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Strategic integration of enriched metadata for the improvement of information systems management in a scientific journal

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Abstract: This research is based on the inclusion of enriched metadata in an academic publication belonging to a public university that trains university students specialising in engineering. This institution is located in Mexico City. The objective was to positively impact its publishing activities. To this end, a qualitative paradigm was used, with a descriptive and exploratory level. The review focused on manuscripts published between 2019 and 2021. The investigation was carried out in three phases: preliminary evaluation, metadata homogenisation, and final assessment. The results showed an increase in compliance with metadata standards, which started at 57% and reached 100% at the end. Some of the most relevant conclusions were: the correct use of titles, abstracts, ORCID and DOI identifiers allowed academic publications to be integrated with search engines and academic platforms. The inclusion of rich metadata structures is an effective strategy for strengthening editorial quality and the international reach of publications.

Keywords: *Academic journals, Editorial management, Editorial quality, Enriched metadata, OJS indexing, Scientific visibility.*

1. Introduction

To achieve effective dissemination of scientific knowledge, scientific publications must consider within their information systems management: publishing and visibility. From this perspective, the scientific publication IPSUMTEC set itself an extraordinarily audacious goal: to enhance its editorial quality and visibility through the integration of metadata based on the OJS Indexing Manual: Best practices for the Latin American region proposed by Flores Chávez [1]. This methodology seeks not only to abide by the ethical and quality guidelines inherent to scientific publishing, but also to provide access to its materials to the research and academic community worldwide.

Between 2019 and 2021, the scientific journal IPSUMTEC has recognized the need to incorporate metadata that will allow better indexing and searching of its articles in academic databases and search engines. All this is very important for the promotion of the journal in the scientific world, because well-rendered metadata can increase the number and quality of citations. On the other hand, adherence to the guidelines means that the journal is handled correctly in ethical terms, and this is true for the readers and the authors themselves. Therefore, this case study aims to analyze IPSUMTEC's efforts to develop its editorial processes and implement metadata, focusing on the challenges and results throughout this period. Through this research, it is intended not only to record the process of continuous improvement of the journal, but also to encourage discussion on the relevance of quality and visibility in today's academic publishing environment.

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2. Background

2.1. Background of the Scientific Journal

The scientific journal for which this study was developed is called IPSUMTEC, and is managed by the Instituto Tecnológico de Milpa Alta, part of the Tecnológico Nacional de México. The Milpa Alta Technological Institute is in the municipality of Milpa Alta, within the boundaries of Mexico City, in the nation of Mexico.

The journal was born in 2018 with the objective of being a space to disseminate the studies of people interested in sharing their research. It started with 11 people, who from the first day of work were dedicated to complying with national guidelines. Currently, the journal has 231 people, which are distributed in 7 working committees. In addition, the journal has implemented the OJS version 3 platform since 2021, to meet international standards.

The official website of the journal is: https://revistas.milpaalta.tecnm.mx/index.php/IPSUMTEC/issue/view/29 (National Institute of Technology of Mexico [2]). The journal has received various awards, such as (ver table 1):

Table 1.
Recognition from IPSUMTEC jorunal.

Variable	Description
LATINDEX (Directorio)	The Latindex Directory is a pillar of the Regional Online Information System for Scientific Journals in Latin America, the Caribbean, Spain and Portugal (Latindex). It is an essential tool in the academic and scientific sphere, since it offers a global and recent collection of the region's periodicals. The IPSUMTEC journal access point [3]: https://latindex.org/latindex/ficha/25411
DIALNET	Dialnet is an undisputed benchmark in the dissemination of Hispanic academic output. In addition, it has been promoted by the University of La Rioja (Spain) and has established itself as an essential resource for students, academics and researchers. The IPSUMTEC journal access point [4]: https://dialnet.unirioja.es/servlet/revista?codigo=28890
MIAR	MIAR is also known as the Information Matrix for the Analysis of Journals, devised by the University of Barcelona. It is a key tool for measuring the scope of scientific publications. Its purpose is to provide librarians, researchers and evaluators with precise knowledge about the indexing and registration of a scientific publication in various documentary sources and evaluation systems. The IPSUMTEC journal access point [5]: https://miar.ub.edu/issn/2594-2905
KEEPERS	KEEPERS is essential for the digital persistence of scientific publications, such as electronic scientific journals. Its main role is to be a benchmark in the world dedicated to reporting on the availability and preservation of digital journals, providing vital data to researchers, librarians and publishers. The IPSUMTEC journal access point [6]: https://portal.issn.org/resource/ISSN/2594-2905/?language=es
ROAD	ROAD is the Directory of Open Access Scholarly Resources, a free service provided by the International Standard Serial Number (ISSN), supported by the United Nations Educational, Scientific and Cultural Organisation (UNESCO). Since its launch in December 2013, it has become a cornerstone for the consultation of open access academic resources. The IPSUMTEC journal access point [6]: https://portal.issn.org/resource/ISSN/2594-2905/?language=es
CROSSREF	Crossref is a non-profit organisation that plays a vital role in the dissemination of scientific knowledge. Its main objective is to build a digital environment that promotes the linking, identification and analysis of digitally published scientific output. The IPSUMTEC journal access point [7]: https://search.crossref.org/?q=+2594-2905&from_ui=yes
ZDB	The German Union Catalogue of Serials (ZDB) is one of the world's most extensive collections of serial publications (journals, newspapers, monographic series and continuing resources). It is a cornerstone for research, library collection management and interlibrary loans, especially in German-speaking countries. The IPSUMTEC journal access point [8]: https://zdb-katalog.de/title.xhtml?idn=123525724X&view=brief&direct=true
OPENALEX	OpenAlex is an initiative aimed at building a global repository of open access scientific information, free of charge and with exhaustive coverage. Inspired by the mythical Library of Alexandria, its purpose is to universalise scientific knowledge, articulating a free and accessible proposal that challenges the monopoly of conventional platforms such as SCOPUS and Web of Science. The IPSUMTEC journal access point [9]: https://openalex.org/sources/S4404669846
EZB	The EZB, also known as the Elektronische Zeitschriftenbibliothek (Electronic Journal Library), is an indispensable basis for making online access to and consultation of scholarly publications more efficient. It has been created and managed by the Library of the University of Regensburg (Regensburg, Germany)

