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TECHNOLOGICAL MAPPING OF LIBRARY MANAGEMENT SOFTWARE IN FEDERAL UNIVERSITIES IN BRAZIL

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ABSTRACT

In view of the constant advances in Information and Communication Technologies (ICT), it is increasingly important to develop and implement systems and applications to perform specific services in libraries. The objective of this study is to map the existing software technologies for service management in Brazilian federal university libraries through the platform of the National Institute of Industrial Property (INPI) and the library websites. The methodology includes a literature review and data collection through the portals of the Federal Universities and the INPI database. It is concluded that the Pergamum system is the most used library management software by Brazilian federal universities, followed by the SIGAA and Sophia systems.

Keywords: Library Management, Software, University Library.

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INTRODUCTION

The university library is a research environment, where users look for information that can help their studies and want it to be available in an accessible way. It is there that the contents indispensable for their academic learning are deposited, cataloged and disseminated. In this scenario, *software* plays an important role in the process of storing the institution's informational arsenal, whether through computer programs in organizational platforms or in service management applications. These systems facilitate both the procedure of storing documents in their databases and the retrieval of indexed information.

According to Law No. 9,609, of February 19, 1998, a software is composed of a set of information and commands written in logical or coded language, stored on some type of physical media, essential for the operation of electronic data processing devices, aiming to make them operate in a specific manner and for certain purposes (Brasil, 1998).

It is important to note that the guarantee of rights to the *software* does not depend on its registration. However, the act of registering the program with the INPI provides greater legal protection for its creator, especially in legal situations that aim to prove the authorship or ownership of the *software*. Also, unlike patents, the protection of the computer program is not limited territorially and internationally comprises all 176 countries that are legally bound by the Berne Convention (1886) (Brazil, 2022).

Taking into account the continuous advances in Information and Communication Technologies (ICT), it can be considered that computer programs are increasingly important to perform specific library services, with the objective of meeting the informational needs of the academic community quickly and efficiently, reducing the time spent for research. "The adoption of contemporary and innovative management systems is, therefore, one of the elements that allows the realization of the necessary change in libraries" (Tonding; Vanz, 2018, p. 75).

Costa, Araújo and Paixão (2024) add that digital changes have a significant impact on the management of these libraries, as well as on their presentation and use by their users. In addition, these units are modernizing to provide a more pleasant and participatory environment, promoting reading and learning in a creative way. These transformations show the role of libraries as promoters of change in society, with the ability to facilitate access to information and knowledge for all people.

Currently, the daily life of various types of libraries, especially university libraries, is impacted by the increase in information and the changes caused by technological

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expansion. This makes libraries a dynamic and interactive organism, allowing services to be treated with innovative approaches and made available in a variety of different ways for access and use. These libraries took advantage of the available opportunities and identified what their users needed, in order to promote the evolution of activities (Carvalho; Pontelo; Gomes, 2017).

According to Tonding and Vanz (2018), the development of library management software was influenced by the emergence and use of new technologies, which provide the modernization of systems to meet the technical and informational demands of libraries and their users.

Thus, this article aims to map the existing *software* technologies for service management in Brazilian federal university libraries through the platform of the National Institute of Industrial Property (INPI) and the library *websites*. It is intended to provide important information about computer programs in universities, such as the granting of registration and its importance. In addition, the core in Brazilian federal universities makes the study relevant to the local context, which can attract the interest of researchers and professionals in the field.

METHODOLOGY

This study investigated library service management software, based on the academic literature, software record queries in the computer program database of the National Institute of Industrial Property (INPI), on the e-MEC website of the Ministry of Education, and in the 69 active federal universities in Brazil. The methodology used consisted of a bibliographic search carried out in May and June 2024 in the following databases: Portal de Periódicos da Coordenação de Aperfeiçoamento de Pessoal de Nível Superior (Capes), Biblioteca Digital Brasileira de Teses e Dissertações (BDTD), Scientific Electronic Library Online (Scielo) and Scopus. In this search, the term "Library" and the combinations of keywords were used, using the Boolean operator AND in order to delimit the search: Library AND Software; Library AND Management; Library AND Management AND Software. From the documents found, it was possible to explore the references cited to expand the list of studies on the subject.

