

Making every pound count

Lessons from the EPR ecosystem

Co-authored by the
Electronic Patient Record
(EPR) Network

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Executive summary

Digital systems now sit at the heart of how the NHS delivers care, manages resources, and plans for the future. Electronic Patient Records (EPRs) have become the cornerstone of this digital estate but as implementations mature, the question is shifting from “how do we go live?” to “how do we maximise value?”

Across the health system, financial and operational pressures are intensifying. Trusts face the challenge of extracting the greatest possible return from digital investments while navigating resource constraints, staff shortages, and evolving policy demands. For most organisations, the challenge is not whether they have an EPR – 94% already do – but whether their digital infrastructure is fully realising its potential.

This whitepaper, produced by the EPR Network, explores how NHS organisations can make every pound count by leveraging digital systems to deliver sustained, measurable value. Drawing on evidence and experience from across the Network’s member organisations, representing some of the UK’s leading EPR vendors, integrators, and data specialists, it distils lessons from real-world implementations into a practical framework of nine drivers for extracting value from the EPR ecosystem.

These drivers span the full digital lifecycle and can be used to drive value regardless of the digital maturity of the organisation. Whether the Trust is yet to procure any form of EPR, or for those with top-of-the-range systems at their disposal, there is always greater value that can be garnered from digital estates, facilitated by these drivers. Together, they represent the key levers that enable Trusts to move beyond technical deployment toward continuous improvement and long-term value creation.

While no organisation will excel across all nine drivers simultaneously, those that plan with structure, deliver with adaptability and measure with discipline consistently achieve greater returns on their digital investments. Their experiences show that value in the NHS is multidimensional: financial, operational, environmental, and human. Often, the most significant gains are hidden: in improved staff satisfaction, reduced duplication, faster patient flow, and better use of existing data.



Across the various examples provided by members of the EPR Network, the common thread is that value was deliberately designed, not discovered by accident. Each success stemmed from clear planning, flexible execution, and a commitment to measuring impact from day one. The findings also underscore a broader truth: value generation is not a one-time event. As health-tech innovations continue to evolve, the “best possible” level of digital maturity will keep advancing. NHS organisations must therefore build systems and governance models that are agile, interoperable, and ready to evolve.

Ultimately, making every pound count requires more than mere cost avoidance. It means viewing digital transformation as a continuous, strategic journey in which every decision is an opportunity to drive improvement. Through the insights and experiences shared in this paper, the EPR Network aims to provide NHS leaders and their partners with a framework for realising that ambition. Ensuring that every digital investment not only supports today’s operations but strengthens the foundations for tomorrow’s NHS.



Electronic Patient Record Network

Bringing the EPR Community Together

The EPR Network is a neutral, vendor-agnostic forum created by Healthcare Innovation Consortium (HIC).

Bringing together an active and growing community of Trusts, suppliers, clinicians and policymakers, the Network aims to share learning, align on national goals, and tackle shared barriers to digital maturity within UK healthcare organisations.

[Find out more about the EPR Network here](#) ↗

Introduction

Across the NHS, digital infrastructure is no longer a peripheral enabler but a core determinant of how care is delivered, how staff work, and how resources are used. Investments in EPRs and the systems that surround them have reshaped clinical delivery at scale, yet the central question remains unchanged: how can Trusts ensure that these investments deliver the maximum possible value?

The challenge is not simply to digitise processes but to design digital ecosystems that generate measurable, lasting impact. This requires moving beyond the narrow lens of avoiding cost or waste and instead approaching digital systems as strategic assets capable of driving transformation in efficiency, safety, sustainability, and patient experience.

This whitepaper introduces a framework of nine drivers for extracting maximum value from EPR ecosystems. These drivers are drawn from the real-world experiences of NHS organisations and the lessons contributed by members of the EPR Network. They represent the areas where value is most often created or lost and provide a practical set of considerations for Trusts seeking to plan, implement, or optimise their digital estates. Few organisations will excel in all nine at once, but the evidence shows that progress in even a handful can unlock compounding benefits over time.

The NHS faces a familiar but intensifying challenge: how to ensure that every pound spent on digital infrastructure delivers real and measurable value. Much of the current debate acknowledges that planning matters, or that empowerment is desirable, but the real lesson from the EPR ecosystem is that value can be found in many places and that it must be actively pursued, measured, and scaled if the NHS is to make every pound count.

2. An NHS in search of digital value

The NHS today is under exceptional pressure: constrained finances, workforce shortages, and the ongoing impact of COVID-19 have created a landscape dominated by waiting lists, operational pressure, and strategic uncertainty.

As of June 2025, the total waiting list across England stood at 7.37 million pathways, with just 61.5% of patients treated within the 18-week standard.

(NHS Confederation, 2025)

Of those waiting, roughly 2.87 million patients have been delayed beyond 18 weeks, while around 191,600 have waited over a year (British Medical Association, 2025) (NHS England, 2025). In this environment, Trusts must ensure every investment – particularly digital – delivers measurable, lasting value.

In this context, the NHS's push for digital maturity has made significant strides. A recent snapshot found that 94% of acute NHS Trusts in England now have an EPR in place (HTN, 2025), with NHS England's Frontline Digitisation programme aiming for 96% coverage by March 2026 (HTN, 2025). Yet coverage alone does not guarantee digital maturity nor value for money. Many Trusts operate EPRs that are incomplete or underutilised. Resource constraints and bespoke local

workflows often mean Trusts cannot afford, or cannot fully configure, all modules offered by their vendor. As a result, additional systems are procured – for example, maternity, pathology, or prescribing solutions – which integrate with the core EPR to varying degrees. In some cases, integration is seamless; in others, workflows remain fragmented, leading to duplicated effort and inconsistent data capture.

