SPOTLIGHT BRAZIL 2026

# FUTURES OF BRAZIL

## *SIGNALS OF TRANSFORMATION 2026*

UNDP

MINISTRY OF MANAGEMENT AND INNOVATION IN PUBLIC SERVICES

BRAZILIAN GOVERNMENT

BRASIL

STANDING WITH THE BRAZILIAN PEOPLE

# FUTURES OF BRAZIL

## *SIGNALS OF TRANSFORMATION 2026*

*The world is formed not only by what already exists, but what can actually exist."*

Milton Santos

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**Citation:** Federative Republic of Brazil and UNDP. 2026.
*Futures of Brazil: Signals of Transformation*. Brasília: UNDP.

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This knowledge product was produced under the project BRA/21/011—Capacity Building for the Modernization and Improvement of Federal State Management.

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# ACKNOWLEDGEMENTS

The report “Futures of Brazil: Signals of Transformation” was prepared in partnership between the Ministry of Management and Innovation in Public Services (MGI) and the United Nations Development Programme (UNDP).

We thank Maranta for the partnership in developing this report.

We thank the teams of the UNDP Brazil Country Office who contributed to this report: Claudio Providas, Maristela Baioni, Luciana Trindade de Aguiar, Mayra Almeida, Karen Barros, Lívia Maria da Costa Nogueira, Manoel Salles, and Roberto Astorino. We also thank the UNDP Strategy and Futures Team (Bronwyn Williams, Jonathan de Assis, and Mariana Soares da Costa) for their guidance on methodology, training, and facilitation of the Spotlight research and sensemaking process.

We also record our thanks to the MGI team for building the partnership with UNDP and for the preparatory activities for this report: Felipe Barradas, Fernanda Cleo Santos da Silva, Fernando Maciel, Guilherme Alberto Almeida de Almeida, Isabela de Jesus, Maria Gutenara, and Wanessa Queiroz de Souza Oliveira. We are also grateful to Professor Felipe Koch for his support with training and capacity-development activities.

In this edition of the report, we were honoured to have more than 170 members of the scanner network take part. Throughout 2026, they scanned the horizon for signals of change and entered the information they mapped into the Future Signals platform. We thank all the scanners and, in particular, the following, who were instrumental in developing this report: Adriano Caetano Santos, Alexandre Quaresma Inacio Silveira, Antônio Augusto de Queiroz, Antônio Claret, Caio Werneck, Carolina B. Pfeilsticker, Carolina Cristina Martins Cavalcante, Caroline Soares Chaves Lopes, Clara Sacco, Claudio Rodrigues Corrêa, Cristiana de Oliveira Soares, Daniel Victor Lima Félix, Fernando Maciel, Flavio Fonte Boa, Gláucia Hassler, Igor Machado, Ivy Aquino, James Görgen, Jéssica Leite, Jhonathan Divino Ferreira dos Santos, Jonathan de Araujo de Assis, Jordano Roma, Larissa Camilla Santos Ibiapina, Laura Angélica, Lavinia Barros de Castro, Lívia Maria da Costa Nogueira, Lorena Marau da Silva Miranda, Lucas Piccolo Cinquini, Maíra Murrieta Costa, Marcela Garcia, Maria Dominguez, Mariana Costa, Mariana Meirelles Nemrod Guimarães, Marta Garcia, Mateus Rocha, Maurício Pinheiro Fleury Curado, Newton Lopes, Noely Alcarpe, Renata Bernardo, Rita de Fátima Aragão Macedo, Rívia Araújo, Rodrigo Brandão, Rosangela Dornelles, Thomaz Fronzaglia, Verônica Pires, Yasmim Abril Monteiro Reis, and Yuri Fonseca Lopes.

We thank the people who agreed to be interviewed and who shared with us their reflections on the futures of Brazil: Ana Toni, André Ferreira, Caio Favaretto, Cassio Turra, Cinara Wagner Fredo, Clélio Campolina, Clemente Lúcio, Conrado Hubner Mendes, Eduardo Grin, Hussein Khalout, João Paulo Resende, Lúcia Dellagnelo, Ludmila Ribeiro, Marcelo Medeiros, Mauro O’ de Almeida, Miguel Lago, Rodrigo Assumpção, and Ronilso Pacheco.

We would also like to express special thanks to the authors of the essays included in this edition: Adriana Marcolino, Fernanda Machiaveli, Thaynah Gutierrez Gomes, Virgílio Almeida and Zaki Liriel.

During the preparation of this report, several sensemaking workshops were held with experts, leaders, and citizens from different regions of Brazil, to whom we are deeply grateful. The following took part in this process: representing **Young Leaders**, Amanda Kamuraura, Arthur Cardoso, Glauber Tiriyó, Glenda Dantas, Luciana Souza de Oliveira, Maria Eduarda Pacheco, Ursula Zion, and Zaki Liriel; representing **Community Leaders**, Caio Klein, Josefa Silva, Lailton Rodrigues, Larissa Barroso, Naomi Ferreira, and Regina Tchelly; representing the **Private Sector**, Adriana Carvalho, André Tamura, Carolina Marques, Christian Perrone, Daiune Fujii Cartolano, Djenifer Macedo, Gabriela Almeida, Heloísa Predomo Amurov, Lívia Pagotto, Maria Helena Martins, and Raquel Ferreira Sena; **Thematic Experts**, Eduardo Carvalho, Giulia Manccini, Letícia Peret, Michele Sarubbi, Pedro Keese, and Raquel Rachid; and **Regional Public-Sector Representatives**, Ailton Bispo, Fernanda Godoy, Fran Britto, Leandro Damaceno, Lourenço Capriglione, Marta Guizelini, Rodrigo Diniz Lara, and Thiago José Tavares Ávila.

Last but not least, we would like to thank the people who took the time to review the content of this report, make contributions, and point out any corrections. From the **MGI**, the following took part in the review: Celina Pereira, Francisco Gaetani, Guilherme Almeida, Patrícia Parra, Regina Luna Santos de Souza, and Renata Bernardo. **Experts:** Luiz Alberto dos Santos, Thomaz Fonzaglia, and Rafael Almeida. From **UNDP Brazil:** Claudio Providas, Maristela Baioni, Luciana Trindade de Aguiar, Lívia Maria da Costa Nogueira, and Mayra Almeida.

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# THE FUTURE AS A COMMITMENT OF THE PRESENT

**Esther Dweck**
Minister of Management and Innovation in Public Services

To govern is essentially to choose directions. However, in a world beset by accelerating transformations—climate emergencies knocking at the doors of our cities, a demographic transition reshaping households, and technology reorganising everything from labour to public debate—the State cannot limit itself to responding to crises and emergencies. It must anticipate scenarios and dare to draw new horizons.

It is with this conviction that the MGI presents the report "Futures of Brazil: Signals of Transformation 2026", developed in partnership with the United Nations Development Programme (UNDP). This publication is a result of attentive, diverse and methodologically careful listening, and is not a mere abstract exercise of imagination, but a guiding instrument for public management. We are living through a moment of searching, foresight and questioning. This report seeks to connect signals of change already emerging in the real Brazil to budget, policy and institutional decisions that guide government actions in the present.

The dismantling of design and planning capacities, as well as the recurring disruption of public policies, has high social and economic costs. In the years immediately preceding this administration, we saw the emptying of social participation councils, the defunding of crucial statistics and data-producing bodies, the halting of environmental and land regularisation policies, and the dismantling of social protection and public health networks. The COVID-19 pandemic produced a shameful and unacceptable number of victims in Brazil. This national tragedy revealed that the State must develop anticipatory capacities, invest in risk management, create mitigation strategies and prepare the country for the calamities still to come. The lack of a long-term perspective—a symptomatic difficulty of our public administrative culture—has deepened inequalities, undermined services and increased the vulnerability of the population in the face of uncertainties.

The current administration has invested in rebuilding national institutions, but it has gone further: it has sought to strengthen the foresight capacity of public administration. In recent years, the MGI has worked to strengthen people management, accelerate digital transformation, and promote sustainable public procurement, among many other initiatives aimed at regenerating public function. Through this work, we have expanded our capacity to capture signals of the future and to interpret the complexities of the present.

To reflect on the future within public administration is, above all, an act of responsibility and hope. Not a naïve or passive hope, but an active and constructive one, which understands that tomorrow is not predetermined but contested every single day through collective choices that are made through political processes.

Brazil has various entry points to face the challenge of growth: the possibilities enabled by the digital transformation, the creation of a care economy market to address the ageing population, the implementation of an integratedand sustainable development project in the Amazon, the investment in decarbonisation across the whole economy, the recognition of the value of the knowledge of traditional communities and its transformation into wealth, and many other pathways for public enterprise. Brazil is a country of opportunities and choices, thanks to its natural resources and territorial potential. It is up to the country to clear the pathway to developments—plural—that it can and must promote in order to grow in an inclusive and sustainable way.

Therefore, this publication embraces the view that innovating in the public service is making the State more agile, transparent and responsive to Society. In seeking to bring together data, signals and the diverse wishes for the future manifested by those who live the reality of the territories, we reaffirm the MGI's commitment to a profound transformation. We invite public administrators and society as a whole to explore the following pages not only as readers but as co-authors of the Brazil we want and can be. The future is built today by all of us, and it must belong to all of us.

# PRESENTING THE FUTURE

**Francisco Gaetani**
Extraordinary Secretary for Transformation of the State

This publication is being launched after an election that updated the preferences of the Brazilian electorate and elected the President of the Republic, all 27 governors, two-thirds of the Senate, the federal deputies of the Chamber of Deputies, and deputies of every state legislative assembly. Therefore, this report is delivered to the political class that emerged from the polls—some reelected, others newly arrived in political office. The report is also addressed to Brazilian society and the bureaucracy that serves it, although not always aware of this. It is meant to inform the country and to be owned by everyone.

This is a time when the country desperately needs to understand itself. This requires dialogue, respect and a continuous search for common ground to work through its conflicts democratically. The world of social media has accelerated the flow of information and made it harder to understand reality, feelings, and what is happening to us and to others. Our ability to focus has disintegrated. The commodification of attention has increasingly compromised our ability to understand ourselves, our interlocutors, and the contexts in which we find ourselves.





We resist the temptation to give up understanding these three elements, since fatalism is, in practice, synonymous with paralysis and indifference. It is a powerful invitation to inaction and/or the single-minded pursuit of individual interests. Powerlessness in the face of reality leads to disengagement from politics and frustration with "the system". The world simultaneously advances and regresses in various fields of knowledge, territories and themes, which frays our cognitive capacity to make sense of things. Therefore, we must develop resilience. And looking to the future can help us understand the present.

A State dissociated from its people becomes alienated and beings to operate in a self-referential way. As a result, it is perceived by society as useless and, therefore, disposable. The perception that public services fail to deliver is compounded by the views that corruption is widespread and that, in the public sphere, privileges have become normalised. This is the basis of the resentment observed in many countries against incumbent governments. Voters grow increasingly disenchanted with politics, give up on investing time and attention in available options, and choose something new: "anyone that is against everything that is in place."

The global rise of populist political proposals that flirt with authoritarianism proved capable of transcending differences between countries and building a unifying narrative around grievances, values and political visions that are in opposition to the dynamics of the political systems that emerged after the Second World War.

Mounting a response to this wave of disillusionment with politics, shared prosperity and the social advances of recent decades is not a simple, quick or one-off task. Aware of this reality, this report forms part of a broader set of coordinated efforts grounded in the values of the United Nations and of multilateralism, codified in documents such as the Sustainable Development Goals, the 2030 Agenda for Sustainable Development, the Paris Agreement and other, lesser-known instruments.

This report seeks to expand understanding of the country through diverse voices—a limited but vibrant sample of how leaders of various kinds are experiencing and taking part in the current moment. It is an irregular albeit eloquent mosaic of what is driving Brazilian society. Capturing Brazil's dynamism is crucial for the public administration, something that has always been difficult for governments to keep pace with and understand.

This is a simple way to act nationally, based on local and regional consultations and aligned with transnational efforts so that growth does not become a zero-sum game but is instead pursued through inclusive and transformative development models. It is a contribution to the country, yet it is also a signal to other nations in the Global South about where we stand and how we see ourselves.

We have every reason to be optimistic, as long as we are able to build, both individually and collectively, the trust and entrepreneurial capacity that a national project grounded on solidarity needs in order to be viable.





# THE FUTURE DOES NOT WAIT: ANTICIPATE TO TRANSFORM

**Claudio Providas**
Resident Representative of the United Nations Development Programme (UNDP) in Brazil

The future does not arrive overnight. It takes root in the decisions we make, the opportunities we let slip away and the inequalities we choose to tolerate.

While we confront the pressing demands of the present, profound transformations are already redefining the conditions for development. The climate crisis alters territories, economies, and ways of life; demographic transition challenges systems of care and social protection; artificial intelligence and digital platforms reconfigure work, knowledge, and power relations; and conflict and geopolitical fragmentation call into question the foundations of international cooperation.

The question before us is not simply how Brazil will look like in 2036, but rather: which decisions we need to make today so that possible futures are not determined solely by forces already in motion.

It is in this spirit that UNDP presents, in partnership with the MGI, this publication, *Futures of Brazil: Signals of Transformation 2026*.

The report rests on an essential premise: the future is not a destiny to be awaited, but a space of possibilities we can expand, contest, and build. Strategic foresight does not aim to predict what tomorrow brings, but rather to recognise in the present the signals of change that can alter the trajectories of development.

This perspective is especially relevant for Brazil: a country of continental proportions, marked not only by historical inequalities but also by an extraordinary diversity of knowledge, territories, cultures, and innovation capacities. The country is endowed with strategic resources for the ecological transition while facing persistent challenges related to inclusion, productivity, security, education, and the quality of public services.

The signals collected in this report reveal a complex reality, composed of threats and opportunities, setbacks and innovations. Communities that face the absence of the State develop solutions capable of inspiring public policies on a national scale. While new technologies can democratise opportunities, they can also deepen inequalities when they are not accompanied by institutions, regulation, and a commitment to human rights.

There is urgency not only in the speed of transformations, but in the fact that inaction also results in distinct futures. Delaying climate adaptation would exacerbate risks, losses and inequalities; underinvestment in education and digital capacities leaves more people vulnerable in the face of technological change; and not strengthening care systems transfers to households—especially women—burdens that should be recognised as a collective responsibility.

Anticipating means going beyond identifying trends: it means asking who benefits, who is left behind, and which institutions will be needed to ensure that development expands, rather than restricts, people's choices.

This is the human development perspective that guides UNDP's work. Development is not limited to economic expansion, technological advancement, or the accumulation of resources. It also involves expanding people's freedoms to live lives they value, reducing inequalities, and strengthening society's capacity to confront risks without leaving behind those who are most vulnerable.

The next decade will be decisive for Brazil. The country could transform its biodiversity, its energy mix, its agricultural capacity, and its cultural diversity into the foundations of a more innovative, inclusive, and sustainable economy. This will require investment in science and technology, institutional strengthening, cooperation between sectors and territories, and a vision capable of converting natural advantages into national capacities and opportunities for the population.





It will also be necessary to recognise that there is no single future for Brazil. There are multiple futures, shaped by different experiences, expectations, and relationships with the State and society.

No project for the future will be sustainable without a governance capable of turning commitments into results. This means strengthening the State's capacity to plan, coordinate, and deliver public services with efficiency, quality, and equity, while ensuring transparency, integrity, and accountability. In a context of limited resources and growing demands, trust in institutions will depend not only on their intentions but on their capacity to demonstrate concrete results and be accountable to society.

The value of this report is in posing questions that cannot be answered by any single institution or government: how to prepare the State for challenges that go beyond electoral and budget cycles? How to turn the ecological transition into an opportunity to foster decent work and reduce inequalities? How to ensure that technological innovation strengthens the autonomy of people and the sovereignty of societies? How to build institutions that can learn, adapt, and act before crises become inevitable?

Anticipating action does not mean replacing it, but rather improving its quality, broadening its horizons and recognising the costs of delayed decisions.

UNDP believes that Brazil has the knowledge, experience and capabilities needed to develop ambitious responses. The challenge is to connect these assets, scale up solutions that work and strengthen institutions capable of sustaining them amid changes in government and resource constraints.

This report contributes to that effort.

It offers neither certainties nor definitive answers, but rather signals, perspectives and questions to broaden the scope of public decision-making.

May reading it help us look beyond what seems inevitable, recognise possibilities that have yet to be realised and act with the urgency the present demands and the responsibility the future requires.

The Brazil of 2036 will be, in part, the result of what we decide to make possible today.

# SIGNALS, ASSUMPTIONS AND THE CAPACITY TO ANTICIPATE

**Felipe Koch**
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## Introduction

Every society operates on the basis of images of the future that are rarely subjected to examination. These images decide, before any calculation, what is considered inevitable, what is considered impossible, and, consequently, what even enters the field of public decision-making. Much of what a State fails to do stems less from a scarcity of resources than from a lack of alternatives for imagining and building new futures. This is the point from which the work of anticipation begins, and it is to this point that this report is addressed.

The *Futures of Brazil* report rests on an operation that is simple to state and demanding to execute: identifying concrete manifestations of the present that point to changes under way, subjecting them to collective interpretation, and, on that basis, recognising the structuring forces that shape the period now beginning. There are approximately 400 signals, distributed across fourteen priority themes, with a stated horizon of 2036, catalogued by a network of more than 180 observers trained in the methodology. The Methodological Annex describes the process in more detail and should be read before the chapters, not after.





## The genealogy of a vocabulary

The terms that structure this report have a history, and it is worth making it explicit, because that is where the rigour of the exercise of projecting futures comes from. The notion of the weak signal was formulated by Igor Ansoff[1] in 1975 to describe low-definition information that precedes strategic ruptures and that management systems discard precisely because it is faint. Graham Molitor,[2] in 1977, added a temporal perspective to the concept, showing that a public issue follows a predictable curve, from the margins to the centre, and that the analytical value of capturing it declines as it becomes news. Elina Hiltunen,[3] in 2008, added the missing dimension: a signal exists in the relationship between what is emitted, who receives it, and the interpretation made of it, so that no collection of signals is independent of whoever organises it.

The architecture that connects these elements comes from the Houston school. Andy Hines and Peter Bishop[4] formalised the *Framework Foresight* in 2013, and the scanning tool that derives from it organises inputs from the environment into trends, issues, plans, projections, and obstacles, the TIPPOs[5] employed here.[6] The formulation was consolidated in the teaching and practice of the Houston programme, and its closest printed record is Hines (2020),[7] which presents the four-input version later expanded by the category of obstacles.

UNDP's Signals Spotlight series had, until then, featured editions of global scope; this is one of the first national applications of the tool. Its systematic application in a State document, at national scale and with the corpus open to public scrutiny, contributes to this consolidation.

## How to read this report

The reader is asked to reverse a habit. The spontaneous way of reading a document like this is to start from the known problems of the present and look among the signals for confirmation of what was already assumed. The foresight procedure works in the opposite direction: it starts from what the signals make thinkable in 2036 and returns to the present to ask which decisions today open or close that horizon.[8] As Jim Dator observes,[9] any useful statement about the future should seem, at the moment it is made, a little ridiculous. A signal is worth exactly what the question it opens is worth.

A second reading recommendation follows from this, perhaps the most important. Beyond the signals, the reader should look in this volume for the anticipatory assumptions that organise the way the country reads its own future. UNESCO's Futures Literacy methodology, systematised by Riel Miller,[10] distinguishes uses of the future related to preparation and optimisation from those directed at perceiving what is new. Roberto Poli[11] showed that anticipation is a property of living systems and institutions before it is a foresight technique. Sohail Inayatullah[12] named the "used future" as the inherited image that continues to operate after it has lost its grip on reality. Several of the phenomena gathered here appear as problems because they contradict an implicit image of the future that the Brazilian public administration holds of itself. Making that image explicit is a precondition for discussing it, and this report offers the material to do so.

**Imagination as document**

The passages gathered under the heading **"Imagining possible futures"** deserve a status of their own. They record situated aspirations, formulated from specific social and territorial positions, and Should be read as a document of the Brazilian imaginary at a precise moment. The tradition that goes back to Gilbert Durand[13] and Cornelius Castoriadis[14] teaches that the instituting imaginary precedes and sustains institutional forms, so that what a society is able to desire delimits what it will be able to build. Attention should be paid to na asymmetry that the material itself reveals: records of conquest, sovereignty, and technical mastery predominante here, whereas fear, loss, and grief appear little. Richard Tutton[15] described as "futurelessness" the condition of those who have no imaginable future. Tony Fry[16] gave the name "defuturing" to the processes by which the present subtracts available futures. For considerable portions of the Brazilian populations, these categories are descriptive. A second round of listening would be more complete if it also incorporated that which we fear losing.





**Limits of the exercise**

I take on here, as an external reader, the task of stating the limits of what we have in hand, because this is what protects a public document from literal reading. First, the corpus is a snapshot: it portrays what was observable and documentable over a short period, and genuinely weak signals resist documentation by definition. Second, the interpretation was conducted by a network of broad institutional composition, and this composition conditions what is recognised as a signal. Third, the exercise identifies forces of change without ranking them by probability or crossing them into formalised alternative futures. That is the next stage, which requires its own instruments. Fourth, the stated horizon is 2036, whereas part of the evidence mobilised operates on different horizons, which asks the reader to attend to the time scale of each claim. None of these limits diminishes the value of what has been gathered, and all of them indicate the programme of work for the coming years.

