Internet Sectoral Overview

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Data centers in Brazil

Mapping the digital infrastructure in Brazil, notes for a study on data centers

By Rodrigo Brandão[1] and Leonardo Melo Lins[2]

Introduction

The volume and intensity of data flows have been increasing steadily on a global scale. Mobile and fixed broadband traffic have shown sustained expansion, reflecting the growing demand for high-capacity connectivity (Global System for Mobile Communications Association [GSMA], 2025; International Telecommunication Union [ITU], 2023a). This trend is driven by the intensification of the digitization of economies and societies, which significantly expands the need for infrastructure capable of supporting the generation, processing, and storage of data on a large scale, including cloud services. In this context, especially with the advancement of applications based on Artificial Intelligence (AI), debates about the infrastructure needed to support this digital ecosystem are reinforced, with data centers occupying a central position due to the role they play in supporting systems and services based on large volumes of data (Brazilian Presidency of the G20, 2024; Integrated Research Center in Artificial Intelligence [Cenia], 2024; Lehdonvirta et al., 2025; Maslej et al., 2025; United Nations Educational, Scientific and Cultural Organization [UNESCO], 2023).

Despite the intensification of public debate on this type of digital infrastructure, there is still a scarcity of public, systematic, and internationally comparable data for monitoring and evaluating policies related to this modality. Faced with this gap, Cetic.br | NIC.br undertook the challenge of establishing an initial framework for mapping Brazilian digital infrastructure, focusing initially on identifying and characterizing existing data centers in the country.

Considering the lack of consolidated international references and, at the same time, the absence of universal registries or specific public records that clearly identify data centers in Brazil, the mapping task required the adoption of innovative search and identification strategies, developed based on principles of transparency, replicability, and reliability, in order to define the current universe of data centers in the national territory. In this regard, the study conducted by Cetic.br | NIC.br constitutes an unprecedented and initial contribution to establishing an empirical basis

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for monitoring data centers in the country, which is essential for the formulation of evidence-based public policies.

This article presents a systematization of the methodological paths taken and the results obtained in this initial phase of the research, whose objective was to establish and delimit the universe of data centers in Brazil. To this end, in addition to identification and location strategies, basic characteristics were defined that allow for the conceptual delimitation of what constitutes a data center unit, focusing—at this stage of the study—on the units as facilities, without yet addressing the stages and components of the sector's production chain, such as equipment and other associated elements. The themes and analytical dimensions to be considered in the next stages of the project, aimed at deepening the investigation into this type of infrastructure, were also explored.

The stages, procedures adopted, and results obtained throughout this exploratory study will be detailed in the following sections. First, an overview of the public discussion on data centers in Brazil and internationally is presented, highlighting the scarcity of public, systematic, and comparable data between countries, as well as the main themes and agendas that guide this debate. Finally, the article briefly outlines the next steps for Cetic.br|NIC.br to further investigate this type of digital infrastructure in the national context.

Data centers: a brief overview of the public debate

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In addition to highlighting the centrality of data centers to the functioning of current social and economic dynamics, by enabling data flows between networks, applications, and users, the public debate on this infrastructure has focused on the connectivity and natural resource requirements inherent to it, as well as the substantial sums that these ventures move in the markets of different countries.

Recent reports indicate that the expansion of this type of digital infrastructure is directly related to the need for high-capacity, low-latency networks capable of supporting distributed architectures and increasingly complex digital services (Freire, 2025; Santos, 2024). Debates about the natural resources demanded by data centers, in turn, have focused primarily on the energy and water usage of these facilities, although land-related issues, local economic impacts, and enterprises' sustainability commitments have also been attracting increasing attention from analysts (Brasscom, 2025; Brazilian Institute of Consumer Protection [Idec], 2025; Laboratory of Public Policy and Interenet [Lapin], 2025; Ngata et al., 2025; Offutt & Zhu, 2025; Zhu, 2025).

Regarding energy, it is worth highlighting that

> From 2018 to 2022, electricity consumption by 13 of the largest data centre operators more than doubled. Worldwide, data centres are estimated to have consumed as much energy as France in 2022—460 terawatt-hours (TWh) of electricity. Their energy consumption is expected by the International Energy Agency to double to 1,000 TWh in 2026. (United Nations Conference on Trade and Development [UNCTAD], 2024, section "Increasing energy and water use in the digital era", para. 2)

The consulting firm McKinsey & Company (Srivathsan et al., 2024) estimates that global demand for data center capacity could grow between 19% and 22% annually until 2030, reaching between 171 and 219 gigawatts (GW); in a more aggressive scenario, this growth could reach 27%, reaching 298 GW (Srivathsan et al., 2024). The Boston Consulting Group (BCG) projects that the demand for data center energy will grow at a compound annual rate of 16% between 2023 and 2028, driven mainly by Generative AI applications (Lee et al., 2025). In Brazil,

> Data from the MME shows that the projected load for data centers will grow significantly in the coming years, reaching 2.5 GW by 2037, considering only new projects in the states of São Paulo, Rio Grande do Sul, and Ceará. (Ministry of Mines and Energy [MME], 2024, para. 2)[3]

Regarding water resources, it is increasingly common to argue that newer architectures drastically reduce (and, in some cases, practically eliminate) water use for cooling, bringing water usage effectiveness (WUE) closer to zero.[4] At the same time, academic studies and news reports warn that where there is evaporative cooling or strong indirect water dependency—via electricity generation—water consumption can be significant, highlighting that choice of construction site, system design, and data transparency are relevant factors in discussions about data centers (Barratt, 2025; Carvalho, 2025; Davis, 2024; ITU & World Bank, 2023; Li et al., 2025; Mytton, 2021; Vick, 2024; Yañez-Barnuevo, 2025).

In economic terms, the growth dynamics and magnitude of investments mobilized globally stand out. Estimates range from US$1 trillion by 2027 (PricewaterhouseCoopers, 2024) to US$6.7 trillion by 2030 (Noffsinger et al., 2025), while BCG projects US$1.8 trillion by 2030 specifically to unlock bottlenecks and accelerate the deployment of data centers, especially for AI workloads (Lee et al., 2025). In Latin America, the market was valued at US$7.16 billion in 2024 and could reach US$14.30 billion in 2030 (ResearchAndMarkets, 2025), following the increased presence of major players in the region. Google, for example, announced investments of US$850 million in a new data center to be built in Uruguay (López, 2024). In Brazil, specifically, the pace of expansion is also accelerating. In September 2024, Microsoft announced an investment of R$14.7 billion over three years (Reuters, 2024b), and Amazon Web Services (AWS) reported an investment of R$10.1 billion by 2034 (Reuters, 2024a). In October 2025, Brazilian authorities stated that the construction of a large TikTok data center in the Pecém Port Complex[5] in Ceará will generate around R$50 billion in economic activity (Granado, 2025). In parallel, operators like Equinix are treating Brazil as a priority market and expanding their local operations (Reuters, 2025).

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[3] Currently, Brazil's regulated energy capacity is 212.5 GW (MME, 2025). Press reports indicate that the largest data center in operation in the country has 61 MW (Teixeira, 2025) and that data centers already installed account for a load of 800 MW (Couto, 2025). Brasscom (2025), in turn, calculates that, in 2024, the demand for power from Brazilian data centers was 843 MW.

[4] The WUE indicator quantifies the relationship between the total volume of water used by a data center and the energy used by its IT equipment. It is expressed in liters per kilowatt-hour (L/kWh). The closer the value is to zero, the lower the relative water usage and the greater the efficiency in the use of this resource.

[5] Find out more: https://www.complexodopecem.com.br/institucional/

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Seeking to strengthen Brazil's position in the Latin American and global data center landscape, the federal government has been employing a range of public policy instruments. In this edition of the Internet Sectoral Overview,[6] Cristiane Rauen (director of the Ministry of Development, Industry, Trade and Services [MDIC]), Igor Marchesini (special advisor to the minister of Finance [ministro da Fazenda]), and Henrique de Oliveira Miguel (secretary of Science and Technology for Digital Transformation of the Ministry of Science, Technology and Innovation[MCTI]) address this topic. This article highlights that the Energy Research Office (EPE) and the Ministry of Mines and Energy (MME) have been conducting planning studies to address the projected growth in data centers (MME, 2024), including data collection on these facilities.[7]

The Brazilian Artificial Intelligence Plan (PBIA),[8] in turn, provides—among other actions—support for the creation of data centers powered by renewable energy sources, prioritizing the North and Northeast regions, with resources amounting to R$2.3 billion for the period 2024-2028 from the Brazilian Development Bank (BNDES) and the National Fund for Scientific and Technological Development (FNDCT) (MCTI, 2025). Within the scope of the New Industry Brazil (NIB) program, BNDES announced, in 2024, a specific credit line for investment in data centers in the country, with a budget of R$2 billion (MDIC, 2024). Furthermore, the development of the National Datacenter Policy (PNDC)[9] is included in the list of 25 initiatives considered as priorities by the government for the 2025-2026 biennium (Ministry of Finance, 2025). Linked to the NIB program, Mission 4 ("Digital Transformation"), the PNDC includes initiatives to promote the data center production chain and the Special Taxation Regime for Data Center Services (Redata) (MDIC, n.d., 2025). The policy has been the subject of ongoing public consultations aimed at improving it (MDIC, n.d.; Ministry of Communication [MCOM], 2025).

