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Good practices for long-term Digital Preservation in Colombia

Buenas prácticas para la Preservación Digital a largo plazo en Colombia

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Abstract

Long-term digital preservation is a recent issue in Colombia, so the regulations in this regard are still in an initial phase, with very general guidelines and conditions. This makes evident the need to standardize models or standards, and establish strategies for the preservation of electronic or digital records in Colombian organizations. Within the framework of these premises, this study seeks to design a guide of good practices that allows the implementation of digital preservation in Colombia taking into account the current regulations, which emerge from the same need to determine how to achieve an adequate guide, with which it is possible to reduce the incidences detected, reaching conclusions, recommendations and aspects to rethink.

Keywords: Digital preservation, good Practices, Colombia

Resumen

La preservación digital a largo plazo es un tema reciente en Colombia, por lo que la normatividad al respecto se encuentra aún en una fase inicial, con lineamientos y condiciones muy generales, lo que hace evidente la necesidad de normalizar modelos o estándares, establecer estrategias para la preservación de los documentos electrónicos o digitales de archivo en las organizaciones de Colombia. En el marco de estas premisas, el presente trabajo busca diseñar una guía de buenas prácticas que permita la implementación de la preservación digital en Colombia teniendo en cuenta la normatividad vigente y la cual surge de la misma necesidad de determinar cómo lograr hacer una adecuada la cual se puedan reducir las incidencias detectadas, llegando a conclusiones, recomendaciones y aspectos a replantear.

Palabras clave: Preservación digital, buenas prácticas, Colombia

INTRODUCTION

Digital preservation is part of the processes of document management that, according to Térmens (2014), seeks to "ensure access and future use of digital documents created in the present or the past. Based on conservation and information security policies ...that allow their maintenance and use in the long term". In this sense, digital preservation is of great importance in organizations to ensure access to institutional documents received or produced in the development of their functions. These can be traditional paper documents, digitized documents, i.e., traditional paper documents that are converted into digital format, or those that were generated or born in the digital environment, i.e., those that are born and live in the organizations without going through the paper format.

The UNESCO has expressed its concern about the preservation of digital heritage, recognizing the need to adopt the necessary measures to prevent the loss of digital heritage: "Understanding that this digital heritage is in danger of disappearing, and that its preservation for the benefit of present and future generations is an urgent concern throughout the world" (UNESCO, 2003).

Digital preservation in Colombia is a relatively new issue, although there are already policies issued by the General Archive of the Nation in this regard. The implementation in public organizations is a challenge. The standardization of technical criteria, standardization of models and tools, human and technological resources required, are among the challenges that Colombian public organizations must face for the implementation of digital preservation.

This paper seeks to analyze standards and guidelines related to digital preservation in order to identify the challenges involved in the implementation of digital preservation in public organizations in Colombia, taking into account their particularities, needs and limitations.

METHODOLOGY

This research is descriptive where data and information related to digital preservation were collected and from the analysis of the information a proposal or guide for the implementation of long-term digital preservation for public organizations in Colombia was proposed.

The research method was based on the collection of primary and secondary sources, a documentary search, review of standards, guidelines, projects and strategies. Additionally, it consolidated a conceptual and normative framework that allowed understanding and approaching long-term digital preservation. Sources were analyzed in order to extract all relevant information. Good practices were identified that served as a basis to establish a proposal for implementation in public organizations in Colombia, taking into account their particularities.

The methodological actions were divided into:

- Collection of conceptual and normative data about digital preservation.
- Identification of the challenges that Colombian public organizations must face for the implementation of long-term digital preservation.
- Definition of a proposed guide for the implementation of digital preservation in public institutions in Colombia.

This work began with a documentation phase that consisted of searching for information in different journal portals, library catalogs and specialized databases such as Dialnet, Scielo, Academic Search Ultimate, Library & Information Science Source, Directory of Open Access Journals, among others.

