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NEO-INDUSTRIALIZATION AND INTELLECTUAL PROPERTY IN BRAZIL

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ABSTRACT

Neoindustrialization represents a significant evolution of traditional industry, marked by the adoption of disruptive technologies that transform production processes and business models aimed at Industry 5.0. The concept of Neoindustrialization has gained relevance in contemporary economic and technological debates. This term refers to a new phase of industrial development characterized by the advanced integration of digital technologies, automation, artificial intelligence, and sustainable innovation. In parallel, intellectual property emerges as a crucial pillar, playing a central role in protecting and promoting the innovations that drive this transformation. These changes bring significant benefits, such as increased productivity, cost reduction, and the creation of new markets. However, they also present challenges, such as the need to reskill the workforce and adapt existing infrastructure. The methodology used to carry out the research was the qualitative, quantitative and bibliographic method. The objective of this research was to identify which actions within the NIB are focused on the Intellectual Property policy.

Keywords: Intellectual Property, Neoindustrialization, Industry 5.0, Innovation.

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INTRODUCTION

Neo-industrialization in Brazil is a factor of paramount importance for the development of industry in our country. Over the years, Brazil has gone through numerous plans, but without success, due to the absence of a policy aimed at industrialization.

The term refers to the process of modernization of the industry, with an emphasis on innovation, productivity, competitiveness, environmental commitment, and integration with the international market. We urgently need to modernize the industry to compete with other countries. When we talk about modernization of the industry, we have to worry about ensuring a qualified workforce to develop the industrial bases. In response to this need, the government of Brazil has created the New Industry Brazil (NIB), a Neoindustrialization policy that will be implemented over the next ten years. The NIB was elaborated through a broad dialogue in the working groups of the National Council for Industrial Development and is based on three premises: "the strengthening of Brazilian industry is key to the sustainable development of Brazil, from the social, economic and environmental points of view", since the 1980s, Brazil has faced an accelerated process of deindustrialization, characterized by the primarization of the productive structure and the weakening of production chains and the country's exports are concentrated in products of low technological complexity, limiting Brazil's trade gains (BRASIL, 2023).

For a good sustainable development, we need a strengthened Brazilian industry, focused on innovation, with a focus on the country's intellectual property. The consolidation of the NIB takes place in the long term, interacting with other policies. The general objective of this article is to identify which actions within the NIB are focused on intellectual property policy, that is, where the intellectual property policy is inserted. We know that intellectual property is extremely important for the development of the science, technology and innovation sectors. Countries that are developed in technology consolidate intellectual property from its initial base to the final base of their technologies, adding immeasurable value to their creations, through intellectual property. Currently, it is necessary to ensure transparency in the planning of Neoindustrialization policies, including initiatives aimed at sustainability, circular economy, reverse logistics, and decarbonization.

METHODOLOGY

The methodology adopted will theoretically contextualize the concepts of Neoindustrialization and Intellectual Property. The bibliographic research will take place

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through books, academic articles, reports from international organizations (WIPO, OECD, etc.), as well as research on Brazilian legislation and public policies on intellectual property and industrialization. For Pizzani et al. (2012, p. 54), bibliographic research can be understood as "[...] the literature review on the main theories that guide scientific work" and the bibliographic survey can be carried out "[...] in books, periodicals, newspaper articles, Internet sites, among other sources".

Bibliographic research, according to the thinking of Prodanov and Freitas (2013, p. 54), puts the researcher in direct contact with all the written production on the theme being studied. For the authors, "In bibliographic research, it is important that the researcher verifies the veracity of the data obtained, observing the possible inconsistencies or contradictions that the works may present". The general objective of this article is to identify which actions within the NIB are focused on intellectual property policy, that is, where the intellectual property policy is inserted.

The main topics to be addressed include: the definition and history of Neoindustrialization in Brazil; intellectual property, with a focus on protecting and encouraging innovation; the intersection between Neoindustrialization and intellectual property; international and national case studies on the impact of IP on industrialization; and the new industry in Brazil.

The approach will be qualitative with possible quantitative support, with the methods of document analysis through government documents, reports of organizations and case study with the analysis of the specific industrial sectors in Brazil that were impacted by Intellectual Property.

RESULTS AND DISCUSSION

DEFINITION AND HISTORY OF NEO-INDUSTRIALIZATION IN BRAZIL

History of Neoindustrialization

Neoindustrialization refers to the revitalization and modernization of the industrial sector, integrating advanced technologies, innovation, and new forms of production to enhance economic competitiveness and sustainability. This concept emerged as a response to global changes in the economy, environmental pressures and new disruptive technologies.

