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Knowledge Organization and Sustainability in Brazilian Information Science: from bibliographic systems to systematic reviews on innovation in environmental contexts

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Abstract: Systematic Literature Reviews consist of explicit and reproducible procedures for identifying, selecting, and evaluating rigorous scientific research. These procedures intend to collect and analyze data from original studies to answer specific questions and promote evidence-based practice. From the construction of bibliographic systems to the systematic classification and extraction of knowledge from bibliographic production, methods under construction in Modernity reveal analysis patterns and inferences about the reality of evidence manifested in recorded knowledge. This study will focus on

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implementation of Systematic Literature Reviews as a permanent process for monitoring Information Science production in Brazil aligned with the United Nations' Sustainable Development Goals. The ongoing reviews are part of an Information Prospection and Innovation Study entitled "Bibliographic Cartographies via Systematic Literature Review". The adopted method is based on Structured Bibliographic Research and consists of 14 stages distributed in four sequential modules. Preliminary findings correspond to the implementation of eight systematic reviews in early stages, divided into four themes: (1) information innovation, (2) data analysis innovation, (3) data visualization, and (4) terminology translation for the dissemination of specialized knowledge. Establishing systematic reviews as a continuous study model aims to answer specific questions using original data from the scientific literature of Brazilian Information Science within the context of sustainability.

Keywords: Systematic Literature Review; Brazilian Information Science; Sustainable Development Goals.

Introduction

The review process of what has been said and recorded relies on the assumption that every scientific research project includes accessing, analyzing, and retrospectively interpreting the findings of other studies conducted about the topic of interest. From the philosophical and exegetical tradition of Christianity to the empirical science weaved throughout modern times, recognizing the previous structure is a unit that delineates rationality. From the construction of bibliographic systems to the systematic classification and extraction of knowledge from bibliographic production, methods under construction in Modernity are identified regarding analysis patterns and inferences about the reality of the evidence manifested in recorded knowledge. This methodological stage is known a Literature Review. A *Systematic* Literature Review, in turn, consists of a specific method for carrying out a literature review on, of, and for the scientific knowledge produced.

A Systematic Literature Review is a secondary study that can help eliminate potential discrepancies between original studies, visualize identities and likelihoods, understand contradictions, clarify definitions, delineate authorial traditions and epistemological currents, and promote *the empirical* nature of consolidated scientific findings. To foster professional

practice and evidence-based decision-making, systematic reviews enable the analysis and use of quality information focused on accuracy and the annulment of distorting assumptions not based on scientific rigor and evaluation structures.

Based on the historical relationship between bibliography systems and the systematics of literature review via bibliographic sources, the purpose of this article is to present the findings of a methodological proposal called "Systematic Literature Review based on Structured Bibliographic Research" (Borges, 2020) for carrying out a major Information Prospection and Innovation Study entitled "Bibliographic Cartographies via Systematic Literature Review" comprising eight systematic reviews. The research topics covered by the SLRs are geared toward sustainability in the face of unplanned industrial development in the most diverse forms of production throughout modern times from the Knowledge Organization's (KO) point of view.

This study is part of the project "Articulation and Communication in Science and Technology (S&T): subproject 01 - Research", linked to the Brazilian Institute of Information in Science and Technology (IBICT)[4]. Its objectives include the development of prospect research strategically related to information, innovation, and sustainability.

The subproject started in Brazil in May 2022 and is mainly guided by the 2030 Agenda of the United Nations (UN), broken down into the Sustainable Development Goals. This research covers two stages. The first, which ended in 2023, focused on designing the empirical and methodological field in the implementation test of the first systematic review. The second phase, which will be completed in December 2024, comprises the period of development and dissemination of the findings that have been analyzed and interpreted in the other reviews that are under development. In this context, the purpose of this communication is to share details of the process of implementing the proposed full reviews. The focus of the report is on the institutional process itself, not on the qualitative

[4] Project funded by the Ministry of Science, Technology and Innovation (MCTI) of the Brazilian Federal Government and supported by the Research Development Foundation (Fundep).

and quantitative results of the reviews, since, as already mentioned, the research is still ongoing.

Theoretical Reference

A Practice Based on Scientific Evidence

Gabriel Peignot's exercise in understanding the sciences based on the classification gesture of "systems" integrates the Condillacian influence in understanding scientific development and its forms of "systematization" against an erudite or baroque encyclopedism. Analytically, the standpoint of Etienne Bonnot de Condillac ([1749] 1991) in his 1749 work *Traité des systèmes* represents the infrastructure, structure, and application of a system.