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	since 1997. It has progressed to become a reference among bibliographic repertoires of electronic scientific publications, due to its scope and ease of use. The IPSUMTEC journal access point [10]: https://ezb.ur.de/searchres.phtml?lang=en&jq_type1=IS&jq_term1=2594-2905
SUDOC	SUDOC is the University Documentation System, which constitutes the centralised bibliographic compendium of higher education and research libraries in France. Since its creation in 1999, it has become a crucial tool for the administration, location and consultation of documentation in French higher education and research. It is managed and updated by the Agence Bibliographique de l'Enseignement Supérieur (ABES), a French government agency focused on bibliographic services for higher education. The IPSUMTEC journal access point [11]: https://www.sudoc.abes.fr/cbs/DB=2.1//SRCH?IKT=12&TRM=235737917
MIRABEL	Mir@bel is an outstanding collaborative resource for researching and consulting electronic academic publications. It aims to facilitate access to digital editions of journals, specifying their platforms, historical collections and chronological limitations. The IPSUMTEC journal access point: The IPSUMTEC journal access point [12]: https://reseau-mirabel.info/revue/15684/IPSUMTEC
INDAUTOR	The Instituto Nacional del Derecho de Autor (INDAUTOR) is an organisation in Mexico whose purpose is to protect intellectual property, promote inventiveness, manage the registration of copyrights and safeguard the country's cultural heritage. The IPSUMTEC journal access point [13]: https://agenciasindautor.cultura.gob.mx/issn/index.php#search?q=IPSUMTEC

IPSUMTEC journal is continuously improving its editorial processes to provide a better service to both its readers and authors. The members of the journal are therefore striving to review the policies and procedures of the Open Access Journal Directory annually to ensure that they are up to date with all requirements. The tool is also being implemented in Open Journal Systems. These implementations serve to strengthen the integrity and transparency of academic manuscripts in our journal while offering an easily accessible, up-to-date, and free scientific publication service.

2.2. Metadata Background

Nowadays, metadata has become a fundamental topic for visibility and management in the scientific environment. This area provides structured information about a manuscript, which is an attractive topic; moreover, in the context of publications, these are organized in specialized spaces, which help to visualize them in a simpler way, depending on the needs that the person has when researching a topic.

Senso and Rosa Piñero [14] note that Ercegovac characterizes metadata from an archival perspective, in which the objective is to index and classify a piece of writing so that it can be easily found, facilitating instant access to data about its authenticity, usefulness, compatibility, terms of use and preservation. Giorgetti, et al. [15] conceptualize educational metadata as a set of collections and metadata appropriate for the characterization of scientific, technological and academic production of higher education institutions. This metadata facilitates the identification of resources stored in repositories by search engines, which simplifies their location.

Plata [16] indicates that metadata plays a key role in providing detailed information about digital files, such as the date of creation, the user who created them, and the modifications made. This data can be crucial in determining the authenticity and integrity of a file, although it is relatively easy to manipulate, which restricts its application as conclusive evidence. Consequently, it is essential that technology experts conduct metadata extraction and evaluation with caution, complementing their analysis with other digital evidence to prevent information contamination. Ramos Simón and Cobo Serrano [17] constitute a set of structured information elements, whose use began in 1968 in the computer field, are used to link a digital object. In this context, those of a descriptive type predominate, and are used by a wide range of databases as an identification and organization tool of great relevance in research management.

