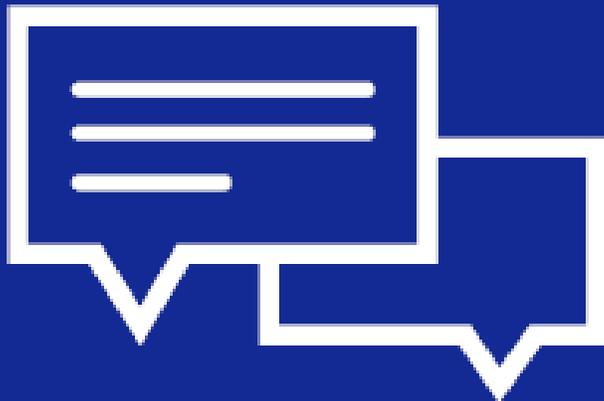Pan American Health Organization

World Health Organization
REGIONAL OFFICE FOR THE Americas

IS4H TOOLKIT
KNOWLEDGE CAPSULES

INFORMATION ARCHITECTURE IN PUBLIC HEALTH

DEPARTMENT OF EVIDENCE AND INTELLIGENCE FOR ACTION IN HEALTH
PAHO/WHO
www.paho.org/ish

Pan American Health Organization

World Health Organization
REGIONAL OFFICE FOR THE Americas

Information Systems for Health Toolkit

Knowledge Capsules
Information Architecture in Public Health

IS4H-IA

Acknowledgments

Version 1.0 – July 6, 2019

Department of Evidence and Intelligence for Action in Health
Pan American Health Organization - World Health Organization

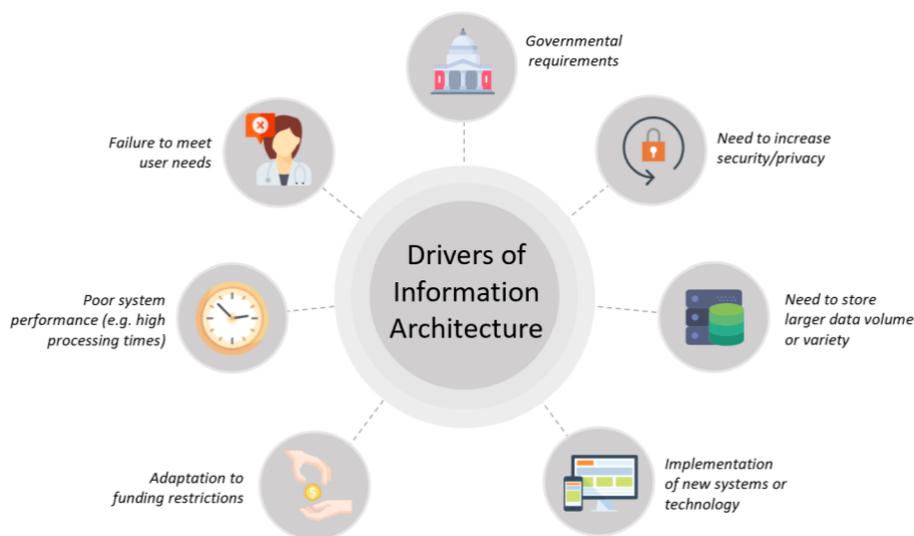## What is an information architecture?

- An information architecture is a blueprint of how information is stored, organized, and used in an organization by its systems and users. Information architecture allows organizations to capture the structure of its information, and how systems and users produce and interact with this information throughout their workflows and processes.
- Information architecture involves the development of scope, policies, and ownerships/accountabilities within the organization relating to the structure, uses, and flows of information.
- A health information architecture can be used as a strategic planning tool, as it provides a framework for architecting and deploying digital health solutions, and for structuring new flows of information between systems.
- An information architecture continues to evolve as the organization changes throughout time. The architecture itself might drive a change in the organization's information structure or information system profile, or a change in the information environment of the organization might drive the architecture to change. For example, a healthcare organization might examine its information architecture and discover that two databases are redundant and rationalize them or implement a new EMR and update the architecture to reflect this.

Benefits of Strong Information Architecture Include
- Improved decision making
- Improved communication about information systems and their management
- Reduced risk of new technology failing to meet needs
- Increased efficiency and decreased costs

What are the drivers of information architecture in public health?

- Typically, an organization will initiate their information architecture or re-architecture in response to one or many of the stimuli seen on the right.
- Information architecture allows organizations to understand and optimize their information storage and information-related processes; therefore, it should be considered as a part of a solution to any of the circumstances listed, as well as many more.

What roles should be included in an information architecture team?

- At maturity, the information architecture management should include the following roles:
  - Steering committee: composed of senior managers who set policies and monitor program results.
  - Technical advisory group: technical experts who advise on design principles, quality measures, priorities, and help navigate any technical issues.
  - Technical design team: define, document, and enable meeting of standards.
  - Quality assurance team: ensure the ongoing successful functioning of the information flows and user workflows involving access of information, as the information environment of the organization changes over time.
- These roles are often not the sole role of an individual, for example, a quality assurance team member may be an IT department employee who has other roles and responsibilities external to information architecture.

A variety of tools are often used in information architecture mapping, including:

Entity Relationship Diagramming	-------->	Shows the logical structure of databases, by depicting the relationships between data components in a dataset, as well as the attributes of each component type.
Data Flow Diagramming	-------->	Represents the flows of data within a process or system.
Information Cataloguing	-------->	Records the nature, type, and location of all information stored or used by an organization, as well as the location and content of any and all metadata that is stored about each data item.
Business Process Mapping	-------->	Captures all steps, tasks, resources, and decisions involved in the various processes in an organization.
Process Decomposition Mapping	-------->	Explains the processes within an organization within each functional area, as well as depicting the relationships between these processes.

How is an information architecture established and maintained?

- Generally, information architecture is established or re-established in the following way:
    1. The steering or information architecture governance committee assembles, after the need for an information architecture becomes apparent.
    2. The steering committee recruits a technical advisory group, and together they compose an information architecture charter, including all systems, with maps of information flows, catalogues of database contents, and ongoing architecture maintenance plans.
    3. Teams are formed to begin mapping the current information state in the organization.
    4. The teams, technical advisory committee, and steering committee review the resulting architecture, and iterate upon it as needed.
    5. Technical design and quality assurance teams are recruited to continue ongoing maintenance of the architecture, updating it should there be any changes to the information flows or stores of the organization.

What are the components of a mature information architecture?

- A mature information architecture consists of more than a collection of diagrams and catalogues. The following components should be considered important to include in the information architecture as a data flow diagram:

Architecture Scope	*Information Policies*	*Definitions*
Detail what systems and information flows are considered within the architecture, and which flows or systems are not	Include all policies relating to or regulating information collection, storage, use, and transfer within the defined scope	Include definitions of all data items within the scope of the architecture - definitions differentiate and categorize data types
Authority and Responsibilities	*Data or Information-Related Procedures*	*Diagrams and Catalogues*
Describe all accountabilities and authority structures governing the in-scope information, and the responsibilities of each role	Any standardized procedures such as access authorization requests which relate to the in-scope information	Include all relevant data, metadata, and information catalogues and flow diagrams for the scope of the architecture