State Transformation in Brazil

Designing mission-oriented public procurement, state-owned enterprises and digital public infrastructure to advance sustainable and inclusive growth

Edited by Mariana Mazzucato

Policy Report – January 2025

UCL IIPP Institute for Innovation and Public Purpose

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Edited by

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About the Institute for Innovation and Public Purpose (IIPP)

The Institute for Innovation and Public Purpose (IIPP) at University College London (UCL) brings together cutting-edge academic theory with teaching and policy practice, to rethink the role of the state in tackling some of the biggest challenges facing society.

IIPP works with partners to develop a framework which challenges traditional economic thinking, with the goal of creating, nurturing and evaluating public value in order to achieve growth that is more innovation-led, inclusive and sustainable. This requires rethinking the underlying economics that have informed the education of global public servants and the design of government policies.

IIPP's work feeds into innovation and industrial policy, financial reform, institutional change and sustainable development. A key pillar of IIPP's research is its understanding of markets as outcomes of the interactions between different actors. In this context, public policy should not be seen as simply fixing market failures, but also as actively shaping and co-creating markets. Re-focusing and designing public organizations around mission-led, public purpose aims will help tackle the grand challenges facing the 21st century.

IIPP is uniquely structured to ensure that this groundbreaking academic research is harnessed to tackle real world policy challenges. IIPP does this through its high-quality teaching programme, along with its growing global network of partners, and the ambitious policy practice programme.

IIPP is a department within UCL – and part of The Bartlett, ranking number one in the world for architecture and the built environment in the world.

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About the project

This report was written as part of a project funded by the Open Society Foundations, led by Mariana Mazzucato (Principal Investigator).

IIPP is collaborating with the Ministry of Management and Innovation in Public Services (MGI) to support MGI's agenda of state transformation, exploring the design of government tools and institutions and the development of capabilities that will be needed to implement the Government of Brazil's economic transformation agenda. The project aims to advise the Government of Brazil on how to implement its ambitious economic transformation agenda, with a focus on the design and governance of public procurement, state-owned enterprises (SOEs), and digital public infrastructure (DPI). This report synthesizes insights related to challenges and opportunities in implementing mission-oriented innovation policies in Brazil, based on research conducted from January 2024 to October 2024.

Acknowledgments

This work was made possible thanks to the energy, time and commitment of many people. Thank you to the IIPP team: Sarah Doyle for her strategic leadership, Manuel Maldonado for his project management support, Fernando Teixeira, Eduardo Spanó, Giulia Lanzuolo, Giovanni Tagliani, João Braga, and Dan Wainwright for their contributions to the research and writing. Thank you also to the team at MGI for their collaboration throughout the project, in particular: Minister Esther Dweck, Francisco Gaetani, Roberto Pojo, Elisa Leonel, Felipe Guth, Norberto Montani, Guilherme Almeida, Roberta Saita, Emilio Chernavsky, Camila Krepsky and Ana Heloisa Moreno. We are also grateful for the time and insights of interviewees and workshop participants, including from: Agência Brasileira de Desenvolvimento Industrial (ABDI), Advocacia-Geral da União (AGU), Controladoria-Geral da União (CGU), Tribunal de Contas da União (TCU), Escola Nacional de Administração Pública (ENAP), Instituto de Pesquisa Econômica Aplicada (IPEA), Casa Civil da Presidência da República (Casa Civil), Fundação Oswaldo Cruz (FIOCRUZ), Fundo Nacional de Desenvolvimento da Educação (FNDE), Fundação Nacional de Saúde (FUNASA), Ministério das Comunicações (MCOM), Ministério da Ciência, Tecnologia e Inovação (MCTI), Ministério do Desenvolvimento Agrário e Agricultura Familiar (MDA), Ministério do Desenvolvimento, Indústria, Comércio e Serviços (MDIC), Ministério do Desenvolvimento e Assistência Social, Família e Combate à Fome (MDS), Ministério da Fazenda (MF), Ministério da Gestão e da Inovação em Serviços Públicos (MGI), Ministério das Micro e Pequenas Empresas (MEMP), Ministério da Justiça e Segurança Pública (MJ), Ministério do Meio Ambiente e Mudança do Clima (MMA), Ministério das Relações Exteriores (MRE), Ministério da Saúde (MS), Ministério dos Transportes (MT), Ministério da Agricultura e Pecuária (MAPA), Ministério de Minas e Energia (MME), Ministério do Planejamento e Orçamento (MPO), Empresa Brasileira de Pesquisa e Inovação Industrial (Embrapii), Banco Nacional de Desenvolvimento Econômico e Social (BNDES), Caixa Econômica Federal (Caixa), Banco do Brasil (BB), Petróleo Brasileiro S.A. (Petrobras), Financiadora de Estudos e Projetos (FINEP), Serviço

Federal de Processamento de Dados (SERPRO), Empresa de Tecnologia e Informações da Previdência Social (DATAPREV), Empresa Brasileira de Participações em Energia Nuclear e Binacional (ENBPar), Empresa Brasileira de Pesquisa Agropecuária (EMBRAPA), Empresa Brasileira de Hemoderivados e Biotecnologia (Hemobras), Telecomunicações Brasileiras S.A. (Telebras), Centro Nacional de Tecnologia Eletrônica Avançada S.A. (Ceitec), Empresa Gerencial de Projetos Navais (Emgepron), Amazon Environmental Research Institute (IPAM), Brazilian Central Bank (BC), Brazilian Federation of Banks (FEBRABAN), Center for Innovation in Brazilian Education (CIEB), Centre of Technology and Society (CTS-FGV), Consumer Defense Association (IDEC), Data Privacy, Datasphere, Forest Code Observatory, Imaflora, Institute for Life Center, Institute for Society, Population, and Nature, Institute for Technology and Society (ITS), Lemann Foundation.

Methodology

This report draws on a review of relevant academic literature and policy documents, insights from other jurisdictions, three interministerial workshops co-hosted by IIPP and MGI, and interviews with representatives from a diverse range of Brazilian stakeholders, including ministries, subnational entities, state-owned enterprises, control bodies, the judiciary, business associations, third-sector organizations, worker representatives, academia and other relevant parties. It also builds on three working papers (Mazzucato et al., 2024a, 2024b; Mazzucato, Eaves and Vasconcellos, 2024c). This report focuses on three specific areas in which transformation of government tools and institutions could support sustainable and inclusive growth. It does not cover all areas in which reforms may be needed. Approaches to citizen engagement, for example, are deeply important to the success of the government's economic agenda but are not the focus of this report.

Executive Summary

The Government of Brazil has committed to a model of economic development that prioritises decarbonising the economy, along with tackling hunger, extreme poverty and inequality. Its agenda of economic transformation – which is being advanced through initiatives such as the Ecological Transition Plan, the New Growth Acceleration Plan, the mission-oriented New Industrial Policy, and the Climate Plan – is deliberately bringing economic, social and environmental priorities into alignment. However, realising its full potential will require a parallel agenda of state transformation, to empower the public service to successfully direct growth and shape markets that work for the people of Brazil and for the planet (Mazzucato, 2023b; 2024).

The success of the government's economic agenda will require a whole-of-government, cross-sectoral approach oriented around achieving shared goals, or "missions" (Mazzucato, 2018a; 2021), enabled by partnerships, capabilities, tools and institutions that are fit for purpose. This report explores the design and governance of public procurement, state-owned enterprises (SOEs) and digital public infrastructure (DPI) as central elements of the government's wider agenda of state transformation.

Summary of recommendations for the Government of Brazil:

PUBLIC PROCUREMENT:

Governance:

- **Prioritise the interministerial coordination of mission-oriented procurement at scale in the mandates of the Interministerial Commission for Innovations and Acquisitions of the Growth Acceleration Programme (CIIA-PAC) and the Interministerial Commission on Public Procurement for Sustainable Development (CICS)**, expanding beyond the current focus on local content rules and prioritising purchasing categories that correspond with opportunities to strategically leverage the purchasing power of the state in alignment with overarching missions.
- **Develop governance frameworks for procurement decision making that incentivise mission-alignment while prioritising accountability and trust,** in collaboration with control bodies and the attorney-general's

office and building on existing models such as that of the Health Economic-Industrial Complex (HEIC), which incorporates technical and deliberative committees for collective and transparent decision making while allowing for risk-taking and discretion to consider mission-orientation in procurement.

Outcomes orientation:

- **Incorporate a strong focus on outcomes-oriented (rather than output-oriented) procurement within the National Strategy for Public Procurement for Sustainable Development (ENCP)**, identifying priority areas for applying this approach, pointing to the procurement practices that will need to change to enable it, and prioritising coordination of procurement as a demand-side lever with supply-side measures that will need to work in concert with it to effectively shape markets.
- **Develop a framework for defining and measuring the public value of procurement** to incentivise a more strategic, policy-aligned deployment of procurement, track progress towards overarching mission goals and foster ongoing learning and adaptation. This could take the form of a dashboard of metrics associated with missions, encompassing economic, social and environmental indicators and considering dynamic spillovers and wider societal impacts at both the project and portfolio levels.

Capacity for delivery and innovation:

- **Invest in building the capacity and capabilities of procurement teams at all levels of government.** For example, the Ministry of Management and Innovation in Public Services (MGI) could provide or orchestrate the provision of resources and support to procurement teams in line ministries, sub-national governments and state-owned enterprises (SOEs) where CIIA-PAC and CICS identify high-potential opportunities for strategic procurement, including through redeployment of specialised human resources, use of centralised purchasing bodies, technical assistance, specialised training, and communities of practice.
- **Strengthen the role of centralised purchasing bodies** – not only to shape markets aligned with the government's wider economic transformation agenda by pooling procurement budgets, but also to function as public innovation labs, operating at the vanguard of strategic procurement, with a remit to experiment and advance demonstration projects that could encourage wider adoption of strategic procurement across government.

- **Consider measures, such as reforms to competency models, to support procurement agents in developing relevant competencies,** to encourage experimentation and adaptive learning, and to value their work.

STATE-OWNED ENTERPRISES (SOEs):

- **Consider establishing a new unit or commission responsible for interministerial strategic coordination of SOEs,** potentially through reform of the Interministerial Commission on Corporate Governance and the Administration of Union Shareholdings (CGPAR), to improve coordination, foster interministerial dialogue and communication between ministries and SOEs, define strategies for how key SOEs can support national policy priorities, and establish guidelines for the strategic coordination of SOEs as well as evaluation criteria.
- **Develop an enhanced technical support function, potentially housed within the Secretariat for the Coordination and Governance of State-Owned Enterprises (SEST) at MGI**, focused on:

    1. **Providing data and information on SOE operations and global models** to support CGPAR (or a new strategic coordination unit/commission) and the broader central government in its decisions, in addition to equipping SOEs and their boards of directors with a shared interpretation of policy guidelines.
    2. **Facilitating expertise exchange** among ministries, technical bodies, boards, and other actors within the broader SOEs ecosystem. This could include documenting best practices and building capacity to incorporate conditions on private sector access to public funds and other benefits in all contracts, thereby encouraging the creation of new forms of public–private collaboration, and promoting best practices related to leveraging SOE procurement to shape markets.
    3. **Defining public value indicators** to promote alignment with wider policy goals, foster a deeper understanding of the value generated by SOEs, encourage adaptive learning, and enhance transparency.
    4. **Building capacity,** for example in relation to mission delivery and market shaping, confidently designing policies and partnerships that maximise public value, innovation and calculated risk-taking, and learning.

- **Shape the new SOE modernisation service that the National Bank for Economic and Social Development (BNDES) is developing to include a focus on helping SOEs align their operations and investments with national policy goals.** MGI and BNDES could consider opportunities to partner in delivering support to SOEs.

DIGITAL PUBLIC INFRASTRUCTURE (DPI):

To effectively scale up DPI in Brazil, attention should be paid to:

- **Designing DPI according to common good principles with a clear orientation around specific policy priorities:** The design of DPI initiatives should be guided by a common-good framework (Mazzucato, 2023a) to maximise their public value. This includes orienting DPI around a clear use case, aligned with an overarching policy priority. In the example of the Rural Environmental Registry (CAR), this use case could be to enable traceability of agricultural products for the purpose of tackling deforestation and promoting sustainable agro-industrial chains, in line with Brazil's New Industrial Policy and Ecological Transformation Plan.
- **Capacity building:** Advancing DPI requires investment in state capabilities to ensure governments can embed common good principles in its design. For example, this requires the ability to engage in user centred design, and to regulate data in the public interest, in addition to specialised technological and domain expertise. Capacity building is important not only at the national level, but also at local and regional levels of government that are charged with roles related to activities such as adoption, enforcement, data collection and validation.
- **Bottom-up experimentation:** Leveraging the experiences of states and municipalities can inspire a broader adoption of DPI and inform federal policy, following a bottom-up approach. Identifying and building on successful subnational practices could help to shape a cohesive national strategy.
- **Interministerial and intergovernmental coordination:** Effective DPI implementation requires robust coordination across government bodies to enable effective data sharing, serve the needs of citizens in a user-friendly way (such as with single window access) and leverage the potential of DPIs to function as reusable systems intended for diverse applications.

- **Minimalist, modular design:** Adopting a minimalist, modular approach in DPI policy design can enhance usability and reduce costs. Rather than sharing entire datasets, a focused approach provides only the specific information required for each use case.
- **User-centric data reporting:** Building effective DPI requires skills to engage public servants, and even citizens, in meaningful data reporting. For databases to be reusable by other institutions, data must be collected, and its accuracy must be ensured. This requires effective user engagement and service design.
- **Long-term investment models:** The continuity of DPI relies on sustainable investment models.

This report is based on research and analysis led by Professor Mazzucato and her team at IIPP over the past year, in close collaboration with MGI. It focuses on three specific areas in which transformation of government tools and institutions could support sustainable and inclusive growth. It does not cover all areas in which reforms may be needed. Approaches to citizen engagement, for example, are deeply important to the success of the government's economic agenda but are not the focus of this report.

Foreword by Minister Esther Dweck

The current generation of civil servants faces a historic challenge: building a state with the capacity to provide agile responses to the multiple crises we face while ensuring it remains – as it always has throughout history – the guiding force and pillar of national development.

This moment calls for urgency. Several challenges, including economic, climate, health, and geopolitical tensions have been accompanied by the rise of ideologies that advocate for the dismantling of public and multilateral institutions and that defy democratic values.

In this context, our partnership with the UCL Institute for Innovation and Public Purpose (IIPP) is timely. The Institute has been instrumental in building state capabilities in various countries, and Brazil is no exception. It has fostered the mission-oriented coordination of efforts across different government entities and design of partnerships with the private sector that are able to catalyse innovation and intersectoral economic development.

This report highlights initiatives from the Brazilian government and outlines pathways for mission-oriented action in three key focus areas: public procurement, state-owned enterprises (SOEs), and digital public infrastructures (DPI) – genuine assets of the Brazilian people which, if used in a coordinated and intentional manner, turn into significant drivers of the nation's development.

When it comes to public procurement, Brazil can draw on existing successes, such as the partnerships conceived for the acquisition of medicines for the Unified Health System (Sistema Único de Saúde – SUS), accompanied by technology transfer to the country and the strengthening of the health economic-industrial complex, as well as the procurement of products from family farming for public school meals, prioritising organic food and women-led suppliers. We are committed to replicating policies like these and expanding the strategic use of public procurement. So far, we have established the Interministerial Commission on Public Procurement for Sustainable Development (Comissão Interministerial de Contratações Públicas para o Desenvolvimento Sustentável – CICS) and we are currently developing the National Strategy for Public Procurement for Sustainable Development (Estratégia Nacional de Compras Públicas – ENCP) to align procurement practices with other policy priorities and improve state capabilities in this focus area.

Similarly, Brazil has advanced in the development of digital public infrastructures, as in the case of PIX, the digital public payment system that handles over 5.5 billion transactions monthly; the National Identity Card (Cartão de Indentidade Nacional - CIN), a digital document with biometric identification that makes citizens' social security numbers the foundational identification registry for all Brazilians; and the Rural Environmental Registry (Cadastro Ambiental Rural – CAR), which captures environmental information about land use, thus aligning their economic activities with environmental guidelines. We have also launched the National Digital Government Strategy to accelerate the development of DPIs and promote interoperability with different systems.

State-owned enterprises, in turn, have historically played – and continue to play – a key role in Brazil's economy. They ensure, for instance, national self-sufficiency in oil extraction, the development of state-of-the-art agricultural technologies that sustain Brazil's international competitiveness, and the provision of digital services within the government. Moreover, state-owned enterprises are in a unique position to drive innovation, shape markets, and steer investments to priority sectors. We are implementing policies to unlock this potential by improving governance, increasing efficiency, and ensuring greater returns for the entire society.

Based on these experiences – and on the creative and entrepreneurial ethos of the state – the Ministry of Management and Innovation in Public Services, which I have the honour of leading, promotes the development of the capabilities required to build the state that Brazilian society will demand in the future. A state that is green, digital, and inclusive. The recommendations provided by the IIPP will help to ensure that the measures underway are genuinely transformative, maximising their impact on the public sector, markets, and society.

This report celebrates the joint efforts between MGI and IIPP. It symbolises a remarkable step in building a more just, digital, and sustainable Brazil, where the state and the private sector act as partners in development and prosperity. I extend my gratitude to Professor Mazzucato and her team for contributing to the materialisation of this vision.

Minister Esther Dweck

Minister of Management and Innovation in Public Services for Brazil

Preface by Professor Mariana Mazzucato

The Government of Brazil has signalled its intent to advance sustainable and inclusive growth. In doing so, it has the opportunity not only to improve outcomes for the people of Brazil and for the planet; but also, to demonstrate to other countries globally what it means to bring economic, social and environmental goals into alignment. The government has set in motion a potentially transformative economic agenda through its mission-oriented new industrial strategy, ecological transformation plan and other initiatives. But to realise the potential of these initiatives, an equally ambitious agenda of state transformation is needed.

The UCL Institute for Innovation and Public Purpose, which I founded and direct, has been working with Minister Esther Dweck and the Ministry of Management and Innovation in Public Services (MGI) since 2023, collaborating closely to help the ministry identify and advance priorities for building the capacity of the state to deliver on the government's agenda.

A key challenge facing the government is the risk of policy strategies – for example on industrial strategy or climate – being siloed within individual ministries. A mission-oriented, whole-of-government approach allows ministries to work together toward common goals, ensuring that the whole is greater than the sum of the parts. My 2023 report, *Innovation-driven inclusive and sustainable growth: challenges and opportunities for Brazil*, discussed the changes that would be needed to adopt this approach in Brazil.