For data collection, a survey of federal public universities active in the Higher Education Regulation System (e-MEC) of the Ministry of Education was carried out (Chart 1).

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Table 1 – Higher Education Institutions (HEIs).

No.	Institution (HEI)	No.	Institution (HEI)
1	Federal University of Grande Dourados Foundation (UFGD)	36	Federal University of Sergipe (UFS)
2	Federal University of Health Sciences Foundation of Porto Alegre (UFCSPA)	37	Federal University of Uberlândia (UFU)
3	Federal University of Rondônia Foundation (UNIR)	38	Federal University of Viçosa (UFV)
4	Federal University of ABC Foundation (UFABC)	39	Federal University of Acre (UFAC)
5	Federal University of Pampa Foundation (UNIPAMPA)	40	Federal University of Agreste de Pernambuco (UFAPE)
6	Federal University of Tocantins Foundation (UFT)	41	Federal University of Amapá (UNIFAP)
7	Federal University of the São Francisco Valley Foundation (UNIVASF)	42	Federal University of Amazonas (UFAM)
8	University of International Integration of Afro-Brazilian Lusophony (UNILAB)	43	Federal University of Cariri (UFCA)
9	University of Brasília (UnB)	44	Federal University of Ceará (UFC)
10	Federal University of Bahia (UFBA)	45	Federal University of Delta do Parnaíba (UFDPAR)
11	Federal University of the Southern Border (UFFS)	46	Federal University of Espírito Santo (UFES)
12	Federal University of Latin American Integration (UNILA)	47	Federal University of the State of Rio de Janeiro (UNIRIO)
13	Federal University of Paraíba (UFPB)	48	Federal University of Maranhão (UFMA)
14	Federal University of Alagoas (UFAL)	49	Federal University of Northern Tocantins (UFNT)
15	Federal University of Alfenas (UNIFAL-MG)	50	Federal University of Western Bahia (UFOB)
16	Federal University of Campina Grande (UFCG)	51	Federal University of Western Pará (UFOPA)
17	Federal University of Catalão (UFCAT)	52	Federal University of Pará (UFPA)
18	Federal University of Goiás (UFG)	53	Federal University of Paraná (UFPR)
19	Federal University of Itajubá (UNIFEI)	54	Federal University of Piauí (UFPI)
20	Federal University of Jataí (UFJ)	55	Federal University of Recôncavo da Bahia (UFRB)
21	Federal University of Juiz De Fora (UFJF)	56	Federal University of Rio de Janeiro (UFRJ)
22	Federal University of Lavras (UFLA)	57	Federal University of Rio Grande (FURG)
23	Federal University of Mato Grosso (UFMT)	58	Federal University of Rio Grande do Norte (UFRN)
24	Federal University of Mato Grosso do Sul (UFMS)	59	Federal University of Rio Grande do Sul (UFRGS)
25	Federal University of Minas Gerais (UFMG)	60	Federal University of Southern Bahia (UFSB)
26	Federal University of Ouro Preto (UFOP)	61	Federal University of South and Southeast of Pará (UNIFESSPA)
27	Federal University of Pelotas (UFPEL)	62	Federal University of the Jequitinhonha and Mucuri Valleys (UFVJM)
28	Federal University of Pernambuco (UFPE)	63	Federal University of Triângulo Mineiro (UFTM)
29	Federal University of Rondonópolis (UFR)	64	Fluminense Federal University (UFF)
30	Federal University of Roraima (UFRR)	65	Federal Rural University of the Amazon (UFRA)
31	Federal University of Santa Catarina (UFSC)	66	Federal Rural University of Pernambuco (UFRPE)
32	Federal University of Santa Maria (UFSM)	67	Federal Rural University of Rio de Janeiro (UFRRJ)

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33	Federal University of São Carlos (UFSCAR)	68	Federal Rural University of the Semi-Arid (UFERSA)
34	Federal University of São João Del Rei (UFSJ)	69	Federal Technological University of Paraná (UTFPR)
35	Federal University of São Paulo (UNIFESP)		

Source: Brazil (2024).

Information on the 69 active Brazilian federal public universities was extracted through the search form on the National Registry of Higher Education Courses and Institutions, Cadastro e-MEC (https://emec.mec.gov.br/). Data were collected using the advanced search, with the following filters: search by – Higher Education Institution; administrative category – federal public; Academic Organization – University. After the survey, the HEIs were organized, in a spreadsheet, according to the five Brazilian regions: north, northeast, midwest, southeast and south. This organization aimed to improve the identification of results.

