

LIMS Is it worth the effort?

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What is a LIMS?



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LIMS “Laboratory Information Management System”

A system to collate, organise and store laboratory data in such a manner that the information is accessible and can add value to the intrinsic information stored.

A LIMS does not need to be a computer system!!!!!!



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What is information management



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- It is the effort to make it all the work worth while.
- Or more formally, the development of processes to maximise the utilisation of data collected.
- More bang for your buck.
- Definitely not about collecting more data!!!!

“Information is not knowledge.”
— Albert Einstein



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Why is it important?



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- Even a small lab will produce hundreds of results a week.
- If these results cannot be accessed, viewed and retrieved in a reasonable manner they lose most of their value.



“I have some paperwork to catch up. If I’m not back



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Basic Capabilities of a Information Management System



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- Able to record data (in an organised manner).
- Able to communicate data.
- Able to store data
- Able to retrieve data
- Able to collate data for analysis

“The Number our envious Persons,
confirmation our capability.”
— Oscar Wilde



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Recording Data

- Can be paper or electronic.
- **NEVER** memory!!!!
- Important part is consistency and traceability
- Must be able to identify where and what a sample is.

“It is a very sad thing that nowadays there
is so little useless information.”

— Oscar Wilde





Identifying the sample

- Date
- Identity (wine name or code)
- location (tank, barrel etc)
- time (of collection or request)
- Allow for samples not in tank
- Sample ID (primary key!)

I knew I was in danger
of being terribly understood.”
— Stephen Dunn



The Data



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- Anything and everything!
- Just be Consistent
- Good headings are important.
- Keep analysis the same (apples and apples)
- Keep the units the same
- Can save much grief later on!

“There’s no going back, and there’s no hiding
the information. So let everyone have it.”

— Andrew Kantor



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- It is no use collecting results if no one sees it.
- Must be accessible (set rules).
- Must actually make sense to everyone.
- Once again consistency is very important.

“Men more frequently require to be
reminded than informed.”
— Samuel Johnson, *The Rambler*





- The old bound lab book is a good model.
- Take time to organise files into a useable system.
- Archive, but never assume that you won't need it again (museum release).
- Back up electronic data.

“Sometimes a pessimist is only an optimist
with extra information.”

— Idries Shah, *Reflections*





- Once archived make things easy to find.
- Indexes
- Labels
- Summaries
- When changing systems, especially electronic ones, think about compatibility.
- No one lives forever!!!

“For there is nothing lost, that may be
found, if sought.”
— Edmund Spenser, *The Faerie Queene*





- The sum is always greater than the parts!
- The ability to find trends.
- To monitor process.
- To monitor performance
- Things are rarely what they seem in isolation.

“Facts are stubborn things, but statistics
are pliable.”

— Mark Twain

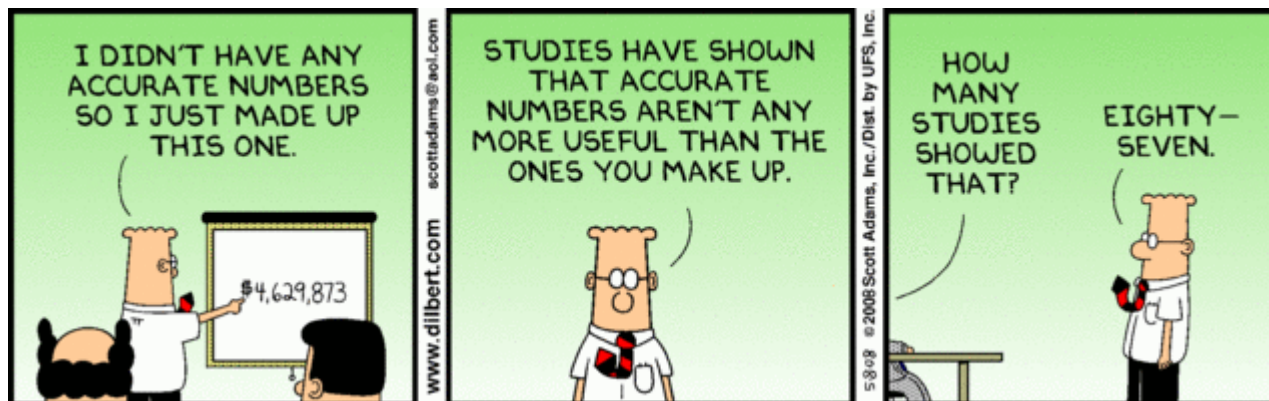


Tools for Data Analysis



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- Can be very simple
- Individual wine sheets
- Graphs
- Database search engines and reports.



87% of statistics are made up on the spot
-unkown



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What levels can we do it at?

- word of mouth (not particularly good)
- bits of paper (better, but only just)
- Bound lab results (traditional, cheap and a good system in small labs)
- Multi file system, individual test results with a final collation system to monitor wine. (Makes much better use of the information)
- Spreadsheets (easier to sort data and make comparisons, but can get complicated).
- Home built databases (takes time but if done carefully can reward the effort)
- Professional LIM system. (very powerful but very expensive)



Paper system



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- very cheap to set up
- Time proven technology
- but can cost a lot of money to maintain

- (many labs have a labour cost component well over 80%).

“distringit librorum multitudo (the
abundance of books is distraction)”

— Lucius Annaeus Seneca



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Computer systems



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- has an initial cost (Computer software, hardware and Training)
- can lead to long term savings
- Can improve the use of the data

“The stone age was marked by man's clever use of crude tools; the information age, to date, has been marked by man's crude use of clever tools.”



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Why not use the winery management system?



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- Many if not most winery management systems have analysis components.
- They are usually difficult to enter the data into.
- Usually only cater for wine in tank (not QA samples or standards)
- Rarely have data analysis tools or instrument download functions.

“There is nothing so useless as doing
efficiently that which should not be done
at all.”

— Peter F. Drucker



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Advantages of Commercial LIMS

- Very robust and secure.
- Usually flexible in how data can be entered and retrieved (customisable data screens and barcode support).
- Many have inbuilt data analysis tools and QA systems.
- Shortcuts for common tasks are easily set up (test sets)
- Most have the ability to download data directly from instruments (but often at extra cost).

“You are trying to lure us into revealing information you're not entitled to? With chocolate and wine? Are you amateurs?”

— Moira J. Moore, Heroes at Odds



How do I find a LIMS



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- Google it!
- Approach local developers (home built systems).
- Do an “Access” course.
- But best of all, ask around (and not just wine labs!)

“I know well what I am fleeing from but
not what I am in search of.”
— Michel de Montaigne



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Surprise Costs



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- Support and training
- Hardware
- System integration costs
- Upgrade costs (including OS changes)

“Those who are easily shocked should be shocked more often.”

— Mae West



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Decisions to make

- Thin or thick client?
- How many licences?
- How will the end users get the data
- Can I customise my own reports.
- How much set-up time is going to be involved.

“I must have a prodigious amount of mind; it takes me as much as a week, sometimes, to make it up!”

— Mark Twain





What to look for in LIMS

- Cost
- Suitability
- Scalability
- Add ons (and costs)
- Customisability
- Ability to integrate with current systems

“There is nothing like looking, if you want
to find something.”

— J.R.R. Tolkien, *The Hobbit*





Is it worth the effort?

- Personal experience suggests YES.
- Reduced labour (in the long run).
- Results actually get used.
- Better confidence in results
- Lab staff get to spend time in the lab!

Technological progress has merely
provided us with more efficient means for
going backwards.

-Aldous Huxley



Questions?



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