Throughout the study, we sought to answer the following questions:

What does digital preservation mean?

What standards are there for long-term digital preservation?

What guidelines and principles have been established regarding long-term digital preservation?

What regulations govern digital preservation in Colombia?

What challenges do public organizations in Colombia face in implementing digital preservation?

What strategies can be implemented in public organizations in Colombia to address long-term digital preservation?

What would be the methodological process to include digital preservation practices in public organizations in Colombia?

Fundamentals of digital preservation

There are several definitions of the concept of digital preservation, among which the following stand out:

According to UNESCO (2003), "Digital preservation can be defined as the set of processes aimed at ensuring the continuity of digital heritage elements for as long as they are deemed necessary". For their part, De Giusti *et al.* (2012) define it as "the set of practices of a political and strategic nature and concrete actions, aimed at ensuring access to digital objects in the long term".

In this regard, Romero (2006) defines it as "the set of actions related to the preservation of existing documents in digital format". For Térmens (2014), digital preservation seeks to "ensure access and future use of digital documents created in the present or the past. From the conservation and information security policies ... that allow their maintenance and use in the long term". León (2021) defines it as an interdisciplinary field "aimed at ensuring continued access to digital information in the long term (or over time) through the use of new technologies and through the design and implementation of a set of strategic and operational processes".

The General Archive of the Nation (2019) defines digital preservation as: "the set of principles, policies, strategies and specific actions that aim to ensure the physical and technological stability of the data, the permanence and accessibility of the information of digital documents and protect their intellectual content for the time considered necessary". Flores-Fernández *et al.* (2022) consider it as "a necessary tool to achieve the integral and lasting preservation of all types of documentary archives, even more indispensable in sound archives, documents vulnerable to technological changes, which, when recorded and processed in specific supports, quickly become obsolete". For Carrazana (2014) the objective of digital preservation systems is that "the information they contain remains accessible to users over a long period of time".

The above definitions agree that digital preservation seeks to ensure the access and use of digital documents in the long term, which implies a series of actions aimed at achieving this goal and taking into account a number of factors that influence its proper implementation.

Once the definition of digital preservation is known, it is important to highlight that digital preservation involves both the preservation of "traditional documents, such as printed documents, through their digitization, and the preservation of born-digital materials and more specifically, digital materials present on the Internet" (Orera, 2008). As stated by Alarcón (2022) "many documents have moved from the traditional paper to be produced electronically and even despite this change of support or format, the values they develop and the need to preserve them over time remain the same". Additionally, taking into account what Bustos *et al.* (2023) stated, regarding the health emergency, "the use of technological tools accelerated producing an exponential growth of digital documents, which were created without taking into account storage criteria, leaving aside the security of the information in its authenticity, veracity, integrity and reliability".

In this sense, the processes of digitization and information backup play an important role in digital preservation. However, long-term digital preservation involves much more than technological factors, so as Ferreras (2010) states "efforts to preserve digital objects do not end with the technical, but there are others: legal (permission of the authors), economic and institutional (permanent commitment) to reach the result of durability". Bodero Poveda *et al.* (2022) argue that "Organizations seek digital preservation for different reasons, which may be related to legal, financial, archival, research, among others". In this regard, Castro *et al.* (2021) state that "policies, models, standards, technologies, techniques and strategies that seek to make digital resources accessible and usable over time are combined".

Digital preservation standards

Among the most prominent reference models is the OAIS, which has given rise to the ISO 14721:2003 standard, and as described by Rodriguez (2016) "the OAIS was accepted as an international standard for the design of information systems of an open archive in 2003". Ochoa-Gutiérrez *et al.* (2021) indicate that the "Open Archival Information System (OAIS) has taken place as a model and standard that guides and optimizes processes for digital preservation". Guerrero (2021) mentions that "The OAIS model defines the processes necessary to preserve and access information objects effectively and in the long term, and establishes a common language that describes them".

