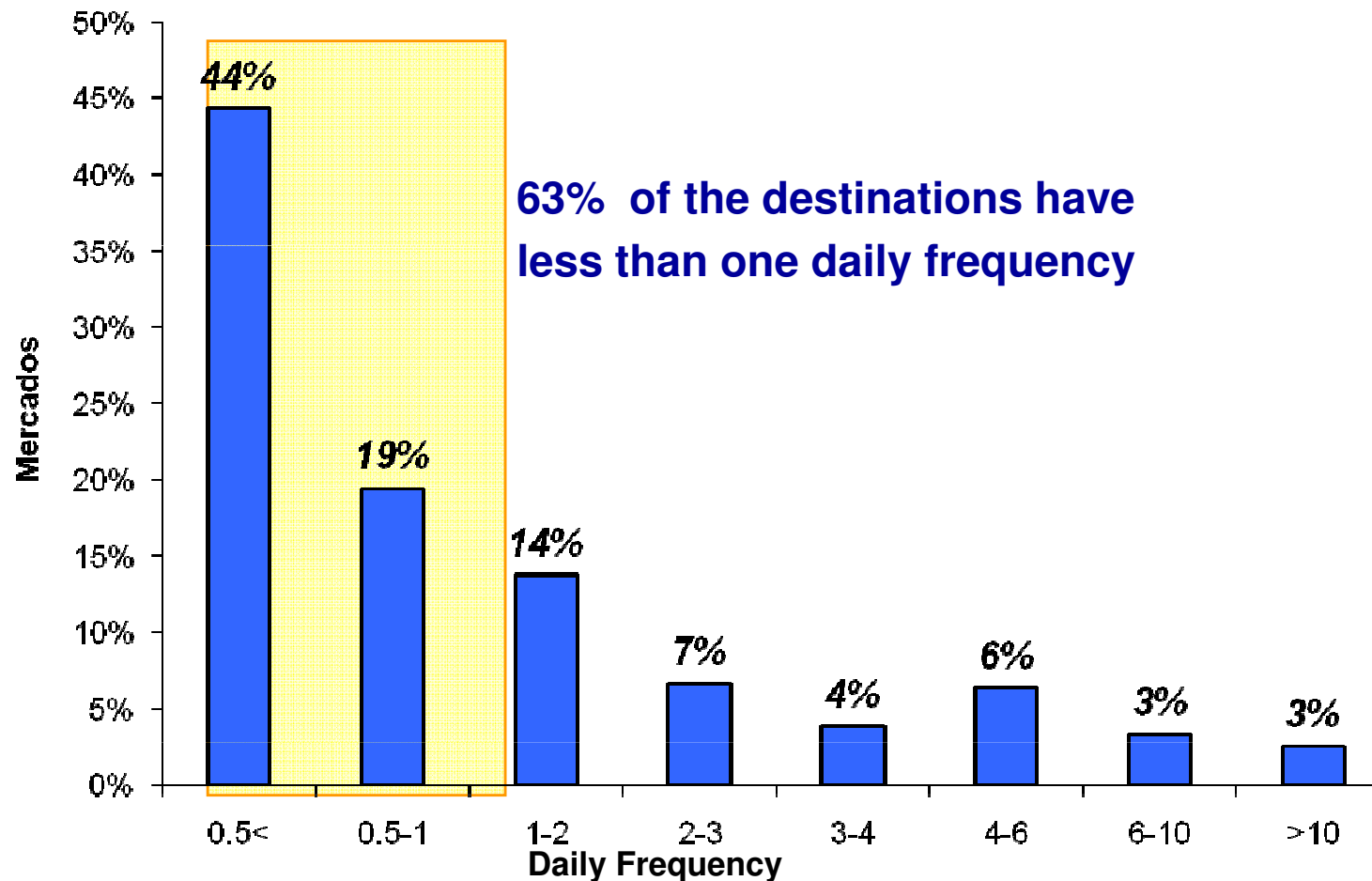
The combination of aircrafts size (narrowbodies), and typical Brazilian market demand, generates a net with fewer daily flights or with many stops and connections, in order to keep the load-factor and the desired breakeven