**What remains**

The most enduring asset of this process may not be on these pages. A network of more than 180 people trained to recognise changes under way, distributed across federal and state agencies, universities, international organisations, and civil society organisations, constitutes anticipatory capacity installed in the Brazilian State. Documents age within eighteen months; installed capacity accumulates. Brazil has a well-established tradition of scenario studies, with contributions ranging from the work of Elaine Marcial e Raul Grumbach[17] to the continued work of the Centre for Management and Strategic Studies (CGEE), a social organisation supervised by the Ministry of Science, Technology and Innovation (MCTI). And what is added now is the possibility of a regular, periodic, and public practice of scanning. Periodicity is what turns a report into a system.

Celso Furtado, cited in the following pages, held that there is development only where there is an underlying social project. A social project is, among other things, a dispute over images of the future. Ailton Krenak, also already cited, reminds us that postponing the end of the world consists in being able to tell one more story. This report brings together raw material for both operations. I recommend that it be read as an open inventory and that we engage with it.

# INTRODUCTION: LISTENING TO THE SIGNALS

> *"Hope locates itself in the premises that we don't know what will happen and that in the spaciousness of uncertainty is room to act."*
>
> ***Rebecca Solnit***

In the Jari Channel in Santarém, a cook developed the process for turning the giant Amazon water lily (*vitória-régia*) into flour. In housing complexes in Pavuna, in the north zone of Rio de Janeiro, the Comando Vermelho criminal faction began issuing monthly payment slips, enforced rigorously on residents. Without war, epidemic, or exodus, Brazil's population under thirty shrank by ten million between 2012 and 2025. Between 2012 and 2022, more than 53,000 Indigenous students entered public higher education institutions in the Legal Amazon. These signals, which illustrate seemingly unconnected themes of present reality, already anticipate some of the central disputes of the coming years: where food production will come from, who exercises authority over territory (and how), how to sustain an ageing country with an insufficient care network, and who will redefine the direction of national scientific knowledge

The future does not announce itself all at once or coherently, but manifests through discreet, localised ruptures. These small cracks reorder social dynamics before they are absorbed into statistics, expert assessments, and the spreadsheets of policymakers. Reading the present from this perspective requires distance from the temptation of easy forecasts and invites a focus on the silent, almost everyday transformations that the hectic routines of politics and public administration cannot always grasp. This exercise produces neither prophecies nor manuals of conduct, but widens the margin for reflection and formulation of the different social actors committed to acting for a future of greater development, equity, and well-being.





The Brazilian State accumulated notable capacity for formulating and implementing public policies during the twentieth century and the first half of the twenty-first, sustaining complex systems at continental scale. However, strategic planning,[18] often tied to the budget calendar and to governments' need to deal with daily crises, cannot keep up with medium- and long-term changes at the pace at which society, technology, climate, and the economy are changing. With a reduced horizon for action, the country often reacts late to constant warning signals—from the rapid demographic transition to climate impacts and the reorganisation of work through platforms, among other challenges that are already being felt and tend to intensify in the future.

## *Listening to the signals*

This document, the result of collaboration between the Ministry of Management and Innovation in Public Services (MGI) and the United Nations Development Programme (UNDP), offers a foresight approach to trends that shape the development landscape in the country, mapped through a consolidated methodology for collecting and systematising signals of change.[19] By bringing to light phenomena hitherto treated as marginal or dispersed, the research seeks to support public choices that reduce inequalities, promote development, and define clearly the responsibilities of the present towards future generations.

The methodological path rests on the Signals Spotlight process, a foresight methodology developed by UNDP and adapted from the University of Houston's foresight framework. It combines scanning of public data to collect signals, thematic curation, and in-depth interviews and workshops with a range of strategic actors, such as researchers, public managers, representatives of civil society organisations and the private sector, and community leaders. It is important to note that foresight work does not consist of predicting or guessing the future but of identifying its driving forces, taking manifestations of the present as the starting point. The work proposed here reveals which forces point to changes that may occur in the future, identified from concrete signals of the present. The methodology is detailed step by step in the Methodological Annex.

It is therefore important to bear in mind that this report is not an in-depth academic study of the future or of any of the themes raised here. **The methodology makes it possible to identify and debate possibilities and trajectories taking shape for the future**. Furthermore, the sources cited throughout the report refer to the signals compiled through the database created by the network of scanners.

## *The structure of Signals of Transformation 2026*

The report is organised into four sections, each subdivided into thematic chapters. The chapters start from the themes defined as priorities by the domain map, prepared with the support of experts, and were subdivided into fourteen thematic areas (see the **Methodological Annex**).

**A world in turmoil:** analyses the external forces that condition the country's room for choice: the disproportionate impact of the climate crisis on the most vulnerable, geopolitical fragmentation, and the perceived loss of effectiveness of democracies.

**A population in transformation:** addresses shifts in the social fabric, focusing on the inversion of the age pyramid, the unpaid overburden of care work, and the predatory advance of digital platforms and online betting on mental health and income.

**Trajectories of social life and public policy:** investigates the challenges along five axes: education, work, health, urban infrastructure, and innovation drawing on plural knowledge systems, under the demands of na already altered climate regime and the structural limits of the State.

**Today's challenges that feed tomorrow:** addresses three structural bottlenecks that the country will need to tackle: the persistence of public security problems, the rigidity of the public budget, and food production.

In each chapter, besides a systematisation of the main trends, you will find three brief highlights that capture important elements of each theme: **signals to watch** (which signals captured seem to indicate novelties, outliers, or unexpected trends?); **imagining possible futures** (quotations about images and expectations of alternative futures that emerged in our listening process, the workshops, and the capture of signals); and **questions from the present for the future** (presented by various actors who responded to an online questionnaire, indicating how current challenges demand responses that lead to other futures).

In addition, *Futures of Brazil* includes five essays by invited experts, who share their perspectives on central themes that emerge in the different sections of the report.

## *Images of possible futures*

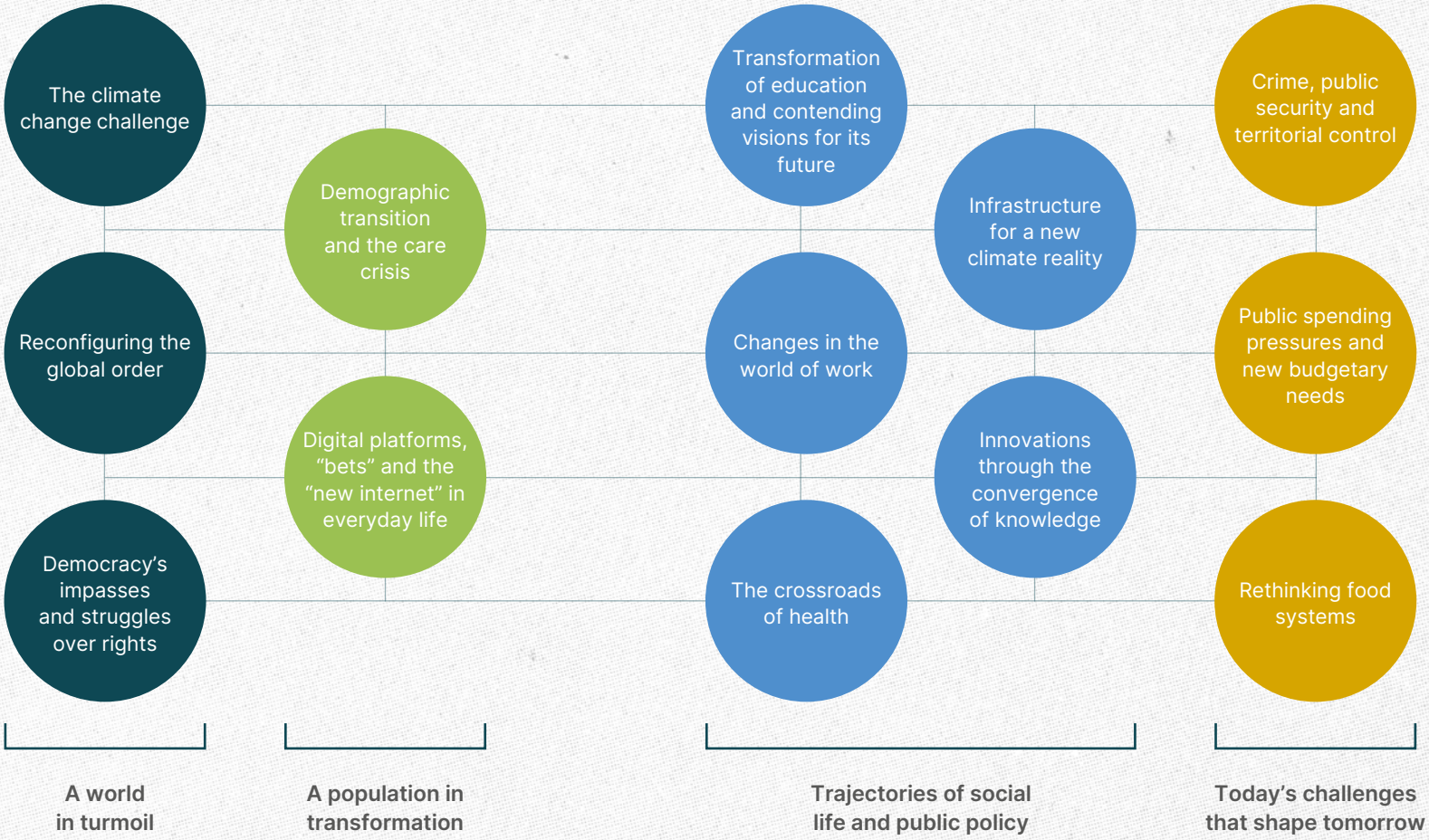
In Brazil, there is no single future; there are many, and they rarely converge spontaneously. Collecting signals of these possible futures and searching for meaning among them, identifying trends, is one of the main objectives of this report. Imagining tomorrow is always situated, shaped by the concrete conditions in which each life unfolds. Everyday frictions, memories, bonds of belonging, and the territories from which people speak serve as the very raw material of desire.

The future is made of the small decisions that are taken, at the micro and the macro level, at every moment. These decisions can reinforce a trend, so that it becomes a real future, or reduce the possibility of that future occurring. Identifying such signals and trends of futures seeks to help all decision-makers, in the different micro and macro spheres, to orient their decisions towards desired futures.

What is presented is the map of a methodologically guided listening, with a set of identified signals and horizons that are at times not necessarily desirable and that, even when in tension with one another, reveal the possibilities of different Brazils. It helps guide action in favour of desirable futures or, at the very least, supports action to reduce the risks that undesirable futures may entail.

# CHAPTERS AND THEMES

**The prioritised themes are presented in four sections across 13 interconnected chapters. These connections are highlighted at the beginning of each chapter.**






FUTURES OF BRAZIL: SIGNALS OF TRANSFORMATION 2026

# 01

# A world in turmoil

*“Time is my subject, present time, present men, present life”.*

Carlos Drummond de Andrade

The climate crisis, the fragmentation of the global order and the struggles over rights need not result in paralysis: they contain within themselves clues to another course. The climate urgency compels a rethinking of the urban infrastructure and production; the race for sustainability repositions Brazil as an indispensable interlocutor in food and energy; and the social pressure for equality and rights restores to democracy its reason for existing beyond the vote. What confronts us is not a fatalistic destiny, but an open agenda of choices, in which the country can turn its impasses into a capacity for leadership and innovation.

# The climate change challenge

## CONNECTED TO:

- Reconfiguring the global order
- Infrastructure for a new climate reality
- Innovations through the convergence of knowledge
- Rethinking food systems
- Public spending pressures and new budgetary needs
- The crossroads of health

## *The climate change challenge*

In recent years, the global climate crisis has left the environment section of the newspapers and become an everyday subject. It is already felt in household spending, in life in cities and in the countryside (with ever hotter days and more frequent rains and floods), in the queues at health clinics, and in the work of Civil Defence, firefighting brigades, and environmental officers.

Although the climate picture is well known, a few indicators are worth highlighting. The World Meteorological Organization (WMO) report *State of the Global Climate 2025* indicates that the period from 2015 to 2025 was the warmest on record.[20] **In 2025, the global mean temperature was 1.4°C above the pre-industrial average (1850–1900), making it one of the warmest years ever recorded.** Projections from the Intergovernmental Panel on Climate Change (IPCC) indicate that, without concrete measures, global warming could rise by 3.2°C by the end of the century.[21] Moreover, 2025 marked a critical and little-discussed turning point: we crossed the first tipping point of the Earth system, evidenced by the mass die-off of coral reefs.[22] Thresholds of this kind, even if they do not generate daily headlines or immediate harm to the world's population, change the premises of every long-term economic and political calculation (insurance, harvests, public works, financing, and so on), in addition to affecting perceptions of the challenges of future life.

Another crucial aspect of these impacts desses impactos lies in their unequal distribution. **Climate acts as an accelerator of preexisting inequalities.** In Brazil, the per capita carbon footprint[23] of the richest 1 per cent of the population is about seven times higher than that of the poorest 10 per cent.[24] Yet those who bear the greatest share of the cost of climate change are the people at the base of the social pyramid. According to the IPCC, approximately 3.6 billion people, about 40% of the global population, already live in areas highly susceptible to climate change.[25] The UNDP Multidimensional Poverty Index (MPI) indicates that 80% of the world's people living below the poverty line live in regions exposed to climate risks. [26]

The lower the income, the greater the likelihood of living on a hillside or in a floodplain, working exposed to the sun, spending a larger share of income on food, and having no insurance, savings, or credit to rebuild what can be lost quickly in a flood, a fire, or other extreme weather events, which are becoming ever more frequent. It is estimated that between 2030 and 2050,





climate change will cause about 250,000 additional deaths a year worldwide, from causes such as malnutrition, malaria, diarrhoea, and heat stress.[27] It was precisely this diagnostic that led the G20,[28] under Brazil's presidency in 2024, top lace **tackling inequalities at the centre of the global agenda for disaster risk reduction**.[29] This decision sought to **shift the debate away from a disproportionate focus on infrastructure and to bring to its core the need to advance distributive policies**.[30]

**What is Brazil's place in this picture?** IPCC data compiled by WWF show that Brazil has been warming faster than the global average.[31] Recent surveys indicate that sea level along the Brazilian coast has already risen enough to swallow whole beaches in the coming years.[32] Recife was ranked by the IPCC as the Brazilian state capital most threatened by rising seas and as the sixteenth most vulnerable city in the world to climate change.[33]

**Virtually no place in Brazilian territory has gone unaffected, and none will avoid even greater challenges in the coming years.** Between 1991 and 2023, 92 per cent of Brazilian municipalities recorded damage from climate-related disasters, and disasters caused by heavy rains now occur with some frequency in eight out of ten municipalities in the country.[34] Moreover, the population affected by floods and flash floods is expected to grow by between 100 and 200 per cent. The accelerated loss of vegetation in the Cerrado threatens the country's biodiversity and water systems, and at least twelve major Brazilian rivers are drying up, affecting 55 per cent of the national territory.[35]

The degradation of biomes intensifies this cycle, deepening vegetation loss, water scarcity, and the impacts on ecosystems. A study by the Federal University of Minas Gerais (UFMG) predicts the savannisation and significant alteration of tropical forest vegetation by 2060.[36] A study by the Amazon Environmental Research Institute (IPAM) shows that 1.8 million people in the Amazon region are affected by extreme events every year, with municipalities of fewer than 50,000 inhabitants the hardest hit, precisely those with the fewest resources for preventing and responding to such events.[37] In some Amazonian municipalities, cumulative losses from climate disasters reached about 300 per cent of the economic growth recorded by the municipality in the period analysed.[38] The United Nations, for its part, projects a loss of 33 per cent of the country's GDP if climate change continues to be ignored in public decisions and policies.[39]

In 2025, during COP30, the Brazilian government advanced twenty Indigenous land demarcation processes.[40] In the Amazon, 11 territories were part of this effort, but the demarcation of 57 Indigenous lands (14 per cent of the 395 in the region) is still awaiting administrative processing at different stages.[41] Because the forest regulates temperature and rainfall patterns on a continental scale, the effect is felt well beyond the forest's perimeter: energy, agriculture, urban water supply, and navigation depend on this system. Added to this is a health risk on the move, with projections that climate change will push the vectors of Chagas disease, for example, into the region, precisely where the health network is most limited.[42]

**For most people, the first encounter with climate economics comes at the supermarket checkout.** Climate shocks have been producing increasingly frequent spikes in food prices.[43] Extreme events have damaged rice crops in Rio Grande do Sul, putting pressure on the supply and price of the grain. Because food weighs much more heavily in the budgets of low-income households, climate-driven inflation is regressive: **the event that drags down agricultural GDP passes the cost on to the base of the pyramid**.[44] Extreme heat reduces working hours in the field and raises risk for agribusiness, a signal that is likely to intensify with the El Niño forecast for 2026 and 2027, a phenomenon that, according to the United Nations, is expected to be strong and to alter temperatures and rainfall worldwide.[45]

If, at the global level, the main indicator of the climate emergency is the rise in mean annual temperatures, at the regional and national levels the central challenge lies in the growing volatility of temperature swings and the extreme events they catalyse. Floods like those that struck Rio Grande do Sul in 2024 are likely to become more frequent, owing to the increased variability of climate phenomena. The main challenge for the future remains the unpredictability and intensity of these events, since climate change can suddenly bring precipitation volumes well above expected patterns, making it harder for affected populations to adapt.

**These growing challenges place na enormous responsibility on strengthening climate governance and implementing ambitious mitigation and adaptation measures.** Furthermore, new investments in the ecological transition could create opportunities for economic development.[46] Since the 1992 Earth Summit in Rio de Janeiro, and particularly with the 2025 COP 30 in Belém, Brazil has consolidated its role as a key player in developing climate solutions, with a strategic focus on the energy transition and the bioeconomy.





COP 30 resulted in the adoption of the 29 decisions comprising the Belém Package[47] — which expanded financing targets and prioritised health on the adaptation agenda. However, the conference concluded without consensus on phasing out fossil fuels.[48] This demonstrates that existing governance frameworks, although they continue to play a significant role, are unable to respond to the demands of the climate emergency at the necessary pace. This situation highlights the urgent need to strengthen these institutions, while also calling for creativity and boldness in developing new coordination mechanisms and formulating more ambitious policies to address the challenges of the present and the near future.

### Questions from the present to the future

1. What governance arrangements could accelerate action in response to the climate emergency when existing ones are no longer able to do so?
2. How will Brazil decide where, how and for whom to invest as climate change makes certain territories, economic activities and ways of life increasingly difficult to sustain?
3. How can Brazil develop a clean energy transition plan that is applicable to its National context, given the country's dependence on fossil fuels?
4. How to ensure adequate transmission and storage infrastructure for newly generated clean energy?

## Other signals to watch

- An Indigenous journalist reports on the resistance strategies adopted by communities in the Middle Rio Negro region in response to predatory tourism and climate change in the state of Amazonas.[49]
- A solar energy cooperative in Paraíba has proposed a new model for shared renewable energy.[50] The initiative emerged from the Semi-Arid Renewable Energy Committee (Cersa), a collective that, since 2014, has brought together academics, environmental and social activists, NGOs, and researchers who see potential in Brazil's semi-arid region for a just energy transition in the country.
- The Indigenous Environmental Management Agents (AIMAS) network brings together around 70 researchers, all of whom are Indigenous. They combine ancestral knowledge with technology, including iPads and geolocation tools, to preserve and protect the forest in the Upper Rio Negro region of the north-western Amazon.[51]





## Imagining possible futures

*"Climate justice is about the furniture I lost in the last rainstorm in Rio de Janeiro, for example. Because landslides always happen in the same places."*

*" We cannot go on being a country that clears forests to sell unprocessed timber or sacks of grain, and then buys expensive medicines and cosmetics from abroad. Brazil needs to establish laboratories and industries in forest regions, creating high-skilled jobs and developing technology based on our own biodiversity."*

*"Rivers, springs and forests should have their existence protected by law, just like any citizen. The best safeguard against deforestation is demarcated land and guaranteed security for the Indigenous and Quilombola peoples who live there."*

*" Brazil still has a mindset of abundance that leads to the undervaluation of natural resources. [...] The challenge is to move beyond the view of nature as something 'exotic' and understand it as a strategic asset for development."*

*"The best strategy, the best bet, is for Brazil to become a major global exporter of green solutions. So, instead of being essentially a country that exports agricultural and mineral commodities, we would become a country that exports higher-value-added green solutions."*

# Reconfiguring the global order

CONNECTED TO:

- Democracy's impasses and struggles over rights
- Digital platforms, "bets", and the "new internet" in everyday life

## *Reconfiguring the global order*

In mid-2026, the world is experiencing growing instability, with 65 armed conflicts involving governments — **the highest number since the end of the Second World War.**[52] This increase has been accompanied by rising global military expenditure and a growing number of civilian deaths. In the April edition of the *Ipsos* survey *What Worries the World*, 19 per cent of respondents cited military conflicts between countries as a concern.[53]

The international order, however, did not begin to fracture with weapons. According to Hussein Khalout, in an interview for this report, the COVID-19 crisis had already revealed the difficulty liberal states faced in leading the response and exposed the **crisis of multilateral arrangements**. If global emergencies cannot be left to the market, someone must take responsibility for addressing them. The question of who that someone should be remains open, particularly as the capacity of the UN and other multilateral organisations to regulate different aspects of international life is increasingly being called into question. In another interview conducted for this research, Caio Favaretto describes the situation as follows: value-based agreements and democracies underpinning multilateralism are in crisis. In his view, Europe is losing relevance because it no longer has the capital, markets or cutting-edge technology to maintain its position, while **the rules are increasingly dictated by those who control strategic resources, financial flows and, in some cases, the capacity for economic and military coercion**.