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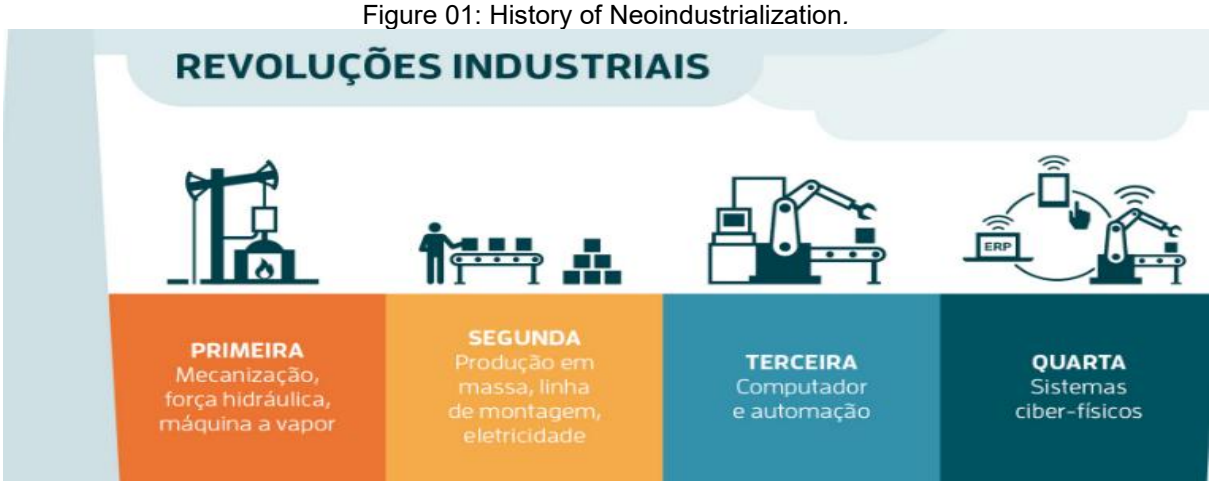
Figure 01: History of Neoindustrialization.



Source: Planejativo website, https://app.planejativo.com/estudar/169/resumo/geografia-revolucao-industrial.

Neoindustrialization refers to the revitalization and modernization of the industrial sector, integrating advanced technologies, innovation, and new forms of production to enhance economic competitiveness and sustainability. During the historical phase we can observe the industrial evolution in Brazil.

Table 01: Phases of Industrialization in Brazil.

PHASES OF INDUSTRIALIZATION	
1950s - 1980s	Industrialization phase with strong state intervention (e.g., creation of Petrobras, BNDES, etc.).
1990s	Economic opening and privatizations, focus on competitiveness and industrial modernization.
2000s	Incentives for innovation and development of national technologies (e.g., Innovation Law, Good Law)

The history of Neoindustrialization is marked by the continuous evolution of technologies and production methods, responding to the economic, social and environmental needs of each era. In Brazil, Neoindustrialization offers a crucial opportunity to modernize industry, promote innovation, and increase global competitiveness, although there are still significant challenges to be overcome.

Neoindustrialization represents a significant evolution of the traditional industry, marked by the adoption of disruptive technologies that transform production processes and business models. Some of the key features of this new industrial era include digitalization, industrial automation, the use of Artificial Intelligence (AI), Big Data, and sustainability. (CNI, 2022) Neo-industrialization must be conducted not only in conjunction with good environmental practices, but also social ones. Ensuring equality and access to education and jobs created is fundamental (BORGES, 2024)." However, these challenges also have

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significant benefits, such as increased productivity, reduced costs, and the creation of new markets."

However, they also present challenges, such as the need to reskill the workforce and adapt existing infrastructure. Neoindustrialization emerges as a response to the new demands and challenges of the Fourth Industrial Revolution, focusing on sustainability, continuous innovation and integration of new technologies. Its main objectives are to revitalize traditional industrial sectors, promote innovation and the adoption of advanced technologies, and increase economic competitiveness and environmental sustainability. (BORGES, 2024). Examples of Neo-industrialization are Germany with the "Industry 4.0" strategy focused on digitalization and smart production. Next comes China with the "Made in China 2025" Program aimed at transforming China into a high-tech manufacturing powerhouse. In Brazil, there are initiatives to modernize the industry and encourage innovation, despite the economic and structural challenges. (CNI, 2022).

Industry 5.0

Industry 5.0 emerges as a new phase in industrial development, seeking to balance automation with human needs, emphasizing sustainability, human-centricity, organizational resilience, and collaboration/interaction between humans and machines (LONGO; PADOVANO; UMBRELLO, 2020; DI NARDO; YU, 2021; EUROPEAN COMMISSION, 2021). It is an alternative, for the Industry, to a set of challenges of the contemporary world (climate change, rapid consumption of non-renewable resources and energy, environmental pollution, social injustice, among others) that were amplified by the Covid-19 Pandemic and the War between Russia and Ukraine, raising the level of complexity and dynamics of this context to a level not seen since World War II (1939-1945) (PEREIRA; DOS SANTOS, 2023). Industry 5.0 has roots in the Industry 4.0 paradigm, characterizing it "as an evolutionary, incremental (but critically necessary) advance that is based on the concept and practices of Industry 4.0" (ÖZDEMIR; HEKIM, 2018, pp. 71-72).