The search for "systematization" lies in analyzing different systems to pursue the empirically verifiable truth and improve science. In Condillacian scientific systematology, which has significantly influenced modern *empiricism*, there is no science or art in which systems cannot be developed (Condillac, [1749] 1991). Condillac's concept of system in its meaning and potential applications in modern times will have repercussions in the so-called hard sciences, such as Chemistry, with Lavoisier.

We find here, in this systematization exercise, principles of understanding the production, organization and analytical use of literature. Here we can find theoretical and methodological bases on the "evidence" from the system of bibliographic sources, as well as the construction of methods of reviewing published knowledge. Furthermore, we can state that the map of sciences allows us to identify the first contexts of understanding about the emergence of environmental domains, of the themes that address the universe of knowledge about ecology.

Between the deductive totality of a discourse and its prior organization and the empirical response, the concept of "system" is central to the formation of *epistemes*, from Antiquity, as a metaphysical philosophical form, to the scientificity of Modernity, as in the Condillacian approach.

Therefore, in both circumstances, the "system" represents a totality or an organized whole, the principle for a rational understanding of reality (Abbagnano, 2007). At the "high point" of modern science consolidation, in the 18th century, the concept already had a well-established direction on the relationship between deduction and induction, prior systemic ordering via the question under investigation, and an understanding of the world systems. Faced with the co-constitution of science and its forms of documentation, in other words, the inseparability of modern science and its relationship with recorded data, the concept of system, between deduction and induction in the language territory becomes part of the very definition of scientificity, between rationality and documented empirical evidence, where the concept of "evidence" is inserted.

Evidence-based practice originated in the early 1970s with Archie Cochrane's research on the effectiveness and efficiency of healthcare services. Cochrane was the first to clearly define the importance of randomized clinical trials to assess the efficacy of treatments (Centro Cochrane do Brasil, 1999). The high pace of knowledge production in this field has made it increasingly difficult to understand a mass of documentary evidence that is often contradictory (Ohlsson, 1994). In the late 1990s, several critics argued that the preparation of reviews from secondary sources depended on idiosyncratic implications, methods of data collection, and data interpretation. In addition to this gap, publications at the time warned that practice based on low-quality reviews of the literature sometimes led to inappropriate recommendations (Cook et al., 1997; Greenhalgh, 1997; Cook et al., 1997; Tranfield et al., 2003).

Systematic reviews tend to be applied to and emanate from fields and disciplines that privilege a positivist tradition, attempting to do for research synthesis what randomized clinical trials attempt to do for isolated studies, that is, a series of techniques to minimize bias and error (Macdonald, 1999). The hierarchy of evidence chart, widely used in the health literature, shows that systematic reviews, with or without a meta-analysis, are the highest quality source of information (FIG. 1).

Figure 1: The Hierarchy of Evidence Pyramid

Source: (Yetley et al., 2016).

Scientific knowledge is relevant to decision-making in professional practice and public policy development. Communities oriented toward producing scientific knowledge are responsible for bringing science's praxis closer to professional performance in the public and private spheres to enable evidence-based practice. This goal is achieved through systematic or integrative reviews (Sampaio and Sabadini 2014).

In the 1990s and early 2000s, medical science made significant progress in terms of literature review quality, conducting research in a systematic, transparent, and reproducible way in the context of social assistance and healthcare (Cook, Greengold, Ellrodt, and Weingarten 1997) (Cook, Mulrow, and Haynes 1997) (Wolf, Shea, and Albanese 2001).

A timeline of systematic reviews and scientific methods begins with Descartes (1596-1650), who emphasized "careful revisions" in his 1637 work Discourse on the Method. In 1747, James Lind published an essay on the effects of vitamin C for scurvy treatment. After that, in 1929, Colebrook studied clinical trials in physical therapy, focusing on ultraviolet irradiation, followed by Doull et al. in 1931, examining its effects on children with respiratory diseases. Archibald Cochrane's 1972

publication on Randomized Clinical Trials is a key milestone, and in 1975, Kolind-Sorensen published the first systematic review in physical therapy (Cardoso, 2010).

From bibliographic systems to the systematic review of data bibliographic sources as a method

Literature Review is the research procedure that sustains and drives the advancement of science, as it originates in the historical, consolidated, and retrospective documentation of a given universe of publications, schools of thought, institutions, and authors. Among the different ways of carrying out a review, the Systematic Review offers researchers greater control of the process and more consistent results (Borges, 2020). Systematic Literature Reviews supports scientific communication as a method, ensuring consistency and validating generated knowledge. The goal of operational procedures is to give access to information, including hands-on search activities and the selection of original research.

Considered synonymous with 'systematic overview,' in its initial step, Systematic Review corresponds to the review of a formulated question. This review uses methods to identify, select, and evaluate relevant research and collect and analyze data from the included studies. Statistical methods (meta-analysis) may or may not be used to analyze and summarize the findings of the studies (Glossary, 2019).

