NHS

The Topol Review

HFMA Annual Conference workshop

Embracing the digital agenda to transform healthcare delivery

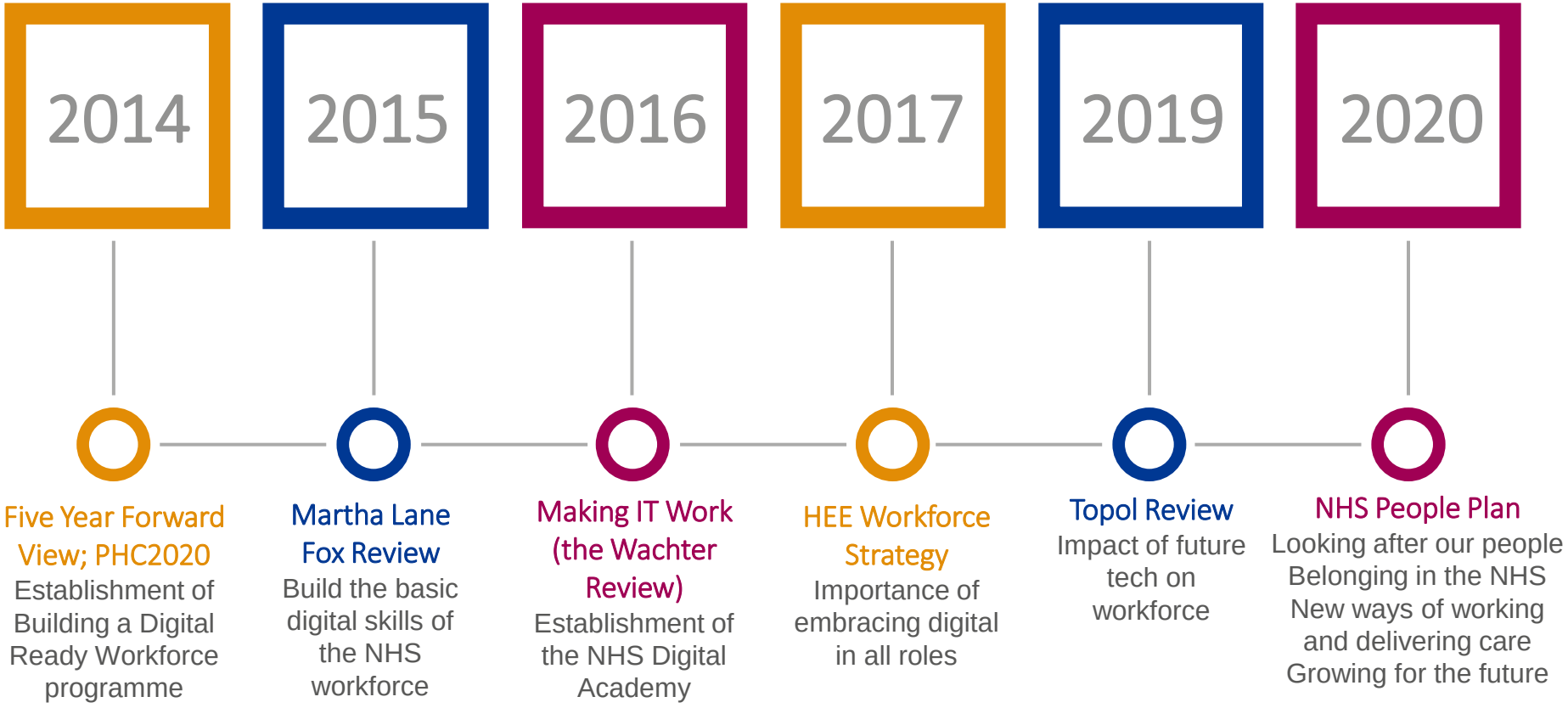
Patrick Mitchell
Director of Innovation and Transformation
Health Education England

December 2020

THE NHS CONSTITUTION
the NHS belongs to us all

1 // What are we trying to achieve?

Policy drivers / system context



The Topol Review

The questions:

1. How are technological developments likely to change the roles and functions of clinical staff in all professions over the next two decades?
2. What are the implications of these changes for the skills required?
3. What does this mean for the selection, curricula, education, training and development of current and future NHS staff?

1 // What are we trying to achieve?

