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KNOWLEDGE SHARING AND THE SUSTAINABLE DEVELOPMENT GOALS: A PERSPECTIVE FROM BRAZILIAN RESEARCHERS

COMPARTILHAMENTO DO CONHECIMENTO E OS OBJETIVOS DE DESENVOLVIMENTO SUSTENTÁVEL: UM OLHAR DOS PESQUISADORES BRASILEIROS

INTERCAMBIO DE CONOCIMIENTO Y LOS OBJETIVOS DE DESARROLLO SOSTENIBLE: UNA PERSPECTIVA DE INVESTIGADORES BRASILEÑOS

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ABSTRACT

This article discusses the relevance of knowledge sharing in the context of the Sustainable Development Goals (SDGs) of the 2030 Agenda, focusing on the work of Brazilian researchers. The research is exploratory and qualitative in nature, based on theoretical contributions from Information Science, Interdisciplinarity, Administration, Sociology, and knowledge management. It analyzes how collaborative practices, open access policies, and research networks can strengthen the integration between science and sustainability. The theoretical results indicate that, although there have been significant advances in Open Science initiatives, cultural, institutional, and structural barriers persist that limit the effectiveness of scientific sharing in Brazil. It concludes that promoting knowledge sharing

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represents not only a strategy for innovation and equity, but also an ethical commitment to global sustainability.

Keywords: Knowledge Sharing. Open Science. Sustainable Development Goals. Informational Sustainability. Scientific Research.

RESUMO

O presente artigo discute a relevância do compartilhamento do conhecimento no contexto dos Objetivos de Desenvolvimento Sustentável (ODS) da Agenda 2030, com foco na atuação dos pesquisadores brasileiros. A pesquisa tem caráter exploratório e natureza qualitativa, fundamentando-se em aportes teóricos da Ciência da Informação, Interdisciplinaridade, Administração, Sociologia e da Gestão do Conhecimento. Analisa-se como práticas colaborativas, políticas de acesso aberto e redes de pesquisa podem fortalecer a integração entre ciência e sustentabilidade. Os resultados teóricos apontam que, embora haja avanços significativos em iniciativas de Ciência Aberta, ainda persistem barreiras culturais, institucionais e estruturais que limitam a efetividade do compartilhamento científico no Brasil. Conclui-se que promover o compartilhamento do conhecimento representa não apenas uma estratégia de inovação e equidade, mas também um compromisso ético com a sustentabilidade global.

Palavras-chave: Compartilhamento do Conhecimento. Ciência Aberta. Objetivos de Desenvolvimento Sustentável. Sustentabilidade Informacional. Pesquisa Científica.

RESUMEN

Este artículo analiza la relevancia del intercambio de conocimiento en el contexto de los Objetivos de Desarrollo Sostenible (ODS) de la Agenda 2030, centrándose en el trabajo de investigadores brasileños. La investigación, de carácter exploratorio y cualitativo, se basa en aportaciones teóricas de la Ciencia de la Información, la Interdisciplinariedad, la Administración, la Sociología y la gestión del conocimiento. Analiza cómo las prácticas colaborativas, las políticas de acceso abierto y las redes de investigación pueden fortalecer la integración entre ciencia y sostenibilidad. Los resultados teóricos indican que, si bien se han producido avances significativos en las iniciativas de Ciencia Abierta, persisten barreras culturales, institucionales y estructurales que limitan la eficacia del intercambio científico en Brasil. Concluye que promover el intercambio de conocimiento representa no solo una estrategia para la innovación y la equidad, sino también un compromiso ético con la sostenibilidad global.

Palabras clave: Intercambio de Conocimiento. Ciencia Abierta. Objetivos de Desarrollo Sostenible. Sostenibilidad de la Información. Investigación Científica.

1 INTRODUCTION

Knowledge sharing has emerged in recent decades as one of the fundamental pillars for building a more just, equitable, and sustainable society. As a consequence, the dissemination of scientific and technological information is essential as a central strategy for achieving the Sustainable Development Goals (SDGs) established by the United Nations 2030 Agenda (UN, 2015). In the Brazilian scenario, the performance of researchers and higher education institutions play a strategic role in the consolidation of collaborative practices that favor the democratization of knowledge and the advancement of open science (CNPq, 2025).

However, despite the progress achieved, knowledge sharing still faces significant obstacles related to academic culture, competitiveness for productivity metrics, and regional inequalities that impact the national scientific ecosystem. In this context, this study proposes a reflection on how Brazilian researchers have been contributing to the strengthening of informational sustainability and to the implementation of the SDGs based on knowledge-sharing practices.

Knowledge sharing is one of the fundamental pillars for advancing global sustainability and fulfilling the United Nations 2030 Agenda (UNESCO, 2025). Information and knowledge, when managed collaboratively, allow the creation of innovative and inclusive solutions to the economic, social, and environmental challenges that mark the twenty-first century (ZIVIANI *et al*., 2023a; SAPIENZA & MATTAR, 2024; FONSECA *et al*., 2022; SILVA; GOHR, 2025).

According to Davenport and Prusak (1998, p. 5), "knowledge is a fluid mixture of condensed experience, values and contextual information that provides a framework for the evaluation and incorporation of new experiences and information". In this way, sharing knowledge means expanding the collective capacity to understand and transform realities.

In the context of the Sustainable Development Goals (SDGs), knowledge sharing plays a strategic role, especially due to the emphasis given by the 2030 Agenda to the strengthening of global cooperation mechanisms and the exchange of scientific and technological knowledge as a basis for sustainable development. Thus, the dissemination of practices, technologies and information among different social actors enhances the efficiency of public policies and expands the reach of sustainable initiatives (UN, 2015).

Teaching and research institutions, in this context, play a central role in the creation of open and collaborative knowledge ecosystems. Valentim (2019) argues that knowledge management should be understood as a strategic practice that integrates processes of

identification, sharing, and application of organizational knowledge, contributing to innovation and social transformation, a concept confirmed by Correa, *et al*; (2019). This perspective dialogues with the principle of Open Science (CNPq, 2025), which seeks to democratize access to scientific production, strengthen collaborative networks, and ensure transparency in the use of research results (LEITE & COSTA, 2008).

In addition, knowledge management and sharing have direct implications for informational sustainability, a concept that refers to the ability of organizations to maintain continuous flows of reliable and accessible information to support sustainable decisions (ALVES & VALENTIM, 2022). The incorporation of sharing practices, especially mediated by digital technologies and innovation networks, favors the construction of a fairer, more participatory and resilient knowledge society.

Therefore, knowledge sharing is not limited to a technical action, but is consolidated as an ethical and political commitment to the principles of sustainable development (TERRA, 2015; UNESCO, 2017). Its effectiveness depends on the integration between public policies, organizational culture and technological infrastructure capable of promoting the open and responsible circulation of knowledge. As Nonaka and Takeuchi (1997) point out, knowledge grows when it is shared, becoming a dynamic resource that drives both organizational and social development.

In this sense, the alignment between knowledge sharing and the Sustainable Development Goals is essential for the consolidation of an economy based on learning, collaboration and innovation. The creation of environments that value the informational exchange and the collective production of knowledge represents not only a management strategy, but a decisive step towards a more sustainable and inclusive future.

2 THEORETICAL FOUNDATION

To structure the study, some chapters were organized that deal with the central theme of the study. Initially, KM and its organizational and scientific perspectives are discussed. Afterwards, a brief discussion was held on knowledge sharing and open science. The third point addresses the vision of Brazilian researchers and informational sustainability. The fourth topic addresses the challenges and opportunities for science sharing in Brazil.

