CIRCULAR ECONOMY PRACTICES AND THE BRAZILIAN INDUSTRY





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1 INTRODUCTION

1.1 THE CIRCULAR ECONOMY AND BRAZILIAN INDUSTRY

The circular economy (CE) emerges as a response to contemporary social and environmental challenges, offering a new paradigm for production and consumption.

Circular economy is defined as an "economic system that uses a systemic approach to maintaining a circular flow of resources by **recovering**, **retaining**, **or adding to their value**, while contributing to sustainable development" (ABNT NBR ISO 59.004:2024, item 3.1.1).

Historically responsible for adding value to resources, industry plays a central role in the transition toward a circular economy, also viewing it as a business opportunity. At the same time, this model fosters innovation, sustainably enhances competitiveness, and promotes the development of new productive chains, creating employment and income.

Previous studies indicate that Brazilian industries had already implemented circular practices even before the concept became widely established. Examples of these practices include process optimization, circular sourcing, resource recovery, and resource sharing, among others (CNI, 2019).

Thus, it is evident that the industrial sector is committed to adopting and promoting best practices in the circular economy. Joint action from society as a whole is crucial for this transition.

1.2 RESEARCH OBJECTIVES AND TARGET AUDIENCE (SAMPLE)

Considering that the industrial sector is actively engaged in advancing the circular economy, the primary objective of this study was to map the most widely adopted circular practices within Brazilian industry and evaluate their perception regarding the connection between these practices and climate change. It was conducted with technical of the Research, Innovation, and Diffusion Center (CEPID) BRIDGE, in collaboration with the School of Engineering of São Carlos – University of São Paulo (EESC-USP).

The research involved interviews with 253 establishments in the manufacturing and construction industries¹, drawn from a population of 94,607 industrial establishments. The data collection was conducted from May 17 to July 30, 2024, with a confidence interval of 90% and a margin of error of 5.2%.

The interviewed establishments represented all regions and company sizes except for microenterprises. Small-sized enterprises are defined as those employing between 10 and 49 individuals; medium-sized enterprises employ between 50 and 249 individuals; and large enterprises employ 250 or more.

Additionally, a distinctive feature of this research was assessing the type of transactions conducted by these companies: whether their business model is B2B (business-to-business), meaning the final customer is another company rather than the end consumer; or B2C (business-to-consumer), indicating a model where the final customer is the end consumer rather than another business.



Distribution by type of transaction



Distribution by region



■ North ■ Central-West ■ Northeast ■ South ■ Southeast

Distribution by company size

¹ According to the National Classification of Economic Activities (Classificação Nacional das Atividades Econômicas – CNAE), establishments interviewed belonged to Section C, divisions 10 to 33, and Section F, divisions 41 to 43.

2 LEVEL OF AWARENESS REGARDING THE CIRCULAR ECONOMY

In the context of climate change, which entails increased environmental demands, industries must adapt to an economy based on the efficient use of natural resources, focusing on retaining the value of products, components, and materials throughout their life cycle. Thus, **understanding** the circular economy as an economic model is essential for Brazilian industry to become more competitive and sustainable.

Therefore, respondents were asked if they were familiar with the term "circular economy." Results indicate that **61% reported being familiar with** the term, whereas **38%** stated they **were not**².

Sebrae (2024) conducted a survey that also addressed respondents' level of awareness.

The study focused on micro and small enterprises across various economic sectors. The most relevant finding was that the manufacturing industry demonstrated the highest level of awareness compared to other sectors, while construction ranked third.³

Company size also affects awareness levels, a difference captured by the survey: as company size increases, awareness of the circular economy also rises.



6 out of every **10** respondents are familiar with the term "Circular Economy"

² Respondents who selected the options "I have extensive experience and knowledge," "I have reasonable experience/knowledge," and "I know a little but still have doubts about certain aspects" were categorized as "familiar with the circular economy." Respondents who selected "I have heard of it but I do not know exactly what it is" and "I have no knowledge" were categorized as "unfamiliar with the circular economy."

³ The sectors analyzed in the Sebrae (2024) study were: Agriculture, Commerce, Construction, Industry, and Services. Regarding the percentage of respondents who reported **familiarity with the circular economy and its terminology**, the results were: Industry (36.34%), Agriculture (26.16%), Construction (20.06%), Services (16.55%), and Commerce (12.04%).



GRAPHIC 4 - ARE YOU FAMILIAR WITH THE TERM "CIRCULAR ECONOMY"?⁴

■ I have extensive experience and knowledge

■ I have reasonable experience/knowledge

I know a little but still have doubts about certain aspects

■ I have heard of it but I do not know exactly what it is

- I have no knowledge
- I do not wish to respond

⁴ For the association with company size, the chi-square test resulted in a p-value of 0.001, indicating a statistical significance level below 5%. This demonstrates evidence of an association between company size and awareness of the term "circular economy."

3 CIRCULAR ECONOMY PRACTICES IMPLEMENTED BY COMPANIES



The above figure demonstrates that the transition to a circular economy is not merely aspirational but rather a continuously evolving reality within industry, reflecting an increasing commitment to adopting practices that enhance circularity.

Companies have a range of opportunities—individually or collaboratively—to enable value creation models. These practices and their respective categories guided the structuring of this research, as illustrated in the figure below:

ACTIONS TO CREATE ADDED VALUE

- Design for circularity
- Circular sourcing
- Circular procurement
- Process optimization
- Industrial, regional or urban symbiosis

ACTIONS THAT CONTRIBUTE TO VALUE RETENTION

- Reduction, reuse, and repurposing
- Maintenance and repair
- Performance-based approaches
- Sharing to intensify use
- Refurbishing
- Remanufacturing

ACTIONS THAT CONTRIBUTE TO VALUE RECOVERY

- Reverse logistics
- Cascading of resources
- Recycling
- Resource management
- Material recovery
- Energy recovery

3.1 CREATING ADDED VALUE

Developing products to increase durability

The survey results show that 40% of industries reported developing products to increase their *durability*, while 10% expressed interest in adopting this practice. A clear difference emerges when analyzing company size: among small enterprises, 27% implement this practice; for medium-sized companies, this percentage rises to 42%; and among large companies, it increases further to 45%.



GRAPHIC 5 - PRODUCTS DESIGNED TO INCREASE DURABILITY⁵

■ Implemented ■ I am interested in implementing ■ Not implemented ■ I do not know/ I do not wish to respond

Developing products designed for recovery (e.g., recycling and remanufacturing)

Regarding developing products designed for *recovery*, the results indicate that 42% of industries have implemented this practice, with an additional 11% expressing interest in adopting it.

The analysis also revealed differences related to company size—the larger the company, the more likely it is to implement this practice. Among small-sized enterprises, 30% have adopted this practice, while for medium sized companies, the percentage rises to 43%, and among large companies, it reaches 47%.

⁵ Regarding the association with company size, the chi-square test resulted in a p-value of 0.26, indicating that there is insufficient evidence to confirm an association between company size and the implementation of this practice.



