

The background is a vibrant, abstract composition of geometric shapes and patterns. It features a mix of primary colors: red, yellow, and blue. There are curved lines, circles, and rectangular blocks. Some areas have patterns like a grid, a zigzag, or a dotted texture. The overall style is reminiscent of mid-century modern or Bauhaus art. The text is centered in a dark blue rectangular area.

TIME TO CREATE:

AN AGENDA FOR BRAZIL'S
FUTURE SCENARIOS

President

Diogo Godinho Ramos Costa

CEO

Rebeca Loureiro de Brito

Chief Innovation Officer

Bruna Silva dos Santos

Chief Higher Studies Officer

Diana Coutinho

Chief Executive Training Officer

Rodrigo Torres

Chief Professional Development Officer

Paulo Marques

Chief Internal Management Officer

Alana Regina Biagi Lisbon

GNova Transforma Team

Adriana Phillips Ligiéro

Guilherme Moraes-Rego

Roberta Tiemi Saita

Milena Andrade de Melo

Facilitation, Research, and Systematization Team

Ariana Frances – Facilitator

Leandro Bahia – Facilitator

Lucas Ramalho Maciel – Systematizing Facilitator

Graphic design and layout*

Ana Paula Prado Gomes

Editing and proofreading

Marcelo Firpo

*Graphic design inspired by Waio Design's artwork.

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SUMMARY

05 MANIFESTO

06 PRESENTATION

08 INSTITUTIONAL AGILITY

09 Democracies capable of creating

12 The byte-world at the service of the atom-world

16 Openness and innovation as strategies

19 Paths towards institutional agility

20 A SUSTAINABLE FUTURE OF CLEAN, ABUNDANT ENERGY

21 Brazil as a global protagonist of the transformation towards a world of clean, abundant energy

22 Brazil's leading role in the transition to a clean energy world involves recognizing an agenda of national abundance

24 Innovation and new technologies at the service of a sustainable, low-carbon future

27 Strategy for the Amazon

29 Paths towards a sustainable future of clean, abundant energy

30 TOMORROW'S INFRASTRUCTURE

31 Sustainable cities and smart mobility

32 Cities and mobility: a renewed challenge

35 Innovation at the service of the infrastructure of the future

38 Paths towards tomorrow's infrastructure

39 SOCIAL PROSPERITY

- 40** How to connect extremely poor populations to the opportunities of Brazilian economy?
- 42** Social welfare policies
- 45** Technology is a means, not an end
- 47** Education as a path to social prosperity
- 49** Educating for the present and the future
- 51** There is nothing as expensive as a wasted opportunity
- 52** Paths towards social prosperity

53 ECONOMIC PROGRESS

- 54** How to improve our business environment?
- 56** The importance of focusing on growth
- 58** A culture of innovation involves investing in human capital
- 60** Web3 is an opportunity not to be missed
- 63** Betting on special jurisdictions
- 67** Paths towards economic progress

MANIFESTO

Progress is a political choice: a choice for the future, for innovation, for the improvement of life and social well-being.

This manifesto takes the future as a reference. Among possible future scenarios, we chose those in which Brazil is an environmental and ecological powerhouse, under the reign of economic freedom and entrepreneurship. The abundance of our natural resources and the plurality of our population serve as the foundations of social prosperity and economic progress.

Many of our chronic problems depend on us returning to the imperative of physically transforming the world and transforming our institutions. Only with a public sector capable of re-establishing its relationship with risk will we overcome inertia and dysfunction.

We recognize that all Brazilians have the right to prosper. But we must also recognize that prosperity is not a gift, a good to be shared, but a reality to be conquered through plural, collective and human cooperation.

For that, we need agile institutions, whose governance prioritizes creation and delivery. New technologies can get us into that future more quickly if we are open to new ideas, with their risks and the potential they represent. The world of bytes, management and control needs to be at the service of the world of atoms.

One that transforms people's lives in a concrete way, that solves the challenging scarcity of natural resources with the sustainability of abundance, not shying away from what is monumental, beautiful and inclusive.

We believe in change. This Agenda for Future Scenarios is a manifesto for choosing progress, abundance, social prosperity and institutional agility.

IT'S TIME TO CREATE

PRESENTATION

As usual in election years, different groups and organizations are offering proposals for nationwide public policies, outlining possible paths for the Brazilian government. We do not intend to imitate them. Enap, as the country's leading school of government and a think tank focusing on innovation in the Brazilian administration, wants to present a written document on the dynamics of long-term progress.

It is not a matter of drafting a specific legislative agenda. Instead, we want to draw directions for human progress within actionable and doable perspectives – in addition to using some imagination to understand the changes that could affect possible future scenarios.

We think of Brazil's future as part of a world that is undergoing a paradigm shift towards a new era of progress – a new combination of economic, technological, scientific, cultural and organizational advancement that has the potential to transform and elevate living standards for the coming decades and centuries.

As a school of government and think tank, Enap is uniquely positioned in the country to bring together networks of experts around a long-term agenda that focuses on those areas where governments have a direct impact and that are crucial for the future of the country.

This Agenda for Future Scenarios was created in a collaborative way, based on contributions from specialists from Brazil and the world. The document was built layer by layer. The project kick-off was given in the webinar *Time to Create: an Agenda for Future Scenarios for Brazil*. We then collected contributions from dozens of people using questionnaires, and held a series of workshops to discuss

each thematic axis. Finally, we completed the construction of the document with an expert review.

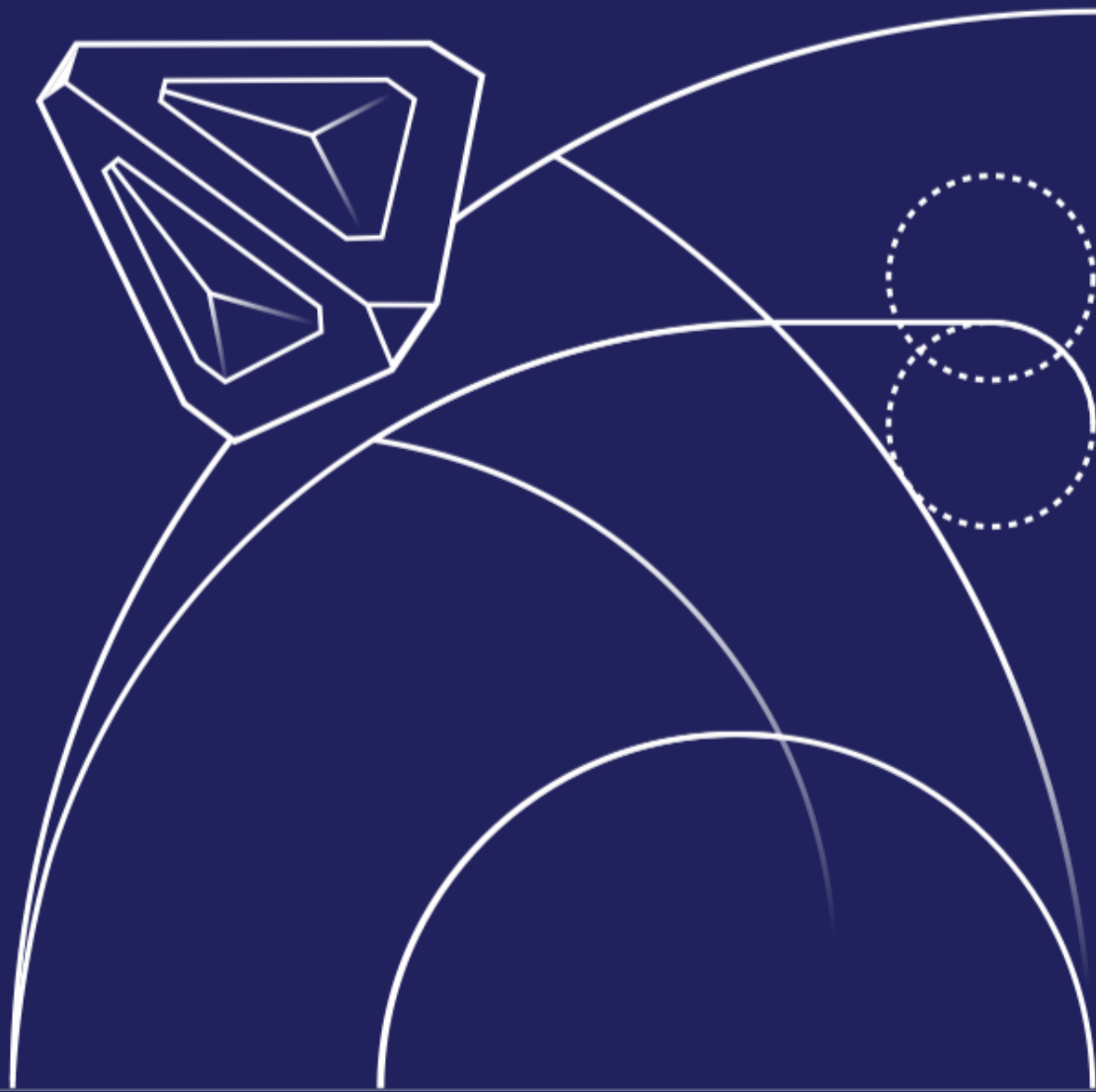
We sought new ideas and cases that could be tried. Above all, we focus on emerging challenges whose means of resolution are still lacking. This document brings strategies and recommendations for the future we want to build.

This Agenda for Future Scenarios is organized into 5 complementary thematic axes:

- Institutional Agility;
- Sustainable Future of Clean, Abundant Energy;
- Tomorrow's Infrastructure;
- Social Prosperity; and
- Economic Progress.