Reflections on the Topol Review

- Proposed **three principles** to support the deployment of digital healthcare technologies throughout the NHS:
- **Patients included as partners** and informed about health technologies
- **Evidence:** the healthcare workforce needs expertise and guidance to evaluate new technologies, on the basis of real-world evidence of clinical efficacy and cost-effectiveness
- **The gift of time**: wherever possible the adoption of new technologies should enable staff to gain more time to care

- **Four themes: Genomics, AI & Robotics, Digital Medicine and Organisational Development**

The review : Dr Eric Topol

https://www.youtube.com/watch?v=f2UTxtgSFzU

Themes

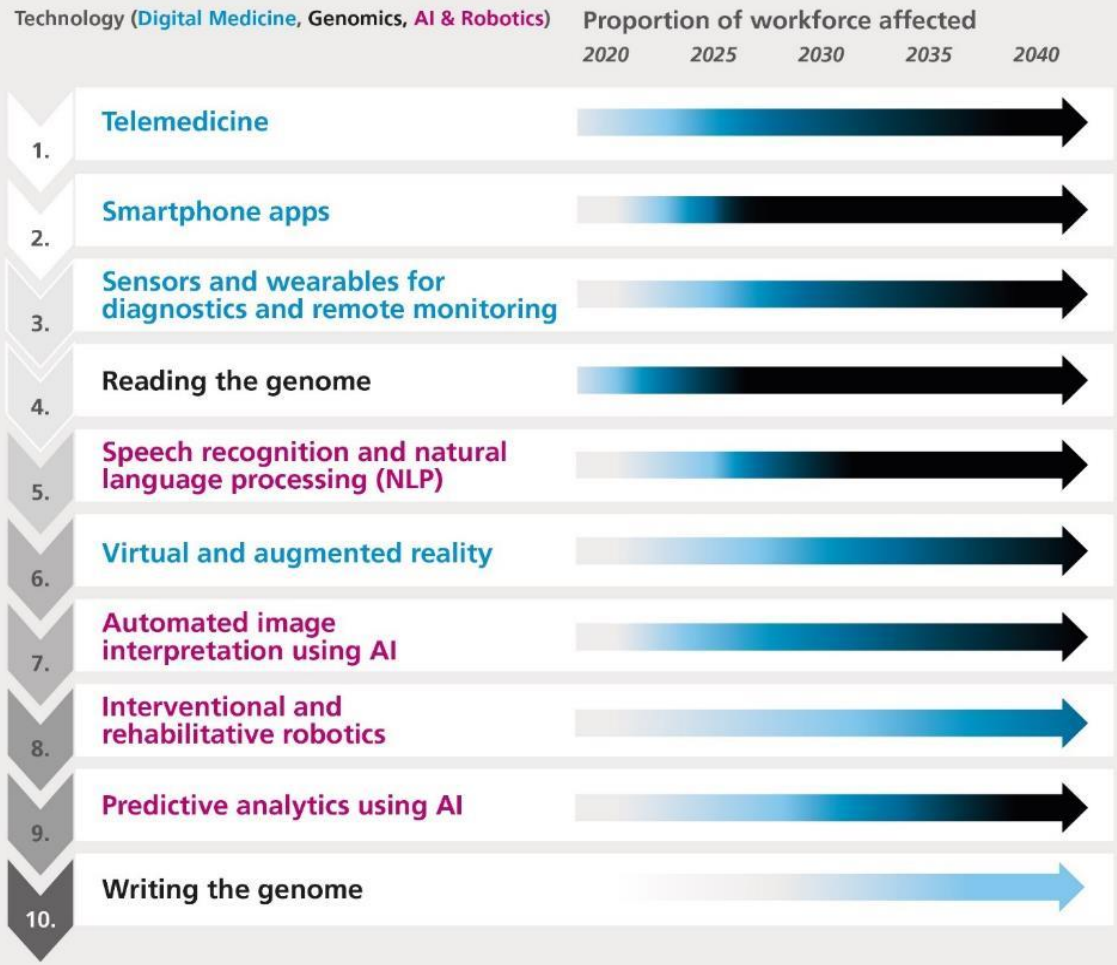
Genomics

Artificial intelligence and robotics

Digital medicine

Organisational development

Top technologies



Arrow heat map represents the perceived magnitude of impact on current models of care and, by inference, on the proportion of workforce affected.

