

# Market Opportunities in Brazil

**Brazil**

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**Prepared for:**

**VEDP**

Virginia Economic Development Partnership  
[ExportVirginia.org](https://ExportVirginia.org)

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## SERVICE REQUEST

This report addresses the request received from Virginia Economic Development Partnership (VEDP) wherein VEDP has requested TVZ International to prepare a report highlighting opportunities in 5 sectors relevant to VA companies.

- **Healthcare**
- **ICT - Information and Communications Technologies Telecommunication**
- **Civil Aviation**
- **Safety and Security**

We also have included a very brief overview of other relevant segments that TVZ International believes are best prospects in Brazil and that are also showing growth for 2024:

- **Infrastructure**
- **Agriculture**
- **Services**

TVZ International consulted various sources, including websites, newspapers, and available industry reports, to describe what is happening in the sectors listed.

## BRAZIL: COUNTRY OVERVIEW / ECONOMIC AND POLITICAL OUTLINE

### Country Overview

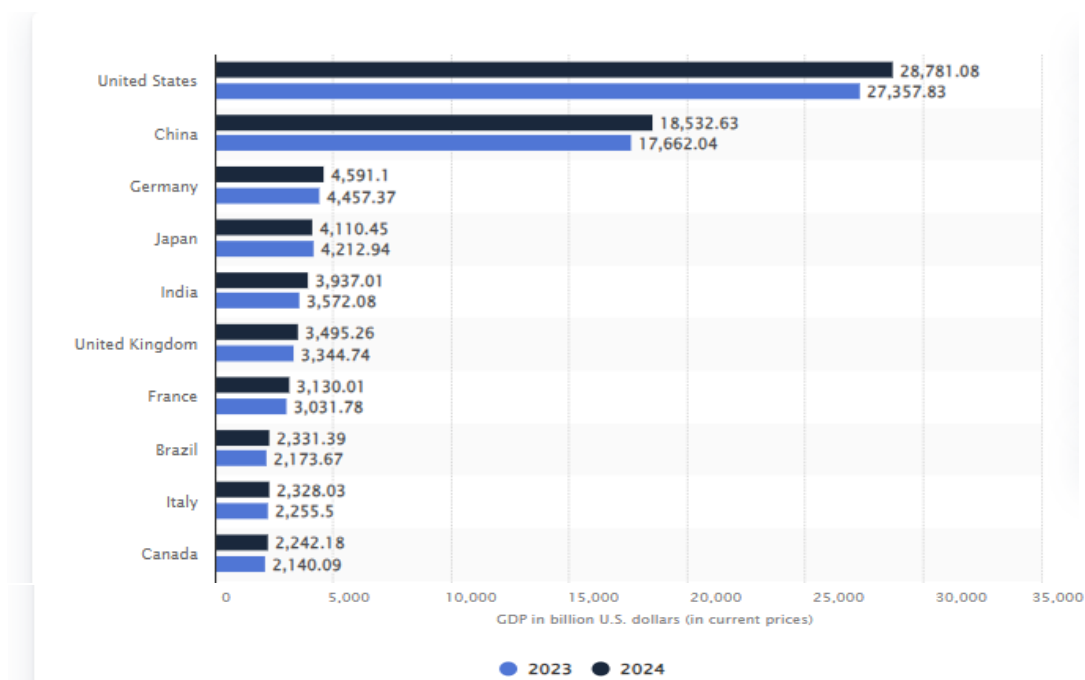
The Brazilian economy is the second largest in the Western Hemisphere, accounting for more than half of Latin America's GDP. Geographically, the country is larger than the contiguous USA, and business environments differ regionally. There is a large concentration of population and economic activity in Southeastern Brazil, including the states of São Paulo, Rio de Janeiro, and Minas Gerais. A variety of competitive industries, such as manufacturing, agriculture, energy, and mining, have historically served as engines of economic growth in these states. Brazil's financial capital and prime international business hub is São Paulo.

The biggest consumer market in Latin America remains an excellent market for U.S. exporters. Because of the strong commercial relationship and shared commitment to mutual prosperity, the United States remains its second largest trading partner in terms of imports.

### Economic and Political Outline

According to the IMF, Brazil will be the 8th largest economy in the world by 2024. With this growth, Brazilian GDP should reach USD 2.331 trillion. If the IMF's projections are confirmed, the country will be the 8th largest economy in the world, surpassing Italy. In 2023, Brazil ranked 9th, with a GDP of USD 2.173 trillion.

#### The 10 countries with the largest gross domestic product (GDP) in 2024 (in billion U.S. dollars)

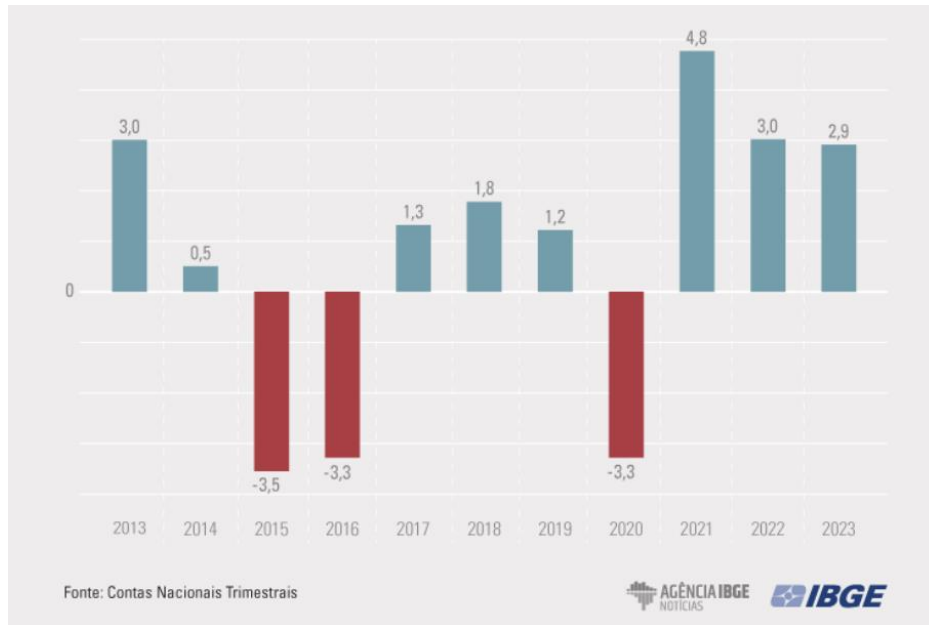


Source: IMF, Statista

Since the recession that happened nine years ago when the economy contracted by almost 7%, the country is still rebuilding itself. Nevertheless, the Brazilian economy has experienced a slow but steady recovery in recent years. Having grown by 3% in 2022, economic activity began to recover in the first half of 2023 as a result of an exceptional agricultural harvest, robust household spending, and

strong consumer spending in the second half of the year. According to the Brazilian Institute of Geography and Statistics (IBGE), growth for 2023 was 2.9%. In the first quarter of 2024, GDP expanded 1.9%, driven by the agricultural sector. This recovery offset all the losses of 2020, when the Brazilian economy shrank by 3.9% due to the pandemic. The graph below shows the evolution of the Brazilian GDP since 2013 associated with the different Brazilian presidential administrations.

**Brazil GDP Growth – 2013 - 2023**



Source: Brazilian Institute of Geography and Statistics (IBGE)

## Brazil in Brief

Government type:	Federal Presidential Republic
Language:	Portuguese
Geography:	5th largest country in the world in size and population (8,511,965 square kilometers - 3,286,426 square miles) Borders almost every country in SA (except Chile and Ecuador)
Population:	203,080,756 million inhabitants (2023 <a href="#">IBGE</a> )
Middle class:	accounts for ~ 50% of the total population

## Main Sectors of Industry

The Brazilian economy is diversified and has abundant natural resources:

- the world's largest producer of coffee, sugar cane, and oranges
- major producer of soybeans
- the fourth-largest exporter of timber in the world, with forests covering half of the country
- the world's largest rainforest
- home to the largest commercial livestock herd in the world
- several multinational companies are located in the country in the fields of agriculture and biofuels
- agriculture accounts for approximately 40% of exports (contributes 6.8% to GDP)
- large industrial power and has benefited greatly from its mineral ore wealth
- the world's second-largest iron exporter
- also produces aluminum and coal

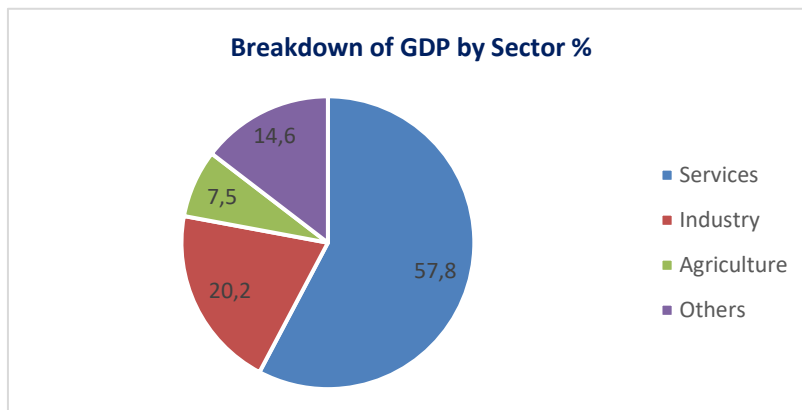
It is expected that Brazil will become energy independent in the near future as a result of its oil reserves that could make it one of the top five oil producers in the world. Additionally, the country has developed a strong presence in the textile, aeronautics, pharmaceutical, automobile, steel, and chemical industries. Brazil is home to many of the world's largest automobile manufacturers. In total, the industry sector contributes 20.7% to GDP and employs 21% of the labor force.

70% of Brazilians are employed in the service sector, which accounts for 58.9% of GDP. In recent years, the country has concentrated on high-value services, especially in aeronautics and telecommunications, and tourism has also grown, making it an important segment. Despite the pandemic's impact on the services sector, it showed a significant recovery in 2022. Services to families, information and communication, and transport contributed to the sector's recovery.

### Breakdown of Brazil's Economic Activity by Sector

1. **Services:** The service sector plays a crucial role in Brazil's economy, contributing significantly to its gross domestic product (GDP). Services include transportation, distribution, and the sale of goods. In 2022, services accounted for approximately 57.8% of Brazil's GDP
2. **Industry:** The industrial sector involves the transformation of raw or intermediate materials into goods. It encompasses manufacturing, construction, and mining. In Brazil, industry contributed around 20.2% to the GDP in 2022
3. **Agriculture:** Agriculture remains an essential sector, producing raw materials such as soybeans, beef, and coffee. In 2022, agriculture contributed approximately 7.5% to Brazil's GDP
4. **Other Sectors:** Beyond the primary three sectors, there are other minor contributors to Brazil's GDP, including financial services, real estate, and more

Brazil's position in the global economy is notable. It ranks eighth globally in terms of GDP and is considered an advanced emerging economy with the largest share of wealth in Latin America. However, challenges persist, including environmental concerns related to resource extraction, such as ongoing deforestation in the Amazon Basin.