This shift is already evident in Latin America. China has been expanding its influence in the region and is increasingly seen as a development model, alongside a decline in the prestige of Western powers.[54]

**Declaring the end of multilateralism would nevertheless be premature.** The signals point to developments in multiple directions, with both crises and potential innovations. BRICS leaders have defended multilateralism in trade and technology, arguing that the UN should play a central role in the global governance of artificial intelligence.[55] Mercosur and the European Union signed the world's largest free trade agreement in Asunción after 26 years of negotiations.[56]

**The current landscape also reflects efforts to find bilateral solutions to address global power asymmetries.** Global South countries have increasingly been entering into agreements using local currencies in an attempt to circumvent Washington's financial leverage. BRICS, for example, has promoted the use of the renminbi (China's currency), the Indian rupee and the Russian rouble as alternatives to the US dollar in various bilateral agreements. The mechanism known as *BRICS Pay* is specifically designed to facilitate transactions within the bloc and reduce dependence on the dollar.[57] However, moving out of the US sphere of influence remains a major challenge. Asked in an interview for this report where the real power of the United States lies today, Hussein Khalout focused on a single instrument: "The United States controls the international monetary system" — giving the country a more effective and discreet means of advancing its interests than the use of force. This economic coercive power was demonstrated through tariffs imposed on products from countries around the world, including Brazil. The Brazilian government states that US tariffs on Brazilian products could reach 37.5 per cent with the additional surcharge.[58]

The effects of these measures extend beyond bilateral relations: tariffs are reshaping trade across Latin America as a whole. China has responded by prohibiting companies under its jurisdiction from complying with US sanctions, creating a regulatory conflict that could force exporters in other countries to choose between complying with US legislation and adhering to Chinese directives.[59]

**Meanwhile, artificial intelligence is starting to shape global power dyamics through multiple channels simultaneously**.[60] Among other effects, it is transforming warfare and intensifying competition over satellites. Project Maven is an example of how the US has been using artificial intelligence to authorise and launch drone strikes within seconds.[61] Another example is *Palantir Technologies*, which processes information from satellites, mobile phones and the internet to identify potential adversaries rapidly.[62] n addition, the US Army has incorporated big tech companies into its military innovation and cyberwarfare structures, and President Trump has issued an executive order granting the US government early access to advanced models.[63]

More recently, the United States established *Pax Silica*, a new international framework capable of drawing its global partners into a common set of protocols for the development and use of artificial intelligence — understood as a strategic variable in the arms race and international trade.[64] At the heart of this new geopolitical architecture is the control of the expansion of cutting-edge technology by US big tech companies in partnership with the US government. The framework includes not only Europe but also strategic

partners such as India. An asymmetric counterpoint emerged with the creation of WAICO, of which Brazil is a member, whose principles are aligned with the United Nations' multilateral guidelines.

This new technological landscape has become more urgent amid the growing number of global conflicts and the recent willingness of major powers, such as Russia and the United States, to resort to force to impose their interests, with greater intensity and frequency than in recent decades. For the first time in decades, both powers are free to expand their nuclear arsenals without limits.[65]

In addition, one of the key issues to wach in the coming years will be the **growing global energy crisis driven by armed conflict and economic sanctions.** The war in Iran[66] reinforces a signal already sent by the Russia–Ukraine conflict: the energy transition is a priority on the global security agenda, with implications for virtually every country. The conflict involving the United States, Israel and Iran has increased risks to the fertiliser trade,[67] while the energy crisis in the region has accelerated the adoption of renewable energy sources by countries in the Global South seeking greater economic autonomy, as the war directly affects the oil trade.[68]

**For Brazil, the situation is ambiguous, at least in the short term**. The OECD revised downwards its forecast for global growth in 2026 due to the economic effects of the war in the Middle East.[69] However, the IMF projects stronger growth for Brazil in 2026, driven by increased oil exports. [70] Although geopolitical instability may benefit some Brazilian export sectors by driving up the prices of certain commodities, the slowdown in the global economy and rising energy costs also have adverse effects. Brazil is particularly vulnerable when it comes to fertilisers, of which it imports more than 80 per cent of its domestic consumption. A significant share of imported nitrogen and phosphate fertilisers comes from the Middle East and is directly or indirectly exposed to restrictions on shipping through the Strait of Hormuz. This could drive up prices and jeopardise supplies, even when the products purchased by Brazil do not physically pass through the strait.



FUTURES OF BRAZIL: SIGNALS OF TRANSFORMATION 2026

**Brazil has several advantages in this new landscape, particularly in areas such as climate, energy sources and food security.** Replacing the term 'geopolitics' with 'geoeconomics' also changes the central question: rather than focusing exclusively on borders and alliances, it is essential to consider flows, inputs and payment mechanisms. This perspective is crucial to determining how best to position the country in a highly unstable environment, while leveraging domestic economic and social development strategies. The signals discussed in this report indicate that the crisis does not lie in a lack of specific assets, but in the fragility of the coordination mechanisms needed to leverage them and amplify Brazil's voice in global forums.

The challenges and opportunities operate at multiple scales, but some are particularly evident in Brazil's continental neighbourhood. Hussein Khalout believes that, over the past decade, Brazil has neglected its regional surroundings, creating a power vacuum filled by extra-regional powers. South American integration remains weak, with no concrete projects in energy or transport, while the connection between the Atlantic and Pacific remains on paper. Looking ahead, he advocates a regional policy that replaces rhetoric with economic incentives and credit, focused on a South America capable of negotiating from a position of strength as a holder of resources essential to the world. This shift in regional perspective should serve as a vehicle for an external negotiation agenda that drives development in each country in the region.

## Questions from the present for the future

1. How can Brazil turn its regional location into a geopolitical asset rather than a power vacuum filled by others?
2. How can international partnerships be built to support Brazil's sustainable development?
3. Will Brazil gain greater prominence and influence on the world stage as an authority in agriculture, minerals, the environment and climate?

## Other signals to watch

- The discovery of oil in the Equatorial Margin could reshape regional geopolitics and reposition Brazil in Latin America, particularly given the potential for the oil province to become a major petroleum hub.[71]
- The war in Iran has given international conflicts a 'datafied' dimension, with new systems that synthesise data and support decision-making on strikes, bombs and surveillance.[72]





## Imagining possible futures

*"Brazil has a diplomatic tradition of peace, which is a valuable asset in a world full of armed conflicts. We must use this strength to serve as a bridge for international dialogue, engaging with everyone on an equal footing, without taking orders from any power."*

*"With major trading blocs erecting barriers and imposing sanctions, Brazil cannot simply be dragged along by other countries' disputes. We must negotiate our own agreements, opening up markets for our products and demanding technology transfer to rebuild our domestic industry."*

*"We have a vision of the world, but we struggle to put the whole picture together—to understand where things come from and where they are going—as we try to make sense of Brazil's role in this new geopolitical and geoeconomic landscape."*

*"I hope Brazil will preserve its sovereignty and protect its natural assets and commercial interests from foreign interference. I hope Brazil will seize the energy transition as an opportunity to develop our economy."*

# Democracy's impasses and struggles over rights

## CONNECTED TO:

- Digital platforms, "bets" and the "new internet" in everyday life
- Crime, public security and territorial control
- Public spending challenges and new budgetary needs
- Changes in the world of work
- The crossroads of health
- Transformation of education and contending visions for its future
- Reconfiguring the global order

## *Democracy's impasses and struggles over rights*

In 2025, around 1.6 billion people (19 per cent of the world's population) lived in electoral democracies around the world.[73] **Never before have so many people voted, contested elections and changed governments through the ballot box.** Yet, according to an analysis by the University of Gothenburg, the level of democracy actually experienced by the average citizen worldwide has fallen to its 1985 levels, while the rule of law has deteriorated in 68 per cent of countries.[74]

**Electoral processes have become more widespread, while satisfaction with the system has declined.** Even in countries where electoral procedures function without disruption—with freedom to organise political parties, electoral cycles completed on schedule, results accepted and transfers of power secured—there is a growing perception that institutions remain unresponsive to and distant from the needs of the population.

The coexistence of an appreciation of democracy as an ideal and disillusionment with its practice is not new in Brazil. **The Latinobarómetro time series (1995–2024) indicates that Brazilians' support for the idea of democracy has remained firmly above 60 points (on a scale of 0 to 100).[75]** A *Datafolha* survey captures the same trend: 71 per cent consider democracy the best form of government.[76] However, satisfaction with how democracy actually functions did not reach 40 points over the same period, according to Latinobarómetro. After three decades of changes in governing parties, new economic plans, and cycles of prosperity and recession, the gap remains unchanged: **Brazilian citizens reaffirm their preference for democratic government but feel that it fails to deliver on its promises.[77]**

This gap has persisted even during a period of improvement in social indicators. Between 2021 and 2025, extreme poverty fell from 11 per cent to 4 per cent of the population, and the Institute for Applied Economic Research (Ipea) recorded poverty and inequality at their lowest levels in thirty years.[78] Furthermore, the Municipal Human Development Index Dashboard (Radar IDHM)[79] shows that Brazil reached the very high human development category for the first time, with an MHDI of 0.805. However, the index falls significantly when adjusted for inequality, highlighting persistent racial, territorial, gender and income disparities.





The country has been removed from the Hunger Map after reducing undernourishment to 2.4 per cent, below the 2.5 per cent threshold adopted by the FAO, and has entered the very high human development category.[80] National figures, however, aggregate very different realities: according to the household food insecurity measure, 2.5 million households still experience hunger.[81] **The available data therefore suggest that material progress does not automatically translate into institutional legitimacy, particularly when it is perceived as unequal or vulnerable to reversal.**

Furthermore, recent institutional impasses are reflected in international indices: Brazil fell six places in *The Economist* magazine's *Democracy Index 2024*.[82] Indicators of this kind, however, measure primarily institutional procedures and performance, and are less effective at capturing a society's civic vitality. Although the state apparatus has its weaknesses, **Brazilian democracy demonstrates a strong capacity for social resilience and public scrutiny..**

However, the risks of democratic backsliding remain high. Technological innovations have reshaped the political playing field: while the past decade was marked by social media and disinformation, **the emergence of artificial intelligence and *deepfakes* has made political manipulation more complex**.[83]

The use of AI-manipulated videos in Brazil increased by 126 per cent in 2025, raising a clear warning ahead of the 2026 elections.[84] The impact of this technology operates on two fronts: on the one hand, it causes direct harm by violating the image rights of those targeted and manipulating voters' perceptions; on the other, it causes systemic harm by fuelling widespread scepticism. This is compounded by the use of aggressive online campaigns against under-represented groups, which raises the cost of public participation for women and groups that have historically been under-represented.

**It is in this climate of widespread distrust that the professional press needs to redefine its central role.** Although journalism is also affected by general public distrust, professional fact-checking is becoming the main institutional safeguard available against automated disinformation. Brazil's rise in the global press freedom ranking in 2026—overtaking the United States for the first time—points to a vibrant information ecosystem, which is crucial for providing minimum standards of truthfulness**.**[85]

Beyond the information ecosystem, **democratic resilience depends on expanding institutional channels for direct participation**. Opportunities for civil society to influence public policymaking have multiplied across the country following several years of decline, with a 250 per cent increase in the number of national conferences held between 2022 and 2024, according to Ipea.[86] If the electoral process alone does not generate trust, strengthening councils, public consultations and participatory budgeting suggests an alternative route to bringing citizens closer to the state—even if the reach of these mechanisms often remains concentrated among organisations and leaders that are already engaged.

Furthermore, the struggle to make democracy effective is constrained by bottlenecks in political and economic representation. Despite recent regulatory advances, such as the requirement for gender diversity on the boards of Brazilian state-owned enterprises, **Black and Indigenous people and women remain under-represented in decision-making spaces.** According to Afro Cebrap data, Black and Indigenous people hold 39 per cent of leadership positions in the public sector.[87] Closing this gap requires concrete action on public budgets, civil service careers and corporate governance. Initiatives originating in the peripheries—such as the anti-racist health guide developed by Fiocruz in partnership with the Unified Black Movement for the favelas of Rio de Janeiro[88] — illustrate how rights-based agendas become effective when shaped by those who experience the problem firsthand. As Ronilson Pacheco put it:

> *"Representation is a growing trend: this debate will not recede, and institutions will no longer be able to ignore diversity. Overcoming the colonial legacy requires the fight against racism to move beyond a reactive agenda and become a structural transformation of the state itself."*
>
> ***Ronilson Pacheco***

However, the expansion of access to rights faces organised backlash that puts democratic cohesion under strain. The decline in institutional support for LGBTQIAPN+ issues, the perception among young men in Generation Z that gender equality would result in men losing rights and opportunities,[89] which manifests itself in forms of gender-based violence, and the persistence of contemporary forms of slavery show that prejudice and the colonial legacy[90] continue to shape real power relations. This dynamic manifests itself in everyday life across a wide range of settings: for example, 86 per cent of





LGBTQIAPN+ students feel unsafe in Brazilian schools, and 90 per cent reported verbal abuse in 2024.[91] **Overcoming Brazil's democratic impasse therefore requires diversity to be treated not as a reactive issue but as a basis for public policies and concrete measures that bring about a structural transformation of the State itself.**

## Questions from the present for the future

1. Will the politicisation of different aspects of social life (relationships, public debate, and personal and collective choices) have an impact on democratic institutions?
2. Will diversity in decision-making spaces be guaranteed over the next decade, or will it still need to be fought for?
3. How can we actively combat organised political disinformation and restore popular autonomy and a sense of collective purpose?

## Other signals to watch

- Albania appoints an AI-generated minister, the first in the world.[92]
- Voter abstention has increased at every election since 2002 and has become a factor in electoral calculations and candidates' campaigns.[93]
- The growth and spread of the "digital manosphere" are reflected in Brazilian channels featuring misogynistic content, which amassed 3.9 billion views in 2024, according to data from the Federal University of Rio de Janeiro.[94]

**Imagining possible futures**

*"I want to open the newspaper and read these headlines: a Black woman sworn in as a Supreme Court justice, the first transgender president elected in this country, and a National Congress with full gender parity."*

*"No public decision or major project should move forward without the direct participation of the population and without prior, free and informed consultation with Indigenous peoples and traditional communities."*

*"I advocate ending executive re-election to put a stop to permanent election campaigning, aligning the electoral calendar, and introducing rigorous rules on technical qualifications and the prevention of conflicts of interest in the higher courts and political offices."*

*"I would like to look at the ministries in Brasília, the leadership of the courts, and the boards of major banks and see people who reflect the complexion and appearance of the majority of this country: Black women, Indigenous leaders, people who know what it means to live on the front lines. As long as decision-making spaces are occupied by the same old profile, laws and budgets will continue to ignore the realities of those at the grassroots."*

*"We don't need to agree on everything, and I don't think that would be healthy. But I hope we can sit down together over Sunday lunch or in a work meeting, disagree about politics, and still respect each other as human beings, without any difference becoming a reason to sever family ties or friendships."*





# ESSAY: RACE, CLIMATE JUSTICE AND THE FUTURE OF BRAZIL

**Thaynah Gutierrez Gomes**
Activist and public administrator (São Paulo, SP)

Brazil enters the next ten years facing a structural contradiction that will determine the success or failure of its climate justice agenda: it is the country that produces the most traditional and community-based knowledge on climate adaptation, yet it is also one of the slowest to recognise this knowledge as State policy. Bridging the gap between what Black, Indigenous and traditional communities already know how to do and what institutions know how to formalise is the greatest challenge, but also the greatest opportunity, of the coming decade. And here, simply translating traditional knowledge into the formal language of policymaking and fitting it into existing frameworks is not enough.

The challenge has an unmistakable root: environmental racism in Brazil is not only about unequal exposure to climate risks, but also about the statistical invisibility of the impact of environmental setbacks. Disaggregated data by race, gender and territory are lacking in almost all public planning and climate modelling instruments, making racial inequalities in climate and environmental impacts difficult to measure and, consequently, to budget for, monitor and hold decision-makers accountable for. Added to this is the precarious legal status of Quilombola territories and *terreiros* (places of worship of Afro-Brazilian religions), which remain vulnerable to displacement and territorial loss even when they provide recognised environmental services. This reveals a paradox: the State pays lip service to valuing this knowledge but does not materially protect those who produce it.

Even so, there are concrete signs of a shift. Coalitions such as the *Network for Anti-Racist Adaptation*, which now brings together more than 50 organisations to develop responses to events such as the *Super El Niño* already underway, indicate that anti-racism is ceasing to be merely an adjective attached to the climate agenda and becoming a criterion for policy design. The relevant question is no longer simply 'how do we adapt?' but 'who has historically been exposed to risk, and why are these people not being prioritised?'".

At the institutional level, progress is also evident. Guidelines for municipal adaptation plans already incorporate disaggregated data, albeit tentatively; international platforms are beginning to compile evidence to support reparations, rather than charity, in global climate finance; and recent multilateral mechanisms, such as the *Belém–Antalya Mechanism* (BAM), create formal space for just transition agendas that recognise the role of workers and traditional and Afro-descendant communities, which were previously excluded from official texts.

The reason for optimism does not lie in a sudden change in political will, but in something more structural: decades of organising by the Black movement and by traditional peoples and communities have reached a critical mass of technical and institutional capacity, enabling them to contest spaces historically closed to these agendas through formal instruments. This is not merely about gaining visibility, but about strengthening the capacity to draft regulatory texts, compete for budgetary resources and occupy negotiating spaces. This process is having an impact on the formulation of new public policies that are more closely aligned with society's concrete needs.

Brazil's future in this area will therefore depend less on new rhetoric and more on how quickly the State can formalise what already exists: recognising territorial rights, financing the collection of racial data aligned with climate indicators, and legally protecting those who, in practice, sustain much of the country's climate resilience. The knowledge and mobilisation are already there—what is missing is an institutional framework capable of rising to meet them.



FUTURES OF BRAZIL: SIGNALS OF TRANSFORMATION 2026

# 02

# A population in transformation

*“Recreate your life always, always. Clear away stones and plant rosebushes and make sweets.”*

Cora Coralina

Between 2012 and 2025, Brazil lost ten million young people, a decline that is accelerating the country’s own ageing process. This demographic challenge raises urgent questions for the State about building a public care system that has yet to be implemented and generating the wealth and public funding needed to finance it. Over the same decade, the arrival of mobile phones connected nine in ten Brazilians: while unregulated access exposed everyday life to predatory betting and screen-driven distraction, it also created an unprecedented need for boundaries, attention and psychological well-being. These changes in the population’s profile and habits call for new thinking about public policies, technical solutions and infrastructure for a country that no longer looks the way it did one or two decades ago.

# The demographic transition and the care crisis

## CONNECTED TO:

- Democracy's impasses and struggles over rights
- The crossroads of health
- Transformation of education and contending visions for its future
- Changes in the world of work
- Public spending pressures and new budgetary needs

## *The demographic transition and the care crisis*

Brazil's age pyramid of the future is already undergoing a structural transformation. Between 2012 and 2025, Brazil lost more than 10 million young people. The population under thirty shrank from 98.2 million to 88.0 million, falling from 49.9 per cent to 41.4 per cent of the total, according to data from the IBGE Continuous National Household Sample Survey (PNAD Contínua).[95] Over the same period, the share of Brazilians aged 60 or over rose from 11.3 per cent to 16.6 per cent.[96] In 2025, IBGE recorded the sharpest narrowing ever observed at the base of the age pyramid.

