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Investing in Future: Digital Information Preservation Proposal of Public Policies for South America

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ABSTRACT

The goal of this paper is to identify the current policies for the preservation of digital information in South America, and to contribute proposals for the development of national and macro-regional strategies and policies. This document is based on a collaborative research, carried on by way of a survey of relevant publications, both locally and internationally, completed with interviews with key informers. The research has implied reviewing relevant existing documents in the field of information society planning, legislation, policies and declarations; diverse countries' expertise in the field of information society planning and legislation regarding the preservation of digital information (explicit national digital agendas; national, regional and local information society policies; national and regional legislative measures; etc.); and relevant national and international documents in the field of preservation of digital information planning, legislation, policies and declarations.

Keywords: Digital information, preservation, public policies, South America, Argentina, legislation

1. NEED FOR DIGITAL PRESERVATION POLICIES

The colossal growth in the construction and dissemination of digital objects by governments, authors, publishers, corporations, academicians, and others, has highlighted the speed and ease of short-term dissemination. Nevertheless, little concern has been paid yet to long-term preservation. Digital information is characteristically more delicate and insubstantial than traditional technologies such as paper, photographs, or microfilm. It is more easily corrupted or altered, without detection**.** According to Russon[1], digital storage media have shorter life spans and require access technologies that are changing at an ever increasing pace. The time frame between the creation of the object and the need for its preservation becomes shorter. The scientific and technical community risks the loss of valuable information without an adequate infrastructure for digital archiving and preservation.

According to a definition provided by the National Archives of Australia, the term 'preservation' includes all actions that can be taken with the aim of ensuring the current and long-term survival and accessibility of the physical form, informational content and relevant metadata of archival records, including actions taken to influence records creators prior to acquisition or selection.

According to the document (UNESCO, 2006), 'Digital preservation' can be defined as the process and activities which stabilise and protect reformatted and digital authentic electronic records in forms which are retrievable, readable and usable over time (NARS, April 2004). Digital preservation involves a number of organised tasks associated with a variety of technical approaches or strategies for ensuring that digital resources are not only stored appropriately, but also adequately maintained and thus consistently usable over time (UKOLN, 2004). It involves the processes of maintaining accessibility of digital heritage materials over time, for as long as they are needed[12].

Quoting IFAP–UNESCO: "In a world increasingly being shaped by digital technologies, the traditional guardian institutions (libraries, archives and museums) are challenged to keep pace with the rapid growth in

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information. They also face a new challenge–as technology advances the stability and lifespan of documents is considerably decreasing. If nothing is done, many important documents in electronic format will not survive or will become completely inaccessible within a very short time. The result will be a permanent loss to humankind´s collective memory. This challenge needs to be tackled urgently, and the costs of preserving digital information should not be underestimated–these far exceed the preservation costs experienced to date with five millennia of traditional documents. Digital preservation also contributes to at least two other IFAP priorities–information for development and open and multilingual access to information. Digital technologies open up access to information and knowledge in democratic dimensions that has never been experienced before". Digital preservation is a way of preserving living memories, customs, cultures, and identities.

Participants to the International Conference 'Preservation of Digital Information in the Information Society: Problems and Prospects' held in Moscow on 3-5 October 2011 unanimously approved the Conference final document– the Moscow Declaration on Digital Information Preservation. The Declaration highlights the importance of the issues raised at the conference and offers a set of measures and efforts to be taken in such spheres as politics, awareness-raising and education, scientific research, economics, ICT industry, partnership and coordination. According to the Moscow Declaration, "The conference showed that traditional keepers of analogue information–libraries, archives, and museums–are still unable to cope with the tasks of digital information preservation. In fact, they are the ones to raise the alarm. Policy-makers do not possess due understanding of the necessity of creating a new infrastructure for the preservation of digital information, probably on the basis of the infrastructure of information preservation on traditional carriers by modernising and strengthening it".

The debates made it clear that most countries of the world have neither regulatory framework, which would oblige relevant institutions and structures to be engaged professionally in the process of information preservation in digital format, nor drawn up distinct policies that might lead to the creation of such a framework. However both developed and developing countries are trying to determine what exactly should be preserved, and for what reasons, who, where and when should do it, by which means and to what extent. The Conference´s participants concluded that it is essential to take urgent measures on political and practical levels. They remarked that otherwise it is probable that vast amounts of digitised information are lost either because the processes of its digitisation were not appropriately provided, or it was not catalogued in time and in the right way and therefore may not be found, or it was improperly preserved; and huge amounts of network and other information were not collected and were therefore forever lost. For that reason many world experts define the time to come as 'information dark ages', using terms like 'digital Alzheimer', 'digital amnesia' and so on'[8].