Next, the software was searched in the INPI's computer program database, using the keywords: Library; AND Software Library; Library AND System; Library AND Manager. The results did not correspond to the research surveyed in federal libraries. Thus, it was decided to search the *websites* of federal universities for the *software* used by libraries for service management. On the library portal, 9 systems were identified, such as: Pergamum; Sophia; Minerva; Argo; Sabi+; Library Portal; PHL © Elysio; Supra Omnes Lux Luces; and SIGAA. Although the Integrated System for the Management of Academic Activities (SIGAA) is a more comprehensive program, used especially to manage academic activities, it has the library module, if the license for this resource is purchased. This functionality allows the management of the services developed by librarians and the consultation of the institution's collection.

Finally, the software was searched in the BPTO's search form, in the "contain" field, "all words" was chosen and, afterwards, the title of the program was added. In the results, the name of the holder, application number, date of filing, title, field of application, type of program, date of issuance of the registration certificate were identified. All survey data were tabulated and organized in Excel spreadsheets. Chart 2 describes the method used to search for *software records*.

Chart 2 – Strategy for seeking software registration at the BPTO.

Search results using keywords
Library – 132 results
⬇

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After the inclusion of the Boolean operator AND
AND Software Library – 3 results
Library AND System – 8 results
AND Library Manager – 1 results
↓
Using the software identified in university libraries
3 results

Source: Prepared by the authors of this article (2024).

The results will be discussed below for a better understanding of the data collected.

RESULTS AND DISCUSSION

The mapping began with a search on the websites of Brazilian federal universities to identify which library management software is used by these institutions. Nine systems were identified in operation, as shown in Table 1. Next, the percentage of use of each application was calculated, as shown in Graph 1.

Table 1 – *Library management software* used in Federal Universities.

N	ACRONYM	SOFTWARE	N	ACRONYM	SOFTWARE
1	UFAC	Library Portal	35	UFCat	Sophia
2	UNIFAP	SIGAA	36	UFJ	Sophia
3	UFAM	Pergamum	37	UFMT	Pergamum
4	UFOPA	SIGAA	38	UFR	Pergamum
5	UFPA	SIGAA	39	UFMS	Pergamum
6	UFRA	SIGAA	40	UFES	Pergamum
7	UNIFESSPA	SIGAA	41	UNIFAL	Sophia
8	UNIR	SIGAA	42	UNIFEI	SIGAA
9	UFRR	SIGAA	43	UFJF	Pergamum
10	UFT	Library Portal	44	UFLA	Pergamum
11	UFNT	Library Portal	45	UFMG	Pergamum
12	UFAL	Pergamum	46	UFOP	Pergamum
13	UFBA	Pergamum	47	UFSJ	Pergamum
14	UFSB	SIGAA	48	UFU	Sophia
15	UFRB	Pergamum	49	UFV	Pergamum
16	UFOB	Pergamum	50	UFTM	Sophia
17	UNILAB	Pergamum	51	UFVJM	Pergamum
18	UFCA	Pergamum	52	UFSCar	Pergamum
19	UFC	Pergamum	53	UNIFESP	Pergamum
20	UFMA	SIGAA	54	UFABC	Sophia
21	UFPB	SIGAA	55	UNIRIO	Sophia
22	UFCG	Supra Omnes Lux Luces	56	UFRJ	Minerva
23	UFPE	Pergamum	57	WHEW	Pergamum
24	UNIVASF	Pergamum	58	UFRRJ	SIGAA
25	UFRPE	SIGAA	59	UTFPR	Pergamum
26	UFAPE	Pergamum	60	UNILA	SIGAA
27	UFDPar	SIGAA	61	UFPR	Sophia
28	UFPI	SIGAA	62	UFCSPA	PHL © Elysio
29	UFRN	SIGAA	63	UFPel	Pergamum
30	UFERSA	SIGAA	64	UFSM	Library Portal

