

Partnering to drive efficiencies in Cardiology

How Leeds Teaching Hospitals NHS Trust partnered with Philips to optimise the operational performance of its interventional cardiology (Cath Lab) services, through a joint service improvement project.

Executive summary:

As part of an existing Managed Service strategic partnership, Leeds Teaching Hospitals NHS Trust and Philips launched a joint service improvement project to address the challenges of increasing demand and patient waiting times, within known resource constraints. The project focused on engaging Trust clinical teams to identify and implement improvements to patient flow and staff experience, while realising the benefit of investments in new Cath Lab image guided therapy equipment (Philips Azurion) and operational and scheduling informatics (CareCube – a third-party solution).

The project delivered the following improvements¹:

- First case on-time starts increased by 40%
- Reduced turnaround times and improved lab utilisation by 40%
- Case volumes/throughput increases of 20%, supporting reduced patient waits

Clinical leadership combined with staff engagement and commitment were key to project success, allied with the use of structured improvement tools (aligned to the Leeds Improvement Method) and effective deployment of new technology - providing a foundation for sustained benefit and continuous improvement.

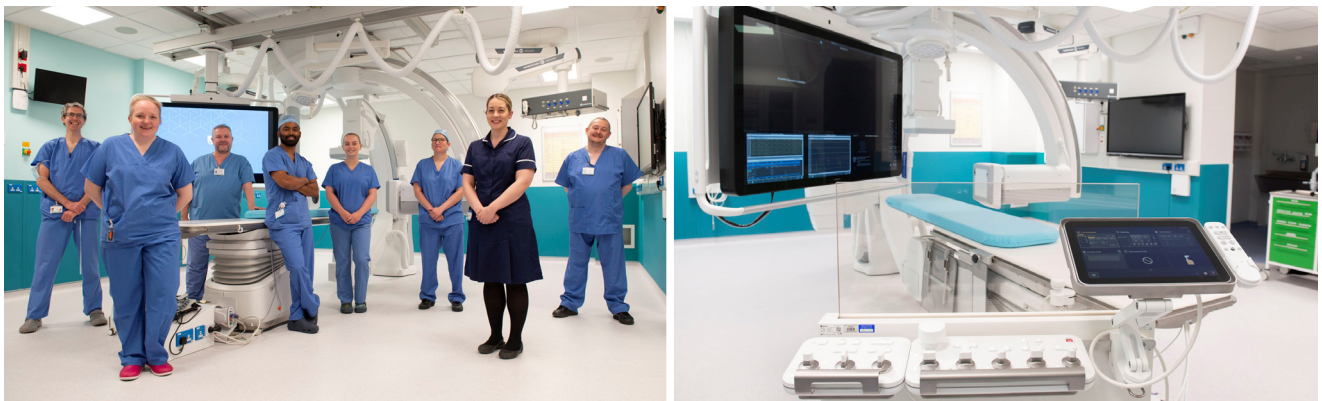
About Leeds Teaching Hospitals NHS Trust

Leeds Teaching Hospital NHS Trust (LTHT) is one of the largest and busiest acute hospital trusts in the UK, employing more than 21,000 staff who care for nearly two million patients a year. Its Cardiorespiratory Clinical Services Unit (CSU) is based at Leeds General Infirmary and is responsible for providing Cardiac Services across Leeds Teaching Hospitals' seven sites. The team provides care for around 25,000 patients each year, delivering specialist cardiology services to the population of Leeds and surrounding areas (around 5.4 million people). It is one of the largest UK centres for interventional cardiology with the largest Transcatheter Aortic Valve Implantation (TAVI) and Primary Percutaneous Coronary Intervention (Primary PCI) services in the country.

Our Managed Service Partnership:

In 2019, Philips and LTHT signed a seven-year Managed Service partnership, extended to 10 years in 2023. The partnership set out to create a Cardiology service fit for future demands by upgrading outdated facilities to the latest, cutting-edge image guided therapy equipment. It includes six fully featured interventional cardiac suites based on the Philips Azurion platform, providing an intuitive, seamless approach for minimally invasive procedures – supporting Leeds' clinicians with patient care.