Sources: Brazilian Institute of Geography and Statistics (IBGE), World Bank, IMF, Santander reports - latest estimates

### Brazil-US Trade Bilateral

In 2023, goods traded between Brazil and US totaled more than USD 75 billion. With 15.8% of all Brazilian imports coming from the US, they are Brazil's second largest export market after China.

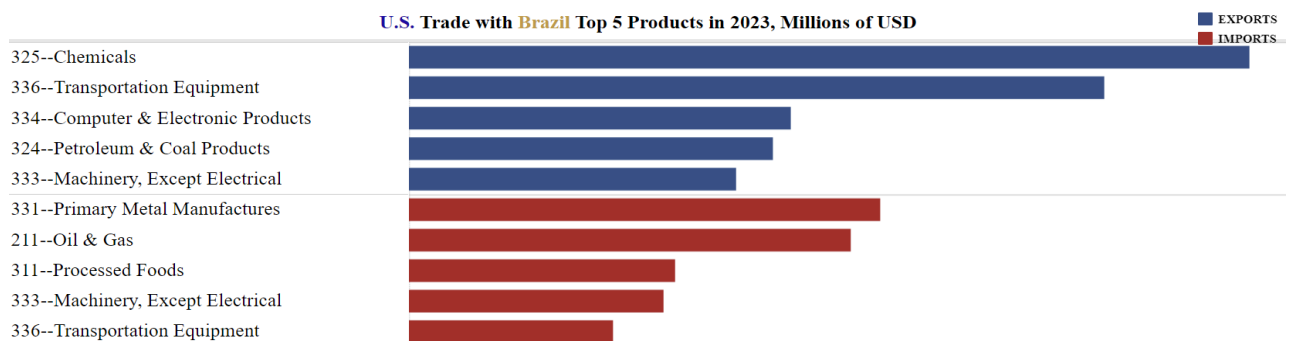
Investments and services also play an important role in the bilateral relationship. US direct investments totaled USD 10 billion to Brazil in 2023, with total investments of USD 91.9 billion over the past decade.

In 2022, US investments in Brazil were worth USD 229 billion.

### U.S. Goods Trade with Brazil in 2023

- U.S. Exports to Partner: **\$44.808 Million**
- U.S. Imports from Partner: **\$39.122 Million**
- Trade Balance (EX - IM): **\$5.685 Million**
- Partner Rank in U.S. Exports: **9**
- Partner's Share of U.S. Exports (%): **2,2%**
- Partner Rank in U.S. Imports: **18**
- Partner's Share of U.S. Imports (%): **1,3%**
- Ranking in U.S. Two-Way Trade: **15**
- Jobs Supported by U.S. Goods Exports to Partner (2021): **129 Thousand**

Source: ITA



Source: ITA

May 26 marked the 200th anniversary of diplomatic relations between Brazil and the United States. The United States recognized Brazil's independence on this date in 1824, establishing lasting political, economic, and cultural ties.

According to MDIC Foreign Trade Secretary Tatiana Prazeres, the United States stands out as our top economic partner in goods, services, and investments. The U.S. is the main destination for Brazil's manufactured products exports and a source of inputs for our industrial competitiveness. A significant number of small companies and regions export to the U.S.

### Virginia's Major Trading Partners

The following list shows the top 10 customers that purchased some three-fifths (60.8%) worth of the total value of products exported from Virginia during 2023

1. Canada: USD 3.56 billion (15.9% of Virginia's total exports)
2. China: USD 2 billion (8.9%)
3. India: USD 1.8 billion (8.2%)
4. Mexico: USD 1.24 billion (5.5%)
5. Netherlands: USD 1 billion (4.5%)
6. Germany: USD 951.2 million (4.2%)
7. **Brazil: USD 863.9 million (3.9%)**
8. United Kingdom: USD 740.5 million (3.3%)
9. Taiwan: USD 729.9 million (3.3%)
10. Belgium: USD 695.7 million (3.1%)

## Best Prospects for US Exporters

Brazil may be a challenging market for many U.S. exporters at first, but those willing to invest time and resources in understanding and overcoming the challenges of doing business within this geographically diverse, resource-rich, and economically dynamic country will surely succeed. These segments, among others, present top opportunities for US exporters to Brazil:

### HEALTHCARE SECTOR

#### Healthcare

Brazil is the largest healthcare market in Latin America and spends 9.87% of its GDP on healthcare.

- 9.8% of the GDP is invested in healthcare
- 75% of the population depends on the public system
- There are 7,191 hospitals, 62% are private.
- As of 2022, there are 427,097 hospital beds (FBH)
- 710 health insurance providers (Agência Nacional de Saúde - ANS)
- 546,000 physicians (Conselho Federal de Medicina -CFM)
- 402,000 dentists (Conselho Federal de Odontologia – CFO)
- 90,900 drugstores

Brazil's Unified Healthcare System (SUS) is the sole provider of health services to approximately 75% of the population, according to the Brazilian Institute of Geography and Statistics (IBGE). In addition to medical diagnostics and treatment, the public system provides free medication for some chronic diseases and promotes national vaccination programs, mostly focused on the elderly and children. It has also played a major role in Covid-19 vaccination programs around the country. As of September 2023, Brazil has had more than 37.8 million people infected with COVID-19, with more than 705,000 deaths, according to the Brazilian Ministry of Health. 98% of the adult population has received at least the first dose of the vaccine and 86% have received two or more doses.

It is estimated that 50.7 million Brazilians have access to the private healthcare system.

Brazil's Health Regulatory Agency (ANVISA) is the counterpart of the Food and Drug Administration (FDA) and regulates all health-related products. While certain low-risk products may be exempt from registration, it is mandatory to have a local importer or distributor for product liability. It is recommended that foreign companies have technical staff and replacement parts available locally for customer support.

- The healthcare market is price-driven, and products are manufactured in-country having a distinct price advantage
- Quality meeting regulation standards is also important. Companies must meet all sanitary registration requirements to sell to the government
- Foreign companies should consider cost-saving measures and give prominence to the benefits of new technologies in marketing and promotional materials to compete



## Pharmaceutical

The Brazilian drug market is the sixth in the world, representing approximately 2.7% of the world market being the 9th in revenue in the ranking of the 10 main economies. In Latin America it is the main market, ahead of Mexico, Colombia, and Argentina.

- In 2023, the Brazilian drug market traded USD 35.6 billion according to data by consultancy company IQVIA. For high-cost medicines, the United States and Europe are the main exporters to Brazil, while China and India are the main suppliers of raw ingredients
- In 2023 the Brazilian drug market had 341 pharmaceutical company producers of prescription and nonprescription drugs according to the consultancy company IQVIA. Of these companies, 95 (27.86%) were of international origin and 246 (72.14%) of Brazilian capital
- The growing share of generic drugs gave companies in the industry important growth in units, expanding the Brazilian industrial park

## Trade Balance

According to trade sources, imports of pharmaceutical products in 2023 reached approximately USD 7.2 billion. The imported volume reduced by 6.9% when compared to 2022. However, there was an increase of 1.2% in the value of imports.

This sector has a 3% share of Brazilian imports, being 6th in the ranking of most imported products. The main suppliers were Belgium with a 16% share, Germany with 15%, the United States with 11%, Switzerland with 10%, and China with 8.2%.

In 2023 exports by the pharmaceutical industry were USD 519 million, which represented a decrease of 27.2% in relation to the previous year. The drug and pharmaceutical products sector have been presenting a trade balance deficit between 2021 and 2023 of USD 6 to 7 billion.

Regulations prohibit the sale of medicine and medical devices outside of specialized medical stores or pharmacies.

The government of Brazil is the main buyer of medicines to supply the public healthcare system, through SUS, the Unified Health System, which, by the Constitution, is the provider of free health treatment for all citizens. As mentioned before, 75% of the population depends on the public system which offers medications, mainly for chronic diseases, meaning that these are very good opportunities for consumers.

Foreign companies can participate in bids as long they have local representation. It is also possible to participate in a Productive Development Partnership (PDP). PDPs are designed to allow international companies to partner with local laboratories to supply the public system for a fixed period, usually five years, with a reserved market share and the end-goal of making a technology transfer to a national laboratory during that time enabling the national laboratory to produce the medicine after the fixed period.

E-commerce is a growing channel for end-users to acquire imported medicines, supplements, and other wellness products if they are for personal use.

## Medical Devices

According to a study prepared by ABIIS -Brazilian Alliance for Innovative Health Industry - the Brazilian market for medical devices and in-vitro diagnostics grew 57.9% between 2018 and 2023, had an average increase of 11.6% per year. Currently, the medical technology market in Brazil is estimated at USD 15.4 billion, of which 43.5% are imported products. The Brazilian medical devices market represents 2.5% of the global market. There are more than 1,618 industrial medical technology companies in Brazil and another 13,456 operate in the distribution of products in the sector.

## Trade Balance

### Brazilian foreign trade in the Medical Devices (DMs Groups)

In millions of dollars and in variation percentage (%) Until December 2023

Segments	accumulated value per year		
	Jan to Dec 2023	Jan to Dec 2022	Jan to Dec 2023
<b>Imports in millions of USD</b>			
Total Medical Devices (DMs)	6.710	6.355	5,6%
Health materials and equipment	3.932	3.851	2,1%
Prosthetics and implants – OPME	1.203	1.128	6,7%
Reagents and analyzers for in vitro diagnostics	3.106	2.822	10,0%
<b>Exports in millions of USD</b>			
Total Medical Devices (DMs)	784	800	-2,0%
Health materials and equipment	664	658	0,8%
Prosthetics and implants – OPME	315	289	8,7%
Reagents and analyzers for in vitro diagnostics	149	189	-20,8%
<b>Trade Balance in millions of USD</b>			
Total Medical Devices (DMs)	-5.926	-5.555	6,7%
Health materials and equipment	-3.268	-3.193	2,4%
Prosthetics and implants – OPME	-889	-839	6,0%
Reagents and analyzers for in vitro diagnostics	-2.956	-2.633	12,3%

Source: Comex Stat / Websetorial

In 2023, the United States was the first trade partner of imported medical devices in Brazil, with a growth rate of 5.1%, followed by Germany 34.5% and China, with a decrease of 2.6%. Brazil is the 14th largest market for U.S. medical devices and second in Latin America, after Mexico. In 2023, U.S. medical device exports to Brazil reached USD 1.47 billion.