GRAPHIC 6 - PRODUCTS DESIGNED FOR RECOVERY⁶

■ Implemented ■ I am interested in implementing ■ Not implemented ■ I do not know/ I do not wish to respond

Developing products to minimize material and energy consumption and waste throughout their life cycle

Regarding practices focused on developing products that minimize material and energy consumption and waste throughout their life cycle, 41% of Brazilian industries reported adopting such practices, while 15% indicated interest.

Significant differences based on company size were also identified: among small enterprises, 23% reported adopting this practice; among medium-sized enterprises, the figure rises to 42%; and among large enterprises, it increases further to 50%.



GRAPHIC 7 - PRODUCTS TO MINIMIZE MATERIAL AND ENERGY CONSUMPTION AND WASTE THROUGHOUT THEIR CYCLE⁷

6 Regarding the association with company size, the chi-square test resulted in a p-value of 0.17, indicating that there is insufficient evidence to confirm an association between company size and the implementation of this practice.

7 Regarding the association with company size, the chi-square test resulted in a p-value of 0.02, representing a statistical significance level below 5%, thus demonstrating evidence of an association between company size and the implementation of this practice.

Developing products for greater efficiency during their use

The development of products designed for greater efficiency during their use is a practice adopted by 41% of Brazilian industries, with an additional 14% expressing interest in adopting it.

Differences related to company size were also observed. Among small-sized enterprises, 30% adopt this practice; among medium-sized enterprises, the percentage increases to 36%; and among large enterprises, it reaches 50%.



GRAPHIC 8 - PRODUCTS FOR GREATER EFFICIENCY8

Implemented I am interested in implementing Not implemented I do not know/ I do not wish to respond

Replacing virgin materials with recycled materials

Regarding replacing virgin materials with recycled materials, the results show that 42% of industries reported implementing this practice, with an additional 19% expressing interest in adopting it.

Differences based on company size were also observed: among small-sized enterprises, 33% reported replacing virgin materials with recycled materials; among medium-sized enterprises, this percentage rises to 42%; and among large enterprises, it further increases to 46%.

⁸ Regarding the association with company size, the chi-square test resulted in a p-value of 0.02, representing a statistical significance level below 5%, thus demonstrating evidence of an association between company size and the implementation of this practice.



GRAPHIC 9 - REPLACING VIRGIN MATERIALS WITH RECYCLED MATERIALS⁹

Replacing non-renewable materials with renewable materials

Regarding replacing non-renewable materials with renewable materials, 38% of Brazilian industries reported adopting this practice, while 26% expressed interest in implementing it.

Significant differences were also observed based on company size. Among small sized enterprises, 30% reported adopting this practice; for medium-sized enterprises, this percentage was 29%; and for large enterprises, it increased substantially to 48%.



GRAPHIC 10 - REPLACING NON-RENEWABLE MATERIALS WITH RENEWABLE MATERIALS¹⁰

⁹ Regarding the association with company size, the chi-square test resulted in a p-value of 0.49, indicating that there is insufficient evidence to confirm an association between company size and the implementation of this practice.

¹⁰ Regarding the association with company size, the chi-square test resulted in a p-value of 0.02, representing a statistical significance level below 5%, thus demonstrating evidence of an association between company size and the implementation of this practice.

Improving efficiency to achieve environmental benefits

Half (50%) of Brazilian industries implement practices aimed at improving efficiency to achieve environmental benefits, with an additional 33% expressing interest in adopting such practices.

Company size was also found to significantly influence the adoption of this practice. Among small-sized enterprises, 36% implement these practices, while the rate increases to 43% among medium-sized companies. For large-sized enterprises, this percentage rises substantially to 63%.



GRAPHIC 11 - IMPROVING EFFICIENCY TO ACHIEVE ENVIRONMENTAL BENEFITS¹¹

Industrial symbiosis

Regarding industrial symbiosis, 24% of Brazilian industries reported engaging in the exchange of materials and energy with other companies, while 27% expressed interest in adopting this practice.

Analysis by company size revealed significant differences: only 8% of small-sized enterprises implement this practice, compared to 20% of medium-sized enterprises, and notably higher at 37% among large enterprises.

¹¹ Regarding the association with company size, the chi-square test resulted in a p-value of 0.007, representing a statistical significance level below 5%, thus demonstrating evidence of an association between company size and the implementation of this practice.



GRAPHIC 12 - INDUSTRIAL SYMBIOSIS¹²

Establishing environmental criteria in supplier procurement processes

Brazilian industries also seek to incorporate environmental criteria into their procurement processes with suppliers. Of the industries surveyed, 38% reported establishing such criteria, while 21% expressed interest in adopting this practice.

Significant differences were observed across company sizes: among small-sized enterprises, 22% have established environmental criteria in procurement processes; among medium-sized enterprises, this percentage rises to 30%; and among large enterprises, it reaches 51%.



GRAPHIC 13 - ENVIRONMENTAL CRITERIA IN SUPPLIER PROCUREMENT PROCESSES¹³

Regarding the association with company size, the chi-square test resulted in a p-value of 0.002, representing a statistical significance level below 5%, thus demonstrating evidence of an association between company size and the implementation of this practice.
 Regarding the association with company size, the chi-square test resulted in a p-value of 1-6, representing a statistical significance level below 5%, thus demonstrating evidence of an association between company size and the implementation of this practice.

3.2 CONTRIBUTING TO VALUE RETENTION

Offering product maintenance and/or repair during use

Regarding offering product maintenance and/or repair during use, 40% of industries reported implementing this practice, while an additional 7% expressed interest in adopting it.

The analysis by company size indicated a significant association with this practice. Among small-sized enterprises, 31% reported implementing this practice; for medium-sized enterprises, the percentage rises to 36%; and among large enterprises, it increases further to 47%.



GRAPHIC 14 - PRODUCT MAINTENANCE AND/OR REPAIR DURING USE

Offering sharing-based solutions to intensify product use

Regarding implementing sharing-based solutions to intensify product use, 19% of industries reported adopting this practice, and 13% expressed interest.

The analysis revealed a significant association between company size and the implementation of this practice. Among small-sized enterprises, 19% reported offering product-sharing solutions, while 13% of medium-sized companies adopted this practice. Among large enterprises, 22% reported implementing it.



GRAPHIC 15 - SHARING TO INTENSIFY PRODUCT USE¹⁴

Recovering used products and restoring them to like-new condition (remanufacturing)

Regarding remanufacturing—recovering used products and restoring them to like-new condition with full functionality and warranty—21% of industries reported implementing it, and 11% expressed interest.

Company size analysis shows variation in adoption: 20% of small enterprises, 18% of medium-sized, and 24% of large enterprises reported engaging in remanufacturing.



GRAPHIC 16 - RECOVERING USED PRODUCTS¹⁵

¹⁴ Regarding the association with company size, the chi-square test resulted in a p-value of 0.04, representing a statistical significance level below 5%, thus demonstrating evidence of an association between company size and the implementation of this practice.
15 Regarding the association with company size, the chi-square test resulted in a p-value of 0.81, indicating that there is insufficient evidence to confirm an association between company size and the implementation of this practice.