Established by Provisional Measure No. 1.318/2025, Redata aims to attract and accelerate investments in the installation and expansion of data centers. The program aims to reduce dependence on foreign digital services and strengthen national sovereignty and data processing capacity. The regime provides exemptions related to the Social Integration Program and the Public Servant's Asset Formation Program (PIS/Pasep), the Contribution to Social Security Financing (Cofins), and the Tax on Industrialized Products (IPI) on the acquisition of information and communication technology (ICT) equipment—imported or produced in Brazil—intended for the implementation, expansion, and maintenance of data centers, as well as exemption from import tax when there is no similar national product. In return, it establishes the obligation to invest, in research and development within Brazil's digital production chains, at least the equivalent of 2% of the value of the products purchased, and to reserve 10% of the processing, storage, and data handling capacity for the domestic market, with a 20% reduction in these two obligations for projects in

[6] Find out more: https://www.cetic.br/pt/panoramas/
[7] Available at: https://www.epe.gov.br/pt/areas-de-atuacao/energia-eletrica/coleta-de-dados-de-data-center
[8] Find out more: http://www.gov.br/Incc/pt-br/assuntos/noticias/ultimas-noticias-1/plano-brasileiro-de-inteligencia-artificial-pbia-2024-2028
[9] Find out more: https://www.gov.br/mdic/pt-br/assuntos/sdic/inovacao/politica-nacional-de-datacenters-1

the North, Northeast, and Center-West regions. Compliance with sustainability criteria (use of renewable energy and water efficiency)—to be defined in further regulations—will be essential to access the program's benefits, which are valid for up to five years (MDIC, 2025).

Among other reasons, the measure is justified, according to a diagnosis by the Ministry of Finance, by "[...] the high national dependence on digital services provided abroad, currently reaching about 60% of national digital loads" (Provisional Measure No. 1.318/2025, p. 9). According to the institution,

> this situation implies substantial risks to national sovereignty, limits the operational performance of digital applications, and leads to significant deficits in the sector's trade balance. The difference in operational costs is a determining factor, with operations in Brazil being, on average, 30% more expensive than abroad, mainly due to taxation on ICT equipment. This scenario impacts the country's trade balance in the electrical and electronic products sector, generating a structural and growing deficit, which, in 2024, was approximately US$40 billion, according to data from the Brazilian Association of Electrical and Electronic Industries (Abinee). In the first half of 2025 alone, the indicator reached US$10.6 billion. There is also the deficit in Telecommunications and Computing in the country's services balance, which reached US$7.1 billion in 2024, with the largest share coming from the import of data processing/storage services. (Provisional Measure n. 1.318/2025, p. 9)

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Data centers: definitions and typologies

Despite the growing relevance of public discussions about data centers in Brazil and around the world, there remains a scarcity of public, systematic, and internationally comparable data for monitoring and evaluating policies in the sector. This absence stems, in part, from the lack of a widely accepted definition of the term "data center," although several specific definitions can be found in standards and technical documents. NBR ISO/IEC 22237-1, for example, defines a data center as

> A structure, or group of structures, dedicated to the centralized accommodation, interconnection, and operation of information technology equipment and telecommunications networks that provides data storage, processing, and transport services together with all power distribution and environmental control facilities and infrastructure, along with the necessary levels of recovery and security required to provide the desired service availability. (ISO, n.d., as cited in NIC.br, n.d.-b, p. 2)

In the executive order Accelerating Federal Permitting of Data Center Infrastructure, published by the government of the United States on July 23, 2025 as part of its Winning the Race – America's AI Action Plan, a data center project is defined as (...) a facility that requires greater than 100 megawatts (MW) of new load dedicated to AI inference, training, simulation, or synthetic data generation (...).

The ITU presents at least two definitions for a data center. The first establishes that it is a "facility used to house computer systems and associated components, such as telecommunications and storage systems" (ITU, 2021, p. 1). The second considers a data center as "[a] physical location dedicated to computing, as well as a telecom operator location, with equipment dedicated to telecommunication functions (e.g., switching functionality, billing)" (ITU, 2023b, p. 7).

In the United States, the

> [...] term data center has been defined in federal laws in the context of energy efficiency and federal use of data centers. For instance, the Energy Independence and Security Act of 2007 (P.L. 110-140, §453(a)(1)) defines a data center as a facility that "contains electronic equipment used to process, store, and transmit digital information." In its guidance (M-25-03) for federal agencies to implement the Federal Data Center Enhancement Act of 2023 (P.L. 118-31, §5302), the Office of Management and Budget specified that a data center (1) is composed of permanent structures and operates in a fixed location; (2) houses IT equipment, including servers and other high-performance computing devices, or data storage devices; and (3) hosts information and information systems accessed by other systems or by users on other devices. (Zhu, 2025, section "Overview of Data Centers", para. 2)

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In Brazil, Provisional Measure No. 1.318/2025 does not define data centers, but rather data center services, which correspond to services

> [...] provided by infrastructure and computing resources dedicated to the storage, processing, and management of data and digital applications, including cloud computing, high-performance computing, training and inference of artificial intelligence models and related services, and established by an act of the federal Executive Branch, in accordance with the Brazilian Nomenclature of Services – NBS. (Provisional Measure No. 1.318/2025, p. 3)

The Brazilian Data Center Association (ABDC), in turn, seeks to define the term in a simple and intuitive way. It posits that a data center can be understood as "the 'home' of the servers, which are the computers responsible for processing all the digital information we use daily. A set of servers forms a rack. A set of racks forms a data center. An interconnected set of data centers forms a cloud" (TV Senado, 2025).

The organization also points out a distinction between AI inference data centers and AI training data centers. The former

> are smaller data centers, closer to users, responsible for running AI with quick responses, such as requesting automatic captions, conversing with a virtual assistant, or using real-time AI. These will have to be installed closer to the end user; therefore, a given data center could serve all South America, for example. (TV Senado, 2025)

AI training data centers

> are [...] gigantic, with hundreds of megawatts of capacity, used to process enormous volumes of data and teach algorithms. Because they do not need to respond in real time, they can be installed in more remote locations – such as in Brazil instead of Colombia, Chile, Uruguay, India, Australia, the USA, Europe, etc. (TV Senado, 2025)

Given the lack of a consensual definition for the term "data center," it is common for this type of facility to be characterized in public discussion by its ownership and, above all, by the functions it performs. Some types commonly mentioned are as follows (Anatel, n.d.; Aquino, 2024; Prodest, n.d.; Santos, 2024):

- **Enterprise**: Data centers owned and operated by a single organization, focused on its internal IT workloads and services. They can be located on the enterprise's premises (on-premise) or in external facilities (off-premise), owned or operated by third parties.
- **Colocation**: Infrastructure that provides physical space, power, cooling, and security for multiple clients, who install and operate their own IT equipment there. In these shared environments, the service provider is responsible for the physical infrastructure and maintaining operational conditions, while the tenant enterprises maintain direct control over their servers and applications. The colocation model can serve corporate enterprises, cloud providers, and clients requiring hyperscale installations.
- **Hyperscale:** Large-scale facilities designed to process massive volumes of data and operate continuously. They are maintained by large technology enterprises—like Google, Amazon, and Microsoft—to support global service platforms, including social media, e-commerce, AI, and cloud computing. They require large physical areas, high energy consumption, and substantial investments in infrastructure and operational resilience. In general, the power of these installations is understood to range between 10 and 100 MW.
- **Cloud:** Infrastructures operated by cloud computing service providers that offer processing, storage, and network resources on demand. These data centers allow enterprises and organizations to rent both space and infrastructure, with flexible usage and pay-as-you-go pricing, reducing hardware and maintenance costs. They are maintained by large providers—such as AWS, Google Cloud, Microsoft Azure, and IBM Cloud—which generally operate hyperscale installations. It is worth highlighting that this edition of the Internet Sectoral Overview includes, in the "Answers to your questions" section, data produced by Cetic.br|NIC.br on access to cloud services by Brazilian enterprises, state and federal government organizations, and healthcare facilities.
- **Edge:** Smaller, decentralized facilities located close to end users or devices that generate and consume data. They are designed to process information locally, reducing latency and ensuring real-time responses for applications that require high speed and reliability. These centers can operate autonomously or in conjunction with cloud infrastructures, positioning themselves at the "edge" of the network, where physical proximity enables greater efficiency in data processing and delivery.

