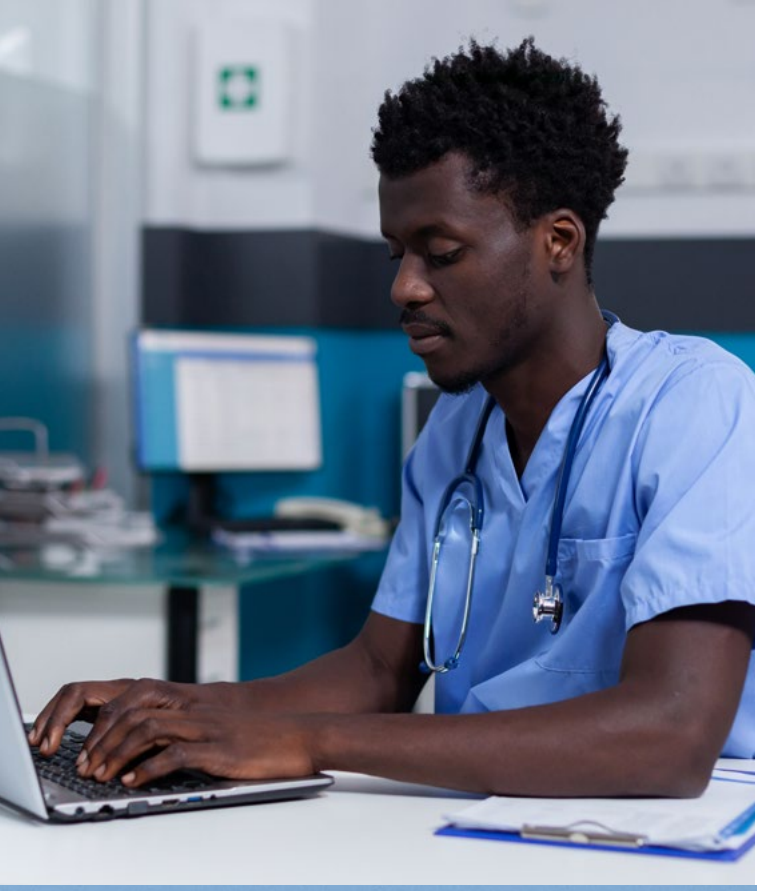
Why embedding a data strategy early on is vital for HealthTech success

InterSystems™
IRIS Health



Healthcare organisations want to harness the power of data to allow them to improve outcomes, increase efficiency, and reduce costs

Introduction

Today's healthcare is increasingly data-driven, with advances in computing power, wireless technology, miniaturisation, and AI making connected devices ever-more innovative and effective.

As such, healthcare organisations want to harness the power of data to allow them to improve outcomes, increase efficiency, and reduce costs. The clinicians who work for them are now becoming increasingly skilled in data interpretation, ready to exploit the explosion in data to improve diagnosis and treatment for their patients.

For HealthTechs in particular, the advent of data-driven care presents them with a huge opportunity. Yet many face a real problem with their data which they need to resolve right from the start if they are to be successful. HealthTechs obviously know they must prove the clinical usefulness of their device if they are to gain any initial credibility, but they are sometimes less aware of the challenges of making their data meaningful and useful to systems and professionals. In an increasingly data-dominated world, this is a major block to adoption.

In fact, experience shows most HealthTechs lack the critical ability to integrate their solution into clinical workflows. This challenge of solution integration and data interoperability is one that all HealthTechs need to address much earlier in their evolution.

This eBook will explore the best way to overcome these significant barriers and explain why implementing a data strategy from the outset, rather than considering it as an afterthought, is essential.

Problems with data are what stop more clinicians using many new HealthTech solutions

The big challenge for HealthTechs is that of inserting their data into a real-world clinical workflow so it is useful when a clinician is in front of a patient or wants to discuss test results with a colleague.

If we go back to the start, we can better understand why this is a barrier. All HealthTech solutions must go through tests and clinical trials. Yet in many HealthTech companies, data management is often done manually through spreadsheets.

This may be acceptable in the initial phases, but once a HealthTech has demonstrated the clinical usefulness of its solution, the spreadsheet will not handle the volume, complexity, or range of requirements in clinical practice and research.

Many HealthTechs, having previously worked alone with a friendly system or sponsor, hit a brick wall at this point. They are unable to integrate with healthcare systems, other devices and solutions, or the workflows that health trusts and professionals use. Healthcare is very heterogeneous, and clinicians work in very different ways, which makes workflow integration complex.

