

Digital technologies resources map

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About the digital technologies resources map

Delivering value with digital technologies

The HFMA, supported by the NHS Digital Academy, is delivering a programme to increase awareness amongst NHS finance staff about digital healthcare technologies, and enable finance to take an active role in supporting the use of digital technologies to transform services and drive value and efficiency - *Delivering value with digital technologies*¹.

Digital technologies such as digital medicine, artificial intelligence and robotics have a huge potential to transform the delivery of healthcare. These technologies can empower patients to participate actively in their care, with a greater focus on wellbeing and prevention. They also support the prediction of individual disease risk and personalise the management of long-term conditions.

The use of digital technologies within healthcare is evolving, with the scope of available technology increasing significantly over the past few years and developments set to continue apace in the future. Advances in technologies have coincided with increased public awareness and a willingness from both professionals and patients to embrace new methods of healthcare.

Digital technologies can be an enabler for increasing productivity, addressing capacity constraints and improving patient experience and outcomes, playing a significant role in transforming services and driving value and efficiency across the NHS.

All material produced as part of this programme can be accessed via the [delivering value with digital technologies](#) landing page and is also signposted in relevant sections below.

The role of finance

Due to the innovative and emerging nature of digital technology, each implementation project is different and requires input from multiple stakeholders including clinical teams, patients and carers, informatics professionals, change management experts and finance staff. This may also involve working across traditional organisation boundaries.

Finance teams have a key role in all stages of the project lifecycle working collaboratively with other stakeholders. Understanding the problem and coming up with the best solution will be followed by an assessment of the resource impact of the new care model. Finance also has a role in ensuring that those delivering the project are held to account. Finally evaluating how successful the investment has been in meeting its objectives is an essential part of any project cycle.

Where the technology is new and/ or innovative finance teams may need to employ different skills and knowledge than those traditionally required within the NHS. Assessment of accounting and resource impact, including both capital and revenue considerations, may not be as straightforward as with non-digital investments. The traditional way of creating business cases driven by single year funding cycles may not work for digital where the time frames for accruing the benefits can be longer than one year and will not necessarily be cash-releasing. Evaluating the success of a project may need analysis from a wide range of data sources and may not be directly identified from financial analysis alone.

¹ HFMA, *Delivering value with digital technologies*

Using this map

The increase in digital technologies affects all areas of the NHS and there is an ever-growing source of reference material available. The purpose of this map is to provide a reference point for tools and resources most relevant to finance teams supporting these developments. The map will also help those clinical and informatics teams who want to understand how to make the case for digital investment and the associated challenges.

The map starts with general information for staff who are unfamiliar with digital technologies or wishing to enhance their general knowledge of the subject. The next sections follow an expected project lifecycle. Finally, there are example case studies to highlight some recent uses of digital technologies within healthcare.

The map will be updated periodically as new guidance is produced.

Material that is new to the map will be marked as  even if it is not a newly published resource.

If you would like to flag additional material to be included in the next update of this map, please e-mail policy@hfma.org.uk.

Some of the resources listed are freely available, while others have restricted access. Where there is a restriction on access, the map will highlight that fact and what the restriction is.

This forms part of [a suite of HFMA maps](#) including NHS corporate governance map; integrated care system finance and governance guidance map; mental health guidance and resources map; NHS environmental sustainability guidance map; and health inequalities data sources map.

FutureNHS workspaces

There are sections for FutureNHS workspaces throughout the map. FutureNHS is a virtual collaboration platform that is separated into workspaces. It supports people working in health and social care to make change, improve and transform across organisations, places and professions. There is also a FutureNHS case study hub which can be searched for relevant material across the platform. Access to the platform is available via self-registration to anybody with an @nhs.net email address or can be requested via the home page www.future.nhs.uk/. Members of the platform can join workspaces which ensures access to all material on that workspace. Some material is available without joining the workspace.

Introduction to digital technologies

This section includes resources to introduce readers to the scope of digital technology in healthcare and how innovations can drive and support transformation.


National funding guidance

The guidance included in this section details how organisations can access central funding for digital innovation.

Websites

- NHS England: [MedTech funding mandate and MedTech support](#) – this site provides the background to this policy that outlines the NICE approved digital technologies that commissioners are expected to fund whenever clinically appropriate. One new technology has been added for 2024/25, making a total of 12 technologies for commissioners and providers to adopt (see appendix 1)
- Local Government Association: The [social care digital innovation fund](#) details the funding available to support digital innovation in social care, including case studies from previously funded projects

Workspaces on FutureNHS collaboration platform

- [Artificial Intelligence \(AI\) Diagnostic Fund](#). In June 2023 the NHS AI Lab and the NHSE Digital Diagnostics Capability (DDC) Programme announced that they will launch a £21 million ring-fenced fund for NHS trusts to procure AI diagnostic imaging technologies with the aim of beginning deployment ahead of Winter 2023. 
- [MedTech funding mandate workspace hub](#) for all information and updates on the MedTech funding mandate policy including guidance, briefing documents, FAQs, links to events, and other information relevant to the policy.

