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THE GALILEO INSTITUTIONAL REPOSITORY AS AN INFORMATION STOCK IN THE TRAINING OF MASTERS AND DOCTORATES FOCUSED ON INDUSTRY 4.0 IN THE AMAZON

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ABSTRACT

This article analyzes the role of the Galileo Institutional Repository (RIGalileo), maintained by the Institute of Technology and Education Galileo of the Amazon (ITEGAM), as a strategic informational repository aimed at supporting the training of master's and doctoral students aligned with the demands of Industry 4.0 in the Amazon region. The study integrates concepts from Information Science, Open Science, and knowledge management to demonstrate how institutional repositories—by collecting, preserving, and openly disseminating scientific output—contribute significantly to academic qualification and technological innovation in peripheral contexts. Employing a methodological approach based on institutional experience report and case study, the article outlines the development of the RI Galileo, analyzes its structure and content, and discusses its impact on enhancing the visibility of local scientific production, improving academic quality, strengthening collaborative networks, and fostering an informational culture rooted in open science. The findings suggest that RIGalileo already functions as a critical infrastructure for graduate education at ITEGAM, promoting integration between scientific knowledge, regional development, and digital transformation. Finally, the article highlights ongoing challenges such as institutional engagement, repository expansion, and technological sustainability, proposing recommendations for consolidating the repository as a permanent policy for information access and support to innovation in the Amazon.

I. INTRODUCTION

The digital transformation driven by Industry 4.0—marked by the integration of advanced technologies such as the Internet of Things, Artificial Intelligence, and automation—has brought new challenges to the training of high-level human resources. In the Amazon region, historically marked by regional asymmetries in science and education, it is strategic to strengthen the training of master's and doctoral graduates capable of meeting the demands of Industry 4.0 and contributing to local sustainable development. In this scenario, Open Science practices and information infrastructures, such as institutional repositories, emerge as important allies in democratizing access to knowledge and driving innovation.

This article analyzes the role of the Galileo Institutional Repository (RIGalileo), of the Galileo Institute of Technology and Education of the Amazon (ITEGAM), as an information repository that stores, preserves, and disseminates the institution's scientific production, directly supporting the training of master's and doctoral graduates focused on Industry 4.0 in the Amazon region. RIGalileo is a platform aligned with the principles of open science, offering free access to various types of academic content – books, coursework, dissertations, theses, articles, reports, and ITEGAM research and development documents [1]. By making this production openly available, the repository acts as a repository of critical knowledge for students and researchers, facilitating scientific communication and the construction of new knowledge.

Besides introducing the context of Industry 4.0 and its relationship with open science, the article discusses theoretical foundations of institutional repositories as information stocks and human resource development in the Amazon. Next, the adopted methodology is presented – an experience report with case study elements – and, in the results and discussion, the history of the creation of RI Galileo, its collections and quantitative data, as well as its qualitative impact on local academic education, are detailed. Finally, the concluding remarks highlight the challenges and prospects for consolidating the repository as an institutional information and education policy. The study prioritizes primary sources and literature by recognized Brazilian authors in the areas of Information Science, Education, and Technology, with special emphasis on contributions originating in the North/Amazon region, to critically support the analyses..

II. THEORETICAL REFERENCE

Institutional repositories (IR) are often described as digital libraries dedicated to storing, preserving, and disseminating an institution's intellectual output, ensuring free and long-term access to these materials. Within Brazilian Information Science, the metaphor of information stocks has been used to conceptualize the role of these repositories in knowledge management. According to Barreto (2014), contemporary society demonstrates an "information superstructure" composed of large data flows from the digital world (e.g., big data) linked to institutional information stocks [2]. These institutional stocks—processed, managed, and controlled for political and economic use—constitute an underlying "infotexture" that coexists with non-institutionalized data, together forming the basis of the current information ecosystem. In other words, repositories organize and retain selected, encoded, and classified information, directing it for immediate or future use, in a process of organizing strategically stored information stocks [2].