The service also extended to an upgrade of all ultrasound equipment across cardiology (34 machines), to optimise cardiac ultrasound uptime, minimise disruption and help the department avoid costly outsourcing for ultrasound services. Additional support with business case development and financial modelling are included within the partnership.



The technology, equipment and services offered by the Managed Service partnership, combined with a joint LTHT / Philips Service Improvement project, were to drive clinical and operational efficiencies required to address identified service challenges.

Challenges for interventional cardiology at LTHT:

The Trust wanted to build on its existing high performing cardiology services (according to cardiology national benchmarks), by continuing to improve workflow efficiencies, quality and patient experience, while addressing the major challenges facing the service:

- **Increasing demand for cardiology services** - demand for services growing in line with national levels, across elective, acute and emergency - especially a high Primary Percutaneous Coronary Intervention (PPCI) rate – pathways.
- **Engaging busy staff** - rising demand coinciding with workforce shortages and constraints, exacerbating the challenge of engaging busy staff in improvement activity.
- **Intensifying cost pressure** - demand for services and financial constraints leading to growing cost pressures and the need to demonstrate optimised service efficiency and effectiveness.
- **Maximising the benefits of technology** – demonstrating improved productivity by maximising benefits from new technology investments in image guided therapy platforms and operational informatics.

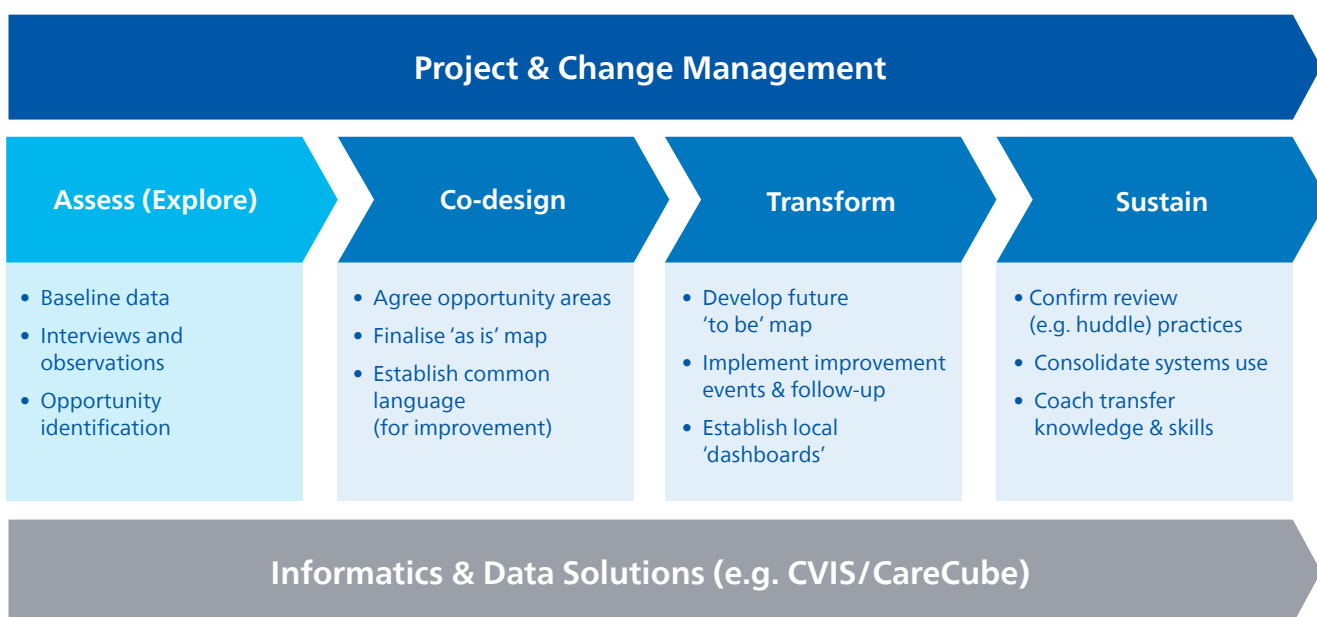
The joint service improvement project was launched as an integral part of the Managed Service partnership to assist in addressing these challenges.