Although the overall reliance on paper is decreasing, the challenge is no longer simply to become “paperless.” Instead, the priority is to ensure that digital systems are embedded in ways that genuinely improve workflows and patient experience. Too often, trusts risk replacing inefficient paper processes with equally inefficient digital equivalents. At the same time, new technologies are rapidly emerging. AI-enabled workflow automation, natural language processing for clinical documentation and machine learning in imaging and screening are already being piloted across the NHS. Meanwhile, population health management capabilities – using data to target proactive care and preventative interventions – are increasingly recognised as essential to maximising the long-term value of EPR data.

The ambition of regional convergence has begun to take shape in some

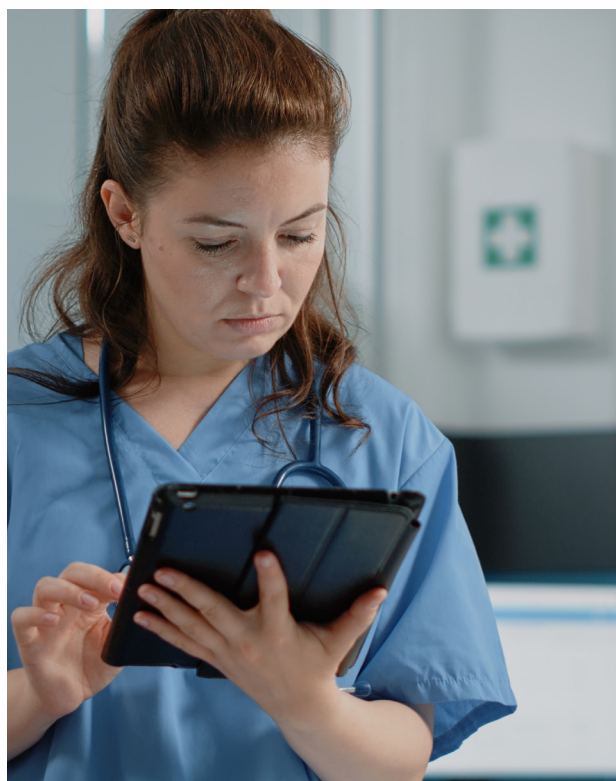
areas. Certain Integrated Care Systems (ICSs) have opted for joint procurements of the same EPR vendor, with the aim of reducing duplication and simplifying interoperability. Internationally, Paris recently implemented a single solution across its entire hospital system (Orbis-U) (Dedalus, 2024), whilst within the UK, Northern Ireland has adopted one system across all hospitals – a move designed to enable seamless patient transfers and unified records across the region. These examples illustrate the potential of convergence at scale but also highlight the significant resourcing and change management required to make such approaches viable. For most ICSs, budgetary and workforce constraints mean that true convergence will remain the exception rather than the rule in the near term.

Instead, the pragmatic reality is that Trusts will continue to work across a patchwork of systems. The priority must therefore be meaningful interoperability, both with immediate regional partners and with national infrastructure such as the NHS Spine. Over time, it is expected that more Trusts will draw on regional shared care records in parallel with their own EPRs, building towards a future where interoperability rather than uniformity enables a consistent national digital picture. While different vendors will remain in play, the aspiration is that shared standards, APIs, and open data frameworks will ensure that systems talk to one another effectively, regardless of region.

The backdrop is clear. Most NHS organisations now have the foundations of EPR systems, but the range of system capabilities, the persistence of legacy applications and the complexity of integration mean that the value realised is uneven.

The next phase of digital transformation will not be defined by whether trusts have an EPR, or other specific systems, but by how well they optimise, integrate, and evolve them.

In the long term, embedding efficiency, supporting staff and patients, and creating a resilient infrastructure capable of adapting to the challenges and innovations ahead will be key.



3. The value framework: nine drivers for extracting maximum value from EPR ecosystems

NHS organisations don't realise value from an EPR by switching it on; they realise value by activating the right drivers at the right time. Drawing on lessons from across the EPR Network and wider UK practice, we set out **nine practical drivers** that Trusts can use to extract maximum value from their digital estates – core EPRs, accompanying modules, integrations and data repositories.

This is a **framework, not a checklist**. Few organisations will optimise all of these drivers at once – nor should they try. Each Trust operates with real constraints: capital and revenue limits, workforce capacity, contract timelines, ICS convergence expectations, and local clinical priorities. The aim is to prioritise: pick the drivers that deliver the biggest near-term impact for your context, while laying technical and organisational foundations to sequence the rest over time. In practice, the highest performers tend to excel in a handful of drivers first (e.g., interoperability + workforce productivity + measurement), then compound value by iterating into others as capability and headroom expand.

Each driver explains what it is, why it pays and how it shows up in real NHS settings (with short evidence examples from member contributions).

Consider them as options you can combine, not as silos: interoperability enables empowerment; standardisation strengthens safety, and coding; measurement turns pilots into proof and proof into scale. Many, if not all, of these drivers go hand-in-hand towards effective delivery of healthcare supported by seamless digital architecture.



3.1. Planning and adaptability

Analysis of the current EPR landscape shows that whilst the vast majority of NHS Trusts now have a core patient record in place, many will enter (or re-enter) procurement cycles in the coming years. In some cases, this will be driven by contract expiries that require renewal or replacement. Others will be prompted by the need to replace temporary or fragmented solutions that were originally implemented as stopgaps but are no longer sustainable. A further group will pursue procurement because they are dissatisfied with their current system's performance or scope, while for many, the primary driver will be regional convergence, as ICSs push for alignment to enhance interoperability and standardise care pathways.

No single driver shapes the success or failure of a digital implementation more than how it is planned. Within the NHS, EPR procurements represent multi-million-pound commitments, influencing almost all aspects of healthcare delivery and involving complex change management at all levels of staffing. Despite this and partly as a result of external pressures affecting many Trusts such as financial constraints, staffing limitations, and complex existing digital infrastructures, too many programmes still approach planning as if it were a finite project, defined by a fixed set of milestones and an eventual "end state." In reality, the context in which NHS organisations operate is too dynamic for static plans: clinical priorities shift, policy evolves,

workforce pressures mount, and digital innovations reshape the future needs of the system.

A plan that does not anticipate change will inevitably fail to deliver sustained value.

