

# MCom

MINISTÉRIO DAS COMUNICAÇÕES

Hermano Tercius  
Secretary of Telecommunications



# Agenda



New PAC. Decree nr. 11,632/2023



National Program to Improve Quality and Mobile Broadband Coverage (ConectaBR)  
Ordinance MCOM nr. 10,787/2023



Enec – National Connected Schools Strategy  
Decree nr. 11,713/2023



National Pole Sharing Policy  
MCOM/MME Interministerial Ordinance No. 10,563/2023



## New Acceleration and Growth Program: Development and Sustainability



INCLUSÃO DIGITAL E CONECTIVIDADE

R\$ **27,9** Bi

investimento

R\$ **20,3** Bi

2023 a 2026

R\$ **7,6** Bi

Pós 2026



CONECTIVIDADE NAS  
ESCOLAS E NAS  
UNIDADES DE SAÚDE



5G  
↓↑  
EXPANSÃO DO 4G E  
IMPLANTAÇÃO DO 5G



INFOVIAS



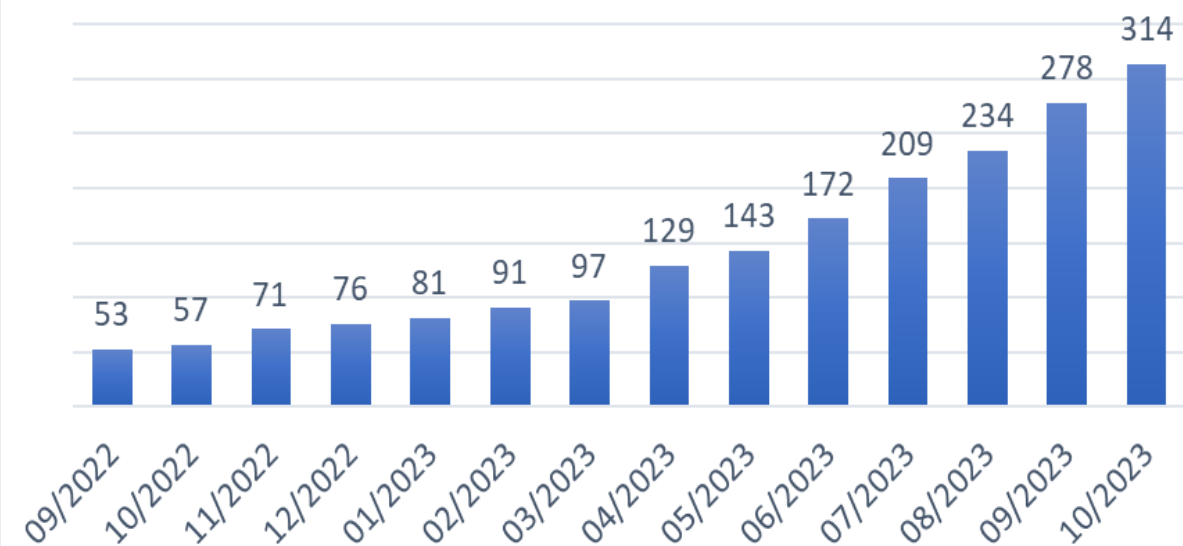
SERVIÇOS  
POSTAIS



TV DIGITAL

- ❖ 5G deployed in 100% of state capitals and the Federal District
- ❖ Operators are anticipating some obligations of the 5G Auctions Rules:
  - Brazil is one of the top leaders in 5G Standalone (Release 16).
  - More than 314 municipalities with 5G

Municípios com serviço 5G \*\*



# 5G Deployment (rights and obligations)

## 3.5 GHz Band Usage (rights of the Operator)

1. 30/Jun/2022: Capitais and DF;
2. 01/Jan/2023: > 500k inhabitants;
3. 30/Jun/2023: > 200k inhabitants & 25% of municipalities of Annex XIV-B;
4. 30/Jun/2024: > 100k inhabitants & 50% of municipalities of Annex XIV-B;
5. 30/Jun/2025: 75% of municipalities of Annex XIV-B;
6. 01/Jan/2026: all other municipalities;

Oferta 5G (stand alone)		N° de municípios	2022	2023	2024	2025	2026	2027	2028	2029	2030
<b>Faixa de 3,5 GHz Lotes Nacionais</b>	Capitais	27 municípios	31.Jul 1 ERB/ 100 mil hab	31.Jul 1 ERB/ 50 mil hab	31.Jul 1 ERB/ 30 mil hab	31.Jul 1 ERB/ 10 mil hab					
	Acima 500 mil hab.	26 municípios				31.Jul 1 ERBs/ 10 mil hab					
	Até 500 mil hab.	102 municípios					31.Jul 1 ERBs/ 15 mil hab				
	Até 200 mil hab.	171 municípios						31.Jul 1 ERBs/ 15 mil hab			
	Até 100 mil hab.	848 municípios							50% até 31. Jul 1 ERBs/ 15 mil hab	100% até 31. Jul 1 ERBs/ 15 mil hab	
<b>Faixa de 3,5 GHz Lotes Regionais</b>	Abaixo de 30 mil hab.	4396 municípios					30% até 31.dez	60% até 31.dez	90% até 31.dez	100% até 31.dez	
<b>Obrigações adicionais (ágio)</b>	Localidades	1699 municípios									100% até 31.dez com pelo menos 1 ERB 5G

# 5G Status in Brazil

Municípios filtrados

5.570

Liberados (ou antecipados)

