

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



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



I use Excel, to save money!



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

Compliance

State and federal regulations for including track-and-trace capabilities.

Centralized Data Management

Data Quality, Data Retention
Proper protection of data - Security and privacy.

Configuration

Ability to configure and customize specific requirements, tests, etc.

Product Support

Responsive product support to issues and enhancements.

Labor Efficiency

Helps optimize manual labor processes in the lab.



Sample Tracking & Management

Inclusive of bar-coding, unique identification, etc.

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** (V1M2 5.6 & 5.7)*
 - Scheduling (V1M2 5.8 Handling Samples)
 - Automated collection reminders, hold times, etc.
- **Tracking Client/Project Needs** (V1M2 4.7 & 5.4 Service to Client & Method Selection)
- **Automated Calculations** (V1M2 5.4)
 - BOD, IDEXX Look-ups, TSS, New EPA MDLs, etc.
- **Automated Reporting** (V1M2 10 Reporting)
- **Remote Temperature Monitoring** – Sensors – LIMS Integration (V1M4 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** (V1M2 5.9 & other Modules)
 - QC Batch
 - Supplies
 - Instruments
- **Resource Management**
 - Calibrations (V1M2 5.5)
 - Analyst DOC & Trainings (V1M2 5.2)
 - Remote monitoring (V1M3 1.7.3.7)
 - (e.g., critical temperatures)
 - Instrument maintenance (V1M2 5.5.13.1)



Personnel Certificates

Cert.: DOC

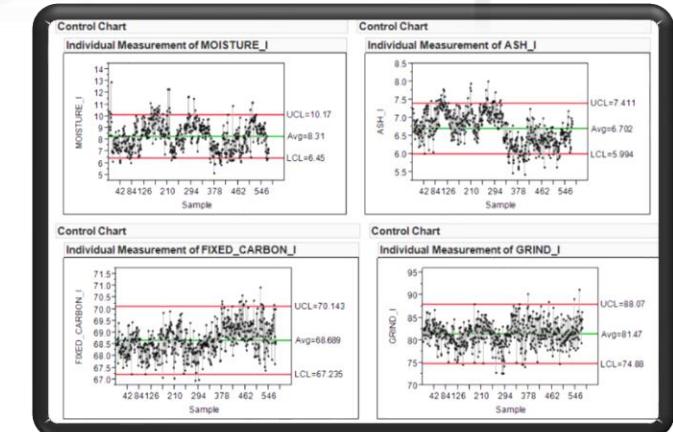
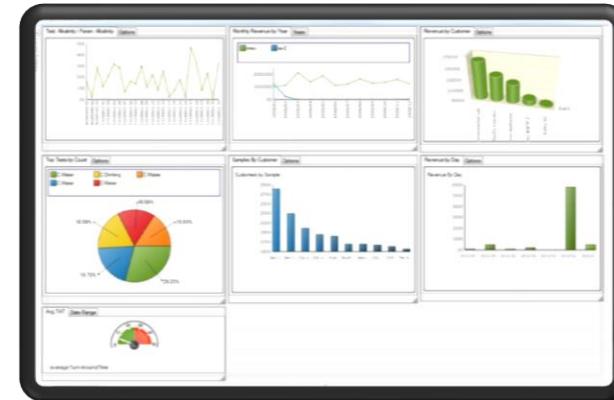
By Employee By Certification By Test

Employee ID	Matrix	Test	Method	Certificate Date	Exp. Date	Required
CHindbaugh	Waste Water	Alkalinity	SM 2320B	9/3/2018	9/3/2019	<input checked="" type="checkbox"/>
JesusMaza	Drinking Water	E. coli	SM 2320B	2/1/2019	2/1/2020	<input checked="" type="checkbox"/>
JesusMaza	Solid	ICP-MS Total	EPA 200.8	1/1/2019	1/1/2020	<input checked="" type="checkbox"/>
JesusMaza	Waste Water	Alkalinity	SM 2320B	9/3/2018	9/3/2019	<input checked="" type="checkbox"/>
LLWilliford	Waste Water	Alkalinity	SM 2320B	9/3/2018	9/3/2019	<input type="checkbox"/>
Mdillon	Drinking Water	E. coli	SM 2320B	11/22/2018	11/22/2019	<input checked="" type="checkbox"/>
Mdillon	Solid	Cold Vapor AA	EPA 245.2	4/5/2018	4/5/2019	<input type="checkbox"/>