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Despite the lack of a consensual definition and typology for data centers, there are various efforts to map them, such as those carried out by private platforms like the Data Center Map[10] and the datacenterHawk[11] and by academic researchers, such as Konstantin Pilz and Lennart Heim, who estimate the existence of 10,000 to 30,000 data centers in the world, with the really large data centers, that is, those with a capacity greater than 100 MW, totaling 110 to 225 (Pilz & Heim, 2023). In Brazil, Freire (2025) announced that, aiming to ensure greater transparency, predictability, and regulatory intelligence, the National Telecommunications Agency (Anatel) will implement

> [...] an interactive dashboard that will allow for the cataloging, classification, monitoring, and continuous analysis of these data centers. This tool will enable the identification of geographic concentrations, mapping risks arising from local vulnerabilities, and fostering public policies that promote territorial diversity and the decentralization of critical infrastructure. (Freire, 2025, pp. 20-21)

The Brazilian Agency of Industrial Development (ABDI), in turn, presented a mapping of the data center market in operation in Brazil (as of June 2021), as well as investigations into implementation costs, international benchmarks for data center policies, a comparative analysis of competitiveness, and the business environment in the area. The report points out that

> Brazil is already the leading data center market in Latin America, bringing together 17 providers in 44 facilities. [...] It is estimated that digital traffic will take a big leap with the spread of new technologies, such as the Internet of Things and Artificial Intelligence. In the case of Brazil, the resumption of economic growth should also contribute to the increase in data consumption, hence the need to consider strategies for expanding the sector. (MDIC, 2023, para. 3)

The study conducted by ABDI represents a significant step toward mapping the national data center market and understanding its costs and competitive challenges. Even so, there is a lack of systematic, regularly updated public data on the universe of data centers operating in Brazil and, consequently, on the installed capacity in the country to meet the growing demand for digital infrastructure. To fill this gap, Cetic.br|NIC.br initiated the development of a mapping of digital infrastructure in Brazil, initially focused on identifying and characterizing the data centers in operation in the country. In the next section, we present the methodology developed by Cetic.br|NIC.br for defining the universe of data centers in Brazil.

[10] Find out more: https://www.datacentermap.com/
[11] Find out more: https://datacenterhawk.com/analytics

Cetic.br|NIC.br's methodology for outlining the universe of data centers in Brazil

Given the absence of a widely accepted definition of data centers and, by extension, a standardized typology for their classification, we initially sought to define the universe of structures that could potentially be considered as such. To this end, a comprehensive approach was adopted to build an initial registry that brings together structures that could be classified as data centers, regardless of their type (hyperscale, enterprise, colocation, cloud, or edge). Data from five different sources (PeeringDB,[12] Data Center Map, Uptime Institute,[13] Telecommunications Industry Association [TIA],[14] and IX.br[15]), consulted between May and June 2025, were used.

Before detailing these sources and the results obtained, it is important to note that, in a preliminary stage, an analysis of official business registries was carried out. Initially, enterprise statistics were analyzed according to the National Classification of Economic Activities (CNAE). More specifically, we analyzed Class 63.11-9 ("Data processing, application service providers and Internet hosting services"), belonging to group 63.1 ("Data processing, website hosting and other related activities"), included in division 63 ("Information services activities") of section J ("Information and Communication"). 62,580 facilities were identified, including 58,266 parent enterprises and 4,314 branches, that list this CNAE as their main activity. The high number of facilities classified in this category shows that this type of registry has significant limitations for use as an initial basis in defining the universe of data centers. In parallel, as a way to ascertain the potential use of the CNAE for this benchmarking, we checked whether three large Brazilian data centers were included in this list. We found that only one of them was included, while the main CNAE code of the other two corresponded to 77.39-0/99 ("Rental of other commercial and industrial machinery and equipment not specified above, without operator") or 77.33-1/00 ("Rental of office machinery and equipment").

This finding revealed that enterprises in Brazil with data center-related activities may be classified differently in the CNAE based on their main activities, thereby lacking a single category that uniquely links "sector" and "enterprise." Furthermore, the most significant limitation of this official registry is the inability to infer, based on the number of identified facilities, the actual presence of a data center. To do so, it would be necessary to contact each organization individually and verify the existence of these facilities, which would substantially expand the scope of the project. Thus, consulting official registries was insufficient because, although it is possible to identify enterprises operating in activities related to data centers, these databases do not provide information on the ownership of such facilities by organizations in other sectors.

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[12] Find out more: https://www.peeringdb.com/
[13] Find out more: https://uptimeinstitute.com/
[14] Find out more: https://tiaonline.org/
[15] Find out more: https://ix.br/

(...) we sought to identify alternative registries and sources of information to help define the universe of data centers in Brazil. We consulted two main types of sources: (a) those related to activities correlated to data centers; and (b) intentional registration sources, that is, information voluntarily made available by the data centers themselves.

Given this limitation, we sought to identify alternative registries and sources of information to help define the universe of data centers in Brazil. We consulted two main types of sources: (a) those related to activities correlated to data centers; and (b) intentional registration sources, that is, information voluntarily made available by the data centers themselves. In the first group, connectivity received special attention, considering that, in general, data centers handle high volumes of data. For this reason, they are expected to have an Autonomous System (AS), that is, a network managed by the organization itself (NIC.br, n.d.-a.). Since the purpose of an AS is to enable connection to other networks, there are several public registries of Autonomous System Numbers (ASN) available by country. In the case of Brazil, AS registration is linked to the National Registry of Legal Entities (CNPJ) and is carried out with NIC.br.[16] This adds further information to the registration and enables its integration with other relevant databases.

One of the main registries used to announce the possibility of interconnection between autonomous systems is the PeeringDB platform. This is

> [...] a freely available [...] database [...]. The database facilitates the global interconnection of networks at Internet Exchange Points (IXPs), data centers, and other interconnection facilities, and is the first stop in making interconnection decisions. (PeeringDB, n.d., para. 1).

On this platform, organizations report which AS are connected to their networks, and the initiative's team validates the existence of colocation infrastructure, classified as a facility. For this reason, it is advantageous for organizations operating data centers to register with PeeringDB, making the ASs integrated into their networks visible, which increases the reliability and transparency of their operations. Based on the facilities category, it is possible to identify data centers listed on the platform, using the prior validation performed by the PeeringDB team as a reference criterion. Furthermore, the Autonomous System Numbers associated with these facilities can, in most cases, be linked to their respective CNPJ, allowing for the addition of layers of information to the registration. On this platform, which is also being used by the World Bank for mapping data centers around the world (World Bank, n.d.), we identified 340 data centers in Brazil.

In addition to PeeringDB, we considered a second source of connectivity data: the Brazil Internet Exchange (IX.br). Coordinated by NIC.br, IX.br aims to decentralize Internet traffic in the country by bringing content closer to end users and, consequently, reducing distances, costs, and latency in access (Neves et al., 2025).[17] While not every AS corresponds to a data center, we believe this analytical approach is viable. Based on this, we identified public entities registered as ASs in the IX.br database and considered them as potential data center owners. This methodological choice proved necessary because, unlike private operators, public data centers generally lack clear incentives to register in open databases, such as PeeringDB, or to seek private certifications—another source of information we used, as we will see later in this section. Through this analysis, we identified 89 public data centers in the IX.br records.

[16] The procedures for requesting an autonomous system are available at: https://registro.br/tecnologia/numeracao/como-solicitar/

[17] IX.br provides a list of all participating organizations in each of its locations: https://ix.br/particip/sp

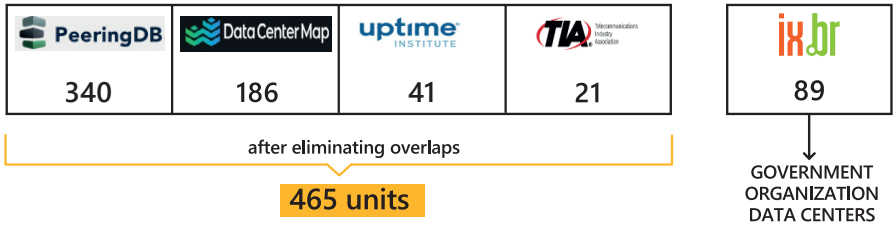
Among the sources of intentional registration, we initially turned to the Data Center Map platform (Data Center Map, n.d.), widely used by different actors in the digital infrastructure ecosystem. In this database, we identified 186 data centers in Brazil. It is important to highlight that the listed facilities predominantly offer colocation services; although this is one of the sector's main activities, it restricts the scope of the project, since it does not encompass all types of data centers operating in the country.

Additionally, we consulted data center certification bodies, since the construction and operation of these facilities follow various technical standards designed to ensure energy efficiency, security, and uninterrupted operation. In this context, obtaining recognized certifications is a strategic practice, as they attest to the infrastructure's compliance with international standards, reinforcing its credibility with the market and potential clients. Some certification enterprises, in turn, publicly provide information about the evaluated data centers, which allows these listings to be used as complementary databases for mapping purposes. In this phase of the project, we additionally used the Uptime Institute[18] and TIA[19] records, in which we identified, respectively, 41 and 21 data centers located in Brazil.

Based on the developed criteria, we listed the data centers identified in each of the consulted databases, seeking to establish common connectors—such as data center name, CNPJ, and postal code (CEP)—, with the goal of recognizing the same unit present in different registries and eliminating overlaps. This step was essential to building a consolidated universe of the study's target population. After integrating and debugging the records from the PeeringDB, Data Center Map, Uptime Institute, and TIA databases, we identified a total of 465 facilities that can be classified as potentially private data centers, regardless of the typology adopted. To this universe, we added the 89 data centers of government organizations identified in the IX.br database (Figure 1).