The authors of this paper believe that digitalising information, or digital storing, cannot be mistaken for digital preservation. The risks of losing vital information increase not only with every technological change, but also with political vicissitudes, and changes in the user community. Which policies, strategies, rules and proceedings are feasible in order to guarantee the preservation, availability, and use of information in the medium and long term?[13].

A National Policy for Information Society (NISP) can be defined as a roadmap, a national, regional, or local plan for the inclusion and appropriation, by Governments, institutions, communities and individuals, of the benefits derived from the construction of an Information Society. The NISP is a highway, not a harbour. It is a process, a collaborative, open, and permanent building task. In order to travel this highway, it is necessary to envision it, to plan and build it, to make it travelable for all the citizens[3].

A digital preservation policy would state the principles and long-term direction that would guide preservation strategies and actions, and would set clear priorities. In terms of the South American context, a national and macro-regional digital preservation policy would reinforce mutual efforts of governments to preserve materials which document our laws, public administration actions, science and technology efforts, and cultural heritage. It would define organisational roles and (funding) responsibilities. The roles of established memory institutions, such as libraries, archives and museums, would also be addressed.

According to Voutssas[14], the quantity of digital information has increased geometrically without proper knowledge, theories, strategies, policies and proceedings to preserve it. Developed countries and regions have started to generate this knowledge and know-how, as well as setting the basis to manage their digital collections within libraries, archives, and other organisations with the aim to preserve them in the long-term. However, the state of affairs is drastically different in Latin America, where limited research and projects on digital preservation are found.

This paper has been written as a series of questions and answers that deal with the subject of policies for digital material preservation in South America (with a particular mention to Argentina), the social agents that have developed actions in this area, and proposals towards the development of national and macro-regional preservation plan strategies and policies.

2. DO SOUTH AMERICAN DIGITAL AGENDAS CONSIDER POLICIES FOR DIGITAL PRESERVATION?

As stated by Voutssas[14] the issue of the long-term reliable preservation of digital document collections is not just a technology problem, but a much more complex one. Further and deeper study is required to develop a practical strategy and/or plan for the region. Most NISPs in South American countries do not set policies for digital material preservation, though it is expected that the processes of updating these NISPs will. Nonetheless, some countries, such as Brazil and Colombia, participate in Inter Pares, an international project[2] supported by the British University of Columbia and The Social Sciences and Humanities Research Council of Canada's Community-University Research Alliances (SSHRC-CURA).

Policies for the storing of digital material are assumed, often jointly, by South American libraries, museums, and universities, but governments have not yet arrived to formulate multisectorial or macro-regional joint preservation policies. However, the issue is currently being discussed at the Union de Naciones Suramericanas, Unasur (Union of South American Nations), the Regional organisation that includes[12] South American countries, due to an Argentine initiative.

Another macro-regional agenda is eLAC 2007, the Regional Action Plan for the information society, which was officially approved at the Regional Latin American and Caribbean Preparatory Ministerial Conference for the World Summit on Information Society on June 10, 2005 in Rio de Janeiro, Brazil. It is based on constant dialogue and cooperation among all the Latin American and Caribbean countries, and leading to the adoption of a common policy agenda. Regarding the preservation of electronic information, OLAC 2007 proposed in its Article 15.5: "Promote the adoption of information security and storage models at all levels of government with a view to engendering trust in the digital information managed or provided by the State".

3. ANTECEDENTS IN SOUTH AMERICA REGARDING DIGITAL PRESERVATION

One of the first events to raise the problem of preservation of the digital heritage was an expert consultation for Latin America and the Caribbean that UNESCO organised in November 2002 in Managua, Nicaragua. Its results would be the regional input to the Charter on Digital Heritage that UNESCO was organising. In that opportunity, UNESCO´s expert Dr Isidro Fernandez Aballi discussed the huge quantity of information which exists in digital format, and which disappears in cyberspace, without being transferred to an updated, more durable support.