- The largest market within this sector is the Cardiology Devices market, which is projected to have a market volume of USD 1.55bn in 2024
- Estimates annual growth rate of 7.05% resulting in a market volume of USD 14.65bn by 2029
- Brazil is experiencing a growing demand for innovative medical devices, driven by a rapidly expanding healthcare sector
- New regulations will accelerate device approvals in Brazil, supporting the long-term growth of the market
- The US will remain Brazil's most dominant medical device trade partner due to strong trade relations, regulatory alignment, and the proximity of the US to Brazil

- US medical device manufacturers are known for adhering to high standards, which aligns with Brazil's regulatory requirements for medical devices, ensuring safety and efficacy

### **New Regulations will accelerate device approvals**

On April 8, 2024, the Brazil Health Regulatory Agency (ANVISA) announced that it will accelerate the registration of medical devices by accepting the decisions of regulatory bodies from Australia, Canada, Japan, and the United States starting June 3, 2024. This move, aimed at shortening analysis and registration times, means that products entering Brazil must have the same production characteristics, indications, and intended use as those approved in these markets which supports ongoing efforts to align with global standards. This is expected to enhance Brazil's medical device market, reduce the time and resources spent on analyzing and registering medical devices, and allow for quicker access to new medical devices for healthcare providers and patients in Brazil, which will drive market growth.

### **Healthcare IT**

The Ministry of Health announced investment of USD 200 million for the digitalization of the public basic healthcare care system (SUS) in 2023. Similar investments are expected in the next few years. Among the initiatives, the APS Digital (Digitalization of Primary Care Assistance) has the goal of providing IT equipment and software to run basic care units to 3,613 municipalities for the 26 states. In 2022, the UBS Digital public program announced a USD 3 million investment for telemedicine solutions in remote areas for services including cardiology, dermatology, endocrinology, and geriatrics.

Private hospitals are also investing in technology and several new hospitals are formalizing their progress by obtaining international certificates for data management and reduction of paper use.

During the pandemic, Brazil temporarily approved the use of telemedicine. The change became permanent in 2022 and digital solutions for healthcare consultation, diagnostics, and treatment are now widely used. In the public sector, TeleSUS has been used for consultation for symptoms of Covid-19. Additionally, Internet of Things (IoT) and Artificial Intelligence (AI) are expected to play a key role in the medical IT field in coming years.

### **Leading subsectors & Opportunities for Pharmaceutical Market**

U.S. companies can be competitive in the Brazilian market when offering high quality, innovative, and cost-competitive products.

- Chronic diseases – blood pressure, diabetes, cardiovascular
- Contraceptives
- Rare Diseases
- Generic Drugs
- Infectious Diseases
- HIV and Hepatitis C

### **Leading subsectors & Opportunities Medical Devices Market and Healthcare IT**

- Medical Devices - Dental Products – orthopedics, implants, equipment, tools, and aligners
- Healthcare IT – telemedicine, EMR, interoperability, big data, and AI
- Medical Devices – consumables, imaging diagnostic, in vitro diagnostic, and implants

An aging population and poor management of resources in the healthcare sector also offer opportunities for U.S. products and services:

- in the areas of assisted living
- mental health
- rehabilitation
- chronic diseases

### **Trade Events**

[Hospitalar](#) – May 20-23, 2025 - São Paulo

[HIS](#) – September 18-19th, 2024 – Sao Paulo

[Aeromedical Trade Mission USCS SP](#) – September 25-27th, 2024 – Sao Paulo

### **Sources**

[IQVIA](#)

[Sindusfarma](#)

[Saude Business](#)

[IBGE](#)

[Abradilan](#)

## **ICT - INFORMATION AND COMMUNICATIONS TECHNOLOGIES, AND TELECOMMUNICATION**

According to the Brazilian Association of Information and Communication Technology and Digital Technologies Companies (BRASSCOM) Sectoral Report, in 2023 Brazil's Information and Communication Technology (ICT) macro sector, which encompasses the IT and Telecom sectors, reached R\$707.7 billion reais, or USD 140 billion, a growth of 5.9% compared to 2022, which represents 6.5% of Brazilian GDP. The growth has been driven by the ongoing digital transformation and need for digital services disrupting all industry segments and increasing demand for connectivity and high-speed internet.

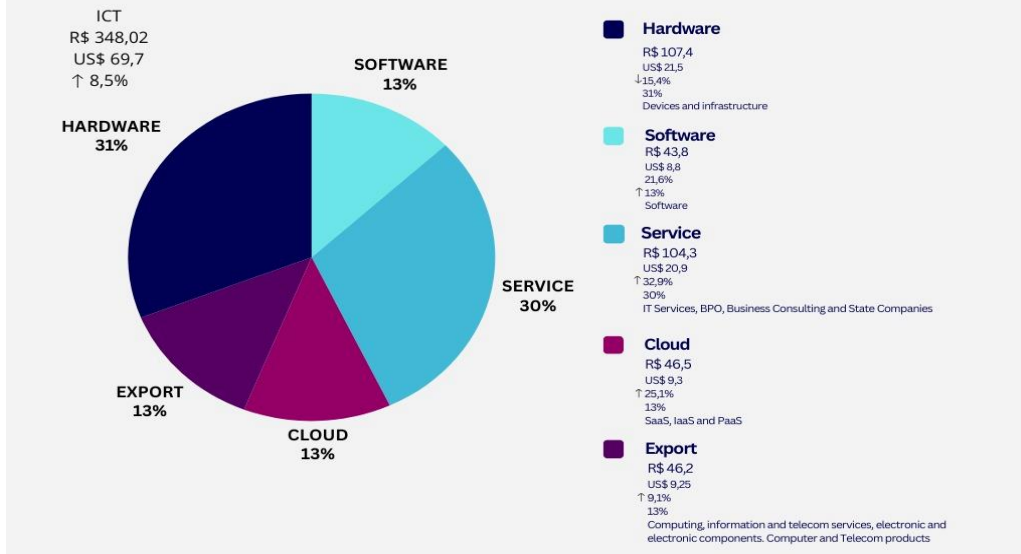
### **ICT - Information and Communications Technologies**

In Brazil, the Brazilian Institute of Geography and Statistics (IBGE) defines the ICT sector as the integration of technologies based on microelectronics, telecommunications, and information. Considering the classification of the economic activities ("CNAE", from IBGE), the ICT is divided into the manufacturing and the service segments with specific economic activities in each one of them.

The Brazilian IT market can be further delineated into market segments as follows:

# ICT MARKET

R\$/US\$ Bilion | Variation | Participation on the segment



Source: [Brasscom](#)

When considering only the IT sector, the revenue was R\$ 348.2 billion, or approximately USD 70 billion, a growth of 8.5% compared to 2022. It includes IT, Software, Services, Cloud, BPO, Business Consulting, State-owned, Hardware, and Exports. When considering the numbers of Digital Technologies at the user companies, the value reached R\$ 74.3 billion, or USD 15 billion, 6.4% higher than in 2022. The Telecom segment alone generated revenues of R\$ 285.2 in 2023, or USD 57 billion, a growth of 2.7% compared to 2022.

Companies associated with Brasscom reported that they intend to invest R\$ 729 billion or USD 55 billion by 2027 to accelerate the sector's growth, to reach at least 8% of the Brazilian GDP.

The ICT macro sector employs 2.05 million professionals, corresponding to 4% of national jobs.

According to Brasscom, the scenario of optimism in the IT segment in 2023 was due to adjustments and spending redirections, while Telecom was driven by the growing importance of connectivity and the advancement of the cloud and 5G. Both scenarios have been stimulated by the interest in new technologies and the need for companies to accelerate their growth through increased productivity, introduction of new products and services supported by digital technology and greater advantage of the volume of data generated by the business.

## Estimates for 2024

According to [IDC](#) projections, the IT market in Brazil is expected to grow 11% in Latin America in 2024. In the consultancy's assessment, Brazil should stand out, with sector growth of 12%. In addition to being higher than the region's average, the forecast for the Brazilian market is higher than projections for Argentina (7%), Colombia (10%), Mexico (10%), Chile (11%), and Peru (11%). The forecast for the United States is also below (9%).

In several of its predictions for the coming years, [IDC](#) indicates the incorporation of artificial intelligence (AI) in operational activities. According to the consultancy, by 2027, 25% of IT expenses, in relation to the group of 5 thousand largest Latin American companies, should be directed to technology.

## Perspectives for 2024

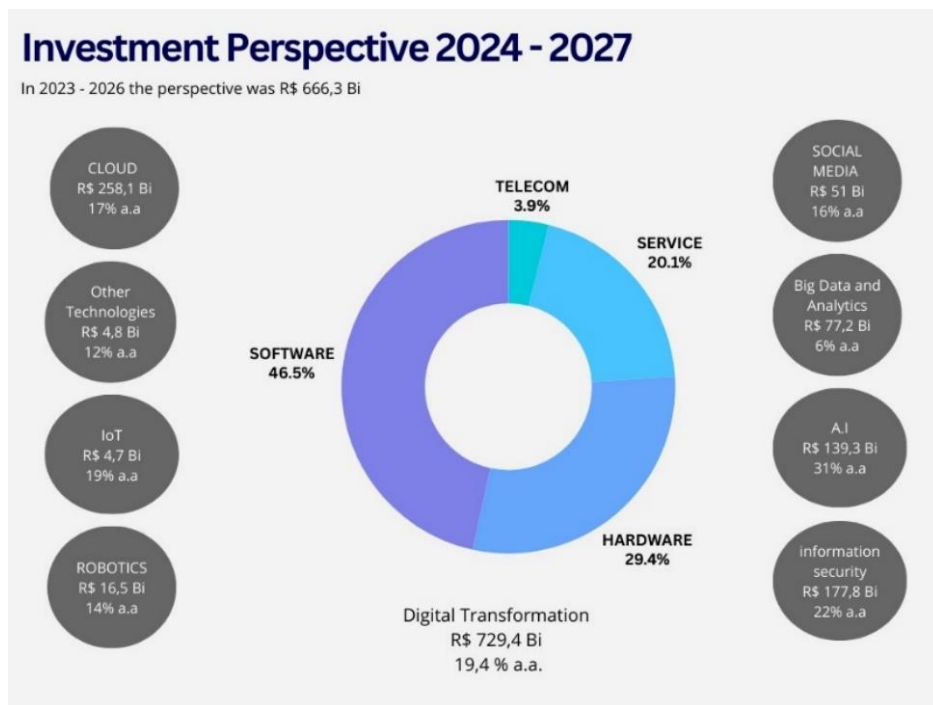
**AI** - USD 1.6 Billion spent on analytical and AI platforms. Spend on GenAI is expected to more than double in Brazil reaching a total of USD 120 Million in Latin America

**Security** - USD 1.7 Billion in spending on security solutions, with more “modern” and “smart” technologies, such as Interconnected SaaS Security Identity Fabrics

