



RIO DE JANEIRO

# **DIGITAL INFRASTRUCTURE, TECHNOLOGICAL INCLUSION & SOCIOECONOMIC DEVELOPMENT**

City of Rio de Janeiro | Municipal Secretariat for Science,  
Technology, and Innovation

PREFEITURA



**RIO**



## THE COUNTRY **BRAZIL**



## THE STATE **RIO DE JANEIRO**



## THE CITY **RIO DE JANEIRO**



### **Population**

Rio → **6.2 million**  
RMRJ → **12 million**

» IBGE 2022



# KEY STRATEGIES



**Preparedness:** urban resilience, epidemic surveillance and climate adaptation.



**Digital Care:** chatbots with service follow-up and preventive communication build trust.



**Sovereign Digital Infrastructure for Development:** capacity building for open tools and a plan to reduce global dependence.



**Technological Productive Inclusion and Social Protection:** support for digital entrepreneurship.



**Brazil has the highest number of influencers on Instagram in the world!**  
25 million people run small businesses on the platform



# KEY STRATEGIES **PREPAREDNESS**

# Epidemic Intelligence Center

- **Created during the Covid-19 pandemic**, it monitors, prevents, and responds to epidemiological risks.
- **Digitization of all health units** with electronic medical records, integration of databases (over 250 million data points in the datalake), use of statistical and predictive models.
- **Algorithms analyze, every 30 minutes**, all electronic medical records issuing real-time alerts for identified risks.
- **Monitoring** of measles and tuberculosis.
- **Forecasting and nowcasting of dengue cases**: lowest lethality rates of dengue ever recorded in Rio de Janeiro in 2024.



# Operations and Resilience Center (COR)

→ **Created in response to the heavy rains** of 2010 to prevent and mitigate the impacts of landslides and floods.

→ **24/7 operations:** meteorological radars, cameras, sensors, siren systems, and support points. Covers major events (street carnival, concerts, international summits).

→ **Alerta Rio:** monitors rainfall and meteorological indices with its own service that adapts models to local data. Issues alerts to public agencies and the population.

→ **Public Safety – Electronic Surveillance System:** radars and cameras with intelligence analytics integrated with police forces in order to coordinate security operations. Tracks the movement of suspicious vehicles.



# MIT Senseable City Lab Rio

→ **Radars** to develop new knowledge to better understand Rio's physical, digital, natural and social environments.

→ Utilizes **Visual AI, big data analytics, and sensing platforms** to study informal settlements (favelas).

→ Conducted a program for **citizen-generated data** on heat stress in the Maré favelas.



# Development of Hydric Digital Twins

→ **Real-time hydric simulations** powered by sensors, historical data, and mathematical models.

→ **Applications in Rio:** monitoring, forecasting, and optimizing responses to risks of floods, landslides, and other hazards.

→ **Pilot sites:** Rocinha and the Acari River basin.





# KEY STRATEGIES **DIGITAL CARE**

# Citizenship

→ **Carioca Digital:** digital government platform with a single interoperable login, providing access to multiple services + city's official ombudsman and complaints channel.

# Digital Companion

→ **E AÍ?** AI-powered chatbot designed to guide citizens. Beyond simplifying direct communication, the tool proactively offers services, anticipating needs and making interactions more user-friendly. Programmed by a team of 50 developers.

**Example:** active search within "*CadÚnico*" enabled the inclusion of 5,400 families in social programs.





# KEY STRATEGIES SOVEREIGN DIGITAL INFRASTRUCTURE FOR DEVELOPMENT



# SOVEREIGN DIGITAL INFRASTRUCTURE FOR DEVELOPMENT



→ **Largest Data Center Hub in Latin America.** Capacity of 1.8 GW by 2027, fully powered by hydroelectric energy (with closed-circuit cooling).

→ Federal government will acquire a **supercomputer of 550 PFLOPs** (powered by solar energy).

→ **National data infrastructure** to host cloud services (Serpro and Dataprev).



Since 2014, the **Federal Government has spent over R\$ 24 billion on software licenses**, cloud services from companies such as Google, Microsoft, and Oracle. A plan must be made to build sovereign tools to manage national data.



**CLOUD Act** allows the US government to access data stored by US companies without individual court approval (even if it is processed exclusively by subsidiaries and stored abroad). In 2025 Trump interfered in the Privacy and Civil Liberties Oversight Board (PCLOB), the key US oversight authority.



