FAPEMIG

How is FAPEMIG managing to place Minas Gerais on the world map of 6G Development?

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November-2025

Goal

Offer a practical and evidence-based perspective on how a subnational science, technology and innovation agency can effectively accelerate frontier technological trajectories.

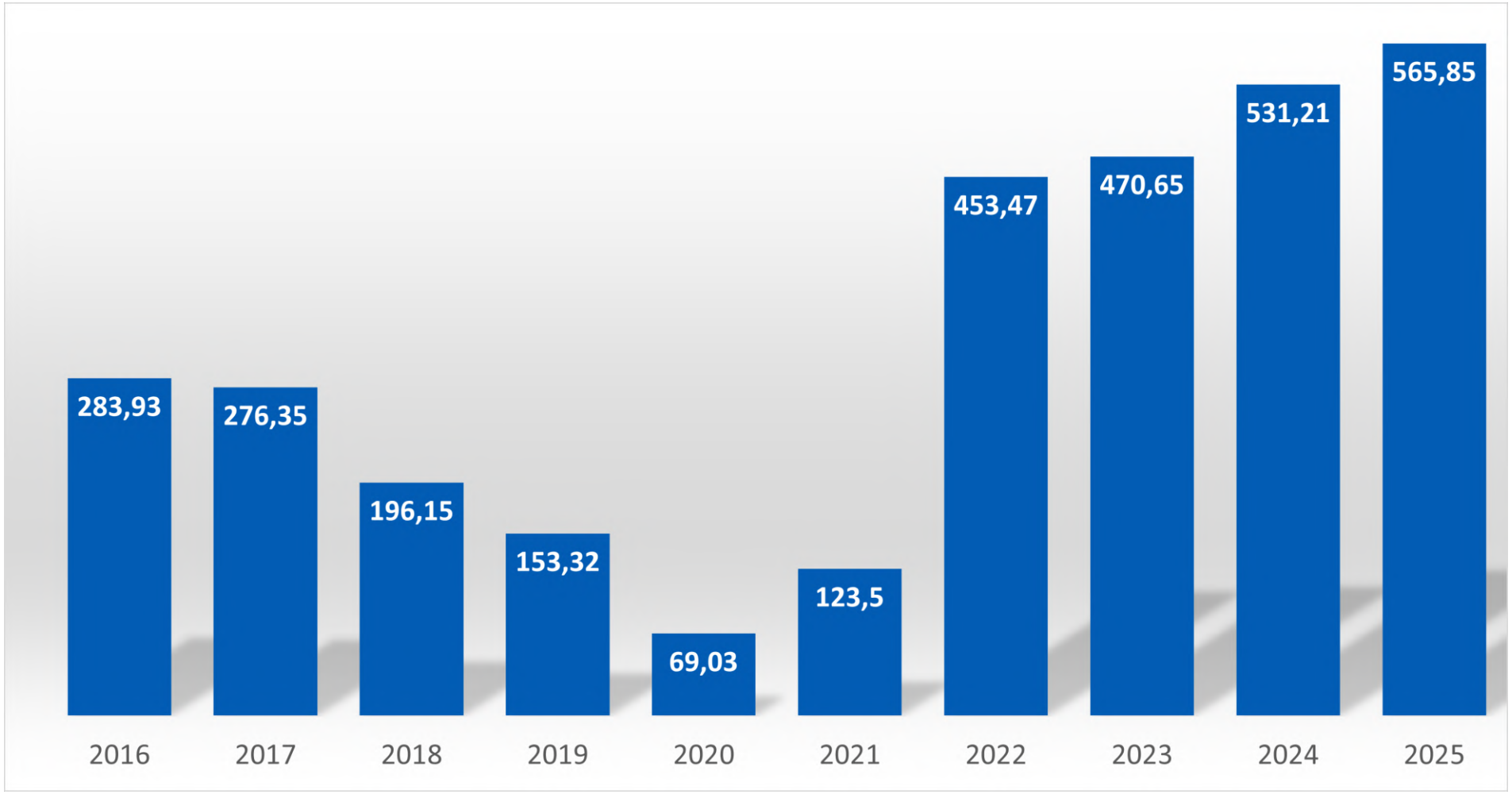
What is FAPEMIG?

Our mandate includes:

- funding cutting-edge research;
- strengthening scientific infrastructure;
- promoting innovation and entrepreneurship ecosystems;
- supporting innovation inside companies;
- and building bridges between research results and market applications.