The systematic method seeks to minimize errors and present reliable results for decision-making. It has the following characteristics: (1) seeks a clear definition of the objectives; (2) is a method free from bias; (3) involves a broad search of databases; (4) is a careful assessment and validity of the study findings; and (5) is a detailed presentation of the synthesis of the findings (Cardoso, 2010, p.5-6). This process intends to minimize bias through exhaustive literature research, providing an audit trail of the reviewers' decisions, procedures, and conclusions (Cook et al., 1997).

Historically, in the epistemic territory of IS formation, it is possible to identify the roots of systematic review practices in the bibliographic

context, based on the construction of bibliography as a science. The assumptions made concerning systematic reviews application and formalization in health sciences can be found in the bibliographic tradition during the development of Modernity in the 16th, 17th, and 18th centuries, namely, recognizing retrospective production as a criterion of scientificity, systematizing the data published based on surveys and classifications; and creating mechanisms for visualizing data through flowcharts.

Another aspect linked to the history of the bibliographic tradition in how it systematizes scientific sources found in publications during the development of modern science is the conjugation of the concept of "system." In the 18th century, the concept had been already adopted in Gabriel Peignot's bibliographic theory. The "question of the knowledge system" and of the means of "systematization" (relating to the scientific methods) is present in the first scientific journals and have been recognized, for example, since Gabriel Peignot's work." "Bibliographic systems" as ways of organizing knowledge, presupposing the identification and reusability of classes for retrieving scientific production, are the most extensive concept presented in 1802 by the French bibliographer (Saldanha & Silva, 2017).

The main characteristic of a systematic review is that a well-defined research question drives it. In addition, a critical analysis of the bibliographic portfolio selected during the process intends to answer this question directly (Castro, 2001). The review question should be simple and focused to ensure the rational thread of the study search and selection methods.

The eligibility criteria must be defined with the highest rigor to select studies that can either confirm the initial assumptions of the review or refute them. These criteria are designed to prevent the selection of biased research (Castro, 2001). The result of a systematic review should generate innovative knowledge from evidence that has been previously developed, published, and equally recognized in the scientific innovation system.

Applied to the environmental universe, that is, to the focus on climate change and sustainability, the rigor of the eligibility criteria and the scope of scientific evidence via systematic review allow us to design political

and social contributions for the context of sustainable development. By combining systematical models of bibliography methods (which anticipated maps of science) and systematic analysis of scientific literature, we can establish rigorous standards and sources for understanding environmental challenges. We can also structure guidelines for decision-making in public policies for sustainable development, including evidences resulting from scientific research in domains dedicated to studying the impacts of human actions on the environment.

The UN Sustainable Development Goals

Based on the social dilemmas of the late 20th century, reproducing the long process of capital exploitation and intensified forms of inequality, comprehending the environmental concept encourages a debate on the relationship between society and nature. Issues such as poverty, hunger, violence, and no access to healthcare and education have become inseparable from the conditions under which communities and territories interact. Sociological macro-categories, such as work and justice, are directly linked to environmental structures such as water and soil. Peace and socio-economic development, focused on reducing inequalities, are conditional to a debate about preserving life in water and on land. Changes in forms of production and consumption are intertwined with clean energy and clean industrial innovation, aimed at preventing the extermination of populations and the extinction of mineral, animal, and plant resources.

Changes in the relationship between human beings and nature in modern times make up the studies on the Anthropocene, the "era" of the direct impact of human action on every environment in which humans interact. The broad debate surrounds the complete domination of the activities undertaken by societies over the conditions of nature's existence, having modern science as its basis. As Nhacuongue (2022) points out, the scientific development of Modernity is the basis for the beginning of the Anthropocene. It is associated with economic rationality, establishing a framework for the means and practices of production, technological standards, and the ideological apparatuses of the government. In

contemporary times, a different type of rationality, the environmental one, will consider different development perspectives in which ethical principles and critiques of epistemic relations seek to harmonize relations within the universe.

When discussing the "social" aspect of environmental policies, Acselrad (2022) points to a "rupture in the behavior patterns of climate variables, opening up a debate on how the various forms of space occupation interact with each other." In other words, "spatial practices of appropriating the matter and energy - and climatic processes." (p.3).

In this context, from the post-World War II era to the United Nations Conference on Environment and Development, known as Eco-92, held in Rio de Janeiro, Brazil, in 1992, the United Nations (UN) made progress in aspects that linked its own foundation to the demands of socio-economic and geopolitical transformations, centrally from the economically most robust countries, throughout the second half of the 20th century. The UN's original fundamentals, such as keeping the peace, international security, human rights, and humanitarian assistance, have become more closely associated with the environmental and sustainability debate (Organização das Nações Unidas, 2024).