In the Institutional Agility axis, we discuss how the state can use new technologies and management models to expand its ability to convert demands into the results and impacts the society desires. In the axis of Sustainable Future of Clean, Abundant Energy, we bring ideas to give Brazil a leading role in the global energy transition, based on challenges related to the climate emergency. In the Tomorrow's Infrastructure axis, we discuss how transforming our cities can mean an opportunity to improve people's mobility and life quality. In Social Prosperity, we address the challenge of connecting extremely poor population groups to the opportunities of the Brazilian economy, with an emphasis on education as a priority path. Finally, in the Economic Progress axis, we focus on opportunities and paths to improve the business environment and resume growth in Brazil

INSTITUTIONAL AGILITY



DEMOCRACIES ABLE TO CREATE

Modern democracies, such as the Brazilian one, are subject to problems such as institutional sclerosis, a high risk of judicialization and excessive fragmentation in decision-making. A large number of agents with veto rights over what is built, combined with incentives for inaction, have made public institutions increasingly slow and incapable of responding to the demands of the population. Public administration needs institutional capacity to convert social demands into results and impact.

The crisis of democratic institutions is also a crisis of delivery capacity. Institutions based on democratic and liberal values will not succeed if they are not able to build and transform the world and implement bold and disruptive ideas that can really change the status quo. Ezra Klein¹ talks about how innovation combined with the ability to implement can have an effect on improving human life: “Social insurance cushioned the economic blow of Covid. It did remarkable things there. But it was mRNA vaccines that have been the true miracle that have saved the bulk of the lives. And look ahead, solving the climate crisis while still spreading the miracle of abundant energy, that’s going to require invention. Feeding a world population that’s growing in a humane and sustainable way, that’s going to require invention.

It is not just social security that will make the future more humane than the present or the past. It is invention. And then it is being able to build those inventions into social and public goods. Liberalism used to do this. It did it through much of the early 20th century.”

¹ *New York Times*, available at <https://www.nytimes.com/2022/02/18/podcasts/transcript-ezra-klein-interviews-alex-tabarrok.html>.

In 40 years, China has built hundreds of cities from scratch, moving more than 500 million people from the countryside to urban centers. Shenzhen was able to accommodate one million new residents in one year. In Changsha, a 57-story building was built in 19 days. In Shanghai, a damaged bridge was demolished and rebuilt within 43 hours.

Among the ten biggest infrastructure projects of the 20th century, eight were built by democratic countries. When similar surveys are carried out in 2019, of the ten largest projects in progress, most appear to be taking place on autocratic soil.

In liberal democracies, even among the most developed countries, the institutional maturation of power and decision-making instruments, with their increasingly adjusted and regulated systems of checks and balances, makes the act of deciding (and acting) increasingly costly. This is what Francis Fukuyama calls a “vetocracy”: there are too many parties with the power to veto decisions. Creating something in today's government requires a lot of patience: carrying out a project requires navigating a long path which involves authorizations from other bodies, internal controls, Courts of Auditors, the prosecutors' office and lawsuits. We could also call our model an “hesitocracy”: instead of an agile state, we create one with excessive functions and competences that lead to an excess of mistrust and control instruments. Adversarial legalism, or the propensity to transform political conflicts into judicial challenges, is another aspect of the problem, as it increases the situation of paralysis among executive managers.

The Covid-19 pandemic has challenged the idea of state capacity associated with the wealth of nations. The United States and Western Europe failed to contain the virus at the desired speed. Even poorer East Asian countries performed better. The state's ability to implement and manage policies can never be taken for granted. It needs to be constantly evaluated and improved.

The solution against democratic hesitation is not a return to ruling authoritarianism. The fundamental guarantees of privacy, freedom of expression, equality of rights and the defense of property are unquestionable achievements of democratic regimes. But government decision-making needs to be agile and effective to ensure well-designed contracts and well-defined property rights. This means an agenda for administrative and political reforms that give decision-making capacity to public managers, as well as institutional reforms that reduce decision-making-related uncertainty for individuals, families and companies.

In order to create a new management architecture, in which institutions are able to generate results in an agile way, it is necessary to rethink how new technologies can support us in implementing more effective and faster decision mechanisms. The third generation of the internet, known as Web3, enables the creation of a decentralized and transparent digital environment. It is an opportunity not to be missed. In addition, it more state openness should be promoted, enabling new forms of partnership and governance involving the government, the society and the private sector.

In this context, we must curb the instinct to jump to regulatory solutions without first doing the work of finding a clear strategic vision. Decisions made by governments often have lasting meaning and impact millions of people. It is important to clearly understand which principles should guide our actions. We insist on this point: the crisis of the state is also a crisis of vision, of ambition, of difficulty in dreaming, architecting and creating new, radically different scenarios.

THE BYTE-WORLD AT THE SERVICE OF THE ATOM-WORLD

The world has seen major technological advances in the last two years. Innovation in vaccines and energy sources. New artificial intelligences and new space missions. New cryptographic ways of thinking about financial structures and organizational structures.

At the same time, the current problems and challenges facing our country show us that we cannot just make the status quo more efficient. It is not enough to do the same a little better. We need to do it differently. So Brazil has to prepare to incorporate technologies such as blockchains and artificial intelligence into its institutions.

The loss of trust in institutions, in the private sector and even in democracy is a pressing matter. Demand grows for new ways to establish relationships of

trust, whether with governments, companies or individuals. Distributed ledger technologies, known as blockchains, are strategic in this context, by starting from the premise of generating trust in a distributed way. In addition, as networks of record that contain all transactions processed in a given system, blockchains allow the provision of services to no longer depend on the figure of centralized servers.

Acquisition and transfer of physical property, for example, can rely on more agile processes and less paperwork with the use of blockchains. It is worth highlighting some practical examples. Digital records of assets in a blockchain network are done through tokens. These records function as a kind of encrypted, decentralized, distributed database that can be publicly verified but cannot be changed without a new record. The tokenization of public transfers and the development of new identification models allow the transfer of resources between federal entities and the granting of social benefits to citizens to be better programmed and tracked, increasing transparency and social control. The tokenization of carbon and methane credits, for example, can be an innovative way to preserve environmental reserves and promote social projects.

Digital identification systems can be improved with the development of an infrastructure capable of aggregating into a single document the various documents that make up the civil registration system, reducing losses due to bureaucracy and inefficiency of services. At the notarial level, blockchains enable systems to be unified, generating efficiency gains. In addition, as authentication is

an intrinsic element of this technology, the recognition of signatures and publicly issued powers of attorney can be more practical and secure.

When it comes to educational certifications, a decentralized and traceable database can provide agility and transparency. Schools, technical courses, universities and other educational institutions can digitize their certificates and register them on blockchains. This practice would make it much easier to fight fraud and validate the authenticity of diplomas by employers or other interested parties.

The technology is already widely used in supply chain tracking. For example, in agriculture, authentication and the possibility of following the entire path of a given crop, from the farm to its final destination, guarantees more transparency and benefits, not only for the end user but also for the inspection authorities.

Financial inclusion is undoubtedly a key element in reducing poverty, and blockchain technology can be strategic in providing a common base of reliable data and interoperability between systems and institutions. Thus, a single national registry or similar would be enough to include millions of people in the financial system at once.

Data science and artificial intelligence can be applied in various public policies, as they integrate large amounts of data, making it possible to identify patterns and predictive analysis, which anticipates crises and opportunities. These technologies can support, for example, the monitoring and prevention of deforestation, fires and floods. In areas like energy and sanitation, they allow anticipating demands by monitoring the amount of water available at reservoirs

and the operation of rainwater management, sewage and electrical networks. In healthcare, data science and artificial intelligence can support the prediction and prevention of epidemics and the allocation of human resources, materials and equipment, according to the needs of different regions and populations.

In the field of mobility, data analysis can help identify traffic congestion points and support decisions regarding infrastructure and public transport. In relation to social benefits, it may help in defining recommended actions, actively searching for users and beneficiaries, and integrating registries and databases. In the educational field, there is support in spotting teaching and learning standards in different schools and regions of the country, allowing public administrators to allocate resources more effectively, and recognizing areas of excellence and failure. In public safety, new technologies can help establish reliable protocols for exchanging data between different bases and systems. The application of data science and artificial intelligence can also contribute to a greater access to justice systems, promoting more efficiency and transparency in the law enforcement. In this context, policies that encourage public agencies to adopt open data and reuse data create a favorable environment for civic innovation and provide opportunities for delivering public and social value by private initiatives, based on governmental information assets, in addition to enabling more transparency and social control.

OPENNESS AND INNOVATION AS STRATEGIES

Only a public sector that is not afraid to creatively join the private sector and civil society will be able to guide society towards development. State openness reinforces the democratic pillar of trust, based on engagement, knowledge and a sense of belonging on the part of citizens.

Open innovation², a paradigm that assumes that organizations can and should combine internal and external ideas and resources for innovation, also applies to governments: public problems are increasingly complex, and the state will not always have the most appropriate conditions to elaborate all the answers or even to evaluate all the variables. Therefore, collaboration between government and society is essential in the search for solutions to problems that, after all, are common to all.

Through challenges and awards, open innovation is a promising way to solve public problems, by exploring new perspectives and finding ways that other work models have not found. In the last 10 years, several governments around the world have established open innovation platforms; in Brazil, the gov.br/desafios platform has existed since 2019. These experiences have proven to be quite efficient in mobilizing different players around the search for answers to public challenges, accelerating changes and providing new alternatives to complex problems.