**Cloud** - USD 1.5 Billion in spending on cloud data solutions. The advancement of data in the Cloud will make companies look to technologies such as AI, GenAI, and Analytics to achieve their business objectives

**Services** - USD 1.4B with consultancy, integration, and support for data-related projects

**IoT** - USD 1.7 Billion in hardware, software, and services and connectivity for the growth of IoT and generation of a more automated infrastructure



Source: [Brasscom](#), [IDC](#)

## Opportunities

- **Private Networks:** Internet of Things (IoT) applications and industrial automation over 5G will boost demand for private networks in the coming years. There are various operation models to adapt private networks, including partnering with a telecom operator (physical or virtual/slicing), investing in full operation equipment, which also requires a frequency license granted by the Agencia Nacional de Telecomunicações (Anatel), or using unlicensed spectrum for LoRa and Sigfox technologies
- **Norte Conectado:** This program was created by the Ministry of Communications and aims to expand the communications infrastructure in the Amazon region. The project will implement an under-river fiber backbone connecting Santarem to Manaus with more than 1,100 kms of extension. It is expected to improve and develop access to the telecommunications services in the region, support the implementation of public policies, and offer internet access to public schools, hospitals, research centers, and the judiciary system

- **Edge computing:** Investments in edge computing, which brings data processing closer to customers, are set to grow strongly in Brazil in the coming years thanks to new demands generated by the 5G ecosystem and greater data analysis requirements
- **Internet of Things (IoT):** Besides connectivity and managed services offered by local telcos, IoT platforms require security and analytics features. Therefore, monitoring and managing remote assets and using AI for decision-making are services in high demand required by industries such as agribusiness, medicine, logistics, and manufacturing
- **Cybersecurity:** The increasing integration in several end-user industries demands cybersecurity solutions for different levels and types of integrations, thus creating considerable scope for cybersecurity companies to offer their services
- **Cloud:** Cloud is a key element in Brazil's IT infrastructure. In 2023, spending on Infrastructure as a Service (IaaS) plus Platform as a Service (PaaS) solutions exceeded USD 4.5b, growing 41% from 2022. According to global research conducted by [Gartner](#), cloud computing is expected to be used by 50% of companies by 2027
- **Devices:** The device market was estimated to represent 43.7% of all IT-based revenue in Brazil in 2023 and the Brazilian devices market was estimated a sum of USD 21.5b in 2023, an increase of 1.1% from 2022. Despite its modest growth in 2023, the importance of devices for the total IT market in Brazil is significant. Smartphones estimated to reach USD13b, computers USD 5.8b, wearables USD 882m, printers USD 542m, and tablets USD 464m
- **Wearables:** This market is almost entirely based on retail sales to end users. According to IDC Brazil's Tracker of Brazil Wearables in Q12023, wireless headphones increased with a growth of 45.3% in units sold. However, in terms of revenue, wearables (gray and official market combined) were estimated at USD 180m, 19.7% less than in 2022

By 2025, Brazil will be among the five largest markets in the world for smartphones, with approximately 200 million connections. The Government of Brazil has conducted several studies to improve the IT market and address challenges in Brazil's adoption of its Digital Transformation Strategy.

The creation of Brazil's National Semiconductor Plan aims to promote the national semiconductor industry and the inclusion of Brazil in the international semiconductor supply chain. The plan has potential to stimulate and strengthen the existing IT industry and will create opportunities for U.S. companies in Brazil.

## Telecommunications

Brazil is the fourth largest telecommunications market in the world, after China, the United States, and India and is segmented by services (wired, wireless), data and messaging services, OTT, and pay TV services.

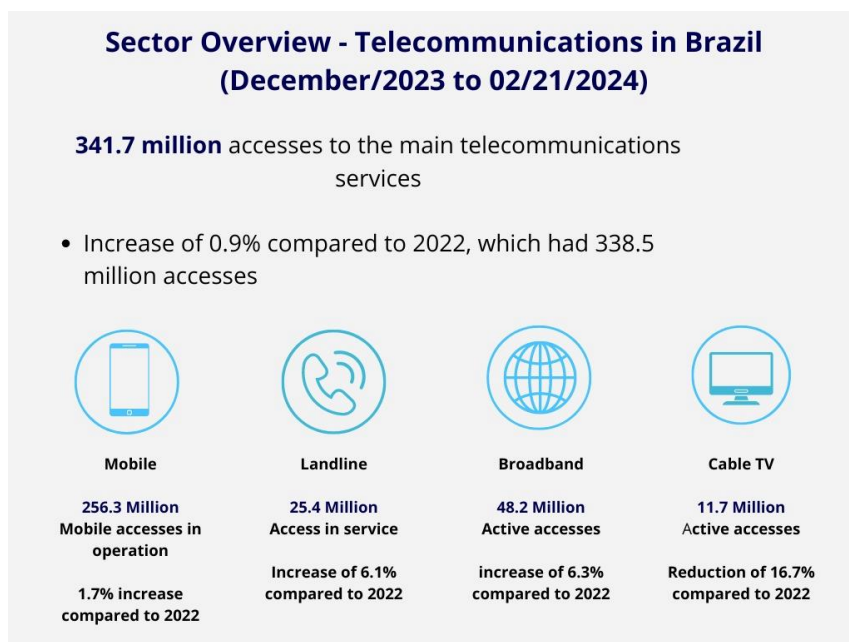
The Brazil Telecom Market size is estimated at USD 32.13 billion in 2024, and is expected to reach USD 43.34 billion by 2029, according to a [Mordor Intelligence Report](#). Telecommunications services, both fixed and mobile lines, are integral to everyday life in Brazil. The country's telecoms industry is expected to grow in the near future, providing users with new and advanced technologies, such as 5G, that will help them stay connected in an increasingly digital world.

The sector is made up of three major operators: Claro (America Móvil), TIM (Telecom Italia), and Vivo (Telefónica). These operators offer a wide range of services, including mobile telephony, fixed telephony, broadband, internet, and Pay TV.

The telecommunications sector in Brazil is highly regulated by the government and very competitive, which has led to constant investments in infrastructure and innovation. Like other markets, connectivity demands, including 5G and the advancement of cloud computing, are major drivers of the sector's growth.

A 5G auction for mobile telephony in Brazil was held in November 2021. The auction included four radio frequency bandwidths: 700 MHz, 2.3 GHz, 3.5 GHz, and 26 GHz. Besides incumbents and regional players, licenses were awarded to 6 new mobile operators bringing more competitiveness to the market.

The number of internet users in Brazil in January 2024 was 187.9 million. According to [Kepios](#) analysis, Brazilian internet users increased by 6.1 million (+3.3%) between January 2023 and January 2024.



For U.S. companies to thrive in Brazil, establishing an in-country presence or having a knowledgeable local representative to engage in tenders and reverse auctions conducted by the government of Brazil is crucial. Having a distributor or systems integrator that provides post-sale and maintenance services, including spare parts and repairs, is important. Introducing a product independently or partnering with a local entity both require a strategic market entry plan to effectively penetrate the Brazilian market.

### Trade Events

[Futurecom](#)- October 8-10, 2024

[Febrabantech](#) – Dates to be determined

### Sources

[Ministry of Science Technology and Innovation](#)

[The International Data Corporation \(IDC\) Brazil](#)

[Anatel](#)

[Brazilian Association of Software Companies \(ABES\)](#)

[Brazilian Association of Information and Communication Technology Companies \(Brasscom\)](#)

[Mordor Intelligence](#)



## CIVIL AVIATION

Brazil boasts a vibrant aviation industry that plays a crucial role in the economies of both Brazil and the United States. In 2023, the bilateral trade in aerospace products and parts reached a total of USD 9.2 billion.

In addition to being home to the fifth-largest airspace in the world, Brazil also stands as one of only six nations worldwide producing commercial jets. Aerospace products and parts constitute the second-largest category of U.S. exports to Brazil, with exports reaching USD 6.808 billion in 2022, nearing the pre-pandemic peak of USD 7.021 billion in 2019.

There is considerable potential for growth in the per capita air travel expenditure in Brazil, as aviation expenditure accounts for 18% of the country's transportation expenditures.

Even though the number of commercial flights in Brazil remains below the pre-pandemic levels, a gradual recovery is underway, which is in line with the worldwide trend of reduced travel during the period of COVID-19 pandemic. According to the 2023 [Air Transport Annual Report](#), from [ANAC – National Civil Aviation Agency](#), Brazil recorded 112 million passengers in 2023. These figures represent an increase of 15.3% over the 2022 value and 94.9% of that observed in 2019, including domestic and international travelers.

### Commercial Aviation

In Brazil, there are 5,500 municipalities served by 3,240 airports, and aviation represents 18% of transport.

In terms of air passenger flights, 98% of the country's flights are concentrated in 65 airports. It has been estimated that 31 of these airports are in major cities, where the terminals have the capacity to handle a total of over one million passengers a year. A USD 600m investment has been made by the Brazilian government to expand regional aviation in all parts of the country since 2019.

72 foreign companies, including seven U.S. companies, are certified to operate regularly in Brazil. Currently, there are nine active airlines in Brazil that are licensed to operate in the country, with an air operator certificate issued by the [ANAC - National Civil Aviation Agency](#) until May 6, 2024. These companies offer scheduled and non-scheduled flights. Here are some of them:

- LATAM Brasil: Result of the merger between LAN Chile and TAM Linhas Aéreas, LATAM is the largest airline in the country, serving international and domestic routes
- GOL Linhas Aéreas: GOL offers regular flights and is one of the main Brazilian airlines
- Azul Linhas Aéreas: With 161 destinations, Azul is one of the largest airlines in Brazil
- Voepass Linhas Aéreas: Formerly known as Passaredo, Voepass operates regional flights
- Total Linhas Aéreas: Total Linhas Aéreas is also among those active in Brazil

There is a large market for commercial aviation in Brazil. The ANAC reports that, in Brazil, there were 911,000 flights performed in 2023, a 10.5% increase over 2022. The 2023 [Air Transport Annual Report](#)

indicates that, of these flights, 789,000 were domestic flights (an increase of 8% over 2022) and 122,000 were international flights (an increase of 29,9% over 2022).

Finally, regarding the country's airport infrastructure, it was possible to observe an increase in the number of airports that received regular domestic flights, which went from 150 in 2022 to 159 in 2023, a growth of 6%, with emphasis on the increase of 41% in the number of airports in the Northeast, increasing from 29 to 41; in the North, 8%, going from 39 to 42 airports; and in Minas Gerais, 71%, going from 7 to 12 airports.