FAPEMIG is the main public institution responsible for funding scientific research and technological innovation in the state of Minas Gerais. We operate at the intersection of academia, research centers, startups, industry and government — which is precisely where deep technologies such as 6G must be nurtured.

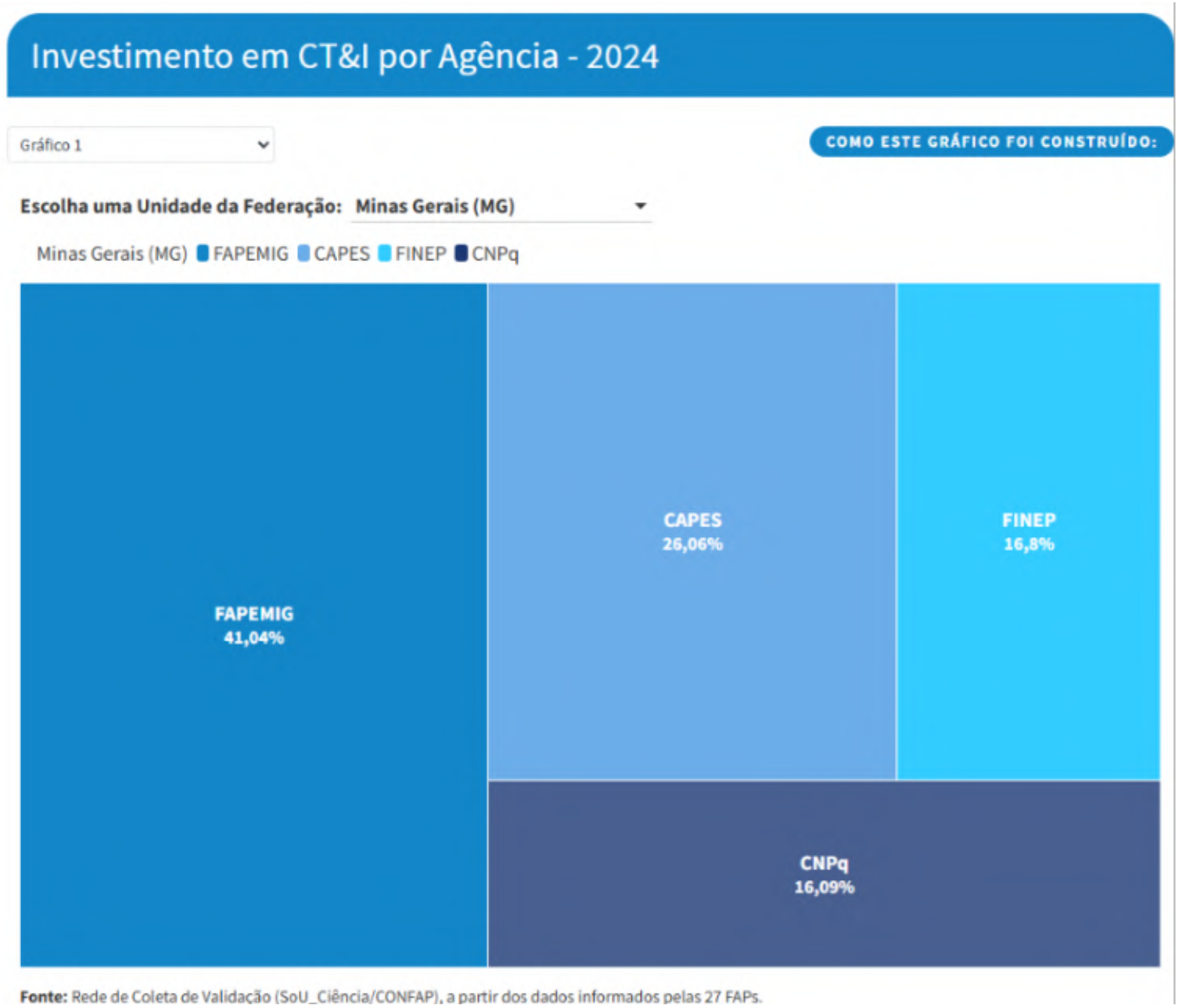
Budget & relevance



Budget over the last 10 years (BRL millions)

Budget & relevance

Comparing FAPEMIG to its federal peers operating in Minas Gerais



Why does 6G matters for FAPEMIG?

