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GOVERNING ARTIFICIAL INTELLIGENCE IN FEDERAL SYSTEMS

Adoption and Development of Artificial Intelligence in the Brazilian Federation

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KEY TAKEAWAY

Brazil's experience shows that advancing AI in a federal system requires strong intergovernmental coordination, sustained political support, and collaboration between government, academia, and industry. While national digital government initiatives provide an important foundation, significant differences in subnational capacity remain. State-level examples such as Goiás and São Paulo demonstrate how public-private partnerships, talent development, and innovation ecosystems can accelerate AI adoption. At the same time, emerging debates over AI regulation highlight the need to balance innovation with safeguards, making policy continuity and cooperative governance critical to long-term success.

> ***"Brazil has a well stablished science, technology and innovation system (STI). While successful in terms of its scientific production, the Brazilian national innovation system still faces challenges when it comes to making national firms more innovative."***

THE ISSUE

Provision of Digital Public Services

Brazil is a three-tier federation that ranks highly in international digital government rankings. However, despite this relative success, **administrative capabilities vary greatly across the country, with small municipalities usually lacking the capacity required to implement the best digital processes.** To help address these disparities, many international and domestically funded initiatives are being implemented to improve the provision of digital public services in Brazil.

Initiatives to Improve Digital Public Services in Brazil

1. The Federal Program for Digital Government and Infrastructure (PRODIGITAL): A jointly funded initiative between the Inter-American Development Bank (IDB) ($150 million USD) and the Brazilian National Development Bank (BNDES) ($30 million USD), this program aims to accelerate digital transformation projects in municipalities with more than 100,000 inhabitants, as well as Brazilian states and the Federal District.

2. Brazilian States and Municipalities Digital Acceleration Project: The World Bank and Caixa Econômica Federal (a Brazilian federal bank) have partnered to support this $500 million USD project which aims to expand financing to increase access to and inclusive use of broadband internet and digital government services in underserved states and municipalities.

However, despite these substantial investments, both projects are aimed at digital govemment and are not specifically designed to address artificial intelligence (AI). This reflects the current state of affairs regarding efforts in digital technologies in Brazilian governments where a focus on AI is the exception, not the rule.

The Brazilian National Innovation System

Brazil has a well stablished science, technology and innovation system (STI). The federal branch of the Brazilian innovation system is led by three ministries: Science, Technology and Innovation (MCTI), Education (MEC) and Development, Industry, Commerce and Services (MDIC). Other industries involved include: the Ministry of Agriculture (MAPA), the Ministry of Health (MS), and the Ministry of Mining and Energy (MME). A number of other agencies and federal research institutions also work to support the STI ecosystem in Brazil.

While successful in terms of its scientific production, **the Brazilian national innovation system still faces challenges when it comes to making national firms more innovative.** Most examples of innovation come from only a few select federal research engines.

The states' branches of the innovation system are similar to those of the federal and vary by state. These state-based entities include innovation secretariats, funding agencies, research institutes and state universities. Disparities in innovation resources are also evident at the state level, with wealthier states, such as São Paulo having more complex STI systems capable of funding more initiatives.

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As the findings of this brief show, there is a favorable interconnection between national and state innovations systems..

The role of municipalities in the development of STI in Brazil is marginal. There are two main reasons for this. The first is that most of the scientific production is developed in federal or top state universities and there is a limited number of municipal institutions of higher education. And the second is that municipalities also lack funding resources and, therefore, agencies, to invest in science, technology and innovation.

AI Regulation and Plans in the Brazilian Federation

The Brazilian Federal Constitution designates science, technology, research, development, and innovation as matters of concurrent legislative competence between the Union and the states (including the Federal District). This means it is the Union's responsibility to establish general norms on the subject, while states may supplement federal legislation by adapting it to their local contexts. An important aspect of this rule is that **as long as the Union has not enacted a law on the topic (as is the case with AI), states may provisionally exercise full legislative competence within their territories through the creation of both general and specific regulations**.

With regards to federal regulation, a new bill – inspired by the European Union AI act – has been approved by the Senate and is being discussed in the Chamber of Deputies.

While a legislative decision is still pending, the federal ministry for Science, Innovation, and Technology (MCTI) has been responsible for both the Brazilian Strategy for Artificial Intelligence (EBIA) and for the Brazilian Artificial Intelligence Plan (PBIA). These two federal initiatives state that Brazil aims to be a global model of efficiency and innovation in the sustainable use of AI, developing national solutions with a sectoral focus in health, education and the public sector.

