SPECIAL
SURVEY
102

CIRCULAR ECONOMY 2026:
BARRIERS, OPPORTUNITIES AND PRACTICES IN INDUSTRY

CNI Brazilian National Confederation of Industry

CNI Brazilian National Confederation of Industry

SPECIAL
SURVEY
102

CIRCULAR ECONOMY 2026:
BARRIERS, OPPORTUNITIES AND PRACTICES IN INDUSTRY

BRASÍLIA-DF
2026

CNI
Institutional Relations Directorate
Office of the Superintendent of Environment and Sustainability

International Cataloging in Publication (CIP)

S698

Sondagem especial [Recurso eletrônico] / Confederação Nacional da Indústria, v. 26, n. 102 (jun. 2026). – Brasília : CNI, 1999-.

Serial published since 1999.
ISSN (International Standard Serial Number) 2317 7330

1. Economia Circular (Circular Economy) 2. Políticas Públicas (Public Policy) 3. Indústria Brasileira (Brazilian Industry) I. Título (Title).

CDU: 33(81)

Prepared by Alberto Nemoto Yamaguti - Librarian - CRB
(Regional Council of Library Science) - 1/2396

CNI
National Confederation of Industry
Setor Bancário Norte
Quadra 1 – Bloco C
Edifício Roberto Simonsen
70040-903 – Brasília – DF
Tel.: (61) 3317- 9001
Fax: (61) 3317- 9994
http://www.cni.com.br

Customer Service - SAC
Tels.: (61) 3317-9989 / 3317-9992
E-mail: sac@cni.com.br
www.portaldaindustria.com.br

SUMMARY

ISSN 2317 7330 • Year 26 • Number 102 • June 2026

EXECUTIVE SUMMARY

COMPANIES ARE ALREADY IMPLEMENTING CIRCULAR ECONOMY PRACTICES, BUT THE LACK OF INCENTIVES, DEMAND, AND AN APPROPRIATE REGULATORY ENVIRONMENT STILL LIMITS THEIR PROGRESS

- **6 out of 10 industries** have already adopted **at least one circular economy practice.**
- **40%** of companies cite **reduced operating costs** as the main benefit of the circular economy.
- **40%** of companies are already seeing a **financial return** regarding the investments made.
- **48%** support the **simplification and harmonization of regulations** as the government's top priority.
- **25%** point to a **lack of demand for circular products and high interest rates** as significant barriers to adoption.

57% of Brazilian industry already adopts at least one circular practice, with adoption being higher among large companies (66%) than among small ones (43%). Sectors such as computer equipment (86%) and rubber products (85%) lead the implementation rankings. Among the most common practices are recycling (32%), reverse logistics (26%), and the incorporation of recycled materials into products (26%).

The survey shows that circularity is a pillar of the climate agenda, with **57% of companies believing that their practices reduce greenhouse gas (GHG)** emissions, a perception that reaches 100% in the biofuels sector.

However, the transition faces multidimensional barriers that reinforce one another. In the economic sphere, the lack of demand for circular products (25%) and high interest rates (25%) are the biggest obstacles, exacerbated by the lack of tax parity between recycled and virgin materials. Technologically, the economic viability of solutions (30%) and low investment in R&D are critical bottlenecks, while cultural barriers, such as consumers' lack of knowledge about proper disposal (37%), compromise the efficiency of reverse logistics.

Despite the challenges, the benefits are tangible: 40% of companies cite reduced operating costs as the main expected benefit, followed by an improved corporate image.

Currently, 40% of companies investing in circularity are already seeing a financial return on their investment. To scale up this model, the industry advocates for government actions focused on simplifying and harmonizing regulations (48%), as well as economic incentives for recycling infrastructure, reverse logistics, and innovation projects.

ISSN 2317 7330 • Year 26 • Number 102 • June 2026

1 INTRODUCTION

Economic growth has been accompanied by a significant increase in the extraction and consumption of natural resources. In Brazil, the extraction of materials rose from about 790 million metric tons in 1970 to more than 5 billion in 2024[1], an increase of over 500%, far exceeding the growth of both the population and the economy. If this trend continues, demand for materials is projected to increase by about 40% by 2050, further intensifying pressures on the climate, biodiversity, and ecosystems. Today, the extraction and processing of resources already account for more than 90% of environmental impacts related to land and water use[2].

This scenario has direct implications for industry, a material-intensive sector. The growing pressure on resources tends to drive up costs, increase the risk of shortages, and create supply challenges. Added to this is the inadequate management of solid waste in the country: approximately 81 million metric tons are generated each year[3], with a large portion ending up in landfills and dumps, where the decomposition of organic matter emits methane (CH_4), a gas with a global warming potential 28 times greater than that of CO_2.[4]

In this context, the circular economy emerges as an alternative to the linear model of extracting, producing, consuming, and discarding, while also contributing to the fight against climate change. It is an "economic system that uses a systemic approach to maintain the circular flow of resources by recovering, retaining, or adding value to these resources, while simultaneously contributing to sustainable development"[5]. In practice, it involves efficient management of inputs, water, and energy, considering their critical importance to the economy and to business.

Beyond recycling, the circular economy encompasses a broad range of practices, such as product redesign, extending product lifespans, and resource recovery. Industry plays a central role in this transition: by transforming natural resources into solutions, the sector has the capacity to influence production and consumption patterns.

In Brazil, the issue is gaining increasing prominence on the public agenda. Initiatives such as the Ecological Transformation Plan (PTE), New Industry Brazil (NIB), and the Brazilian Sustainable Taxonomy recognize the circular economy as a central pillar. Also noteworthy are the National Circular Economy Strategy (ENEC)[6] and the National Circular Economy Plan (PLANEC 2025–2034), as well as programs such as PromEC[7], which work to develop regulatory, economic, and financial solutions to unlock this circular business model in the country.

In this context, the National Confederation of Industry (CNI) is launching a new edition of the Special Survey on the Circular Economy[8], seeking to understand, from the perspective of Brazilian industrial entrepreneurs: which practices are most widespread; what are the main obstacles faced; what are the perceived benefits and observed financial returns; and what measures are necessary to expand its adoption. This assessment provides a basis for public policies, business strategies, and guides the CNI's actions on the industry's circular economy agenda.

---

[1] ORGANIZAÇÃO DAS NAÇÕES UNIDAS – ONU. **Panorama global de recursos 2024**. Available at: https://www.unep.org/pt-br/resources/Global-Resource-Outlook-2024. Accessed on: April 1st, 2026.
[2] ELLEN MACARTHUR FOUNDATION. **Completando a figura como a economia circular ajuda a enfrentar as mudanças climáticas**. Available at: https://content.ellenmacarthurfoundation.org/m/51d7f731e5e70179/original/Completando-a-figura-Como-a-economia-circular-ajuda-a-enfrentar-as-mudanc-as-clima-ticas.pdf. Accessed on: April 1st, 2026.
[3] ASSOCIAÇÃO BRASILEIRA DE RESÍDUOS E MEIO AMBIENTE - ABREMA. **Brasil recicla apenas 4%, mas importa lixo para a indústria**. set. 2024. Available at: https://www.abrema.org.br/2024/09/19/brasil-recicla-apenas-4-mas-importa-lixo-para-a-industria/. Accessed on: April 1st, 2026.
[4] INTERGOVERNMENTAL PANEL ON CLIMATE CHANGE – IPCC. 2013. **Climate change 2013**: the physical science basis. 2013. Disponível em: https://www.ipcc.ch/site/assets/uploads/2017/09/WG1AR5_Frontmatter_FINAL.pdf. Accessed on: April 1st, 2026.
[5] ABNT NBR ISO 59.004:2024, item 3.1.1.
[6] BRASIL. **Decreto nº 12.082, de 27 de junho de 2024**. Institui a estratégia nacional de economia circular. Available at: https://www.planalto.gov.br/ccivil_03/_ato2023-2026/2024/decreto/d12082.htm. Accessed on: April 1st, 2026.
[7] Promoção de uma Economia Circular para a Transformação Econômica Socioecológica.
[8] CONFEDERAÇÃO NACIONAL DA INDÚSTRIA - CNI. **Economia circular 2025**: barreiras, oportunidades e práticas na indústria. Available at: https://www.portaldaindustria.com.br/publicacoes/2025/5/economia-circular-barreiras-oportunidades-e-praticas-na-industria/#economia-circular-barreiras-oportunidades-e-praticas-na-industria%20. Accessed on: April 1st, 2026.