Planning for value therefore means combining both structure and flexibility. Trusts need a structured roadmap that sequences delivery into manageable phases, giving staff and patients time and resources to adapt to new workflows, whilst also building in the flexibility to adopt future modules, integrate complementary systems, and retire legacy applications at the right time.

The most successful programmes establish this duality from the outset, recognising that a rigid "big bang" rollout usually risks disruption and digitising inefficiency unless supported by extensive funding. Alternatively, phased, adaptive roadmaps create opportunities for continuous optimisation and prioritisation of key modules as well as allowing room for the inevitable veering off course that all implementations experience.

Good planning is also holistic. It requires Trusts to assess not only the technical requirements of an EPR, but also the broader effects on healthcare delivery: how patient flows will shift, how workforce capacity will be impacted, and how legacy data will be managed. Increasingly, advanced tools such as flow mapping, digital twins and predictive modelling are being used at the planning stage to anticipate downstream impacts of digital change. A robust roadmap must also consider sustainability goals, population health data ambitions, and regional interoperability requirements — including alignment with platforms such as the NHS Spine and local Shared Care Records.



A clear illustration of this principle can be seen at The Royal Wolverhampton NHS Trust, which partnered with System C to deliver a ten-year EPR transformation deliberately structured around two macro phases. The first phase focuses on replacing critical core systems — including the legacy Patient Administration System (PAS), Emergency Department, and theatre systems — while the second phase introduces advanced functionality such as CareFlow Planning, Patient Flow, Clinical Workspace, and integration with the Personal Health Record. This sequencing mitigates risk, spreads cost, and sustains operational continuity while maintaining forward momentum. Benefits realisation is embedded from the outset, allowing early gains to be measured and reinvested, ensuring continuous optimisation throughout the programme.

Furthermore, through exemplar deployments such as those at Gloucestershire Hospitals, Medway NHS Foundation Trust, and Maidstone and Tunbridge Wells NHS Trust (MTW), Altera has shown how modular delivery can balance speed with sustainability. MTW's phased rollout of the Sunrise™ EPR exemplifies this model: by sequencing implementation to match organisational readiness, the Trust achieved a smoother transition, efficient resource allocation, and measurable improvements in patient care. The modular roadmap also ensured that early progress could be consolidated before expanding functionality — illustrating how structured planning supports flexibility

without compromising ambition.

Across these examples, the common thread is not the technology itself but the discipline behind its implementation. Effective planning integrates strategic foresight with operational realism: long-term vision combined with stepwise delivery; national alignment complemented by local adaptability.

For NHS organisations, the goal is firstly

to produce a manageable, achievable plan. However, it should not be expected that this will be a perfect plan, but a living one — structured enough to guide progress, holistic enough to encompass system-wide impacts, and adaptable enough to evolve with new demands. In this way, planning becomes an enduring discipline: one that safeguards investment, sustains relevance, and ensures that every EPR continues to generate value well beyond go-live.

“

We've had our current PAS for over 20 years, so we want to undertake a phased approach to acknowledge the level of transformation involved and ensure our staff feel comfortable with the scale of change needed.

”

Nick Bruce, Group Director of Digital Technology at The Royal Wolverhampton and Walsall Healthcare NHS Trusts



3.2. Interoperability and integration

In today's NHS, the EPR has become the anchor of digital infrastructure. For that reason, any additional system or module procured by a Trust – whether for maternity, prescribing, or data repositories – must, as a matter of course, integrate with the EPR.

Integration is the bare minimum: without it, information risks becoming siloed, workflows fragment and the efficiency gains promised by digitisation are lost.

For Trusts seeking to maximise value, it should be non-negotiable to ensure that every new procurement aligns technically and operationally with their core EPR, provided the solution is clinically appropriate and financially viable.

The risks of failing to meet even this baseline are clear. Consider a patient attending outpatient clinics in the same hospital, where one system documents their medication history, another records their laboratory results, and a third stores imaging data. Without integration, clinicians may have to log into multiple platforms to piece together the full picture, or worse, proceed without complete information. This not only creates frustration for staff and patients but also leads to duplication of tests, delays in decision-

making and potential risks to safety. Integration ensures those systems can at least exchange data – but interoperability is what ensures the data moves in a format that is usable, consistent and meaningful across different settings.

This distinction becomes clear in the case of electronic prescribing. At Midlands Partnership NHS Foundation Trust, CLEO Systems' Electronic Prescribing Solution (EPS) was implemented not as a standalone tool but as an interoperable module. It was embedded within the Trust's existing EPR workflows while also connected to the NHS Spine, ensuring prescriptions could be transmitted and reconciled nationally. This dual integration meant the system could deliver value both locally and across the wider health system.



The results demonstrate the compound benefits of interoperability. More than 120,000 electronic prescriptions have been generated, eliminating the need for printing and posting thousands of paper forms. This translated into measurable savings including nearly £40,000 annually in postage costs and over £170,000 saved in mileage, as staff no longer needed to transport paper prescriptions. Safety also improved, with a 55% reduction in lost or stolen prescriptions, preventing costly reissuance and delays to patient care. Most significantly, the system released the equivalent of 2,866 clinician-days per year, nearly eight working days per prescriber, by removing unnecessary administrative burden. Staff feedback has underlined this impact, describing the system as “quick, saves time, saves hassle” – a reminder that when interoperability works, it enhances not just efficiency, but also the delivery of care.

Beyond the organisational level, interoperability is equally crucial across regions. Patients frequently move between providers within an ICS or even across ICS boundaries. Consider a patient living on the border of two ICSs: admitted to hospital in one region for surgery but attending follow-up outpatient appointments in a neighbouring Trust. If their records cannot flow between the two systems, clinicians may be unaware of post-operative complications, duplicate diagnostic tests may be ordered, and patients themselves are left carrying the burden of explaining their history at every encounter.

Shared care records can mitigate this, but without true interoperability, the seams between organisations remain visible to both staff and patients.



