

What is the third Lula's development plan?

Reflections from a new paradigm of industrial policy

THIS NOTE IS IN PARTNERSHIP WITH MADE/USP AND FES BRAZIL

Marco Rocha
Pedro Romero Marques
Jose Bergamin
Lucca Henrique Rodrigues
Luiza Nassif
Pedro Rossi

Rocha, Marco; Marques, Pedro Romeiro; Bergamin, Jose; Rodrigues, Lucca Henrique; Nassif, Luiza; Rossi, Pedro.

What is the third Lula's development plan? Reflections from a new paradigm of industrial policy

(Note no. 03). TRANSFORMA/UNICAMP.

This note was produced with support from the Open Society Foundation

Marco Rocha is a professor at the Institute of Economics at the State University of Campinas and a researcher at Transforma.

Pedro Romero Marques holds a PhD in Economics from FEA/USP and is Research Coordinator at the Center for Research in Macroeconomics of Inequalities (Made-USP)

José Bergamin is a Master's student in Economics at Cedeplar-UFMG and a researcher at Made-USP

Lucca Henrique Rodrigues has a Master's degree in Economics from FEA/USP and is a researcher at Made-USP

Luiza Nassif is a Professor at IE/Unicamp and director of Made-USP

Pedro Rossi is a professor at the Institute of Economics at the State University of Campinas and a researcher at Transforma.

EXECUTIVE SUMMARY

Objectives:

This article aims to analyze the political-institutional framework associated with the construction of an economic and industrial development strategy by the third Lula Government, based on recent changes in the international debate.

Resumption and renewal of industrial policy and return of major development plans at the international level.

The period following the 2008 Crisis until the first years after the pandemic saw the consolidation of a process of return, change and dissemination of new practices of large-scale productive development policies, integrated into broader perspectives of structural transformation and aimed at responding to the challenge of the climate crisis. This new institutional framework was not only aimed at fostering the competitiveness of a specific set of sectors, but also at changing the technological paradigm of the global productive pattern. The creation of channels of dialogue between the public and private sectors, the creation and greater prominence of tripartite decision-making councils on industrial policy within the bureaucratic structure and policy designs with greater capacity to engage civil society are fundamental pieces to enable the good performance of large-scale productive development policies.

As a result, **Mission-Oriented Policies** are gaining some prominence as they generally have an adequate framework to encompass all of these dimensions, making it possible to articulate a series of cross-cutting actions with responses to pre-established challenges and with goals that are easy to communicate with society.

The creation of channels for dialogue between the public and private sectors, the creation and greater prominence of tripartite decision-making councils on industrial policy within the bureaucratic structure, and policy designs with greater capacity to engage civil society are fundamental elements in enabling the good performance of large-scale productive development policies. In this sense, **Mission-Oriented Policies** are gaining some prominence because they generally have an adequate framework to cover all these dimensions, making it possible to articulate a series of cross-cutting actions with responses to pre-established challenges and with goals that are easy to communicate with society.

Implications for the Global South.

The new role to be played by industry in developed countries allows us to envisage adaptations and incorporations of this agenda in developing countries. However, it is important to recognize that the replication of policies is not straightforward, whether due to the particular motivations that apply to each country or to the new challenges and resistance that may emerge from a process of industrial recovery in developed countries. For Brazil, it seems necessary to find new possible formats of production and distribution in order to overcome the restrictions imposed by the center-periphery relationship and move the country into the international division of labor.

Resumption and updating of the debate on development in Brazil.

The analysis shows that Lula's third term not only points to a resumption of economic and industrial development policies, but also proposes an update of these policies: new industrial and innovation policy practices, new nomenclatures and new forms of organizing policies have been proposed. The proposal for a new industrial policy in Brazil differs from previous waves by resorting to policy designs that are more focused on pre-formulated challenges – such as promoting the digitalization of certain activities or expanding the domestic supply of medicines, for example – and by linking this to a greater use of instruments on the demand side, such as public procurement. Despite this, these innovations still coexist with practices and mechanisms conventionally designed for productive and industrial development from other historical periods.

Mapping of the economic and industrial development initiatives of the Lula government.

It is possible to highlight initiatives related to the promotion of economic development in Lula's third government, which means, in some cases, the resumption of policies tried in previous governments of the Workers' Party and, in others, the reaction to the post-pandemic debate on more contemporary approaches associated with development policies. Dispersed among the government structures that formulate, execute and finance such initiatives are different nomenclatures, definitions and projects that, at times, overlap and lack inter-institutional alignments. Emblematic examples such as the New Industry Brazil (NIB) and the Growth Acceleration Program (PAC) still depend on cross-cutting mechanisms that converge guidelines and instruments.

Fragmented initiatives.

The debate on development is present in ministries and other government agencies in a fragmented manner. The question that arises is whether the initiatives are policies of ministries and agencies or are part of a government strategy. Are they several projects or parts of the same project? Beyond the new nomenclature, will the government be able to build a long-term consensus agenda that will allow it to overcome the apparent fragmentation? Given the current fiscal arrangement, is there room for the organization of actions to promote development to contemplate the convergence of the environmental, social and economic agendas?

Limits.

Without the alignment of initiatives, the construction of a governance structure capable of arbitrating inter-ministerial conflicts, and persistent financing for the proposed initiatives, fragmentation will tend to dictate the operationalization of the development strategy and policies for productive remodeling. Financing, however, is a problem in itself, to the extent that the new Brazilian fiscal rule limits the State's capacity to induce, mobilized through investments, transfers, and public purchases. Without the guarantee of budgetary predictability for actions involving industrial policy and without the organization of governance consistent with the designs and challenges of the new policies, the tendency will be to repeat old and recurring problems of industrial policy in Brazil. In this context, the possibility of an effective mobilization around a development plan, such as those recently conceived in the United States and Europe or, for a longer time, in Asian countries, will hardly be carried out under the Lula government.

1 INTRODUCTION: NEW PARADIGM OF INDUSTRIAL POLICY IN THE WORLD

Between the post-2008 crisis and the post-pandemic period, we witnessed the consolidation of a process of return, change and dissemination of new practices of large-scale productive development policies, integrated into broader perspectives of structural transformation and aimed at responding to the challenge of the climate crisis. The starting point of this process can be seen in the announcement of three ambitious initiatives of technological and productive development policies: Industrie 4.0, Advanced Manufacturing and Made in China 2025 – formulated by Germany, the United States and China, respectively, the first two being launched in 2012 and the Chinese plan announced in 2015 (1). These political platforms were aimed at remodeling industrial systems through the creation of new technological frontiers and the reorganization of the respective industrial systems for new technologies.

These initiatives shared a similar direction to innovation policies, aimed at promoting the convergence of general purpose technologies (GPT) trajectories and defining what would be the new technological paradigm of industrial production – the Cyber-Physical paradigm –, the basis for what has been called Industry 4.0. (2)

The formulation of policies specifically aimed at enabling technologies for Industry 4.0 also meant the announcement of a significant volume of resources earmarked for this purpose, as well as the development of a new institutional framework geared towards industrial policies that aim not only to foster the competitiveness of a given set of sectors, but also to change the technological paradigm of the national and global production pattern. In addition to expectations about the effects of technological change on the global production pattern, the period also defined important elements of new policy practices to foster the production sector, incorporating aspects arising from academic debate and new designs for industrial policies that are more transversal and systemic.

Among the elements that characterized these initiatives, the adoption of a systemic perspective, based on the idea of a “national manufacturing system”, represented the biggest change in relation to the productive development policies of the period prior to the 2008 Crisis (O’Sullivan et al., 2013). This idea is based on the understanding of national industry as a complex system formed by the articulation of its constituent elements, such as public and private companies, the national innovation and development system and the coordination and governance structures of the production chains.

(1) Annex 1 details the experiences of Germany, the United States, China, the European Union and South Korea in developing new production development plans since 2008.

(2) Industry 4.0 represents the adoption of so-called enabling technologies – such as the Internet of Things, artificial intelligence, biotechnology and applied genetics, additive manufacturing and blockchain – in industrial production. The complementarity between the trajectories of these new technologies forms the basis of what can be called the cyber-physical paradigm, with the integration of automation and digitalization technologies in machines and equipment.

This perspective also seeks to promote the competitiveness of the industrial system as a whole, through its reorganization within the new technological paradigm and global value chains.

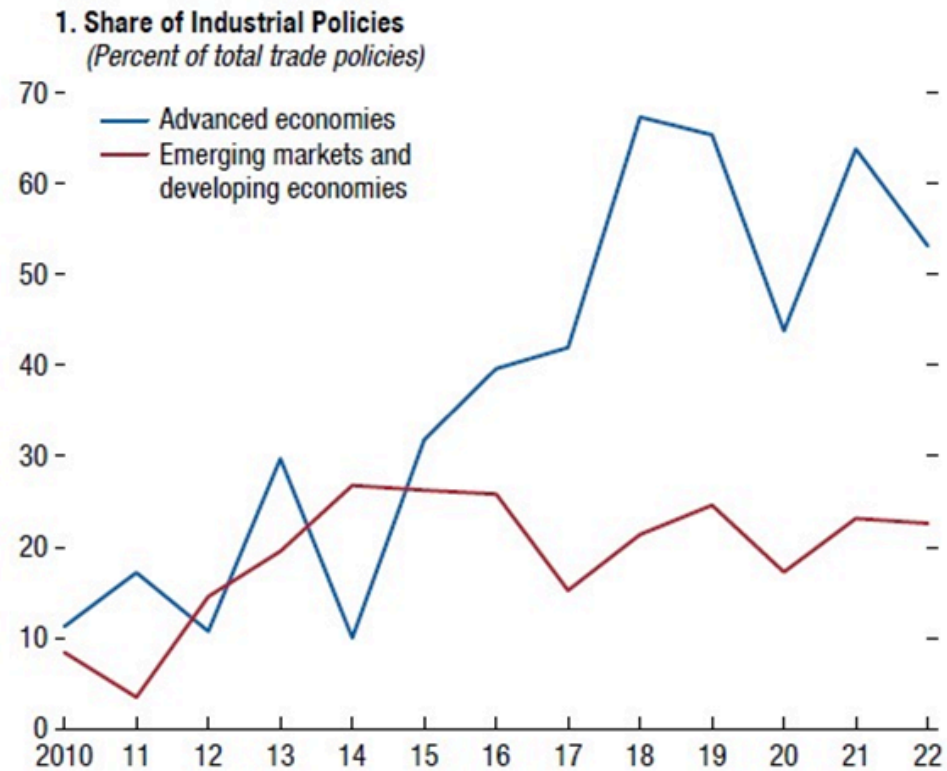
Concern about the economic infrastructure supporting the manufacturing system thus becomes a central element in the debate. Firstly, generating overall competitiveness in manufacturing systems requires planned investments and targeted incentives. Secondly, this investment incorporates at least two fundamental dimensions of the construction of current development policies. On the one hand, they are a frontier of demand for new technologies, through the process of automation and digitalization involving services related to economic infrastructure. On the other hand, they are necessarily associated with the supply of new technologies, particularly those related to mitigating the climate crisis by reducing the environmental impact of services such as logistics and transportation.