Over the course of the past year, we have turned our attention to the tools and institutions that are needed to implement the government's agenda. While this work has focused on three specific areas, we recognise that numerous other areas, such as citizen engagement, are vital to the success of the government's agenda. We have developed concrete recommendations for the governance and design of public procurement, state-owned enterprises (SOEs), and digital public infrastructure (DPI) – three areas in which reform is urgently needed to enable the government to shape markets, direct growth, and foster collaboration across government oriented around achieving climate, health for all, food security and other pressing policy priorities.

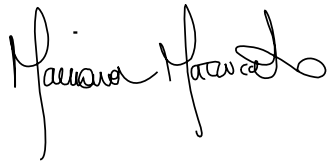
Public procurement, while often deployed as a tool for buying the lowest cost products and services, can become a strategic tool for shaping market opportunities for businesses that align with the government's policy goals. Procurement of school meals, for example, can be designed to support local small agriculture and food producers with conditions that require sustainable land use practices – as has been done in Brazil. This report details specific recommendations for scaling the strategic, mission-orientated use of procurement across the government.

SOEs are major economic actors in Brazil. While they could be instrumental in shaping key markets and structuring public-private collaboration to deliver on the government's policy priorities, however, they are currently governed as independent entities with a bias towards maximising efficiency and profits. Our report sets out specific recommendations for aligning SOEs with the government's policy goals.

While Brazil has been a leader in digital transformation, there is significant room for improvement in building DPI – a priority of the government's new National Strategy for Digital Government. DPI can enable inter-ministerial and intergovernmental coordination, adaptive learning, and a data-driven and citizen-centric approach to advancing economic, social, and environmental policy goals. Our report sets out recommendations for designing DPI in accordance with the principles of the "common good" – for example, to be transparent and accountable, universally accessible with widely shared benefits, conducive to learning, directed to prioritise use cases that correspond with policy goals, and designed with and for the wider public.

This is fundamentally about a new role for the state. Governments around the world have accepted the ideology that the role of the state is to tinker on the margins of the economy - fixing market failures, limiting harms and otherwise enabling and facilitating private sector activity. This view of the state severely limits its ability to live up to promises of more sustainable, inclusive and resilient economies, or to work well with other economic actors. The Government of Brazil has recognised that these promises will remain empty without deliberate investments in the capacity of the state to shape markets, direct growth and structure new forms of collaboration between the public and private sectors that are oriented around shared goals and designed to create shared value.

It has been an honour to work with Minister Dweck and with her colleagues across the government. We look forward to continuing to support their efforts to build a capable, dynamic state in Brazil, equipped with the right institutions and tools to create an economy that works for everyone, including future generations.



Professor Mariana Mazzucato
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1 INTRODUCTION: TRANSFORMING THE STATE TO DIRECT GROWTH AND SHAPE MARKETS

The Government of Brazil has committed to a state-led model of development that prioritises decarbonising the economy, along with tackling hunger, extreme poverty and inequality. The government's agenda of economic transformation – which is being advanced through initiatives such as the Ecological Transition Plan, the New Growth Acceleration Plan, the mission-oriented New Industrial Policy, and the Climate Plan – is deliberately bringing economic, social and environmental priorities into alignment. Realising the full potential of this shift will require a parallel agenda of state transformation, to empower the public service to successfully direct growth and shape markets that work for the people of Brazil and for the planet (Mazzucato, 2023b; 2024).

Brazil's Ministry of Management and Innovation in Public Services (MGI) is well positioned to advance this agenda. MGI enables ministries across the government to implement policy priorities in a coordinated and effective manner. Established in 2023, MGI is responsible for building the state's capacity to advance its agenda and to deliver policies that improve people's lives. This report is based on a partnership between MGI and the UCL Institute for Innovation and Public Purpose (IIPP) that focuses on exploring the design and governance of public procurement, state-owned enterprises (SOEs) and digital public infrastructure (DPI) as central elements of the government's wider agenda of state transformation.

The success of the government's economic agenda will require a whole-of-government, cross-sectoral approach oriented around achieving shared goals, or "missions" (Mazzucato, 2018a; 2021), enabled by partnerships, capabilities, tools and institutions that are fit for purpose. Thoughtful design of procurement, SOEs and DPI is particularly important. The strategic use of Brazil's sizable public procurement budget can shape new market opportunities for businesses, catalysing innovation and investment aligned with the government's policy priorities. SOEs play a fundamental role in Brazil's economy, often operating at the interface between the public and private sectors to deliver essential infrastructure, ensure energy security, fund large-scale and long-term projects, and manage critical services, among other things. However, realising the SOEs' strategic potential requires strengthening their alignment with the goals of Brazil's economic development agenda. Well-designed DPI can facilitate coordination across ministries, levels of government and sectors, while promoting access, transparency and shared learning. Procurement, SOEs and DPI should be seen as strategic, cross-ministerial and cross-sectoral levers for advancing sustainable and inclusive economic growth, and should be designed and governed accordingly.

Brazil has a strong foundation from which to build. It has already developed globally leading public institutions, such as its National Bank for Economic and Social Development (BNDES), which is helping to advance the government's green growth agenda; implemented strategies such as the Health Economic-Industrial Complex (HEIC) that are successfully shaping markets in alignment with policy goals and better enabling the government to meet citizen needs; and pursued a digitalisation agenda that has included a digital identity system to enable inclusive and seamless access to digital services. These and other examples can inform the development of the next generation of policy tools and public institutions in Brazil. As the 2024 president of the G20 and as the 2025 president of both COP30 and the BRICS, Brazil also has the potential to lead global conversations about the reforms required to chart new economic development pathways that prioritise sustainability and inclusion.

This report is based on research and analysis led by Professor Mazzucato and her team at IIPP over the past year, in close collaboration with MGI. It explores key challenges and opportunities related to the implementation of Brazil's sustainable and inclusive economic development agenda, offering practical insights into the design and governance of public procurement, SOEs and DPI in the context of the government's wider state transformation.

1.1 Brazil's economic context

While Brazil's economy is growing, the government's aim of fostering sustainable and inclusive economic development faces significant challenges.

Brazil's economy is growing. The country's projected GDP growth for 2024 stands at around 3 per cent (IMF, 2024), continuing the trend from 2023, well above the regional average. If confirmed, this growth rate would rank behind only the 2003–2010 period (during President Lula's first two terms) when the average growth rate reached 4.1 per cent, outpacing the average growth rates of all other administrations in the last two decades. Growth has been driven primarily by a 5.7 per cent rise in gross fixed capital formation (GFCF) and a 4.9 per cent increase in household consumption compared to the same quarter in 2023. In terms of production, the industrial sector grew by 3.9 per cent, and

the services sector expanded by 3.5 per cent, relative to the second quarter of 2023. At the same time, the agricultural sector, which accounts for 6.2 per cent of Brazil's GDP, faced a decline during the same period, largely due to adverse weather conditions (IBGE, 2024; Brazilian Famers, 2024). However, agribusiness has continued to grow, accounting for 49.3 per cent of Brazil's total exports as of April 2024 (MAP, 2024). Brazil's annual unemployment rate fell to 6.6 per cent during the June–August quarter of 2024, while workers' wage earnings increased compared with the same period in 2023 (IBGE, 2024).

However, Brazil's economic growth and productivity are negatively impacted by low research and development (R&D) investment. National R&D investment has fallen below the OECD average (2.14 per cent), at 1.14 per cent of GDP, with private sector R&D investment at only 0.5 per cent of GDP (Ministério da Ciência, Tecnologia e Inovação 2022). This has limited the country's ability to leverage its strengths to drive innovation. These strengths include scientific expertise; natural resource wealth; a robust innovation ecosystem that includes a wide array of public institutions dedicated to advancing science, technology, and research for public benefit such as Embrapa and Fiocruz; patient public finance from public banks like BNDES and public innovation agencies like FINEP; as well as innovation institutions and policies that span the innovation continuum from research to commercialisation, and comprise supply- and demand-side instruments (Mazzucato & Penna, 2016).

Despite recent strides, Brazil continues to be one of the most unequal countries in the world. The richest 1 per cent have an average monthly per capita income that is 31.2 times higher than the poorest 50 per cent (Pacto Nacional pelo Combate às Desigualdades, 2024). Poverty, which is linked to racial and gender discrimination and exacerbated by uneven access to health and education services, remains a substantial challenge; however, federal social programmes, including Bolsa Família, have been expanded significantly, which has contributed to a 40 per cent reduction in the extreme poverty rate from 2022 to 2023 (World Bank, 2024; SCS, 2024). There was a clear reduction in the proportion of households with food security from 2013 to 2018, followed by a partial recovery in 2023. However, food security levels have not yet returned to the 2013 benchmarks, and 8.7 million people remain in a situation of severe food insecurity (IBGE, 2023). The Government has made tackling hunger a priority, both domestically and globally, through its G20 leadership and is advancing measures to address it. In 2023, for instance, federal transfers to states and municipalities under the National School Feeding Programme (PNAE) were increased, following five years without adjustment.

Deforestation continues at an unsustainable rate but is decreasing. The deforestation rate in the Amazon nearly halved in 2023 compared to the previous year, which is in keeping with President Lula's pledge to end illegal deforestation by 2030 (BBC, 2024). The Amazon Rainforest, more than half of which is located in Brazil, is close to reaching a tipping point beyond which there is a risk of biome-wide forest collapse (Flores et al., 2024). While agriculture and agribusiness are vital to Brazil's economy, they continue to rely on farming methods and land use practices that contribute to deforestation and greenhouse gas (GHG) emissions. Three-quarters of GHG emissions in Brazil result from agriculture and changes in land use (World Bank, 2024). Pressure to adopt sustainable, low-carbon farming practices is growing, not only due to domestic policy priorities but also because global market access is increasingly tied to sustainability standards. For green growth to become a reality in Brazil, agribusinesses will need to recognise the market opportunities inherent in shifting to innovation-driven, low-carbon growth strategies, and low-income populations that are dependent on agriculture for their livelihoods will need support to ensure they do not suffer losses in the context of this shift. The Government of Brazil is investing in a just transition to a low-carbon economy, including by scaling up agricultural subsidies contingent on sustainable land use practices, and injecting up to BRL 10.4B in additional funding into BNDES' Climate Fund, which is now one of the largest in the world (Planalto, 2024).

While Brazil's Unified Health System (SUS) is the largest universal healthcare system in the world, health outcomes across the population remain uneven. SUS faces pressing challenges related to access, organisation and service distribution (Gadelha, 2022). Insufficient provision in certain regions hampers the establishment of a robust and comprehensive regional healthcare network (Ministry of Health, 2024; IEPS, 2023). Brazil's HEIC is creating opportunities to integrate social well-being with economic development, driving innovation and generating technological spillovers that benefit the broader economy while expanding access to critical drugs and technologies. While the HEIC has struggled to secure sustainable financing (Dweck et al., 2022), Brazil's new industrial strategy aims to support its expansion.

1.2 Implementation of Brazil's economic agenda: challenges and opportunities

The Government of Brazil is undertaking a comprehensive reform agenda aimed at greening and re-industrialising the economy, boosting productivity, combating inequality and hunger, and promoting sustainable and inclusive economic growth. This section describes the key elements of Brazil's economic agenda, which are spread across multiple strategies and ministries.

Ecological Transformation Plan (Plano de Transformação Ecológica – PTE)

Spearheaded by the Ministry of Finance and launched in July 2023, the PTE focuses on fostering an inclusive and sustainable economic transformation, notably by advancing regulatory reform, designing tax and financial frameworks and creating and shaping tools to enable green investments. The PTE's three key objectives are: (1) Boosting productivity and creating green jobs through technological innovations in industrial processes and natural resource management; (2) redefining the relationship with the environment by reducing the environmental impact of economic growth, particularly greenhouse gas emissions; and (3) ensuring shared and equitable gains by promoting fair income distribution and broader societal benefits.

The plan is anchored around six pillars: sustainable finance, technological advancements, bioeconomy and agri-food systems, energy transition, circular economy, and new green infrastructure and adaptation. The plan employs a range of financial, fiscal, regulatory, administrative, and operational measures, alongside monitoring and enforcement mechanisms (Ministério da Fazenda, 2023a).

Several elements of the PTE are already in operation or under final adjustments. For example, Brazil's sustainable sovereign bonds, a PTE initiative, had their second issuance in June 2024. Proceeds are allocated to initiatives like deforestation control, biodiversity conservation, the National Climate Fund (focusing on renewable energy and clean transport), poverty reduction (e.g., Bolsa Família), and hunger alleviation (for example, the Food Acquisition Programme) (World Bank, 2024).

The Brazilian Sustainable Taxonomy (TSB), launched for public consultation during COP29, aims to guide investments in sectors prioritising social, environmental, and climate agendas, including climate change mitigation and adaptation; biodiversity protection and ecosystem restoration; sustainable land use and forest management; water resource and marine protection; circular economy transitions; pollution prevention and control; and decent job creation and income growth, with a focus on reducing socio-economic, racial, and gender inequalities. The TSB seeks to drive a greener and more balanced economy, promoting sustainable development and societal well-being (Ministério da Fazenda, 2024b).

New carbon market regulations are the subject of a bill that, at the time of writing, was under consideration in the National Congress. These regulations could create a significant economic incentive to curb deforestation and are expected to help Brazil meet its GHG emission reduction targets.

Another noteworthy initiative is the Brazil Investment Platform for Climate and Ecological Transformation (BIP). Led by the Ministry of Finance in collaboration with the Ministries of Environment and Climate Change (MMA), Development, Industry, Trade and Services (MDIC), and Mines and Energy (MME), the BIP supports the PTE as well as other key government strategies, including the New Industrial Policy and the National Energy Transition Plan. The initiative builds on frameworks developed by the Glasgow Financial Alliance for Net Zero (GFANZ) and BNDES (GFANZ, 2024), which will serve as its secretariat, managing day-to-day operations. As a "country platform," the BIP enables companies with projects in subsectors such as nature-based solutions, bioeconomy, manufacturing, mobility, and energy to submit proposals for consideration. These projects are then shared with a network of financial institutions. To qualify, projects must align with the priorities outlined in the government's strategic plans. Within just three weeks of operation, the BIP had already confirmed seven projects, representing $10.8 billion in potential investments (Ministério da Fazenda, 2024c).

The New Growth Acceleration Plan (Novo PAC)

Overseen by the Civil House and launched in August 2023, the Novo PAC is a large-scale infrastructure investment plan that aims to contribute to inclusive and environmentally sustainable growth, through partnerships between the federal, state and municipal governments, and between the public sector, private sector and social movements. Key areas of focus include digital inclusion and connectivity; healthcare and education; socially inclusive cultural, sports and leisure venues; sustainable and resilient cities; water accessibility; efficient and sustainable transportation; energy security; and defence. The Novo PAC is projected to invest R$1.4 trillion by 2026 and an additional R$300 billion in subsequent years (Casa Civil, 2023).

Although budget constraints are challenging the Novo PAC's implementation, and it is unclear how much progress has been made, some PAC-funded projects are being rolled out (Fonseca, 2024). For example, PAC's Seleção initiative supports projects from states and municipalities aimed at improving quality of life in urban and rural areas, making them more resilient to climate emergencies and reducing regional inequalities. Projects cover slum urbanisation, housing production, land regularisation, sanitation, public space upgrades, bus fleet renewals and rail system upgrades (Casa Civil, 2024).

MGI is helping to create a structure of accountability and transparency for Novo PAC investments through the Integrated Registry of Investment Projects of the Federal Government on the Obrasgov.br platform (Cadastro Integrado de Projetos de Investimento, 2024).

The New Industrial Policy (Nova Indústria Brasil – NIB)

Launched in January 2024 by the Ministry of Development, Industry, and Commerce (MDIC), the NIB adopted a mission-oriented approach informed by Mazzucato (2018a and 2021); see Box 1. The NIB identifies six missions that reflect goals for growth spanning the entire economy, developed by the National Council for Industrial Development (CNDI) (MDIC, 2024a). Chaired by the MDIC, the CNDI includes 20 ministers, the president of BNDES and 21 representatives from industry and labour organisations. The NIB aims to reverse a 30-year trend of deindustrialisation that has been characterised by declines in productivity, jobs and the contribution of manufacturing to GDP (IBGE, 2022; FGV IBRE, 2023) by investing over R$ 342.7 billion through public financial institutions like BNDES and FINEP. This investment has stimulated private-sector investment and promoted collaboration among government, financial institutions and industry, oriented around its six missions.

Each mission sets aspirational targets for 2033. Following the initial launch of the plan, the government committed to setting intermediate targets for 2026, along with new information on policy support measures that will be adjusted as needed based on regular monitoring of progress (MDIC, 2024a). Intermediate targets have been announced on a mission-by-mission basis and, as of December 2024, updates have been announced for Missions, 1, 2, 3, 4 and 5. Updates to the remaining mission are expected in the coming months.

BOX 1: Nova Indústria Brazil Action Plan: Six mission areas

NIB's Missions

- **Mission 1: Sustainable and digital agri-industrial chains for food, nutritional, and energy security**
- **Mission 2: Resilient health-industrial complex to reduce SUS vulnerabilities and increase access to healthcare**
- **Mission 3: Sustainable infrastructure, sanitation, housing and mobility for productive integration and well-being in cities**
- **Mission 4: Digital transformation of the industry to increase productivity**
- **Mission 5: Bioeconomy, decarbonisation, and energy security transition to ensure resources for future generations**
- **Mission 6: Technologies of interest to national sovereignty and defence**

Source: Ministério do Desenvolvimento Indústria e Comércio (2024a).

The 2026 goals of Mission 1 include: boosting GDP growth in the agricultural industry to 3% annually, rising to 6% per year by 2033, increasing mechanisation in family farming to 28% by 2026 and 35% by 2033, and enhancing the "technification" of family farming to 43% by 2026 and 66% by 2033. Technification refers to the adoption of agricultural equipment and technologies that extend beyond basic mechanisation (Ministério do Desenvolvimento, Indústria, Comércio e Serviços, 2024b).

For Mission 2, the aspirational target is to 'produce 70 per cent of the country's national needs in medicines, vaccines, medical equipment and devices, materials, and other health-related inputs and technologies domestically (Ministério do Desenvolvimento, Indústria, Comércio e Serviços, 2024a).' The 2026 target is set at 'producing 50 per cent of the country's national needs,' driven by demand from Brazil's universal healthcare system (SUS) giving preference to local production and research (Ministério da Saúde, 2024d; Ministério do Desenvolvimento, Indústria, Comércio e Serviços, 2024c). This mission builds on Brazil's existing HEIC, which leverages mission-oriented public procurement, public–private partnerships, and SOEs to bring the goal of health for all Brazilians into alignment with the goal of building a robust health and pharmaceutical industry (see Box 6).