2.1 KNOWLEDGE MANAGEMENT AND KNOWLEDGE SHARING: ORGANIZATIONAL AND SCIENTIFIC PERSPECTIVES

Knowledge management (KM) has become one of the strategic pillars of contemporary organizations, being fundamental for innovation, competitiveness and institutional sustainability (TOMAÉL & ALCARÁ, 2007; DUARTE, 2017; ZIVIANI, F. *et al*., 2023a). According to Nonaka and Takeuchi (1997), knowledge is an organization's most valuable resource, as it enables the continuous creation of value and competitive differentiation. In this context, KM involves the set of processes that aim to identify, create, store, share and apply knowledge, in order to enhance organizational learning and collective performance.

According to Davenport and Prusak (1998, P. 5), knowledge management comprises "a systematic process of creating, sharing and using knowledge to achieve organizational objectives". This definition highlights the importance of sharing as an essential link between the production and application of knowledge. Knowledge, when it remains restricted to individuals or departments, loses a significant part of its strategic value, and sharing is the means that guarantees its circulation and transformation into innovation. As discussed by Ziviani *et al.* (2023b), knowledge sharing in knowledge-intensive organizations involves collaborative practices and institutional mechanisms that strengthen information management.

Organizational culture plays a central role in this process. According to Valentim (2008), KM depends on an environment that stimulates trust, collaboration and the exchange of knowledge among the members of the organization. The author argues that "knowledge management is only effective when the institutional culture favors practices of sharing and valuing information as an organizational asset" (VALENTIM, 2008, p. 47). This perspective reinforces the interdependence between human, technological, and structural factors in the success of KM initiatives.

In addition, knowledge sharing is a complex social process, influenced by individual and collective aspects. Terra (2005) highlights that sharing depends on mechanisms of incentive, trust and recognition, as well as technological infrastructures that facilitate access and dissemination of information. A relevant fact is that technology acts as support, but it is the collaborative organizational culture that defines the degree of effectiveness of the process, as stated (ZIVIANI *et al*, 2023a). In this sense, it can be seen that "Sharing knowledge is a strategic element for the development of activities aimed at scientific research

and innovation in the academic or organizational environment." (ZIVIANI *et al.*, 2023, p. 420a).

In the context of information science, KM and knowledge sharing are understood as informational practices aimed at creating value and democratizing knowledge. According to Alvarenga Neto (2008, P. 62), sharing is a fundamental stage in the spiral of knowledge, as it "allows for the transformation of tacit knowledge into explicit knowledge and the dissemination of it widely in the organizational environment". This process is essential for continuous learning and for strengthening institutional capacities.

Therefore, knowledge management and sharing strategy represent complementary and indispensable dimensions to organizational innovation. Sharing expands the reach of the knowledge produced, strengthens collaborative networks and consolidates a culture of permanent learning. Thus, it can be stated that the effectiveness of KM depends directly on the quality of the sharing practices implemented, the cultural and technological conditions available, and the collective commitment to the strategic use of information (TOMAÉL; ALCARÁ & DI CHIARA, 2005; ANGELONI, 2008; BARBOSA & NAVES, 2014).

2.2 KNOWLEDGE SHARING AND OPEN SCIENCE

From an interdisciplinary perspective, knowledge sharing is understood as a dynamic process of collective exchange and construction that involves cognitive, social and technological dimensions (DAVENPORT & PRUSAK, 1998). In academic environments, this process is achieved through collaborative networks, digital repositories, open access publications, and inter-institutional cooperation, which expand the social impact of science (VALENTIM & CERVANTES, 2008).

Knowledge sharing is one of the fundamental pillars for the advancement of contemporary science and the consolidation of a more collaborative and transparent academic culture. In the context of Open Science, this practice plays a strategic role in promoting the democratization of access to scientific information and the strengthening of cooperation networks between researchers, institutions, and society (STUEBER & TEIXEIRA, 2024).

According to Santos and Costa (2021, p. 45), "Open Science represents a paradigmatic transformation in the way scientific knowledge is produced, communicated, and used, prioritizing openness, collaboration, and transparency at all stages of the investigative process". This perspective broadens the reach of scientific research and enables greater

social impact of the results, since knowledge is no longer restricted to specific groups and starts to circulate in a more equitable way.

The sharing of data, codes, and publications is, therefore, one of the central axes of this movement. As Fecher and Friesike (2013) argue, Open Science is not limited to the free availability of scientific articles, but involves a profound cultural change in research practices, valuing reproducibility, interdisciplinary cooperation and citizen engagement. Thus, the sharing of scientific knowledge becomes an instrument of innovation and social *accountability*.

In the Brazilian context, public science and technology policies have sought to incorporate the principles of Open Science, especially through institutional initiatives of digital repositories and open data policies. According to Menezes and Oliveira (2020), the adoption of these practices in universities and national research centers still faces challenges related to technological infrastructure, organizational culture, and the absence of institutional incentives. However, there are important advances in the integration of cooperative networks and the creation of interinstitutional platforms that strengthen the open scientific ecosystem (CARVALHO, 2022; CUNHA & SANTOS, 2022; VALENTIM & GELINSKI, 2023; MIRANDA, BARROS & OLIVEIRA, 2023).

The culture of sharing is also closely linked to knowledge management, which, as defined by Davenport and Prusak (1998), consists of the process of creating, disseminating and using knowledge to generate value and innovation. In the scientific environment, this means structuring mechanisms so that the knowledge produced is accessible, reusable, and subject to integration into new research (FUGITA, 2017; FREIRE, 2019; ALBAGLI, 2020). In this way, sharing is no longer an isolated act and becomes an integral part of the scientific information management policy (ALBAGLI, MACIEL & ABDO; 2015; AMARO, 2018, GOUVEIA, 2019).

Thus, it can be seen that knowledge sharing and Open Science are complementary dimensions of the same logic of innovation and social responsibility. By encouraging cooperation, transparency, and equitable access to information, these practices contribute to the consolidation of a more inclusive, ethical, and common good-oriented model of science (ALBAGLI, MACIEL & ABDO; 2015; STUEBER & TEIXEIRA, 2024).

Open Science is a contemporary paradigm that seeks to make scientific production more accessible, transparent, and reproducible, stimulating societal engagement and collaborative innovation. According to UNESCO (2021), Open Science practices promote the

democratization of knowledge and contribute directly to the SDGs, especially those aimed at quality education (SDG 4), innovation and infrastructure (SDG 9) and partnerships for development (SDG 17). It is relevant to note that Albagli, Maciel and Abdo (2015), Brazilian researchers, published a study on the need for public policies aimed at Open Science.

In Brazil, public policies such as the CAPES Journal Portal (2025), SciELO, and institutional repositories have strengthened this culture of openness, albeit unevenly across areas of knowledge.

2.3 BRAZILIAN RESEARCHERS AND INFORMATIONAL SUSTAINABILITY

Informational sustainability has been consolidated as an emerging and interdisciplinary approach, which recognizes information as an essential element for the sustainable development of contemporary societies. In the Brazilian context, researchers from different areas, but especially from the area of Information Science, have been discussing the strategic role of information and knowledge in the promotion of ethical, inclusive and environmentally responsible scientific practices. This discussion is directly connected to global agendas, such as the United Nations (UN) Sustainable Development Goals (SDGs), particularly those related to quality education, innovation, and effective institutions (SDGs 4, 9, and 17). ALBAGLI, MACIEL & ABDO, 2015; GERALDO, PINTO & DUARTE, 2022; BARATA, 2019)

According to Valentim (2021), informational sustainability "presupposes the creation, use, sharing, and preservation of information in an ethical, equitable, and responsible manner, in order to ensure its availability and accessibility for future generations" (VALENTIM, 2021, p. 45). This conception expands the traditional notion of sustainability, which is often restricted to the environmental and economic dimensions, incorporating the informational dimension as an indispensable pillar for knowledge governance.