ISSN 2317 7330 • Year 26 • Number 102 • June 2026

2 CIRCULAR ECONOMY PRACTICES DEVELOPED BY THE BRAZILIAN INDUSTRY

6 out of 10 companies practice the circular economy[9]

Although the concept of the circular economy is often associated solely with recycling, it encompasses a very broad set of strategies that can be adopted by organizations, either individually or in an integrated manner, to enable new models of value creation. The practices covered in the study were based on the ABNT NBR ISO 59004:2024[10] standards, as shown in the table below.

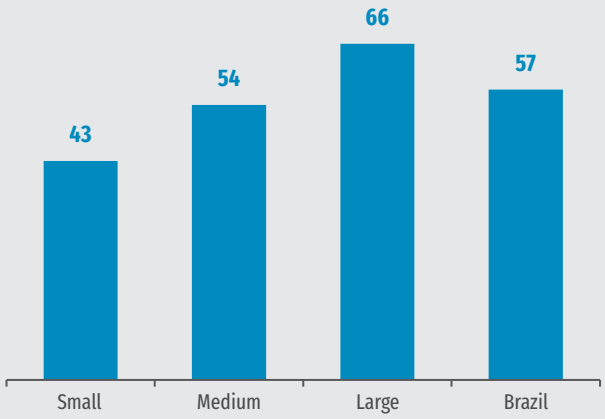
The survey shows that circular economy (CE) practices are already part of the DNA of the industrial sector. Adding value to natural resources and delivering them to society is one of the industry's main purposes.

In 57% of companies, the adoption of at least one CE practice is already a reality. It is also evident that this transition is more widespread among large-scale industries. Among small companies, 43% have implemented at least one CE practice.

Among medium-sized companies, the percentage already exceeds half, at 54%. Among large companies, 66% have implemented at least one practice.

Chart 1 - Percentage of companies that implement at least one circular economy practice

Percentage of responses (%)



VALUE GENERATION ACTIONS

- Develops products based on the principles of circularity (circular design).
- Has circularity criteria in the purchasing process with its suppliers.
- Exchanges materials and energy between companies (industrial symbiosis).

VALUE RETENTION ACTIONS

- Recovers products after use to offer them with the quality and warranty of a new product (remanufacturing).
- Offers maintenance and/or repair of products during use.
- Offers product sharing solutions during use (machinery, buildings, infrastructure, etc.).
- Offers product as a service (e.g., in the form of leasing or through a performance contract).

VALUE RECOVERY MEASURES

- Performs reverse logistics of products and/or packaging.
- Guarantees and/or performs product recycling.
- Incorporates recycled or recovered resources into products.

- Carries out ecosystem restoration projects.

[9] The figures are slightly lower than in last year's survey, likely due to a methodological change in how the development of circular practices is measured. However, we still have consistent figures indicating that approximately 60% of Brazilian industry practices the circular economy.

[10] ASSOCIAÇÃO BRASILEIRA DE NORMAS TÉCNICAS - **ABNT. ABNT NBR ISO 59004:2024.** Economia circular: vocabulário, princípios e orientações para implementação. Rio de Janeiro: ABNT, 2024.

ISSN 2317 7330 • Year 26 • Number 102 • June 2026

Table 1 - Percentage of companies by sector that implement at least one circular economy practice

Sector	% of companies
IT equipment, electronics and other products	86
Rubber products	85
Pulp, paper, and paper products	78
Footwear and parts thereof	76
Biofuel	75
Plastic material products	73
Soaps, detergents, cleaning products, cosmetics, perfumery and personal care products (HPPC)	68
Maintenance, repair and installation of machinery and equipment	67
Beverages	66
Machinery and equipment	64
Furniture	63
Metallurgy	62
Electrical machinery, apparatus, and materials	61
Miscellaneous products	61
Motor vehicles, trailers and semi-trailers	60
Chemicals (except HPPC)	59
Metal products (except machinery and equipment)	59
Textile products	58
Leather and leather artifacts	58
Pharmochemical and pharmaceutical products	56
Printing and reproduction of recorded media	47
Wood products	46
Food products	44
Extraction of non-metallic minerals	43
Manufacture of clothing and accessories	43
Non-metallic mineral products	40
Specialized construction services	38
Infrastructure works	33
Construction of buildings	27

The most widespread CE (Circular Economy) practice in Brazilian industry is recycling, adopted by one in three companies. Following that, reverse logistics stands out, practiced by one in every four companies, along with the incorporation of recycled or recovered resources into products and product repair.

ISSN 2317 7330 • Year 26 • Number 102 • June 2026

Table 2 - Percentage of companies that develop circular economy practices[11]

Practice	Developed	Under development	Future
Guarantees and/or performs product recycling	32	11	43
Performs reverse logistics of products and/or packaging	26	11	37
Incorporates recycled or recovered resources into products	26	9	35
Offers maintenance and/or repair of products during use	26	7	33
Performs ecosystem regeneration practices	18	12	30
Recovers products after use to offer them with the quality and warranty of a new product	18	8	26
Has circularity criteria in the purchasing process with its suppliers	16	15	31
Develops product based on circularity principles (circular design)	14	10	24
Exchanges materials and energy between companies (industrial symbiosis)	10	6	16
Offers product sharing solutions during use (machinery, buildings, infrastructure, etc.)	10	6	16
Offers product as a service (e.g., in the form of leasing or through a performance contract)	9	5	14

The table above also shows that the Brazilian industry focuses its efforts primarily on recovery practices, since the three most widespread practices fall into this category.

When analyzing the percentage of companies in Brazilian industry that already implement CE initiatives and those that are still in the process of developing these practices, a strategic point stands out: the potential for transformation currently underway in the productive sector in Brazil.

Companies that have already implemented well-established initiatives represent a significant step forward in the transition to a circular production model. However, it is among companies with practices still under development that we have high hopes for future progress and growth of CE in the country.

These data demonstrate that it is also important to assess the scale of the industry driving the circular economy in Brazil. If there is continued investment, adequate incentives, and institutional stability, this group could significantly expand the scale and depth of the circular economy in Brazilin the coming years.

It is worth noting that, over the past year, Brazil has gained greater international visibility on this agenda. The country hosted the World Circular Economy Forum 2025[12], considered the leading global event dedicated to the topic, which was attended by 160 countries, placing the Brazilian productive sector at the center of the debate on solutions and pathways to accelerate the transition to a CE.