Summary of Brazilian AI Strategy and Plan

1. The Brazilian Artificial Intelligence Strategy (EBIA): The public policy framework that guides Brazilian government actions to develop, adopt, and use Artificial Intelligence (AI) in an ethical, responsible, and competitive manner, aligned with Organization for Economic Co-Operation and Development (OECD) recommendations and integrated into the federal government's digital strategies.. EBIA has three horizontal axes: (i) legislation, regulation and ethical use, (ii) AI governance and (iii) international aspects.

2. The Brazilian Artificial Intelligence Plan (PBIA): The National plan aims to transform the country into a global reference for sustainable AI by increasing productivity and improving the provision of public services. PBIA considers the creation of a sovereign cloud - a national data storage infrastructure - and emphasizes the importance of improving the lives of people, promoting social inclusion, professional qualification and generation of new employment opportunities.

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Brazil has a Strong Culture of Coordination Related to Digital Public Services Provision

One of the reasons why Brazil is well ranked in international digital government evaluations, is **the foundation of digital infrastructure and provision of services available through the GOV.BR platform**, which has more than 140 million users.

Created in 2022, the platform offers many tools including those for self-diagnostics, preparation of action plans, and pre-projects for the financing of these plans. Since its creation, the accession of municipalities to the platform has been automated, and they are able to access these tools and solutions. It is also an authentication mechanism that Brazilian citizens must use to access many public digital services, such as military, health and voting records.

According to officers from Ministry of Management and Innovation (MGI), the National Network of Digital Government (*Rede Gov.br*) provides a *locus* where subnational entities can search for digital government approaches and where the Ministry is able to connect the needs to solutions or solutions providers.

The Triple Helix Approach to AI Development Offers Opportunities for Advancement and Innovation

This partnership between government, academia and firms is known in the STI literature as the triple helix. The state of Goiás has emerged in the Brazilian context as a leader in the implementation of this triple helix approach to AI development.

The Triple Helix Approach in Goiás

1. Created the first law for AI in the country. This has now been approved by state legislators. In the first article, the law states that one of its goals is to consolidate Goiás as a strategic hub for innovation in Brazil. In the second article the law recognizes the active role of the state of Goiás in the support for research and development of AI. The law tries to balance the importance of citizens' rights, on the one hand, and innovation, on the other.

2. Established the first bachelor's degree for AI in the country, created by the Federal University of Goiás (UFG). Even though UFG is a federal university, the creation of the bachelor's program was suggested by the state government. UFG has developed a successful research center for AI, with joint sponsorship by the Brazilian Agency for Research and Industrial Innovation (Embrapii) and Foundation for the Support of Research of the state of Goiás (FAPEG). UFG's Center of Excellence for Artificial Intelligence (CEIA) and Center of Competence for Immersive Technologies (AKCIT) were both accredited under Embrapii. Embrapii's competence centers are devoted to emerging technologies, and AKCIT is the only one with a more direct application of AI technologies. CEIA has distinguished itself by the development of innovations demanded by the private sector.

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3. Created a prize for the development of solutions based on AI. The prize GO.IA is organized by FAPEG and the Secretariat for Science, Technology and Innovation, and gives around US$ 200,000 in prizes for solutions based preferably on open source code, with social, economic and environmental impacts.

4. Created Hub Goiás, which represents the entrepreneurial layer of the ecosystem and expands cooperation beyond the federal-state axis. It is an initiative of the Government of Goiás, linked to SECTI and operated in partnership with Porto Digital, a technology park located in Recife, Pernambuco. The Hub seeks to strengthen Goiás' innovation environment and support startups and entrepreneurs (HUB GOIÁS, 2026). This relationship is represented by the transfer of technologies, know-how, and talent from CEIA to the Hub, and by the channeling of startups, innovation demands, and market connections in the opposite direction.

The Goiás case illustrates the **importance of federative cooperation in the development of strategic solutions for the public sector and society at large**. This is something that needs to be developed in the entire Brazilian innovation system. The state of Goiás has set goals for the development of these public-private partnerships, which have funded the development of a system of scholarships alongside the traditional support provided by federal organizations such as the Coordination for the Improvement of Higher Education Personnel (Capes) and the National Council for Scientific and Technological Development (CNPq). UFG's scholarships sponsor students from all levels, from undergraduate to post-doc students.