3.079

Planejamento aprovado

599

A serem planejados

1.892

População abrangida

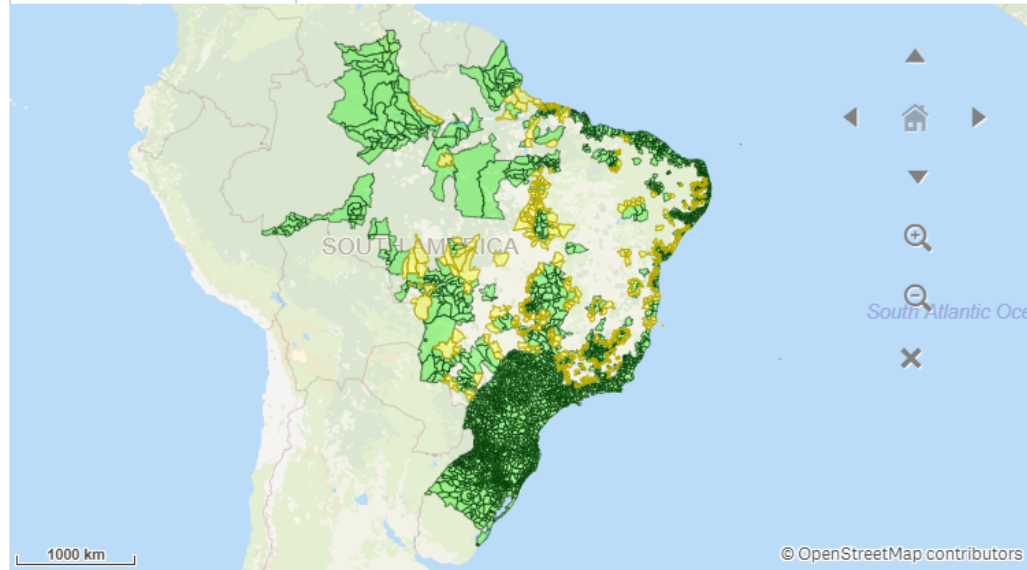
213,3M



Status liberação para uso da faixa 3,5 GHz pelo 5G

Municípios planejamento aprovado  
Camada de área

Municípios liberados  
Camada de área

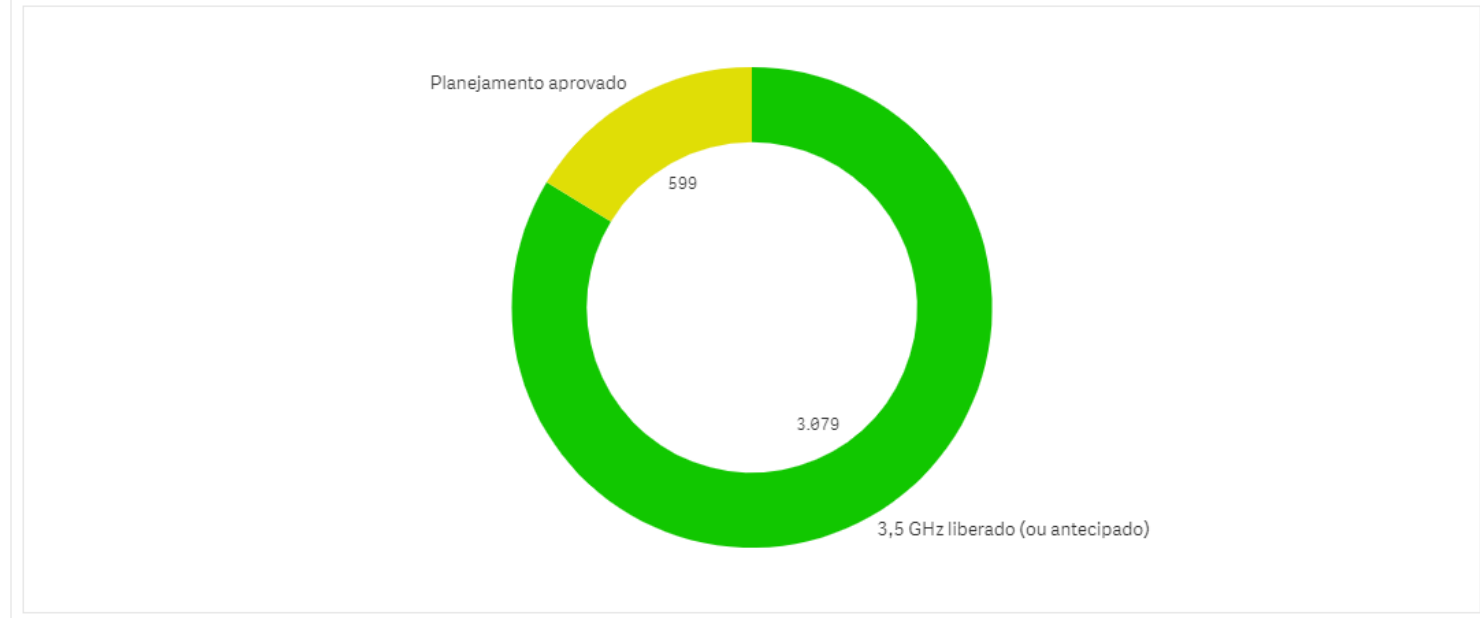


Por status

Curva Liberações 3,5 GHz

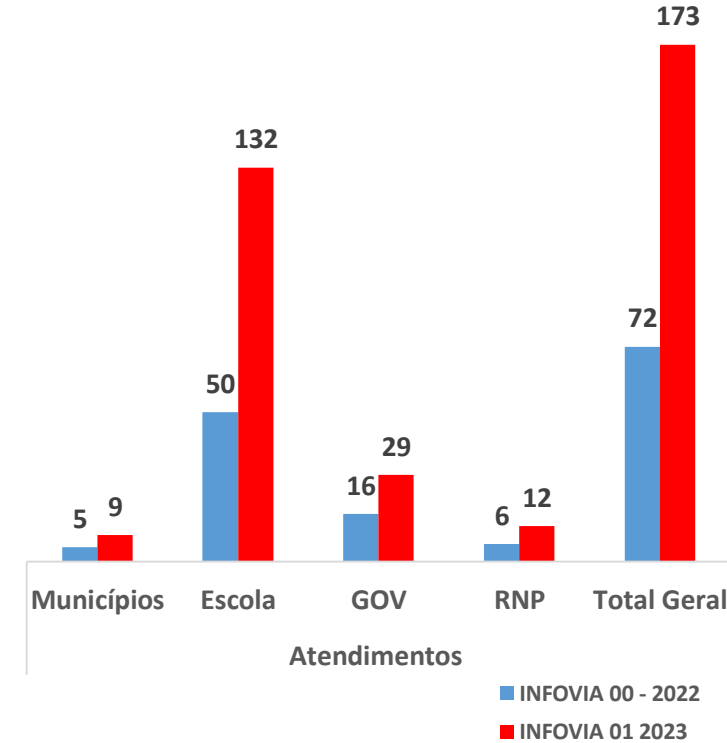
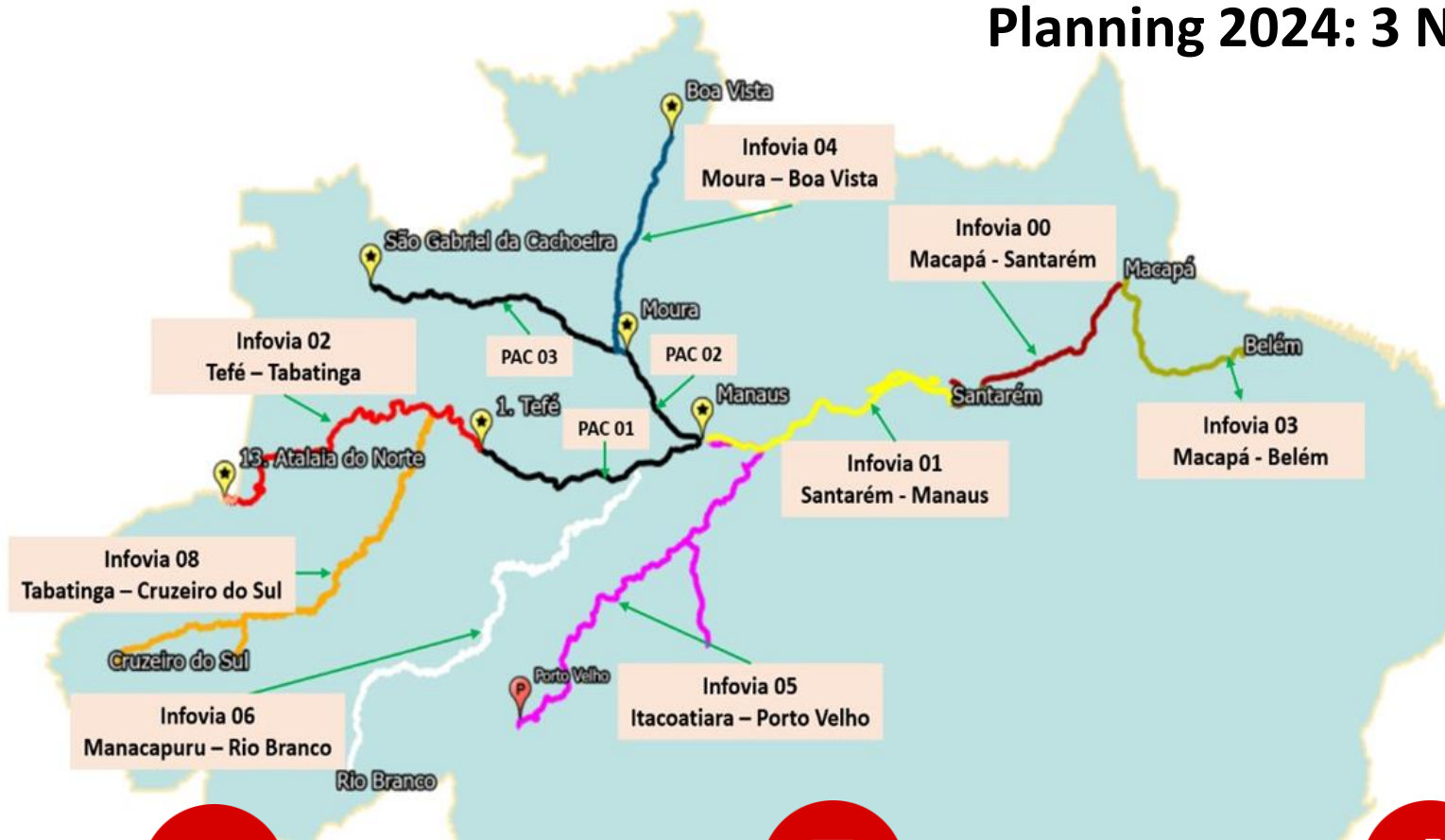
Curva início Migração TVRO

Comparativo por fases



<https://informacoes.anatel.gov.br/paineis/espectro-e-orbita/gaispi-liberacao-e-planejamento-3-5-ghz>

# Planning 2024: 3 NEW INFORMATION PATHWAYS



**2**

Tefé → Tabatinga  