Meeting Regulatory/Industry Standards

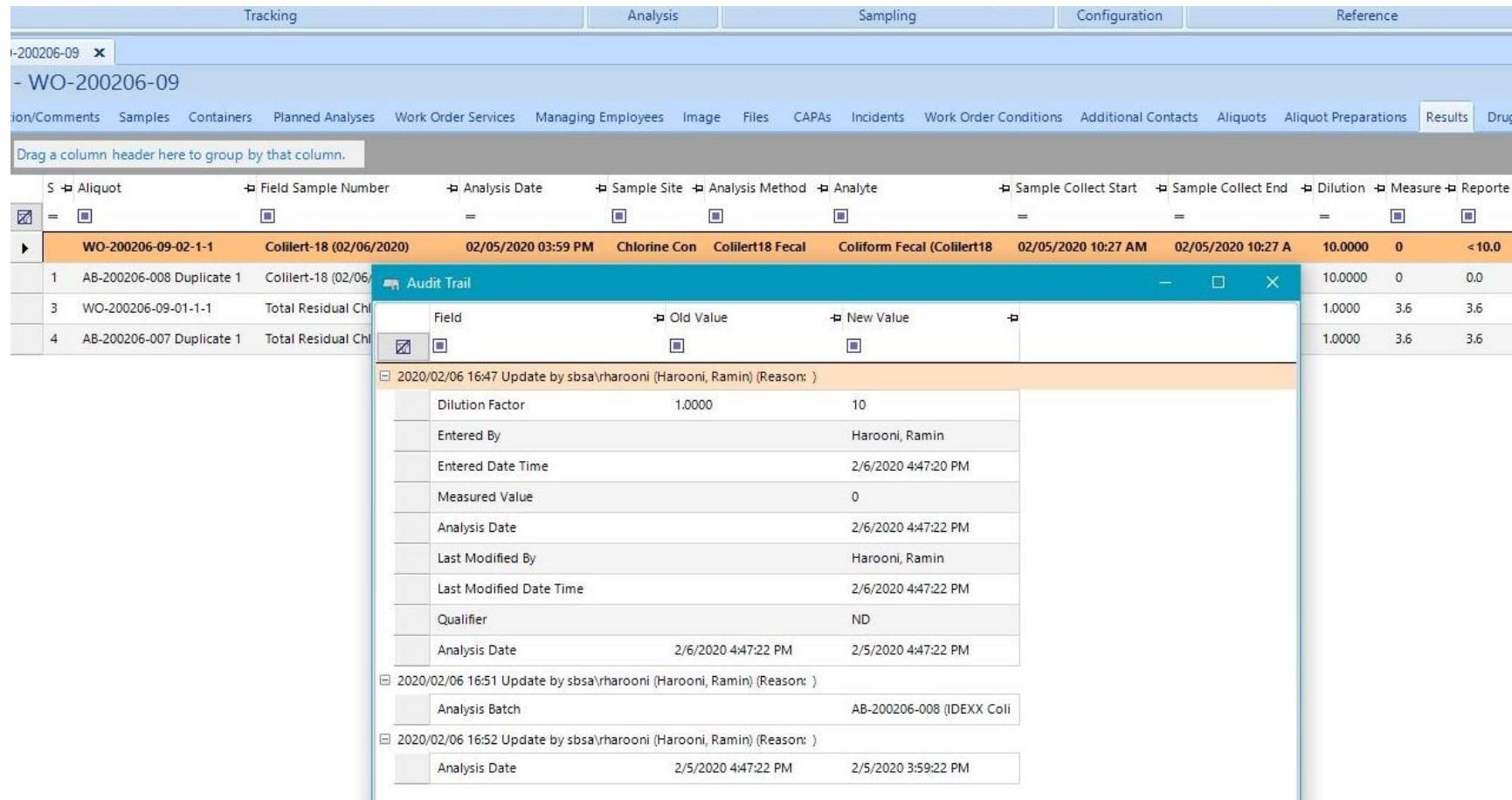
LIMS – Management Feedback

- **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)



The screenshot shows a LIMS software interface with a navigation bar at the top. The main area displays a table of work order details, with the 'Results' tab selected. A modal dialog box titled 'Audit Trail' is open, showing a list of audit entries. The first entry is expanded, displaying detailed information about a measurement update.

