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*PAHO/WHO
Methodologies for
Information Sharing
and Knowledge
Management in
Health*

7. HOW TO ORGANIZE AND PRESERVE THE INSTITUTIONAL MEMORY

Criteria, methodologies and content management platforms that allow to record, sort, preserve and disseminate information and knowledge generated in the Institution.

Title	How to organize and preserve the Institutional Memory
Version	2 nd Revision, May 22, 2015
Definition	Criteria, methodologies and content management platforms that allow to record, sort, preserve and disseminate information and knowledge generated in the Institution.
Objective	To establish the criteria and the methodologies that allow preserving and providing access to the Institutional Memory of an institution and its activities under international standards for information organization and technology use.
Expected results	<ul style="list-style-type: none">• Creation of guidelines and procedures that enable the institution to organize and preserve the array of tangible and intangible knowledge.• Preservation and dissemination of institutional and technical information.• Increase of the institutional intellectual capital.• Technically strengthened information management projects and actions.
Premises	<ul style="list-style-type: none">• Organizational culture: Preserving and using the Institutional Memory should be a component of the organizational culture of the Institution and play an important role in decision-making.• Policies and procedures: institutional internal policies, procedures and working guidelines should include issues relating to information management and preservation of the Institutional Memory.• Responsibility: the institution should define the unit responsible of monitoring, revising and upgrading policies and procedures related to the Institutional Memory.• Methodology: the institution should elaborate methodologies to deal with different formats of the (tangible and intangible) institutional information produced, its level of access-secrecy, and incorporate these methodologies to the administrative, technical and strategic institutional routines.• Platform: An open-code platform that also allows to store digital objects should be rather chosen.

Procedure

Phase I Planning

Preserving and using the institutional memory of a health institution is crucial for institutions to improve decision-making within the framework of the Information Society.

Important notice: The institution should incorporate tangible assets (technical and scientific literature) as well as intangible ones, which are often subject to internal or external audits.

How to make up the Institutional Memory: It should be considered as the set of scientific, technical and administrative documents - regarded as tangible assets, and also by its intangible assets which, although no physically evident, add value to the intellectual capital of the institution thus being of incalculable value and, in the long term, may respond (either positively or negatively) for the reputation of the institution.

Due to its assorted nature and for being collectively developed, the Institutional Memory is generally not the responsibility of a single area or department but of the entire institution at all hierarchic levels. The technical areas that are traditionally related to tangible and intangible assets are: Knowledge Management, Strategic Intelligence, Library/documentation Center, Files, Legal, Research, Information Technology, Finance and Communications.

- *Tangible Assets – explicit and rather measurable information*
 - Scientific and technical production: *publications, reports and consultancy products, resolutions, policies, procedures and internal standards*
 - *Multimedia resources: photographs, videos, on-line courses, maps and other interactive resources,*
 - *Technical and administrative documents: agreements and technical cooperation memorandums, legal agreements, consultancy and travel reports, technical and strategic reports (usually secret), administrative information, etc.,*
 - *PAHO/WHO also considers part of its Institutional Memory acknowledgements, certificates and other distinctions offered by Member States (ministries of health, municipalities, education and research institutions, other international organizations, etc.) as a way to acknowledge the technical cooperation endorsed by the Organization.*

- *Intangible assets – which have an impact on the intellectual capital and reputation of an institution*
 - *PAHO/WHO intangible actives are comprised of: technology products (such as the development of management information systems, databases, websites, software, etc.), trademarks, logos and copyright, patents, etc. It is advisable that the institution should register its brand names and logos.*
 - *Business intelligence and business methodologies of an institution should also be included in this category.*

- *Knowledge exchange and capture (institutional wisdom)*
 - *It includes formal and informal processes of knowledge sharing at the institution, mainly those that guarantee knowledge sharing of professionals who leave the institution (due to end of contract, retirement, etc.) to new professionals or those who take on new roles in the institutions.*

Initial decision: Implementing a project to preserve and use the institutional memory requires an initial political decision at the highest level. Such decision should translate into institutional regulatory instruments disseminated through available official internal communication channels.

Situation analysis: in order to develop strategic planning, a situation analysis should be carried out considering, at least, the following:

- *The existence of an institutional culture associated to the use of institutional information for decision-making;*
- *The existence (or lack of) policies, standards or procedures related to the preservation and use of the institutional memory;*
- *Current platforms and databases to manage tangible assets (publications, technical documents and other information products).*
- *Institutional standards on Information Technologies;*
- *Bibliographic databases at the institution which already include records of information production (library catalogue, reports of technical consultations, travel reports, list of publications and other institutional information products);*
- *Already digitalized documents and other sources;*
- *Technical staff skills and knowledge gaps (especially library employees and staff from technology and publication areas);*
- *Ability to search and use information by institutional staff (non-library staff);*
- *The existence of technical areas responsible of ensuring the management, organization, preservation and use of tangible and intangible assets;*
- *The existence of rules and procedures ensuring the sharing, exchange and incorporation of knowledge between professionals, especially in the situation of end of contracts, retirement;*
- *The existence of intangible assets control (although in the form of lists) of trademarks, copyrights, licenses and systems, databases, and web pages developed by the institution;*
- *The existence or the lack of a digitalization policy (media conversion) so that digital objects to be uploaded in the repository comply with quality criteria including minimal format, resolution, size, file name, etc., standards.*