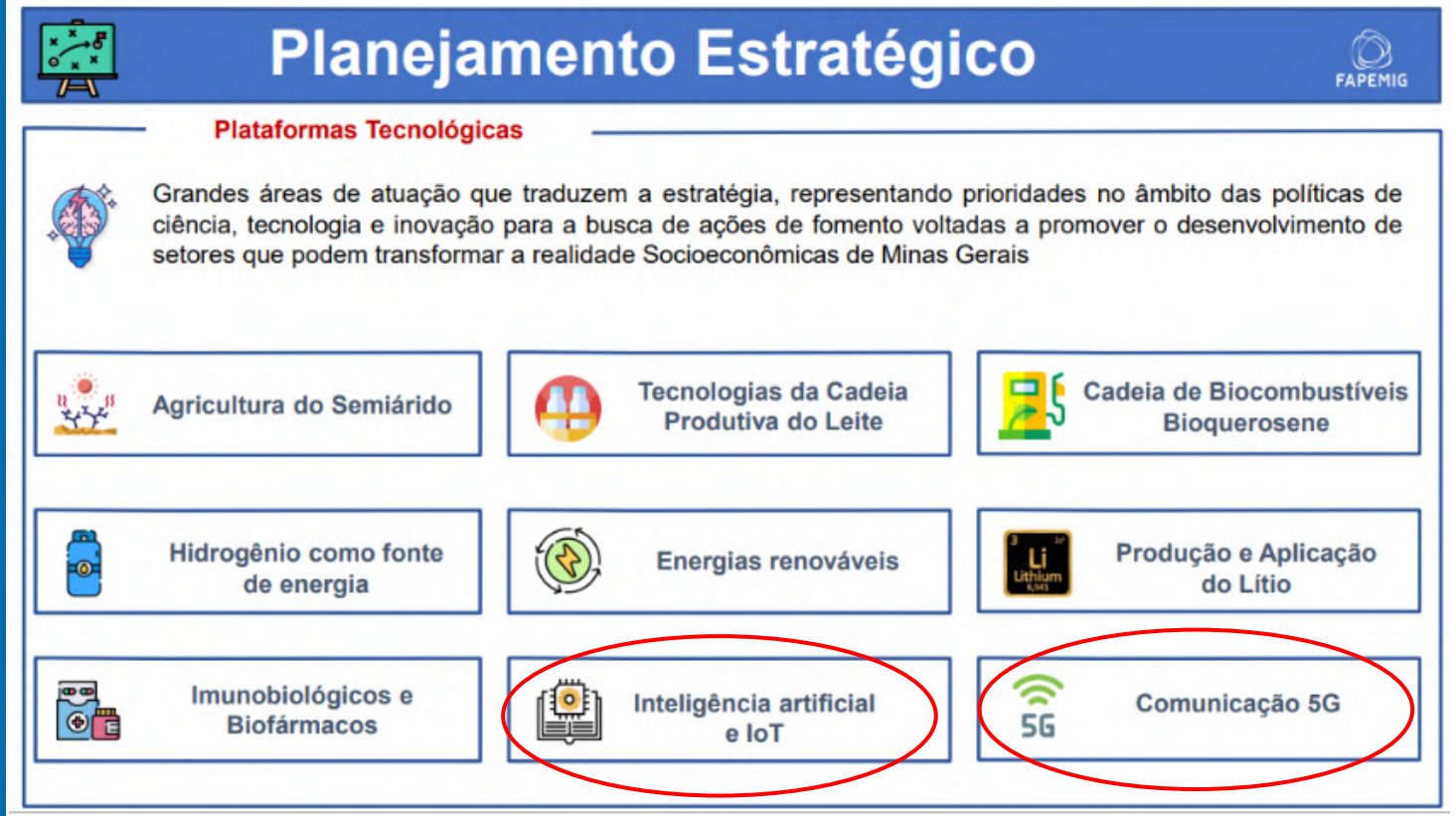
Brazil — and especially Minas Gerais — cannot be a bystander in the global development of next-generation networks.

6G applications for Brazil are not the same as those driving Europe or Asia.

6G will be critical for agribusiness, mining, and environmental monitoring — sectors that define our economy.

In large cities, especially in underserved urban areas and peripheral communities, 6G will play a critical role in reducing digital inequality.