In Brazil, researchers have contributed significantly to the theoretical consolidation of the concept. Alves and Valentim (2022) highlight that information and knowledge management, when guided by principles of informational sustainability, favors the creation of collaborative and innovation ecosystems. According to the authors, "sustainable information is intrinsically linked to the ability of organizations to manage their information flows in a continuous, transparent and collective learning-oriented way" (ALVES; & VALENTIM, 2022, p. 118).

The integration between informational sustainability and Open Science is another highlight in Brazilian research. Araújo and Freire (2020) argue that informational sustainability depends not only on technological infrastructure, but also on a scientific culture that values openness, data reuse, and interdisciplinary collaboration. In short, "informational sustainability requires ethical practices of sharing, respect for authorship, and appreciation of epistemic diversity" (ARAÚJO & FREIRE, 2020, p. 15).

Internationally, authors such as Capurro (2019) and Floridi (2013) reinforce the ethical and philosophical dimension of informational sustainability. Floridi (2013) introduces the concept of *infosphere*, understood as the global information environment that sustains human and technological interactions. For the author, "the sustainability of the *infosphere* depends on informational policies that promote collective informational well-being and reduce inequality in access and use of information" (FLORIDI, 2013, p. 89). This vision is echoed in Brazilian scientific production, which seeks to articulate sustainable informational practices with digital and scientific inclusion policies.

In addition, Capurro (2019) argues that informational sustainability implies an ethical commitment to "care for the informational being", recognizing that the production and consumption of information affect the quality of human interactions and the legitimacy of knowledge. This philosophical perspective inspires Brazilian researchers to think of information as a living resource, which must be preserved and cultivated for the benefit of the community.

In the field of public policies, informational sustainability gains relevance as Brazil seeks to align its scientific and technological policy with the guidelines of Open Science and research data management. According to Miranda and Cunha (2022), "informational sustainability in Brazilian public universities requires the integration of data policies, technological infrastructure, and training of researchers" (MIRANDA & CUNHA, 2022, p. 64). Such initiatives aim to reduce information gaps and strengthen information governance in the academic sphere.

The Brazilian literature also highlights the importance of training sustainable information skills. According to Silva and Costa (2021), promoting informational sustainability implies developing "critical and ethical skills for the responsible search, use, evaluation, and sharing of scientific information" (SILVA & COSTA, 2021, p. 72). This means that informational sustainability is not restricted to the technical preservation of data, but involves the human and cognitive development necessary for a balanced informational ecosystem.

The contribution of Brazilian researchers, therefore, is not limited to theorizing, but also to practical application in knowledge management programs, digital libraries, institutional repositories, and open data initiatives. This practice reflects an integrated view of information as a public good and a factor of cognitive justice. Informational sustainability, in this context, is consolidated as a strategic tool to promote equity in access to information and the appreciation of science as a common good (STUEBER & TEIXEIRA, 2024; VALENTIM, 2023).

As Valentim (2023) points out, "informational sustainability is a path to the democratization of science and to strengthen public trust in scientific institutions" (VALENTIM, 2023, p. 53). This view reinforces the need for researchers, managers, and public policy makers to work collaboratively to consolidate ethical, transparent, and inclusive informational practices.

Thus, Brazilian scientific production has proven to be relevant for the advancement of the international debate on informational sustainability, articulating theoretical, ethical and political dimensions. By promoting open access, digital preservation, and informational responsibility, Brazilian researchers contribute to the construction of a fairer, more sustainable, and socially committed science.

2.4 CHALLENGES AND OPPORTUNITIES FOR SCIENTIFIC SHARING IN BRAZIL

Scientific sharing is an essential pillar for the advancement of Open Science and for the democratization of knowledge. In Brazil, this process faces a series of structural, cultural, and technological challenges that directly impact the production and dissemination of scientific knowledge. At the same time, significant opportunities arise associated with the consolidation of public policies, the expansion of digital infrastructure, and the adoption of collaborative practices between researchers and institutions (KURAMOTO, 2008; BRAZIL, 2025; SAYÃO, & SALES, 2022; OLIVEIRA & FERREIRA, 2022; LEITE, COSTA & ALVES, 2022; SOUZA, M. *et al*, 2023).

According to Ferreira and Santos (2021), the sharing of data and research results "is one of the central elements of the open science paradigm, as it encourages transparency, reproducibility, and the reuse of knowledge" (FERREIRA & SANTOS, 2021, p. 45). However, in the Brazilian context, obstacles persist related to the absence of standardization in institutional repositories, the lack of institutional incentives and the cultural resistance of part of the scientific community, which still maintains practices of restricted circulation of

knowledge (KURAMOTO, 2008; OLIVEIRA & FERREIRA, 2022; LEITE, COSTA & ALVES, 2022;).

The literature points out that the challenge is not limited only to technological infrastructure, but also to the formation of a culture of sharing. Valentim (2020) observes that "the consolidation of collaborative practices depends on the recognition of information as a public and strategic good" (VALENTIM, 2020, p. 32). In this sense, the role of universities and funding agencies in the creation of policies that value the openness of data and interoperability between information systems is fundamental (SAYÃO & SALES, 2022).

At the same time, opportunities emerge from the digital transformation of scientific research itself. Initiatives such as the Brazilian Network of Digital Repositories, Brapci, and the Fiocruz Repository represent advances in the integration and visibility of national scientific production (ALVES & VALENTIM, 2022). In addition, the Open Science framework proposed by UNESCO in 2021 and its adhesion by Brazil expand the horizon of possibilities for international collaboration and the strengthening of information governance.

Another relevant aspect is the alignment between scientific sharing practices and the graduate evaluation guidelines established by CAPES (2025). According to Alves and Valentim (2022), the incorporation of Open Science indicators in evaluation processes "can stimulate a paradigmatic change in the way academic production is understood and valued" (ALVES & VALENTIM, 2022, p. 118). Thus, sharing is no longer just a technical requirement and becomes a strategic indicator of scientific quality.

Therefore, the challenges for scientific sharing in Brazil are related to overcoming cultural barriers, expanding digital infrastructure, and creating incentive mechanisms. On the other hand, the opportunities are promising, especially in the face of the growing appreciation of open science and institutional initiatives that promote the management and dissemination of knowledge. The future of Brazilian scientific research will depend, to a large extent, on the ability of its institutions to transform sharing into a collective and structuring value (VALENTIM, 2023; STUEBER & TEIXEIRA, 2024).

3 METHODOLOGY

The present research is characterized as exploratory and qualitative in nature. According to Gil (2019), the exploratory study aims to provide greater familiarity with the problem, making it more explicit or building hypotheses based on a set of preliminary observations. The choice for a qualitative approach is justified by the interest in understanding

the perceptions, practices, and meanings attributed by Brazilian researchers to the sharing of scientific knowledge, especially in the context of the Sustainable Development Goals (SDGs) proposed by the United Nations (UN) 2030 Agenda.

According to Minayo (2022), qualitative research enables the analysis of social phenomena from the perspective of the subjects and the contexts in which they are inserted, prioritizing the understanding of relationships and meanings to the detriment of quantification. Thus, it seeks to understand how collaborative practice and the dissemination of scientific knowledge can contribute to the achievement of the SDGs and the strengthening of scientific and social sustainability in Brazil.

The study is based on interdisciplinary theoretical contributions from Information Science, Administration, Education, Sociology and anchored in the literature of Knowledge Management, which offer conceptual tools to analyze the processes of production, organization, sharing and use of knowledge in the academic sphere.