This guideline was maintained in the plans launched after the pandemic, such as Build Back Better and Next Generation EU, announced by the United States and the European Commission. These plans included significant stimulus packages aimed at modernizing and expanding local economic infrastructure, with investments acting as demand drivers for new technologies, forcing the adoption of digitalization standards defined by the plans and being one of the main axes of the decarbonization strategies of these economies. At the same time, these infrastructure investments were presented as capable of playing an important role in generating income and jobs, creating a relevant market for local companies.

The return of industrial policy, however, is subject to very specific contexts. One example is the main motivation for strengthening this discourse in the United States. In that country, the economic weaknesses exposed by the pandemic were compounded by the relative loss of competitiveness for Chinese production and domestic political pressure for the recovery of industrial jobs, to support the reversal of the transfer of production plants to other countries and regions.

Strategies such as reshoring, for example, have been suggested as a possible solution to strengthen the position of the United States (Aiginger and Rodrik, 2020; Canuto; Lin and Zhang, 2022). In Europe, the energy issue, the shortage of strategic inputs and the reinforcement of continental sovereignty (in the face of, for example, the threats associated with the Ukrainian War) provide the tone of the discourse for the resumption of industrial policy (Germany and France, 2019; Van der Leyen, 2022). Figure 01 below shows the mobilization of these policies over the last few years, among developed and developing countries.

Figure 01 – Growth in the share of industrial policies focused on innovation among the total registered trade policies – 2010-2022



Sources: Global Trade Alert database; Juhász and others 2022; and authors' calculations.

Source: IMF. Fiscal Monitor, Apr/2024.

In terms of the institutional framework, the formulation of development policies has received greater emphasis. It is recognized, for example, that the creation of channels for dialogue between the public and private sectors, the greater prominence of tripartite decision-making councils on industrial policy within the bureaucratic structure, and policy designs with greater capacity to engage civil society are fundamental elements in enabling the good performance of large-scale productive development policies. In this context, the so-called Mission-Oriented Policies have gained a prominent position, as they generally propose a more appropriate framework to cover all these dimensions.

Mission-Oriented Policies focus on translating challenges and policy guidelines into “solvable” problems (Mazzucato, 2018). Missions have long-term objectives supported by cross-cutting governance and state coordination forged from multiple instances. Their focus is on technological and innovative consolidation in pursuit of specific objectives. They provide for the articulation of a series of cross-cutting actions to respond to pre-established challenges and goals that are easy to communicate with society. Combined with the new perspective of policy formulation, actions aimed at developing innovation systems are also multiplying.

In contrast to typically sectoral cuts, those policies that are more focused on the accumulation of strategic technological capabilities – such as in biotechnology, for example – or aimed at Big Science projects gain relevance.

In recent years, the ecological imperative has been at the center of the debate on the direction of technological efforts and infrastructure investments, motivating the adoption of specific action plans to promote the ecological transition on different fronts, such as urban mobility and energy generation. The emphasis on green growth, that is, on the commitment to a new cycle of economic growth with reduced environmental impact, has encouraged the mobilization of financial resources for the ecological transition. These are earmarked for the modernization of industrial systems and encourage the convergence of new technological paradigms with concerns arising from tackling the climate crisis in the formulation of development policies, also changing the structure of these policies.

In short, this set of factors, in the post-pandemic context, has emphasized elements that go beyond the economic sieve within the scope of productive development policies, including dimensions related to national sovereignty, decarbonization, and the solution of societal challenges – such as population aging, the recovery of degraded areas, or the improvement of urban life. Overall, the increased degree of complexity assumed by current productive development policies has forced the adoption of new approaches and designs for action plans, also giving rise to new concepts and structures around these policies. International experiences in formulating productive development policies have suggested ways for the convergence of these factors, as is the case of major action plans for industrial development, contemplating digitalization and automation processes and ambitious energy transition goals.

Table 01 seeks to systematize and summarize the main points discussed by these plans in the countries/regions that have, historically, played a more prominent role in the development of new technologies.

Table 01. New paradigms of productive and technological development

Dimensions of Development Programs	International Experiences				
	<i>Germany</i>	<i>United States</i>	<i>European Union</i>	<i>China</i>	<i>South Korea</i>
<i>Productive and Innovation Infrastructure</i>	<p>a) Enabling technologies of Industry 4.0 in digitization, automation, and new production standards focusing on technological progress for goods and capital;</p> <p>b) Focus on companies and services related to advanced telecommunications.</p>	<p>a) Institutional environment for the development of enabling technologies for the new technological manufacturing paradigm;</p> <p>b) Focus on investments in transport, energy, and telecommunications infrastructure.</p>	<p>a) Research focused on energy security, transportation, climate change, and sustainability;</p> <p>b) Expansion of infrastructure for internal integration;</p> <p>c) Focus on telecommunications and information technologies.</p>	<p>a) Large projects dedicated to technological leadership and infrastructure;</p> <p>b) Compete in leadership for the Fourth Industrial Revolution;</p> <p>c) Acquisition of key industrial technologies.</p>	<p>a) Competitiveness of the industrial system in new technologies.</p>
<i>Global Value Chains</i>	<p>Little detail on the global dimension, focus on system integration.</p>	<p>Focus on investments to shape the frontier.</p>	<p>Focus on creating an integrated market for Europe.</p>	<p>Focus on promoting integration of Chinese companies, aiming at upgrading.</p>	<p>Little detail on the global dimension.</p>

The context of new windows of opportunity - in addition to the sense of global urgency - has also mobilized efforts among developing countries. The following section seeks to situate this discussion around the possibilities and limits of this mobilization, in addition to highlighting possible contradictions arising from these new paradigms developed by developed countries.

2. REGIONAL FINANCIAL COOPERATION: PURPOSES AND EXPERIENCES

The new guidelines on industrial activity in developed countries allow us to glimpse adaptations and incorporations of this agenda in developing countries, in addition to opening up space to reflect on the contradictions of this process under a dynamic between center and periphery. There is, therefore, a historical possibility of resuming discussions around the importance of industrial policy for thinking about development in the Global South. On the one hand, the idea of development allows us to assimilate and give meaning to concrete material transformations throughout history. On the other hand, it also organizes collective aspirations for positive changes, capable of informing processes of change in the economic structure and social emancipation.

These two dimensions of development highlight the central difficulty in conceiving it in a contemporary context: how is it possible to update it in light of the renewed importance of industrial policy and the complex and diverse needs of countries in the Global South?

This issue is particularly important to Latin America and Brazil, which, throughout the 20th century, were the scene of industrialization experiments based on the import substitution process. Under the strong influence of ECLAC thinking, a certain consensus was forged at the time that overcoming the peripheral condition – or rather, underdevelopment – would not be possible without the commitment of national governments to development strategies, that is, planning the industrialization process towards a high-productivity economy, with the capacity to absorb the surplus labor force (Prebisch, 1949; Furtado, 1969, 2009). Between the 1950s and 1980s, the emphasis given to planning was effective in making the productive structure of some countries in the region more complex, but it raised practical and theoretical questions: would industrialization, in itself, be capable of summarizing a development process? How important are distributive issues beyond economic growth? Is development an unequal and contradictory process? (3)

(3) More critical views on the ECLAC dimension, such as the dependency approach, were responsible for advancing these issues.

Today, the new paradigm associated with industrial policy has incorporated into its design the need to address larger issues. This continues to be understood as a set of government policies aimed at changing the productive structure towards greater productivity (Chang, 2024), but not only: the focus can be on the production of innovations, economic growth, climate transition, quality of jobs, among others. In addition, a broad and flexible institutional architecture is required, which brings together a series of regional, innovative, or local content policies (Juhász; Lane and Rodrik, 2023). A distinctive feature of this new paradigm is, for example, the decarbonization of industry, that is, the mobilization of the productive structure towards a drastic reduction in greenhouse gas emissions through Green New Deals (Marques, 2020).

Still, as Aiginger and Rodrik (2020, p. 200, free translation) recall, industrial activity cannot be ignored as the foundation of economic transformation: “taking into account the centrality of structural change, industrial policy is at the heart of economic and social policy.

No country can overcome poverty or change its relative income position – [...] – without structural change and industrial improvement.”

It must be acknowledged, however, that there are important criticisms of this new conception of industrial policy. Chang and Andreoni (2020) highlight that the industrial discourse of the Global North is still excessively technical and proposes solutions centered on market mechanisms, with few considerations regarding the political economy involved in this process. They highlight, for example, that even when managed transversally, industrial policy implies a certain unequal distribution of income between sectors and classes of society.

This aspect is particularly critical insofar as contemporary capital flows are marked by movements in global financial markets. New industrialization processes, requiring large contributions of resources, are fundamentally linked to the contemporary dynamics of financialization. As a result, particular methods of organizing industrial policy emerge, suited to the current conditions.

Gabor (2023), for example, highlights the preference for strategies to mitigate the risks of private investments through regulation and state incentives (4), in contrast to experiences centered on public undertakings and focused on decommodification.

(4) PPPs, tax credits, subsidies, collateral, among others.

Furthermore, Alami, Copley and Moraitis (2023) draw attention to the optimism associated with the triad that supports industrial policy in its new forms: economic growth, better jobs and a low-carbon economy. The process of decarbonizing industry, for example, may not only produce fewer quality jobs than expected, but also condition development strategies in the Global South in socially and environmentally questionable directions, such as specialization in extractive practices of minerals useful for the energy transition.