What FAPEMIG's current Strategic Plan says about connectivity



Artificial Intelligence and IoT

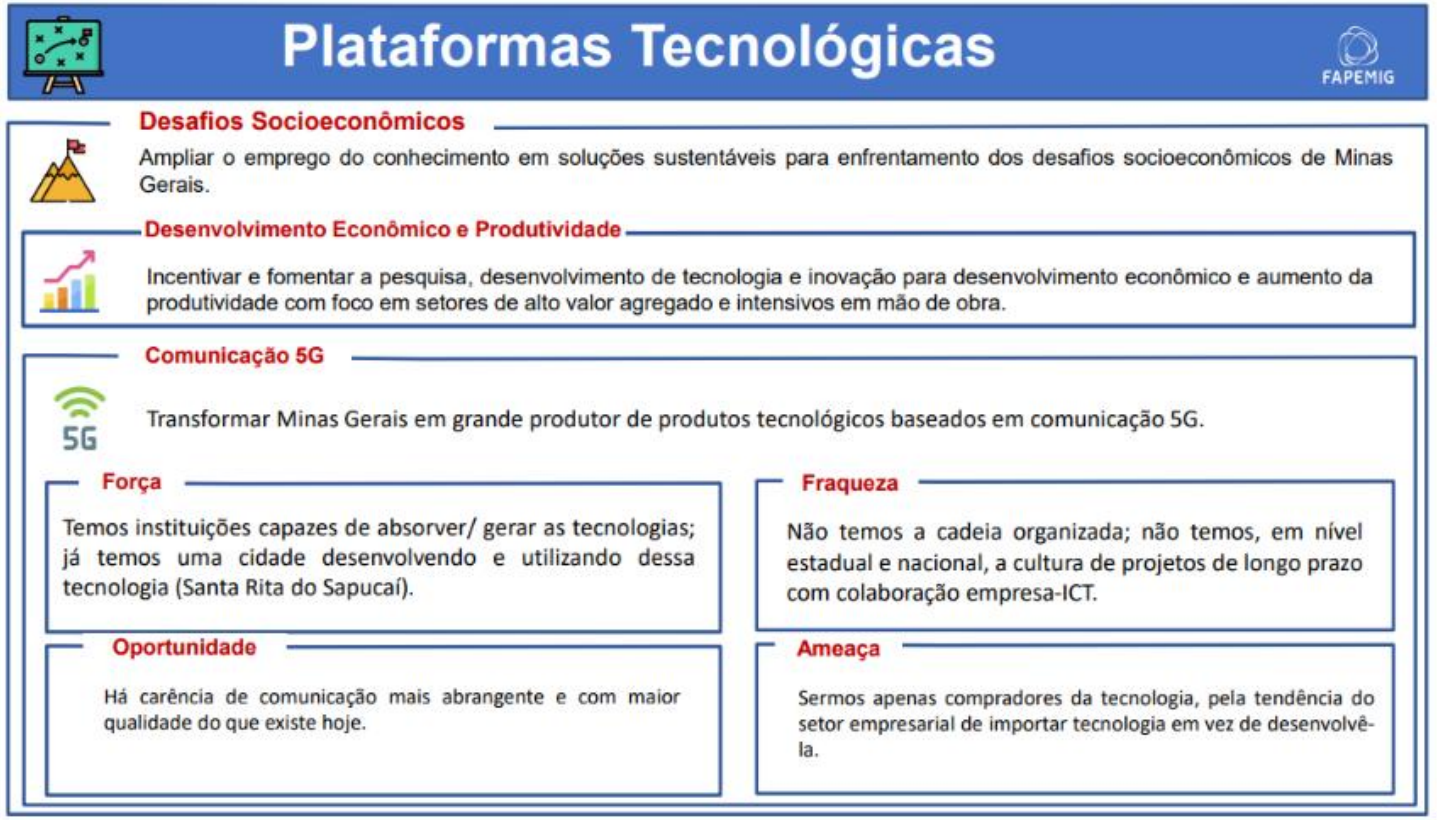
“Increase the productivity of our industry and agriculture, and improve health and well-being.”

— This platform depends fundamentally on advanced connectivity, automation, sensing and AI — all of which converge in 6G.

5G Communications

“Transform Minas Gerais into a major producer of technology based on 5G communication.”

— Even though 5G was the frontier at the time, this platform created the technical and institutional base for the natural evolution into 6G development.



Strategic Plan Revision

Strategic plans drive:

- future calls and investment programs,
- evaluation and prioritization criteria,
- and the long-term investment commitments.

FAPEMIG is conducting a full revision of its Strategic Plan for the 2026–2030 cycle.

In this revision, 6G is expected to appear explicitly as a frontier technology aligned with national and international trends.

The FAPEMIG–Inatel partnership

Inatel is one of FAPEMIG's most strategic partners. FAPEMIG has been consistently investing in advanced telecommunications research carried out by Inatel, particularly in 5G and 6G.