Since Eco-92, promoting peace and international security, for example, has been directly linked to protecting life globally. The 21st century is, therefore, marked by a deepening process of environmental issues as social issues and of social issues as structurally ecological issues.

This scenario has led the UN policy (Organização das Nações Unidas, 2024) to seek proposals from its member countries to implement international pacts for life preservation. Created in the 2010s, the 2030 Agenda is one of the major initiatives of this movement and lists global Sustainable Development Goals, also known as SDG. Altogether, 17 goals and 169 targets have been established. The 17 SDG are:

1. No poverty;
2. Zero hunger and sustainable agriculture;
3. Good health and well-being;

4. Quality Education;
5. Gender equality;
6. Clean water and sanitation;
7. Affordable and clean energy;
8. Decent work and economic growth;
9. Industry, innovation, and infrastructure;
10. Reduced inequalities;
11. Sustainable cities and communities;
12. Responsible consumption and production;
13. Climate action;
14. Life below water;
15. Life on land;
16. Peace, justice, and strong institutions;
17. Partnerships for the goals (Organização das Nações Unidas, 2024).

According to the UN (2024), the 17 goals are integrated and indivisible, i.e., they are based on a balanced relationship between the macro-dimensions of sustainable development: the economic, social, and environmental dimensions. As part of the reflection proposed herein, through the scientific literature, Systematic Literature Reviews seek solutions to prevent the extermination and extinction of the biological conditions required for life to thrive in a context in which science fights, or is used in the battle, to preserve life.

Research Methods and Objectives

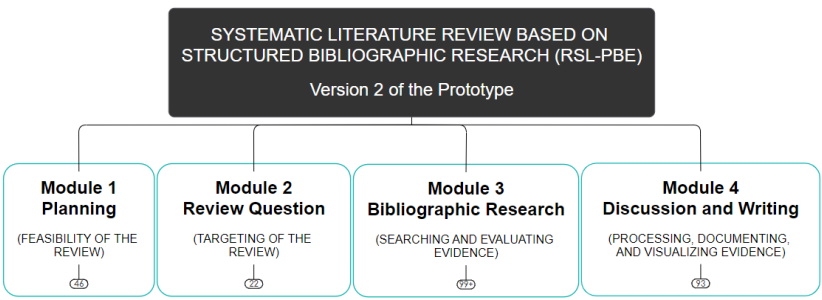
Methods

To implement the Systematic Literature Reviews, the second version of the methodological proposal called Systematic Literature Review

based on Structured Bibliographic Research, was used[5]. The proposal is characterized by its practical nature and by a descriptive type of research and comprises a methodological path of systematic review 'without' a meta-analysis. In addition, the studies will be selected in a specific way, using carefully defined filtering steps (Borges, 2020).

The procedural modeling of the Systematic Literature Review based on Structured Bibliographic Research was conceived as follows: the 'modules' refer to the macro-processes, made up of sets of sequential stages; the 'stages' are the specific activities directly associated with the modules; the 'steps' correspond to subsets of actions to be executed to complete the activities. This proposal advocates a 'structured' Systematic Literature Review that aligns with the precepts of controlled, verifiable, updatable, and reproducible bibliographic research (Borges, 2020). An overview of the first layer of the method is shown in Figure 2.

Figure 2: Overview of the method Systematic Literature Review based on Structured Bibliographic Research



Source: (Borges 2020).

Module 1 - Planning

Careful planning is necessary to ensure the *feasibility of the scientific evidence* generated in the systematic review. Module 1 consists of five steps:

[5] The method was developed as part of a doctoral research project developed in Brazil by the Graduate Program in Knowledge Management and Organization (PPGGOC) at the Federal University of Minas Gerais (UFMG), from 2015 to 2020.

(1) definition of the objectives: in this step, the process begins with preliminary research on the topic of interest, followed by consultations with professors and researchers to discuss initial intentions. After these discussions, the scope of the review is developed and reviewed with the research supervisor or mentor. Finally, the objectives of the review are formulated;

(2) evaluation of the needs: this step involves searching for previous systematic reviews on the same or similar topics to assess whether the new review is necessary. Consulting a specialized library to gather information is crucial. Based on the results, the decision is made whether or not to proceed with the review;