Offering products as a service (e.g., rental or performance-based contracts)

Regarding offering products as a service, 12% of industries reported implementing this practice, while an additional 13% expressed interest in adopting it.

Differences were observed based on company size: among small enterprises, 13% have adopted this practice; among medium-sized enterprises, the percentage drops to 8%; and among large enterprises, it rises to 15%.



GRAPHIC 17 - PRODUCTS AS A SERVICE¹⁶

3.3 CONTRIBUTING TO VALUE RECOVERY

Implementing reverse logistics for products

Regarding implementing reverse logistics practices for products, 26% of industries reported adopting this practice, while 4% expressed interest.

A significant difference related to company size was also observed. Among small enterprises, 14% implement reverse logistics practices; among medium-sized enterprises, this rises to 25%; and among large enterprises, 35% reported adopting this practice.

¹⁶ Regarding the association with company size, the chi-square test resulted in a p-value of 0.09, indicating that there is insufficient evidence to confirm an association between company size and the implementation of this practice.



GRAPHIC 18 - REVERSE LOGISTICS¹⁷

Ensuring and/or performing product recycling

Concerning ensuring and/or performing product recycling, results indicate that 31% of industries currently adopt this practice, while 5% have expressed interest.

Company size again demonstrated differences in the adoption rate. Among small enterprises, 25% reported practicing product recycling; for medium-sized enterprises, the figure is 29%; and among large enterprises, it reaches 35%.



GRAPHIC 19 - PRODUCT RECYCLING¹⁸

¹⁷ Regarding the association with company size, the chi-square test resulted in a p-value of 0.08, indicating that there is insufficient evidence to confirm an association between company size and the implementation of this practice.

¹⁸ Regarding the association with company size, the chi-square test resulted in a p-value of 0.81, indicating that there is insufficient evidence to confirm an association between company size and the implementation of this practice.

Reusing products and their components

Regarding reusing products and their components, 23% of industries reported adopting this practice, with 6% expressing interest.

An analysis by company size shows that 17% of the small enterprises reported adopting reuse practices; among medium-sized enterprises, the rate increases to 20%; and among large enterprises, it further rises to 29%.



GRAPHIC 20 - REUSING PRODUCTS AND THEIR COMPONENTS¹⁹

Repurposing organic materials

Regarding repurposing organic materials, 19% of industries reported adopting this practice, with an additional 6% expressing interest.

The analysis revealed a significant association between company size and the implementation of this practice. Among small enterprises, only 8% repurpose organic materials; among medium-sized enterprises, the percentage rises to 14%; and among large enterprises, it reaches 29%.



GRAPHIC 21 - REPURPOSING ORGANIC MATERIALS²⁰

19 Regarding the association with company size, the chi-square test resulted in a p-value of 0.29, indicating that there is insufficient evidence to confirm an association between company size and the implementation of this practice.

20 Regarding the association with company size, the chi-square test resulted in a p-value of 0.008, representing a statistical significance level below 5%, thus demonstrating evidence of an association between company size and the implementation of this practice.

Reusing treated effluents in production

Concerning the reuse of treated effluents in production processes, 40% of industries reported implementing this practice, with 21% expressing interest.

Analysis by company size also revealed differences: among small enterprises, 27% reuse treated effluents; among medium-sized enterprises, the percentage is 25%; and among large enterprises, it significantly increases to 57%.



GRAPHIC 22 - REUSING TREATED EFFLUENTS²¹

Reusing materials in production

Five out of ten Brazilian industries reuse materials in their production, and approximately 19% expressed interest in adopting this practice.

Analysis by company size revealed notable differences: among small enterprises, 44% reported adopting material reuse practices; among medium-sized enterprises, this rate rises to 49%; and among large enterprises, it increases further to 62%.



GRAPHIC 23 - REUSING MATERIALS IN PRODUCTION

21 Regarding the association with company size, the chi-square test resulted in a p-value of 3-5, representing a statistical significance level below 5%, thus demonstrating evidence of an association between company size and the implementation of this practice.

3.4 SUPPORTING THE CIRCULAR ECONOMY TRANSITION

Encouraging customer involvement in material separation

Regarding encouraging customers to separate materials, it was observed that 19% of industries have implemented this practice, while 9% expressed interest in adopting it.

Differences were identified based on company size: among small-sized enterprises, 12% have adopted this practice; among medium-sized enterprises, this percentage increases to 20%; and among large enterprises, it reaches 23%.



GRAPHIC 24 - ENCOURAGING CUSTOMER INVOLVEMENT²²

Implementing sustainability programs

Regarding implementing sustainability programs, half (50%) of industries reported having developed programs in this area, with an additional 15% expressing interest in adopting such initiatives.

A significant association was found between company size and the adoption of this practice. Among small-sized enterprises, 31% reported adopting sustainability programs; among medium-sized enterprises, the percentage rises to 39%; and among large enterprises, it significantly increases to 67%.

²² Regarding the association with company size, the chi-square test resulted in a p-value of 0.2, indicating that there is insufficient evidence to confirm an association between company size and the implementation of this practice.



GRAPHIC 25 - IMPLEMENTING SUSTAINABILITY PROGRAMS²³

Monitoring and disclosure of practices

Although not yet widely disseminated in Brazil, measuring organizational circularity performance is essential for transitioning to a circular economy.

Currently, large companies lead in monitoring their circularity, with 59% engaging in this practice. In contrast, adoption among small-sized enterprises remains low, with only 16% conducting such monitoring.



GRAPHIC 26 - DOES YOUR COMPANY MONITOR THE PERFORMANCE OF ITS CIRCULAR ECONOMY PRACTICES?²⁴

23 Regarding the association with company size, the chi-square test resulted in a p-value of 2-7, representing a statistical significance

level below 5%, thus demonstrating evidence of an association between company size and the implementation of this practice.24 Regarding the association with company size, the chi-square test resulted in a p-value of 1-6, representing a statistical significance level below 5%, thus demonstrating evidence of an association between company size and the implementation of this practice.

However, this scenario is expected to evolve in the coming years. Since October 2024, Brazil has adopted an international standard that assists organizations in collecting information and calculating circularity indicators: ABNT NBR ISO 59.020:2024.





Among organizations that monitor the performance of their practices, 81% do so through corporate documents, 61% prefer sustainability reports, and 58% use social media for this purpose.

4 COMPANY PERCEPTION OF CIRCULAR ECONOMY PRACTICES AND GHG EMISSION REDUCTION

Industry is a key player in the transition to a circular economy. By incorporating secondary raw materials into its processes, implementing technologies that reduce energy consumption, and designing products with longer lifespans, a company promotes more efficient resource management and enhances product value from design through end-of-life. These practices align with the circular economy and significantly contribute to reducing greenhouse gas (GHG) emissions by decreasing the need for new resource extraction, optimizing energy use, and minimizing the volume of waste sent to landfills—potential sources of polluting gases when not properly managed.