In this sense, the relevance of the relationship between metadata and ethics in scientific journals is also obvious. Piwowar, et al. [18] emphasize that it is essential that metadata be presented as transparently and truthfully as possible so as not to allow pseudo-authoritative duplication of publications or plagiarism. Es por ello, que emplean bases de datos especializadas; tambièn, usas herramientas sofisticadas para la detecciòn de similitudes, como por ejemplo Crosser, que emplea metadatos para realizar bùsqeudas de manuscritos con un criterio no ètico. Willinsky [19] argues that the usefulness of metadata lies not only

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in providing access to specific manuscripts, but also in promoting a considerable expansion of open access proposals. An example of this are journals that promote the proper use of MARC or Crosswalk standards, as they have seen a tenfold increase in downloads and citations by implementing and maintaining the proper management of their information.

Powell and Watt [20] pointed out that well-constructed metadata increase the possibility of indexing a scientific article in search engines, those that extensively affect the impact and scope of an article. Specifically, metadata such as title, abstract, keywords, DOI, and author identifiers such as ORCID should be considered to ensure the overall scope of the article. Fernández Camargo, et al. [21] mention that these parameters corroborate the reliability and validity of the knowledge disseminated in these journals; in addition, they can serve as a reference point for the decision making of editors to expand the visibility of their publications in journals such as DOAJ, Scielo and Redalyc. In addition, the predominance of normalizable metadata in scientific journals has allowed the advent of metrics that measure the impact of publications.

In this sense, Torres-Salinas and Moed [22] emphasize that only the quality of metadata becomes a tool for accessing databases such as Scopus and Web of Science, which become benchmarks par excellence of visibility and scientific impact. In scientific journals, metadata are necessary for accessibility, reachability and approachability of information. Despite this, guidelines such as the Metadata Object Description Schema and Dublin Core have provided the basis for a standardised metadata methodology for characterising manuscripts in academic publications. According to Greenberg [23] these principles are fundamental to achieving interoperability across multiple academic publishing environments; they also ensure that metadata complies with international guidelines.

2.3. Previous Investigations

Some of the main research on the visibility of indexed scientific journals are:

Ochoa Henríquez [24] stresses the possibility of increasing the visibility of Latin American scientific journals to achieve greater support from high-level researchers. Aguirre, et al. [25] argues that the design of the visibility of journals should be oriented towards their target audience, the readers. He also mentions that for journals in electronic format to prosper, they should consider the formation of a group of regular readers, who should be integrated into their academic community; they should also cite their contents from their own works and disseminate their publication.

Aparicio, et al. [26] define the concept of visibility as a key tool for any scientific publication, given that it becomes accessible to students, teachers and researchers. Likewise, it contributes to the progress of its capacity to disseminate its work and visibility, which makes it an attractive publication. De Moya Morata [27] mentions that visibility brings with it indexing in prestigious databases, which are characterised by their rigorous evaluation criteria, which has an impact on the favourable reputation of the journal, increasing its attractiveness for both readers and authors. In addition, it is highly advisable to establish a presence in academic search engines, repositories and social networking platforms to increase visibility. In addition, research was carried out on some crucial indicators to quantify visibility, which include the impact factor (calculated based on citations received), journal quartile, H-index and the proportion of international collaboration.

According to Chávez Sánchez [28] in the context of research and in academia, it is important that scientific journals obtain inclusion in specialized spaces such as quality databases; in addition, it is vital that they obtain an impact factor. This will be achieved by implementing compliance with quality guidelines for their subsequent classification. The research conducted underlines that the visibility of an indexed scientific publication in high quality databases, its presence in various digital media, the communication of authors and the evaluation of bibliometric indicators are fundamental strategies to improve the perception of the indexed scientific publication.

2.4. Editorial Quality

López-Cózar, et al. [29] argue that this concept for a scientific journal is a means of dissemination that

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is the product of a whole editorial process. Delgado, et al. [30] that academic publications have become the main and most influential medium for the dissemination of research, playing a crucial role in the configuration, unification and social rooting of a discipline.

Jiménez-Hidalgo, et al. [31] point out that editorial management systems facilitate and optimize the process of editing scientific articles. Coslado, et al. [32] argued that the primary obligation of any scientific publication lies in the evaluation of published work through a process known as peer review.

Romero Chaves [33] emphasizes the need to explore three fundamental lines of study that partially evidence the editorial management of a scientific journal, which are: Specialization of publishing professionals, Supervision of publishing procedures, and unrestricted access to contents. Fernández, et al. [34] pointed out that scientific journals have been the epicenter of an important renewal in the recent decade, motivated by obtaining the widest dissemination and international echo imaginable.

The website of the Network of Scientific Journals of Latin America and the Caribbean [35] highlights that editorial quality indexes evaluate publications based on criteria that, like the scientific journal, have progressed and adjusted to technological evolution and new trends in scientific communication. Flores [36] argues that it is essential to monitor the quality of metadata in scientific publications, since it optimizes indexing in international indexes, improves the visibility and accessibility of articles, and optimizes the consistency of the information. All these advantages favor an optimization in the quality of the editorial management of the publication. Merlo Vega and Montoya Roncancio [37] argue that the quality of scientific publications can be assessed through indicators that evaluate both bibliometric data and editorial and dissemination data.

