

Is a **LIMS** the Right Fit for Small Labs?

Presented by:

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Confience



Agenda

- 1 Current Status & LIMS Evaluation
- 2 LIMS Capabilities
- 3 Define Your Needs
- 4 Where is the Value in a LIMS
- 5 Return on Investment
- 6 LIMS Acquisition Process

Current Status

- Do you have a "System"?
- Excel-based
- Custom Design
 - Limited Support
- Tech Fear-factor



I use Excel, to save money!



*We need a tool for managing data ...
better make one!*



Excel Limitations

Data Security & Integrity – Huge Driver for LIMS

- Managing backups and corrupt files
- Not multi-user
- Not a database – difficult to look at associations
- Complex reporting
- Lack of business intelligence
 - Resource management
- Audit Trail: does not provide traceability
 - ✓ Who
 - ✓ What
 - ✓ When (Date/Time stamps)

Best-in-Class LIMS Capabilities



Identify your Problems and High-Risk Items/Areas



BEFORE you start
with vendor demos
– Define Your Needs!



Pain Points
Identify your problem
and high risk
items/areas



**What is the Scope
of the Project?**
High Level &
Low Level



**What are your
Requirements?**
Regulatory?
Customer-driven?
Workplace-driven?

Where to Start Your In-house Evaluation?



Number of Users



SaaS or Premise

– this presentation will focus on SaaS



Instruments and Systems to Interface



Reports

to be developed
(a report is anything you print)



Determining ROI

differentiate
between
SaaS
vs
On-Prem

***Note:** the above initial assessment can be used for justification of purchase.

Meeting Regulatory/Industry Standards

- **How much time is spent** recording/maintaining/searching for quality assurance information?
- **ANSI – TNI 2016**
- **How does lab automation efficiently** help in meeting lab quality requirements?

Meeting Regulatory/Industry Standards

- **Sample Tracking** (VIM2 5.6 & 5.7)*
 - Scheduling (VIM2 5.8 Handling Samples)
 - Automated collection reminders, hold times, etc.
- **Tracking Client/Project Needs** (VIM2 4.7 & 5.4 Service to Client & Method Selection)
- **Automated Calculations** (VIM2 5.4)
 - BOD, IDEXX Look-ups, TSS, New EPA MDLs, etc.
- **Automated Reporting** (VIM2 10 Reporting)
- **Remote Temperature Monitoring** – Sensors – LIMS Integration (VIM4 1.7.3.7 Consistent Test Conditions)

*

Meeting Regulatory/Industry Standards

LIMS – Instrument Integration

- Analyst provided with **accurate worklist**
- Communication** between LIMS and instruments
 - Eliminates** manual duplication & transcription errors
- Sample Analysis Traceability** (VIM2 5.9 & other Modules)
 - QC Batch
 - Supplies
 - Instruments
- Resource Management**
 - Calibrations (VIM2 5.5)
 - Analyst DOC & Trainings (VIM2 5.2)
 - Remote monitoring (VIM3 1.7.3.7)
 - (e.g., critical temperatures)
 - Instrument maintenance (VIM2 5.5.13.1)

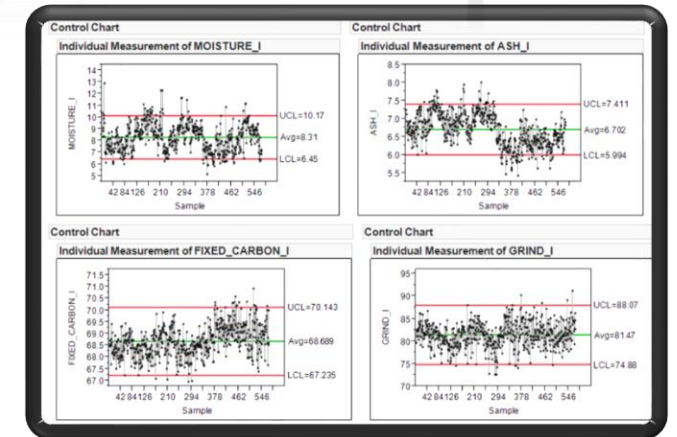
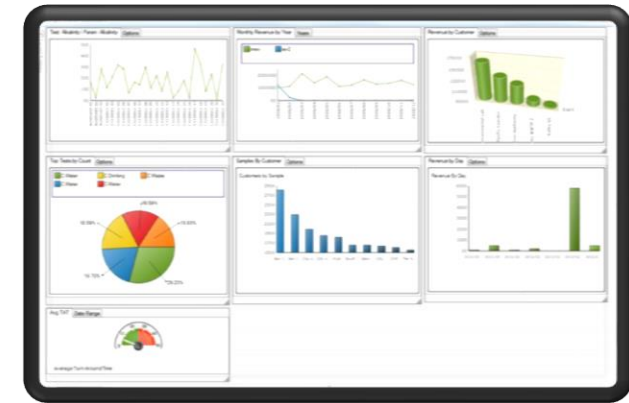