According to the Ministry of Science, Technology, and Innovation (MCTI), the waste sector accounted for 4.2% (69 million tons) of CO₂ equivalent emissions in Brazil in 2020. Circular economy practices could directly contribute to reducing emissions in this sector. Moreover, some studies have empirically demonstrated a negative association between circular economy practices and GHG emissions. For example, Pao and Chen (2021) found a relationship in the European Union between the municipal waste recycling rate and reductions in GHG emissions: for every 1% increase in the recycling rate, there was a 0.5% decrease in GHG emissions. Hailemariam and Erdiaw-Kwasie (2022) also analyzed

29 European countries from 2000 to 2020 and found a negative relationship between three circular economy indicators (municipal waste recycling rate, biowaste recycling, and packaging waste recycling) and annual per capita CO₂ equivalent emissions. All indicators showed a significant negative association, demonstrating that the circular economy contributes to GHG mitigation.



CIRCULAR ECONOMY PRACTICES AND GHG REDUCTIONE

This study assessed the Brazilian industry's perception of the relationship between circular economy practices and the reduction of greenhouse gas emissions.

A difference in perception was also observed according to company size, particularly among large enterprises, demonstrating a stronger belief in the relationship between circular practices and GHG reduction. Among small-sized enterprises, 60% believe that circular economy practices contribute to reducing GHG emissions; this figure rises to 61% for medium-sized enterprises and reaches 75% among large enterprises.



GRAPHIC 28 - CIRCULAR ECONOMY PRACTICES AND GHG EMISSION REDUCTION BY COMPANY SIZE²⁵

Therefore, Brazilian industry recognizes that adopting circular economy practices contributes to combating climate change.

The Sebrae (2024) study, previously referenced, asked whether companies adopt "lowcarbon technologies to reduce or eliminate GHG emissions." Among the five economic sectors analyzed, the construction sector and the manufacturing industry were the two that reported the highest adoption rates of such practices²⁶—reinforcing the idea that industry increasingly recognizes the connection between circular economy strategies and climate action.

²⁵ Regarding the association with company size, the chi-square test resulted in a p-value of 0.16, indicating that there is insufficient evidence to confirm an association between company size and the perception that circular economy practices contribute to the reduction of greenhouse gas emissions.

²⁶ The percentage of companies that reported adopting this practice by economic sector was as follows: Construction (23.62%), Manufacturing Industry (23.30%), Agriculture (20.93%), Services (9.59%), and Commerce (6.33%).



5 CHALLENGES

This section aims to identify the main barriers perceived by companies that hinder or prevent the effective implementation of circular economy practices in Brazil. These insights are essential to support the work of the National Confederation of Industry (CNI)—the country's leading representative body of the industrial sector—in defining strategies and guiding efforts to assist business entities in advancing this agenda.



When analyzing industry perceptions of the challenges associated with implementing circular economy practices in the country, 48% of respondents stated that the **"lack of knowledge about the topic and/or its relevance to industry"** is the greatest obstacle. These results highlight the need for broader dissemination of the topic within companies.

This finding is reinforced by the Sebrae (2024) study²⁷, in which 83.49% of respondents reported either not knowing the term or having only a superficial understanding of it. On the other hand, industry stood out as the sector with the highest level of awareness (36.34%).

Public policies also play an important role in addressing these issues through initiatives prioritizing the circular economy agenda. Examples include Decree No. 12.083/2022, which established the National Circular Economy Strategy, the New Industry Brazil (NIB) program, and the Ecological Transformation Plan (PTE)—all of which recognize circularity as a key element for tackling global challenges.

Scarcity of financial resources to implement practices

Regarding economic barriers to implementing circular economy practices, **40% of respondents highlighted the "scarcity of financial resources"** as a major challenge. This finding underscores the urgent need to foster collaboration among financial institutions—one of the core principles of the circular economy.

As for technological challenges, **28% of respondents cited "limited access to new technologies"** as a barrier to implementing circular practices.

The public policies mentioned earlier already appear to be more attentive to these challenges. The New Industry Brazil (NIB) program, coordinated by the Ministry of Development, Industry, Commerce, and Services (MDIC), has allocated significant funding—BRL 342.7 billion through 2026—to support neo-industrialization efforts. These funds are managed by institutions such as BNDES, Finep, Embrapii, and regional banks like Banco do Nordeste (BNB) and Banco da Amazônia (Basa).²⁸

Despite the large overall amount, the resources specifically allocated to the circular economy remain limited. In the MAIS Inovação Brasil program—which includes a dedicated thematic line for circular economy—the total budget was BRL 80 million, of which only 47.4% (BRL 37,955,895.24) had been used by January 2025, revealing lower-than-expected utilization.²⁹

The draft bill establishing the National Circular Economy Policy (Bill No. 1,874/2022) also includes provisions for "funding research, development, and innovation in technologies,

28 Available at: https://agenciagov.ebc.com.br/noticias/202408/nova-industria-brasil-ganha-mais-credito-e-novos-parceiros. Accessed on January 20, 2025.

²⁷ Available at: https://cms.mt.sebrae.com.br/storage/sites/e50b7e84-deb0-483b-823b-eacbbeaa586a/document/7d2da58d-a694-4291-abd4-2cfa2b65aad1.pdf

²⁹ Available at: http://www.finep.gov.br/images/chamadas-publicas/2025/16_01_2025_RESULTADO_PARCIAL_FINEP_MAIS_ INOVACAO_RESIDUOS_EMPRESAS.pdf . Accessed on 20 January 20, 2025.

processes, and new business models to promote circularity" (Article 5, item IV of the bill).

The proposal further emphasizes circular economy financing by earmarking part of the **Innovation for Competitiveness Program** and the **Social Fund** (Pre-Salt Law) revenues.

Additionally, the National Circular Economy Strategy (ENEC) sets out the goal of creating financial instruments to fund circular economy initiatives.³⁰

Lack of qualified staff and subject-matter experts

As for educational challenges, **38% of respondents identified the "lack of qualified staff and subject-matter experts" as a relevant barrier to advancing the circular economy**. This scenario reinforces the importance of Bill No. 1,874/2022, which proposes "education focused on circularity" as one of its central pillars.

Aligned with Objective II of the National Circular Economy Strategy (ENEC)—which aims to promote education and skill development for reducing, reusing, and redesigning production—the bill's Article 12 provides for incentives to support research, technological development, and workforce training, all geared toward value retention and recovery and the productive regeneration of nature.

Absence of metrics to measure performance

Measuring organizational performance is essential for developing effective strategies toward a circular economy.

However, the absence of circularity performance metrics remains **challenging for 29% of survey participants.** Brazil has already adopted a global standard to assist organizations of all sizes with this process: the ABNT NBR ISO 59020 – Circular Economy – Measurement and Assessment of Circularity Performance.

To disseminate this knowledge and improve companies' access to the topic, CNI, in partnership with FIRJAN and FIESP, developed the **Practical Guide to the Circular Economy.** Based on the international standard series ABNT NBR ISO 59000, the guide provides further details on measurement and assessment in **Chapter 3** and is available at: <u>Economia Circular na Prática</u> (*Circular Economy in Practice*).

³⁰ Available at: https://www.planalto.gov.br/ccivil_03/_ato2023-2026/2024/decreto/D12082.htm. Accessed on January 20, 2025.