**13** cities  
**130** schools  
**39** connected places  
 (city halls, hospitals, Courts & Army Forces)

**3**

Macapá → Belém  
**05** cities  
**50** schools  
**15** connected places  
 (city halls, hospitals, Courts & Army Forces)

**4**

Boa Vista → Manaus  
**04** cidades  
**40** schools  
**12** connected places  
 (city halls, hospitals, Courts & Army Forces)



# PAIS: Connected North

59 municipalities

Digital Inclusion  
Schools, Hospitals, Homes, Communities

10 million

People accessing  
broadband Internet

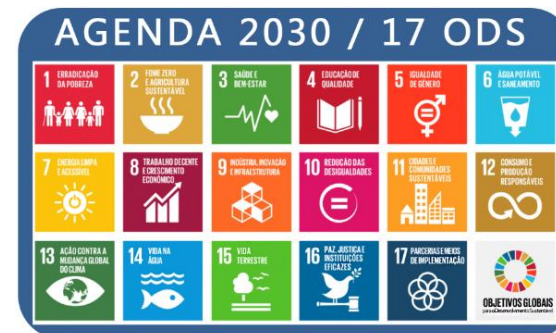
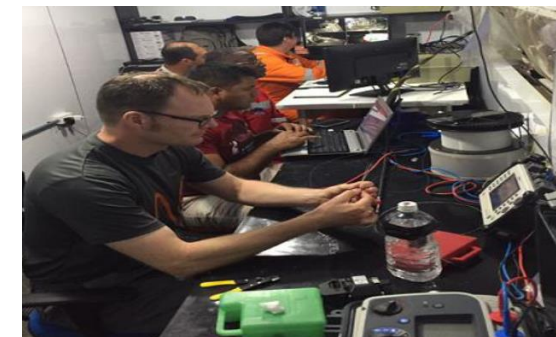
12,000 Km