The first current is related to the vision of the European Commission, (EUROPEAN COMISSION, 2021) which indicates that Industry 5.0 "complements the paradigm of Industry 4.0, making research and innovation drive the transition to a sustainable industry, centered on human beings and resilience, moving the focus from the exclusive value of shareholders (stakeholders) to all stakeholders involved. Among this current there are authors who highlight the role of sustainability (MADSEN; BERG, 2021; SINDHWANI et al.,

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2022). On the other hand, the second school of thought considers technology as an enabler of Industry 5.0, that is, a set of new technologies that characterize this new paradigm of the industry aiming at the collaboration/interrelationship between man and machine (PASCHEK; MOCAN; DRAGHICI, 2019; MADSEN; BERG, 2021).

INTELLECTUAL PROPERTY: PROTECTION AND INCENTIVE TO INNOVATION

According to the National Council of Industry (CNI, 2024) - Industrial Property – one of the branches of Intellectual Property – is related to rights over patents, trademarks, industrial designs, geographical indications, industrial secrets and the repression of unfair competition. In Brazil, the National Institute of Industrial Property (INPI) is responsible for granting industrial property rights. In other countries, there are trademark and patent offices responsible for analyzing applications and granting these rights, such as the European office (EPO) and the United States office (USPTO). Intellectual property plays a key role in Neoindustrialization, as it provides the necessary legal framework to protect and encourage innovation.

Figure 2: *The main forms of IP protection.*

Source*:* INPI, National Institute of Industrial Property. 2024. Information on patents, trademarks and copyrights - https://www.inpi.gov.br> Accessed 07/27/2024.

The Brazilian Patent and Trademark Office (BPTO) has been striving to disseminate knowledge about Intellectual Property in the Triple Helix, which involves the university, industry and government. We define the Triple Helix as an innovation model in which the university, academia, industry, and government, as primary institutional spheres, interact to promote development through innovation and entrepreneurship (ETZKOWITZ; ZHOU, 2017). Intellectual Property in other developed countries is part of the curriculum from Elementary, High School to Higher Education (WIPO, 2024). In this way, it is easier to

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strengthen the entrepreneurial culture by being based on Intellectual Property Laws, with a focus on patents, copyright, trademarks and trade secrets.

Intellectual property in the world: Patents in the world of ip5

IP5 brings together the five main intellectual property offices in the world. In 2017, according to the IP5 statistical report, together, the offices of the United States, the European Union, Japan, South Korea and China received 2.7 million patent applications. The increase was 1.8% compared to 2016.

Table 02: *Intellectual Property in the World.*

Patents	According to WIPO data, China's Intellectual Property Office received the highest number of patent applications in 2017, with a total of 1.38 million applications. Next come the patent offices of the United States (606,956), Japan (318,479) and South Korea (204,775).
Brands	WIPO estimates that 9.11 million trademark applications were filed worldwide in 2017. Asia offices accounted for 66.6% of trademark registration activity in 2017. The number of active trademark registrations worldwide is estimated at 43.2 million that year, according to the organization.
Industrial design	There were 945,100 industrial design applications worldwide in 2017. The China office was the champion, having received orders with 628,658 drawings in 2017, which corresponds to 50.6% of the world total.
Geographical Indications	In 2017, there were 59,500 geographical indications in force worldwide. Germany leads with 14,073 geographical indications, followed by Austria (8,749), China (8,507), Hungary (6,646) and the Czech Republic (6,191).

In Table 2, we observe that the five largest Intellectual Property offices have a high rate of registration of Patents, Trademarks, Industrial Design and Geographical Indications. In Figure 03, we observe that the registration data has grown exponentially, where China dominates the patent application registrations with (1,677,701) patent applications, in second place the United States with (599,777) patent applications, in third place Japan (299,946) patent applications, fourth place South Korea (243,310), and in fifth place the European Union (199,275) patent applications.

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Figure 03: Ranking of the Countries with the most Patent Applications.

Source: European Patent Office. Statistical Data Resources website, 2023.

In view of the above data, in 2023, the offices of the United States, the European Union, Japan, South Korea, and China received 3.0 million patent applications.

Intellectual property in Brazil

In 2018, a total of 27,444 patent applications (inventions and utility models) were filed in Brazil, according to the BPTO. The origin of the applicants for invention patents was varied, as follows: United States (30%), Brazil (20%), Germany (8%), Japan (7%), France (5%), Switzerland (4%), Netherlands, China, United Kingdom (3%) each, and Italy (2%). With regard to trademarks, 204,419 applications were registered in 2018. The majority of trademark applicants (86%) were from Brazil itself, while 4% were from the United States. Germany, France, China and the United Kingdom had a share of 1% each. As for industrial designs, 6,111 applications were made for filings in 2018. In addition, 7 requests for geographical indication registrations were made in the same year.