Open innovation processes increase the government's permeability to knowledge and the technologies produced outside it. Innovation flourishes in environments that are free for the exchange of ideas and where these ideas are allowed to become projects, transforming what was once a problem into unexpected solutions, with benefits for everyone.

² CHESBROUGH, HENRY. *Open innovation: the new imperative for creating and profiting from technology*. Boston: Harvard Business Press, 2003).

Existing partnership models, such as the Regulatory Framework for Civil Society Organizations (MROSC in the Portuguese acronym), can be more widely used as tools for state openness and for expanding government delivery capacity. Along the same lines, public managers can make more intensive use of regulatory instruments that favor the incorporation of innovations by the state, such as the Innovation Law and the Legal Framework for Startups, among others.

State openness also requires designing new practices and institutions to ensure that democratic governance is properly mediated to promote the public good, and not captured by organized and sectarian interests. That is why new possibilities, based on the redesign of deliberation mechanisms, are so important. Quadratic voting is one such possibility. Based on mathematical principles, quadratic voting is a collective decision-making procedure that allows individuals to allocate votes to express the degree of their preferences, rather than just their direction. The system allows participants to earn credits and "pay" for additional votes on a given topic, in order to more strongly express their support for certain ideas. This process generates voting results that align with the greater willingness of these participants to "pay," rather than just the result preferred by the majority, regardless of the strength of individual preferences.

Another possibility in this field is the adoption of the preferential vote or ranked vote, which, by allowing the transfer of votes between similar candidates, increases the chances of producing a winner who better represents public opinion, as well as reducing polarization. Ranked voting is intuitive: upon reaching the poll, the voter chooses not only their favorite candidate, but also indicates their subsequent options, forming a ranking. At the end of voting, the first choices of each voter are counted. If any candidate exceeds the 50% mark, they are declared the winner. If there is no winner in this condition, the candidate with the lowest score is disregarded, and their votes pass to the candidate chosen as the second option of their voters. A new calculation is carried out: if, even so, there is no majority winner, the exclusion and recount routine is repeated until a candidate exceeds 50% of the votes. In this way, the need for a second round between the two most voted names is eliminated, or greatly reduced.

In a shifting world, state models cannot be bottlenecks for economic progress and social prosperity. We need to build new arrangements for state openness based on the use of technologies that enable the implementation of agile, transparent and reliable decision-making mechanisms. New forms of governance, partnership and participation must be part of a management architecture that reinforces the state's capacity to convert societal demands into concrete results. Institutions that deliver quick, frictionless solutions generate greater public trust and increase their administrative capacity. In the last two decades we have created new technologies, new financial instruments and new management models. We need an institutional update so that our democracies are able to create a new era of progress.

PATHS TOWARDS INSTITUTIONAL AGILITY

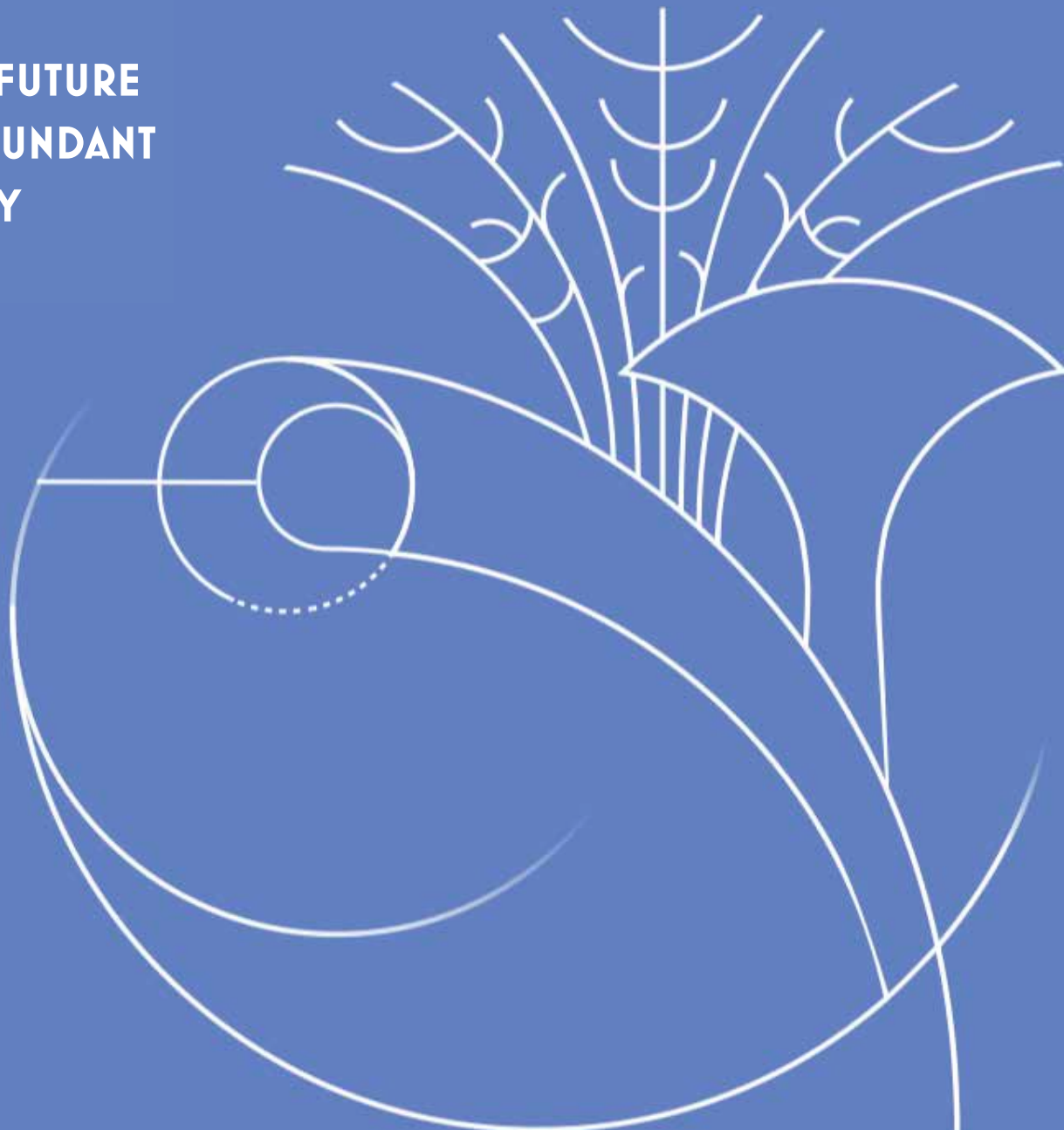
The crisis of democracies is also a crisis of vision: it is necessary to return to the ambition that led liberal democracies to redesign the entire global system in the 20th century, especially in the post-war period;

New technologies, such as blockchains, are fundamental, as they enable an open, digital relationship model between state and society, with more agile and shared governance;

Public problems are increasingly complex and require the participation of different actors, in and outside the state;

It is necessary to encourage open innovation with legal certainty, creating experimental spaces, such as regulatory sandboxes, that enable the use of technologies such as artificial intelligence and blockchains.

**SUSTAINABLE FUTURE
OF CLEAN, ABUNDANT
ENERGY**



BRAZIL AS A GLOBAL PROTAGONIST OF TRANSFORMATION TO A WORLD OF CLEAN, ABUNDANT ENERGY

We are living in a unique and paradoxical moment in human history: if, on the one hand, technological advances allow us to envision a future with virtually unlimited new sources of clean and renewable energy, at the same time the unquestionable impact of the climate crisis imposes itself and requires us, with a high sense of urgency, to adopt measures that reduce the concentration of carbon dioxide and other greenhouse gases (GHGs) in the atmosphere.

An increase above 1.5 degrees Celsius in the global temperature in relation to pre-industrial levels will generate high risks for humanity. In order not to reach this critical point, it will be necessary to reduce global GHG emissions by 50% by 2030, reaching zero by 2050. And we are heading in the opposite direction: 2021 recorded the highest historical level of emissions¹, and 2022 could set a new record. In this context, the main instrument to combine economic development with a sustainable climate is the abundance of clean energy.

Each of the several possible futures will have a different impact on different human populations, spread across regions that are unequal in their vulnerability. And the poorest will be most affected, regardless of their responsibility in the process.

Brazil plays an important role in the global climate agenda and in the implementation of more sustainable models of development, especially through conservation, preservation and sustainable occupation of the Amazon.

¹ *Global Energy Review: CO2 Emissions in 2021*, available at <https://www.iea.org/reports/global-energy-review-co2-emissions-in-2021-2>.

Historically, the country has had a leading role in the global sustainability agenda, whether for its huge biodiversity, for its continental dimension, for its clean energy mix, for its low-carbon agriculture, for its groundbreaking use of biofuels, for its transformative leadership in the international scenario and, mainly, for housing the largest rainforest in the world.

BRAZIL'S LEADING ROLE IN THE TRANSITION TO A CLEAN ENERGY WORLD INVOLVES RECOGNIZING AN AGENDA OF NATIONAL ABUNDANCE

An electric car running in Brazil emits less CO₂ than the same car in Europe. This is because we have the comparative advantage of our electrical mix being eminently clean. For a world that needs to produce more and more with less emissions, Brazil's clean energy mix is an important asset for attracting productive investments, just as China has used its low-cost labor force to attract foreign investments.

In the transition of the automobile industry to low-emission vehicles, we already have the solution of renewable fuels such as ethanol, biomethane and biodiesel. In the medium term, electric vehicles will have more space in our transport mix.