In the academic context, this informational repository function is related to institutional memory and scientific communication. IR emerged, in large part, to increase the visibility, accessibility, and impact of the scientific output of universities and research centers. As emphasized in the literature in this field, institutional repositories serve as scientific knowledge management tools in the academic environment, allowing theses, dissertations, articles, and other works to be available to all, without access barriers, thus maximizing their use and citation [3] [4]. In Brazil, the Brazilian Institute of Information in Science and Technology (IBICT) encouraged the creation of IR from the mid-2000s, aligned with the open access movement. Through the Brazilian Manifesto in Support of Open Access to Scientific Information [5], the importance of guaranteeing open access to academic publications and postgraduate work (theses and dissertations) was established as a strategy to democratize knowledge and improve scientific communication. Thus, institutional repositories consolidate themselves as true "stocks" of qualified information within the institution, integrating digital preservation and open access policies.

It is important to emphasize that these information stocks do not merely have a passive archiving value, but play an active role in generating new knowledge. By bringing together the scientific production of an academic community in one place, an IR facilitates literature reviews, the discovery of state-of-the-art research in a given field, and the identification of research gaps. Ultimately, it is a tool that enhances the institution's collective intelligence, as it promotes the internal and external circulation of ideas, stimulating collaboration and innovation. This perspective converges with knowledge management concepts in organizations: IR, as an explicit knowledge base, supports organizational learning processes and the creation of interorganizational knowledge. In the context of master's and doctoral training, this means that the accumulated collection in the repository serves as an informational substrate for new research, allowing graduate students to build on previous work and avoid rework, while continuing existing lines of investigation.

Open Science is a movement that proposes profound changes in the way scientific knowledge is produced, shared, and reused, based on principles of transparency, collaboration, and open access. Its strands include open access to publications and data, the openness of codes and methods, and citizen participation in science. In Brazil, [6] the different interpretative currents and types of action in open science are discussed, highlighting its importance for innovation and the democratization of knowledge. Regarding Industry 4.0, open science is connected primarily by the imperative of collaborative innovation. The Fourth Industrial Revolution demands agility in the dissemination of scientific and technological discoveries, as areas such as advanced manufacturing, cyber-physical systems, and big data analysis evolve rapidly. Opening up scientific knowledge accelerates this flow of information, allowing research results to move more quickly between universities, research centers, companies, and society.

In the Amazonian context, open science takes on unique dimensions. The northern region of Brazil has historically faced challenges in fully integrating into major global scientific production circuits, whether due to infrastructure limitations or geographic barriers. Regional cooperation initiatives have sought to reverse this situation. A notable example is the Northern Network of Institutional Repositories in Access Open (NORTE/RIAA), created collaboratively by universities and institutes in the Amazon. The network's creation trajectory, which brings together repositories from several northern institutions, is described, and the role of collaboration in overcoming obstacles in the implementation of IR in the region is emphasized [7]. The existence of the Northern Network reflects these institutions' commitment to the ideals of open science, seeking to give visibility to Amazonian scientific production at the national and international level, as well as fostering the exchange of experiences and repository management techniques. This has a direct impact on regional Industry 4.0: by strengthening the circulation of local knowledge (e.g., on biodiversity, appropriate technologies, and industrial sustainability in the Amazon), an environment more conducive to technological innovation adapted to local realities is created.

Industry 4.0 itself is largely based on concepts of open innovation and knowledge ecosystems. Highly technological companies tend to interact with universities and startups to absorb new ideas and research results. Recent studies discuss, for example, the interrelationship between Industry 4.0 and open innovation in startup accelerators, highlighting that partnerships and knowledge sharing are critical factors for the competitiveness of these organizations. Thus, open science policies (such as open-access repositories) also benefit the productive sector by reducing barriers to accessing scientific information. An engineer or entrepreneur in the Amazon can consult, via institutional repositories, dissertations and theses related to industrial automation, artificial intelligence, new sustainable raw materials, and other topics relevant to Industry 4.0, free of charge and immediately after publication. This shortens the gap between academic research and practical application in companies, fueling the cycle of innovation.