- <20%
- 50%
- 80%
- >=80%

7.3.1 Telemedicine (Example 1 in Figure 1 – Chapter 3): Brighton and Sussex University Hospital Trust Virtual Fracture Clinics

Virtual fracture clinics, as described in Chapter 3, have been shown to be effective, improving several key clinical performance parameters and potentially providing substantial cost-savings for local Clinical Commissioning Groups (CCGs).[123] If these clinics were introduced nationally, they could potentially deliver very large savings for the NHS.

Annually, there are approximately

7.6 million

trauma and orthopaedic outpatient appointments[124]

At least

50%

of fracture clinic appointments could be virtual[93,125]

Virtual fracture clinic appointments reduce the total number of appointments needed by

15%[126]

If scaled up, this would equate to a time saving approximating

570,000

15-minute outpatient appointments

Equivalent annually to approximately

142,000

hours of outpatient clinic time

80

healthcare professionals' time back for clinical care

7.3.4 Remote monitoring (Example 3 in Figure 1 – Chapter 3): Airedale and Partners Enhanced Health in Care Homes Vanguard

The Airedale Digital Hub provides tele-consultations between nursing and residential homes and experienced clinicians, 24 hours a day, seven days a week. The hub assesses and triages all requests for clinical advice and consultation, including GP visits, and refers the patient for the most appropriate care. Figures for 2017 suggest that 90% of consultations resulted in patients remaining in their nursing/care home, approximately 38% of GP referrals could be saved, and ambulance conveyances decreased by up to 40%.[132]

There are approximately

295,000

A&E attendances for care home patients annually in the UK

268,000 patients conveyed by ambulance

approximately **250,000** admissions[133,134]

17 days[135] average length of stay

Remote monitoring supported by a Digital Hub has the potential to prevent approximately

40% of ambulance conveyances, A&E attendances and hospital admissions

Annually, that is approximately

107,000 ambulance conveyances

118,000 A&E attendances

102,000 admissions

1,740,000 bed days

3,164 nurses' time back for clinical care

Annually, the avoided activity is the equivalent to approximately

218,000 hours of A&E consultation time

124 doctors' time back for clinical care

53,000 hours of ambulance time

30 paramedics' time back for clinical care

This has to be set against the numbers of Digital Hubs which would need to be set up nationally, and the number of staff needed to run these hubs 24 hours a day, seven days a week.

7.3.5 Speech recognition (Example 5 in Figure 1 – Chapter 3): South Tees Hospital NHS Foundation Trust Accident and Emergency

South Tees Hospital NHS Foundation Trust A&E department introduced clinical speech recognition as a way of dealing with the rising volume of clinical documentation resulting from increasing patient numbers. The technology improved the ease and speed with which clinical documentation was completed, as well as the quality of documentation. When compared with handwriting, typing or traditional dictation, the technology was found to save three minutes per patient, freeing up vital time for clinicians in A&E to see and treat patients.[136]

Each year there are approximately

24 million A&E attendances[137]

63 million outpatient attendances[138]

340 million GP consultations[139]

Using a conservative estimate of

one minute saved per patient consultation

Annually, that equates to approximately

400,000 hours of A&E consultation time → **230** A&E doctors' time back for clinical care

one million hours of outpatient clinic time → **600** hospital doctors' time back for clinical care

5.7 million hours of GP consultation time → **3200** GPs' time back for clinical care

7.3.6 Automated image interpretation (Example 7 in Figure 1 – Chapter 3): Diagnostic support in Radiology

Automatic image interpretation using deep learning for the automated detection of breast cancer has been described as a use case in Chapter 3. The aim is to improve the accuracy of screening while benefiting the workforce by eliminating the need for a second reader of the mammography scans.[140]

Radiologists conservatively spend at least

60%

of their time reviewing images.[141]

Eliminating the need for a second reader represents a

30%

reduction in the time spent reviewing mammograms.