Other useful resources




	Classification	Link and description	Publication Date
	Technology	NHS England: 2023/24 Revenue finance and contracting guidance Includes details of arrangements for MedTech funding (paragraphs 131-134)	May 2023
	Policy	HFMA webinar: Digital health technologies: access adoption and reimbursement in the NHS This webinar explains the proposed policy framework for the reimbursement for digital health technologies. The framework will clearly set out the standards products should meet and the routes for commissioning and paying for them	May 2023

Classification	Link and description	Publication Date
Policy	<p>Department for Science, Innovation and Technology: Life sciences innovative manufacturing fund (LSIMF)</p> <p>This fund is to support business investing in life sciences manufacturing projects in the UK – phase two was open during May 2023. The recipients of the first tranche of grants were announced in March 2023.</p>	March 2023
Technology	<p>HFMA podcast: The MedTech funding mandate and removing barriers to innovation</p> <p>The policy lead for the MedTech funding mandate at NHS England, discusses how finance and commissioners can utilise the mandate, and examples of the innovations already implemented</p>	April 2022
Policy	<p>NHS England: Who pays for what</p> <p>Resources outlining current and proposed funding streams for investing in digital technology and addressing how the health and care sector are overcoming identified barriers</p>	August 2021

Other national guidance



There is a wide range of national guidance to support all aspects of digital innovation. The resources included in this section provide an overview specifically relevant to finance teams.

Websites


- NHS England: [Digital cyber and security](#). A site that gives information to protect the NHS and care organisations from cyber attacks and how the NHS monitors for new threats 24 hours a day. The site also explains how they can support organisations across the NHS with advice, assessments, and training. 
- NHS England: [Digital primary care](#) gives a schedule of GP digital requirements and capabilities including the basic and advanced services GP can digitise including IT support, patient facing services and cyber security. 
- NHS England: [Planning guidance](#) this page gives an update on the operational and planning guidance for 2024/25. 
- NHS England: [What good looks like](#) framework for NHS leaders building on established good practice of digitization that transforms services safely and securely.
- NHS England: [Digital primary care](#) tools and resources for GP practices and primary care networks developing access to online GP services, ensuring that they are safe, convenient and personalised for all patients.
- NHS England: [Inclusive digital healthcare: a framework for NHS action on digital inclusion](#) is a document building on previous NHS Digital guidance on digital inclusion for health and social care. It can be used to design and implement inclusive digital approaches and technologies, which are complementary to non-digital services and support.

- Government: [Central Digital and Data Office](#) this office is part of the Cabinet Office and leads the government’s digital, data and technology (DdaT) function for government. The site includes useful guidance on the government’s roadmap for digital and data, the technology code of practice.

Workspaces on FutureNHS collaboration platform

- [National virtual wards network](#) This virtual wards network brings together providers, systems, clinicians and others involved in establishing virtual wards to support and inspire innovation 
- [Talking Therapies \(formerly IAPT\)](#) market analysis for digital technologies review and analysis of digital health technologies being used by talking therapy services across England. 
- [Types of technology for mental health](#) a list of different areas of technologies which can be used for supporting mental health.
- [Digital health technologies checklist for mental health](#) a step-by-step process for implementing digital health technologies in a mental health context.

Other useful resources

	Classification	Link and description	Publication Date
	Policy	<p>NHS England: Inclusive digital healthcare: a framework for NHS action on digital inclusion</p> <p>A document building on previous NHS Digital guidance on digital inclusion for health and social care. It can be used to design and implement inclusive digital approaches and technologies, which are complementary to non-digital services and support.</p>	September 2023
	Systems	<p>The Nuffield Trust Virtual wards: the lessons so far and future priorities</p> <p>This discussion paper considered the areas where further development and action could help improve virtual wards’ effectiveness</p>	March 2023
	Technology	<p>Department of Health and Social Care: Genome UK: 2022 to 2025 implementation plan for England</p> <p>The plan sets out the actions that will be taken to implement the commitments in genome UK</p>	December 2022
	Systems	<p>HM Treasury and Government Finance Function: Agile digital and IT projects: clarification of business case guidance</p> <p>This business case guidance has been produced to help with efficient planning and approval of spending proposals for agile digital and IT projects</p>	November 2022

	Technology	National Institute for Health and Care Excellence (NICE): <i>Evidence standards framework (ESF) for digital health technologies</i> Standards ensuring that new technologies are clinically effective and offer economic value and detail the level of evidence required to meet these tests	August 2022
	Technology	Medicines and Healthcare Products Regulatory Agency: <i>Good machine learning practice for medical device development: guiding principles</i> This document, produced jointly with the US Food and Drug Administration and Health Canada, identifies ten guiding principles that inform the development of machine learning practice.	October 2021

Scope of digital technologies

The scope of digital technologies available to support transformation in healthcare is vast and constantly evolving, as is the associated language and terminology. This section signposts introductory resources for staff who have limited knowledge of the technologies used in digital transformation. A explanation of common terms is included in a separate section.


Websites


- NHS England: *Information governance* ensuring that information is managed and shared safely and securely is key to digital technology implementation and ongoing management.
- NHS Innovation Service: this is *an NHS platform* intended to help innovators demonstrate their products and NHS bodies find the innovations that meet their needs (sign up is required).

Workspaces on FutureNHS collaboration platform

- *Innovation Collaborative workspace* established by NHS transformation directorate and national Academic Health Science Network (AHSN), providing a connected network to rapidly share learning and best practice in digital transformation across the NHS and care sector.
- *Blueprinting workspace* detailed blueprints available for a range of digital investment projects across the NHS enabling digital transformation to be carried out quickly and cost effectively based on existing evidence.

