

Digital collections

Perspectives, challenges and opportunities for memory institutions in Brazil

By Dalton Lopes Martins¹ and Calíope Víctor Spíndola de Miranda Dias²

Over the years, memory and culture institutions have played a role in safeguarding and preserving cultural assets and making them available to society. However, in light of the advances made by the information society through technological breakthroughs, these institutions are being forced to rethink their ways of organization to adjust to new resources. This technological scenario increasingly opens up more room for digital formats and offers a vast range of possibilities.

In the search to reinvent the provision of information, memory and cultural institutions have developed projects to digitize their collections, appropriating new tools, especially the Internet, to transform the dissemination cycle of these cultural goods. By making them available on digital platforms, access to cultural objects, which was previously limited to visiting physical collections, has been broadened. At the same time, digital collections can extend beyond their functional representation, expanding their potential for information, communication, reinterpretation and presentation (Sayão, 2016).

Memory and cultural institutions have been posting their collections as digital objects on the Web since the end of the twentieth century. Compared to traditional collections, they have specific properties, and have far greater reach and

plasticity. By being made available on the Web, these digital objects surpass physical barriers and become accessible to a larger number of users. In addition, they may serve as material for academic research or generate new forms of use by being recombined (Marcondes, 2018).

Apart from expanding the dissemination of cultural goods, digital collections are also support tools for managing physical collections. Some of their functionalities include: access; documentation; conservation; restoration; security; marketing and communication; publication; electronic media; memory; and preservation of the physical originals (Sayão, 2016, p. 51).

Digital collections are formed through the digitization of heritage objects and are subject to a set of specifications that must be observed,

They represent new collections, over and above the physical collections of memory and cultural institutions, with another kind of potential that physical collections do not have. They require special curatorship and new technical skills, especially specific precautions due to the fragility of digital environments, in terms of volatility, storage and obsolescence. (Bettencourt & Marcondes, 2019, p. 50).

¹ Professor in the library science course of the Department of Information Science, in addition to teaching in the Graduate Studies Program in Information Science (PPGCINF), of the University of Brasília (UnB) and the Graduate Studies Program in Communication PPGCOM (master's degree) of the Department of Information and Communication of the Federal University of Goiás (UFG). Has a PhD in information sciences from School of Communications and Arts, University of São Paulo (ECA-USP) and coordinates the Tainacan research project – free software for the social construction of digital repositories – in partnership with the Ministry of Culture and the Brazilian Institute of Museums.

² Master's student in the Department of Information Science of UnB, with a research topic on information policies for online digital collections. Bachelor's degree in information management from the Department of Information and Communication of UFG. Is part of the Tainacan research project team – free software for the social construction of digital repositories – in partnership with the Ministry of Culture and the Brazilian Institute of Museums.

Internet Sectoral Overview



Dalton Lopes
Martins

University of
Brasília (UnB)

Therefore, efforts to digitize collections are considered a solution for the reinvention of memory institutions. Digitization can open up a universe of possibilities, ranging from facilitated and instant access by more than one user to the renewal of their meaning through insertion in new contexts, which ends up generating completely new interpretations and forms of use.

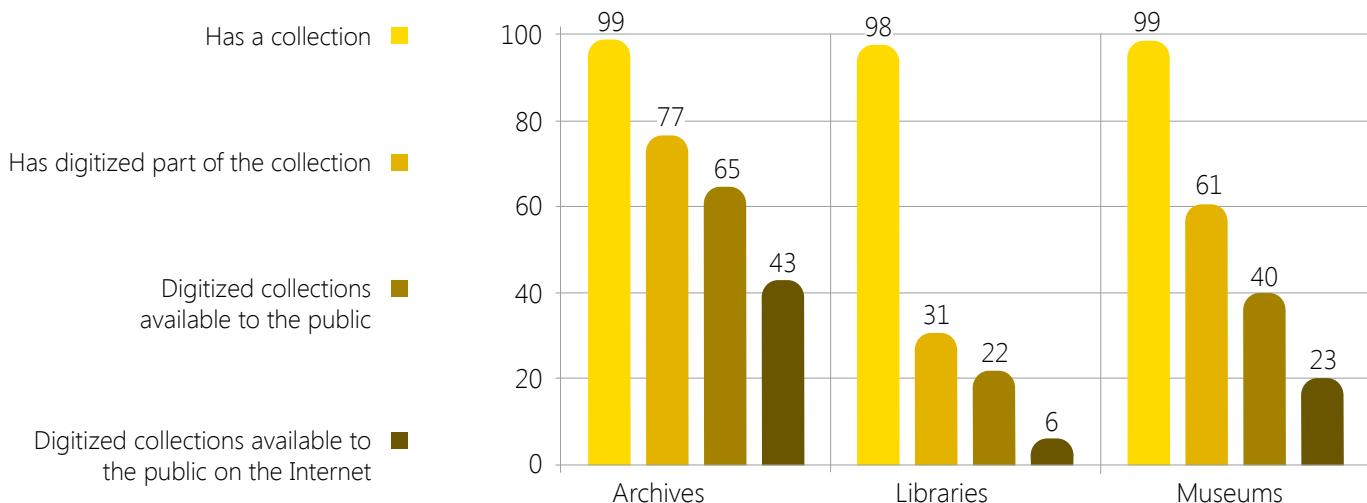
Digitization of collections in the Brazilian context

The digitization of collections plays a strategic role in the preservation of materials, as well as making cultural goods available to the public. However, there are still challenges that limit large-scale use of these technologies for the preservation and online dissemination of collections. Even though it is important for memory institutions to adapt to the new social and informational context and incorporate information and communication technologies (ICT) in their production and for making their content available, the ICT in Culture 2018 survey³ (NIC.br) found that the potential of ICT was not being fully explored in the cultural realm.