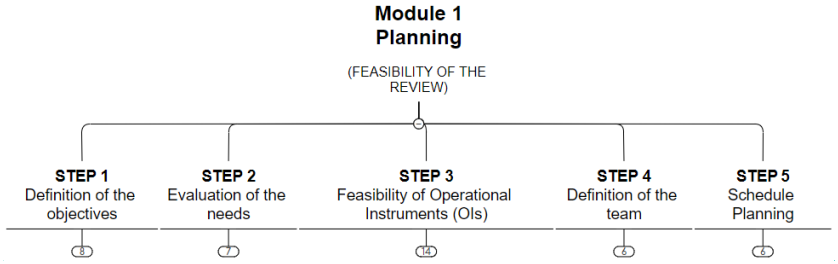
(3) feasibility of Operational Instruments: at this point, the systematic review protocol is prepared, followed by the development of key tools such as a bibliographic portfolio composition table, a systematic review flowchart, and data recording forms. Additionally, tools for managing bibliographic data and visualizing information are selected to ensure efficient data handling and interpretation throughout the review process;

(4) definition of the team: the process of forming the research team begins with identifying individuals capable of contributing to the review. The proposed team is then discussed and validated with the supervisor or mentor, ensuring alignment with the project's needs. A competency matrix is also prepared to clarify the roles and responsibilities within the team;

(5) schedule planning: in this final step, a detailed task list for each phase of the review is compiled. The estimated timeline for completing these tasks is reviewed and validated with the research supervisor or mentor, after which a formal project schedule is established.

As illustrated in Figure 3 below.

Figure 3: Module 1 - Planning

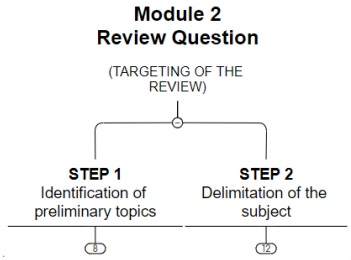


Source: (Borges, 2020).

Module 2 - Review Question

The *targeting of scientific evidence* in a systematic review process is enabled by defining a review question that should be simple and focused. Module 2 consists of two steps: (1) identification of preliminary topics: this step begins with consulting reference works related to the broad area of interest. After that, a specialized library is consulted to gather more specific resources on the research topic. Initial studies related to the review's theme are also reviewed to gain an understanding of the current knowledge and gaps in the field; (2) delimitation of the subject: in this step, the theme of the review is specified, narrowing the focus to a more targeted approach. The subject matter is further refined by identifying and specifying the exact object of study for the review. Once the object is clearly defined, the final task is to formulate the review question(s), which will guide the entire systematic review process. As illustrated in Figure 4 below.

Figure 4: Module 2 - Review Question



Source: (Borges, 2020).

Module 3 - Bibliographic Research

The *research and evaluation of the scientific evidence* to be generated in the systematic review must be enabled by the main macro-process of the pathway, which corresponds to the structured bibliographic research. Module 3 consists of four stages:

(1) development of research strategies: this stage begins with identifying the significant keywords from the review question, followed by establishing terminological control to ensure consistent use of terms. Next, search expressions are formulated, and eligibility criteria for selecting studies are defined. Afterward, the appropriate research sources are evaluated and chosen, and a bibliographic management tool is selected to organize the findings. The process culminates with the assembly and validation of the systematic review protocol;

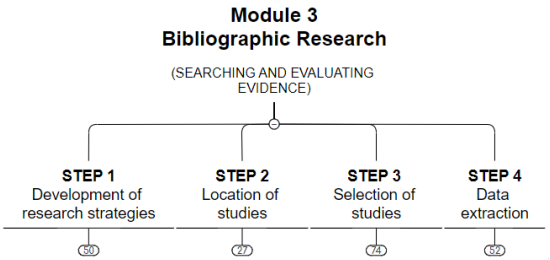
(2) location of studies: the process continues with a test of the search strategy to assess its adherence. Once this is confirmed, the selected research sources are accessed, and the search expressions are executed. The results are then evaluated, and the metadata of the relevant studies are exported for further analysis. Search alerts are created in the databases to track updates, and the results are recorded in the systematic review's bibliographic portfolio table;

(3) selection of studies: in this step, the studies undergo a filtering process. First, the titles of the studies are reviewed (first filtering), followed by an analysis of the abstracts (second filtering), and finally, a full-text analysis (third filtering). The pre-defined eligibility criteria are applied, duplicate records are removed, and reference lists from selected studies are reviewed to capture additional relevant sources. Any previously identified special or personal collections are also included in the selection. The process concludes with confirming the final selection of studies;

(4) data extraction: the final step involves organizing the selected studies into the definitive bibliographic portfolio of the systematic review. Data extraction forms are prepared for each included study, and the actual data analysis and extraction process is conducted, ensuring that all relevant information is gathered for the systematic review.

As illustrated in Figure 5 below.

Figure 5: Module 3 - Bibliographic Research



Source: (Borges, 2020).