On 1 June 2007, the Ibero American Chat of Electronic Government[3] (CIGE) was approved by the Ibero American Conference of Ministers of Public Administration and State Reform in Pucón, Chile, and adopted by the XVII Ibero American Summit of Government and State Chiefs (Santiago de Chile, 10 November 2007). Among the Electronic Government Principles stated in paragraph 24, the CIGE enunciates:

Principle of technological adequacy: the administrations will choose the most adequate technologies to satisfy their needs. It is recommended the use of open standards and free software based on reasons as safety, security, long term sustainability, and to prevent the privatisation of public knowledge (…)".

Moreover, there are a number of initiatives undertaken by 'memory guardian institutions': museums, libraries, and universities. One of them is the Latin American and the Caribbean Network of Social Sciences Virtual Libraries (Red de Bibliotecas Virtuales de Ciencias Sociales de América Latina y el Caribe[4]), created by the Latin American Council of Social Sciences (CLACSO). Its Virtual Reading Room features more than 4000 complete texts of books, papers, documents, and journals. 168 research centers (54 % of them are universities) in 21 countries contribute their publications. Copyrights remain in the hands of the authors and the original editors, with a Creative Commons license for their dissemination with academic goals.

In Brazil, SciELO (Scientific Electronic Library Online) is a model for cooperative electronic publishing of scientific journals in the internet. It was generated through cooperation between the Foundation for Research Support of the Sao Paulo State (FAPESP, Fundación de Apoyo a la Investigación del Estado de São Paulo), BIREME (Biblioteca Virtual em Saude, Virtual Health Library) the Latin American and Caribbean Information Center on Health Sciences, as well as national and international institutions related to scientific communication and publishing. SciELO was specifically designed to respond to the needs of scientific communication in developing countries, ensuring visibility and universal access to scientific literature, contributing to overcome the phenomenon known as 'lost science'. From June 1998 onwards the project has been regularly operating, including new journals, incorporating other countries: Argentina, Brazil, Chile, Colombia, and Venezuela, and planning to incorporate Bolivia, Paraguay, Perú, and Uruguay.

'Memoria chilena' ('Chilean memory', http://www.memoriachilena.cl), is the Chilean cultural portal. It was created by the Chile National Library, and the Direction of Libraries, Archives and Museums (DIBAM) to "disseminate through the internet the Chilean national heritage, contributing to the recuperation, preservation

and strengthening of the historical memory, and making it available to the whole world. Memoria Chilena possesses diverse kinds of digitalised information: Books, journals, newspapers, in their original editions, photographs, drawings, pictures, engravings, manuscripts, articles, fragments, and letters, sound registers, maps, plans, partitions, and press files. Digitalised documents have a presentation page, and catalogue information. They also feature metadata in XML/RDF format, according to the Dublincore standards.

Most ongoing experiences have been generated by universities, libraries, and research centers. The subject of preserving digital information is absent from most digital agendas. However, in the Uruguay Digital Agenda (Agenda Digital Uruguaya), the goal 6 makes an explicit reference: 'To preserve the cultural common property in a diverse nation, within the frame of the Bicentennial". This goal proposes the following targets:

(a) To extend the Digital Museums Project to all the museums in the country by year 2015, including non-traditional museums, as the word´s archive

(b) To habilitate the electronic access to the National library system in the same period.

(c) To start the process of digitalising the collections of the National Library, The Nation General Archives, and four other libraries, all of them key institutions for the progress of research in Uruguay, for the 2011-2015.

4. ARGENTINA ADVANCES PROTECTION OF CRITICAL INFRASTRUCTURES AND DIGITAL PRESERVATION

From 2009 to 2011, the Under Secretariat of Management Technologies in the National Cabinet of Ministers has reinforced the Argentine participation in the Meridian Process[5], in order to establish the necessary mechanisms to guarantee the protection of the information´s critical infrastructures, as well as long term preservation of digital information. This is particularly relevant within the context of the governmental actions on digital inclusion, such as Argentina Conectada and Conectar Igualdad, which are providing the whole country with optic fiber connections. As a consequence of this work, the Ministers' Cabinet created the National Program of Protection of Critical Infrastructure of Information and Cyber Security, by the Resolution JGM N° 580/2011[6], within the National Bureau of Information Technologies - ONTI.