Subriver optical cable



## ODS

4 Quality Education  
9 Infrastructure  
10 Reduced inequalities  
11 Sustainable cities and communities



# Connected Schools

## National Strategy for Connected Schools - EneC



✓ **Decree nr. 11,713**, 26th September 2023, establishing EneC

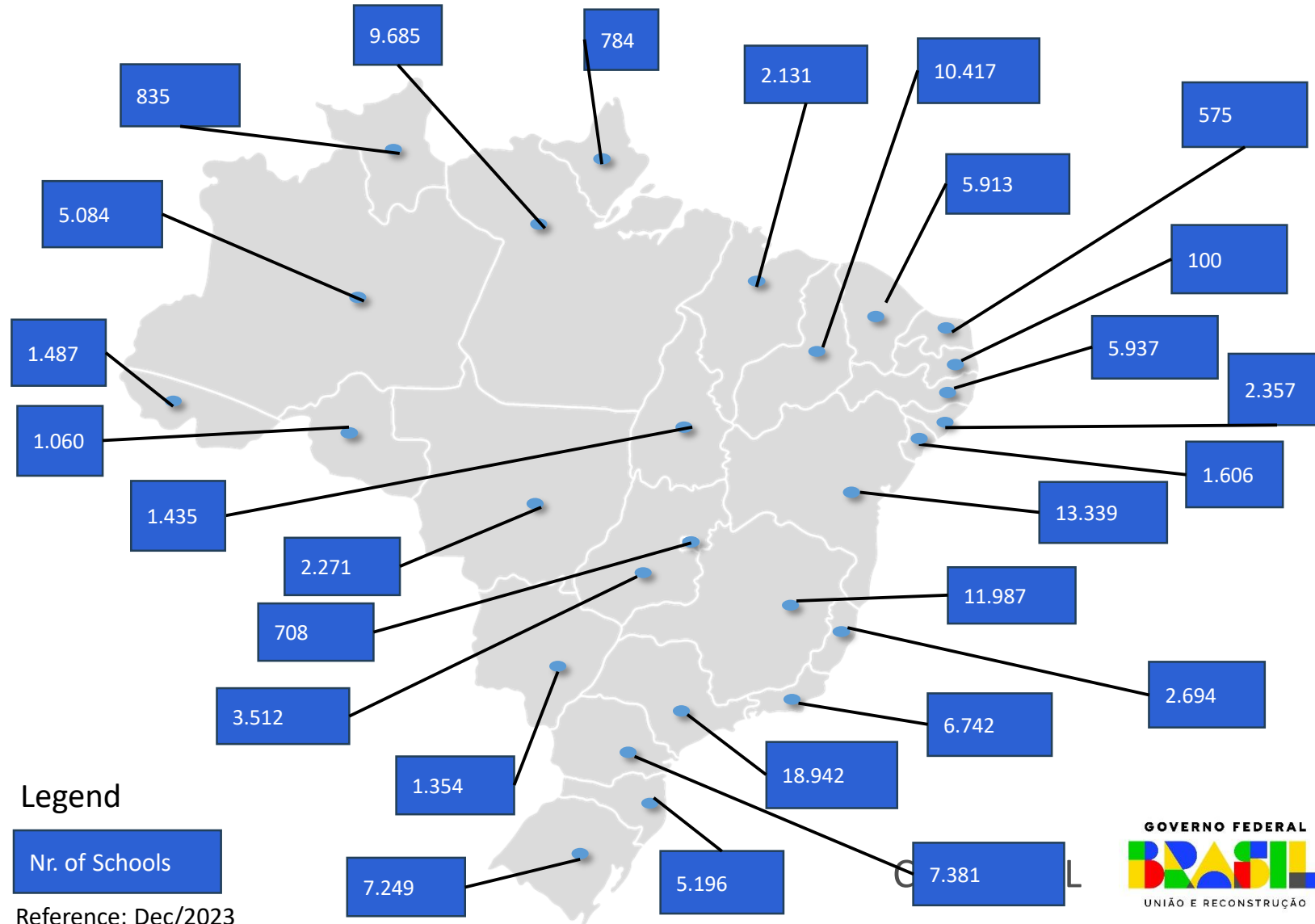
Objective: bring connectivity with **adequate speed and internal network** to the **138,355** schools in the public basic education network by **2026**



