

(not-so) OpenLIMS

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Information Management in the Lab

- Theoretical Framework considerations
 - Quality management
 - Change management
 - Knowledge management
 - Content management

Information Management in the Lab

- Theoretical Framework considerations
 - **Quality management**
 - Internal processing standards (ISO9001:.....)
 - Quality management handbook

Information Management in the Lab

- Theoretical Framework considerations
 - Quality management
 - **Change management**
 - Transform a lab from its “current state” to a “better state”
 - measure quality; assess progress and effect any changes that are needed to ensure quality
 - changes need to be communicated to people
 - Training??

Information Management in the Lab

- Theoretical Framework considerations
 - Quality management
 - Change management
 - **Knowledge management**
 - process orientated – improve the lab's processes/results
 - I.T to support storage and distribution of information

Information Management in the Lab

- Theoretical Framework considerations
 - Quality management
 - Change management
 - Knowledge management
 - **Content Management**
 - **Technical foundation for storage, structuring and accessing info by humans**
 - **Web Content Management Systems**
 - Access, View and Edit via the web
 - people in the lab, experiments, physical hardware, documentation

Information Management in the Lab

LIMS Features

- Data import and instrument integration
- Generic steps: sample analysis request, analysis, data capture and disposal of sample

Information Management in the Lab

LIMS Features

- Regulation/accreditation
 - ISO17025 - testing and calibrating results
 - Laboratory competences (Good Automated Laboratory Practices)
 - Ensure integrity of all data entered into the LIMS
 - Accuracy and of all formulae and calculations have been verified
 - Ability to audit all data entries and any modifications
 - Change is a consistent and controlled process
 - Follow SOPs
 - Disaster recovery plan is in place

Information Management in the Lab

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 - College of American Pathologists (CAP certificate)
 - Biobank accreditation

Information Management in the Lab

LIMS Features

- Web-based
- Software to support multiple projects;users;
- User-configurable through a browser
- Secure
- Modules integrated