Argentina has developed the ArCERT Program (Coordination of Emergencies in Argentina's Teleinformatic Networks), while supporting Latin American countries (México, Belize, Costa Rica, El Salvador, Guatemala, Nicaragua, Panamá, República Dominicana) which are developing policies for information protection and preservation. Argentina is currently encouraging the creation of a macro regional network for to transfer and share information and knowledge on information preservation policies, with the goal to strengthen the public administrations' information systems.

The First International Congress for the Protection of Critical Infrastructures[7] took place in 14 March 2011, in Buenos Aires. The Congress, which gathered argentine and international experts, showed the Argentine government and corporative sector´s interest in working jointly to generate a conscience for the protection if the critical and cyber security structures, as well as to consolidate future actions, strategies, and policies. The proposals for a policy on the preservation of digital information stated that such policy should be coordinated by the national governments, its design should include representatives from the corporative sector, universities and 'memory guardian public equipment', and it should not be the work of isolated countries, but that public strategies on these issue should have a macro regional scope.

5. ARGENTINE INITIATIVES TOWARDS THE DIGITAL PRESERVATION

A few examples in the universe of digital repositories and libraries are being mentioned here. As a whole, 15 repositories have been identified in Argentina. In the Registry of Open Access Repositories (ROAR, 2008), Argentina is represented by three reservoirs: SciELO Argentina (registered in 2000), Revista Cartapacio de Derecho published by the Universidad Nacional del Centro (registered in 2004), and the CLACSO Network of Social Sciences Virtual Libraries of Latin America and the Caribbean (registered in 2008). In the Directory of Open Access Repositories (Open DOAR, 2008), Argentina is represented by other three repositories: The Digital Library for Identity, the Academic Memoir of the Faculty of Humanities and Educational Siences of the National University of La Plata, and the Service for the Dissemination of Intellectual Creation, SeDiCI (registered in 2008), also from the National University of La Plata.

It is worth mentioning the Project ECO-PORTAL MERCOSUR (Institutional Repositories for the Academic Intellectual patrimonies of the Faculty of Economic Sciences, University of Cordoba), started in 2008. It gathers the research works that were disseminated in the Internet, and offers the academic community a tool to publish their academic work.

Moreover, in the National Congress, in September 2011 took parliamentary state a law project regarding the creation of institutional, open access digital repositories, in which the public institutions and organisations integrating the National Science, Technology and

Innovation (SNCTI), and funded by the National State, must deposit the scientific and technological production resulting from the work of their researchers, technologist, post doctorate fellows, and postgraduate students.

6. CRITERIA FOR DIGITAL PRESERVATION

Preserving digital information means to decide which information is to be preserved, and which has to be discarded. Which are the criteria that will guide these decisions? 'Funes the Memorious' (original Spanish title: Funes el memorioso) is a short story by Argentine writer Jorge Luis Borges, published in 1942. It tells the story of Ireneo Funes, a poor, ignorant teenage boy who lives in Fray Bentos, Uruguay, in 1884. Since a fall from a horse that had left him crippled, Funes perceives everything in full detail and remembers it all. He is incapable of platonic ideas, of generalities, of abstraction; his world is one of intolerably uncountable details. The fact that Funes remembers absolutely everything, that his memory occupies his brain, makes him incapable of conceptualizing and generalizing. One of the issues of the preservation of digital information is that if we lose our memories, we lose our identities. But if we preserve all the information, we will be invaded by it. The question, then, is to decide which information is to be preserved at each technological turning point, and which will be discarded.

Digital preservation is a complex problem. Here talking about the set of processes and activities that ensure continued access to information and all kinds of records, scientific and cultural heritage existing in digital formats, and for long periods of time is being talked. This includes the preservation of materials resulting from digital reformatting, but particularly information that is born-digital and has no analog counterpart. In the language of digital imaging and electronic resources, preservation is no longer just the product of a program but an ongoing process. In this regard the way digital information is stored is important in ensuring its longevity. The long-term storage of digital information is assisted by the inclusion of preservation metadata.

Thibodeau[11] states that probably, the only valid prediction on the future of information technology is that it will continue to change constantly. Every preservation system conceived as a final solution, even if it seems to solve all the problems of fragility and obsolescence of the tools known until then, will become inevitably obsolete in a relatively short period. This is why any decision about digital preservation should include the capacity to accommodate to fast technological changes, and to incorporate the new products generated by information technology. The only relatively durable factor in a digital preservation solution is the adopted conceptual scheme: the criteria and strategy that will be used.