Strategic planning: The strategic planning process is crucial at the time of formalizing a project to preserve and use the institutional memory and it may consider different scenarios, including:

- *The institution does not have a formal project for the preservation and use of the institutional memory;*
- *The institution does not have a formal project for the preservation and use of the institutional memory, however, it does have a database which serves its internal needs;*
- *The institution does not have a formal project for the preservation and use of the institutional memory; however, it does have a database which serves its internal needs and shares its bibliographic records with other institutions and networks;*
- *The institution has a formal project for the preservation and use of the institutional memory; however, it does not have official standards and procedures;*
- *The institution has a formal project for the preservation and use of the institutional memory, official standards and procedures; however, there is no organizational culture on the use of information for decision-making.*

Organizational culture project: The use of scientific and technical information for decision-making, as well as for the operation of projects on the whole, is a challenge that should be faced in a hyper-connected society overloaded with (not necessarily quality or relevant) “contents” which may have the opposite effect to that sought with this type of project. A process for changing the organizational culture should consider, at least, the following components:

- *Top management (explicitly) committed to the project;*
- *A highly motivated project team, having (political and financial) support;*
- *Internal communication plan which allows showing the change of paradigm through the specific outcomes resulting from this type of projects;*
- *Executive reports periodically submitted to the top management as return of investments made.*

Selecting (or redefining) the technological platform: The selection (or redefinition) of the technological platform is one of the most important actions as it will affect the whole operation of the project and it will be a very hard and expensive decision to change it in the future. It is crucial and may be very helpful and cost- and risk-saving to ask for PAHO/WHO support in this phase of the project.

PAHO/WHO has developed this research and has selected the tool known as DSpace based on the following characteristics:

- *This is a free and open code tool, and one of the largest communities of users and developers worldwide,*
- *It is prepared for the use of interoperability protocols and may be adapted for integration with other platforms/databases,*
- *It works with the concept of Uniform Resource Identifier (or URI), a chain of characters that univocally identifies the resources of a network. The difference with a Uniform*

- Resource Locator (or URL) is that the latter refer to resources that may usually vary with time¹. The process of changing the addresses of virtual objects is optimized with URI.*
- *It guarantees that digital resources are preserved in the platform itself,*
 - *It allows to restrict the use of a document, collection or community to a person or group of users with permission to have access to this(these) resource(s),*
 - *It allows defining different roles, work groups and permission levels of the flow of information for contributing to the platform.*
 - *The tool can be modified according to the needs and requirements of the institution; it allows to record and preserve all type of digital content, text, images and videos; it is easy to install and a wealth of support documentation is available on the internet.*
 - *It offers the possibility of customizing the statistics module as an analysis input for decision-making.*

Selecting (or redefining) the methodology for metadata (data field) description: In this phase, standards should be selected to define how the descriptive data of the digital resource will be uploaded. In the case of PAHO/WHO, the following formats/components have been considered:

- *The Dublin Core (dc) format, for being simpler, internationally used and also because Dspace works with this format, thus facilitating the consistency of data in collaborative initiatives and sharing contents with other institutions and networks,*
- *If the institution has other bibliographic databases using other formats (MARC 21, Library of Congress, LILACS etc.), work should be done to convert and migrate data, using international protocols for converting fields of bibliographic data. In the project implementation phase, a template has to be developed for each type of information to upload data with the fields to be used and their standardized form.*
- *The XOAI module, because it enables interoperation with other repositories, aggregators and other platforms available at the institution.*

Selecting the structured vocabulary: In order to guarantee the exchange of information with other institutions and networks, as well as to ensure interoperability with other repositories and warrant multilingual searches, it is important to use structured terminology. For health institutions, PAHO/WHO uses, and advises the use of, the DeCS (Health Science Descriptors) developed by BIREME. The DeCS was developed based on the MeSH - *Medical Subject Headings from the U.S. National Library of Medicine (NLM)* with the aim of allowing the use of common terminology for three-language searches, providing a consistent and single media to recover information regardless of the language. It participates in the project for the development of the single terminology and health semantic network, UMLS - *Unified Medical Language System* from the US-NLM, and is accountable for updating and forwarding terms in Portuguese and Spanish. Apart from the MeSH original medical terms, the specific areas of Public Health, Homeopathy, Science and Health and Health Surveillance were developed. The DeCS is a dynamic vocabulary with a total of 31,865 descriptors, out of which 27,232 belong to the MeSH and 4,633 are exclusively from the DeCS¹.

¹ Source: http://es.wikipedia.org/wiki/Identificador_de_recursos_uniforme.