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Figure 4: Number of industrial property applications and concessions in Brazil, 2023.

Period	Patents	Brands	Industrial Designs	Computer Programs	Contracts	Indications Geographical	Circuit Topographies Integrated
Requests October-December/2023 Year-to-date	7.873 27.918	98.656 402.460	1.771 7.054	1.288 4.232	283 989	11 27	0 1
October-December/2023	3.898	47.743	ND	1.265	238	2	0
Year-to-date	19.204	210.987	ND	5.674	990	10	1

Source: INPI/AECON - Monthly bulletin of industrial property: preliminary statistics/National Institute of Industrial Property (INPI), 2023.

In the cumulative period from January to December 2023, patent filings totaled 27,918, representing an expansion of 2.9% compared to the previous period. Accumulated trademark filings totaled 402,460 applications, an increase of 0.9% on this basis of comparison. Industrial design applications totalled 7,054 (-2.0%), computer program filings reached 4,232 (+16.1%), and technology contract registrations filed 989 applications (-16.9%). Geographical indications totalled 27 applications in the period considered, compared to 22 in the previous period. In integrated circuit topographies, there was 1 application (against 2 in the previous period), (INPI, 2023). These data reflect the dynamics of the intellectual property system in Brazil and the need for public policies that encourage innovation and the protection of intellectual creations.

Figure 5: Number of Industrial Property Applications (accumulated in the year until December).

Quantidade de Pedidos de Propriedade Industrial (acumulado no ano até dezembro)

Período	Patentes	Marcas	Desenhos Industriais	Programas de Computador	Contratos	Indicações Geográficas	Topografias de Circuitos Integrados
2018	27.551	204.419	6.111	2.511	1.207	7	3
2019	28.318	245.197	6.433	3.049	1.165	16	3
2020	27.091	293.502	6.263	2.999	1.045	17	2
2021	26.921	386.845	6.711	3.259	1.135	9	0
2022	27.139	398.811	7.196	3.646	1.190	22	2
2023	27.918	402.460	7.054	4.232	989	27	1

Source: INPI/AECON - Monthly bulletin of industrial property: preliminary statistics/National Institute of Industrial Property (INPI), 2023.

Based on the table above, we can see the number of filings that were registered during the year at the National Institute of Intellectual Property. In relation to foreign countries, there is a huge difference. This makes it clear that Brazil needs a public policy that has a systemic vision.

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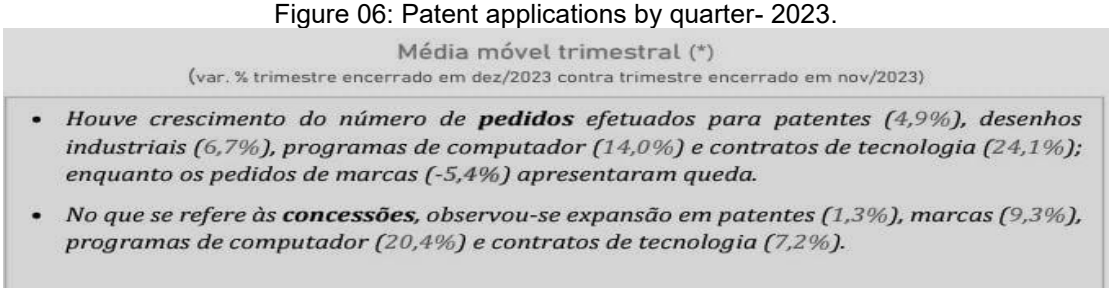
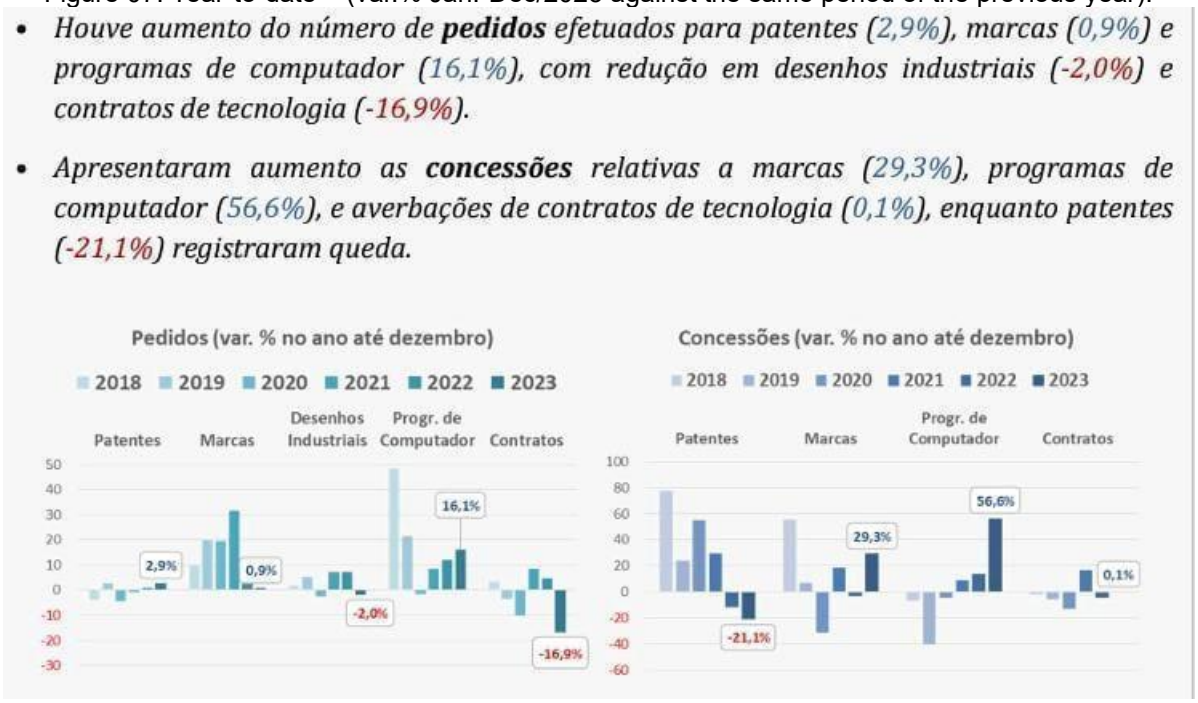
Figure 06: Patent applications by quarter- 2023.



