



XXX

INFRASTRUCTURE SHARING

An Opportunity and a challenge

XXX

ECONOMIC PRINCIPLES

Infrastructure commoditization

Specialization

Scale and scope economies

Exhaustion of competition for infrastructure

Differentiation and diversification

Investment return

Cost reduction



Why is infrastructure sharing important for Brazil?

POPULATION

80 % cities
< 30 k pop.

AREA

8.510.000
km²

BROADBAND PENETRATION

High
dispersion

MOBILE COVERAGE

High
dispersion

5G

CAPEX
intensive

FIBER

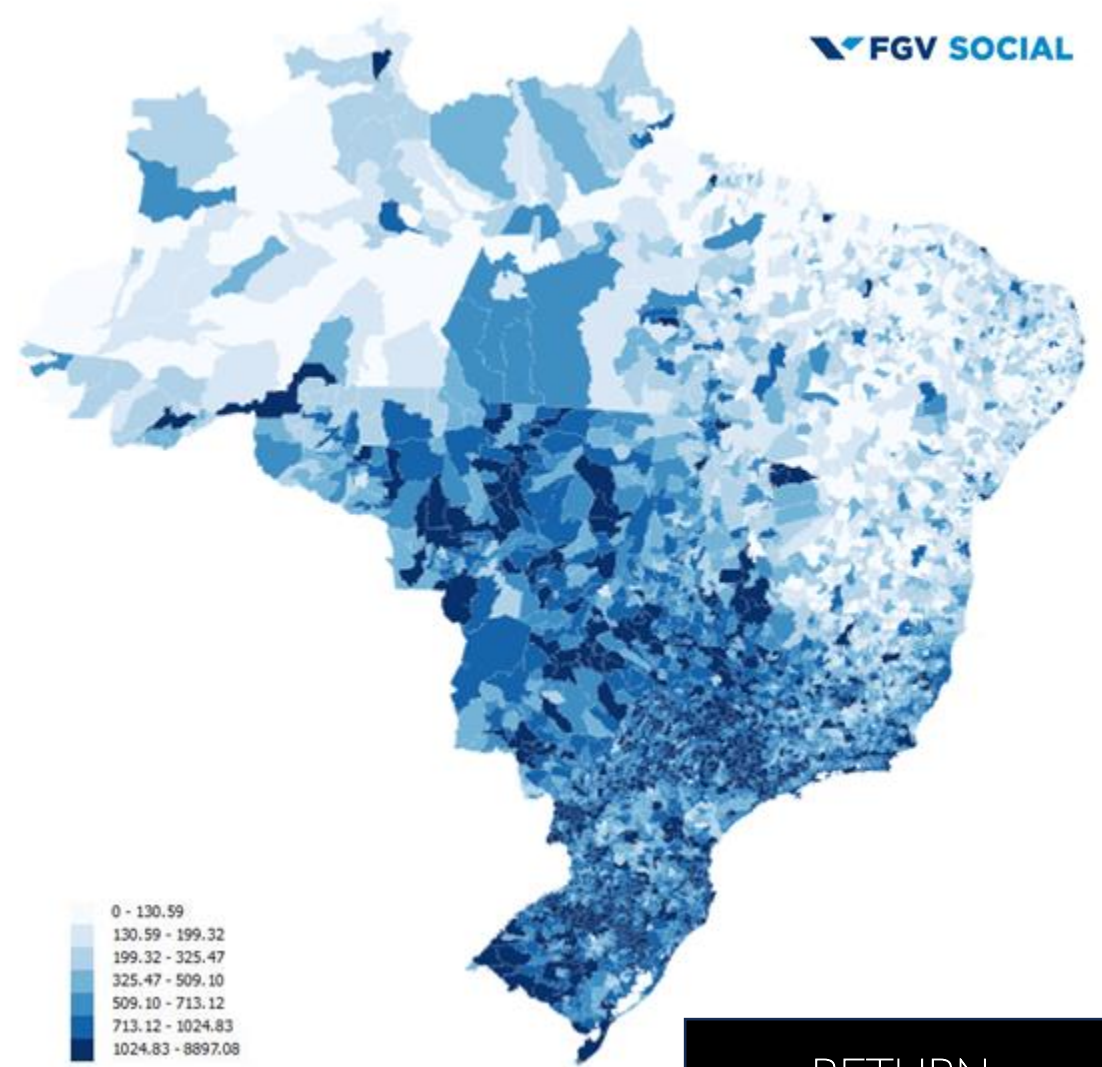
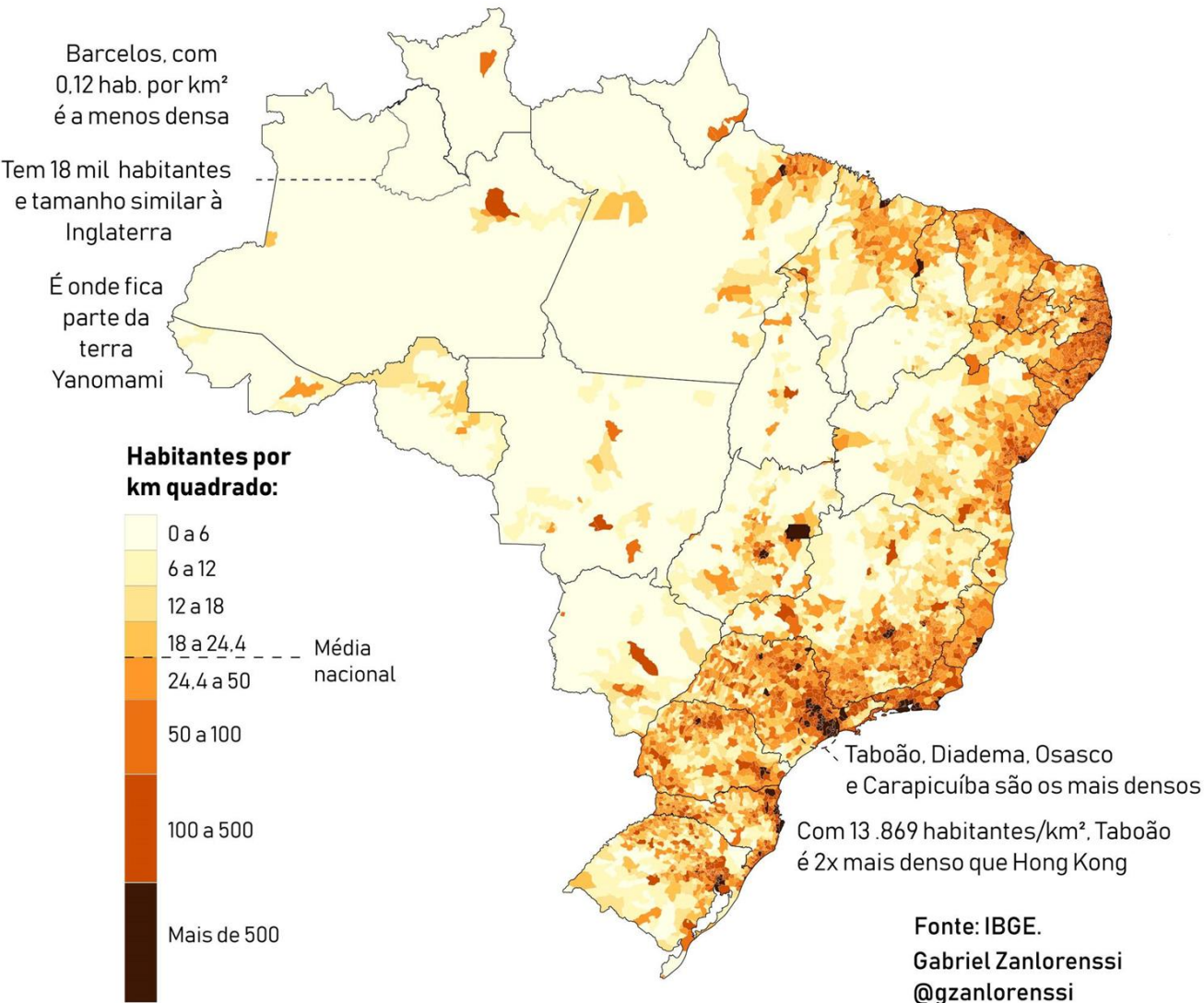
Rapid
expansion