Other useful resources

	Classification	Link and description	Publication Date
	Systems	HFMA briefing: <i>Roundtable - delivering efficiencies</i> A discussion about how finance teams can deliver efficiencies, including use of robotic process automation and artificial intelligence	January 2024



Classification	Link and description	Publication Date
 Policy	<p>NHS England: <i>Inclusive digital healthcare: a framework for NHS action on digital inclusion</i></p> <p>A document building on previous NHS Digital guidance on digital inclusion for health and social care. It can be used to design and implement inclusive digital approaches and technologies, which are complementary to non-digital services and support.</p>	September 2023
Technology	<p>Department of Health and Social Care: <i>Assistive technology research and development work 2021/22</i></p> <p>This report sets out government-funded projects supporting the development, introduction and evaluation of assistive technology.</p>	March 2023
Technology	<p>Health Foundation podcast: <i>AI in health care: hope or hype?</i> With Professor Sir John Bell and Dr Axel Heitmueller</p> <p>Will AI be the answer to sustaining the NHS?</p>	March 2023
Systems	<p>The Nuffield Trust <i>Virtual wards: the lessons so far and future priorities</i></p> <p>This discussion paper considered the areas where further development and action could help improve virtual wards' effectiveness</p>	March 2023
Technology	<p>The King's Fund: <i>The digital revolution: eight technologies that will change health and care</i></p> <p>Detailed report into emerging technologies that could represent an opportunity to achieve better outcomes or more efficient care and improve patient experience</p>	November 2020
Policy	<p>The Nuffield Trust: <i>Digital health care across the UK: where are we now?</i></p> <p>What is the case for digital health programmes in all four nations of the UK.</p>	August 2022
Technology	<p>HFMA briefing: <i>Using artificial intelligence to unlock health records</i></p> <p>How natural language processing is being used to structure the large volumes of unstructured data in electronic patient records, so that the data can be used to support the delivery of high-quality care and clinical research</p>	March 2022
Technology	<p>HFMA feature: <i>Brain power</i></p> <p>How artificial intelligence and robotics are being used to transform the delivery of healthcare services</p>	March 2022

Classification	Link and description	Publication Date
Technology	The Health Foundation: <i>Harnessing the potential of automation and AI in health care</i> 15 recommendations for how policymakers can get the best out of automation and AI in health care	February 2022
Technology	HFMA bitesize course: <i>Introduction to digital transformation</i> Exploring what digital technology is and how it can transform healthcare services	January 2022
Technology	HFMA feature: <i>Genome map</i> Introduction to the science of genomics seen as one of three major technologies that will lead to digital transformation of the NHS	December 2021
Technology	HFMA feature: <i>Switching it up</i> Examining the part that digital technology can play in NHS recovery from Covid-19 and the role finance teams will play in supporting the agenda	September 2021
Technology	HFMA briefing: <i>Introduction to digital healthcare technologies</i> Introduction to the role of digital technologies in healthcare transformation	July 2021
Technology	HFMA webinar: <i>Transforming healthcare with digital technologies</i> Introduction to some of the technologies available and the opportunities they provide to reimagine how care is delivered	July 2021
Technology	NHSX report (migrated to NHS England): <i>Artificial intelligence: How to get it right</i> Analysis of the challenges and opportunities associated with data-driven technologies in the health and care system	October 2019





The digital workforce

A digital workforce is often taken to mean a team of software robots that works alongside human employees to undertake manual processes and allow humans to focus on value-adding tasks. However, it can also refer to the skills and knowledge required by the human workforce to support digital transformation.



Websites

- Federation of Healthcare Informatics Professionals: *The FEDIP register* allows informatics professionals in health and care to become professionally registered. 
- Association of Professional Healthcare Analysts: *Organisation aiming to* raise the profile of and represent the voice of health and care analysts as a recognised and respected industry expert, by providing a professional framework and an established support network. 
- Digitising Social Care: *Digital skills framework - digital social care* this framework defines seven key areas of effective digital working and can be used by social care employers to help with planning staff training, or by individuals for their personal development.
- Government: *Central Digital and Data Office* this office is part of the Cabinet Office and leads the government's digital, data and technology (DDaT) function for government. The site includes role specifications for all DDaT job roles.
- Health Education England (HEE) website (migrated to NHS England): *Building our future digital workforce* resources to support organisations to address the challenges around building capacity and capability in the health and care digital technology workforce.

Workspaces on FutureNHS collaboration platform

- *Digital workforce* NHS England's digital workforce team aim to connect and empower the healthcare digital, data and technology (DDaT) community with a safe space to collaborate in a radical way across the health system. 
- *NHS Digital Academy* a service model set up to develop a new generation of excellent digital leaders who can drive the information and technology transformation of the NHS. 
- *Digitally enabled outpatients* for colleagues who are involved in the implementation of digital solutions to support outpatient transformation and recovery. 
- *Digital discussion group* aims to create a strong collective of individuals to share best practice, provide peer support, mentorship, buddying partnerships and clinical supervision as on-going professional development, and to provide a safe supportive environment to actively encourage discussions, debate, and challenge which are action focused. 

Other useful resources

Classification	Link and description	Publication Date
 Capability	HFMA feature: <i>Digital people</i> Feature on how use of digital systems to help achievement of the workforce plan, with comment from James Freed, deputy director of the Digital Academy for Health and Care	September 2023
 Capability	HFMA webinar: <i>Artificial intelligence and nursing: opportunity or threat?</i> Dr Siobhan O'Connor explores the opportunities and threats presented by the growing prevalence of AI technologies in healthcare settings with a focus on the nursing profession.	July 2023

Classification	Link and description	Publication Date
Capability	<p>Central Digital and Data Office: <i>Digital, data and technology profession capability framework</i></p> <p>This framework describes the job roles in the digital, data and technology profession and details of the skills required to work at each role level</p>	March 2023
Capability	<p>HFMA briefing: <i>Unlocking efficiencies with digital workers</i></p> <p>The role of robotic process automation in achieving digital transformation</p>	November 2020
Capability	<p>NHS Providers report: <i>Building and enabling digital teams</i></p> <p>A guide for board members on what a good digital team looks like and how to build digital capability into organisations</p>	November 2020
Capability	<p>HEE website (migrated to NHS England): <i>Topol review and Topol digital fellowships</i></p> <p>Report on preparing the healthcare workforce to deliver the digital future and details of the digital fellowship programme</p>	February 2019

Making the case for investment

Before investing in digital technologies, a business case needs to be developed that sets out what the problem is and how the proposed solution will deliver value for the NHS and patients.