Source: INPI/AECON - Monthly bulletin of industrial property: preliminary statistics/National Institute of Industrial Property (INPI), 2023.

In Figure 06 above, we can see the percentages up and down in relation to the year 2023. In figure 07, we can see that there was an increase in applications made for patents, trademarks, and computer programs. However, there was a reduction in applications made in industrial designs and technology contracts.

Figure 07: Year-to-date – (var.% Jan.-Dec/2023 against the same period of the previous year).



Source: Website of the National Institute of Intellectual Property, INPI <https://www.gov.br/inpi/pt-br/inpi-data/paineis-e-infograficos-1/paineis-e infographics > Accessed on 09/06/2024.

The absence of an adequate system of intellectual property protection devalues assets, inhibits investments and raises costs for companies trying to overcome deficiencies in state protection. Proper attention to trademarks, patents, copyrights and other types of intangible goods not only encourages business expansion, but also stimulates the emergence of innovative spirit. Institutional security prevents unfair competition and protects investments in improving products, processes and services (CNI, 2013).

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The evolution of intellectual property (IP) policies has adapted to technological, economic, and social changes over time. In the beginning, the protection of inventions was informal, regulated by guilds. In the fifteenth century, the first formal patent and copyright laws appeared in Venice and England, respectively. With the Industrial Revolution in the eighteenth and nineteenth centuries, the protection of inventions became crucial, leading to the creation of patent laws and international organizations. In the twentieth century, treaties such as the Paris and Berne Conventions and the creation of the World Intellectual Property Organization (WIPO) consolidated international IP protection. The WTO's TRIPS Agreement in 1995 harmonized global IP standards. The twenty-first century has brought challenges related to digitalization, such as digital piracy and software protection, as well as debates on biotechnology and information and communication technologies (ICT).

The Brazil Innovation and Development Index – IBID – 2024

Innovation is itself a specific policy target under the United Nations Sustainable Development Goals (SDGs) and is essential to facilitate the achievement of all other targets. In this sense, effective public policies and corporate strategies in the area of innovation require solid economic, scientific and social indicators. The IBID allows us to identify – within each of its 7 pillars of innovation and 21 associated dimensions – what are the potentialities and challenges of each state and macro-region of Brazil, as well as the different factors that influenced its classification in the different rankings for each theme analyzed.

It is, therefore, a powerful tool to guide public and private actions, supporting the elaboration of evidence-based policies and projects. Thus, more than a simple measurement instrument, the information gathered in the IBID – an official indicator of innovation in the country – subsidizes the decision-making process of companies and governments, enabling the channeling of efforts into initiatives that, in fact, boosted economic development and social well-being through innovation. (IBID, 2024).

The IBID follows the methodology and has a classification structure identical to that of the Global Innovation Index (GII), of the World Intellectual Property Organization (WIPO). Published since 2007, the GII is the synthetic reference indicator in global terms, classifying 132 countries based on their potential and economic bottlenecks associated with the innovation process. Annually, the GII ranks countries through different thematic rankings related to context conditions or the result of innovation itself.