Conclusion - Market

High competition between 2 major Airlines – pressure for low unit costs
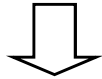
⇩

Resulting in a Intensive use of narrowbodies(737-800 and A320's), and no use of regional jets

⇩

With only narrowbody aircraft, markets with medium and low demand (20 and 250 PDEW) are poorly served

⇩

Intensive use of hub's with connection flights or flights with multiple stops

⇩ ⇩
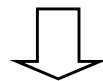
| Passenger wants direct and hub-bypass flights | Majors seeking rightsizing capacity, and hub development |
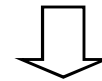
⇩ ⇩
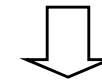
Major opportunity for Aircraft of 70-100 seats

Major Challenges

Airline Pillars

K – Capitalization

N – Network

A – Aircraft

T – Talent HR

Network Build-Up Process

Demand Forecast

O-D & Itinerary Construction

Fleet Assignment

Crew Rostering

Demand Forecast

Data Sources

Modelling Alternatives

Major Challenges

OFF-GDS CONTENT BY COUNTRY
% of direct air bookings
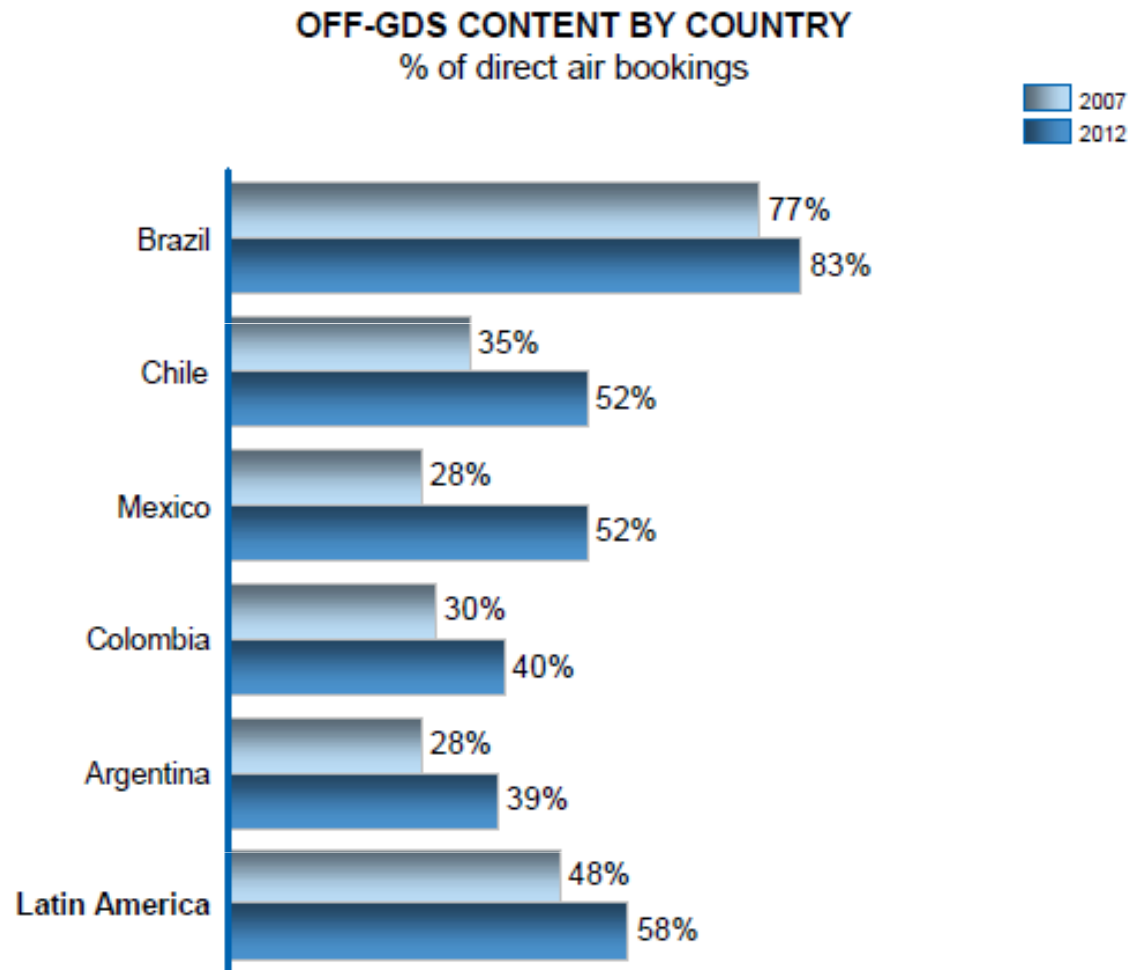
Source: Amadeus; team analysis