This means it is not enough merely to solve a problem in one clinical setting. HealthTechs must provide a solution across each health trust or organisation. Such work has a long lead time, and many researchers and clinicians find it far harder than they thought because it demands skills and experience they do not have.

Example: Electronic Patient Records (EPRs)

A company that creates an electronic patient record (EPR) has a significant responsibility to ensure the quality of data, as does the health organisation that is using the EPR. EPRs will need changes to accommodate structured data from a new diagnostic test, for example, which could take a long time.

Healthcare organisations generally are uneasy about third-parties pushing data into their clinical record, which complicates matters further. From a legal and clinical standpoint there is a very high threshold to surmount.

The importance of the right kind of integration into workflows

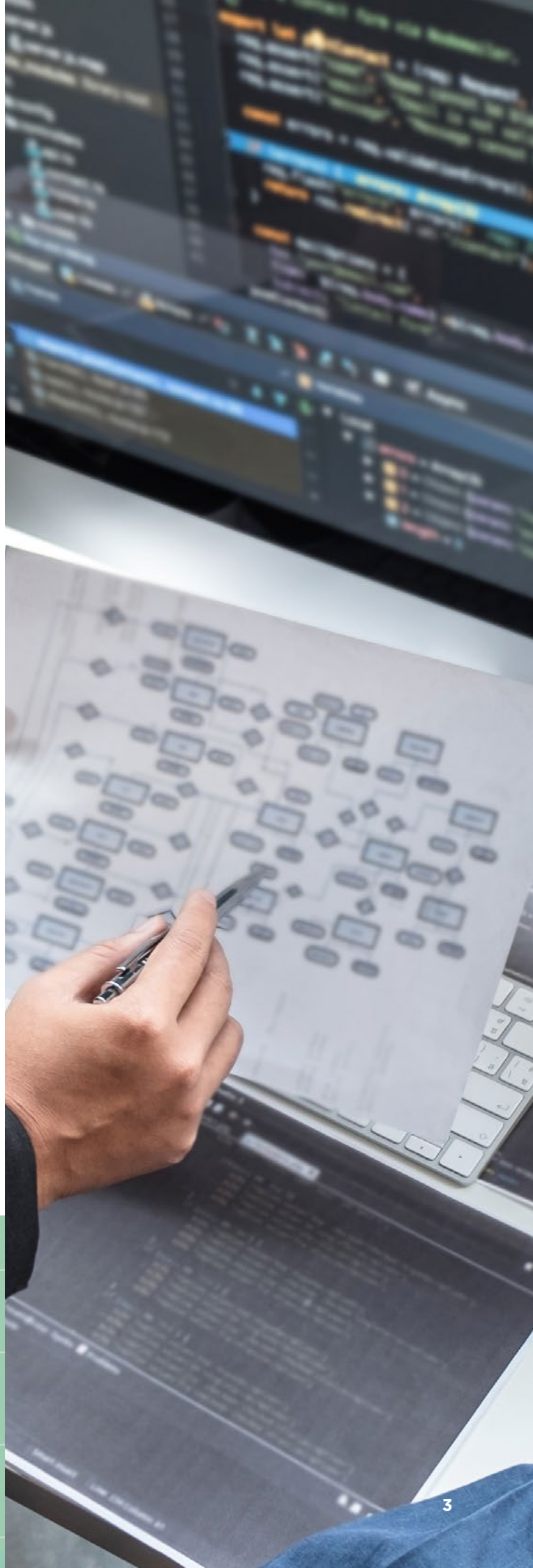
The challenge is not solely about the ability to integrate data into the right workflow, but also about making it useful at the right point where the right clinician can see it and act on it.

A triage solution, for example, may free up 20 hours per patient of skilled diagnosis time by filtering out false positives. But how would a clinician use it? A solution may be successful when used by a single clinician one afternoon per week as part of his research.

Other clinicians in different trusts work in different ways, however, which is where the complications come in for companies seeking broad uptake of their devices and solutions.

> **Passwords and separate sign-ins, with separate interfaces are all barriers because clinicians have little time to spare and are likely to disregard anything clunky or time-consuming. What HealthTechs need is seamless integration across multiple systems and workflows.**

In the UK and Ireland, acute trusts are also coming up against ongoing budget challenges, meaning they need to see evidence of real-world utility and benefits before making costly investments.



Regulations and standards demand compliance

Regulation and compliance are two more reasons why HealthTechs should focus on data as they design their solution. To achieve acceptance for their data and achieve interoperability, organisations must comply with all-important healthcare data standards such as FHIR.