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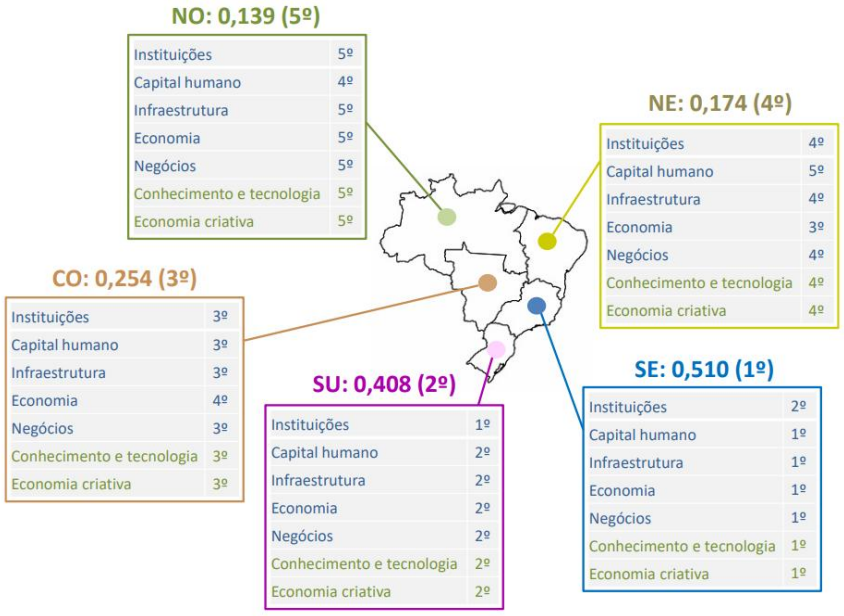
In 2024, the IBID general ranking for the Major Regions, which is based on the weighted average score of the GDP per capita of all the FUs that make up a region, classifies the Southeast (SE) as the most innovative in Brazil (driven by the performance of São Paulo, the national leader), followed by the South (SU), which has its 3 states on the list of the 5 most innovative in the country. The Southeast leads in all innovation pillars, except for 'Institutions', whose first position in the category belongs precisely to the South, as shown in figure 8.

Figure 8: *IBID 2024: overall performance and by innovation pillar of the Major Regions.*



Fonte: INPI, Assessoria de Assuntos Econômicos.

We observed that Brazil is divided into regions, with the Southeast region being the most developed in relation to the Innovation Index, standing out in all areas of the aforementioned development indicators. The green titles, such as "Knowledge and Technology" and "Creative Economy", cover Intellectual Property. We see that the least developed region, with a low Innovation Index, is the North region, which occupies the 5th place in all innovation indicators.

The creative economy evaluates the role of creativity in innovation, signaling the ability to create disruptive businesses. It covers indicators of brands and other industrial property assets related to the aggregation of value and creativity of an economy, as well as the digital environment that drives it. This "Knowledge and Technology" pillar covers all the variables traditionally considered as the result of inventions and/or innovations. It refers to

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the creation of knowledge and technological diffusion, including indicators that measure the result and impact of inventive and innovative activities, such as patents, technology transfer, startups and scientific production.

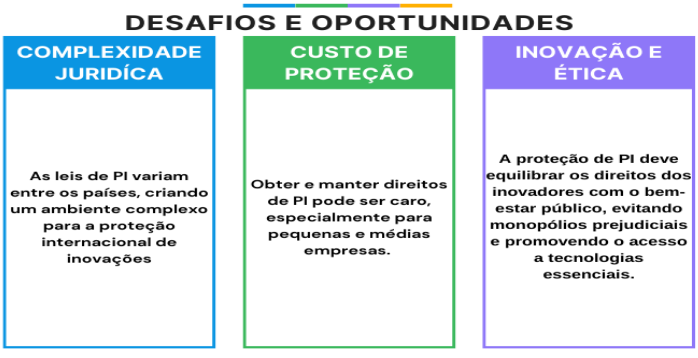
THE INTERSECTION BETWEEN NEO-INDUSTRIALIZATION AND INTELLECTUAL PROPERTY

In the era of Neo-industrialization, Intellectual Property (IP) takes on an even more strategic role, as technological innovation is the main driver of growth and competitiveness. Companies that invest in research and development (R&D) need to ensure that their innovations are protected from unfair competition and unauthorized copying.

With the rapid advancement of digital technologies, the creation of new products and processes is accelerated; Therefore, patents and copyrights are essential to protect these innovations, ensuring that inventors can reap the rewards of their investments. Brand protection allows businesses to build and preserve consumer reputation and loyalty. In a globalized and highly competitive environment, strong brands are valuable assets.

Another important topic is data management and artificial intelligence; the protection of trade secrets and copyrights is crucial in the era of big data and artificial intelligence, where the possession and use of large volumes of data can define the success or failure of a company (INPI, 2024). Despite the advantages, the relationship between Neoindustrialization and IP faces significant challenges, as illustrated in the following figure:

Figure 9: *Challenges and opportunities of Intellectual Property.*



Source: Brazilian Association of Intellectual Property (ABPI) website. (2023). Annual Report on Intellectual Property in Brazil: https://www.abpi.org.br> Accessed 07/26/2024.