Understanding the problem

A clear understanding of the problem at the outset and how technology might help is vital to ensuring that effective investment decisions are made and that the benefits of a digital solution are realised.

Websites

- NHS England: *Digital and technology assurance* the process to independently review and assess all digital and technology projects against mandatory standards.
- HM Treasury: *The Green Book* leading source of guidance and policies to apply when undertaking option appraisals, developing business cases and evaluating large scale projects which will be funded from public sector resource.

Other useful resources

	Classification	Link and description	Publication Date
	Technology	The Health Foundation: <i>What will it take for digital technology to finally fulfil its potential</i> Bob Wachter certainly thinks that with the arrival of better data, health records and now generative AI, a tipping point has been reached in the use of technology in health and care.	November 2023
	Technology	The Health Foundation: <i>AI, virtual wards and digital scribes: embracing digital technology in health</i> Interview with the former Chief Digital Officer for NHSX/NHS England	November 2023
	Technology	The Health Foundation: <i>Does better tech always mean better health care?</i> Research in the spotlight: The anticipated, but unintended consequences of remote consultations	November 2023
	Policy	The Health Foundation: <i>Putting people at the heart of data-driven health systems to address inequalities</i> Reflections on the partnership between the Health Foundation and the Ada Lovelace Institute	November 2023
	Policy	The Health Foundation: <i>Exploring public attitudes towards the use of digital health technologies and data</i> The NHS is looking to advances in digital health technologies and data to help tackle current pressures and meet rising demand. But ensuring new uses of technology and data have the backing of the public is critical if they are to become business as usual.	November 2023
	Policy	HFMA roundtable: <i>Digital dilemmas</i> A roundtable discussion on improving business cases and understanding the problem	June 2023
	Technology	HFMA bitesize course: <i>Making the case for investment in digital transformation</i> The focus of this course is on those parts of a business case that are different or need different emphasis because it relates to investment in digital technologies.	January 2023
	Systems	HM Treasury and Government Finance Function: Agile digital and IT projects : clarification of business case guidance	November 2022

Classification	Link and description	Publication Date
Technology	Future Focused Finance: Best possible value decision framework Reference guide for organisations making value-based decisions for healthcare services	June 2017

Identifying benefits

A business case brings together in a single document all the factors relevant for organisations to review when deciding whether to invest. The business case needs to set out a compelling case for investment, clearly articulating what the anticipated benefits (both financial and non-financial) are.

Websites

- NHS England: [Digital productivity](#) addresses how the adoption of evidence-based digital tools can improve productivity across the NHS and social care, including case studies
- EuroQol: [EQ-5D instruments](#) is an established method of measuring patient-reported health outcomes used for quantifying the quality of life improvements from investment decisions

Workspaces on FutureNHS collaboration platform

- [NHS digital productivity community](#) a space to share, collaborate and co-produce best practice – this site includes a database of key national strategic documents as well as a technologies database.
- [Innovation collaborative - digital health workspace](#). This workspace is only available to NHS and government organisations.
 - [Benefits and health economics](#) tools, resources and examples of benefits management and how data is evidencing impact of digital health and care services and being used to measure improvement enabled by technology.
 - [Data sources for monitoring benefits realisation](#) highlights the range of data available to support benefits realisation studies and how to access it.
 - [Guidance for monetising benefits](#) national best practice to support local teams in considering approaches they can take to measure improvements arising from digital innovation.
 - [Benefits workshops and masterclasses](#) (benefits planning) originally developed to support submissions to the national innovation collaborative, the workshops provide useful insight for identifying and recognising benefits across all digital transformation regardless of funded sources.

Other useful resources

Classification	Link and description	Publication Date
Technology	<p>HFMA event: <i>How digital can be an enabler for decarbonisation and support the journey towards net zero</i></p> <p>A presentation as part of the HFMA members' summer series (HFMA membership is required) by Ben Tongue, NHS England, digital net zero lead</p>	June 2023
Systems	<p>The Nuffield Trust <i>Virtual wards: the lessons so far and future priorities</i></p> <p>This discussion paper considered the areas where further development and action could help improve virtual wards' effectiveness</p>	March 2023
Technology	<p>HFMA briefing: <i>Making a difference with digital technologies: identifying and evaluating benefits</i></p> <p>Includes sections on understanding the problem that needs solving, making the case for investment by identifying potential benefits, and understanding the resource impact of new care models</p>	April 2022
Technology	<p>National Health Executive article: <i>Striving for sustainability through digital innovation</i></p> <p>Explores the positive impact on the environment of recent NHS Digital programme developments</p>	January 2022
Technology	<p>The Nuffield Trust: <i>Delivering the benefits of digital health care</i></p> <p>Sets out the possibilities of transforming healthcare with digital technologies, including examples of how early implementers have identified the benefits arising</p>	February 2016

Procurement

This section outlines resources to support organisations when procuring digital technologies. It provides details of current legislation and best practice to ensure that procurement practices are safe, efficient and effective.