### Leading Sub-Sectors

The Brazilian aviation sector provides significant opportunities for U.S. businesses to supply products and services that are needed to meet the sector's needs. There are a number of subsectors within the aviation industry that present the best opportunities for U.S. suppliers of aviation products:

- Manufacturers and suppliers of original equipment (OEMs)
- Aviation (executive, agricultural, aeromedical, urban air mobility, etc.)
- The repair, maintenance, and overhaul of aircraft (MRO) industry

### Original Equipment Manufacturers (OEMs)

The Brazilian civil aviation system is the third largest in the world, which includes:

- 2nd largest general aviation fleet
- 3rd largest executive airplane fleet
- 2nd largest helicopter fleet
- 2nd largest airport network

[Embraer](#), a global company based in São Paulo, operates in commercial and executive aviation and defense and security. The company was founded in 1969 and has become one of the world's leading manufacturers of commercial jets and is one of the most important OEMs in Brazil. 60% of Embraer's components are imported from North America, mostly from the United States. Components account for 90% of the company's production.

[Helibras](#), the second major Brazilian OEM, is a helicopter manufacturer in Brazil, and is a subsidiary of Airbus Helicopters. Helibras reached R\$ 1 billion or USD 200 million in sales in 2023 and is predicted to reach R\$ 1.5 billion or USD 300 million in 2024. Helicopters manufactured at Helibras include the H125 Esquilo, H130, and H225. About half of the components are imported.

### Opportunities

- **Executive Aviation** - Executive aviation grew despite COVID-19. Air taxis and aircraft acquisitions increased due to health concerns, resulting in more private flights
- **Agricultural Aviation** - It has experienced significant growth in the last 13 years, nearly doubling its size since 2010, when there were around 1,300 aircraft
- **Drones** - Brazilian agribusiness has seen a growth in drone sales driven by the need to increase productivity and efficiency
  - An improved data collection system
  - Software for advanced image analysis

- Automation and irrigation systems integrated with agricultural technologies
- **Aeromedical** - Transport of organs, interhospital care, and pre-hospital care. Revenue is USD 150 million a year, 3% of global revenue
  - Adapted (new & used) aircraft and helicopters for aeromedical use
  - Aeromedical conversion companies for commercial aircraft and helicopters
  - Pilot, doctor, and nurse flight simulations
  - Aeromedical avionics
  - Aeromedical equipment
  - MRO (maintenance, repair, overhaul)
- **Urban Air Mobility** - Embraer's subsidiary EVE Air Mobility is developing urban air mobility solutions. The first eVTOL prototype was presented on May 8, 2018. eVTOL production will begin in 2026

### Other Subsectors

- aerial photography, air reporting
- air advertising
- air inspection
- aero cinematography
- aerial survey
- air taxi
- firefighting
- scenic flights
- aerial demonstration
- external load

Companies seeking success in Brazil need an integrated strategy that addresses all aspects of the market and establishes a local presence or partners with local representatives to provide post-sales support and engage in public tenders and reverse auctions sanctioned by the Brazilian government.

### Trade Events

[LABACE](#) - August 6-8, 2024

[MRO Brazil](#) - September 25-26, 2024

[DroneShow Robotics 2025](#) - June 3-5, 2025

### Sources

- Aerospace Industries Association of Brazil ([AIAB](#))
- Brazilian Association of General Aviation ([ABAG](#))
- The National Civil Aviation Agency ([ANAC](#))
- The National Union Agricultural Aviation Companies ([SINDAG](#))

### Brazil Public Safety and Security Market Overview

The Public Safety and Security market in Brazil is a critical focus area for government agencies and private organizations alike. The market is growing in response to the increasing demand for advanced technologies to enhance public safety measures. Investments in surveillance systems, emergency response technologies, and communication networks contribute to the market's expansion. The growing urbanization, rising crime rates, and the need for effective disaster management solutions drive the adoption of public safety and security technologies in Brazil.

Challenges include the need for interoperability among diverse systems, privacy considerations, and public acceptance of surveillance technologies. Navigating these challenges is critical for the successful implementation of comprehensive public safety and security solutions.

### Government Policy of the market

The Brazil Public Safety and Security market is influenced by government policies addressing crime prevention, emergency response, and overall public safety. Challenges include the need for integrated and technologically advanced solutions, privacy concerns, and budget constraints. Government initiatives that prioritize investment in modern public safety technologies, promote public-private partnerships, and ensure ethical use of surveillance technologies are essential for addressing these challenges and enhancing overall public safety.

Public and private security professionals require full preparation and knowledge of scenario mapping, predictive intelligence, business continuity, risk management, and security strategy, combined with the best available solutions in equipment and technology.

Public security programs are intended to reinforce border control, combat organized crime, improve the prison system, create a national information system for public security agencies, and combat drug trafficking over the next decade. State secretariats are also investing in new technologies to combat crime. It is estimated that foreign products account for approximately 50% of the total electronic security market share. In addition to new products and advances in artificial intelligence, new telecommunications technologies, such as 5G, contribute to the market's growth.

A major trend among Brazilian federal, state, and local security forces is to adopt analytics, migrate to intelligent monitoring, and innovate to develop proactive solutions for preventing occurrences, anticipating risks, and stopping criminal acts before they occur.

The security sector in Brazil has seen an average annual growth rate of 15-20% in the last ten years, with annual sales of USD 26 billion, including private security services. Market revenue in 2023 for electronic security equipment alone reached R\$ 12 billion, or USD 2.5 billion by 2023. In terms of market share, foreign products account for approximately 50% of the total electronic security market. A combination of new products, advances in artificial intelligence, and new telecommunications technologies, such as 5G, have contributed to the market's growth.

Revenue in the Security Services market is projected to reach USD 1.63 billion in 2024, with an estimate annual growth (2024-2029) of 5.89%, resulting in a market volume of USD 2.17 billion by 2029.

## Sectors and Opportunities

### · Defense

In 2024, Brazil's defense budget is worth USD 24.7 billion. The country's defense budget will grow more than 1% during 2025-2029.

Brazil faces no major external security threats. However, internal issues, such as the need to supply the military with the equipment required to tackle drug trafficking, arms smuggling, and organized crime drive the country's defense expenditure.

Drug trafficking and organized crime along with the modernization of the armed forces are driving the Brazilian defense market's growth.

### · Private Security

The private security market in Brazil, regulated and supervised by the Federal Police, is made up of 2,471 specialized companies, which provide contract surveillance services and 1,154 companies that directly hire security guards.

The largest clients in the security market are financial and commercial institutions. Port and airport security are other high-investment segments. Although they have existing improved security measures, the segments should continue to offer excellent opportunities for suppliers, especially for security scanner manufacturers.

### · Public Security

The use of non-lethal weapons, such as stun guns, has been growing year-over-year, indicating an emerging market trend across both the public and private sectors. Non-lethal technology companies have witnessed revenue growth above 30%. The federal government policy has shifted towards the use of less harmful devices that are expected to prompt more sales. At the state level, the public security secretariats are also promoting investments in the acquisition of non-lethal technologies.

### · Digital Transformation

Digital transformation is always evolving in the security industry. Companies are constantly evaluating evolving strategic technologies including artificial intelligence and native cloud computing solutions.

Growing the use of analytics, migrating to intelligent monitoring, and innovating to develop proactive solutions that prevent occurrences, anticipate risks, and stop criminal actions before they happen, are the major trend and most sought-after solutions for Brazilian federal, state, and local security forces.

Brazil had more than 23 billion attempted cyberattacks during 2023, more than any other country in Latin America, according to data from ABESE (Brazilian Association of Electronic Security Equipment). As a result, both the public and private sector understand the importance of adopting a strong cybersecurity architecture. The Brazil Cybersecurity Market size is estimated at USD 3.34 billion in 2024, and is expected to reach USD 5.46 billion by 2029, growing 10.30% during the forecast period (2024-2029).

### · Electronic Security

According to the Security Industry Association (ABESE) study, in 2023, the electronic security sector grew 13.7%, outperforming the general market, while the entire industry had a growth of 18.3%.

ABESE reports that the electronic security systems market in 2023 was R\$12 billion, or USD 2.4 billion and is estimated to grow even further in 2024.

“AI is now present in 54% of security electronic products, a transition comparable to switching from analog to digital, and AI solutions should determine the industry's next steps”, according to ABESE president, Selma Migliori.

In 2024, growth is expected to reach 18.5%, driven by condominiums, corporations, and educational institutions integrating electronic security solutions.

Monitoring and electronic concierge systems are becoming increasingly popular in Brazil, with 37% of properties having some form of monitoring system and over 12,000 condominiums utilizing remote concierge services.

Throughout 2024, there will be hiring plans in all segments, including commercial, marketing, finance, and technical. Moreover, the sector directly employs over 1 million professionals and indirectly supports over 3 million jobs.

In 2024, hiring is planned across all segments, with a particular focus on areas like sales, marketing, finance, and technical skills.

According to the latest Security Industry Association's (ABESE) report, the Brazilian market share for electronic security equipment is as follows:

- Video Surveillance – 39.6%
- Access Control – 20.8%
- Intrusion Alarms – 19.2%
- Fire Detection and Suppression – 10.4%
- Electronic Surveillance – 10%

With more than 26,000 companies and an average market growth rate of 8% per year, businesses in the market expect to meet the demand for public and private security with solutions that use artificial intelligence, sensors, and the Internet of Things (IoT) to help prevent or resolve issues without the use of lethal weapons - which are restricted to police authorities or authorized surveillance companies.

### Segments to have the most significant equipment demand

- **Access Control** – potential end users: residential buildings; home security; commercial buildings; airports; banking institutions; mass transportation; Government
- **Cyber Security** (hardware and software) – potential end users: airports; banking institutions; mass transportation; Government
- **Detection Devices** (thermal cameras, drug, fire, metal) – potential end users: home security; commercial buildings; airports; banking institutions; mass transportation; Government
- **Security Systems** – potential end users: residential buildings; home security; commercial buildings; airports; banking institutions; mass transportation; Government
- **Surveillance Equipment** – potential end users: residential buildings; commercial buildings; airports; banking institutions; mass transportation; Government

## Trade Events

[LAAD](#) – April 14-16, 2026

[EXPOSEC](#) – June 10-12, 2025

## Sources

[ABESE](#) (Brazilian Association of Electronic Security Equipment)

[Revista Digital Security](#)

[ABSEG](#)

## INFRASTRUCTURE

In this report, we are covering the following sector:

- Transportation
- Roads
- Railways
- Water & Wastewater
- Renewable Energy

Brazilian infrastructure includes railways, ports, highways, airports, water resource management, wastewater, sanitation, and solid waste, with opportunities for international companies to provide design and construction equipment, solutions, and project operations.

With continental dimensions, investments in infrastructure are essential to enable Brazil's economic growth, job creation, and income generation. In the past years, improvement in infrastructure has become a priority in Brazil. New legislation has been issued and approved and a number of programs at the federal and state government levels were designed.