For Mission 3, targets include ensuring that 33% of electric vehicles in Brazil are equipped with domestically produced batteries by 2033, with an interim target of at least 3% by 2026. Additionally, by 2026, the aim is to deliver two million homes under the “Minha Casa Minha Vida” (MCMV) programme, 500,000 of which will be equipped with solar panels. By 2033, this target rises to 6.9 million homes, including 1.4 million fitted with photovoltaic panels (Ministério do Desenvolvimento, Indústria, Comércio e Serviços, 2024d).

For Mission 4, the target for 2033 is to ‘digitally transform 50 per cent of Brazilian industrial companies, ensuring the participation of domestic production in new technology segments.’ With the update, the target for 2026 is to ‘digitally transform 25 per cent of Brazilian industrial companies, ensuring the participation of domestic production in new technology segments’ through the promotion of innovation and the development of advanced digital technologies. The aim is to reduce costs and accelerate the diffusion of these technologies, thereby driving the acceleration of digital transformation across the country. The updated target for 2026 aims to ‘digitally transform 25 per cent of Brazilian industrial companies, ensuring the integration of domestic production into emerging technology sectors.’ This goal focuses on fostering innovation and advancing the development of cutting-edge digital technologies. By reducing costs and expediting the adoption of these technologies, the initiative seeks to accelerate digital transformation nationwide (Ministério do Desenvolvimento, Indústria, Comércio e Serviços, 2024e).

For Mission 5, targets for promoting green industry by 2026 include reducing greenhouse gas emissions intensity per unit of product in line with the sectoral targets of the Climate Plan, increasing the share of biofuels and electric vehicles in the transport energy mix by 27%, and expanding the technological and sustainable use of biodiversity by industry by 10%. By 2033, the aim is to achieve a 50% share of biofuels and electric vehicles in the transport energy mix and increase the technological and sustainable use of biodiversity by industry by 30%. Some of the value chains identified include green diesel, sustainable aviation fuel (SAF), ethanol, low-carbon hydrogen, biomethane, sustainable base industries (such as steel and cement), wind turbines, and solar panels (Ministério do Desenvolvimento, Indústria, Comércio e Serviços, 2024f).

The Climate Plan (Plano Clima)

The Plano Clima is currently being developed by the Ministry of Environment and Climate Change (MMA) and is set for release in 2025. It will serve as Brazil’s primary framework for reducing deforestation and transitioning to a low-carbon economy, with the goal of achieving climate neutrality. The plan will outline national mitigation targets through eight sectoral plans, shaped by technical and scientific data, and informed by public consultation. Its aim is to identify the most cost-effective and efficient strategies for cutting emissions. Key proposed actions include promoting low-carbon agricultural practices, improving energy efficiency, expanding the production of low-emission fuels, and implementing initiatives such as selective waste collection and energy recovery from solid waste (Ministério do Meio Ambiente e Mudança do Clima, 2024).

It will be important for each of these strategies to interact with one another in a joined-up way to avoid reinventing the Government’s bold policy goals within each ministry.

2 THE OPPORTUNITY FOR A MISSION-ORIENTED APPROACH TO DIRECT INCLUSIVE AND SUSTAINABLE GROWTH IN BRAZIL

Author: Mariana Mazzucato

Brazil's economic transformation agenda calls for the state to take a more proactive role in developing markets that benefit people and the environment. The ambition and complexity of this agenda necessitate a shift in mindset and new ways of working. Importantly, the agenda requires investment in building the capacity of the state.

In recent decades, Brazil's government modernisation reforms have often aimed at short-term cost savings, such as reducing bureaucracy, consolidating departments, and outsourcing essential functions. This has undermined the state's capacity to tackle big challenges and deliver citizen-centred services. MGI, which was established to strengthen state capabilities and reimagine Brazil's public sector, is part of a recent effort to reverse this trend.

Implementation of the government's agenda could benefit from a shift to mission-oriented policy design, a new approach to public–private collaboration, meaningful citizen engagement, and dynamic capabilities. This chapter provides a brief overview of these overarching shifts, while the subsequent chapters explore the changes to specific tools and institutions that may be needed for implementation to succeed.

A mission-oriented, whole-of-government approach

A mission-oriented, whole-of-government approach to policy design allows ministries to work together toward common objectives, ensuring that the whole is greater than the sum of the parts. By setting clear, bold, long-term goals and shaping market opportunities that reflect these goals, a mission-oriented approach can also catalyse private sector investment and innovation aligned with the government's social and ecological policy priorities. In this way, a mission-oriented approach can be used to drive an economy-wide transformation, directing growth and shaping markets that are more sustainable and inclusive. Missions generate economic benefits – including growth, jobs and productivity – but these benefits are not themselves the mission and are instead realised on the way to achieving social and ecological goals (Mazzucato, 2018 & 2021); see Box 2.

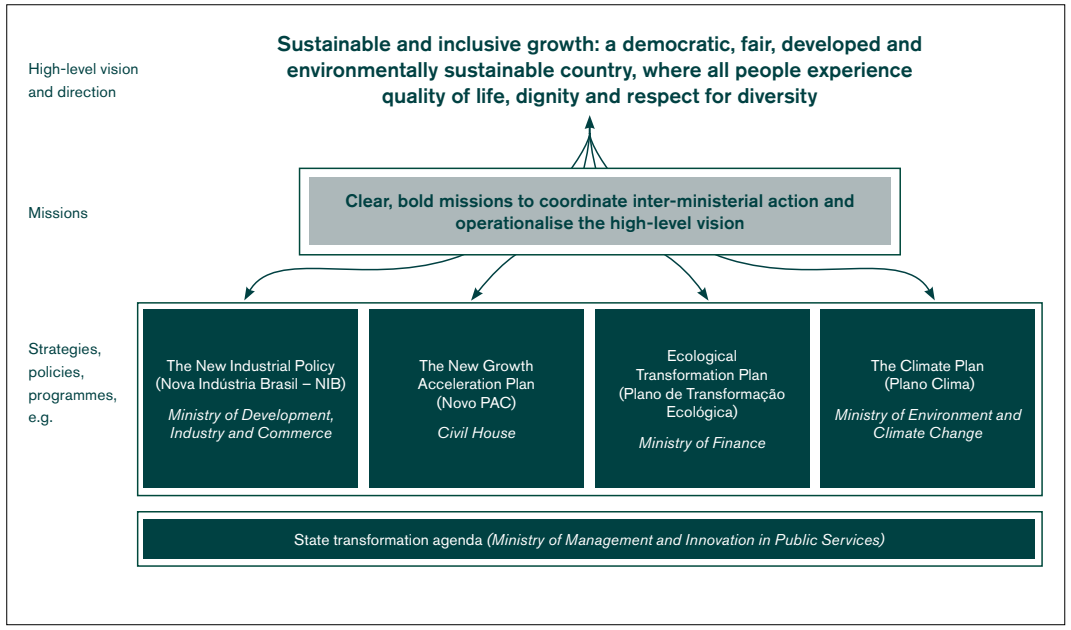
The Government of Brazil has oriented its major initiatives around a clear vision – of sustainable and inclusive growth that gives rise to a democratic, fair, developed and environmentally sustainable country, where all people experience quality of life, dignity and respect for diversity (Ministério do Planejamento e Orçamento, 2023). However, these initiatives could be further aligned and progress could be accelerated by articulating missions applicable across ministries, initiatives and sectors (see Figure 1). The government has taken steps to improve coordination, such as through interministerial commissions focused on adopting a more strategic approach to procurement and through the participation of multiple ministries in the articulation of the NIB; however, the risk remains that each ministry could pursue its own version of these goals in a siloed way, jeopardising the overarching vision (Mazzucato, 2023b).

While missions that transcend individual strategies would support deeper coordination, the fact that Brazil's NIB is explicitly mission-oriented is promising. Its missions make a clear link between Brazil's reindustrialisation ambitions and its ecological transformation and social inclusion objectives; for example, orienting industrial development around goals related to sustainable and nutritious food, access to healthcare, sustainable urban infrastructure and decarbonisation. However, the mission goals are described in technocratic terms that may challenge their ability to have wide resonance, and their targets are relatively narrow and tend to focus on boosting production in specific sectors rather than on social and environmental goals that require cross-sectoral investment and innovation. The recent updates to the NIB missions reflect this more sector-based approach. This is noticeable in the prioritisation of certain value chains and subsectors, such as medicines and biological active ingredients, vaccines, blood derivatives, advanced therapies and medical devices in Mission 2; and semiconductors, industrial robots, and advanced digital products and services in Mission 4. Mission 4's focus on digital transformation also focuses on a cross-cutting enabler that will be required to achieve all missions, rather than on a societal challenge (such as digital inclusion) that would require cross-sectoral investment and innovation (Mazzucato, 2023b).

Focusing on sectors ('picking winners') rather than on cross-sectoral missions may heighten the risk of capture. This does not imply that the government should stop focusing on specific sectors that either represent areas of economic strength or need specific help to grow; rather, government support for individual sectors should be contingent on these sectors transforming to align with mission goals. By focusing on crowding in cross-sectoral innovation and investment aligned with each mission, there is a higher potential for a multiplier effect and a

lower risk of capture compared to traditional sector-based subsidies that tend to lack a clear direction and may boost profits without driving significant investment (Mazzucato et al. 2024a; Mazzucato, 2024).

Figure 1: Missions can help coordinate different ministerial strategies around a shared vision and direction



(Author's elaboration, updated from Mazzucato, 2023b)

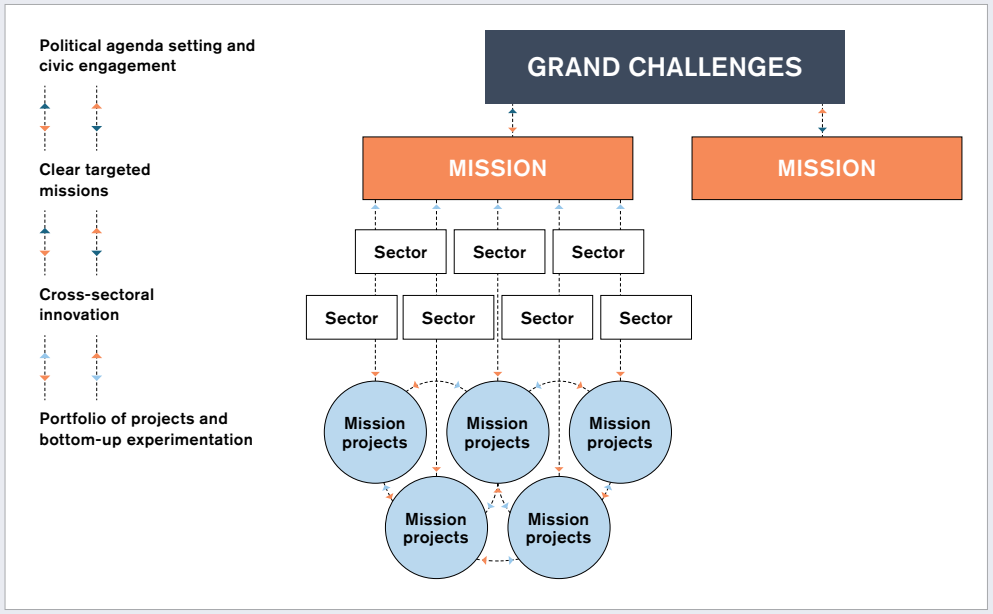
Box 2. What is a mission-oriented approach?

Missions coordinate cross-ministerial efforts to tackle pressing societal challenges. By translating social and environmental challenges into cross-sectoral market opportunities and pathways for investment and innovation, they can drive an economy-wide transformation that reshapes production, distribution, and consumption. Mission-oriented industrial strategy contrasts with the traditional approach of picking key sectors or technologies ("picking winners") to support, which carries a higher risk of capture and misses the potential of cross-sectoral missions to stimulate new collaboration, transformation and spillovers, leading to a multiplier effect (Mazzucato, 2018; Mazzucato 2021).

Effective missions should meet five key criteria:

1. **Be bold and inspirational with wide societal relevance:** Missions should be ambitious and resonate with the public, demonstrating how targeted actions can deliver tangible solutions that improve everyday lives.
2. **Set a clear direction — targeted, measurable, and time-bound:** Missions need precise goals that support long-term investments while allowing short-term evaluations. Objectives should be either binary (such as the moon landing) or quantifiable (such as reducing carbon emissions by a specific percentage).
3. **Be ambitious but realistic:** While aiming high, missions must focus on innovation across the entire chain, from research to implementation, ensuring a balance between boldness and feasibility.
4. **Encourage cross-disciplinary, cross-sectoral, and cross-actor innovation:** Missions should encourage collaboration across disciplines, sectors (health, transport, etc.), and among various stakeholders, including public, private, and civil society organisations.
5. **Involve multiple, bottom-up solutions:** Success should rely on a variety of innovative solutions, fostering diverse approaches rather than a single technological path.

Figure 2: Mission Map (Mazzucato, 2018a).



Grand challenges are difficult but important, systemic, and society-wide problems that do not have obvious solutions. An example is limiting global warming to 1.5°C above pre-industrial levels.

Missions are concrete goals that, if achieved, will help to tackle a grand challenge. They set a clear direction for the different actors and sectors whose investment, innovation and effort is required to develop solutions. To mobilise as much cross-sectoral collaboration as possible, missions should focus less on economic outcomes and more on societal and environmental outcomes. Missions can help transform complex challenges into clear investment pathways. To leave room for innovation, they should set a clear direction without prescribing exactly how the end goal will be achieved. For example, nationally determined contributions targets could be treated as missions (TF CLIMA, 2024).

Sectors are the economic sectors that need to be involved in developing solutions to specific missions, generally in collaboration with one another.

Projects are activities or programmes that solve problems and, in so doing, help to achieve the broader mission. For example, an initiative aimed at expanding the use of electric vehicles could contribute to mission success.

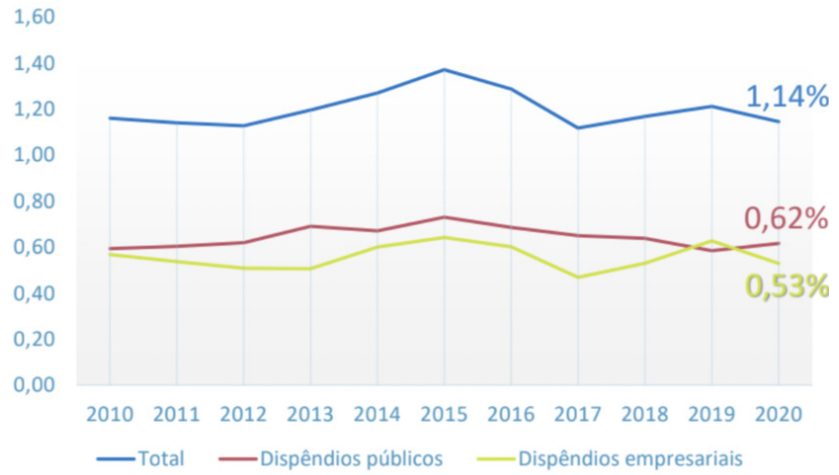
Source: Mazzucato, 2018a and 2021.

A new approach to public–private collaboration

How the government shapes the public–private collaboration that is required to achieve its missions is just as important as the missions themselves. Well-designed collaboration can advance a shift away from extractive business models that produce windfall profits for a few people, towards reciprocal partnerships oriented around shared goals that produce shared value (Mazzucato, 2023a; Laplane & Mazzucato, 2020).

In Brazil, several trends point to the accumulation of private profit at the expense of wider economic benefit and lagging private sector investment in innovation. For example, Brazil was among the emerging economies with the highest dividend distribution in the second quarter of 2024, totalling US$5.6 trillion, which represented a 25.3 per cent growth over 12 months (Janus Henderson, 2024). In addition, Brazil fails to collect $7.1 billion per year in taxes owed (R$41 billion), $6.8 billion of which is attributed to the profit shifting of multinationals to tax havens (Tax Justice Network, 2024). Private-sector investment in R&D also remains relatively low, accounting for 0.5 per cent of GDP and for under half the nation's total R&D investment (Ministério da Ciência, Tecnologia e Inovação, 2022).

Figure 3: National R&D expenditure as a percentage of GDP by sector, 2000–2020



Source: Ministry of Science, Technology and Innovation (2022), adapted from the document Reunião do Comitê Estratégico da MEI, Construção da Agenda da MEI 2024-2028 (MEI 2023) Figure 5. National R&D expenditure as a percentage of GDP by sector, 2000–2020.

These trends are not immutable. The government has various levers at its disposal for reshaping the role of the private sector in the economy, not only through regulatory and tax policy changes, but also through the potential of a mission-oriented approach to catalyse investment and innovation oriented around public purpose goals, and through conditions on private-sector access to public benefits.

The Government of Brazil is investing billions of reals in the economy, with a significant amount of this funding going to private sector actors. To maximise the public value created through loans, equity investments, guarantees, grants, tax benefits, procurement contracts and other public investments, conditions on private sector access to these funds can require certain commitments and changes to business practices. These include alignment with policy goals (like carbon emissions reduction and sustainable land use); critical products and services (such as life-saving drugs and vaccines) being accessible and affordable for the people of Brazil; profit sharing with the government; and reinvestment of profits in productive activities like R&D rather than unproductive ones like shareholder buybacks (Mazzucato & Rodrik, 2023).

Table 1: A taxonomy for conditionalities

Ensure that more citizens and businesses have ACCESS to specific goods, services or technologies.
DIRECT investments towards social or environmental objectives.
Include PROFIT-SHARING provisions between contributing parties.
Promote the REINVESTMENT of business profits into productive activities.

Source: Mazzucato & Rodrik, 2023

The Government of Brazil is no stranger to this logic. It has made access to certain procurement opportunities and subsidies contingent on alignment with its priorities. This has been done, for example, through the terms of the HEIC's productive development partnerships (PDPs), which require commitments to knowledge sharing, technology transfer and lower prices from pharmaceutical companies in exchange for access to health system procurement opportunities, and the scaling up of agricultural subsidies contingent on sustainable land use practices. However much more can be done. The government has correctly identified the need to get public–private partnerships right as a cross-cutting priority. For example, it has committed to the 'improvement of concession mechanisms and public-private partnerships' as part of the New PAC (Government of Brazil, 2023).

It will be important to get public–private collaboration right in order to realise the government's promise of inclusive and sustainable economic development. This is most notable in the context of shifting from an extractive to a sustainable, just and higher value-added approach to leveraging Brazil's natural resource wealth. Examples include the bioeconomy resources of the Amazon; agricultural products, which account for about half of Brazil's exports but currently rely on farming practices that are a leading cause of GHG emissions and are threatening biodiversity; minerals, including critical minerals such as graphite and nickel for which global demand is surging; and renewable energy sources.

This is not about a combative relationship between government and business; rather, it is about creating new opportunities for businesses that align with policy priorities and create the conditions for collaboration that is mutually beneficial. Public value should be understood as a product of collective effort.

