

**ITUEvents**

# ITU workshop The Future of Television for South Asia, Arab and Africa Regions

11 May 2023  
Bangalore, India

[www.itu.int/go/FutureTV5](http://www.itu.int/go/FutureTV5)

Hosted by



Department of Telecommunications  
Ministry of Communications  
Government of India

Co-Hosted by



भारतीय विज्ञान संस्थान

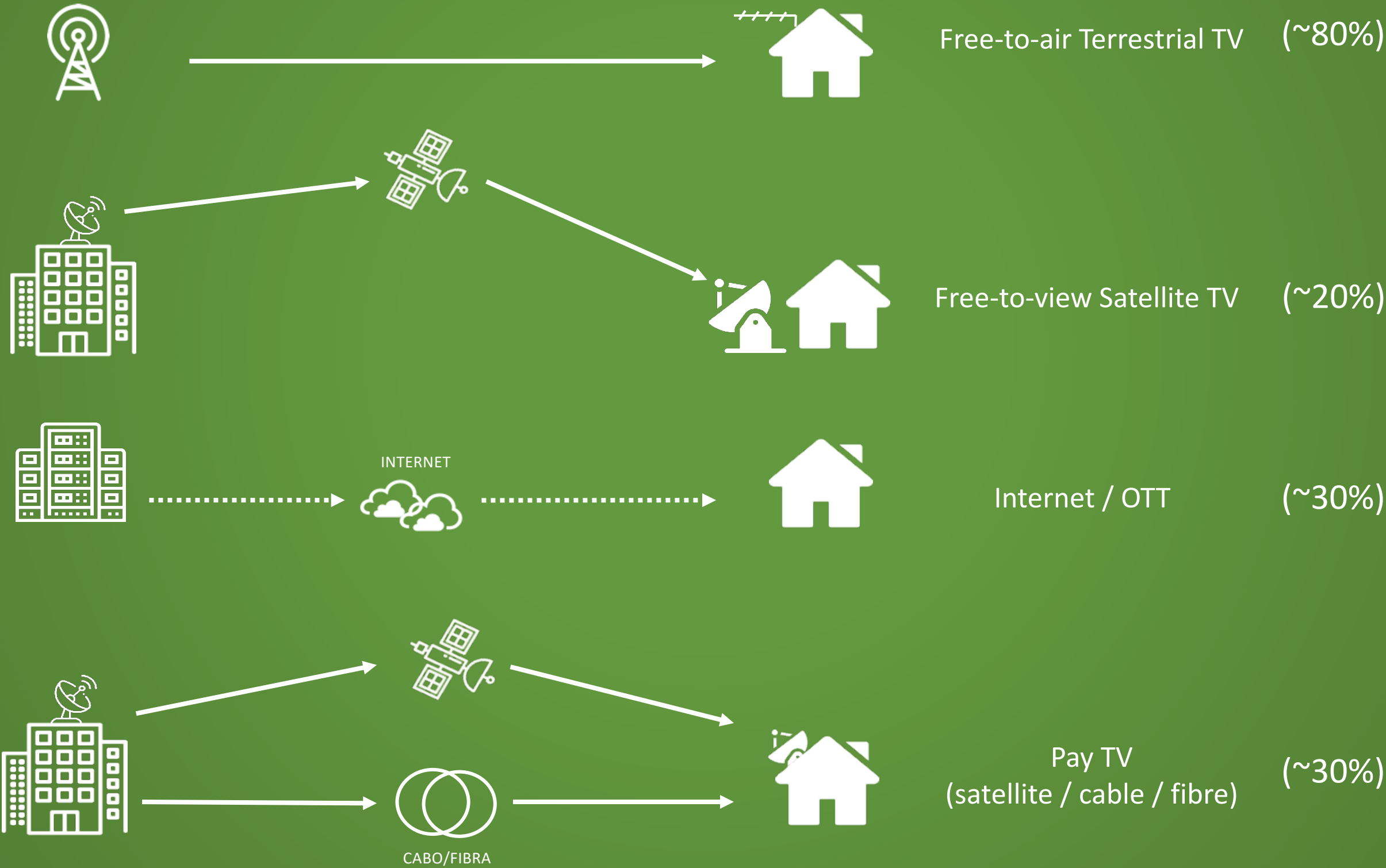
## **Brazilian TV 3.0 Project**

Organized by



*Luiz Fausto - Technical Module Chair @ SBTVD Forum*

# Video Distribution Platforms in Brazil



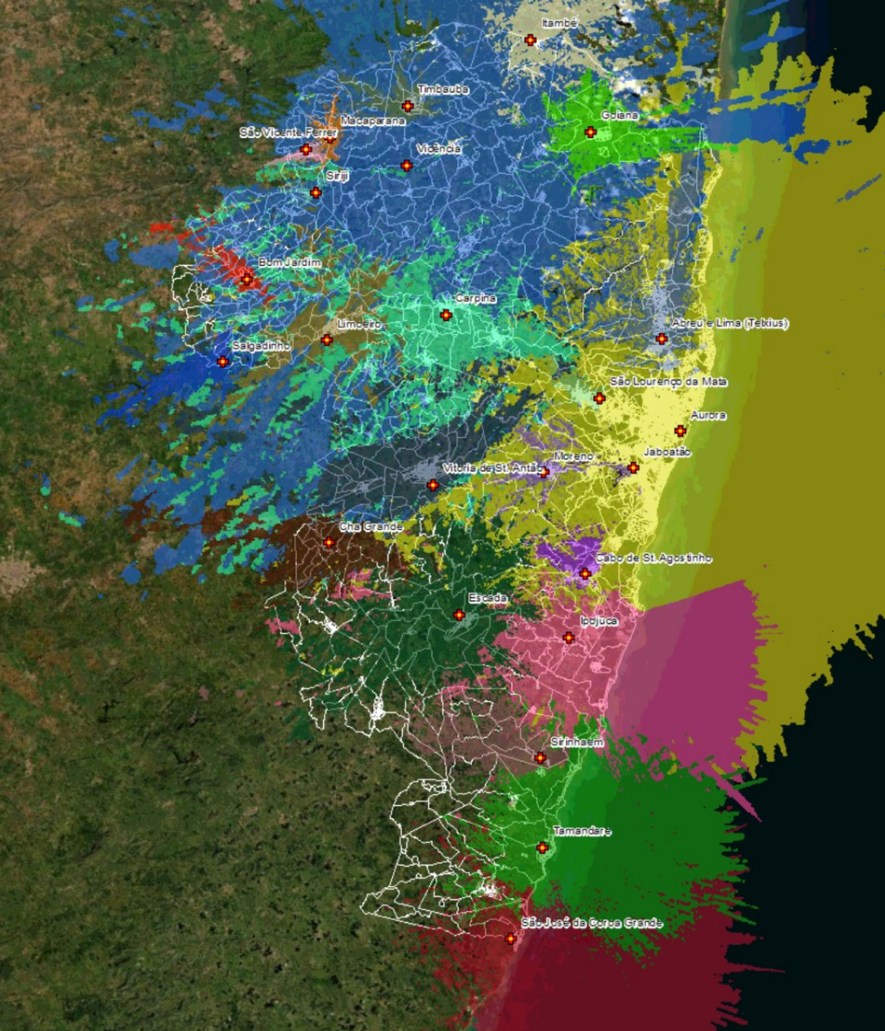