Websites

- NHS England: *Digital Technology Assessment Criteria (DTAC)* toolkit that can be used by organisations to assess suppliers and ensure that new digital technologies meet minimum baseline standards
- NHS England: *Procurement frameworks* suite of frameworks for commonly procured digital solutions to enable a quicker, easier and more informed procurement process for NHS organisations
- NHS England: *Digital care services catalogue* containing approved suppliers and technologies which are related to primary care and provide assurance of high technology and data standards

Other useful resources

Classification	Link and description	Publication Date
Technology	<p>NHS England: A buyer's guide to AI in health care</p> <p>Sets out the questions you need to consider in order to ensure decisions about buying AI products are well-informed</p>	September 2020

Accounting for digital investment and resource impact

Accounting for innovative digital technologies is complex and organisations need to be aware of the key funding and accounting issues before committing to invest. Funding and accounting issues can only be considered once the resource impact of decisions has been assessed.

Workspaces on FutureNHS collaboration platform

- Calculating return on investment of remote monitoring projects outlines approaches that can be taken to calculate and measure expected return on investment from investment in digital technologies. [Innovation collaborative - digital health workspace](#). This workspace is only available to NHS and Government organisations.

Other useful resources

Classification	Link and description	Publication Date
Policy	<p>HFMA briefing: Accounting for digital technologies - looking at the detail</p> <p>Considers the process that NHS bodies and their auditors follow when determining the appropriate accounting treatment and sets out the issues that should be considered as part of that process</p>	October 2022
Technology	<p>HFMA briefing: Making a difference with digital technologies: identifying and evaluating benefits</p> <p>Includes sections on understanding the problem that needs solving, making the case for investment by identifying potential benefits, and understanding the resource impact of new care models</p>	April 2022
Policy	<p>NHS Providers: blog Getting to grips with the funding and accounting challenges facing digital investment</p> <p>Highlights what board members need to be aware of in relation to the funding and accounting challenges facing digital investments</p>	January 2022

Classification	Link and description	Publication Date
Policy	<p>HFMA briefing: Accounting for revenue and capital: implications for the digital age</p> <p>Explores the key funding and accounting issues that NHS finance teams need to consider when developing business cases for digital transformation projects</p>	December 2021
Policy	<p>HFMA briefing: IFRS 16 leases: practical application</p> <p>Investment in digital technologies may take the form of a lease in which case accounting standard IFRS16 is relevant and applicable to all investments from 1 April 2022</p>	February 2020
Policy	<p>HFMA briefing: Accounting for joint working arrangements</p> <p>Joint arrangements are expected to increase with the introduction of integrated care systems and allocation of capital funding at system level. This briefing outlines the legislation and guidance that NHS bodies need to take account of in these circumstances</p>	June 2017

Business Cases

A business case brings together in a single document all the factors relevant for organisations to review when deciding whether to invest.

Workspaces on FutureNHS collaboration platform

- [Business case guidance](#) assistance for health and social care organisations writing business cases for investment in digital technologies. [Innovation collaborative - digital health workspace](#). This workspace is only available to NHS and Government organisations.

Other useful resources

Classification	Link and description	Publication Date
Policy	<p>National Audit Office: Quality assurance of models: a guide for audit committees</p> <p>Business cases are based on models of the impact of the proposed change. Those models need to be robust and this good practice guide helps assess whether that is the case.</p>	May 2023
Systems	<p>HM Treasury and Government Finance Function: Agile digital and IT projects: clarification of business case guidance</p> <p>Clarification of business case guidance</p>	November 2022


Classification	Link and description	Publication Date
Policy	<p>HM Treasury: Business case reviewers' checklist</p> <p>Based on the requirements of HM Treasury Green Book, provides a detailed checklist for assessment of large-scale projects</p>	March 2022
Technology	<p>NHS Providers: Making the right technology decisions</p> <p>A guide for board members on how to make technology investment decisions</p>	December 2021
Policy	<p>HFMA blog: The art of the digital business case</p> <p>Factors to be considered when building a compelling digital business case</p>	December 2021
Technology	<p>Department of Health and Social Care: A guide to good practice for digital and data-driven health technologies</p> <p>Details the evidence required for business cases including the need for a value proposition</p>	January 2021

Implementation and change management

Collaborative working


Successful implementation of digital technologies requires collaborative working between a range of professionals with appropriate skills and experience. The overall team will require representation from finance, informatics, procurement, clinical and change management staff.

Other useful resources

Classification	Link and description	Publication Date
 Capability	<p>Digital Health Network (DHN): Results of the annual survey</p> <p>An open forum for the community of digital health professionals. The network scored highly as a welcoming online community, supporting knowledge sharing and learning, with useful information access and updates along with professional support and guidance.</p>	December 2023
Capability	<p>HFMA Roundtable: Digital role</p> <p>Finance leaders, clinicians and informatics specialists discuss how finance professions can support the digital transformation agenda</p>	May 2021

Change management



Websites

- NHS England: [Digital development and integration hub](#). This site provides resources for those developing healthcare products for their local organisations. 
- NHS England: [Improving Patient Care Together \(IMPACT\)](#) resources to support organisations and systems to build improvement capability in teams.
- NHS England/Aqua: [Quality, service improvement and redesign \(QSIR\)](#) tools describes a six-stage approach to project management supported by a library of tools and resources.
- NHS England: [Project management – an overview](#) Guide to the role of project management and tools available.