Another example of a state-led AI ecosystem innovation has been developed in São Paulo, led by the Technological Research Institute (*Instituto de Pesquisas Tecnológicas* - IPT), a 127-year-old São Paulo state research agency located at the University of São Paulo Campus. The research institute is a member of the Paulista System of Innovation Environments (SPAI).

The Open Technology Program at IPT (IPT Open) has established research and development programs focused on AI and biotechnology in partnership with startups and larger firms. It is supported by the Secretary of Science, Technology and Innovation of the State of São Paulo and MDIC. The IPT Open has 14 partners, and the program has attracted $100 million USD in investment.

On AI specific initiatives, IPT Open has attracted a $20 million USD investment from Google to focus on cyber security solutions based on AI technology. The initiative will employ 400 professionals.

Contradictions Exist Between Proposed Laws and Existing AI Regulation and Plans

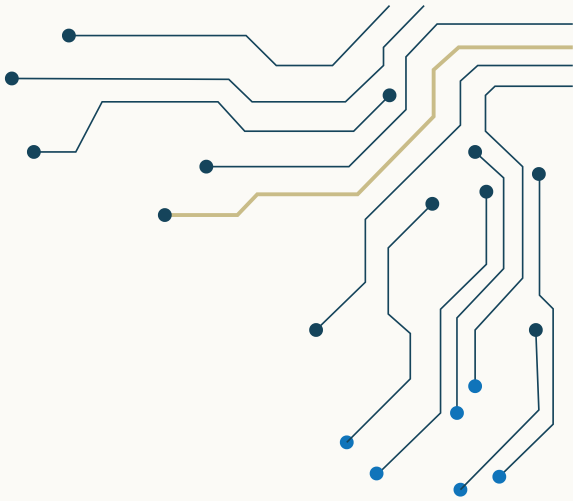
As mentioned above, the Proposed Law 2,338/2023 (PL 2,338) on AI regulation was approved by the Brazilian Senate and is being examined by the Chamber of Deputies. The proposed law was heavily inspired by the European Union AI Act. It classifies AI models

THE FINDINGS

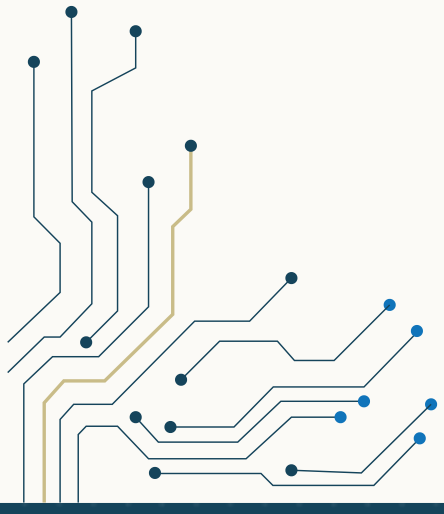
according to their risk and creates many obligations for AI developers - especially those involved in models which are considered to be high risk.

Given these obligations, it has been the object of heated debate. Some argue that it creates responsibilities which conflict with policies foreseen in Brazil's Artificial Intelligence Plan (PBIA). For example, 54% of PBIA's actions of immediate impact are regarded as of high risk by the new proposed law . This is a worldwide debate, where the European continental model is more focused on the rights of citizens and Japan, the United Kingdom and the United States with have a greater focus on innovation. As outlined above, the legislation in Goiás seems to be more aligned with the second model.

At the state level, in 2025 Goiás enacted Complementary Law 205. This law emphasizes, in many articles, the cooperation between Higher Education Institutes – HEI (including UFG), startups, firms and public and multilateral organizations. It creates a Center for Ethics and Innovation in Artificial Intelligence, a state regulatory sandbox for artificial intelligence and stimulates the creation of autonomous AI agents, a topic which has gained greater traction in 2026.