The tipping point is near. An IBGE analysis indicates that **by 2030, for a number of reasons (not only a smaller number of young people), the country will have more people over 60 than children up to 14**. IBGE projects that Brazil's population will peak in 2041, at about 220.4 million people, and will then begin to shrink, falling to 199.2 million by 2070.[97]

A country that spent the twentieth century learning to manage rapid population growth will have to spend the twenty-first learning to deal with the opposite phenomenon. The signs indicate that this process is already under way, at a faster pace than was forecast two decades ago. IBGE reports that the fertility rate has fallen to 1.6 children per woman, the lowest figure in the historical series and below the population replacement level of 2.1.[98] As Cássio Turra put it:

> *"We are at the stage of the demographic transition in which fertility has reached relatively low levels, lower than expected. As a direct consequence, the pace of ageing will accelerate, replacing the working-age population with older people."*
>
> ***Cássio Turra***

Cássio adds that life expectancy is also moving in a direction that any society would welcome: "In terms of longevity, we are seeing mortality rates in Brazil converge towards low levels, which ensures a higher life expectancy" (Cássio Turra). **Greater longevity, however, brings unprecedented social, pension and financial challenges. As the now widely used expression goes, Brazil "grew old before it grew rich."**





A third component is added to this picture, one that is often overlooked: geographical mobility. According to the expert, internal migration—which for decades reshaped the country's map—has lost significance as a demographic factor. Between 2017 and 2022, São Paulo saw approximately 826,000 people leave and 736,000 arrive through internal migration, resulting in a net loss of 90,000 people.[99] On the one hand, international migration has recorded a negative balance, with more Brazilians leaving than entering the country in 2026 than in the previous period, bringing the total number of Brazilian emigrants worldwide to more than 5.6 million. On the other hand, Brazil is now home to 2 million immigrants and refugees from 200 different nationalities.[100]

The population balance, once absorbed within national borders, is now showing net losses to other countries. This issue should be at the heart of public debate over the next twenty years, as demographic decline ceases to be an abstract projection and becomes a practical reality: **schools that need to adapt to full-day schooling, municipalities facing labour shortages, and a lack of caregivers.**

**As a result, the question of care—who cares for whom, how, and with what support, among other considerations—will become even more central than it already is.[101]** For generations, Brazil has delegated responsibility for caring for older people to the family, primarily to women. This is an invisible, unpaid arrangement made possible by large families, in which several daughters shared responsibility for caring for their parents. The need to care for children and adolescents persists, even though families have fewer children. This model has become unsustainable through simple arithmetic: at current fertility rates, the standard scenario is now one child responsible for two parents and, as life expectancy increases, grandparents as well.

This mismatch is referred to in demographic debates as the **care crisis**. It is one of the country's most urgent structural bottlenecks. Its impact is already being felt in the labour market: demand for gerontology professionals and basic care workers is growing, reshaping priorities in health and social assistance. This dynamic highlights an occupation that has historically been precarious, informal and predominantly female. **Brazil will need a much larger care workforce**, raising the question of whether these services will remain accessible only to families who can afford to hire caregivers or will be supported by structured public policies.[102] An ILO study assessed the current situation and progress of care policies in Brazil and concluded that continued investment in care is not only a social strategy but also an economic one for the country.[103]

These issues are not merely technical; they touch on fundamental questions such as the division of labour, autonomy, decisions about motherhood, and the social place of children and older people. Among the issues occupying experts' attention are, on the one hand, efforts to balance work and care responsibilities, seeking to create conditions in which the decision to have children does not entail a setback in one's career—a bottleneck that disproportionately affects women. On the other hand, attention is focused on promoting the autonomy of older people by developing strategies to prevent loneliness and social isolation, critical risk factors for health and well-being. After all, ageing with a good quality of life is determined long before intensive care becomes necessary and depends on preserving individual independence for as long as possible.

Among the ways of addressing the problem, in 2024 the country formalised the National Care Policy (*Política Nacional de Cuidados*), which recognises and organises the care economy.[104] In addition, technology plays a relevant but limited role in this scenario. Home automation and assistive robotics promise to prolong the independence of older people who live alone, but they remain far from the necessary scale and from affordable prices.[105] One initiative by Sanni, called the "Room of the Future" (*Quarto do Futuro*), brings together artificial intelligence, sensors, automation, and assistive technologies to be built into the routine of hospitalised older patients.[106] Egg freezing makes it possible to postpone pregnancy and decouple biological time from career planning. However, it is still an expensive procedure, restricted to higher income brackets. The tools capable of easing the demographic transition tend to reach the segments with the greatest purchasing power first, reproducing inequality in access to healthy ageing in Brazil. The effectiveness of public policies will depend on universal prevention and on understanding care as a social right.

The persistent challenge lies in long-term care, which is required by the growing dependent older population. Population ageing puts direct pressure on the public health budget through two simultaneous channels. The first is volume: more than 80 per cent of Brazilians aged 60 or over already depend on the Unified Health System (*Sistema Único de Saúde*—SUS),[107] and this group will grow along with the country's age structure, with an expected increase in cases of hypertension, diabetes, cancer, and cardiovascular disease. These are conditions whose prevalence rises with age and that require continuous, not episodic, follow-up. The second is unit cost: the profile of the technologies and treatments incorporated into the SUS for these conditions (high-cost





cancer drugs, targeted therapies, and more technology-intensive devices and procedures) raises the average spending per patient. Combined, the two channels mean that expenditure tends to grow faster than the population served. To this picture is added a cascading effect on the private health insurance sector: the ageing of insurers' patient pools may push private plan prices up to the point where beneficiaries migrate to the SUS, precisely when they need higher-cost treatments.

In the social security system, the spending curve is rising sharply. There is also a projection that, with population ageing, pressure on retirement pension spending will increase, possibly by as much as 8 per cent in 2027.[108] Studies indicate that the care sector can be developed in the labour market, since it has high job-creation potential, especially for women, who do most care work and who, in turn, would make more contributions to social security.[109]

While the public budget moves slowly, the political landscape has already changed. **The electorate aged 60 years or over has become proportionallly larger and more engaged than the Youth segment**, redefining the priorities of electoral campaigns.[110] Within the public administration, this mismatch is reflected in the coexistence of young digital-native public servants and veteran staff of the traditional bureaucracy.

Brazil has approximately 15 years before its population reaches its projected peak in 2041, according to the Brazilian Institute of Geography and Statistics (IBGE).[111] How we manage this period will make all the difference: whether we can establish a robust safety net to transform the social organisation of care in Brazil towards shared responsibility across society and between women and men, or whether we will remain dependent on precarious, makeshift solutions.

## Questions from the present to the future

1. How can the needs of each generation be taken into account when choosing public policies, both for the present and in light of projected future demographic patterns?
2. How can responsibilities be redistributed among the State, families and the market, and between women and men, to ensure that population ageing is accompanied by a care financing system that is dignified, accessible and sustainable for all?
3. How will Brazil reorganise its economy, cities, public services and family relationships when ageing ceases to be a condition affecting a particular segment of society and comes to define the very structure of the country?

## Other signals to watch

- Voter turnout among people over the age of 70 is increasing.[112]
- Committee approves right to digital literacy for older people.[113]
- Fewer than half of households in Brazil consist of couples with children.[114]
- Private assisted reproduction clinics are expanding egg-sharing programmes as a means of reducing the cost of fertility treatment in Brazil.[115]
- Brazil's National Care Policy defines care as a citizen's right and a responsibility to be shared among the Federal Government, the states and the municipalities. The engagement of subnational governments remains an open question.





## Imagining possible futures

*"Caring for a bed-ridden mother or a young child is just as exhausting—and generates as much wealth—as spending eight hours on an assembly line. Yet the burden Always falls on women, unpaid, as if it were a divine obligation. I want to see public childcare centres in the neighbourhood staying open until later, community centres for older people, and genuine support from the States so that those who provide care do not have to choose between their families and their own livelihoods"*

*"I hope that women, who are usually the ones who perform care work, will not have to put their lives on hold and give up their jobs to care for older people in an exhausting, unpaid role."*

*"SUS needs to be equipped to provide care for older people at home before their condition deteriorates, but it must go further: it needs to organize the country's entire healthcare system, ensuring primary care for everyone and regulating the excessive costs charged by the privates sector."*

# Digital platforms, “bets”, and the “new internet” in everyday life

CONNECTED TO:

- Democracy’s impasses and struggles over rights
- The crossroads of health
- Reconfiguring the global order

## *Digital platforms, "bets", and the "new internet" in everyday life*

**Brazil has never been closer to achieving universal Internet access.** According to the Brazilian Institute of Geography and Statistics (*Instituto Brasileiro de Geografia e Estatística*—IBGE), over 90 per cent of the population and 95 per cent of households are connected to the internet in some way.[116] Mobile phones are the main means of access, used by 98.7 per cent of internet users.[117] This is especially significant in light of the digitalisation of public services, as well as the use of banking services and payment methods such as Pix: **82 per cent of transactions are carried out digitally**.[118] This landscape represents significant progress in access, but challenges remain regarding how people use the internet.

Every new digital infrastructure enters Brazil through an open door, without regulation, at least for a time. Between the moment a new platform, a new technology or even a digital habit reaches millions of people and the moment the public authorities decide to act, those who profit from other people's vulnerability operate without limits.

In the final scene of this repetitive soap opera, **an English word has invaded Brazilian life: "*bets*"**. Online betting is already draining more resources from Brazilian households than the interest they pay on their debts.[119] The economic costs of *bets* are high. In 2025, *bets* are estimated to have removed approximately 1 per cent of GDP from economic activity, reduced tax revenue by up to BRL 46 billion, and affected income inequality.[120]

This vast market arrived with apps, shirt sponsorships, mass advertising, and authorisation to operate. The issue is an economic one, but also a public health concern, with impacts that are already severe, particularly on mental health services.[121]

**What the operation of the bets sector reveals is a system designed to exploit known biological, psychological, and social vulnerabilities.** In September 2026, recognising these problems, the Brazilian federal government issued a Provisional Measure banning betting and advertising by these companies in the country. The same design can be found beyond the world of bets: for example, in speculative cryptocurrencies and on platforms that turn everyday actions into games, complete with leaderboards and rewards. This is also evident in the logic of counting "followers" and "likes" that structures virtually all platforms, with their millions of users across the country. **Everyday life has been gamified, and the outcome of this gamification is consistently negative for those who play.** Opposition is growing, however: mentions of sports betting on social media have reached record levels, and the proportion of negative reactions has risen accordingly.[122] A player on the Brazilian national football team used his own visibility to challenge the sector's expansion within football, the very channel through which these brands gain exposure, while new online movements, such as "*Brasil Contra as Bets*" and "*Block do Tigrinho*", began echoing the alarm. [123] The battle is being fought in the open, across society, on social media, and within the State.

The phenomenon of bets, like other worrying trends driven by digital life, affects the Brazilian population to a significant extent: Brazilians are chronically online. They spend the fourth-longest time online in the world and lead in AI use.[124] It is where they forge romantic relationships, work, pray, argue, play and, sometimes, cry for help. This new practice is spreading rapidly in the online space where much of life takes place.

In schools, excessive screen use has become routine. More than half of students (56 per cent) report difficulty reducing their time online, and educators associate such use with reduced concentration and impacts on mental health.[125]

Among the positive trends, it is worth highlighting several signs that Brazil's institutions are well positioned to address digital addiction and violence. In this context, the role of the National Data Protection Authority (ANPD) is particularly significant, especially given its efforts to challenge and hold big tech companies accountable under the Digital Statute of the Child and Adolescent (ECA Digital).[126] Also worth mentioning is the initiative by the Ministry of Health, which has launched a dedicated mental health service for people experiencing gaming or gambling addiction.[127]

The speed at which all this takes hold is no accident. Pix has reshaped behaviour in the financial and commercial sectors in just a few years. Content creation has followed the same trajectory, to the point that Brazil now has its first "Influencer Academy", alongside a range of courses and advisory services for those seeking to become online influencers.[128]

The conflicts arising in the digital environment have also helped politicise and bring to the fore some of the most heated debates about gender relations. Men are increasingly being held accountable for behaviours that fuel gender-based violence. On the one hand, new initiatives are emerging that treat the so-called crisis of masculinity as a problem to be addressed, seeking to foster new models



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that are more egalitarian and less violent and exclusionary. On the other, a growing number of influencers are selling ready-made answers and reinforcing hierarchical and violent worldviews. The "redpill" bubble has been taking shape and spreading through YouTube clips, content showcasing luxurious lifestyles and the constant presence of women, as well as the sale of courses, mentoring and other products.[129] This may point to new forms of violence against women through the dissemination of misogynistic insults and behaviours — digital violence against women that is finding new channels of expression.

The drive to technicise behavioural guidance has also reached the religious sphere. Brazilian churches have adopted artificial intelligence avatars for evangelisation, and there have been reports of worshippers developing emotional dependence on religious chatbots.[130] The oldest institution in the country's repertoire of values is beginning to operate through its newest interface.

Universal access has placed an infrastructure with unprecedented transformative potential in the hands of almost the entire population. Although the unchecked arrival of predatory models has come at a high cost, public debate and society's own response show that the country is not standing idly by. As rejection of digital exploitation grows and protective frameworks such as the Digital Statute of the Child and Adolescent (ECA Digital) emerge, a genuine opportunity is opening up for public authorities and citizens to regain control of technology, turning hyperconnectivity into a tool for emancipation, informed debate and citizenship.

### Questions from the present to the future

1. How can a proposal to regulate platforms and AI be advanced in a way that addresses the problems already identified by experts, families and teachers?
2. Who is responsible for user Behaviour when the business model is built around exploiting vulnerabilities?
3. How can we ensure that digital transformation expands rights and opportunities while safeguarding people's autonomy and privacy and ensuring the inclusion of those with less access to new technologies?





### Other signals to watch

- Brazil's National Council of Justice has regulated the work of child influencers, requiring judicial authorisation for children and adolescents appearing in monetised content or content posted regularly on social media in Brazil.[131]
- The Brazilian platform "Ninna"[132] allows users to create and interact with a "digital child" through emotionally responsive AI, addressing emotional needs associated with loneliness or the inability to have biological children. The initiative fuels ethical debate about the monetisation of artificial emotional bonds and the risks of emotional dependency, while redefining the role of AI as a substitute for intimate human relationships.
- Dopamine sites simulate the entire online shopping experience, from selecting a product to tracking its delivery, but without any financial transaction or receipt of goods. This trend serves as a form of "digital therapy" for Generation Z, offering relief from stress associated with shopping as a way to curb impulsive consumerism and actual debt.[133]
- An influencer has launched a subscription service that allows fans to chat with an AI version of herself, trained on her personality, turning her identity into a scalable digital asset to meet high demand for interaction. This initiative reveals new business and relationship models between public figures and their audiences, in which human interaction is replicated by automated systems to monetise engagement on a large scale.[134]

**Imagining possible futures**

*"These mobile betting platforms have become a meat grinder for families. You join the community and see a worker losing their rent money in the middle of the night and ending up owing to a loan shark. The government needs to keep bets on a tight leash, treating them as a serious mental health and debt concern."*

*"What we generate on our phones, through health tests, and when making purchases becomes data that enriches the big platforms. The law needs to ensure that citizens are the effective owners of this asset and receive direct financial compensation for the value of their health, consumption, and education data."*

*"Brazil needs to develop its own ethical artificial intelligence models and national server infrastructure. If we don't have sovereignty over our data, we'll be dependent on the decisions of two or three global powers."*

*"Digital inclusion requires genuine digital literacy: breaking down barriers between generations so that any young person or older adult can access public services and manage their online life without falling for scams."*





# ESSAY: BRAZIL ADVANCES IN THE DIGITAL SPACE

**Virgilio Almeida**
Associate Professor at Harvard University's Berkman Klein Center, Professor Emeritus at the Federal University of Minas Gerais (UFMG), and former Secretary for IT Policy at the Ministry of Science, Technology and Innovation

Brazil has a long tradition of innovation, as demonstrated by Embraer, Petrobras, agribusiness, and the financial sector, but it has yet to establish itself at the forefront of digital technology. Nor does it have major global technology companies or lead the race in artificial intelligence. However, that is not the whole story. In recent years, Brazil has built a set of digital infrastructures and institutions that could help change its position in the digital world and open up new opportunities for the country's development.

Some examples are particularly noteworthy: **Pix**, **gov.br**, and **Open Finance**. Pix is perhaps the clearest example. More than just a payment system, it is a public, open, and interoperable digital infrastructure created by the Central Bank that has rapidly transformed how Brazilians and businesses move money. Its success demonstrates that the State can create nationwide digital platforms on which the private sector can develop new services and business models.

A similar development can be seen in the expansion of gov.br and the establishment of digital identity and public services for citizens. Open Finance is another important component of this transformation. It is an ecosystem regulated by the Central Bank that enables the secure sharing of financial data and services among different institutions, including banks, fintechs, brokerage firms, and insurance companies.

These examples are part of a broader movement that includes the **Brazilian Civil Rights Framework for the Internet**, the **Brazilian General Data Protection Law** (LGPD), the **Digital Statute of the Child and Adolescent** (ECA Digital), and the rules being developed by the Superior Electoral Court (TSE) to

protect the electoral process in the face of new technologies. Alongside these initiatives, Brazil has extensive databases in areas such as health, education, and the environment, as well as public institutions capable of producing, managing, and mobilising them.

The question, therefore, is not simply whether Brazil will be able to keep pace with the artificial intelligence revolution, but whether it can transform the digital infrastructures it has already built into foundations for a new phase of development — one that is more productive and inclusive and better able to strengthen the capabilities of the State and society. Brazil can forge its own path in the digital space, drawing not only on technology companies, but also on infrastructure, institutions, data, and coordination capacity. This path can be organised around three foundational dimensions: **technological infrastructure, data infrastructure, and institutional infrastructure.**

Brazil may not be at the forefront of digital technology, but it has significant institutional capacity to coordinate and implement digital transformation on a national scale. Building a robust and democratic governance infrastructure for new technologies is essential to preventing their gains and benefits from becoming concentrated in the hands of a few companies and social groups. It is the State's responsibility to create the conditions and implement public policies needed to ensure that the benefits of AI are more widely distributed and contribute to long-term social and economic development.

The challenge also lies in the capacity to coordinate. Faced with such complex issues and rapid transformations, fragmented initiatives are unlikely to be sufficient. Brazil needs to consider new ways of coordinating AI and digital transformation policies, bringing together government, businesses, universities, and civil society around a clear and consistent strategy. The time to make this decision is now. If Brazil does not define its own path, its digital future will increasingly be shaped by technologies, rules, and policies determined by other countries.



FUTURES OF BRAZIL: SIGNALS OF TRANSFORMATION 2026

# 03

# Trajectories of social life and public policy

*“The future is already here—it’s just not evenly distributed.”*

William Gibson

In 2025, Brazil’s National High School Exam (Enem) recorded just ten perfect scores in the essay component—the lowest figure in the series. That same year, the Fundeb education fund reached a record BRL 341 billion. Unemployment fell to 5.4 per cent, its lowest level in more than a decade, although incomes remained squeezed. On the bus ride home, a patient opens their phone to have an algorithm translate medical jargon; in the semi-arid interior of Rio Grande do Norte, the hum of wind turbine blades confronts communities with the urgent need to negotiate the human cost of a clean energy mix. This diversity of signals points to the need for major budgetary decisions to connect with people’s lived realities in ways that are increasingly transformative.

# Transformation of education and contending visions for its future

## CONNECTED TO:

- Digital platforms, “bets” and the “new internet” in everyday life
- Changes in the world of work
- Innovations through the convergence of knowledge
- Public spending pressures and new budgetary needs
- Democracy’s impasses and struggles over rights

## *Transformation of education and contending visions for its future*

Only ten essays were awarded a perfect score in Brazil's 2025 National High School Exam (Enem), the lowest in the exam's history.[135] In 2023, 60 essays received perfect scores, falling to 12 in 2024 and then to the controversial figure of ten in 2025.[136] The result made headlines and sparked the usual debate about the strictness of essay marking, but it reveals something more troubling when considered together with the broader Brazilian context: **indicators suggest a persistent challenge in translating expanded access and increased investment into consistent learning gains.**

The volume of funding is substantial. Fundeb is expected to channel BRL 370.3 billion next year, an increase of 8.54 per cent compared with 2025, when the fund closed the year with BRL 341.1 billion.[137] The *Pé-de-Meia* programme, launched in 2024, reduced secondary school dropout rates by approximately 43 per cent and reached 5.6 million low-income students.[138] The 2025 Basic Education Development Index (Ideb) showed improvement compared with 2023, but remained well below its targets, particularly at secondary level and in the final years of primary education.[139] In addition, the advantage that full-time schools held in the index narrowed by 40 per cent between 2019 and 2023,[140] indicating that extending the school day alone does not guarantee improvements in learning.

This mismatch between inputs and outcomes is a recurring theme in analyses of the sector. Lucia Dellagnelo, a specialist in education and technology policy, argues that the main bottleneck does not lie in the amount of funding invested:

> *"We still haven't solved the learning problem. Young people know only 10 per cent of what they should know in mathematics. [...] Despite all the reforms and increased financial investment in schools, we still aren't seeing how this translates into higher levels of proficiency, skills, and competencies."*
>
> ***Lúcia Dellagnelo***





The solution proposed in the interview is based on implementing accountability: a model of performance accountability in which failure to meet targets has direct consequences. Estonia is cited as an example, with monthly monitoring of indicators such as school dropout rates and strict annual targets to ensure that public policy is implemented.[141]

**Teachers, however, have been working under unequal conditions.** A recent national survey highlights the need to strengthen both initial and continuing training for mathematics teachers in Brazil, showing that the weaknesses emerge before teachers even enter the classroom.[142] Distance-learning teacher education programmes have performed poorly in assessment examinations, undermining the quality of training at the entry point to the profession.[143] However, the data challenge the notion of widespread demotivation: 94 per cent of mathematics teachers find meaning in their work and identify reducing inequalities as the main challenge of their profession.[144]

While discussion of proficiency continues to make slow progress, **technology has become firmly embedded in everyday school life**. The 2024 ICT in Education Survey shows that seven in ten Brazilian secondary school students who use the internet turn to generative AI for school research—an adoption that preceded the development of institutional guidelines.[145] In some states, schools are already taking more structured approaches to this trend. In Piauí, the teaching of artificial intelligence became mandatory in the state public school system, in an initiative recognised by UNESCO as a first of its kind in Brazil. At the same time, technology curricula have incorporated the teaching of human skills (as distinct from the capabilities of new AI models), signalling that **automation has shifted exclusively technical skills away from the centre of professional differentiation**.