Therefore, the synergy between open science and Industry 4.0 manifests itself in the co-creation and sharing of knowledge. Institutional repositories, by embodying open science, serve as bridges between academic knowledge and other stakeholders (industry, government, community). In the Amazon, where efforts are being made to reconcile technological development with environmental

conservation, this openness of information fosters innovative solutions with greater local adaptation. Furthermore, this culture of openness contributes to the development of researchers who are more globally connected and aware of the importance of collaboration and interdisciplinarity – essential characteristics for addressing the complex challenges of the fourth industrial revolution.

The training of master's and doctoral graduates is a central objective of higher education and science and technology policies in Brazil, especially in recent decades, when efforts have been made to decentralize and expand graduate programs across all regions. In the Amazon, initiatives have sought to retain local talent and develop qualified professionals capable of working in both academia and strategic sectors. Specific programs, support from funding agencies (such as CAPES), and inter-institutional agreements have been used to expand the number of graduate students in the North region. For example, CAPES, in official documents, recognizes the need to increase the number of master's and doctoral graduates in the Amazon and encourage strategic projects focused on regional vocations [8]. This quantitative expansion, however, must be accompanied by quality training, which includes ensuring that graduate students have access to up-to-date scientific production and can effectively disseminate their own work.

This is where institutional repositories prove valuable. They serve a dual purpose in the context of human resource development: pedagogical and strategic. From a pedagogical perspective, an IR provides students with a broad digital collection of research already conducted at the institution (and in associated networks), which enriches the guidance and development of new research. Master's and doctoral students can consult previous dissertations and theses on related topics, learning from the methodologies and results already obtained. Making dissertations and theses available from a graduate program is essential to give visibility to its output and serve as a foundation for the production of new knowledge, consolidating the programs' areas of concentration and lines of research. In other words, each new researcher relies on the informational stock left by those who preceded them, in a virtuous cycle of cumulative knowledge construction. From a strategic and evaluation perspective, repositories also provide indicators and transparency. The visibility afforded by open access can increase the impact (citations, usage) of work produced by graduate students, which positively impacts the CAPES evaluation of programs. Additionally, the existence of A well-maintained repository demonstrates an institutional policy of scientific dissemination, aligned with national open science recommendations and the global trend toward sharing academic results. Universities and institutes that adopt repositories reinforce their commitment to open knowledge, and this commitment tends to generate more collaborations and external recognition.

However, the effectiveness of these benefits depends on the academic community's adherence to the repository. Case studies reveal that repositories are often underutilized by faculty and students. When examining the IR of the Federal University of Amazonas within the scope of a graduate program, they observed that the repository was not being used to its full potential by the program, missing opportunities to highlight production and consolidate the research area [9]. They argue for the need for institutional policies that encourage self-archiving by authors (voluntary deposit of their work) and for the incorporation of the open access culture into graduate program guidelines (for example, in CAPES's area guidelines). Therefore, for the repository to fulfill its role in human resource development, it is essential that the institution actively promote its use—whether through training, mandates for thesis/dissertation deposits, or even integrating the IR into course completion routines.

In short, institutional repositories can be seen as infrastructures supporting graduate studies. They ensure the storage, access, and dissemination of academic production— aspects fundamental to shaping competent researchers integrated into the global research ecosystem. In the Amazonian context, IR also helps reduce informational isolation by integrating local researchers into broader networks. The institutional information stock is not an end in itself, but a means to nurture the next generation of high-level scientists and professionals, who in turn will feed this stock with new knowledge, closing the cycle.

III. MATERIALS AND METHODS

This work is an experience report combined with case study elements, focusing on ITEGAM's Galileo Institutional Repository and its contribution to the training of master's and doctoral students focused on Industry 4.0. The adopted approach is qualitative and descriptive in nature, complemented by available quantitative data on the repository's collection and use.