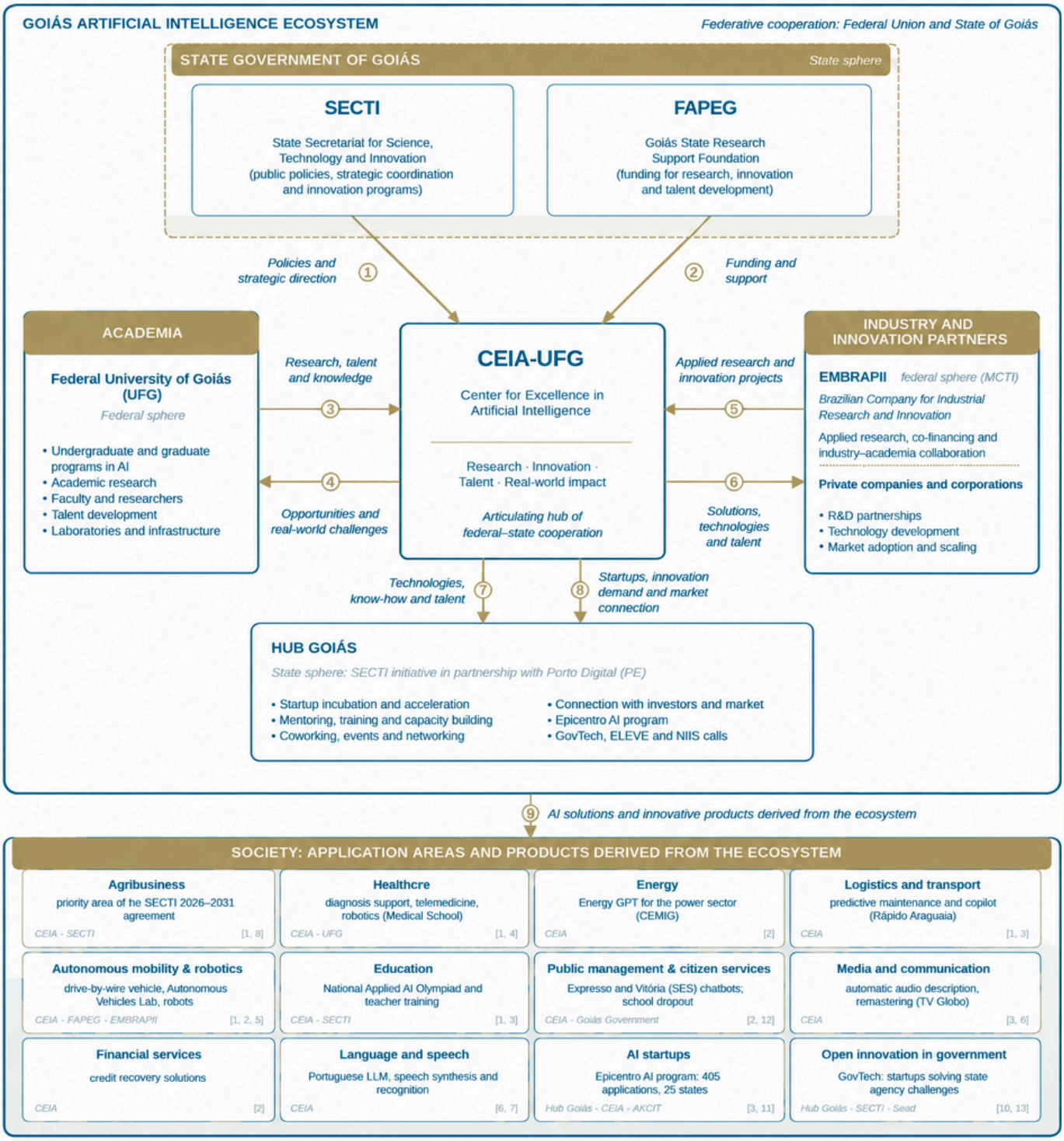


> ***"Strategic vision of individuals and senior government support seem to be a critical aspect of successful technological initiatives within the government."***



THE FINDINGS

The Goiás AI Ecosystem



POLICY LESSONS

There is Need for Both Strategic Vision and Government Support

Brazil has many historical examples of individual initiatives within the government arena that have produced technological successes. For example, Casimiro Montenegro was a military official who founded the Military Airmail in 1931, and later created the Institute for Aeronautical Technology (ITA) in 1950. ITA created the technological basis for the foundation of Embraer in 1969 by Osires Silva, another military officer. Embraer became the third largest aircraft manufacturer in the world, an achievement unexpected for a developing country.

