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Your guide to digital transformation in the NHS

November 2023

Smart healthcare

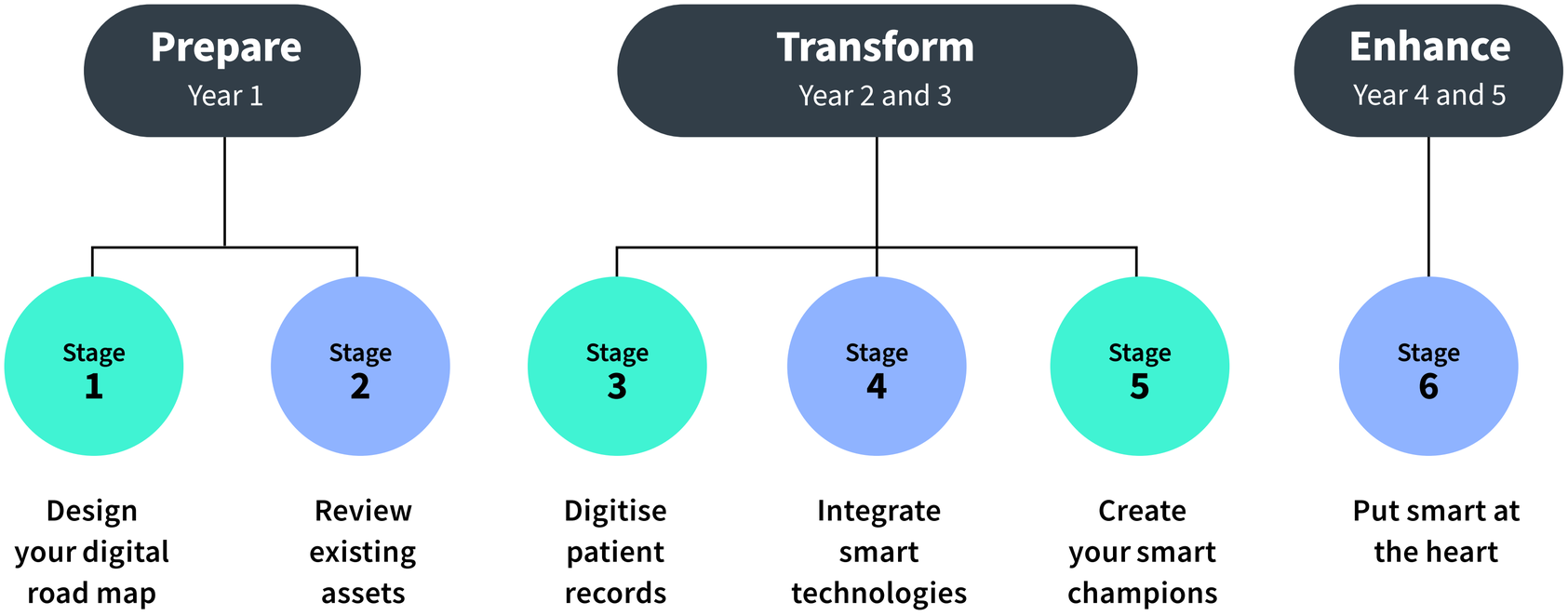
Smart healthcare, where technology is ubiquitous across clinical pathways, is the future of our NHS. That's why we've created a handy digital transformation guide with everything you need to maximise its power to the benefit of patients and NHS staff.

How we can help

This guide will help create informed collaboration between procurement and ICT functions in NHS trusts. It outlines how to achieve value for money through your procurements and deliver against clear integrated care system requirements, all whilst keeping social value, sustainability and carbon net zero agendas front of mind.

3 key phases of digital transformation

Here is the breakdown of your digital transformation journey. These are the 3 key phases over a 5-year plan, with all the steps you'll take along the way.



previous

next

Prepare

Year 1 of digital transformation

Stage 1

Design your digital road map

Stage 1 is when you design your digital transformation road map. Here you'll develop your strategy, establish your approach and cost the journey towards the future smart health services that your patients and staff require.