Module 4 - Discussion and Writing

The Systematic Literature Review process completion depends on the processing, documentation, and visualization of the scientific evidence generated in the review. Module 4 consists of three steps:

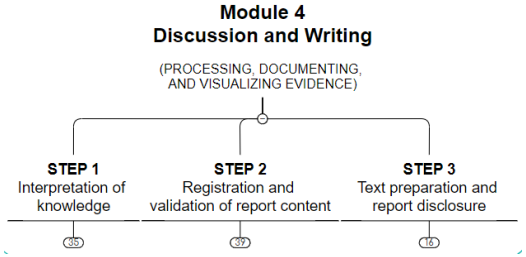
(1) interpretation of knowledge: this steps focuses on two types of analysis to interpret the scientific evidence collected. First, a bibliometric analysis is conducted to quantitatively assess the studies, followed by a content analysis;

(2) registration and validation of report content: once the analysis is complete, the next step is to write the final version of the systematic review report. The text is then formatted according to the required standards. After formatting, a thorough content review is performed to validate the accuracy and consistency of the report;

(3) text preparation and report disclosure: in this final step, the report undergoes a review of language and style the abstract is translated into another language if necessary, and the report is standardized and formatted to meet publication or submission guidelines. The process concludes with the official registration and archiving of the final report.

As illustrated in Figure 6 below.

Figure 6: Module 4 - Discussion and Writing



Source: (Borges, 2020).

Objectives

In this general context, this work's goal is to detail the operational activities for implementing systematic literature reviews as permanent processes for monitoring Brazilian production in the IS field influenced by the UN's 2030 Agenda proposals. The target audience is the international scientific community in this field of knowledge. Specifically, agents involved in KO's research are invited to participate in this dialog.

The subproject comprises activities to map scientific research in Information Science in four areas: (1) scenarios of socio-economic high impact for information innovation; (2) academic-scientific methodologies oriented toward innovation in data analysis; (3) academic-scientific methodologies in data visualization; and (4) academic-scientific methodologies on terminology translation for the dissemination of specialized knowledge. The delimitation areas were summarized in four thematic Actions that group the systematic reviews established as specific Tasks.

Except for the two reviews established in the first year, the others six implemented reviews are at a similar stage of evolution. The terminology treatment subprocess defined to support stage 1 of module 2 of the Systematic Literature Review based on Structured Bibliographic Research for the six SRLs mentioned is in progress. The objective of this module is to develop the review question. Given the high level of thematic range of

each reviews, the following internal micro-path was defined to 'identify preliminary topics' in the literature:

I. access the full text of each Sustainable Development Goals related to the systematic review for which each researcher is responsible (https://brasil.un.org/pt-br/sdgs);

II. index, through intellectual extraction (and not through attribution), the free terms that represent the subjects explained in natural language in the original text of each Sustainable Development Goals proposed by the UN;

III. analyze the subject by highlighting all the representative terms in the official description of each Sustainable Development Goals;

IV. classify the terms identified as Generic Terms, Specific Terms, and Related Terms;

V. hierarchical modeling of the general list of terms extracted and classified in an internal spreadsheet for the Treatment Terminologies of systematic reviews;

VI. create a consolidated data matrix for each Sustainable Development Goals in the spreadsheet indicated.

Findings

In the first year of the subproject, two systematic reviews grouped in the first thematic action. In the second year, the other six systematic reviews were established and distributed among the other grouping actions projected in the research modeling.

The 'data extraction' stage found the first Systematic Literature Review on People with Disabilities in Brazil. The second Systematic Literature Review on affirmative actions in national stricto sensu selection processes in Information Science is at the stage of 'development of research strategies'. Another six Systematic Literature Reviews are at the 'identification of preliminary topics' stage. Initial terminology processing was carried out by indexing the original content of the 17 Sustainable

Development Goals covered, resulting in a preliminary total of 716 free terms, as shown below.

Action 1.1 - Systematic reviews on Information Innovation in the Context of Sustainable Development

1st review: "Systematic Literature Review for Information Innovation Applied to People with Disabilities in Brazil". The pilot systematic literature review utilized the controlled vocabulary Health Sciences Descriptors / Medical Subject Headings (DeCS/MeSH) and the Brazilian Thesaurus of Information Science of the Brazilian Institute of Information on Science and Technology (TBCI/Ibict) to develop seven search strings leading to eight research expressions applied across 49 Information Science databases in the Capes Journal Portal. This result in 1,928 papers, from which 112 were filtered by title, 27 by abstract, and 36 additional references from full texts. After applying eligibility criteria, a final portfolio of 49 articles was established for further analysis. The review, led by researcher Fernanda Valle, focuses on "Scientific Map of Information Innovation on People with Disabilities in Brazil" within the context of the UN's 2030 Sustainable Development Goals.