Marketing Information Data Transfer (MIDT) from Global Distribution Systems (GDS) represents only 17% of the actual bookings.

Anuário do Transporte Aéreo – Vol. I – Dados Estatísticos   **2007**

3.2 – TRÁFEGO DOMÉSTICO

a – TRÁFEGO POR ORIGEM E DESTINO

ORIGEM	DESTINO	LIGACOES	PAX	CARGA (KG)	CORREIO
MT ALTA FLORESTA	DF INT. DE BRASILIA	1	59	870	0
	BA INT. DOIS DE JULHO	1	3	47	0
	MT MARECHAL RONDON	318	3.331	46.042	0
	PE PETROLINA	1	1	37	0
	MT SINOP	316	3.023	34.271	0
PA ALTAMIRA	AM EDUARDO GOMES	449	3.233	49.935	0
	PA INT. VAL DE CAES	722	13.532	215.859	0
	PA ITAITUBA	395	913	14.485	0
	PA MONTE DOURADO	12	182	2.473	0
	AM PARINTINS	275	102	1.853	0
	PA SANTAREM	509	7.210	108.119	0
	PA TROMBETAS	97	3.117	47.255	0

Brazilian Civil Aviation National Agency (ANAC) published statistics are not complete and a year or more lag.
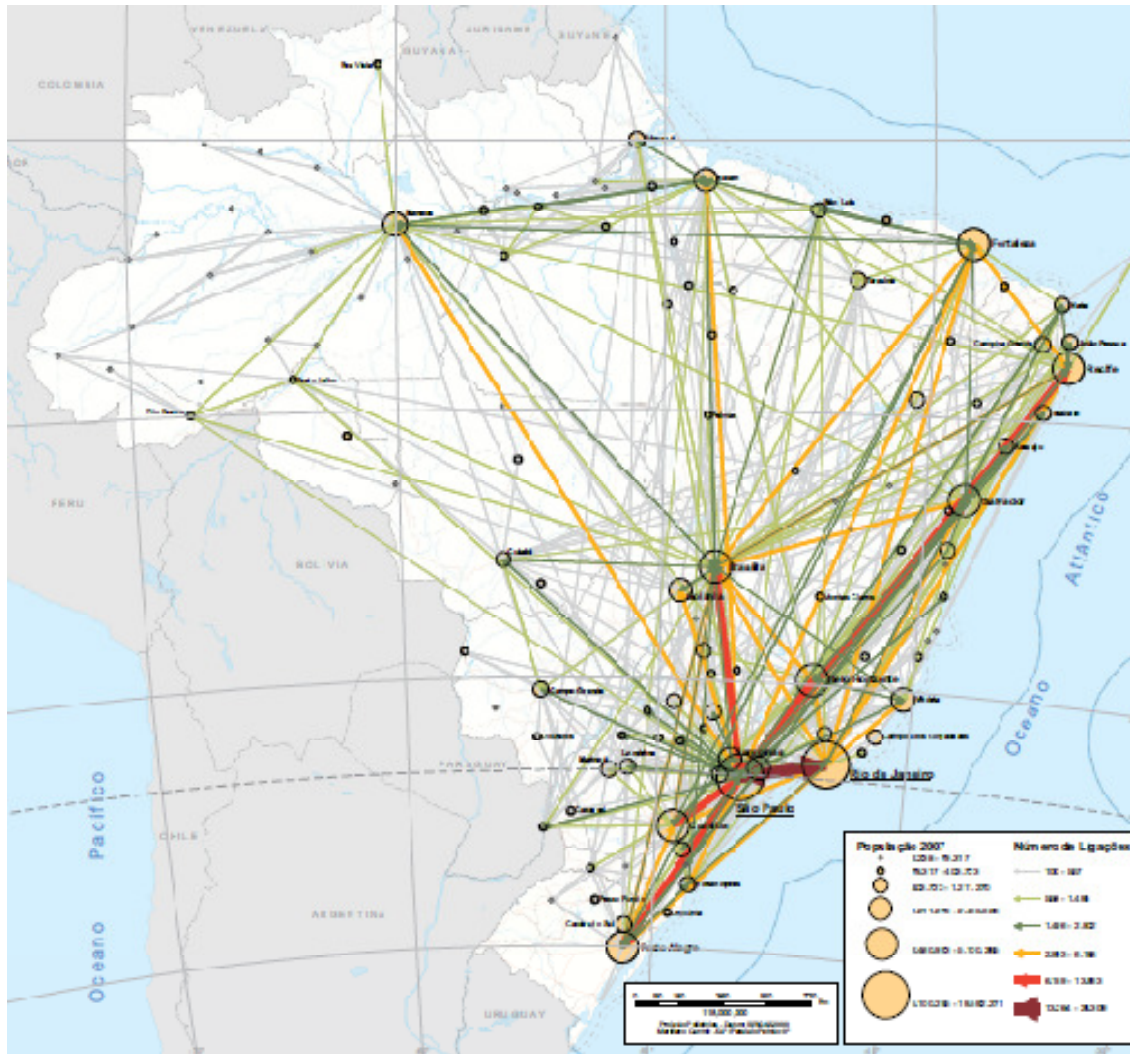
Brazilian Institut of Geography and Statistics (IBGE) publish periodic updates of geo-economic data, but also years lag.