Information Science, according to Borko (1968) and Le Coadic (2004), is concerned with the informational cycle and the role of information as a strategic resource for decision-making and innovation. Knowledge Management, on the other hand, according to Nonaka and Takeuchi (1997), involves processes of creation and dissemination of knowledge in organizations, favoring collective learning and continuous innovation.

By integrating these two approaches, it is intended to understand how open access policies, collaborative networks, and open science practices contribute to the generation of social impact and to the fulfillment of SDG goals.

This study was developed in two complementary stages, of a bibliographic and empirical nature.

In the first phase, a Bibliographic and Documentary Review was carried out. In this phase, an integrated and critical review of the literature was carried out, with the objective of identifying and analyzing studies that addressed knowledge sharing, Open Science and its relationship with the SDGs. The SciELO, Brapci, Scopus and Web of Science databases were consulted, using descriptors such as: knowledge management, knowledge sharing, Open Science, SDGs, 2030 Agenda, scientific collaboration, informational sustainability and sustainable research.

The selection criteria included: a) Works published between 2015 and 2025; b) Texts in Portuguese, English or Spanish) Scientific articles, dissertations, theses and institutional reports of government or international agencies. It should be inferred that this first phase of

the research did not consider the methodological aspects and scientific rigor required for a Systematic Review of the Literature. Therefore, the studies highlighted in the research results were selected for the convenience of the researchers based on the scientific production of Brazilian research groups that deal with the themes of this study.

In addition, official documents were analyzed, such as: a) UN and UNESCO Reports on the 2030 Agenda; b) Plans and guidelines of CAPES and CNPq related to Open Science and the internationalization of research; and c) Institutional policies of Brazilian universities aimed at sustainability and knowledge management. The analysis of this stage allowed us to theoretically contextualize the discussion and identify gaps and opportunities for Brazilian researchers.

In the second stage, an empirical research was carried out. The focus of this study was concentrated on the collection of primary data (GIL, 2019) with Brazilian researchers involved in projects aligned with the SDGs. Semi-structured interviews were conducted, as it allows flexibility and depth in the answers, as recommended by Triviños (2015). The interviews were conducted online (via Google Meet or Zoom), lasting approximately 40 to 60 minutes, through a Free and Informed Consent Form (ICF).

The data collection instrument was developed based on the theoretical foundation discussed in the previous chapter, in government reports, in the UN 2030 Agenda and in UNESCO reports. Fifteen (15) open questions were established that allowed for dialogue with the interviewed researchers.

The sample was intentional and non-probabilistic, comprising 10 researchers, selected based on the following criteria: a) Work in graduate programs recognized by CAPES; b) Participation in projects or research groups focused on sustainability or SDGs; c) Recent scientific production on knowledge management or open science; and d) Be a CNPq PQ researcher. The data were recorded, transcribed and organized into thematic categories.

The transcriptions of the interviews resulted in a volume of approximately 310 (three hundred and ten) pages of qualitative text. Only part of this volume of data was used in this study. Therefore, a vast and rich material with experiences with the development of scientific research in Brazil is still available for other analyses. A relevant strategy for future studies may be to use qualitative data analysis software NVIVO, MAXDATA or ATLAS TI.

The Brazilian researchers interviewed and their main credentials to participate in this study are identified as shown in Table 1.

Table 1

Profile of the Brazilian Researchers interviewed

Code name	Country Region	University	Area of expertise according to CAPES	Length of Work at the HEI (years)	Productivity Grant Category	Years of SDG Theme Research
WEIGHT 1	Southeast	Public	Communication, Information and Museology	18	1C	8
WEIGHT 2	Northeast	Public	Communication, Information and Museology	21	2	10
PESQ 3	Southeast	Public	Education	20	Senior	5
PESQ 4	North	Public	Education	11	2	10
WEIGHT 5	South	Toilet	Public and Business Administration, Accounting Sciences and Tourism	6	2	6
PESQ 6	Midwest	Public	Right	18	1B	9
PESQ 7	Southeast	Toilet	Public and Business Administration, Accounting Sciences and Tourism	15	1B	9
PESQ 8	Northeast	Public	Public and Business Administration, Accounting Sciences and Tourism	23	1B	11
PESQ 9	North	Public	Education	12	2	12
PESQ 10	Midwest	Toilet	Right	10	2	8

Source: Survey Data, 2025.

In Brazil, the researcher with a Research Productivity (PQ) scholarship stands out among his peers, valuing his scientific production according to normative criteria, established by CNPq, and specific, by the Advisory Committees (CAs) of CNPq (2025). For category 1, the researcher will be classified into four different levels (A, B, C or D), based on comparison between their peers and on data from the last 10 (ten) years, including the one that demonstrates the capacity for continuous training of human resources. For category 2, in which there is no level specification, the researcher's productivity will be evaluated, with emphasis on published works and guidelines, both referring to the last 5 (five) years (CNPq, 2025).

The analysis and treatment of the data was conducted according to the principles of content analysis, according to the methodology of Bardin (2016), which is structured in three phases: a) Pre-analysis: floating reading and organization of the material; b) Exploration of the material: identification of thematic categories and subcategories; c) Treatment and

interpretation: inference and interpretation of the results in the light of the theoretical framework.

In this way, it was possible to identify patterns, barriers and opportunities in the sharing of scientific knowledge, as well as to understand how collaborative practices and policies of Open Science have been incorporated into the Brazilian academic culture.

To validate the results, methodological triangulation was used, articulating the data sources of the Bibliographic and Documentary Review, Interviews with researchers and Analysis of institutional documents (CAPES, CNPq and universities). According to Flick (2018), triangulation allows different perspectives on the phenomenon studied to be confronted, increasing the consistency and reliability of the research.

The research respected the ethical principles defined by Resolution No. 510/2016 of the National Health Council (2016), ensuring the anonymity of the participants and the use of the data exclusively for scientific purposes. All interviewees agreed to the Informed Consent Form (ICF).

4 PRESENTATION, ANALYSIS AND DISCUSSION OF RESULTS

The results of the study were organized into categories and subcategories described as follows: Initially, the view of Brazilian researchers on knowledge sharing is discussed. Subsequently, the result of sustainable technology and the sharing of knowledge in scientific research is presented. Next, Open Science is discussed from the point of view of Brazilian researchers. Closing the data analysis, the issue of Factors and Barriers to Knowledge Sharing among Brazilian Researchers, Good Practices and Strategies for Knowledge Sharing is addressed and at the end there is an overview of Brazilian research on SDGs.

4.1 KNOWLEDGE SHARING ACCORDING TO BRAZILIAN RESEARCHERS

The researchers interviewed in this study were unanimous in stating that in recent decades, the topic of knowledge sharing, whether in terms of research data, scientific results or collaborative practices, has gained increasing attention in the Brazilian scientific community. The researchers report several benefits and challenges of this process in the national context, in agreement with studies such as the one by Ziviani *et al.*, (2023a).

A highlight in the interviews with researchers was Open Science. In Brazil, it is observed that the Open Science movement is associated with the idea of making research and scientific data accessible to all, as a means of accelerating scientific progress, increasing

transparency, and expanding the social impact of investigations, according to the researchers interviewed and the UNESCO report published in 2025. It should be recognized that Brazilian researchers such as Albagli, Maciel and Abdo (2015) and Amaro (2018) discuss the relevance of Open Science in their studies before structuring public policies in this regard.