Project 1

Develop a technology strategy

This guide will help create informed collaboration between procurement and ICT functions in NHS trusts.

Our relevant agreement:

Technology Services 3

Project 2

Develop your overall technology programme

Based on the technology strategy, this step fleshes out the detail and options for the delivery of various parts of the digital transformation programme.

Our relevant agreement:

Management Consultancy Framework 3

Project 3

Setup programme design and delivery structure

Once the digital transformation programme is mapped out, it's time to put the resources, processes and governance in place. Various dependencies and critical delivery steps are also mapped out to ensure everything is joined up. This will help with the management of risks, timescales, budgets, and overall governance.

Our relevant agreement:

Management Consultancy Framework 3

Prepare

Year 1 of digital transformation

Stage 1

Project 4

Outline and full business case approval

Now you create any business cases that need to be developed and approved. This can vary by organisation, but it's usually part of the process to get sign-off and funding to proceed.

Our relevant agreement:

Management Consultancy Framework 3

Project 5

Allocate budgets

Once business cases are approved, budgets should be allocated at the appropriate times.

Prepare

Year 1 of digital transformation

Stage 2

Review existing assets

Stage 2 is when you review all your existing assets to get as much value as possible from what you already have. Assess what assets can be utilised and what needs upgrading or updating. At this stage, focus on scalability, robustness, patient data security and on future proofing your ICT estate, without losing sight of the total cost of ownership.

Project 1

Infrastructure refresh

Now it's time to refresh any core IT infrastructure, such as hardware storing application data or underpinning key systems. Depending on the technology strategy, this may be located within organisation premises or the cloud.

Our relevant agreements:

- Technology Products and Associated Services 2
- Crown Hosting II
- Cloud Compute 2

Project 2

Network refresh

The network is vital for data to be sent around the organisation via either wired cables, wifi or through mobile data such as 4G. This refresh also ensures external connection through the NHS Health and Social Care Network (HSCN).

Our relevant agreements:

- Network Services 3
- HSCN Access Services

Project 3

Unified communications

Rather than having separate communication types such as phone, email, and instant messaging, unified communications integrate them together, so they complement each other and encourage collaboration.

Our relevant agreements:

- Network Services 3

Prepare

Year 1 of digital transformation

Stage 2

Project 4

Device roll out and management

Staff access IT systems using a variety of devices. These need to be centrally deployed and managed to ensure there's a consistent user experience and to reduce security risk. Devices also need to be disposed of or recycled responsibly when they come to the end of their user life.

Our relevant agreements:

- Technology Products and Associated Services 2
- Technology Services 3

Project 5

Business applications, databases, and integration

Staff will use a number of applications on a day-to-day basis as part of their role (for example writing documents, managing data) alongside those needed for their specific role (for example HR, finance, payroll and so on). This step includes both the way applications are deployed to staff and managed for updates.

Our relevant agreements:

- Back Office Software
- Software Design and Implementation Services

Project 6

Cyber security across technology stack

With the constant threat of cyber attacks against an organisation's IT, it's vital to ensure IT systems and data are protected. Cyber security facilitates this and should be considered across every aspect of the IT estate.

Our relevant agreements:

- Cyber Security Services 3
- Technology Services 3

Transform

Year 2 and 3 of digital transformation

Stage 3

Digital patient records

Stage 3 is the time to introduce new digital patient records. Once implemented these can be integrated into software and clinical systems including electronic patient records (EPR), facilitating the delivery and receiving of patient data digitally at the point of care. This is when you'll deploy smart technologies to enable patient participation and empowerment throughout their clinical pathways.

Project 1

Digital patient records programme kick off

This is the initial stage of the digital patient records delivery programme. It will begin with the process of scoping out the specification and various aspects, such as the required resources, budgets, and timescales.

Our relevant agreements:

- Vertical Application Solutions
- G-Cloud 13
- Digital Capability for Health

Project 2

Digital patient records go live

With the digital patient record programme designed, this stage facilitates its delivery, testing and go-live using relevant technology hardware, software and resources.