Definition (or revision) of standards and procedures: Definition or revision of institutional policies, standards and procedures should be initiated together with the project since it is part of the change of the organizational paradigm and culture regarding the use of information for decision-making. PAHO/WHO has standards and procedures that can be consulted in Annex I of this document. It is advisable to use or adapt these standards in order to guarantee that all health information sources preserving the institutional memory of health institutions can act in an interoperable way and in conjunction with the Virtual Health Library coordinated by BIREME. PAHO/WHO can provide support in this process.

Training Plan: From the very beginning, a plan should be formulated to allow, through the knowledge gaps identified in a situation analysis, strengthening the institutional capacity of the technical staff (library) in the management of institutional repositories, as well as the capacity of the remaining staff to improve the capacities for searching, contributing to and using strategic information for decision making and for running the institution as a whole.

Phase II

Implementation

Organize, preserve and use the Institutional Memory is a common commitment.

Initial action: This phase defines the standards and procedures for the adoption of information products, their characteristics, and the methodologies and technologies for recording and describing each object, the conceptual model for defining and creating collections, sub-communities and communities (that is, how documents will be arranged and sorted in the repository structure).

Next steps: In order to guarantee the correct implementation of the project, it is advisable to implement the following actions:

- *Establish an inter-programmatic work group to review/create policies, procedures, guides relating to the main components of the Institutional Memory – tangible, intangible and knowledge exchange/incorporation assets;*
- *Define the technical area responsible of the coordination/monitoring of the components of the Institutional Memory;*
- *Organize meetings and trainings for the dissemination of the Institutional Memory frameworks as well as for the dissemination of new policies and procedures;*
- *Implement the new policies, procedures and guides in the entire institution;*
- *Review/create the criteria for the definition of intangible assets, and financial aspects and capitalization methodology;*
- *Review the management technical procedures of tangible assets and how they will be sorted, preserved and integrated with other information systems (catalogues of publications, library/documentation center, web pages, etc.);*
- *Establish monitoring methods, internal audits and indicators that allow recognizing the improvements made.*

Information resources typically included in an institutional/digital repository: they typically disseminate the contents produced by the institution itself, including, in addition to metadata, the digital object. It is not advisable to invest in institutional/digital repositories in which the loading of 100% of indexed digital objects is not considered

- *Audit criteria*
 - *Self-authored information resources, also considering co-authorships and co-editions, either original, translated or new edition versions.*
 - *It is not advisable to upload draft and/or not approved versions.*
 - *Neither is it advised to upload to institutional repositories non-self-authored information resources without due permission from the author.*
- *Types of documents*
 - *Scientific (guidelines, manuals, thesis and speeches from staff, etc.) and technical (annual, quadrennial, meeting and progress reports, strategies, etc.) publications*
 - *Consultation and travel reports, institutional internal resolutions, procedures and instructions,*
 - *Statistical data and reports,*
 - *Multimedia resources such as videos, photographs, drawings, maps, etc.*

Creating communities, sub-communities and collections: since institutional repositories allow the agile and simple recovery of information, communities and sub-communities structure should be simple and not necessarily reflect in deep the current flowchart of the institution since changes may occur at any time.

- Also, in this phase, the unit responsible of the development of the institutional repository should have operative manuals prepared for uploading and indexing each type of digital objects to be accepted, should organize work meetings with the involved units and monitor the upload/migration of metadata / digital objects.
- When considering the work structure and the number of professionals devoted to the repository, it is not advisable to work with many types of information at the same time since a description sheet should be developed with the right Dublin Core fields, the requirement for digital objects.

Content incorporation: either importing existing data or manually.

Repository dissemination strategy: the marketing strategy is defined as part of current instruments and channels, and permanent interaction with social networks is recommended, as well as spaces in institutional events. The inclusion of the repository in international directories is advised, as well as defining the initiatives in which the institution will supply contents.

Phase III Revision

In order to guarantee the strengthening of the Institutional Memory, periodic review of policies, procedures and platforms is required.

Periodic review: in order to strengthen the Institutional Memory and indicate upgrading of policies, procedures and platforms used, it is advisable to:

- *Analyze the indicators established during the implementation stage to identify points of improvement and provide feedback in the regulatory documents of the institution – control points;*
- *Identify the new platforms, lessons learned, best practices and technological resources used to manage the Institutional Memory.*

Phase IV Operation

The institution reviews the repository, updates the technology, incorporates new types of information and improves its methodologies.

Review of metrics: Dspace automatically generates statistics of visits to the repository, consumption of digital objects, number of searches made and consumption via OAI. This also facilitates measuring desired levels of impact and reviewing the repository dissemination strategies.

Review of repository results and definition of new content: when implementing and measuring the use of the repository, the institution may wish to add other types of information not considered at the beginning of the project or left for a second implementation phase – bearing in mind that it is necessary to define the description sheet with the relevant metadata (Dublin Core fields) and specific requirements of digital objectives for each type of information.

Updating the Dspace version and defining new presentation formats of the institutional/digital repository: as aforesaid, Dspace developers' community, and its international use, generates the constant development of new plug-ins, interoperability protocols, search resources and consumption of digital objects. In this way, the institution should seek for new necessary resources to guarantee the permanent updating of its repository.