In this view, the state's role in creating public value extends beyond merely redistributing wealth, fixing market failures and providing public goods to include pre-distribution, shaping markets to meet public objectives, and actively co-creating value in collaboration with the private sector, civil society and workers (Mazzucato, 2023a; Mazzucato and Ryan-Collins, 2019). By emphasising shared objectives, these partnerships facilitate a more equitable distribution of risks and rewards, opening new avenues for co-investment and collaboration that allow more people to benefit from the country's economic growth (Mazzucato, 2023c).

Meaningful engagement with citizens and workers

Achieving an economic transformation that benefits people also requires citizens, workers, trade unions and other stakeholders to play a meaningful role in collaborating with governments and businesses to shape markets in ways that foster more equitable outcomes. Robust citizen engagement is important to ensure that there is widespread and sustained buy-in around the government's goals, ideally across changing political landscapes.

Citizens can be engaged in both setting and implementing missions. Missions should resonate with people's day-to-day lives instead of being overly technical, and governments should leave open how they will be achieved, rather than managing them in a top-down way. Well-designed missions can inspire and mobilise people to contribute to developing bottom-up solutions. Collaboration with local levels of government and investments in their implementation capacity can bring a place-based lens to how policy measures and projects are designed, tailoring them to the needs of different communities, and helping to ensure that these communities see the benefits in a timely manner.

The Government of Brazil's approval ratings remain stable. In October 2024, 36 per cent of Brazilians approved of Lula's government, while 32 per cent disapproved and 29 per cent rated it as average (Datafolha, 2024). However, recent data suggest that trust in the country's democracy remains low (CESOP UNICAMP 2022). The current government has made efforts to embrace a more participatory approach to policy development. For example, it adopted a participatory approach to developing its multi-year plan for 2024–2027 (PPA, 2024), engaging 34,000 people from all 27 regions of Brazil, as well as over 1.4 million people through an online platform (Ministério do Planejamento e Orçamento, 2023).

The role of trade unions and labour is particularly important to ensure that structural changes in the economy, such as decarbonising high-emitting sectors,

are accompanied by robust measures to protect workers and ensure that the transition is managed in a just manner. This could include support for retraining and adopting new land use practices and provisions to ensure well-paying jobs. If unions and labour are not prioritised in shaping how Brazil's economy transforms, this transformation could stall due to strikes and low political support among workers. This risk is evident in the auto sector strikes that ground auto production to a halt in the United States in 2023, partly driven by the fact that a shift to electric vehicle manufacturing was characterised by lower-wage jobs (Mazzucato & Silvers, 2024). For Brazil's transformation agenda to be successful, workers need to see their interests reflected in the agenda. This is particularly true for lower-income workers and their communities, which are dependent on agriculture and agribusiness. The government can engage workers and labour unions to understand their priorities and ensure that these are reflected in policy, and ensure that state benefits provided to employers are contingent on fair labour practices.

Shifting from a redistributive model to a pre-distributive one, in which inclusion and equity are hardwired into how the economic grows, can help to ensure that citizens and workers see their interests reflected in the country's economic development trajectory.

Dynamic capabilities

A mission-oriented approach requires that public servants see themselves as value creators, with a responsibility to direct growth and shape markets. This role requires a different set of capabilities from those that are required of public servants who are only expected to facilitate and enable business activity, fix market failures, and limit harms. Implementing a whole-of-government approach to policy design, structuring public–private collaboration to maximise public value, engaging stakeholders effectively, and designing outcomes-oriented tools and institutions requires dynamic public-sector capabilities. These include taking risks, iterating and learning from a portfolio of projects, coordinating across ministries and levels of government, confidently shaping symbiotic partnerships, and designing public services – including digital services – according to citizen needs (Mazzucato and Kattel, 2018).

Critically, this means investing in building the capabilities of the civil service, rather than downsizing to cut costs or outsourcing policy development to external consulting firms. Outsourcing core government functions to big consulting firms undermines the government's ability to learn by doing, which exposes the government to risk of capture by private interests, and impedes transparency and accountability (Mazzucato and Collington, 2022).

In addition to cultivating internal competencies, governments can also prioritise attracting top talent, which they are better able to do if they have a strong sense of purpose (Kattel and Mergel, 2019). After years of voluntary redundancy programmes and a lack of public service recruitment, the Lula administration has resumed efforts to rebuild and train new personnel for the Brazilian state. An example of this is legislation (Law No. 14,965, of 9 September 2024) that enables public service recruitment at the federal, state and municipal levels. Another example is the unified national exam, a model for public service selection introduced by the Ministry of Management and Innovation in Public Services (Ministério da Gestão e Inovação em Serviço Públicos, 2024a). It will be important to ensure that Brazil's public servants continue to feel that their work contributes to the achievement of ambitious goals.

Outcomes-oriented tools and institutions

To implement these new approaches, the civil service should design key tools and institutions to be outcomes-oriented, with an emphasis on thoughtful design of public–private collaboration, meaningful stakeholder engagement and investment in public sector capabilities.

A wide array of public sector tools and institutions can act as levers for shaping markets in alignment with government priorities and enable the implementation of a mission-oriented approach, if they are designed with this purpose in mind. This includes, for example, public procurement, public development banks and public investment funds, SOEs, digital public infrastructure, tax policy, regulation and standard setting (Mazzucato et al., 2024d).

The next section focuses on the design and governance of three levers that are critical to the success of Brazil's economic transformation agenda: public procurement, SOEs and digital public infrastructure.

3 MISSION-ORIENTED PUBLIC PROCUREMENT IN BRAZIL

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A mission-oriented approach to public procurement (see Box 3) could shape markets in line with the goals of Brazil's agenda of inclusive and sustainable growth. Procurement is often seen as a transactional tool for purchasing a good or service in a way that minimises risk and cost. However, it could instead be understood as a strategic tool that can create demand for innovation, investment and production that contributes to advancing the government's policy goals or missions. This approach can create opportunities for mission-aligned small- and medium-sized enterprises to scale, and for larger incumbents to invest in R&D that contributes to solving policy challenges (Mazzucato, 2024; Mazzucato et al., 2024a).

Brazil has identified procurement as an important tool for achieving key elements of its agenda, including its new industrial policy, and is no stranger to leveraging procurement in alignment with policy goals. However, procurement policy in Brazil is still dominated by a drive to minimise cost and risk (Mazzucato et al., 2024a; Mazzucato, 2023b). This chapter explores the challenges that are impeding a more strategic approach to procurement and the changes that could help to unlock the potential of such an approach.

Box 3. Mission-oriented procurement

Mission-oriented procurement is centred around maximising public value (Mazzucato and Wainwright, 2024). This means encouraging practitioners to:

1. Focus on mission outcomes: Establishing a shared sense of purpose among the participants in the local ecosystem, centred on mission outcomes, is a crucial first step for public bodies striving to generate widespread public value.
2. Build coalitions that emphasise learning over accountability: Rather than emphasising contract management to hold providers accountable for meeting their targets, practitioners should employ a learning strategy to help providers reflect on what is or is not effective. This is particularly important for the procurement of services (as opposed to goods) within complex systems that are not well suited for target-driven accountability frameworks.
3. Create a diverse ecosystem of suppliers: By distributing spending across a diverse ecosystem of actors, well-designed public procurement can create opportunities for SMEs to scale up while also encouraging larger incumbents to invest in purpose-driven innovation. This approach enhances the system's resilience and boosts competition.
4. Use strong conditionality mechanisms to structure private-sector partnerships: Access to procurement contracts can be made contingent upon firms aligning their business practices with specific conditions; these could be related, for example, to sustainability, fair wages and working conditions, access and affordability, profit sharing, and reinvestment of profits in productive activities like R&D and worker training.
5. Evaluate wider economic outcomes. The value of missions lies not only in their success but also in the spillover benefits generated throughout the process.

Source: Mazzucato and Wainwright (2024)

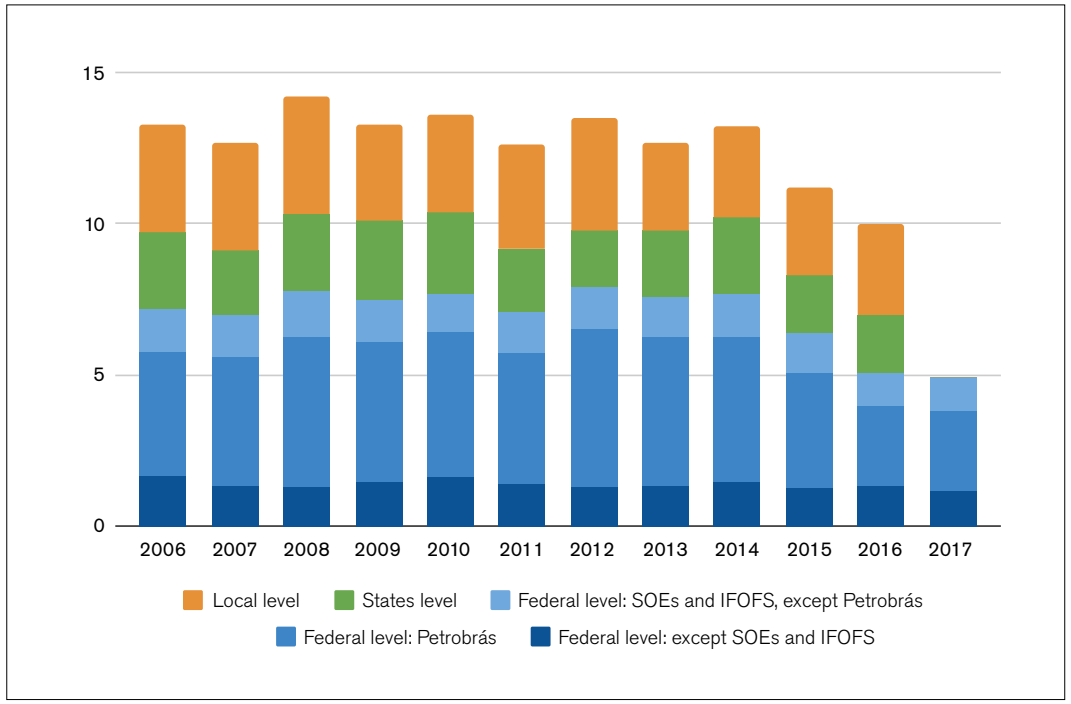
Public procurement has been identified as a strategic lever in the context of the Brazilian economic and ecological transformation agenda. As part of the PTE, for instance, pre-commercial procurement will be used to drive innovation, specifically targeting the ecological transition missions defined in the NIB. This involves setting defined timelines and competitiveness goals for local content and ensuring that technological advancements align with national priorities.

Brazil's sizeable public procurement budget highlights the opportunity for mission-oriented public procurement to shape new markets aligned with the country's economic transformation agenda. Public procurement in Brazil accounted for 16 per cent of its GDP in 2021, surpassing the OECD average of 12.9 per cent for that year. Additionally, in 2021, public procurement constituted 22.7 per cent of Brazil's total general government expenditures (OECD, 2023).

To fully leverage its potential, a more strategic approach to procurement would need to encompass procurement by state-owned enterprises and by sub-national levels of government. Ribeiro and Junior (2019) showed that the average size of procurement budgets at the federal level was 6.8 per cent of GDP from 2006–2017, followed by an average of 3.2 per cent among local governments and 2.2 per cent among states for the same period. Disaggregated data on federal-level procurement shows that public organisation purchases accounted for an average

of 1.4 per cent of GDP, while those by SOEs and public financial institutions accounted for 5.4 per cent. Among SOEs, Petrobras' procurement accounted for an average of 4.1 per cent of GDP during this period (Ribeiro and Junior, 2019) (see Figure 4).

Figure 4. Size of public procurement in Brazil as a percentage of GDP



Source: Data from Ribeiro and Junior (2019).

The Government of Brazil has taken several steps to redefine how public procurement is used in the context of its wider policy agenda. The National Strategy for Public Procurement for Sustainable Development (ENCP) aims to provide a unified vision and coordinated approach to leveraging the purchasing power of the state. Complementing this initiative, two interministerial commissions have been created to implement strategic procurement policies: the Interministerial Commission for Innovations and Acquisitions of the Growth Acceleration Programme (CIIA-PAC), and the Interministerial Commission on Public Procurement for Sustainable Development (CICS). CIIA-PAC's members include ministers of five ministries and BNDES. CICS encompasses secretary-level civil servants from seven ministries, BNDES and the Funding Authority for Studies and Projects (FINEP). These interministerial commissions have similar mandates, but CIIA-PAC is focused on procurement associated with Novo PAC investments and can establish mandatory local content obligations. CICS focuses on establishing rules for prioritising local production, with a focus on key national economic sectors and on integrating procurement as a demand-side policy with supply-side innovation policies to support sustainable and inclusive development.

Brazil has developed an advanced legal framework for public procurement, introducing tools to encourage innovation, social inclusiveness, and sustainable development. The Innovation Law (Law 10.973/2004) introduced pre-commercial procurement. The New Public Procurement Law (Law 14.133/2021) consolidated advances, establishing broader goals for the procurement system (national sustainable development), introducing new procurement methods (competitive dialogues and innovation prizes), and making it easier to evaluate tenders according to which is most economically advantageous rather than which has the lowest price (Spano et al., 2022). Finally, the Startups Law (Law 182/2021) created a new form of procurement for open innovation.

Although these are significant advances, the full extent and limitations of these legal provisions remains unclear. Other countries that have modernised legal frameworks for procurement may continue to embed assumptions that relegate mission-alignment and public-value maximisation to peripheral considerations (see Box 4 for an example from the United Kingdom).

Moreover, despite this evolution in Brazil's legal framework, practice continues to lag, with many of these legal permissions being used infrequently. There are compelling examples of strategic procurement in Brazil, including in the cases of the National School Feeding Programme (PNAE) (see Box 5) and the HEIC (see Box 6), which show that it is possible to leverage public procurement in support of policy goals such as tackling hunger and ensuring access to health, but they remain isolated and have not scaled across the system.

The approach to procurement in Brazil has been uneven. While some public organisations have embraced its strategic potential, public procurement practices in Brazil have largely been dominated by a paradigm of short-term cost minimisation over the last 30 years.

Box 4. Lessons from the UK on the limits of the Social Value Act

The social value paradigm in the UK, introduced by the Public Services (Social Value) Act 2013, marked a significant shift in public procurement. This legislation allowed public bodies to consider the broader social, environmental and economic benefits of their spending decisions. The aim was to move beyond the traditional focus on cost-efficiency and incorporate values that could benefit the local community.

However, the social value paradigm has certain limitations. Firstly, social value is often treated as an additional benefit rather than being central to the core delivery of services. This results in commitments that are more peripheral than transformative. Secondly, these commitments tend to be ad-hoc, lacking strategic alignment with the broader goals of the organisation. This incoherence can lead to fragmented efforts that do not fully leverage the potential of strategic procurement. Lastly, there is a predominant focus on quantitative metrics, such as key performance indicators (KPIs), which can oversimplify the complex and multifaceted nature of social impact. This quantitative bias often overlooks qualitative aspects of value, thereby limiting a comprehensive understanding of the potential effects of strategic procurement.

Despite its positive intentions, the social value paradigm still reflects a market-fixing approach rather than a market-shaping one. It aims to extract marginally better outcomes from existing processes that are still primarily centred on price and efficiency. As a function, procurement in the UK typically resides within legal or finance departments, indicating that it is seen more as a bureaucratic obstacle rather than as a tool for strategic transformation.

In contrast, a public value approach, which emphasises mission-oriented procurement and strategic market-shaping, would be more effective at aligning procurement with broader societal goals. This approach encourages proactive market shaping by valuing long-term outcomes, fostering innovation, and creating a diverse ecosystem of suppliers. By focusing on public value, procurement can become a strategic lever for achieving transformative societal benefits, thus moving beyond the limited scope of existing paradigms.

Source: Mazzucato & Wainwright (2024) and Mazzucato et al. (2024a)

Box 5. Food procurement at the National School Feeding Programme (PNAE)

PNAE is a project of the Brazilian government that provides healthy food to students in public schools, aiming for food security, better learning and healthy eating habits. The PNAE was established in the 1950s, but since 2009, the programme has mandated that at least 30 per cent of the resources that the National Fund for Education Development (FNDE) transfers to states and local governments must be spent on family farm products. There are also guidelines to prioritise local farmers, indigenous and quilombola communities and sustainable land use practices, such as organics and agroforestry. The law that created this policy also stated that governments would be exempt from establishing a competitive bidding to have a much simpler process to contract family farmers.

Clear financial support and a dedicated organisational structure at FNDE have ensured continuity. However, because the programme is decentralised, it depends on the capability of local governments to engage in simple public calls and create a public market for local family farmers. The Centros Colaboradores em Alimentação e Nutrição Escolar (CECANEs), which FNDE established in partnership with federal universities and other institutions of higher education, provide critical technical support and capacity-building to municipalities. Despite these efforts, in 2022, 28 per cent of municipalities had still not reached 30 per cent of spending of financial resources with family farmers.

Nevertheless, **this use of the food purchasing power of PNAE has already proved successful in fighting rural poverty and promoting productive inclusion** (Paula et al., 2023). In 2022, school districts spent R$1.6 billion on products from family farmers, which represents 45 per cent of the total budget of the programme. As of 2024, the federal budget for PNAE is more than R$5 billion and serves approximately 40 million students across the country (Painel da Agricultura Familiar do PNAE).

Source: Mazzucato et al. (2024a)

3.1 Key challenges for mission-oriented public procurement in Brazil

To leverage the potential of public procurement as a transformative tool, change is needed in three areas: governance, outcomes-orientation and capacity for delivery and innovation. Governance focuses on the structures and coordination mechanisms needed to strategically manage procurement at scale. Outcomes-orientation focuses on aligning purchasing decisions with mission goals. Capacity for delivery and innovation emphasises the skills and tools required to implement and sustain strategic procurement practices. Although the Government of Brazil has made progress in each area, significant challenges remain.

First, **the Government of Brazil has taken steps to establish a governance system for strategic public procurement, but its work has been limited in scope.** The creation of interministerial commissions, CICS and CIIA-PAC, signal a concerted effort to overcome silos and align governance structures with a strategic use of procurement, recognising its transformative potential to advance the country's economic and ecological agenda. Progress has been made in operationalising these governance mechanisms. CICS, for instance, has begun defining margins of preference for locally manufactured products in key sectors, such as buses, subways, and health products, leveraging economic models to estimate job creation, GDP growth, and increased tax revenues. New features in public procurement information systems have been introduced to streamline the application of these margins of preference, enhancing transparency and efficiency. Additionally, initial discussions about the ENCP are underway, with workshops planned to refine the strategy and incorporate goals aligned with Brazil's broader transformation agenda.