In some regions, however, ambitions for digital integration have gone even further. Health and Social Care Northern Ireland (HSCNI) has embarked on one of the UK's most ambitious digital health programmes – the creation of a single, connected digital care record across all hospitals and community services. The initiative, delivered through multiple technology partners over several years, represents a regional transformation on an unprecedented scale: consolidating data, workflows, and technical architectures from dozens of legacy systems into a unified digital environment.

Integrella played a pivotal role in supporting this transition, working with HSCNI to deliver the complex integration architecture and middleware essential for connecting existing clinical and administrative systems. Their expertise in interoperability and data flow enabled seamless exchange of information across organisational boundaries, ensuring that the new regional EPR could operate effectively within Northern Ireland's diverse digital landscape.

In parallel, Orion Health, as the provider of the Northern Ireland Shared Care Record, has been instrumental in ensuring that data can move securely and efficiently across care settings. The Shared Care Record enables clinicians – regardless of site or speciality – to access key patient information in real time, bridging secondary, primary, and community care.

Together, these efforts extended

beyond technical enablement to include the optimisation of more than 200 clinical workflows, the migration of 1.5 million patient records, and the alignment of processes across all Trusts in the region. The outcome was not only a unified record but a unified operating model – delivering seamless patient transfers, consistent data standards, and a step-change in care coordination for citizens who had previously navigated fragmented systems. Whilst NHS England is unlikely to achieve full convergence in the near term, constrained by resources and diverse vendor estates, the trajectory is clear. The future lies in ensuring that data flows across organisational and regional boundaries, underpinned by shared standards and national infrastructure.

Without interoperability, even the most sophisticated EPR risks becoming an expensive silo.

With it, digital investments become amplifiers of value that benefit not just one Trust, but the system as a whole.



3.3. Staff and patient empowerment

Digital systems create their greatest value not when they simply digitise records, but when they empower the people who use them.

For patients, empowerment means greater control over appointments, access to information and the ability to interact with services on their own terms. For staff, it means reducing unnecessary administrative burden, streamlining workflows, and more time on direct care. Empowerment at both levels delivers a compound effect: patients experience smoother pathways; staff feel more supported and engaged, and Trusts realise measurable operational and financial benefits.

The value of patient empowerment can be seen clearly in the case of appointment management. Traditional systems often leave patients dependent on phone lines or postal communication to manage bookings, creating delays, missed appointments, and administrative

overhead. A missed outpatient appointment (Did Not Attend, or DNA) is not just inconvenient; it represents lost clinical time, wasted resource, and extended waiting lists. By contrast, when patients are given effective self-service tools, DNA rates fall, booking processes accelerate and clinical capacity is used more efficiently.

At Imperial College Healthcare NHS Trust, a digital patient booking portal implemented with Dedalus provided exactly this type of empowerment. Integrated with the Trust's Orbis-U EPR, the Swfitqueue portal enabled patients to book, cancel, or reschedule their own appointments in real time. The results were transformative: DNA rates fell from 12.1% to 3.1% – a reduction of nearly three-quarters. Cancellations dropped from 31% to 11.8%, while booking completion rates rose to 93.4%, up from 82.8%. Each booking also saved approximately five minutes of administrative time, time that could be redirected toward supporting patients rather than chasing paperwork.



For patients, the system offered convenience and flexibility; for staff, it removed repetitive tasks and frustration; for the Trust, it enabled better use of clinical capacity and shorter waiting lists.

Staff empowerment is the other half of this equation. In the previous section, the use of CLEO Systems' EPS at Midlands Partnership NHS Foundation Trust was highlighted as an example of interoperability in practice. The same programme also illustrates the potential of digital systems to empower staff directly. By embedding prescribing workflows into the EPR and removing paper-based processes, CLEO's EPS eliminated whole categories of administrative work. As noted earlier, the equivalent of 2,866 clinician-days per year were released back to the workforce. This ultimately represents more time for clinicians to spend with patients, less frustration with duplication, and a working environment that feels more sustainable.

Patient and staff empowerment is not a peripheral benefit, but a strategic driver of value.

Empowerment can be digitally enhanced in multiple ways, including by ensuring patient portals exist that direct citizens to the right health information. For example, booking portals can be facilitated via the NHS App, reducing unnecessary appointment requests and pressure on frontline services. For staff, empowerment means cutting down

repetitive tasks such as manual admin or note-taking and designing workflows that are streamlined and intuitive. These improvements not only make clinicians' working lives easier, but also contribute to higher job satisfaction and engagement. Over time, this empowerment has the potential to reduce the burden on the NHS workforce itself, alleviating some of the staffing pressures that have been one of the system's most persistent challenges. By embedding empowerment into digital strategy, Trusts can ensure that every pound spent creates value that is felt not just in operational metrics, but in the lived experience of staff and patients alike.



3.4. Clinical workflow standardisation

EPRs offer Trusts the opportunity to move beyond digitising existing processes and instead embed structured, consistent and safer ways of working across entire organisations.

When workflows are standardised, they not only improve patient safety but also generate measurable operational, financial, and workforce benefits.

Frequently, variation in documentation, prescribing, or care pathways creates opportunities for error and makes it harder for staff to work confidently across departments or partner organisations. By embedding structured documentation and closed-loop processes within the EPR, Trusts can reduce unwanted variation, streamline care delivery, and support consistent decision making.

Previously mentioned, was Dedalus' Orbis U platform which, integrates evidence-based clinical practice directly into digital workflows. Built in accordance with NICE guidelines, its digital sepsis management functionality ensures that early detection and escalation processes are systematically embedded into routine care. This alignment between national standards and local workflows reduces preventable harm, improves compliance, and enables Trusts to deliver safer, more

consistent care without adding complexity. When modelled against a typical NHS Trust managing 1,000 annual sepsis cases, even a 10% reduction in ICU admissions equated to approximately £275,000 in annual savings (Dedalus, 2025). This clinical standardisation approach transforms national guidance into operational and financial value, demonstrating that true standardisation goes beyond uniformity — it is about embedding best practice into everyday processes, turning clinical guidance into operational reality.