[11] There was a methodological difference in this question compared to the previous year. In 2025, the response options were: 'has implemented', 'is interested in implementing', 'has not implemented', and 'don't know'. In 2026, we believed it would be more important to understand which companies had, in fact, developed circular economy practices and which were in the process of developing them, rather than simply their interest in doing so. Therefore, it is quite likely that companies that selected the 'developed' option in 2025 selected 'in development' in 2026.

[12] WORLD CIRCULAR ECONOMY FORUM. **World circular economy forum 2025**. 2025. Available at: https://wcef2025.com/pt/. Accessed on: April 1st, 2026.

ISSN 2317 7330 • Year 26 • Number 102 • June 2026

In addition, in May 2025, the National Circular Economy Plan (PNEC)[13] was launched, which establishes guidelines to promote circularity in the country, strengthen resource-efficient production chains, stimulate innovation, and expand cooperation between the government, the private sector, and society.

Initiatives such as these contribute to consolidating an increasingly fertile environment for the dissemination of knowledge, the advancement of public policies, and the expansion of CE practices in Brazil.

2.1 CIRCULAR ECONOMY AND CLIMATE CHANGE

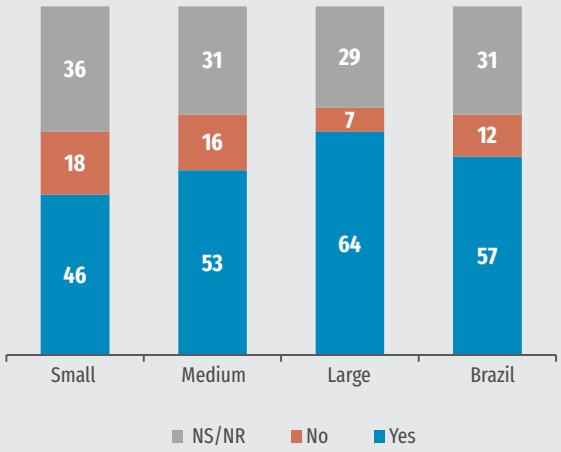
6 out of 10 companies that implement circular economy practices believe that these practices contribute to reducing greenhouse gas emissions

Brazil's Nationally Determined Contribution (NDC)[14] to the Paris Agreement recognizes the circular economy as more than just a waste management policy, integrating it into the country's mitigation goals to achieve climate neutrality by 2050. By promoting resource efficiency and the use of biomaterials, the country reduces the greenhouse gas emissions intensity of industry.

In this context, understanding whether industry recognizes this relationship becomes essential for assessing the degree to which these practices have been internalized as a mitigation strategy in corporate agendas.

Among industries that adopt circular economy practices, 57% believe that their actions contribute to reducing greenhouse gas emissions. Once again, company size is an important factor explaining the increase in this perception. This shows that the majority of Brazilian industry already views circular economy practices as a climate strategy, recognizing their direct role in reducing greenhouse gases. However, there is still a significant number, nearly one-third(1/3), of companies that are unable to assess whether this relationship exists.

Chart 2 - Companies that believe the circular economy practices they have implemented contribute to reducing greenhouse gas emissions
Percentage of responses (%)



This industry perspective is supported by numerous scientific studies, which show that by focusing on strategies aimed at reducing material use and waste generation (narrowing, slowing, and closing cycles), it is possible to reduce emissions by an average of 17%.

[13] ESTRATÉGIA NACIONAL DE ECONOMIA CIRCULAR – ENEC. **Plano nacional de economia circular 2025-2034**. 2025. Available at: https://www.gov.br/mdic/pt-br/assuntos/enec/plano-nacional/plano-nacional-de-economia-circular-2025-2013-2034_03-06-2025.pdf. Acessed on: April 1st, 2026.
[14] BRASIL. Ministério do Meio Ambiente e Mudança do Clima. **A NDC do Brasil**. 2024. Available at: https://www.gov.br/mma/pt-br/assuntos/mudanca-do-clima/ndc/a-ndc-do-brasil-2024-2013-2024.pdf. Acessed on: April 1st, 2026.

ISSN 2317 7330 • Year 26 • Number 102 • June 2026

This potential rises to 50% when circularity is combined with decarbonization and energy efficiency[15].

However, there is still a significant number, nearly one-third (1/3), of companies that do not know how to assess whether this relationship exists. This gap can be explained by the fact that the motivation to adoptthese practices is purely economic, such as cost reduction and increased efficiency. The lack of metrics to measure and verify this relationship and the high cost of preparing emissions inventories, especially in the case of small industries, lead to uncertainty regarding the relationship between circular economy practices and GHG reduction.

Table 3 - Percentage of companies by sector that believe the circular economy initiatives implemented at their company contribute to reducing greenhouse gas emissions

Sector	Yes
Biofuel	100
Rubber products	75
Beverages	70
Pulp, paper, and paper products	70
Footwear and parts thereof	69
Textile products	65
Soaps, detergents, cleaning products, cosmetics, perfumery and personal care products (HPPC) 65	65
Metallurgy	64
Electrical machinery, apparatus, and materials	62
Food products	60
Specialized construction services	60
Plastic material products	59
Chemicals (except HPPC)	58
Furniture	57
Construction of buildings	57
Manufacture of clothing and accessories	56
Wood products	56
Non-metallic mineral products	53
Motor vehicles, trailers and semi-trailers	47
Infrastructure works	47
Machinery and equipment	42
Extraction of non-metallic minerals	40
IT equipment, electronic and other products	40
Maintenance, repair and installation of machinery and equipment	40
Metal products (except machinery and equipment)	39
Miscellaneous products	38
Leather and leather artifacts	33
Pharmochemical and pharmaceutical products	33
Printing and reproduction of recorded media	14

[15] WIEDENHOFER, Dominik; WIELAND, Hanspeter; LEIPOLD, Sina; AOKI-SUZUKI, Chika; WATARI, Takuma, AGUILAR-HERNANDEZ, Glenn A.; GRAF, Simon; EDELENBOSCH, Oreane Y.; ZANON-ZOTIN, Marianne, KAUFMANN, Lisa; FORTES, Patricia; HAAS, Willi, STREECK, Jan. 2025. The circular economy and climate change: the state of national and global evidence on mitigation potential. **Annual Review Environment and Resources**, v. 50, p. 563-592. Available at: https://doi.org/10.1146/annurev-environ-111523-102441. Acessed on: April 1st, 2026.

ISSN 2317 7330 • Year 26 • Number 102 • June 2026

Specific sectors, such as biofuels, rubber products, beverages, and pulp, paper, and paper products, account for more than 70% of the industries that recognize the direct link between adopting circular practices and reducing greenhouse gas emissions. These figures underscore the industry's growing awareness of the strategic role of the circular economy in the climate agenda. The convergence between circular practices and the reduction of greenhouse gas emissions is not only recognized by companies but is also widely supported by international studies.