Map shows the Air Transport network based on graph extraction of ANAC´s Origin-Destination Statistics on 2004.
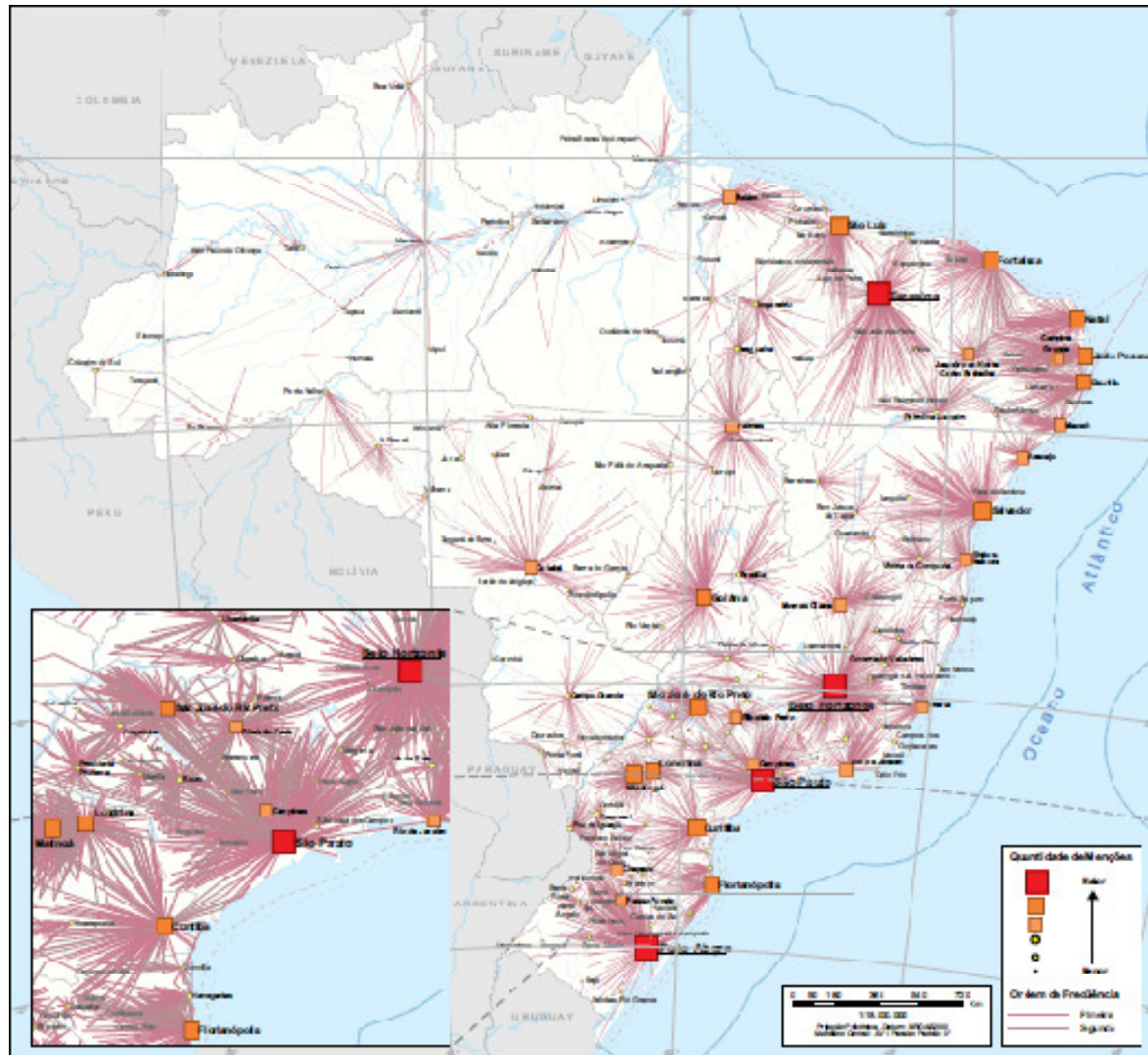
Map shows major airports influence areas based on