# Terrestrial TV Evolution in Brazil



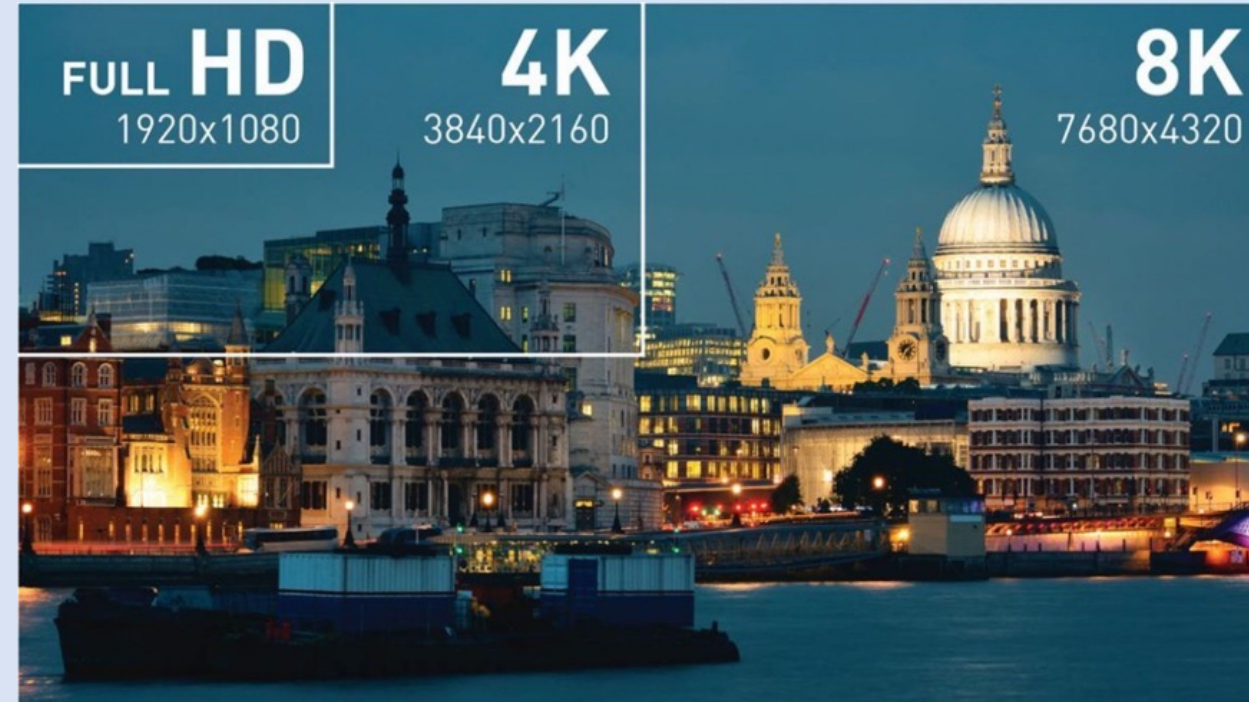


# TV 3.0

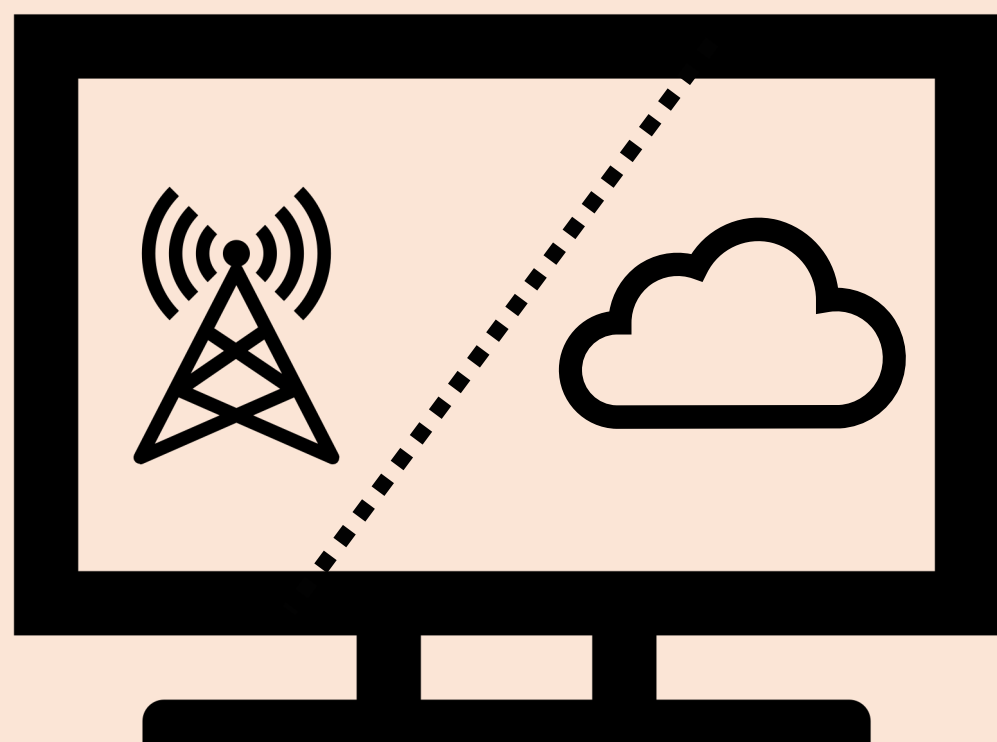
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Geographic segmentation, with frequency reuse-1