Planned investment: R\$8.8 billion



Pilot project **completed**: 175 schools in 5 regions



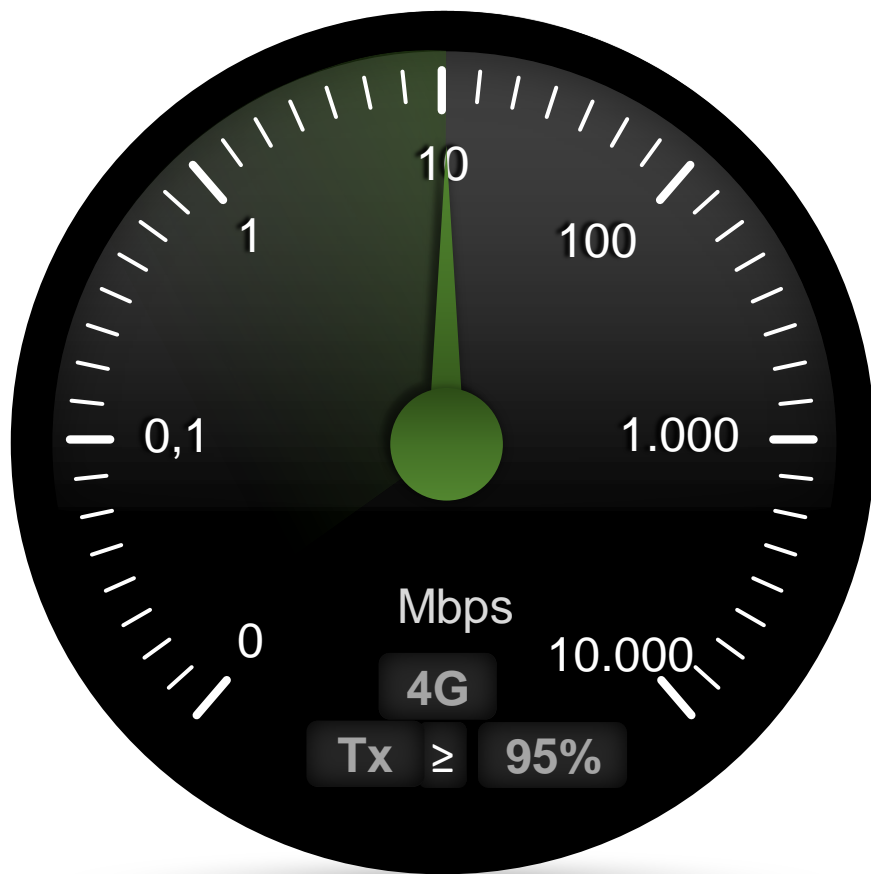


# National Program to Improve Quality and Mobile Broadband Coverage - "ConectaBR"



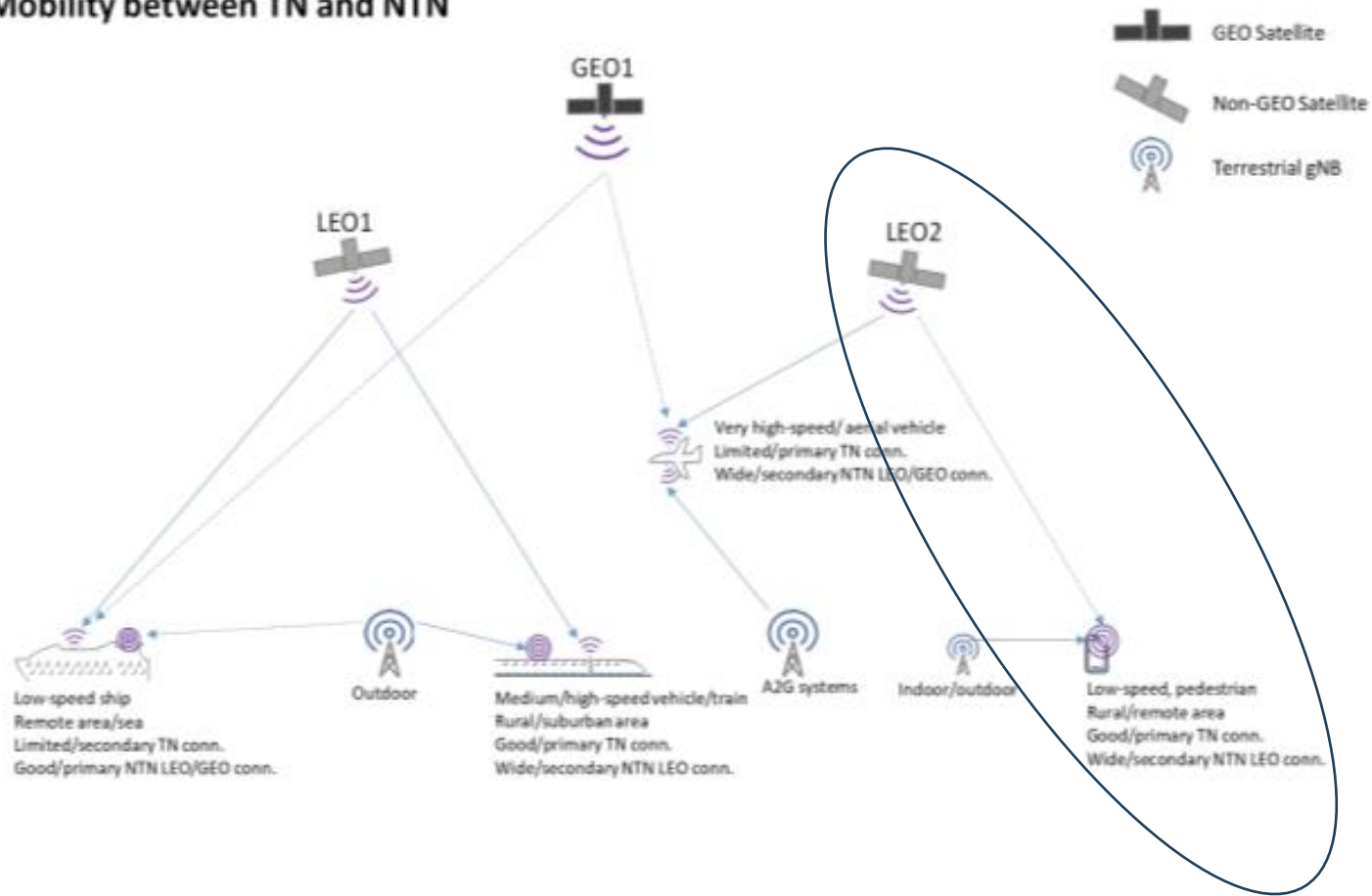
<https://oglobo.globo.com/epoca/o-impacto-do-celular-em-aldeias-indigenas-23408432>  
<https://portal6.com.br/2022/06/08/5g-impuro-falha-em-superar-4g-em-teste/>  
<https://olhardigital.com.br/2019/07/03/noticias/g-no-mundo-testes-de-velocidade-foram-feitos-em-11-cidades/>