The potential of CICS and CIIA-PAC to coordinate a whole-of-government approach to strategic procurement, and to overcome the fragmented approach that has dominated, remains to be seen. Even ministries that have spearheaded successful procurement initiatives – such as the Ministry of Education (MEC), Ministry of Social Development and Fight against Hunger (MDS) and Ministry of Agrarian Development (MDA) – do not necessarily see the value of collaborating with other ministries to advance a shared vision on the strategic use of procurement. There is also a lack of clarity regarding how these interministerial commissions will monitor the implementation of strategic procurement interventions.

Second, **outcomes-orientation within Brazil's procurement system has not been sufficiently prioritised** and certain obstacles remain. To date, CICS and CIIA-PAC have focused on local purchasing over policy alignment. While not all procurement decisions need to align with missions, the strategic potential of major procurement contracts should be considered through the lens of whether they can shape markets and catalyse innovation, investment or production that will support the advancement of the government's policy priorities.

While the upcoming ENCP strategy could offer guidance, the extent to which it will emphasise outcomes-orientation remains uncertain. The ENCP is still in its early stages of development, and it is not yet evident that it will prioritise mission alignment or reach beyond the national government to engage SOEs and subnational governments. The anticipated launch of the strategy in mid-2025 will delay its ability to meaningfully contribute to Brazil's economic transformation agenda.

Monitoring and evaluation should also reflect mission goals. Recent efforts have focused on introducing econometric models to estimate the impact of local procurement decisions. These models have been used show the impact of margins of preference for local suppliers in terms of employment, tax revenue and GDP. This has helped justify margins of preference in monetary terms since the estimated increase in tax revenue usually surpasses the additional price paid for local suppliers. To date, however, the focus has remained on economic indicators that can be readily quantified or monetised, rather than on human or environmental indicators that reflect wider policy goals. The emphasis is also on accountability rather than ongoing learning and adaptation.

Another challenge related to outcomes-orientation in Brazil's procurement system is the limited integration of procurement with other innovation policy instruments such as grants, loans, and regulation. To achieve transformative goals, procurement needs to be deployed in concert with other government tools. Some work has been done in this area. For example, CICS approved larger margins of preference for health and information technology products stemming from national R&D investment.

Finally, **while some progress has been made with respect to building delivery and innovation capacity within Brazil's procurement system, a focus on compliance and efficiency continues to dominate.**

A renewed version of a knowledge platform for public procurement for innovation was launched recently (inovacpin.org), involving collaboration among oversight bodies (CGU and TCU), the attorney-general's office (AGU) and the Brazilian Industrial Development Agency (ABDI). Coupled with technical assistance provided by the office of public procurement for innovation in ABDI, the Hubtec, this platform aims to ease shared learning within an emerging community of practice around

innovation procurement. However, guides and templates are not enough to scale the strategic use of procurement and technical assistance is still relatively limited.

Awareness of options for more strategic procurement remains low. Even among public officials who are familiar with models for procurement that go beyond the efficiency and compliance paradigm, there is a prevailing hesitation to work outside of this paradigm to incorporate wider economic, social and ecological policy goals in procurement. While some individual officials have been willing to experiment with new approaches to strategic procurement, the broader system disincentivises innovation due to fears of personal liability and scrutiny by control bodies. In addition to risk aversion, adoption is also being inhibited by the perceived trade-off between faster delivery of procurement as usual and a less tested, more strategic use of procurement. A lack of relational engagement with suppliers further limits the potential to shape markets, with a strong emphasis on risk management and neutrality, which has hindered the potential for public–private collaboration around shared goals.

There are a few recent examples of attempts to innovate in procurement practices, but these are limited. The Brazilian Airforce has recently published a pre-commercial procurement for developing and implementing a radar system to detect targets at long ranges. MGI has begun announcing marketplace strategies aimed at streamlining procurement across government entities through digital platforms, such as for food and health products. It also received an innovation prize from the Brazilian National School of Public Administration (ENAP) for a procurement policy that requires suppliers to employ women who have been subject to domestic violence. Transpetro, a subsidiary of Petrobras, launched the TP 25 Programme to acquire ships for cabotage along the Brazilian coast, prioritising local content through accelerated depreciation and more favourable financing conditions for companies that manufacture within the country (see more about Petrobrás in Box 8). These initiatives reflect the push to leverage procurement as a driver of innovation, social inclusion and local development, although mission-aligned procurement at scale has so far been a lower priority.

Despite recent advancements, the Government of Brazil will need to overcome significant challenges to break the prevailing paradigm that has dominated procurement for the last 30 years, focused on the minimisation of legal risk and cost control (Mazzucato et al. 2024a). The current procurement system remains distant from a strategic, mission-oriented approach. To realise the full potential of procurement in Brazil, all ministries will need to view the system as a strategic tool for achieving their policy goals and engage with the process of redesigning it.

3.2 The path forward for mission-oriented procurement in Brazil

These three challenges can also be seen as opportunities. The Government of Brazil is in the process of developing significant initiatives related to procurement and could shape these initiatives to prioritise a whole-of-government, mission-oriented approach, backed by the capacity to implement and innovate.

Governance:

- **The Government of Brazil could consider explicitly prioritising the interministerial coordination of mission-oriented procurement at scale in the mandates of CICS and CIIA-PAC.** This would require an expansion beyond the current focus on local content rules. Using procurement strategically does not mean that every procurement process needs to be changed. The CICS and CIIA-PAC could prioritise purchasing categories that correspond with opportunities to strategically leverage the purchasing power of the state in alignment with its policy goals. This could include working with line ministries, other levels of government and SOEs to identify procurement opportunities with a high potential to support overarching government missions. CICS and CIIA-PAC could also seek to extend their membership to more line ministries that are relevant for the coordination of state purchasing power.
- **Equally important from a governance perspective is ensuring a framework for procurement decision making that incentivises mission-alignment without opening the door to corruption.** The HEIC offers a good example of a governance model that incorporates technical and deliberative committees for collective and transparent decision making while allowing for risk-taking and discretion to consider mission-orientation in procurement (Ministério da Saúde, 2024b, 2024c). This type of approach can help build confidence in the strategic use of procurement in oversight control bodies as well as in the wider public. When designing appropriate governance structures, it will be important to establish a constructive relationship with control bodies and the attorney-general's office to position them as part of the solution, not the problem.

Outcomes orientation:

- **It will also be important for the ENCP to incorporate a strong focus on outcomes-oriented (rather than output-oriented) procurement,**

identifying priority areas for applying this approach, and pointing to the procurement practices that will need to change to enable it. The ENCP could also prioritise coordination of procurement as a demand-side lever with supply-side measures that will need to work in concert with it to effectively shape markets. In terms of remit, it could evolve to encompass SOE procurement.

- **The Government of Brazil could also consider developing a new framework for defining and measuring the public value of procurement.** This framework would need to incorporate qualitative criteria, such as user experience, alongside quantitative measures. Adopting a public value framework means going beyond static measures like a cost-benefit analysis, which considers direct impacts, generally in monetised terms, and thereby emphasises cost reduction and short-term efficiencies rather than considering the wider and longer-term transformative impacts of procurement policies designed to shape markets and support the achievement of mission goals (Mazzucato et al., 2024a; Mazzucato et al., 2020). CICS and MGI are already designing models for defining margins of preference that justify greater nominal prices for national suppliers based on the number of jobs created, added value in the national economy and increased tax revenues. This work could be extended to develop a dashboard of metrics associated with overarching missions, encompassing economic, social and environmental indicators and considering dynamic spillovers and wider societal impacts at both the project and portfolio levels. This could help to incentivise a more strategic, policy-aligned deployment of procurement, track progress towards overarching mission goals and foster ongoing learning and adaptation.

Capacity for delivery and innovation:

- **To implement a more strategic approach to procurement, the government should prioritise building the capacity and capabilities of procurement teams at all levels of government.** For example, MGI could provide or orchestrate the provision of resources and support to procurement teams in line ministries, sub-national governments and SOEs where CICS and CIIA-PAC identify high-potential opportunities for strategic procurement, to ensure that procurement teams are equipped to realise this potential through such means as deployment of existing specialised human resources to where they are most needed, use of centralised purchasing bodies for strategic procurement, technical assistance, provision of specialised training, and expansion existing procurement communities of practice. Provision of technical assistance could build on existing initiatives, such as ABDI's Hubtec, Inovacpin.org, and the Brazilian Support Service for Micro and Small Enterprises (Sebrae), which provides capacity building support to governments, including at the subnational level, to help them procure from small businesses and individual contractors.
- **MGI could also seek to strengthen the role of centralised purchasing bodies.** These bodies have significant potential to shape markets aligned with the government's wider economic transformation agenda by pooling procurement budgets. They can help to diffuse recurrent products and services aligned with missions throughout the procurement system, through such means as framework agreements and digital platform strategies that simplify purchases from SMEs across different levels of government. They could also be set up to function as public innovation labs, operating at the vanguard of strategic procurement, with a remit to experiment, and with the dynamic capabilities required to do so (Mazzucato and Kattel, 2020). Their procurement initiatives could then serve as demonstration projects, encouraging wider adoption of strategic procurement across government.
- **Finally, the role of procurement agents should be properly valued and people in these positions should be supported in continuously developing relevant competencies.** The government could introduce competency models that reflect the importance of mission-oriented procurement and seek to attract, retain and develop talent accordingly, including by encouraging experimentation and adaptive learning.

In sum, these three critical areas – governance, outcomes-orientation, and capacity for delivery and innovation – present important opportunities to scale mission-oriented procurement for the Brazilian economic transformation agenda.

Box 6: The Health Economic-Industrial Complex (HEIC)

The HEIC demonstrates how the strategic use of procurement in Brazil's health system has been leveraged to simultaneously create domestic markets for domestically produced health products and to increase access to affordable lifesaving and improving drugs and technologies for the people of Brazil.

Following Brazil's 1988 Constitution, which enshrined health as a universal right, the Unified Health System (SUS) was established in 1989. However, by 2021, the nation faced significant health sector challenges, which were worsened by the COVID-19 pandemic. Brazil's health-related trade deficit surged from US$10 billion in 2012 to over US$20 billion (Gadelha et al., 2022), driven by factors including decreasing health investments and tariff reductions between 1982 and 2002, which spurred a dramatic increase in imports of active pharmaceutical ingredients (APIs) and finished health products (Mazzoleni and Póva, 2009). **Established in 2007, the HEIC aimed to reverse this trend by adopting a mission-oriented approach that strengthened the sector's technological and industrial base while upholding health rights and fostering innovation (Mazzucato, 2024).**

Together with robust public health investments, the HEIC enabled Brazil to lead in Latin American vaccine production. A significant milestone was reached in 2022 when Fiocruz delivered its first batch of vaccines to the National Immunisation Programme, a swift accomplishment following a technology transfer agreement with AstraZeneca in 2021 (WHO, forthcoming).

The HEIC's mission-oriented agenda relies on three primary mechanisms: (i) public laboratories in pharmaceuticals, (ii) productive development partnerships, and (iii) the Executive Group of the Health Economic Industrial Complex:

1. **Public laboratories:** Butantan and Fiocruz, both public research and technology organisations, became central to Brazil's innovation landscape. Butantan operates 27 laboratories with over 180 researchers, while Fiocruz supports more than 1,000 research and technology projects. These public agencies were pivotal in producing over 30 per cent of Brazil's COVID-19 vaccines and are leading in developing patentable mRNA vaccines (WHO, 2023).
2. **Productive development partnerships (PDPs):** PDPs address the pharmaceutical trade deficit by enhancing healthcare access and technological capabilities. PDPs require that companies seeking access to the Brazilian market enter into technology transfer agreements and set price caps. This has led to cost reductions of up to 30 per cent for strategic health products. As of 2021, 81 active PDPs facilitated technology transfers, reducing healthcare costs and increasing transparency in pricing (WHO, 2023).
3. **Executive Group of the Health Economic Industrial Complex (GECEIS):** The GECEIS operated from 2008 to 2019 and was reactivated recently after a period of dormancy. The GECEIS coordinates multi-ministerial efforts, linking the Ministry of Health with public financial SOEs like BNDES and FINEP to define strategic products for the PDP program, aligning industrial policy with health needs (WHO, 2023).

During the COVID-19 pandemic, the National Network for Health Data (RNDS) was established, enabling the timely sharing of medical test results across federal, state, and municipal levels. Often misunderstood as a mere information system, the RNDS is a platform that connects multiple information systems, storing over 1.8 billion health records (Ministério da Saúde 2024b). It facilitates the exchange of health data across various applications, ensuring continuity of care for citizens by allowing healthcare providers to access centralised information. The success of the RNDS is largely attributable to strong inter-federal coordination enabled by the SUS. Health data integration was achieved through a process of agreement between the three spheres of government, involving discussions with health managers from all regions to ensure that local needs were considered. The Ministry of Health established a unified standard that enabled states and municipalities to send data in a standardised, interoperable format, regardless of their local systems. Lastly, technical support was provided by the Federal Government to subnational levels to ensure that local health systems could correctly integrate with the RNDS. (This example reflects some aspects of digital public infrastructure (DPI), which is discussed in more detail in Chapter 6.)

The HEIC aligns directly with Mission 2 of Brazil's new industrial policy, which aims to build a 'resilient healthcare industrial complex' to address SUS vulnerabilities. Mission 2 emphasises increasing local production of

essential inputs, including APIs, vaccines, medical equipment, and digital health technologies. The CNDI has outlined several key challenges related to achieving this mission, including reducing dependency on imported inputs, aligning industrial and trade policies, enhancing private investment incentives, lowering credit costs (especially for equipment and inputs), increasing domestic medical equipment production (currently fulfilling only 50 per cent of demand), consolidating federal purchasing power and fostering disruptive healthcare innovations. Recent efforts to rebuild institutional capacity to drive industrial policy have included the revitalisation of the GECEIS and PDP committees, which had been inactive and the establishment of a new tool, the Local Development and Innovation Programme (PDIL), with a stronger focus on innovation. The PDIL focuses on building strategic partnerships in the healthcare sector, promoting collaboration between public institutions, nonprofit organizations, and startups. It aims to use innovation to tackle health challenges, fostering development of heath products, such as pharmaceuticals, medicines, biologics, advanced therapies, vaccines, serums, blood products, herbal treatments, medical devices, and digital technologies for information and connectivity. As part of this renewal, 102 productive and technological challenges have also been identified to guide policy.

Public investment in Mission 2 is projected to stimulate R$39.5 billion in additional private investments, culminating in an expected total of R$57.4 billion by 2026 to bolster the healthcare sector and drive Brazil's industrial capacity forward (Ministério do Desenvolvimento Indústria e Comércio, 2024b). According to Ministério do Desenvolvimento Indústria e Comércio (2024b), BNDES will invest R$5.5 billion in the health sector through initiatives like the 'BNDES SUS Suppliers' programme to boost medical equipment production. FINEP has also pledged R$3.5 billion, supporting telemedicine and biopharmaceutical development, with emphasis on monoclonal antibodies and new medicines. Additionally, initiatives under Novo PAC Saúde are allocating R$8.9 billion toward strengthening Brazil's healthcare infrastructure, including investments in biological API production, new vaccine production facilities at the Butantan Institute, and additional investments in the state-owned Brazilian Company of Hemoderivatives and Biotechnology (Hemobrás) in Pernambuco, which will enable the completion of Latin America's largest blood derivatives factory. Funding for Fiocruz's RNA vaccine platform, Butantan's new vaccine facilities, and a Biotechnology Investment Fund for Health to support innovative start-ups and pharmaceutical development in Brazil are also planned.

4 STRATEGIC COORDINATION OF STATE-OWNED ENTERPRISES IN BRAZIL

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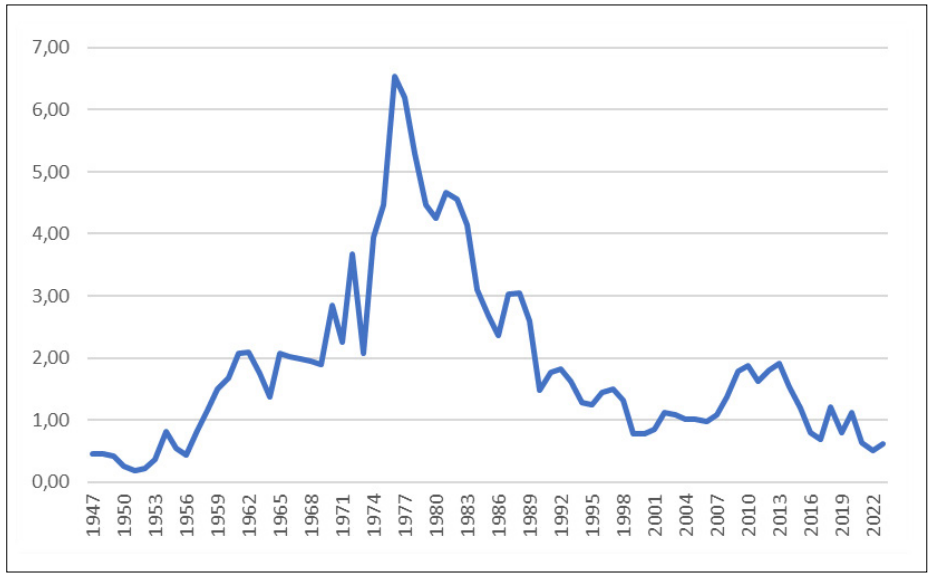
President Lula's third administration has made a priority of revitalising SOEs to support transformative public initiatives. However, to realise the SOEs' full potential to contribute to advancing Brazil's economic development agenda, it is necessary to take a new approach that includes new governance and coordination structures within the government to ensure mission alignment, an approach to public–private collaboration that is focused on achieving shared goals and producing shared value, and new public value indicators to monitor performance (Mazzucato et al., 2024b). This represents a fundamental shift away from focusing only on efficiency, profits and independence towards positioning SOEs as strategic actors that are responsible for working collaboratively with other government actors, as well as with private sector actors, civil society and workers, to achieve shared goals (Mazzucato and Gasperin, 2023).

SOEs play a significant role in Brazil's economy. As some of the largest economic entities in Brazil, federal SOEs influence the broader economy through their investments and business practices, creating and shaping markets (Mazzucato et al., 2024b). SOEs in Brazil are responsible for providing critical infrastructure, ensuring energy security, financing large-scale and long-term projects, managing essential digital services and undertaking high-risk investments. Between 2003 and 2016, SOEs took on expanded roles in Brazil's policy landscape. However, amid economic challenges and a new wave of privatisation from 2016 to 2022, SOE investment – after peaking at 2 per cent of GDP following the 2008–09 financial crisis – fell to just above 0.5 per cent by 2023 (see Figure 5).

Figure 5. Investment of Brazilian federal SOEs as a percentage of GDP, 1947–2023



Source: FGV Fiscal Policy Observatory (2024).

