

Analytical Information Management for the IODP Riserless Drilling Vessel

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Project Framework

- Scientific Ocean Drilling Vessel (SODV)
 - Laboratory upgrades
 - Operational upgrades
 - Need for graphical capabilities
 - Need to replace aging application software
- Integrated Ocean Drilling Program (IODP) Initiatives
 - Common data portal for all Implementing Organizations (IO)
 - Common sample management for all IO
 - Implementation of quality control for consistent information capture

Design Goals

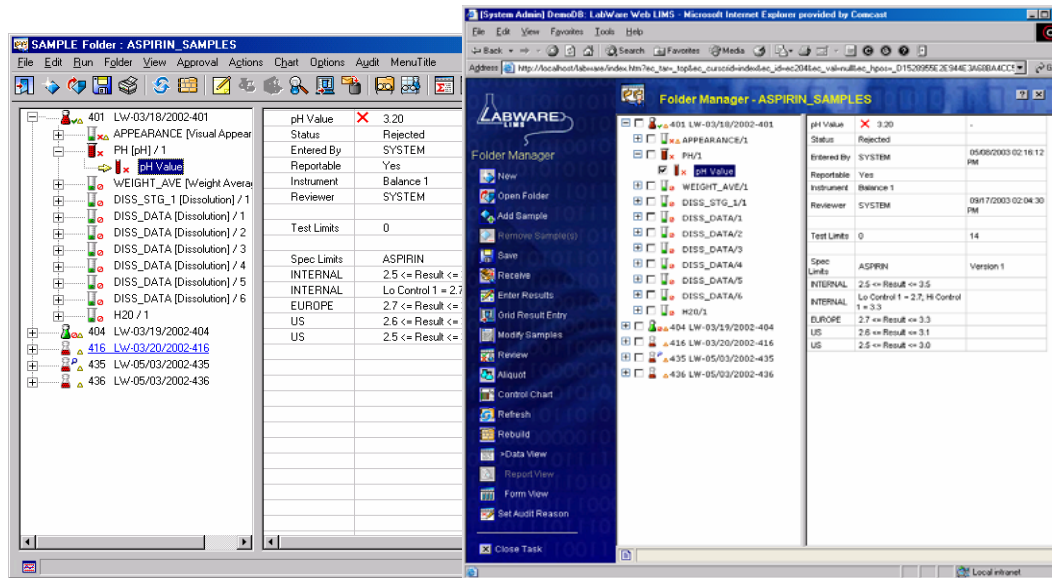
- Create independent data systems to support specific purposes.
- Link these systems to each other and to applications in a loosely coupled environment
 - The linkages will not be dependent on specific database schemas.
 - Linkages follow IODP-MI plans for metadata capture.
 - Linkages can be reused to connect to external applications.
 - Applications we develop can be used on any data system that matches the linkage.
- Do not duplicate data. Use it from where it is managed.
- Acquire capabilities where they are available and meet our requirements.

Definition of LIMS

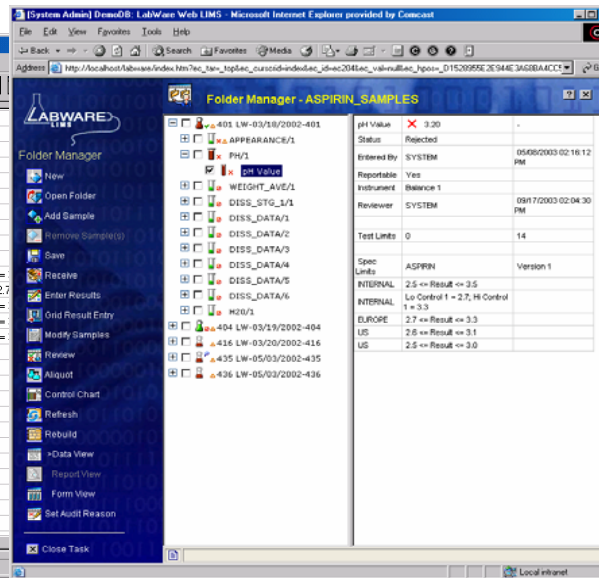
- “LIMS” - Laboratory Information Management System
- In its simplest sense, a LIMS is a relational database with a suite of supporting applications.
- We have selected a commercial LIMS vendor which provides a toolbox for configuring a system to meet our particular needs.