If we assume that what has been achieved with mammography can also be applied to a large extent to other medical images reviewed by radiologists, **AI methods such as deep learning have the potential to reduce the time radiologists spend reviewing images by**

20%[141]

Each year there are approximately

41 million

medical images taken and read by the UK NHS workforce of

4,204

radiologists.[142, 143]

Annually, the potential impact of AI technologies on diagnostic radiology equates to the equivalent of approximately

8.2 million

images

890,000

hours of radiologist time

500

radiologists' time back for clinical care

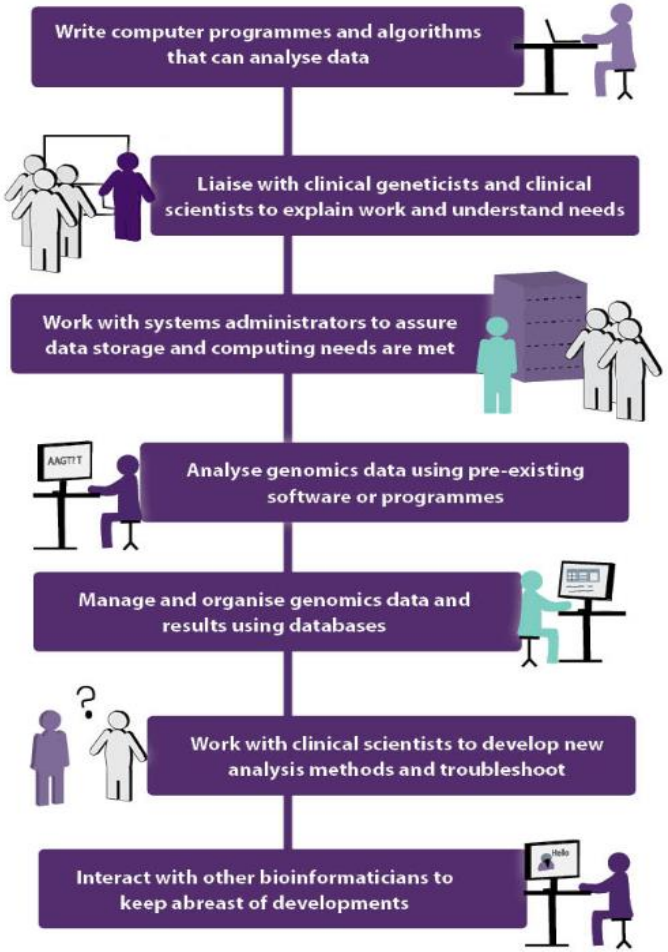
Role of the Clinical Bioinformatician

Bioinformatics

An interdisciplinary field which combines concepts and knowledge from computer science, statistics and biosciences in order to manage, mine, visualise and analyse biological and medical data.

Clinical bioinformatics

The clinical application of bioinformatics-associated sciences and tools to inform the medical management of human disease[2].