Neo-industrialization and intellectual property are intrinsically linked to the current economic scenario. Effective IP protection is essential to foster innovation, ensure the competitiveness of companies and, consequently, boost sustainable development. As

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technology advances, it is crucial that IP legal frameworks evolve to meet new demands and challenges. (Borges, 2024).

INTERNATIONAL AND NATIONAL CASE STUDIES ON THE IMPACT OF IP ON INDUSTRIALIZATION

International Cases

United States – The Patent Act in 1970 encouraged innovation by establishing a robust system of protection for inventions. The U.S. patent system was crucial to industrial growth in the 19th century, boosting industries such as electricity (Thomas Edison), automobiles (Henry Ford), and communications (Alexander Graham Bell). Companies were able to invest in research and development (R&D) with the assurance of protecting their inventions. (LOPES, 1982)

Japan - After World War II, Japan reformed its IP laws to align with international standards. Impact: Strong IP policies have enabled companies such as Sony, Toyota, and Honda to become global leaders. Patent protection encouraged technological innovation, helping Japan transform itself from a war-torn country into an industrial powerhouse. (MAIA.2019)

South Korea - South Korea has taken an aggressive approach to strengthening its IP laws since the 1980s. Impact: Companies like Samsung and LG were able to invest heavily in R&D, resulting in leadership in electronics and information technology. IP protection was a pillar for the country's rapid economic development. (ABREU, 2022). Initiatives such as Industry 4.0, the Advanced Manufacturing Initiative, and Made in China 2025, launched between 2011 and 2015, formulated by Germany, the United States, and China, respectively, already had a much broader scope, aimed at remodeling their industrial systems through the creation of new technological frontiers.

The Covid-19 pandemic has accelerated and redefined many of the changes underway. On the one hand, the health crisis imposed strong investments in new technologies, which induced an increase in the scale of production and contributed to the reduction of costs related to technological development. On the other hand, it has called into question the resilience of global value chains and the advantages of globalized production, by disseminating questions about the advantages and risks of production systems with greater international integration. (CNI, 2023). These international examples illustrate the importance of IP protection, which is also reflected in national cases.

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3.4.2 National case studies (Brazil)

Pharmaceutical Industry - Until 1996, Brazil did not grant patents for pharmaceutical products, but the Industrial Property Law (LPI) of 1996 changed that. Impact: Patent protection has encouraged multinationals to invest in the Brazilian market. However, it has also led to debates about access to medicines, especially for diseases such as HIV/AIDS. Brazil has implemented compulsory licensing policies to balance innovation and public health. (CHAVES et.al, 2008).

Information Technology Sector - With the growth of the software and IT industry, Brazil has adopted laws to protect copyrights of computer programs. National and international companies have increased their investments in the IT sector. IP protection has encouraged startups and companies to develop new products and services, contributing to the digitalization of the Brazilian economy. (SANTOS et al, 2023).

Automotive Industry - The economic opening and IP protection in Brazil in the 1990s attracted international automakers. Companies such as Volkswagen, Fiat, and General Motors have established factories in Brazil, benefiting from the protection of their innovations. This resulted in job creation and technology transfer, driving industrialization. (COSTA, et al, 2016).

The case studies show that robust intellectual property policies are key to encouraging innovation and attracting R&D investment, which is essential for industrial development. In both developed and developing countries, the protection of Intellectual Property can stimulate the economy, although it must be balanced with policies that guarantee access to essential technologies. (BUAINAIN, 2019)

THE NEW INDUSTRY BRAZIL (NIB- 2024-2026)

According to Nova Indústria Brasil (2024), it states that it is a systemic and long-term policy, which interacts with other policies. The NIB is based on six missions, which seek to bring benefits to the entire Brazilian society:

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Figure 10: *The six missions that bring benefits to the entire Brazilian society.*

Source: BRAZIL. New industry Brazil – strong, transformative and sustainable: Action Plan for Neoindustrialization 2024-2026 / Ministry of Development, Industry, Commerce and Services, National Council for Industrial Development. Brasília: CNDI, MDIC, 2024. 102 p.

Composed of a set of public instruments to support the productive sector, the NIB aims to (i) stimulate technical progress and, consequently, national productivity and competitiveness, generating quality jobs; (ii) to make better use of the country's competitive advantages; and (iii) reposition Brazil in international trade. Mission-guided policies aim to provide solutions that directly improve people's daily lives, stimulate productive and technological development, and promote innovation among multiple sectors and agents. (NIB, 2024).