There are currently 123 SOEs operating at the federal level in Brazil, 44 of which are directly state-controlled entities and 79 that are managed indirectly through subsidiaries. These entities are split into three primary categories: (1) those funded by the Union budget, (2) autonomous financial companies within the productive sector, and (3) financial institutions (Panorama das Estatais, 2024). Some of these SOEs – particularly public banks, energy-sector SOEs, and those in technology and defence – are especially important to advancing the Government of Brazil's economic agenda. The central challenge lies in effectively coordinating these key SOEs to support national priorities.

4.1 Key challenges for state-owned enterprises in Brazil

Several challenges are impeding Brazilian SOEs from playing their role in supporting transformative policies. First, **SOEs currently operate with a high degree of independence and limited coordination with other parts of government.** They formulate their strategic plans based on their sectoral realities and the directives of their supervising ministries. There is a lack of central government coordination and limited alignment with the government's inclusive and sustainable growth agenda.

Second, **there is a prevailing view that SOEs should focus exclusively on addressing market failures and targeting financial returns, which impedes their ability to collaborate effectively with private-sector actors to create shared value.** SOEs in Brazil have been discouraged from seeing their role as creating and shaping markets to stimulate innovation and investment that is responsive to citizen needs and aligned with policy goals.

Thirdly, **this perspective is reinforced by monitoring, evaluation, and control frameworks,** either overseen by supervisory ministries and regulatory agencies or developed internally by SOEs for compliance purposes. By concentrating on leverage ratios, efficiency, and sector-specific indicators, these frameworks often discourage alignment of operations with broader government objectives, such as those embedded in cross-cutting policies like the NIB, PTE, and Climate Plan. Moreover, these frameworks tend to prioritise accountability over learning, which fosters a culture of risk aversion among both evaluators and those being evaluated.

4.2 The path forward for aligning state-owned enterprises with Brazil's sustainable economic development agenda

The current Government of Brazil has shifted away from the previous administration's focus on privatisation. However, a deeper shift is needed to move from treating SOEs as independent entities to coordinating and supporting them as strategic actors in advancing the country's economic, social and ecological development. To seize this opportunity, new governance structures may be needed for fostering collaboration and strategic alignment.

Models from other countries demonstrate how SOEs can pursue development goals assigned by their public shareholder without neglecting financial performance (Tagliani, 2021). Countries in different contexts and geographies have introduced governance models for their system of SOEs, from the established French and Chinese centralised ownership models and South Africa's emerging state holding company model, to Thailand's coordinating agency model of diffused ownership and centralised strategic orientation (Mazzucato and Gasperin, 2023, Mazzucato et al., 2024b). Although each model differs in its adaptation to national conditions, all have achieved a noteworthy degree of SOE coordination. As Brazil considers changes to its own SOE governance, it could draw inspiration from the coordination tools used in other countries, adapting them to the country's needs and context (see Table 2).

Table 2: Governance models, objectives, policy options and outcomes – selected countries

Country/model	SOEs coordination tools	Degree of coordination based on OECD governance models
THAILAND Mixed advisory ownership model	Thailand has an SOE office (State Enterprise Policy Office – SEPO) located within the Ministry of Finance. Thailand has improved its coordination of SOEs with the following policy tools: 1. Thailand's SOE office is headed by a 'Superboard' chaired by the prime minister. The Superboard meets once a month and sets the strategies for each SOE. 2. The State Enterprise Assessment Model (SE-AM) is an evaluation system employed by the SOE office, which uses a mixture of objectives to evaluate SOEs, mainly policy goals but also financial criteria. 3. The SOE office has, in collaboration with broader Ministry of Finance information system, developed a Government Fiscal Management Information System for SOEs (GFMIS-SOE), which is a digital SOE data collection, repository and analysis system.	Medium-high level of SOE coordination
SOUTH AFRICA Mixed dispersed ownership model *(proposed) centralised*	South Africa currently has a low level of coordination of SOEs. Among three sets of SOEs, all with dispersed ownership, only one is supervised by the SOE office. *1. However, the country is in the process of establishing a centralised state holding company owning most SOEs.*	Low level of SOE coordination *(untested)*
CHINA Centralised ownership model	China has highly concentrated ownership, especially of strategic SOEs, in its SASAC holding company, which depends directly on the State Council (the equivalent of the government cabinet). China employs the following coordination tools: 1. China's SASAC holding company owns all strategic non-local SOEs. 2. China's SOEs employ a planning system in which party members and SOE management are strictly connected and gather management experience and policy insights, respectively.	High level of SOE coordination
FRANCE Centralised ownership model	France has a state agency that acts as a coordinating body for SOEs within the Ministry of Finance (the Agence des participations de l'Etat - APE). France employs the following coordination tools: 1. APE holding company nominates SOE board members and promotes institutional dialogue. 2. APE conducts SOE performance evaluation, employing mainly financial criteria, with some policy indicators. 3. APE participates in France's Industrial Council, which is the body defining the national industrial strategy of France. 4. APE has technical sectoral expertise and routinely gives strategic industrial advice. 5. APE performs strategic reviews to ensure that SOEs are aligned with broader state policies and economic goals.	High level of SOE coordination

Source: Mazzucato et al., 2024b.

In Brazil, **the government could consider establishing a new unit or commission responsible for interministerial strategic coordination of SOEs.** This strategic coordination unit could be tasked with improving coordination, interministerial dialogue, and communication between ministries and SOEs, centralising discussions on how key SOEs can support national policy priorities and setting the criteria against which they are evaluated. It could develop common agreed guidelines for strategically directing key SOEs to support the country's long-term sustainable development goals, as well as facilitate regular meetings between ministry and SOE leadership, ensuring clear and stable objectives. This would include defining strategies to inform how key SOEs should align their activities with policy goals related to initiatives such as the NIB, Novo PAC, PTE, and Climate Plan.

For example, this new unit could take the form of an interministerial body or commission. This body would need to involve ministries responsible for the supervision of key SOEs (see Figure 6). The Interministerial Commission on Corporate Governance and the Administration of Union Shareholdings (CGPAR), which is responsible for addressing matters related to corporate governance in federal SOEs and for the management of the Union's shareholdings, could be a point of departure. However, CGPAR would need to extend its current role to become a strategic nucleus, with a new mandate and corresponding capabilities.

In addition to creating a new unit for strategic coordination, the government could invest in an enhanced technical support function, potentially housed within the Secretariat for the Coordination and Governance of State-Owned Enterprises (SEST) at MGI. This could redefine how SOEs perceive SEST in Brazil, transforming it from a unit primarily focused on oversight, cost control and short-term objectives – essentially policing SOEs – into a forward-looking, supportive and collaborative partner that can help to advance their long-term agendas (Mazzucato et al., 2024b).

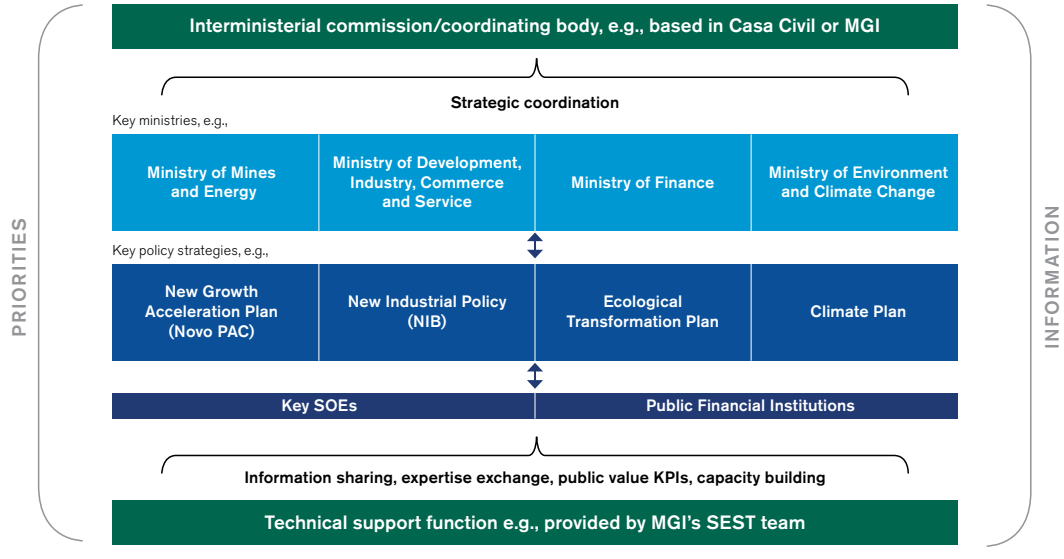
SEST is currently focused on re-evaluating its portfolio of SOEs (MGI/SEST, 2024a), updating the State-Owned Enterprises Information System (SIEST), and exploring new ways for the government to optimise its institutional resources (Ministério da Gestão e Inovação em Serviços Públicos, 2024c), including through technical cooperation agreements aimed at facilitating knowledge-sharing (MGI/SEST, 2024b). Building on these initiatives, SEST has the potential to take on a more strategic role focused on technical support and capacity building.

This technical support function could be structured with four objectives:

1. **Providing data and information on SOE operations and global models** to support CGPAR (or a new strategic coordination unit/commission) and the broader central government in its decisions, in addition to equipping SOEs and their boards of directors with a shared interpretation of policy guidelines.
2. **Facilitating expertise exchange** among ministries, technical bodies, boards, and other actors within the broader SOEs ecosystem. As part of this function, documenting best practices and building capacity to incorporate conditions on private sector access to public funds and other benefits in all contracts could be included, thereby encouraging the creation of new forms of public–private collaboration. Another potential area of focus could be promoting best practices related to leveraging SOE procurement to shape markets, in alignment with other initiatives under the remit of MGI (as discussed in Chapter 4).
3. **Defining public value indicators** to promote alignment with wider policy goals, foster a deeper understanding of the value generated by SOEs, encourage adaptive learning, and enhance transparency.
4. **Building capacity,** such as in relation to mission delivery and market shaping, confidently designing policies and partnerships that maximise public value, innovation and calculated risk-taking, and learning. Investing in capacity building can also reduce dependence on outsourcing (Mazzucato and Collington, 2024).

This technical support unit could include multidisciplinary expertise, beyond the current emphasis on accounting, for example in economics, and law and governance practices. It could extend its capacity through partnerships, for instance with BNDES, which has in-depth sector-specific expertise and experience in aligning its activities with policy objectives (see Box 7).

Figure 6. A new coordination framework



Source: Mazzucato et al., 2024b.

In developing this technical support function, SEST could benefit from partnerships. Notably, BNDES and SEST have the potential to establish a mutually beneficial relationship, through technical cooperation agreements, aimed at aligning SOE governance with federal government priorities. BNDES is well positioned to support a more strategic approach to SOE governance, building on its own established track record in aligning its activities as a public lender with the Government of Brazil's wider sustainable development goals.

President Lula has tasked BNDES with drafting a plan to restructure SOEs, particularly those running a deficit, with the aim of "modernising" them. Under the proposal, SOEs will be authorised to hire BNDES to support modernisation efforts. In addition, MGI is considering a management contract with BNDES to propose solutions for improving the performance of public enterprises (O Globo, 2024). Working together, MGI and BNDES could create a service offering aimed at helping SOEs build their capacity to align their operations and investments with national policy goals, moving beyond a narrow focus on micro and tactical aspects of restructuring. BNDES could also leverage its role in lending to SOEs by attaching conditions to these loans that promote alignment of SOE activities with wider policy goals (see Box 7).

Box 7: The role of BNDES in Brazil's mission-oriented agenda

BNDES exemplifies what it means for an SOE to take a mission-oriented approach. BNDES plays a foundational role within major national programs such as PAC and NIB, where it acts as the primary financier for mission-aligned projects. BNDES provides patient capital aligned with wider government policy priorities. However, its role in this regard could be strengthened, with a more dynamic approach to monitoring and evaluating focused on public value creation, and with more stable funding sources.

While BNDES has received authorization from the National Monetary Council to offer subsidized credit for innovation and technological development (BNDES, 2024), providing patient finance at stable rates, at scale, requires more than temporary authorizations. This is particularly important for large-scale investments in sustainable green transitions, given that these investments often entail significant risks from climate-related events (Griffith-Jones, 2022; Mazzucato & McFarlane, 2023).

Indeed, National Development Banks (NDBs) are well positioned to make mission-oriented investments, and to catalyse innovation and investment aligned with policy priorities such as the transition to a low-carbon economy. Specific institutional features can better enable them to play this role. These include: providing patient and outcomes-oriented finance; placing conditions on private sector access to public funds to require business practices to align with policy goals; developing multidisciplinary expertise to evaluate complex projects and support public policies; securing stable financial resources; designing governance frameworks tailored to mission objectives; and updating monitoring and evaluation frameworks to prioritise mission-orientation and public value creation (Mazzucato & Macfarlane, 2018 & 2023).

BNDES also has the potential to help other SOEs shift towards a mission-oriented approach. In contrast to the role BNDES played in restructuring SOEs, helping to privatise them during the 2016–2022 period, there is now an opportunity to use BNDES's expertise and sectoral knowledge to support the 'modernisation' of SOEs. While this can include support for restructuring SOEs on a microeconomic and tactical level, to make them financially healthier and aid in compliance efforts, it could also include support for aligning SOE operations with policy goals.

BNDES recently reactivated the Sectoral Analysis Committee (CAS). Tasked with consolidating BNDES's insights across sectors and mapping out strategic project plans, CAS provides analyses on trends and sectoral challenges, identifying strategic opportunities. CAS aims to deepen its focus on the role of SOEs across sectors, with BNDES's planning team emphasising their potential to advance both social and developmental goals (Mazzucato et al., 2024b).

Box 8. Petrobras shaping the just energy transition and decarbonisation agenda

With its significant market influence, Petrobras has the potential to be a major driver of Brazil's just energy transition – such as by advancing low-carbon practices in extraction and refining, and expanding into bio-refining, offshore wind and hydrogen production (Teixeira et al., 2023).

Between 2016 and 2022, Petrobras concentrated its operations primarily in crude oil exploration and production, directing 80 per cent of its 2023 investments to these areas rather than diversifying its asset portfolio. As a result, it reported record profits in 2022, reaching a net income of R$188.3 billion, followed by another record profit year in 2023 (R$124,6 billion) with unprecedented dividend distributions to shareholders (Annual Report, 2023).

Under President Lula's administration, Petrobras is strategically reorienting its activities. In its 2024-28+ Strategic Plan, the company announced plans to invest R$102 billion by 2028, with 16 per cent of its CAPEX dedicated to decarbonisation and low-carbon energy initiatives. Additionally, Petrobras is innovating through public procurement by leveraging the Startups Law and pre-commercial procurement (PCP) in partnership with the Brazilian Agency for Industrial Development (ABDI). This collaboration, facilitated through Hubtech (ABDI's public procurement office for innovation), aims to enhance Petrobras's procurement projects, accelerate technological advancements, and strengthen Brazil's innovation ecosystem. This co-development model emphasises collaborative R&D with technology firms, offering a contrast to traditional procurement methods (Mazzucato et al., 2024a).

Petrobras is well-positioned to attract private investment and promote a just energy transition while driving economic growth. To maximise its impact, however, it could further align its strategies with broader policies for national economic transformation.

The NIB's action plan identifies key areas where Petrobras could play a strategic role, particularly in Missions 1 and 5, despite not being directly mentioned. For instance, under Mission 1, Petrobras's investments in biorefineries could bolster biofertilizer supply chains that are critical for sustainable agriculture. Mission 5, which focuses on the bioeconomy, decarbonisation, and energy transition, emphasises the need for sustainable, long-term resources. In this context, Petrobras, especially via subsidiaries like Petrobras Biofuels (PBio), could drive the development of bioenergy markets, support energy self-sufficiency, and advance the bioindustry by establishing sustainability standards and national content requirements for biofuel and biochemical inputs (Mazzucato et al., 2024b).

Additionally, Petrobras could enhance stakeholder engagement, involving companies, communities, and citizens in this agenda to ensure that justice is embedded in Brazil's energy transition. This can include collaboration with trade unions to engage and empower workers in support of these objectives. For instance, the 'Just Transition' clause, negotiated by the Unified Federation of Petroleum Workers (FUP) and Petrobras, presents a model for embedding ecological and economic transformation objectives within labour agreements, ensuring that workers are engaged in and benefit from this transformation (FUP, 2024 – Clause 111).

5 DIGITAL PUBLIC INFRASTRUCTURE IN BRAZIL

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Well-designed digital public infrastructure (DPI) can enable a whole-of-government, data-driven and learning-oriented, citizen-centric approach to advancing economic, social, and environmental policy goals. Defined as secure, interoperable systems that promote universal access to services (Eaves and Sandman, n.d.), DPI can play a foundational role in supporting inclusive and sustainable development. For Brazil, DPI's potential lies not only in modernising service delivery but also in addressing interdependent challenges. Brazil can leverage DPI to transition from isolated systems toward unified infrastructures that integrate policy implementation across government ministries and levels, creating a cohesive digital ecosystem that delivers public value (Mazzucato, Eaves & Vasconcellos, 2024).

One key opportunity lies in establishing shared infrastructures. Building on past initiatives, the government is now seeking to develop a more unified approach, incorporating principles of sharing and integration, to avoid creating isolated systems within each ministry. With this approach, Brazil can not only enhance cost-efficiency by reducing redundancy and lowering operational expenses, but also enhance resilience, strengthening governmental capacity to respond in times of economic and environmental crises.

Further, leveraging SOEs such as SERPRO and DATAPREV can accelerate the development of scalable and adaptable DPIs, which can enable government agencies to develop and integrate services seamlessly. These information technology (IT) SOEs, with their public mandate and sector-specific expertise, are well-positioned to advance foundational DPIs that can support innovative and more responsive public services.

Brazil's experience provides a strong jumping-off point for the development of DPIs, with decades of incremental advancements recently accelerated under President Lula's administration. The foundation for DPI-like policies was laid as early as 2016 with the formal establishment of the Digital Citizenship Platform through Decree 8,936. This platform, later branded GOV.BR, comprises multiple components that collectively enhance digital governance. Among these are the GOV.BR interface itself, which consolidates websites from federal ministries and agencies into a single user-friendly portal. Additionally, GOV.BR comprises a mechanism for electronic signatures in interactions with public entities, a data

interoperability framework enabling seamless data sharing among government bodies and other features. By 2024, the new National Strategy for Digital Government (NSDG) positioned DPIs as central to Brazil's digital transformation, marking the first governmental policy to explicitly recognise their strategic importance.