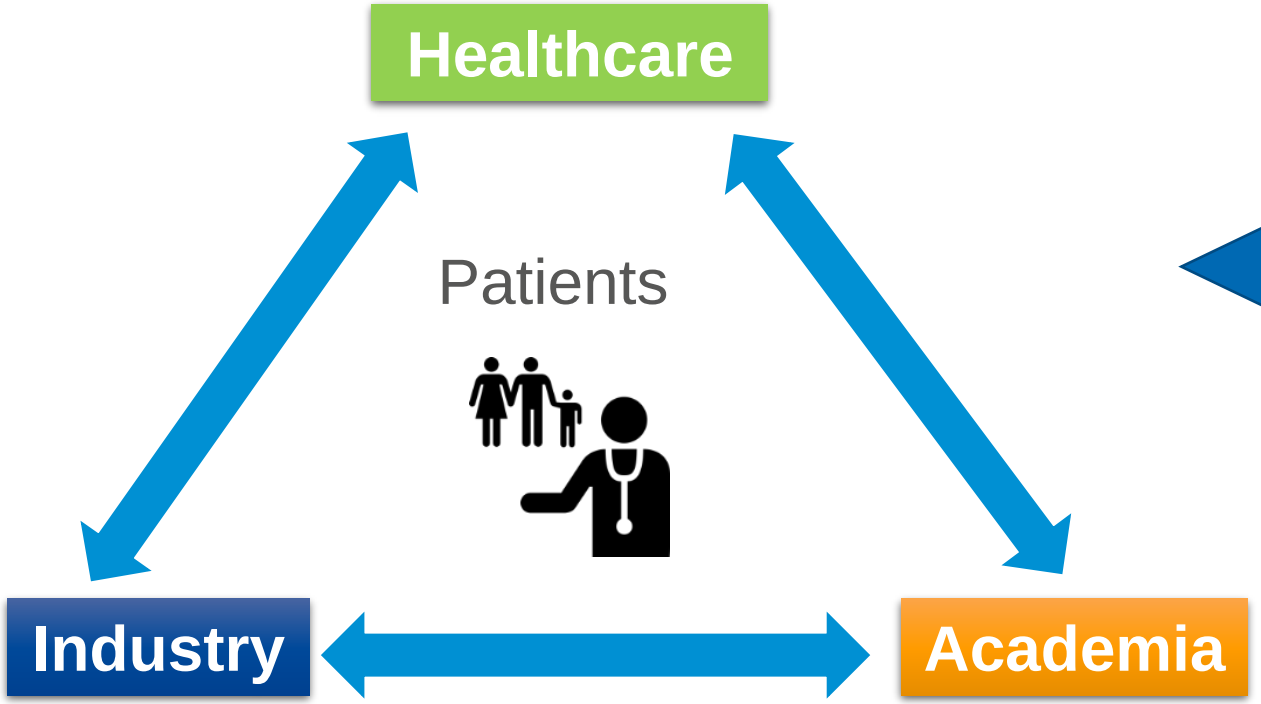


June 2014

Author
Sobia Raza
sobia.raza@phgfoundation.org

phgfoundation
making science work for health

Digital Transformation: A 4-way Partnership



The model

Engagement & education

Team Science

Communities of practice

Agile

Digital Champions

Enabling

Case Study

Time for Care

Team Science

optasia MEDICAL

NHS
Manchester University
NHS Foundation Trust

Title: Prediction of healthcare outcomes in Osteoporosis patients

Data: Existing CT scan data from patients with Osteoporosis

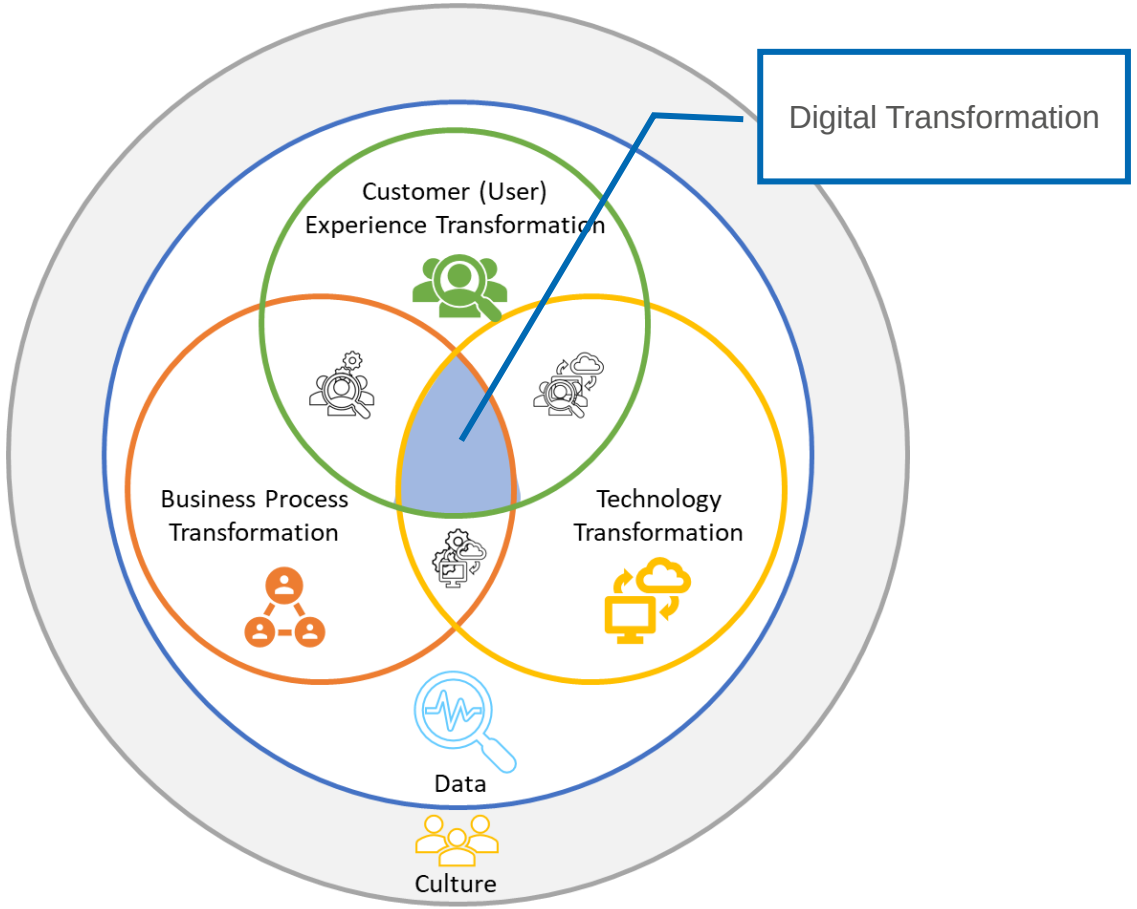
Solution: AI algorithm identifies vertebral fragility fractures from regular CT scans, flags them, results are verified by a consultant radiologist and report is returned to the hospital, patients can then be given appropriate drug regime to strengthen bone density – and precious time of radiologists is freed up