Among institutions that had collections, the proportion of those that digitized them was far below the total number (Chart 1) – a situation aggravated by the fact that even among those that digitized, only very small parts of their collections were digitized. According to the survey, one of the reasons for this was the level of infrastructure and appropriation of ICT in these institutions, making it necessary to provide more technological and human resources in the digitization process of collections.

Chart 1 – CULTURAL INSTITUTIONS, BY PRESENCE, DIGITIZATION AND AVAILABILITY OF DIGITIZED COLLECTIONS TO THE PUBLIC

Percentage of total number of cultural institutions



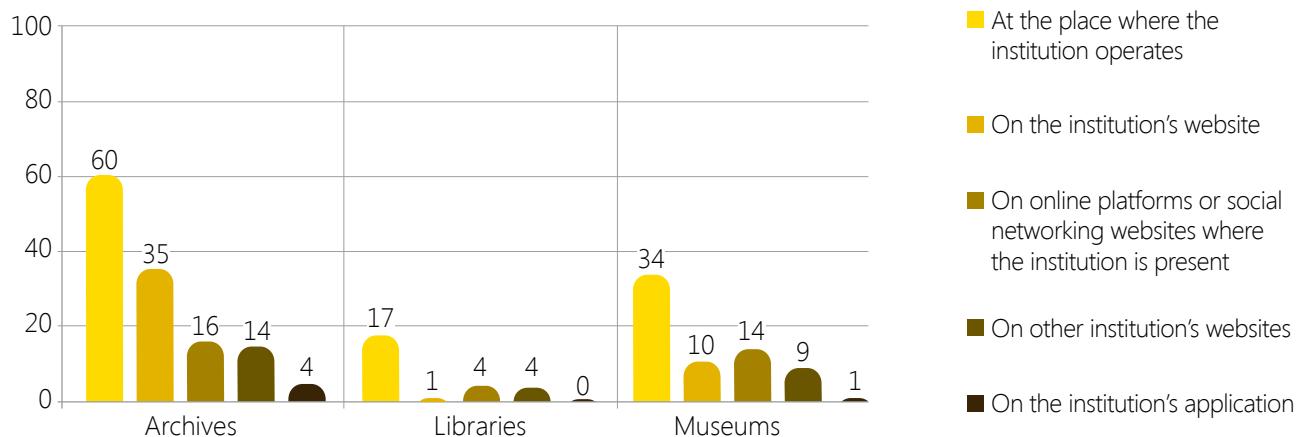
Source: NIC.br (2018).

³ Conducted by the Regional Center for Studies on the Development of the Information Society (Cetic.br) of the Brazilian Network Information Center (NIC.br). The goal of the survey is to understand the presence and adoption of information and communication technologies in Brazilian cultural facilities, in both their operational routines and in their relationship with their audiences. The indicators and published surveys are available at: www.cetic.br/pesquisa/cultura/

It can also be seen that the proportion of institutions that made their digitized collections available to the public was even smaller, leading to the conclusion that digitization strategies are linked more to preservation of the objects than to promotion and dissemination of collections. This trend goes against the current social context of environments based on the principles of dissemination and information sharing. Furthermore, among institutions that digitized their collections, most only made them available in the institutions, requiring people to go to the physical sites to access them (Chart 2). Therefore, unrestricted dissemination of collections on the Internet is not a reality in Brazil, but rather a process under construction.

Chart 2 – CULTURAL INSTITUTIONS BY THE WAY DIGITIZED COLLECTIONS ARE MADE AVAILABLE TO THE PUBLIC

Percentage of total number of cultural institutions



Source: NIC.br (2018).

The results of the ICT in Culture 2018 survey indicated that institutions were unable to post already digitized content on the Internet due to lack of infrastructure and technical knowledge, which halted their digitization projects at stages prior to dissemination. Difficulties using computers and the Internet were also significant, with institutions mentioning insufficient numbers of computers connected to the Internet, lack of technical support, and low levels of staff training. These findings demonstrate that lack of investment in training, infrastructure and support affects the potential for appropriation and use of the Internet as an instrument for the production and socialization of networked information by institutions.

Such limited use of technological resources is due to a number of difficulties reported by cultural institutions. In terms of digitization, specifically, the survey indicated that one of the greatest challenges was lack of financing, followed by lack of qualified personnel. This underscored, once again, the urgency of structural actions to assist institutions in the process of digitizing their collections, thereby making them accessible to the largest possible number of users. The data analysis showed that institutions lack sufficient resources to carry out their projects and require structural, technical and political support from bodies created to determine and articulate strategies to promote the field of culture.