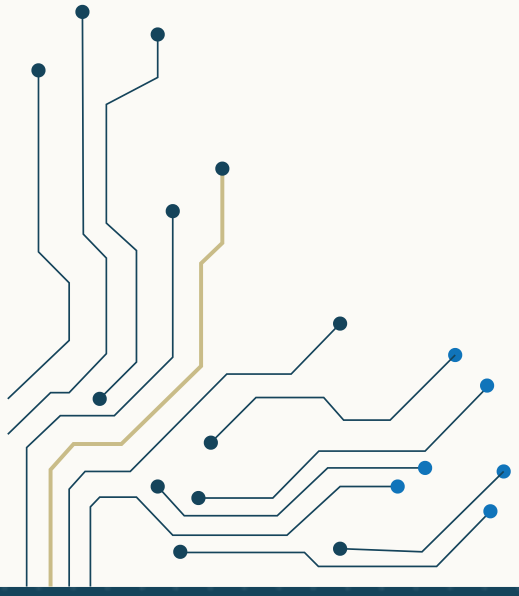
In another example, Embrapa the federal agricultural research agency responsible for numerous technological advances, was created on the initiative of Eliseu Alves (former Director and President of Embrapa) and other colleagues. Embrapa would in time enable Brazil to become one of the world's main exporters of agricultural commodities

The successful AI initiatives developed by the state of Goiás seem to show a similar pattern to the cases of ITA, Embraer, and Embrapa. **Strategic vision of individuals and senior government support seem to be a critical aspect of successful technological initiatives within the government**. Political will is another related component critical to advancement.

Continuity of Public Policies is Essential for Development

When governments of all levels around the world take office, it is very common for incumbents to deliberately ignore previous governments' initiatives and start from scratch. The successful cases of Embraer, Embrapa and GOV.BR mentioned previously **highlight the fundamental importance of adding value to what has been built before.** On one hand, it is hard to build initiatives within the government arena, and, on the other hand, it is easy to destroy them, especially when it comes to development of science, technology and innovation.

One of the reasons this lack of continuity might occur is because many leading senior and mid-level management positions are filled according to political criteria only. Having these positions occupied not only to political affinity but also to technical expertise might increase the chances of the continuity of good public policies.



POLICY LESSONS

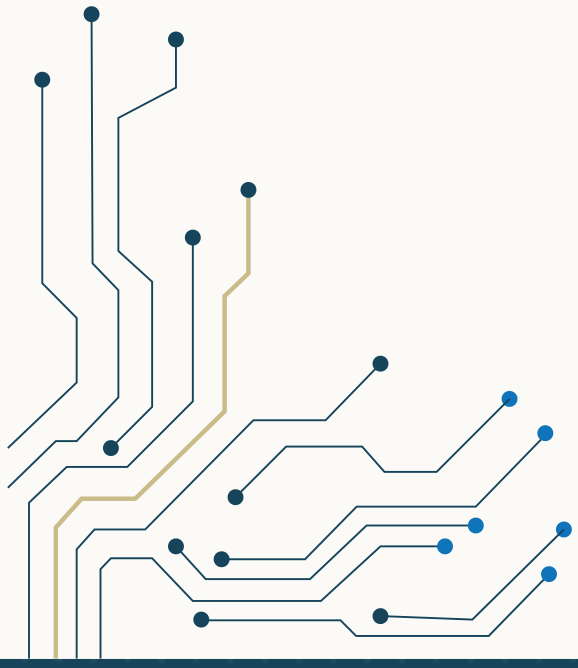
Political Will Dictates Opportunities for State Initiatives and Public Private Partnerships

State legislatures are unicameral in Brazil, an institutional feature that appears to accelerate the approval of public policy initiatives by the states. The Brazilian national innovation system seems to favor collaboration between federal and state innovation institutions, because the federal funding calls are open to federal, state and even private research institutes. Findings also show that it is possible to promote public private partnerships in the development of innovation in general, and AI, in particular - still an Achilles heel of the Brazilian national innovation system.

Due to the bureaucratic nature of Brazilian judiciary and control systems, "pen blackout" ("*apagão das canetas*") is an expression that captures the apprehension public officers have of making decisions for fear of facing administrative and even criminal consequences, even when the initiatives are necessary for the public good. This fear is particularly true when public resources are transferred to the private sector. **Political will is necessary to break this inertia**, especially in areas of new and potentially transformative technological advancement, such as AI.

The opinions expressed in this publication are the exclusive responsibility of the authors, not necessarily expressing the official views of the Institute for Applied Economic Research and the Ministry of Planning and Budget.

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