IBGE´s survey, from which catchment areas could be inferred.
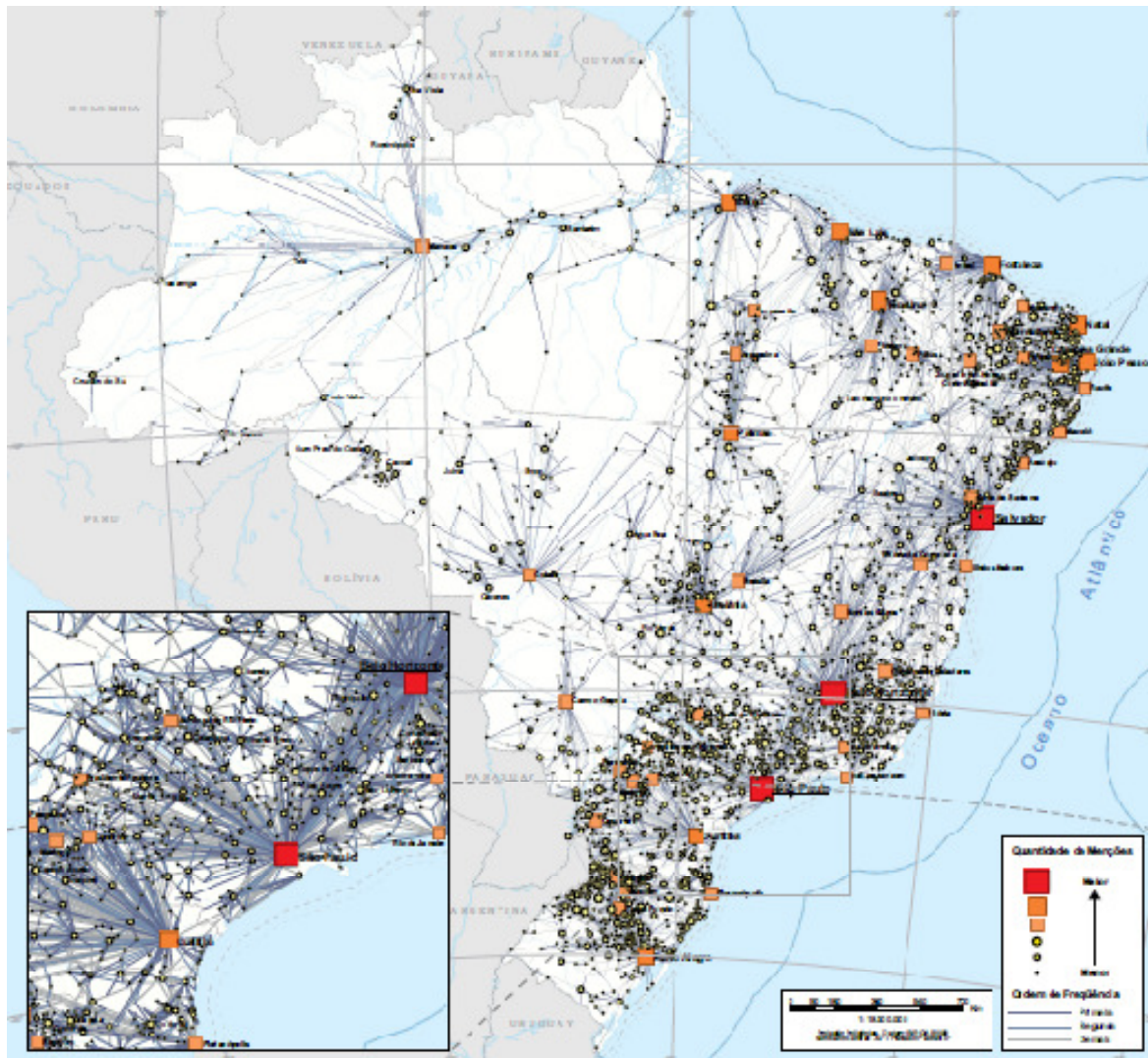
Map shows existing public transportation lines, other than air transport, indicating O&D potentials.