3 BENEFITS OF THE CIRCULAR ECONOMY

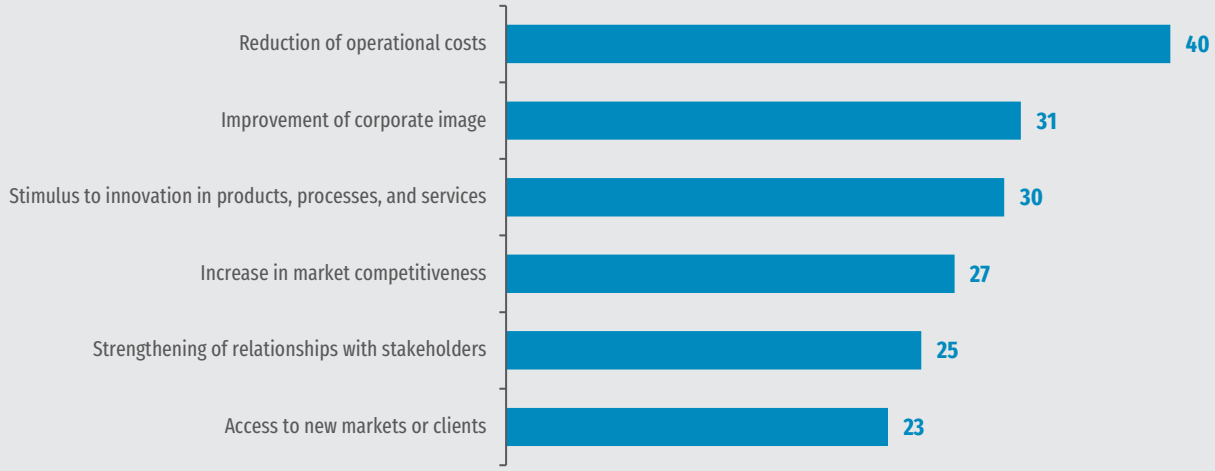
When adopting circular economy practices, 40% of companies state that reducing operating costs is the main expected benefit

The adoption of the circular economy has the potential to address environmental challenges, as discussed in previous chapters, but its impacts go beyond that, generating significant economic and social benefits for companies.

Studies indicate that this model could contribute to the creation of up to 142 million jobs worldwide, in addition to promoting greater inclusion and formalization of the workforce, according to Circle Economy[16]. In the economic sphere, there is evidence of direct gains for companies: analyses by McKinsey & Company[17] indicate that circular practices can reduce production costs by up to 20% and increase revenues by up to 15%, while Accenture estimates a potential of up to $4.5 trillion in economic value by 2030.

Chart 3 - Expected benefits for your company when adopting circular economy practices

Percentage of responses (%)



Note: The sum of the percentages may not equal 100% because companies could choose up to three benefits.

[16] CIRCLE ECONOMY; INTERNATIONAL LABOUR ORGANIZATION; WORLD BANK GROUP. **Employment in the circular economy:** leveraging circularity to create decent work. Amsterdam: Circle Economy, 2025. Available at: https://www.circle-economy.com/resources/employment-in-the-circular-economy. Accessed on: April 1st, 2026.
[17] MCKINSEY & COMPANY. **Uma maneira mais inteligente de digitalizar manutenção e confiabilidad**e. 23 abr. 2021. Available at: https://www.mckinsey.com/capabilities/operations/our-insights/a-smarter-way-to-digitize-maintenance-and-reliability/pt-BR. Accessed on: April 1st, 2026.

ISSN 2317 7330 • Year 26 • Number 102 • June 2026

In the Brazilian context, the expectations of manufacturing industries regarding the circular economy are strongly linked to economic gains. According to a survey conducted as part of this study, 40% of companies cite the reduction in operating costs as the main benefit expected from the adoption of circularity practices.

Some practical examples of this approach are highlighted in different segments of the industry. As presented in the e-book "Circular Economy in Industry: Best Practices," published by FIESP (Federation of Industries of the State of São Paulo) and CNI in 2025[18], cases such as those of Hyundai Motor Brasil and Nextracker Brasil demonstrate that these financial gains are not only expected, but fully achievable through well-structured strategies.

In the automotive sector, Hyundai Motor Brasil implemented a system for reusing water from industrial effluents using technologies such as ultrafiltration and reverse osmosis. As a result, between 2017 and 2024, the company achieved cumulative cost savings of more than 10 million reais by optimizing water consumption and reusing effluent in the production process.

Another example is Volkswagen Trucks and Buses, which implemented the Volks Greenline business model, focused on the remanufacturing components, with the goal of extending the useful life of damaged parts. As a result, the remanufactured components reach the market at costs up to 30% lower than new ones, generating savings for customers and reducing the extraction of natural resources.

In the energy sector, Nextracker Brasil has developed, in partnership with Flex, a "Zero Waste" ecosystem for the manufacturing and recovery of its electronic controllers (trackers). The reverse logistics structure that made it possible to eliminate all waste generated by the operation resulted in a 25% in reverse logistics costs, making the operation more efficient and profitable.

In addition to cost reduction, other benefits are also highlighted by companies. Improved corporate image ranks second, cited by 31% of companies, followed by the promotion of innovation in products, processes, and services, cited by 30% of respondents.

The development of the circular economy is linked to technological innovation, since many of its practices depend on the creation or improvement of technologies capable of transforming the way resources are used, recovered, and reintroduced into production systems. More advanced technologies make it possible, for example, to develop products that are more durable, repairable, and easily disassembled, in addition to improving processes for sorting, recycling, and reusing materials. In addition, digitization and the use of monitoring and traceability systems help track the flow of resources throughout the production chain, facilitating strategies such as reverse logistics, remanufacturing, and the reuse of components.

Thus, technological innovation not only makes many circular solutions technically feasible, but also helps increase their efficiency and reduce costs, making the circular economy more competitive and scalable in an industrial context[19].

[18] CONFEDERAÇÃO NACIONAL DA INDÚSTRIA – CNI; FEDERAÇÃO DAS INDÚSTRIAS DE SÃO PAULO – FIESP. **Economia circular na indústria**: melhores práticas. São Paulo, 2025. Available at: https://economiacircular.fiesp.com.br/docs/ebook-economia-circular-industria-melhores-praticas-desktop.pdf. Accessed on: April 1st, 2026.

[19] That is why technological barriers, such as low investment in research andlimited collaboration between companies and STIs (Scientific and Technological Institutions), as pointed out by % of the industry, are a cause for concern, since the development of the circular economy and technological innovation go hand in hand.

ISSN 2317 7330 • Year 26 • Number 102 • June 2026

3.1 FINANCIAL RETURN

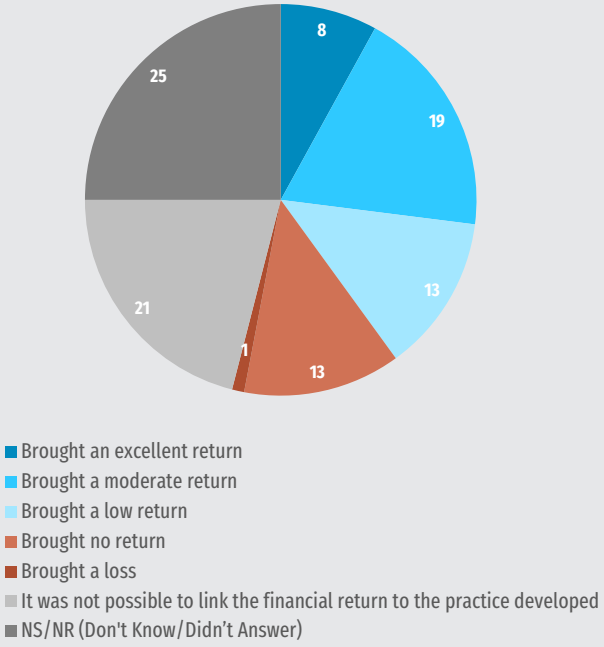
4 out of 10 companies stated that the practices they adopted generated a financial return on their investment

40% of companies that already implement circular economy practices report that there was a financial return, with 8% stating that this return was excellent, 19% that it was moderate, and 13% that it was low. It is worth noting that 46% are still unable to link the investment to the practice itself and the financial return resulting from the practice. This data may reflect both the difficulty of measuring these benefits and the fact that many gains from the circular economy manifest indirectly or in the medium and long term, such as greater efficiency in resource use, reduction of waste, strengthening of the institutional image, and the creation of new market opportunities.