Our relevant agreements:

- Software Design and Implementation Services

Project 3

Scanning and digitisation of paper records

If one of the aims of the digital patient record implementation is the scanning of historic patient paper records into the system, further implementation of processes and resources will be required to facilitate this.

Our relevant agreements:

- Vertical Application Solutions
- Records Information Management, Digital Solutions and Associated Services

Transform

Year 2 and 3 of digital transformation

Stage 3

Project 4

Record validation and workflow management

A key part of the scanning process is to confirm that the digital records match the original paper version. Alongside this, the use of digital records will mean that new workflows can be implemented to ensure they're available securely to the right person at the right time.

Our relevant agreements:

- Vertical Application Solutions
- Records Information Management, Digital Solutions and Associated Services

Project 5

Redesign pathways to include digital initiatives

By using the advantages of instantly available digital records, workflows can be reviewed and updated to improve clinical pathways and outcomes.

Our relevant agreements:

- Vertical Application Solutions
- Records Information Management, Digital Solutions and Associated Services

Transform

Year 2 and 3 of digital transformation

Stage 4

Integrate smart technologies

Stage 4 is about integrating new smart technologies to deliver clinical pathways with better outcomes for patients. You'll work to deliver a smart digital working environment that gives healthcare professionals confidence in their day-to-day jobs and more time to care.

Project 1

What clinical systems require integration?

Now you can review what clinical systems need integrating such as your picture archiving and communication system (PACS), radiology information system (RIS), pathology, pharmacy and bedside monitoring. Understand what systems should be interconnected, what data needs to be shared, how often, and how it's used.

Our relevant agreements:

Technology Services 3

Project 2

Implement unified messaging standards

It's time for the implementation of unified messaging standards, such as Health Level Seven (HL7). Ensure that the standards used for the sharing of data are consistent between systems to reduce complexity or potential errors.

Our relevant agreements:

Technology Services 3

Project 3

Managing overall clinical system integration

Either use a core system (such as EPR) to handle the integration between systems or, if individual systems can't talk to each other directly, then implement a separate interface that manages the flow of data.

Our relevant agreements:

Digital Capability for Health

Technology Services 3

Transform

Year 2 and 3 of digital transformation

Stage 4

Project 4

Data warehousing and analytics

Implement a central data store that keeps a copy of key data that can then be used for reporting and analysis.

Our relevant agreements:

- Digital Capability for Health
- Technology Services 3

Project 5

Integration across all integrated care system (ICS) stakeholders

Instead of only integrating systems within an organisation, this extends it outside to other organisations (such as primary, acute, mental health and social services) that may find the data useful in supporting patients. This has to be done in a secure manner.

Our relevant agreements:

- Digital Capability for Health
- Technology Services 3

Project 6

Improve bed management and workflow

At this stage, you can use all the integrated data across multiple systems to implement improvements in bed management and workflow. This could ultimately result in an “air traffic control” style implementation of bed management across the whole organisation.

Our relevant agreements:

- Vertical Application Solutions

Project 7

Further clinical pathway enhancements

At this stage, you can now use all the data that’s been gathered and integrated to greatly improve the speed that clinical decisions can be made, resulting in improved patient treatment and care.

Transform

Year 2 and 3 of digital transformation

Stage 5

Create your smart champions

Stage 5 is about encouraging staff to become champions of your digital transformation journey. Involving staff at the implementation stage of a smart technology training programme gives them more ownership over the whole process. At this stage, it's important to pay close attention to analytics and data-led decision making.

Project 1

Create a bespoke training programme

Provide staff with a variety of learning and training outcomes to support the digital transformation. This would be role specific and help to empower users as well as removing any fear of change and misconceptions.

Our relevant agreements:

- Learning and Training Services

Project 2

Use data insights to solve problems

Real time data and intuitive dashboards are routinely used to solve problems and improve care. Using dashboards created from multiple, integrated data sources can help spot and solve problems, which ultimately improves patient care.