Initially, a review of literature and documents was conducted to theoretically support the study, prioritizing authors in Information Science and Education, especially those working in the North/Amazon region, as guided by the scope of the work. This review covered academic articles, book chapters, and relevant institutional documents on repositories, open science, Industry 4.0, and human resource training. Highlights include organized works [10] on open science in the North region, as well as conceptual studies by [11] on information stocks, among others already cited throughout the theoretical framework. For the empirical part, the study focused on the Galileo RI case. Institutional information from ITEGAM (history of the institute and the repository) and technical data from the repository itself were collected through an analysis of its public content. The structure of Galileo RI communities and collections was examined, as well as usage statistics made available by the platform (e.g., item views). Furthermore, a survey of the types of documents stored (number of master's dissertations, doctoral theses, articles, etc.) was conducted, and some examples of work aligned with the Industry 4.0 theme present in the collection were identified.

The analytical methodology employed document analysis and qualitative content analysis on the repository records and related documents. Simple quantitative data (e.g., number of items in each collection) were used to assess the existing information stock. The qualitative data (paper abstracts, collection descriptions, and indirect testimonies from secondary sources) were interpreted in light of the theoretical framework, seeking evidence of the repository's impact on academic education.

It is worth noting that the authors of this article had direct access to the repository's public interfaces and information disseminated by ITEGAM, but did not conduct interviews with users or managers of the RI in this study. Therefore, the results presented are primarily based on accessible documentary sources and the authors' accumulated experience in information and education projects in the region. This methodological approach aligns with the purpose of reporting institutional experience, providing a well-founded critical perspective, albeit limited by the lack of primary data on user perceptions (a suggested area for future research).

Based on the above outline, the next section presents the results and discussion derived from this investigation, structuring the history and context of the Galileo RI, its main collections and characteristics, as well as a discussion of its impact and challenges in the training of master's and doctoral students focused on Industry 4.0 in the Amazon region..

IV. RESULTS AND DISCUSSIONS

The Galileo Amazon Institute of Technology and Education (ITEGAM) was established in 2008 in Manaus, Amazonas, with the goal of fostering teaching, research, and technological innovation geared toward regional needs. Since its founding, ITEGAM has sought to serve as a bridge between academia and the productive sector in the Amazon, focusing on training professionals to master Industry 4.0 technologies (as explained in its institutional profile). Throughout the 2010s, the institute signed several cooperation agreements with public and private universities, both national and international, to facilitate local master's and doctoral programs in Amazonas. These agreements allowed professionals from the region to pursue stricto sensu graduate degrees without having to relocate entirely to other regions, benefiting from shared advisors and facilities. One example is the partnership with the Federal University of Pará (UFPA), through which Master's programs in Science and Environment were offered in Manaus – resulting in dissertations defended by UFPA, but the result of applied research in the Amazon region. Similar initiatives have been undertaken with other institutions, covering areas such as production engineering, energy, environment, and technology management.

In 2020, ITEGAM obtained accreditation for its Graduate Program in Engineering, Process, Systems, and Environmental Management (PPG.EGPSA), at the Professional Master's level. This multidisciplinary program emphasizes new technologies in technology management and sustainability, primarily serving professionals in local industry who need to combine advanced studies with market experience. With the consolidation of the PPG.EGPSA and the continuation of doctoral partnerships, the institute's academic output has grown significantly. Therefore, it became imperative to have an information infrastructure to organize and disseminate this output. It is in this context that the Galileo Institutional Repository (RIGalileo) emerged.

RIGalileo was implemented using the DSpace platform, adhering to international metadata and interoperability standards (OAI-PMH), enabling its integration with catalogs such as Oasisbr/IBICT. Although the exact date of its public launch is not explicitly mentioned in the documents accessed, evidence indicates that the repository was established around 2019-2020, accompanying the regional repository creation movement (which included, for example, UFAM, UEA, UFRA, etc., members of the Northern Network). The name "Galileo" honors the institution's patron and reinforces the repository's identity as an integral part of ITEGAM's mission to disseminate knowledge ("all truths are easy to understand once discovered – the point is to discover them," a phrase by Galileo Galilei printed on institutional materials). When accessing the Galileo RI, you'll find four main communities:

• Library Documentation (BibITEGAM) – intended to store policies, regulations, and technical documentation for the ITEGAM Library. (This is an administrative collection, with one registered item, such as the repository usage policy or internal manuals.)