## BNDES

At the Federal level, the [BNDES](#), the National Bank for Economic and Social Development has a crucial role in infrastructure project finance and structuring PPPs and Concession projects. The bank often focuses on smaller projects. As an example of BNDES recent activity, in February 2024, BNDES announced investments of R\$ 500 million, or USD 100 million, in an infrastructure credit fund, which will be managed by Patria Investimentos, to finance small and mid-size projects, mostly in project finance non-recourse in the energy, water and wastewater, logistics, and telecommunications sectors.

## Federal Government

### PAC 3 – Economic Growth Program (PAC)

PAC 2023 is a Federal Government program announced in 2023, whose purpose is to increase investments and attract private capital to improve the infrastructure in Brazil. The PAC foresees investments of R\$ 1.7 trillion, or USD 340 billion (83% will be invested until 2026). The private sector participation in the total investments will account for 40% of the invested value. Detailed information on the PAC is available in the Brazilian Government website: [Novo PAC vai investir R\\$ 1,7 trilhão em todos os estados do Brasil — Planalto \(www.gov.br\)](#)

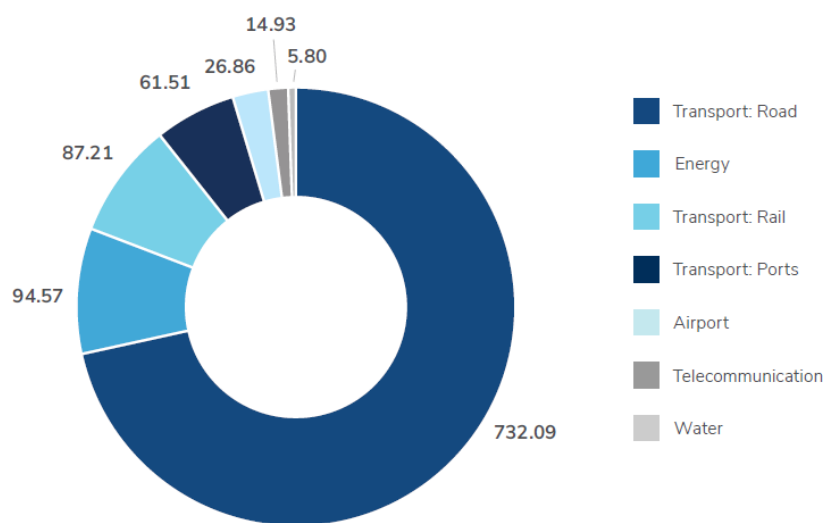
- Transportation: R\$ 732.09 billion, or USD 146.42 Billion
- Creation of Sustainable and Resilient Cities: R\$ 610 billion, or USD 112 billion

- Efficient and Sustainable Transportation: R\$ 349 billion, or USD 70 billion

According to the Brazilian Association of Infrastructure and Intermediate Goods Industry – ABDIB, the total investments in Brazil’s infrastructure in 2023 were about R\$ 213.4 billion, or USD 43 billion, an increase of 19.6% over 2022. In 2023, the private sector was responsible for nearly 80% of the total invested value. The 2023 figure was the highest in the last 9 years and represented 2% of the country’s GDP. The value is still considered low, since official sources estimates that the required investments to address the Brazilian infrastructure bottlenecks should correspond to about 4% of the GDP.

Through a pipeline of concession auctions and regulatory reforms, the Brazilian government has pursued a large privatization effort to narrow Latin America's largest infrastructure funding gap. In 2024, investments are expected to grow by 14% over the previous year.

### Infrastructure Investment Gap in USD Billion per Sector



Source: [Global infrastructure outlook accessed in 10/06/2021](#)

## Transportation

Rail transportation, passenger rail transportation, logistics infrastructure, roads, ports, public transportation, urban mobility, and smart transportation systems make up the Brazilian transportation sector.

### Cargo Transportation in Brazil

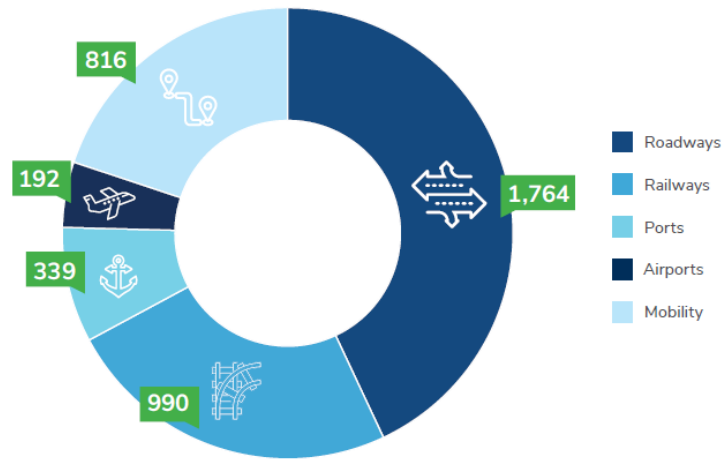
- 60% roads
- 21% railway
- 12% waterways

The excessive dependence on road transportation is responsible for the high logistics cost in Brazil compared to countries of similar dimensions. In fact, logistics costs accounts for around 12.7% of Brazil's GDP (4% higher than in the United States). According to the World Bank estimates, the logistics bottlenecks in Brazil add up to more than 7% to the export costs. In this scenario, investments in the other transportation modes are considered essential. According to the Infra2038 Report, R\$ 990 billion,



or USD 198 Billion of railway investment would be required until 2038 to include Brazil in the top-20 ranking best infrastructure countries.

### Total Investment Needed per Logistics Segment to Be One of the Top 20 Best Countries in Infrastructure by 2038 (R\$ billion)



Source: Infra2038 (2018 Report)

## Roads

With 1,720,700 kilometers of roads, of which only 105,814 are paved, Brazil is the fourth largest road network in the world. As in other countries, Brazil also adopts concessions and PPPs to finance and manage the road infrastructure. Despite the growing participation of private capital in the business, the roads that are managed by state and federal governments are the largest majority in Brazil. Some of the most common problems are related to improper signage, erosion, landslides, poor pavement, etc. Significant investments are being made in the sector through new concession contracts. In 2024 Brazil is expected to initiate bidding processes of 13 federal roads, which should attract investments of R\$ 122 billion, or USD 24.4 billion.

ABCR, the national association of road concessionaire, represents the private sector companies that operate roads under concession contracts with the federal, state, and municipal governments. ABCR has currently 51 members [CCR - Melhores Rodovias do Brasil - ABCR](#).

## Best Prospects

According to industry sources, the highway concessions granted by the federal government and the state of São Paulo government kept up with their investment programs in 2023, some of which included the operation of free flow in one of the São Paulo highways and the implementation of high-speed weight in motion technologies. New technologies should be incorporated in the Brazilian roads, mostly those related to safety.

Information on open and upcoming projects on road concessions, are available in the site: <https://dados.antt.gov.br/dataset/4b54f988-7a11-47a9-8403-0427cea92faa/resource/f33b7006-a5fb-4eb7-88b3-408cd0797d93/download/projeto-concessao-rodovias.csv>

## Intelligent Roads

According to Bnamericas, in November 2023, the Brazilian Government carried on the 5G auction, which

mandates that the spectrum buyers must enable 4G or better mobile internet coverage on about 36,000 kilometers of federal highways. The connectivity will result in huge changes in the Brazilian roads, which will be able to benefit from the implementation of free-flow traffic technology on toll roads, improvements to security and cargo tracking, adoption of engineering software for road construction, and the use of drones to assist with topographic land surveys.

## Railway

The railway network in Brazil is 30,000 km long, which corresponds to a railway density of 3.1 meters per square Kilometer, significantly lower than the 150 meter per square kilometer in the USA, nevertheless Brazil is the largest railway market in Latin America. Brazil's freight railway network of more than 29,925 km is the ninth longest in the world. Brazilian railway transportation is responsible for carrying key agricultural and mineral commodities and accounts for the movement of more than 42% of the exportable agricultural commodities.

The Railway Law (14.273/2021), which provides an authorization model whereby private players can Design-Build-Operate (DBO) railways under the [Pro-Trilhos](#) program is expected to attract significant investments, both in greenfield as well as in brownfields projects. The Brazilian Government expects that the authorization model has the potential to expand the railroad participation in the Brazilian transportation matrix to 40% in thirty years. As of October 2022, there were 89 new requests to build and operate short lines, which represents more than 22,000 km of new railways, with estimated private investment of R\$ 240 billion, or USD 48 billion.

The state of São Paulo should attract most of the railway investments in 2024, due to the governor's focus on infrastructure. Governor Tarcisio Gomes de Freitas has a very focused infrastructure profile. In addition to the projects already underway in the state, there will likely be progress in the tender process for the [TIC - Trem Intercidades](#) (Intercity Trains), which is important in terms of investment.

## Market Opportunities

Brazil's railway market offers promising opportunities to international companies, who can supply technology and reduce operational costs. Since the beginning of the concessions, until December 2022, the railway sector has attracted over R\$ 156 billion, or USD 31.2 billion of investments, mostly in the improvement and recovery of the network, purchases and renovation of rolling stocks and new technologies, professional training, and qualification of operations, among other areas.

## Major projects and Concessions:

- According to a study of the state-owned logistics planning company [Empresa de Planejamento e Logística EPL](#), one of the major projects in the pipeling is **Ferrogrão**, a 933 Km railway concession, expected to generate capital expenditures of R\$ 21.5 billion, or USD 4.3 billion
- TAV is a project that is being developed by EPL, that should connect the major Brazilian cities high-speed trains. There are four planned lines for TAV in Brazil (TAV Rio-São Paulo, TAV Brasília-Goiania, TAV Belo Horizonte-Curitiba and TAV Campinas-Triângulo Mineiro). The main line is Rio-São Paulo-Campinas which would integrate the largest Brazilian metropolises and the largest inland city

## Passengers Transportation - Urban Mobility

ANPTrilhos - the National Association of Passenger Rail Operators reports that Brazil has currently 21

rail transport systems operated by 16 companies, half of which are private (subways, urban trains, VLTs, monorails, and air mobiles). In 2023, the daily number of passengers using the system was 8.19 million.

The metro rail in Brazil covers 1,129.4 km, of which 704.3 km are in the Southeast region. There is no rail system in the North region and 39.1km are lacking in the Midwest region. Over the last few years, the network's growth has ranged from 3.85% to -0.88%. The network grew by 2.05% from 2021 to 2022. There are currently 629 stations, 47 lines, and 5,145 passenger cars on the network. In terms of construction projects, several systems in Brazil are expanding their networks. Fortaleza, Natal, Salvador, São Paulo, and Baixada Santista are the main regions highlighted. In addition to 91 km of tracks, 77 stations will be able to serve passengers after the construction is completed.

