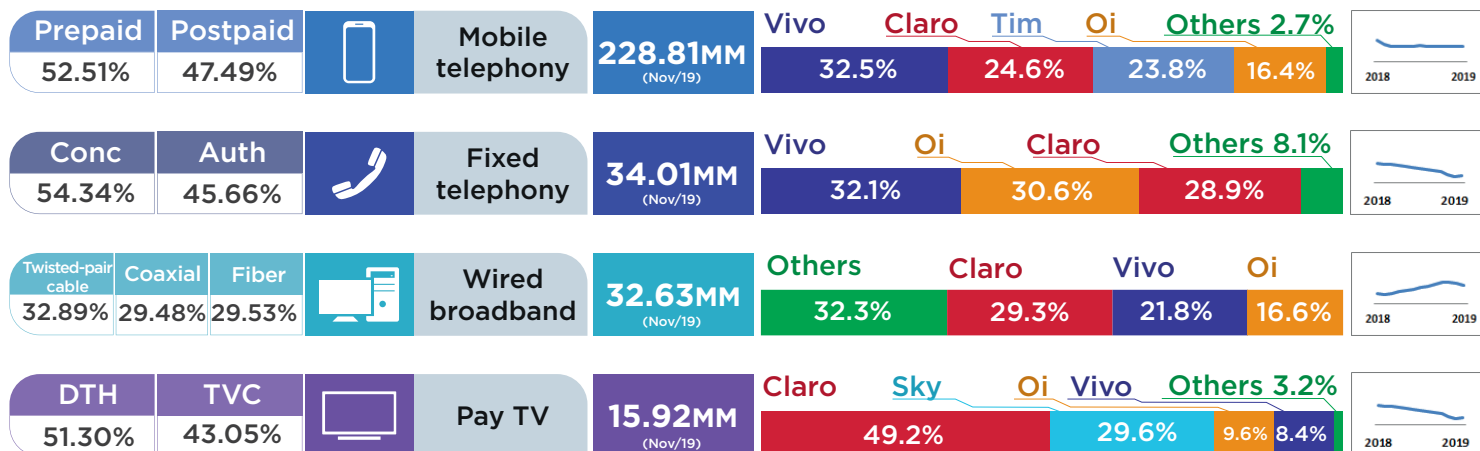


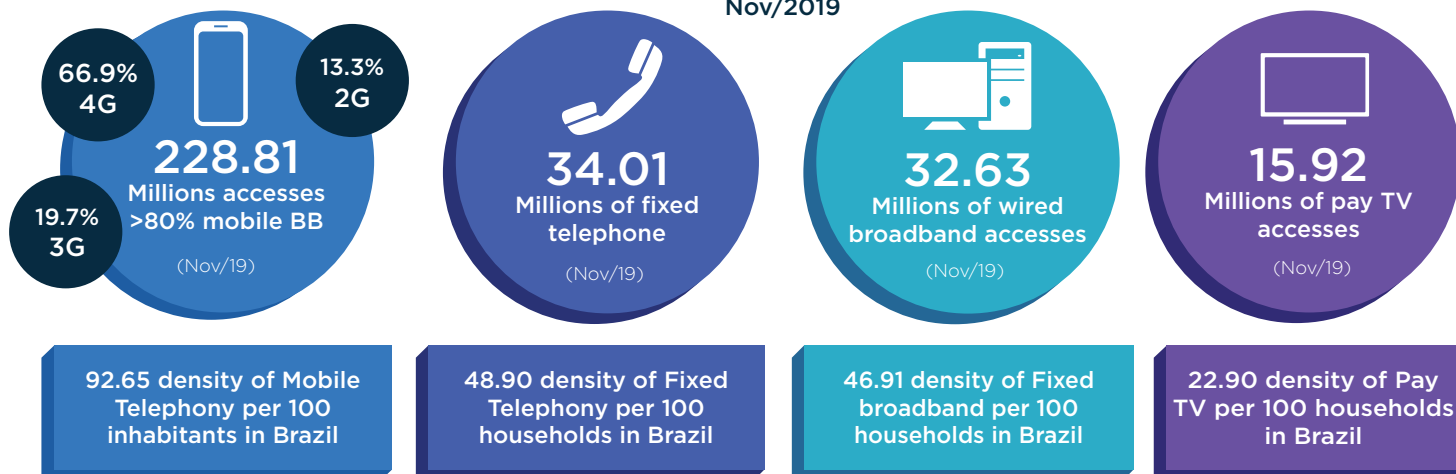


OVERVIEW OF TELECOMMUNICATION IN BRAZIL NOVEMBER/2019

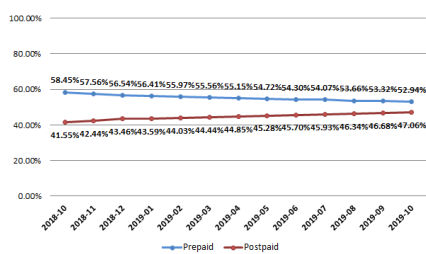


311.38 Millions

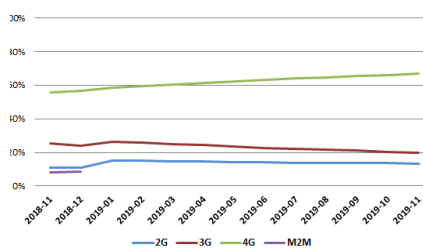
contract of telecom services in
Nov/2019