## Municipal Datalake

- **Data Integration:** consolidates information from more than 20 municipal departments (Health, Education, Transport, Social Assistance, Public Safety, etc.).
- **Access Governance:** differentiated internal and external profiles with appropriate permission levels.
- **Access and Transparency:** data available through public portal, APIs, interactive dashboards, and technical documentation.
- **Modern Infrastructure:** Google Cloud (BigQuery, Cloud Storage, GKE, Dialogflow, Vertex AI, Gemini).

## Results and Impact

- **4.7 billion records** (global innovation case by Google Cloud)
- **41.3 TB of data** stored
- **9.5 TB processed** daily
- Integration across **49 systems**
- **10.5 million queries** performed
- Over **6 million OCR readings** per day in the CIVITAS project
- **1,400+ cases triggered** by image capture with generative AI
- Chatbot **reduced average response time** from 30 to 5 minutes





## AI & Innovation Strategy

- **Boost** strategic sectoral verticals (beyond oil)
- National integration into the **PBIA – Brazilian Artificial Intelligence Plan**.
- Creation of **Brazilian companies to develop national technological solutions** and guarantee of data sovereignty.
- **Qualified jobs and training** of AI talent.

**Strategic goal:** reduce dependency in the medium term.





# Applied Research Center in Artificial Intelligence for Government, Smart and Resilient Cities

- **A city consortium** of universities, research centers, and laboratories.
- **Development of a sovereign AI:** a flagship open-source Carioca AI model, designed to drive innovation, ensure data sovereignty, and strengthen technological autonomy.



## 1 – Rio.IA

→ **AI Innovation Hub** for the national industry, aligned with **Nova Indústria Brasil**, the Federal Government's program.

## 2 – Sandbox.Rio

## 3 – Desafio Rio

→ Municipal Public Procurement to mobilize startups, companies, and research centers to develop solutions for the city's needs.

- Collection of organic waste and production of bio-inputs (COMLURB).
- 3D flood simulation (COR).
- Enhancement of meteorological forecasting (COR).
- Unified registry of urban conservation interventions (SECONSERVA).
- Smart public procurement portal (SMF)





KEY STRATEGIES

# **TECHNOLOGICAL PRODUCTIVE INCLUSION AND SOCIAL PROTECTION**



## Technological Inclusion and Protection to Digital Work

### Naves do Conhecimento ("Knowledge spaceships")

→ **Digital Inclusion and Technology Democratization Hubs** located in Rio de Janeiro's most vulnerable territories.

Courses in basic computing, creative economy, information technologies, robotics, programming, work, and entrepreneurship. Accesses: over 1 million since 2023. Opportunities offered (courses, lectures, workshops, and training sessions): 400,000.



## Inova Periferia: digital entrepreneurship with state protection

### → Innovation in Rio de Janeiro's peripheral regions

- **Local Innovation Plan:** mapping and developing territorial innovation ecosystems, promoting inclusion.
- **Carioca de Impacto:** incubation of impact-driven businesses with mentoring, prototyping, and a public call to support up to 100 MVPs per year.
- **Rio Social Technology Award.**
- **University Connection:** integration between university extension projects and the Knowledge Hubs, expanding technological training, mentoring, and incubation in local territories.
- **Ciclo Carioca:** online course marketplace with matchmaking for employability.



## Education

### Technological Educational Gymnasiums

→ Focused on **STEAM** and sustainability. Based on maker culture, they provide spaces for experimentation and collaboration, equipped for modern teaching practices.

## IMPATech

→ IMPATech, an initiative of the **Institute for Pure and Applied Mathematics (IMPA)**, trains national talent in mathematics applied to technology and innovation, connecting them with companies and startups at **Porto Maravalley**.

- **Bachelor's in Mathematics of Technology and Innovation:** students selected from among the best in national Science Olympiads.
- **Comprehensive support:** scholarships, housing, and meals provided throughout the four years of study.



## Jovens Cientistas Cariocas ("Young Carioca Scientists")

→ The program connects **academic knowledge to solving local problems**, offering scholarships for university students to develop projects addressing the challenges of their communities.

- **Network:** former participants, now university students, act as mentors, sharing knowledge and experiences.
- **Bora Fazer:** seed funding to support project maturation.
- **Science Communicators:** influencers and digital communicators expand the visibility of initiatives and promote dialogue with the population.



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# TECHNOLOGY IN THE SERVICE OF THE COMMON GOOD AND SOCIAL TRANSFORMATION.

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