Compliance with FHIR is vitally important but unfortunately, it is not sufficient, either for a HealthTech starting out or one seeking to scale. The EU GDPR and device regulations also mandate certain qualities in data such as a robust audit trail and strong governance around access to raw data and results.

> **InterSystems research found this to be an area where many MedTechs start to lose their way. More than four-in-ten UK and Ireland MedTechs (41%) in the research admit they struggle to understand the privacy ramifications of GDPR, the US Privacy Shield, and other regulations.**

The compliance picture is complicated because each health trust or organisation has its own data governance requirements, including access controls, as each is a legally independent entity.

Machine learning (ML) and artificial intelligence (AI) can also add complications for HealthTechs, as they are based on trained models. Companies must take care the data they use to train their models is compliant, reliable, and free of bias.

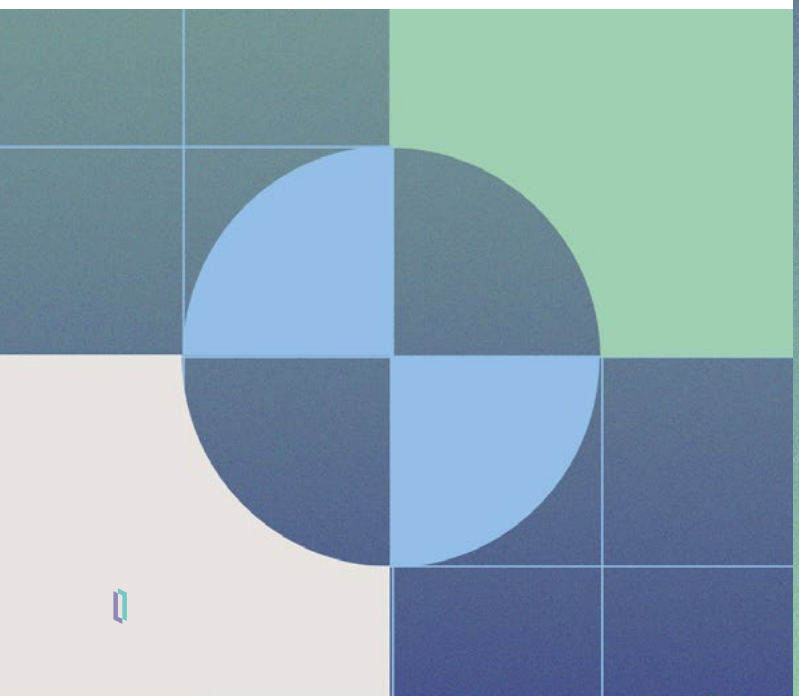
All data from the start needs to be audited and traceable, which is made much easier if HealthTechs can prove they conform to certain criteria about the form and nature of the information they are gathering.

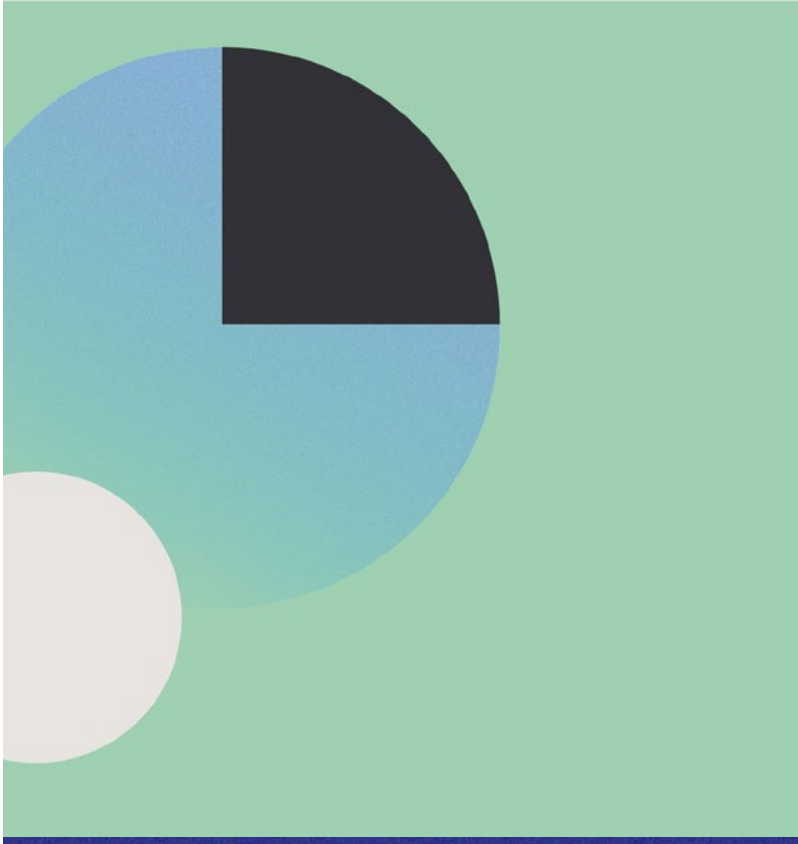
These are proliferating and complex requirements, however there is an effective way to address them early on in the life of a new solution. This is to employ a data management platform with multiple capabilities that take care of such demands. The complexity and variety of challenges have now reached the point that a data management platform has become critical from day one.