The Current NHS Educational Challenge

- 1.4M staff
- Wide ranging roles
- Many jobs have a digital element
- Current training is often one size fits all
- Impact and effect mostly unknown
- Crammed into already busy schedules

So, what is digital transformation?

- Digital transformation is the change in operating model that results from transforming the key areas of the organisation by leveraging technology;
- Digital transformation is not about technology;
- Successful digital transformation is driven by culture
- And leadership with a clear vision and strategy



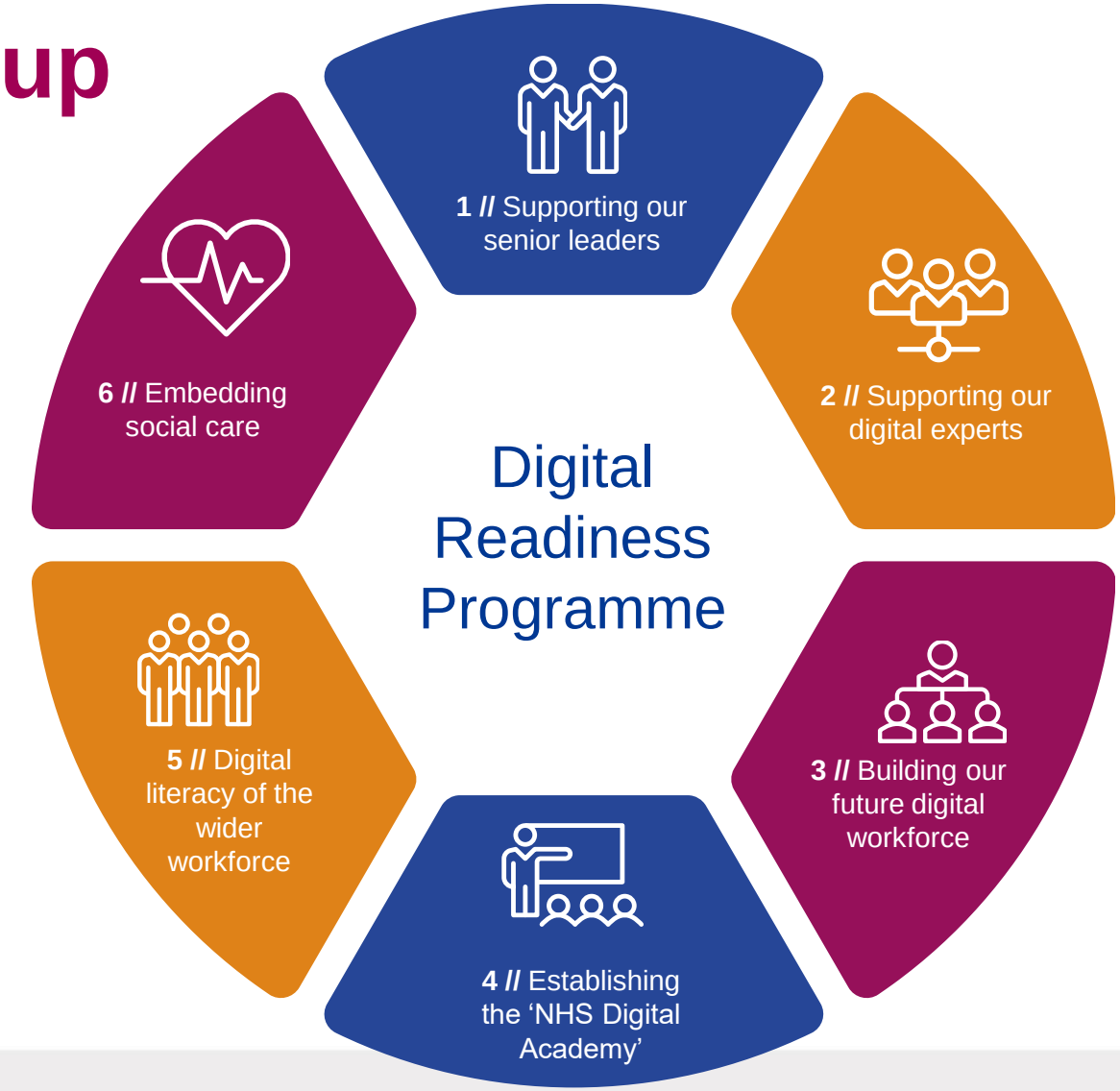
1 // What are we trying to achieve?