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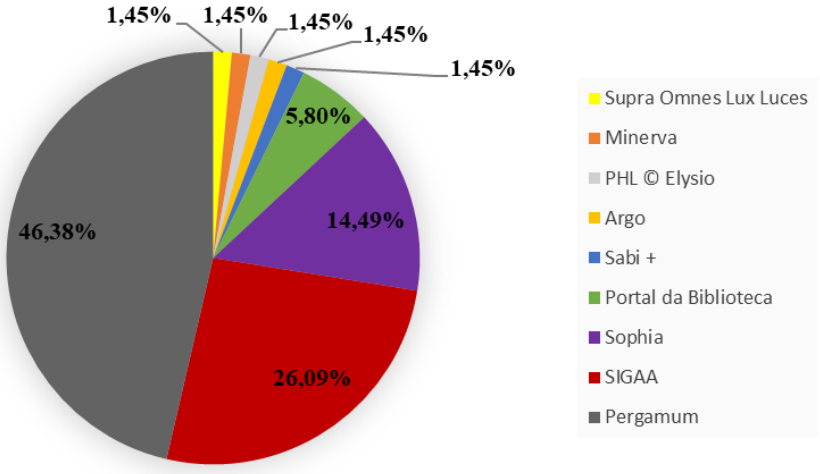
31	UFS	Pergamum	65	UNIPAMPA	Pergamum
32	UnB	Pergamum	66	FURG	Argo
33	UFGD	Sophia	67	UFRGS	Sabi +
34	UFG	Sophia	68	UFFS	Pergamum
			69	UFSC	Pergamum

Source: Prepared by the authors of this article (2024).

Graph 1 shows the percentage distribution of the use of library management software and academic repositories used by the Federal Universities. The analysis of the data reveals important insights into the preferences and adoption of these systems in the institutions evaluated.

Graph 1 - Representative percentage of software used in Federal Universities.



Source: Prepared by the authors of this article (2024).

The Pergamum system is the most used information center manager by the FUs, with 46.38% of the total, which indicates a clear preference for this software, due to its functionalities and reliability, considering that according to Silva (2015), it offers users a digital catalog with an intuitive web interface and facilitated resources where it is possible to access the works through any data that identifies them. The use of this resource facilitates the location and access to information, improving the services offered.

SIGAA is the second most used system, representing 26.09% of the total. Despite the lower representativeness in relation to Pergamum, it still holds a considerable share of the market, as it meets the needs of a significant part of the institutions. Its choice is due to the fact that it "enables, with a single login, access to many of the academic life management services offered by universities" (UNB, 2020, p. 1)

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In third place with 14.49% of use, the Sophia system also has an important presence, it offers a "modern interface and its Web services have the possibility of customization, allowing the library to adapt its terminal to the visual standard of the institution's website" (Zamite; Cardoso, 2014, p. 10).

Representing 5.8% of the total, the Library Portal is used by only four federal universities, appearing as an alternative option for library management.

The Sabi +, Argo, PHL © Elysio, Supra Omnes Lux Luces and Minerva systems represent 1.45% each, being used by only one institution each. The low adoption can be attributed to several factors, such as functionality limitations, less dissemination, or less suitability for the specific needs of users.

The predominance of the Pergamum system can be attributed to its wide acceptance and trust established over time. Intuitive functionalities, efficient technical support, and a user-friendly interface contribute to its leadership. The comparative analysis between Pergamum and SIGAA suggests that, although the latter is widely used, it does not reach the same scope, due to specific differences in functionalities or implementation and maintenance costs (SILVA, 2015).

Then, to complement this study, the databases of articles, theses and dissertations were mapped. Table 2 presents the search results in the Scielo, Scopus, CAPES Journals and Brazilian Digital Library of Theses and Dissertations-BDTD databases, using different combinations of keywords related to library, management and software. The analysis of these data allows the identification of research trends and the focus of academic investigations in each database.

The Brazilian Digital Library of Theses and Dissertations presented the largest number of publications retrieved through the search terms. The AND boolean operator was used to restrict the search to only results that present both keywords.

Table 2 – Search in the databases of articles, theses and dissertations.

Keywords	Scielo	Scopus	CAPES Journals	BDTD
Library	1.438	2.342	2.953	78.188
Biblioteca AND Software	43	131	248	8.234
Library AND Management	87	318	222	7.407
Biblioteca AND Gestão AND Software	2	33	90	884

Source: Prepared by the authors of this article (2024).