The PREMIS Data Dictionary, considered the most important digital preservation metadata standard, has been developed by the PREMIS Group. Version 1.0 of the PREMIS Data Dictionary was published in 2005, and the current 2.0 is from March 2008, which defines it as "a set of semantic units, properties, and information that most repositories need to know about their entities to ensure preservation" (De Giusti et al, 2012).

The metadata is important taking into account what Méndez (2021) stated: "Metadata is a key component for digital preservation on the rise. They serve to record the information that supports and documents the digital preservation process". Márquez (2020) "metadata were created to describe inherent characteristics of a document. They began as basic descriptors of the content of that document, but later became more sophisticated to describe many other attributes of that document" and, for Thompson et al. (2021).

On the other hand, METS (Metadata Encoding and Transmission Standard) is another popular standard for digital preservation. It was developed by Network Development and MARC Standards Office of the Library of Congress. According to Rodriguez (2016), "the common format for transferring information packages among digital repositories is based on the use of METS and PREMIS, with METS being a standard for the exchange and storage of metadata regardless of the specific needs of the archive."

Strategies for digital preservation

Among the most widespread strategies to achieve long-term digital preservation and prevent the loss of digital information are the strategies contemplated in the UNESCO guidelines for the preservation of digital heritage and the strategies contemplated within the guidelines established by the OAIS model:

- Migration: transferring digital materials from one generation of hardware or software to another.
- Emulation: using software that makes one technology work with the characteristics of another. (Library of Australia, 2003).

The authors Carrasco and De La Fuente (2010) propose 5 very important strategies to take into account:

- Inclusion of digital preservation in the organizational mission.
- Determine what to preserve.
- Define standards for: metadata and data formats.
- Define organizational issues such as preservation processes embedded in operational activities.
- Solve technical issues.

Among the strategies presented by REBIUN (2020), the following stand out: "standardization, unification in ingest to selected formats is usually a basic, quite effective and inexpensive strategy to ensure the validity of files in the future. Other strategies include migration or emulation of formats".

Threats and factors of digital preservation in Colombia

When talking about digital preservation, it implies keeping in mind the threats or problems that could arise in public organizations in Colombia that aspire to implement long-term preservation, among which the following stand out:

- Vulnerability of digital resources due to media deterioration, accidental or intentional loss of data, loss due to viruses, accidents, natural disasters, environmental conditions, among others.

- Technological obsolescence can cause loss of information.
- By not assigning clear responsibilities there may be an inadequate management of digital resources.
- Legal or copyright problems may arise when working with digital resources.
- Failure to make an adequate description of digital resources can make their recovery impossible.
- Lack of institutional policies, which makes decision making difficult.
- Lack of a budget.
- Lack of qualified personnel to work with digital documents.
- Technological changes and high costs in the acquisition of equipment and software.

Accordingly, there is a variety of challenges to be faced and overcome by public organizations in Colombia in relation to long-term digital preservation. Ferreras (2010) highlights the following factors or challenges that have great influence on long-term digital preservation projects:

- Legal: if we do not have the owner's permission, we cannot preserve a resource by reproducing or reformatting it.

- Economic: if we do not have the necessary means, we will not be able to guarantee the durability of the documents over the years.

- Institutional: if there is no permanent institutional commitment, if all those involved are not convinced of the need to collaborate, if we cannot verify whether everything that is promised is fulfilled, we will not be able to preserve in the long term.

Likewise, Manzanedo (2008) indicates that organizations must show their technical capacity to ensure this service in the long term and the institutional will to do so: "Institutional viability: technical, economic and material capacity to assume new competencies. Economic sustainability: capacity to sustain the necessary level of support, especially financially in the future". According to Grácio and Fadel (2010), "any digital preservation policy of an institution must be backed by laws that support the institution and guarantee the author of the digital object the intellectual property of it and its authenticity".