3. PURPOSE OF THE STUDY

Integrate enriched metadata as a tool to increase the quality and visibility of the IPSUMTEC journal according to the guidelines established by the OJS indexing guide.

4. METHODS

4.1. Paradigm

Given the focus of the research study, it seeks to measure the impact of a specific intervention in the implementation of metadata, in the specific variables (quality and visibility), it has a qualitative paradigm because its field of research is exploratory and descriptive, this paradigm is characterized by its objective approach to the measurement of variables and the search for the study towards the guidelines established by the OJS indexing guide.

4.2. Type of Research

The type of research handled is:

Descriptive because it will detail the characteristics of the journal, the metadata implemented, and the changes in the quality and visibility indicators.

Exploratory because patterns, relationships and trends will be sought in the data to better understand the phenomenon studied and generate hypotheses for future research.

4.3. Research Level

According to the nature of the research study, it meets an exploratory and descriptive level of study, because at the time of searching for information, several research sources were explored and descriptive because the information sought must be described so that the research is concrete and specific.

4.4. Participantes

- IPSUMTEC Jorunal: It will be the main unit of analysis.
- Articles published in IPSUMTEC: Articles published in the period 2019 to 2021, before and after the implementation of metadata, will be analyzed.

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- Databases: Databases (Biblat - MetaMetrics) will be used to compile the journal's metadata to comply with the guidelines.

4.5. Instrument

The instrument used to measure the metadata are bibliometric indicators that will be used according to the policies of the OJS indexing guide and evaluated by MetaMetrics on its web platform, which is a validator of metadata of the Latin American Bibliography in Scientific and Social Research Journals (Bibliat) [38]. Table 2 shows the information considered for metadata validation:

Table 2.
Review and verification of the descriptive information of the academic publication.

Dimension	Description
Sufficiency	This means that the documentation is complete, covering both the journal and each document; it also includes the institutional details of the creators.
Consistency	The arrangement of metadata following the orthographic, syntactic (structure, type or format of data) and semantic (fields with default values) guidelines established in the OJS Indexing Manual. Excellent strategies for Latin America.
Accuracy	It is considered ideal that the journal data aligns with that recorded in the ISSN Portal, that the languages of publication are defined, and that persistent identifiers and links to full texts are correctly resolved.

Source: Latin American bibliography in scientific and social research journals [39].

4.6. Procedure

To carry out the study, three stages were implemented, which are described below:

- Diagnosis of the metadata on the journal's web page. In this phase, the journal's information was evaluated with the MetaMetrics tool to identify strengths and areas of opportunity. With the diagnosis obtained, planning was carried out to improve the platform for the journal under study.
- Standardization of metadata for manuscripts. In this stage, the corrections found in the previous phase were carried out, and it was verified that the guidelines established by the OJS indexing guide and the MetaMetrics tool were complied with. To this end, continuous monitoring of the Platform was carried out, and corrections were made when data was entered incorrectly due to human error.
- Evaluation of metadata for manuscripts. In this phase, the work done in the previous phase was evaluated to ensure that the journal's information complied with the guidelines established by the MetaMetrics tool. The result for 2018, 2019, 2020 and 2021 was favourable, meaning that the Platform complied with the guidelines.

5. Results

5.1. Diagnosis of the Metadata on the Journal's Website.

For this stage, an initial evaluation of the journal's information was carried out in the OJS version 3 platform, to know how the metadata was found.

Figure 1 represents the 2018 edition, which, in the distribution of individual manuscripts.