This aspect has been highlighted by authors who pay attention to the centrality of neo-extractivist experiences in Latin America throughout different periods of development of capitalism on a global scale.

The industrial paradigm shift in the Global North may, in practice, only represent a repositioning of priorities associated with the Global South: the focus, for example, moves from fossil fuel extracting countries to those with large reserves of critical minerals (Bringel; Svampa, 2023).

This dynamic illustrates the relevance of productive interconnections between the Global North and South for the contemporary debate on industrial policy and suggests that it is possible to argue that its format, size and potential effects return, for the latter group of countries, to the central issue of the development process.

As the classic contributions on Latin American development have already proposed, the industrialization process appears to be a determining factor in overcoming external restrictions on the periphery, but ends up being restricted by these conditions (Prebisch, 1949; Tavares, 1998). Thus, the intricate relationship between the domestic economy and the international economy are factors that complicate the assimilation of the new industrial policy in countries like Brazil. This may occur not only for reasons that are already well known and debated - external vulnerability, productive specialization, structural heterogeneity, fiscal restrictions - but also under the new conditions that are posed by the current discussion.

It was precisely by filling this gap that some proposals sought to advance the understanding of Latin American development in the face of changes in industrial paradigms in the Global North. One example is the ECLAC contribution structured around the concept of the Big Push for Sustainability (Gramkow, 2019).

This idea, based on Rosenstein-Rodan (1957), recognizes the need for a minimum level of investment and resources mobilized for the success of a development project.

The proposal, although sympathetic to the green growth model, recognizes the structural constraints highlighted by classical development theories and seeks to produce "a virtuous cycle of economic growth, job creation, development of production chains, reduction of the environmental footprint and environmental impacts, while recovering the productive capacity of natural capital" (ibid, p. 15-16). From a more critical perspective, which recognizes the centrality of the region's dependence on the export of primary products (Lebdioui, 2022), there are more radical contributions to thinking about sustainable development as opposition to the renewal of neocolonial and neoextractivist practices. One example is the Pacto Ecosocial e Intercultural del Sur/Ecosocial, which advocates a biocentric vision of development with an emphasis on dignified human life (*bien vivir*) and preservation, restoration, and protection of the environment (Pantilimon, 2023).

Although the contradictions and difficulties do not undermine the historic opportunity created by the resurgence of the debate on industrial policy, they do highlight the need to recognize the complexity of the issue in countries of the Global South. Thus, it seems to make sense to reconnect the return of industrial policy with the debate on development in the periphery.

Considering the objective of generating economic growth through structural transformation oriented towards the urgency of contemporary issues (such as reducing inequality and tackling the climate crisis), it is possible to reconstruct the convergence between the new conception of industrial policy in the North and the challenge of development in the South.

This observation does not imply reproducing a path already followed by the developed world, but rather finding possible formats of production and distribution that can, for example, be developed in the South, with the South and for the South, in order to collaboratively overcome the restrictions imposed by the center-periphery relationship and move the country in the international division of labor. Based on this critical reflection, the following section seeks to discuss how this debate on the return of fiscal policy has been reflected in the scope of Brazilian institutional policy, considering the discursive commitment of the current government to an economic agenda oriented towards development and South-South cooperation.

3. THE DEVELOPMENT STRATEGY OF THE LULA III GOVERNMENT

This section seeks to map the initiatives of the current Brazilian government, especially the Executive Branch, from a perspective that organizes policies, practices, regulations and discourses under the concrete dimension of development. The analysis, which does not seek to exhaust debates on the topic, has the main objective of identifying and synthesizing the efforts of elaboration, coordination and cooperation between government bodies capable of informing one or more development strategies. The aim is to understand how the government has incorporated the debate on the new productive and technological paradigms that were highlighted in the previous section, assessing the degree of maturity of this understanding and its translation into effective actions capable of informing a development process, recovering the importance of the concept for the Global South.

In order to discuss the existence of one or more development strategies, some key bodies and institutions for the elaboration and execution of economic policies were analyzed, which are categorized based on their main function: i) formulating bodies; ii) financing bodies; iii) executing bodies. The formulating bodies are those that dictate the political priorities of the development project and its direction.

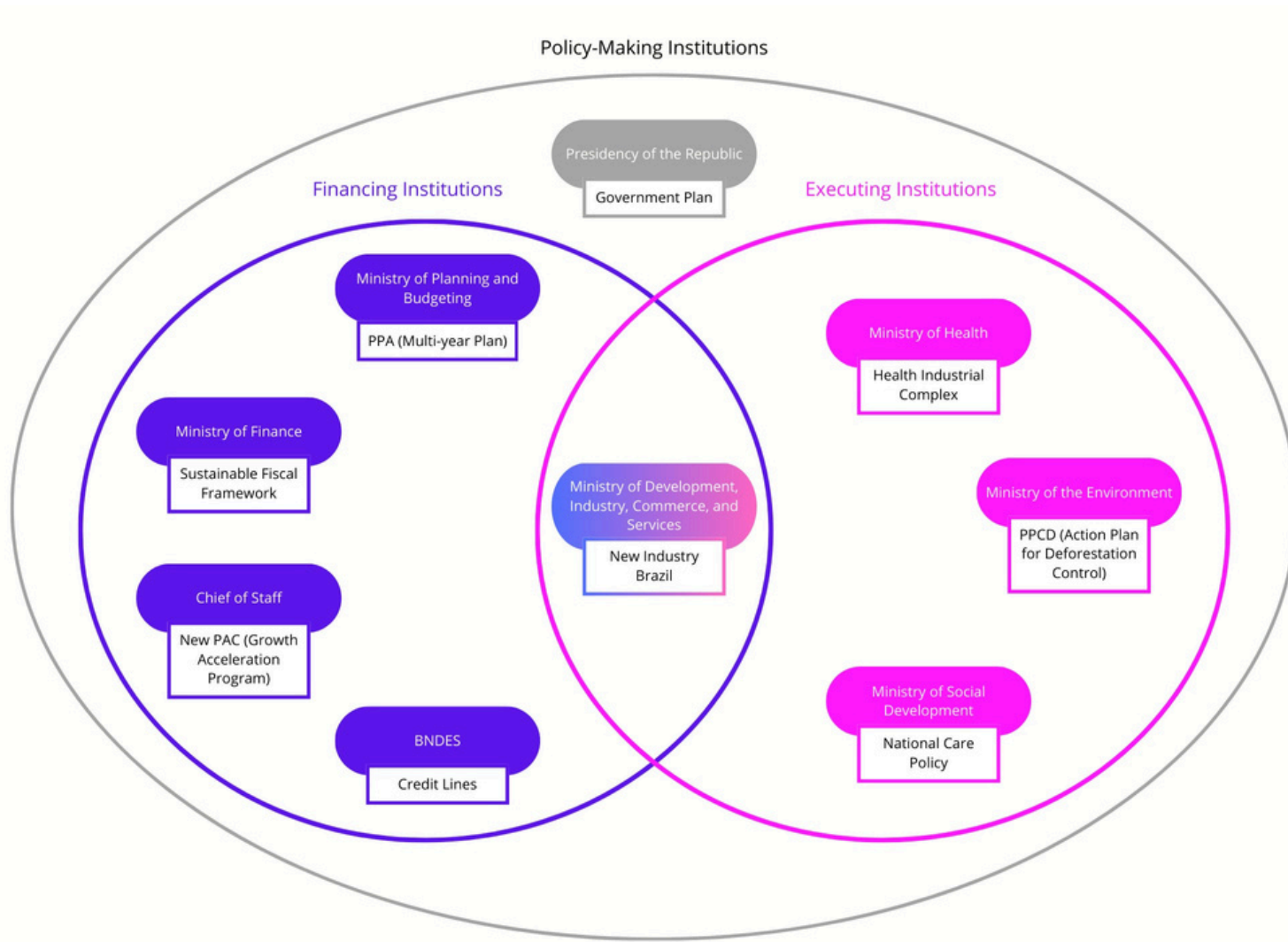
Every public body or institution formulates its own agenda of priorities and is therefore classified as a policymaker. The Presidency of the Republic is the main policymaker, since its fundamental function is to determine the political priorities of the entire government.

Funding agencies are those responsible for allocating budgetary resources and creating financing mechanisms. Note that funding agencies are not those that will execute and spend resources to implement a specific policy, but rather those that will allocate available resources to other agents. For public administration, the Ministry of Planning is the funding agency by nature since it defines, for example, budgetary guidelines through the Multi-Year Plan (PPA). The Ministry of Finance also occupies an important position in determining the size of the budget available through the Sustainable Fiscal Regime. We also consider funding agencies to be those that create financing mechanisms for other public agencies and private entities. This is the case of the credit lines from BNDES or the Civil House through the new PAC.

Finally, the implementing agencies are those responsible for developing and managing public policies at a more operational level. Here are the agencies and institutions analyzed that develop public policies. Figure 02 seeks to summarize the institutional framework that structures the development agenda of the Lula 3 government. The agencies are positioned in the circles based on their main function between formulator, financier and executor. The boxes below each of the agencies represent the policy or instrument analyzed here, which is understood as the main guide for its function. It should be added that this representation is not static and may vary depending on how the agencies position themselves within the government. The preparation of the Ecological Transformation Plan (PTE) by the Ministry of Finance, for example, points to its inclusion also as a policy formulator and not merely a financier. Since the PTE has not yet been fully disclosed and we are not aware of its scope, its analysis is not included in the figure. Some particularities of this organization are discussed below.

The starting point for the analysis was the government plan of the Lula/Alckmin administration (2023-2026), especially the section on Economic Development and Socio-Environmental and Climate Sustainability. It highlights the government's priorities as follows: resuming growth, jobs and income; controlling inflation; combating regional inequalities; ecological transition; a new tax regime; a fair, sustainable and supportive tax reform; reindustrialization; strengthening agricultural production and food sovereignty; encouraging science, technology and innovation; among others. In general, these priorities have appeared in the guidelines of all the agencies and institutions analyzed, as well as in their respective action plans and projects. In this sense, it is concluded that there is a convergence of objectives exposed, at least in the conceptual field.