LIMS Deployment

- Data capture and reports are available to both client server and web deployment with no additional development.



Network-based

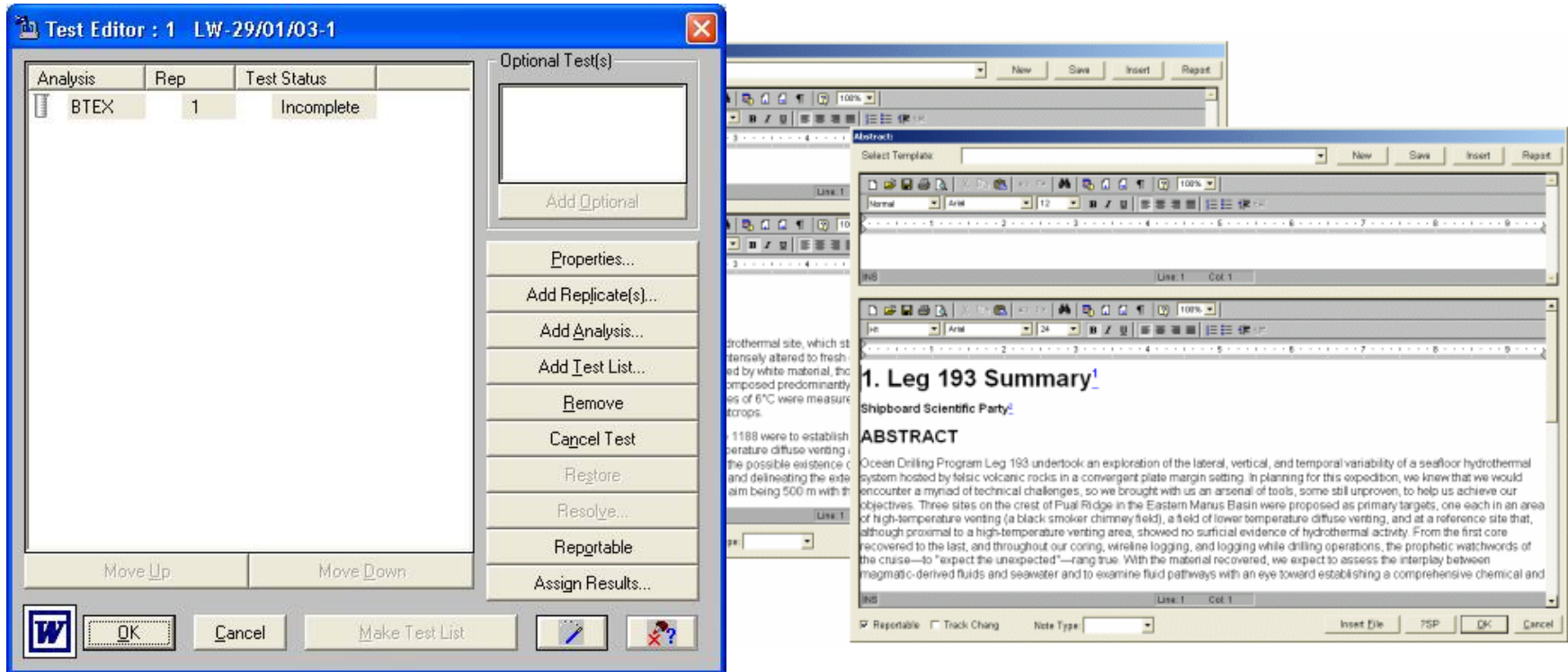


Web-based



PDA-based

LIMS Features: Document Access



The screenshot displays two overlapping windows from the LIMS software. The foreground window is titled "Test Editor : 1 LW-29/01/03-1". It features a table with the following data:

Analysis	Rep	Test Status
BTEX	1	Incomplete

Below the table is an "Optional Test(s)" section with an "Add Optional" button. A vertical list of actions is available: Properties..., Add Replicate(s)..., Add Analysis..., Add Test List..., Remove, Cancel Test, Restore, Resolve..., Reportable, and Assign Results... At the bottom are "Move Up" and "Move Down" buttons, along with "OK", "Cancel", and "Make Test List" buttons.