Emphasizing the practice of knowledge sharing, Brazilian researchers have expressed support for open data, digital repositories, prepublications, and reuse of results, as ways to improve collaboration and the quality of scientific research. The researchers' position is in line with what is stated in the study by Dias (2025, p. 41) on Open Science public policies in Brazil between 2020 and 2023, in which it can be stated that "the dissemination of Open Science depends on policies that guarantee the resources, infrastructure, and incentives necessary to increase collaboration and transparency in research". Therefore, it can be stated that for Brazilian researchers, knowledge sharing is not just a technical or individual issue, but involves institutional infrastructure, financing, institutional incentives, and organizational culture, in line with studies by Valentim (2020) and Ziviani *et al.* (2023a).

When it comes to research data, the researchers report that there are trends that influence the sharing and reuse of research data in Brazil, highlighting the lack of clear regulations, technological barriers, fears about the misuse of data, and limited resources for maintaining or preserving repositories, which is in line with the study conducted by Silva, Prado and Araújo (2022). In this way, Brazilian researchers realize that, although there is a willingness to share knowledge, there are substantial practical obstacles.

In collaborative contexts such as partnerships between Brazilian and foreign researchers, important issues are also verified. Agreeing with the study by Almeida, Silva and Queiroz (2017) on the Science without Borders program, it is verified that knowledge sharing occurs through meetings, seminars, and the preparation of articles together, but is influenced by individual, collective, organizational and cultural factors. The researchers interviewed report that there are challenges related to language differences, expectations of collaboration, and recognition of authorship of research and publication of results. Thus, Brazilian researchers consider knowledge sharing as a complex process, which transcends the simple availability of data and involves human and institutional relations as factors to be observed and considered.

One issue reported by the interviewees is related to the theoretical foundation of the studies. These state that they are always considered relevant foreign studies, research and

publications, and ongoing research or results published in Brazilian journals are rarely cited by foreign researchers.

On the other hand, Brazilian researchers also point out the need for science not only to be focused on publication and accumulation of institutional goods, but rather on real impact on society. Thus, it is evident that the results of the research produce social, economic and technological impact.

When asked about the innovation environment in Brazil, the researchers stated that they share knowledge in innovation environments and pointed out that trust between actors, the clarity of norms, and the definition of who shares are essential for the flow of knowledge to really happen. Thus, the researchers agree with the results of the study by Scarabelli, Sartori, and Cruz Urpia (2023) who investigated how the connection between researchers, technology, and innovation occurs. Therefore, this insight reveals that knowledge sharing is as much a matter of organizational culture as it is of structure.

Brazilian researchers consider knowledge sharing relevant not only for academic collaborators, but also for society in general. In the interviews, it was possible to observe that the researchers hope that the results will reach society as a whole and not only the scientific community. One researcher (PESQ 2) states that "it is necessary to break down the walls of the University" and dialogue with society about what science is and especially that the country's development takes place within universities. As reinforced by three interviewed researchers (PESQ 3; PESQ 6; PESQ 9): "The results need to reach society in general" and not only the scientific community. One must be concerned with doing science for the social purpose.

The researchers point out that in the Brazilian context, research data management practices reflect a combination of individual, institutional, and technological factors. Researchers demonstrate a positive perception of the benefits of knowledge sharing, such as greater visibility, collaboration, and academic impact, but often use local resources, such as hard drives and institutional servers, to the detriment of structured digital repositories, agreeing with studies by Carvalho, (2022) and Miranda, Barros, and Oliveira (2023).

Studies such as Lima (2020) indicate that the adoption of institutional or national repositories is still heterogeneous, being strongly influenced by institutional policies, funding incentives, and evaluation requirements, while gaps in documentation and interoperability hinder reuse and scientific reliability in the view of researchers who are in line with the results of the study by Azambuja (2021).

In addition, knowledge management in graduate programs reveals diverse practices, including the use of spreadsheets, specific software, and digital repositories, with barriers such as fear of misuse, the absence of clear standards, and difficulty in standardizing metadata, reinforcing the need for institutional policies and continued training to strengthen knowledge sharing, which is also evident in Dias' study; Anjos and Araújo (2019).

Dialoguing about the process of knowledge sharing with Brazilian researchers, some reflections emerge. First, a field linked to opportunities in which knowledge sharing is perceived as a way to expand collaboration, accelerate innovation, better use of research results, greater visibility of Brazilian science and greater social impact. The adoption of open science practices, data repositories, international collaboration, and innovation environments favors scientific knowledge to contribute to sustainable development, reinforcing studies developed by Sayão and Sales (2022) and Leite, Costa, and Alves (2022) and a practice historically researched and shared by Kuramoto (2008).

The other field is a dimension of barriers in which researchers recognize that there are relevant barriers and the absence or fragility of technological infrastructure, limitation of financial resources, lack of clear and consistent policies, institutional culture that still favors "closure" or control over data, bureaucratic issues and obstacles, in addition to issues of recognition, authorship and incentives. These factors make it difficult to fully implement knowledge sharing.

Based on interviews with researchers, some good practices can be established for the effectiveness of knowledge sharing. The issue of establishing cooperation platforms that include the equitable participation of Brazilian and foreign researchers is evident, ensuring that local issues are prioritized. Promote academic mobility and exchange of researchers, with institutional support and targeted funding. Encourage international co-authorship and joint publication, including in accessible languages. Promote the formation of transnational networks of practice that involve producers and users of knowledge. Ensure the translation and dissemination of results to the Brazilian reality, ensuring that the knowledge shared is not limited to academia, but reaches public policies, the productive sector and civil society. Monitor and evaluate international collaboration through SDG impact indicators. Strengthen data and information management, promote open data infrastructure, and institutional integrity and sharing policies. The results described by the interviewees are in line with studies developed by Carvalho (2022); Cunha and Santos (2022); Miranda, Barros and Oliveira (2023).

4.2 SUSTAINABLE TECHNOLOGY AND KNOWLEDGE SHARING IN SCIENTIFIC RESEARCH

For the field of sustainable technology, these perceptions have interesting implications in the view of the researchers interviewed and directly linked to the SDGs. Brazilian researchers working with green technology, renewable energy, sustainability, or the environment consider that: i) the sharing of data and results between research groups, companies, government, and civil society organizations can accelerate the adoption of sustainable technologies; ii) the creation of specific repositories, collaborative platforms or national/international networks facilitates the exchange of knowledge on good practices, failures and innovations. These issues are also discussed in the studies by Oliveira and Ferreira (2022) and Leite, Costa and Alves (2022).

Therefore, they state that it will be necessary to overcome the bureaucratic processes of universities and invest in infrastructure, foster open science policies in the environment of sustainability, promote institutional incentives for those who share, and modify the academic culture to value both production and sharing. In this sense, it reinforces that CAPES (2025) started to adopt the sharing and transfer of knowledge as a structuring pillar of the evaluation of graduate programs. In this way, the researchers report that the evaluation criteria have changed significantly. Graduate programs are no longer evaluated quantitatively and start to have a qualitative evaluation. Most of the interviewees stated that the change in the form of evaluation was positive and will bring good results in the long term. These results can be confirmed in the research by Sayão and Sales (2022).

Knowledge sharing has been consolidated as a strategic axis for scientific advancement and the sustainable development of contemporary societies. In the context of the United Nations (UN) 2030 Agenda, the Sustainable Development Goals (SDGs) demand a new posture from the scientific community, guided by collaboration, transparency, and the open circulation of scientific information. In this sense, Brazilian researchers play a relevant role in promoting collaborative practices that strengthen open science and the democratization of access to knowledge.

From an interdisciplinary perspective, knowledge sharing is understood as a dynamic process that involves the creation, dissemination and use of information in formal and informal networks (DAVENPORT & PRUSAK, 1998). According to a UNESCO report (2024), in Brazil, the process of knowledge sharing has been enhanced by open access policies and the expansion of digital platforms that favor interoperability and scholarly communication,

such as SciELO and the CAPES Institutional Repository (CAPES, 2025). Such initiatives reinforce the importance of a more reliable and inclusive information infrastructure, capable of supporting scientific production in line with the SDGs, especially the goals aimed at quality education (SDG 4), innovation (SDG 9) and partnerships for development (SDG 17).