2nd review: "Systematic Literature Review on Affirmative Actions in Master's and PhD Degree Selection Processes in Information Science (IS) in Brazil". The second, entitled "Systematic Literature Review" on Affirmative Actions in Master's and PhD Degrees Selection Processes in Information Science (IS) in Brazil", is currently under development, led by researcher Mayara Gonçalves. The project has completed the five stages of Module 1 (Review Planning) and both stages of Module 2 (Review Question). Module 3 (Bibliographic Research) is underway, with the preliminary finding focusing on norms and practices of Affirmative Action policies in Brazil. After completing Module 3, Module 4 will address discussion, writing, and the visualization of evidence (Borges et al. 2023).

The others six reviews are at the terminology treatment stage, where terms are extracted directly from the descriptive content of each

Sustainable Development Goals (SDG). The themes of each review and the SDGs covered are shown below.

3rd review: "Systematic Literature Review on theories and methods of Knowledge Organization (KO) for innovation in contexts of information and sustainability, focused on the domains of decent work and economic growth, industry, innovation, and infrastructure".

Sustainable Development Goals covered:

SDG 8 (Decent work and economic growth): 31 total free terms;

SDG 9 (Industry, innovation, and infrastructure): 19 total free terms;

SDG 12 (Responsible consumption and production): the terms have not yet been highlighted;

SDG 17 (Partnerships for the goals): 32 total free terms.

Action 1.2 - Systematic reviews on Information Innovation in the Context of Sustainable Development on Innovation in Data Analysis in the Context of Sustainable Development

4th review: "Systematic Literature Review on academic-scientific data analysis for innovation in information and sustainability contexts within the scope of methods and techniques of Knowledge Organization (KO) of traditional populations and communities; gender equality; reduction of inequalities within the scope of Information Science".

Sustainable Development Goals covered:

SDG 5 (Gender equality): 34 total free terms;

SDG 10 (Reduced inequalities): 24 total free terms.

5th review: "Systematic Literature Review on academic-scientific data analysis for innovation in information and sustainability contexts within the scope of methods and techniques of Knowledge Organization (KO) of

traditional populations and communities; gender equality; reduction of inequalities; quality education within the scope of Information Science".

Sustainable Development Goals covered:

SDG 4 (Quality education): 34 total free terms;

SDG 5 (Gender equality): 17 total terms;

SDG 10 (Reduced inequalities): 15 total free terms.

Action 1.3 - Systematic reviews on Information Innovation in the Context of Sustainable Development on Data Visualization in the Context of Sustainable Development

6th review: "Systematic Literature Review on analysis and visualization of academic-scientific data for innovation in information and sustainability contexts within the scope of Knowledge Organization (KO) methods and techniques in the domains of 1. clean water and sanitation, affordable and clean energy, 2. life below water, 3. life on land, and 4. climate action against global climate change within the scope of Information Science (IS)".

Sustainable Development Goals covered:

SDG 4 (Quality education): 59 total free terms;

SDG 6 (Clean water and sanitation): 35 total free terms;

SDG 7 (Affordable and clean energy): 25 total free terms;

SDG 12 (Responsible consumption and production): the terms have not yet been highlighted.

SDG 13 (Climate action): 20 total free terms;

SDG 14 (Life below water): 49 total free terms;

SDG 15 (Life on land): 49 total free terms.

7th review: "Systematic Literature Review on analysis and visualization of academic-scientific data for innovation in contexts of information and sustainability within the domains of marginalized communities neglected in social innovation public policies for minorities; sustainable cities and communities; good health and well-being, peace, justice, and strong institutions of the scope of Information Science (IS).

Sustainable Development Goals covered:

SDG 1 (No poverty): 14 total free terms;

SDG 2 (Zero hunger and sustainable agriculture): 45 total free terms;

SDG 3 (Good health and well-being): 56 total free terms;

SDG 4 (Quality education): 37 total free terms;

SDG 5 (Gender equality): 23 total free terms;

SDG 10 (Reduced inequalities): 14 total free terms;

SDG 11 (Sustainable cities and communities): 18 total free terms;

SDG 16 (Peace, justice, and strong institutions): 30 total free terms.

Action 1.4 - Systematic reviews on Information Innovation in the Context of Sustainable Development on Terminology Translation for the Dissemination of Specialized Knowledge in the Context of Sustainable Development

8th review: "SLR in analysis and visualization of academic-scientific data for innovation in information contexts and sustainability in research and graduate degree in Information Science (IS)".

Sustainable Development Goals covered:

SDG 4 (Quality education): 36 total free terms.