Population

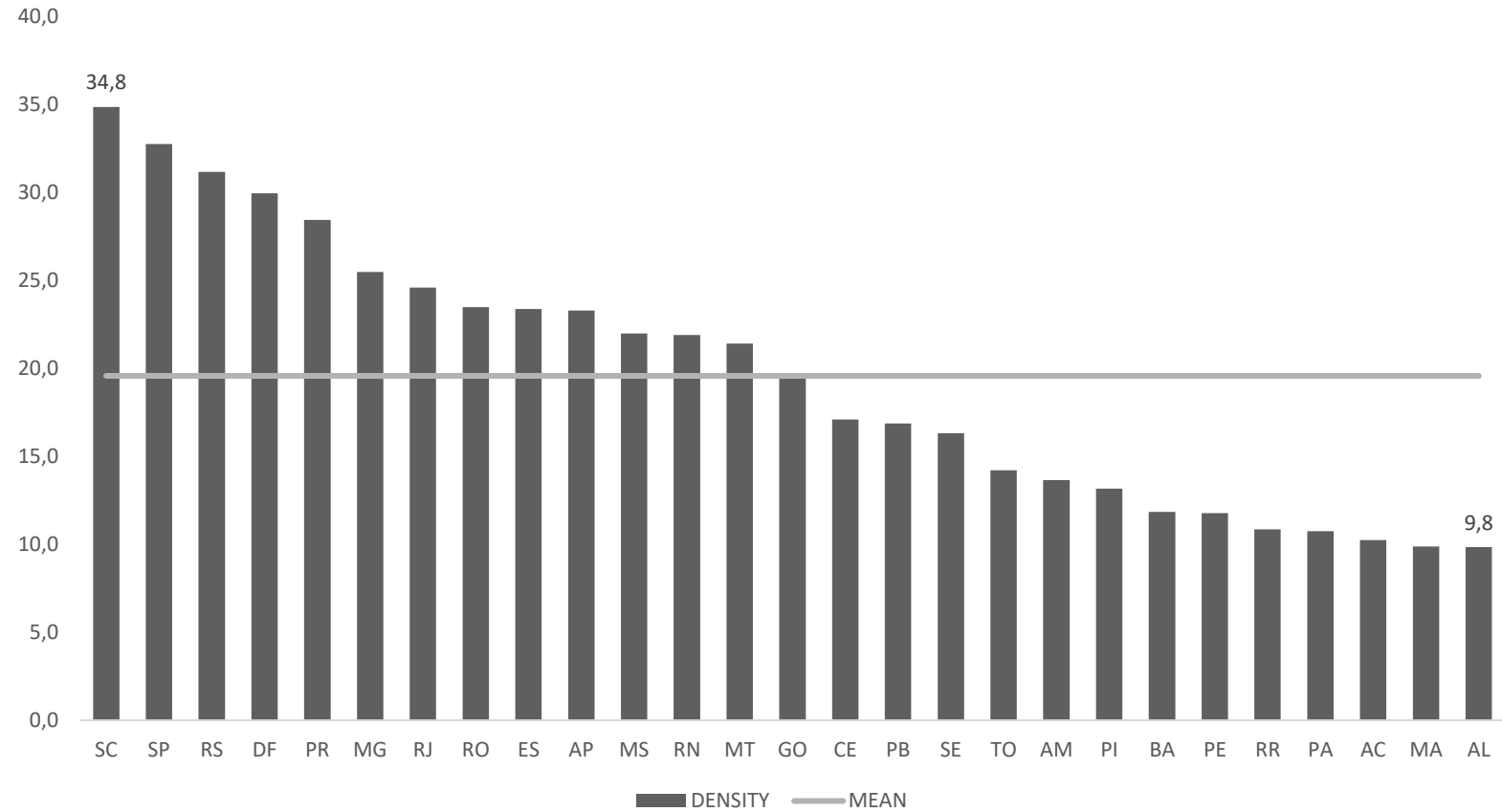
GDP

FGV SOCIAL

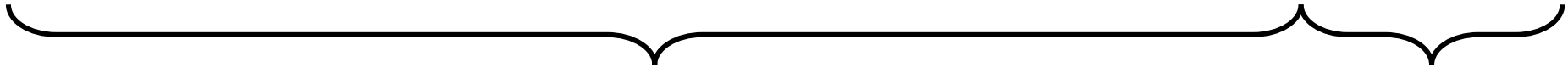