### Best Prospects in Brazil for modernization of railway technology and logistics centers

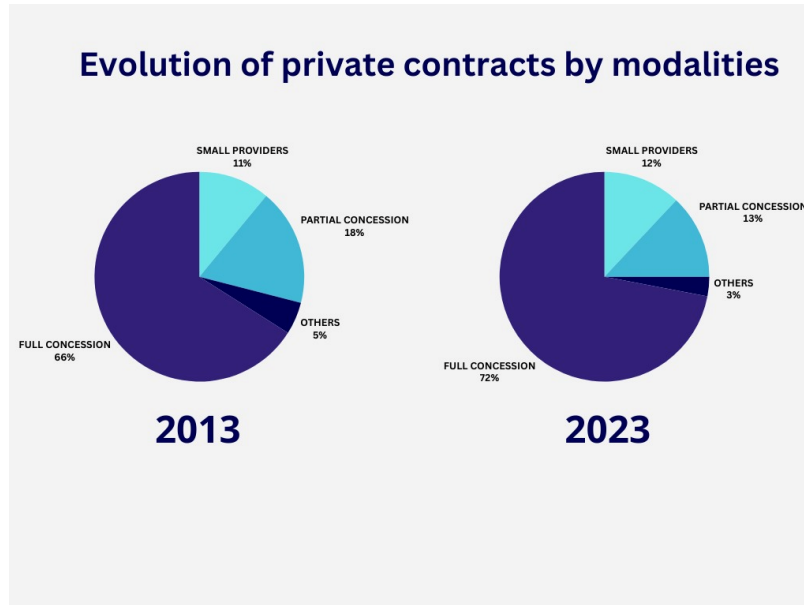
- **Smart railways:** with the implementation of IoT (Internet of Things) and Big Data technologies, railways may become smarter and capable of detecting and predicting failures or obstacles in traffic. This can help identify problems and preventative maintenance, as well as increase transport safety
- **Rail traffic automation systems:** these systems allow automated rail traffic management, such as route scheduling, speed control, and signaling. This can increase efficiency and reduce travel time, as well as decrease the risk of accidents
- **Electric trains:** to reduce polluting gas emissions, electric trains will gain more and more space in the electric superstructure. Some countries are already investing in hydrogen trains, which only generate water vapor as waste
- **Green railways:** green railways are designed to minimize the environmental impact of rail transport through clean and eco-friendly technologies. This includes electric trains, electrified rails, and renewable energy systems
- **Integration with other modes:** the serviced superstructure can be integrated with other modes of transport, such as buses, subways, and shared cars, to offer users more complete mobility solutions. This may be possible thanks to single payment technology and integrated information systems
- **Automation:** Automation of signaling and traffic control systems can make the operation of the protected superstructure more efficient and safer. However, it is necessary to consider the impact on the workforce and the need for training for professionals who will work in these systems.
- **Passenger trains:** commuter trains and interstate services, besides longer tracks for subway and light rails

### Water & Wastewater

With the legal framework for sanitation established in 2020, the sector has been receiving increased attention from the public and private sector. According to ABCON, investments in water and wastewater services through PPPs and concessions increased by 60% since 2020 and are expected to reach up to R\$ 893 billion, or USD 179 billion by 2033.

A major event in the sector in 2024 was the start of the bidding process for the concession of SABESP, Brazil's number one water and wastewater utility, which provides sanitation services to 370 municipalities in the state of São Paulo. The state of São Paulo foresees investments of R\$ 32 billion until 2029 or USD 6.4 billion, and USD 31.5 billion until 2060.

## Evolution of private contracts by types (2013-2023)



### Best Prospects

As far as the opportunities for U.S. suppliers, [Sabesp](#), Brazil's number one water and wastewater company, listed the types of products in high demand for its regular operations, among which are:

- flow controls, pipes, and valves
- backflow prevention valves
- products for utilities disinfection
- chemicals
- chemical feed equipment
- polymers
- oxygen generation equipment
- monitoring, sampling, and analysis
- pH analyzers and instrumentation.

The sector modernization will require remote water consumption measurement technologies, on-line sensors, telemetry, GIS for digital mapping, and public works monitoring.

Sabesp is investing in sludge to energy projects to generate fuel or fertilizers and is installing photovoltaic energy panels in its sewage treatment plants.

### Renewable Energy

According to the National Agency of Electric Power (ANEEL), Brazil is well advanced in energy transition and can couple economic growth with smaller carbon emissions. In 2023, Brazil generated 200 GW of centralized plants, of which 84.4% are from renewable sources, and 15.75% nonrenewable and 1% nuclear.

The four major sources of renewable energy that composes the Brazilian power matrix are as follows:

- 50.6% Hydroplants
- 11.4% Wind power

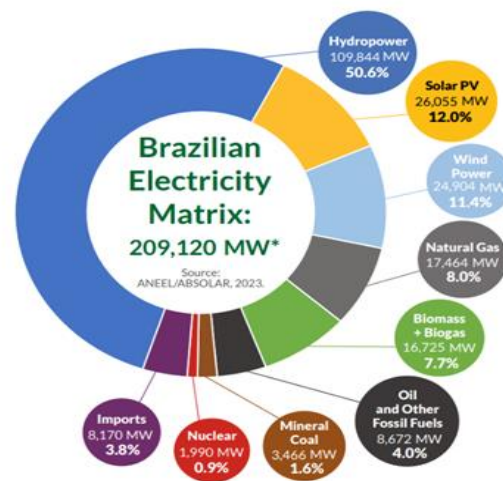
- 7.7% Biomass & Biogas
- 12% Solar

The five largest sources of nonrenewable energy are:

- 8% Natural Gas
- 4% Oil
- 1.6% Coal
- 0.9% Nuclear
- 3.8% Imports

The energy matrix in Brazil in 2023 is shown in the graphic below:

## BRAZILIAN ELECTRICITY BY SOURCES



The total matrix capacity does not include imports. In addition, mini and micro-distributed generation are considered in the values of installed capacity for each source, according to criteria applied by Ministry of Mines and Energy (MME).

Official estimates are that the electric power generation will grow by 10.1 GW in 2024, which is the second largest annual growth since 1997, slightly under the 2023 figure of 10.3 GW. Monthly updates on energy supply in Brazil are available in <https://portalrelatorios.aneel.gov.br/>

### Net metering (micro and mini distributed energy generation)

Micro and mini generators are classified based on their capacity. A micro generator specifically refers to those with an installed capacity of less than 75 kW, whereas the mini generator has installed capacity above 75 kW and less or equal to 3 MW.

Small energy consumers can generate electricity from renewable energy sources. Figures from ANEEL show that there are currently over 2.4 million systems connected to the energy distribution network with installed capacity above 27.7 GW. Over 3.5 million consumer units use the energy surplus, as well as the credits from the energy generated in the installed systems. In 2023, the number of installations of photovoltaic systems was 625,000, which represented an increase of 837,000 consumer units supplied by the energy surplus.

The energy sector is a top priority in Brazil and, as such, there are a number of programs at the federal and state levels to increase energy generation, transmission, and distribution. An important program is the PAC, whose major initiatives are listed below:

### **Federal Government initiatives PAC 3 – Economic Growth Program**

The Brazilian government announced investments of R\$ 73.1 billion, or USD 14.6 billion in 343 public and private works for the construction of photovoltaic, eolic, and hydro power plants. The new initiatives will add 18,367 MW to the power system and will focus on renewable sources.

PAC investment values:

- Photovoltaic plants: R\$ 41.5 billion, or USD 8.3 billion and will generate 8,569 MW
- Eolic energy: R\$ 22 billion or USD 4.4 billion and will generate 5,202 MW
- Small hydro plants: R\$ 1.3 billion or USD 26 million
- Thermo energy: R\$ 8.1 billion or USD 1.62 billion and will generate 4290 MW
- Nuclear energy: R\$ 1.89 billion or USD 378 million in the renovation of the Angra I plant

### **Energy generation**

In 2023, the PAC completed 56 renewable energy generation projects (2,122 MW) and initiated 179. 47% of the energy produced was from eolic sources and 39% was photovoltaic power supply. Total investments in energy generation are estimated at R\$ 75.6 billion, or USD 15.1 billion in 2023 to 2028.

The program continues expanding the transmission of renewable energy generated in the Northeast region of Brazil to the Center-South region, totaling investments of R\$ 40 billion, or USD 8 billion. PAC has reinitiated the “Lights for All” program, enabling electricity access to 11,000 families in rural areas. USD 2.72 billion will be invested in network expansion and new systems, from 2023 to 2028.

### **Energy transmission**

The program promoted two transmission auctions in 2023. The first one in June 2023 attracted investments of R\$ 15.8 billion, or USD 3.16, whereas R\$ 21.7 billion, or USD 4.34 billion were invested in the auction of December 2023. These auctions will enable construction of new energy generation projects mostly in the Northeast region of Brazil. In addition, the new transmission lines will carry renewable energy and when completed will turn the Northeast region of Brazil and exporter of electric energy. PAC foresees investments of USD 182 billion or R\$ 91 billion in transmission lines from 2023 to 2028.

### **The National Bank for Economic and Social Development BNDES programs**

BNDES finances energy transition projects with a focus in green hydrogen, offshore eolic, low carbon fuels, and electric mobility. The bank offers attractive financing to purchase and sales of solar and eolic energy systems, solar heaters, electric, hybrid, and biofuel busses and trucks, as well as equipment with higher energy efficiency rates that contribute to the reduction of greenhouse gases.

### **Best Prospects**

The market expects significant developments in the near future, some of which are revisions of energy

distribution concessions, new auctions, regulation of the carbon market, expansion of the electric fleet and, battery improvement.

There are opportunities for international companies interested in participating in the Brazilian renewable energy market, which include equipment supply, direct investments, and services.

- Technology and Equipment, such as solar panels, wind turbines, and hydroelectric equipment
- Technologies to improve energy generation, project development and construction of new renewable energy projects, battery storage systems and grid management technologies, biomass energy technologies, waste-to-energy solutions, etc.
- Consulting and advisory services, finance and investments, Research and Development, Energy storage solutions

### **Renewable Energy Trade Events**

[Fenasuco & Agrocana](#) - August 13-16, 2024

[Intersolar South America](#) – August 27-29, 2024

[Brazil Windpower](#) – October 22-24, 2024

[FIEE Smart Energy 2025](#) – September 9-12, 2025

### **Transportation Trade Events**

[Intermodal](#) - April 22-24, 2025 - logistics, intralogistics, technology and freight transportation

[FENATRAN](#) – November 4-8, 2024

### **Water & Wastewater Trade Events**

[FENASAN](#) – October 22-24, 2024

### **Sources**

[CCR - Melhores Rodovias do Brasil - ABCR](#)

[ANPTrilhos](#)

[ANTF](#)

[National Bank for Economic and Social Development](#)

[ABCR](#)

[Pro-Trilhos](#)

[Bnamerica](#)

[Sabesp](#)

[ABEEOLICA](#)

[ABSOLAR](#)

[ABRADEE](#)

[ABRATE](#)

[COGEN](#)

[EPE](#)

## **AGRIBUSINESS**

The agribusiness is highly important to the Brazilian economy. In 2023 the sector accounted for 25% of the country's GDP and about 45% of Brazil's total exports. Brazil is the number one worldwide producer of soybeans, sugar, coffee, and frozen concentrated orange juice. It is the second largest producer of beef and chicken products and the third largest producer of corn and pork products. Brazilian agribusiness is increasingly connected to the international market. Industry sector analysts expect that

the business will continue its growth path, as the international demand for food increases. Brazil also has several international commercial partnerships in place, which further stimulates the sector competitiveness.