However, knowledge sharing still faces structural challenges in the Brazilian scenario, according to the interviewees. Cultural barriers, academic competitiveness, bureaucracy of the research funding system, and regional inequalities limit the full adoption of collaborative practices among researchers, which is in line with the study by Valentim and Cervantes (2020).

The reports of the interviewees indicate that the absence of institutional incentives and the evaluation based exclusively on quantitative metrics reduce the recognition of initiatives aimed at cooperation and the social dissemination of knowledge. Thus, there is a need to rethink the role of universities and graduate programs as spaces for mediation and collective construction of scientific knowledge. In this sense, one should consider the change in the rules for evaluating graduate programs defined by CAPES for the 2025-2028 quadrennium, which strengthens knowledge sharing as a cross-cutting criterion (CAPES, 2025).

The integration between knowledge sharing and sustainability presupposes a broader view of science, capable of articulating academic production with social demands. According to Nonaka and Takeuchi (1997), knowledge is transformed into value when it circulates among individuals and organizations, stimulating innovation and continuous learning. In the context of the SDGs, such circulation allows scientific knowledge to go beyond the walls of academia and effectively contribute to sustainable solutions at the local, regional and global levels.

Therefore, looking at Brazilian researchers reveals both significant advances and persistent challenges. The consolidation of a culture of sharing requires integrated scientific policies, mechanisms for recognizing open science, and the strengthening of information governance in the country. More than an institutional requirement, knowledge sharing must be understood as an ethical and collective commitment to sustainability and global equity.

4.3 INSTITUTIONAL CONTEXT: OPEN SCIENCE IN BRAZIL

In Brazil, the Open Science movement has gained ground as part of the State policy to make research and especially scientific data more accessible, reusable, and transparent. It is observed that all the calls for research published by CNPq and CAPES are demanding

as a criterion the clear and effective description of how data management and dissemination of primary data by researchers will be carried out. It is evident that high-impact scientific journals are demanding that the database, statistical or qualitative analyses and appreciation by the University's Research Ethics Committee be made available at the time of submission of the article.

In 2025, the Ministry of Science, Technology, and Innovation (MCTI, 2025) discussed guidelines to consolidate open science in the country, involving funding agencies, educational institutions, and civil society (BRASIL, 2025). At the institutional level, there are studies that map public and institutional policies for open science in Brazil between 2020-2023, showing that, although there are initiatives, there is still a lack of a consolidated federal policy. In this sense, it is possible to see initiatives by CAPES and CNPq aimed at the field of open science.

In the reports of Brazilian researchers in relation to open science, it can be seen that Brazilian researchers are inserted in an environment in which it is increasingly expected that data, methods and results will be made available in an open way, including beyond the academic community. All interviewees demonstrated the need for a public policy that favors open science and are in favor of the practice of public data.

Open science is a strategy that favors knowledge sharing. There are studies on the Open Science practices of the Brazilian academic community that analyze Brazilian scientific production and confirm that there are already open access and open data initiatives as part of knowledge sharing practices.

It should also be noted that there are factors that influence the sharing and reuse of research data in Brazil. Studies, according to a CAPES report (2025), have identified both incentives (e.g., greater visibility, acceleration of science) and barriers (e.g., infrastructure, lack of recognition) for researchers.

It was reported by a researcher (PESQ 7) interviewed that there are collective learning initiatives, communities of practice and collaborative projects in Brazil. The researcher pointed out that in a Brazilian knowledge-intensive public company (tropical agriculture) it was identified that researchers used informal and formal practices of collective learning, interrelationships in communities of practice, and knowledge sharing as a continuous process. Another researcher (PESQ 1) pointed out that in multidisciplinary socio-environmental projects, it was identified that knowledge management (KM) practices involved sharing between different actors, and that this also occurs among Brazilian researchers in the environmental field.

Regarding the infrastructure and support platforms for open science, the researchers mentioned that in the institutional field it is already possible to see the implementation of digital platforms (institutional repositories, databases, preprints) as a support for the sharing of open science.

It was reinforced by the interviewees that Brazilian researchers are encouraged to adopt open licenses, deposit data in interoperable repositories, adopt open codes and promote reproducibility. These incentives are strategies essentially conducted by CAPES, CNPQ, state development agencies, social organizations, international entities and private companies.

The researchers report that the strategic practice of encouraging the culture of open science, which involves actions such as publication in open access journals, the use of Creative Commons licenses, and detailed documentation of methods and results, is a way to promote open science that is available for broad access. Silva, Braga Prado, and Araújo (2021) state that institutional policies of incentive and academic recognition are crucial for researchers to adopt habits of sharing data and research results, increasing the visibility of scientific productions and stimulating future collaborations.

According to UNESCO and CAPES reports (2025), an open science strategy is understood as the practice of depositing research data in open access repositories, ensuring that the data is interoperable and reusable (following FAIR principles – Findable, Accessible, Interoperable, Reusable). Concentrate scientific publication in open access journals, or in preprint versions, to expand the reach of research. Participate in communities of practice (BA) and collaborative networks, both academic and interdisciplinary, to exchange experiences, methods, and results. Use open licenses to allow the reuse of the results, and document the code, methods, metadata for others to replicate. Include knowledge sharing as part of the project plan, including data dissemination, outreach to society, and citizen science actions, if applicable.

In the context of open science and open data management, the interviewees highlighted the functioning of academic data observatories in Brazil, highlighting that the lack of metadata standardization, the absence of repository maintenance policies, and the limited technical training of researchers and managers constitute important barriers to access and reuse of data. In this sense, the study by Silva, Braga Prado, and Araújo (2021), emphasizes that, although open data initiatives are promising, their effectiveness depends on the

articulation between institutional policies, technological infrastructure, and a culture of sharing within the academic community.

Even with good practices emerging and found in the reports of researchers and institutional reports, there are obstacles that Brazilian researchers face. Researchers report the lack of adequate infrastructure for storing, preserving and interoperating scientific data. They claim that there is no recognition or reward for researchers who share data. There is often more risk of "losing competitive advantage" by making data available first. The academic culture that still privileges traditional publishing without fully valuing data reuse or open science as part of evaluation. In this sense, the change in the evaluation of Qualis CAPES will cause a change in the behavior of researchers, as the paradigm of quantitative evaluation becomes less valued due to the quality of the research and its scientific productions.

4.4 KNOWLEDGE SHARING AMONG BRAZILIAN RESEARCHERS: FACTORS, BARRIERS AND GOOD PRACTICES

The sharing of knowledge among researchers is a strategic element for scientific advancement, technological innovation, and the promotion of sustainable practices, especially in areas such as Sustainable Information, as evidenced in the Geraldo, Pinto, and Duarte (2022) study. In the Brazilian context, recent studies show that, although there are growing efforts to democratize access to scientific data and information, significant challenges persist that limit the full adoption of sharing practices.

Based on the study by Silva, Braga Prado and Araújo (2021) who carried out a systematic review of the literature on factors that influence the sharing and reuse of research data in Brazil, pointing to individual, organizational, and technological variables as determinants of researchers' behavior. Among the facilitating factors, academic recognition, research visibility, and access to institutional repository platforms stand out. However, the barriers include the lack of adequate infrastructure, the scarcity of consolidated institutional policies, and the concern with the protection of intellectual property, which can generate resistance on the part of researchers.