- At the place where the institution operates
- On the institution's website
- On online platforms or social networking websites where the institution is present
- On other institution's websites
- On the institution's application



**Calíope Víctor
Spíndola de
Miranda Dias**

University of
Brasília (UnB)

(...) it is essential that new models and sectoral initiatives incorporate governance of the digital network of collections, providing assistance and technical working conditions for institutions in the management of their digitization projects.

It is essential to understand these challenges and the reasons why already digitized collections are not available to the public, preventing important heritage from achieving their full socialization potential. There is, therefore, an enormous opportunity for public policies and initiatives of Brazilian society to tap into cultural development.

Networked collections

In order to use ICT for generating benefits and enhancing the value of collections within the social context, beyond their digitization, the principles of the network can be used, which brings new forms of organization and connection between digitized collections.

The network is an element that structures and dynamizes the circulation of communication and information flows, changing practices in society (Martins, Silva & Carmo, 2018). In terms of building collections guided by the principles of the network, there is a connected cultural universe that enables exchanges between different institutions and expands access to collections that are made available, facilitating information search and recovery processes by users.

In this context, the network emerges as an environment that is guided by what is common between institutions – patterns, trends and the possibility of mutual enhancement of their collections, when placed together. This approach entails carrying out digitization processes around shared practices and technical procedures.

The global context involves the consolidation of “collection management practices that are integrated through networks by the collective sharing and adoption of standards and rules aimed at publishing semantic information based on the same principles” (Martins, Carmo & Germani, 2018, p. 5140). Therefore, it is important to conduct studies that focus on this theme and the challenges involved in this construction.

The role which society attributes to memory institutions relates to activities that value objects of cultural, historical and memory relevance. One of the aspects of this valuation is made possible by the Semantic Web⁴, which enables the interoperability and integration of digital collections (Marcondes, 2017).

From the perspective of an Internet driven by the strengthening of cultural institutions and their social functions of safekeeping, research and dissemination of information, it is essential that new models and sectoral initiatives incorporate governance of the digital network of collections, providing assistance and technical working conditions for institutions in the management of their digitization projects. Brazilian culture and society are, in turn, enriched.

⁴ According to W3C Brazil, the Semantic Web is the web of connected data that gives people the ability to create data repositories on the Web, build vocabularies and write standards for interoperating with this data. To find out more, go to <http://www.w3c.br/Padroes/WebSemantica>

REFERENCES

- Bettencourt, A., & Marcondes, C. H. (2019). Elementos para uma política brasileira de acesso integrado, utilização e preservação de acervos digitais em memória e cultura. *PragMATIZES: Revista Latino-Americana de Estudos em Cultura*, 16, 44-61.
- Marcondes, C. (2018). Relacionamentos culturalmente relevantes para interligar objetos do patrimônio digital na Web usando tecnologias de dados interligados. Paper presented at the Nineteenth Encontro Nacional de Pesquisa em Ciência da Informação, Londrina, PR.
- Martins, D., Carmo, D., & Germani, L. (2018). Museu do Índio: estudo de caso do processo de migração e abertura dos dados ligados semânticos do acervo museológico com o software livre Tainacan. Paper presented at the Nineteenth Encontro Nacional de Pesquisa em Ciência da Informação, Londrina, PR.
- Martins, D., & Carvalho Júnior, J. (2017). Memory as practices in digital culture. In: *Survey on the use of information and communication technologies in Brazilian cultural facilities: ICT in Culture 2016*. São Paulo: CGI.br.
- Brazilian Network Information Center – NIC.br. (2019). *Survey on the use of information and communication technologies in Brazilian cultural facilities – ICT in Culture 2018*.
- Sayão, L. (2016). Digitalização de acervos culturais: reuso, curadoria e preservação. *Seminário de Serviços de Informação em Museus: informação digital como patrimônio cultural*, São Paulo, SP.
- Souza, E. (2018). *A curadoria digital e o reuso dos acervos culturais digitais da Rede Web de Museus do Estado do Rio de Janeiro*. Unpublished master's dissertation, Fundação Casa de Rui Barbosa, Rio de Janeiro, RJ.

Interview I

I.S.O._ In your opinion, how can information and communication technologies (ICT) collaborate with the preservation and democratization of access to the world's cultural and informational heritage?

E.O._ ICT have a significant role to play in safeguarding and increasing access to the cultural heritage, including in the wake of conflicts, natural disasters and other emergencies. UNESCO's 2015 Recommendation concerning the Protection and Promotion of Museums and Collections, their Diversity and their Role in Society notes that ICT offer enormous opportunities for museums in terms of the preservation, study, creation and transmission of heritage. At UNESCO World Heritage Sites, we have seen that new technologies can greatly enhance the visitor experience, while also conserving these places for the future. We saw this in the Mogao Caves in China, a UNESCO World Heritage site that contains the largest collection of Buddhist cave paintings in the world. When the paintings began to decay as a result of growing contact with visitors, a state-of-the-art visitor center was built, featuring exact replicas of the caves. This dramatically reduced the amount of time visitors spent in the caves, protecting the site even as visitor numbers increased. Changing the way tourists travel through technology is also the goal of the World Heritage Journeys⁵ in Europe platform. Recently launched by UNESCO and the European Union, with the support of National Geographic, the



Ernesto Ottone
Assistant
Director-General
for Culture of
UNESCO

⁵ See: visitworldheritage.com

The rise of new technologies and diffusion of information online is of tremendous importance, not only for education, but also for research and the transmission of heritage (...).

initiative features 34 World Heritage sites in 19 European Union countries and encourages visitors to explore Europe's lesser-known cultural heritage sites through a series of thematic journeys. In this way, pressure is reduced on Europe's most-visited sites and the economic benefits of tourism can be shared more equally, contributing to tourism that is environmentally and economically sustainable. We hope to replicate this experience in other regions of the world going forward.