In this regard, the study indicates that the industry already recognizes the shift from a linear to a circular production model as a competitive advantage. The adoption of circular economy practices is not limited to reducing operating costs; it can also generate new sources of economic value, whether through the reuse of materials, the optimization of production processes, or the development of new business models.

The fact that a significant portion of the sector is already seeing financial returns is particularly relevant, as it demonstrates that circularity can be viewed as an economically advantageous strategy. Thus, even in the face of economic, technological, and cultural barriers – and the costs associated with the transition to new production models – the industry indicates that it sees advantages in moving toward the circular economy, reinforcing the possibility of reconciling economic growth and environmental gains.

Chart 4 - Has the implementation of circular practices in the company brought a return on the investment made?
Percentage of responses (%)



ISSN 2317 7330 • Year 26 • Number 102 • June 2026

4 MAIN CHALLENGES FOR THE ADOPTION OF THE CIRCULAR ECONOMY IN BRAZILIAN INDUSTRY

Although a significant portion of companies has made progress in adopting circular economy practices, as presented in the previous chapter, this transition still takes place within a context of multidimensional challenges that limits its widespread adoption and further development. In general, the identified barriers can be organized into three main categories: (i) **economic**, associated with implementation costs, the need for initial investments, and the still-uncertain return on some initiatives; (ii) **technological and innovation-related**, which include the low availability of mature solutions, as well as limitations in systems for the collection, sorting, and processing of materials; and (iii) **cultural and educational**, which range from the limited dissemination of knowledge to internal resistance to the adoption of new production models.

In this regard, this chapter examines, based on the perspectives of industrial entrepreneurs, the significance of these barriers, identifying those that most significantly impact the adoption of circular practices and offering insights for the design of policies, instruments, and strategies capable of mitigating these barriers.

4.1 ECONOMIC BARRIERS

1 in 4 companies cites a lack of demand and high interest rates as the main economic barriers

Economic factors can directly influence the implementation of these initiatives, whether due to difficulties in accessing specific lines of financing, the perception of low demand for circular products or services, which tends to discourage their supply, or the limited economic viability of certain solutions. In this context, understanding how companies perceive these obstacles is essential to inform the stance of the productive sector, contributing to the development of public policies that are more effective and better aligned with market conditions and needs.

The survey indicates that one in four manufacturing firms cites the lack of demand for circular products and services and high interest rates on financing as the main economic barriers. It is important to note that the lack of demand rises to 29% among large companies.

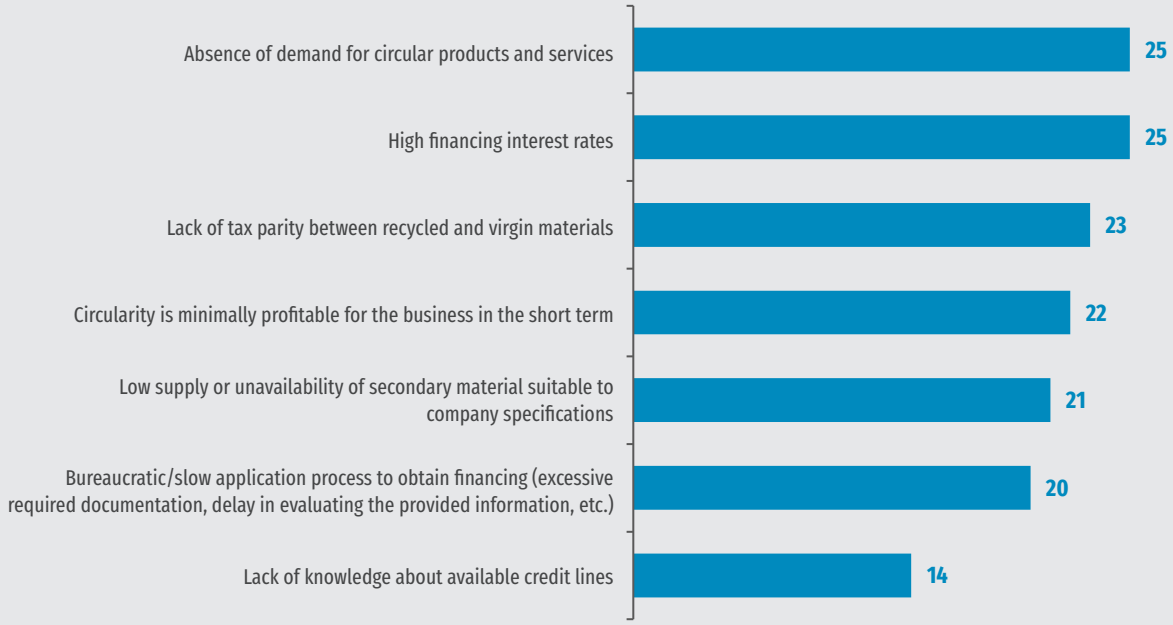
When companies realize that there is not sufficient demand for circular products and services, they tend to reduce or postpone investments. As a result, this decision can have repercussions throughout the entire production chain, since suppliers and partners often adapt their processes and investments to the requirements and strategies of leading companies.

Furthermore, large companies are often responsible for significant volumes of production and sales, which means that their decisions have the potential to create scale for circular solutions. If demand for circular products is perceived as limited, this scale does not materialize, hindering cost reduction and the consolidation of markets for recycled materials or services associated with circularity.

ISSN 2317 7330 • Year 26 • Number 102 • June 2026

Chart 5 - Main economic barriers hindering the adoption of circular economy practices

Percentage of responses (%)



Interest rates, which also rank first among economic barriers, are mentioned in Special Survey 98[20] on conditions for accessing credit. According to the companies, high interest rates were the main obstacle when taking out or renewing their credit facilities.

According to the survey, the second most important use of credit for manufacturers is to invest in machinery and equipment, with investments in expansion or modernization being the primary focus of long-term credit. Data such as this indicate that interest rates have become a major obstacle to the implementation of CE practices, considering that financing difficulties are a reality in the current operating environment for companies. Given the current macroeconomic outlook, there is no prospect of a decrease in interest rates[21].

For 23% of respondents, however, the second biggest issue is the lack of tax parity between recycled and virgin materials. In practice, the current tax model tends to penalize the use of recycled inputs, which often face a higher or less favorable tax burden compared to virgin materials, reducing their competitiveness and discouraging their integration into production chains. In this context, measures that promote greater tax equity can play a decisive role in expanding the circularity of products and materials. Proposals such as granting specific tax incentives have the potential to correct these distortions and encourage the adoption of practices such as recycling and reverse logistics.

It is worth noting that, when comparing these data with Special Survey 96 on the Circular Economy conducted in 2025[22], it becomes apparent that the demand for circular products and services and the lack of tax parity have become major barriers from the perspective of industrial sectors, ranking at the top with even higher percentages than in the previous survey.