Without a structured plan for inclusion and training, automated tutoring systems risk becoming a supplementary resource available only to school systems with well-trained teachers, while serving as a poor substitute in schools lacking adequate teaching capacity. The prospect of personalised tutoring offers pedagogical advances but also poses structural risks, as one Lúcia Dellagnelo cautions.

> *"[...] there is a risk of widening inequalities if the use of AI is not deliberate. Well-prepared teachers will use AI as a complement, while less-prepared teachers may delegate teaching to the machine, undermining students' cognitive development."*
>
> ***Lúcia Dellagnelo***

Beyond the flood of AI tools entering classrooms, a broader and more longstanding issue—screen use—is also affecting students' health. There are clear signs that children and adolescents have been overexposed to screens and technology, with consequences for their health.[146] In response, Brazil enacted Federal Law No. 15,100/2025, which, one year ago, banned students from using mobile phones in classrooms in both public and private schools. Early indications suggest that implementation of the law has had a positive impact on students,[147] but a dilemma remains: according to the 2025 ICT in Education Survey,[148] 37 per cent of public and private schools allowed students to use AI, albeit under certain rules. This situation may face further challenges, as the National Education Council recently banned the use of AI in schools.[149] Meanwhile, community-based and educational initiatives are emerging, including in-person reading clubs and increased use of supplementary books in schools to develop social and emotional skills.[v] Another approach relies on digital monitoring: the municipality of Várzea Grande, in Mato Grosso, has adopted facial recognition to record student attendance and manage school meals.[150] Another approach relies on digital monitoring: the municipality of Várzea Grande, in Mato Grosso, has adopted facial recognition to record student attendance and manage school meals.[151] This measure shifts attendance monitoring—historically treated as a pedagogical and social indicator—into the realm of biometric identification, without clear information on how these data are stored, safeguarded, or used.

**At the same time, debate over curricular content and paedagogical authority is intensifying.** Brazil is planning to establish the country's first Federal Indigenous University, headquartered in Brasília, with operations expected to begin in 2027. The Federal University of Pernambuco (UFPE) has established a degree programme in Quilombola Education,[152] and the Guajajara people are developing their own institution to integrate traditional and scientific knowledge.[153] Ceará has established the country's first anti-racism training centre,[154] while the University of Brasília (UnB) has introduced quotas





in faculty recruitment, extending its affirmative action policy from students to teaching staff.[155] In addition, intercultural research projects are bringing academic knowledge together with traditional knowledge to catalogue and preserve the sociobiodiversity corridor of the eastern Amazon.[156]

These changes face institutional and political opposition. The State of Santa Catarina is challenging in court the scope of the national affirmative action framework for higher education.[157] In the legislative sphere, a bill regulating homeschooling has returned to the Senate's agenda, proposing that school attendance no longer be compulsory.[158] In rural areas, the expansion of agribusiness and the closure of schools are reducing access to education rooted in local territories and contexts.[159]

This movement does not represent a rejection of technological modernisation. **Numerous projects demonstrate that new technologies can be incorporated into the teaching of traditional subjects and even brought into dialogue with ancestral perspectives**. In Vitória do Xingu, Pará, students from the Juruna people formed the first Brazilian Indigenous team to compete in an international robotics competition, while traditional Indigenous music is also being incorporated into cultural education in schools across the country.[160] These examples illustrate how the preservation of traditional knowledge and the mastery of advanced technologies can coexist.

### Questions from the present to the future

1. If greater investment and more time in school have not been enough, what needs to change for funding to translate into learning?
2. Who will produce the knowledge that guides decisions about Brazil's future, and where will the ideas, information, and perspectives that shape how we understand the country and the world come from?
3. How can schools be strengthened as spaces that reduce inequalities, prepare children and young people for social and technological change, and ensure genuine opportunities for lifelong learning?

## Other signals to watch

- In partnership with the Inter-American Development Bank (IDB), the State of Paraná plans to build seven so-called Schools of the Future, featuring sustainable architecture, flexible classrooms, integrated laboratories, and new teaching methodologies.[161]
- Political education is set to become a compulsory part of the curriculum in Brazilian schools.[162]
- Lucas do Rio Verde, Mato Grosso, has unveiled a Green School project focused on the green economy, agribusiness, and entrepreneurship for adolescents.[163]

## Imagining possible futures

*"If full-time public schools taught students how to plant, harvest, and cook, we could solve two problems at once. School meals would no longer consist of packaged ultra-processed products; children would eat real food grown in the soil and learn, through hands-on experience, what it means to care for the environment. That would change the way a child thinks forever."*

*"Today, you see young people glued to their mobile phone screens all day, while older people fall for fake-video scams on WhatsApp. Schools need to teach students how to navigate this digital world: how to recognise manipulation, check whether something is factual, and understand the basics of interest rates so they don't sink into debt as soon as they receive their first salary."*

*"I want to see pajés [Indigenous spiritual leaders] and traditional forest knowledge holders teaching at public universities, with the same standing and respect afforded to a professor with a PhD from a university abroad. The millennia-old science of our peoples needs to be heard on an equal footing by the laboratories of the cities."*



FUTURES OF BRAZIL: SIGNALS OF TRANSFORMATION 2026

# Changes in the world of work

## CONNECTED TO:

- The demographic transition and the care crisis
- Transformation of education and contending visions for its future
- Public spending pressures and new budgetary needs
- Democracy's impasses and struggles over rights

## *Changes in the world of work*

Brazil enters 2026 with its lowest unemployment rate since 2012, reaching 5.4 per cent in the quarter ending in June.[164] The same survey shows unemployment rates ranging from 2.7 per cent in Santa Catarina to 10 per cent in Amapá.

What are these jobs? This was the central point raised by one of the economists interviewed, who examined what formal indicators fail to capture: "Most of these are not good jobs. A large number of people are employed but would like to have a different job. They consider themselves underutilised. There are still many women who would like to be in the labour market but cannot because they need to care for children or older people. And those who are employed say they earn too little." (Clemente Lúcio)

Traditional accounting for working hours, however, considers only paid work. A by Made/USP, based on time-use data from the 2019 Continuous Household Sample Survey (PNAD), added together paid and unpaid working hours and found that Brazilian women work an average of 58.1 hours a week, compared with 50.3 hours for men.[165] **This discrepancy stems from unpaid domestic and care work: 21.3 hours per week for women, against 8.8 hours for men.[166]** Taken together, these tasks mean that women's daily workload leaves them with no days off: an uninterrupted routine seven days a week.

**Underutilisation** describes a concrete situation faced by large sections of the population: working fewer hours than needed, performing jobs below one's level of qualification or earning too little to cover the cost of living. At the other end of the spectrum, **exhausting working hours have become a central topic in public debate**, which has recently focused on ending the six-day-on, one-day-off work schedule (6×1) and moving to a 40-hour working week (down from 44 hours).[167] The Institute for Applied Economic Research (Ipea) calculated the impact of this measure and estimated an average 7.84 per cent increase in the cost of employing workers under Brazil's formal labour legislation (*Consolidação das Leis do Trabalho*—CLT).[168] According to the study, the labour market can absorb this adjustment in much the same way as it absorbs minimum-wage increases, without triggering mass unemployment. Resistance to the proposal therefore rests on weaker grounds than the tone of the debate might suggest. Some developed countries offer alternative models that may point to possible futures: in the Netherlands, a three-days-on, four-days-off schedule can be based on a 32-hour working week; Germany has an average working week of 34 hours, while France has a 35-hour limit. In October 2026, the Brazilian Senate approved a Constitutional Amendment abolishing the 6×1 work schedule in Brazil and establishing a 40-hour working week.





Income data from Brazil offer encouraging news, although significant challenges remain. In 2025, the average income of Brazilians reached BRL 3,367, exceeding the highest value ever recorded in the time series that began in 2012.[169] In this survey, 143 million people, or 67.2 per cent of the population, reported having some source of income. However, it is important to remember that **a large proportion of these households, approximately 49.7 per cent, spend almost half their income on debt repayments**, remaining close to the historical high recorded by the Central Bank of Brazil in January 2026.[170] For many people, earning more still means, primarily, being able to cover their monthly expenses. Moreover, income distribution remains highly unequal: **women's share of total income has remained at 28 per cent since 1990, unchanged for decades.**[171] This situation has become even more challenging with the advance of digital exclusion, which threatens precisely the jobs in which women are most represented. Brazil is therefore a country where the income indicator is rising, but economic security is not keeping pace with that growth.

The coexistence between formal and informal labour has been profoundly affected by new technologies and the platform economy. **According to the IBGE**, t**he number of app-based workers increased by 25.4 per cent between 2022 and 2024**.[172] This rapid growth is putting pressure on legislation to classify this model of work. A recent ruling by the Regional Labour Court of the 2nd Region in São Paulo classified a self-employed driver as a "digital gig worker", an intermediate category between formal employment and full self-employment.[173] Rather than determining the service provider's employment status, the ruling created a third legal category. This is not without risks: "You find yourself facing apps that turn people into ostensible 'entrepreneurs', yet they have no holidays, no 13th-month salary, and work long hours, seven days a week." (Mauro O'de Almeida).

**The term "entrepreneurship" brings about a structural shift in employment relations by transferring the operational risks of the business to the individual under the guise of autonomy.** From this perspective, the absence of paid time off comes to be interpreted as an individual choice. The so-called "entrepreneurial turn" resonates with the legitimate aspirations of many workers, who see self-employment as an opportunity to escape hierarchical rigidity, set their own hours and exercise greater control over the pace and content of their work. This promise of autonomy, however, comes at a frequently overlooked cost: by becoming an "entrepreneur of the self", workers negotiate

individually with clients or platforms, hollowing out the collective mechanisms that have historically secured better working conditions. As a result, rights such as paid holidays, social security protection and income stability cease to be institutional guarantees and instead depend on each individual's ability to bear the risks, shifting responsibilities previously shared with employers and the State onto workers.

The same movement affects public policies created for the purpose of inclusion. The Individual Microentrepreneur (MEI) regime was created to formalise workers such as painters, electricians, and manicurists, a role it has performed successfully. It has, however, become the central instrument through which companies hire individuals. Although the formalisation of self-employed workers may represent progress, the mechanism can also contribute to the precarisation of labour relations and to weaker labour and social security protection, especially when used as a strategy of *pejotização* (hiring workers as legal entities, or *pessoa jurídica*, instead of as employees) to reduce business costs. Furthermore, the continuation of this process may compromise the balance of social security contributions, affecting projections for stabilising the system's spending. This is a fiscal issue as well as a labour one. The continuous migration from the formal employment regime (CLT) to the MEI regime could reduce revenue for Social Security and for the Severance Indemnity Fund (FGTS), one of the central components of mandatory public spending. In the first half of 2026, the total number of individual microentrepreneurs rose by 14.5 per cent, with more than 3.6 million new CNPJs (company registrations).[174]

The advance of artificial intelligence is adding to this already fragile structure. According to the World Economic Forum, job displacement is progressing more rapidly in data-intensive sectors, such as software development and financial services.[175] The initial impact is therefore being felt in occupations that have employed young people with higher education qualifications over the past decade, rather than in manual labour. **In Brazil, 30 per cent of workers were in occupations exposed to generative AI in 2025, with projections pointing to widening inequalities by 2030.[176]**

Brazil faces this transition with structural asymmetries. Although the digital economy accounts for around 10 per cent of Brazil's GDP, the country records a trade deficit of USD 40 billion in information technology.[177] Since the consumption of technology significantly exceeds internal productivity, the productivity gains from automation tend to accrue abroad, while the costs of reskilling and unemployment remain within the domestic economy.





This gap between educational attainment and labour-market absorption was highlighted by the same economist quoted earlier: "Our economy has a low level of industrialisation, low investment in technology and creates few good jobs. You make all this investment in education, someone graduates, and then what they find is a job as a supermarket cashier earning BRL 1,800 a month. The frustration can be immense." (Clemente Lúcio).

At the same time, labour legislation and corporate practices are seeking to adapt to new dynamics. The updated Regulatory Standard No. 1 (NR-1) now requires the management of psychosocial risks and the integration of mental health into corporate governance, with enforcement by the Ministry of Labour and Employment (MTE) scheduled for 2026.[178] In Congress, bills under consideration provide for flexible working hours on religious grounds.[179] In the private sector, companies are beginning to voluntarily offer extended paternity leave, while market research points to generational differences in demand for flexibility and security.[180]

**However, these measures do not reach workers without formal employment relationships:** people working in the app-based economy, professionals compelled to work as self-employed contractors through legal entities (*pessoas jurídicas*, or PJs), and women overburdened by domestic work and unpaid care. Measures such as NR-1 depend on the existence of a formal employer, just as the regulation of working hours presupposes an employment contract governed by Brazil's Consolidation of Labour Laws (CLT). One challenge—longstanding, yet still urgent—is how to extend regulations that protect workers to a growing number of people without traditional employment relationships.

### Questions from the present for the future

1. What does Brazil offer young people who acquire qualifications yet still cannot find good jobs?
2. How can we ensure that, amid the technological revolution, the rise of artificial intelligence and the extreme concentration of wealth, people will have jobs and/or the financial means to support themselves in the future?
3. How can we change the way we live to achieve a better balance between work and quality of life?

### Other signals to watch

- The labour market is increasingly accepting microcredentials and nanodegrees as alternatives to traditional degrees.[181]
- The International Labour Organization (ILO) has adopted its first convention addressing employment relationships in digital platform work.[182]
- In Brazil, the Feliciência Institute is consolidating its Chief Happiness Officer certification as part of the ESG agenda, with the aim of combating burnout.[183]

### Imagining possible futures

*"The labour market will have to adapt to the silver economy: keeping older people active and valued, with companies learning to manage teams comprising three or four generations working together."*

*"The end of the six-day working week with one day off is a matter of human urgency. Workers need time to spend with their families, study and rest, putting life and health ahead of exhausting productivity demands."*

*"Brazil currently has a very low unemployment rate. I hope this continues, but I also hope we will have not only more jobs, but better-quality jobs that allow younger people to apply what they have learned at university and develop professionally."*

*"Universities and research centres need sustained and substantial public funding. No country can build a strong industry by cutting science funding every time the government changes."*





# ESSAY: SIGNALS OF CHANGE IN THE WORLD OF WORK: OPPORTUNITIES AND CHALLENGES

**Adriana Marcolino**
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In recent years, unemployment has fallen to its lowest levels in the historical series (PNAD/IBGE), average real earnings have recorded annual growth, and the country has seen a reduction in poverty and extreme poverty. Improvements in the labour market have once again had tangible effects on families' living conditions.

The energy and digital transitions are opening up new employment opportunities. Brazil has important advantages for developing renewable energy, biofuels, green hydrogen, sustainable mobility and a low-carbon economy. Artificial intelligence, automation and digitalisation could create jobs in new occupations. The generation of jobs associated with these transitions, and the quality of these opportunities, will depend on the country's ability to develop domestic value chains.

Industrial policy has returned to the national agenda, linked to a consistent, sovereign national policy for science, technology and innovation (STI). These efforts seek to promote productive development, innovation and value addition, which can stimulate the creation of more skilled and better-paid jobs.

The debate on job quality has taken centre stage in society. Issues such as shorter working hours, mental health, work–life balance and the value of leisure time have become prominent in public debate, driven by younger generations, which are pressing companies and governments for forms of work that are more compatible with quality of life and well-being.

A stronger role for the State and more public policies have proven to be the way forward for improving working conditions in Brazil.

However, major challenges remain, as recent progress has not eliminated some of the historical mechanisms of exclusion:

- Structural inequalities continue to shape who has access to the best opportunities. Women, Black people, young people from disadvantaged urban communities, and residents of the North and Northeast continue to face greater barriers to entering and advancing in the labour market.
- Informal employment remains widespread, leaving workers without social protection, income stability or collective representation.
- New technologies, such as digital platforms, have replaced jobs or created precarious forms of employment without social protection or labour rights. Furthermore, ensuring sovereignty in this field requires substantial investment, which has been continually constrained by fiscal policy.
- The green transition must also be a just transition. The green jobs being created in Brazil suffer from a deficit of decent work. The challenge is to reconcile environmental sustainability, social inclusion and decent work.
- Productivity gains must not exacerbate income inequality, as they have at other points in our history. These gains must be distributed among businesses, workers and the State through appropriate taxation.



FUTURES OF BRAZIL: SIGNALS OF TRANSFORMATION 2026

- Vocational training presents a major challenge in the face of so much change. However, it is also essential to ensure the availability of quality jobs.
- Attempts to roll back labour rights, social rights and collective representation are frequent. A development model based on social justice must strengthen these rights.

Recent indicators show that it is possible to achieve economic growth, create jobs and increase incomes simultaneously. However, they also highlight the need to make progress in addressing structural problems that concentrate income and undermine the living and working conditions of the population.

Brazil is well placed to grow without leaving anyone behind. We have a large consumer market and a workforce that could expand significantly if we created the conditions to raise women's labour market participation to levels comparable to men's, particularly through care policies. The country also has state-owned enterprises and public development banks, substantial scientific and technological capabilities developed at public universities, as well as abundant natural resources and renewable energy sources. The challenge is to mobilise these assets to address, at a structural level, the problems affecting the quality of life and working conditions of the Brazilian population.

# The crossroads of health

## CONNECTED TO:

- Digital platforms, “bets”, and the “new internet” in everyday life
- Demographic transition and the crisis of care
- Public spending pressures and new budgetary needs
- Democracy’s impasses and struggles over rights

## *The crossroads of health*

The patient leaves the doctor's office and boards the bus home. The first thing they do is pull their phone out and type what the doctor has just told them into an AI chat or search engine.[184] This patient has a second opinion that does not take months to arrive, delivered in language they can understand. The 2026 Edelman report[185] measures this shift: the crisis of trust in institutions and healthcare professionals is pushing us to turn to artificial intelligence for medical information.

**The digitalisation of healthcare holds promise worldwide.** Two conflicting uses are already emerging in this new wave of innovation, driven largely by AI. Miguel Lago states: "*Artificial intelligence is seen as highly promising for both the management and efficiency of Brazil's Unified Health System (SUS) and for improving regulatory and referral pathways, but it is frightening if used solely to cut costs at the expense of quality or to monetise private data*." (Miguel Lago)

Access regulation and referrals are among the least visible parts of the healthcare system. Patients spend months on waiting lists for specialist appointments and often end up giving up. The delays occur because referrals get stuck in disorganised queues, in municipalities that communicate poorly with neighbouring municipalities or state governments. **AI promises to keep queues moving, distribute cases more efficiently and reduce bureaucratic bottlenecks**.[186] The risk lies in the second half of the warning: a system that learns to cut costs without learning to ensure quality.