Digital documentation is also essential for the fight against illicit trafficking of cultural property, and virtual representations of damaged or at-risk cultural heritage can be a powerful tool for awareness-raising, education and intercultural dialogue. Digital technologies can also support people affected or displaced by humanitarian emergencies who are temporarily prevented from accessing their cultural heritage and from practicing their cultural expressions. In recent years, UNESCO has trained heritage experts around the world in the digital documentation of at-risk or damaged sites, information which will serve as a crucial foundation for the recovery of countries and communities impacted by conflict and disaster. UNESCO and the Operational Satellite Applications Programme Unit of the United Nations Institute for Training and Research (UNITAR-UNOSAT) recently released its assessment of the Ancient City of Aleppo, a report that was based on satellite imagery and a detailed 3D model of the Citadel of Aleppo, developed by the French start-up Icomem. Similar initiatives are being carried out in Yemen and in the Old City of Mosul. Going forward, we know that ICT can be used to virtually "reconstruct" destroyed monuments, or even to allow the public to participate in the creation of personalized virtual museums, with virtual reproductions of destroyed monuments. Yet the use of digital technologies for the reconstruction of destroyed heritage raises important ethical concerns, including questions of authenticity, ownership, and even security. UNESCO believes that this is an area that needs further reflection, in light of the unprecedented possibilities offered by digital technologies.

I.S.O._ What is the role of cultural institutions – such as libraries, museums and archives – in the provision of online content? What strategies can they use to reach new audiences on the Internet?

E.O._ For centuries, the role of cultural institutions, such as libraries, museums and archives, was limited to conservation and research. Their collections were accessible only to a small percentage of the world's population. Today, the function of these institutions and their staff has evolved. Communicating with the public has become a duty. The rise of new technologies and diffusion of information online is of tremendous importance, not only for education, but also for research and the transmission of heritage, as mentioned in the UNESCO 2015 Recommendation concerning the Protection and Promotion of Museums and Collections.

The use of social media, the development of attractive and pedagogical content, not only on computers, but also on mobile phones, and the use of virtual reality, are all essential to reach new generations. In this sense, the development of non-formal education programs is essential. We must also

remember that a large portion of humanity has limited or no access to the Internet, and thus to the content provided by cultural institutions online. UNESCO is working to fill this gap.

I.S.O._ What is the importance of creating and disseminating digital collections to promote local content that represents the diversity of cultural expressions?

E.O._ Creating and disseminating digital collections that promote local creative content is essential for promoting diversity of cultural expressions around the world, particularly given the growing digital divide between developed and developing countries. Today, 95% of the app economy is concentrated in only 10 countries, mainly in the Global North. In 2016, there were an estimated 90 broadband subscriptions per 100 inhabitants in developed countries, vs. just 41 in developing countries. As large platforms based on a handful of developed countries begin to dominate the global creative landscape, there is a great risk that diversity of cultural expressions will be reduced in the long term, resulting in loss of local cultural content. The creation and dissemination of digital collections are also vital for safeguarding cultural content in the event of an emergency. Days after the devastating fire at the National Museum of Brazil in Rio de Janeiro, which destroyed an estimated 80%-90% of the museum's 20 million-piece collection, UNESCO sent an emergency mission to the site to support the preparation of an action plan for the museum's recovery. The fact that at least part of the museum's inventory was digitized will play an important role in this recovery process.

This is why the existence of a wide diversity of digital collections matters. UNESCO recently lent its support to the Reproduction of Works of Art and Cultural Heritage (ReACH) initiative, led by the Victoria & Albert Museum, which aims to offer a blueprint for museums and heritage institutions on the use of digital technologies for making, storing and sharing reproductions of cultural heritage. UNESCO also recently launched its own efforts to digitize the Organization's rich documentary heritage, including our audiovisual archives. Similarly, in partnership with the National Institute for Research in Computer Science and Automation (INRIA), UNESCO is leading a worldwide initiative, entitled Software Heritage, to create a universal library of computer program source codes.

I.S.O._ What are recommendations for public policies on the digitization and dissemination of online digital collections? What is the role of international organizations in this context?

E.O._ Organizations like UNESCO have a key role to play in helping policymakers, museums and other cultural actors navigate the enormous challenges and opportunities that have followed the digital revolution, particularly with regard to culture. In 2015, UNESCO adopted the Recommendation concerning the Protection and Promotion of Museums and Collections, their Diversity and their Role in Society, the first international instrument dedicated to museums adopted since 1960 that offers museum professionals and policymakers

Creating and disseminating digital collections that promote local creative content is essential for promoting diversity of cultural expressions around the world (...).