The transition to a green economy generates opportunities for economic and social development with incentives for job and income creation in the country's poorest regions. In this regard, we are well positioned as we are:

a country with one of the lowest carbon intensities in electricity generation, and we are able to complete the transition at the lowest cost².

Brazil has a huge diversity of biomes and ecosystems. Multiple forms of clean energy generation coexist without competing, such as solar, wind, biomass, hydro, biofuels, and geothermal. Among the renewable energy sources of the future, the sea is very promising.

In this context, hydrogen deserves to be underscored. Our wealth in water resources makes us potential producers of this gas, which, if obtained through renewable sources, is 100% green. Hydrogen can be used to store and transfer energy from intermittent sources (solar, wind, among others).

A major contribution to decarbonization comes from the electrification of consumer goods and the transport system, for example. In urban mobility, the focus on the energy transition should be the redesign of our cities, allowing for better density, walkability and the use of low-emission public transport. It is worth remembering that the decarbonization of the transport mix also depends on the same being done with the electrical sources that supplies electric vehicles.

In agriculture, we have already made some progress. Brazil has become a reference in low-carbon agriculture. We can minimize the environmental impact of our agriculture through the dissemination of techniques such as crop-livestock-forest integration, pasture management, livestock intensification and no-till farming.

² *Statistical Review of World Energy, available in BP Statistical Review of World Energy, p.67.*

Some agreements signed during the United Nations Climate Conference in Glasgow, Scotland (COP26) established the commitment to achieve the so-called **Carbon Neutrality by 2050**: a net-zero emissions state, which can be achieved by balancing CO₂ emissions.

INNOVATION AND NEW TECHNOLOGIES AT THE SERVICE OF A SUSTAINABLE, LOW-CARBON FUTURE

Descarbonização, descentralização e digitalização são impulsionadores de grandes transformações no setor energético mundial.

As fontes renováveis estão em rápido crescimento e são a coluna de sustentação da transição energética: graças à inovação contínua, são cada vez mais eficientes e competitivas. Novas tecnologias estão constantemente surgindo no horizonte. Além de permitir a geração de eletricidade com menor emissão de gases de efeito estufa, as energias renováveis são virtualmente inesgotáveis.

A geração distribuída, realizada pela instalação de geradores de energia renovável nas casas dos consumidores, é capaz de abastecer residências, comércios e indústrias, aumentando a capacidade instalada no país. Em 2022, o Brasil ultrapassou a marca de 10 GW em micro e minigeração distribuída, energia essa que pode atender quase 20 milhões de pessoas.

Segundo a Agência Internacional de Energia Renovável, os custos de produção de eletricidade a partir de usinas fotovoltaicas diminuíram 82% no último decênio. E as perspectivas são ainda mais animadoras: com tecnologias de nova geração, será possível aumentar a eficiência dos painéis solares em 30% e a produtividade em mais de 20% em relação aos valores atuais.

O uso de tecnologias de CCS (carbon capture and storage), o desenvolvimento da célula combustível e a eletrificação por etanol e hidrogênio podem gerar um sistema que não só diminui as emissões, mas promove a descarbonização do meio ambiente. A cana-de-açúcar, por exemplo, ao se desenvolver no campo, consome o CO₂ emitido pela queima do etanol.

Brazil also has abundant reserves of uranium and thorium, which favors investments in research and development of nuclear reactors, including small ones.

Technologies such as blockchains can help account for the energy transition process by tracking carbon emission and capture processes and monitoring the supply and consumption of renewable energies.

To enable innovation and the construction of sustainable infrastructure, we also need to modernize the regulatory system. It is a consensus among environmentalists and economists that pricing the social costs of greenhouse gases is one of the main mechanisms to promote the decarbonization of the economy. Due to its physical attributes, the carbon market converges to a global arrangement. In this context, Brazil has incomparable advantages compared to other countries, due to our natural capital and clean electrical mix. A world that rewards those who emit the least is a world that transfers resources to Brazil. Ideally, such resources could serve to foster activities that increase natural capital.

At global level, the Paris Agreement regulates the Sustainable Development Mechanism, a financial instrument that encourages investments in projects to reduce GHG emissions. If properly operated, it will catalyze the development of sustainable innovation, business and investment.

2 million new jobs could be generated by the green economic recovery. And at the same time, it would increase Brazilian GDP by BRL **2.8 trillion** by 2030

A new economy for a new era: elements for building a more efficient and resilient economy for Brazil

It is essential to structure a market that allows for carbon trading. In practice, the market will shift resources away from emissions-intensive activities in favor of sustainable activities. For that to happen, however, the market needs to be structured, transparent, predictable and credible. It requires the establishment of managing authorities that legitimately estimate the social cost, recommend taxation parameters and coordinate the allocation of allowances, based on a system that comprises monitoring, reporting and verification.

Among the regulatory aspects, it is worth noting that Brazil has recognized an environmental framework, but with flaws in the legal enforcement that need to be corrected. As the carbon market rules have yet to be consolidated, there is a gap to be explored in the regulatory framework on how countries and companies will be able to achieve their mandatory targets.

In this context, it is worth mentioning Decree 11075/2022, published by the federal government in May, which establishes rules for setting industry targets for various economic activities. In up to one year, relevant sectors of the Brazilian GDP will have to present goals to reduce greenhouse gas emissions to national regulators. This is a key step towards the insertion of Brazil in the global trade in carbon credits, which is expected to come into operation in the coming years, as acknowledged in the Paris Agreement in 2015.

3.2% of global emissions are caused by Brazil, the 5th largest emitter in the world.

STRATEGY FOR THE AMAZON

Deforestation is the main responsible for carbon emissions in Brazil: 46% of total Brazilian emissions, with 36% relating to the Amazon region. Any scenario of compliance with the Paris Agreement and the climate goals must necessarily involve eliminating emissions from deforestation.

In the Climate Agreement negotiations, Brazil was instrumental in including forest protection in the carbon market. Currently, countries can buy carbon credits aiming at its neutrality (zero net emissions), and the Amazon is strategic to attract investments and be rewarded for the ecosystem services it provides to humanity.

It is necessary to establish infrastructure for local populations and for the flow of socio-biodiversity products, in a sustainable way, without compromising the forest's ability to regenerate. New technologies and innovation are key for this, considering the challenges in logistics and the promotion of local development arrangements in the area.

1 billion tons of CO₂ were emitted in Brazil by changes in land use, mainly deforestation. This represents **46%** of total emissions in Brazil in 2020.

Sistema de Estimativas de Emissões de Gases de Efeito Estufa do Observatório do Clima - Análise das emissões brasileiras e suas implicações para as metas climáticas do Brasil - 2021.

Promising areas in which innovation and new technologies such as blockchains may contribute to the sustainable development of the Amazon are as follows:

- Improvement of territorial planning, consolidating domain chains and providing a permanent basis for land tenure regularization;
- Development of technologies for monitoring, transparency and verification of forest cover;
- Implementation of production and supply chain certification systems, ensuring traceability;
- Support for the recovery of degraded areas, for reforestation or productive reconversion;
- Digital regional integration;
- Sustainable use of biodiversity, anchored in management plans and participation of local communities.

On average, **1.147.426** trees are cut down daily in the Amazon area

Monitor Plena Mata, available at <https://plenamata.echo/dashboard/>.

PATHS TOWARDS A SUSTAINABLE FUTURE OF CLEAN, ABUNDANT ENERGY

Capturing the social cost of carbon through pricing mechanisms such as taxes, fees, quotas or tradable permits;

Updating the regulatory system to set free and encourage the construction of infrastructure for clean, abundant energy;

Reviewing current tax subsidies, redirecting incentives to low carbon sectors and practices;

Fighting environmental crimes, the loss of control over deforestation and the serious advance of illegal activities, such as mining and land grabbing, in conservation units and indigenous lands;

Reducing greenhouse gases emissions from deforestation in a consistent and effective way;

Using new technologies such as blockchain to consolidate domain chains and support land regularization on a permanent basis;

Promoting traceability of supply chains (wood, minerals, grains, meat, etc.), through the use of technologies such as blockchains.

**TOMORROW'S
INFRASTRUCTURE**



SUSTAINABLE CITIES AND SMART MOBILITY

Jane Jacobs, in *The Death and Life of Great American Cities*, remarks that “beneath the apparent disorder of the traditional city, there exists, in the places where it functions satisfactorily, a surprising order that guarantees the maintenance of security and liberty.”

The city and its infrastructure are a concept that has been continually renewed for almost 10,000 years. More than that, they are the space where ideas are thought, implemented and made obsolete when new ideas arise, in a never-ending movement. The history of our country and of civilization as a whole is a history of continuous construction and reconstruction. Our ancestors created the great cities of the 20th century, built factories and hydroelectric dams, roads and railways. Currently, new challenges are imposed, but there are political, cultural and regulatory hurdles to the task of modernizing city designs and urban logistics.

Investment in infrastructure offers great opportunities for economic progress and social prosperity. Housing is a human right, but today, even in the richest Brazilian cities, it is increasingly difficult to build homes, densify, create projects that directly impact people's lives.

Over the past 50 years, around 130 million people have left the countryside for the city. According to the 2010 Census, 84% of the Brazilian population lives in urban areas. However, the process of urbanization in our country has not been without problems. Urban management remains a challenge, and not just from a practical, everyday point of view: one needs to put into question the visions that underpin what we consider to be normal and acceptable. Good examples of this movement are the criticism to car-driven approaches or the preferential option for individual transport over pedestrians.

CITIES AND MOBILITY: A RENEWED CHALLENGE

We need to redesign our cities, allowing for better density, walkability and use of low-emission public transport.

