



# THE ROLE OF A CLOUD LIMS IN THE DIGITAL TRANSFORMATION OF THE LAB



## Introduction

Labs today face increasing demands from stakeholders, patients, customers and suppliers whether it's improving efficiency, meeting regulatory compliance, increasing productivity or delivering high quality products and services. It's impossible to achieve any of these without specialist equipment or some form of data management system – even if it's a spreadsheet.

Technology has always played a vital role in the lab. The use of incredibly intricate tools and equipment that are capable of handling the most complex of workflows and the tiniest fragments clearly demonstrates this.

However, not all technology is equal, and technology doesn't mean 'digital'. There are many organisations using systems created decades ago. Similarly, there's a significant difference between using technology and leveraging it. Leveraging it is at the core of 'digital transformation'.

## Technology is only a small part of the digital transformation

You don't achieve digital transformation by simply buying the latest systems and equipment. Likewise, simply being 'in the cloud' doesn't automatically make your organisation 'digitally advanced' or mean you've completed the digital transformation.

Technology is an enabler towards digital transformation. It's possible you could be using the wrong – although highly sophisticated and modern – software to run your business. Or similarly, you're using the right systems but not leveraging all their features and capabilities.

Digital transformation encompasses your processes, culture, relationships, products, services and resources as well as technology. It's a key component of your overall strategy for organisation improvement. It involves assessing how you work, connect and interact and then identifying where you can and want to improve. This could include everything from how you manage sample throughput in your lab through to how you communicate and receive feedback from your suppliers and customers.

Once you've identified what you want to achieve, then you can consider how you can use the right technology, systems and approaches in the right places to support, optimise, connect and monitor your operations.

If you decide your lab needs a Laboratory Information Management System (LIMS) then how do you choose whether a cloud LIMS will best meet your needs? In addition, if you don't choose a cloud LIMS what does this mean for your digital transformation?



## Types of cloud LIMS

When it comes to cloud LIMS there are different deployment and service models as well as technology options available. Each brings its own advantages as well as limitations. It's important to understand these to properly assess systems.

There are four different types of cloud deployment; Public, Private, Community and Hybrid. There are also three cloud service options namely SaaS (Software as a Service), PaaS (Platform as a Service) and IaaS (Infrastructure as a Service).

In most cases, LIMS providers will offer either Public and/or Private cloud deployment options.

Public deployment allows you to decide whether to:

- Choose a SaaS software model, if offered. This is where the vendor takes care of all the associated services, software maintenance and upgrades.
- Host the standard LIMS product on a Public cloud using PaaS or IaaS where you or the LIMS vendor manage the LIMS deployment, associated software maintenance and upgrades and, importantly, you retain responsibility for the contract with the 3<sup>rd</sup> party cloud services provider.

These two different options deliver very different benefits. For both options you're still able to reduce your hardware and server costs and resources. However, there's still a level of maintenance required for IaaS and PaaS cloud services, but you have greater level of control and flexibility.

Private cloud deployment offers a similar solution to that of hosting using PaaS and IaaS with the added bonus of additional security as you're the only organisation on the server.





## How a cloud LIMS impacts the digital transformation

If you don't use a cloud LIMS you can still become 'digital', especially if you're using a modern, web-based LIMS that allows you to connect automatically with instruments, for example via a RESTful API. This alone helps you improve data accuracy, reduce administration time and increase productivity by removing the need to rekey data. In addition, many LIMS, not just cloud-based, enable you to map your optimised workflows into the system to ensure process consistency as well as provide an audit trail for compliance.

However, although using a cloud LIMS doesn't automatically make you 'digital', thanks to its inherent infrastructure and deployment approach, implementing and using one can help you move towards digital transformation more quickly. How far-reaching this goes depends mainly on three things:

1. Your reasons for using cloud software.
2. The type of cloud LIMS.
3. The underlying technology of the LIMS.

When considered in conjunction with process improvements, implementing a cloud LIMS can deliver both qualitative and quantitative benefits. However, digital transformation requires a very focused strategy that's targeted towards improving how you work. Therefore, it's important to consider how any benefits relate to you, their importance and ultimately, value (or cost).

Below are some of the main reasons why organisations consider a cloud LIMS:

Reason	Digital Transformation
Performance	Improved system performance allows you to carry out your activities more quickly leading to increased productivity
Scalability	Ability to scale in terms of users and data volumes allows your lab to meet additional demand as well as evolve and grow
Reliability	Increased productivity with a system that works and is available when you need it
Accessibility	Simplifying access to a centralised system for remote and global users without installing software on each machine
Resource optimisation	Removing hardware and server costs and reducing burden on IT for system maintenance and upgrades



However, if you're focusing on improved data security (especially protecting personal identifiable information (PII)), connectivity or configurability then some cloud SaaS LIMS may not offer the level or flexibility of functionality you require. This is where the type of cloud LIMS you choose impacts the benefits you can potentially gain.

In addition, it might sound contradictory but just because software is hosted in the cloud it doesn't mean it's a 100% web-based (or thin-client) product. This is where the technology underpinning the LIMS impacts deliverables.

Some legacy LIMS are web-enabled which means they can be accessed via web-browsers, but their underlying technology is still heavily client-server based. This could mean that some of the benefits that you might expect from modern, web-based LIMS such as accessibility, security, scalability and performance are not available.

### **Obstacles to moving towards a cloud LIMS**

For many organisations that are already using a legacy, on-premise LIMS there may be a reluctance to change to a modern, cloud-based system - even if the current solution is no longer supporting them and there's a lot of working around it rather than with it.

There may also be some scepticism and mistrust. Especially if it's taken several years - at considerable expense - to get the current system working. A cloud SaaS LIMS that's up and running almost instantly where you only pay for what you use on a monthly basis sounds a million miles away from the traditional LIMS experience - and cost.

However, SaaS models are not the only cloud LIMS available. Using a cloud LIMS on a Private cloud can deliver many benefits while still giving you control and flexibility - though the cost may not be as attractive as a SaaS LIMS.

### **The role of cloud LIMS in the digital transformation journey**

Implementing a cloud LIMS isn't a mandatory step in becoming 'digital'. However, its underlying infrastructure and technology can jump start and be an integral component of your digital transformation. Although, this is only once you've considered the solution as part of your wider business objectives and you're leveraging it to help you meet these goals.

Likewise, all cloud LIMS aren't the same. They support different deployment, service and technology options - all of which can deliver diverse benefits.

Understanding what you want to achieve is the first step to identifying the systems that will best support your organisation. This is the first step on the digital transformation journey.



### About Interactive Software Limited

At Interactive Software Ltd we have more than 25 years' experience of working with organisations delivering software solutions that transform the way they work and deliver greater insight into their data. The company's Achiever Medical LIMS is a modern, configurable web-based solution that centralises lab data and supports pre-clinical, clinical research, academic research and biorepository processes and compliance needs.

Managing all sample lifecycle events, Achiever Medical LIMS gives complete traceability of all sample activities. Providing that all-important evidence for compliance and quality assurance.

Fully web-based, Achiever Medical LIMS comes as a hosted or on-premise solution. Its multi-tiered architecture makes it easier to upgrade while protecting any configuration changes.

We recognise that addressing business challenges requires more than software. It also involves changes to culture and processes as well as challenging the way organisations work to deliver a solution that underpins processes and operational effectiveness so they can concentrate on what's important – delivering quality services and products to their customers and patients.

Visit [www.interactivesoftware.co.uk](http://www.interactivesoftware.co.uk) and discover how Achiever Medical LIMS transforms your lab processes, data and collaboration