After integrating and debugging the records from the PeeringDB, Data Center Map, Uptime Institute, and TIA databases, we identified a total of 465 facilities that can be classified as potentially private data centers, regardless of the typology adopted. To this universe, we added the 89 data centers of government organizations identified in the IX.br database (...).

Figure 1 - DELIMITATION OF THE DATA CENTER UNIVERSE IN BRAZIL



Source: prepared by the authors.[20]

It is worth noting that, in this count, each physical unit was considered individually; i.e., if an enterprise has multiple data center units in Brazil, all were counted separately in our registry. Table 1 reveals the overlaps between the different sources consulted, that is, the units that are repeated among them.

[18] The list of installed structures certified by the Uptime Institute is available at: https://uptimeinstitute.com/uptime-institute-awards/list

[19] The list of data centers in Brazil certified by the TIA is available at: https://tiaonline.org/942-datacenters/?fwp_country=brazil

[20] Sources consulted between May and June 2025.

It can be observed that the state of São Paulo concentrates the majority of the country's data centers. (...) within this state, there is a strong concentration in the capital's metropolitan region.

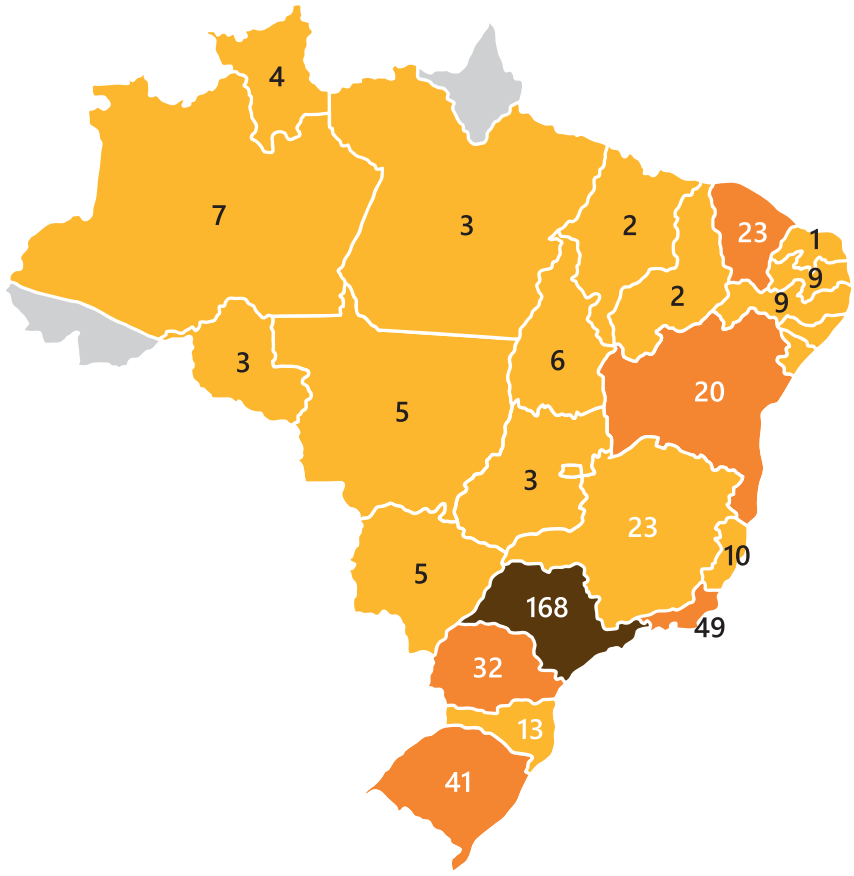
Table 1 - DATA CENTER OVERLAPS BETWEEN THE SOURCES CONSULTED

Overlaps	
PeeringDB and Data Center Map	94
PeeringDB and Uptime Institute	17
PeeringDB and TIA	18
PeeringDB and Data Center Map and Uptime Institute and TIA	4

Source: prepared by the authors.

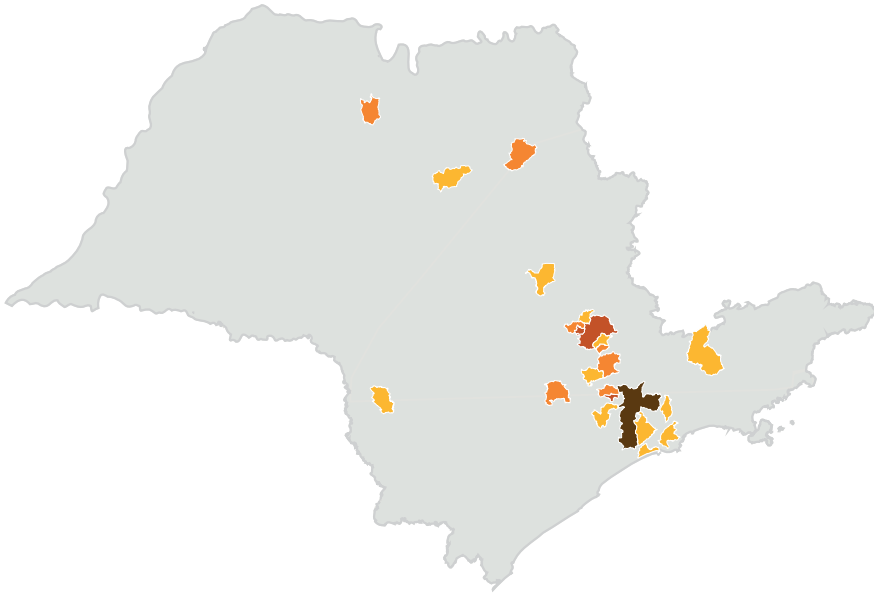
Figure 2 illustrates the geographic distribution of the identified facilities. It can be observed that the state of São Paulo concentrates the majority of the country's data centers. Figure 3 shows that, within this state, there is a strong concentration in the capital's metropolitan region.

Figure 2 - GEOGRAPHIC DISTRIBUTION OF THE 465 BRAZILIAN DATA CENTERS



Source: prepared by the authors.

Figure 3 - GEOGRAPHIC DISTRIBUTION OF THE 168 DATA CENTERS IN THE STATE OF SÃO PAULO



Source: prepared by the authors.

One limitation of the adopted methodology is the fact that facilities used exclusively for private purposes by the organizations themselves (and which, therefore, are not included in the available registries) were not captured by the mapping. Furthermore, other certifications—like TÜVRheinland[21]—will be incorporated throughout the project, gradually expanding the coverage and accuracy of the registry.

Moreover, each of the data sources used has specific characteristics and limitations. In the case of PeeringDB and Data Center Map, these are voluntary registration databases, which means that a data center can simply choose not to register. Additionally, there is no clarity regarding the verification or validation criteria for the information voluntarily provided by data centers, which may affect the completeness of the databases.

Registrations obtained through certifications, such as those from the Uptime Institute and TIA, also have their own limitations. Even established enterprises in the market do not always have all their units certified, while others choose not to seek any certification at all. In the specific case of TIA, the database includes certifications that have already expired, which requires caution when interpreting the results. Regarding IX.br, we recognize that the connection between AS and data centers, although promising, still lacks conceptual consolidation and should be interpreted as an exploratory identification strategy.

(...) each of the data sources used has specific characteristics and limitations. (...) Registrations obtained through certifications (...) also have their own limitations. Even established enterprises in the market do not always have all their units certified, while others choose not to seek any certification at all.

[21] Find out more: https://go.tuv.com/certificacao-de-data-centers

The data center mapping developed by Cetic.br|NIC.br represents a significant advance in understanding the digital infrastructures necessary for the intensification of digital transformation in Brazil. By integrating multiple data sources and adopting transparent, replicable methodological criteria, the study establishes an unprecedented empirical basis for monitoring this type of digital infrastructure (...).

Although it does not start from an exhaustive capture of all data center units in operation in Brazil, the constructed registry reflects the diversity of the sector, ranging from small enterprises with on-premise structures to large market players. Furthermore, the consistency observed in the cross-checking of the different sources used in this mapping indicates that the absolute total number of data center units available in Brazil is not exponentially higher or lower than the total identified.

Based on this initial universe, it will be possible to advance investigations into the current situation of data centers in Brazil, their characterization, and the socioeconomic conditions of their surroundings, among other issues. In 2026, the Cetic.br | NIC.br study will advance with new phases of collection and processing of secondary and primary data, which will result in a broader diagnosis of the current data center scenario in the country.

Among the activities to be carried out in the study, a new stage of refining the research scope is planned, as well as the creation of a dynamic and georeferenced registry, which will allow the addition of complementary secondary information to be included in the analyses. The consolidation of the registry will include, among other elements, the identification of the CNPJ of all mapped units, which will serve as a connection key with other datasets, allowing the construction of a broader data center database., with information such as the CNAE, statistics from the Central Register of Enterprises (CEMPRE)[22]—which include, among other aspects, information relating to the personnel employed—and publicly available databases on energy consumption, such as those published by the Chamber of Electric Energy Commercialization (CCEE) on the free energy market. Also, based on georeferenced data, it will be possible to conduct analyses on the proximity of data centers to water resources, energy and connectivity infrastructure, urban and/or residential areas, and characterizations of the economy surrounding the data centers.