Our relevant agreements:

- Technology Services 3
- Digital Outcomes 6
- Digital Capability for Health

Project 3

Use data to inform future decision-making

Using the improved quantity and quality of data will help provide more accurate clinical coding. This would enhance the analysis of both current and future activity.

Project 4

Create handy apps for patients

Creating a user-friendly patient app is a great way to help improve the patient experience and provide easy access to clinical services.

Our relevant agreements:

- Digital Outcomes 6
- Digital Capability for Health

Enhance

Year 4 and 5 of digital transformation

Stage 6

Put smart at the heart

Stage 6 is all about putting the digital patient at the heart of everything you do. To encourage widespread change, utilise the enthusiasm of patients who are already using smart technologies to manage their health care. You can also prescribe digital solutions to the most vulnerable and disadvantaged. It's important to ensure that all digital healthcare services are inclusive. Think about how you can help patients gain basic digital skills so that they can access digital health services independently, and support those who can't. At this stage, you should focus on early intervention and prevention initiatives in partnership with other healthcare providers that make up your integrated care system (ICS).

Project 1

Advanced monitoring, alerting and virtual wards

At this stage, you can implement the use of dashboards and notifications to provide advanced monitoring and alerting that support clinical decisions and teams in both an acute hospital or virtual ward setting.

Our relevant agreements:

- Digital Outcomes 6
- Digital Capability for Health
- Spark Virtual Wards and Remote Patient Monitoring

Project 2

Improved process automation

It's now time to improve process automation. Review common, repeatable processes and see where they can be automated. This would speed up the processes, reduce the risk of error, and free up staff for other work.

Our relevant agreements:

- Automation Marketplace

Project 3

Improve diagnostic speed using AI

It's time to consider artificial intelligence (AI). This is an invaluable tool. It can analyse vast quantities of data to look for patterns or make recommendations faster than a human ever could. It is especially useful for automated image interpretation or predictive analytics.

Our relevant agreements:

- Artificial Intelligence

Enhance

Year 4 and 5 of digital transformation

Stage 6

Project 4

Integration of non-clinical data

Begin the integration of non-clinical data. Taking data from a wide variety of sources, including non-clinical data (such as socioeconomic) can help inform clinical decision-making.

Our relevant agreements:

- Technology Services 3

Project 5

Point of care data available across all health sectors

A simple way of improving patient care is to make all the data relevant to a patient available to anyone that's involved in their care, such as community nurses and paramedics.

Our relevant agreements:

- Digital Outcomes 6
- Digital Capability for Health
- Technology Services 3
- Crown Hosting II
- Cloud Compute 2

Project 6

Utilising smart technology for patients

Using both consumer electronics (smartphone apps, fitness devices) and bespoke devices, smart technology can provide telemedicine, remote monitoring and data collection of a patient's health. This increases the available health data per patient, and reduces the need for in-person appointments.

Our relevant agreements:

- Digital Outcomes 6
- Digital Capability for Health
- Technology Products and Associated Services 2

The benefits of digital transformation

Once you've followed our 3 phases of digital transformation and your new smart healthcare offering is in place, there is a wealth of benefits to be experienced. These are the 3 key areas that will benefit from your digital transformation.

Patients

Clinical

Financial

The benefits of digital transformation for patients

- chatbots utilising speech recognition coupled with mobile phone apps offer handy new ways for patients to access services and change or cancel appointments, greatly reducing no shows
- an integrated clinical pathway provides a seamless experience for patients
- virtual consultations reduce the need for hospital visits and offer greater flexibility for patients
- remote monitoring of long-term conditions allows patients to be at home, cared for in a community or in a care setting of their choosing
- 2 way digital communication of items such as results and discharge letters allows patients to upload their own results and give consent via the patient portal
- patients will be able to access their own health data
- AI tools can help identify a patient's health and mental health needs and alert third parties at points of crisis
- natural language processing tools can enhance data capture and improve patient experience
- digital check-in kiosks at clinics offer better convenience for patients