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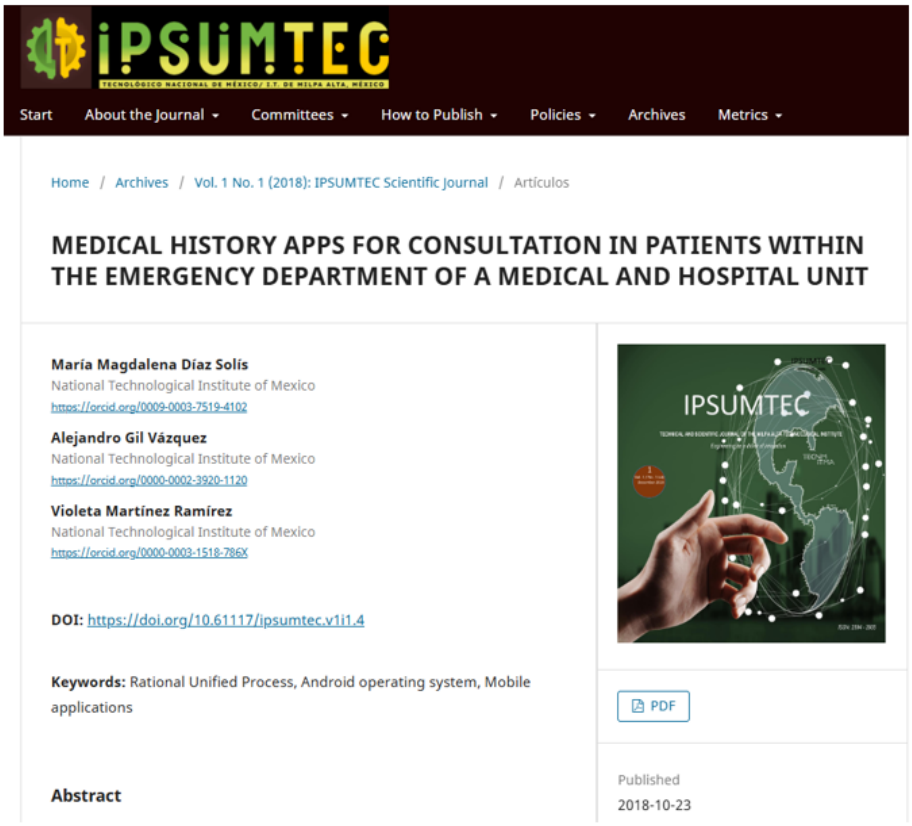

Figure 1.
Publication of the scientific journal.
Source: National Institute of Technology of Mexico [2].

The information in the image above shows that the metadata guidelines are not met, where the titles of both the journal and each manuscript are presented in capital letters.

Table 3 represents the result obtained when evaluating the journal information for the first time with the MetaMetrics tool.

Table 3.
Data analysis using MetaMetrics.

Year	Vol.	No.	Page	Title	Does not meet sufficiency	Does not meet consistency	Does not meet accuracy
2018	1	1	P1-03	Medical history apps for consultation in patients within the emergency department of a medical and hospital unit	ORCID, Title, Translation, Keywords, Licence		DOI
2018	1	1	P4-02	Organisational planning with sensory imagery as a tool for professional development at the engineering level: the case of the Milpa Alta Institute of Technology	ORCID, Title, Translation, Keywords, Licence		DOI
2018	1	1	P4-03	Impact of the ethics workshop course on decision-making by engineering students: computer systems	ORCID, Title, Translation, Keywords, Licence		DOI

Source: Latin American Bibliography in Scientific and Social Research Journals (Bibliat) [38].

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The figure above shows the areas of improvement found by the MetaMetrics tool. Column 1 represents the Year of evaluation, while column 2 alludes to the volume, column 3 indicates the number, while column 4 symbolizes the pages corresponding to the manuscript. On the other hand, column 5 represents the title of the manuscript evaluated, and column 6 refers to the Sufficiency. Column 7 symbolizes consistency and column 8 indicates precision. These last 3 columns, the journal does not comply.
Table 4 shows the results obtained for the years 2018 to 2021.

Table 4.
Results of the scientific publication.

Year	Percentage
2018	57.55%
2019	56.32%
2020	56.54%
2021	57.27%

The table above shows that none of the years evaluated achieved 60% compliance, a result that shows the importance of implementing metadata in the scientific journal. The figures for the years of the project show that in 2018 only 42.45% was achieved, while in 2019 the figure was 43.68%. In contrast, 2020 ended with 43.46% and, finally, in 2021, 42.73% was achieved.
Figure 2. Represents the final assessment obtained from the comprehensive evaluation.

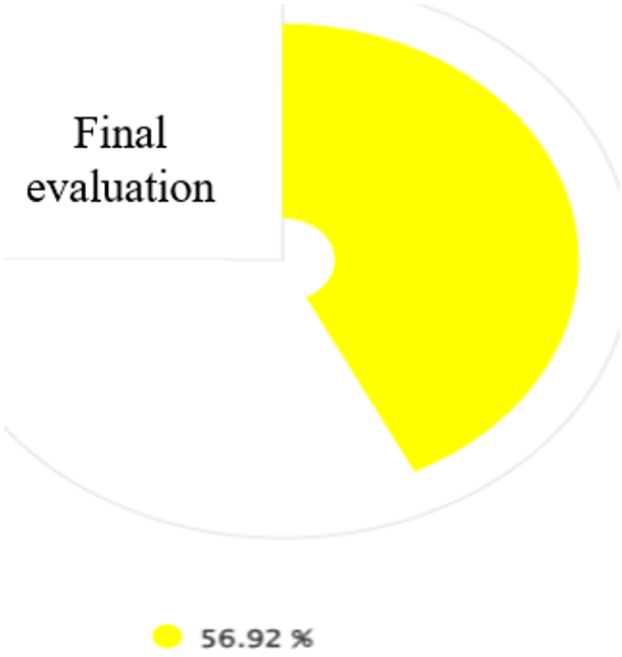

Figure 2.
Final grade of the global evaluation.
Source: Latin American Bibliography in Scientific and Social Research Journals (Bibliat) [38].

