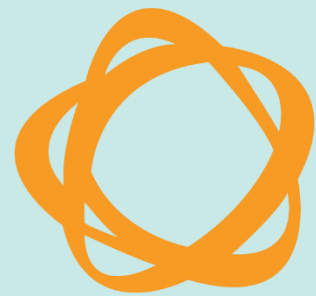


Achiever
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**WHY YOU SHOULD START YOUR LAB'S
DIGITAL TRANSFORMATION JOURNEY
WITH A LIMS**

Introduction

‘Digital transformation’ is not a new concept. The term has existed for several decades.

Many people use social media and other ‘cloud’ systems in their private lives where information is updated and available instantly. Things don’t happen quite as quickly in the world of work.

In 2013 the UK government launched its ‘cloud first policy’¹ in an attempt to modernise the public sector. The pace of change, though, was slow. To address this, in 2019 the UK government launched the NHSX - a joint organisation for digital, data and technology’² - to drive initiatives and help bring the benefits of modern technology into the NHS.

Fast forward to 2020 and the need for modern technologies has suddenly gained greater emphasis and traction. We’re seeing a shift in the way business of all sizes are adapting to global changes. In this new world where more people need access to data and business systems so they can work from home, the need and appetite for digital technologies has increased.

It’s been a steep learning curve for many who’ve been trying to get to grips with new software and technologies which have played an essential role in keeping in touch and carrying on.

One of the unforeseen benefits is a change in the way people now view the software they use at work and in the lab. ‘Digital transformation’ is now firmly back on the radar – if not already on the agenda – for many labs. It seems that Deloitte’s statement ‘*Digital transformation is no longer a buzzword—it’s a strategic imperative*’ is incredibly accurate.

In this paper we explore what we mean by ‘digital transformation’, its benefits and why a LIMS can help kick-start your journey.

What is ‘digital transformation’?

According to Wikipedia in July 2020 the definition of digital transformation reads “*the use of new, fast and frequently changing digital technology to solve problems. It is about transforming processes that were non digital or manual to digital processes. One of the examples of digital transformation is cloud computing.*”³

¹ Reference and more information - <https://www.gov.uk/guidance/government-cloud-first-policy>

² Reference <https://www.gov.uk/government/news/nhsx-new-joint-organisation-for-digital-data-and-technology>

³ Definition source Wikipedia - https://en.wikipedia.org/wiki/Digital_transformation

At first glance this might just mean moving away from writing notes on paper and keeping paper-files to capturing the information in a digitised format on a computer, such as in a spreadsheet.

However, that's only a small part of it. Typing your handwritten notes into a word document or spreadsheet hasn't fundamentally transformed your lab or the way you work. Instead of passing pieces of paper around you're now sharing or even sending individual documents backwards and forwards. The folders holding your digitised documents mimic your old filing cabinet setup.

In essence nothing has really changed. It's probably just as difficult to find anything. Probably even more difficult as you may have multiple copies of each file and are unsure of which is the most recent.

Digital transformation is more than this. It's about leveraging technology to transform the way that you work so it becomes easier and much more efficient. It's not about changing what your lab does but how do what you do. Specifically, how you can do it quicker by applying technology.

An example of digital transformation in the lab

Take aliquoting a sample as an example. You may have previously performed this manually but now you use a piece of equipment to do it for you. What's more, you may have to key information into the equipment so it can create the aliquots, but that data could be automatically sent by a laboratory information management system (LIMS). In this example you haven't changed what you do (*creating aliquots*) but you've changed the way that you do it, so it takes you less time.



Digital transformation changes the way you work in your lab and it can be quite dramatic. It can force you to completely rethink your current processes and whether they're actually working for you. Often introducing completely new processes and fundamentally changing existing ones.

What about IoT and the Cloud?

With so much jargon and many buzzwords flying around it can difficult to keep up with what's meant by them – even if you're working in the IT industry!

- **'The cloud'** - According to the definition from Microsoft, *'Simply put, cloud computing is the delivery of computing services—including servers, storage, databases, networking, software, analytics, and intelligence—over the Internet ("the cloud") to offer faster innovation, flexible resources, and economies of scale.'*⁴



Cloud computing enables businesses to think differently about how they manage their IT resources. Traditionally businesses would have large servers onsite running their different applications. Using cloud-computing they can choose to move some – or all – of their applications into the 'cloud' to make them cheaper and quicker to run as well as more accessible for global users.

- **IoT** - IoT stands for the 'Internet of Things'. IoT refers to a system of interconnected devices and computers that are able to transfer and collect without the need for any human intervention. This could include objects on the same network or in the cloud.

The main purpose of IoT is provide real-time analytics and data that can then be used to inform decisions. A simple example of this is might be a sensor on a freezer that sends data to an application which then sends an SMS or email alert if the temperature goes above or below the defined values.

For many, IoT and 'the cloud' are essential components of digital transformation. With some experts even suggesting that digital transformation is not possible without them.

Digital transformation is a journey and is as much about challenging existing processes as it is about adopting new technologies. Also, as each business works differently it's not accurate to say that digital transformation cannot happen without IoT and moving to 'the cloud'.

Having said this, they are certainly components of digital transformation. So, if you're thinking of implementing IoT and moving some of your systems to 'the cloud' then this is a very strong indicator that you're on your way to digital transformation.

⁴ Definition source Microsoft - <https://azure.microsoft.com/en-us/overview/what-is-cloud-computing/>



What are the benefits of digital transformation?