[20] CONFEDERAÇÃO NACIONAL DA INDÚSTRIA – CNI. Taxas de juros elevadas são a dificuldade mais citada pelas empresas industriais que buscam crédito. **SondEsp**, v. 25, n. 98, jan. 2026. Available at: https://www.portaldaindustria.com.br/estatisticas/sondesp-98-condicoes-de-acesso-ao-credito-em-2025/. Accessed on: April 1st, 2026.

[21] BANCO CENTRAL DO BRASIL. **Taxa selic**. Available at: https://www.bcb.gov.br/controleinflacao/taxaselic. Accessed on: April 1st, 2026.

[22] CONFEDERAÇÃO NACIONAL DA INDÚSTRIA – CNI. Seis a cada dez empresas praticam a economia circular na sua organização. **SondEsp**, v. 25, n. 96, maio 2026. Available at: https://www.portaldaindustria.com.br/estatisticas/sondesp-96-economia-circular/. Accessed on: April 1st, 2026.

ISSN 2317 7330 • Year 26 • Number 102 • June 2026

Thus, the results suggest that industries perceive the adoption of the circular economy as heavily dependent on economic signals from the market and the institutional environment. The lack of demand, the high cost of financing, and tax distortions reduce incentives for investments in circularity, even when there are environmental benefits or potential efficiency gains in the long term. These factors suggest that public policies aimed at stimulating demand, improving financing conditions, and revising tax incentives can play an important role in expanding circular economy practices in the Brazilian industrial sector.

4.2 TECHNOLOGICAL BARRIERS

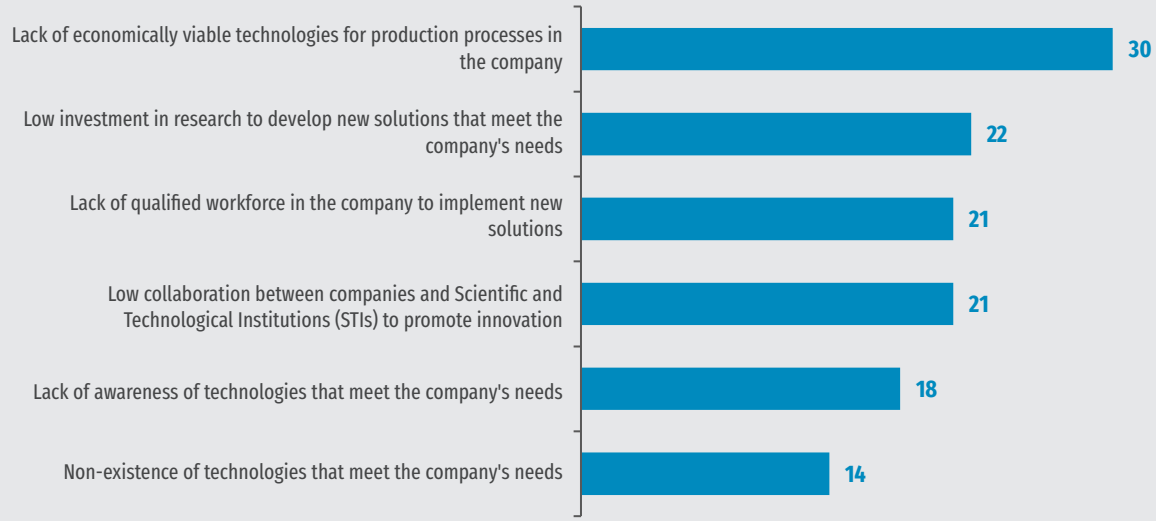
3 out of 10 companies state that the economic viability of technologies hinders the adoption of circular economy practices

chnological development plays a key role in enabling the circular economy in industry, as it provides tools and processes that make it possible to reduce resource use, minimize waste, and reintroduce materials into the production cycle. Innovations in areas such as automation, digitization, advanced recycling, and product design enable greater efficiency in the use of raw materials, in addition to facilitating the reuse, remanufacturing, and recycling of components. Therefore, inaction or delays in the adoption of new technologies by industries hinder the development of the circular economy.

A significant portion of companies (44%) were unable to assess the extent to which technological or innovation-related factors hinder the implementation of CE practices. However, among those that identified challenges, the most frequently cited factor was the economic feasibility of the technologies needed to improve production processes, cited by 30% of companies. Next, 22% highlighted the low level of investment in research to develop new solutions that meet the company's needs. Other barriers included the lack of a skilled workforce and limited collaboration with Scientific and Technological Institutions (STIs), both at 21%.

Chart 6 - Main technological and innovation barriers hindering the adoption of circularity practices

Percentage of responses (%)



Note: The sum of the percentages may not equal 100% because companies could choose up to three barriers.

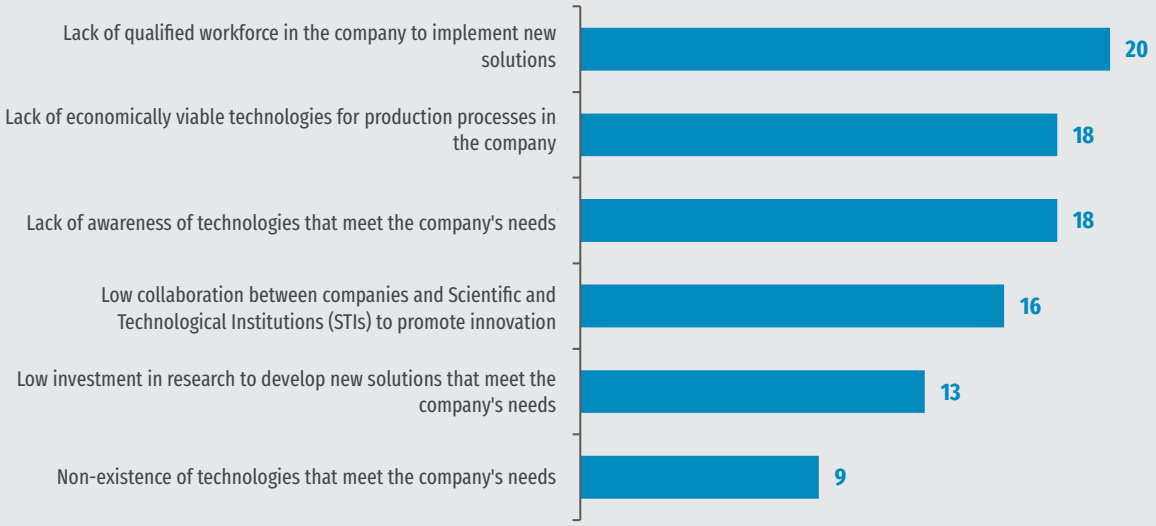
ISSN 2317 7330 • Year 26 • Number 102 • June 2026

These results indicate that technological barriers are strongly linked to the cost of solutions, low investment in innovation, and limited coordination with the research ecosystem. In this context, funding instruments focused on the circular economy take on greater importance.

As part of the Nova Indústria Brasil (NIB) policy, Finep launched in 2024 the program "Mais Inovação Brasil - Resíduos, Saneamento e Moradia" ("More Innovation Brazil - Waste, Sanitation, and Housing"), making BRL 80 million in non-reimbursable funds available, with an emphasis on the circular economy theme, supporting product development. Subsequently, the second round, titled "Circular Economy and Sustainable Cities," increased funding to BRL 150 million and reinforced the focus on the development of circular technologies and business models, requiring the participation of STIs and encouraging the implementation of partnership-based projects.