The challenges for HealthTechs can multiply after initial success

Most start-ups come from the background of simply using any data that is available to them. However, as they move on, HealthTechs need to think about whether they must collect data over a period of time (periodicity) or whether their device is a form of point diagnostic from a test. That has a big effect on the form of data and how organisations need to manage it.

Take streaming data for example. Do you plug into the ecosystems of other device manufacturers, such as smartphone companies and digital assistants? Or the cloud hyperscalers' applications and ecosystems? HealthTechs may want to be free of ties to specific vendors or hardware, but the more neutrality a company tries to build into its solution, the harder it is to manage and integrate data. It is a conundrum. HealthTechs know that being tied-in leads to higher costs if they have to rewrite for another vendor, and they also should know that retrofitting for vendors can come at a big cost.





Many alternatives fall short

It is worth also considering here some of the alternatives HealthTechs may use. Open source is a tempting option as a way of side-stepping data pitfalls, but it risks being non-compliant, is insecure, lacks robustness, and will lead to higher costs as a HealthTech scales. Open source also lacks auditability and as use grows, needs more hardware. It has weak performance engineering that is all too frequently exposed when operating under pressure at scale.

In other cases, HealthTechs will use PDFs in an electronic mailbox to get round these difficulties, but this will not work at scale either. Another route (instead of injecting structured data into the clinical record) is to provide an in-context link from an operational system into the application that the HealthTech provides, to give a specialised view of the data collected. With EPRs, it could be something embedded into the EPR, which some vendors will facilitate, but it may be at significant cost.

The advantages of a data platform

To speed their journey into clinical workflows and to ultimately achieve commercial success, HealthTechs should think harder about data integration and interoperability right at the start of their journey.

Healthcare is diverse, and clinicians have their own ways of working, so workflow integrations will remain complex for the foreseeable future. There are constant challenges in making data useful at the precise point where the right clinician can see it and act on it, which organisations cannot work round, but need to address.

As we've seen, the problems for a solution can multiply once it shows its clinical usefulness, so conquering these data challenges early on can put HealthTechs in a far better position when they are farther down the road. Doing so will save them money over the long term – a key consideration given the ongoing budget challenges impacting many acute trusts today.

Added to that, there are critically important healthcare data standards to comply with, including FHIR, together with data privacy considerations around GDPR in the UK and Europe, and HIPAA in the US. Breaches of these regulations can lead to significant penalties.

Medical devices are also subject to specific regulations, all of which means data must be audited and traceable. Failure in this area will have serious consequences in the event of a clinical incident, for example. A HealthTech must have the ability to identify what data has been presented to whom, when they viewed it or used it, and its provenance. The advantages of having these capabilities embedded from the outset should be clear for a company seeking widespread implementation.

Each of these obstacles makes adoption of a data strategy backed by robust and versatile technology more urgent. Many HealthTechs are unaware of the benefits that a data platform can provide – a blind spot they should address much earlier than is currently common.

An organisation such as InterSystems has extensive experience of working with healthcare providers and professionals and has established relationships with major vendors and their software and systems.

> **By adopting the unified data platform InterSystems IRIS for Health™ early on in their development, HealthTechs have access to a hugely varied ecosystem of partners. They can benefit from a significant pool of expertise on how to integrate data into the workflows of most healthcare organisations. This is knowledge and expertise allied to technical data science capabilities, that together, are impossible to obtain by any other means.**

Tackling the challenges of interoperability and workflow integration from the outset is one of the best guarantees HealthTechs have of fulfilling their potential and building revenues. InterSystems IRIS for Health™ gives HealthTechs the fastest route to getting their innovative healthcare applications, devices, or solutions up and running quickly and delivering sustainable value. It is a key element of the data strategy that every HealthTech needs to put in place in the earliest days of their development.

Now you know why it is so vital to have an effective, tested, data strategy from the outset to ensure the success of your HealthTech solution, find out how we can help you with yours today by getting in touch with a member of the InterSystems team.

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