/Internet Sectoral Overview

(...) digital technologies represent a powerful tool for museums, but acknowledges that they can also create potential barriers for people and museums that do not have access to them, or the knowledge and skills to use them effectively.

a series of guidelines for unlocking the full cultural, social, economic and educational potential of museums, particularly in light of the advent of new technologies. The Recommendation calls on Member States to support museums in their efforts to share and disseminate knowledge and to ensure that museums have the means to access relevant technologies. It notes that digital technologies represent a powerful tool for museums, but acknowledges that they can also create potential barriers for people and museums that do not have access to them, or the knowledge and skills to use them effectively. Member States should strive to increase access to these technologies for museums in the territories under their jurisdiction.

In light of the growing impact of digital technologies on cultural actors and the diversity of cultural expressions, UNESCO recently created digital guidelines for countries that have adopted UNESCO's 2005 Convention on the Protection and Promotion of the Diversity of Cultural Expressions. These digital guidelines, which have to date been adopted by 145 Member States and the European Union, provide a roadmap for ensuring that, in this new digital landscape, artists are fairly remunerated for their work, human rights are respected, and digital technologies become more accessible for all. It also includes advice for Member States on how to protect the diversity of cultural expressions in the digital environment, including through the dissemination of digital collections. It calls on countries to encourage the implementation of digital preservation measures and the development of infrastructure to ensure universal and continuous access to cultural content. It encourages Member States to support linguistic diversity and translation interfaces in the digital environment, and to encourage public cultural institutions to provide online access to diverse cultural expressions. It also calls on Member States to supply the necessary digital equipment to public institutions such as schools, libraries, museums and cultural centers, and to set up programs on digital literacy and the use of digital tools.

Among other things, the open roadmap calls upon all countries to support cultural and media institutions as learning spaces for the public to acquire digital literacy skills and competencies through creation and experimentation. Through its global Policy Monitoring Platform, UNESCO will monitor the implementation of national roadmaps and share experiences and good practices. UNESCO is committed to protecting and promoting the diversity of cultural expressions, and museums and other cultural actors that promote local culture through their digital collections are important partners in this regard.

Interview II

I.S.O._ How can information and communication technologies (ICT) help expand access to information, memory and culture?

M.V. Through mobile phones, tablets and computers connected to the Internet, people are able to take virtual excursions and access collections in museums, digital newspaper libraries, scientific articles published on portals such as SciELO, and Wikipedia entries about, for example, a marginal female writer from the last century. The potential to broaden access to information, memory, culture and knowledge is immense and unprecedented. This does not always replace physical experiences, such as going to a museum. However, virtual visits permit access which, for geographical reasons, would potentially not exist. While there are cities in Brazil with an enormous number of cultural facilities, in others there are none.

In some cases, if it weren't for digital technologies, sets of information would not even exist. An example of this is the databases produced for virtual access, which collect information of different types. This is also what happens with collaborative projects, such as online encyclopedias. There are very rich entries in Wikipedia, which are the fruit of research work, contributions from experts and educational initiatives. In addition, full courses from universities, research institutions and independent groups are offered on the Internet in an open format. Knowledge that has not been widely disseminated due to lack of commercial interest is nowadays available in online repositories. Given the profusion of knowledge and selections made by algorithms from search and feed engines, which tend to prioritize already popular content, the challenge that arises is providing exposure.

Since the cost of creating and disseminating online content is low, there is also immense potential to expand production. Even though professional photography and film equipment is still expensive, numerous ways to create have been developed through the popularization of these technologies, which means there is room for many more people in the creation circle today.

I.S.O._ What are the main challenges that cultural institutions – such as libraries, museums and archives – face in digitizing their collections and making them available on the Internet?

M.V. Many memory institutions are either not connected to the Internet or have rudimentary connections. According to the ICT in Culture 2018 survey, 26% of Brazil's museums and 34% of its libraries do not even use the Internet, and geographic disparities are evident. Digitization is not an inexpensive process; nor is digital preservation. Besides the cost of equipment and related



CECILIA BASTOS

Mariana Valente

Director of the InternetLab and coordinator of the Brazilian chapter of the Creative Commons

Guidelines need to be given so that institutions can be recognized for the fundamental role they play in preserving and disseminating culture, education and knowledge (...).

services, it is not commonplace for institutions to have the necessary human resources for digitization. According to the same survey, only 1% of libraries and 10% of museums in the country made part of their collections available on their websites. The relationship between collections and digitization is greater, but such digitization does not necessarily result in dissemination.

The clearance process, which involves identification of third-party rights to works and other materials, is also not simple. It often requires not only identifying the author of a creation or registration, but also the people portrayed, the cultures and corresponding peoples. It is not always easy to determine situations involving rights of protection of a particular object or identify the author of a work or the holders of the rights, if the author is deceased, and the work is not yet in the public domain. The formation of collections has not always been accompanied by documentation able to account for this information. Managers of collections report being unable to obtain data on the rights to more than 70% of their collections. In the absence of a legal framework for dealing with orphan works, this means that these materials are held in technical reserves, and their destiny as cultural heritage is not fully achieved.

I.S.O._ What are the main copyright issues being discussed, in view of dissemination of collections over the Internet and democratization of access to cultural goods in digital environments?