6 CONCLUSION

The survey revealed that **61% of respondents are familiar with the circular economy concept,** indicating a growing awareness of the topic. However, many companies (38%) are still unfamiliar with the term, underscoring the need to intensify efforts to disseminate this concept. Additionally, **85% of companies reported adopting at least one of the 21 circular economy practices assessed,** with particular emphasis on practices related to developing products that are more durable and recovering materials. This finding suggests that resource recovery practices have been more widely adopted, while those aimed at adding and retaining value still offer greater potential for adoption.

Large companies are currently leading the implementation of circular economy practices, highlighting the need to encourage their supply chains—especially small and medium-sized enterprises—to view the circular economy as a strategic opportunity for innovation and competitiveness. In this context, the role of sectoral associations and actors such as CNI is crucial in offering support through technical guidance and initiatives tailored to the needs of businesses.

Regarding the impact of the circular economy on climate change mitigation, **70% of industries that have adopted circular practices believe they contribute to reducing greenhouse gas (GHG) emissions.** Nevertheless, several challenges remain, such as limited financial resources and lack of workforce training, particularly regarding developing qualified professionals and implementing metrics to assess circularity performance.



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CIRCULAR ECONOMY

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ANNEX I – METHODOLOGY FOR ESTIMATING CIRCULAR ECONOMY PRACTICES BY COMPANY SIZE

Conducting surveys with companies is inherently challenging—especially when the topic involves innovative concepts such as the circular economy. Furthermore, designing a questionnaire that is both concise and objective, yet capable of collecting the necessary in-depth information to support meaningful conclusions, presents an additional challenge.

In this study, the challenge was to include 21 circular economy practices in the questionnaire and 5 general questions (or 6, depending on how the respondent progressed through the questionnaire). A 26-question survey posed a significant risk of respondent dropout and low response rates. To mitigate this issue, we grouped the practices into four categories, each associated with a filter question. Only companies that answered "Yes" to a specific filter question were shown the detailed questions related to that set of practices.

To ensure logical consistency in the interpretation of responses and to enable analysis that accurately represents the broader Brazilian industrial sector, it was necessary to estimate the responses for companies that did not access the detailed questions on circular economy practices. This applied to all respondents who selected "No" or "I do not know / I do not wish to respond" in any of the filter questions. Accordingly: All respondents who selected "No" to a filter question were classified as "Not implemented" for all practices within that group; All respondents who selected "I do not know / I do not wish to respond" to a filter questified as "I do not know / I do not wish to respond" for all practices in that category.

1. Does your company design its products to ensure quality and enable reintegration into the production cycle?

		ABSO	LUTE			COLUMN PERCENTAGE				
	Small	Medium	Large	Brazil	Small	Medium	Large	Brazil		
Yes	33	45	78	156	52%	59%	69%	62%		
No	16	18	24	58	25%	24%	21%	23%		
I do not know	15	13	11	39	23%	17%	10%	15%		
Total	64	76	113	253	100%	100%	100%	100%		

2. Which of the following practices does your company implement?

		ABSO	LUTE		COLUMN PERCENTAGE			
Implementation status / Company size	Small	Medium	Large	Brazil	Small	Medium	Large	Brazil
Implemented	17	32	51	100	27%	42%	45%	40%
I am interested in implementing	8	7	11	26	13%	9%	10%	10%
Not implemented	23	24	36	83	36%	32%	32%	33%
I do not know / I do not wish to respond		13	15	44	25%	17%	13%	17%
Total	64	76	113	253	100%	100%	100%	100%

Practice: Developing products to increase durability

Practice: Developing products designed for recovery (e.g., recycling and remanufacturing)

		ABSO	LUTE		COLUMN PERCENTAGE			
Implementation status / Company size	Small	Medium	Large	Brazil	Small	Medium	Large	Brazil
Implemented	19	33	53	105	30%	43%	47%	42%
I am interested in implementing	7	9	11	27	11%	12%	10%	11%
Not implemented	22	21	37	80	34%	28%	33%	32%
I do not know / I do not wish to respond		13	12	41	25%	17%	11%	16%
Total	64	76	113	253	100%	100%	100%	100%

Practice: Developing products to minimize material and energy consumption and waste throughout their life cycle

		ABSC	DLUTE		COLUMN PERCENTAGE			
Implementation status / Company size	Small	Medium	Large	Brazil	Small	Medium	Large	Brazil
Implemented	15	32	57	104	23%	42%	50%	41%
I am interested in implementing	12	12	13	37	19%	16%	12%	15%
Not implemented	21	19	30	70	33%	25%	27%	28%
I do not know / I do not wish to respond		13	13	42	25%	17%	12%	17%
Total	64	76	113	253	100%	100%	100%	100%

		ABSC	DLUTE		COLUMN PERCENTAGE			
Implementation status / Company size	Small	Medium	Large	Brazil	Small	Medium	Large	Brazil
Implemented	19	27	57	103	30%	36%	50%	41%
I am interested in implementing	10	16	10	36	16%	21%	9%	14%
Not implemented	19	19	33	71	30%	25%	29%	28%
I do not know / I do not wish to respond	16	14	13	43	25%	18%	12%	17%
Total	64	76	113	253	100%	100%	100%	100%

Practice: Developing products for greater efficiency during their use

3. Does your company take actions to enable product return after use?

		ABSO	LUTE		COLUMN PERCENTAGE				
	Small	Medium	Large	Brazil	Small	Medium	Large	Brazil	
Yes	19	28	48	95	30%	37%	42%	38%	
No	41	43	57	141	64%	57%	50%	56%	
I do not know	4	5	8	17	6%	7%	7%	7%	
Total	64	76	113	253	100%	100%	100%	100%	

4. Which of the following practices does your company implement?

		ABSO	LUTE		COLUMN PERCENTAGE			
Implementation status / Company size	Small	Medium	Large	Brazil	Small	Medium	Large	Brazil
Implemented	9	19	39	67	14%	25%	35%	26%
I am interested in implementing	2	5	3	10	3%	7%	3%	4%
Not implemented	47	45	61	153	73%	59%	54%	60%
I do not know / I do not wish to respond	6	7	10	23	9%	9%	9%	9%
Total	64	76	113	253	100%	100%	100%	100%

Practice: Implementing reverse logistics for products

Practice: Ensuring and/or performing product recycling

		ABSC	DLUTE			COLUMN P	ERCENTAGE	
Implementation status / Company size	Small	Medium	Large	Brazil	Small	Medium	Large	Brazil
Implemented	16	22	40	78	25%	29%	35%	31%
I am interested in implementing	3	3	6	12	5%	4%	5%	5%
Not implemented	41	46	59	146	64%	61%	52%	58%
I do not know / I do not wish to respond	4	5	8	17	6%	7%	7%	7%
Total	64	76	113	253	100%	100%	100%	100%

Practice: Reusing products and their components

		ABSC	LUTE		COLUMN PERCENTAGE			
Implementation status / Company size	Small	Medium	Large	Brazil	Small	Medium	Large	Brazil
Implemented	11	15	33	59	17%	20%	29%	23%
I am interested in implementing	2	4	9	15	3%	5%	8%	6%
Not implemented	46	52	62	160	72%	68%	55%	63%
I do not know / I do not wish to respond	5	5	9	19	8%	7%	8%	8%
Total	64	76	113	253	100%	100%	100%	100%