The benefits of standardisation extend far beyond clinical safety. When processes are uniform and digitally embedded, the training burden for staff reduces significantly, as clinicians encounter consistent practices across wards, specialties, and even different sites. Data quality also improves: structured fields replace free-text variation, producing cleaner datasets that can be used for analytics, population health insights, and proactive service planning.

Standardised documentation in turn supports more accurate clinical coding. When care activities are captured consistently at the point of entry, reimbursement under NHS payment systems becomes more reliable, minimising revenue leakage, and improving financial sustainability. This structured approach also strengthens auditability and compliance, ensuring that care records meet regulatory and governance standards without additional administrative effort.

Equally important, standardisation builds resilience.

In periods of workforce pressure, temporary or redeployed clinicians can adapt more quickly when workflows follow a consistent pattern.

In contrast, when every ward or site operates differently, each transfer of staff or patient increases the risk of error or inefficiency. By harmonising workflows across their digital estates, trusts can create operational environments where staff spend less time navigating systems and more time focusing on patients.

Taken together, the evidence from high-performing NHS organisations shows that workflow standardisation delivers multidimensional value: it reduces clinical risk, improves patient outcomes, enhances staff experience, and protects income. Trusts that invest in designing and maintaining consistent digital workflows are not simply improving safety, but they are laying the foundations for a mature, data-driven digital estate that continually generates value across clinical, operational, and financial domains.



3.5. Population health data and analytics

Analytics and population health management have become recurring themes in NHS digital strategy, and with good reason. Done well, they allow organisations to move from reactive care to proactive intervention, meaning they're identifying risks before they escalate, optimising resources and tackling inequalities across populations. Yet the real challenge for Trusts is not whether analytics are desirable, but how they can be turned from an abstract ambition into a practical source of value.



The first barrier is data quality and accessibility. Analytics platforms can only be as effective as the data that feeds them. If patient information is locked in legacy systems, stored on paper, or inconsistently coded across departments, the outputs will mislead rather than inform. Many Trusts still fall into the trap of building dashboards that look impressive but are powered by patchy datasets. The result is reporting that cannot command confidence, let alone drive clinical or operational decisions. The practical lesson is that analytics cannot be separated from the hard work of workflow standardisation, interoperability, and structured data capture. Without these, population health tools risk becoming expensive but underutilised add-ons.

The second challenge is the translation of insight into action. Too often, Trusts stop at descriptive reporting: identifying the size of waiting lists, the demographics of admissions, or the prevalence of long-term conditions. While this creates visibility, it rarely creates change. Value emerges only when insights are embedded into everyday operational and clinical pathways. For example, risk stratification models may flag patients most likely to miss outpatient appointments. But unless the booking system is adapted to proactively offer those patients SMS reminders, self-service portals, or community-based slots, the insight adds no value.

Therefore, it's clear that the unit of value in analytics is not the dashboard, but the workflow it informs.

Trusts that succeed in population health management are those that design interventions hand-in-hand with their analytical insights. This might mean reconfiguring community nursing rotas based on predictive models of frailty, or automatically triaging radiology backlogs based on AI-driven urgency scoring. In both cases, analytics shift from an information exercise to an operational lever.

Equally important is the creation of feedback loops that allow Trusts to measure and refine their interventions. Analytics should not only identify problems but also evaluate the impact of solutions. If a new pathway reduces admissions in one part of an ICS, the data should confirm this and inform whether the model can be scaled elsewhere. In this way, analytics become a continuous cycle of learning and improvement, rather than a static report.

Some Trusts are already embedding this principle into their digital programmes. As previously mentioned, System C's work at Wolverhampton, as well as their recent deployment at Whittington NHS Trust have been deliberately designed with long-term population health benefits in mind. By combining a FHIR-first architecture with close attention to workflows and

benefits realisation, these programmes lay the groundwork for analytics that are not only technically possible but also operationally meaningful. Crucially, these deployments also link into the wider regional shared care record. This alignment ensures that data captured in daily workflows can flow seamlessly into ICS-wide analytics – powering proactive care management, risk stratification and system-level planning, while multiplying the value of the original EPR investment.

Population health analytics will always carry the risk of overpromising. It's easy to generate graphs, harder to deliver measurable impact using the data that they show. But the Trusts that extract real value are those that keep the focus relentlessly practical: improving the completeness of data, ensuring insights are embedded in workflows and building feedback loops that prove impact. The shift in mindset is subtle but profound. It is not about "doing analytics," but about using analytics as a disciplined tool for operational redesign. In this sense, the value is not in the data itself, but in the system's willingness to act on it.

3.6. Legacy system retirement

Legacy systems are among the most stubborn obstacles to digital value in the NHS. Even as Trusts procure and deploy modern EPRs, large volumes of patient data remain stranded in older applications – from PAS and maternity systems through to LIMS, theatre software and radiology platforms. Many of these systems are outdated, unsupported, or no longer fit for purpose, yet cannot simply be turned off because they hold clinical, medico-legal, or statutory records. The result is costly duplication, fragmented workflows, siloed data and heightened cyber risk.

Crucially, “legacy” does not only mean systems that are visibly outdated or clunky. Increasingly, legacy includes recently replaced applications – platforms that may still be functional but have been superseded by a new EPR or vendor. These systems often contain valuable longitudinal records yet are relegated to the background once a new platform is adopted. For example, industry experience suggests that when a Trust replaces a PAS that has been in use for over a decade, only around 18–24 months of ‘high-value’ data typically migrates into the new EPR to support safe go-live. The rest – sometimes eight years or more of patient history – remains in the old system, which becomes “legacy” overnight. Left unmanaged, this creates a growing web of parallel applications, each consuming resources while offering diminishing value.

The costs of maintaining these systems are significant. Licences, hosting, power, cooling and specialist IT support can run into hundreds of thousands of pounds annually. Clinically, staff are slowed by the need to log into multiple systems to reconstruct a patient’s record, while managers face growing complexity in responding to compliance requests such as FOIs or SARs. Perhaps most concerning is the security risk: legacy applications, whether old or newly displaced, expand the attack surface and stretch already overburdened IT teams.