This information can also be helpful in determining airport catchment areas.

Mathematical Models

- Several modelling alternatives exist for forecasting demands:

    ✓ Trend extrapolation models: time series

    ✓ Econometrics: regressions (various)

    ✓ Artificial Intelligence and Heuristics; and

    ✓ Gravitational Models.

As, an example, let´s consider TRIP lines in the State of Minas Gerais, where 10 destinations are operated from **Belo Horizonte** (State Capital).

Data source: IBGE and ANAC, 2007.

Airport	ICAO	Airport Category	Population	GDP (R$)	Distance in Km (from BH)	ANAC PAX Yearly Flow
Belo Horizonte	SBBH	National	5,100,265	64,764,628,320	0	0
Araxá	SBAX	Regional	87,764	1,439,547,065	316.5	9,058
Diamantina	SNDT	Tourist	44,746	184,073,829	182.6	N/A
Governador Valadares	SBGV	Regional	260,396	2,014,576,785	232.0	26,817
Ipatinga	SBIP	Regional	452,903	6,861,869,308	158.8	25,471
Juiz de Fora	SBJF	Regional	529,166	5,513,943,678	223.5	380
Montes Claros	SBMK	Regional	352,384	2,573,172,332	349.6	28,491
Patos de Minas	SNPD	Local	133,054	1,217,785,731	297.0	3,011
São Joao del Rei	SNJR	Tourist	81,918	600,106,145	140.3	2,298
Uberaba	SBUR	Regional	287,760	4,155,077,788	419.8	11,637
Uberlandia	SBUL	National	608,369	9,190,673,074	460.9	23,048

Gravity Model Forecasting

Pax Flow (Gravity Model)