The clinical benefits of digital transformation

- improved patient safety through enhanced integration of clinical pathways and access to the patient electronic patient record at the point of care
- technology becomes embedded through clinical pathways, improving quality of care and clinical outcomes
- enable an integrated care system between healthcare providers and seamless sharing of standardised patient data (for example through the EPR)
- applied data analytics will optimise patient flow, reducing length of stay and bed blocking
- predictive modelling tools to support clinical decision-making
- clinically trained AI analysis of clinical data and images (such as breast screening) provides predictive analytics to support improvements to patient safety whilst reducing the pressure on limited clinical resources
- healthcare professionals can perform routine tasks easily, freeing more time to care for patients
- clinicians and care professionals are more comfortable with their caseload as the digital working environment provides a more seamless caring environment
- more availability of hospital care outside the traditional hospital environment, for example in a patient's home or community setting
- integrated infrastructure, software and cyber security communication platforms can deliver safe, secure virtual consultations and virtual wards 24/7

The financial benefits of digital transformation

- improved health services in the community (early intervention and prevention) reduces the need for care in an acute setting and the associated costs
- improved quality of care and the reduction in clinical pathway steps reduces resources consumed, length of stay and the risk of harm to patients
- improved patient safety reduces the risk of litigation
- real-time equipment tracking and advanced stock control systems will monitor stock usage and drive down waste

But don’t just take our word for it...

CCS is here to help make your digital transformation as seamless as possible, helping you navigate the transition towards smarter healthcare. We’ve already helped countless health organisations begin their digital journey. Here’s 4 examples that explore how we’ve supported digital transformation in healthcare.

1

Helping Walsall Healthcare NHS Trust communicate the smart way

Discover how we helped Walsall Healthcare NHS Trust overcome the technology communication challenges that arose due to COVID-19, when staff were required to work from home.

Walsall Healthcare NHS Trust overcome COVID-19 communication challenge

Read the case study

2

How we helped the NHS save 74%

This case study covers how NHS Digital and CCS collaborated to create an agreement to help NHS organisations transition to a new network. Find out more about the significant cost savings and wealth of additional benefits.

NHS saves and average of 74% using our new health network

Read the case study

3

How Crown Hosting can create substantial savings

Did you know that Crown Hosting could help you cut carbon dioxide equivalent emissions (CO_2e) by 99.9%? This blog explores how Crown Hosting can help the NHS save money and the environment.

Chronic environment impact, a simple preventative cure for the NHS

Read the blog

4

New IT partner helps Care Quality Commision raise user satisfaction to almost 95%

Find out how our Technology Services 2 agreement helped the Care Quality Commision (CQC) appoint a new IT partner, improving user satisfaction to almost 95%.

New IT partner helps Care Quality Commision raise user satisfaction to almost 95%

Read the case study

Our agreements

Our agreements

Artificial Intelligence

Created in collaboration with the Office of Artificial Intelligence, this Dynamic Purchasing System (DPS) features a range of artificial intelligence (AI) technologies to help you operate more efficiently and effectively.

These include:

- AI applications
- augmented decision making
- data and analytics
- virtual assistants and chatbots
- medical AI technology
- associated professional services

Go to agreement

Our agreements

Automation Marketplace

This Dynamic Purchasing System (DPS) is for intelligent automation services and solutions, including automation technologies, services, consultancy and licences.

Through the DPS, we can help you confidently and responsibly buy automation services that benefit patients, to enable you to plan, design and implement automation into your systems and processes.

Automation has the potential to transform public services by reducing operational running costs by up to a third. This can result in better service delivery, improved data, cost reduction, counter-fraud and increased efficiency.

Go to agreement

Our agreements

Back Office Software

This framework offers software as a service (SaaS) solutions for back office applications, for deploying either in the cloud, on-premise or hybrid. Support and maintenance, as well as contract renewals for existing software are also available.

Choose this framework for enterprise resource planning (ERP) systems, including direct access to leading suppliers such as SAP, Oracle and Workday. ERP is the ability to provide an integrated suite of business applications.