Personnel Certificates							
By Employee By Certification By Test							
Cert: DOC							
Employee ID	Matrix	Test	Method	Certificate Date	Exp. Date	Required	
CHindbaugh	Waste Water	Alkalinity	SM 2320B	9/3/2018	9/3/2019	✓	
JesusMaza	Drinking Water	E. coli	SM 2320B	2/1/2019	2/1/2020	✓	
JesusMaza	Solid	ICP-MS Total	EPA 200.8	1/1/2019	1/1/2020	✓	
JesusMaza	Waste Water	Alkalinity	SM 2320B	9/3/2018	9/3/2019	✓	
LLWilliford	Waste Water	Alkalinity	SM 2320B	9/3/2018	9/3/2019		
Mdillon	Drinking Water	E. coli	SM 2320B	11/22/2018	11/22/2019	✓	
Mdillon	Solid	Cold Vapor AA	EPA 245.2	4/5/2018	4/5/2019		
Mdillon	Solid	ICP-MS Total	EPA 200.8	9/3/2018	9/3/2019		

Meeting Regulatory/Industry Standards

LIMS – Management Feedback

- **Lab Management Dashboards** (V1M2 4)
 - Track daily samples
 - Work distribution
 - Turn-Around-Times
 - Corrective Action Tracking (V1M2 4.11)
- **Statistical Analysis** (V1M2 5.6)
 - Formulas can be incorporated (e.g., EPA MDL)
 - Check on instrument/analyst analytical history
 - Standard Curves
 - On-going Precision / Recovery
 - Avoid Excel errors
 - Multiple Analysts – same practice?



Meeting Regulatory/Industry Standards

LIMS – Audit Trail (v1M2 4.14)

Tracking

Analysis

Sampling

Configuration

Reference

WO-200206-09

WO-200206-09

ion/CommentsSamplesContainersPlanned AnalysesWork Order ServicesManaging EmployeesImageFilesCAPAsIncidentsWork Order ConditionsAdditional ContactsAliquotsAliquot PreparationsResultsDrugs

Drag a column header here to group by that column.

S AliquotField Sample NumberAnalysis DateSample SiteAnalysis MethodAnalyteSample Collect StartSample Collect EndDilutionMeasureReport

WO-200206-09-02-1-1Colilert-18 (02/06/2020)02/05/2020 03:59 PMChlorine ConColilert18 FecalColiform Fecal (Colilert18)02/05/2020 10:27 AM02/05/2020 10:27 A10.00000<10.0

1AB-200206-008 Duplicate 1Colilert-18 (02/06/2020)10.000000.0

3WO-200206-09-01-1-1Total Residual Chlorine1.00003.63.6

4AB-200206-007 Duplicate 1Total Residual Chlorine1.00003.63.6

Audit Trail

FieldOld ValueNew Value

2020/02/06 16:47 Update by sbsa\rharooni (Harooni, Ramin) (Reason:)

Dilution Factor1.000010

Entered ByHarooni, Ramin

Entered Date Time2/6/2020 4:47:20 PM

Measured Value0

Analysis Date2/6/2020 4:47:22 PM

Last Modified ByHarooni, Ramin

Last Modified Date Time2/6/2020 4:47:22 PM

QualifierND

Analysis Date2/6/2020 4:47:22 PM2/5/2020 4:47:22 PM

2020/02/06 16:51 Update by sbsa\rharooni (Harooni, Ramin) (Reason:)

Analysis BatchAB-200206-008 (IDEXX Coli

2020/02/06 16:52 Update by sbsa\rharooni (Harooni, Ramin) (Reason:)

Analysis Date2/5/2020 4:47:22 PM2/5/2020 3:59:22 PM

Meeting Regulatory/Industry Standards

LIMS- BE ASSESSMENT READY!!

- **NO** more weeks / nights-before **SCRAMBLING** for documents & records
- A **Quality System** requires **COMMITMENT** of **Resources** and **Time**
 - Critical for lab operations
 - **Perceived** as Non-Revenue generating
- **Continue to Meet Regulatory Requirements**
- With the exception of sample analysis, almost all the above occurred within **seconds** of sample log-in

LIMS – Additional Automations

- **Barcoding** – Automates data entry, reducing errors.
- **Mobile Apps** – Facilitates real-time / remote data collection.
- **Integrating Subcontract data** – automating data transfer to/from LIMS.
- **Customer Portals** — 24/7 client portal.
- **Monitoring** — Wireless environmental monitoring (temperature, light, pressure, humidity). Transmits data to LIMS.