M.V._ There are various types of collections, and not all of them are protected by copyrights. Some consist of works that do not involve intellectual creation and are not even “protectible,” such as official historical documents and natural science collections. There are also collections of protected works – literary texts, audiovisual works, paintings, sculptures – that may be in the public domain, which occurs 70 years after the death of the author or first publication (in the case of photographs or audiovisual works). If a work is in the public domain, the institution needs to ensure indication of authorship and integrity of use, but it can digitize, print and disseminate the work on its website or social media. The public domain is essential for the activities of memory institutions, since it constitutes a set of works that can be freely used, rearranged and/or reappropriated.

In this context, one of the challenges is how to handle photographs of works that are in the public domain. It is quite common to consider that these registrations contain an “autonomous right,” i.e., that authorization must be obtained from the person who took the image and payment for it may be needed. This is a questionable practice since, in this case, the objective of photography is to reproduce an already existing 2D work, without adding any new creative elements. This has been an obstacle to works in the public domain being made available online. Europe addressed this issue in the Directive on Copyright, published in May 2019. Informed by the needs of European memory institutions, the directive established that these reproductions are not protected by copyright.

Another issue related to copyrights is orphan works. Brazilian law is laconic and confusing in this regard, since it lumps together anonymous, pseudonymous and orphan works under the same rule. A procedure for safe use of these works

needs to be established, where institutions are responsible for demonstrating that identification of the authors or holders of the rights was not within their reach. Guidelines need to be given so that institutions can be recognized for the fundamental role they play in preserving and disseminating culture, education and knowledge, and not be treated as potential violators.

Brazilian law is also too restrictive on some points, such as permitted uses, i.e., copyright limitations or exceptions. When the law authorizes specific uses for educational purposes, for example, these are limited to educational establishments, ignoring that memory institutions carry out activities of this nature.

It is important to emphasize that none of these points are meant to ignore copyrights, claim they are not important, or argue that institutions need not be concerned about them. It is a question of understanding which principles or interests should guide finding a balance in this field, placing cultural institutions at the center of such considerations, due to the essential role they play in society, especially in Brazil, where these venues are the only way a significant number of people can access certain cultural goods.

I.S.O._ What initiatives in the area of public policies could collaborate with the creation and dissemination of digital collections?

M.V._ First of all, it is very important to understand copyright as a public policy – a set of rules that guides the flow of resources, incentives and balances in the cultural and knowledge fields.

Other initiatives would also have a highly positive impact on the digitization of collections in Brazil. There are international experiences of sharing hardware for digitization, since not every institution should need to have its own. Why not promote laboratories with scanners, photographic equipment, software and professionals with technical knowledge of the digitization process to serve as a base for different cultural facilities? If set up in universities, they could be linked to courses and involve students in digitization projects.

Promoted by the Brazilian Institute of Museums and developed by the Federal University of Goiás (UFG), the University of Brasília (UnB) and the Brazilian Institute of Information in Science and Technology (IBICT), the Tainacan project⁶ is noteworthy. It is a free tool for WordPress dedicated to the management and publication of digital collections. The project addresses a need felt by all memory institutions and enables radical cost reduction and simplification of processes. Developed in 2014, the first pilots for its use began in 2017. It is inspiring to see the number of institutions that have taken advantage of it and how many digitized items have been published in the short time of its existence. At last count, there were already more than 66,000 works.

Finally, it needs to be stressed that Internet access policies are an essential part of this conversation. Despite significant progress in recent years, there are still many disconnected people and institutions, and the disparities reflect the various inequalities in Brazil. If such exclusions persist, they can deepen social and economic differences. Internet access must be paramount, radical and urgent in any project of countries committed to access to culture, information, education and knowledge.

(...) it is very important to understand copyright as a public policy – a set of rules that guides the flow of resources, incentives and balances in the cultural and knowledge fields.

⁶ See: www.tainacan.org

Domain Report

The dynamics of the registration of domains in Brazil and the world

The Regional Center for Studies on the Development of the Information Society (Cetic.br) carries out monthly monitoring of the number of domain names registered in the 15 largest country code Top-Level Domains (ccTLDs) in the world. Combined, they exceed 100 million registrations.

In September 2019, the domains registered under .tk (Tokelau) reached 25.16 million, followed by Germany (.de), China (.cn) and the United Kingdom (.uk), with 16.25 million, 13.6 million and 9.62 million records, respectively⁷. Brazil had 4.09 million registrations under .br, occupying seventh place on the list. With 1.97 million registrations, the United States (.us) ranked 15th, as can be seen in Table 1.