Challenges and Barriers

- Technology available and working with policies for use
- Changing shape and capabilities of digital workforce
- Rate of technological change very fast, workforce very large in number and often quite disparate
- No clear career pathway or professional 'home' for most digital roles
- Importance of senior leadership understanding digital
- Uncertainty re sustainability of workforce initiatives
- No single, contextualised place for digital learning
- Big shifts in post-COVID-19 ways of working

1 // How are we set up to deliver?

Delivery Workstreams



1 // How are we set up to deliver?

Supporting our senior leads

Board development
and support

Digital into leadership learning

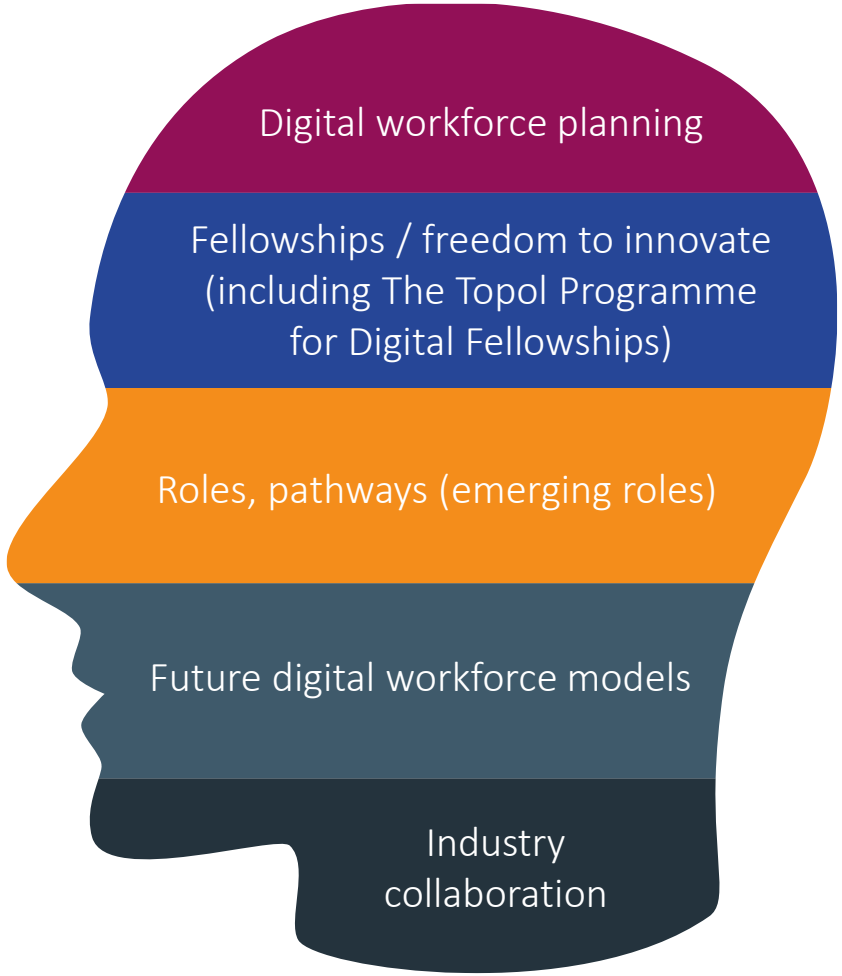
1 // How are we set up to deliver?