In conclusion, we emphasize that the data center registry developed in this project will be subject to continuous updating through periodic evaluation of the relevance of the sources used and the incorporation of new databases that prove relevant over time. In addition, algorithms will be employed to maintain a dynamic registry, capable of automatically incorporating changes made to the sources that feed it, ensuring greater timeliness and comprehensiveness of the information. This process will be complemented by systematic stages of human verification and validation, ensuring the consistency, accuracy, and reliability of the registry.

Final considerations

The data center mapping developed by Cetic.br | NIC.br represents a significant advance in understanding the digital infrastructures necessary for the intensification of digital transformation in Brazil. By integrating multiple data sources and adopting transparent, replicable methodological criteria, the study establishes an unprecedented empirical basis for monitoring this type of digital infrastructure, which remains marked by a scarcity of public, systematic, and internationally comparable

[22] Available at: https://www.ibge.gov.br/estatisticas/economicas/comercio/9016-estatisticas-do-cadastro-central-de-empresas.html

data. This initiative reinforces the role of Cetic.br | NIC.br as a producer of essential statistics and indicators for monitoring the technical and territorial dimensions of digital infrastructures.

In addition to providing concrete subsidies for the formulation of public policies, this mapping contributes to strengthening digital sovereignty, energy sustainability, and national analytical capacity in a sector of growing importance. The results achieved in this initial stage will enable more precise analyses of the territorial distribution, operational efficiency, and socioeconomic impacts of data centers, constituting a relevant step toward the production of evidence and the promotion of a balanced, sustainable, and inclusive expansion of Brazilian digital infrastructure.

The results achieved in this initial stage will enable more precise analyses of the territorial distribution, operational efficiency, and socioeconomic impacts of data centers, constituting a relevant step toward the production of evidence and the promotion of a balanced, sustainable, and inclusive expansion of Brazilian digital infrastructure.

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Interview I

Brazil as a hub of the digital economy: policies and challenges for the sustainable expansion of data centers

In this interview, Cristiane Rauen, director at the Ministry of Development, Industry, Trade, and Services (Ministério do Desenvolvimento, Indústria, Comércio and Serviços [MDIC]), discusses the strategic role of data centers in Brazil's economic and technological development. She also addresses the socio-environmental challenges of this process, as well as the government's strategies to attract foreign investment and position the country as a regional hub in the digital economy.

Photo: Diego Bresani

Cristiane Rauen
Director at MDIC

"We must not overlook the impacts on downstream chains, that is, on segments that emerge from data infrastructure, such as cloud services, cybersecurity, digital applications and services, and Artificial Intelligence (AI)."

Internet Sectoral Overview (I.S.O.)_ Data centers have been identified as critical infrastructure for the digital economy. In your view, what is the strategic importance of expanding and modernizing data centers for Brazil's economic and technological development?

Cristiane Rauen (C.R.)_ Data centers play a central role in the digital economy, as they represent a basic infrastructure for storing, processing, and managing data (the main economic asset today).

Based on this recognition, the Brazilian government established a policy to encourage the expansion and modernization of this infrastructure: the National Data Center Policy (Política Nacional de Data Centers [PNDC]),[23] led by MDIC in partnership with the Ministry of Finance (Ministério da Fazenda) and other partner ministries and under the coordination of the Office of the President's Chief of Staff.

We started from the understanding that Brazil has privileged conditions for the installation and expansion of data centers, beginning with a highly connected domestic market, clean and abundant energy, a mature digital technology and infrastructure industry, and a dynamic digital services and applications sector.

The great value of PNDC lies in the fact that it is not only a policy to encourage the expansion of data processing infrastructure in Brazil, but, above all, it is a policy that benefits from this expansion by dynamizing a series of associated production chains. In this regard, the expansion of data centers in Brazil will create significant economies of scale, which will underpin new investments in production facilities dedicated to supplying components, equipment, and information and communication technology (ICT) products to these data centers.

Furthermore, new data centers dynamize segments directly associated with their installation, such as civil construction works, energy transmission goods and services, connectivity, cooling, and water control, among others. We must not overlook the impacts on downstream chains, that is, on segments that emerge from data infrastructure, such as cloud services, cybersecurity, digital applications and services, and Artificial Intelligence (AI).

Finally, estimations from the Ministry of Finance indicate that PNDC will attract approximately R$2 trillion in investments in data centers over the next decade in Brazil. What we want is for these new ventures to translate into more investment in industry and digital services, resulting in more income, jobs, and innovation for the country.

I.S.O._ Data center expansion involves both economic development opportunities and socio-environmental risks. What mechanisms does MDIC consider essential to ensure that incentives for the expansion of data centers in Brazil bring sustainable and balanced gains for the country?

C.R._ Data centers are critical infrastructures whose operation is energy-intensive, whether they operate at low latency—uninterruptedly and with guaranteed quality of delivery to users, such as edge data centers or telecom operator data centers—or

[23] Find out more: https://www.gov.br/mdic/pt-br/assuntos/sdic/inovacao/politica-nacional-de-datacenters-1

those that do not necessarily require operating at low latency but handle massive amounts of data, such as AI data centers or hyperscalers. It is important to note that AI data centers can consume up to 70% more energy than other types.

This operational characteristic of data centers can lead to situations of depletion in some regions of the world, such as the state of Virginia, in the United States, where the concentration of data centers has made it impossible to supply energy to new projects.

Comparatively, Brazil's position is privileged, as we have clean and abundant energy that is cheaper than in other regions of the world. These characteristics currently make Brazil a promising option for new data center investments.

Data from the Ministry of Mines and Energy (Ministério de Minas and Energia) show that in recent years, the demand for access to the primary grid for this type of project has grown exponentially. If implemented, these investments would promote an approximate 200% increase in the country's installed processing capacity over the next six years (from the current 788 MW to 2.3 GW in 2031).

In this context, MDIC considers it essential that a policy to encourage the installation of data centers include clear environmental and energy benefits, in addition to actions aimed at regional decentralization in the installation of these projects, in order to mitigate situations of supply depletion and socio-environmental impacts. It is within this context that the Special Taxation Regime for Data Center Services (Redata)[24] fits into the equation, established by Provisional Measure no. 1318/2025, one of the PNDC actions.

Redata provides an exemption from taxes on domestic sales and imports of electronic components and other ICT products for eligible and co-eligible participants in the program. This is a significant incentive for the data center sector, given that in Brazil, the costs associated with data processing equipment range from 70% to 80% of data center installation costs, and most of these inputs are imported, as is the case with GPU and CPU.

However, to enjoy this benefit, eligible data centers must demonstrate compliance with environmental and energy-related obligations, such as sourcing or self-production from clean or renewable sources and achieve a water efficiency index consistent with international standards for a lower environmental impact.

I.S.O._ The Redata is part of the PNDC and is aligned with the New Industry Brazil (NIB)[25] program, Mission 4 (Digital Transformation). What are NIB's main objectives, and how can we ensure that Redata benefits both international and Brazilian enterprises interested in investing in the Brazilian data center market?

C.R._ Mission 4 of the NIB, the current industrial policy, aims to digitally transform industry with a view to increasing Brazilian productivity. Its main goal is to digitally transform 90% of Brazilian industrial enterprises within ten years.

"(...) MDIC considers it essential that a policy to encourage the installation of data centers include clear environmental and energy benefits, in addition to actions aimed at regional decentralization in the installation of these projects, in order to mitigate situations of supply depletion and socio-environmental impacts."

[24] Find out more: https://www.gov.br/fazenda/pt-br/assuntos/noticias/2025/setembro/medida-provisoria-cria-o-redata-que-estimula-datacenters-e-impulsiona-economia-digital-no-brasil

[25] Find out more: https://www.gov.br/fazenda/pt-br/acesso-a-informacao/acoes-e-programas/transformacao-ecologica/programas-em-destaque/nova-industria-brasil

"PNDC is one of the initiatives within the NIB program that focuses on strengthening supply chains and expanding the Brazilian digital economy."

The diagnosis is that the Brazilian ICT industry has undergone a severe loss of market share in recent years, in addition to the weakening of key links in its production chain.
Indeed, the trade deficit for ICT products and services is steadily increasing, reaching US$30 billion and US$7.4 billion, respectively, in 2024. Furthermore, regarding digital service chains, Brazil's dependence on services provided by foreign enterprises is increasing. Currently, 60% of the data generated in Brazil is processed in data centers in the U.S., and 90% of the services contracted by the government are provided by Big Tech enterprises.
PNDC is one of the initiatives within the NIB program that focuses on strengthening supply chains and expanding the Brazilian digital economy. As mentioned, through Redata, qualified data centers will be able to benefit from tax incentives for the installation and modernization of ICT equipment purchased independently or from Brazilian suppliers.
In addition to Redata, PNDC provides for the establishment of specific funding lines for suppliers of data center infrastructure equipment (chillers, transformers, etc.), as well as for the development, marketing, and export of digital services and applications. Furthermore, it provides for the use of public purchasing power and specific lines of support for research, development, and innovation in national digital goods and services. Finally—and no less importantly—, PNDC provides for investments in training and capacity-building to address the significant shortage of qualified professionals in the Brazilian digital economy.