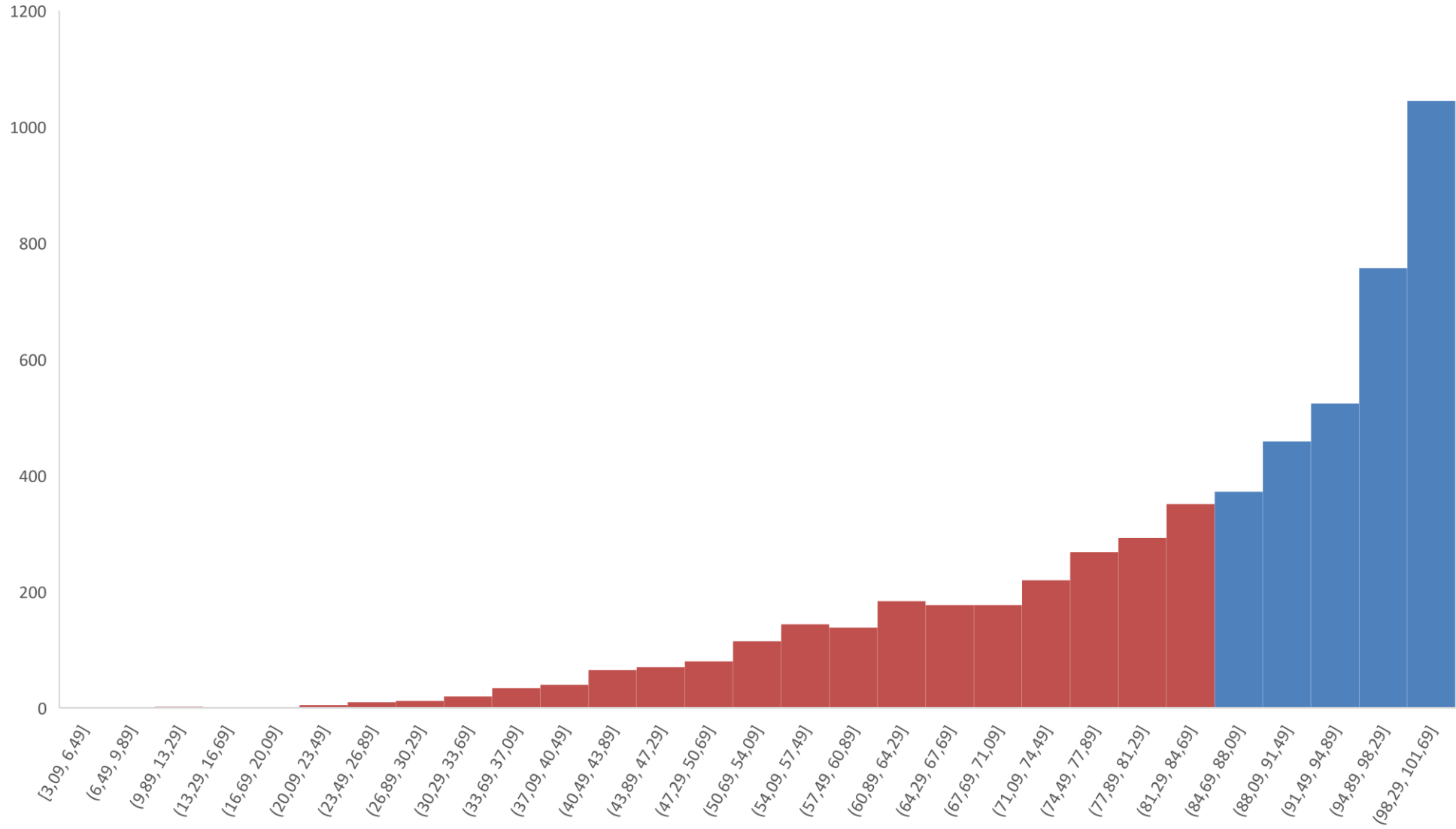


RETURN

Broadband density (access per 100 inhabitants)