Térmens (2009) identifies six factors that affect preservation: cultural, technological, legal, documentary, economic and social:

- Cultural factors: lack of sensitivity to the historical value of parts of their documentary heritage, which in the end leads to the loss of this documentary heritage.

- Technological factors: rapid and constant change of devices. Information security.

- Legal factors surrounding information: constant global changes in laws on copyright, access and copying.

- Documentary factors: defining the appropriate metadata for a certain type of document, defining minimum and/or optimal metadata.

- Social factors: guarantee access and usability of documents; the future challenge will be how to make this digital information available to a greater number of people in the world without creating new segregationist gaps.

- Economic factors: these are never cheap or short-term projects, which is why the economic elements involved in their development must be carefully established in order to make and maintain them economically viable.

As can be seen, there are several factors that must be taken into account to address digital preservation in the long term. Therefore, there are great challenges to be assumed by public organizations in Colombia to implement preservation, so it is necessary to implement long-range strategic projects with national coverage considering the factors described above and that have great influence on digital preservation and avoid postponement as mentioned by Garcia and Ruiz (2020) "The postponement in the adoption of measures for digital preservation of digital and digitized documents is the origin of the current problem with which we have to deal ... digital preservation is not the problem but the solution".

RESULTS AND DISCUSSION OF RESULTS

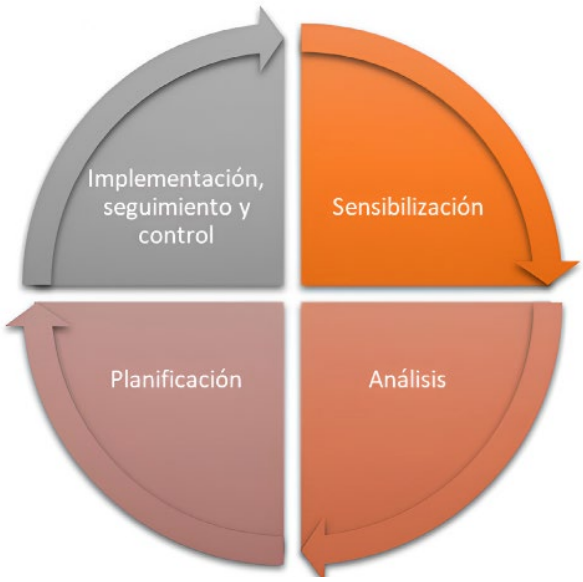
Analyzing and classifying the factors described in the previous section, the main factors that influence long-term digital preservation in public organizations in Colombia are consolidated and, therefore, they constitute the main challenges that public organizations in Colombia must face for the implementation of long-term digital preservation as indicated by Román et al. (2020) "In Latin American institutions and in most of the world panorama, the scope of digital preservation actions is variable in executive, operational and technical dimensions".

Figure 1
Long-term digital preservation factors in Public Organizations in Colombia.

Factores Tecnológicos	Factores Económicos	Factores Institucionales	Factores Culturales	Factores Legales
- Insuficiente infraestructura u obsoleta - Inseguridad de la información	- Presupuesto limitado - Dependencia presupuestal del estado	- Cambios de administración - Personal no capacitado o insatisfecho - Falta de liderazgo o trabajo en grupo	- Cultura tradicional - Cultura de la inmediatez - Falta de planificación	- Insuficiente normatividad a nivel nacional con relación a la preservación digital a largo plazo. (Lineamientos generales) - Ausencia de políticas institucionales

The following is a methodological guide designed on the basis of some of the common phases in the life cycle of project management, where a series of actions and considerations necessary for long-term digital preservation in public organizations in Colombia are grouped and described.

Figure 2
Stages Methodology



Fuente: Elaboración propia a partir de Yupanqui (2021)

Raising awareness

This awareness-raising stage is very important because this is where the attention and commitment of the institution's management and staff in general is sought. This stage should be very well planned by people who know about the subject so that they can socialize with solid arguments the advantages and importance of the participation of the staff in the need to implement digital preservation in the long term. This can be demonstrated through success stories and experiences in other institutions that have already embarked on this path.