I.S.O._ Considering the international nature of the digital economy, what strategies is the Brazilian government adopting to position the country as a regional data center hub, including to attract foreign investment?

C.R._ PNDC and Redata are clearly an indication of the Brazilian government's commitment to establishing important incentive mechanisms to make Brazil an international data center hub.
It is important to emphasize, as previously discussed, that Brazil does not want to be just a space for attracting data centers. Therefore, the installation of this infrastructure, enabled by the incentives and trade-offs established in the policy, should be seen as an opportunity to strengthen production chains. Thus, the implementation of large foreign ventures and the modernization of existing data centers will generate the necessary scale to dynamize a series of directly associated sectors, such as infrastructure, as well as boost the ICT equipment supplier industry and give rise to an entire chain of digital services, such as cloud, cybersecurity, applications, and AI.
Therefore, this is a policy that goes beyond data centers themselves and has as its main strategy and focus national digital sovereignty, preserving aspects of social, environmental, and energy sustainability, which are essential for the country.

Interview II

Data centers and the paths to digital transformation in Brazil

Photo: Washington CostaMF

Igor Marchesini
Special advisor to the minister of Finance

In this interview, Igor Marchesini, special advisor to the minister of Finance (ministro da Fazenda), discusses the importance of expanding and modernizing data centers as a strategic part of Brazil's economic infrastructure. He also addresses strategies to boost the digital services sector, increase productivity, and attract new investments, emphasizing the need to prevent the deepening of regional inequalities. Furthermore, he presents other economic policy initiatives aimed at digital transformation and modernizing the country's infrastructure.

Internet Sector Overview (I.S.O.)_ Data centers have been identified as critical infrastructure for the digital economy. In your view, what is the strategic importance of expanding and modernizing data centers for Brazil's economic and technological development?

Igor Marchesini (I.M.)_ Expanding data center capacity is crucial to boosting the digital services sector and increasing economic productivity. Today, digital services are cross-cutting inputs: they support everything from precision agriculture to telemedicine, as well as distance learning and the financial system. Without a robust data processing infrastructure, the country loses competitiveness and limits its growth potential. Therefore, it is essential to ensure that these services are available in Brazil at competitive costs and with high reliability, to meet domestic demand.
Today, we face a paradox: although Brazil is one of the most digitalized countries in the world, we cannot meet even half of our demand for digital services with data centers installed within the country. We import over 60% of these services, which are predominantly located in the United States.
Furthermore, the world is experiencing a true global race for the infrastructure necessary for the Artificial Intelligence (AI) revolution, and Brazil cannot be left out of this competition. We need to establish data centers here that are capable not only of meeting domestic demand but also of positioning the country as an exporter of AI processing services to the rest of the world. We have unique competitive advantages such as a clean and renewable energy matrix and an interconnected electrical system, which are valuable assets for this new economy.
By moving a data center to Brazil, an enterprise can reduce its AI processing carbon footprint by up to 75%. This means the country can be part of the global digital sustainability solution, attracting trillions of dollars in investment over the next ten years and consolidating a new frontier of economic, green, and technological development.

"The expansion of data center capacity is directly connected to the Brazilian government's strategy to boost the digital services sector and increase economic productivity. This vision is part of the Ecological Transformation Plan, which views sustainability not as an obstacle, but as a lever for growth. Brazil can and should attract green industries, and sustainable data centers are part of this commitment."

I.S.O._ How does the expansion of data center capacity fit into the government's strategy to boost the digital services sector and increase the productivity of the Brazilian economy? What instruments (regulatory, credit, tax, and competition) should be developed to support the government's strategy?

I.M._ The expansion of data center capacity is directly connected to the Brazilian government's strategy to boost the digital services sector and increase economic productivity. This vision is part of the Ecological Transformation Plan,[26] which views sustainability not as an obstacle, but as a lever for growth. Brazil can and should attract green industries, and sustainable data centers are part of this commitment. One of the central aspects of the plan is technological densification, in which digital technology plays a strategic role. Having installed capacity in the country allows us to continue advancing in digitalization, innovation, and the creation of high-quality jobs. The instrument chosen to take the first step was the Special Taxation Regime for Data Center Services (Redata),[27] which establishes a special tax regime for data center services, reducing investment and operating costs and requiring clear commitments in terms of sustainability, research investment, and capacity supply in the domestic market.

Redata aligns with tax reform, the country's largest structural investment attraction policy. The program anticipates the positive effects of this reform for a sector undergoing rapid global expansion, in which Brazil cannot afford to wait. Furthermore, President Lula has created a working group to present, within 90 days, a plan to ensure that, within five years, 90% of Brazilians' data is stored in the country, reinforcing our digital sovereignty and stimulating the entire innovation chain.

I.S.O._ There are concerns that incentives concentrated in energy-intensive sectors will widen regional inequalities. How does the government intend to prevent Redata's benefits from being concentrated only in certain regions or economic groups?

I.M._ This is a legitimate concern. Redata was designed to allow the private sector to identify the best installation locations, considering locations with available power, fiber optic infrastructure, and suitable environmental conditions. The government does not predetermine where the centers should be located, which ensures flexibility and efficiency.

The industry is already beginning to organize itself. A good example is the use of the infrastructure built for the Olympics in Rio de Janeiro, which has triple transmission line coverage and excellent fiber-optic connections and can now be used for data centers.

Redata does not change the environmental and licensing rules of states and municipalities; all projects must strictly follow current legislation. The Ministry of

[26] Find out more: https://www.gov.br/fazenda/pt-br/acesso-a-informacao/acoes-e-programas/transformacao-ecologica

[27] Find out more: https://www.gov.br/fazenda/pt-br/assuntos/noticias/2025/setembro/medida-provisoria-cria-o-redata-que-estimula-datacenters-e-impulsiona-economia-digital-no-brasil

the Environment (MMA) has recognized that the Brazilian regulatory framework is robust enough to guarantee environmental safety.
Furthermore, President Lula has emphasized reducing regional inequalities. Therefore, Redata provides incentives for the installation of data centers in the North, Northeast, and Central-West regions, including in the areas covered by Sudene[28] and other regional agencies, with proportional counterpart requirements. These regions have natural advantages: a wide supply of renewable energy, lower transmission costs, and the arrival of international submarine cables, especially in the Northeast, which should drive a new cycle of investments in these areas.
From a competitive perspective, Redata simplifies the tax regime and qualification process, with clear rules and agile clearance. This reduces barriers to entry and attracts new international and national players to the market, diversifying the ecosystem and stimulating competition.

"The country's main modernization policy is tax reform; it represents Brazil's greatest innovation."

I.S.O._ In addition to the data center agenda, what other measures is the Ministry of Finance considering to align fiscal policy with digital transformation and the modernization of the country's economic infrastructure?

I.M._ The country's main modernization policy is tax reform; it represents Brazil's greatest innovation. By completely exempting investment in fixed assets, exports, and intermediate inputs, the reform invests in technology and automation much more advantageously, not only in data centers but also throughout the entire production chain, from machines and robots to digital systems. This has the potential to significantly increase the country's productivity.
Moreover, Brazil will become the most digital country in the world from a fiscal perspective: All transactions will be electronic, transparent, and precalculated. This new ecosystem will enable the emergence of companies specializing in tax automation, digital retail solutions, smart accounting, and business management. The country could become an export hub for technology applied to the fiscal and administrative sectors.
In parallel, the Ministry of Finance is also working on other structural agendas, such as Bill 4.675/2025[29] on digital markets, which establishes modern, balanced rules to ensure fair competition in online markets without imposing unnecessary regulatory burdens.
Finally, in partnership with the Ministry of Development, Industry, Commerce, and Services (MDIC), we participate in the New Industry Brazil (NIB)[30] program, specifically in Mission 4, focused on digital transformation. This partnership is at the root of the Ecological Transformation Plan, whose pillar of technological consolidation unites sustainability, social justice, and innovation. This three-pronged approach guides the Ministry of Finance's work to align fiscal policy with economic modernization.

[28] Find out more: https://www.gov.br/sudene/pt-br
[29] Find out more: https://www.camara.leg.br/proposicoesWeb/fichadetramitacao?idProposicao=2562481
[30] Find out more: https://www.gov.br/fazenda/pt-br/acesso-a-informacao/acoes-e-programas/transformacao-ecologica/programas-em-destaque/nova-industria-brasil

Interview III

Photo: ASCOM/MCTI

Henrique de Oliveira Miguel
Secretary of Setad of the MCTI

The role of data centers in the national science, technology, and innovation agenda

In this interview, Henrique de Oliveira Miguel, head of the of the Secretariat of Science and Technology for Digital Transformation (Setad), of the Ministry of Science, Technology, and Innovation (MCTI), discusses the strategic role of data centers for Brazil's economic and technological development.

Internet Sector Overview (I.S.O.)_ Data centers have been identified as critical infrastructure for the digital economy. In your view, what is the strategic importance of expanding and modernizing data centers for Brazil's economic and technological development?

Henrique de Oliveira Miguel (H.O.M.)_ Data centers today represent the "backbone" of the digital economy, supporting everything from public services to strategic production chains, such as health care, education, finance, and Industry 4.0. The expansion and modernization of this infrastructure are fundamental to ensuring Brazil's digital sovereignty and economic competitiveness.