Concrete numbers

6G and Inatel have gained momentum and strategic priority within our funding agenda.

Over the past ten years, projects containing the keywords telecommunications, mobile communications, 5G or 6G account for more than R$ 31 million

Considering only the 2023, 2024 and 2025 calls, Inatel had 11 projects approved by FAPEMIG, totaling R$ 16 million.

PROJECT 1 - 6G Internationalization Program (R$ 2M)

Call 009/2023 — Internationalization of ICTs in Minas Gerais

This project addresses a historical challenge for Brazil: limited participation in standardization processes—especially during 5G.

It strengthens Inatel's cooperation with leading global R&D centers and ensures Brazilian researchers participate in early 6G discussions.

Equally important, it focuses on requirements unique to the Brazilian context—agribusiness, public safety, logistics, mining, and transportation—ensuring they are represented in the global 6G agenda.

PROJECT 2 — Minas Gerais 5G/6G Research Network (R$ 2M)

Call 012/2023 — Research Networks

This initiative creates a state-wide 5G/6G research network coordinated by Inatel, involving UFMG, UFU, UNIFEI, and future institutions.

It promotes joint research, shared infrastructure, and stronger interactions with industry.

This network positions Minas Gerais as one of the few states with a coordinated, multi-institutional effort dedicated to next-generation mobile systems.

PROJECT 3 — 5G/6G Competence Center (R$ 5.6M)

Call 041/2023 — Support for Science, Technology and Innovation Projects within Minas Gerais Public Policies

This project establishes the 5G and 6G Competence Center, focused on developing next-generation mobile network technologies aligned with Brazil's strategic sectors and public policy priorities.

It addresses critical challenges for the full deployment of 5G and the future transition to 6G, giving special attention to Brazil's priority verticals — agribusiness, mining, and oil and gas — ensuring that future mobile networks are designed to meet the specific technical and operational requirements of these sectors.

FAPEMIG and 6G Development

PROJECT 4 — Multi-User Cyber-Physical 6G Infrastructure (R$ 1.5M)

Call 002/2024 — Support for Multi-User Facilities

This project creates a multi-user, cyber-physical, open-source-based infrastructure at Inatel.

It integrates advanced testing environments for convergent architectures including 5G, 6G, and NovaGenesis.

This is an enabling platform—an essential building block for future large-scale 6G testbeds.

PROJECT 5 — Strengthening Inatel’s EMBRAPII Unit (R$ 1.5M)

Call 003/2025 — Strengthening EMBRAPII Units

This project is about strengthening the Inatel’s EMBRAPII Unit industrial interface.

FAPEMIG is investing to increase Inatel’s ability to:

- identify new opportunities,
- build partnerships with companies,
- engage industry,
- diversify the sectors they serve, and
- enhance the visibility of their competencies.

With more than 80 EMBRAPII projects already delivered by Inatel’s EMBRAPII Unit, we expect this investment to boost 6G research and translate it into industrial innovation and market-ready solutions.

MG’s emerging position in the 6G landscape

Minas Gerais is becoming a relevant node in the global 6G ecosystem. The investments I just described — combined with the scientific capacity of our institutions — are consolidating the state as a reference in next-generation connectivity.

We have:

- a consolidated scientific critical mass, with a strong research institution (Inatel) specialized in telecommunications, coordinating a state-wide 5G/6G research network,
- Multi-user laboratories funded by FAPEMIG, including cyber-physical testbeds and convergent 5G/6G platforms,
- Internationalization as a deliberate strategy,
- Industry integration supported by FAPEMIG.

Closing remarks

FAPEMIG's role in strengthening the 6G ecosystem in Minas Gerais goes far beyond our direct support to the Embrapii unit at Inatel and to the cutting-edge research and technological development carried out here.

Compete Minas Call
We fund innovation directly inside established companies. This program can provide up to 4 million reais in economic grants per project for R&D and technological development with clear market potential.

Deep Techs Call
FAPEMIG has created specific programs for startups — especially deep techs — with differentiated funding lines that can reach up to 2 million reais per startup, enabling them to advance from the laboratory to the market.

Researcher at Company Call
Our programs support the insertion of highly qualified professionals into companies through scholarships of up to 6,000 reais per month, which can be complemented by the companies themselves.

Closing remarks

Minas Gerais has chosen to invest early and decisively in the next generation of network technologies. FAPEMIG's strategic planning, targeted funding mechanisms, and long-term partnerships — especially with Inatel — have enabled the state to build a solid and internationally visible foundation for 6G research.

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THANK YOU!