The figure above shows that the final digit of metadata provided by MetaMetrics is low, so it is necessary to improve the scientific journal. Once the integral result was known, the next step was to improve the standardization of the information..

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5.2. Evaluation of Metadata for Manuscripts (MetaMetrics - Biblat).

In this phase, the manuscripts and editions were checked for compliance with the metadata guidelines. Figure 3 represents volume 1 of 2018, which compared to figure 5 already shows an improvement.

Figure 3.
Compilation of descriptive information for each manuscript.
Source: National Institute of Technology of Mexico [2].

These improvement activities were implemented in 2019 for volumes 1 and 2. Improvements were also implemented for the 2020 period for volumes 1 and 2. Additionally, improvements were introduced for 2021 for volumes 1, 2, and 3. The improvement process was carefully monitored throughout the years, and the study's implementation and compliance were monitored.

To this end, metadata integration was carried out for each manuscript, where the sections of title and abstract, contributors, metadata, citations, identifiers, galley proofs, permissions and disclosure and

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number were worked on (see Figure 4).

Figure 4.
Final grade of the global evaluation.
Source: Latin American Bibliography in Scientific and Social Research Journals (Bibliat) [38].

The preceding figure represents the final data provided by MetaMetrics, which was high. This result shows the total compliance with the weighted guidelines for the time interval indicated in the study.

The work carried out through MetaMetrics has positioned the journal IPSUMTEC as a publication that complies with international metadata guidelines. In addition, the study helped to improve the interoperability of the information, which facilitated the journal's integration into quality databases; furthermore, it had an impact on the citations of the manuscripts.

Finally, the innovation in the information on the journal's official website had a positive impact on the increased visibility of the publications in search engines, where the number of visits increased.

6. Conclusión

The implementation of metadata in the journal IPSUMTEC had a very positive result, since it proved to be an effective alternative to improve both the visibility of its manuscripts and the quality of its editorial management. The figures obtained had a favorable impact, going from an initial compliance of 57% to 100% in the guidelines weighted by MetaMetrics.

The standardization of metadata following the standards of the OJS Indexing Manual allowed improving areas of opportunity, which were pointed out in the diagnosis, such as: titles with capital

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letters and lack of data in key fields. In addition, the study improved technical areas of editorial management and standardization helped to strengthen the cohesion of the ethical principles of the scientific publications, adhering to the COPE standards.

The improvement of the project was reflected in the three factors evaluated by MetaMetrics: accuracy, sufficiency and consistency. The impact on these three dimensions facilitated interoperability with search engines and academic databases, which increases the scope of the manuscripts published by the journal.

The methodological process implemented in this research constituted a model that can be replicated for other publications that want to have a positive impact on their management and editorial visibility.

In short, this investigation reaffirms that the topic of metadata should not be seen as a simple technical topic, but should be focused as a tool that, if implemented in a pertinent manner, by itself, will enhance the democratization of scientific knowledge. Its proper execution not only impacts a scientific publication but also helps to obtain greater visibility for the authors; it also contributes to access to knowledge for the scientific community.

7. Discusión

The figures obtained in this research show that metadata is an important topic for the editorial management of any scientific publication. The pertinent execution of the indexing guide of the OJS Indexing Manual contributes to the timely fulfillment of metadata; for the project, it went from 57% to 100%, data that are like information from Powell and Watt [20]. The authors demonstrate that well-structured metadata increase the probability of indexing publications in academic search engines.

The notable improvement observed in the journal IPSUMTEC proves Torres-Salinas and Moed [22] right: the quality of metadata recording the contents is a requirement of any first-class scientific database, such as Scopus and Web of Science. In this case, the greater adaptability of the metadata has made it possible for the journal to meet the standards required by MetaMetrics, which, in its case, could ensure it a larger audience abroad.

The methodological approach established with the MetaMetrics tool as an evaluation instrument can contribute a new perspective to the existing literature. Although Greenberg [23] emphasized the meta-information standard such as Dublin Core as a component of interoperability, our study shows the efficiency of specific evaluation tools for Latin America. We consider that regional tools may be more effective in addressing the characteristics of scientific journal articles from the region.

However, a particularly relevant finding is the connection between standard metadata and editorial ethics. The data confirm the observation made by Piwowar, et al. [18] who point out that metadata transparency is necessary and sufficient to prevent duplication and plagiarism. Therefore, the adoption of COPE guidelines not only improved the technical substrate of metadata at IPSUMTEC but also strengthened its editorial integrity.

Switching from inappropriate formats to international standards, such as capitalized titles, is an example of a paradigm shift in publication management. This discovery expands Willinsky [19] well-organized metadata is much easier to use, which improves the prospects for public campaigns in favor of open access. For IPSUMTEC, that means better interoperability and the possibility of becoming a node in the global knowledge system.