Service improvement project and Cath Lab workstream:

The service improvement project, delayed by the Covid-19 pandemic, commenced in November 2022 comprising two workstreams – the Cath Labs and Cardiac Ultrasound – details of the former are described here. The Cath Lab workstream centred on optimising service performance by using data to identify improvement opportunities and combining the three essential ‘levers’ of improvement – people, processes and technology – to realise and sustain benefit.

Project approach for improvement

The project approach relied on effective governance, emphasised staff engagement throughout and interfaced with the implementation of new lab technology and operational informatics (CareCube – the third party solution) for scheduling and performance reporting. Delivery progressed through four phases (as below) with clear Trust clinical and executive leadership, a Philips assigned service improvement facilitator and an LHT-led steering team for overall coordination.



Identifying improvement priorities

The project Assess phase involved collecting and analysing data from relevant systems (Cardiovascular Information System – CVIS – and the Patient Administration System – PAS) to establish an existing performance ‘baseline’ (against agreed metrics) while also gaining further evidence from interviews and observations to indicate potential improvement opportunities. Staff engagement events conducted as part of the Co-design phase allowed data and findings from the previous phase to be shared for staff to identify and agree two priorities for improving patient flow:

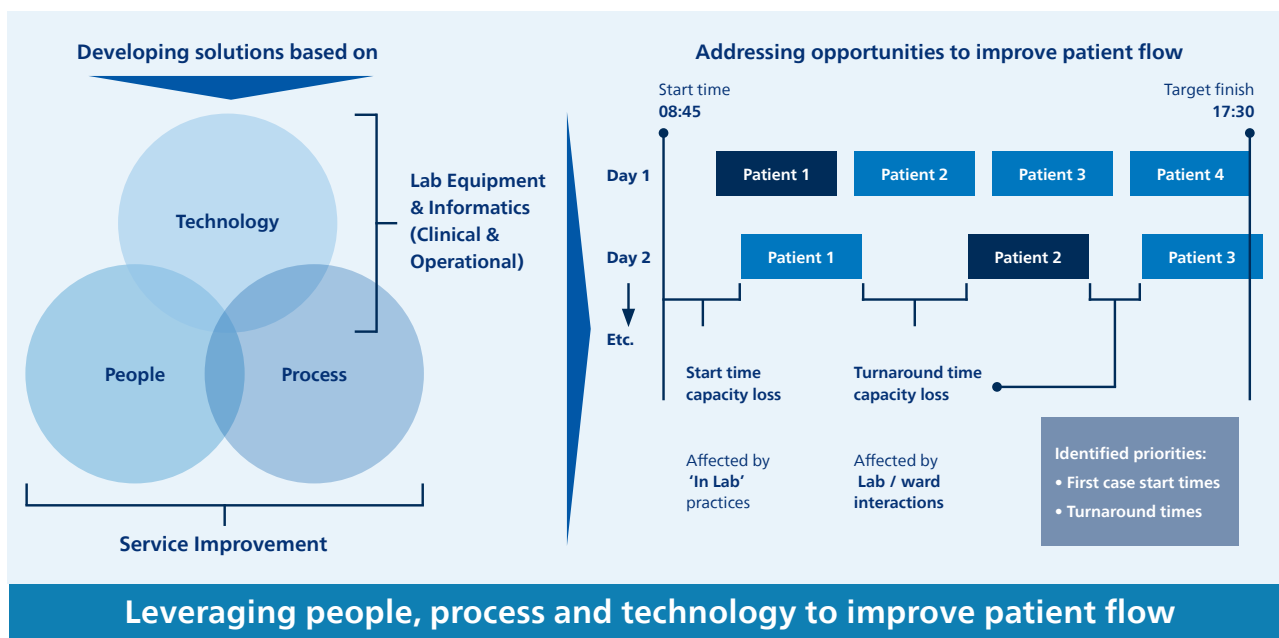
1. First case start times
2. Lab/ward interactions and patient ‘turnaround’ times

“Staff engagement going into the project was a real focus and we worked hard together to realise this. As a result, the benefits were impressive. Staff feel empowered, able to influence and make changes to the service as well as celebrate their successes. A further benefit has been an improved culture and motivation which has had a positive impact on recruitment and retention.”