Workspaces on FutureNHS collaboration platform

- [Change management toolkit](#) detailing a framework for change with typical phases and associated tasks and activities of a change project, including the people side of change. Part of the Change Management workspace.
- [A guide for how to successfully integrate new technology to improve a process within your organisation](#) outlining the behavioural change that is vital for successful digital transformation. [Innovation collaborative - digital health workspace](#). This workspace is only available to NHS and Government organisations.

Other useful resources

	Classification	Link and description	Publication date
	Policy	HFMA News: Digital funding programme supports 13 new projects (Scotland) Supporting people to feel more digitally confident so they can access the mental health and housing services they need online	August 2023
	Technology	National Audit Office: Digital transformation in government: addressing the barriers to efficiency This report looks at why past attempts at digital transformation have run into problems and evaluates the government's approach to addressing those underlying issues. It focuses on how the Central Digital and Data Office will support and promote the use of digital across government.	March 2023
	Capability	HFMA bitesize course: Change management. Explores the definition of change and the process of change management	January 2023
	Policy	HFMA webinar: Managing projects Tools, techniques and examples of project management	February 2021

Classification	Link and description	Publication date
Policy	National Audit Office: <i>Transformation guidance for audit committees</i> The questions those overseeing transformation projects should ask during set-up, delivery and live-running phases	May 2018
Capability	Kotter International – YouTube video: <i>How to create a powerful vision for change</i> – a presentation by John Kotter	February 2012

Evaluation

Evaluating the effectiveness of the digital investment following implementation is key to ensuring that resources are used wisely in the NHS. Have the benefits set out in the business case been realised?

Websites

- NHS England: *Making data count* an introduction to statistical process control (SPC), an analytical technique that plots data over time that is widely used in the NHS to understand whether change results in improvement.

Workspaces on FutureNHS collaboration platform

- Innovation collaborative - digital health workspace*. This workspace is only available to NHS and Government organisations.
 - Benefits workshops and masterclasses* (evaluating impact) workshops provide theory and practical examples of rapid evaluation and rapid insight associated with digital innovation. Part of the Innovation Collaborative workspace
 - Measuring for improvement in digital health* an infographic to support local teams measure improvements arising from implementing digital technologies.
- Making data count workspace* an interactive workspace to share best practice in use of statistical process control (SPC) as an analytical technique.
- Evaluation planning toolkit* practical guide for project evaluations. Part of the *AnalystX* workspace.

Other useful resources

Classification	Link and description	Publication Date
Policy	HFMA briefing: <i>Making a difference with digital technologies: identifying and evaluating benefits</i> Includes sections on defining metrics and evaluating the effectiveness of digital investment	April 2022
Policy	HFMA briefing: <i>Near me: assessing the financial impact of Scotland's video consultation service</i>	March 2022

Classification	Link and description	Publication Date
	With specific reference to introduction of video consultation in Scotland, this briefing considers how the financial impact and value of investment can be assessed at national and patient level	

Examples of digital technology in healthcare

There is a growing body of evidence supporting the value-adding benefit of using digital technologies to support service transformation and ensure efficient, effective delivery of care. This section provides examples of the innovation taking place across health and social care. In addition, a library of case studies can be found on the FutureNHS innovation collaboration workspace.



Websites








- NHS England: [Digital playbooks](#) show how to use digital ways of working to improve patient outcomes, by reimagining and redesigning care pathways.
- NHS England: [Elective recovery tech fund](#) gives examples of systems using digital technologies to speed up elective recovery and tackle waiting lists.


Workspaces on FutureNHS collaboration platform

- [Innovation Collaborative workspace](#) established by NHS transformation directorate and national Academic Health Science Network (AHSN), providing a connected network to rapidly share learning and best practice in digital transformation across the NHS and care sector
- [Embracing Video Technology](#) supporting NHS providers embed, spread and use video consultations innovatively across their services. Part of the Outpatient Recovery and Transformation Platform.
- [Digital Outpatients](#) a patient portal or sometimes referred as a patient engagement portal [PEP] is a secure digital solution, through which people can access personal health information and records and make use of secure communication, self-management and administrative functionalities, including online appointment scheduling. Part of the Outpatient Recovery and Transformation Platform.

Other useful resources

Topic	Link and description	Publication Date
 System-wide and data sharing	National Health Executive article: How is system-wide data sharing enhancing patient care? Summary of information security criteria and case studies of ICS data sharing	December 2023
 AI and avoidable admissions	NHS England: AI to help boost NHS winter response and prevent avoidable admissions Use of AI to support healthcare	November 2023

Topic	Link and description	Publication Date
 AI and maternity	Digital Health: AI chatbot reduces depression in prenatal and postnatal women A new research study.	November 2023
 Remote monitoring	Digital Health: Integrated digital services launches remote tech trial in Leeds A remote monitoring trial in Leeds will help gain insights on how best to support older people living at home with long-term conditions	November 2023
 AI and Antimicrobial resistance	Reform Scholars: Smart prescribing - harnessing technology in the fight against antimicrobial resistance The case for AI and technology approach to prescribing.	November 2023
 Electronic patient record (EPR)	HFMA webinar: Manchester HIVE - the largest EPR go live in Europe Jacqui Cooper CNIO at Manchester University NHS Foundation Trust describes the journey to implement the EPR, explores what came next and how she and other leaders came together to train and lead staff to adapt their working practices and engage with the software.	October 2023
 Weight management	HFMA feature: Weight management App based service achieving greater uptake than other weight management systems and people feel more powered and in control	September 2023
 System-wide and digital tools	HFMA Briefing: Data to outcomes - Dorset Intelligence and Insight Service This case study describes how the Dorset Intelligence and Insight Service has been set up to enable people working across the health and social care network to access digital tools.	June 2023
 Pharmacy and EPR	HFMA webinar: The Velindre Virtually Assessed Patient Clinic Tej Quine, advanced nurse practitioner and prescriber, and Michael Stone, Service Improvement and Costing Accountant, share their story, including the application of digital opportunities along with pharmacy system (chemocare) finance and governance arrangements that enabled this. The clinic interfaces with a fully electronic patient record across all sectors and healthcare organisations in Wales	February 2023