In general and somewhat euphemistically, Brazilian cities present enormous opportunities for improvement. And one needs to understand that they did not become what they are today due to a lack of planning, on the contrary: the urban landscape we have today is the result of a series of decisions taken in the past, whether recent or distant. Some decisions were correct when they were made and are still correct today; others were correct when they were implemented, as a way to solve a certain problem, but the context has changed and they became unnecessary over time; and finally, others are as misguided today as they were when they were taken.

The decision to build large quick-access roads separating popular neighborhoods from the neighborhoods inhabited by the elites is a good example of an urbanist logic at the service of an idea, that of social segregation. The decision to impose a residential character on certain neighborhoods works in the same direction, preventing the development of commercial establishments and preserving an alleged quietness. The privilege of cars over pedestrians, as mentioned above, is also the result of some planning based on a certain worldview.

Planning, invested with a certain epistemological arrogance, often disregards the human factor in favor of more Platonic ideas. The recent

18,6% of workers in Brazilian metropolitan regions spend more than an hour a day commuting from home to work

IPEA, available at https://www.ipea.gov.br/portal/images/stories/PDFs/comunicado/131024_comunicadoipea161.pdf.

popular reaction to the Quayside project in Toronto, Canada, is illustrative: the project initially favored a colder, technological and invasive view regarding citizen data management, which ended up being replaced by a more humanized, sustainable one. In this case, it is not that the smart city concept has been defeated: the point is what a smart city actually is.

Other examples of this regulatory impetus that starts with good intentions to later ignore the human dimension are the mandatory setbacks in buildings, which, based on outdated health recommendations, prevent the occurrence of active facades, reducing urban liveliness, walkability and even safety in certain areas; or the requirement of a certain number of parking spaces per project, which, being a stimulus to road traffic and an increase in the volume of traffic jams, also works to reduce active facades.

The logic of large urban interventions, such as viaducts, is also an integral part of this mentality. These works not only do not solve the problems they are intended to solve — traffic jams, in this case —, but can worsen them in the long term, in addition to generating others, such as degraded, unsafe areas with little pedestrian circulation around the viaducts. In addition, these works occupy resources that could be better used in specific urban actions, such as the revitalization of squares and parks and the creation of shared spaces between cars and pedestrians.

Brazil has more than
59 million cars

IBGE, available at <https://cidades.ibge.gov.br/brasil/research/22/28120>.

In our cities, therefore, urban management remains a challenge. Innovative ideas and technologies widely accessible today, such as data analysis of urban indicators for better planning and decision-making, often collide not only with the rigidity of legislation, but with crystallized world views.

We need to seek solutions that are both ambitious and realistic, such as adopting congestion charges or urban tolls in cities with high demand in central areas. Or extinguishing free parking spaces, so discouraging the culture of individual transport. The funds collected this way can and should be invested in maintaining sidewalks and public transport, boosting active mobility and creating viable alternatives. These kind of measures require political will and a long-term vision, but they have already been adopted in cities like London, Stockholm, and Singapore.

As we have already mentioned, Brazilian urban planning, based on zoning policies, normalized the separation between where to live, where to work and where to consume, as if the same individual did not need to do all those three things. If we want cities to become places that encourage life and prosperity for people, we must review their master plans and zoning laws. Clear contradictions need to be solved: there are cases where the Master Plan establishes a residential area as a slow-moving area, while the Municipal Mobility Plan provides for a high-speed road in the area. In this case, the Mobility Plan should follow the provisions of the Master Plan.

3 of the 10 cities in the world with the longest commuting times are in Brazil – Rio de Janeiro, São Paulo, and Recife.

Moovit, available at <https://moovit.com/wp-content/uploads/2020/04/20.01.15-2019-Moovit-Global-Transport-Report-PT-Brazil.pdf>.

Brazil's housing deficit in 2019 reached 5.876 million units¹. The reality we have today is that of a repressed real estate supply, with formal rules for construction that set unattainable standards and end up restricting the construction of more affordable housing. Therefore, streamlining housing construction, reducing the burdens and risks for those who want to build and increase the real estate offer, must be a priority. It is imperative to favor and enable densification as a way of increasing supply and, thus, making access to housing cheaper. At the same time, means of financing this access must be designed.

¹Housing deficit in Brazil, available at <http://fjpmg.gov.br/deficit-habitacional-no-brasil/>, accessed on July 21, 2022.

INNOVATION AT THE SERVICE OF THE INFRASTRUCTURE OF THE FUTURE

Technologies such as artificial intelligence (AI), machine learning, 5G, robotics, sensors and geolocation may lead to solutions that promote greater modal integration, that is, the physical connection between the various means of transport, such as subways, buses, bicycles and even automobiles.

"Mobility as a service" promotes the integration of payment technologies, data and available commuting modes to provide savings, speed and a better user experience. It allows the integration of public and private transport options in one platform where the user purchases full trips with one-off payments, whether per trip, monthly or yearly.

The dialogue between the public and private sectors must be the basis for regulating new activities, such as app-based transport services, scooters and others that may arise. It is important not to inhibit constant innovation and the emergence of new companies and segments, as well as the shared use of data and intelligence, with a focus on benefiting users.

Legislation should be reviewed to ensure long-term development, listing benefits not only for users to adopt smart, sustainable means of transport, but for cities and the various productive sectors to be able to make use of these new technologies, thus enabling destructive innovation towards the future of mobility.

It is also essential to focus on simplifying municipal mobility regulations. Many federal regulatory provisions do not need to be replicated in city laws. The diversity of municipal legislation makes it difficult for urban mobility companies to work, despite the fact that the National Urban Mobility Policy (PNMU, in the Portuguese acronym) provides, among other provisions, for the regulation of passenger transport through digital applications.

Investing in data processing and management will allow for a more intelligent management of the installed infrastructure and new possibilities for improvement. However, a governance structure should exist that guarantees the protection of that data. The secure sharing of data between governments

and the private sector can enable the creation of new businesses and better public policies within cities.

It is also necessary to move forward with a new regulatory framework for the concession of public transport systems in cities and metropolitan areas. The focus should be on performance, shorter contract terms, use of data for monitoring and planning systems, encouragement to the installation of charging stations for electric cars, and remuneration based on user evaluation, among others.

Another important proposal involves training public managers in city governments to integrate planning in a way that mobility is aligned to urban, social and economic policies, with a focus on increasing people's quality of life within a vision of a smart city.

Finally, it is necessary to review the way unused public properties are currently managed, because it is related to the existence of urban voids. This is literally a problem that can become its own solution. For this, it is necessary to create mechanisms that speed up the sale, concession or new destination of abandoned public buildings, including the adoption of self-assessment, when the minimum price of a property to be negotiated or auctioned is determined by the market itself, which is the most reliable indicator.

PATHS TOWARDS TOMORROW'S INFRASTRUCTURE

Efficient regulation of alternative transport modes, so that legislation does not impede innovation;

Promotion of mixed urban spaces that reconcile active mobility (on foot, by bicycle or by other non-motorized means) and better modal integration;

Adoption of congestion charges and elimination of free parking spaces;

Enabling greater constructive densification in regions of high demand;

Streamlining civil construction codes, with reduction of burdens and risks for those who want to build and increase the real estate offer;

Overcoming restrictions on the zoning of properties and the adoption of active facades;

Clearing the legal situation of areas that are in regulatory limbo, in order to enable public investment;

Simplifying the process for selling idle public-owned buildings, in order to reduce urban voids and encourage their social function.

**SOCIAL
PROSPERITY**



HOW TO CONNECT EXTREMELY POOR POPULATIONS TO THE OPPORTUNITIES OF BRAZILIAN ECONOMY?

Brazil has a vocation for accelerated development, and the prompt economic recovery in the post-pandemic scenario is just one more piece of data to corroborate this. However, such recovery movement, unfortunately, has not included the poorest part of the population. According to the New Poverty Map from FGV¹, Brazil had 63 million poor people² in 2021, about 30% of the country's total population – and 10 million more than in 2019. It is the highest rate since 2012, when the historical series started. Of these, nearly 20 million are extremely poor³. The Federal Government's Single Registry currently includes more than 35 million families, more than half of them in extreme poverty⁴. Therefore, the challenge of combining a powerful and wealth-generating market economy with allocative mechanisms capable of reducing inequality and poverty levels is evident.

This huge contingent that is being left behind must be included in the productive economy, guaranteeing these families opportunities for economic and social progress. It is important to try and understand how these people can take charge of their own lives, reinventing themselves as generators of wealth and development. The purpose of social programs must be the complete economic emancipation and social prosperity of their beneficiaries.

¹ Data already include transfers from social programs.

FGV, available at <https://cps.fgv.br/MapaNovaPobreza>

² Per capita monthly income of up to BRL 497 (USD 5.50/day).

³ Per capita monthly income up to BRL 172 (USD 1.90/day)

⁴ Per capita monthly income less than R\$105, not counting transfers from social programs.

Ministry of Citizenship, available at <https://cecad.citizenship.gov.br/painel03.php>.

The good news is that, as in the famous quote from social scientist Herbert José de Sousa, known as Betinho, misery is cheap: untying this knot does not depend on a huge extra investment, but above all a more rational use of the budget that is already available.

According to Ricardo Paes de Barros, if we take into account all that the Brazilian state spends in a year, the amount needed to solve the problem of extreme poverty in the population is equivalent to one week of this budget.

Fighting endemic poverty and extreme poverty is not an unsolvable problem, but a great opportunity. On the supply side, barriers to entrepreneurship and the labor market must be reduced. On the demand side, it is necessary to make economic inclusion more efficient through well-designed transfer policies that actually prioritize the poorest, duly mapped. Resources must be directed to those who need it most, and system complexities cannot account for obstacles for citizens to access public policies and services.