$$F \sim [\ (P*G)/D\wedge2\ ]\ \wedge\ 0,21$$
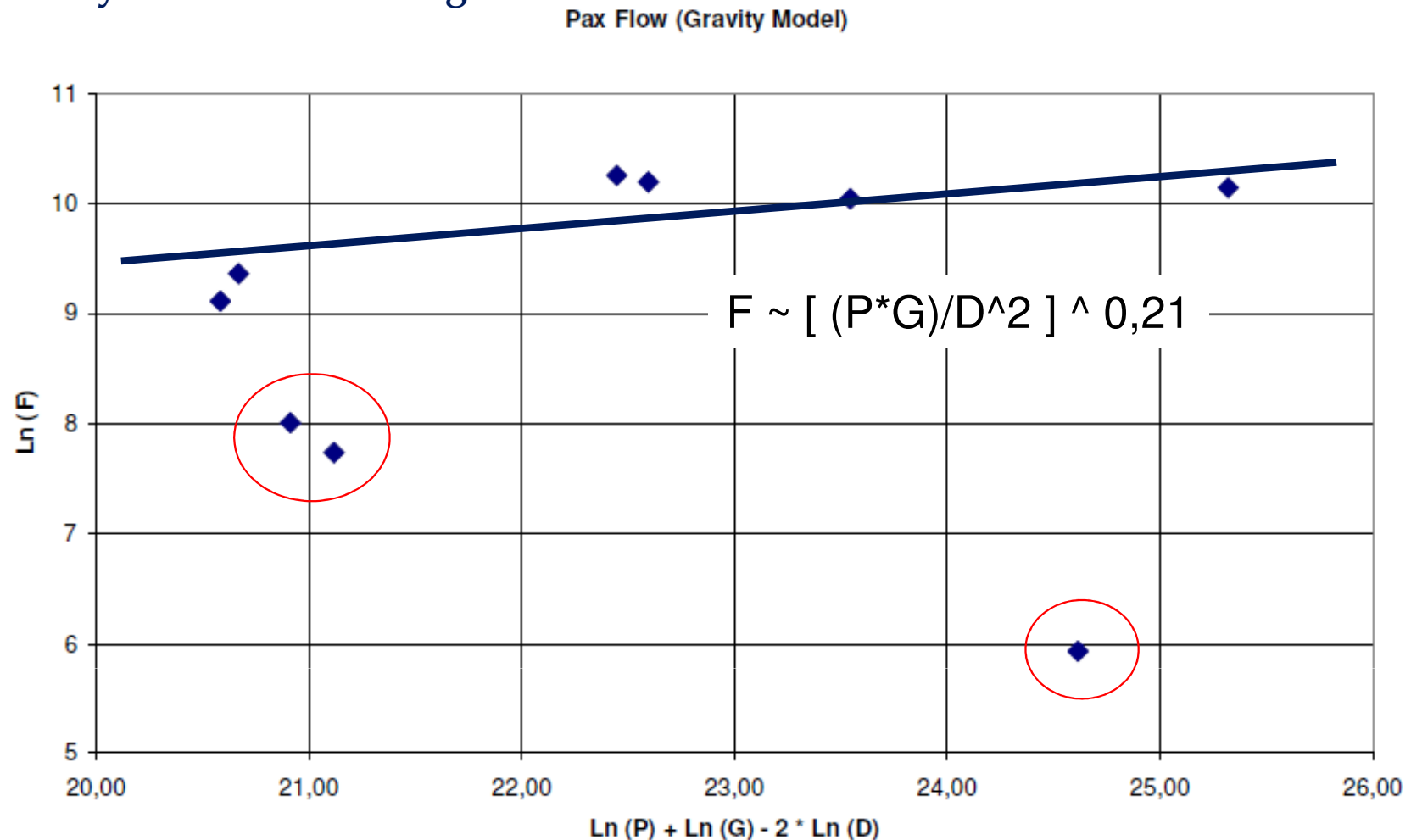
- Data presents poor correlation, specially for Local and Tourist airport categories. Excluding those points, a significant regression line is obtained (although a model cannot be obtained for such small sample).

Summing up

- Challenges of demand forecasting for new destinations are:

  ✓ Lack of reliable and comprehensive air traffic flow data source for model calibration, as MIDT is loosing participation and official statistics are not enough reliable and readily available;

  ✓ Immature regional air transport market, with significant contrasts among airport categories in destinations throughout the country. Some have no previous air transport history;

  ✓ Yet undetermined airport catchment areas; and

  ✓ Lack of reliable geo-economic data focused on transport demand forecasting.

TRIP Linhas Aéreas
Obrigado

Victor.Celestino@voetrip.com.br
(19) 2139-3166 / (61) 8122-1662