Topic	Link and description	Publication Date
 Primary care	DHSC: Improving GP telephone systems, including moving to digital telephony £240 million given to practices across England to embrace latest technology, making it easier for patients to contact their GP and end the 8am rush.	May 2023
Stroke care	Department of Health and Social Care: Artificial intelligence revolutionising NHS stroke care A system to assist doctors with the analysis of scans to help inform decisions for stroke patients	December 2022
Cardiology	HFMA briefing: Remote monitoring of implantable cardiac devices Describes how digital technologies have supported remote monitoring of implantable cardiac devices to improve patient safety and reduce face-to-face appointments	March 2022
Primary care	The Health Foundation: Access to and delivery of general practice services Report demonstrating growing patient preferences for non face-to-face consultation where digital tools are available and used effectively	March 2022
Wellbeing and prevention	HFMA briefing: Using digital technologies to prevent stroke How one organisation has implemented community pharmacy-based monitoring for atrial fibrillation to promote early detection and reduce the number of acute hospital admissions of patients having a stroke	January 2022
Population health	HFMA webinar case study: Dorset Integrated Care System How the system is working together in using data and digital health to influence decision making and has designed pathway changes to empower people and improve health outcomes	December 2021
Chronic obstructive pulmonary disease	HFMA webinar: Pulmonary rehabilitation enabled by virtual reality and artificial intelligence Explores how the use of virtual reality headsets, wearable devices and AI allows the delivery of pulmonary rehabilitation in a patient's home, increasing access to the service, reducing drop-out rates and improving outcomes for patients with chronic obstructive pulmonary disease	December 2021

Topic	Link and description	Publication Date
Gastroenterology	<p>HFMA webinar: <i>Gastroenterology digital playbook</i></p> <p>Highlights a range of digital solutions which can help solve common challenges in the delivery of gastroenterology services</p>	December 2021
Mental health	<p>HFMA webinar: <i>The mental health digital playbook</i></p> <p>Examples of how mental health services are implementing digital technologies into care pathways</p>	December 2021
Social care	<p>Local Government Association: <i>Case study Improving assessment for home adaptations using smartphones</i></p> <p>Explores the potential for smartphone technology to support rapid assessments for adaptations of client's homes to meet increasing demand for the service against a backdrop of high staff vacancies.</p>	March 21

Explanation of terms

This section defines the terms that are commonly used in relation to digital technologies, including acronyms and abbreviations.

Term	Definition
Artificial intelligence (AI)	An umbrella term encompassing approaches (such as machine learning) where tasks can be digitised using software that replicates functions that have, until recently, been synonymous with human intelligence. Examples in the finance function include the scanning and processing of invoices. In patient care, there are many more potential uses in areas such as record transcription, virtual nurses, and image analysis.
Applied artificial intelligence	Embedded in IT systems, applied AI provides the ability for machines to take in information, reason within a rules-based structure to reach conclusions and take action. An applied AI system can also learn from the decisions that it is making as it takes in more information. As a consequence, a system can correct itself based on any unsuccessful actions. As an applied AI system learns from the information it is fed and the rules that it is taught, it is important that the information and the rules do not contain biased data.
Application programming interface (API)	This is a computing interface between multiple software programmes. Unlike robotic process automation (RPA), API does not access the programmes in the same way that a human would but is programmed into both systems to allow them to interface.


Term	Definition
Augmented reality (AR)	Presents digital information, objects, or media in the real world through a mobile device or headset. These elements can appear as a flat graphical overlay or can behave as a seemingly real '3D' object.
Automation	The process of taking the human out of a process – replacing it with a software robot that does the process automatically.
Cognitive technology	This is a broad term that encompasses algorithms, RPA, machine learning and artificial intelligence.
Deep learning	Deep learning is a type of machine learning in which multiple layers of processing are used to extract progressively higher level but more abstract features from data.
Digital medicine	Products and services that are intended for use in the diagnosis, prevention, monitoring and treatment of a disease, condition, or syndrome. It includes technologies such as telemedicine, smartphone apps, wearable devices and software used in clinical settings (such as e-prescribing).
Digital worker	A software robot that is undertaking work that would otherwise be done by a person. RPA and intelligent automation are examples of digital workers.
Electronic health record / electronic patient record (EHR/EPR)	Digital records of a patient's health and care.
Electronic referral service (eRS)	A computer system that is used to refer patients from their GP, or local surgery, into the hospital or another healthcare service.
Extended Reality (XR)	An umbrella term encapsulating augmented, virtual and mixed reality technologies.
Information artefact	Any data item on a screen, page or form that can be used to provide information about the transaction or process under review, examples include, names, dates, amounts, hours, rates, bands, authoriser.
Information management and technology (IM&T)	The management, procurement and maintenance of computer hardware and software as well as the design of IT systems.
Intelligent automation	A combination of applied AI and RPA where RPA follows the processes usually done by a person and applied AI simulates human intelligence. Processes that do not have a rules-based structure can be automated as the digital worker can handle unstructured data and provide answers based on subjective probability.