Hopes for the public sector are grounded in  a culture of innovation that has already become part of the routine for SUS users. In specialised care, whre Waiting times have historically been longest, the government launched the *Agora Tem Especialistas* programme to expand the provision of services such as consultations, tests and elective surgeries.[187] The programme also provides specialised care through mobile health units and large-scale service initiatives, with a recognised increase in the volume of care delivered.[188]

The country recently launched the world's first single-dose dengue vaccine and uses biological control methods involving bacteria-infected mosquitoes to curb the disease.[189] At the research frontier, Brazilian scientists have developed a nanoparticle-based therapy capable of stopping breast cancer metastasis,[190] while dressings made with propolis and retinoic acid accelerate the healing of complex wounds.[191]

Internationally, progress has been similar, with advances such as an experimental oral drug that doubled survival in cases of metastatic pancreatic cancer.[192] However, **the pharmaceutical industry's financial logic does not always align with public health needs**. Pharmaceutical innovation remains concentrated on chronic diseases, where profits are more predictable, while critical areas such as antibiotics are neglected.[193]

Moreover, innovations developed abroad pose a major challenge when it comes to integrating them into a large and complex system such as SUS, while also exposing the Brazilian public sector to political and market forces operating on a global scale. The Brazilian government has been developing the healthcare industrial complex, with the goal of producing 70 per cent of the medicines consumed in the country by 2033.[194] The plan is part of the National Strategy for the Development of the Health Economic-Industrial Complex (CEIS), with more than BRL 40 billion in planned public and private investment to strengthen national health autonomy.[195] **Investing public funds in innovation is a step towards sovereignty.**

Alongside laboratories and screens, **climate change is already altering public healthcare routines, and the situation is expected to worsen.**[196] The country is likely to face new pandemics and epidemic outbreaks more frequently in the coming years, and challenges remain in epidemiological surveillance of these events. There is still a need to integrate climate, epidemiological and healthcare data to monitor climate-sensitive health impacts more accurately. In terms of healthcare delivery: "There is a need to establish a well-regulated 'National SUS Force' to respond rapidly to disasters and epidemics, which will become increasingly frequent." (Miguel Lago)

To address these challenges, the Brazilian government is moving forward with the implementation of AdaptaSUS—the Health Sector Adaptation Plan for Climate Change, which Brazil committed to during COP30. The plan includes the establishment of Health and Climate Centres and National SUS Force bases across the country.[197]



FUTURES OF BRAZIL: SIGNALS OF TRANSFORMATION 2026

Climate challenges are also pushing healthcare beyond hospital walls. **Resilient cities, with more shade and green spaces, are entering the debate as a form of preventive public policy.**[198] And the air is not the same across the city. The Institute for Health Policy Studies (IEPS) compared urban areas with entirely Black populations and those with entirely white populations in Brazilian metropolitan regions, finding an average difference in exposure to fine particulate matter of 3.6 micrograms per cubic metre—meaning that the Black population was exposed to 38.3 per cent more pollution.[199]

**At the other end of the income spectrum, access to private healthcare is also subject to disputes over arbitrary decisions, lack of regulation and excessive prices.** Technology is advancing faster than regulation. Miguel Lago argues: "*Healthcare costs are likely to spiral out of control, driven by population ageing, the impacts of climate change and inflation generated by the private sector, which is not designed to control spending.*" (Miguel Lago)

Private-sector inflation exposes a structural distortion: a system that is paid for each procedure performed has every incentive to multiply interventions. The promise of artificial intelligence will be tested in this context, where the distinction between streamlining workflows and cutting costs is no longer merely theoretical but directly affects the ways in which care is delivered. Moreover, the system's resilience requires an integrated vision of healthcare that goes beyond treating illnesses in isolation and considers the human being as a whole, in tune with a population that is constantly changing and whose demands and needs are increasingly diverse.

## Questions from the present for the future

1. Will artificial intelligence improve care and make healthcare more affordable, or will it reinforce loneliness and weaken interpersonal bonds?
2. How can the healthcare system be sustained as climate conditions become more adverse and population ageing intensifies? ?
3. Will new protocols and resources be available to care for a growing proportion of people who will live beyond the age of 100??



FUTURES OF BRAZIL: SIGNALS OF TRANSFORMATION 2026

## Other signals to watch

- A technology developed by the University of Brasília (UnB), called Rapha, uses a natural latex dressing combined with LED lights to accelerate the healing of diabetic foot ulcers, reducing infections and complications that can lead to amputation. The technology has the potential to halve the number of diabetes-related amputations. In Brazil, an estimated 50,000 amputations resulting from diabetic foot occur each year.[200]
- Two new cases of HIV cure have been announced in the United States following stem cell transplants in patients who had no detectable viral load after the procedures.[201]
- A Brazilian doctor in China operates on a patient in Porto Alegre, more than 19,000 km away, using a robot.[202] The gallbladder removal surgery began at 5 a.m. in Brazil and 5 p.m. in China. The doctor's movements in Wuhan were reproduced almost instantaneously by the robot in the operating theatre in Porto Alegre, with a response time of around 200 milliseconds. The platform is expected to be incorporated into SUS, which would reduce distances to healthcare services and bring leading specialists closer to patients.

## Imagining possible futures

*"Artificial intelligence in public healthcare must save lives on the front line: diagnosing postpartum haemorrhage in time, screening for rare diseases and bringing telemedicine to the most remote communities, where doctors cannot establish a permanent presence."*

*"Disconnecting from mobile phones and having access to digital detox retreats will cease to be a fad and become a medical and social necessity to combat burnout and widespread mental exhaustion."*

*"I want to see Brazilian science operating at both ends of the frontier: from remote surgery, with a doctor using a robot to operate on a patient on the other side of the world, to Embrapa's research into growing food in space and ensuring food supplies in scenarios of climate collapse."*

# Infrastructure for a new climate reality

CONNECTED TO:

- The climate change challenge
- Public spending pressures and new budgetary needs
- Rethinking food systems

## *Infrastructure for a new climate reality*

In Seridó, in the state of Rio Grande do Norte, the new problem is noise. Residents of communities surrounded by wind farms report chronic insomnia, anxiety and depression, which they attribute to the turbines' constant humming.[203] The energy generated there is recorded in national accounts as clean—and indeed it is. For those living next door, however, it has arrived like a neighbour who never turns the volume down. One study found that 77 per cent of affected people have hearing loss and 60 per cent have started taking medication to sleep.[204]

Sustainable infrastructure is often discussed as a purely engineering problem: which energy mix to use, which materials to apply, which certification to obtain. **Yet a project that is technically flawless on paper can have enormous negative impacts on the population and ecosystem of the area where it is built**.

Many decisions about these major infrastructure projects have been made beyond the public's scrutiny and the reach of its voice. A survey of ten major interventions linked to the Tapajós Waterway, the BR-163 highway and the Tapajós-Xingu Logistics Corridor revealed a picture of near-total opacity.[205] The situation is characterised by technical studies kept confidential, inaccessible environmental assessments and the systematic absence of free, prior and informed consultation with local populations. This is the largest logistics network currently being developed in the Amazon, and much of what is known about it comes from sources outside official channels.

In the case of the BR-319 highway, new environmental licensing rules could accelerate the paving of the road linking Manaus to Porto Velho, directly affecting one of the most well-preserved areas of the rainforest.[206] The Indigenous populations directly affected have not been consulted, repeating the pattern seen in the Tapajós region.

Discussing a major infrastructure project once construction is already under way means arriving too late. A project may have a valid licence, a model construction site and environmental compensation calculated in accordance with the law, yet still leave the territory in a worse state than it found it, because the rationale for the investment was never agreed upon with the populations directly affected. André Ferreira argues:





> *"The future of infrastructure lies in the decision-making process for selecting investments. Our current model is characterised by weaknesses and capture by private lobbies and sectoral interests, which drive projects forward without prior discussion of which of the country's priority problems need to be addressed."*
>
> ***André Ferreira***

Making decisions transparently, however, addresses only half the challenge. Brazil's infrastructure was designed for a hydrological regime that no longer exists. Disasters caused by storms have become more frequent and now affect eight out of every ten municipalities in the country.[207] Studies on road vulnerability project a significant increase in the number of road sections exposed to high climate risk—including waterlogging, flooding and landslides—highlighting the inadequacy of roads designed on the basis of outdated historical data.[208]

The Brazilian Association of Environmental Public Prosecutors (ABRAMPA) analysed the environmental licensing of transport infrastructure projects and identified serious gaps in the assessment of climate impacts and risks affecting roads, ports and airports.[209] The organisation proposes making the inclusion of a climate component a mandatory requirement in the environmental licensing process.

In rural areas, the impacts are mounting. Water scarcity is being exacerbated by the rapid deforestation of the Cerrado, which degrades biodiversity and dries up the springs that supply water across the country—including to the very agricultural sector that has expanded into the biome.[210] Updates to the *Garantia-Safra* programme,[211] which incorporated climate adaptation guidelines for small-scale farmers, lend official support to this diagnosis: the insurance compensates for financial losses, but it cannot bring a lost harvest back. These are losses that investment decisions made behind closed doors rarely take into account.

While the adaptation agenda is still in its infancy, a new extractive frontier is gaining momentum. The municipality of Oiapoque is preparing for the economic and social impacts of oil royalties from the mouth of the Amazon River,[212] while legislative proposals seek to accelerate mineral exploration in Indigenous Territories and traditional communities' lands.[213] The National Mining Agency (ANM) has mapped critical minerals that are not yet being produced in the Amazon, including cobalt, rare earths and potash.[214] Amcham estimates that these resources could add BRL 192 billion to GDP by 2050.[215] The global energy transition depends on these inputs, but the future of extraction territories continues to be shaped without public participation and amid significant social and environmental risks.

João Paulo Resende assesses the situation from the perspective of Brazil's international positioning, identifying a strategic opportunity: "In recent years, Brazil has woken up to the fact that its best bet is to become a major global exporter of green solutions. Rather than exporting only agricultural commodities and raw minerals, the country needs to export higher-value-added solutions." This ambition, however, runs up against the complexity of pricing ecosystem services in Brazil as it really is, particularly in rural areas: "*While the carbon market works well for industry, it faces serious resistance in the agriculture and land-use sector. Problems with measurement, integrity, additionality and monitoring make market-based solutions largely ineffective for 70 per cent of Brazil's emissions*." (João Paulo Resende)

This caveat takes on greater significance at a time when the carbon credit market is being presented as a panacea. Announcements of purchases by Petrobras and BNDES contrast with the weaknesses in oversight exposed by recent cases of fraud.[216] Regarding conservation funds, João Paulo de Resende highlights a structural vulnerability in an interview for this report: the Amazon Fund's dependence on contributions from donor countries ties Brazil's environmental agenda to the volatility of foreign electoral cycles. Domestically, the main bottleneck lies in demonstrating to agribusiness that its future profitability depends on preservation—whether to ensure the stability of rainfall patterns or to overcome trade barriers imposed by blocs such as the European Union.





Local experiences demonstrate the feasibility of alternative models. In Pará, initiatives are turning plastic waste collected from rivers into materials for the construction industry.[217] At the macro level, the study *Brazil's Investment-led Growth in the Ecological Transition* shows that the country has sufficient natural assets and an industrial base to lead in attracting low-carbon investment, combining job creation with social inclusion.[218] What is lacking, however, is the logistical network needed to connect local and global scales, as André Ferreira emphasises: "*There is much talk about the bioeconomy in the Amazon, but the bioeconomy cannot be sustained without infrastructure. Infrastructure for the sociobioeconomy—particularly transport and energy—has a direct impact on the actual sustainability of the territory.*" (André Ferreira)

Transport and energy are precisely among the sectors in which the country is moving ahead rapidly, but with little transparency. The routes, ports and transmission lines being defined today will shape the territory for decades to come. Who gets a seat at the table while a project is still just a line in a spreadsheet determines whether standing forests will gain logistical autonomy or become mere sidelines to extractive activity.

### Questions from the present to the future

1. How can we build green infrastructure for a climate regime that no longer corresponds to the historical data series we use for projections?
2. How can we ensure that the green transition generates value and development in local territories and improves the quality of life of the most vulnerable populations?
3. How can we finance a fast, accessible, low-cost logistics network that sustainably connects all of Brazil?

## Other signals to watch

- A study by the University of São Paulo (USP) is mapping strategic areas for carbon capture and storage in Brazil.[219] In addition to identifying potential storage sites, the map makes it possible to compare storage capacity, the location of emission sources and existing infrastructure. This could help determine where carbon capture projects would be economically viable.
- The expansion of the Luz para Todos programme incorporates internet access, water and productive infrastructure, turning electrification into a development strategy for the Amazon.[220]
- Companies are investing in AI data centres powered by renewable energy, positioning Brazil as a potential global hub for green digital infrastructure.[221]





## Imagining possible futures

*"It is great to fill the Northeast with wind turbines and solar panels, but this needs to serve first and foremost to lower electricity bills for the communities living next to the wind and solar farms. Clean energy cannot enrich major exporters while people living beneath the power lines continue to pay high prices for electricity."*

*"I wish we could stop being afraid of floods every summer. Cities need to be planned to coexist with rivers, restoring riverbanks and using preventive urban planning that can withstand extreme storms, rather than just spending money dealing with the tragedy after it happens."*

*"Ensuring universal access to basic sanitation across the entire country, rigorously by 2033: this goal alone would revolutionise public health, shorten queues at health centres and reduce inequality in areas where healthcare provision is currently inadequate."*

*"Massively expand rail transport again. Introducing freight and passenger trains cuts freight costs, eases congestion on highways and reduces dependence on fossil fuels from north to south."*

*"Universal high-speed internet access in rural areas would allow farmers to use precision technologies and access digital services without having to leave their land and move to a city."*

# Innovations through the convergence of knowledge

CONNECTED TO:

- Transformation of education and contending visions for its future
- The climate change challenge
- Infrastructure for a new climate reality

## *Innovations through the convergence of knowledge*

Between 2012 and 2022, more than 53,000 Indigenous students enrolled in public universities in the Legal Amazon, as part of an increase of over 300 per cent in Indigenous representation in Brazilian higher education.[222] More than an indicator of access to education, this figure marks the emergence of a generation of new researchers entering laboratories, libraries and classrooms with a body of knowledge that traditional academia does not possess. **The country's most promising innovation has emerged precisely from this encounter between traditional knowledge and science.**

This logic redefines applied research. Dulce Oliveira, an Amazonian cook living in the Canal do Jari area of Santarém (Pará), developed a technical process for turning giant water lilies into food, transforming an abundant resource into a culinary ingredient.[223] In the Xingu region, the collection of native seeds has underpinned a regenerative business model that connects local seed collectors with demand for environmental restoration.[224] In Mato Grosso do Sul, Guarani and Kaiowá Indigenous communities maintain ancestral crops under pressure from agribusiness, treating agrobiodiversity not as folklore, but as a living genetic heritage and a safeguard against dependence on ultra-processed foods.[225] In industry, the Brazilian start-up AIPER has begun extracting biopigments from micro-organisms to replace synthetic textile dyes, bringing the bioeconomy into the heart of the manufacturing value chain.[226]

For decades, technology reached communities as an instrument of intervention operated by third parties. That arrangement is now being dismantled. In the Amazon, Kuikuro Indigenous researchers are already using drones to map and prove the existence of ancestral cities.[227] In the Xingu, the 3D reconstruction of a destroyed sacred cave has turned digital scanning into an act of heritage preservation.[228] Low-cost sensors for monitoring air quality in Indigenous territories are replacing generic estimates with direct local measurements.[229] These examples are multiplying.

The drive for technological autonomy is also reaching urban areas. In Rio de Janeiro, residents of a favela known as Vale Encantado, near the Tijuca Forest, designed and built their own sewage network in response to the public authorities' failure to act.[230] Meanwhile, 3D modelling of Brazilian favelas—such as Rocinha and Morro da Providência in Rio de Janeiro—has generated accurate geometrical representations of alleys and narrow streets, replacing idealised maps that failed to reflect the local topography.[231] In the field of artificial intelligence, the development of the IARAA system by the Landless Workers' Movement (MST)—focused on agroecology and agrarian reform—lays bare how algorithms embody the agendas of those who train them.[232]

**In traditional laboratories, the climate crisis is increasingly being treated as an engineering problem.** Researchers have created experimental "mini-worlds" that simulate future climate scenarios to test the resilience of Amazonian rivers before they reach collapse.[233] In Amazonas, predictive algorithms forecast river levels up to 30 days in advance, enabling preventive action in scenarios of extreme flooding or drought.[234] In the Amazon, the Guacamaya project combines artificial intelligence, satellites and bioacoustics to listen to the forest and anticipate deforestation through sound.[235] In orbit, the China–Brazil CBERS-6 satellite will use radar capable of seeing the ground beneath dense clouds or wildfire smoke, overcoming the limitations of optical sensors.[236]

The scientific frontier is advancing into environments without soil. In the field of long-term, forward-looking research, Brazilian solutions are making soil-free food production possible in Antarctica,[237] while Brazilian scientists are investigating "superplants" for NASA's Artemis programme.[238] Species capable of growing in hostile environments are precisely what the semi-arid region will need in the coming decades. Along the same frontier, research into cultivated meat and 3D-printed meat aims to decouple protein production from intensive land use.[239]

Diagnostic science, meanwhile, continues to reveal the human impact on ecosystems: the recent discovery of microplastics in tadpoles in the Amazon marks the first recorded instance of its kind in the Americas,[240] reminding us that **analytical capacity serves both to develop solutions and to assess the scale of the challenges**.

These responses do not depend exclusively on academic qualifications. In Pernambuco, secondary school students are developing robotic prototypes to tackle droughts and heatwaves.[241] In the semi-arid regions of Piauí and Ceará, community-based ecotourism is turning the preservation of the Caatinga into a direct economic asset for families.[242]

This struggle for autonomy—which begins with data management by an Indigenous people or the training of a community-based AI system—also extends to the macro-strategic level. After all, the ability to decide one's own future requires more than integrated knowledge: it calls for infrastructure and technological sovereignty vis-à-vis the Global North, but also forms of cooperation with developed countries that enable us to advance our knowledge and techniques and generate value within the country.

Within this infrastructure ecosystem, **operational advances coexist with long-term bets**. In Recife, researchers at the Federal University of Pernambuco (UFPE) have established a functional quantum network using existing optical fibres to detect digital interception, while Brazil prepares professionals for the quantum economy.[243] On a more distant horizon, and subject to regulatory processes, the National Nuclear Safety Authority has begun a technical assessment of the potential installation of the country's first small modular reactor (SMR).[244] Meanwhile, in terms of physical infrastructure and connectivity, the expansion of submarine cables is consolidating Brazil's position as a strategic hub for the Global South, attracting investment in data centres powered by renewable energy.[245] In the transport sector, alongside studies for a green maritime corridor with Europe, Embraer has advanced flight testing of its eVTOL prototype.[246]

At the production level, the State is seeking to build scale so that these initiatives do not remain isolated. Between 2023 and 2026, the federal government established more than 97,000 productive gardens managed by rural women,[247] while the National Agency for Technical Assistance and Rural Extension (Anater) allocated BRL 132 million to rural extension services in the Legal Amazon.[248] In the private sector and academia, the creation of the Intelligence Network for Agriculture and Climate (RIAC) seeks to guide policies for a regenerative transition.[249]





The international landscape reveals the bottleneck that Brazil is seeking to turn into an opportunity. The US company Panthalassa is developing floating data centres in the ocean, powered by waves and cooled by seawater[250]—an engineering solution designed to overcome the prohibitive costs of energy and cooling for AI. Brazil enters this landscape with immediate geographical advantages: a clean energy mix and abundant water resources. This is the same crossroads facing traditional knowledge: **if the country does not turn its natural advantages into technical capacity and autonomy of its own, there is a risk that the value generated will be captured by external actors.**

### Questions from the present for the future

1. How can traditional knowledge be combined with scientific and technological development to produce sustainable and equitable innovations?
2. Natural advantages do not amount to sovereignty: how can clean energy and biodiversity be transformed into domestic technical capacity?
3. What futures does Brazil fail to imagine when it considers innovation only in terms of what is new and overlooks the knowledge and technologies developed by its own territories, communities and ancestral traditions?

## Other signals to watch

- The BIOINFOOD startup has developed a fermentation technology that transforms flour made from the mesocarp of the babassu palm into a sustainable protein ingredient for the vegan market. The initiative benefits Indigenous and riverside communities in the Upper Xingu, integrating the bioeconomy with forest conservation and generating new sources of local income.[251]
- Veterinary medicine students and Scouts have installed a floating eco-barrier made from plastic containers on the Mandu River to trap rubbish in Pouso Alegre.[252]
- Using blockchain technology, the Amazonian startup Ikaben has secured cultural protection for ancestral Indigenous designs featured on clothing.[253]
- The proposed artificial intelligence data centre in Belém, Pará, has sparked debate about the environmental impacts of technological expansion in the Amazon. The facility promises to expand digital infrastructure and stimulate regional development, but experts and the Public Prosecutor's Office have warned of risks such as urban heat islands, high energy consumption and potential impacts on local communities, as well as the absence of specific regulations in Brazil for this type of project. The initiative highlights the challenge of reconciling technological innovation and economic development with environmental preservation in the Amazon.[254]





## Imagining possible futures

*"Combining AI with this kind of thing [biodiversity] could genuinely bring about the component we talk about a lot but do little to achieve. In other words, preserving nature is profitable."*

*"We call it innovation, technology, when it comes to things that they [Indigenous peoples] have been doing for centuries. [...] I would work hard to preserve this centuries-old Indigenous culture ... so that they have the means to apply for patents."*

*"[...] within my territory, we've developed projects, you know, to train young Indigenous communicators, because we understand that young people can use these tools and develop things more quickly than older people, you know, and use these tools to monitor the territory as well."*

*"Our Indigenous technologies have existed for a long time, you know, and what sets our Indigenous technology apart is this: today, we have mobile phones that transmit information quickly, so we get together. And when we build something, we think about it—we've always thought about how to care for water, how to care for nature—long before there was a certified researcher to tell us that this was the right thing to do."*

# 04

# Today's challenges that shape tomorrow

***"True development—which must not be confused with 'economic growth', most often resulting from the mere modernisation of the elite—can only exist where there is an underlying social project."***

Celso Furtado

The monthly fee imposed by drug traffickers in Rio de Janeiro's peripheral communities, the fluctuating provision of fare-free public transport in cities, and the financial strangulation that led to the closure of Salvador's pioneering Afro-centred school do not stem from a lack of alternatives, but from the precarious way in which public authorities maintain what works. At the same time, cutting-edge technical innovations demonstrate that overcoming these challenges is not constrained by a lack of creativity, but by a lack of structure and opportunities. The future does not depend on abstract promises: solutions and diagnoses have already been developed and tested on the ground.