Chart 7 - Main technological and innovation barriers hindering the adoption of circular economy practices (Small size)

Percentage of responses (%)



Note: The sum of the percentages may not equal 100% because companies could choose up to three barriers.

When analyzing the responses from the perspective of company size, it is evident that small businesses face challenges that are more concentrated on internal factors. The lack of a skilled workforce (20%) and a lack of knowledge about appropriate technologies (18%) emerge as the main barriers, indicating limitations in access to information and training. These two internal factors highlight the difficulties faced by small businesses. This lack of knowledge, combined with the limited ability to attract a skilled workforce to implement new solutions, reveals that small businesses grapple with structural problems that hinder the implementation of CE.

Overall, the results indicate that small businesses require greater support in workforce training and access to information about available technologies, reflecting more fundamental implementation challenges. Among larger companies, however, although workforce training also emerges as a challenge, issues related to the economic viability of technologies and low investment in research and development stand out, in addition to the need to strengthen partnerships with STIs.

The findings underscore the need for public policies that take company size into account, with a focus, in the case of small businesses, on training, technology dissemination, and access to information.

ISSN 2317 7330 • Year 26 • Number 102 • June 2026

4.3 CULTURAL AND EDUCATIONAL BARRIERS

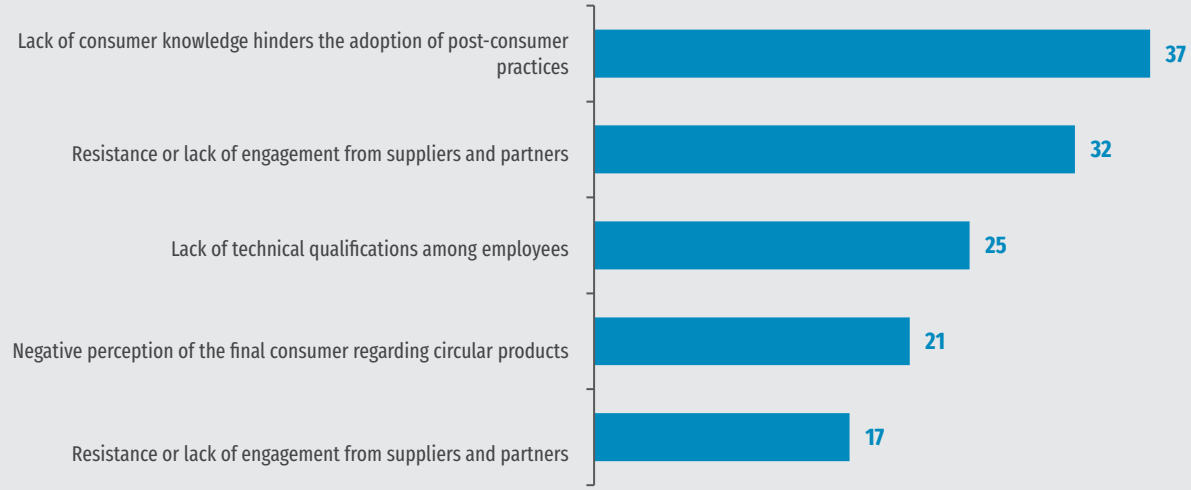
37% of companies cite consumers' lack of knowledge about post-consumer practices as the main cultural obstacle

One of the main barriers to the adoption of a circular economy in the country is related to factors of a cultural and educational nature. These challenges manifest themselves in two complementary dimensions: within the company's internal environment, that is, factors of organizational culture that hinder the incorporation of circular practices, and on the demand side, reflected in the engagement of customers and end consumers with this issue.

It is worth noting that a significant portion of Brazilian industry (46%) still does not know how to assess which educational or cultural factors represent barriers to the adoption of circularity practices. However, among the 54% of industries that assessed these barriers, it is possible to divide the perceptions into two factors: those internal to the organization and those external to it.

First and second, the following external factors stand out. Consumers' lack of knowledge about post-consumer practices is cited by 37% of companies, indicating that demand is not yet fully prepared to support circular models. Along the same lines, 32% mention low adoption by suppliers and partners, highlighting that circularity depends on coordination throughout the entire production chain. Also noteworthy is the negative perception among end consumers regarding circular products (21%), which may affect their acceptance in the market. These results reinforce the fact that the viability of many circular practices is contingent on factors that extend beyond the boundaries of the company.

Chart 8 - Main cultural and educational barriers preventing the adoption of circularity practices in your organization
Percentage of responses (%)



Note: The sum of the percentages may not equal 100% because companies could choose up to three barriers.

ISSN 2317 7330 • Year 26 • Number 102 • June 2026

Regarding consumers' lack of knowledge about proper disposal, it is important to highlight that one of the key tools for circularity is reverse logistics, which has been in place since 2010 under the National Solid Waste Policy (PNRS)[23]. This mechanism is based on shared responsibility for the product life cycle, in which the consumer plays an indispensable role by properly returning products after use, ensuring their reuse by the manufacturing sector. Without this return flow, the reverse logistics system becomes inefficient, compromising compliance with established collection and recycling targets and limiting the availability of high-quality secondary raw materials for industry.

Internally, the lack of technical skills among employees is cited by 25% of companies, while 17% mention resistance or low engagement on the part of leaders and teams. These data indicate that, although to a relatively lesser extent, internal factors also represent significant barriers, especially regarding the ability to implement organizational changes and incorporate new production practices.

Overall, the results show that the adoption of the circular economy is influenced by a set of interdependent factors. While, on the one hand, there are structural challenges related to the external environment and the dynamics of production chains, on the other hand, the consolidation of circularity also requires internal progress, such as capacity building, cultural change, and strategic alignment within companies.

In this context, the National Circular Economy Plan (PLANEC)[24] has the potential to establish itself as part of the solution by addressing barriers identified by the industry. Its initiatives aimed at training companies and building skills directly address the issue of low technical qualifications and the limited engagement of suppliers and partners, helping to expand knowledge and the capacity to adopt circular practices. At the same time, initiatives to promote environmental culture and education outlined in the plan can foster understanding and acceptance of circular solutions.

[23] BRASIL. **Lei nº 12.305, de 2 de agosto de 2010**. Available at: https://www.planalto.gov.br/ccivil_03/_ato2007-2010/2010/lei/l12305.htm. Accessed on: April 1st, 2026.
[24] BRASIL. Ministério do Desenvolvimento, indústria, comércio e serviços. **Plano nacional de economia circular 2025-2034**. 2025. Available at: https://www.gov.br/mdic/pt-br/assuntos/enec/plano-nacional/plano-nacional-de-economia-circular-2025-2013-2034_03-06-2025.pdf. Accessed on: April 1st, 2026.

ISSN 2317 7330 • Year 26 • Number 102 • June 2026

4.4 UNDERSTANDING THE CONNECTION BETWEEN BARRIERS

The Cost of Capital vs. The Feasibility of Innovation

When analyzing the data across the board, it becomes clear that economic and technological barriers do not operate in isolation; they feed off each other in a **cycle that hinders the industry's transition** toward circularity. The point of greatest convergence lies in the direct relationship between **high interest rates and the economic unfeasibility of circularity technology.**

For a company to transition from the traditional linear model to adopting a circular approach, the initial investment in new machinery that enables design for circularity, traceability technologies, or processes for reusing waste (so-called CAPEX - Investments on Capital Assets) is high. When the cost of credit in the market is prohibitive, any innovation project that requires financing ends up losing its financial appeal. In other words, a technology may well be efficient from an environmental or technical standpoint, but it becomes "economically unfeasible" when the cost of capital to purchase it is higher than the return it can generate in the short and medium term.