Other back office functions available include:

- human capital management (HCM) – a set of practices related to people resource management
- finance
- customer relationship management
- procurement and sourcing portals
- workflow technologies
- content management
- integration software

Go to agreement

Our agreements

Cloud Compute

Cloud Compute mainly offers services that are either Platform-as-a-Service (PaaS) or Infrastructure-as-a-service (IaaS), and is designed to work alongside G-Cloud 12.

PaaS provides platform tools needed to create applications that will provide a service over the internet (as well as other things). IaaS provides compute, storage, networking and other hardware capabilities. This means you are able to change the size of the services you need to suit any changes in demand at short notice.

This agreement is due to expire in May 2024. This will be replaced by ***Cloud Compute 2*** *includes an expanded scope, containing more choice for customers.*

Go to agreement

Our agreements

Crown Hosting II

Access secure, reliable and efficient specialist rooms (data halls) and buildings (data centres) which you can use to operate your server, network and security infrastructure (ICT) from. This data centre co-location is available to all UK public sector organisations.

The server, network and security ICT which runs your IT services needs to work on demand and continuously.

We brought all the needs of the public sector together to provide you with exceptionally low cost and environmentally efficient buildings.

You can use this agreement to buy:

- space in data halls which you will share with other public sector organisations
- private data halls and data centres that only you will use
- physical equipment such as racks which you can use to mount and power your ICT inside the data halls
- electricity to power your ICT
- optical network connectivity to other locations
- network cabling within your data hall and to elsewhere on-site
- help to set-up and on an ongoing basis operate your ICT
- help to move your ICT from where it is now to Crown Hosting

Go to agreement

Our agreements

Cyber Security Services 3

Developed in partnership with the National Cyber Security Centre (NCSC), this Dynamic Purchasing System (DPS) offers end-to-end support to procure accredited cyber security services to ensure the safe use of technology in healthcare. Our agreement is the only compliant way to access NCSC-assured service providers. This means that the supplier has met the NCSC's standards and has a clear understanding of current and potential cyber threats and techniques, as well as potential effective mitigations. You can also access suppliers who are not NCSC-assured, but hold alternative cyber security credentials.

Services available include cyber consultancy and advice, penetration testing, incident management, and data destruction and IT sanitation services. Assets the DPS can help secure include patient records, health facilities, operating equipment, staff records and controlled substances.

Go to agreement

Our agreements

Digital Outcomes 6

Using teams or individuals to build and support the digital transformation of public services. This framework can be used to find suppliers who can design, build and provide bespoke digital services using an agile approach. You can also use it to find physical space to conduct user research and users with the appropriate characteristics to test your service.

You must publish your requirements (Invitation to Tender) on Contract Award Service (CAS). This is a new service from CCS and can be accessed through your Public Procurement Gateway (PPG) account. All suppliers awarded a place on the agreement, and registered on the platform, will be able to view and respond to your requirements.

Go to agreement

Our agreements

Digital Capability for Health

Created in partnership with NHS Digital, this framework was designed to support public health and other care organisations with providing digital outcomes and services.

It allows you to access:

- an agile approach to development services for new digital solutions
- support with existing products and services
- data management services (for the collection, processing and distribution of health data)

Go to agreement

Our agreements

G Cloud 13

This framework allows you to purchase cloud- based computing services such as hosting, software and cloud support, including many off-the-shelf, pay-as-you-go cloud solutions.

G-Cloud is used by customers in the health sector for a wide range of cloud-based services, including in areas such as:

- clinical decision support
- electronic medical record
- healthcare analytics
- healthcare management
- scheduling and booking
- patient case management
- care pathway management

It can be accessed through the **Digital Marketplace** by following an easy 6-step buying process.

Go to agreement

Our agreements

Health and Social Care Network Access Services

Our Dynamic Purchasing System (DPS) gives you access to the Health and Social Care Network (HSCN). The HSCN is a data network that enables health and social care services to access and share information reliably, flexibly and efficiently. The agreement includes support for transition and implementation.

The DPS helps you find relevant suppliers through a filtering system. Suppliers are accredited and go through an approval process managed by NHS Digital.