Term	Definition
Internet of things	A term that has been adopted to refer to any everyday object that has the ability to connect to the internet to provide additional functionality. Examples include smart home technology, such as smart thermostats, smart televisions or other connected devices.
Interoperability	Sharing of data so that all parties understand it the same way. Interoperability between IT systems sometimes requires system-to-system integration that can be achieved using automation or APIs.
Machine learning (ML)	A specific subset of AI that focuses on learning, reasoning, and decision-making. The technologies use statistical models to make predictions (or decisions) without being explicitly programmed to perform the task. The computer 'learns' as it increases its data reference points – this is also referred to as predictive analytics.
Mobile computing	Refers to wireless communication and carry-around computers, such as tablets or smartphones. Increasing mobile computing power supported by an ever-growing network of broadband provision presents new ways of providing access to care and information.
Mixed reality (MR)	A form of augmented reality where physical and digital objects co-exist. Digital objects appear anchored to the real-world environment.
Natural language processing (NLP)	Natural language processing (NLP) refers to the branch of computer science – and more specifically, the branch of artificial intelligence (AI) – concerned with giving computers the ability to understand text and spoken words in much the same way human beings can. NLP combines computational linguistics – rule-based modelling of human language – with statistical, machine learning, and deep learning models. Together, these technologies enable computers to process human language in the form of text or voice data and to assign 'meaning', and thereby work towards 'understanding' the speaker or writer's intent and sentiment. Everyday uses of NLP include chatbots on commercial websites, spam email filters and smart assistants like Apple's Siri and Amazon's Alexa.
Personal and wearable devices	An extension of mobile computing where the device is in direct contact with the wearer for long durations and can generate large quantities of data on specific biometrics or behaviours. These devices include smartwatches, fitness trackers, implants or patches with the ability to connect to other devices.
Robotic process automation (RPA)	Software robots that carry out tasks and activities within systems or applications using the same interfaces that a human would use. The robot can work with several different systems in a process so manual repetitive tasks that would otherwise have to be done by a person can be automated.
Structured data	Data that is organised and formatted in a standard way – it is therefore easily searchable and moved from system to system. It is usually found in databases and spreadsheets. RPA deals with structured data as it is straightforward to process.

Term	Definition
Unstructured data	Unstructured data has no pre-defined format or organisation. Examples include letters, handwritten patient notes or information in free text fields. RPA can also deal with unstructured data using machine learning and natural language processing, but it will need to be given data sets to 'learn' from.
Virtual reality (VR)	Immerses users in a fully digital environment through a headset or surrounding display. This environment can be computer-generated or filmed in 360-degree video.

Appendix – the technologies supported by the MedTech funding mandate 2022/23

For full details see the NHS England website²

Name	Description	NICE guidance reference
 AposHealth	AposHealth is a non-invasive device worn on the feet to reduce pain and improve function in patients with knee osteoarthritis.	NICE Guidance MTG76
gammaCore	gammaCore is a handheld and non-invasive device which stimulates the vagus nerve and is used to treat and prevent the symptoms of severe cluster headaches.	NICE guidance MTG46
GreenLight XPS	The GreenLight XPS vaporises prostatic tissue with a laser.	NICE guidance MTG29
Heartflow	Heartflow creates a 3D model of a patient's coronary arteries and assesses the extent and location of blockages.	NICE guidance MTG32
Placental growth factor based-testing:	Placental growth factor based-testing are blood tests for ruling out pre-eclampsia in pregnant women.	NICE guidance DG23
PLASMA system:	PLASMA is a bipolar electrosurgery system for transurethral resection and haemostasis of the prostate.	NICE guidance MTG53
Rezum	Rezum is a minimally invasive procedure that uses water vapour (steam) to treat benign prostatic hyperplasia.	NICE guidance MTG49
SecurAcath	SecurAcath is a device for securing peripherally inserted central catheters (PICCs).	NICE guidance MTG34
Spectra Optia:	The Spectra Optia Apheresis System is an apheresis and cell collection platform for the treatment of sickle cell disease.	NICE guidance MTG28
Thopaz+:	Thopaz+ is a portable digital chest drain system that provides regulated negative pressure close to the patient's chest and continuously monitors and records air leak and fluid drainage.	NICE guidance MTG37
UroLift:	the UroLift system lifts and holds the enlarged prostate tissue away from the urethra, relieving the compression of this organ.	NICE guidance MTG58

² NHS England, [MedTech funding mandate and MedTech support](#), accessed December 2023

Name	Description	NICE guidance reference
XprESS multi-sinus dilation system:	the XprESS multi-sinus dilation system is a sterile, single-use device for treating chronic sinusitis.	NICE guidance MTG30

About the HFMA

The Healthcare Financial Management Association (HFMA) is the professional body for finance staff in healthcare. For over 70 years, it has provided independent and objective advice to its members and the wider healthcare community. It is a charitable organisation that promotes best practice and innovation in financial management and governance across the UK health economy through its local and national networks.

The association also analyses and responds to national policy and aims to exert influence in shaping the wider healthcare agenda. It has particular interest in promoting the highest professional standards in financial management and governance and is keen to work with other organisations to promote approaches that really are 'fit for purpose' and effective.

The HFMA offers a range of qualifications in healthcare business and finance at undergraduate and postgraduate level and can provide a route to an MBA in healthcare finance. The qualifications are delivered through HFMA's Academy which was launched in 2017 and has already established strong learner and alumni networks.

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HFMA

HFMA House, 4 Broad Plain, Bristol, BS2 0JP

T 0117 929 4789

E info@hfma.org.uk

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www.hfma.org.uk