The solution is to retire legacy systems safely while preserving the data they contain. Clinical Data Repositories (CDRs) provide this capability by consolidating information from retired systems into a central, searchable repository that can be accessed directly or, crucially, in the context of the live EPR. **BridgeHead Software**, the market leader in this space, has pioneered this approach through its **HealthStore®** solution. HealthStore integrates directly with the EPR, allowing Trusts to decommission systems securely while retaining full access to valuable clinical data.

At University Hospitals of Derby and Burton NHS Foundation Trust (UHDB), HealthStore underpinned the Trust’s application decommissioning strategy. In its first phase, the Trust retired three high-risk systems – including a legacy EPR, an Emergency Department platform and a PAS – consolidating

their data into the repository. The impact was immediate: close to £1 million in annual savings, an average of £300k per system, alongside the removal of those applications from the risk register. FOI and SAR requests that once took days could now be completed in just “three clicks,” freeing staff to focus on higher-value tasks.

At Mid Cheshire Hospitals NHS Foundation Trust and East Cheshire NHS Trust, HealthStore was deployed alongside a MEDITECH Expanse rollout. Here, the CDR approach de-risked the migration by splitting data flows: recent patient records migrated into the live EPR to support day-to-day operations, while older data was ingested into HealthStore. This avoided costly delays, ensured safe access to historical records, and delivered financial savings ranging from £30,000 for smaller applications to £400,000 annually for larger ones. Further phases are now in progress to retire additional systems such as theatre, patient flow, and vital signs applications; each one reducing cost and risk while strengthening digital resilience.

Legacy systems are not simply technical clutter. They are a drain on resources, and a clinical inefficiency and thus a cyber risk.

Trusts that fail to address them find their digital investments constrained by stranded data and unnecessary overheads. Those that act strategically

unlock multiple sources of value:

- ▶ **Financial:** releasing millions annually by removing licences, support contracts, and infrastructure costs.
- ▶ **Clinical:** improving efficiency by consolidating access to patient histories.
- ▶ **Operational:** simplifying compliance processes and de-risking migrations.
- ▶ **Security:** shrinking the digital attack surface and retiring unsupported applications.
- ▶ **Strategic:** creating a cleaner, more agile architecture to support EPR optimisation and future innovations.

Importantly, CDRs should not be seen as competitors to traditional EPRs. They are complementary enablers that allow the EPR to operate at its best by seamlessly providing a link to a vast repository of crucial data. By removing redundant systems and surfacing historical data in a usable form, CDRs clear the ground for Trusts to maximise the value of their EPR investment. In this sense, legacy optimisation is not a backward-looking tidy-up, but a forward-looking investment: transforming stranded data into a usable asset, simplifying digital estates, and enabling the EPR to serve as the cohesive, value-generating platform it was procured to be.

3.7. Sustainability and net zero

The NHS has committed to becoming the world's first net zero health system, targeting net zero for its direct emissions – the NHS Carbon Footprint – by 2040 and extending to the wider emissions it influences via its supply chain and third-party services – known as the NHS Carbon Footprint Plus – by 2045 (NHS England, 2020). This broader category includes everything from medicines and medical devices to outsourced logistics and IT services. Crucially, it also covers the data centres, cloud hosting, and digital infrastructure used by EPR vendors and their partners.

Through the NHS Net Zero Supplier Roadmap, suppliers are required to publish Carbon Reduction Plans for their operations, aligning with central government procurement rules (PPN 06/21). From April 2023, contracts above £5 million per year require evidence of supplier emissions reductions (Scope 1, 2 and selected Scope 3 categories) and from April 2024 these requirements are extending further across the supply chain (NHS England, 2023). This makes sustainability a contractual expectation in digital procurement – not a peripheral consideration – with the carbon footprint of third-party data centres now as relevant as the energy use of NHS sites themselves.

Digitisation is often assumed to be inherently sustainable, but the picture is more complex.

Modern digital estates can be energy-intensive: servers and data centres require constant power and cooling; new devices carry embedded carbon costs; and the exponential growth of data risks creating a storage burden that outpaces efficiency gains. Without active planning, digital transformation can shift emissions from visible areas like paper and travel to less visible but equally material infrastructure.

At the same time, digital programmes can deliver measurable environmental benefits when sustainability is designed in from the start. CLEO Systems' EPS, previously highlighted for its efficiency and empowerment gains, also provides a striking sustainability example. By removing the need for paper-based prescription pads and eliminating unnecessary staff journeys, the programme achieved 162.8 kg of CO₂ savings annually, alongside the avoidance of 2,354 FP10 pads and more than £170,000 in mileage costs. These are not abstract benefits but quantified, operational impacts that align directly with the NHS's net zero agenda. What is particularly powerful is that these gains were achieved as a by-product of improved workflows, showing that efficiency and sustainability can reinforce one another.

Other programmes also demonstrate environmental advantages, even where sustainability was not the primary driver. For example, and as previously mentioned, BridgeHead's HealthStore CDR enables Trusts to

“

So happy with this new service, I don't drive so I would have to catch a taxi to collect my prescription which was very costly so having it sent straight to the pharmacy is going to save me money.

”

Service user of the CLEO EPS System at Midlands Partnership Trust

decommission legacy systems and migrate to more modern infrastructure. While its headline benefits are clinical, financial, and operational, an important secondary impact comes from reducing the power, cooling and physical hardware requirements associated with running multiple outdated servers. This rationalisation of the digital estate cuts energy use while simultaneously strengthening cyber resilience and simplifying IT management.

Sustainability in digital programmes can therefore be realised from multiple angles:

- ▶ **Infrastructure:** Choosing greener, more efficient cloud platforms and scrutinising vendor sustainability commitments.
- ▶ **Workflows:** Designing processes that avoid duplication and waste, such as electronic prescribing.