The modernization of the social support network needs to be accompanied, of course, by improvements in the education system. Education is the most decisive factor for economic emancipation. It is through it that individuals can develop the skills and abilities required by the market and, thus, sustainably access the flow of the productive economy.

SOCIAL WELFARE POLICIES

Although new technologies beckon with the constant promise of making processes more agile and efficient, what we are proposing here comes prior to that: we need to review the structures, instead of simply suggesting incremental improvements. Social welfare policies need to be revised to satisfactorily serve those who should be their main focus: the poor.

Tolstoy noted that “happy families are all alike; every unhappy family is unhappy in its own way.” Likewise, poverty has an idiosyncratic characteristic: being poor in the city of São Paulo is different from being poor in a rural town of Maranhão, and each form of poverty needs its own solutions. Technology can help a lot in data processing and the development of algorithms capable of transforming data into useful information, but we cannot lose sight of the fact that the process as a whole must be people-centered. The approach of social care professionals should mirror that of family doctors, who know their patients and therefore understands their needs, instead of bureaucrats focusing exclusively on metrics.

One proposal to articulate the needs of each poor family with the services and opportunities available in their community includes training so-called family development agents, professionals who have:

the analytical capacity to identify, together with each family, the real causes of their poverty; knowledge of the entire local offer of public service (state or grassroots-organized); and authority over the access to these services, in such

a way that they can not only guide families about what they need and what is available, but also guaranteeing their priority access to what they need.

At community level, local development agents, with a more transversal role, can be designated to coordinate adjustments in the regional offer of public services and promote collective actions for productive inclusion, such as the creation of local productive arrangements and the establishment of producer cooperatives.

It is also necessary to review which key performance indicators make the most sense for the strategy to overcome poverty. Success cannot be measured only by the number of families that are being served in relation to those that would be eligible, but by the correspondence between these data and the number of families that are no longer being served by social programs, that is, that no longer need government support and are no longer living on the fringes of the economy's productive cycle.

We need to make the current system more efficient and rational. This starts with a more effective mapping of families in extreme poverty, allowing that services are better targeted. The following steps are redesigning the benefits system, including the unification of transfers, and advancing towards integrating data from different public policies to generate a more holistic perspective of each family served. This process, which also involves investments for training professionals in the social assistance network, must be permeated by a vision

of constant improvement, in which family development agents and local development agents continually suggest new ways to solve the demands presented by families, providing each community with the opportunities their members need to reach social prosperity. And we are not only talking here about government structures and services, such as schools and clinics, but also about encouraging and supporting new productive arrangements, such as cooperatives.

In the several governments since the reintroduction of democracy, the Brazilian assistance network has evolved gradually and consistently, with recent milestones such as the Bolsa Família and Auxílio Brasil programs. At this moment, the path of evolution encompasses a logic of integrating social benefits in a far-reaching and progressivist way that incentives work. The French system and the earned income tax credit could be important inspirations in this process.

TECHNOLOGY IS A MEANS AND NOT THE END

Technological innovation can reduce the costs of implementing and managing social welfare policies and making them more efficient, but we insist on this point: the opportunity we have here is to review the models, as opposed to simply generating incremental improvements. Reducing waiting times through automations is a desirable metric, but more than that, it is necessary to rethink the entire experience of the system users, in order to correctly meet their needs and difficulties.

That said, technology can indeed bring about a greater ability to communicate with users and integrate different social welfare policies, with qualitative and quantitative gains. A more personalized segmentation of the information that concerns each citizen enables, for example, a more qualified relationship between doctor and patient, teacher and student, social worker and citizen. Predictive analytics and data science can anticipate needs through pattern recognition, generating appropriate responses that not only meet but understand citizens.

The coverage of Brazilian social policy is outstanding for its dimension: there are various types of benefits granted to tens of millions of people, in different assistance programs. These initiatives are not fragmented or discontinuous. Each one of them have their own agencies, with established bureaucracy and installed capacity, and are a reference in several places around the world. The challenge lies in improving the connection between policies, metrics and criteria.

Brazil has a very widespread social assistance network, made up of more than 8,000 Social Assistance Reference Centers (CRAS, in the Portuguese acronym) spread across a continental extension, in addition to other facilities that make up the Single Social Assistance System (SUAS). We emphasize: we already have the necessary infrastructure and installed capacity for this key turn in the implementation of more innovative and more efficient social policies.

Universalization and targeting should be viewed not as antagonistic and excluding options, but as two harmonized aspects in building the same and new architecture of the social protection system. Among the universal aspects, we highlight the integration between social assistance, health and education systems, as well as the continuous and efficient dialogue between their federal, state and municipal agencies. Among the focal elements is the individualized view of each beneficiary. By understanding the reality of the families they attend, public agents can produce insights capable of generating practical actions at community level. If successful, these local actions can be replicated in other communities with similar problems, in a continuous and virtuous flow that always starts from the observation of the microcosm before proposing more general solutions.

EDUCATION AS A PATH TO SOCIAL PROSPERITY

Of all the tools available to reduce inequality and include large contingents of the population in a virtuous economic circle, education is the most important and decisive one. Through it, we prepare citizens for the demands and challenges of the market and reduce their dependence on state assistance. However, basic education has never received due priority in Brazil. Although the country has advanced in universalization, with 94.1% of 4- and 5-year-olds and 98% of 6- to 14-year-olds enrolled, quality has not followed the same path. Less than half of students in the 3rd year of elementary school have sufficient reading proficiency and, among students who finish high school, only 10.3% have adequate mathematical knowledge. The data are from the Brazilian Yearbook of Basic Education⁵.

Low quality education works as a brake on the potential of our children and young people: 29% of the Brazilian population is made up of functionally illiterate people who have serious cognitive restrictions in reading, writing and problem-solving. At the base of the social pyramid, 11 million Brazilians aged 15 and over are still illiterate. In other words, the public education system, as it is organized today, perpetuates inequality: according to data from IBGE⁶, the illiteracy rate among black or mixed-race people, at 8.9%, is more than double the 3.6% of the white population.

The proportion of public expenditure on education in relation to national wealth is higher in Brazil than in the average for OECD countries. In 2018, public spending on elementary to higher education institutions in Brazil reached 5% of GDP, or 0.9 percentage points above the OECD average. However, part of the

⁵ *All for Education, available at https://todospelaeducacao.org.br/wordpress/wp-content/uploads/2021/07/Anuario_21final.pdf.*

⁶ *IBGE disponível em <https://educa-ibge.gov.br/jovens/conheca-o-brasil/populacao/18317-educacao.html>.*

problem of Brazilian education can be explained by analyzing our priorities. In 2018, Brazil spent USD 3,748 in public funds per student in primary, secondary and post-secondary non-tertiary education, far below the OECD⁷ average of USD 10,101. On the other hand, on tertiary education, Brazil invested USD 14,427 per student, slightly above the OECD average of USD 13,855.

On average, Brazil spends almost four times more on higher education than on basic education, while in developed countries this ratio is lower, with 1.8 times more spending on universities⁸.

We are trying to build on a shoddy foundation, and this perpetuates inequality of opportunities throughout the learning cycle. According to a study by the World Bank⁹, more than 65% of Brazilian public university students belong to families that are among the richest 40% of the population.

And it is not just about investing more in basic education, but investing better: from 2005 to 2017, direct public investment per student more than doubled¹⁰. However, results from Brazil in the 2018 edition of the Program for International Student Assessment (Pisa) show that less than half of 15-year-olds reach the minimum level of science and reading proficiency, and less than a third in math.

For decades, our educational system has condemned millions and millions of people to an existence in which the need to survive prevails over the possibility of growing and thriving. We squandered talent in unimaginable proportions. Worse, we can't even get a clear idea of how much we're wasting.

⁷ *Education at a glance*, available at https://www.oecd-ilibrary.org/education/education-at-a-glance-2021_85737d68-en.

⁸ *Educação para Todos*, available at https://todospelaeducacao.org.br/wordpress/wp-content/uploads/2021/07/Anuario_21final.pdf.

⁹ *A Fair Adjustment: Efficiency and Equity of Public Spending in Brazil*, available at <https://www.worldbank.org/en/country/brazil/publication/brazil-expenditure-review-report>.

¹⁰ *Todos pela Educação*, available at https://todospelaeducacao.org.br/wordpress/wp-content/uploads/2021/07/Anuario_21final.pdf.

EDUCATING FOR THE PRESENT AND THE FUTURE

The Brazilian market will face a deficit of more than half a million IT professionals by 2025, according to estimations¹¹. If we look at the global market, the numbers are more impressive: just in the area of information security, also by 2025, the forecast is 3.5 million openings. The market needs them, and soon. The question then arises: are we training people to seize all these opportunities? Or are we training them to remain for the rest of their lives on the shores of this ocean of prosperity?

The technology available today allows us to access classes with the best teachers in the world through online platforms. We can ask for help from monitors and teachers remotely. Augmented reality, electronic games, animations and digital books bring new dynamics and learning possibilities, including more segmented and personalized curricula. Predictive data analysis help anticipate problems and obstacles in the trajectory of each student so they can be tackled in time, improving learning rates and reducing school dropout.

Technological innovations bring countless opportunities, but it is necessary to prepare teaching networks, schools, teachers and students for their insertion and incorporation into the Brazilian public educational environment.