LIMS – Financial Analysis

- **Return** on Investment (ROI)/Payback
- **Opportunity Cost**— *what is given up if you don't buy a LIMS*
- **Capital Expenditure** Tax Implications
- **Total Cost** of Ownership (TCO)

LIMS – Financial Analysis

Return on Investment (ROI):

A calculation of the monetary value of an investment versus its cost.

Return on Investment

$$ROI = \frac{\text{Profit}}{\text{Cost of Investment}} \times 100\%$$

$$\text{Profit} = \text{Current Value} - \text{Cost of Investment}$$

LIMS – Financial Analysis – ROI Calculator

Factors to Consider for Current Value:

- Costs
- Tangible benefits—**quantifiable**, savings in resources
- Intangible benefits—integration, **quality** of work
- Unpredictable **benefits**

LIMS– Financial Analysis

Tangible Benefits

Increased sample throughput and improved resource utilization as a **direct result of the added functionality.**

- Barcoding
- Specification limit tracking
- Instrument integration
- External database integration
- Automated calculations
- Control charts
- MDL calculators
- Streamlined data review and reporting
- Monthly report automation
- Standard traceability and inventory control

LIMS– Financial Analysis

Intangible Benefits

Intangible benefits could include:

- Increased job satisfaction
- Provide chemists with the tools to quickly and efficiently complete work
- Standardize laboratory workflows
- Reduce manual data entry, redundancy, and repetitive calculations
- Better sample tracking and control
- Improve communications
- Automate EDDs
- Enable work from home

LIMS– Financial Analysis

Intangible Benefits (cont.)

- **Mobile App Field Collection Capabilities**
 - Streamlines sample collection and field data entry
- **Customer Portal**
 - Provides customers 24/7 access to their data/reports/invoices
- **Temperature Monitor systems**
 - Automated temperature monitoring 24/7

LIMS– Financial Analysis

Unpredictable Benefits

- **Free up** lab space used for paper storage
- Redirection of fixed intellectual resources from data generation to efforts to **growing business**
- Avoid lab expansion
- Attract **new types** of customers
- **Improved** business model to attract new equity
- Customer **retention**

LIMS– Financial Analysis

Opportunity Costs

If you don't purchase a LIMS:

- Tasks **take longer**, use more FTEs
- Errors increase, expenses increase due to **rework**
- More **difficult** to pass an assessment/audit
- Tracking samples and inventory control is **more work**
- Reporting is **complex** and time consuming
- You may **miss out** on additional work and potential revenue

LIMS– Financial Analysis

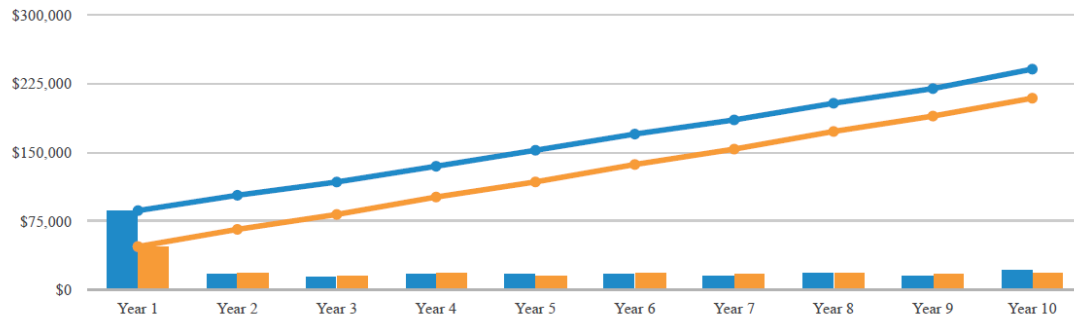
Tax Implications

- **Capital Expense**
 - On-premises deployments with owned software licenses
- **CE includes software** with ≥ 1 year of life
- **CE are gradually deducted from your business profit** over the course of several years
- **SaaS (cloud)** deployment are “expensed”
- **SaaS deductions**
 - Internet: 100%
 - Domain registration and web hosting: expenses amortize
 - Online tools and apps required for running your business: 100%
- **Consult** with a Tax Expert
- Reference: Accounting Insights (01.2025)

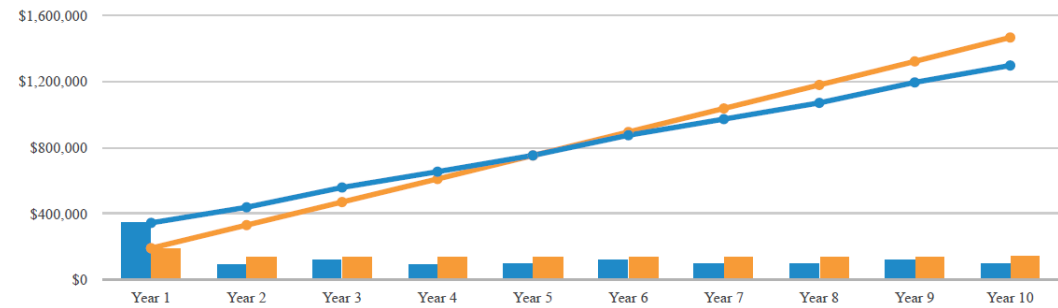
LIMS- Financial Analysis

Calculate Total Cost of Ownership (Tco)