Internal Training vs. The Market Gap

When cross-referencing the data, another convergence becomes apparent regarding the role of human capital in the transition to circularity. The lack of technical skills is a structural barrier that manifests itself in both the cultural and technological spheres: it is the third most commonly cited barrier by companies in both the cultural/educational and technological spheres. This scenario becomes even more acute when it comes to small businesses, where the lack of skilled professionals ranks first among technological barriers. In other words, it is across-cutting factor that affects everything from understanding the topic to the ability to implement circular economy solutions.

This scenario raises a fundamental question about the origin of this skills gap: Have organizations failed to **prioritize the development of internal training programs?** Or are the labor market itself and educational institutions still not producing professionals with the systemic perspective needed to operate these new business models? Or both? Regardless of the answer, the data point to the need to make progress on both fronts. Public policies can help resolve this problem by strengthening technical education and expanding the availability of training aligned with the demands of the industry, while also encouraging companies to invest in the professional development of their employees.

Lack of Knowledge vs. Lack of Demand

When cross-referencing data on cultural and economic barriers, it becomes clear that the end consumer's perception is a determining factor in the success or failure of circular strategies. The **end consumer's negative perception** is directly linked to the **lack of demand** for circular products and services, which has been identified as the main economic barrier.

This correlation indicates that the market faces an acceptance barrier that precedes the purchase decision. If consumers associate, even mistakenly, recycled materials or repaired products with inferior quality and performance, the natural demand for these solutions will remain low. This scenario discourages industrial investment in innovation, since the risk of commercial rejection makes financial returns uncertain. Therefore, the transition to a circular economy also depends on a shift in the perception of value among those at the end of the chain - the consumers.

ISSN 2317 7330 • Year 26 • Number 102 • June 2026

5 GOVERNMENT MEASURES

5.1 REGULATORY MEASURES

Half of the domestic industry believes that simplifying regulations is the key regulatory measure to support the transition to CE

The government plays a decisive role in the transition to the circular economy because it can align incentives, correct market failures, and create regulatory predictability. Thus, the industry has its own view of how the government could act in the regulatory sphere to support the industry in the transition to the circular economy.

Regulatory complexity is one of the main obstacles to the circular economy in Brazil because it increases costs, creates uncertainty, and discourages innovation. In addition, secondly, 34% of companies believe that a convergence of federal, state, and municipal regulations is necessary. In addition to complex regulations, industries must navigate the characteristics of the federal system. In the absence of effective federal coordination, fragmentation can lead to differing rules, increasing costs and hindering production efficiency and the transition to a circular economy model. Not to mention that this increases uncertainty for industries, discouraging investment and innovation.

Third, it is worth mentioning the need to create mechanisms for recognizing and disseminating best practices, a point raised by one in three industries. In other words, in addition to reducing complexity, it is important that the government also be able to create incentives to maintain the resilience of those industries that are already implementing circular economy practices.

Chart 9 - Key regulatory measures the government should adopt to support companies' transition to a circular economic model
Percentage of responses (%)

Note: The sum of the percentages may not equal 100% because companies could choose up to three measures.

ISSN 2317 7330 • Year 26 • Number 102 • June 2026

5.2 ECONOMIC MEASURES

Nearly half of the industry points out that economic incentives are the main driver for unlocking the circular economy in Brazil

In addition to regulation, the government can offer economic incentives to facilitate the transition toward a circular economic model. From the industry's perspective, infrastructure, innovation, and tax treatment are the main areas where the government should focus its efforts to develop economic incentives for the industry.

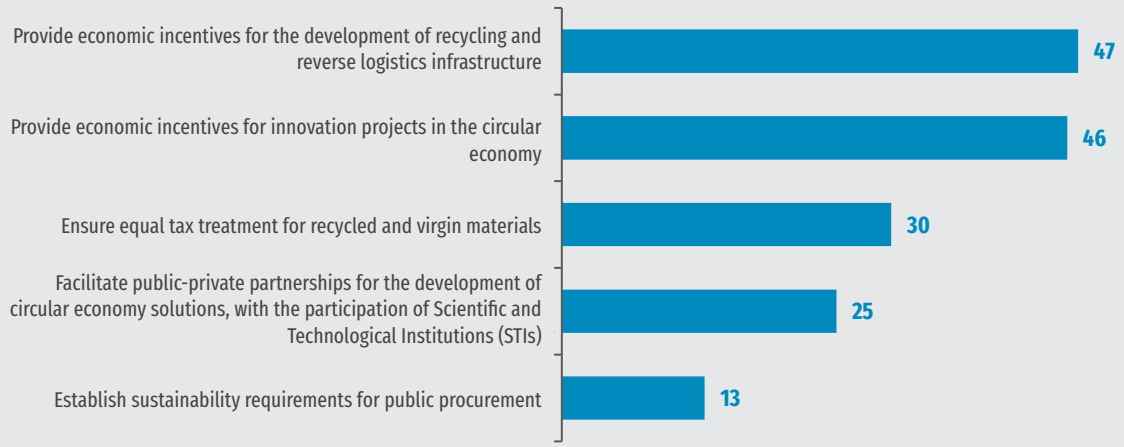
For nearly half of the industry, the government should offer economic incentives for the creation of recycling and reverse logistics infrastructure and provide economic incentives for innovation projects in circularity, at 47% and 46%, respectively. When infrastructure is insufficient or poorly distributed, logistics costs increase significantly, making reuse economically unfeasible compared to disposal.

Furthermore, the lack of scale and standardization compromises the quality of the recovered materials, reducing their acceptance by the industry. Thus, investing in infrastructure is not merely an operational issue, but a fundamental factor for the economic viability and systemic integration of the circular economy. Meanwhile, economic incentives for the development of innovation projects focused on the circular economy are essential because these projects involve technological uncertainties, high initial costs, and long-term returns.

Third, it is important to ensure equal tax treatment between recycled and virgin materials. This factor has gained increasing relevance in discussions about the circular economy, since the current tax model tends to undermine the competitiveness of recyclable materials relative to primary raw materials, especially due to the cumulative tax burden imposed throughout the stages of the recycling chain. As a result, an economic distortion is created that discourages industry from using recycled materials.

As long as the purchase of virgin inputs remains more attractive from an economic standpoint, the use of secondary materials will continue to be discouraged by industry. In this regard, it is essential to align the tax treatment applied to recycled materials with that applied to virgin materials, in order to promote more balanced competitive conditions and encourage the adoption of circular practices by companies.

Chart 10 - Key economic measures the government should adopt to support companies' transition to a circular economic model
Percentage of responses (%)



Note: The sum of the percentages may not equal 100% because companies could choose up to three measures.

TECHNICAL SPECIFICATIONS

Sample profile:
1,387 companies in the extractive and manufacturing industries, of which 576 were small (10 to 49 employees), 476 were medium-sized (50 to 250 employees), and 335 were large (250 or more employees).

306 companies in the construction industry, of which 122 were small companies (10 to 49 employees), 120 were medium-sized (50 to 250 employees), and 64 were large companies (250 or more employees).

Data collection period:
February 2nd to 12th, 2026.

SEE MORE

For more information on this study, visit: www.cni.com.br/sondespecial

Document completed on June 1st, 2026.


CNI
Brazilian National
Confederation
of Industry