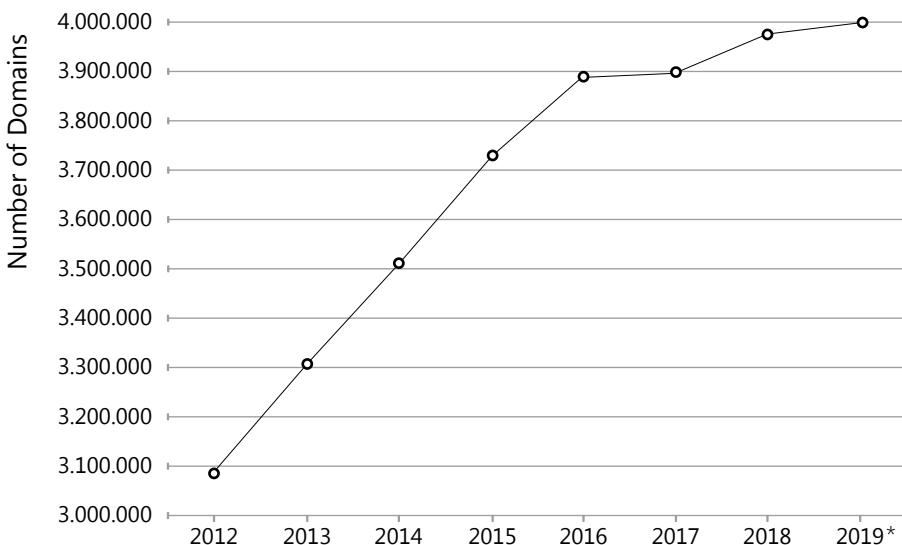
Table 1 – REGISTRATION OF DOMAIN NAMES IN THE WORLD – SEPTEMBER 2019

Position	ccTLD	Domains	Ref.	Source
1	Tokelau (.tk)	25.160.070	Sep/19	research.domaintools.com/statistics/tld-counts
2	Germany (.de)	16.257.835	Sep/19	www.denic.de
3	China (.cn)	13.607.826	Sep/19	research.domaintools.com/statistics/tld-counts
4	United Kingdom (.uk)	9.628.357	Sep/19	www.nominet.uk/uk-register-statistics-2019
5	Netherlands (.nl)	5.890.951	Sep/19	www.sidn.nl
6	Russia (.ru)	4.954.080	Sep/19	www.cctld.ru
7	Brazil (.br)	4.092.464	Sep/19	registro.br/estatisticas.html
8	European Union (.eu)	3.568.027	Sep/19	research.domaintools.com/statistics/tld-counts
9	France (.fr)	3.412.586	Sep/19	www.afnic.fr/en/resources/statistics/detailed-data-on-domain-names
10	Italy (.it)	3.211.678	Sep/19	www.nic.it
11	Australia (.au)	3.197.189	Sep/19	www.auda.org.au
12	Canada (.ca)	2.824.256	Sep/19	www.cira.ca
13	Poland (.pl)	2.572.698	Sep/19	www.dns.pl/english/zonestats.html
14	Switzerland (.ch)	2.234.036	Aug/19	www.nic.ch/statistics/domains/
15	United States (.us)	1.977.038	Sep/19	research.domaintools.com/statistics/tld-counts

⁷ It is important to note that variations exist among ccTLD reference periods, although it is always the most updated one for each country that is used.

Graph 3 shows the performance of .br since 2012.

Graph 3 – TOTAL NUMBER OF DOMAIN REGISTRATIONS PER YEAR FOR .BR – 2012 TO 2019*



*Data in reference to September 2019.

Source: Registro.br

In September 2019, the five generic Top-Level Domains (gTLD) totaled more than 149 million registrations. With 143.4 million registrations, the .com ranked first, as shown in Table 2.

Table 2 – MAIN GTLDs – SEPTEMBER 2019

Position	gTLD	Domains	Source	Ref.
1	.com	143.459.217	research.domaintools.com/statistics/tld-counts	Sep/19
2	.net	13.339.822	research.domaintools.com/statistics/tld-counts	Sep/19
3	.org	10.100.007	research.domaintools.com/statistics/tld-counts	Sep/19
4	.info	4.742.638	research.domaintools.com/statistics/tld-counts	Sep/19
5	.biz	1.672.301	research.domaintools.com/statistics/tld-counts	Sep/19

Source: DomainTools.com

Retrieved from: <http://research.domaintools.com/statistics/tld-counts/>

/Answers to your questions*

Following are some examples of

DIGITAL COLLECTIONS

available on the Internet

EUROPEANA COLLECTIONS

gives access to more than 50 million digitized items from thousands of European archives, libraries and museums, with sophisticated research tools and special thematic collections on European culture.

www.europeana.eu

WORLD DIGITAL LIBRARY

provides, free of charge and in multilanguage format, important sources from cultures around the world, totaling around 20,000 items in relation to 193 countries between 8000 BC and 2000 AD.