Gina McGawley, General Manager, Cardio-Respiratory Clinical Service Unit, Leeds Teaching Hospitals

Developing solutions and action plans

During the Transform phase these priorities became the focus for improvement sessions involving the multi-disciplinary Cath Lab teams. The sessions, facilitated by Philips and the Trust's Kaizen Promotion Office (KPO), explored and developed solutions – based on the three levers of people, process and technology – with agreed action plans for their implementation. The focus was on recovering lost capacity owing to start time delays and patient turnaround times.



Leveraging people, process and technology to improve patient flow

First case on-time starts

A solution developed to improve first case on-time starts included a practice of 'locking-in' the first patient scheduled as the agreed 'default' (clinical circumstances allowing), via a daily meeting of key staff held around a patient scheduling system (CareCube) screen.

Lab/ward interactions

Improvements developed and implemented included:

- Simplifying patient admission processes on the day-case ward (Take Heart Suite)
- Improving access to ancillary equipment affecting flow – patient trolley and glucose monitoring
- Finalising the TAVI (Transcatheter aortic valve implantation) schedule on the previous day

Lab technology and informatics for scheduling and reporting

The improvement project was implemented as the Managed Service partnership progressed the refresh of the Cath Lab suite, based on the Philips Azurion platform. It also coincided with implementation of the CareCube operational informatics system, designed to enhance patient flow by providing:

- Real-time scheduling
- Data capture to inform improvement (e.g. the causes of procedure start delays)
- Performance analytics to demonstrate benefits and provide a service dashboard

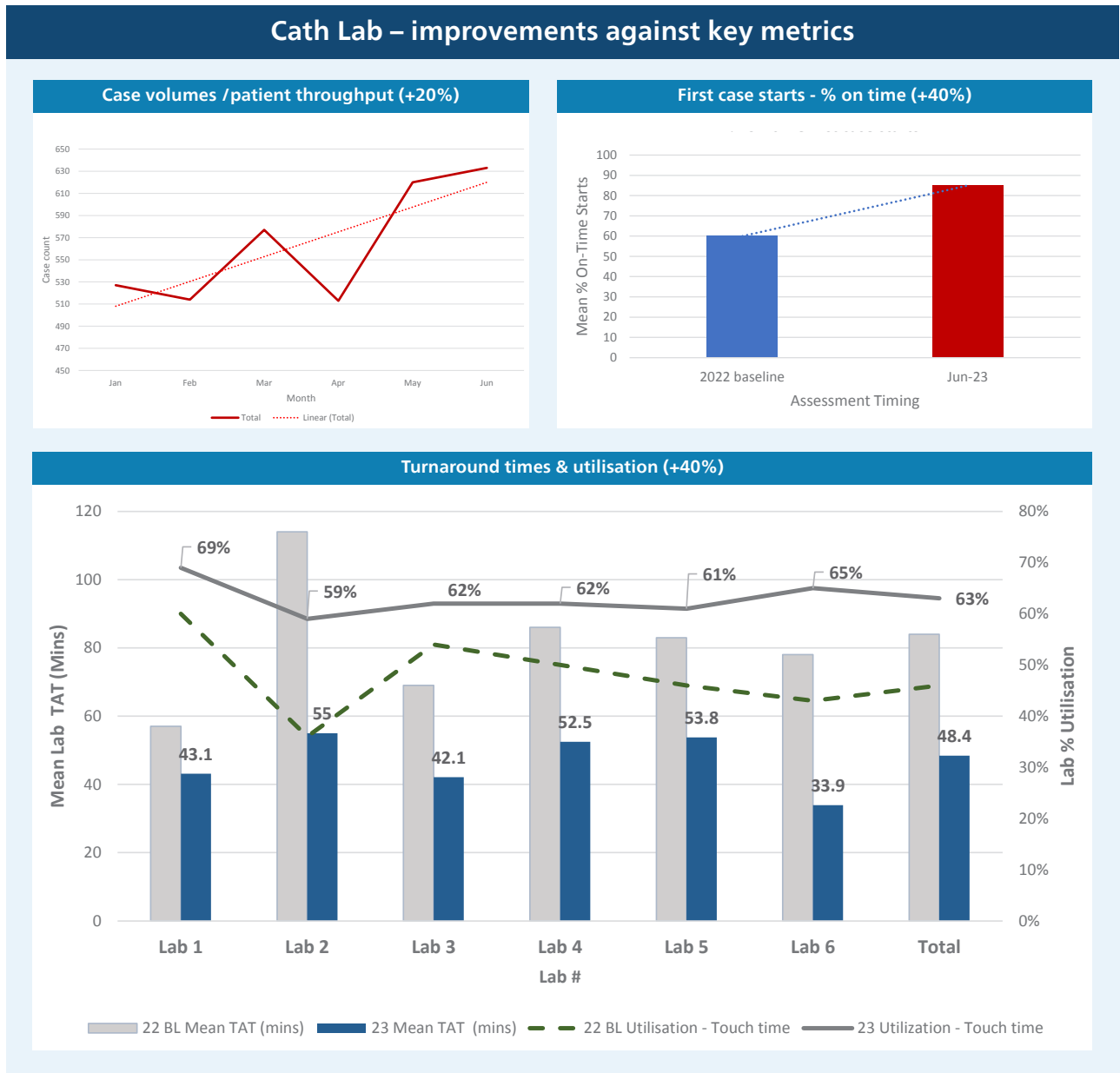
"Sharing the improvements with staff and celebrating the successes has motivated the team to deliver continuous improvements. The visibility of the improvements demonstrates the direct impact on our ability to care for our patients in a timely way, driving down waiting times and improving productivity. We are looking forward to using data to continuously monitor our performance and identify further areas for improvements which will also help sustain and further develop our services."