Figure 02. Classification of institutions based on their analyzed plan or instrument



The convergence of objectives is not a guarantee that there are institutional conditions for the elaboration of a development strategy. Aspects such as the determination of funding sources, design of governance structures, alignment of coordination and cooperation between agencies, among others, represent indications of concrete initiatives in the elaboration of a development project. In this sense, the main highlight in terms of this mobilization can be given to the New Industry Brazil (NIB), elaborated by the Ministry of Development, Industry and Commerce (MDIC) and made public in early 2024. The NIB presents itself as a space for convergence of the debate by positioning the MDIC at the center of Figure 02, as formulator, financier and executor, in addition to its capillarity with other agencies, as we will see below.

The document that organizes the NIB is an interesting framework for thinking about Brazil's development potential under the Lula 3 government. It focuses on industrial policy as an organizing element for government action, proposing links between the bodies that formulate, finance and implement policy. The aim of this policy would be to develop Brazilian industry based on the formulation of consensus and using cross-cutting management principles, which should be guided by aspirational goals for the 2024-2026 period. These goals are defined on the basis of six missions: 1) Sustainable and digital agro-industrial chains for food, nutritional and energy security; 2) Resilient health economic industrial complex to reduce SUS vulnerabilities and expand access to health; 3) Sustainable infrastructure, sanitation, housing and mobility for productive integration and well-being in cities; 4) Digital transformation of industry to increase productivity; 5) Bioeconomy, decarbonization and energy transition and security to guarantee resources for future generations; 6) Technologies of interest for national sovereignty and defense. Table 02 summarizes the content of the missions according to the NIB document:

Table 02. NIB missions

Mission	Sectoral Focus	Aspirational Goal for 2033	Key Instruments
Sustainable and digital agri-industrial chains for food, nutritional, and energy security	<ul style="list-style-type: none"> - Agri-industry - Family farming - Fertilizers - Biotechnology - Low-carbon technology 	Expansion of the agri-industry's share in GDP; Mechanization of family farming with local production.	Non-reimbursable and reimbursable funding for technological development; Digitalization of production; Rationalization of port tariffs; Expansion of public food purchase programs.
Resilient health industrial economic complex to reduce SUS vulnerabilities and improve access to health	<ul style="list-style-type: none"> - Health - Medical equipment - Pharmaceutical industry - Information and communication technology 	Expansion of national autonomy in the production of medicines, vaccines, medical equipment, and others.	Non-reimbursable and reimbursable funding for technological development; Patents and intellectual property; Public purchases via the New PAC for the Health Industrial Economic Complex linked to SUS.

In terms of incentives for industrial policy, the NIB indicates three fundamental elements: the existence of financing mechanisms for innovation, infrastructure and exports, the improvement of the business environment based on gains in competitiveness and, finally, the State's action based on investments and public spending.

In the case of the first type of stimulus, the NIB emphasizes the importance of development agencies and institutions such as the National Bank for Economic and Social Development (BNDES), the Brazilian Industrial Research and Innovation Company (Emprapii) and the Study and Project Financing Agency (FINEP). In practice, this means the mobilization and creation of financial instruments capable of addressing the structural challenges of Brazilian productive development. The NIB highlights, within the scope of the Ministry of Finance, the regulation of the carbon market and the development of a sustainable taxonomy, which allows economic and productive activities to be classified from a perspective focused on socio-environmental responsibility. The taxonomy, although announced by the Ministry of Finance, is still under development and is not yet available for use. In parallel, the BNDES appears as a central agency for the provision of credit and subsidies.

The second type of stimulus is aimed at aggregate supply and the business environment, focusing on the actions of several ministries and federal agencies in three central areas: monitoring and regulating intellectual property to reduce innovation costs, qualifying the national workforce through educational and science and technology policies, and, finally, expanding mechanisms that facilitate international trade. Finally, the third type of stimulus focuses on the role played by the State as an inducer and guarantor of aggregate demand. For example, the importance given to the development of a national public procurement strategy stands out. This, in turn, is understood based on its articulation with the New PAC, in order to “guide the State’s purchasing power in actions and measures [...] to stimulate productive and technological development and sustainable innovation, environmentally and socially, in order to contribute to the processes of neo-industrialization and ecological transition” (p. 23).

The missions presented by the NIB and summarized in Table 02 show that the MDIC proposal incorporates a series of government agencies and bodies around an industrialization project guided by specific objectives. The NIB therefore appears as a set of policies and instruments aimed at industrialization and structural change, with social and environmental priorities, taking into account Brazil's role in the international division of labor. In addition, the NIB already represents a modernization of industrial policy practices in Brazil, approaching the new designs that are being discussed and operationalized in other economies. However, this design requires well-constructed cross-cutting actions between the ministries and their respective public policies in order to make viable the demand-side instruments – such as public purchases and technology orders – on which the NIB is largely based.

As discussed above, the role of investment and public credit are central to the horizon proposed by the NIB. It is in this sense that it is worth paying attention to two of the main sources of these resources: the New PAC and the BNDES, which can be interpreted based on their own visions around development strategies, but which, with the NIB, are now understood from a perspective organized around neo-industrialization. The New PAC, launched in 2023, estimates a total investment, public and private, of R\$ 1.7 trillion (most of which will be used by 2026). It can be seen as a plan that links the different sources of financing to the institutions executing the investments, leaving them responsible for advancing their specific policies. With this, the New PAC indicates an immediate path for development efforts, as it determines the sectors and economic agents to be benefited, outlining the priorities of this process. The New PAC is organized into nine axes: Efficient and sustainable transportation (R\$349 billion); Inclusive social infrastructure (R\$2 billion); Sustainable and resilient cities (R\$610 billion); Water for all (R\$30 billion); Digital inclusion and connectivity (R\$28 billion); Energy transition and security (R\$540 billion); Innovation for the defense industry (R\$53 billion); Education, science and technology (R\$45 billion); Health (R\$31 billion). (5)

(5) For a comparison of the new PAC with previous editions and estimates of its effect on GDP, see Taioka et al. (2023).

Approximately 20% of the resources available for the New PAC are associated with financing policies, which suggests the importance of public credit in mobilizing the productive structure. In this sense, it is worth highlighting the role played by the BNDES, which is integrated into the scheme as an agent for promoting more lasting development, being one of the main strategic sources of financing (R\$218.5 billion in credit is expected in the first year of the Lula III government alone). BNDES has already defined its strategic guidelines in line with the concepts of sustainable development and development financing initiatives. However, the reduction in the size of the bank's disbursements over the last decade has been notable: since 2016, the amounts committed annually have not reached $\frac{1}{2}$ of what they were at the beginning of the 2010s. It is also worth remembering that the current BNDES no longer uses the Long-Term Interest Rate (TJLP) as a reference for its targeted credit and the possibility of public capitalization is practically prohibited by the rules of the new fiscal framework. Even so, BNDES plays a fundamental role in offering financing for higher-risk projects with greater innovative and technological potential.

In addition to the NIB, the New PAC and the BNDES, there are initiatives from other agencies that require greater consolidation and, therefore, cannot be assessed in the same way. One of them is the Ecological Transformation Plan (PTE) of the Ministry of Finance, which has not yet been fully disclosed, but which aims to provide support with instruments and articulate the centrality of the ecological dimension for the other plans. The PTE has 6 axes: sustainable financing, technological development, bioeconomy, energy transition, circular economy and infrastructure, and adaptation to climate change. Among the measures are the regulated carbon market, the promotion of technological innovation centers in universities, the expansion of forest concession areas, the electrification of bus fleets, the encouragement of recycling and public works for mitigation (6). The existence of the PTE seems to indicate, in part, a gain in relevance of the Ministry of Finance in the elaboration of the political development agenda, to the detriment of ministries more associated with execution, a possible consequence of contemporary macrofinancial arrangements (Gabor, 2021).

(6) To see preliminary results, see <https://www.gov.br/fazenda/pt-br/aceso-a-informacao/acoes-e-programas/transformacao-ecologica/resultados>

As Table 02 shown, the NIB converges with the analysis carried out here, which points to the specific emphasis given by other implementing agencies to certain dimensions of development. This is the case, for example, of the Ministry of Health (with the Health Economic-Industrial Complex) and the Ministry of the Environment (with the bioeconomy in the Deforestation and Fire Prevention and Control Program - PPCD). It is worth noting that the Ministry of the Environment (MMA), despite being central to the design of a sustainable development strategy, has not led this debate. For the MMA, the bioeconomy is perceived, particularly for the Amazon, as a possible strategy for development, with “support for local production chains and sociobiodiversity economies being a requirement for forest conservation and the social inclusion of the populations that survive on it” (p. 61). However, the bioeconomy is still a concept under dispute (Pereira, 2023). For NIB, for example, its use is more related to the productive and innovative use of Brazilian biodiversity and less to local production chains. Furthermore, there are expectations regarding the MMA with the update of the National Policy on Climate Change (PNMC), which will determine the country's new climate target, in line with the Brazilian Nationally Determined Contribution (NDC), as well as the Climate Plan - Adaptation and Mitigation - which will organize resources into sectoral projects and objectives. The institutional space for this debate is the Interministerial Committee on Climate Change (CIM), but the NIB already mentions the importance of the Climate Plan in the context of neo-industrialization.

It is also necessary to point out other limitations of the NIB. In particular, the lack of emphasis on a social development agenda. Despite having the reduction of inequalities as its guiding principle, the NIB, in proposing to organize the government's strategy, does not dialogue with other initiatives that point to this discussion. This is the case with the National Care Policy (PNC) being drawn up by the Ministry of Social Development, which is at the leading edge of the international debate by recognizing the care sector as a structuring factor in the development process. In general, care policies are public policies aimed at reorganizing and sharing social responsibility for care and influencing issues such as women's employment, time use, income distribution, as well as strengthening specific economic activities such as health, education and social assistance. A dialog, for example, between the notion of the Health Industrial Complex and the PNC could generate positive advances.