We emphasize the view of technology not just as incremental improvement, but as a disruptive possibility. Brazilian education needs to be rethought since its base. New cooperation networks should be stimulated, involving governments, educational institutions – both Brazilian and international –, tools and hardware

¹¹ Brasscom, available at <https://brasscom.org.br/pdfs/demand-de-talentos-em-tic-e-strategy-tcem/>.

providers, and non-governmental organizations. This will result in more access, inclusion and popularization of new technologies.

Promoting digital inclusion and literacy is imperative: school curricula should include thinking based on computer languages and creativity focused on solving practical problems. The ability to work in multicultural, multidisciplinary and remote groups also needs to be strongly encouraged, because this is the future of working relationships. The culture of entrepreneurship must also permeate, in a transversal and structuring way, the entire curriculum. Finally, it is necessary to value the vision of continuing education, which, instead of ending with the school or university cycle, translates into a constant and self-sustainable capacity to learn and master new scenarios.

In this context, the role of the teacher must evolve from that of a knowledge holder to someone who facilitates the learning process. Teachers need, more than ever, to teach how to learn. Hybrid models which combine in-person and online interactions stimulate new approaches and more flexibility, encouraging open innovation processes with greater collaboration between the public sector, NGOs, edtechs and the private sector. Therefore, educational policies that enable and inspire these arrangements should be encouraged.

36.1% of children and adolescents up to 17 and who have an income of up to ¼ of the minimum wage do not have internet access at home

Only 27,8% of municipal schools offer internet access to their students

Fundação Abrinq – Cenário da Infância e Adolescência no Brasil 2021 – Available at <https://www.fadc.org.br/sites/default/files/2021-04/cenario-da-infancia-e-da-adolescencia-2021.pdf> and Notas Estatísticas do Censo Escolar, available at https://download.inep.gov.br/publicacoes/institucionais/estatisticas_e_indicadores/notas_estatisticas_censo_escolar_2021.pdf

THERE IS NOTHING AS EXPENSIVE AS A MISSED OPPORTUNITY

Welfare policies and education are two perfectly intertwined subjects: it is difficult to delimit where one begins and the other ends, and this becomes evident in different aspects. The correct attention and stimulation of children from zero to three years old, for example, has already proven itself as the most efficient strategy to encourage later cognitive development. We are talking about a series of actions and measures that should be taken before school age, but that are vital to enable a good performance in elementary, secondary and tertiary education.

The focus on the quality of stimuli received in childhood, including day care, preschool and the first years of elementary school, is crucial to the success of teaching strategies that will be implemented later. This is a foundation of the educational process that we have neglected for too long and that points, once again, to the importance of a more systemic vision, capable of breaking down the silos that shelter and separate subjects such as social assistance, health, education and culture.

We need to stop seeing people as independent customers attending different, isolated state agencies, each with their own criteria and standards. Instead we should see them as complete individuals, who demand and deserve quality in all interdependent aspects of their citizenship.

Enrollments in day care dropped by **9%** from 2019 to 2021

The National Education Plan (PNE in the Portuguese acronym) proposes that day care centers should reach 50% of children up to 3 years of age. Currently, that number is **35,6**

School Census, available at https://download.inep.gov.br/publicacoes/institucional/estatisticas_e_indicadores/notas_estatisticas_censo_escolar_2021.pdf

PATHS TOWARDS SOCIAL PROSPERITY

Reviewing the social assistance system in Brazil, based on targeting strategies and personalized care for poor families, aiming at their productive inclusion;

Training family development agents who are familiar with the public services available in each region and have the authority to establish priorities in the attention to poor families;

Providing local development agents with autonomy so they can stimulate new productive arrangements in each community, such as, for example, creating cooperatives;

Prioritizing investments in early childhood;

Adopting a disruptive and non-incremental vision in relation to education, the most efficient tool for social progress;

Integrating social assistance, health, education and culture systems, offering a closer, personalized and efficient service to citizens.

**ECONOMIC
PROGRESS**



HOW TO IMPROVE OUR BUSINESS ENVIRONMENT?

The last few decades have witnessed an economic imbalance. The internet and software industries have spread innovations around the world, but with questionable productivity gains. We haven't seen the same speed in other economic areas. Much of the modern world – a living room, an automobile, a home kitchen, an office – doesn't seem to have changed much since the 1970s, with the exception of the introduction of computers into all these spaces.

For digital transformation to continue its evolution, we need to unlock other productive sectors of the economy, allowing that high-impact innovations are created and disseminated more quickly than before. Part of this bottleneck relates to obstacles we place for innovation in non-digital sectors. The internet (and perhaps finance) have become human-capital-draining industries in part because they have developed in an economic space with far more freedom to explore, experiment and innovate than the rest of the economy.

Innovations that can generate huge productivity gains may also fail. The best way to deal with the risks of failure is to allow these experiments to take place. One of the reasons why innovation seems to have slowed down in recent years is the fact that creating high-impact innovations in non-digital industries often requires a lengthy regulatory and approval process. This process can take years, which makes it difficult to innovate in industries that are constantly changing – not to mention the challenges involved with having a large stock of capital and a complex supply chain system.

Accelerating innovation in non-digital sectors therefore depends on creating an environment open to experimentation and failure that encourages

Brazil is one of the most bureaucratic countries in the world. It is ranked **124th** among 190 countries

World Bank, Doing Business, available at <https://archive.doin-business.org/pt/data/exploreeconomies/brazil>

more companies to try new products and services. This requires smarter, more predictable, simpler regulation that does not result in barriers to entry.

Establishing a more favorable business environment starts with reviewing a series of laws and provisions that currently refrains Brazil from becoming more competitive. It is a fact that, due to pressure from interest groups, significant portions of the budget have been used to create unsustainable benefits for some corporations. Industry subsidies, special tax regimes and public funding mechanisms need to be urgently reviewed. These subsidies, by capturing and transferring resources from the public budget to economic sectors that are often inefficient and hardly competitive, distort the functioning of markets, perpetuating artificial distortions and harming the productivity of the economy as a whole.

Tax reform, reducing the complexity and regressiveness of the system, in order to combat distributive privileges and injustices, is an important step in reducing inequalities and increasing the productivity of our economy. At the same time, it is also necessary to stabilize the public debt.

Finally, the modernization of infrastructure, with regulatory stability and legal certainty to attract national and international investments, is strategic. We have made advances recently, such as the new legal framework for basic sanitation, but we need more boldness in transforming urban spaces in the 21st century.

Housing construction has become a major bottleneck of modern civilization. We need to unblock the hurdles, contributing to an expansion in the housing supply and resulting in more integrated, dense, walkable and accessible cities.

THE IMPORTANCE OF FOCUSING ON GROWTH

Populism offers easy and often misguided answers to complex problems. As economist Benjamin Friedman documented in *The Moral Consequences of Economic Growth*, a prosperous and growing economy promotes the democratic virtues of tolerance and openness. When incomes and living standards are rising, the well-being of other groups is less likely to be perceived as a threat. On the other hand, when the economy enters periods of stagnation, gains for some are seen as losses for others. This zero-sum logic creates an environment conducive to manifestations of intolerance, xenophobia and belligerent nationalism, and this should concern responsible players across the political spectrum.

As the Brazilian saying goes, in a house with no bread, everyone fights and no one is right. The recent rise of authoritarian populism in different countries of the world reinforces that the political implications related to the low growth rate are no longer a merely theoretical issue. Democratic ideals are under active attack, and reviving economic growth is a strategic way out to combat and defeat ideologies contrary to freedom, in addition, of course, to offering more satisfactory economic and social conditions to the entire population.

Factors such as the participation and quality of work, the volume of investment and the capacity for innovation do not exist in a vacuum, but are interdependent with each other and in relation to the laws and the system of incentives for individuals and companies. By improving the regulatory

framework, we can change incentives and, consequently, market performance and economic growth trends.

We still have a lot of room to improve laws and policies that discourage productive investment and block the spread of innovative practices in the economy. Political polarization, usually an obstacle to this debate, needs to be transcended by an ideal that is above parties: economic growth and the improvement of social conditions. Areas such as fiscal policy; budget policy; education and training policy; health financing policy; financial regulation; monetary policy; health, safety and environmental regulation; regulation on the opening of new companies; trade policies; immigration policies; intellectual property law; and regulation of land use are just a few examples that can and deserve to be analyzed based on these goals that are common to the entire political spectrum. The number of opportunities for improvement points in the direction of a meta-agenda – that is, encouraging reforms in the policy-making process itself, beyond specific substantive changes in rules or programs.

A CULTURE OF INNOVATION INVOLVES INVESTING IN HUMAN CAPITAL

Only 1.6% of scientific production actually becomes innovation in Brazil. To gain access to a state-of-the-art laboratory, an entrepreneurial scientist in Brazil needs to fulfill a series of requirements and steps: be associated to a university and willing to share at least one third of the intellectual property with it; buy equipment through long and complex public tenders; and dealing with orders that take more than six months to be approved, not counting the time to release funds for import and delivery. The demand for infrastructure and skilled personnel for innovation is growing, and social and economic development depends on equipping and bringing Brazilians closer to the technological frontier. Innovation, as a strategic state agenda, involves reflection on how we can promote greater agility and efficiency in processes.

One point that has not received due attention is the management of science itself. How many scientific laboratory managers receive training as such, even at the most basic level? On a scale of 1 to 10, what is the quality of service delivered by most laboratories or non-profit scientific enterprises? Through which processes and systems is efficiency or inefficiency measured? The potential for greater efficiency in scientific management promises to be one of the great gains of emerging and developed economies in the near future.

Another important variable refers to our manpower training capacity. Vocational education is now seen as fundamental to sustainable development in an era of rapid technological evolution. It is key to achieving the goal of

inclusive and equitable quality education, established by the United Nations 2030 Agenda for Sustainable Development.