# National Program to Improve Quality and Mobile Broadband Coverage - "ConectaBR"



# National Program to Improve Quality and Mobile Broadband Coverage - "ConectaBR"

## Mobility between TN and NTN



## National Pole Sharing Policy – “Poste Legal”



Urgent need to organize the occupation of poles

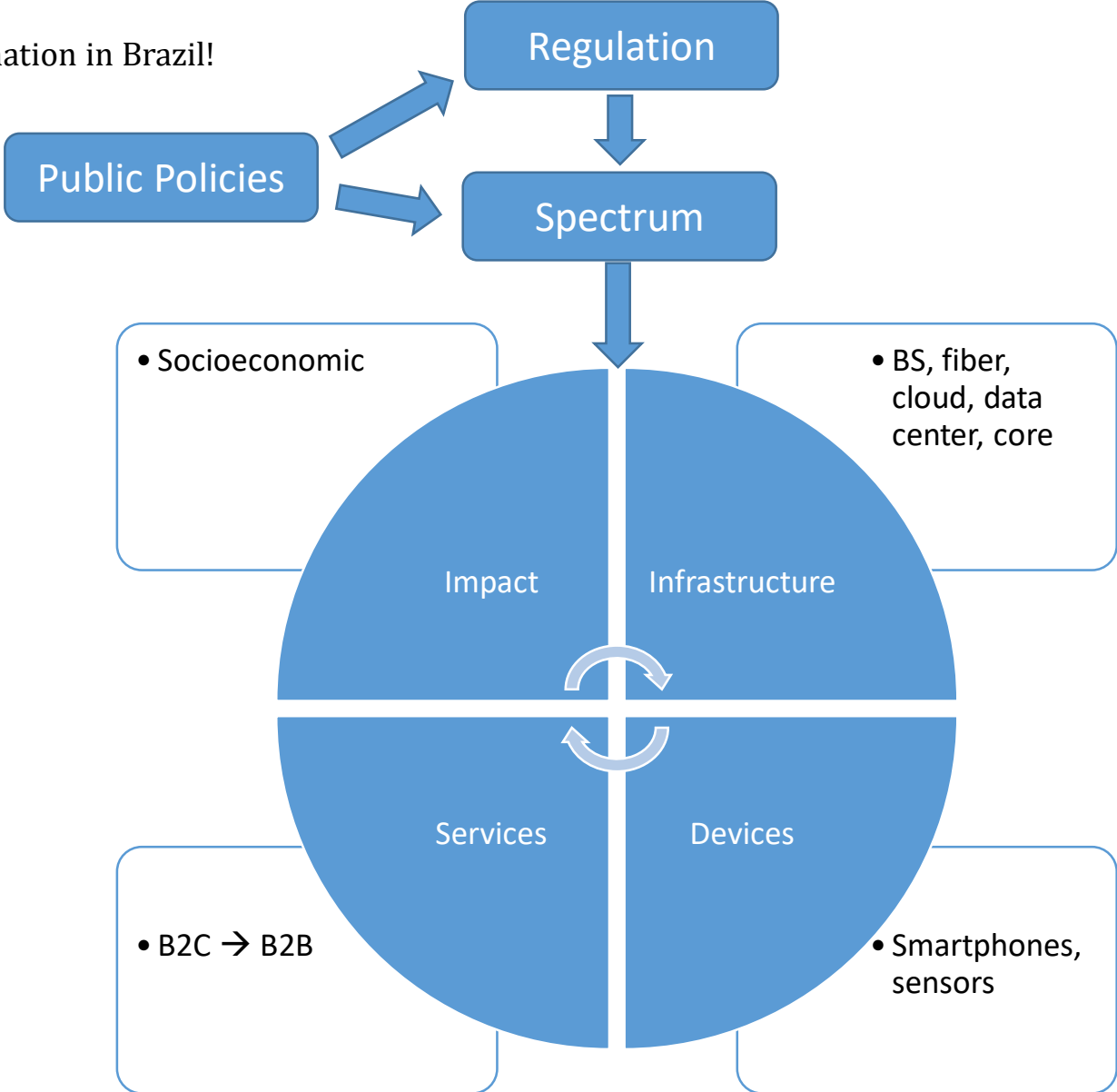
Users of telecommunications services and consumers of electricity are the same people:  
focus on **citizens**

The value for occupying a fixing point must be based on costs, avoiding intersectoral subsidies

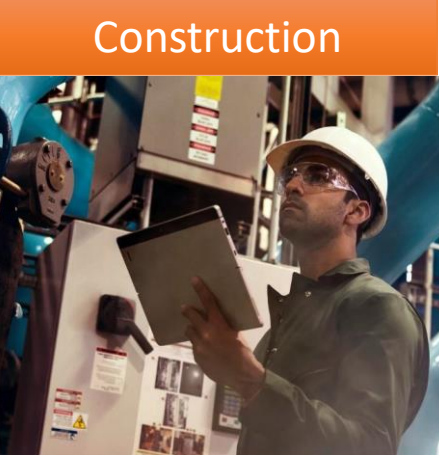
Possibility of specific conditions to encourage digital inclusion in remote and rural areas

# Using 5G and Beyond for Digital Transformation:

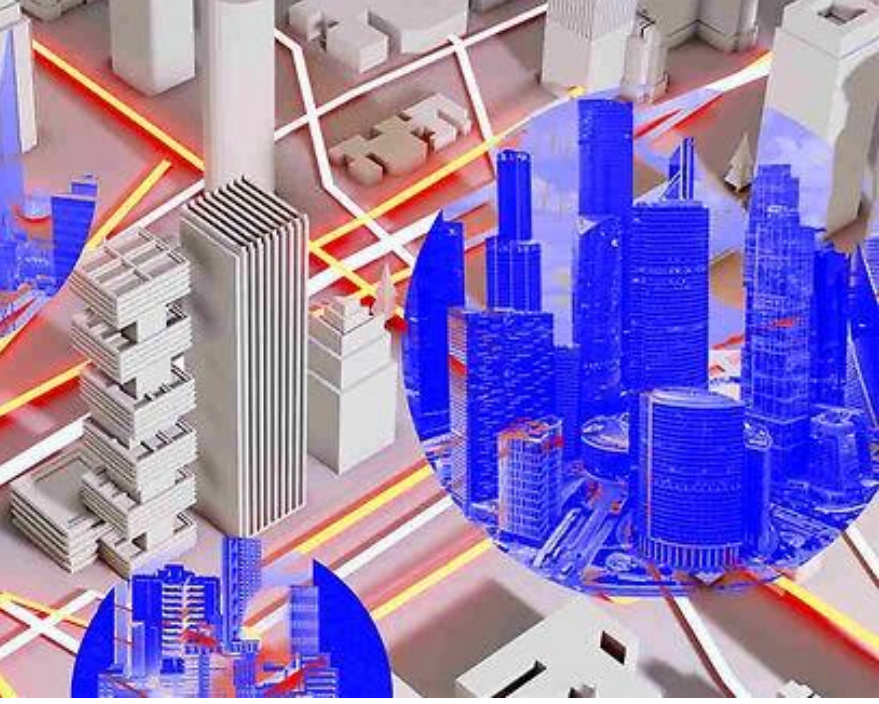
❖ We are living a digital transformation in Brazil!