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The progressive decrease in the number of results as keywords become more specific suggests that, while there is widespread general interest in libraries, fewer searches focus on the intersection of software and management. This pattern may indicate areas of opportunity for future investigations, especially considering the growing importance of efficient management and implementation of software technologies in the field of librarianship. After obtaining the above results, the search was refined by selecting publications from 2020 to 2025 and reading the abstracts.

MAPPING IN THE INPI DATABASE

Soon after, the search was carried out in the database of computer programs of the BPTO, where the keyword "library" was used, which returned 132 results. It is important to note that the BPTO only includes national *software* that had registration requested by the owners, and this registration is not mandatory.

Then, the search was refined by including the Boolean operator AND in order to obtain more specific results to the searched theme. The terms used were "software AND library", "system AND library" and "manager AND library" in the "program title" field (Table 3).

Table 3 – Search in the INPI databases.

Keywords	Results
Library	132
Biblioteca AND Software	3
Library and System	8
Library AND Manager	1

Source: Prepared by the authors of this article based on data from the INPI (2024).

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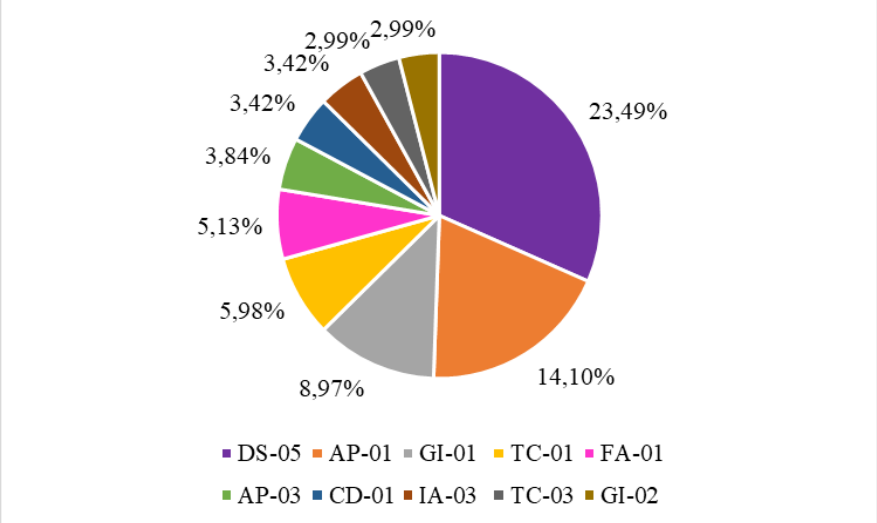
MAPPING BY SOFTWARE TYPE

When analyzing the 132 records by Software Type, it was found that the most common type is DS-05: Routine Libraries, with 55 occurrences, which represents 23.49% of the total. This data highlights the frequent use of these libraries for code reuse and process optimization across multiple applications. In second place is the AP-01 - Applications type, with 33 indications (14.10%), reflecting the importance of applications in automating tasks, improving productivity and assisting daily operations, both in corporate environments and on personal devices. The GI-01- Information Manager, occupies the third position with 21 occurrences (8.97%), these applications are intended for the organization, storage, data retrieval, efficient management and data-based decision-making.

Graph 2 - Ten main occurrences of *software* type related to the library - INPI.



Source: Prepared by the authors of this article based on data from the INPI (2024).

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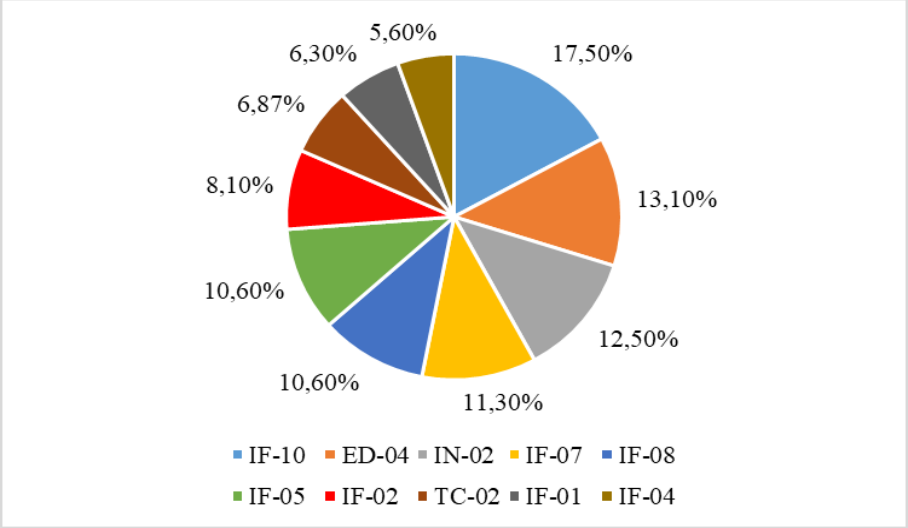
MAPPING BY FIELD OF APPLICATION