Technical and vocational education and training (TVET) encompasses all educational processes aimed at studying technologies and acquiring practical skills and knowledge related to an occupation. It can be offered both in the formal education system, through technical vocational programs, and in the non-formal context, through courses and free training.

We should look at the experiences of other countries and absorb the best, albeit with adaptations. According to a study by Enap¹, benchmark countries combine learning in school and work environments, connecting education and the market, with flexible routes of professional specialization. TVET systems are placed as alternatives for young people who do not wish to follow traditional academic education, which facilitates the school-work transition and shortens the path to filling vacancies.

Furthermore, according to the OECD², professional training programs are an attractive option for students with academic difficulties and also for those at risk of dropping out of traditional schools, as they delve into experiences that go beyond the school environment and may occur concurrently or exclusively in the business environment. Another appeal is its flexibility to update the developed skills, quickly adapting them according to the demands of the job market and filling gaps in the traditional system.

¹Experiências internacionais em formação técnica e profissionalizante: benchmarking de países selecionados, available at <https://repositorio.enap.gov.br/handle/1/7005>

²Education at a Glance, available at <https://www.oecd-ilibrary.org/content/publication/69096873-en>.

WEB3 IS AN OPPORTUNITY NOT TO BE MISSED

The rise of the internet brought a level of connectivity never before experienced and created new business models and formats of social organization. The first generation of the internet, called Web 1.0, was characterized by a lower volume of data circulation, allowing users to consume content mainly in the form of texts and images, still offering a limited capacity for interaction. With Web 2.0 and the use of broadband, the users' role was expanded, allowing them to also create content in the most different formats. However, this new model caused a great centralization of platforms and a greater concentration of the market, in a scenario marked by serious findings of privacy violation and inappropriate use of personal data.

In this context, Web3 presents itself as a new paradigm and seeks to revolutionize the previous concept. Centered on distributed ledger technologies (blockchains), Web3 has platform decentralization as one of its most basic premises. Users are no longer just consumers and data providers, as they gain the possibility of playing a more active role as consensus builders and owners of various types of assets.

Distributed ledger technologies, known as blockchains, are networks of ledger that contain all transactions processed in a given system. The name "blockchain" refer to a set of recorded information that is linked to previous and successive blocks of information.

	Focus on consumption	Focus on creation
Centralized model	Pre-web broadcast	Web 2
Decentralized Model	Web 1	Web 3

The best-known example of blockchain use is Bitcoin, a system used as a tool for generating new digital currency. But its application goes far beyond this case. Many other cryptocurrencies have been created based on decentralized technology. So-called smart contracts, for example, illustrate the digital and organizational change in course. As small programs embedded in blockchains, smart contracts act as decentralized, reliable and transparent instruments. Distributed ledger technologies allow for other uses, such as tokens, which can numerically represent different features, such as votes, likes, ownership, among others. A well-known class of them are the so-called non-fungible tokens – or simply NFTs, often used to certify the ownership of various items, especially digital arts and videos.

Videogames are another front with great growth potential. Several games explore the possibility of decentralized transactions on blockchains, in particular using NFTs, to create an environment where ownership of game assets goes beyond the game environment itself. Currently, it is possible to trade virtual plots of some of these games on NFT exchanges, making these assets viable as investment options.

Another offshoot of distributed ledger technologies are the decentralized autonomous organizations (DAOs) that run on blockchain, with rules defined through smart contracts and automated and transparent operation.

Several real applications in blockchains are underway. In the Brazilian public sector, its use is envisaged in the areas of taxation, health, digital identity and management of agreements and programs. Concrete examples include BNDESToken and TruBudget, both focused on recording the release and use of public resources. Another important initiative is the Rede Blockchain Brasil (RBB), which aims to enable the construction of demonstrably reliable and transparent public processes in order to promote citizens' trust.

Despite these initiatives, the Brazilian regulatory environment still does not allow for a more comprehensive application of blockchains, and this is a greatly urgent challenge. Translating all these potentialities into numbers, distributed ledger technologies can generate a world wealth estimated at around USD³ trillion in 2030, according to Gartner³. Considering such estimates for the Brazilian scenario, the economic impact from developing Web 3.0 could reach USD 42

³ Gartner, available at <https://www.gartner.com/en/newsroom/press-releases/2019-07-03-gartner-predicts-90-of-current-enterprise-blockchain>.

billion in the same year. From a fiscal standpoint, this wealth would translate into USD 13.78 billion in collected tax.

Brazil also faces challenges in human resources: according to the UNCTAD⁴ technological competitiveness ranking, the country is placed 53rd in terms of competences for the use, adoption and adaptation of cutting-edge technologies. Estimated 1 million jobs to support Web 3.0 will be in demand by 2030.

Despite our technological shortfalls, the expected economic impact over the next ten years will be significant. Brazil, therefore, needs to improve its base of tech-trained human resources, in addition to structuring the appropriate normative framework, generating wealth and revenue to match.

⁴ *Technology and Innovation Report 2021, available at <https://unctad.org/page/technology-and-innovation-report-2021>*

BETTING IN SPECIAL JURISDICTIONS

Special jurisdictions are strategic initiatives for institutional experimentation and an important tool in the Asian development toolkit of the last few decades. The proposal of the special jurisdiction is to provide public managers with normative tools that can be made flexible to attract investments from the private sector; create new urban spaces, while combining sustainability and innovation; stimulate production; and generate more jobs and income for people.

There are three generations of special jurisdictions. First-generation Special Economic Zones (SEZs) are those established in the wake of World War II and characterized by having a simple focus on processing exports. The Manaus Free Trade Zone, despite its particularity of “import processing,” is the inspiration for this first wave. The second generation of SEZs emerged in the 1960s and 1970s and distinguished itself by combining industrial strategy with tax exemptions and other financial incentives for multinational corporations. The third generation of SEZs, which began to emerge in the 1980s, include those with greater public-private partnership and that provide a more favorable environment for business through deregulation and liberalization.

The formation of development clusters facilitates the connection with other clusters abroad, attracting foreign exchange and increasing international trade. For developing countries, SEZs can be a useful tool as part of a growth strategy to increase industry competitiveness and attract foreign direct investment. Through SEZs, governments can develop and diversify exports, create jobs and implement pilot programs for new policies and approaches, for example in relation to customs, legal, labor, environmental and public-private partnership aspects. SEZs also allow for more efficient government oversight of companies, provision of external infrastructure and environmental controls.

According to a report from the World Bank⁵, the success of an SEZ is largely determined by the choices made early in the project, in particular those related to legal and political infrastructure, incentive packages and other bureaucratic provisions and procedures. Experience suggests that maximizing the benefits

⁵Special Economic Zones, disponível em <https://documents1.worldbank.org/curated/en/343901468330977533/pdf/458690WP0Box331s0A-pril200801PUBLIC1.pdf>.

offered by SEZs largely depends on the degree of integration with their host economies and their overall trade and investment reform agendas. In particular, when zones are designed as pilots of legal and regulatory reforms within a planned policy framework, they are more likely to achieve their objectives.

The entry of the private sector into the development of third-generation SEZs has also changed the range of facilities, services and resources available within them. Recent trends include developing SEZs and industrial plants in an integrated manner, increasing specialization of facilities that meet the unique needs of target industries and providing a wide range of business support services. Many of these zones are conceived within the Sustainable Development Goals, combining institutional advances with social prosperity, sustainability and neutrality in greenhouse gas emissions.

Special jurisdiction is a term that goes beyond SEZs. It covers different types and generations of geographic areas for institutional experimentation and contemplates future developments for a fourth generation of special economic zones. Brazil should consider updating and implementing legal frameworks on special economic zones to include these future possibilities, such as exploring new charter (model) cities.

Charter cities can be thought of as the next generation of special economic zones, proposed as a way to drive economic growth in developing economies. The idea is to create from scratch a city to be governed by a set of rules (the charter) that are different from the rest of the country. The Brazilian

Constitution already has an adequate fit for this type of institutional arrangement: the federal territories. By being autonomous from other subnational units, federal territories could be free to explore new laws, institutions and governance structures suitable for the 21st century.

There are a number of challenges that need to be addressed for charter cities to be successful. First, while partnering with foreign governments and private companies may be desirable for the basic infrastructure of new cities, it is important to ensure that the charter city is not just a way for rich partners to exploit poor countries. Second, charter city governance structures need to be designed in a way that promotes economic growth and sustainable development, with people-centered and carbon-neutral cities. Finally, it is important to ensure that the charter city does not become an enclave for the wealthy, but is open to labor migration, and that the benefits of economic growth are shared by neighboring areas in particular and the country as a whole.

By creating an environment conducive to economic growth, new models of special jurisdictions can be tools for an institutional and economic leap into the future, attracting investments and stimulating sustainable development, with positive externalities and indirect effects for the rest of the country.

PATHS TOWARDS ECONOMIC PROGRESS

Improving the business environment: reviewing industry subsidies, promoting a tax reform for a less complex and regressive system, updating infrastructure with regulatory stability and legal certainty, promoting administrative reform with effective performance evaluation and reduction, and career standardization;

Focusing on growth: economic development as a meta-agenda and basis for a healthy democratic system;

Investing in human capital: greater agility and efficiency in science management processes and emphasis on technical and professional training, shortening the path between school and the job market;

Technology: Web3 and distributed ledger technologies as new opportunities to revolutionize both public management and the business environment;

Special jurisdictions: SEZs and charter cities as strategic tools for institutional experimentation and the promotion of economic development.