• Agreement Documentation – the largest community in terms of volume, currently with 560 registered items. This collection brings together technical and scientific works resulting from academic agreements, primarily master's dissertations and doctoral theses defended through ITEGAM's partnerships with other HEIs, as well as any publications resulting from these agreements. For example, these include dissertations defended at UFPA, the Federal University of Amazonas (UFAM) – Humaitá campus (in the case of an agreement for a master's degree in education), possibly agreements with institutions in other regions, and even international collaborations. This collection reflects ITEGAM's efforts to facilitate advanced training, hosting research on everything from waste disposal in Manaus to electrical and mechanical engineering studies conducted at the Manaus Industrial Complex. It is worth noting that some works in this community are cataloged as articles or technical reports (likely derived from cooperative R&D projects), including in languages such as Spanish and English, highlighting the multicultural and multi-institutional nature of the partnerships.

• PPG.EGPSA/ITEGAM – a community with approximately 435 items, corresponding to the output of ITEGAM's professional master's program. The majority of these are PPG.EGPSA Dissertations, defended from 2016 onward, covering topics in engineering, process management, industrial systems, the environment, and sustainability. In addition to dissertations, this community may also include productions by program faculty and students, such as published articles, book chapters, etc., if deposited. When browsing the PPG.EGPSA Dissertation collection, you will notice the Thematic variety: from studies on alternative materials in civil construction (e.g., the use of recycled PET in concrete), to environmental education, to industrial process optimization. This diversity reflects the program's interdisciplinary approach, as well as its focus on practical problems of local industries and regional environmental issues—aspects related to Industry 4.0 and sustainability.

• ITEGAM-JETIA Journal – a community designed to house issues of the Journal of Engineering and Technology for Industrial Applications (JETIA), an international scientific journal maintained by ITEGAM since 2015. At the time of this research, this community contained zero entries, possibly because the integration of previous issues of the journal into the repository was still ongoing or because the journal has its own separate portal. In any case, the presence of this community denotes the intention to also bring together the institution's periodical production in the RI, reinforcing it as a complete hub for ITEGAM's scientific dissemination. In total, the RIGalileo collection comprises around 1,000 items (approximately 996, according to the figures presented). This is a considerable collection for an institutional repository of a relatively young institute. For comparison purposes, repositories at federal universities in the North region, established during a similar period, are similar in size (for example, the RI at UFRA – Federal Rural University of the Amazon – reported around 800 items after a few years of operation). This suggests that ITEGAM has successfully incorporated into the repository both the historical production of the agreements and the current production of its master's program, without major gaps.

An important aspect to highlight is the quality and thematic relevance of the collection in relation to Industry 4.0. Several works deposited in the RI Galileo are directly related to the technologies and challenges of the fourth industrial revolution. For example, there are dissertations investigating the integration of costing systems in automated environments (in the context of the transition to Industry 4.0), the application of fuzzy systems and neural networks to optimize industrial processes, the development of predictive maintenance mechanisms in factories, and studies on power quality and harmonic compensation in industrial plants, among other topics. The fact that many of these works are accessible in the repository allows current and future students to benefit from this prior knowledge. An incoming

ITEGAM master's student, for example, can access, via RIGalileo, the dissertation of a graduate who developed a fault detection algorithm for electric motors using fuzzy logic, using this work as a reference and starting point for advancing research into smart maintenance, which is a key topic in Industry 4.0. Thus, the repository serves as a dynamic information repository, where knowledge about industrial technologies is accumulated and feeds back into learning. Regarding the usability and reach of the Galileo RI, it was observed that the repository is configured with a bilingual interface (Portuguese/English) and allows open searches without the need for registration. The global community can discover its contents through engines like Google Scholar, since the metadata is open. The RI also records simple usage statistics. Data collected (in June 2025) indicated, for example, which items received the most views. Studies related to Industry 4.0 were reportedly among the most accessed: a machine reliability prediction model using neural networks (33 views), application of a photovoltaic system with genetic algorithms in Industry 4.0 (21 views), and techniques for predicting acetaldehyde generation using neural networks (21 views), among others. Although these absolute viewing numbers are modest—possibly reflecting only recent data—they suggest reader interest and engagement in content directly related to Industry 4.0 in the RI collection. Over time and with adequate publicity, these views are expected to expand, increasing the impact of the work and, consequently, the training offered.