Regarding the analysis by the Field of Application, it was found that there is a predominance of the IF-10 field - Generic data processing, with 28 occurrences, representing 17.50% of the total. In second place is field ED-04, referring to forms of teaching and instructional material, representing 13.10% of the total. The use of this field indicates that libraries are integrated into educational processes, providing instructional materials and teaching resources that are essential to the academic environment. In third place, with 20 occurrences and 12.50% of the total, is the field IN-02 - Technology (technological policy, technical cooperation, technological research, technological innovation, appropriate technology, technological chemistry). The significant representation in this field suggests an increasing focus on advanced technologies and innovation within libraries, which may represent a move toward modernization and the adoption of cutting-edge technologies to improve services and operational efficiency.

The other fields of application continue with smaller percentages, but still representative, such as IF-07 with 11.30%, IF-08 and IF-05 both with 10.60%, and IF-02 with 8.10%. These fields highlight the diversity of needs and priorities of programming, from the specific management of information to the integration of new technologies.

Graph 3 illustrates the ten main fields of application of software related to libraries, as mapped by the National Institute of Industrial Property (INPI).

Graph 3 - Ten main fields of application of *software* related to the library – INPI.



Source: Prepared by the authors of this article based on data from the INPI (2024).

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MAPPING THROUGH THE NAMES RAISED ON THE OFFICIAL PORTALS

In addition, the search was carried out in the INPI database through the names of the software used in the universities (Table 1). This search confirmed only three results, namely the Pergamum systems, type of the program: IF-02, IF-04, IF-05, IF-07, IF-08; Application Field: AP-01, GI-01, LG-01, SO-07, UT-01; Minerva: type: AP-01, field of application ED-01, and SIGAA type: AP-01, AP-02, AP-03, AP-04, CD-01, DS-04, GI-01, field of application ED-03, ED-05, IF-01, IF-04.

The low number of results highlights the optional nature of the registration of a computer program in the BPTO's database, where some holders choose not to register their technologies (Brito; Santos, 2019).

Table 3 – Description of the main types of program and fields of application.

Main types of programs - INPI	Main fields of application
AP-01: Applications	ED-04: Forms of teaching/instructional material (direct teaching, teleeducation, correspondence, radio education, semi-indirect teaching; instructional module, didactic equipment, audio-visual material cognitive, psychomotor, affective learning, self-teaching)
AP-03: Control	IF-01: Information (scientific, technological, bibliographic, strategic, data, etc.)
CD-01: Data Communication	IF-02: Documentation (information analysis, information processing, storage, retrieval, dissemination, exchange, bibliophilia, bibliology, bibliometrics)
DS-05: Routine Libraries	IF-04: Document (information, registered, or information material, scientific document, confidential, primary, secondary, non-conventional, reference work, multimedia, machine-readable material)
FA-01: Support Tool	IF-05: Library Science (library administration, technical processes);
GI-01: Information Manager	IF-07: Information Science (information system, information network, information theory, information flow);
GI-02: Database Manager	IF-08: Information Service (library, documentation center, archive, reference center, museum, etc.);
IA-03: Natural Language Processing Systems	IF-10: Generic (data processing)
TC-01: Scientific-Technical Applications	IN-02: Technology (technological policy, technical cooperation, technological research, technological innovation, appropriate technology, technological chemistry).
TC-03: Pattern Recognition	TC-02: Telec System (radio communication, television system, telephony, telegraphy, radar system, telemetry, data transmission, wire communication, telecommunication theory.