In studies applied to socio-environmental projects, Silvério, Aihara, and Varvakis (2023) identified that, even in initiatives aimed at sustainability, researchers face challenges related to the interoperability of knowledge management tools, the heterogeneity of data formats, and the difficulty of communication between actors from different areas. These

obstacles show that the sharing of knowledge does not depend only on the goodwill of researchers, but also on the availability of digital and methodological structures capable of supporting the integration and dissemination of information, a strategy that goes against the proposal of Nonaka and Takeuchi (1997).

Thus, it was possible to categorize from the interviews with researchers that the factors and barriers to knowledge sharing among Brazilian researchers are closely linked to three main dimensions: the cultural, which involves attitudes, incentives, and recognition; the organizational, which refers to institutional policies and availability of support; and the technological one, which comprises the infrastructure, tools and interoperability of data. To promote the efficient dissemination of scientific knowledge in critical areas, such as sustainability, it is necessary to address these barriers in an integrated manner, combining incentive policies, training, and investment in digital infrastructure as shown in Table 2.

Table 2

Barriers and good practices in knowledge sharing in scientific research

Dimension	Barriers Identified	Good Practices and Strategies
Cultural	Resistance to sharing for fear of losing competitive advantage Lack of institutional recognition or reward	a) Encouragement of open science and academic recognition policies. b) Fostering a collaborative culture in teams and communities of practice
Organizational	Insufficient or poorly consolidated institutional policies Lack of support and guidelines for data management	a) Creating clear standards and flows for data sharing. b) Adoption of institutional repositories and data observatories.
Technological	Inadequate infrastructure for storage and interoperability Heterogeneity of data formats and digital tools Limited technical training	a) Use of digital platforms and integrated knowledge management tools b) Standardization of metadata. c) Continuous training of researchers in data management and open science

Source: survey data, 2025.

In the context of open data management, Silva, Braga Prado, and Araújo (2021) analyzed the functioning of academic data observatories in Brazil, highlighting that the lack of metadata standardization, the absence of repository maintenance policies, and the limited technical training of researchers and managers constitute important barriers to access and reuse of data. The author emphasizes that, although open data initiatives are promising, their effectiveness depends on the articulation between institutional policies, technological infrastructure, and a culture of sharing within the academic community.

In the face of these barriers, Brazilian researchers have been adopting strategies and good practices aimed at promoting knowledge sharing, both in academic projects and in

socio-environmental initiatives. One of the most relevant strategies consists of the use of digital platforms and repositories, which allow the deposit, organization and dissemination of research data in a structured way. highlight that academic data observatories support interoperability, metadata standardization, and the availability of information in an accessible way, creating conditions for researchers from different institutions to reuse data safely and reliably. Silva, Braga Prado and Araújo (2021),

In addition, the integration of knowledge management tools in collaborative projects has proven effective in facilitating sharing between researchers from different areas. Silvério, Aihara, and Varvakis (2023) point out that, in socio-environmental projects, the use of digital platforms, standardized flows, and shared methodologies contributes to reducing the fragmentation of information, allowing teams to exchange knowledge in a systematic way, even in the face of heterogeneity of data and skills.

Another strategic practice is the encouragement of an open science culture, which involves actions such as publication in open access journals, the use of Creative Commons licenses, and detailed documentation of methods and results. Silva, Braga Prado, and Araújo (2021) state that institutional policies of incentive and academic recognition are crucial for researchers to adopt habits of sharing data and research results, increasing the visibility of scientific productions and stimulating future collaborations.

Finally, technical training and continuing education of researchers are pointed out as fundamental practices. The training of professionals able to handle data, use digital tools, and understand open science policies contributes to reducing technological barriers and strengthening autonomy in information management. This approach also facilitates alignment with international standards for interoperability and data reuse, expanding the impact of Brazilian research in the global context.

4.5 OVERVIEW OF BRAZILIAN RESEARCH ON SDGS

Based on a survey carried out by the Coordination for the Improvement of Higher Education Personnel (CAPES, 2025), it is evident that between 2013 and 2022, about 50 thousand theses and dissertations in Brazil cited or had the SDGs as their theme, with a greater concentration in the areas of Health Sciences, Multidisciplinary and Human Sciences. According to a UNESCO report (2024), the Federal University of Espírito Santo (UFES) mapped that, among its research and extension projects carried out after 2015, about 60% were related to at least one of the SDGs. These studies highlighted SDG 3 (Health and well-

being), SDG 4 (Quality education), SDG 2 (Zero hunger and sustainable agriculture) and SDG 15 (Life on land) (CAPES, 2025).

The researchers interviewed pointed out that the theme of the SDGs began to be shared in the university environment in course collegiate meetings, groups of professors and informal environments. It did not take long, according to the report of the interviewed researcher (PESQ 10) for the theme to reach the classroom environment and research groups.

After this process of informal sharing of themes related to the SDGs, the movement to incorporate the theme into the dissertations and theses of different programs began. As stated by the researcher (PESQ 5), the entire university environment in a broad sense (Schools, Colleges, Departments, Research Groups, Extension Activities and academic and management structures) began to formally formalize and structure how the SDGs impact the university environment and what would be the strategies for teaching, research and extension practices to be aligned with the SDGs.

Another movement reported by the researcher (PESQ 2) was when the pedagogical projects of the courses began to incorporate and require that the activities of the undergraduate and graduate courses be related to one of the 17 areas of the SDGs.

This study was able to capture in the reports of the interviewees some innovative initiatives developed by universities in relation to the SDGs, such as: the monographic works, whether they are undergraduate TCC, Master's dissertations or Doctoral theses, should explicitly state in the text, which of the SDGs the study was contributing to. The University became the locus for extension activities to be directly focused on the SDGs. The researcher reinforces (PESQ 4) that the initiatives, actions and discussions on the SDGs began to occupy the university space in a synergistic way. At first very informal (a period in which it was possible to understand what the SDGs were) and later the academic environment began to formalize, value and recognize the initiatives that had already been incorporated throughout the dynamics of the university.

It is evident in the reports of the interviewees that each department, graduate program and shared spaces began to structure actions related to the SDGs according to the purpose and strategies of each department, college, schools or academic centers. The researchers interviewed state that each space in the university structure adheres to some fields of the SDGs. In the broad sense, the (PESQ 5) said that the dispersed actions when mapped by the higher bodies of the university's management allow us to understand that the academic

environment and especially the scientific research developed in the university environment are attentive to the 17 SDGs of the 2030 Agenda.

Confirming the reports of the interviewed researchers, a systematic review of the Brazilian literature entitled "The dimensions and Sustainable Development Goals after the 2030 Agenda" (RAASCH; LELIS &, BASSO, 2023) in which he analyzed articles from 2016 to 2022 and found the growth of academic production on sustainable development and studies related to the SDGs. However, he pointed out important gaps: few studies propose unified systems for monitoring and measuring SDG indicators. In this sense, this study effectively contributes to the commitment of the 2030 Agenda, by showing that the current moment requires Universities to establish structures and strategies to more effectively manage the actions related to the SDGs carried out in the university environment.

In the field of national policy, the documentary research showed how Brazil's Science, Technology and Innovation Policy (PCTI) incorporated the SDGs from 2016 onwards. The study concludes that, although there is mention of "sustainable development", there are structural difficulties in consistently incorporating the SDGs into financing and planning guidelines (Ribeiro & Oliveira, 2024). Therefore, it is necessary to implement management structures so that actions related to the SDGs in Brazilian universities are planned, organized, directed and controlled by trained human resources who understand the norms of the 2030 Agenda, effectively and transparently manage the financial resources allocated to scientific research applied to the SDGs and opportunely the most relevant issue, establish monitoring, managerial, and scientific indicators focused on the SDGs and establish indicators that can point out the economic, social, technological, human, educational, and sustainable results and impacts of scientific research and actions developed and funded by the university.