Brazilian agribusiness has been rapidly adopting technology to improve efficiency and sustainability. Startups focusing on precision agriculture, IoT applications, and agribusiness management software have gained traction, receiving significant investments to further develop their solutions. According to industry sector experts, the adoption of new sustainable practices, innovation in the production chains, and continued investments in research and development are essential to the increased performance of the Brazilian agribusiness in the coming years. The sector is increasingly investing in machines and equipment, as well as in AI technologies to monitor crops, forecast harvests, and identify problems such as pests. The use of drones and big data for crop management and most efficient use of pesticides and fertilizers are also increasing.

The sector is highly capitalized, with large companies such as Cargill, Bunge, JBS, among others. Forbes' list of the top 100 companies in the Brazilian agribusiness is available in the link: [Forbes](#). Brazil has large-scale agricultural production, particularly in exportable commodities, such as: soybeans, corn, sugarcane, and coffee. The level of mechanization in the sector depends on the scale of farming operations. Most mechanization is found in:

- Large farms in Brazil, especially in the Cerrado region and the southern states of Mato Grosso, São Paulo, and Paraná. The types of technologies available include tractors, combine harvesters, planters, and irrigation system
- In beef and poultry production, although it usually involves equipment such as feeding systems, automated milking machines for dairy farms, and equipment for handling and processing livestock

## Biotechnology

The use of biotechnology has been increasing significantly in Brazil in order to increase productivity and efficiency of Brazilian agriculture. According to a recent report by the U.S. Department of Agriculture (USDA), Brazil is the second-largest producer of biotech crops in the world. The USDA forecasts the total area planted of genetically engineered crops reached over 56 million hectares during the crop year of 2020/2021. Adoption rates for soybeans reached 98% , 88% for corn, and 80% for cotton. According to Brazilian government data, the average yields for grains and oilseeds increased by 70% during the past 15 years, with continued use of biotechnology seeds being a major contributor to this yield growth.

The most common traits added to these crops are herbicide tolerance and insect resistance, separately or combined. The Brazilian government announced R\$ 251.2 billion (about USD 46.1 billion) in total funds available to support farmers for the 2021/2022 crop season, an overall increase of 6.3% from the last Safra Plan. This includes R\$73.44 billion for investments, which represents an increase of 29% from the 2020/2021 Safra Plan. [Brazil: Agricultural Biotechnology Annual | USDA Foreign Agricultural Service](#)

## Sustainability

The main cause of greenhouse emissions in Brazil is the change in land use and forests, including deforestation and wildfires, accounting for almost half of total greenhouse gas emissions in 2022. The agriculture and livestock sector ranked second, generating an estimated 617 million metric tons of CO<sub>2</sub> equivalent worth of emissions that year.



There is a growing emphasis on sustainability within Brazilian agribusiness. There are private and governmental initiatives to reduce deforestation and adopt sustainable farming practices to mitigate environmental impacts. In 2022, the Brazilian Ministry of Agriculture initiated the National Bioinput Program to expand and strengthen the use of Bioinputs (seeds, fertilizers, inoculants, products for plant and animal nutrition, plant extracts, production of natural pesticides, etc.) for sustainable development. Among the strategic actions are support investments in science, technology and innovation, credit and promotion, training, implementation of biofactories, and the incentive to the development of bioinputs programs. Ministerio da Agricultura e Pecuaria - [BIOINPUTS - Increasing Brazilian Biodiversity - Ministério da Agricultura e Pecuária \(www.gov.br\)](#)

According to a study conducted by [CropLife Brasil](#), the Brazilian sales of bioinputs grew by 15% in 2024 over 2023 and reached sales of R\$ 5 billion or USD 1 Billion. CropLife Brazil said that the Brazilian agricultural input industry invests heavily in the biological segment.

### Best Prospects

#### New Technologies

Brazilian agribusiness is increasingly adopting new technologies such as:

- **Internet of Things and Sensors:** IoT devices and sensors to monitor key indicators in agriculture, such as soil moisture levels, temperature, humidity, and crop health in real-time
- **Big Data and Analytics:** This helps in making informed decisions related to planting schedules, market trends, and resource management
- **Robotics and Automation:** Automated systems for planting, harvesting, and processing. Also used for weeding, sorting, and packing in agribusiness operations

#### Trade Events

[Agrishow](#) – April 28-May 2, 2025

#### Sources

[USDA Foreign Agricultural Service](#)

[CropLife Brasil](#)

## SERVICES SECTOR

The service sector in Brazil is the largest segment of the Brazilian economy, accounting for approximately 60% of GDP.

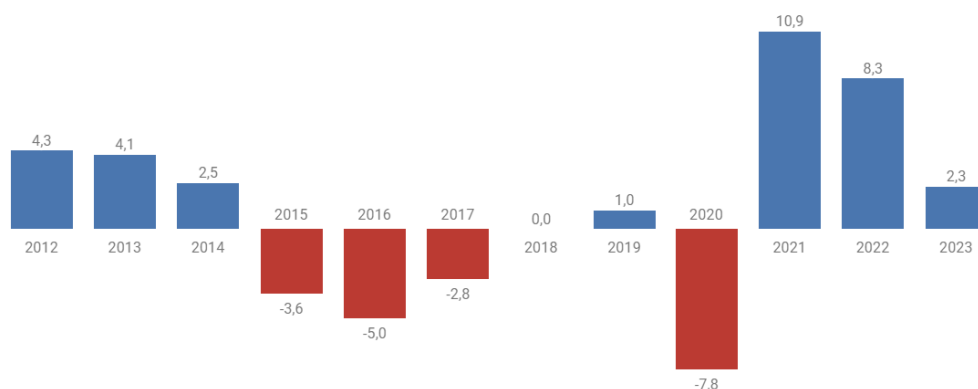
According to the Agency [IBGE](#) - the Brazilian Institute of Geography and Statistics, the service sector in 2023 grew by 2.3%, compared to the previous year. The sector has experienced steady growth, marking its third consecutive year of expansion.

The last few years have been challenging for the services sector in the country, mainly due to the pandemic. If on the one hand the virus brought instability in sales, on the other it also drove important adaptations and changes that ended up highlighting certain segments, such as the service sector, which was completely reformulated.

The IBGE highlights that the last time the services sector grew for three consecutive years was between 2012 and 2014, with a gain of 11.3%. In the current period, from 2021 to 2023, the increase was even

more significant, reaching 22.9%. However, the 2.3% growth in 2023 was the lowest in this sequence, with increases of 10.9% in 2021 and 8.3% in 2022. According to the agency, there was robust growth in 2021 and 2022, creating a high basis for comparison, driven by the post-pandemic recovery and extraordinary gains in information technology services and cargo transportation. Therefore, the growth recorded in 2023 over these exceptional years is quite significant.

### Comparative trajectory of the services sector in Brazil (in %) 2012-2023



Source: IBGE

### The main categories that showed growth in 2023

- Information and communication services: 3.4%
- Professional, administrative, and supplementary services: 3.7%
- Transportation and related services: 1.5%
- Family services: 4.7%

In addition, 55.4% of the 166 service categories evaluated showed significant growth. This growth was mainly driven by the information and communication sector (3.4%), as well as the professional, administrative, and complementary services sector (3.7%). This growth was primarily driven by an increase in revenues in telecommunications, custom software and computer programs, data processing, and internet hosting services.

As for professional, administrative, and complementary services, expansion was driven by car rental, engineering, business intermediation, and travel agencies.

As a result of the post-pandemic context, these activities gained strength, increasing the services sector to substantial levels. Especially for companies, IT services have increased significantly.

In this scenario, road freight transport contributed to the 1.5% growth in activities, auxiliary transportation services, and postal services. Initially powered by e-commerce, this sector grew rapidly with the expansion of agricultural production, which required the transportation of inputs and disposal of harvests.

Family services increased by 4.7%, ending the period with positive results. The other services sector, however, recorded a drop of 1.8%. Fund administration revenue decreased, securities brokerage revenue decreased, and exchange administration revenue decreased.

According to the research, the performance in 2023 followed the trend in 2022. As a result of the recovery following the pandemic, families' disposable income was redistributed, resulting in a reduction in financial investments and an increase in consumption.

Its consistent growth illustrates the sector's importance to the overall economy and its contribution to Brazil's economic recovery.

As the Brazilian economy recovers, investors looking to invest in this sector will find favorable opportunities. There are several key sub-sectors within Brazil's services sector that play significant roles in the economy. Here are some of them:

**Financial Services:** This includes banking, insurance, and other financial institutions. Brazil has a robust financial services industry that contributes significantly to GDP

- **Retail and Wholesale Trade:** Retailers, supermarkets, and wholesalers form an essential part of the services sector. Consumer spending drives economic growth, and these businesses facilitate the distribution of goods
- **Tourism and Hospitality:** Brazil's natural beauty, cultural heritage, and vibrant cities attract tourists. Hotels, restaurants, travel agencies, and related services contribute to this sector. Developing sustainable tourism, improving infrastructure, and promoting cultural experiences can boost this sector
- **Information Technology (IT) and Software Services:** Brazil has a growing IT industry, providing software development, IT consulting, and other tech-related services. Fintech, e-commerce, and digital payment solutions are promising areas
- **Healthcare and Social Services:** Hospitals, clinics, and social assistance programs fall under this category. Telemedicine, preventive care, and specialized treatments offer growth potential
- **Transportation and Logistics:** Shipping, freight, and transportation services are vital for trade and commerce. Ports, airports, and logistics companies support Brazil's exports and imports
- **Real Estate and Construction:** Real estate agencies, property development, and construction services contribute to economic activity. The housing market plays a significant role
- **Education and Training:** Upskilling and vocational training are essential. Online education platforms, vocational institutes, and lifelong learning programs have growth potential
- **Environmental Services:** Brazil's rich biodiversity calls for conservation efforts. Eco-tourism, renewable energy, and waste management are growth avenues

### Source

[IBGE](#)