On-Premise vs. Software as a Service



On-Premise vs. Software as a Service

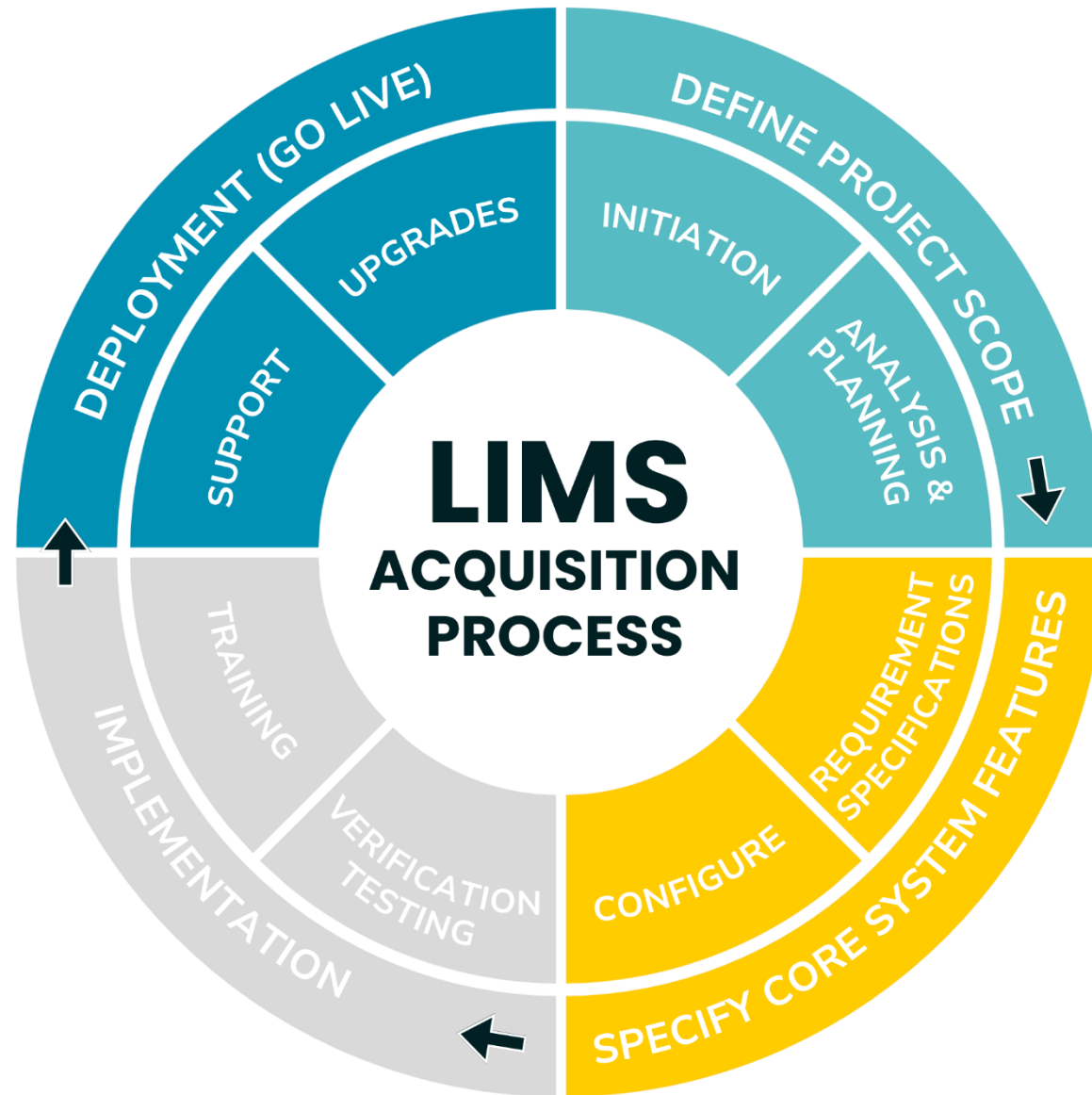


Online sources for TCO calculators, Examples:

<https://www.ERP-information.com>

<https://www.softwareadvice.com>

LIMS Acquisition Process



Confience offers
“Roadmap to LIMS Success” –
a workbook for your self-assessments and
LIMS purchase justifications.


Please email:
sales@confience.io



Questions?



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