The main purpose of digital transformation is to make things quicker and easier. Also, it's important to embrace possible process changes as a key part of digital transformation. As a result, some of the benefits you can hope to gain are:

- Increased productivity
- Improved efficiency
- Streamlined and consistent processes
- Reduced paperwork and administration
- Improved security
- Improved / enhanced system performance
- Access to new ways of working and connecting
- Increased / global accessibility

What's more, if you choose to adopt cloud solutions you may also be able to reduce costs and save your IT team time and pressure.

Some of these benefits may take time to come to fruition and you should factor this into any return on investment calculations. For example, if you're implementing new software or upgrading existing software that's held on your own servers there may be costs for new hardware. Likewise, you'll need to spend time reviewing and adapting your current processes to identify improvements. Similarly, with cloud software depending on the application there may be an initial upfront cost – hosted software doesn't necessarily mean cheap!

In addition, remember for any systems to stay relevant you should be regularly reviewing and adapting. The costs for this will vary depending on what's needed and what you can change yourself.

Don't let this potential outlay of time and costs stop you from starting the digital transformation. Instead be clear about what benefits you want to focus your efforts. Also, remember to factor in the benefits that the new technology itself will bring. It could open up a whole new way of working for you that you haven't even considered or just wasn't possible with your current systems.

How can a laboratory information management system (LIMS) kick-start your digital transformation journey?

A LIMS is very often the central system in a lab. Consolidating data from multiple systems and instruments, running your lab processes as well sending information to other applications. As it interacts with so many areas, implementing a modern LIMS can have a significant impact on how your lab works and connects. Making it a good place to start your digital transformation.



There are many different LIMS available - each offers its own range of benefits.

These will vary depending on the underlying technology, supported platforms, depth of functionality, integration methods, security options and levels of configuration.

Most LIMS will offer some, if not all, of the following benefits:

- Make it quicker and easier for you to find information by standardising and formatting data as you enter it
- Save time and reduce transcript errors by providing data import tools and integration with instruments and other systems
- Make data more accessible by holding it in a single, centralised system
- Increase your productivity by automatically completing repetitive, administration and auditing tasks and reducing data duplication
- Increase your efficiency through the software's standard, best-practice workflows and mapping your workflows into the software
- Simplify compliance by digitalising your lab processes and prompting you to make it easier for you to follow standard operating procedures
- Improve security through user and role permissions
- Increase access to information globally and to external collaborators

So, when it comes to purchasing equipment why does a LIMS often come way down on a lab's priority list?

Why are labs reluctant to start digital transformation with a LIMS?

Many labs, including very large-scale ones, still choose to get by using software they've not updated for years, a database someone created inhouse and even spreadsheets. Sometimes combinations of all of these.

There may be a couple of reasons for this.

1 - Time taken to deploy and return on investment

Over the years LIMS have not had the best of reputations with some legacy systems seen as complicated, unwieldy systems taking years to implement and costing millions.

This has changed – and continues to change. With new LIMS providers and existing LIMS vendors adapting new technologies and approaches there are now modern LIMS for labs of all sizes and budgets.

Plus, the advent of cloud-based LIMS makes the software more accessible for smaller labs both in terms of costs and deployment time.

Hopefully, putting an end to the days of hearing *'we've got to stick with this now we've gone so far'* and *'we're never putting ourselves through that again!'*

2 - Seeing data as a valuable asset

Many labs – and businesses in general – can underestimate the value of data. Samples are precious, equipment as vital but no one enjoys entering data when you could / should be focusing on the real job. Data is often viewed as something you to capture and then forget about. But it's so much more than that.

When used properly data is the lifeblood of your lab. Without it, for example, you've no idea how many samples you've got, where they are, what's happened to them and if you're allowed to do something to them. That's just for starters.

When carefully analysed data can tell you that you're spending money on resources you don't need, someone needs training as they're not following protocols and you're overstretched on Monday's, but Thursday's are quiet.

This is where a LIMS can make all the difference. Not just making it easier for you to capture data accurately and consistently but also by giving you the tools to really use it. Once you have your data in a centralised system and standardised you can then start to share it securely, with other systems and collaborators, as well as bring in data from other sources.

Starting your digital transformation with a LIMS

Your digital transformation journey is personal and will depend on your current position, how you work and your goals but there are some things you should consider.

- Although it's not quite 'business as usual' yet, you're probably aware of the challenges in your current processes and systems. Start making some notes.
- Focus on what you do – rather than how you do it. Also, where possible, record how long it takes you to complete your processes. This can be a great way of measuring and assessing optimised processes.
- Make a note of the short-, medium- and longer-term goals for your lab and be realistic. The LIMS you need now might not be right for you in 5 years' time. There's no right answer but consider how much it might cost to switch in 3 years versus paying for functionality you're not going to use for a few years or possibly never.
- If you're thinking of upgrading your LIMS to a new version don't just do it automatically. Take a look at what benefits you're likely to get for what cost. Then do a comparison on what other systems are available.
- Beware of client-server applications disguised as 'cloud systems'. They're not the same as web-based solutions and therefore don't use the same technology platforms or offer the same benefits.
- Don't choose a cloud system just because everyone else is. It might not be right for you and what you do.
- Get an online demo – better still see if you can get a free trial or test drive of the software.
- Speak to existing customers to learn more about the actual deployment timescales and experience.
- Make sure you're comfortable and confident with the supplier. Digital transformation is as much about the processes as the software so it's important your supplier understands how you work – and importantly, wants to get to know your lab.

About Interactive Software and Achiever Medical

For over 20 years Interactive Software Limited has been helping life science organisations transform the way they work. Achiever Medical is a configurable web-based LIMS that manages all sample lifecycle events giving complete traceability and providing evidence for compliance and quality assurance.

Get in touch to start your digital transformation journey:

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