Aliquot	Field Sample Number	Analysis Date	Sample Site	Analysis Method	Analyte	Sample Collect Start	Sample Collect End	Dilution	Measure	Reported
WO-200206-09-02-1-1	Colilert-18 (02/06/2020)	02/05/2020 03:59 PM	Chlorine Con	Colilert18 Fecal	Coliform Fecal (Colilert18)	02/05/2020 10:27 AM	02/05/2020 10:27 AM	10.0000	0	<10.0
1	AB-200206-008 Duplicate 1	Colilert-18 (02/06/2020)						10.0000	0	0.0
3	WO-200206-09-01-1-1	Total Residual Chlorine						1.0000	3.6	3.6
4	AB-200206-007 Duplicate 1	Total Residual Chlorine						1.0000	3.6	3.6

Audit Trail

Field	Old Value	New Value
Dilution Factor	1.0000	10
Entered By		Harooni, Ramin
Entered Date Time		2/6/2020 4:47:20 PM
Measured Value		0
Analysis Date		2/6/2020 4:47:22 PM
Last Modified By		Harooni, Ramin
Last Modified Date Time		2/6/2020 4:47:22 PM
Qualifier		ND
Analysis Date	2/6/2020 4:47:22 PM	2/5/2020 4:47:22 PM

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

Dilution Factor	1.0000	10
Entered By		Harooni, Ramin
Entered Date Time		2/6/2020 4:47:20 PM
Measured Value		0
Analysis Date		2/6/2020 4:47:22 PM
Last Modified By		Harooni, Ramin
Last Modified Date Time		2/6/2020 4:47:22 PM
Qualifier		ND
Analysis Date	2/6/2020 4:47:22 PM	2/5/2020 4:47:22 PM

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

Analysis Batch	AB-200206-008 (IDEXX Coli)
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2020/02/06 16:52 Update by sbsa\rharooni (Harooni, Ramin) (Reason:)

Analysis Date	2/5/2020 4:47:22 PM	2/5/2020 3:59:22 PM
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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

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

Profit = Current Value - 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

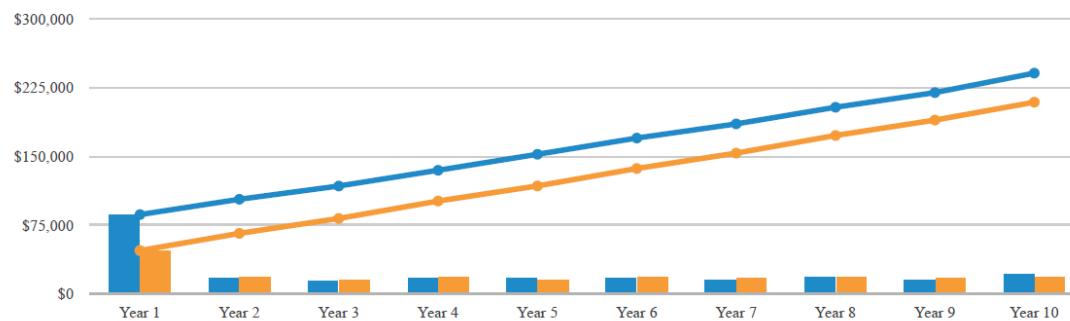
Tax Implications

- **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)

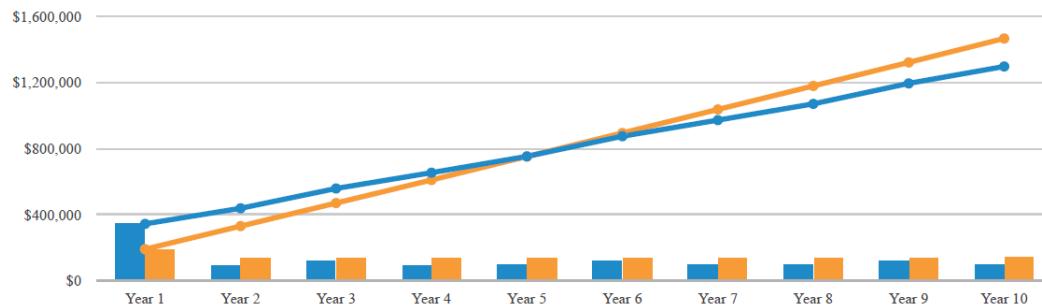
LIMS- Financial Analysis

Calculate Total Cost of Ownership (TCO)