Histogram: population covered with mobile service



RETURN

44%

2428

56%

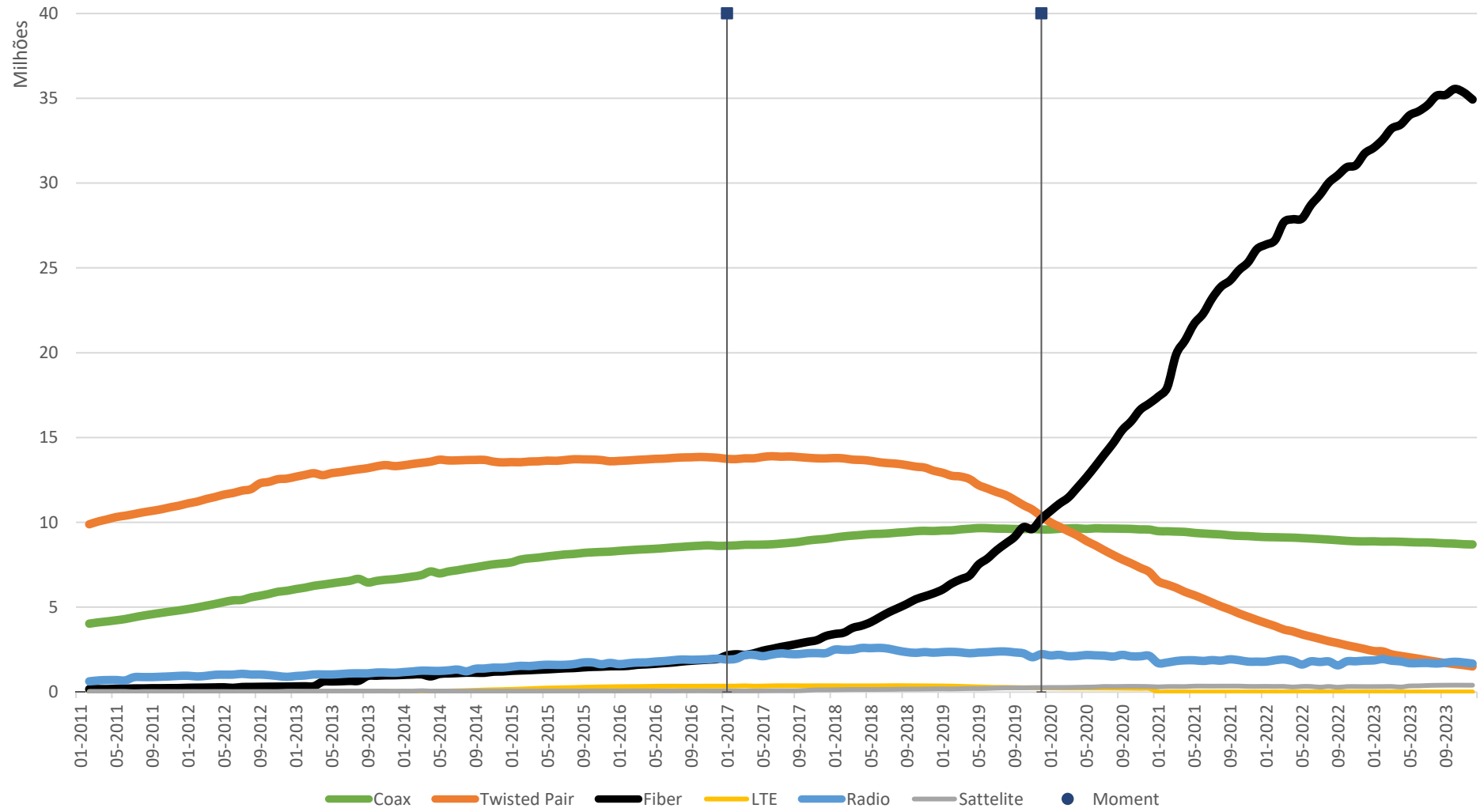
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5G auction goals

5G STAND ALONE		# of cities	2022	2023	2024	2025	2026	2027	2028	2029	2030
3,5 GHZ NATIONAL LOTS	Capital cities	27	100% 1 BTS/100k	100% 1 BTS/50k	100% 1 BTS/30k	100% 1 BTS/10k					
	> 500 k inhab.	26				100% 1 BTS/10k					
	Up to 500 k inhab.	102					100 % 1 BTS/15k				
	Up to 200 k inhab.	171						100 % 1 BTS/15k			
	Up to 100 k inhab.	848							50%	100%	
3,5 GHZ REGIONAL LOTS	Below 30 k inhab.	4396					30%	60%	90%	100%	
ADDITIONAL OBLIGATIONS	Villages	1699									100%

RETURN

Broadband accesses per technology



RETURN



Laws and regulations

SPECTRUM SHARING

Requires prior approval







PASSIVE INFRASTRUCTURE SHARING

Usually does not require prior approval

WHOLESALE INFRASTRUCTURE PRODUCTS

Ex-ante regulation based on SMP analysis



- 2012  Competition Goals General Plan (Regulation n° 600/2012)
- 2014  Passive infrastructure sharing between electric, oil and telecommunications sectors (Joint Resolution n° 4/2014)
- 2015  Antenna's law (Law n° 13.116/2015)
- 2017  Regulation for spectrum use (Regulation n° 671/2016)
- 2017  Regulation for infrastructure sharing to support the provision of telecommunications service (Regulation n° 683/2017)
- 2018  Competition Goals General Plan 1st revision (Regulation n° 694/2018)



MOBILE INFRA SHARING