Even so, this discussion allows us to conclude that the NIB, the New PAC and the BNDES are central institutions for articulating the formation, execution and financing of policies in the direction of the Lula government's development strategy 3. In this sense, Table 2 summarizes the work and priorities of the NIB, the New PAC and the BNDES in each thematic axis (Transport, Culture, Cities, Housing, Waste, Water, Digitalization, Environment, Energy, Defence, Education, Health, Productive Structure, Capital Markets, Agribusiness, Internationalization, Innovation), as well as measuring their monetary value.

Table 03. Priorities of Novo PAC, BNDES and NIB by thematic axis

Areas	<i>New PAC</i>	<i>BNDES</i>	<i>NIB</i>
<i>Transport</i>	Reduction of logistics costs (railways, highways, ports, etc). Renewal of urban fleet, BRTs, VLTs, urban and metro trains, terminals, and bike paths.	Construction and modernization of highways, railways, airports, navigation, ports, terminals, and warehouses. High and medium capacity systems for major metropolitan regions in Brazil.	Electromobility, metropolitan railway industry.
<i>Culture</i>	Community centers, sports and leisure spaces, restoration and preservation of cultural heritage, among others.	Restoration and/or preservation of artistic, architectural, and cultural infrastructure of monuments, buildings, archaeological sites, museums, cultural heritage products, and other cultural assets.	
<i>Cities</i>	Sanitation, waste management, urban mobility, disaster prevention, and slum urbanization.	Urban productive inclusion in peripheral territories, support for municipalities.	Digital and low-carbon civil construction.

Finally, it is worth revisiting Table 01 and using the same dimensions of analysis of productive development associated with international experiences to consider changes in the Brazilian productive structure based on the elements mentioned above. From the point of view of productive infrastructure and innovation, the NIB seems central to envisioning a Brazilian development strategy that points to convergence with new industrial paradigms, but adapts it, in part, to the local reality. The NIB incorporates themes that are shared by other executive agencies in addition to the MDIC, suggesting the capacity to articulate, around a process of “neo-industrialization” guided by missions, a development strategy specific to the Brazilian case, even though it incorporates aspects similar to the agendas of developed countries. There is, for example, an emphasis on innovation and technological development, but this is also associated with the reduction of inequalities and socioeconomic inclusion. Or, there is also the element of sustainability, but it mentions agroindustry, urban infrastructure and the bioeconomy. Another case is the issue of digitalization, which appears linked to productivity and competitiveness, but is also associated with the scope of strengthening the Health Economic-Industrial Complex. Regarding the environmental issue, there is a general orientation around the need to incorporate sustainable objectives into productive development.

However, it is possible to highlight some problems associated with this discourse. The first is that the NIB seems to emphasize mechanisms for mitigating climate change, i.e. decarbonizing industrial activities and, particularly in the case of Brazil, reducing the impact of agriculture on carbon emissions. Adaptation, i.e. investment in resilient infrastructure, climate risk management systems or even works to contain climate disasters, do not appear as central elements associated with neo-industrialization, despite being included in the New PAC's programmatic axes.

On the one hand, it is true that mitigation technologies are central to accompanying, as the NIB seems to indicate, the transition to an industry suited to the new paradigms proposed by the Global North. However, as the recent impact of the rains on Rio Grande do Sul shows, there are urgent concerns associated with climate adaptation infrastructure. This reflection allows a contemporary look at the dimension of peripheral development, especially in the case of Brazil, indicating that the priorities associated with the objectives of social and environmental missions can be rethought and revised when incorporating the new paradigms within the scope of the Global South.

Another central issue associated with environmental aspects is the emphasis given by the New PAC, the BNDES and the NIB to the dimension of agriculture and livestock farming. The economic importance of these sectors is recognized and, therefore, the need to engage in strategies capable of reducing the environmental impact of these activities. However, it is interesting to reflect on the political economy difficulties associated with the growth possibilities that are envisioned from a development strategy structured around consensus. As mentioned previously, the reorientation of industry in the Global North may imply a redefinition of the role that countries that export natural resources occupy in the international division of labor, suggesting the transfer of a demand for fossil fuels to a demand for critical minerals. In the Brazilian case, this particularity is complicated by a high dependence on exports of agricultural products, which may constrain initiatives to remodel the growth pattern – and, therefore, the development strategy – in the direction of a greater emphasis on industrial processes.

When reflecting on international insertion in global value chains, Brazilian initiatives cannot be directly analyzed in light of the international experiences evaluated, since the country is not in a position to compete for leadership in the world's technological frontier, as the United States and China do, nor is it characterized by an external insertion based on cutting-edge industry like Germany and South Korea. The position of an important exporter of primary products therefore serves as a benchmark for Brazil's aspirations, corresponding both to a potential in terms of participation in international markets and to a limitation that imposes limits associated with the value added by exports, the need to import technology, and restrictions on the development of competitive national production systems.

In view of these difficulties, it is important to highlight the lack of regional integration initiatives linked to the productive and technological development expected for Brazil. It is worth remembering, in Table 01, the importance that the Belt and Road Initiative plays in the formulation of the Chinese strategy for external insertion, based on the continuous stimulation of supply and demand policies. Despite the centrality of supply policies in the design of the productive structure, it is necessary to guarantee a market for these new technologies and goods, which translates into policies to enhance national income and productive chain, as well as public procurement policies. Another element is precisely the expansion of regional cooperation, which could be present as a way to guarantee shared trade spaces that favor partner markets in Latin America and the Global South. In addition, discussing technology transfers, patent waivers and resource donations is essential, especially with regard to the development of sustainable and resilient structures, many of which are part of the current technological frontier and require large expenditures of resources.

From the perspective of institutional management and strategic design, as already mentioned, there seems to be an attempt to converge the Brazilian experience under Lula's administration with the plans presented in the previous section. In particular, the use of “mission-oriented policies” stands out as a framework for formulating and implementing the development strategy, in which the aim is to combine investments in activities with the potential to generate positive externalities by expanding demand for key technologies to create productive capacities within the new techno-socioeconomic paradigm that is being formed. This jargon is explicitly used in the NIB and BNDES, but its idea permeates the other plans analyzed. One limitation of the Brazilian case, however, seems to be the lack of instruments and mechanisms for coordination between these initiatives. Developed countries present broad plans that encompass various sectors of the economy, but also instances of public administration. Brazilian projects are still headed by specific ministries, which, despite the convergence of objectives, do not explicitly coordinate themselves at the instrumental and execution levels. Plans with broader management ambitions, such as the Ecological Transformation Plan, are not yet complete.

From the perspective of implementing a Brazilian development strategy, the fiscal issue is the main obstacle. The limitation of the political space for action on public spending by the Sustainable Fiscal Regime, and especially the zero deficit target, has the potential to undermine the plans' ability to sustain themselves in the medium term. The resources for the New PAC, for example, will come from several sources, including R\$371 billion (21.82%) from the General Budget of the Union (OGU), R\$343 billion (20.18%) from state-owned companies, and R\$362 billion in financing (21.30%). The private sector will play a very significant role, contributing R\$612 billion (36%), mainly through Public-Private Partnerships (PPPs).

The NIB also combines the use of financial instruments, credit lines, and improvements in the business environment with indirect government interventions, mainly linked to public contracts and bidding processes. This macro-financial regime is similar to that found in developed countries, characterized by the favoring of the use of private resources and de-risking, in which the government plays a supporting role in the strategies. However, it is important to recognize that the ambition of Brazilian plans is sometimes greater than that of developed countries. Despite the fiscal restrictions, the new PAC is only behind the K-New Deal in terms of GDP.

4. FINAL CONSIDERATIONS: COHERENCE AND LIMITATION IN ECONOMIC AND INDUSTRIAL DEVELOPMENT POLICIES

Looking at recent international experiences in productive development policies (see Annex), we can see elements of convergence in relation to the institutional designs perceived in the Brazilian case: the targeting of action plans towards the promotion of digitalization and the ecological transition, the adoption of mission-oriented policies for the development of productive complexes, Big Science projects or for the solution of socio-environmental challenges, the aim of directing substantial resources towards investments in infrastructures - as an instrument for disseminating and creating a market for new technologies - and the adoption of strategies to promote the national or regional integration of productive chains (reshoring, inshoring, friendshoring, etc.).

With regard to the design of development policies, in addition to the jargon of mission-oriented policies, digitalization and the energy transition, they share an implicit internal logic, which is the use of public investments and spending aimed at overcoming societal challenges or problems related to the climate crisis, as demand-side instruments for productive development and innovation policies.

In this sense, industrial policies following the health crisis have been characterized by the rehabilitation of demand-side instruments, such as public procurement, infrastructure investments and technology orders.

Thus, the recurrence of certain terms, such as “Missions”, is not a mere nomenclature, but a structure for formulating and implementing development policies, which seek to combine investments in activities with the potential to generate positive externalities with the expansion of demand for key technologies for the creation of productive capabilities within the new techno-socioeconomic paradigm that is being formed. Mission-oriented policies have this aspect: because they are articulated with other cross-cutting policies, they tend to expand the interest groups involved in supporting development policies.

At the same time, these policies are easy to communicate and work with goals that are easy to understand, opening up greater possibilities for working on the legitimacy of these policies, a fundamental dimension for ensuring continuity and predictability in the allocation of resources, factors of utmost importance for their good performance.

However, for this mobilization to work, it depends on the good coordination of cross-cutting actions, which constitute a considerable part of the demand side, with direct actions to promote production and innovation. In this sense, the stock of investments in public goods, collective consumer goods and/or urban and economic infrastructure must grow sufficiently to guarantee minimally competitive operational scales, which is one of the fundamental factors to ensure the success of the stimulus policy. This has proven to be one of the critical issues of these new policy designs; the stable growth of public investment becomes one of the factors that weighs in reducing the uncertainty associated with the private investments that accompany these policies.

The combination of costs related to the implementation of public policies – such as housing, mobility, agroecology, for example – with those associated with policies to promote production and innovation, coupled through the Missions, tends to generate an increase in the cost of policies with purposes other than productive development. The possible burden on public policies, as well as possible delays in the schedule due to issues related to the elasticity of the internal supply of inputs, can become an intensification of inter-bureaucratic conflict, subject to arbitration that tends to be located only at the highest levels of government.

Another critical issue regarding the design of these new productive development policies is the need for an intricate governance structure, involving high-level officials and relevant decision-making capacity regarding the allocation of resources.