Gina McGawley, General Manager, Cardio-Respiratory Clinical Service Unit, Leeds Teaching Hospitals

Realising and sustaining benefits

After implementing the developed solutions, it was important to demonstrate benefits realised by assessing recovery of lost capacity and the impact on improved patient flow and reduced waiting times. This was achieved in the Sustain phase of the project, by comparing post implementation performance levels with the earlier determined baseline data. Assessing improvements in this way also assisted in establishing a Cath Lab service 'dashboard' of key metrics for ongoing review and for ensuring the new performance levels were sustained²:

- First case start times, measured as the percentage starting on-time, improved from 60% on-time starts during 2022 to 85% by June 2023
- Reducing turnaround times and increasing lab utilisation by 40% above the 2022 baseline figures
- Average monthly case volumes increased by over 20% from the beginning of 2023 (noting other factors also contributed to the increase, including additional capacity)



The CareCube analytics module provides data and performance reporting capabilities for ongoing review and development of such metrics, supporting creation of a service dashboard.

2. Data on file, results shared by Leeds Teaching Hospitals

Engaging staff throughout the improvement project

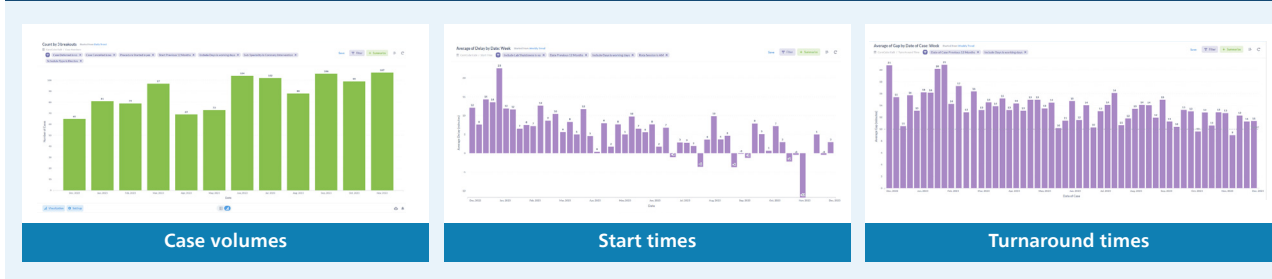
In line with the Leeds Improvement Method, the project recognised people as the essential lever for realising and sustaining service improvement and engaged staff at every stage. The commitment and engagement of the Cath Lab clinical leaders and staff involved, across disciplines, was key to project success and provided a foundation for sustained and continuous improvement.

The engagement and improvement sessions were designed to also provide staff with development opportunities regarding use of structured improvement methodologies - aligned with the Leeds Improvement Method. This included use of data for determining actionable insights for informing ongoing improvement to patient experience and workflow efficiency.



Operational informatics and analytics provided by CareCube allow clinical leads and managers to regularly review Cath Lab performance data and key metrics on a near real-time basis to enable timely decision making.