As technologies based on Artificial Intelligence (AI), Big Data, and cloud computing become increasingly data-intensive, the country needs to expand its local storage and processing capacity to reduce reliance on external systems and strengthen its technological autonomy.

In this sense, data centers function not only as physical infrastructure but also as key enablers connecting innovation, science, and economic development. They enable the advancement of research in high-performance computing (HPC), scientific simulators, AI applications, and highly complex digital public services.

From the perspective of the New Industry Brazil (NIB)[31] program, the expansion of this infrastructure will also drive reindustrialization on digital foundations, connecting hardware, software, and service providers and enabling the use of clean energy. Furthermore, the expansion will help attract new investments from national and international ventures, generating skilled jobs and stimulating value chains associated with microelectronics, physical and logical security equipment, energy, refrigeration, telecommunications, and cloud and advanced communication networks.

Finally, expanding and modernizing data centers is part of the actions of the Brazilian Artificial Intelligence Plan (PBIA),[32] which was launched last year and was set to implement several actions in the coming years.

[31] Find out more: https://www.gov.br/fazenda/pt-br/acesso-a-informacao/acoes-e-programas/transformacao-ecologica/programas-em-destaque/nova-industria-brasil

[32] Find out more: https://www.gov.br/lncc/pt-br/assuntos/noticias/ultimas-noticias-1/plano-brasileiro-de-inteligencia-artificial-pbia-2024-2028

I.S.O._ How does the MCTI, responsible for the national science, technology, and innovation policy, plan to align the expansion of public and private data center capacity with the demands of research, high-performance computing/AI, cloud computing, and digital innovation, ensuring interoperability, data governance, and sustainability?

H.O.M._ MCTI has been working to align the expansion of data center capacity with scientific and technological demands, as well as those of the private sector, through an integrated strategy that combines infrastructure, governance, and sustainability. The high-performance computing policy, coordinated by the Ministry, supports the modernization and expansion of the national supercomputer network (National High-Performance Processing System [Sinapad][33]), connected to universities, research centers, and national laboratories, notably the National Laboratory for Scientific Computing (LNCC)[34] and the Santos Dumont system.

As mentioned previously, the PBIA, the State's digital transformation strategy, and the NIB program encourage the use of public and private data centers. In the context of science and technology applications, support is sought for collaborative projects and interoperability between centers to ensure the security and governance of scientific and administrative data.

MCTI also encourages the adoption of best practices in energy efficiency and green certifications, in addition to promoting integration with international research and innovation networks. The goal is to create a robust and sustainable ecosystem capable of meeting both academic and business demands, particularly in AI, climate modeling, genomics, and advanced manufacturing.

The expansion of data center capacity in the country should also stimulate the use of this infrastructure by the private sector—enterprises that will have access to develop AI projects and in the areas of health, agriculture, energy, and the environment.

"The expansion of data center capacity in the country should also stimulate the use of this infrastructure by the private sector—enterprises that will have access to develop AI projects and in the areas of health, agriculture, energy, and the environment."

I.S.O._ One of the challenges present in the public debate is the high energy demand of data centers. Has MCTI developed research lines or partnerships focused on technologies that make these centers more environmentally efficient?

H.O.M._ Energy sustainability is a growing priority in MCTI policies related to data centers and HPC. The Ministry supports research and development projects focused on smart cooling technologies, waste heat recovery, and integration with renewable energy sources, especially solar and wind.

Through the Financing Agency for Studies and Projects (Finep)[35] and the National Council for Scientific and Technological Development (CNPq)[36], MCTI publishes public calls (e.g., Renewable Energies,[37] by Finep) and promotes research on computational efficiency, the use of low-power chips, and algorithm optimization, key aspects for reducing the environmental impact of digital operations.

[33] Find out more: https://www.lncc.br/sinapad/
[34] Find out more: https://www.gov.br/lncc/pt-br
[35] Find out more: http://www.finep.gov.br/
[36] Find out more: https://www.gov.br/cnpq/pt-br
[37] Find out more: http://www.finep.gov.br/chamadas-publicas/chamadapublica/726

"The integration between PBIA and Redata is strategic: While PBIA establishes guidelines and encourages AI applications in productive sectors, Redata guarantees the infrastructure necessary for the development of new AI models, as well as the storage of the data needed to train these models."

Furthermore, MCTI participates in interministerial discussions on sustainability policies and incentives for the green economy, seeking to integrate the energy transition with digital transformation (as is the case with the Special Taxation Regime for Data Center Services [Redata][38]), an agenda that is aligned with the NIB program.[39]
In scientific computing, the Ministry also encourages the adoption of standardized efficiency metrics and the creation of national guidelines for sustainable data centers, contributing to more responsible and environmentally balanced growth in the sector.

I.S.O._ How can PBIA contribute to the densification of digital production chains in Brazil, and how can it be integrated with Redata?

H.O.M._ PBIA plays a central role in building a sovereign and innovative digital economy. By stimulating skills development, the development of AI solutions, and the ethical and responsible use of data, PBIA creates the conditions to strengthen national digital production chains.
Redata, in turn, is an essential tool for the management and secure sharing of research data, strengthening the open science infrastructure and collaboration between institutions.
The integration between PBIA and Redata is strategic: While PBIA establishes guidelines and encourages AI applications in productive sectors, Redata guarantees the infrastructure necessary for the development of new AI models, as well as the storage of the data needed to train these models.
This synergy boosts innovation in priority areas such as health care, agriculture, energy, and the environment, enabling Brazil to advance in the creation of higher-value-added digital products and services. Thus, the country consolidates a data- and knowledge-driven innovation ecosystem, a pillar of NIB and sustainable digital transformation.
Redata will also serve as an important stimulus for the development and manufacturing of systems and equipment in the country. National and global enterprises have manufacturing facilities here, including Dell, HPE, Lenovo, Cisco, Samsung, Nokia, Ericsson, and Huawei. These companies benefit from the Law of Informatics (Law No. 8.248/1991)[40] and incentives from the Manaus Industrial Hub. Additionally, with growing demand, domestic manufacturers of energy, security, refrigeration, automation, and environmental control systems and equipment, photovoltaic panels, and wind turbines, among others, will be able to supply their products and target foreign markets. A significant portion of this equipment falls under the Law of Informatics.

[38] Find out more: https://www.gov.br/fazenda/pt-br/assuntos/noticias/2025/setembro/medida-provisoria-cria-o-redata-que-estimula-datacenters-e-impulsiona-economia-digital-no-brasil
[39] Find out more: https://www.gov.br/fazenda/pt-br/acesso-a-informacao/acoes-e-programas/transformacao-ecologica/programas-em-destaque/nova-industria-brasil
[40] Available at: https://www2.camara.leg.br/legin/fed/lei/1991/lei-8248-23-outubro-1991-367204-publicacaooriginal-1-pl.html

Domain Report

Domain registration dynamics in Brazil and around the world

The Regional Center for Studies on the Development of the Information Society (Cetic.br), department of the Brazilian Network Information Center (NIC.br), carries out monthly monitoring of the number of country code top-level domains (ccTLD) registered in countries that are part of the Organisation for Economic Co-operation and Development (OECD) and the G20.[41] Considering members from both blocs, the 20 nations with the highest activity sum more than 96.77 million registrations. In August 2025, domains registered under .de (Germany) reached 17.64 million, followed by China (.cn), United Kingdom (.uk), and Netherlands (.nl), with 12.06 million, 8.85 million, and 6.08 million registrations, respectively. Brazil had 5.53 million registrations under .br, occupying 6th place on the list, as shown in Table 1.[42]

[41] Group composed by the 19 largest economies in the world and the European Union. More information available at: https://g20.org/

[42] The table presents the number of ccTLD domains according to the indicated sources. The figures correspond to the record published by each country, considering members from the OECD and G20. For countries that do not provide official statistics supplied by the domain name registration authority, the figures were obtained from: https://research.domaintools.com/statistics/tld-counts. It is important to note that there are variations among the date of reference, although the most up-to-date data for each country is compiled. The comparative analysis for domain name performance should also consider the different management models for ccTLD registration. In addition, when observing rankings, it is important to consider the diversity of existing business models.