The Sustainable Development Goals coverage in the Systematic Literature Reviews in progress is shown below (TABLE 5).

Table 5: Distribution of thematic coverage of the Sustainable Development Goals (SDG) in the Systematic Literature Reviews in progress in Subproject 01

	Systematic Literature Reviews (SLR) coverage:							
	1st SLR	**2nd SLR**	**3rd SLR**	**4th SLR**	**5th SLR**	**6th SLR**	**7th SLR**	**8th SLR**
SDG 1							X	
SDG 2							X	
SDG 3							X	
SDG 4	X	X			X	X	X	X
SDG 5				X	X		X	
SDG 6					X	X		
SDG 7						X		
SDG 8			X			X		
SDG 9			X					
SDG 10	X	X		X			X	
SDG 11							X	
SDG 12			X			X		
SDG 13						X		
SDG 14						X		
SDG 15						X		
SDG 16							X	
SDG 17			X					

Source: prepared by the authors.

Discussion

Bibliographic Cartographies are considered, in the context of Subproject 01 - Research, maps of knowledge, or scientific maps, through which the goal is to elucidate agents, instruments, and objects of research, considering specific aspects of temporality and geolocation (Borges et al., 2023, p.5). The objective of research is to develop this type of study using the Systematic Literature Review method to model quantitative and qualitative research. Its purpose is to map initiatives with a high socio-economic impact that meet the criteria of social justice applied to information derived from

the intellectual production of the Brazilian Information Science within the scope of the 2030 Agenda (Borges et al., 2023, p.5).

Establishing the Systematic Literature Reviews developed in the subproject provided a model for the continuous study of the respective research subjects outlined, making it possible to answer specific questions by using original data published in the scientific literature in the area of Information Science in the context of sustainability. The presentation of the model also resulted in a planning process for verification, reproduction, and update of systematically revised data, along with the development of analytical matrices for scientific evidence from and for IBICT (Borges et al., 2023, p.5).

The eight reviews implemented specifically cover all 17 Sustainable Development Goals proposed by the UN. In addition, the subproject's integrated management modeling will allow these Systematic Literature Reviews to be updated and open up other revisions under the same theme of the 2023 Agenda. A Systematic Literature Review should be designed as a permanent monitoring process for the defined review question so that it can be maintained and updated periodically by the sponsoring institution through its agents.

Conclusion: methodological bases for a systematic network of scientific data on sustainable development

The preliminary findings align with the objectives proposed by Subproject 01 - Research and are outlined in Study entitled "Bibliographic Cartographies via Systematic Literature Review". The second version of the methodological proposal called Systematic Literature Review based on Structured Bibliographic Research application proves to be methodologically satisfactory. It contributes to achieving these objectives within the scope of the modeling and the empirical field tested.

It is essential to highlight the relevance of further development of these reviews in the context of Ibict, considering that Systematic Literature Review is a basis, in theory, and method, for understanding and opening

up solutions for social reality in the 21st century due to its structure linked to the deductive nature and rationality of the development of modern science, together with empiricism and the bibliographic foundation of the scientific fact in modern times. Its rigorous application to substantiate scientific criticism confirms its relevance in the social, economic, and environmental scopes.

Central issues inherent to contemporary reality in terms of sustainability and social relations in the course of the Anthropocene, such as the spread of fake news, scientific denialism, and deforestation, have a force of rationality against barbarism in the expression of the SLR method and findings applied to the production of knowledge about life and society. The possibilities opened up by this study, considering the relationship between Systematic Literature Review and goals for sustainable development, are part of a movement of permanent scientific monitoring over the mechanisms of extermination and extinction of the most distinct forms and experiences of life, which encourages the SLR to become an infrastructure for sustainability perspectives.

The Systematic Literature Reviews that are currently in progress intend to offer a panoramic and updated national map of IS intellectual production on the analysis and visualization of academic-scientific data for social innovation in information and sustainability contexts. Given Ibict's tradition of carrying out bibliographic reviews since 1955, through the final papers of the specializations of the former Brazilian Institute of Bibliography and Documentation (IBBD), this unlocks a metamethodological field for continued research. The objective is to revisit this retrospect of the Institute as a continuation of the processes presented in this paper, which are still in progress.

Finally, the research demonstrates, through the dialogue between the bibliographic methods and the rigor of the systematic literature review model, a framework of methodological bases for a systematic network of scientific data on sustainable development. Its innovative proposal integrates both a look at the diverse possibilities of using bibliography as a method and the method of systematic literature review, as well as its scientific role in contributing to the identification of evidence on the

dangers of climate change. The result of this innovative perspective is the horizon of production of structured data for public policies necessary for economic and social transformation based on scientific evidence.

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