These advancements are backed by structured data systems initiated in the 1990s, which laid the groundwork for modern DPIs. For instance, the Individual Taxpayer Registry, established over 30 years ago and managed by the IT SOE SERPRO, now serves as the backbone for Brazil's new National Identity Card (CIN), launched in 2023. This integration represents a significant evolution in identity management within the DPI framework, aligning with the development of foundational DPIs and laying the groundwork for emerging domain-specific applications. Similarly, the PIX real-time payment system, which has been widely recognised for its impact, is built on the infrastructure of the Brazilian Payment System (SPB), ensuring secure and efficient fund transfers.

Recent innovations have further strengthened Brazil's digital ecosystem. Public–private data sharing remains limited but has been incrementally facilitated by the GOV.BR platform, fostering secure interactions between sectors. A significant milestone was the design of the National Data Infrastructure in 2023, which became official through Decree No. 12,198 in September 2024. This initiative encompasses policies, standards, architecture, technological tools, and data assets, positioning the government to strategically leverage data across federal agencies. Notably, the groundwork for interoperability was laid earlier with Decree No. 10,332 of 2020, which formalized the creation of Conecta GOV.BR, a system that enables data exchange between government entities, as part of the GOV.BR platform. Together, these efforts underscore Brazil's commitment to embedding DPIs at the core of its digital transformation agenda.

Table 3: The six phases of Brazil's digital transformation, according to Eaves, Vasconcellos and Rao (2024).

Phase	Description
Phase 1 – 1960s to 1980s: Laying the Foundations of IT Capacity in Early Institutions	The creation of state-owned IT companies focused on data processing and management lays the groundwork for future e-government initiatives. Amid the political backdrop of military rule and economic challenges, the government modernised public administration and improved tax collection. In 1964, IT SOE SERPRO was established to support tax administration, followed by DATAPREV in 1974, which managed social security data.
Phase 2 – 1990s: Structuring data architectures	The 1990s marked a shift in public technology policies, moving from isolated efforts to integrated data systems. A major step was the transformation of the individual taxpayer number (CPF) into a national database. Additionally, the establishment of the Information and Computer Resources Administration System (SISP) in 1994 provided a framework for managing IT resources across government agencies.
Phase 3 – 2000s to 2014: Driving E-Government Transformation	Brazil began a comprehensive digital transformation, focusing on e-government to promote transparency, participation, and accountability. Various initiatives aimed at enhancing democratic engagement are introduced, such as the Digital Inclusion Portal (2004). Key legislative milestones, including the E-Government Policy (2000), the Access to Information Act (2012), and the Internet Bill of Rights (2014), established the political and legal infrastructure for digital governance. The formation of coordination bodies like the Electronic Government Executive Committee (CEGE) and the introduction of interoperability standards (ePing) supported this transformation.
Phase 4 – 2015 to 2018: Accelerating Digital Transformation	Brazil's digital efforts shifted towards digital government, focusing on redesigning internal procedures and improving citizen engagement. The Digital Governance Strategy (EGD), launched by the Ministry of Planning, sped up this shift by prioritising access to information, service delivery, and public participation. The presidency of Michel Temer, beginning in 2016, emphasises efficiency and debureaucratisation as drivers of digital transformation., particularly in the context of a fiscal crisis,
Phase 5 – 2019 to 2022: Transitioning to Government as a Platform	With the Government as a Platform (GaaP) model, Brazil accelerated its digital infrastructure development. The Digital Government Secretariat was created and services were consolidated under the gov.br platform, which unified federal government offerings. By 2020, 89 per cent of federal services had been digitised. The COVID-19 pandemic accelerated innovations like the gov.br account, electronic signatures, data exchange services, and the PIX, a real-time payment system.
Phase 6 – 2023 to Present: Strengthening Digital Public Infrastructures	Brazil has focused on expanding digital public infrastructures. It has established the Ministry of Management and Innovation in Public Services (MGI), overseeing the Digital Government Secretariat and DATAPREV. New priorities, aligned with the National Strategy on Digital government have emerged, such as capacity-building at local levels. Digital sovereignty and providing inclusive access to services have also been put at the centre of digital policy. Key projects include the New National Identity Card (CIN), the National Data Infrastructure Programme (IND), and the Brazilian AI Plan (PBIA).

Source: Eaves, D., Vasconcellos, B., & Rao, K. (2024). Digital Public Infrastructures: Global Development and Brazil's Position. Unpublished manuscript.

The NSDG represents a milestone in Brazil's digital transformation, following the establishment of the Ministry of Management and Innovation in Public Services (MGI) in 2023. The creation of the new ministry provided a strategic framework for coordinating digital policies. It united, for the first time, the Digital Government Secretariat with DATAPREV under a single umbrella. In 2024, the Institute of Information Technology (ITI), responsible for qualified and advanced electronic signature infrastructures, was also integrated into MGI structure. While SERPRO remains outside the ministry's direct oversight, it works closely with MGI's Digital Government Secretariat. This has fostered collaboration among key stakeholders that previously operated independently, enhancing their engagement in digital transformation efforts and aligning them with the core policy objectives outlined by MGI through the NSDG.

Table 4: Foundational DPI in the Brazilian context

Foundational DPI are understood to include: digital ID, payments and data exchange systems.

Foundational DPI	Impact
The New National Identity Card (CIN) represents a significant evolution towards integrating identity management within the DPI framework. In 2024, states began issuing the new National Identity Card (CIN), which uses the taxpayer number (CPF) as the national identification registry, thereby eliminating duplicate citizen records. Together with the authentication feature on the gov.br platform, this has laid the foundation for Brazil's digital identities.	Following a devastating environmental disaster in Rio Grande do Sul in May 2024, which affected 90 per cent of the region and disrupted 94.3 per cent of its economic activity (FIERGS, 2024), the federal government, in collaboration with the IT state-owned enterprise DATAPREV, used the CIN to rapidly identify citizens affected by the crisis. By cross-referencing the CIN with address data, they were able to locate displaced families and distribute over R$ 1.5 million in financial aid in a single instalment.
PIX, introduced by the Central Bank of Brazil, is an instant payment system that enables individuals, companies, and government entities to make and receive payments within seconds, free of transaction fees for users. PIX represents both a payment mechanism and a regulatory framework that has revolutionised Brazil's payments ecosystem by improving convenience, enhancing competition and promoting financial inclusion.	By December 2022, 71.5 million Brazilians – 43 per cent of the adult population – had adopted PIX, leading to estimated savings of US$5.7 billion in 2021 alone. By 2026, PIX is projected to contribute US$37.9 billion to the country's GDP, approximately 2.08 per cent of the projected GDP (Banco Central do Brasil, 2024)
Conecta.gov is a federal initiative focused on ensuring secure data and service interoperability across federal agencies. The platform, which is part of the recently established National Data Infrastructure, provides both an API Catalogue and an API Manager to facilitate seamless data exchange.	As of August 2024, around 1,000 public services had integrated into the programme, resulting in an estimated combined savings of US$800 million for both public agencies and citizens (Ministério da Gestão e da Inovação em Serviços Públicos, 2024a).

Source: Authors' elaboration

The NSDG outlines 10 key goals to be achieved through solutions that meet societal needs, addressing social inequalities and barriers to public services, and adapting processes to current demands through innovation, secure data reuse and improved public resource management (see Box 9). Additionally, the strategy promotes transparency, access to information, social participation in policymaking, and sustainable development (Decreto Nº 12.069, 2024).

Box 9: The Goals of the National Strategy for Digital Government

1. Management and Governance: Support the management and governance of digital government policies, promoting collaboration between the Federal Government, states, the Federal District and municipalities.
2. Quality of Public Services: Improve the quality of public services with an inclusive, accessible, proactive approach and integrated service channels, with attention to the user experience.
3. Unique Citizen Identity: Implement and maintain a structuring solution for unique, national identification, associated with the National Identity Card (CIN), with security, wide availability and validity for all federal entities.
4. Privacy and Security: Increase the resilience and maturity of government technological structures with attention to privacy, personal data protection, information security and cyber security.
5. Data Intelligence: Support decision-making and the provision of services in public organisations through the constant and ethical reuse of available data for analysis, interoperability and personalisation.
6. Digital Infrastructure: Provide a modern, secure, scalable and robust infrastructure, taking into account sustainability principles, for the implementation and evolution of digital government solutions, promoting shared structuring solutions, the use of common standards and integration between federal entities.
7. Innovation Ecosystem: Stimulate and promote the development of the innovation ecosystem and the use of emerging digital government technologies, involving federal entities and society.
8. Efficiency and Collaboration: Optimise and promote the efficiency of public

organisations' processes by streamlining procedures and sharing solutions to common problems.

9. Transparency and Participation: Contribute to increasing the openness and transparency of public organisations, as well as enhancing collaboration with society to deliver public value.
10. Competencies and Training: Develop competencies in people and teams in digital government and innovation in public organisations, increasing the attraction and retention of talent.

Source: Decreto Nº 12.069 , 2024

Beyond its focus on public infrastructure, a crucial element of the NSDG is coordination among federal, state, district and municipal governments. This strategy serves as the guiding framework for digital transformation across all levels of government. The strategy also aims to support the achievement of the United Nations' Sustainable Development Goals (SDGs) and facilitate the implementation of digital government initiatives at subnational levels in line with those goals.

As Brazil advances its digital transformation, the focus is shifting towards overcoming significant challenges inherent to DPI implementation. Ensuring interoperability, fostering multi-level governmental coordination, and addressing the complexities of data governance are keys to sustaining the momentum of this transformation. The next section delves into these challenges, exploring the strategies required to build resilient, adaptable digital infrastructures that support Brazil's goals for inclusive and sustainable growth.

5.1 Key challenges for Digital Public Infrastructure in the context of Brazil's transformation agenda

Technology evolves along distinct paths depending on underlying principles, including demand-side influences from government and other stakeholders (Perez, 1986). This means that the values embedded in technological advancement — whether oriented toward private value, public value, or the common good — determine both the design of technologies and their impact on society (Mazzucato, Eaves & Vasconcellos, 2024). To an equal extent, technology is not universal in its effects and its impact depends on how it is applied within a specific context (Hildebrant & Tielemans, 2013).

In the Brazilian context, digital transformation has followed a path distinct from those in countries like India or Estonia. Most DPIs have originated and developed with a focus on digital *governmental* infrastructure rather than digital *public* infrastructure. This falls short of two key DPI attributes related to scale of adoption, and capacity and coordination. The first involves evaluating how well other actors use it as infrastructure, beyond just its owners. The latter involves skill management strategies backed by responsive budgets, and collaboration with the private sector and civil society to ensure effective implementation.

One characteristic that needs to be considered in the Brazilian context is its federated policy system, where public service delivery relies on shared responsibilities across interdependent levels of government. This system introduces risks of intergovernmental fragmentation, including inefficiencies, competition between governments, low service quality, and regional inequalities (Bonduki, forthcoming). The autonomy of federal, state, and municipal levels complicates coordination, which often results in uneven progress in digital transformation, service gaps, and overlaps in responsibilities.

To address these challenges, effective coordination is essential. Coordination involves intentionally structuring relationships among stakeholders at all levels — both governmental and non-governmental — to enable coherent collective action. In this federated context, DPI governance must prioritise robust mechanisms for intergovernmental collaboration, ensuring that digital transformation progresses cohesively while addressing risks inherent to fragmentation.

Additional challenges include a limited integration of DPI principles into Brazilian public service practices. Concepts such as minimalism and reusability, which are inherent to DPI design, have not been fully embraced. This limits the interoperability and extensibility of DPI, which are crucial for enabling diverse systems to communicate through standardised protocols and allowing for easy updates and new functionalities. These attributes keep DPI relevant and adaptable, allowing other actors to build upon it for efficient service delivery.

Table 5. The core attributes of DPIs according to Eaves and Rao (2024)

Attribute	Description
Interoperability and extensibility	Interoperability ensures diverse digital systems can communicate through standardised protocols, while extensibility allows for easy updates and integration of new functionalities. These attributes keep DPI relevant and adaptable, enabling other actors to build on this infrastructure for efficient service delivery.
Transparency, accountability, and oversight	Accountability in DPI is maintained through governance frameworks that include transparent policies, monitoring protocols and independent oversight mechanisms. Regular evaluations and feedback loops help adapt to potential risks, ensuring efficient and responsible use of DPI.
Privacy, protection and security	Protecting user data and maintaining public trust are crucial in the DPI ecosystem, which is vulnerable to high-level risks and threats. Robust system design and operational channels to identify, report and manage threats foster confidence in digital services and encourage broader participation.
Inclusion and non-discrimination	Inclusive design in DPI ensures that access to basic services is equitable, addressing both digital and non-digital access needs. Investing in digital literacy and keeping inclusive design central helps prevent existing access issues from being exacerbated and human rights from being curtailed.
Capacity and coordination	Building DPI requires consistent capacity-building and coordination among the government and its partners. This involves skill management strategies backed by responsive budgets, and collaboration with the private sector and civil society to ensure effective implementation.
Scale of adoption	Assessing DPI's adoption involves evaluating how well other actors use it as infrastructure, beyond just its owners. This includes public disclosure of technical standards, open standards adherence and introducing incentives to encourage broader use and interoperability in service delivery.

Source: Authors' elaboration

The Rural Environmental Registry (CAR) highlights many of the challenges associated with implementing DPI in Brazil, particularly regarding the coordination with subnational levels and the integration of DPI principles in policy design (see Box 7).

Without robust guiding frameworks, DPI projects may fail to maximise public value. Adopting a "common good" approach can ensure that DPI design prioritises a wide array of societal needs, as outlined in the next section.

5.2 The path forward for Digital Public Infrastructure in Brazil

Brazil has made remarkable progress in building a strong foundation to support DPI in alignment with its state transformation agenda. This progress is anchored by core capabilities, including robust data systems, frameworks for public–private data sharing, and the advanced technological maturity of IT SOEs. In addition to foundational DPI, Brazil is actively developing domain-specific applications in areas such as education, environmental management and health policy (Centro de Inovação para a Educação Brasileira, 2024). These efforts benefit from being embedded within public policy systems that transcend individual ministries and levels of government, fostering coordination and facilitating alignment with clear policy objectives (see Table 6).

Table 6: DPI-like sectoral policies and their supporting systems in Brazil

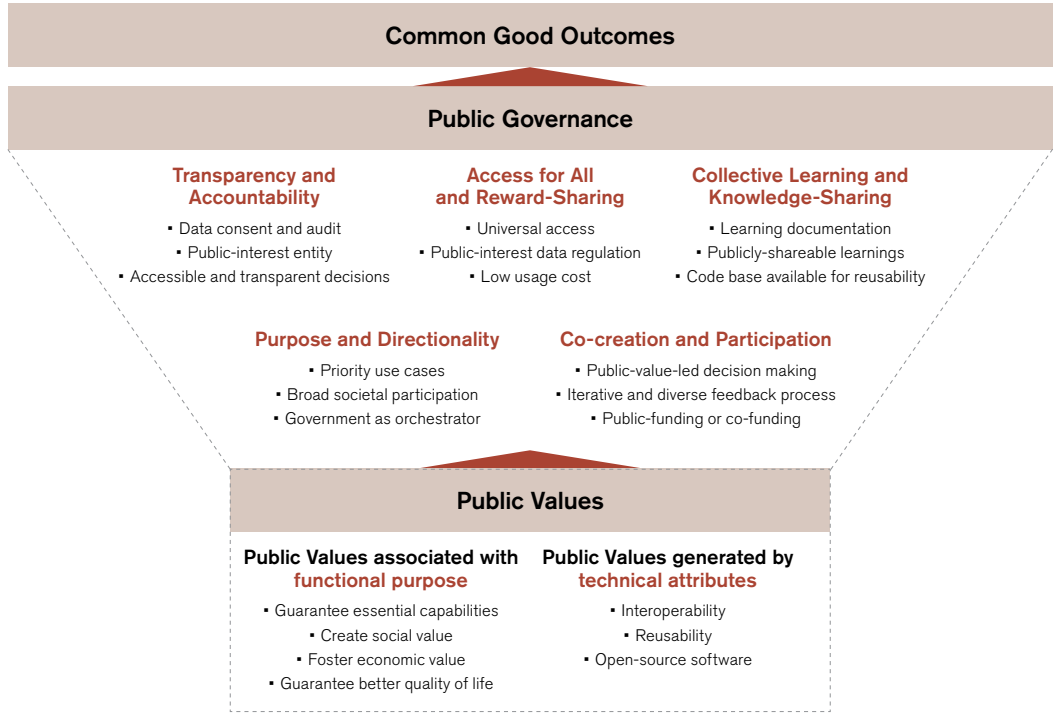
Domain	Policy system	DPI-like policy
Health	**The Unified Health System (SUS)** was defined and organised under Law No. 8080 in 1990 and is structured across federal, state and municipal levels, each with specific responsibilities. The Ministry of Health oversees national policy, regulation and coordination, integrating agencies like Fiocruz and Anvisa. State Health Secretariats support municipalities and implement state health plans. Municipal Health Secretariats manage and execute local health services, coordinating with state and municipal councils.	**The National Health Data Interoperability Platform (Rede Nacional de Dados em Saúde - RNDS)** enables data sharing across Brazil's health institutions and systems, from hospitals to local clinics. The National Network for Health Data (RNDS) was established during the COVID-19 pandemic, enabling the timely sharing of medical test results across federal, state and municipal levels. Often misunderstood as a simple information system, RNDS connects multiple platforms, storing over 1.8 billion health records (Ministério da Saúde, 2024a). The success of RNDS is largely due to SUS's strong intergovernmental coordination, achieved through agreements among all government levels to address local needs. The Ministry of Health established a standard that enables interoperable data submissions from subnational levels. Additionally, the federal government provided technical support, including by issuing digital certificates and configuring systems like the Electronic Citizen Record (PEC), ensuring local health systems are well-integrated with the RNDS. This active subnational participation has enabled nationwide health data interoperability.