These development policy approaches, although with great potential, have also proven to be difficult to implement and relatively costly, as they depend on good coordination between instruments on the demand side, which in turn depends on building complementarity with other public policies and good budgetary forecasting. Building this transversality and allocating the resources needed to ensure relevant production scales tend to become the main difficulties in building mission-oriented policies, as well as in most contemporary development policies with a similar approach.

As the main initiatives for productive development in the current Lula administration have been designed, some issues seem worthy of greater attention. Strengthening interministerial committees and greater involvement of senior officials in defining priority cross-cutting cuts between the “Missions”, investments from the PAC axes and other larger public policies is crucial for the initial operationalization of the government’s industrial policies as they are currently constructed. Defining a smaller set of priority actions, in addition to creating/strengthening forums with greater capacity to define resources, guarantee their provision in a scenario of budgetary constraints and arbitrate between possible inter-bureaucratic conflicts, would also be of utmost importance to reduce uncertainty regarding the first industrial policy initiatives.

Although well aligned with the construction of new contemporary development policies, this construction must go beyond the terminological coincidence and advance in the construction of the respective instruments, practices and governance structures of these policy models. The second issue that requires further definition is that, considering that a significant part of the development policy cuts adopted by the government are based on demand-side instruments, these instruments require a stable budget provision. Without a stable budget provision that is large enough to promote growth in production scales and, thus, the generation of productive efficiency in the medium term, industrial policies continued to be shrouded in uncertainty and difficult to convince the private sector of their possibilities. While demand-side instruments tend to be more emphatic because they are directly aimed at creating markets, in the absence of this contribution of resources, the initiatives tend to burden public policies without generating the intended development effects.

The government has faced a considerable challenge. While industrial and innovation policies are consolidating a scenario that is different from the global economy of a few decades ago, actively addressing this scenario requires the development of appropriate instruments and means. Without this development, economic development will tend to remain restricted to fragmented initiatives dressed up in new jargon.

5. REFERENCES

Aiginger, K.; Rodrik, D. (2020). Rebirth of industrial policy and an agenda for the twenty-first century. *Journal of industry, competition and trade*, n.20, p. 189-207.

Alami, I.; Copley, J.; Moraitis, A. (2023, November 24) *Hard Truths About Green Industrial Policy*, Project Syndicate, Disponivel em: <https://www.project-syndicate.org/commentary/industrial-policy-not-silver-bullet-by-ilias-alami-et-al-2023-11>

Germany; France, (2019). *A Franco-German Manifesto for a European industrial policy fit for the 21st Century*. Federal Ministry of Economic Affairs and Finance (FRA) and Federal Ministry for Economic Affairs and Energy (EFA). Available at: https://www.bmwk.de/Redaktion/DE/Downloads/F/franco-german-manifesto-for-a-european-industrial-policy.pdf%3F__blob%3DpublicationFile%26v%3D2

Arbix, G.; Miranda, Z.; Toledo, D.; Zancul, E. (2018) *Made in China 2025 and Industry 4.0: the difficult Chinese transition from catching up to an innovation-driven economy*. *Tempo Social*, 30(3), 143-170.

Berglof, E. (2016) *European Industrial Policy – tapping the full growth potential of the EU*. *Intereconomics*, 51(6).

Brenck, C. Z.; Marques, P. R.; Lima, G. T.; Rodrigues, L. H. G.; Sanches, M. S.; Cardoso, D. S.; Serra, G. P. (2023). *Considerations on the sustainable fiscal regime and the importance of public investment for its functioning*. *Economic Policy Note No. 042, Made/USP*.

Bringel, B.; Svampa, M. (2023). *From the ‘Commodities Consensus’ to the ‘Decarbonization Consensus’*, *Nueva Sociedad*, n. 306

Brown, R. (2020), *Mission-oriented or mission adrift? A critical examination of mission-oriented innovation policies*. *European Planning Studies*. DOI: 10.1080/09654313.2020.1779189.

Canuto, O.; Lin, J. Y.; Zhang, P. (2022). *Geopoliticized Industrial Policy Won't Work*. Project Syndicate. Disponivel em: <https://www2.project-syndicate.org/commentary/geopolitics-no-basis-for-reshoring-production-by-otaviano-canuto-et-al-2022-02>

Chang, H. J. (2024) *Industrial policy: Best practices for emerging economies*. In: De Boer, D., Sander, H., Friz, K., Anastasi, A. *Private Sector Development in an Emerging World Inclusive Policies and Strategies for the Formal and Informal Economy*, Berlin/Boston: De Gruyter.

Chang, H-J.; Andreoni, A. (2020). Industrial policy in the 21st century. *Development and Change*, 51(2), 324-351.

Cotting, A.; Pina, L.; Takada, N.; Vaz, R.; Barbanti, O. (2023). Lula government articulates bioeconomic strategy to leverage growth and international insertion. *Observatory of Foreign Policy and International Insertion of Brazil*. Available at: <https://oieb.org/2023/05/16/governo-lula-articula-estrategia-bioeconomica-para-alavancar-crescimento-e-insercao-internacional/>

DELOITTE (2020) Next Generation EU funding and the future of Europe. Available at: <https://www2.deloitte.com/global/en/pages/about-deloitte/articles/next-generation-eu.html/#ataglanca>.

Erber, G. (2016). Industrial policy in Germany after the Global Financial and Economic Crisis. *SSRN Electronic Journal*, disponível em SSRN: <http://dx.doi.org/10.2139/ssrn.2756963>.

Furtado, C. (1969). *Theory and policy of economic development*, 7th ed. São Paulo: Ed. Nacional.

Furtado, C. (2009). *Development and underdevelopment*, São Paulo: Counterpoint.

Gabor, D. (2023). The (European) derisking state. *Stato e mercato*, 1/2023, 53-84.

Gadelha, C. (2003). The health industrial complex and the need for a dynamic approach to health economics. *Ciência & Saúde Coletiva*, 8, 521-535.

Gramkow, C. (2019). The Big Environmental Push in Brazil: Coordinated Investments for a Sustainable Development Style. *ECLAC and FES Perspectives No. 20/2019*.

Gobetti, S.; Orair, R. (2016). Tax progressivity: the neglected agenda. *Discussion Paper No. 2190*, IPEA.

Juhász R., Lane N.J., Rodrik D. (2023) *The New Economics of Industrial Policy*. No. w31538. National Bureau of Economic Research.

Kirchherr, J.; Hartley, K.; Tukker, A. (2023), Missions and mission-oriented innovation policy for sustainability: a review and critical reflection. *Environmental Innovation and Societal Transition*, 47.

Kuittinen, H.; Velte, D. (2018) Case Study Report: Energiewende. Mission-oriented R&I policies: In-depth case studies. Brussels: European Commission.

Lebdioui, A. (2022). Latin American trade in the age of climate change: impact, opportunities, and policy options. Canning House-London School of Economics.

Macdougall, W. (2011). *Industrie 4.0: smart manufacturing for the future*. Berlin: German Trade and Investments Headquarter.

Marques, P. R. (2020). International proposals for a Green New Deal: guiding the transition to a green economy in post-pandemic Brazil. Economic Policy Note No. 2, Center for Research in Macroeconomics of Inequalities (Made/USP).

Marques, P. R.; Brenck, C. Z.; Carvalho, L.; Rodrigues, L. H. G.; Gomes, J. P. F. (2023) What are the effects of the new fiscal framework on the trajectory of public spending? A preliminary analysis. Economic Policy Note No. 36, Center for Research in Macroeconomics of Inequalities (Made/USP).

Mazzucato, M (2018). Mission-oriented innovation policies: challenges and opportunities. *Industrial and corporate change*, 27(5), 803-815.

Naughton, B. (2020) Chinese Industrial Policy and the Digital Silk Road: The Case of Alibaba in Malaysia. *Asia Policy*, 15(1).

OECD (2021), The design and implementation of mission-oriented innovation policies: a new systemic policy approach to address societal challenges. *OECD Science, Technology and Industry Policy Papers*, 98p.

Oliveira, F. A. (2020). Development for whom? Beyond the developed/underdeveloped dichotomy. *Journal of International Relations and Development*, 23, (4), 924-946.

O'Sullivan, M., Andreoni, A., Lopez-Gomez, C., Gregory, M. (2013) What is new in the new industrial policy? A manufacturing systems perspective. *Oxford Review of Economic Policy*, 29(2), 432-462.

Pantilimon, I (2023). 'Nuestro Green New Deal': the Ecosocial Pact of the South and the emergence of biocentric green transitions. *Third World Quarterly*, 44(8), 1901-1918.

Pereira, J (2023). With ten ministries working on bioeconomy, the government faces the challenge of creating a national policy for a broad concept. Infoamazonia. Available at: <https://infoamazonia.org/2023/07/14/com-dez-ministerios-trabalhando-bioeconomia-governo-tem-desafio-de-criar-politica-nacional-para-conceito-amplio/>

Pires, M. (2023). A comprehensive analysis of tax reform. IBRE Blog. Available at: <https://blogdoibre.fgv.br/posts/uma-analise-abrangente-da-reforma-tributaria>

Prebisch, R. (1949) The development of Latin America and its main problems. *Brazilian Journal of Economics*, 3(3),47-111.

Rechsteiner, R. (2021) German energy transition (Energiewende) and what politicians can learn for environmental and climate policy. *Clean Technologies and Environmental Policy*, 23, 305-342.

Rodrik D, Stiglitz J. E. (2024) A New Growth Strategy for Developing Nations. Available at: <http://tinyurl.com/ymrg8qom>

Rosenstein-Rodan, P. N. (1957), "Notes on the Theory of the "Big Push"", Economic Development Program, Italy Project C/57-25.

Taioka, T.; Sanches, M.; Brenck, C.; Oliveira, R. The New Growth Acceleration Program (PAC): comparison with previous PACs and estimation of its effect on GDP. Economic Policy Note No. 045, Made/USP.

Tavares, M. C. (1998). Capital accumulation and industrialization in Brazil. 3rd ed. Campinas, SP: UNICAMP. IE.

The White House (2021) Building resilient supply chains, revitalizing American manufacturing, and fostering broad-based growth. The White House: Washington DC.