Immersive & Customizable audio-visual content for consumption on any device, at any time



Broadcast-Broadband merging and harmonization - the best of both worlds - reach and personalization



App-Based TV

# TV 3.0 Project Phases

## Phase 1 (2020)

Call for Proposals



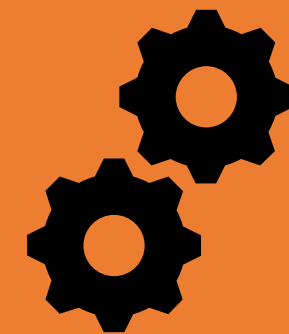
## Phase 2 (2021)

Testing and Evaluation

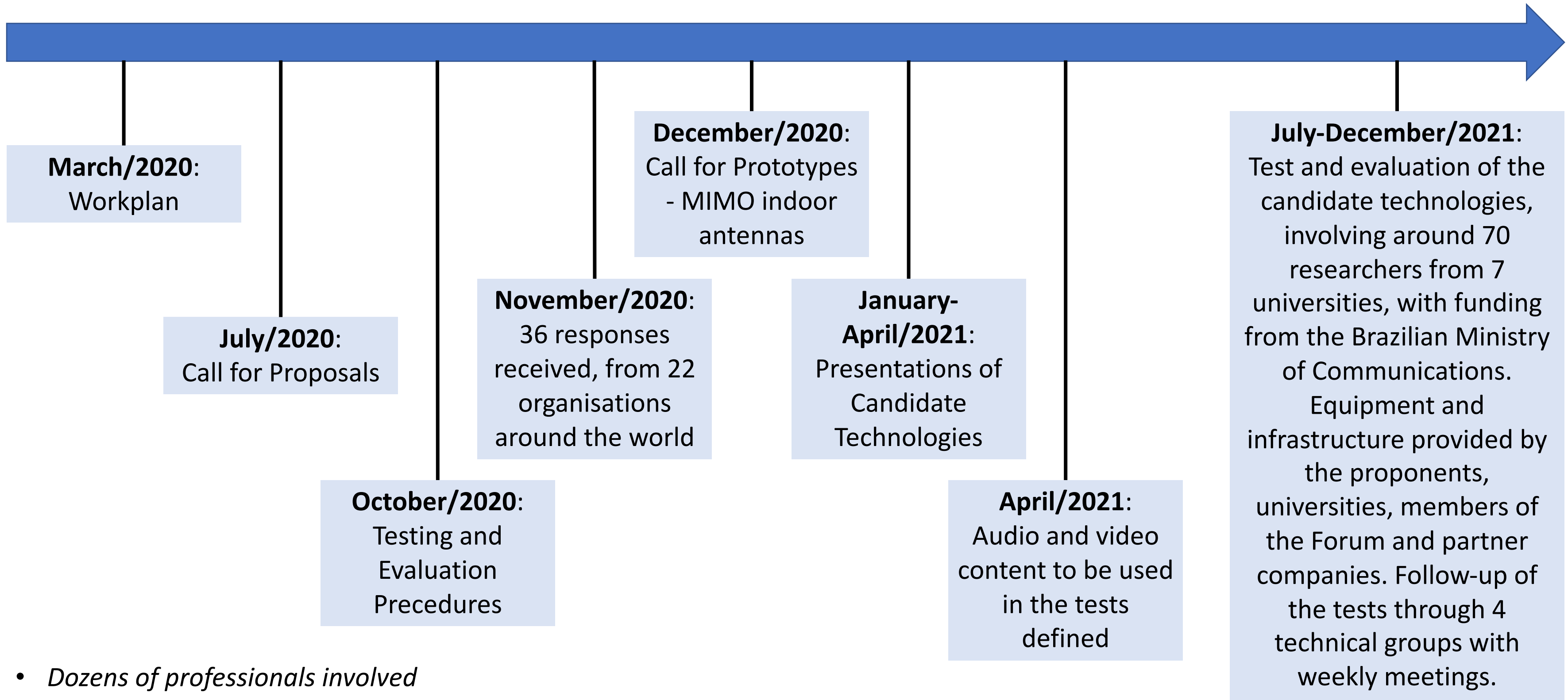


## Phase 3 (2022-2024)

Complementary Tests  
Research & Development  
Standardization  
Demonstrations



# TV 3.0 Project - Stages Concluded: Phases 1 and 2



- *Dozens of professionals involved*
- *Hundreds of hours of meetings*
- *Thousands of pages of documentation produced*