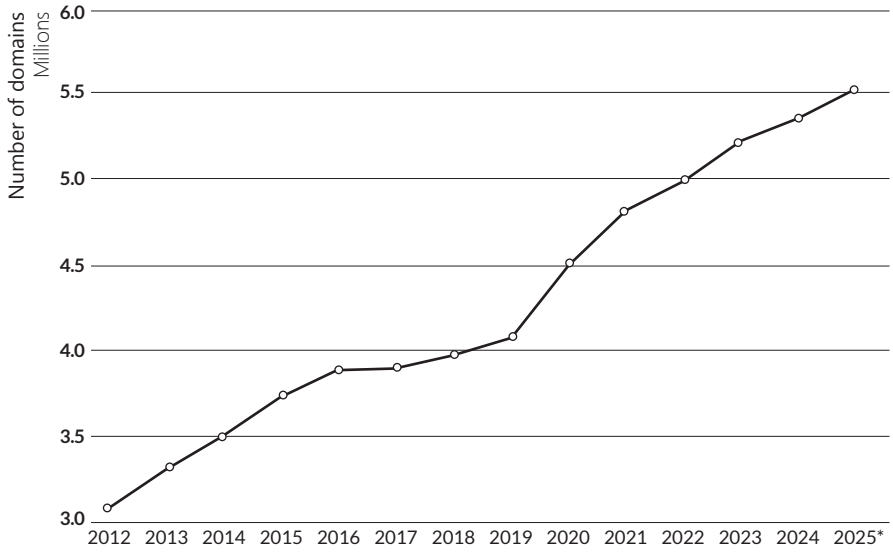
Table 1 – TOTAL REGISTRATION OF DOMAIN NAMES AMONG OECD AND G20 COUNTRIES

Position	Country	Number of domains	Date of reference	Source (website)
1	Germany (.de)	17,643,495	03/11/2025	https://www.denic.de
2	China (.cn)	12,065,387	03/11/2025	https://research.domaintools.com/statistics/tld-counts/
3	United Kingdom (.uk)	8,852,736	30/09/2025	https://nominet.uk/reports-and-statistics/
4	Netherlands (.nl)	6,081,779	03/11/2025	https://stats.sidnlabs.nl/en/registration.html
5	Russia (.ru)	6,007,360	03/11/2025	https://cctld.ru
6	**Brazil (.br)**	**5,535,141**	**31/10/2025**	**https://registro.br/dominio/estatisticas/**
7	France (.fr)	4,296,449	01/11/2025	https://www.afnic.fr/en/observatory-and-resources/statistics/
8	Australia (.au)	4,164,810	03/11/2025	https://research.domaintools.com/statistics/tld-counts/
9	European Union (.eu)	3,650,352	03/11/2025	https://research.domaintools.com/statistics/tld-counts/
10	Italy (.it)	3,529,949	31/10/2025	https://stats.nic.it/domain/growth
11	Canada (.ca)	3,471,033	03/11/2025	https://www.cira.ca
12	Colombia (.co)	3,346,533	03/11/2025	https://research.domaintools.com/statistics/tld-counts/
13	India (.in)	3,218,749	03/11/2025	https://research.domaintools.com/statistics/tld-counts/
14	Switzerland (.ch)	2,575,734	15/10/2025	https://www.nic.ch/statistics/domains/
15	Poland (.pl)	2,504,861	03/11/2025	https://research.domaintools.com/statistics/tld-counts/
16	Spain (.es)	2,139,978	30/09/2025	https://www.dominios.es/es/sobre-dominios/estadisticas
17	United States(.us)	2,102,830	03/11/2025	https://research.domaintools.com/statistics/tld-counts/
18	Portugal (.pt)	2,064,496	03/11/2025	https://www.dns.pt/en/statistics/
19	Japan (.jp)	1,822,653	01/11/2025	https://jprs.co.jp/en/stat/
20	Belgium (.be)	1,704,174	03/11/2025	https://www.dnsbelgium.be/en

Collection date: November 3, 2025.

Chart 1 shows the performance of .br since 2012.

Chart 1 – TOTAL NUMBER OF DOMAIN REGISTRATIONS FOR .BR – 2012 to 2025*



*Collection date: October 31, 2025.
Source: Registro.br
Retrieved from: https://registro.br/dominio/estatisticas

In October 2025, the five generic Top-Level Domains (gTLD) totaled more than 193.77 million registrations. With 157.89 million registrations, .com ranked first, as shown in Table 2.

Table 2 – TOTAL NUMBER OF DOMAINS AMONG MAIN gTLD

Position	gTLD	Number of domains
1	**.com**	157,895,720
2	**.net**	12,246,880
3	**.org**	11,431,011
4	**.xyz**	6,773,472
5	**.top**	5,423,130

Collection date: November 3, 2025.
Source: DomainTools.com
Retrieved from: research.domaintools.com/statistics/tld-counts

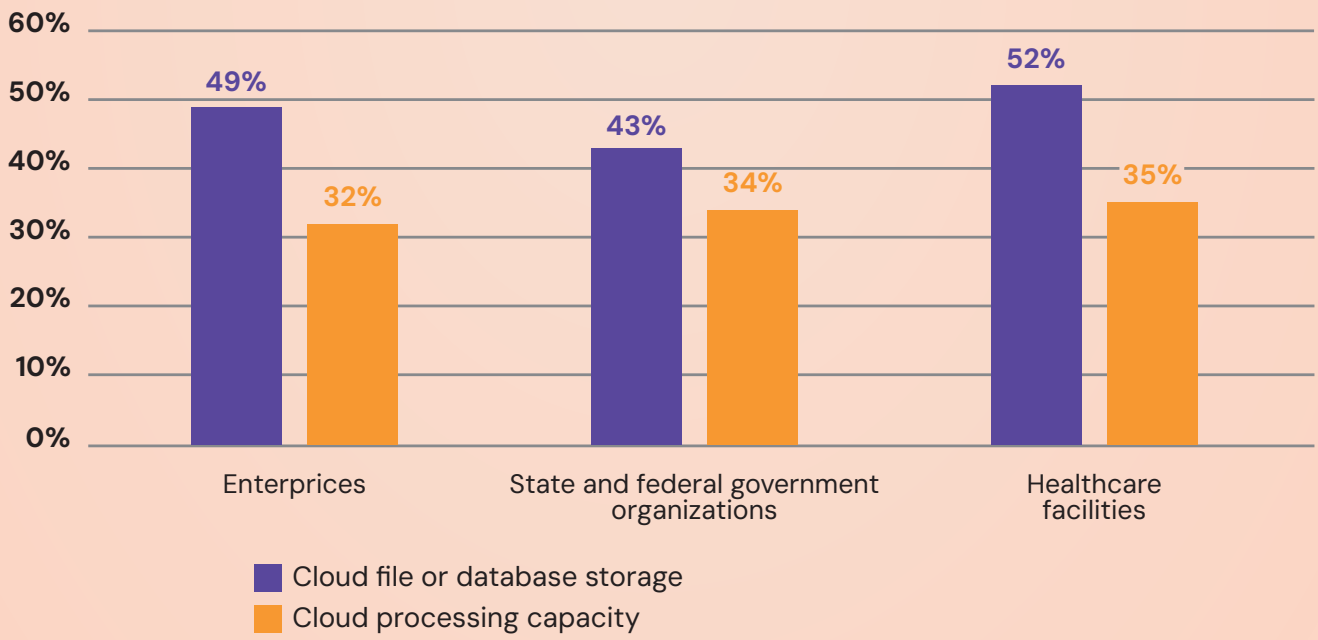
Access to CLOUD SERVICES

Cloud services are essential components in discussions about data centers. In the context of digital transformation, they are solutions that enable online data processing and storage, reducing the need for its own physical infrastructure. Furthermore, they offer greater flexibility in access and management, tailored to each organization's needs.

The following data shows a scenario in which about half of enterprises,[43] state and federal government organizations,[44] and healthcare facilities[45] in Brazil used cloud data storage services, while approximately one-third of these organizations resorted to cloud processing services (Chart 1).

ACCESS TO CLOUD SERVICES IN ENTERPRISES, GOVERNMENT ORGANIZATIONS, AND HEALTHCARE FACILITIES

Total number of enterprises, state and federal government organizations, and healthcare facilities (%)



[43] Data from the ICT Enterprises 2024 survey by Cetic.br|NIC.br, based on question "B18) In the last 12 months, has your enterprise paid for ... services?". Available at: https://cetic.br/en/pesquisa/empresas/

[44] Data from the ICT Electronic Government 2023 survey by Cetic.br|NIC.br, based on question "C1K) Does this government organization contract .... Services?". Available at: https://cetic.br/en/pesquisa/governo-eletronico/

[45] Data from the ICT in Health 2024 survey by Cetic.br|NIC.br, based on question "B18) In the last 12 months, has this healthcare facility paid for ... services?". Available at: https://cetic.br/en/pesquisa/saude/

/Credits

TEXT

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ABOUT CETIC.br

The Regional Center for Studies on the Development of the Information Society – Cetic.br (https://www.cetic.br/en/), a department of NIC.br, is responsible for producing studies and statistics on the access and use of the Internet in Brazil, disseminating analyzes and periodic information on the Internet development in the country. Cetic.br acts under the auspices of UNESCO.

ABOUT NIC.br

The Brazilian Network Information Center – NIC.br (http://www.nic.br/about-nic-br/) is a non-profit civil Entity in charge of operating the .br domain, distributing IP numbers, and registering Autonomous Systems in the country. It conducts initiatives and projects that bring benefits to the Internet infrastructure in Brazil.

ABOUT CGI.br

The Brazilian Internet Steering Committee – CGI.br (https://cgi.br/about/), responsible for establishing strategic guidelines related to the use and development of the Internet in Brazil, coordinates and integrates all Internet service initiatives in the country, promoting technical quality, innovation, and dissemination of the services offered.

*The ideas and opinions expressed in the texts of this publication are those of the respective authors and do not necessarily reflect those of NIC.br and CGI.br.

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