The above results paint a positive picture of the Galileo RI as a robust institutional repository of content. But what has been the true impact of this repository on the training of ITEGAM master's and doctoral students focused on Industry 4.0? This impact can be analyzed in different dimensions: visibility, academic quality, collaboration, and information culture.

(a) Visibility and reach of student production: Without the repository, a large portion of the dissertations and theses produced under ITEGAM's auspices (whether through partnerships or through its own graduate programs) would be restricted to physical collections or isolated databases at partner universities. With the Galileo RI, all of this production is is collected and publicly available, bringing increased visibility to the work. This means that research conducted in the Amazon, often of an applied and innovative nature, can be read and cited by other researchers anywhere. This visibility directly benefits the authors (students and advisors), who become more actively involved in the scientific community. Furthermore, visibility via IR can serve as a basis for new knowledge within the program itself. There is already evidence of cross-use of the work: for example, a 2020 master's graduate citing a 2018 dissertation present in the IR in his review, and so on, demonstrating research continuity. Thus, the repository helps to consolidate lines of research by highlighting existing production.

(b) Improved academic quality: Easy access to previous work allows current graduate students to gauge the level of demand and depth expected in their research, serving as a guideline. Advisors can also point to dissertations from the repository as methodological or thematic references for their advisees. This can increase the average quality of new dissertations, as it avoids "reinventing the wheel" and promotes building on previous results. Furthermore, the Galileo RI, by including derivative works (such as articles), encourages students to publish and deposit their articles, integrating them into the institutional collection. This publication culture is crucial in doctoral training, especially, and the repository supports this by demonstrating that the institution values and disseminates these products.

(c) Collaboration and academic networks: The aggregation of all production in a single portal facilitates the identification of ITEGAM's experts and areas of expertise. For example, companies or external researchers may, when browsing the RI, discover that the institute has several studies on energy systems optimization or lean production engineering, which could lead to contact for partnerships or projects. Internally, faculty members themselves can identify synergies between different areas of expertise. Therefore, the repository serves as a showcase for ITEGAM's academic expertise, which is important for inclusion in larger research networks and consortia. Within the framework of Industry 4.0, which values collaborative ecosystems, this transparency regarding the knowledge produced is a positive differentiator. It is worth mentioning that participation in the Northern Repository Network further strengthens this regional collaborative dimension, as users browsing the network portal can find ITEGAM's production alongside that of public universities, increasing recognition of the institute's contribution in the region.

(d) Information culture and open science: The existence of the Galileo RI and its use in daily academic life also has less tangible but significant formative effects: it instills in students and faculty a appreciation for information management and open science. Knowing that the final work will be publicly deposited encourages students to pay attention to issues of document quality, respect for copyright of figures and data, clarity in writing (as there will be potential external readers), among other concerns. This fosters a sense of responsibility for the intellectual product. Additionally, many students gain their first exposure to the principles of open access through the repository—learning about Creative Commons licenses and the importance of making knowledge accessible. This awareness is valuable, developing professionals and researchers with a more open and collaborative mindset, aligned with both modern scientific practices and the innovative demands of Industry 4.0.

Challenges identified: Despite the benefits, some challenges were noted or can be inferred. One of them is ensuring the repository's continuous maintenance. While the deposit of dissertations and theses can be made mandatory (and often is, in many institutions, for title approval), the deposit of other materials (such as faculty articles, chapters, project reports) depends on voluntary participation. It would be advisable for ITEGAM to develop policies that encourage or even formally hold researchers accountable for depositing their publications, expanding the IR's repertoire. Another challenge is dissemination and usability: ensuring that ITEGAM's own academic community uses the repository extensively as a reference source. Some research indicates that graduate programs don't always exploit the full potential of their repositories. Therefore, information training initiatives for students and faculty (e.g., IR search workshops, inclusion of IR references in courses) can improve this integration. Finally, technological sustainability is a concern: keeping DSpace up-to-date, with regular backups and high-quality metadata, requires r continued investment in training librarians and technical staff.