An initial service dashboard of key metrics using CareCube (EaSi module) data



Establishing a Cath Lab service dashboard using metrics provided by the CareCube EaSi module (as illustrated) was considered key to sustaining the improvements realised and further enhancing staff engagement by providing visible and timely feedback on performance.

“Working with Philips has been hugely productive. The team kept the momentum going from a project management perspective, had a good understanding of clinical demands and collaborated with the in-house Kaizen Promotion Office to drive efficiency. The project has benefited the department by locking in first cases to ensure more on-time starts, enabling us to treat more patients through the labs and have fewer late finishes. It also enabled us to secure performance margins that, when sustained, make big differences. Most of all, it brought the whole team together with a shared vision making already good performance even better and driving real cultural change – which comes from sustained demonstration of benefits and leadership.”

Dr Andrew Hogarth, Clinical Lead – Cath Labs, Leeds Teaching Hospitals

Benefits summary for the partnership Service Improvement project³:



Improved workflow	Staff benefits	Improved service
<p>Near real-time visibility of departmental workflow:</p> <p>Implementing the CareCube scheduling solution to aid patient flow and make performance data visible for driving continuous improvement.</p>	<p>Clinical leads and staff experience data driven improvement:</p> <p>Combined engagement and development sessions for realising improvement and developing capabilities when time is constrained.</p>	<p>40% increase in on-time starts:</p> <p>Compared to the 2022 baseline, introducing new scheduling practices and disciplines.</p>
<p>Ability to highlight areas of criticality and improvement:</p> <p>Patient flow improvement opportunities identified through analysing cardiology workflow data (CVIS) and providing a performance baseline.</p>	<p>Greater visibility of lab performance:</p> <p>Staff able to establish their own service dashboards for local review with teams</p>	<p>Reduced turnaround times and improved lab utilisation by 40%:</p> <p>Recovering lost capacity by improving lab/ward interactions to reduce turnaround times.</p>

“Working with Philips on these improvement projects has felt more than a collaboration – it’s like we are part of the same team, driving quality patient care. We have seen a direct impact of the project on our ability to treat more patients, reduce our waiting lists and improve productivity. We have seen a big investment in the Cath Labs and we are proud to be maximising the assets we have with improved efficiencies.”

Gina McGawley, General Manager, Cardio-Respiratory Clinical Service Unit, Leeds Teaching Hospitals

3. Data on file, results shared by Leeds Teaching Hospitals.

What are Managed Service Strategic Partnerships?

Managed Services are our comprehensive, vendor neutral solution designed to guide and support you in achieving optimised business outcomes. Working in close partnership as an extension of your team, we go beyond traditional Managed Equipment Services by treating technology as an enabler for transformation. Our flexible agreements are grounded in actionable data insights, to support you in making confident investment decisions.

Key benefits



Flexible, integrated, future-proof technology

Working in partnership to deliver flexible, right fit, artificial intelligence (AI) enabled technology and service management plans.



Optimised technology maintenance

Managing essential upgrades, streamlining and optimising maintenance and maximising asset utilisation and system availability.



Driving positive change

Leveraging our transformation expertise to deliver cutting-edge facilities through assessment of equipment and service needs, clinical service modelling, infrastructure planning, strategic design and change management programmes.



Defined total cost of ownership

Designed to optimise the total cost of ownership (TCO) by rationalising investments and streamlining over time, providing risk transfer and access to gainshare mechanisms.



Patient and staff experience

Improving patient and staff journeys through workflow optimisation, enabling access to immersive experiential and ergonomic technology, research and training programmes.



Financial Engineering

Our Managed Services are supported through a range of flexible, cost-effective, financing and financial planning models, tailored to meet specific budgetary requirements.



Performance Management

Providing access to real-time metrics through integrated information management systems and comprehensive LEAN training programmes, enabling continuous service improvement.



Working in true partnership

Providing customers with a single point of contact to engage stakeholders, align around shared goals and deliver on agreed KPIs. Our Managed Services go beyond equipment, partnering to solve clinical, patient and staff experiential, operational and financial challenges.

To find out more about Managed Services and Strategic Partnerships:
www.philips.co.uk/strategicpartnerships



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