On the other hand, it is essential to point out the limitations of the analysis. The weighting was performed based on a single record and during a defined time interval (2019 - 2021); therefore, the data cannot be generalized. Furthermore, although 100% compliance was achieved according to MetaMetrics, it would be relevant to examine the real long-term impact in terms of citations, downloads and international visibility.

In addition, the results also suggest the need for a systemic approach to metadata implementation. The improvement in question was not achieved by technical changes alone, but by a gradual process involving training of editorial management staff, revision of processes and adoption of methods based on international regulations. This result is therefore also in line with existing literature that highlights the

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importance of a systemic approach to the quality of editorial management [39].

In sum, this work contributes to the discussion on the visibility of Latin American journals in the international scientific environment. A working method is proposed that would allow regional journals to reach international standards of high visibility through the systematic implementation of enriched metadata. This could help to reduce the scientific visibility gap between the different regions of the world.

8. Future Lines of Research

The problems and the experience with the implementation of enriched metadata in the journal IPSUMTEC open opportunities for lines of research that facilitate the deepening of scientific knowledge on editorial quality and visibility in academic publications. The following are some lines of research that are worth focusing on in future research.

Longitudinal research on the quantitative relationship between the implementation of metadata with international standards and indicators of scientific impact This type of line would allow measuring whether the implementation of methodological rigor and prescribed standards would have an impact on the increase in the number of times an article is used or referenced, as well as on the calculation of impact factor scores and the h-index.

Research on how a correct standardization of metadata reduces the gaps in access to knowledge Given its scope in the inclusion and equity in the access to the works carried out, this line would touch on regional environments and communities with greater or lesser purchasing power and development.

Research on the incorporation of new non-DOI and non-ORCID identifiers, such as ROR, and how these processes influence transparency in resource management Given the need for science to speak with propriety, this line would point to the mechanism of reporting on transparency with the providers of work budgets.

Transparency:

The authors confirm that the manuscript is an honest, accurate, and transparent account of the study; that no vital features of the study have been omitted; and that any discrepancies from the study as planned have been explained. This study followed all ethical practices during writing.

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References

[1] M. A. Flores Chávez, *OJS indexing manual: Good practices for the Latin American region, General Directorate of Libraries and Digital Information Services*, 2nd ed. Mexico: National Autonomous University of Mexico, 2024.

[2] National Institute of Technology of Mexico, *IPSUMTEC Magazine", Milpa alta technological institute.* Mexico: National Institute of Technology of Mexico, 2025.

[3] Regional Online Information System for Scientific Journals of Latin America, *The Caribbean, Spain and Portugal, "IPSUMTEC"* Spain and Portugal: Regional Online Information System for Scientific Journals of Latin America, the Caribbean, 2025.

[4] Dialnet Foundation, *IPSUMTEC.* Mexico: Dialnet Foundation, 2025.

[5] Information Matrix for Journal Analysis, *IPSUMTEC.* Barcelona: University of Barcelona, 2025.

[6] Keepers, *IPSUMTEC.* Mexico: International Standard Serial Publication Number, 2025.

[7] CROSSREF, *IPSUMTEC.* Mexico: CROSSREF, 2025.

[8] The German Union Catalogue of Serial Publications, *IPSUMTEC.* Mexico: German National Library, 2025.

[9] OpenAlex, *IPSUMTEC.* Mexico: OurResearch, 2025.

[10] Electronic Journal Library (EZB), *IPSUMTEC.* Mexico: University of Regensburg, 2025.

[11] SUDOC, *IPSUMTEC.* Mexico: ABES / OCLC, 2025.

[12] MIR@BEL, *IPSUMTEC.* Mexico: Institute of Political Studies of Lyon, 2025.

[13] Directory of Scientific and University Resources in Open Access, *IPSUMTEC*. Mexico: International Standardized Number of Serial Publications, , 2025.

[14] J. A. Senso and A. d. l. Rosa Piñero, "The concept of metadata: more than a description of electronic resources," *Ciência da Informação*, vol. 32, no. 2, pp. 95-106, 2003. https://doi.org/10.1590/S0100-19652003000200011

[15] C. Giorgetti, L. Romero, and M. Gutiérrez, *Defining educational metadata for higher education institution repositories*. Spain: Semantic Scholar, 2015.

[16] J. M. Plata, *What is metadata in a forensic investigation?* Romania: National Center for Information and Protection of Industrial Property 2017.

[17] L. F. Ramos Simón and S. Cobo Serrano, *The use of metadata for the management of the world's digital heritage in the Information Society", in A. A., Rodríguez García and R. A., Rodríguez Castillo (Eds.), "Multidisciplinary Trends in the Use of Metadata*. Mexico: Institute of Library and Information Research, National Autonomous University of Mexico.