# Technologies selected for TV 3.0

## APPLICATION CODING

*DTV Play with adaptations and extensions*

### VIDEO BASE LAYER

*VVC (OTA/OTT)  
H.264/H.265 (OTT)*

### VIDEO ENHANCEMENT

*DRE + LCEVC  
(OTA/OTT)*

### HDR

*HDR10 with optional  
dynamic metadata (Dolby  
Vision, HDR10+ e SL-  
HDR2) (OTA/OTT)  
HLG/SL-HDR1  
(OTT, optional)*

### VR CODEC

*V3C (V-PCC / MIV)  
(OTT, optional)*

### EWS

*ATSC 3.0  
AEA*

### AUDIO

*MPEG-H Audio  
(OTA/OTT)  
AAC (OTT)  
E-AC-3 / AC-4  
(OTT, optional)*

### CAPTIONS

*IMSC1 (OTA/OTT)  
WebVTT  
(OTT, optional)*

## TRANSPORT LAYER

*based on ROUTE/DASH (with adaptations and extensions) (OTA/OTT)  
HLS (OTT, optional)*

## OVER-THE-AIR PHYSICAL LAYER

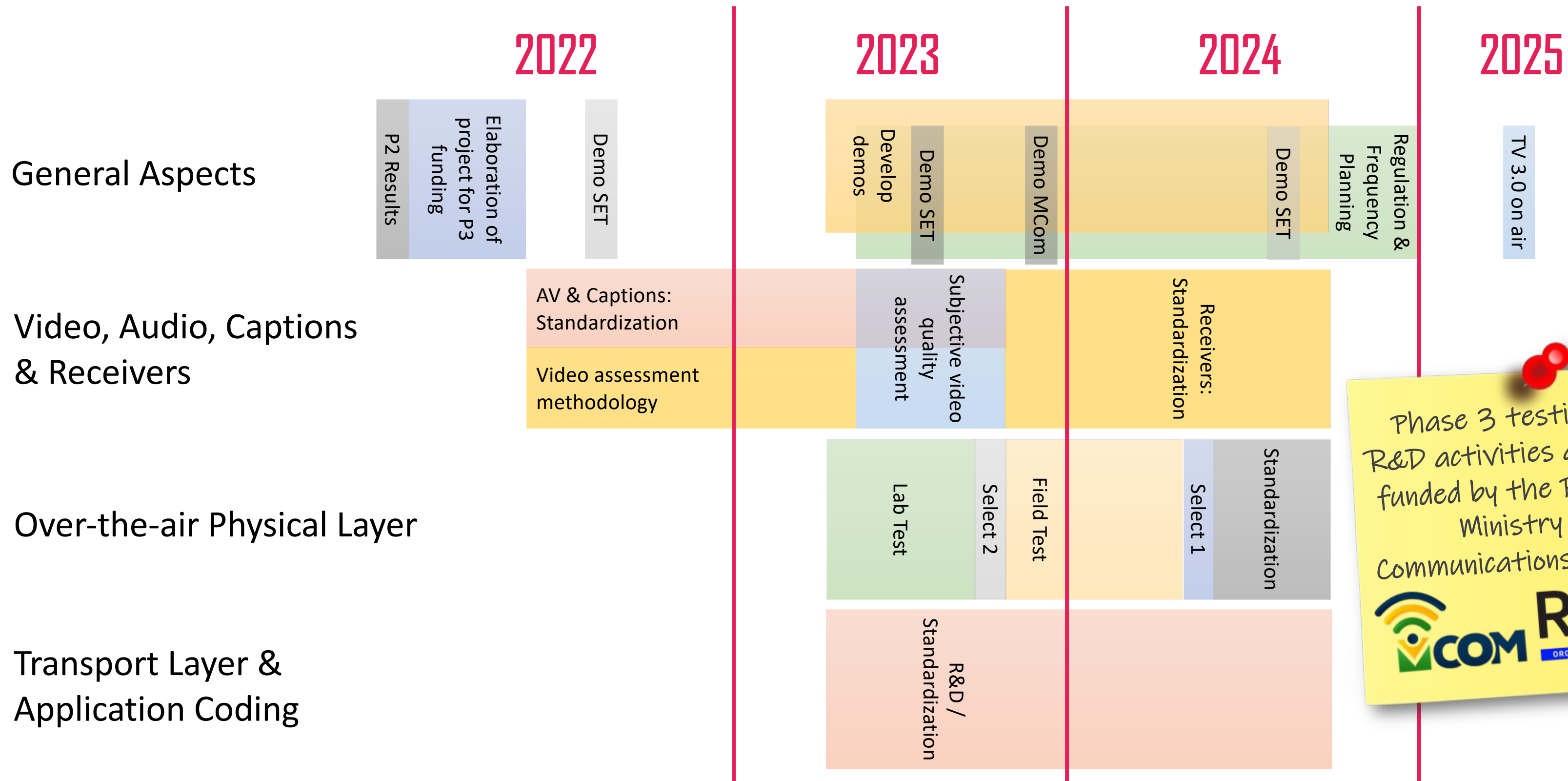
*TDB (more tests are needed)*

## BROADBAND INTERFACE

*any technology available in the receiver*



# Phase 3 (2022-2024) & Project Completion



Phase 3 testing and R&D activities are being funded by the Brazilian Ministry of Communications via RNP





# Brazilian Presidential Decree No. 11 484 / 2023

*Provides the guidelines for the evolution of the Brazilian Digital Terrestrial Television System and for ensuring the availability of radio frequency spectrum for its deployment*

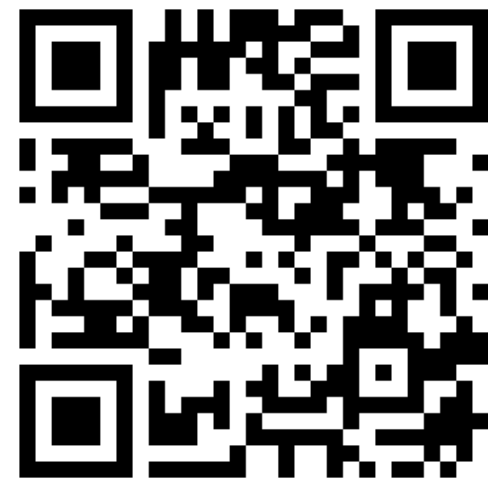
- The next-generation DTTB system in Brazil, called TV 3.0, shall have the following characteristics:
  - I. audiovisual quality superior to that of the first-generation Brazilian DTTB system;
  - II. fixed reception, with external and internal antenna, and mobile reception;
  - III. integration between contents transmitted by the broadcasting service and over the internet;
  - IV. app-based user interface;