U.S. CHAMBER OF COMMERCE (2017) Made in China 2025: global ambitions built on local protections. U.S. Chamber of Commerce: Washington DC.

Von der Leyen, U. (2022). State of Union - European Union. Available at:
https://ec.europa.eu/commission/presscorner/detail/en/speech_22_5493

Yoon, K. (2021) Discourse of the Post-Covid 19 New Deal in South Korea. East Asia, 38.

ANNEX: RECENT INTERNATIONAL EXPERIENCES

GERMANY

The German industrial system has traditionally been characterized by numerous instruments to promote manufacturing and innovation, although explicit statements by the government regarding industrial policy plans are not common. Since 2008, Germany has been announcing ambitious initiatives to modernize its manufacturing system, supported by the attempt to achieve a leading position in the production of technologies linked to the new wave of digitalization and automation and the energy transition. Germany was one of the pioneering countries in responding to the 2008 crisis with a plan aimed at reintegrating part of its production system based on the development of the new technological paradigm. Since 2012, Germany has been articulating its productive and technological development initiatives into three major initiatives: Industrie 4.0, Digitale Agenda and Energiewende (“Energy Turnaround”). The first two initiatives are directly linked to the development and dissemination of the so-called enabling technologies of Industry 4.0. The third initiative – the Energiewende plan – which has a typically mission-oriented policy design, aims to become the platform for cross-cutting actions for the energy transition.

Germany's first major initiative, launched in 2012, is a turning point in the current debate. Industrie 4.0 defined as its strategic focus the reduction of costs and increased efficiency through productivity gains related to integrated, automated production systems with intelligent control systems. The plan launched the idea of Smart Factories, establishing the convergence of new technologies for the promotion of intelligent, automated and integrated production systems that should serve as a basis for the development of a new production standard through technological progress focused on the capital goods sector. The initiative was part of the High-Tech Strategy 2020, a plan that, in addition to the Industrie 4.0 initiative, also had as its axis of action the strengthening of institutional coordination ties between public research laboratories – the Fraunhofer system – universities and companies, aiming to strengthen and form regional production clusters in new technologies (MacDougal, 2018).

The central goal of the plan was to consolidate Germany's position as the largest consumer market and supplier of Industry 4.0 technologies over the coming years, using traditional instruments to stimulate local companies, but also through significant investments in research and innovation in the area of automation and artificial intelligence and in the expansion of the country's digital infrastructure. The discussions on digitalization contained in the plan served as the basis for the development of recommendations for the standardization of the digital architecture of systems, improvement of the country's network infrastructure, workforce training and regulatory aspects. The initiative went on to guide other productive and technological development policies in Germany – including the Digitale Agenda – and contributed to the definition of criteria for the use of financing funds and the establishment of cooperation channels for technological development between companies.

The Digitale Agenda, a plan for coordinating efforts to digitize the German economy, aims to foster the digitalization process and competitiveness of companies providing services related to information technology and telecommunications. The initiative establishes conditions to ensure the presence of local companies in the provision of electronic and network security services, with the following general goals: a) the expansion of the digital and telecommunications infrastructure; b) the development of standards and protocols for the digital security of the German production system; c) the development of spaces for coordination between users and developers of information technology; and d) the establishment of international cooperation for the development of intelligent production systems – especially cooperation with other European Union initiatives. These actions aim to create a modern and standardized digital framework for the expansion of cyber-physical production systems of Industry 4.0 in Germany, involving the provision of adequate infrastructure, the standardization of regulatory aspects and the definition of standards that will be adopted in the development of telecommunications systems.

The Energiewende, launched in part as a response to the 2011 Fukushima nuclear power plant accident, is aimed at promoting the energy transition in Germany. The Energiewende is structured as a mission-oriented policy, with goals of increasing energy efficiency in the generation of new capital goods, reducing energy consumption by the public sector, and expanding renewable energy in the country's energy matrix within a defined time horizon. The initiative articulates cross-cutting actions involving incentives for the electrification of the transport fleet, investment in research and development of more energy-efficient machines, and incentives for energy cogeneration, with concrete and ambitious goals for reducing the use of fossil fuels by 2040 and 2050 (ERBER, 2016).

The Energiewende actions are mainly focused on training German companies in the electrical and electronic machinery and equipment sectors and on the technological development of the electric mobility sector and renewable energy-based power generation equipment in the country. The plan is financed by budgetary resources and the Energy and Climate Fund for the development of the energy strategy, defining a targeted annual transfer and an additional amount defined by the coordination of the action between ministries – in 2016, the resources from the Fund totaled 3.2 billion Euros, being the main source of resources for the Energiewende. The overall coordination of the plan is the responsibility of the Ministry of Economic Affairs and Energy, which coordinates the sectoral platforms involved in the cross-cutting actions (KUITTINEN and VELTE; 2018). Together, the three initiatives seek to articulate the German capital goods and transport equipment industry in the creation of a new economic infrastructure and production system with a lower environmental impact and based on intelligent and more automated systems.

USA

Almost simultaneously with the German Industry 4.0 development program, the United States program is also among the pioneering initiatives. The 2011 statement by the President's Council of Advisors on Science and Technology, which culminated in the launch of the Advanced Manufacturing Initiative, defined the creation of an institutional environment for the development of enabling technologies for the new technological paradigm of manufacturing production as the central objective of the United States' science, technology and innovation policy. In addition to increasing investments and incentives for companies to increase investments in innovation, the actions of the Advanced Manufacturing Initiative aimed to improve institutional coordination between government agencies, companies and research centers by decentralizing the technological research infrastructure – using the German Fraunhofer system as a model. The initiative aimed to create an environment conducive to sharing technologies and standardizing the interfaces of intelligent systems by building a decentralized research and development infrastructure network focused on regional innovation clusters, called the National Network for Manufacturing Innovation, with the aim of placing the United States at the forefront of new technologies.

This structure of the productive development policy set up by the United States underwent significant changes after the Pandemic, as part of the efforts for economic recovery proposed by the Biden administration. There were changes not only in the announced volume of resources allocated to the development plan – estimated at around 9% of the United States GDP – but also in expanding the interaction with economic stimulus and job creation measures, expanding the scope of the program beyond industrial policy, with the incorporation of themes such as energy transition, job creation and strengthening of domestic production chains.

As part of the Build Back Better program, launched after the pandemic, the American Jobs Plan brings together actions to rebuild production chains, promote innovation and invest in modernizing infrastructure in the United States. The program establishes investments in transportation, energy and digital infrastructure as the main axes for resuming economic growth, with job and income generation.

The investments also include the modernization of this infrastructure, following a model similar to that formulated by Germany, in which the digitalization and decarbonization of infrastructure-related service activities should act as a source of demand for the development of new technologies. Although it has typical sectoral focus, the plan has a profile aimed at expanding investments linked to fostering the competitiveness of the United States manufacturing system as a whole.

The expansion of the innovation system and the demand created by investments in infrastructure and modernization of the manufacturing system seek to create the conditions for local companies to take the lead in the application of new technologies, especially in the areas of infrastructure, energy transition and digital services. Among the main actions announced during the launch of the program, the following stand out:

- Renewal of the country's passenger transport system: with the modernization of the road system, with the planned renovation of 42,000 km of roads and renewal of the bus fleet with electric vehicles; investments in the modernization of railway passenger transport systems, with renovation of equipment and modernization of stations; and the modernization of airport terminals; with investments announced at around US\$ 245 billion;
- Installation of smart electricity grids, with technological modernization of transmission lines, expansion of oil and gas pipeline infrastructure and increased investment in low-carbon energy;
- Investments in the modernization of water supply networks, with expansion of the sanitation network, with a total of announced resources in the order of US\$ 111 billion;
- Expansion and increase of the fiber optic network, with the prospect of universal access.

Still in the post-pandemic context, there was a significant change in the perspective of US policy on the organization of its supply chains of strategic inputs, with an increased perception of the importance of building more regionally integrated production chains that are more resilient to disruptive events in international trade, such as conflicts. The program aimed at developing “resilient chains” defines investments in research and development of technologies and in the promotion of companies in the areas of biotechnology, artificial intelligence, semiconductors, and advanced computing as priorities. A second direction of these resources is to create incentives for increasing local production of inputs considered critical, such as semiconductors and pharmaceutical inputs. The program defines the concept of a “resilient chain” as those that have the capacity to recover quickly from an unexpected event. The resilience of a production chain is built through the creation of a “robust ecosystem of suppliers”, allowing flexibility in the supply of critical inputs for the operation of the production chain (THE WHITE HOUSE, 2021).

The main actions aimed at developing resilient supply chains are directed at the supply of semiconductors, high-capacity batteries, pharmaceutical inputs and “strategic minerals”. The actions are focused on strengthening local supply chains and diversifying the supply chain of companies based in the United States. To develop local producers, the actions were divided into expanding research infrastructure in the areas, stimulating innovation and increasing the competitiveness of national companies. Between 2021 and 2022, the United States signed another package of plans that also share similar objectives, strengthening local production of strategic inputs for key industries, using instruments to stimulate the increase of local content in domestic manufacturing production. The incentives are contained mainly in the Infrastructure Investment and Jobs Act (IIJA), the Creating Helpful Incentives to Produce Semiconductors (CHIPS) and the Inflation Reduction Act (IRA).

The main actions aimed at developing resilient supply chains are directed at the supply of semiconductors, high-capacity batteries, pharmaceutical inputs and “strategic minerals”. The actions are focused on strengthening local supply chains and diversifying the supply chain of companies based in the United States. To develop local producers, the actions were divided into expanding research infrastructure in the areas, stimulating innovation and increasing the competitiveness of national companies. Between 2021 and 2022, the United States signed another package of plans that also share similar objectives, strengthening local production of strategic inputs for key industries, using instruments to stimulate the increase of local content in domestic manufacturing production. The incentives are contained mainly in the Infrastructure Investment and Jobs Act (IIJA), the Creating Helpful Incentives to Produce Semiconductors (CHIPS) and the Inflation Reduction Act (IRA).