# Economic Impact in many Verticals

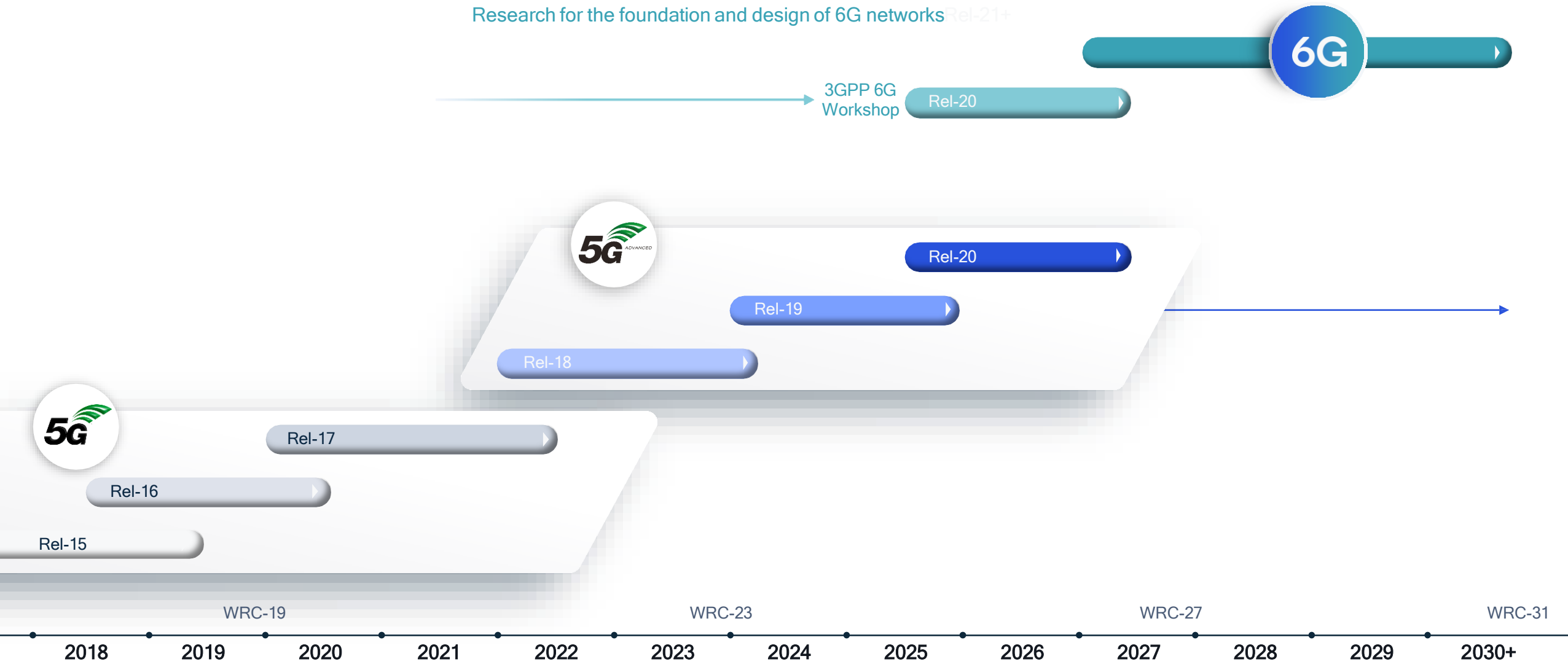


# Essential Sectors are Already Benefiting from Technology



# Roadmap to 6G

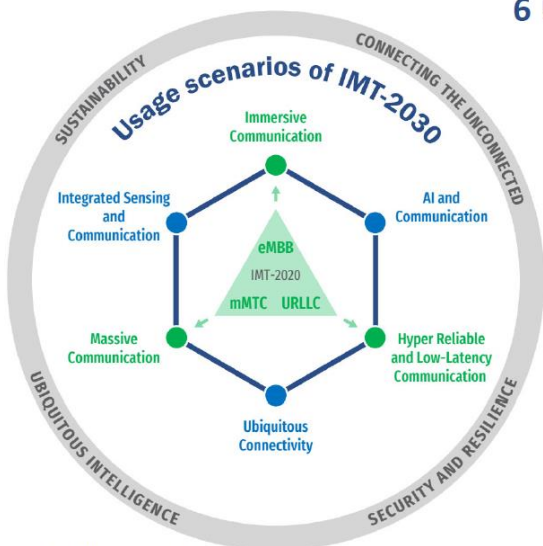
Research for the foundation and design of 6G networks Rel-21+





# 6G: Usage scenarios and Capabilities

## Usage scenarios



So called "Wheel diagram"

## 6 Usage scenarios

Extension from IMT-2020 (5G)

- eMBB → Immersive Communication
- mMTC → Massive Communication
- URLLC → HRLLC (Hyper Reliable & Low-Latency Communication)

New

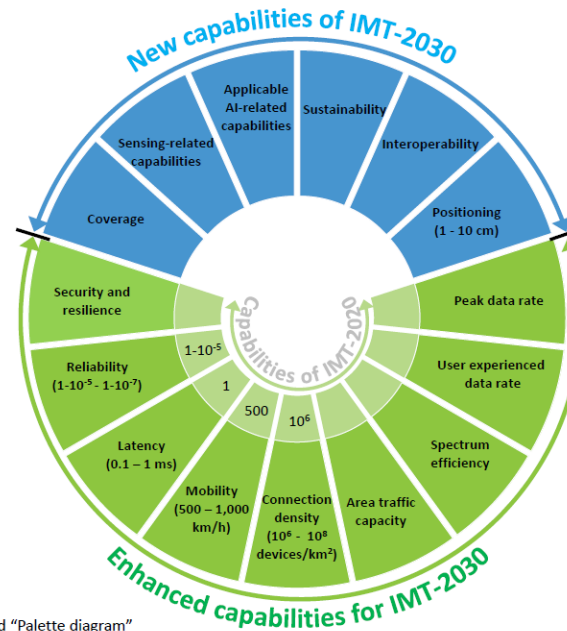
- Ubiquitous Connectivity
- AI and Communication
- Integrated Sensing and Communication

4 Overarching aspects:

*act as design principles commonly applicable to all usage scenarios*

Sustainability, Connecting the unconnected, Ubiquitous intelligence, Security/resilience

## Capabilities of IMT-2030



So called "Palette diagram"

The range of values given for capabilities are estimated targets for research and investigation of IMT-2030.