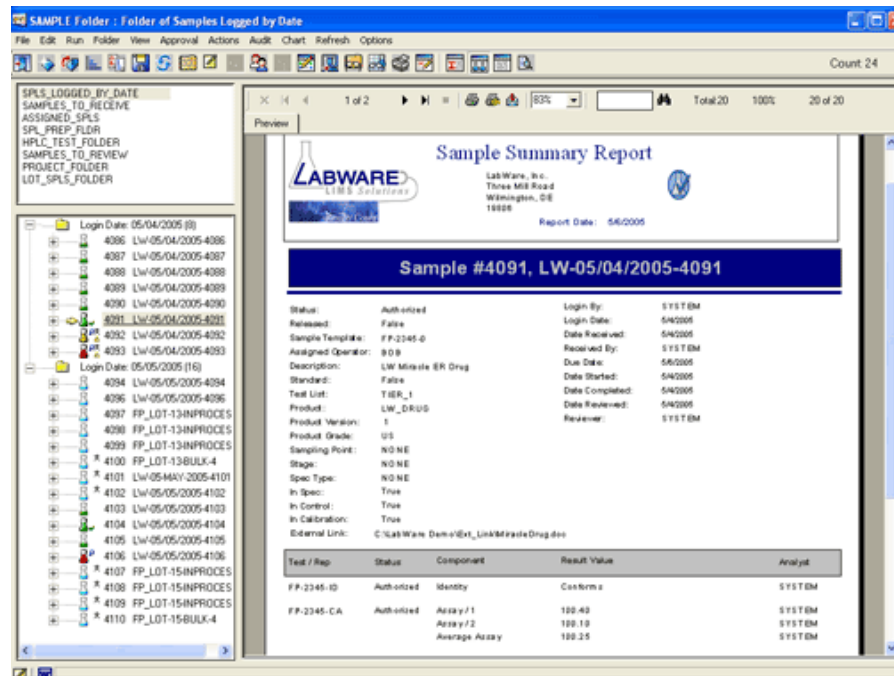
The background window is a document viewer titled "Abstract". It shows a document with the following content:

1. Leg 193 Summary¹
 Shipboard Scientific Party²
ABSTRACT
 Ocean Drilling Program Leg 193 undertook an exploration of the lateral, vertical, and temporal variability of a seafloor hydrothermal system hosted by felsic volcanic rocks in a convergent plate margin setting. In planning for this expedition, we knew that we would encounter a myriad of technical challenges, so we brought with us an arsenal of tools, some still unproven, to help us achieve our objectives. Three sites on the crest of Pual Ridge in the Eastern Manus Basin were proposed as primary targets, one each in an area of high-temperature venting (a black smoker chimney field), a field of lower temperature diffuse venting, and at a reference site that, although proximal to a high-temperature venting area, showed no surficial evidence of hydrothermal activity. From the first core recovered to the last, and throughout our coring, wireline logging, and logging while drilling operations, the prophetic watchwords of the cruise—to "expect the unexpected"—rang true. With the material recovered, we expect to assess the interplay between magmatic-derived fluids and seawater and to examine fluid pathways with an eye toward establishing a comprehensive chemical and

- Simple linkage to external documents

LIMS Features: Reporting

- Crystal Reports™ - On the fly user-configurable data reporting with graphic capabilities



The screenshot displays a LIMS software window titled "SAMPLE Folder : Folder of Samples Logged by Date". The interface is divided into several sections:

- Left Panel:** A file explorer showing a tree structure of folders and files, including "SPLS_LOGGED_BY_DATE", "SAMPLES_TO_RECEIVE", "ASSIGNED_SPLS", "SPL_PREP_FOLDER", "HPLC_TEST_FOLDER", "SAMPLES_TO_REVIEW", "PROJECT_FOLDER", and "LDT_SPLS_FOLDER". Below this, a list of samples is shown, grouped by login dates (05/04/2005 and 05/05/2005).
- Main Report Area:** A "Sample Summary Report" for "Sample #4091, LW-05/04/2005-4091". The report includes the LabWare logo and contact information for LabWare, Inc. (Three Mill Road, Wilmington, DE 19888). The report date is 5/6/2005.
- Report Details:** A table of key-value pairs for the sample, including:

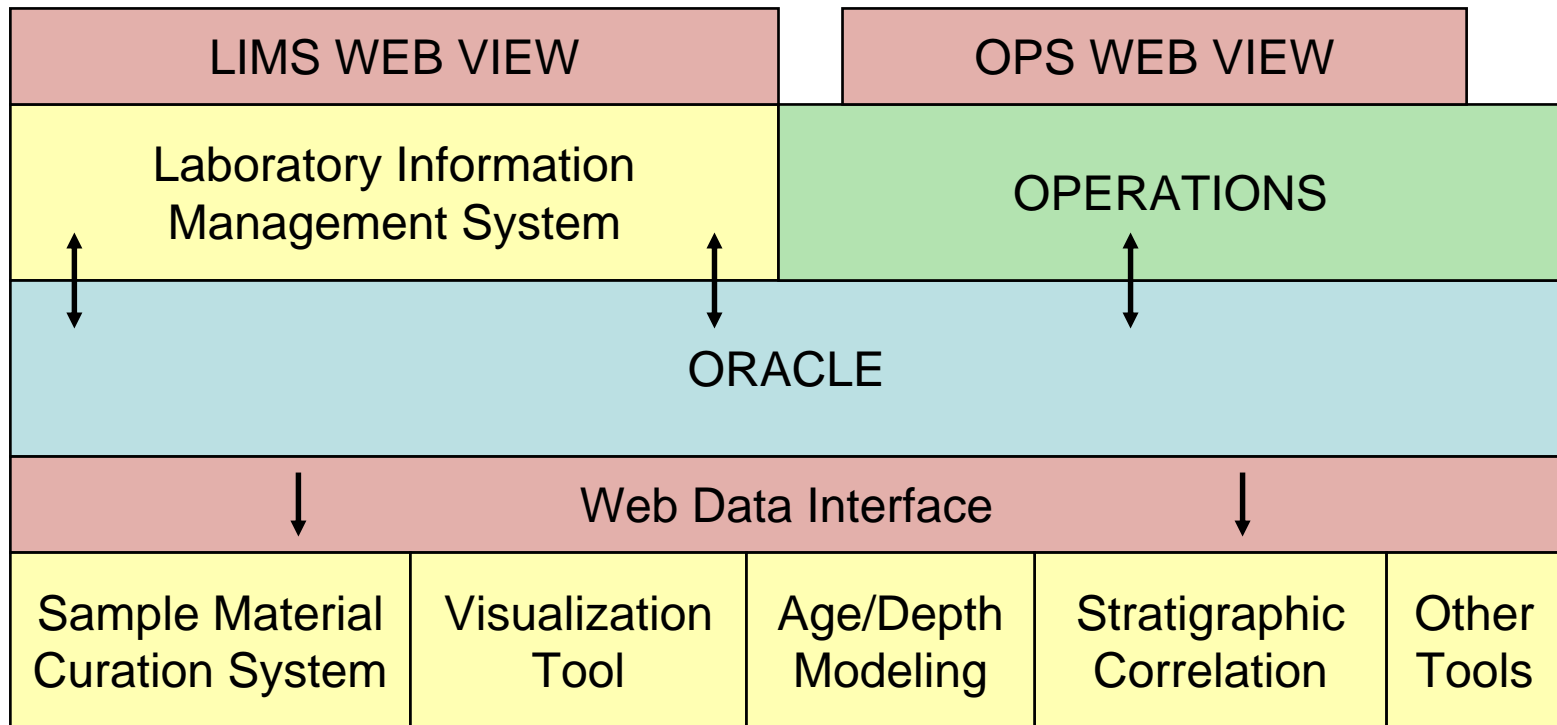
Status:	Authorized	Login By:	SYSTEM
Released:	False	Login Date:	5/6/2005
Sample Template:	FP-2345-0	Date Received:	5/6/2005
Assigned Operator:	BDB	Received By:	SYSTEM
Description:	LW Mixture ER Drug	Due Date:	5/6/2005
Standard:	False	Date Started:	5/6/2005
Test List:	TIER_1	Date Completed:	5/6/2005
Product:	LW_DRUG	Date Reviewed:	5/6/2005
Product Version:	1	Reviewer:	SYSTEM
Product Grade:	US		
Sampling Point:	NONE		
Stage:	NONE		
Spec Type:	NONE		
In Spec:	True		
In Control:	True		
In Calibration:	True		
External Link:	C:\labware\demo\Ext_Link\TradeDrug.doc		
- Test Results Table:** A table showing test results for the sample:

Test / Rep	Status	Component	Result Value	Analyst
FP-2345-ID	Authorized	Identity	Custom 2	SYSTEM
FP-2345-CA	Authorized	Assay / 1	100.43	SYSTEM
		Assay / 2	100.10	SYSTEM
		Average Assay	100.25	SYSTEM

LIMS - Summary

- Large application set and tool box for providing analytical information capture and management.
- Supports web delivery of capabilities
- Does not provide:
 - Data analysis
 - Borehole visualization
 - Instrument control

Information System Context

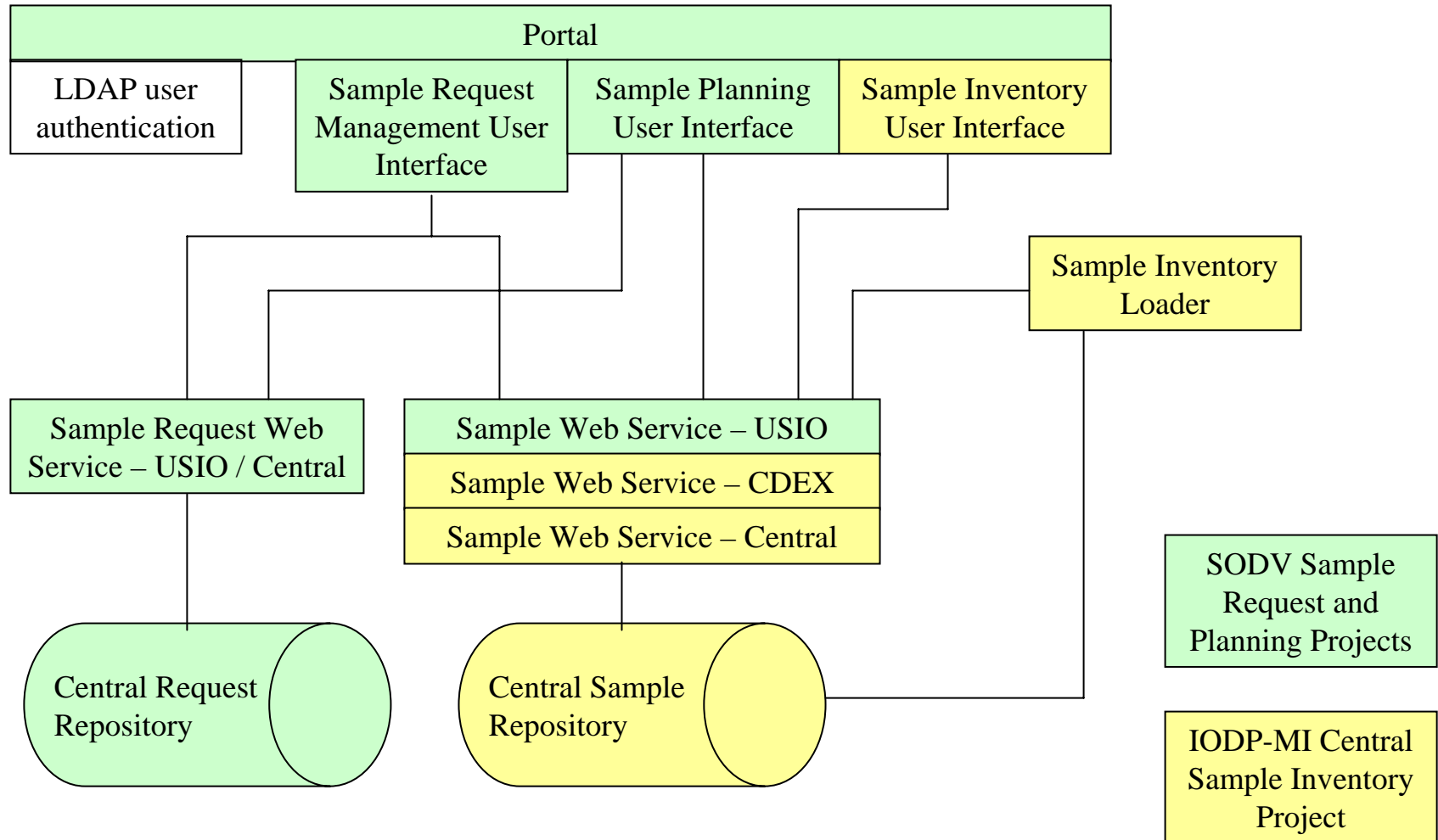


SMCS

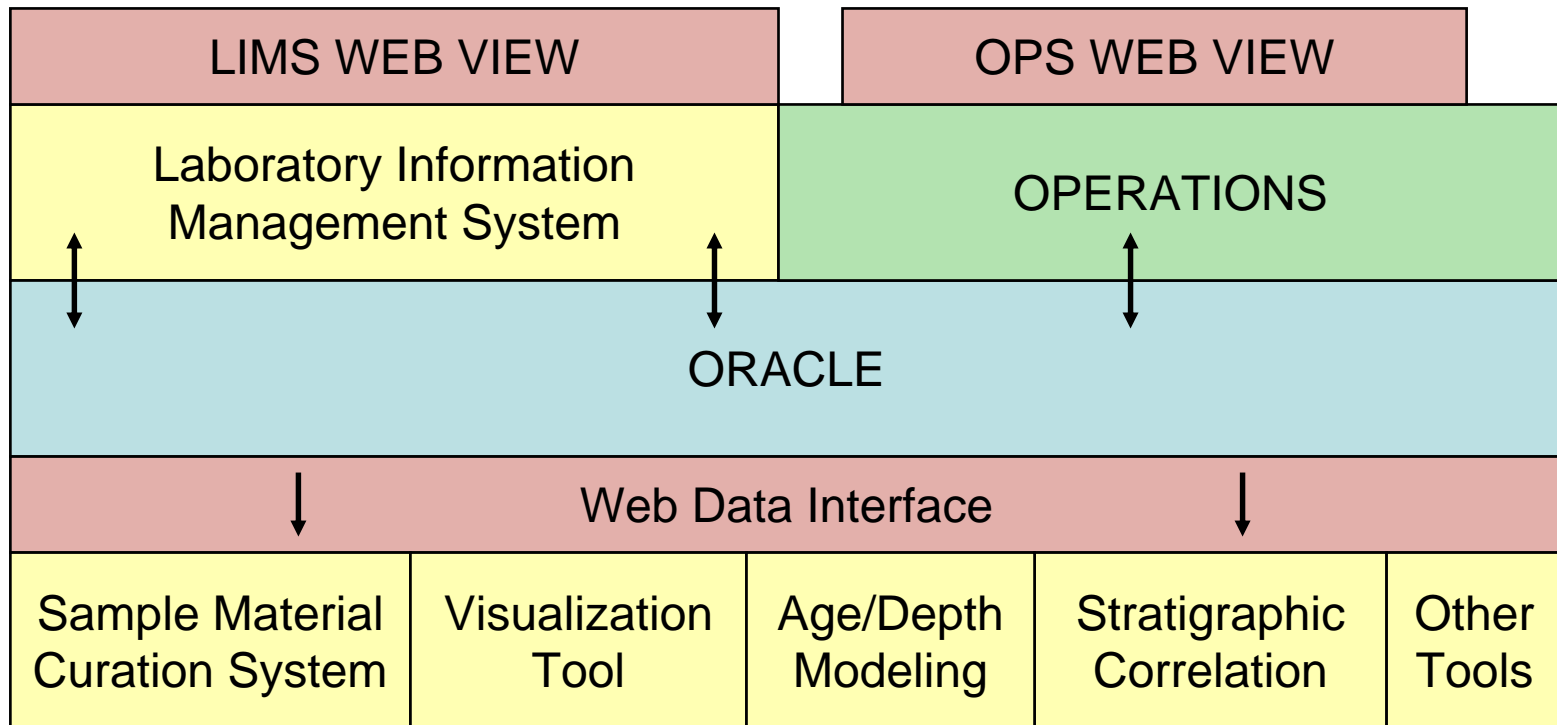
Sample Material Curation System

- Sample Request Management
- Sample Planning – requirements under development
 - Provide a tool for planning how to take requested samples from existing or planned source material
- Central Sample Inventory
 - Consolidated inventory of samples from all IO.
 - Maintained by the IO through data exchange

SMCS - OVERVIEW



Information System Context



Questions ?