Domain	Policy system	DPI-like policy
Education	**National Education System (SNE)** is a proposed initiative in Brazil that mirrors the SUS model in healthcare, aiming to create a collaborative network across federal, state and municipal levels to address disparities in educational resources and learning outcomes. Although not yet fully established, the SNE concept is under discussion in Congress (Complementary Bill 235/2019) and was approved by the Senate. Central to the SNE is the **collaboration regime**, a constitutional principle that clarifies shared educational responsibilities among government levels.	**The Pé-de-Meia Program**, which provides stipends to vulnerable high school students, alongside the unified educational database, showcases DPI elements by linking social and educational support through integrated data systems. Using the gov.br digital identity framework, these systems streamline data flows and ensure precise eligibility identification. For broader impact, subnational governments will need to synchronise their educational data with federal standards, allowing the unified database to inform cohesive policy efforts to expand access to education and address dropout rates. **The Present Management System (SGP),** developed by the Centre of Excellence in Social Technologies (NEES) at the Federal University of Alagoas (Ufal), supports student enrolment but aims to expand to include features like class assignment, attendance, and school data management. Transitioning SGP into a DPI would enable any school system to transfer and exchange data widely and seamlessly (Centro de Inovação para a Educação Brasileira, 2024). Building on MEC's existing efforts, this transition would expand SGP's role as a national data transfer hub by establishing standardised protocols, participation rules, and credential requirements, along with promoting open data APIs to encourage broad adoption across the education ecosystem.
Environment	**The National Environmental System (SISNAMA)** in Brazil, established by Law No. 6.938/1981 coordinates environmental protection efforts across federal, state and municipal levels. It includes various components: the **Government Council** as the highest advisory body to the president; **CONAMA** (National Environment Council), which provides recommendations and sets standards for environmental policies; the **Ministry of Environment and Climate Change** as the central coordinating body; **executive agencies** like IBAMA and ICMBio for implementing policies; state agencies for regional enforcement; and **local agencies** for municipal-level environmental oversight and control.	**The Rural Environmental Registry (Cadastro Ambiental Rural – CAR)** was designed as an environmental management tool but has significant potential to operate as a DPI supporting Brazil's wider sustainable development agenda. By centralising environmental data and supporting policy integration, it could function as a strategic asset for tracking environmental compliance, improving agricultural traceability, and enabling financial instruments for sustainable farming. While its governance model involves both federal and subnational levels, achieving its full DPI potential requires stronger integration across ministries and levels of government (particularly between the federal government and districts) to ensure data validation, interoperability and coordination around shared policy goals.

Source: Authors' elaboration

However, without proper frameworks to guide their development, there is a risk that DPI initiatives may underdeliver. Viewing DPI through the lens of the common good can reframe these efforts around maximising public value, ensuring DPI prioritises societal benefit (Mazzucato, 2023a; see Figure 7).

Figure 7: Governing DPI for the Common Good



Source: Mazzucato et al., 2024c; Mazzucato 2023a

In this approach, the state takes on an active role as both a market shaper and an entrepreneurial agent, moving beyond traditional regulatory functions. This shift requires investment in state capabilities, including the ability to define and work towards a strategic vision, paired with specialised technological and sectoral expertise tailored for the domain of each DPI. By investing in DPI capabilities, the state safeguards its ability to deliver critical public services and ensure that critical digital infrastructure serves the common good over the long term. The alternative of excessive reliance on private outsourcing diminishes the state's institutional memory and implementation capacity, effectively transferring control over essential services to private – and often foreign – corporations. Importantly, this perspective does not imply that the state must operationalise all DPI

components itself, but rather that it should retain enough capacity to exercise meaningful influence over DPI design and governance.

An example of how principles from the common good framework were applied to DPI is the development of PIX by Brazil's Central Bank (BCB). The BCB embraced a forward-looking approach that involved calculated risk-taking, user-centred design experimentation, and solution-building in partnership with society. This approach fostered collaborative relationships through the formation of the PIX Forum, a governance body with representatives from diverse sectors: credit card operators, banks, fintechs, civil society organisations, and small business groups. Rather than aiming for neutral technology, the BCB sought a system with a defined purpose. While competition was encouraged, it was bound by a public interest principle: zero or minimal transaction costs for citizens. This clear sense of purpose influenced policy and design decisions, ensuring that PIX would be widely accessible and deliver collective benefits.

The concept of the common good provides a valuable framework for designing and evaluating DPI. One of the greatest opportunities for advancing inter-federative collaboration and digital transformation lies within the Rural Environmental Registry (CAR). Transforming CAR into a robust DPI would require focusing on a specific, initial use case and aligning its design with the goals of this case. This would include a design shift to reduce the amount of data that is requested and shared, instead adopting a case-specific approach that provides trusted evidence, in line with the intrinsic minimalism of digital public infrastructures. This building block approach would simplify data reporting, reduce transaction costs associated with managing complex layers of information (Mukherjee and Maruwada, 2021) and align CAR's use with specific goals, such as curbing illegal deforestation and fostering sustainable land use practices. For instance, landowners could verify compliance with environmental regulations in a targeted manner, focusing on these key issues. If CAR is thoughtfully designed with DPI principles according to the common good framework, it has the potential to drive the convergence of green and digital agendas – known as the twin transition – by fostering inclusive and sustainable development, as further discussed in Box 10.

Box 10. CAR as a domain-specific DPI to support twin transition

The Rural Environmental Registry (CAR) represents a promising foundation for Brazil's twin transition – a strategic pathway that aligns digital advancements with sustainability goals to foster inclusive economic growth. As a tool designed to gather, monitor, and manage data on rural land use, CAR has the potential to bridge environmental, economic, and industrial priorities by leveraging digitalisation to enhance environmental oversight and policy effectiveness. Envisioning CAR as a digital public infrastructure (DPI) could unlock new methods for streamlining land management, encouraging sustainable practices and engaging stakeholders across sectors in a unified approach.

Established by the Forestry Code (Law No. 12,651/2012), CAR serves as a nationwide public electronic registry for rural properties. Initially overseen by the MMA, CAR's governance shifted to the Ministry of Agriculture and Livestock (MAPA) and was recently integrated by MGI in 2023. The involvement of SOEs like DATAPREV, which currently holds CAR's database, adds another layer of complexity to this governance model. CAR operates primarily as an environmental policy tool, aggregating data for planning, monitoring, and deforestation control. However, its integration of diverse registries has created a powerful database that supports not only environmental goals but also broader economic and regulatory needs. **This highlights how domain-specific DPIs can have transversal impacts.**

Despite CAR's multidimensional applications – which include supporting hydrographic basin recovery, facilitating payments for environmental services, offering financial instruments for agricultural supply chains, and providing traceability for agricultural products – leveraging CAR as a DPI demands a more strategic and focused approach. Attempting to implement it with a wide array of applications risks diluting efforts, complicating the alignment of stakeholders, and weakening the case for its importance, particularly among those typically resistant to environmental regulation. Establishing CAR as a DPI requires prioritising a robust and primary use case that can demonstrate proof of concept and tangible success. This approach is critical for building credibility, securing stakeholder buy-in, and fostering trust among the broader population, ultimately aligning diverse interests with the transformative potential of the new DPI framework.

The registry's potential to enable traceability across agro-industrial chains stands out as an ideal first use case for aligning stakeholders and driving adoption. Traceability can meet compliance needs for sustainable agro-industrial practices and satisfy emerging global environmental standards, which are crucial for maintaining access to international markets.

To adopt a DPI approach for CAR, it is necessary to overcome significant challenges. A primary challenge is information asymmetry. For instance, identifying those responsible for environmental crimes while supporting compliant farmers and promoting sustainable agro-industrial chains requires the integration of diverse, normally disconnected information (Observatório do Código Florestal et al. 2023).

However, among various bottlenecks, such as data fragmentation and lack of interoperability with other ministries' databases, the analysis and validation of the registry stand out as the most significant. CAR's data are self-declared by landowners, requiring validation by district-level agencies. Although automatic filters flag overlaps with protected areas, other verifications remain essential. **Only about 3 per cent of CAR registrations have been fully validated nationwide, a shortfall that underscores the importance of streamlined, reliable validation processes.**

CAR's data validation presents both operational and political complexities. Limited incentives for validating CAR data reflect a delicate balance between expanding productive land and enforcing compliance with the Forest Code. States are often hesitant to pursue rigorous validation for fear of alienating rural political support. However, states that have succeeded with CAR implementation, such as Espírito Santo and Pará, demonstrate robust capacity, coordination and commitment to environmental goals. To enhance CAR's legitimacy as a DPI, the federal government must not only strengthen local capabilities and provide coordination support but also act as an orchestrator to unify the national approach. Additionally, the government could actively communicate the benefits of a modernised CAR to landowners, positioning it as a streamlined tool for validating that land use practices meet relevant standards required for access to global markets. This approach could incentivise greater engagement and alignment with national and international environmental standards.

In Espírito Santo, the Institute of Agricultural and Forestry Defense (IDAF) outsourced validation to streamline approvals, while Pará leveraged resources from the Amazon Fund to align state requirements with the federal CAR. Additionally, the Petrobras Fund facilitated a 370 per cent increase in temporary public servants supporting CAR. Both states invested in digital reference data, geographic information system expertise and remote sensing technologies, underscoring the importance of local capacities in effective CAR implementation.

Funding for CAR's operations remains inherently vulnerable to political shifts. The Amazon Fund, managed by the National Bank for Economic and Social Development (BNDES), has been crucial in financing CAR since 2008, supporting over 1.1 million rural registrations. However, its suspension in 2019 by the previous government and reactivation in 2023 highlight the risks of funding instability. A sustainable CAR as a DPI requires stable, ongoing resources, which are essential for capacity-building, validation and monitoring. As a key capital source, the Amazon Fund has already supported the training of over 11,000 public servants in environmental management and deforestation monitoring technologies across Brazil. However, fewer than half of these trained personnel remain active in their roles.

As the world's largest meat exporter, Brazil faces increasing pressure to reduce agricultural deforestation, responsible for over 97 per cent of recent vegetation loss. Compliance with international environmental standards, such as the EU's Deforestation Regulation, is critical to sustain market access. To address these challenges, Brazil's IT state-owned enterprise SERPRO is developing the AgroBrazil+Sustainable Platform. This platform integrates CAR data to provide three levels of certification – legal compliance, sustainability and traceability – tracking product origins from farm to port. Integrating this platform with CAR via a DPI approach would enable various ministries to align objectives – such as reducing deforestation and boosting exports – within a unified system.

Using CAR as a foundational infrastructure for traceability holds potential to advance sustainable agro-industrial chains and mobilise stakeholders with often divergent points of view in the deforestation debate. For farmers and cattle breeders reliant on exports, particularly to Europe, such a system would streamline market access by confirming compliance with international standards. Smaller producers could reduce certification costs, accessing new markets with a transparent, publicly

accountable traceability mechanism. Citizens would gain the ability to verify product origins, while civil society organisations could better monitor and enforce environmental regulations, supporting more sustainable production practices.

The proposed use case would also enable CAR to contribute to Mission 1 of the government's new industrial policy (NIB), which seeks to promote sustainable, digital agro-industrial chains. In addition to the NIB, CAR is already supporting the Ministry of Finance's Ecological Transformation Plan. CAR is linked to the plan's third stream, which focuses on bioeconomy and agrifood systems. Among the projects supporting this stream is Plano Safra, a programme led by MAPA to provide resources for financing agricultural activities. The programme aims to boost agricultural productivity while promoting environmentally friendly practices that contribute to sustainable rural development. The has been facilitated by CAR, which serves as a credential for rewarding rural producers. Incentives are offered to those with validated CAR registrations and to those adopting more sustainable agricultural practices. Producers with an approved CAR registration receive a 0.5 per cent discount, with an additional 0.5 per cent discount available for implementing further sustainable practices.

Building CAR as a DPI would also require shifting from the logic of requesting and sharing a wide array of data to sharing minimal, case-specific data. A minimalist building block approach can reduce the transactional costs of reporting property data, instead focusing on specific aspects, such as deforestation, allowing an owner to confirm compliance with that element only.

Starting with a use case focused on traceability for the purpose of tackling deforestation and promoting sustainable agro-industrial chains would serve as a proof of concept, aligning stakeholders across sectors and facilitating scalable implementation. Such a model could position CAR as a leader in Brazil's twin transition, demonstrating the mutually reinforcing benefits of digitalisation and sustainability in transforming economic systems for the common good.

Leveraging the DPI potential of CAR and prioritising traceability, alignment with strategic missions and the advancement of the common good in its design could significantly boost transparency and sustainability in Brazil's livestock sector and help advance Mission 1 of the NIB, which relates to the development of sustainable, digital agribusiness value chains.

CAR is just one example of how well-designed DPI can contribute to the successful implementation of the Government of Brazil's economic and ecological transformation agendas. While Brazil has made significant progress, there is still considerable room for improvement in developing both foundational and domain-specific DPIs.

Key considerations for scaling up DPI in Brazil:

- **Designing DPI according to common good principles with a clear orientation around specific policy priorities:** The design of DPI initiatives should be guided by a common-good framework (Mazzucato, 2023a) to maximise their public value. This includes orienting DPI around a clear use case, aligned with an overarching policy priority. In the example of CAR, this use case could be to enable traceability of agricultural products for the purpose of tackling deforestation and promoting sustainable agro-industrial chains, in line with Brazil's New Industrial Policy and Ecological Transformation Plan.
- **Capacity building:** Advancing DPI requires investment in state capabilities to ensure governments can embed common good principles in its design. For example, this requires the ability to engage in user centred design, and to regulate data in the public interest, in addition to specialised technological and domain expertise. As the CAR example shows, capacity building is important not only at the national level, but also at local and regional levels of government that are charged with roles related to activities such as adoption, enforcement, data collection and validation.
- **Bottom-up experimentation:** Leveraging the experiences of states and municipalities can inspire a broader adoption of DPI and inform federal policy, following a bottom-up approach. For instance, some states have developed tailored CAR modules to meet local policy needs, which were later integrated into the federal system. Identifying and building on these successful subnational practices could help shape a cohesive national strategy. It is important to tailor capacity-building efforts to address subnational needs, particularly those at the state level.
- **Interministerial and intergovernmental coordination:** Effective DPI implementation requires robust coordination across government bodies to enable effective data sharing, serve the needs of citizens in a user-friendly way (such as with single window access) and leverage the potential of DPIs to function as reusable systems intended for diverse applications. For example, the AgroBrasil+Sustentável, a digital tool from the Ministry of Agriculture

and Livestock, which was developed by SERPRO and aims to enhance transparency in production processes and reduce risks and costs across the value chain, draws data from various databases, including CAR. Without the integrated efforts of these bodies, a unified DPI approach would be unfeasible.

- **Minimalist, modular design:** Adopting a minimalist, modular approach in DPI policy design can enhance usability and reduce costs. Rather than sharing entire datasets, a focused approach provides only the specific information required for each use case. For instance, in the CAR traceability use case, an agricultural producer exporting to Europe may only need to verify that its property has met deforestation limits since 2020. This targeted data-sharing strategy simplifies processes and helps reduce the high transaction costs associated with managing detailed data layers on rural properties.
- **User-centric data reporting:** Building effective DPI requires skills to engage public servants, and even citizens, in meaningful data reporting. For databases to be reusable by other institutions, data must be collected and its accuracy must be ensured. This requires effective user engagement and service design.
- **Long-term investment models:** The continuity of DPI relies on sustainable investment models. The Amazon Fund, for instance, was instrumental in advancing CAR, funding over one million registrations and enhancing critical processes such as validation and monitoring. Additionally, the fund supported the training of over 11,000 public officials in environmental management, building essential capacity. However, the fund's suspension in 2019, followed by its reinstatement in 2023, underscores the importance of long-term financing mechanisms that are resilient to political changes and align with both environmental and economic goals. A relevant example of innovative funding comes from DATAPREV's approach to managing consigned credit for retirees and pensioners under the National Institute of Social Security (INSS). Initially centralised, this model evolved into a collaborative, ecosystem-oriented structure. Rather than expanding functionalities within a central system, DATAPREV prioritised data integration with external systems, allowing banks to tailor their services within this ecosystem. This shift increased competition, lowered costs, and benefited all stakeholders. Today, half of DATAPREV's revenue is derived from this model, which also subsidises 70 per cent of its contract with INSS. This ecosystem-based approach reduced borrowing costs and expanded credit availability, exemplifying how IT SOEs can adopt sustainable and collaborative DPI financing models.

DPI designed according to the principles of the common good will be vital in order to successfully advance Brazil's economic and ecological transformation agenda. Established DPIs like PIX and potential DPIs such as CAR demonstrate how thoughtfully designed DPI can address critical challenges, from deforestation to financial inclusion, while fostering innovation and trust among stakeholders. However, to fully harness DPI's potential, the government should adopt a common good framework, invest in state capacity, and prioritise effective multi-level coordination, bottom-up experimentation, modular and minimalist designs, user-centred data reporting and sustainable funding models. This approach will enable the development of DPI that is adaptable, scalable and aligned with public needs and policy goals.

6 CONCLUSION

The Government of Brazil's economic transformation agenda has the potential to put Brazil on a new economic development pathway that prioritises inclusion and sustainability. However, this agenda will not succeed without an effective, empowered and dynamic civil service.

In order for Brazil's Ministry of Management and Innovation in Public Services (MGI) to advance the changes needed to enable the civil service to deliver on this agenda, it will need to maintain its focus on the bold goal of transforming the state, and resist the risk of working towards the lowest common denominator. Getting this parallel agenda of state transformation right requires new practices but also new mindsets, frameworks and ways of working across ministries and levels of government. Specifically, it requires a whole-of-government approach, public–private partnerships focused on achieving shared goals and creating shared value, meaningful citizen engagement, and investment in fostering new capabilities.

It also requires key public sector tools and institutions to be designed in a mission-oriented way. As this report has argued, getting the design and governance of public procurement, state-owned enterprises (SOEs), and digital public infrastructure (DPI) right is particularly important to the Brazilian government's economic agenda.

There is significant potential to implement a more strategic approach to procurement as a demand-side tool for fostering investment and innovation in line with the government's wider sustainability and inclusion priorities. While procurement has been used in specific cases to shape markets that align with policy goals, a focus on cost and risk minimisation continues to dominate. Renewed attention on the design of procurement policy is creating an opportunity to scale the strategic use of procurement across the government system, in line with overarching missions.

Policy pertaining to SOEs, which are among the largest economic entities in Brazil, has shifted from an emphasis on privatisation to a recognition of their capacity to shape the country's economic development trajectory. However, realising this potential will require new approaches to foster coordination and alignment with the government's policy goals; this contrasts with the traditional approach, which has seen SOEs as arm's-length entities with independent mandates that give preference to profit maximisation.

Brazil is a leader in digital transformation and has recognised the importance of investing in DPI in the next phase of this transformation, to enable the development of policies and services that are citizen-centric, data-informed and coordinated across ministries and levels of government. DPI can play a foundational role in the successful rollout of the government's agenda of sustainable and inclusive economic growth, if it is developed in alignment with national policy goals and with "common good" principles.

If the Government of Brazil succeeds in harnessing the full potential of the state to deliver inclusive and sustainable economic growth, it will not only deliver better outcomes for the people of Brazil and for the planet, but will also reinforce its global calls for a more inclusive and sustainable economy powered by "states of the future", through its upcoming 2025 COP30 and BRICS presidencies, building on its recent G20 presidency. Despite growing recognition that existing models of economic development are unsustainable, governments have been slow to pivot in part because pursuing these alternative pathways requires the state to play a fundamentally different role in shaping markets and directing growth, supported by a different set of tools and institutions. If Brazil brings the same ambition to its agenda of state transformation that it has brought to its economic and ecological transformation agendas, it could demonstrate to other governments around the world what it means to bring economic, social and environmental policy priorities into alignment.

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