According to the factors that influence long-term digital preservation, the importance of institutional factors and their staff for the implementation of digital preservation is determined. Therefore, ways must be found to motivate staff to participate and be trained, to let them know how important they are to the organization, as well as their involvement in the project. A key factor for the success of the project is the commitment of both management and staff. Otherwise, this initiative will only represent a waste of time and money.

At this point, it is advisable to socialize with all the organization's staff on the subject, explaining the methodology and the stages to be developed. The previous analysis, which identifies the factors that influence digital preservation, should also be made known. The idea with all this is to deepen on the strengths and opportunities that have public organizations in Colombia on the long-term digital preservation and the possibilities of reducing the threats and weaknesses found.

In the awareness stage, spaces for discussion and reflection on the subject should be provided. This can be done in person or using technological communication tools, which are very useful and beneficial for these purposes.

Análisis

In this stage of analysis, we intend to make a diagnosis of the organization to know how it is in relation to digital preservation and of course, taking into account the factors illustrated above through Figure 1, and that influence its implementation, such as technological, economic, institutional, cultural and legal factors. This analysis is convenient, because it allows to identify the current state of the organization in terms of digital preservation, identifying the aspects in which its deficiencies are framed, so it will serve as an opportunity to determine what improvement plans should be made and what weaknesses should be strengthened.

It is considered that, according to the characteristics of the study, the most appropriate instruments to perform the analysis and collect the information are: interviews and/or meetings, but as the main means the questionnaire, because by allowing to apply it to several people simultaneously, it facilitates the collection of information and its subsequent tabulation.

The population considered for the diagnosis should be composed of senior management, area leaders and administrative personnel linked to the organization under study, taking into account that, for the measurement of some indicators, it will be necessary to collaborate and interview experts and leaders of some processes in the organization, as in the case of the technological and documentary factor.

During the analysis, the schedule of interviews or application of questionnaires should be drawn up, including dates and recipients. The material, human and infrastructure resources required to carry out the diagnosis, which will ultimately identify the current status of the entity with respect to digital preservation, must be determined. It is also necessary to define a communication strategy specifying the means to be used to transmit the information and establish permanent contact with the people involved during the assessment.

Finally, the stage corresponding to the implementation of the schedule made for the diagnosis and the collection of information is executed through the application of interviews and surveys designed to identify the current state of the organization in relation to technological, economic, institutional, cultural and legal factors.

The following is an indication of how the analysis should be approached based on the different factors involved:

Institutional factors:

It is important to clarify that long-term digital preservation involves much more than a large technological endowment or backup systems. People play a key role in achieving the objectives of the organization and are a key factor in promoting adequate digital preservation, so it is necessary to verify how the institution is doing in terms of personal satisfaction, i.e., "how satisfied they are with the working conditions provided by their place of employment" (Atalaya, 1999), a diagnostic assessment should be made to identify what needs to be improved, how to achieve it and how much resistance to change is found within the organization.

The knowledge of staff members about long-term digital preservation and their areas of expertise should be identified in order to determine the necessary training plans to take advantage of the strengths found and to reinforce the weaknesses identified.

It should be determined whether the organization already has a long-term preservation plan, whether it has defined metadata standards and data formats, and whether it has already decided on the materials to be preserved in the long term.

It should be identified whether the organization currently has expert advice or has entered into strategic alliances with organizations with experience in long-term digital preservation.

In the institutional factor, the management commitment could also be investigated; how much influence do management changes have on projects related to long-term digital preservation and if there are institutional policies that support it.

The evaluation of the aforementioned elements can be done on the basis of questionnaires or interviews that contemplate the different elements that affect long-term digital preservation at the institutional level; each company can design its own questionnaire with the aspects it deems appropriate.

Factores económicos

According to Cruz and Díez (2015), costing is one of "the most important weaknesses of digital preservation management".