  - V. content segmentation according to viewers' geographic location;
  - VI. customization of content according to viewers' preferences;
  - VII. optimized use of the radio frequency spectrum destined for terrestrial television broadcasting; and
  - VIII. new forms of access to cultural, educational, artistic, and informative contents.
  
- The Ministry of Communications will support the SBTVD Forum so that the studies related to the technological innovations that may comprise TV 3.0 are completed by December 31, 2024.
  
- The National Telecommunications Agency (Anatel) shall conduct studies on the frequency planning of TV 3.0 until December 31, 2024, and promote actions to ensure:
  - I. regulatory stability, through the availability of frequency bands necessary for the evolution of terrestrial television broadcasting; and
  - II. implementation of digital terrestrial television in Brazil and its technological evolution.
  
- The Ministry of Communications will constitute and coordinate a working group with the objective of proposing regulations for TV 3.0, with the participation of representatives from Anatel, the Ministry of Science, Technology, and Innovation, the Ministry of Finance, the SBTVD Forum and entities representing the broadcasting sector. The deadline for the completion of activities by the working group is December 31, 2024.

*(available at [http://www.planalto.gov.br/ccivil\\_03/ato2023-2026/2023/decreto/D11484.htm](http://www.planalto.gov.br/ccivil_03/ato2023-2026/2023/decreto/D11484.htm), in Portuguese only)*

# Thank you for your attention!

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[https://forumsbtvd.org.br/tv3\\_0/](https://forumsbtvd.org.br/tv3_0/)



BRAZILIAN DIGITAL  
TERRESTRIAL TV  
FORUM