# Crime, public security and territorial control

CONNECTED TO:

- Democracy's impasses and struggles over rights

## *Crime, public security and territorial control*

In two residential complexes in Pavuna, in the northern part of Rio de Janeiro, residents began being charged a new fee in June 2026. It is neither a condominium fee nor payment for a new public service: it is imposed by the Red Command (Comando Vermelho) organised criminal group, which took control of the buildings and started charging residents a monthly fee.[255] The charge works like any ordinary payment slip, except that no one can dispute it or file a complaint through official channels.

According to the Datafolha polls, 41 per cent of Brazilians perceive the presence of organised crime in their own neighbourhoods. This figure is already alarmingly high and is compounded by several other indicators that reveal the complexity of the issue. Fear is a near-universal reality in Brazil. A survey by the Brazilian Public Security Forum, conducted in partnership with Datafolha, indicates that 96 per cent of the population lives with a sense of insecurity, and more than half (57 per cent) have already changed their daily routines:[256] they have stopped going out at night, changed their routes and developed small-scale survival strategies. The Quaest poll records the impact on the hierarchy of national concerns: 27 per cent identify violence as the country's main problem, ahead of the economy and health.[257]

Some strands of the literature emphasise the absence of State services, while other interpretations highlight mechanisms of institutional capture and corruption. The signals collected suggest the need to understand how these factors interact. Surveys of the organised crime economy reveal that it generated BRL 453.5 billion in activity across 16 sectors of the formal economy and accounted for 370,000 jobs that were not created in Brazil in 2022.[258] This is not happening in areas beyond the reach of the State. It is happening in production chains with registered corporate tax IDs, invoices and contracts, in sectors that pay taxes and publish regular financial statements. Recent reports show criminal factions and militias competing for elected office across the country, from north to south.[259] In São Paulo's main financial district, in the offices of Faria Lima, the case involving fraud attributed to Banco Master[260] illustrates the same logic at the other end of the pyramid: white-collar crime does not operate in the shadows of the system, but within its official machinery. The central issue for discussion should be the intersection between legal and illegal dynamics.





Ludmila Ribeiro argues:

> *"Criminal organisations do not want to eliminate the State altogether. They understand that the State needs to provide basic services so that the population can live, particularly healthcare, social assistance and education. Organised crime becomes embedded in the everyday dynamics of these territories, but it does not replace the State. The issue, therefore, is not State weakness, but State corruption. It is the public transport concessionaire that does not operate a particular route because it is paid a bribe not to do so, thereby creating space for local, illegal transport van services. Or it is the police who turn a blind eye because they are paid to allow drugs and weapons to be transported."*
>
> ***Ludmila Ribeiro***

A security policy built around the assumption of this intersection would need to take into account contracts, public procurement processes, transport routes, party structures, and the forms of collusion and cooperation between public authorities and organised crime.

Beyond the institutional dimension, the geography of the problem has also been reshaped. Criminal factions are expanding into medium-sized and smaller cities, in a process of expansion into the country's interior that challenges the perception of violence as an exclusively metropolitan phenomenon.[261] The border adds another layer to the problem: a region in Bolivia along the Amazonian border has become a stronghold for the PCC (First Capital Command),[262] helping to explain why dismantling criminal factions through domestic operations alone has proved so difficult. In the Amazon, organised crime operates cocaine-processing laboratories on Indigenous lands, while illegal gold miners harass the Yanomami people.[263] The web of organised crime is far more complex and interconnected than what we see in television crime reports.

Mauro O' de Almeida, who closely monitors the expansion of organised crime in Brazil's North region, suggests that one of the decisive factors there is **the lack of clarity over land tenure:** *"Organised crime takes root and expands where there is institutional disorder. In the Amazon, in particular, the absence of land regularisation creates ideal conditions for money laundering and corruption."* (Mauro O' de Almeida)

So far, the federal response has been more rapid in the military and technological spheres. For example, the Army has strengthened cooperation for Cyber Guardian Exercise 8.0 in the Amazon.[264] Meanwhile, the debate over a new parliamentary inquiry (CPI) into organised crime revisits long-standing diagnoses, such as the diversion of firearms and the lack of State oversight, already identified by previous parliamentary commissions, without those diagnoses ever having been translated into effective action.[265]

There is, however, a second pattern of violence that exposes, from a different angle, the limitations of a purely law-enforcement-based approach: gender-based violence. While organised crime challenges institutions through economic co-option and territorial control, violence against women reveals the limits of a security policy that has learned to respond to every crisis with greater physical coercion and incarceration. The Maria da Penha Law marks its 20th anniversary with the highest number of protective orders ever recorded, following a Supreme Federal Court (STF) ruling that extended its application beyond the domestic context. Despite this progress, the country continues to face an alarming reality: an average of four women are murdered every day.[266] The 2026 Brazilian Public Security Yearbook recorded 286,270 cases of domestic violence and 1,571 femicide victims in the previous year, representing a 4 per cent increase over the year before. In 96 per cent of cases, the perpetrator was identified as male.[267]

The public response reflects this same underlying distortion: faced with a problem rooted in structural machismo and domestic dynamics, policymakers prioritise punitive and high-profile measures (mandatory electronic ankle monitors, tougher sentences and the use of new technologies to combat violence), while **prevention networks remain fragmented**. Ludmilla Ribeiro highlights the main shortcoming of this approach:

> *"We have created predominantly punitive instruments and measures, such as the Femicide Law and mandatory electronic monitoring in connection with protective orders. What continues to be overlooked is prevention: nothing is being designed to intervene before violence occurs."*
>
> ***Ludmilla Ribeiro***





An integrated approach to security therefore requires challenging the assumption that the police are the only institution capable of managing social conflicts. Tackling domestic violence requires integrating databases that currently do not communicate with one another—linking health records, police reports and court rulings—and placing social assistance, education and healthcare at the centre of the strategy.

Given the complexity of addressing the social roots of violence and the challenges of making public security policy preventive rather than repressive, technology has emerged in public debate as a promised shortcut to a solution. The City of São Paulo's race to install 20,000 facial-recognition cameras encapsulates this logic.[268] Yet organised crime itself is appropriating technology just as rapidly: recent studies of digital fraud describe highly specialised cyber ecosystems operating through a division of labour and advanced algorithms.[269] Criminal groups are also using tools such as pooled bank accounts, cryptocurrencies and digital systems to transfer and manage billions. Fintech companies in Faria Lima have become a shortcut for this activity, as revealed by Operation Fluxo Oculto.[270] Technology, in itself, is no guarantee of a safer country.

### Questions from the present for the future

1. How can organised crime be tackled where it actually thrives—within the formal economy and institutions—and not only in poor territories?
2. How can we design a public security system that is smarter and less lethal, and prioritises prevention over punishment?
3. How can we ensure security throughout the national territory and make it possible for citizens to trust police institutions and feel safe?

## Other signals to watch

- Assaults and threats against women increase on football match days.[271]
- In Rio de Janeiro, criminal factions are taking control of internet service providers and monopolising access to connectivity in territories under their influence. Connectivity is no longer merely a service; it is becoming strategic infrastructure for the exercise of power, affecting residents, businesses and governments. In response, the state government has begun replacing cable internet with radio-based connections as a way of circumventing this control.[272]
- São José dos Campos has begun testing a quadruped robot resembling a medium-sized dog, equipped with cameras, thermal sensors and real-time transmission to support public security, inspections and civil defence. The physical automation of monitoring activities reduces the exposure of human agents and expands observation capacity in urban and high-risk areas.[273]
- Niterói has implemented an acoustic sensor system capable of detecting gunshots, identifying their location and sending real-time alerts to security centres. This points to a shift towards cities that monitor violence autonomously, benefiting security forces, urban managers and residents in higher-risk areas.[274]





## Imagining possible futures

*"Security in prisons begins with valuing and training police officers. A well-paid team prepared to deal with human rights issues can maintain order without resorting to unnecessary violence, especially protecting groups most vulnerable to violence in the prison system."*

*"Body cameras and intelligence technology must be used to cut off the money flowing from arms trafficking and militias, not to justify brutality against residents of peripheral neighbourhoods. Serious public security depends on investigation and respect for the community."*

*"Modern warfare today does not depend on infantry at the border: it takes place through computers. A well-planned cyberattack can bring down a state's electricity grid, shut down hospital servers and paralyse the economy without a single soldier firing a shot. That is where the Armed Forces need to invest."*

*"We have increasingly shut ourselves away behind bars, gated communities and electric fences. My dream is to see public squares full again, children playing in the streets until dusk and neighbours knowing the names of the people next door. We need to reclaim the community life that fear has gradually eaten away."*

# Public spending pressures and new budgetary needs

## CONNECTED TO:

- Democracy’s impasses and struggles over rights
- Demographic transition and the care crisis
- Transformation of education and contending visions for its future
- Changes in the world of work
- The crossroads of health
- Infrastructure for a new climate reality

## Public spending pressures and new budgetary needs

In eight Brazilian cities, the turnstiles have started turning again. After adopting fare-free public transport, municipal governments reversed course and resumed charging bus fares.[275] This turnaround did not result from a new vision of urban mobility or a public debate on the merits of free transport, but from the argument that the numbers did not add up.

In Salvador, Brazil's first Afro-centred school has also closed its doors.[276] The reason was the same: a lack of resources.

These are different scales of a similar story. Public programmes and services often disappear without anyone making a deliberate decision to terminate them. In many cases, what determines whether a policy survives is not its merit or necessity, but the available fiscal space—and that room to manoeuvre has been shrinking rapidly across the country.

The public budget is divided into two broad categories: what the State is obliged to pay and what it can choose to do. The first category consumes most of the resources allocated to salaries, pensions, constitutionally mandated benefits and minimum spending requirements. At the federal level, almost the entire budget consists of mandatory expenditure, leaving around 10 per cent for investment in public policies. This discretionary portion is where the government's capacity to innovate lies: it finances infrastructure, public policies and new programmes. The continuous expansion of mandatory expenditure is already squeezing this available space to the point that it is projected to halve by 2030.[277]

For these reasons, reviewing the budget on the expenditure side is not easy, given that most spending is mandatory.

According to a survey by Folha de S.Paulo, four in ten Brazilian municipalities depend on state or federal transfers to cover 90 per cent or more of their expenditure.[278] These transfers may reach municipalities through constitutionally mandated transfers, voluntary transfers from the Federal Government or parliamentary amendments. Brazil's current fiscal federalism model fails to provide the local autonomy guaranteed by the Constitution.





> *"Decentralisation transferred responsibility for social policies and services to municipalities without providing the necessary financial and revenue-raising conditions to fulfil them."*
>
> **Eduardo Grin**

The discretionary budget is decided not only by government spending, but also by parliamentary amendments. In 2026, these amendments, across their various modalities, account for around 30 per cent of the already constrained discretionary expenditure in the Federal Government's budget.[279]

Beyond the need to balance the books at home, new spending demands are also emerging. Budgetary pressure, however, is not unique to Brazil. The pandemic, energy shocks, geopolitical conflicts and the race to increase military spending have weakened public finances in almost every part of the world. The International Monetary Fund (IMF) has warned of four pressures that are rising simultaneously, with no immediate prospect of relief: population ageing, the costs of the energy transition, defence investment and the rising cost of rolling over sovereign debt.[280]

Against this backdrop, Brazil demonstrates notable resilience compared with countries in similar circumstances. The IMF projected economic expansion for the country, driven by increased oil exports amid tensions in the Middle East.[281] This equation reveals a double paradox: part of the country's recent fiscal breathing room stems from an external conflict and the expansion of a fossil fuel whose replacement is precisely one of the goals of the energy transition. Moreover, basing fiscal sustainability on an export commodity tends to leave the budget hostage to international price volatility, without resolving domestic structural constraints.

This improvement in the macroeconomic outlook, however, is not reflected in how citizens perceive the situation. There is a clear disconnect between the broader macroeconomic indicators and public sentiment: even with GDP rising, unemployment falling, and inflation and poverty declining, assessments of the economy remain lukewarm.[282] This pattern is repeated in other countries, where dissatisfaction with the quality of public services shapes public sentiment.

The proposed solutions to this impasse divide economic debate sharply. On one side, orthodox analysts argue that Brazil's tax burden has already reached its tolerable ceiling and that rebalancing requires far-reaching reforms to the growth of mandatory expenditure and the model of constitutionally earmarked spending. On the other, economists focused on inequality argue that straightforward spending cuts are politically unfeasible and insufficient to meet urgent new demands in climate adaptation, health and security. For this group, the solution lies in revenue: progressive taxation of profits and dividends, a review of inefficient sectoral subsidies, and a new design for social security financing.

Budget scarcity first affects what generates no immediate political noise. In Brazil and around the world, the production of official statistics has become one of the main casualties of this process. The funding squeeze on institutions such as IBGE between 2019 and 2022[283] preceded an international situation in which 68 per cent of national statistical offices faced cuts in 2025.[284] Suspending a demographic survey or an inequality study does not bring crowds onto the streets the next day, but the cost becomes apparent later, when historical data are missing to inform public decisions.

In Brazil, two pressures on the budget will be particularly important in the near future: demographic change, with population ageing and rising pension expenditure; and the ecological transition, which brings both new spending needs and opportunities for economic growth.

On the first point, the decline in birth rates and the consequent reduction in school enrolment do not need to result in automatic cuts to education budgets. Demographic decline could free up between 30 and 40 per cent of education places in countries such as Brazil, Chile, Costa Rica and Argentina, also releasing the budget allocated to them.[285] Fewer students make it possible to increase investment per student, funding qualitative improvements that were previously out of reach because of demand pressures. Overall, however, the demographic transition is more costly, as it may lead to lower revenue and higher spending on health, care and pensions.





On the second point, attracting investment in the "green economy" as part of the ecological transition could enable the country to achieve average annual growth of 3 per cent. This green industry could come to Brazil, for example, through "powershoring": attracting energy-intensive industries that can benefit from the country's abundant wind, hydroelectric and solar power, potentially establishing a "low-carbon industrial platform".[286]

Faced with budgetary rigidity, public authorities are also seeking regulatory levers that do not require additional funding. At the federal level, for example, the State's purchasing power has begun to be used in public procurement as a driver of sustainability and innovation, leveraging the weight of government contracts to encourage changes in the private market without opening new budget lines. A United Nations study highlighted how public procurement in Latin America and the Caribbean can transform service delivery, particularly in education, health and sustainable innovation.[287]

At another scale, the municipality of Oiapoque, in Amapá, illustrates the opposite side of this dilemma. The prospect of a boom in oil royalties from exploration at the mouth of the Amazon River is seen as a solution to local public finances in the medium term.[288] Yet this bet ties the future of an Amazonian city to precisely the asset that the global environmental agenda is seeking to phase out—encapsulating the conflict between the immediate fiscal needs of the present and the structural demands of the future.

All these demands reach public decision-makers' desks simultaneously and compete for the same shrinking budgetary margin. Without a transparent and explicit debate on priorities and sources of funding, the country will continue to witness the silent erosion of the State, in which a lack of money—rather than democratic choice—becomes the main criterion for deciding which public policies come to an end.

## Questions from the present for the future

1. How can we balance the public budget between financing the State today and investing in tomorrow's needs, such as the transition and prevention of extreme weather events?
2. How can we strengthen society's willingness to finance a State whose services it cannot always see?
3. What protects things that generate no immediate political noise but are essential to the country—data, statistics and long-term planning—when budgets are tight?

## Other signals to watch

- Just 100 Brazilian municipalities account for 77 per cent of municipal tax revenue.[289]
- The regulation of the Tax Reform provides for the introduction of the Selective Tax (nicknamed the "sin tax") from 2027, imposing additional taxes on products harmful to health and the environment, such as alcoholic beverages, cigarettes and online betting. The measure aims to discourage behaviour that harms society while offsetting the costs it generates for the public purse, affecting industry cost planning and the budgets of end consumers, who are likely to face higher prices in the short term.[290]
- A bill classifies the provision of environmental services (such as reforestation and land restoration) on the same footing as rural activities. The measure would allow these operating expenses to be deducted directly from income tax and make it possible to access financing at reduced interest rates.[291]





## Imagining possible futures

*"The budget should be a participatory instrument. We want more opportunities to take part in the stages of planning, implementation and accountability for public spending."*

*"My vision of the future involves increased government investment, so that essential public policies, infrastructure projects and economic growth can be driven by investment and protected from pressure and cuts. I also hope that revenue collection and taxation will be reviewed as a means of reducing inequalities, rather than widening them."*

*"The Executive and Legislative branches need to reach an agreement on each branch's place in the public budget. There is constant dispute. My wish is for all committed expenditure, regardless of who authorises it, to be transparent, aligned with planning and subject to accountability."*

# ESSAY: WE ARE PRESENT, FUTURE AND CONTINUATION: TRANS ALIVE

**Zaki Liriel Lima**
Multidisciplinary artist and Social Work student
(Porto Alegre, Rio Grande do Sul)

I am a transgender man, a brown-skinned Black person, 24 years old, and I live in a peripheral neighbourhood in the northern part of Porto Alegre. I was shaped by three Black women: Nair Oliveira Siqueira, my great-grandmother; Vera Lucia Oliveira Siqueira, my grandmother; and Cintia Siqueira Lima, my mother. Whenever I have the opportunity to introduce myself, I mention the names of these women, who are the foundation of my life and also give meaning to my struggles. I carry with me the African philosophy of Ubuntu: "I am because we are." None of this would have been possible without the people who supported me along this journey and did so much to make it possible for me to be here today. I am a Social Work student at the Federal University of Rio Grande do Sul, an intern at the 2nd Juvenile and Youth Court of Porto Alegre, and a member of Somos — Communication, Health and Sexuality.

In recent years, we have witnessed wars, humanitarian crises, worsening inequalities and various struggles over rights that once seemed increasingly secure. For transgender people and transvestites, this reality takes on an even more tangible dimension: in different parts of the world, rights, protection policies and the very possibilities of existence are being questioned, while narratives that cast these lives into suspicion are gaining ground in public debate. This makes me think that looking at the world today also means recognising that not all signals point towards a fairer future.





In Brazil, this reality is compounded by historical inequalities across race, territory, gender and class, which often mean that people like me have to fight for basic rights to be recognised and respected. In this context, it would be easy to imagine the future merely as a continuation of the problems of the present. Yet it is precisely in this context that I can also identify signals of change: the capacity for organisation, creativity and resistance of a generation of young people who refuse to occupy the role of passive recipients of change and instead actively participate in building other possible futures.

My optimism lies precisely in these people who, despite the difficulties and social markers that have historically determined who can access opportunities, rights and better living conditions, continue to mobilise society and forge their own paths. Despite structures that produce precarity, dependency and different forms of exploitation, they find ways to create, work, pursue entrepreneurial activities, organise and transform the spaces they inhabit. It is in this ability not merely to survive the conditions imposed on them, but also to create new possibilities from within them, that I find signs of change and reasons to believe in Brazil's futures.

I believe that, like me, many people will not accept the social inequalities they experience. This is where I identify signals of change among young people: in the resistance of non-governmental organisations, and in people educating themselves and studying to develop strategies and technologies that are not based on warfare or social control, but can help build other possible futures.

That is why I am optimistic about Brazil's future and see education and social movements as paths to meaningful change. Having refused to accept the cycles of violence in my family and society, I believe in transforming the social order, overcoming the exploitation of the working class and guaranteeing social rights for everyone.

# Rethinking food systems

## CONNECTED TO:

- The climate change challenge
- Infrastructure for a new climate reality
- The crossroads of health

## *Rethinking food systems*

A Brazilian technology is already growing food without soil or waste in Antarctica. Another line of domestic research is developing "super-plants" for cultivation in extreme climatic conditions, while Brazil is part of NASA's Artemis programme to test food production beyond Earth. A country that learned to farm in the acidic soils of the Cerrado is now testing whether it can produce food where there is no soil at all. Meanwhile, in that same country, 2.5 million households experience hunger.

Recent FAO data show that food insecurity in Brazil has fallen to 0.6 per cent of the population, the lowest level since the time series began.[292] However, improved food security does not mean the problem has been eradicated: the statistic reflects a national average, but hunger lives at specific addresses.

And those addresses are determined more by social class than by geography. A study by Made-USP indicates that the poorest 50 per cent are substantially more exposed to food insecurity than the middle-income group.[293] **Hunger rarely results from a shortage of harvests, but from a lack of income.** Technological efficiency on the production side, by itself, cannot mitigate this problem.

The decline of the traditional rice-and-beans meal reflects structural changes in urban lifestyles and work. Time poverty in precarious daily routines, the high cost of cooking gas[294] and the aggressive expansion of ultra-processed foods—which are cheaper per calorie and ready to eat—[295]have pushed the foundation of the national diet to the margins. This situation is compounded by the proliferation of conflicting nutritional messages, often distorted by disinformation circulating on social media.[296]

**At the same time, food inflation has become a global constant, driven by factors operating far beyond any particular crop.** Conflicts in the Middle East and instability along strategic maritime routes increase oil prices, raise international freight costs and put pressure on nitrogen fertiliser prices, on which Brazilian agriculture is heavily dependent. **Extreme weather events and the unpredictability brought about by climate change are additional sources of price instability.** Consumers feel the impact of rising prices at the supermarket checkout long before connecting the cost of their food to input prices and energy crises on the other side of the world.