Practice: Repurposing organic materials

		ABSC	LUTE		COLUMN PERCENTAGE			
Implementation status / Company size	Small	Medium	Large	Brazil	Small	Medium	Large	Brazil
Implemented	5	11	33	49	8%	14%	29%	19%
I am interested in implementing	2	5	9	16	3%	7%	8%	6%
Not implemented	51	55	62	168	80%	72%	55%	66%
I do not know / I do not wish to respond	6	5	9	20	9%	7%	8%	8%
Total	64	76	113	253	100%	100%	100%	100%

Practice: Encouraging customer involvement in material separation

		ABSC	LUTE		COLUMN PERCENTAGE			
Implementation status / Company size	Small	Medium	Large	Brazil	Small	Medium	Large	Brazil
Implemented	8	15	26	49	13%	20%	23%	19%
I am interested in implementing	3	5	14	22	5%	7%	12%	9%
Not implemented	49	51	64	164	77%	67%	57%	65%
I do not know / I do not wish to respond	4	5	9	18	6%	7%	8%	7%
Total	64	76	113	253	100%	100%	100%	100%

5. Does your company seek to optimize production processes?

		ABSO	LUTE			COLUMN P	ERCENTAGE	
	Small	Medium	Large	Brazil	Small	Medium	Large	Brazil
Yes	52	71	106	229	81%	93%	95%	91%
No	7	2	3	12	11%	3%	3%	5%
I do not know	5	3	3	11	8%	4%	3%	4%
Total	64	76	112	252	100%	100%	100%	100%

6. Which of the following practices does your company implement?

		ABSC	LUTE			COLUMN F	PERCENTAGE	
Implementation status / Company size	Small	Medium	Large	Brazil	Small	Medium	Large	Brazil
Implemented	21	32	52	105	33%	42%	46%	42%
I am interested in implementing	12	13	22	47	19%	17%	20%	19%
Not implemented	24	27	32	83	38%	36%	29%	33%
I do not know / I do not wish to respond	7	4	6	17	11%	5%	5%	7%
Total	64	76	112	252	100%	100%	100%	100%

Practice: Replacing virgin materials with recycled materials

Practice: Replacing non-renewable materials with renewable materials

		ABSO	LUTE		COLUMN PERCENTAGE			
Implementation status / Company size	Small	Medium	Large	Brazil	Small	Medium	Large	Brazil
Implemented	19	22	54	95	30%	29%	48%	38%
I am interested in implementing	13	24	28	65	20%	32%	25%	26%
Not implemented	25	25	22	72	39%	33%	20%	29%
I do not know / I do not wish to respond	7	5	8	20	11%	7%	7%	8%
Total	64	76	112	252	100%	100%	100%	100%

Practice: Reusing treated effluents in production

		ABSO	LUTE		COLUMN PERCENTAGE			
Implementation status / Company size	Small	Medium	Large	Brazil	Small	Medium	Large	Brazil
Implemented	17	19	64	100	27%	25%	57%	40%
I am interested in implementing	13	22	17	52	20%	29%	15%	21%
Not implemented	25	31	24	80	39%	41%	21%	32%
I do not know / I do not wish to respond	9	4	7	20	14%	5%	6%	8%
Total	64	76	112	252	100%	100%	100%	100%

Practice: Reusing materials in production

		ABSC	LUTE			COLUMN P	ERCENTAGE	
Implementation status / Company size	Small	Medium	Large	Brazil	Small	Medium	Large	Brazil
Implemented	28	37	69	134	44%	49%	62%	53%
I am interested in implementing	12	18	18	48	19%	24%	16%	19%
Not implemented	17	18	20	55	27%	24%	18%	22%
I do not know / I do not wish to respond	7	3	5	15	11%	4%	4%	6%
Total	64	76	112	252	100%	100%	100%	100%

		ABSC	LUTE			COLUMN P	ERCENTAGE	
Implementation status / Company size	Small	Medium	Large	Brazil	Small	Medium	Large	Brazil
Implemented	23	33	70	126	36%	43%	63%	50%
I am interested in implementing	23	31	30	84	36%	41%	27%	33%
Not implemented	12	9	7	28	19%	12%	6%	11%
I do not know / I do not wish to respond	6	3	5	14	9%	4%	4%	6%
Total	64	76	112	252	100%	100%	100%	100%

Practice: Improving efficiency to achieve environmental benefits

Practice: Industrial symbiosis

		ABSO	LUTE		COLUMN PERCENTAGE			
Implementation status / Company size	Small	Medium	Large	Brazil	Small	Medium	Large	Brazil
Implemented	5	15	41	61	8%	20%	37%	24%
I am interested in implementing	14	26	29	69	22%	34%	26%	27%
Not implemented	35	28	33	96	55%	37%	29%	38%
I do not know / I do not wish to respond	10	7	9	26	16%	9%	8%	10%
Total	64	76	112	252	100%	100%	100%	100%

7. Does your company incorporate sustainability aspects into its business plan?

		ABSO	LUTE			COLUMN P	ERCENTAGE	
	Small	Medium	Large	Brazil	Small	Medium	Large	Brazil
Yes	30	47	94	171	47%	62%	83%	68%
No	27	25	10	62	42%	33%	9%	25%
I do not know	7	4	9	20	11%	5%	8%	8%
Total	64	76	113	253	100%	100%	100%	100%

8. Which of the following circular economy practices does your company implement?

Practice: Establishing environmental criteria in supplier procurement processes

		ABSC	LUTE			COLUMN P	PERCENTAGE	
Implementation status / Company size	Small	Medium	Large	Brazil	Small	Medium	Large	Brazil
Implemented	14	23	58	95	22%	30%	51%	38%
I am interested in implementing	7	20	27	54	11%	26%	24%	21%
Not implemented	36	28	18	82	56%	37%	16%	32%
I do not know / I do not wish to respond	7	5	10	22	11%	7%	9%	9%
Total	64	76	113	253	100%	100%	100%	100%

Practice: Implementing sustainability programs

		ABSO	LUTE		COLUMN PERCENTAGE			
Implementation status / Company size	Small	Medium	Large	Brazil	Small	Medium	Large	Brazil
Implemented	20	30	76	126	31%	39%	67%	50%
I am interested in implementing	6	16	15	37	9%	21%	13%	15%
Not implemented	31	26	12	69	48%	34%	11%	27%
I do not know / I do not wish to respond	7	4	10	21	11%	5%	9%	8%
Total	64	76	113	253	100%	100%	100%	100%

Practice: Offering product maintenance and/or repair during use

		ABSO	LUTE			COLUMN P	PERCENTAGE	
Implementation status / Company size	Small	Medium	Large	Brazil	Small	Medium	Large	Brazil
Implemented	20	27	53	100	31%	36%	47%	40%
I am interested in implementing	2	10	6	18	3%	13%	5%	7%
Not implemented	35	35	38	108	55%	46%	34%	43%
I do not know / I do not wish to respond	7	4	16	27	11%	5%	14%	11%
Total	64	76	113	253	100%	100%	100%	100%