The Argentine digital preservation strategy conceives preservation as an institutional responsibility, with multi stakeholder participation, political support, and a firm engagement from all the participant agents. According to Serra and Serra[10] , the definition of a preservation plan has to find answers to the following questions:

(a) which information is to be preserved, and why?

(b) Where is it going to be preserved?

(c) Until when is this information going to be kept?

(d) How will it be possible to find it later?

(e) What actions are necessary to keep these materials unaltered?

(f) Which measures have to be taken to avoid obsolescence?

The Argentine National government´s strategy has chosen to create and select digital collection with duration according to its administrative and cultural importance. Work is being developed to establish a well-defined preservation policy, establishing which information is to be preserved, and though which norms and procedures. This policy has to be periodically revised and updated, to define the new technological supports, to improve the preservation methods, and to redefine the sets of object to be preserved. Since some information packages or objects are more durable than others, these periods of preservation should also be periodically assessed and updated.

According to Bia & Sanchez[1], the evaluation of electronic documents and objects provides two main advantages:

(a) It avoids costly migration methods for documents meant for short term preservation. The identification of such documents previously to taking decisions about technical migration and recopying allows reducing costs and technical difficulties.

(b) It allows advancing in the transference of the electronic documents destined to long-term preservation to historical archives, when the office or department that produces them cannot assume the costs of implementing a policy for digital preservation.

Governments should generate, implement and coordinate the policies and strategies regarding digital preservation, but it should be an open process that includes multistakeholder participation. Other agents, such as enterprises specialised in information preservation, science and technology institutions, universities, libraries, museums, technicians, and NGOs, data storing centers, among others, should be able to contribute their experiences, know-how, and opinions.

7. CONCLUSIONS

It appears that South American countries have advanced in digitalising their vital information, but public policies and strategies for the medium and long-term preservation of information are still to be designed and implemented.

South American countries focus most of their initiatives on the preservation of the cultural heritage and assets through the digitalisation of paper-supported documents. However, as mentioned before, digitalising information, or digital storing, cannot be mistaken for digital preservation. The dangers of losing vital information rise not only with every technological evolution, but also with political changes. Digitalising information does not imply per se the preservation of knowledge. In order to ensure this preservation it is necessary to implement clear and unambiguous policies of long term digital preservation, based on solid conceptual and methodological approaches. These policies and strategies should ensure the digitalised information's maintenance, visualisation, access, recuperation, and use in a simple, user-friendly, consistent and reliable way. The lack of such policies could generate unnecessary waste of financial resources, and dubious results.

The region´s countries must take a leap to define new policies and strategies in order to protect digital information. These policies should include general –and preferably regional-criteria regarding best practices of digitalization and preservation, as well as alternatives and solutions allowing access to the stored documents and collections, since it is difficult to build capacities for digital preservation in systems which were not designed considering these requisites. In order to become ICT 'model users', governments should consider key aspects, such as the systems maintenance, protection, long-term conservation, and access to digital contents. South American governments should also encourage research on international best practices for the management and preservation of digital information.

There is a basis of existing partial legislation and policies, which can be used to draft a national long-term preservation policy for South American digital materials. The South American Government's e-government policy can be used as a point of departure, but needs to be urgently updated with reference to the establishment of e-depositories. Some academic institutions, particularly in Brazil, Colombia, and Argentina, have well-established e-depositories. There is a pressing need to work together in regional institutions such as Mercosur and Unasur. A national long-term digital preservation policy is needed for South America with the purpose of enabling cooperation between major stakeholders and to be discussed on the political agendas of Government. Much debate is still required on the following elements:

- Ensure political security against loss, access denial or falsification
- Provide open, easy digital access (with the exception of externally sensitive, legally protected data)
- Use open, standard and non-proprietary formats; make regular migration to current formats
- Retain formal and semantic content of documents
- Context retention: references and cross links to other documents
- Ongoing translation into appropriate specialist language of the time
- Rules for selection of sources (based on content, expected impact, future users) regardless of type of object, distribution or publication method, publishing house, author category or document type.

Technological issues are not the most important. Many experts believe that the main defy faced by preservation is located in the institutional area (the design and implementation of public policies), the economic area (the adequate funding to develop such policies), and the legal framework (clarifying intellectual property issues, and defining who have the legitimate right to exploit and access these digital contents).