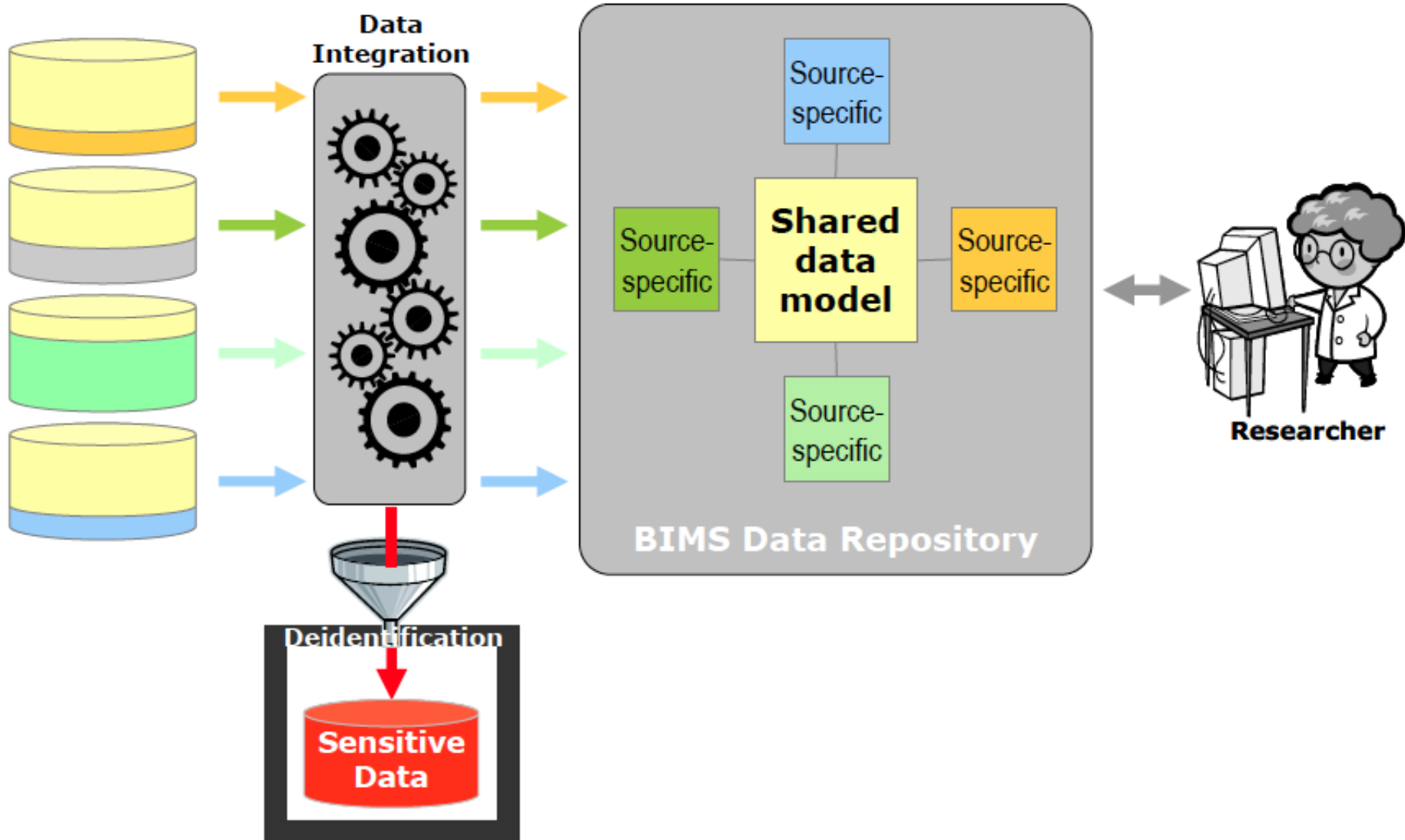
ELEMENTS OF BIOBANK INFORMATICS

- **Sample management**
 - **chain of custody**
 - **request/shipment**
 - **data collection**
 - **data query**
 - **data analysis**
 - **billing info/finance**
-
- **data integration**

LIMS Software	Language	applications
AGL-LIMS	Java	Crop genotyping
WIST	PERL	NOT a LIMS but a toolkit to develop a LIMS
Crystallography LIMS	Java	Protein crystallography
LIPAGE		2-D Page proteomics
Screensaver	Java	High throughput RNAi screens
BIKA	Python [PLONE]	Health;biotech;geology;
GNU health lab module	python	Lab management; plugs into other modules
ARK	Java	Clinical studies; analyses; lims
caTISSUE caBIG	Java	Clinical (pathology); NCI