The New Industry Brazil plan (2024) includes Intellectual Property in its mission number five, which has as a priority vision the Bioeconomy, decarbonization, transition and energy security to guarantee resources for future generations. Implement actions of the National Intellectual Property Strategy (ENPI); training of agents of the innovation ecosystem of the Amazon Region in intellectual property issues; Green Brazil Seal and Amazon Seal. The increase in the competitive advantage of the national industry includes: the Special Regime for the Chemical Industry (Reiq); the energy transition; the improvement of the gas supply in the country; actions to support the green economy; the appreciation of the Amazon; the attraction of investments in this nascent industry; and Brazil's position in front of the world. In addition, actions to boost value chains that value the standing forest and the sustainable use of native forests are essential.

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The 2023-2025 Action Plan of the National Intellectual Property Strategy (ENPI) provides for the constitution of a working group on IP and Sustainability within the scope of the GIPI to discuss the interface between the themes and present proposals for instruments to advance the development of green technologies in the country, seeking to ensure their dissemination in the context of climate emergency. This includes the reform of the Lei do Bem, the implementation of the new Official Export Support System.

Table 3: *Mapping of the main links between NIB (2024) and Intellectual Property.*

Aspect of the New Industry Brazil	Connection with Intellectual Property	Expected Impact
Technological Innovation	Patents and protection of technological inventions	Encouraging research and development (R&D), promoting technological advancement.
Industry 4.0	Copyright on software and automated processes.	Protecting emerging technologies such as AI and IoT, strengthening competitiveness.
Sustainability and the Green Economy	Trademarks and patents for sustainable technologies.	Facilitation of transitions to more sustainable and innovative production models.
Startups and Innovation Ecosystem	Intellectual Property Protection for new ideas and business models.	Increased legal certainty and attraction of investments for *startups*.
Global Competitiveness	International intellectual property agreements	Alignment with global standards, strengthening Brazil's position in the global market.
Technology Transfer	Patent licensing and know-how	Facilitation of partnerships and collaborations between companies and research centers.
Regional and Sectoral Development	Protection of geographical indications and regional brands.	Valorization of regional products and promotion of local economic development.
Education and Professional Training	Copyright on teaching materials and training	Expansion of knowledge about intellectual property by training professionals.
Research and Development (R&D)	Patents and industrial secrets	Encouragement of innovation and the creation of new technologies applied in industry.
Creative Industry	Copyright and trademark protection.	Promotion of cultural and creative production as part of industrial growth.

Table 3 illustrates how different aspects of the new industry in Brazil are interconnected with intellectual property and how this relationship can impact the country's industrial and economic development. However, this goal is intermediate, since the BPTO has a forecast of complementary actions that will allow the reduction of the goal to 2 years by 2026, remembering that the reference value is 6.9 years (December 2022). This strengthens Neo-industrialization, thus increasing economic gains for industry. The simple fact of citing and including the theme of intellectual property is already a positive balance. We have observed an improvement in the reduction of the waiting time counted from the

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date of filing the patent. Another structural challenge in the business environment at NIB is to make use of the technological information available in patent documents and technological trends to support decision making. The Technical Group on Industrial Property Intelligence (GTIPI) of GIPI will prepare two studies per year on strategic intelligence and technological trends with the potential to contribute to the achievement of CNDI's missions. Opportunities will be mapped through strategic intelligence and the identification of technological trends. (NIB, 2024).

This mapping of opportunities occurs through research in the patent database to carry out technological prospecting and search for anteriority. And we currently have technologies that are already available for the public domain. Many countries already make use of this type of prospecting to develop new technologies. (NIB, 2024).

We hope that in the coming years Brazil will join efforts to consolidate Intellectual Property in the various economic areas. Currently, we already observe an average disclosure in relation to IP, but it is still very little, as not all Brazilians are aware of the subject, which makes the country backward in relation to the technological race in the search for science, technology and innovation. The New Industry Brazil 2024 plan seeks to emphasize Intellectual Property so that it is consolidated at the national level, focusing on greater scalability and agility of the filing process. Another interesting point is to carry out prior art searches in the form of technological prospecting in order to reduce costs and increase the country's technological productivity. The New Industry Brazil Plan has all the fundamental characteristics to leverage the country's economy.

CONCLUSION

The NIB Plan has a very comprehensive consolidation, but it is worth mentioning that it is of paramount importance that it be put into practice by the year 2026. Which would raise our country to an excellent level of development. The structural challenges in Business Environments involve Intellectual Property, whose objective is to reduce the examination time for the decision on patent applications. The expected result is that the decision time for patent applications filed with the BPTO will be reduced by 60% by 2026."

Another important goal to leverage the NIB is the Technical Group on Industrial Property Intelligence (GTIPI) of GIPI, which will prepare two studies per year on strategic intelligence and technological trends with the potential to contribute to the achievement of CNDI's missions. There is a lot of work ahead, which will depend on the joint effort of the

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Federal, State and Municipal governments. Although we have overcome difficult times in the post-pandemic period, during which the previous administration managed to balance the country economically, we still have to advance in the industrial, agro-industrial area with the insertion of Science, Technology and Innovation. If implemented, the NIB will take a great leap in the development of science, innovation and technology in Brazil.

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