All values in the range have equal priority in research and investigation.

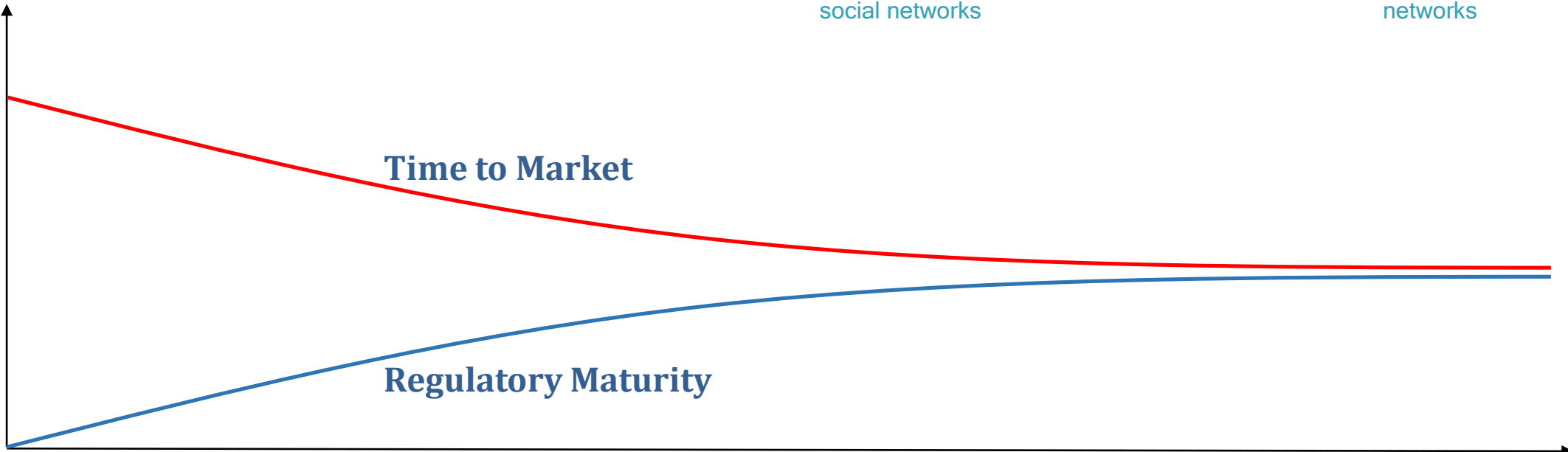
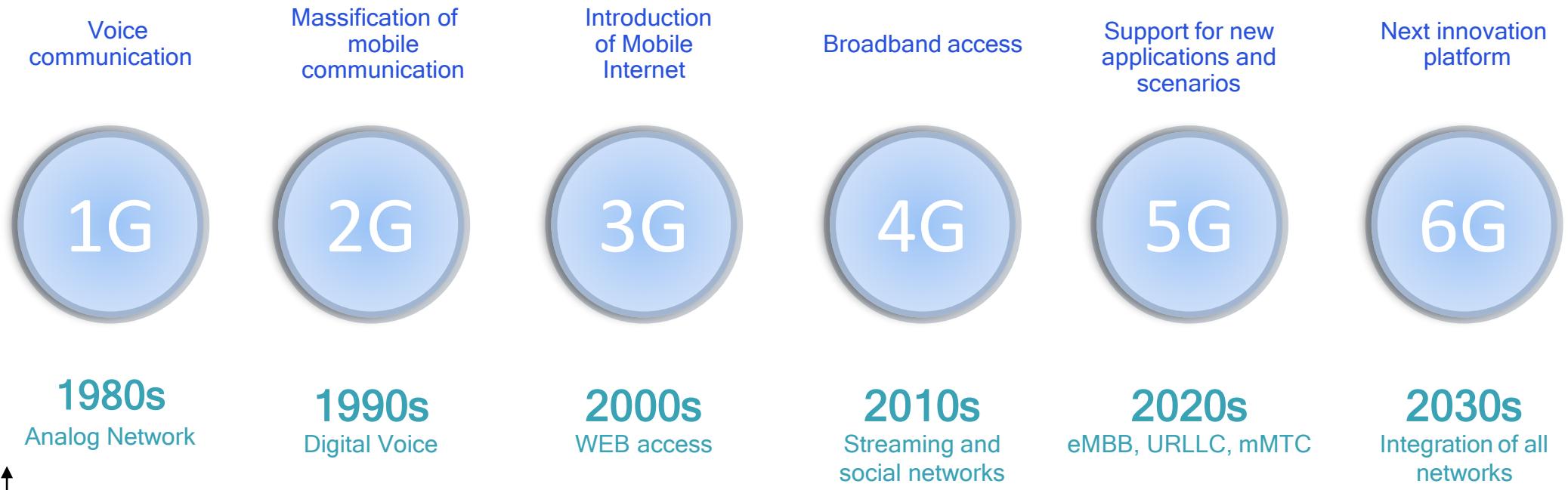
For each usage scenario, a single or multiple values within the range would be developed in future in other ITU-R Recommendations/Reports.

## Recommendation ITU-R M.2160-0 (11/2023)

M Series: Mobile, radiodetermination, amateur and related satellite services

## Framework and overall objectives of the future development of IMT for 2030 and beyond

# Time to Market and Regulatory Maturity



# Brasil 6G Project - Objectives

Long-term scientific research to meet the requirements imposed on 6G networks

Make Brazil an internationally recognized hub for generating knowledge in 6G networks

Coordinate scientific actions between Universities and ICTs, expanding the impact of research in 6G Networks

Create an experimentation environment to implement the proposed contributions under real operating conditions

# International Collaboration

**tsdsi**  
India's Telecom SDO

**5G** IMIF

**5G**  
americas

**5G** Forum



**5G** IMT-2020

**6G** SNS  
IA

Telebra.il  
**5G**  
BRASIL

**6G**

**FLAGSHIP**  
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