Go to agreement

Our agreements

Learning and Training Services

This Dynamic Purchasing System (DPS) provides access to a variety of training providers offering a range of high quality training services. It features a number of filters allowing you to select the right learning and training solution for your needs, such as learning categories (including NHS clinical and non-clinical) and services.

Services cover:

- standard off-the-shelf
- bespoke
- managed services
- learning management systems
- adult education

Go to agreement

Our agreements

Management Consultancy Framework 3

This framework provides management consultancy services.

This includes advice on:

- business consultancy
- strategy and policy
- complex and transformation issues
- finance
- HR
- procurement and supply chain
- health, social care and community
- infrastructure
- environmental sustainability and socio-economic development

Go to agreement

Our agreements

Network Services 3

The aim of agreement is to design a route to market that provides for a wide range of customers including those who need:

- flexible “user-based’ communication solutions such as integrated voice, data and video connectivity through a single network connection, providing an encrypted VPN connection to the gateway provider
- traditional network infrastructure solutions such as buying multiple network circuits based on resilience, security and specific business connectivity needs

Go to agreement

Our agreements

Records Information Management, Digital Solutions and Associated Services

This framework provides access to storage, scanning, shredding and disposal services. You can also find support with NHS clinic preparation and transition to digital solutions through digital workflow and cloud.

Go to agreement

Our agreements

Software Design Implementation Services

This framework provides specialist support for implementing new cloud-based enterprise resource planning (ERP) systems. ERP is the ability to provide an integrated suite of business applications. It also covers services for implementing a range of enterprise software and upgrading legacy IT systems.

Areas in scope include:

- enterprise architecture
- business case support
- configuration and testing
- system integration
- implementation
- data cleansing and migration
- change management
- training
- on-boarding
- application management support

Go to agreement

Our agreements

Spark Virtual Wards and Remote Patient Monitoring

With the support of NHS England, our Spark Dynamic Purchasing System (DPS) has been enhanced to simplify the procurement of virtual wards and remote patient monitoring technology.

The Spark DPS is an innovation marketplace where suppliers can join and offer cutting edge technology solutions at any time, rather than having to wait until new agreements are available.

Spark is the approved route to market from NHS England and we have been working closely with them to make sure we have the right supplier, technology and services mix to meet the specific needs of the NHS.

Together, we have updated Spark to include 4 new areas:

- virtual wards
- long term condition (remote monitoring)
- continuous monitoring
- spot monitoring

This provides digitally enabled clinical care pathways for buyers such as commissioners within NHS England, social care organisations, clinical commissioning groups, primary care networks, NHS trusts and NHS special health authorities.

Go to agreement

Our agreements

Technology Products and Associated Services 2

This is the next iteration of the current **Technology Products and Associated Services agreement.** Our aim is to design a simple, flexible and efficient route to market which will provide all your needs for technology products and help you to develop end to end digital solutions.

This means you will be able to buy both the products and services you need from resellers and the original equipment manufacturers (OEM)s in a sustainable and cost effective manner.

This agreement will offer the same range of products and services from our current TePAS agreement.

Go to agreement

Our agreements

Technology Services 3

This framework offers a wide range of technology services to support NHS organisations with their technology strategy and design, as well as transition and operational deployment. It also includes service integration and management to support large-scale service disaggregation.

Go to agreement

Our agreements

Vertical Application Solutions

This agreement has been designed to enable Public sector customers to access software focused solutions that meet the specific needs of their industry, business application or services. Customers are able to procure software licences, associated hardware, app-related consultancy services, software support and maintenance under a single procurement.

Vertical Application Solutions supports further competition, including the innovative use of Expression of Interest to target, and Direct Award via the framework catalogue.

This agreement has a range of solutions for local government, healthcare, education, housing and bluelight organisations including:

- **patient services -**
  for example electronic client records
- **staff management -**
  for example e-rostering and temporary staff booking management
- **staff development -**
  for example virtual learning and training management systems

Go to agreement

Power to your
procurement

Start your digital transformation in the NHS with CCS.

Visit our digital transformation webpage