EUROPEAN UNION

After the 2008 crisis, the European Union launched the base platform for joint initiatives within the bloc, incorporated in the Europe 2020 agenda – A Strategy for Smart, Sustainable and Inclusive Growth. The strategy was organized around seven horizontal action axes, which served as a guide for updating the productive development programs of the member countries. The action axes were organized based on general themes, such as foreign trade, research and innovation, employment, environmental protection, public health and employment. Four of the axes were already directly aimed at industrial development and increasing the competitiveness of the European Union countries in the context of the programs launched after the crisis, these axes being: Innovation Union, A Digital Agenda for Europe, An Industrial Policy for the Globalization Era and Agenda for New Skills and Jobs (BERGLOF, 2016).

The platform was designed as a set of cross-cutting actions with horizontal effects on the industrial system, with goals established in connection with the socio-environmental concerns of the general agenda of the European Union. The actions sought to align productive development initiatives among member countries through instruments for policy coordination between countries and the definition of shared guidelines for industrial policies and innovation.

Among the main changes proposed were the redirection of instruments to stimulate innovation, the creation of a common digitalization agenda for the European Union and the expansion of instruments to promote the competitiveness of the European industrial system. Each axis established specific guidelines for action and provided for the creation of instruments for the coordination of policies among member countries.

Among the actions related to the innovation and development axes of the manufacturing sector, Europe 2020 aimed to develop a strategic research agenda focused on energy security, transport, health, climate change and environmental protection, expand national systems to promote the manufacturing sector, create a common market in Europe for online content and services and adapt R&D funds to focus more on information and communication technologies. The Digital Agenda for Europe – which served as the basis for the construction of Germany's Digitale Agenda – aimed to build a common digital agenda for the bloc, thus facilitating the creation of a market for European companies, through the definition of technological standards and the requirement for conditions from technology development companies, such as maintaining research centers in member countries.

With regard to industrial and trade policy, the Industrial Policy for the Globalisation Era axis already contemplated the idea of restructuring sectors for “future-oriented” activities and reducing the use of natural resources, in direct relation to the innovation and digitalisation agenda. However, the design of the common industrial policy for the bloc was based, broadly speaking, on general topics, with the definition of the instruments and operationalisation of the policy being left to the member countries, and focused more on the construction of guiding principles.

The policy aimed more at building a plan of principles to guide European industry amid the resumption of industrial policies after 2008 and the loss of competitiveness of European industry. On the other hand, member countries committed to adapting part of their investments and policies to create the conditions for implementing the general guidelines of the program at the national level. The counterpart demanded of member countries focused, above all, on the obligation to create adequate infrastructure to fulfill each axis, aiming at greater homogenization of industrial, innovation and educational systems among the countries of the bloc.

Compared to larger initiatives launched by other countries in the post-2008 crisis period, the profile of the European platform was more focused on horizontal actions, more fragmented and with less strategic direction. However, in the post-COVID-19 period, the reorganization of the European Union's productive development policy has followed the general trend of other policies observed, acquiring a more discretionary nature and with a greater volume and direction of the proposed financial resources – the announced resources reach around 10% of the bloc's GDP – with a focus on innovation and infrastructure modernization. In this sense, the European Union's industrial policy is another good example of radical reconfiguration in the post-COVID-19 period, with the launch of the Next Generation EU program, created in 2021. The program represents an ambitious leap forward in the construction of a common innovation and development policy among the bloc's countries. Next Generation EU has a profile closer to grand plans, aimed at promoting profound structural changes in the European manufacturing system.

Next Generation EU is a broad program that mobilizes various financial funds, with the expectation of directing resources in the order of 1.8 trillion Euros. To use the funds, each country must prepare a National Recovery and Resilience Plan, focused on six priorities: green transition, digital transition, sustainable and inclusive growth, territorial and social cohesion, health and resilient input chains, and policies for future generations – including education and training policies. In this case, the mobilization of a significant volume of resources must ensure the alignment of member countries' policies with the priority axes, with a minimum of 37% required for initiatives linked to tackling the climate crisis and 20% for actions related to the digital transition (DELOITTE, 2020). Unlike its predecessor plan, Next Generation EU has a more focused allocation of resources and actions of a more vertical nature, being directly aimed at reconfiguring specific production chains and fostering regional productive integration.

Compared to larger initiatives launched by other countries in the post-2008 crisis period, the profile of the European platform was more focused on horizontal actions, more fragmented and with less strategic direction. However, in the post-COVID-19 period, the reorganization of the European Union's productive development policy has followed the general trend of other policies observed, acquiring a more discretionary nature and with a greater volume and direction of the proposed financial resources – the announced resources reach around 10% of the bloc's GDP – with a focus on innovation and infrastructure modernization. In this sense, the European Union's industrial policy is another good example of radical reconfiguration in the post-COVID-19 period, with the launch of the Next Generation EU program, created in 2021. The program represents an ambitious leap forward in the construction of a common innovation and development policy among the bloc's countries. Next Generation EU has a profile closer to grand plans, aimed at promoting profound structural changes in the European manufacturing system.

CHINA

The Chinese response to the mobilization of policies for the development of Industry 4.0 that emerged in the wake of the 2008 Crisis was announced in 2015, with the Made in China 2025 plan. The program – inspired by the German initiative – sought to empower the Chinese business system to compete for leadership in the enabling technologies of the Fourth Industrial Revolution. The strategic actions were initially designed on a sectoral basis, focusing on the sectors of naval equipment, rail transport, agricultural machinery and equipment, biopharmaceutical products and medical equipment, aerospace equipment, power generation equipment, robotics and the automotive industry (ARBIX ET AL., 2018). In addition to the targeted contribution of resources to promote strategic sectors, one of the axes of action was directed at the acquisition of intellectual property of key technologies, through financing the acquisition of patent portfolios relevant to the development of enabling technologies and companies with technological know-how (U.S. CHAMBER OF COMMERCE, 2017).

Made in China 2025 was also dedicated to increasing the level of coordination between stakeholders involved in industrial R&D in China, through the expansion of the network of applied research laboratories and the geographical decentralization of research centers. This concern, in line with the programs of other countries dedicated to the development of Industry 4.0, demonstrates the concern in the years after 2008 to bring research infrastructure closer to regional production clusters as a way of developing customized applications of new technologies, an important part of the strategies related to the new technological paradigm.

In addition to actions aimed at large companies, Made in China 2025 also included actions aimed at expanding financing instruments for small and medium-sized companies and decentralizing financing agencies. The decentralization of development institutions and research infrastructure was an important guideline in the formulation of productive development policies in China after the 2008 crisis. Despite the decentralization of part of the infrastructure and financing agencies, the program reinforced the centralization of the decision-making process regarding the allocation of resources and the role of central agencies in coordinating strategic actions.

Almost simultaneously, China instituted a series of initiatives, many in the form of mission-oriented policies, aimed at Big Science, with major projects dedicated to the technological frontier and the creation of large-scale infrastructure dedicated to science and technology. Among these projects, the following are worth mentioning: the Shanghai Synchrotron Radiation Center; the Quantum Highway, a quantum communications network between Shanghai and Beijing; the Jiuquan, Taiyuan and Xichang satellite launch centers; the Tianyan radio telescope, the largest radio telescope in the world; the Pandax dark-matter detector; and the Daya Bay neutrino detector.

Basically, the Chinese strategy combined the interaction of large-scale initiatives with the Industry 4.0 development strategy, also articulating with other cross-cutting actions linked to the development of smart cities and the digital integration of the New Silk Road (Digital Silk Road). The participation of Chinese companies in investments related to the Belt and Road Initiative guaranteed the capacity of Chinese foreign investment to act as a disseminator of the innovations generated in the infrastructures created. The overlapping of these initiatives sought to position China as a leader in the so-called smart infrastructures.

As discussed in previous cases, investment in infrastructure, combined with productive development policies, has been consolidating itself as an instrument to guarantee demand, production scale and the dissemination of the use of new technologies.

In 2020, China launched an update to its industrial and technological development policy, with the creation of the China Standards 2035 Plan. The initiative adds elements to the previous strategy, with the appropriate update of the cuts and expansion of the instruments – especially in relation to the international dispute over the definition of technological standardization of new digital technologies. As part of this, the program focuses more on the international promotion of Chinese companies, aiming at upgrading within the global chains of high-tech sectors to positions with greater leadership capacity (generally called first tiers and second tiers). In the same sense, the program also includes a greater effort directed at the internationalization of research and development through cooperation agreements.

SOUTH KOREA

The Korean government was among the first OECD members to announce a plan for recovery and productive transformation after the health crisis. In July 2020, Korea announced the Korean economic restructuring plan, called the Korean New Deal (K-New Deal). The K-New Deal announced investments of around US\$300 billion (around 18% of Korean GDP) for the next five years. The announcement was accompanied by the definition of the program's three objectives: to build a smarter, greener, and more socially secure economy (YOON, 2021). Among the program's axes of action, the Digital New Deal and the Green New Deal, are directly linked to promoting the competitiveness of the Korean industrial system in new technologies.

The stimulus packages are divided into three axes, with approximately 37% of the resources earmarked for the Digital New Deal, 45% for the Green New Deal and approximately 18% for the Stronger Safety Net – an axis of actions aimed at building a more inclusive economy that is more focused on social well-being. As in the Chinese case, the program is articulated with mission-oriented actions, establishing some large Big Science projects and programs based on socio-environmental challenges. Among the main projects worth highlighting: DataDam, a national and centralized platform for data collection, processing and management; AI Government, to stimulate digital solutions aimed at public management; Smart Healthcare, aimed at developing technological services in the health area; Green and Smart Schools, aimed at incorporating new digital and green transition technologies into the modernization of the country's school infrastructure; Smart and Green Industries, aimed at stimulating the diversification of domestic companies into activities related to the digital transition and green technologies; Green Energy, to promote low-carbon energy; and the Eco-Friendly Mobility of the Future plan, aimed at developing low environmental impact vehicles and transforming the automotive fleet.

In this way, the Korean program combines traditional industrial policy instruments – such as subsidies to large national conglomerates and targeted credit from public banks – with more contemporary approaches – such as the creation of technology missions around large projects, such as DataDam. The program also stands out for the direct involvement of the top echelons of government, with the strategy defined with the direct participation of the president and all ministries in the economic area and with the adoption of a joint management committee involving the secretariats of the Ministry of Economy, also responsible for the operationalization of the K-New Deal.