Moreover, food-waste management shows that there is no need to reinvent the wheel. In school meals, systems developed by Banco do Brasil and based on consumption data have reduced food waste by up to 72 per cent, demonstrating that the problem lay in purchasing plans, not in a lack of food.[297] Meanwhile, Brazilian research is seeking to extend the shelf life of fresh fruit and vegetables in markets through biological solutions (such as biodetergents)[298] or testing cultivated meat—innovations that are not yet price-competitive on supermarket shelves, but are already shaping the sector's technological horizon.

In parallel, new pharmaceutical technologies are also generating activity and a need for rapid responses. Major food companies in Brazil are beginning to redesign their portfolios to offer specific nutritional products in response to the rapid spread of injectable weight-loss medicines.[299]

While laboratories and start-ups are designing synthetic meats and optimising supermarket shelves, the food crisis just a short distance away remains archaic and violent. Consumption of ultra-processed foods is growing among traditional peoples and communities.[300] In 2025, 75 per cent of Brazilian children consumed some type of ultra-processed food and approximately 34 per cent of children aged 0–4 were overweight—and this situation could worsen further.[301]

In international markets, however, the benchmark is different. External demands centre on sustainability, and recent data have brought some relief: Brazil's National Institute for Space Research (INPE) recorded a 36.9 per cent decline in deforestation alerts in the Amazon, the lowest level in the Institute's time series, accompanied by a 7.8 per cent reduction in the Cerrado.[302] For a country whose global standing depends on what comes from its pastures and fields, falling deforestation rates serve as a passport to trade.

Foreign buyers, however, demand continuous guarantees. Proposals such as WRI Brazil's unified traceability protocol for soy and beef show that the main challenge is the absence of a common, auditable system shared by producers and inspectors.[303] The major inconsistency in this arrangement is that the transparency demanded abroad is still denied at home: consumers in Frankfurt or Shanghai will soon know the exact journey of a cow from birth, while consumers in Belo Horizonte or Salvador eat beef without knowing whether it came from an area of illegal deforestation concealed in the Amazon.

Building this credibility runs up against a contradiction in domestic policy. Brazil needs to be conceived and developed as a responsible agro-environmental power, yet opposing forces continue to create barriers to the development of remote-monitoring tools and progress on land regularisation—two indispensable pillars for keeping deforestation under control and protecting the country against trade sanctions.

Innovation, on the other hand, is no longer the preserve of large-scale agribusiness. Initiatives such as credit lines dedicated to organic production in the Cerrado biome—which have raised the incomes of hundreds of families by 40 per cent—show that technology has become an arena of political contestation and a source of genuine economic viability for family farming.[304]

The dynamics of food systems make clear that major crossroads are rarely resolved in the fields alone. The price of rice in the supermarket, forest conservation and the survival of rural communities are determined at the intersection of income, geopolitics, technology and legislative decisions. It is within this broader system that Brazil will decide whether it can align the abundance of its countryside with the well-being of its population.

### Questions from the present for the future

1. How can food and nutrition policies be consolidated so that they are not interrupted?
2. How can Brazil transform its food system so that rural women, young people, Indigenous peoples and traditional communities are not merely guardians of biodiversity, but also have a say in investment decisions and benefit economically from the transition?
3. How can access to adequate and healthy food be transformed into a right that is effectively guaranteed for everyone, so that food production, distribution and consumption reduce inequalities and strengthen community autonomy rather than reproduce cycles of poverty and exclusion?





### Other signals to watch

- A study coordinated by the State University of Rio de Janeiro (UERJ) brought together scientific evidence that fare-free urban public transport frees up household budget resources for the direct purchase of healthy food. The fare-free policy, when integrated with networks of popular markets and family farming, demonstrates that public transport is an essential part of the fight against hunger.[305]
- The “Agroecology in the Favelas” project established productive gardens and micro-gardens in alleyways in low-income neighbourhoods of Rio de Janeiro. The initiative connects the production of fresh food without pesticides to local family health clinics and schools, serving as a public health tool to support residents directly affected by chronic diseases or food insecurity.[306]
- Young quilombola people from the Lagoa de Melquíades Quilombo in southwestern Bahia have expanded an autonomous, non-GM traditional seed bank to mitigate the impact of severe and unpredictable droughts in the region. The initiative safeguards the community’s food security and genetic sovereignty, freeing local farmers from paying royalties to multinational companies and depending on chemical inputs.[307]

**Imagining possible futures**

*"Family farming, handicrafts and the circular economy sustain the incomes of thousands of municipalities without cutting down a single tree. What people on the ground need is affordable credit and less bureaucracy in technical assistance."*

*"I would like for our Brazil to have cooking classes in every public school. We have a food-cycle methodology that can eliminate food waste, create school gardens and improve children's diets so that they can overcome food insecurity and develop a more up-to-date understanding of food today."*

*"We have left the Hunger Map, but there will be a very great hunger, yes, because nature decides what it will do. We do not respect it, it does not cooperate with us, and we do not..."*





# ESSAY: WHAT KIND OF BRAZIL DO WE WANT TO SEE AT THE TABLE IN THE FUTURE?

**Fernanda Machiaveli**
Minister of Agrarian Development and Family Farming

When we think about the next 10 years, the answer to this question lies in how we produce, distribute and consume food, as well as in a broader understanding of sovereignty. One of the major challenges facing food systems is to ensure greater diversity in production, consumption and the technologies used to produce food. Another is to ensure that this diversity translates into income for producers, protection for biomes and greater resilience in the face of climate change.

We have reason to look to this future with optimism, recognising that the seeds of change are already being planted. Brazil is marking one year outside the UN Hunger Map, with the lowest level of severe food insecurity in its history—less than 0.6 per cent of the population. In addition, the latest report by the Food and Agriculture Organization of the United Nations (FAO) showed that Brazilians are eating better. Since 2021, a further 20 million people have gained access to an adequate diet that is nutritious, balanced, moderate and diverse.

An important sign of transformation is the rebuilding of public food-supply capacity. The Food Acquisition Programme (PAA) now reaches 237,000 family farmers, while 842,000 tonnes of food have been purchased to replenish public stocks since 2023. The National School Feeding Programme (PNAE) increased the minimum share of family farming in its purchases to 45 per cent in 2025. The recently approved Law No. 15,490 strengthens the mechanisms for building public stocks and expands small producers' access to them,

demonstrating that the Brazilian State is once again preparing to protect producers and consumers in the face of crises and price fluctuations.

Another sign of change lies in technological transformation, through which biological processes are gaining ground alongside science and innovation. For Brazil, this has strategic significance: although we are one of the world's leading agricultural powers, we import between 85 and 90 per cent of the mineral fertilisers we use. Bioinputs can help reduce this dependence and give family farmers greater productive autonomy, lower costs, healthier soils and more resilient systems. New legislation creates conditions for family-farming cooperatives to produce bioinputs collectively, strengthening local knowledge and innovation chains. In this future under construction, farmers are protagonists of their own production and innovation.

This transformation is even more powerful when we recognise the historic leadership of women farmers: they produce food, preserve seeds and knowledge, care for biodiversity and sustain life in their territories. Innovation must therefore also reduce the physical burden and time spent on work, strengthening the economic autonomy of rural women. Machinery and equipment adapted to the different scales of family farming can increase productivity, make agricultural work easier and improve families' quality of life.

At the same time, agroecology is moving beyond isolated experiences at the margins and gaining scale in public policies, credit, research and innovation. This movement combines science and traditional knowledge, new technologies and ancestral wisdom, local experiences and national policies.

Climate change, dependence on imported fertilisers, income inequality and changing eating habits will continue to challenge Brazil. Nevertheless, the country has biodiversity, science, productive capacity, family farming and a society that has been developing solutions in its territories for decades. Our challenge for the next decade is to connect these assets and expand the experiences that already point towards a new path.

We know the way forward to building a Brazil that guarantees healthy food for millions of Brazilian families, dignity for those who produce it and sustainability for territories, while serving as an example to the world.





# FINAL REFLECTIONS: SIGNALS FROM THE PRESENT AND BRAZIL IN THE COMING DECADE

> *"My provocation about postponing the end of the world is precisely that we can always tell one more story. If we can do that, we will be postponing the end."*
>
> ***Ailton Krenak***

Throughout this publication, readers have been able to explore a broad panorama of present-day signals pointing to future challenges and opportunities. Let us recall a few: in Seridó, in Rio Grande do Norte, the constant hum of wind-turbine blades deprives neighbouring communities of sleep while the energy they generate is officially counted as clean; in Várzea Grande (Mato Grosso), facial-recognition cameras monitor school attendance without any clarity about who controls the images; Indigenous researchers—including the Karipuna, Kara and Arapium peoples—protect the forest by combining geolocation with ancestral knowledge; and religious institutions have been welcoming worshippers in the early hours of the morning through algorithmic avatars that listen and offer advice. Events such as these emerge far from government offices and reshape everyday life before they are captured by statistics.

This capacity for anticipation becomes urgent in the face of the convergence of three major transformations by 2036. **Demographic change will leave the country with more older people than young people; climate fluctuations will require permanent adaptation in a territory where almost all municipalities have already experienced recent disasters; and fiscal rigidity will demand highly precise budgetary choices.** Rather than creating a dead end, these pressures call for the development of maturity that can no longer be postponed.

They require the creation of a public care network that relieves families of some of the burden, the coordination of a social protection system attuned to environmental security, and a shift from episodic crisis management to long-term policies.

**The country reaches this crossroads with a substantial repertoire of responses that have been tested on the ground.** Young people from the Juruna people are competing in international robotics competitions; data-driven school-meal management has eliminated almost three-quarters of food waste in schools; and income transfers to students are stemming dropout rates in secondary education. Many practical bottlenecks have already been addressed through local ingenuity; the immediate challenge is to give these successes stability and scale so that they can withstand changes of government and budgetary instability.

This urgency for renewal and this vitality are strongly reflected on the international stage. **In a world beset by conflict and under pressure from the ecological transition, Brazil brings together a clean energy mix, abundant water resources, biodiversity, agricultural strength and a diplomatic tradition of dialogue.** The horizon of 2036 offers an opportunity to turn this wealth into technological and economic autonomy—by establishing research centres, laboratories and industries in the territories where production takes place, so that the value generated translates into income and well-being for the population.

The journey towards the next decade opens up a decisive space for deliberation. The signals brought together in this volume depict a country in motion, aware of its fractures and rich in practical ideas. **What remains is to turn this accumulated knowledge into firm choices and bold public policies.**





# METHODOLOGICAL ANNEX

The report "Futures of Brazil: Signals of Transformation 2026" was developed using UNDP's strategic foresight methodology, which in turn was adapted from the University of Houston **framework**.[308] The methodology begins by identifying **signals of change** and **trends** that may influence the country's development over the next decade (2026–2036). These signals of change and trends were used to construct drivers, understood as driving forces that describe and indicate future changes.

It is worth emphasising that foresight does not seek to predict the future, but to explore different possible futures in order to support decision-making in the present. This work identifies some of the drivers likely to shape the coming years, drawing conclusions from concrete signals already observed today.

**What are signals of change?** Signals of change can be understood as discrete pieces of evidence (events, statements, innovations, decisions and data) indicating that something is beginning to change in social, behavioural, economic, political or other spheres.

**What are weak signals?** Not all signals of change are the same. Strong signals are better known and more widely reported, and are closer to becoming established and developing into trends. Weak signals, however, despite their name, are the most valuable for foresight. They are less structured, remain at an early stage of manifestation and are not widely recognised, which can make them harder to capture. Both weak and strong signals may develop into trends or disappear. Precisely because weak signals are harder to detect, they make up a minority of the sample collected for this work.

**What are TIPPOs?** TIPPO is an acronym for trends, issues, plans, projections and obstacles. These represent more established knowledge about ongoing trends, persistent challenges, institutional plans and projections already available.

**What are drivers?** Drivers are driving forces that indicate broader changes with which signals and TIPPOs are associated. Signals, trends, plans, projections and obstacles are logically grouped and, together, form the drivers.

**How are signals transformed into drivers?** According to the methodology used, the logical sequence of the material collected is: signals → trends → drivers. Signals are discrete data points, trends are patterns that can be more readily identified, and drivers are the underlying forces that explain the direction of ongoing changes, giving meaning to signals and TIPPOs. This process is not always linear, and identifying a driver takes several signals and TIPPOs into account.

The methodological process for identifying and systematising these signals of change and trends, and transforming them into drivers, comprises three main stages: **Framing, Scanning** and **Sensemaking.** These stages are described below.

(i) **Framing:** The first stage of this work, Framing, established the priority themes for the report. We began with **14 themes** central to Brazil's development over the next decade: Sustainable Infrastructure; Digital Issues; Urbanisation and Territory; Climate Finance and International Commitments; Environment and Climate; Foreign Policy and Multilateralism; Geopolitics; Federal Relations; Democracy and Diversity; Demography and Human Development; Employment; Health; Public Security; and Education. After collecting signals and trends, we identified the need to add two themes: Food Systems and Innovations Based on New Knowledge.

In addition, at this stage, a network of more than **180 signal scanners** was established, comprising representatives of the federal government, state governments, international organisations, universities, research centres, defence institutions, oversight bodies, civil society organisations, social innovation collectives and independent experts. The diversity of perspectives within this network was deliberately sought in order to strengthen the ability to identify emerging signals across different geographical, institutional and thematic contexts, and to capture signals of change as diversely as possible. Participants received training in the proposed methodology.

In this report, the chapters were structured around 17 themes that emerged through the cataloguing of signals but remained connected to the initial domain map, which contained 14 themes. Each chapter presents the various signals and TIPPOs captured that helped build the drivers identified for each theme.





In addition, the foresight work identified three prominent themes that had not initially been mapped: food systems, public spending and innovation. During the Framing stage, several signals collected related to these new themes, which were therefore included as chapters in this report.

Each chapter also includes "Other signals to watch", a list of revealing and interesting signals related to the theme, although they are not necessarily weak signals. Finally, the chapters present "Questions from the present for the future", collected through a questionnaire administered to members of the signal-scanner network, specialists in the topics under investigation, civil society representatives and members of communities partnering in UNDP projects.

It is important to note that not all of the approximately 400 signals collected are explicitly mentioned in the report's chapters. Nevertheless, all the signals were used to understand the drivers identified in each theme. The complete relationship between signals, drivers and themes can be accessed in this spreadsheet. The report presents hundreds of signals selected because they are particularly relevant, were repeated most frequently or are interconnected in ways that contribute to the narrative about the future. However, all the signals collected were considered when grouping them by theme and were therefore categorised in the spreadsheet. Of the approximately 400 signals, 60 were duplicates or related to specific circumstances in other countries and were therefore excluded from this analysis. The incorporation of signals into the text involved internal workshops to develop drivers and catalogue signals, seeking to identify patterns of convergence, divergence, recurrence and relevance among emerging issues.

(ii) **Scanning:** The network of signal scanners was given access to a collaborative platform through which members collectively collected and recorded signals of change that informed the development of this report. In addition to signals of change, the network collected TIPPOs. The platform remained continuously available for the collection of these signals and trends. Signals of change and trends were collected together with their descriptions and links to supporting evidence, where available. In total, approximately **400 signals of change** associated with the priority themes were catalogued, providing indications of emerging transformations that may influence Brazil's futures.

This stage also included interviews with **18 experts** on the priority themes, with the aim of deepening the analysis of the selected topics. Each interview covered one or more themes, according to the interviewees' areas of knowledge and expertise. During these interviews, the signals of change collected were validated and new trends were identified in the interviewees' areas of specialisation. The interviewees were:

| Interviewee | Institution | Position and short bio |
|---|---|---|
| Ana Toni | COP30 (Office of the President of the Republic) | CEO and Executive Director |
| André Ferreira | Institute for Energy and the Environment (IEMA) | Executive Director |
| Caio Favaretto | Maranta | Director |
| Cassio Turra | Federal University of Minas Gerais (UFMG) | Professor |
| Cinara Wagner Fredo | Ministry of Defence | Secretary-General |
| Clemente Lúcio | Inter-Union Department of Statistics and Socioeconomic Studies (DIEESE) | Former Technical Director |
| Clélio Campolina | Federal University of Minas Gerais (UFMG) | Professor Emeritus |
| Conrado Hubner Mendes | University of São Paulo (USP) | Professor |
| Eduardo Grin | Getulio Vargas Foundation (FGV) | Professor |
| João Paulo Resende | Ministry of Finance | Special Adviser to the Minister |
| Lúcia Dellagnelo | Organisation for Economic Co-operation and Development (OECD) | Deputy Director for Education and Skills |
| Ludmila Ribeiro | Federal University of Minas Gerais (UFMG) | Professor |

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| Interviewee | Institution | Position and short bio |
|---|---|---|
| Hussein Khalout | Brazilian Center for International Relations (CEBRI) | International Advisory Councillor |
| Marcelo Medeiros | University of Brasília (UnB) | Professor |
| Mauro O' de Almeida | Office of the Attorney General of the Union (AGU) | Federal Attorney |
| Miguel Lago | Institute for Health Policy Studies (IEPS) | Executive Director |
| Rodrigo Assumpção | Dataprev | President |
| Ronilson Pacheco | Institute for the Study of Religion (ISER) | Executive Director |

(iii) **Sensemaking:** At this stage, the signals, evidence and data collected during the Scanning process were interpreted and systematised. The aim was to identify emerging patterns and connections between phenomena, group thematically related material, and identify the drivers and possible implications for the future, turning scattered information into structured insights.

The team responsible for the report's research conducted **eight two-hour virtual workshops (five thematic workshops and three internal workshops involving the team responsible for producing the report)**. During these workshops, participants analysed and discussed previously collected signals of change, contributing to the identification of relevant patterns, recurring themes and forces of transformation. Participation in the workshops was voluntary, with 39 participants in total. In addition to interpreting the signals, participants were invited to reflect on desirable futures for Brazil and the paths needed to achieve them. Some of these visions of the future are presented in the "Imagining possible futures" boxes throughout this publication.

The team sent as many invitations as possible to ensure diversity among workshop participants. In addition to interpreting the signals, participants were invited to reflect on desirable futures for Brazil and the paths needed to achieve them. The thematic workshops were as follows:

| Thematic workshop | Participants |
|---|---|
| 1. Young people | Amanda Kamuraura, Arthur Cardoso, Glauber Tiriyó, Glenda Dantas, Luciana Souza de Oliveira, Maria Eduarda Pacheco, Ursula Zion and Zaki Liriel |
| 2. Community leaders | Caio Klein, Josefa Silva, Lailton Rodrigues, Larissa Barroso, Naomi Ferreira and Regina Tchelly |
| 3. Private sector | Adriana Carvalho, André Tamura, Carolina Marques, Christian Perrone, Daiune Fujii Cartolano, Djenifer Macedo, Gabriela Almeida, Heloísa Predomo Amurov, Lívia Pagotto, Maria Helena Martins and Raquel Ferreira Sena |
| 4. Subject-matter experts | Eduardo Carvalho, Giulia Manccini, Letícia Peret, Michele Sarubbi, Pedro Keese and Raquel Rachid |
| 5. Regional public-sector representatives | Ailton Bispo, Fernanda Godoy, Fran Britto, Leandro Damaceno, Lourenço Capriglione, Marta Guizelini, Rodrigo Diniz Lara and Thiago José Tavares Ávila |

During the Sensemaking stage, the signals, TIPPOs and insights generated throughout the process were analysed and organised into drivers of change, representing the main factors capable of influencing Brazil's futures. These drivers are thematic groupings constructed by combining different types of evidence from the Scanning process, including signals, trends, emerging issues, plans, projections and obstacles.

This work does not end with this publication. During the preparation of this report, the network of signal scanners, comprising around 180 people from different sectors, received training to become a permanent foresight asset within the Federal Government. More than an input to this document, the network is the legacy of the foresight process: an established capacity to continue identifying and connecting signals of change yet to come. Scanning for emerging phenomena is an ongoing task, with no endpoint. Keeping this network active will ensure that Brazil continues to look ahead.



FUTURES OF BRAZIL: SIGNALS OF TRANSFORMATION 2026

The methodological approach of this publication is based on the Signals Spotlight process, a foresight methodology developed by UNDP and adapted from the University of Houston's foresight framework. The Spotlight focuses primarily on the Framing, Scanning and Sensemaking stages, which define the scope, identify signals of change and interpret their implications for the future.

However, the practice of foresight does not end here. The University of Houston framework proceeds to stages focused on mobilisation and action, turning insights about the future into concrete strategies for the present. We invite you to continue this journey through the reflections presented in this publication:

- **Visioning:** imagining and defining desirable futures for organisations, territories, communities or the country as a whole.
- **Planning:** developing strategies, policies, projects and initiatives capable of bringing these desired futures closer to reality.
- **Action:** implementing interventions, monitoring results and continuously adapting actions in response to observed transformations.

The signals, trends, drivers and questions presented in this report should not be understood as predictions, but as resources for strengthening anticipation capacity and supporting decision-making in the present. They can inspire everything from nationwide public policies to local initiatives led by communities, organisations and citizens.

Brazil's future is not something to be predicted, but built. We hope this study will help strengthen the imagination, dialogue and collective action needed to shape the futures we want to achieve.

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