Data integration

...where Data is Remodelled and Categorized



CONNECTING BIOBANKS INTERNATIONALLY

International community

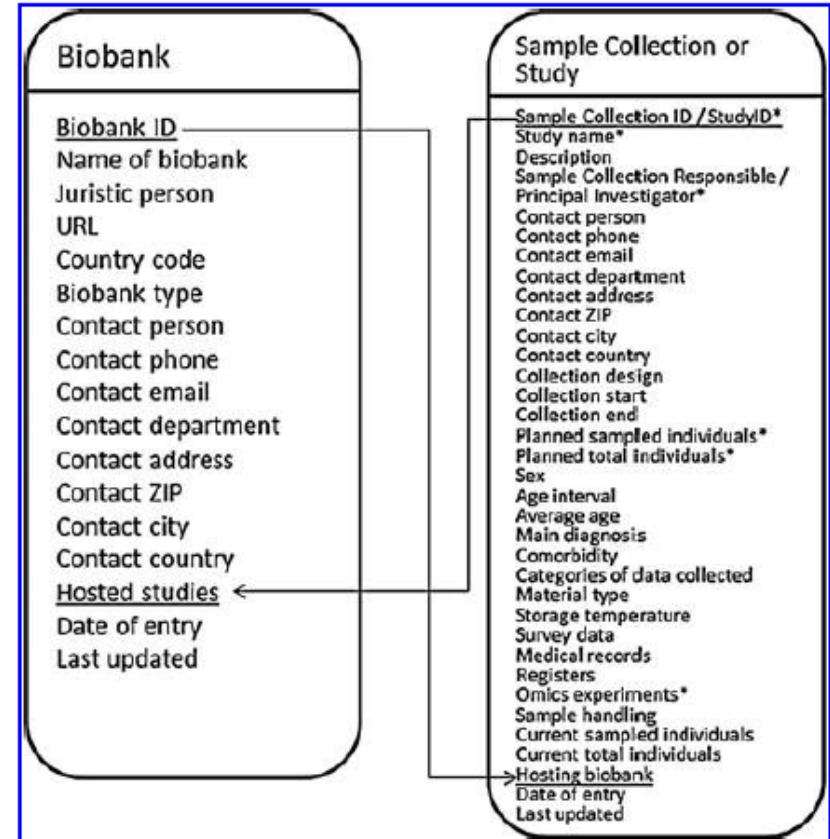


FIG. 1. The relationship between the types of attributes. *highlights attributes relevant for studies only.

CONNECTING BIOBANKS INTERNATIONALLY

Journal of Biomedical Semantics

BioMed Central

International

Developing a semantically rich ontology for the biobank-administration domain

Mathias Brochhausen, Martin N Fransson, [...], and Jan-Eric



OPEN SOURCE SOFTWARE FOR BIOBANKS

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- ▶ **What is OBiBa?**
- ▶ **Software**
- **About Us**
- **Contact Us**

Welcome to OBiBa

OBiBa is a collaborative international project whose mission is to build high-quality open source software for biobanks.

OBiBa is a core project of the **Population Project in Genomics Consortium (P3G)**, an international organization that provides tools and resources to foster collaboration and knowledge sharing for population genomic studies.

Partners



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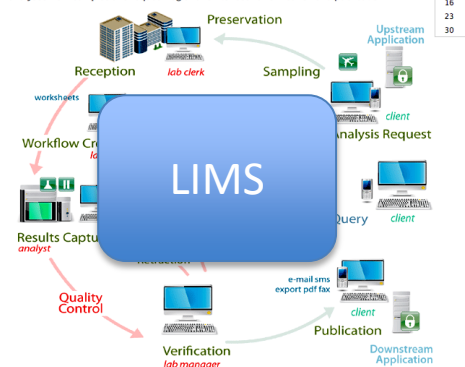
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Summary

Data Management (LIMS)

Bika's web based workflow

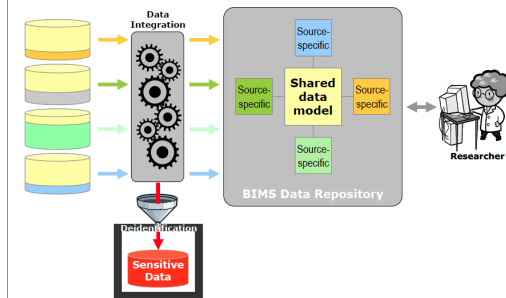
Bika LIMS workflow use case: A contact at a lab client organisation, requests and tracks analyses from samples and request registration to results verification and publication



Biobank	Sample Collection or Study
Biobank ID Name of biobank Juristic person URL Country code Biobank type Contact person Contact phone Contact email Contact department Contact address Contact ZIP Contact city Contact country <u>Hosted studies</u> Date of entry Last updated	Sample Collection ID / StudyID* Study name* Description Sample Collection Responsible / Principal Investigator* Contact person Contact phone Contact email Contact department Contact address Contact ZIP Contact city Contact country Collection design Collection start Collection end Planned sampled individuals* Planned total individuals* Sex Age interval Average age Main diagnosis Comorbidity Categories of data collected Material type Storage temperature Survey data Medical records Registers Ongoing experiments* Sample handling Current sampled individuals Current total individuals Relative biobank Date of entry Last updated

FIG. 1. The relationship between the types of attributes. *highlights attributes relevant for studies only.

...where Data is Remodelled and Categorized



- ALL LIMS products require customization over time
- Lab-specific needs/SOPs