- ▶ **Staff travel:** Enabling remote access and electronic task management to cut intra-site and inter-site travel.
- ▶ **Patient travel:** Expanding video consultations and remote monitoring to prevent unnecessary hospital visits.
- ▶ **Lifecycle management:** Extending device life, ensuring responsible recycling, and demanding e-waste policies from suppliers.

Digitisation is not automatically green. But when sustainability is embedded as a design principle – in infrastructure, workflows, and procurement – it becomes a powerful driver of value. The Trusts that succeed will be those that recognise sustainability not as a side-effect of digital transformation, but as one of its core objectives: ensuring that every digital pound delivers returns, not only for patients and staff, but for the environment and the wider health system.

3.8. Cloud hosting

Every EPR and digital system depends on a fundamental infrastructure choice: whether to host locally, in the cloud, or in a hybrid environment. This decision shapes not only cost but also resilience, scalability, sustainability, and cyber security.

For the NHS, hosting efficiency is not a peripheral IT concern but a strategic determinant of digital value.

Most Trusts still rely heavily on on-premises or hybrid models. A 2023 report found that only 15–21% of NHS Trusts currently host services off-site in cloud or co-location environments (Digital Health, 2023). Whilst this figure may have increased following recent procurements, the reality is that many Trusts have invested heavily in local infrastructure; some clinical

applications are latency-sensitive and perform better on local servers; and legacy systems may not be cloud-ready.

Despite this, the National direction is unambiguous. NHS England has adopted a “Public Cloud First” principle, stating that digital services should default to public cloud “unless there is a clear reason not to do so” (NHS England, 2022). Supporting guidance from the NHS Cloud Strategy and Adoption Plan provides practical steps for migration – from risk assessment and security controls to vendor assurance (NHS England, 2025). Hosting infrastructure standards now describe cloud as “strongly preferred,” with local hosting “not recommended” unless justified (NHS England, 2025).



The potential benefits are considerable. Cloud platforms remove the hidden costs of maintaining ageing server estates, such as hardware refresh cycles, 24/7 facilities support, power, and cooling, whilst also offering resilience and scalability that would be prohibitively expensive to replicate in-house.

Cloud adoption also enables easier data sharing across Trusts and ICSs, particularly when combined with FHIR-based architectures that support regional shared care records and population health analytics.

For systems increasingly reliant on AI, imaging and predictive modelling, scalable compute power is not optional but essential.

That said, the risks of cloud migration must be acknowledged. Data sovereignty remains critical: NHS data must be hosted in the UK, EEA, or in jurisdictions deemed adequate, with senior information risk officers required to approve any data off-shoring (NHS England, 2025). Connectivity dependence can create vulnerabilities if network resilience is not assured. Vendor lock-in and cost volatility (e.g., charges for data egress or high-performance tiers) require careful contractual and financial planning. For these reasons, many Trusts are adopting hybrid models, combining cloud for archival and less latency-

sensitive workloads with local servers for critical, performance-intensive systems as seen at Imperial College Healthcare NHS Trust (Leonard, 2025).

The takeaway is not that cloud storage is automatically superior, but that it represents the direction of travel most likely to maximise value over the long term, especially for NHS organisations. By consolidating infrastructure, reducing hidden overheads, and enabling advanced analytics at scale, cloud hosting aligns with the NHS's broader goals of efficiency, resilience and sustainability. The Trusts that succeed will be those that approach cloud strategically: recognising where on-premises remains justified, mitigating risks of migration and embedding hosting strategy within the wider digital roadmap rather than treating it as an afterthought.



3.9. Benefits realisation

One of the most persistent challenges in NHS digital transformation is the assumption that value will naturally follow implementation. Too often, success is measured in outputs – how many users are trained, modules deployed, or records digitised – rather than outcomes such as improved efficiency, reduced error, or enhanced patient and staff experience. Without a structured benefits-realisation process, digital investments risk becoming static systems rather than dynamic assets that continue to evolve and deliver value.

Benefits realisation provides the framework to avoid this. It requires organisations to define clear outcomes from the outset, align them with strategic priorities, and track progress using meaningful, context-specific metrics. More than a reporting exercise, it is a discipline that turns reflection into refinement – enabling Trusts to identify what works, quantify impact, and reinvest insights into continuous improvement.

Operational benefits realisation: optimisation through partnership

In 2024, Healthcare Innovation Consortium partnered with Altera Digital Health and Worcestershire Acute Hospitals NHS Trust to evaluate and enhance the benefits realised from the Trust's Sunrise EPR system, focusing specifically on the tissue viability

pathway. The project's objective was not merely to measure outcomes but to identify how the EPR could be further optimised to deliver greater clinical and operational value.

While Sunrise had already improved visibility and documentation across sites within the Trust, the partnership used benefits realisation as an opportunity to co-design improvements that better aligned the technology with real-world practice. Through detailed process mapping, staff engagement and iterative reconfiguration, the project addressed inefficiencies such as duplicated data entry, inconsistent assessment capture, and fragmented referral workflows.

The results were both practical and cultural. The optimised pathway improved wound documentation completeness, increased confidence in the system, and ensured that interventions and follow-ups were logged consistently across teams. Features such as direct wound image uploads, tracking-board alerts for reassessments, and mandatory referral fields were identified as high-value adjustments that significantly improved safety and usability. Importantly, the project demonstrated that benefits realisation need not occur at enterprise scale to be effective.

By targeting a single pathway, the Trust was able to prove the concept of continuous optimisation, generating evidence and engagement that can

now be replicated in other areas of care.

This case exemplifies benefits realisation as a form of operational optimisation, improving not only how staff use the EPR but how the EPR itself evolves to meet clinical needs. It shows that for Trusts constrained by resource or time, benefits realisation can begin within a single pathway and still deliver meaningful, measurable improvements.

Tactical benefits realisation: building the case for scale

At Imperial College Healthcare NHS Trust, Dedalus applied benefits realisation in a different but complementary way, using it as a tactical tool to evidence value and secure further investment. The rollout of the Swiftqueue Patient Engagement Portal was treated as a focused pilot, underpinned by clearly defined success measures from the outset. Within months, the outcomes were compelling: Did-Not-Attend (DNA) rates fell by 74%, cancellations dropped by nearly 20 percentage points, and booking completion rates exceeded 93%.