[18] H. Piwowar *et al.*, "The state of OA: A large-scale analysis of the prevalence and impact of Open Access articles," *PeerJ*, vol. 6, p. e4375, 2018. https://doi.org/10.7717/peerj.4375

[19] J. Willinsky, *The access principle: The case for open access to research and scholarship*. United States: MIT Press, 2019.

[20] A. Powell and J. Watt, "Metadata and scholarly communication: Improving the visibility of research," *Journal of Scholarly Publishing*, vol. 51, no. 3, pp. 201–218, 2020.

[21] O. Fernández Camargo, O. Calderón, and M. N. C. Ochoa, "Quality parameters in multidisciplinary scientific journals of the University of Panama," *Revista Científica Orbis Cógnita*, vol. 5, no. 2, pp. 129-145, 2021.

[22] D. Torres-Salinas and H. F. Moed, "The use of bibliometric tools to assess the scientific impact of journals: Challenges and opportunities," *Research Evaluation*, vol. 30, no. 4, pp. 431–440, 2021.

[23] J. Greenberg, *Metadata for digital content: A guide for information professionals*. UK: Facet Publishing, 2022.

[24] H. Ochoa Henríquez, "Visibility: The challenge of Latin American scientific journals," *Opción*, vol. 20, no. 43, pp. 131–138, 2004.

[25] M. Aguirre, A. M. Cetto, S. Córdoba, A. M. Flores, and A. Román, *Editorial quality and journal visibility: The Latindex experience. In D. Babini & J. Fraga (Eds.), Electronic publishing, virtual libraries and portals for the social sciences in Latin America and the Caribbean*. Argentina: CLACSO, 2006.

[26] A. Aparicio, G. Banzato, and G. Liberatore, *Manual of editorial management of scientific journals of social and human sciences: good practices and quality criteria*, 1st ed. Argentina: REUN - Network of National University Publishers, 2016.

[27] B. De Moya Morata, *6 strategies to improve the visibility of scientific journals*. Spain: SCImago, 2021.

[28] H. G. Chávez Sánchez, "Quality of Peruvian scientific journals and their impact on research," *Revista de Ciencias Humanísticas Sociales*, vol. 7, no. 1, pp. 51-66, 2022.

[29] E. López-Cózar, R. Ruiz-Pérez, and E. Jiménez-Contreras, "Editorial quality, diffusion and bibliometric indicators of the Revista Espaãnola de Enfermedades Digestivas," *Revista Espanola de Enfermedades Digestivas*, vol. 91, no. 1, pp. 1-32, 1999.

[30] E. Delgado, R. Ruiz-Pérez, and E. Jiménez-Contreras, *The editing of scientific journals: Guidelines, criteria and evaluation models*. Granada: EC3-University of Granada, 2006.

[31] S. Jiménez-Hidalgo, E. Giménez-Toledo, and J. Salvador-Bruna, "Editorial management systems as a means of improving the quality and visibility of scientific journals," *El Profesional de la Información*, vol. 17, no. 3, pp. 281–292, 2008. https://doi.org/10.3145/epi.2008.may.04

[32] M. Coslado, I. Lacunza, and G. Ros, "Assessing the quality of Spanish scientific journals: Analysis of their review processes," *El profesional de la información*, vol. 20, no. 2, pp. 159-164, 2011.

[33] C. Romero Chaves, "Trends in editorial processes of scientific journals," *Investigium IRE Journal: Social and Human Sciences*, vol. 5, no. 1, pp. 7–10, 2014.

[34] A. D. Fernández, M. Ruiz-Corbella, and A. Galán, "Editorial and scientific quality in education journals. Trends and opportunities in the 2.0 context," *Revista de Investigación Educativa*, vol. 35, no. 1, pp. 235-250, 2017. https://doi.org/10.6018/rie.35.1.244761

[35] Network of Scientific Journals of Latin America and the Caribbean, *International editorial quality s tandards for scientific Journals", XML JATS Redalyc in R2020 "One model, thousands of editors, multiple platforms*. Spain and Portugal: Network of Scientific Journals of Latin America and the Caribbean, 2021.

[36] M. A. Flores Chávez, "MetaMetrics: prototype for visualizing metadata quality in Latin American scientific journals published in Open Journal System," *University Library*, vol. 26, no. 1, pp. 12-23, 2023. https://doi.org/10.22201/dgbsdi.0187750xp.2023.1.1466

[37] J. A. Merlo Vega and V. Montoya Roncancio, "Evaluation criteria for scientific journals," *Revistas de Estudios de la Información*, vol. 1, no. 1, pp. 71-89, 2023. https://doi.org/10.54167/rei.v1i1.1223

[38] Latin American Bibliography in Scientific and Social Research Journals (Bibliat), *What is MetaMetrics*. Mexico: National Autonomous University of Mexico, 2025.

[39] F. A. Parra-Suárez, M. R. Moreno-Pino, and Y. Martínez-Peña, "Control and improvement of editorial quality management," *Ciencias Holguín*, vol. 26, no. 3, pp. 67–77, 2020.

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