Source: Prepared by the authors of this article based on data from the INPI (2024).

MAPPING BY YEAR OF REGISTRATION

Graph 4 shows the number of library-related computer program registrations at the INPI (National Institute of Industrial Property) from 2019 to 2023. In 2019, 10 registrations of library-related applications were granted. This amount will be taken as a basis for analysis in the following years.

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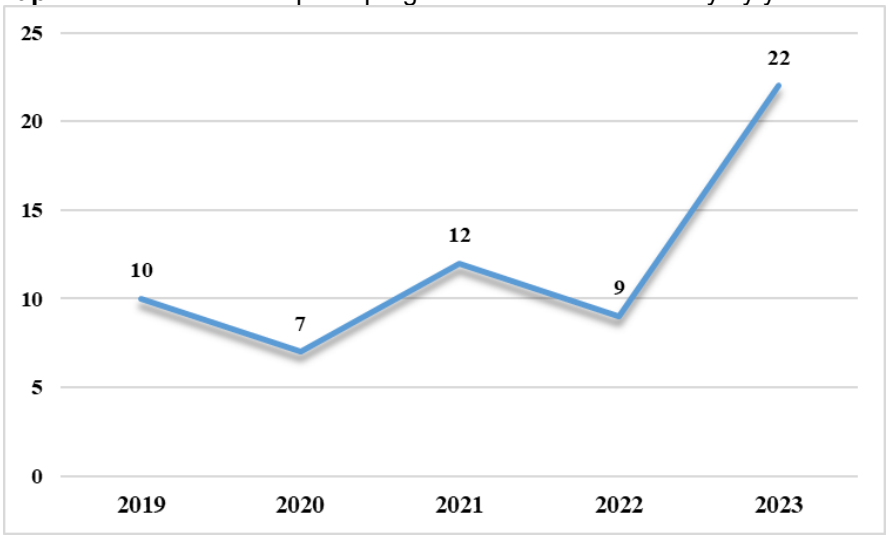
In 2020, there was a retraction in the number of registrations to seven, possibly due to the impacts caused by the COVID-19 pandemic that affected many technology development and registration activities. In 2021, 12 registrations were granted, indicating a resumption of development and adaptation activities to the new pandemic context and digital transformation.

The number of registrations fell again to nine in 2022, which can be attributed to changes in institutional priorities in the face of the challenges of the Brazilian economic slowdown.

Finally, in 2023, there was a significant increase, reaching 22 registrations, suggesting a growing demand for library management technologies, technological advances, or incentives for the registration of new computer programs.

The analysis of Graph 4 reveals fluctuations in the number of records over the years, with a notable increase in 2023, suggesting a continuous adaptation and response to technological needs and external conditions. The significant increase in 2023 can be seen as a positive indicator of innovation and investment in technology for library management, reflecting a trend of continuous growth and evolution in the sector.

Graph 4 - Records of computer programs related to the library by year – INPI.



Source: Prepared by the authors of this article based on data from the INPI (2024).

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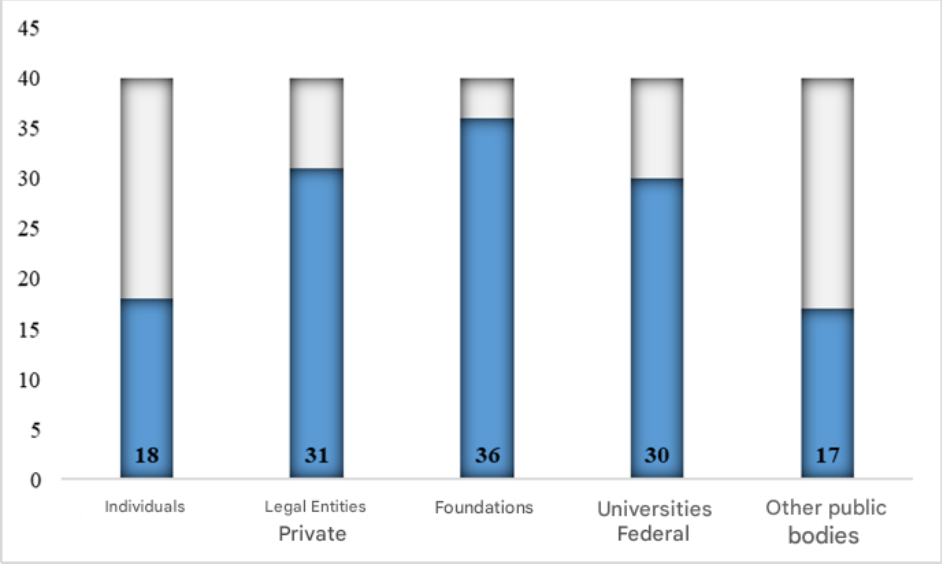
MAPPING BETWEEN INDIVIDUALS AND COMPANIES