These results provided not only proof that the technology worked but also the evidence base required to expand its use. With measurable success achieved, the Trust was able to justify scaling the solution across additional specialties and integrating it with national infrastructure such as the NHS App. In this way, benefits realisation acted as the bridge between a local

pilot and system-wide transformation, turning a successful experiment into a sustainable service improvement.

Together, these examples illustrate how benefits realisation operates at multiple levels:

- ▶ Operationally, as seen with Altera, it enables optimisation within existing systems and pathways, ensuring that EPRs evolve alongside clinical needs.
- ▶ Tactically, as demonstrated by Dedalus, it serves as a mechanism for proving impact, unlocking investment, and scaling innovation.

Both show that benefits realisation is far more than a post-implementation audit. It's an ongoing discipline that sustains digital value. Whether applied to refine existing workflows or to evidence success for future expansion, it creates a culture of learning and accountability in which each improvement strengthens the foundation for the next.



4. Conclusion: the path forward

Once again, the nine drivers outlined in this whitepaper are not a checklist to be completed, nor a guarantee of immediate return. They are a framework of aspirations: areas where NHS Trusts can systematically pursue value from their digital estates, with their EPR at the centre. In practice, the degree to which each can be achieved is shaped by the realities of the service: constrained finance, stretched workforces, historical waiting lists, and the complex patchwork of digital maturity across the system. These pressures are not temporary – they are the conditions in which every digital programme must operate.

Yet it is precisely within this challenging environment that the drivers become most important. They provide tangible methods for Trusts to unlock value, even where resources are scarce. That value is not always financial, nor always obvious. It can be found in less visible areas such as improved sustainability, increased patient and staff empowerment, or the ability to plan for the future with confidence. These “hidden” sources of value are easily overlooked, but as experiences from across the EPR Network have shown, they often compound over time, reinforcing financial and operational benefits.

The drivers also do not operate in isolation. They overlap and reinforce one another, often in ways that multiply their impact. Good planning, for example, underpins almost all of them

– enabling phased rollouts, supporting benefits realisation, and creating space for adaptability.

Legacy optimisation, as demonstrated by EPR Network members, not only reduced costs, and cyber risk but also advanced sustainability by eliminating inefficient servers.

Interoperability, achieved through carefully integrated modules, enabled staff empowerment, and delivered measurable sustainability benefits by cutting unnecessary travel. These connections matter: when Trusts view drivers in combination rather than individually, the potential for value increases exponentially.

The experiences shared also show that some initiatives deliver value across multiple dimensions simultaneously. One programme saved clinicians’ time, reduced carbon emissions, cut costs and improved staff satisfaction – a single intervention delivering four kinds of benefit.

Another demonstrated how discussed planning supported both safe adoption and the longer-term goal of population health analytics, showing how structured approaches create foundations for future capabilities.

The common thread is adaptability. Planning was highlighted at the outset of this whitepaper as the most critical driver and it remains the foundation. But plans cannot be static. The Trusts that succeed are those that approach planning as a living process, adjusting to new financial pressures, policy shifts, and emerging technologies. Adaptability allows organisations to capture value not only at go-live, but continuously – whether by integrating new modules, retiring legacy systems, or leveraging advances in AI and analytics.

Making every pound count is therefore not about seeking a single source of return, but about recognising that value is diverse, distributed, and dynamic. By pursuing the drivers of value outlined in this framework and by adapting those strategies to their own constraints and contexts, NHS organisations can ensure that digital investments serve not just as records of care, but as engines of efficiency, empowerment, and long-

term sustainability.

Finally, the potential role that we, the EPR Network, can play should not be overstated. By bringing together suppliers, integrators and NHS organisations, the Network provides a medium for sharing experiences, navigating complexity, and building collective solutions. In doing so, it helps vendors and trusts alike to unlock hidden value from digital systems – ultimately improving the way care is delivered by ensuring that every pound invested in EPRs and surrounding technologies delivers the maximum possible benefit.



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6. Introducing the EPR Network

The EPR Network is a neutral, vendor-agnostic forum created by Healthcare Innovation Consortium (HIC). Bringing together an active and growing community of Trusts, suppliers, clinicians and policymakers, the Network aims to share learning, align on national goals, and tackle shared barriers to digital maturity within UK healthcare organisations.

Our [previous whitepaper](#) covered the topic of creating the digital foundations for an AI-enabled NHS.

Find out more about the EPR Network here 

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About Healthcare Innovation Consortium (HIC)

HIC is a leading independent digital health consultancy that helps organisations design, implement, and scale healthtech solutions that improve patient outcomes and system efficiency. With a mission to put people at the heart of digital transformation, HIC works across the public and private sector to drive meaningful innovation.

To learn more about HIC's EPR consultancy services, visit:
www.hicdigital.co.uk/nhs-epr-transformation/



About Capgemini

Capgemini is a global consulting and digital transformation leader, serving as the Strategic Technology Partner and Founding Sponsor of HIC's EPR Network. Together, they will provide strategic expertise and help drive EPR adoption, interoperability, and digital maturity across NHS Trusts through collaboration and Specialist Interest Groups.



About the Electronic Patient Record Network

This whitepaper is brought to you by the Electronic Patient Record (EPR) Network, an industry-funded community founded by Hadleigh Stollar, Chief Executive at Healthcare Innovation Consortium (HIC). Recognising the need for a unified platform, Hadleigh launched the EPR Network to bring together EPR vendors, suppliers, and health innovators

— building stronger partnerships with each other and with the NHS to accelerate progress in digital healthcare. The network's mission is to shape and influence policy around EPRs, while fostering meaningful collaboration that improves patient care through better use and integration of digital systems across the health ecosystem.

If you're interested in learning more or joining the network, visit:
www.hicdigital.co.uk/epr-network/