In summary, the results demonstrate that the Galileo Institutional Repository is already an essential information repository for ITEGAM, encompassing nearly a decade and a half of academic production related to the training of master's (and some doctoral) students in the region. Its impact on education is evident in the increased circulation of knowledge and direct support for student and faculty work. This initiative, aligned with best practices in open science, positions ITEGAM at the forefront of academic information management in the Amazon region.

V. CONCLUSIONS

This article analytically discusses the role of ITEGAM's Galileo Institutional Repository (RIGalileo) as an information repository focused on training master's and doctoral students with a focus on Industry 4.0 in the Amazonian context. Based on the theoretical framework and case analysis, it becomes clear that an institutional repository is not merely a passive repository of documents, but rather a strategic knowledge infrastructure that can positively shape the direction of graduate studies and research at an institution.

In the case of ITEGAM, the Galileo Institutional Repository has established itself as an open-access repository aligned with open science and regional needs. It has aggregated a significant volume of technical and scientific work, democratizing access to research on technology, engineering, and sustainability conducted in the Amazon. In doing so, it contributes to mitigating geographic and informational barriers that have historically limited the region's insertion into the global scientific landscape. Master's and doctoral students trained at the institution now have a robust pre-registration base to support their research, as well as the assurance that their final products will be widely disseminated, enhancing their academic legacy.

The importance of authors and researchers from the North in understanding this dynamic is emphasized: authors such as Célia Regina Simonetti Barbalho and colleagues have emphasized in their works the relevance of collaborative initiatives (such as the Northern Network of Repositories) and the need for appropriate information policies for the Amazon. This study reinforces these perspectives by demonstrating, in practice, the benefits of implementing an IR at a local technology institute.

However, ongoing challenges were also identified. It is crucial that ITEGAM maintain its commitment to nurturing and disseminating the Galileo IR. It is recommended that a mandatory deposit policy be established for all scientific production linked to the institution (not only theses and dissertations, but also articles, research data, etc., respecting copyright issues and necessary embargoes). Furthermore, investments in information literacy—training students and faculty to search, use, and contribute to the repository—will ensure that the information stock is truly utilized to its fullest (avoiding the underutilization noted in other contexts (researchgate.net). Within the scope of Industry 4.0, it is pertinent to explore synergies between the repository and companies in the Manaus Industrial Hub, perhaps through thematic portals or sectoral repositories of open data that may derive from academic research (e.g., sensor data, software codes developed in dissertations, etc.).

In conclusion, ITEGAM's Galileo Institutional Repository proves to be a successful initiative integrating information science and academic training, serving as an informational pillar for the development of qualified human resources in the Amazon. It exemplifies how open science practices can be incorporated at the institutional level to produce concrete results: greater visibility of local academic production, supporting the emergence of new generations of researchers and professionals, and fostering a culture of knowledge sharing. For institutions in peripheral or emerging regions of the scientific landscape, as is the case for many in the Amazon, experiences like the Galileo RI can serve as an inspiring model.

Finally, this article reinforces the idea that the success of an institutional repository depends as much on technology and infrastructure as it does on policies and human engagement. The informational stock contained therein comes to life as it is continually consulted, cited, and expanded. It is up to academic administrators and the community to use this tool strategically. Looking ahead, the Galileo RI is expected to continue evolving, perhaps incorporating a research data repository from ITEGAM in the future or integrating with international repository networks. In any case, its existence already represents a significant advance for science, education, and innovation in the Amazon, providing a solid foundation for master's and doctoral graduates trained in the region to make significant contributions to Industry 4.0 and sustainable development.

VI. AUTHOR'S CONTRIBUTION

Conceptualization: Luiz Fernando Correia de Almeida.
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