Policies, research, planning, initiatives and appropriate execution regarding the preservation of digital information are still inadequate in South American countries, therefore endangering massive amounts of digital information, both for the short term and for future generations. One of the main challenges regarding strategies and policies is making South America governments aware of the urgent need to include the preservation of digital information in their National Digital Agendas, as well as in regional policies, among other goals, to register and preserve the diverse stages if the public policies and strategies for building feasible information ocieties. A relevant problem is that the responsibility of the preservation of digital information is uncoordinatedly distributed among diverse social agents.

Experts usually propose campaigns of sensitisation and information of civil servants as a driving factor that will determine a positive change of attitudes towards digital preservation. It is generally believed that individuals and public administrations do not generate actions regarding the preservation of digital material because they are not provided with the adequate information and that when they receive this information, they will change their attitudes and become proactive agents of the cause of long-term digital preservations. This implies assuming *a priori* that individuals and groups which are taught to identify and acknowledge the relevance of digital preservation will change their attitudes towards this issue, and will even

generate creative solutions and strategies. Nevertheless, while the dissemination of information remains a valuable tool, it is not enough, by itself, to generate behavioral changes. Which factors do engender such necessary changes in attitudes, policies, and strategies? We believe that it is not enough to sensitise the public administration using reasonable, politically correct arguments informing about an obvious problem, that entrails present and future dangers about collective memory and identities. The fact that the loss of collective memory through the successive losses due to the lack of policies, and of consequent and consecutive losses at each technological turning point, can be perceived by public administrations as a relevant problem is based on the ethic foundations and principles that the diverse types of social actors use to assess and decide action priorities, in individual as well as in collective ways.

This is a complex issue, in which individual and collective behavioral patterns are clearly determinate by institutional cultures and bureaucratic rules that frame, and may encourage or inhibit each course of action. This is the main reason why it becomes absolutely necessary to integrate the issue of preservation of digital information to South American National Digital Agendas, as well as to generate an active debate at Unasur and Latin American level.

These policies and strategies could consider the following issues, among others:

- Providing ample information, seminars, conferences, virtual courses, and publications on international best practices on the subject
- Promote research about digital preservation
- Enhance the importance of raising awareness about digital preservation in South America to guarantee availability in the future
- Generate multistakeholder spaces for participation and actions
- Identify and empower the individuals and groups that have generated positive changes in strategies and actions regarding the preservation of digital
- Facilitate the international mobility and learning exchanges of public administration members concerned with the preservation of digital materials
- Creating multistakeholder agencies to make de fundamental decisions about short, medium and long term preservation of digital materials
- Inform and sensitise the diverse social agents about the importance of the preservation of digital materials
- Engage the compromise and involvement of the enterprises that deal with information preservation
- Ensure that the digital materials kept as file documents are adequately identified and are stable and fix, in content as well as in their form
- Guarantee that digital materials are classified in logical aggregations
- To use authentication techniques which promote the maintenance and preservation of digital materials
- Create and periodically update norms, legal frameworks, and procedures for long term preservation of digital materials, as well as to protect digital materials from non-authorized interventions
- Assess documents and digital materials to determine the periods of their preservation.
- Make campaigns to sensitise the population about the value of digital preservation
- Criteria used when it is decided to transfer documents form paper or film to digital materials are valid only within the context in which these criteria were adopted. Prospective studies could help when deciding which digital materials will be most useful for future generations
- Choice of the stocking technologies should be careful and constantly updated, since there is no physical device that can guarantee the perpetual life of the digital contents
- Intellectual property costs (copyright) in the digitalisation processes are relevant when deciding the policies and projects, and should be considered when making the selection of the materials to be preserved
- It is necessary to elaborate legislative actions to protect information resources; an option could be the open knowledge licenses, such as Copyleft, Creative Commons, among others, as well as to clearly explicit the limitation for the use of digital contents
- Quality is a significant element. It is necessary to capture the best intellectual and visual contents, and then to choose the forms to present these contents to the users in the way that responds better to their needs
- Selected digital resources should be apt to work in diverse types of informatics platforms.
- Responsible agent is the State through its cultural institutions such as: Secretaries of State, Ministry of culture, national libraries, etc. The second responsible agents should be the institution that sponsors the development of universities, research centers, libraries, etc. These organisations have to emphasise that all digital development project is

accompanied by a digital preservation policy to ensure the preservation of the institutional developments.

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