Practice: Offering sharing-based solutions to intensify product use

		ABSO	LUTE			COLUMN P	PERCENTAGE	
Implementation status / Company size	Small	Medium	Large	Brazil	Small	Medium	Large	Brazil
Implemented	12	10	25	47	19%	13%	22%	19%
I am interested in implementing	6	18	10	34	9%	24%	9%	13%
Not implemented	39	40	59	138	61%	53%	52%	55%
I do not know / I do not wish to respond	7	8	19	34	11%	11%	17%	13%
Total	64	76	113	253	100%	100%	100%	100%

Practice: Recovering used products and restoring them to like-new condition

		ABSC	LUTE			COLUMN P	PERCENTAGE	
Implementation status / Company size	Small	Medium	Large	Brazil	Small	Medium	Large	Brazil
Implemented	13	14	27	54	20%	18%	24%	21%
I am interested in implementing	5	10	12	27	8%	13%	11%	11%
Not implemented	39	44	58	141	61%	58%	51%	56%
I do not know / I do not wish to respond	7	8	16	31	11%	11%	14%	12%
Total	64	76	113	253	100%	100%	100%	100%

		ABSC	LUTE			COLUMN P	PERCENTAGE	
Implementation status / Company size	Small	Medium	Large	Brazil	Small	Medium	Large	Brazil
Implemented	8	6	17	31	13%	8%	15%	12%
I am interested in implementing	4	17	12	33	6%	22%	11%	13%
Not implemented	43	44	67	154	67%	58%	59%	61%
I do not know / I do not wish to respond	9	9	17	35	14%	12%	15%	14%
Total	64	76	113	253	100%	100%	100%	100%

Practice: Offering products as a service (e.g., rental or performance-based contracts)

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ANNEX II – RESPONSES BY TYPE OF TRANSACTION (B2B OR B2C)

1. Are you familiar with the term "circular economy"?

	ABSOLUTE COLUMN PERCENTAG			ITAGE		
	B2B	B2C	Brazil	B2B	B2C	Brazil
I have extensive experience and knowledge	25	4	29	13%	6%	11%
I have reasonable experience/knowledge	35	15	50	18%	24%	20%
I know a little but still have doubts about certain aspects	64	13	77	34%	21%	30%
I have heard of it but I do not know exactly what it is	34	14	48	18%	22%	19%
I have no knowledge	33	15	48	17%	24%	19%
I do not wish to respond	0	2	2	0%	3%	1%
Total	191	63	254	100%	100%	100%

2. Does your company design its products to ensure quality and reintegration into the production cycle?

	ABSOLUTE			COLUMN PERCENTAGE			
	B2B	B2C	Brazil	B2B	B2C	Brazil	
Yes	119	37	156	62%	59%	61%	
No	44	15	59	23%	24%	23%	
I do not know	28	11	39	15%	17%	15%	
Total	191	63	254	100%	100%	100%	

3. Which of the following practices does your company implement?

Practice: Developing products to increase durability³¹

	ABSOLUTE			COLUMN PERCENTAGE			
	B2B	B2C	Brazil	B2B	B2C	Brazil	
Implemented	79	21	100	41%	33%	39%	
I am interested in implementing	18	8	26	9%	13%	10%	
Not implemented	61	23	84	32%	37%	33%	
I do not know/ I do not wish to respond	33	11	44	17%	17%	17%	
Total	191	63	254	100%	100%	100%	

Practice: Developing products designed for recovery (e.g., recycling and remanufacturing)

	ABSOLUTE			COLUMN PERCENTAGE			
	B2B	B2C	Brazil	B2B	B2C	Brazil	
Implemented	83	22	105	43%	35%	41%	
I am interested in implementing	17	10	27	9%	16%	11%	
Not implemented	61	20	81	32%	32%	32%	
I do not know/ I do not wish to respond	30	11	41	16%	17%	16%	
Total	191	63	254	100%	100%	100%	

Practice: Developing products to minimize material and energy consumption and waste throughout their life cycle

	ABSOLUTE			COLUMN PERCENTAGE			
	B2B	B2C	Brazil	B2B	B2C	Brazil	
Implemented	82	22	104	43%	35%	41%	
I am interested in implementing	25	12	37	13%	19%	15%	
Not implemented	53	18	71	28%	29%	28%	
I do not know/ I do not wish to respond	31	11	42	16%	17%	17%	
Total	191	63	254	100%	100%	100%	

Practice: Developing products for greater efficiency during their use

	ABSOLUTE			COLUMN PERCENTAGE			
	B2B	B2C	Brazil	B2B	B2C	Brazil	
Implemented	80	23	103	42%	37%	41%	
I am interested in implementing	25	11	36	13%	17%	14%	
Not implemented	54	18	72	28%	29%	28%	
I do not know/ I do not wish to respond	32	11	43	17%	17%	17%	
Total	191	63	254	100%	100%	100%	

³¹ Regarding the estimated responses for practices by type of transaction, the methodology follows the same approach presented in Annex I.

4. Does your company take actions to enable the return of the product after use?

	ABSOLUTE			COLUMN PERCENTAGE			
	B2B	B2C	Brazil	B2B	B2C	Brazil	
Yes	69	26	95	36%	41%	37%	
No	109	32	141	57%	51%	56%	
I do not know	13	5	18	7%	8%	7%	
Total	191	63	254	100%	100%	100%	

5. Which of the following practices does your company implement?

	ABSOLUTE			COLUMN PERCENTAGE			
	B2B	B2C	Brazil	B2B	B2C	Brazil	
Implemented	49	18	67	26%	29%	26%	
I am interested in implementing	6	4	10	3%	6%	4%	
Not implemented	118	35	153	62%	56%	60%	
I do not know/ I do not wish to respond	18	6	24	9%	10%	9%	
Total	191	63	254	100%	100%	100%	

Practice: Implementing reverse logistics for products

Practice: Ensuring and/or performing product recycling

	ABSOLUTE			COLUMN PERCENTAGE			
	B2B	B2C	Brazil	B2B	B2C	Brazil	
Implemented	57	21	78	30%	33%	31%	
I am interested in implementing	8	4	12	4%	6%	5%	
Not implemented	113	33	146	59%	52%	57%	
I do not know/ I do not wish to respond	13	5	18	7%	8%	7%	
Total	191	63	254	100%	100%	100%	

Practice: Reusing products and their components

	ABSOLUTE COLUMN PERCENT			NTAGE		
	B2B	B2C	Brazil	B2B	B2C	Brazil
Implemented	45	14	59	24%	22%	23%
I am interested in implementing	11	4	15	6%	6%	6%
Not implemented	120	40	160	63%	63%	63%
I do not know/ I do not wish to respond	15	5	20	8%	8%	8%
Total	191	63	254	100%	100%	100%