On-Premise vs. Software as a Service



On-Premise vs. Software as a Service

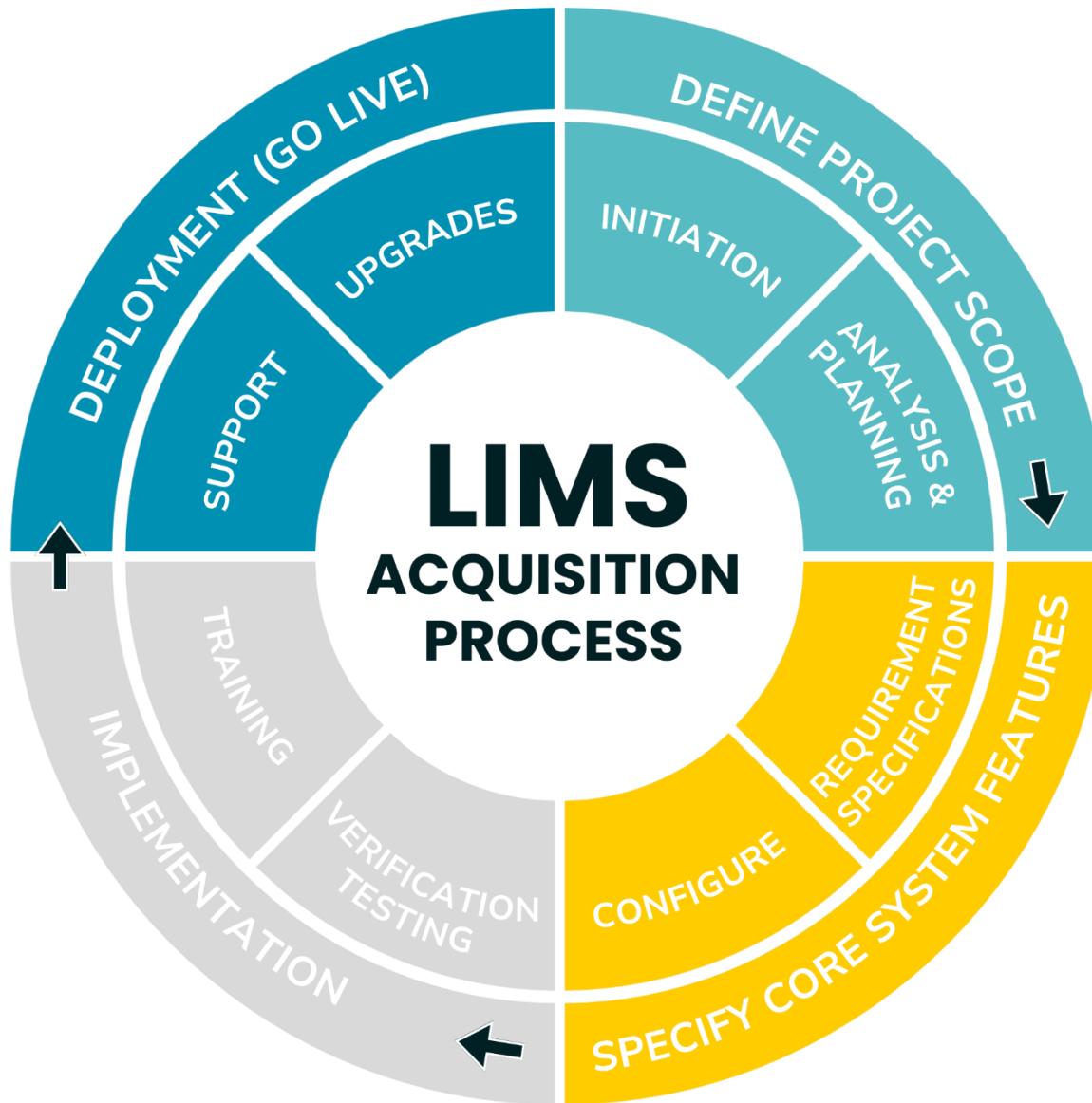


Online sources for TCO
calculators, Examples:

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

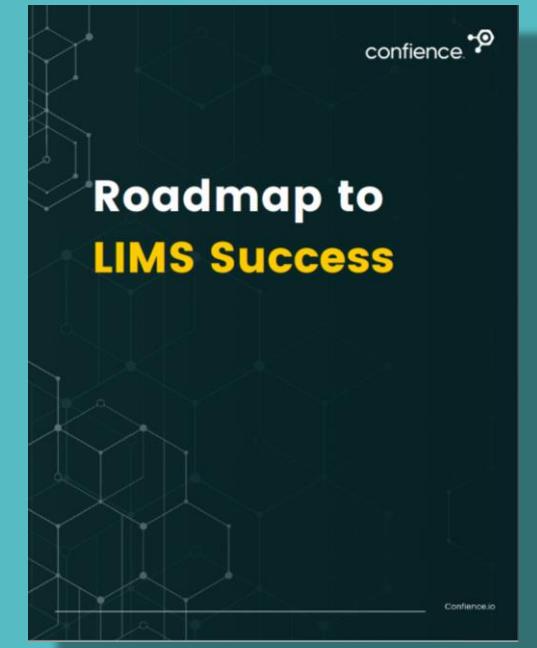
<https://www.softwareadvice.com>

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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