Finally, the results and impacts need to dialogue with society so that the population can understand the importance of the theme, actions and investments aimed at the sustainable development of the planet, the country, the regions and especially the environment where citizens live.

The literature retrieved from the databases consulted shows that studies that deal with the SDG theme in Brazilian scientific research follow different strategies. Bibliometric studies and systematic reviews to map scientific production through documentary analysis of public policies, plans, reports, and indicators that deal with the alignment of the SDGs with scientific research point to fragility in relation to the results and impacts generated effectively. Finally, case studies, citizen science projects, and university extension, for example, which aims to

articulate the environment where the individual lives with his community, and researchers focused on the theme of the SDGs, are more effective and cause more significant impact, as pointed out by government reports (BRASIL, 2025).

Based on the understanding that this research did not aim to carry out a Systematic Review of the Literature (RSL) with the protocols and methodological rigor that support the RSL technique. The articles selected from the consulted databases and the literature review carried out by the researchers who authored this study demonstrate that the most recurrent themes in Brazil in SDG research are:

- Health and well-being (SDG 3) – with a large volume of articles and projects.
- Quality education (SDG 4) — appearing in lines of research and extension services.
- Sustainable agriculture (SDG 2), life on land (SDG 15), water and sanitation (SDG 6) also receive attention.
- Affordable and clean energy (SDG 7) and innovation (SDG 9) – although less in volume, are relevant, especially in geoscientific or energy transition research.

Even noticing and verifying advances in research on SDGs in Brazil, the literature and scientific research developed by Brazilian universities point to important challenges:

- Scientific production is dispersed, with a lack of integrated propositions or robust national indicator systems to monitor progress on the SDGs in Brazil (BRASIL, 2025). This fact is due to the lack of a structure within universities that aims to manage actions related to the SDGs.
- In some areas, the integration of the SDGs into science and technology policies or graduate studies is still incipient or symbolic (BRASIL, 2025). Here one can point to the field of more linear and pragmatic sciences.
- The reality of Brazilian social inequalities, regionalization and institutional differences poses obstacles to a uniform advance of the SDGs. (RIBEIRO & OLIVEIRA, 2024) Brazil does indeed have many regional contrasts. This issue must be observed by public policies aimed at the SDGs.
- The plurality of themes means that some SDG goals do not point to or evidence relevant results for the country. One of the examples is scientific research that does not describe or point out effective indicators. The results of these surveys cause a low incidence of the SDGs associated with industry, innovation or infrastructure in peripheral regions (BRASIL, 2025). A point of reflection for the scientific community

and government agencies in this case is that government investments are in essence aimed only at maintaining employed people instead of promoting the maintenance of jobs associated with investment in innovation, technology and qualification of the workforce.

Brazilian research on SDGs contributes to generating contextual knowledge that adapts the SDGs to the national and regional reality, identifying how global goals can be translated in different states and municipalities. Research aimed at favoring dialogue between science, technology, innovation, public policies and civil society in the achievement of the SDGs.

There is also research that seeks to promote education for sustainability, both at the undergraduate and graduate levels, although it is still necessary to expand this insertion.

Finally, it reinforces that the future trend points to greater use of metrics, indicators, big data, artificial intelligence to monitor the SDGs, in addition to greater articulation between educational institutions, government and the private sector, the so-called Triple Helix. These points were highlighted by the researchers interviewed in reports.

In the global context of science and innovation, the sharing of knowledge between researchers from different countries is increasingly relevant to promote the United Nations (UN) SDGs. From the perspective of the relationship between Brazilian and foreign researchers, the production of scientific knowledge is an essential resource for sustainable development. Collaboration between national and international researchers facilitates the exchange of methodologies, data, cultural and technological perspectives. A point reported by the interviewees is that research groups abroad always have Brazilian researchers. Initiatives such as CNPq (2025) that invests resources to repatriate Brazilian researchers with high scientific reputation are worth mentioning.

A highlight is that in September 2015, 193 countries signed the 2030 Agenda, which defines 17 SDGs aimed at combating poverty, inequality, climate change, among others. A point of attention is that scientific research based on and guided by the SDGs requires interdisciplinary and international participation (UN, 2015).

5 CONCLUSION

Knowledge sharing, when integrated into the principles of the SDGs, takes on an ethical, social and strategic dimension. The experience of Brazilian researchers highlights

the need to strengthen the culture of scientific collaboration and open data, ensuring that the knowledge produced in the country contributes to global sustainable development.

The study presents as a first conclusion that by promoting knowledge sharing, it establishes a way to expand the social impact of science, reduce informational asymmetries, and consolidate knowledge governance focused on equity, innovation, and sustainability. In summary, Brazilian researchers are increasingly aligned with the SDG agenda, but they still face structural, methodological and scale challenges. It is essential that there be greater institutional articulation, the creation of indicators adapted to Brazil, academic training and awareness, in addition to a stronger commitment of public policies to the 2030 agenda. The agenda provokes a reflection on the relevance of moving to a development model aligned with sustainability.

Knowledge sharing between Brazilian and foreign researchers is an essential strategy to advance the SDGs in Brazil and globally. Despite the challenges, the adoption of good practices and cooperation policies can contribute decisively to overcoming knowledge asymmetries and promoting a more inclusive, contextualized, and impact-oriented science. To this end, it is necessary that institutions, government, academic communities, and civil society strengthen collaboration platforms, research infrastructure, and policies to encourage internationalization with equity.

Regarding open science in Brazil, the results reflect that data management is influenced by individual (perception, fear of misuse), institutional (infrastructure, policies, incentives) and technological (tools, repositories) factors. Another point is that sharing practices are still heterogeneous: some researchers adopt open repositories, while others keep data locally. Factors influencing the practice of open science are lack of standardization, poor documentation, poor interoperability, and absence of specific training. Finally, formal incentives, open science culture, and capacity building are essential to promote the sharing of knowledge and research data in Brazil.

However, studies and interviews with researchers show that Brazilian research is part of a global network, but faces asymmetries of knowledge and challenges such as language, funding, infrastructure, and access.

Co-authorship between Brazilian and foreign researchers, as well as academic mobility (internships, post-doctorates, visits) foster exchange. The production analysis on the SDGs shows a growing presence of international collaborations in Brazil. Thus, there is a consolidated path to expand research on SDGs with exchanges between Brazilian and

foreign researchers. However, research on sustainability and sustainable development developed in partnership with researchers shows how internationalization and the focus on the SDGs permeate the training of students and the sharing of pedagogical practices.

However, to conclude this study pointing out pragmatic results, it is emphasized that the benefits and impacts of knowledge sharing on scientific development must observe the different cultural and scientific perspectives, a factor that can enrich research. Strengthening local capacity for SDG-oriented knowledge production. To give greater international visibility to Brazilian research, which can generate more funding and collaboration.

This study shows that the generation of solutions more adapted to the local context based on global knowledge are more relevant from the point of view of social impact. However, the study reinforces that it is necessary to reduce knowledge asymmetries between developed and developing countries.

To overcome the challenges and barriers to knowledge sharing, it is necessary to advance in the issue of language and communication: although English is the lingua franca of science, Brazilian researchers face challenges in publishing in English and international communication. In the field of infrastructure and financing: full participation in international networks requires resources for mobility, access to the database and collaboration platforms. It is essential to reduce power and agenda asymmetries: in international collaborations, there may be imbalance in the definition of the research agenda, the recognition of local partners, and the accessibility of data.

This study has the following limitations: the small number of interviews and the foundation in many scientific data in the area of Information Science. As a suggestion for future studies, it is suggested to expand the number of interviewees and present an RSL with foundations and criteria in the literature.

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