Practice: Repurposing organic materials

	ABSOLUTE			COLUMN PERCENTAGE		
	B2B	B2C	Brazil	B2B	B2C	Brazil
Implemented	38	11	49	20%	17%	19%
I am interested in implementing	10	6	16	5%	10%	6%
Not implemented	127	41	168	66%	65%	66%
I do not know/ I do not wish to respond	16	5	21	8%	8%	8%
Total	191	63	254	100%	100%	100%

Practice: Encouraging customer involvement in material separation

	ABSOLUTE			COLUMN PERCENTAGE		
	B2B	B2C	Brazil	B2B	B2C	Brazil
Implemented	36	13	49	19%	21%	19%
I am interested in implementing	16	6	22	8%	10%	9%
Not implemented	125	39	164	65%	62%	65%
I do not know/ I do not wish to respond	14	5	19	7%	8%	7%
Total	191	63	254	100%	100%	100%

6. Does your company seek to optimize its production processes?

	ABSOLUTE			COLUMN PERCENTAGE			
	B2B	B2C	Brazil	B2B	B2C	Brazil	
Yes	175	54	229	92%	87%	91%	
No	10	3	13	5%	5%	5%	
I do not know	6	5	11	3%	8%	4%	
Total	191	62	253	100%	100%	100%	

7. Which of the following practices does your company implement?

Practice: Replacing virgin materials with recycled materials

	ABSOLUTE			COLUMN PERCENTAGE		
	B2B	B2C	Brazil	B2B	B2C	Brazil
Implemented	84	21	105	44%	34%	42%
I am interested in implementing	32	15	47	17%	24%	19%
Not implemented	64	20	84	34%	32%	33%
I do not know/ I do not wish to respond	11	6	17	6%	10%	7%
Total	191	62	253	100%	100%	100%

Practice: Replacing non-renewable materials with renewable materials

	ABSOLUTE			COLUMN PERCENTAGE		
	B2B	B2C	Brazil	B2B	B2C	Brazil
Implemented	73	22	95	38%	35%	38%
I am interested in implementing	50	15	65	26%	24%	26%
Not implemented	54	19	73	28%	31%	29%
I do not know/ I do not wish to respond	14	6	20	7%	10%	8%
Total	191	62	253	100%	100%	100%

Practice: Reusing treated effluents in production

	ABSOLUTE			COLUMN PERCENTAGE		
	B2B	B2C	Brazil	B2B	B2C	Brazil
Implemented	77	23	100	40%	37%	40%
I am interested in implementing	41	11	52	21%	18%	21%
Not implemented	60	21	81	31%	34%	32%
I do not know/ I do not wish to respond	13	7	20	7%	11%	8%
Total	191	62	253	100%	100%	100%

Practice: Reusing materials in production

	ABSOLUTE			COLUMN PERCENTAGE		
	B2B	B2C	Brazil	B2B	B2C	Brazil
Implemented	107	27	134	56%	44%	53%
I am interested in implementing	34	14	48	18%	23%	19%
Not implemented	40	16	56	21%	26%	22%
I do not know/ I do not wish to respond	10	5	15	5%	8%	6%
Total	191	62	253	100%	100%	100%

Practice: Improving efficiency to achieve environmental benefits

	ABSOLUTE			COLUMN PERCENTAGE		
	B2B	B2C	Brazil	B2B	B2C	Brazil
Implemented	95	31	126	50%	50%	50%
I am interested in implementing	66	18	84	35%	29%	33%
Not implemented	21	8	29	11%	13%	11%
I do not know/ I do not wish to respond	9	5	14	5%	8%	6%
Total	191	62	253	100%	100%	100%

Practice: Industrial symbiosis

	ABSOLUTE			COLUMN PERCENTAGE		
	B2B	B2C	Brazil	B2B	B2C	Brazil
Implemented	48	13	61	27%	24%	27%
I am interested in implementing	56	13	69	32%	24%	30%
Not implemented	62	22	84	35%	41%	37%
I do not know/ I do not wish to respond	9	6	15	5%	11%	7%
Total	175	54	229	100%	100%	100%

8. Does your company incorporate sustainability aspects into its business plan?

	ABSOLUTE			COLUMN PERCENTAGE		
	B2B	B2C	Brazil	B2B	B2C	Brazil
Yes	131	41	172	69%	65%	68%
No	46	16	62	24%	25%	24%
l do not know	14	6	20	7%	10%	8%
Total	191	63	254	100%	100%	100%

9. Which of these practices are developed by your company?

Practice: Establishing environmental criteria in supplier procurement processes

	ABSOLUTE			COLUMN PERCENTAGE		
	B2B	B2C	Brazil	B2B	B2C	Brazil
Implemented	74	21	95	39%	33%	37%
I am interested in implementing	43	12	55	23%	19%	22%
Not implemented	58	24	82	30%	38%	32%
I do not know/ I do not wish to respond	16	6	22	8%	10%	9%
Total	191	63	254	100%	100%	100%

Practice: Implementing sustainability programs

	ABSOLUTE			COLUMN PERCENTAGE		
	B2B	B2C	Brazil	B2B	B2C	Brazil
Implemented	95	31	126	50%	49%	50%
I am interested in implementing	28	10	38	15%	16%	15%
Not implemented	53	16	69	28%	25%	27%
I do not know/ I do not wish to respond	15	6	21	8%	10%	8%
Total	191	63	254	100%	100%	100%

Practice: Offering product maintenance and/or repair during use

	ABSOLUTE			COLUMN PERCENTAGE			
	B2B	B2C	Brazil	B2B	B2C	Brazil	
Implemented	71	30	101	37%	48%	40%	
I am interested in implementing	13	5	18	7%	8%	7%	
Not implemented	87	21	108	46%	33%	43%	
I do not know/ I do not wish to respond	20	7	27	10%	11%	11%	
Total	191	63	254	100%	100%	100%	

Practice: Offering sharing-based solutions to intensify product use

	ABSOLUTE			COLUMN PERCENTAGE			
	B2B	B2C	Brazil	B2B	B2C	Brazil	
Implemented	32	16	48	17%	25%	19%	
I am interested in implementing	25	9	34	13%	14%	13%	
Not implemented	108	30	138	57%	48%	54%	
I do not know/ I do not wish to respond	26	8	34	14%	13%	13%	
Total	191	63	254	100%	100%	100%	

Practice: Recovering used products and restoring them to like-new condition

	ABSOLUTE			COLUMN PERCENTAGE			
	B2B	B2C	Brazil	B2B	B2C	Brazil	
Implemented	42	12	54	22%	19%	21%	
I am interested in implementing	19	9	28	10%	14%	11%	
Not implemented	108	33	141	57%	52%	56%	
I do not know/ I do not wish to respond	22	9	31	12%	14%	12%	
Total	191	63	254	100%	100%	100%	

Practice: Offering products as a service (e.g., rental or performance-based contracts)

	ABSOLUTE			COLUMN PERCENTAGE			
	B2B	B2C	Brazil	B2B	B2C	Brazil	
Implemented	24	8	32	13%	13%	13%	
I am interested in implementing	23	10	33	12%	16%	13%	
Not implemented	119	35	154	62%	56%	61%	
I do not know/ I do not wish to respond	25	10	35	13%	16%	14%	
Total	191	63	254	100%	100%	100%	

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