Graph 5 shows the distribution of the types of registrants of computer programs related to the library on the INPI website. Analyzing the data, we can see that foundations lead the number of registrations, with 36 requests. Next come private legal entities, with 31 registrations, and federal universities, with 30 registrations. Individuals and other public agencies have lower numbers, with 18 and 17 records, respectively.

The analysis of the graph suggests that foundations and private legal entities and federal universities are the main applicants for registration of computer programs on libraries at the INPI, while individuals and other public agencies have a smaller participation in this process.

It is important to note, although among the 30 registrations made by federal universities, 16 of them were made by the Federal University of Maranhão.

Graph 5 - Mapping of two software records by type of companies – INPI.



Source: Prepared by the authors of this article based on data from the INPI (2024).

CONCLUSION

The present study aimed to map the computer program technologies used for the management of services in Brazilian federal university libraries through the platform of the National Institute of Industrial Property (INPI) and the *libraries* ' websites. The survey revealed the prevalence of nine different systems, with emphasis on the Pergamum software, adopted by 46.38% of the universities, followed by SIGAA with 26.09%, and Sophia with 14.49%.

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The detailed analysis of the registrations at the INPI highlighted that, although there are 132 results for the keyword "library", the inclusion of more specific terms, such as "library AND manager" that returned only one result, highlights the need for a greater number of registrations of software specialized in library management.

The most common type of registered software is DS-05: Libraries of Routines, with 23.49% of the total. Followed by the AP-01 - Applications, with 14.10%, and the GI-01 - Information Manager, which occupies the third position with 8.97%.

The predominance of these types of *software* suggests an emphasis on code reuse and automation of daily tasks, which are essential for the efficient operation of libraries on different types of devices.

In addition, the analysis of the fields of application revealed a strong integration of libraries with educational and technological processes, with emphasis on the Generic Data Processing (IF-10) field, which is the most frequent with 17.5%; Forms of Teaching and Instructional Material (ED-04) with 13.1% and Technology (IN-02) with 12.5%, which emphasizes the role of libraries in technological innovation and in the provision of educational resources.

The analysis also highlighted the importance of software registrations at the Brazilian Patent and Trademark Office (BPTO), since the specific search for library management software returned a limited number of registrations. This suggests that many programs may not be registered, despite their practical use.

The survey of the number of registrations per year at the BPTO revealed that there was a significant increase from 2023, with 22 systems registered, compared to only nine in the previous year, which revealed a growing area of study, especially at the intersection of libraries with management and software, pointing to future opportunities for research and technological development.

Considering the type of applicant, foundations are in the lead with 36 registrations, followed by private companies with 31 and Federal Universities with 30 registrations, respectively.

It is concluded that this study achieves its objective of mapping the ***software*** used by Brazilian federal university libraries, while emphasizing the continuous need for modernization and adoption of advanced technologies for library management in order to meet informational demands effectively and efficiently. The inferences point to the continued importance of modernization and innovation in libraries, with the adoption of management

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systems that meet the growing informational and educational demands of the academic community.

FUTURE PERSPECTIVES

Technologies applied to library management can be used to automate repetitive tasks, improve accuracy in cataloging materials, and provide personalized recommendations to users. In addition, the analysis of large volumes of data can provide insights into user behavior and usage trends, allowing for more efficient management.

Future research could explore the detailed reasons behind the preferences and challenges associated with each library management system used in Federal Universities. Comparison with other countries could also provide additional insights into global trends in academic library management.

Another relevant study would be a survey on the reasons that lead developers of library management systems used in federal universities not to register their software with the INPI, since only three of them are in the database.

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