- It is necessary to determine how many contributions the organization receives from the government and, what is its self-financing capacity, if it has support and funding to deal with projects of this type.

- It is necessary to identify whether the organization has a budget that can be allocated for long-term digital preservation.

- To determine whether the organization has the necessary financial stability to provide continuity of preservation-related activities over the long term.

- Once the institutional and economic factors and activities to consider have been identified, a description of the activities related to the cultural factors that are necessary to strengthen the long-term digital preservation process is presented.

Cultural Factors

At this point, it is necessary to determine how much planning is done and how it is done, what planning methods and strategies are used.

It is also necessary to identify the possibility of change, the level of resistance to change, adaptation, participation, motivation and commitment of the staff in order to determine how assertive they could be in incorporating digital preservation practices in the long term, and thus determine the plans that must be followed to break with this traditional and conformist culture.

Technological factors

Although digital preservation goes beyond a large technological endowment, backup systems or digitization, technology is considered an important factor for the implementation of long-term digital preservation, of course, taking into account that technology by itself is useless if it does not have a trained staff and is used appropriately according to the proposed objectives.

According to the analysis, it is necessary to identify the infrastructure and systems available to the organization to address long-term digital preservation, whether it has an information security plan or backup policies, that is, it is necessary to determine what it has, what needs to be improved and what should be acquired in order to improve the technological conditions

that allow the implementation of long-term digital preservation in the organization.

Legal factors

The degree of compliance of the organization with current regulations on long-term digital preservation should be verified.

To identify whether the organization has regulated or established policies regarding long-term digital preservation, taking into account Galina et al. (2022) "The development of policies and strategies for digital preservation is, therefore, the first step to implement a successful digital preservation project".

Interpretation of Results

As a final activity of the measurements, the need to interpret the results is established. A report of the results of each of the factors involved in long-term digital preservation should be presented, showing their respective deviations. As a final activity of the measurements, the need to interpret the results is established. A report of the results of each of the factors involved in long-term digital preservation should be presented, showing their respective deviations.

Planning

This stage is one of those that requires the most dedication and effort from the staff involved in the project, since it corresponds to the planning of actions to be followed according to the results of the analysis and diagnostic report. According to the results obtained, the group in charge of implementing long-term digital preservation in the organization should identify strategies and activities to be carried out to solve or propose improvement actions regarding the weaknesses identified in each of the factors involved in long-term digital preservation.

Improvement plans should be supported by management, taking into account that their planning and subsequent execution require time and resources. These plans must be developed with care and greater specificity, as they are essential to achieve the necessary conditions to enable the long-term implementation of digital preservation in the organization.

The following are the plans that should be designed to improve working conditions and serve as a means for the implementation of digital preservation: organizational climate and change management plan, training plan, policies and reform of institutional regulations.

Regarding digital preservation and technology, the organization must have the following plans to ensure security, the necessary technology and the necessary means of communication for its implementation: Technology plan, Communication plan, Information security plan, Long-term digital preservation plan.

Agreement 006 of 2014, issued by the General Archive of the Nation of Colombia, specifies in its article 18 the minimum elements that the Long-Term Digital Preservation Plan must contain:

1. The entity's preservation policies: conceptual framework and set of standards for electronic information management; general methodology for the creation, use, maintenance, retention, access and preservation of information; document management program; mechanisms for cooperation, coordination and ongoing coordination between the areas of information technology, document management, internal audits and users.

2. Legal obligations: legal aspects of the sector, the entity and document management.

3. Limitations of the entity, in legal and financial terms, as well as technical limitations, with respect to the technological infrastructure available to the entity.

4. Users' needs, in terms of technological means and training, based on the evaluation of the technical capacity of the entity and the level of knowledge of the users.

5. Best practices established within the entity, guidelines, technical norms and standards in force (Archivo General de la Nación, 2014).