Prepaid x Postpaid

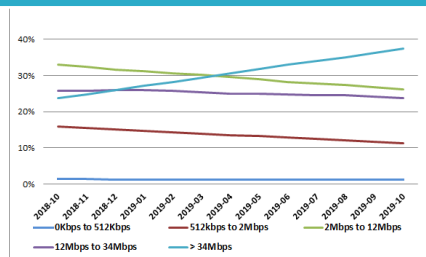


Technological Evolution of
Mobile Telephony*

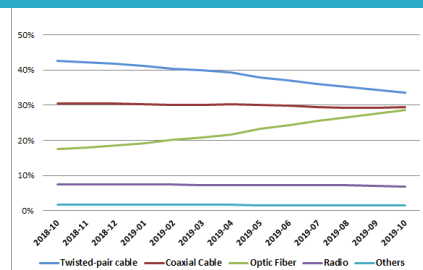


* From 2019 onwards M2M is no longer part of the technology dimension.

Broadband Internet Transfer
Rate Evolution



Technological Evolution of
Broadband Internet



MOBILE TELEPHONY, PER GROUP AND TECHNOLOGY

Group	Accesses	4G	3G	2G	Market Share	Complaints Index
Claro	56,211,948	36,445,631	18,131,085	1,635,232	24.57%	0.38
Oi	37,592,622	24,789,133	5,515,574	7,287,915	16.43%	0.44
Tim	54,468,910	38,531,446	9,023,980	6,913,484	23.81%	0.64
Vivo	74,314,355	48,368,490	11,902,321	14,043,544	32.48%	0.36
Others	6,218,791	4,982,224	596,796	639,771	2.72%	Not applicable
Total	228,806,626	153,116,924	42,814,701	30,519,946	100%	
Percentage	100%	66.92%	19.74%	13.34%		

ON SERVICE ACCESSSES, FIXED TELEPHONY

Group	Accesses	Market Share	Complaints Index
Vivo	10,922,064	32.11%	1.24
Oi	10,485,618	30.83%	1.56
Claro	9,847,001	28.95%	0.43
Others	2,758,037	8.11%	Not applicable
Total	34,012,720	100%	

ACCESSSES PER TYPE OF GRANTS, FIXED TELEPHONY

Type	Accesses	Percentage
As a public service concession	18,483,707	54.34%
As a private service	15,529,013	45.66%
Total	34,012,720	100%

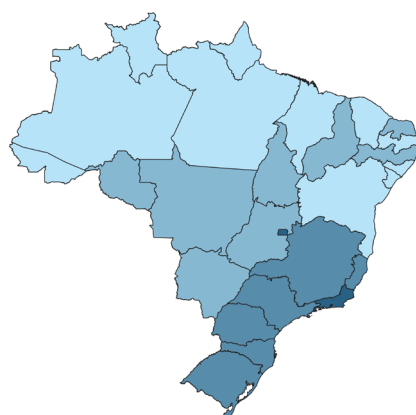
WIRED BROADBAND, PER GROUP AND TECHNOLOGY

Group	Accesses	Twisted-pair cable	Coaxial cable	Fiber	Radio	Others	Market Share	Complaints Index
Oi	5,418,030	4,452,656	0	933,301	18,502	13,571	16.60%	2.05
Vivo	7,099,807	4,551,707	0	2,548,100	0	0	21.76%	1.90
Claro	9,563,069	77,249	9,216,349	244,965	14,848	9,658	29.31%	1.29
Others	10,705,051	1,650,434	404,660	5,908,332	2,101,601	485,091	32.33%	Not applicable
Total	32,631,024	10,732,046	9,621,009	9,634,698	2,134,951	508,320	100%	
Percentage	100%	32.89%	29.53%	29.48%	6.54%	1.56%		

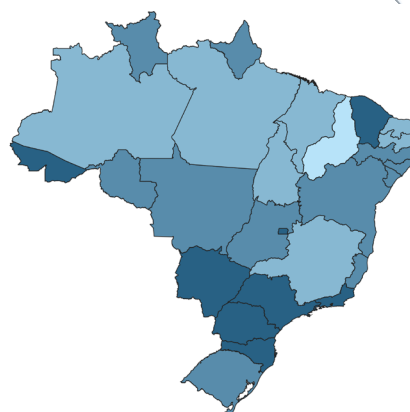
PAY TV, PER GROUP AND TECHNOLOGY

Group	DTH	FTTH	MMDS	TVA	TVC	Accesses	Market Share	Complaints Index
Claro	1,258,833	0	0	0	6,580,701	7,839,534	49.23%	1.34
Oi	1,471,994	55,222	0	0	0	1,527,216	9.59%	1.70
SKY	4,710,283	0	0	0	0	4,710,283	29.58%	1.88
Vivo	635,680	700,986	0	0	0	1,336,666	8.39%	1.97
Outsiders	92,894	142,343	270	64	275,614	511,185	3.21%	Not applicable
Total	8,169,684	898,551	270	64	6,856,315	15,924,884	100%	
Percentage	51.30%	5.64%	0%	0%	43.05%	100%		

Base Stations (BS) per inhabitants



Transport Network - Fiber presence



Cities with Optic Fiber (%)