www.wdl.org

WIKIMEDIA COMMONS

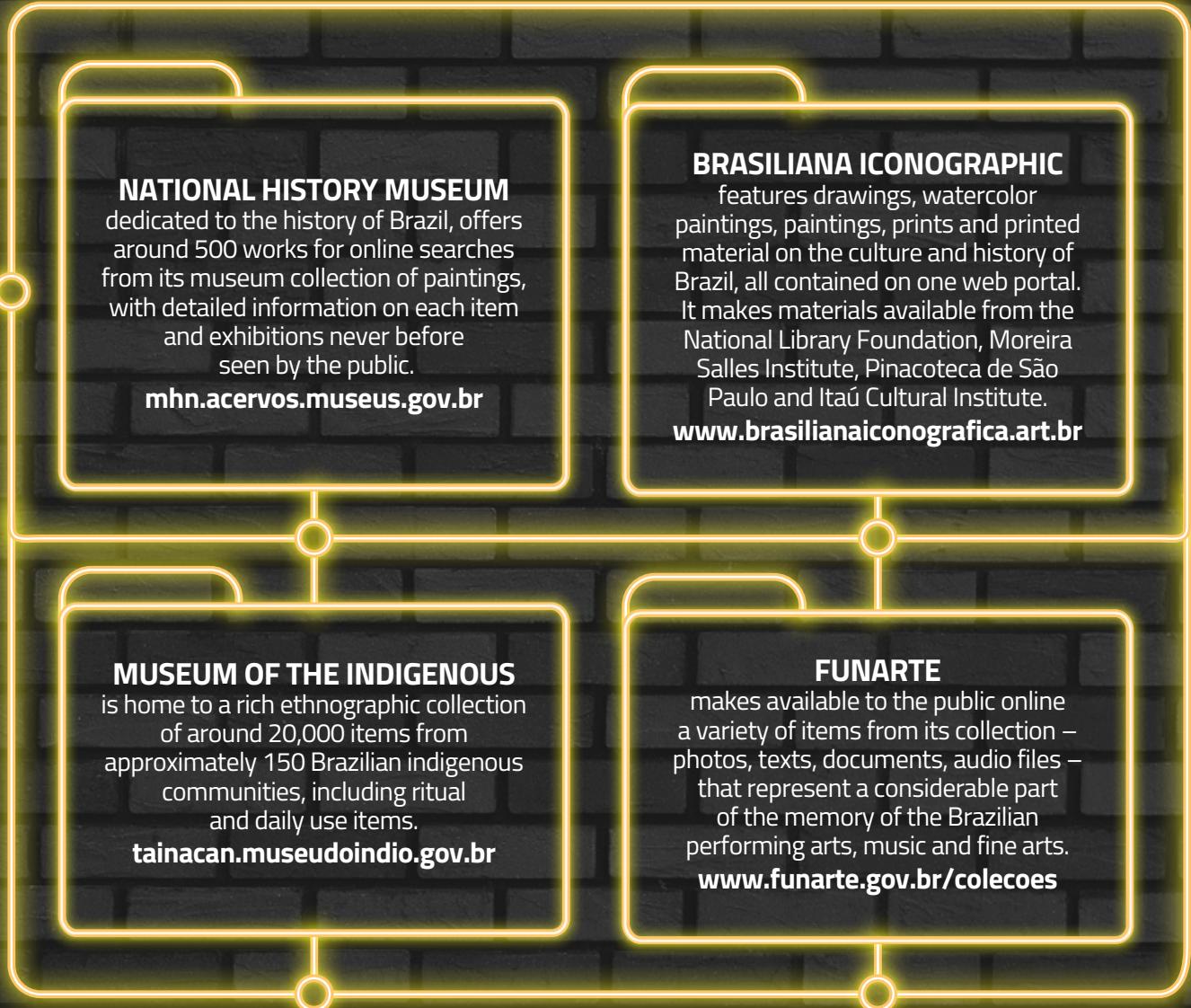
is a free, multilingual, collaborative media library that contains more than 55 million multimedia files under free license or in the public domain.

commons.wikimedia.org

BNDIGITAL

offers more than two million documents in the public domain or with publication permission from copyright holders in order to preserve Brazil's cultural memory and promote access to the collection of the National Library of Brazil.

bndigital.bn.gov.br



Credits

TEXT

MAIN TEXT

Dalton Lopes Martins (FCI/UnB)
Calíope Víctor Spíndola de Miranda Dias (FCI/UnB)

DOMAIN REPORT

José Márcio Martins Júnior (Cetic.br/NIC.br)

EDITORIAL COORDINATION

Alexandre Barbosa (Cetic.br/NIC.br)

Tatiana Jereissati (Cetic.br/NIC.br)

Javiera F. M. Macaya (Cetic.br/NIC.br)

Luciana Lima (Cetic.br/NIC.br)

ACKNOWLEDGMENTS

Dalton Lopes Martins (FCI/UnB)

Calíope Víctor Spíndola de Miranda Dias (FCI/UnB)

Ernesto Ottone (UNESCO)

Mariana Valente (InternetLab)

PROOFREADING AND PORTUGUESE REVISION

Mariana Tavares

TRANSLATION INTO ENGLISH

Grant Borowik, Lorna Simons, Luana Guedes,
Luisa Caliri and Maya Bellomo-Johnson
(Prioridade Consultoria Ltda.)

GRAPHIC DESIGN AND PUBLISHING

Comunicação NIC.br

PUBLISHING IN ENGLISH

Grappa Marketing Editorial
(www.grappa.com.br)

CREATIVE COMMONS

Attribution

NonCommercial

NoDerivs

(CC BY-NC-ND)



The Internet Sectoral Overview is also available in Portuguese at cetic.br/publicacoes/indice/panoramas/



United Nations
Educational, Scientific and
Cultural Organization

cetic.br

Regional Centre of Studies for the
Development of the Information
Society under the auspices of UNESCO

nic.br egi.br

Brazilian Network
Information Center

Brazilian Internet
Steering Committee

STRIVING FOR A BETTER INTERNET IN BRAZIL

CGI.BR, MODEL OF MULTISTAKEHOLDER GOVERNANCE

www.cgi.br

nic.br cgi.br