Likewise, Article 19 of Agreement 006 of 2014 defines the structure of the long-term preservation plan.

The long-term digital preservation plan should have a standardized structure that responds to the specific digital preservation needs identified in the comprehensive diagnosis. Methodologically, the structure should define a

series of specific actions related to the following aspects: preservation context; identification of storage media and digital formats; evaluation of technical aspects, risks and different preservation strategies; results of the evaluation performed; selected preservation strategy including the decision with its justification; roles and responsibilities for the preservation plan and its follow-up; budget for the formulation and implementation of the long-term digital preservation plan and its financing model (Archivo General de la Nación, 2014).

Article 20 of Agreement 006 of 2014 defines the conditions to be met in long-term digital preservation.

The electronic records to be preserved over time must comply with the document retention times established in the document retention tables -DRT or the entity's document valuation tables -DVT; supervised for the quality of access provision; interpretable, retrievable and protected against possible loss of intellectual property rights and confidentiality; and stored in a secure environment regardless of the digital format and support (Archivo General de la Nación, 2014).

Finally, in its article 23, Agreement 006 of 2014 indicates the processes and procedures to be included in the long-term digital preservation plan:

The long-term digital preservation plan should include all processes and procedures used for the preservation of digital and/or electronic records. In accordance with the general records management policy, the archival tools for records management and other administrative and management systems. In compliance with the technical norms and international standards in force, adopted by the entity, in such a way that the chain of preservation of electronic records is guaranteed throughout the life cycle of the documents.

Processes and procedures for digital preservation in general should take into account:

1. The digitized and native digital documents, from the process of planning and valuation of document management.
2. The schedule of transfer and disposal of documents in accordance with the TRD or TVD of the entity.
3. The formats and media or storage media of digital documents.
4. The requirements of the associated metadata for digital documents.
5. The preservation actions necessary to ensure the reliability and authenticity of digital records.
6. The specific legal and regulatory requirements for digital records in each jurisdiction.
7. The risks associated with technological obsolescence.
8. Audit requirements.
9. Technological surveillance (Archivo General de la Nación, 2014).

Implementation, follow-up and control

In the Implementation, follow-up and control phase, the plans and activities defined in the previous phase are executed, with due follow-up and control to verify their correct implementation. In this phase a group of people must be selected who can be catalogued as "change agents", who will be in charge of transmitting the need and importance of the proposed change. It is important that this group be made up of people with influence over their superiors.

Goals must be established, and there must be adequate coordination and control to complete these proposals.

It should be noted that each of the phases described in the methodology should be taken as a cyclical process that requires constant follow-up to determine how much the organization has evolved in each of the factors that influence long-term digital preservation.

CONCLUSIONS

The OAIS standard is internationally recognized, provides conceptual references, important bases on actions, requirements, tools and basic information for the development of preservation policies in organizations that allow them to ensure and implement long-term digital preservation.

As can be seen, there are several factors that must be taken into account to address long-term digital preservation. Therefore, there are great challenges to be assumed by public organizations in Colombia in order to implement preservation, so it is necessary to implement long-range strategic projects with national coverage considering the factors described above and that have a great influence on digital preservation.

Among the most widespread strategies, recommendations and actions to take into account when starting a long-term digital preservation project are the need to include digital preservation in the organizational mission and policies that support it, define a long-term digital preservation plan, the need to define metadata, information protection, digitization of analog material, selection and classification of material to preserve, access control, documentation of processes, among other strategies that will allow the implementation of long-term digital preservation in both public and private organizations.

Among the main challenges that Colombian organizations must face for long-term digital preservation are those related to institutional, economic, cultural, technological and legal factors.

It can be concluded that digital preservation is important and should not be overlooked to include it in organizational policies and strategies, in order to ensure access and use of digital documents in the long term. Also, cultural change is necessary. It is necessary to convince senior management that we are facing a high impact project that involves both the preservation of traditional and born-digital documents.

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