Delivery Workstreams

1 // How are we set up to deliver?

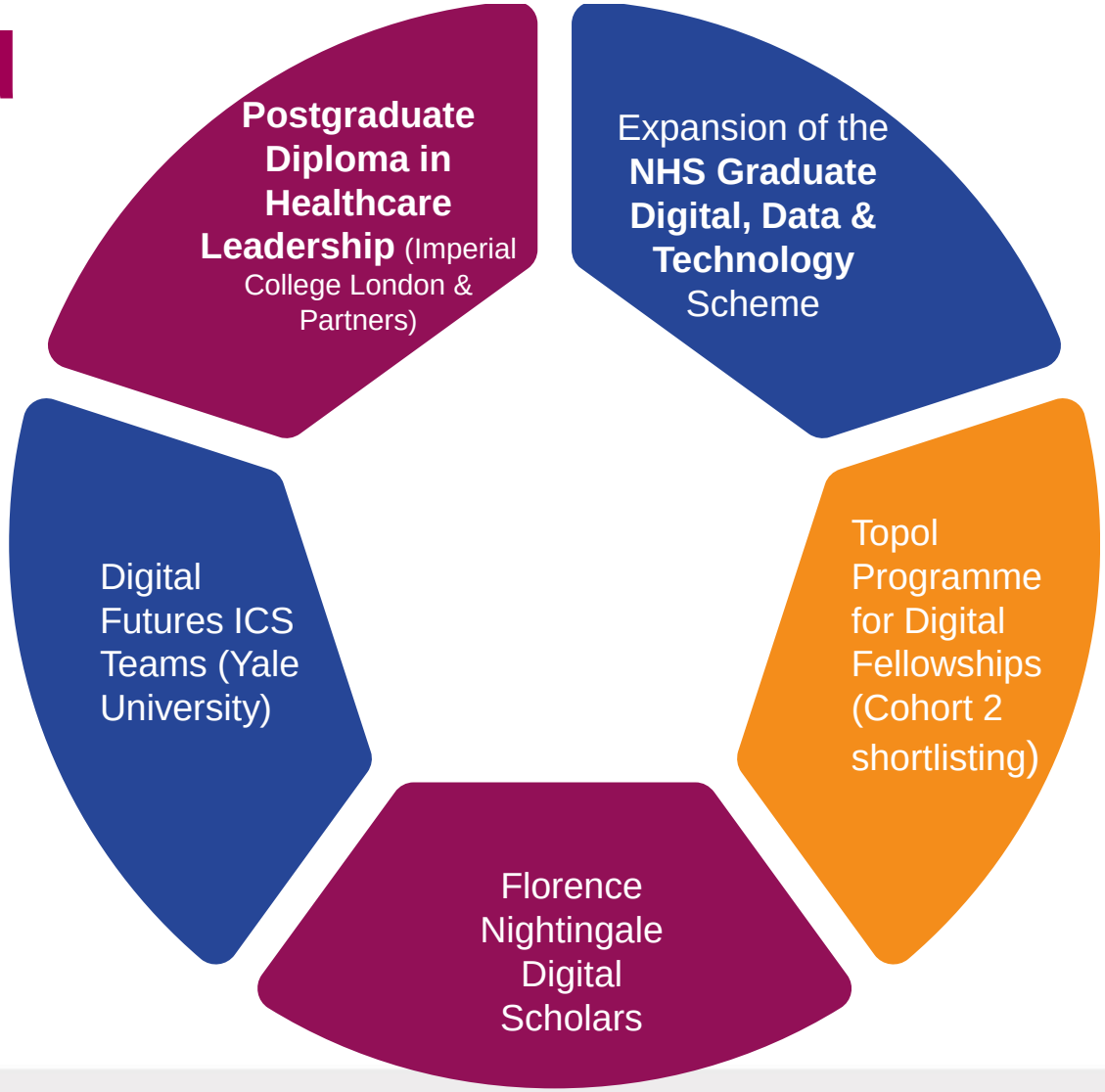
Delivery Workstreams

Building our future digital workforce



We commission and support a variety of learning programmes

Delivery Workstreams



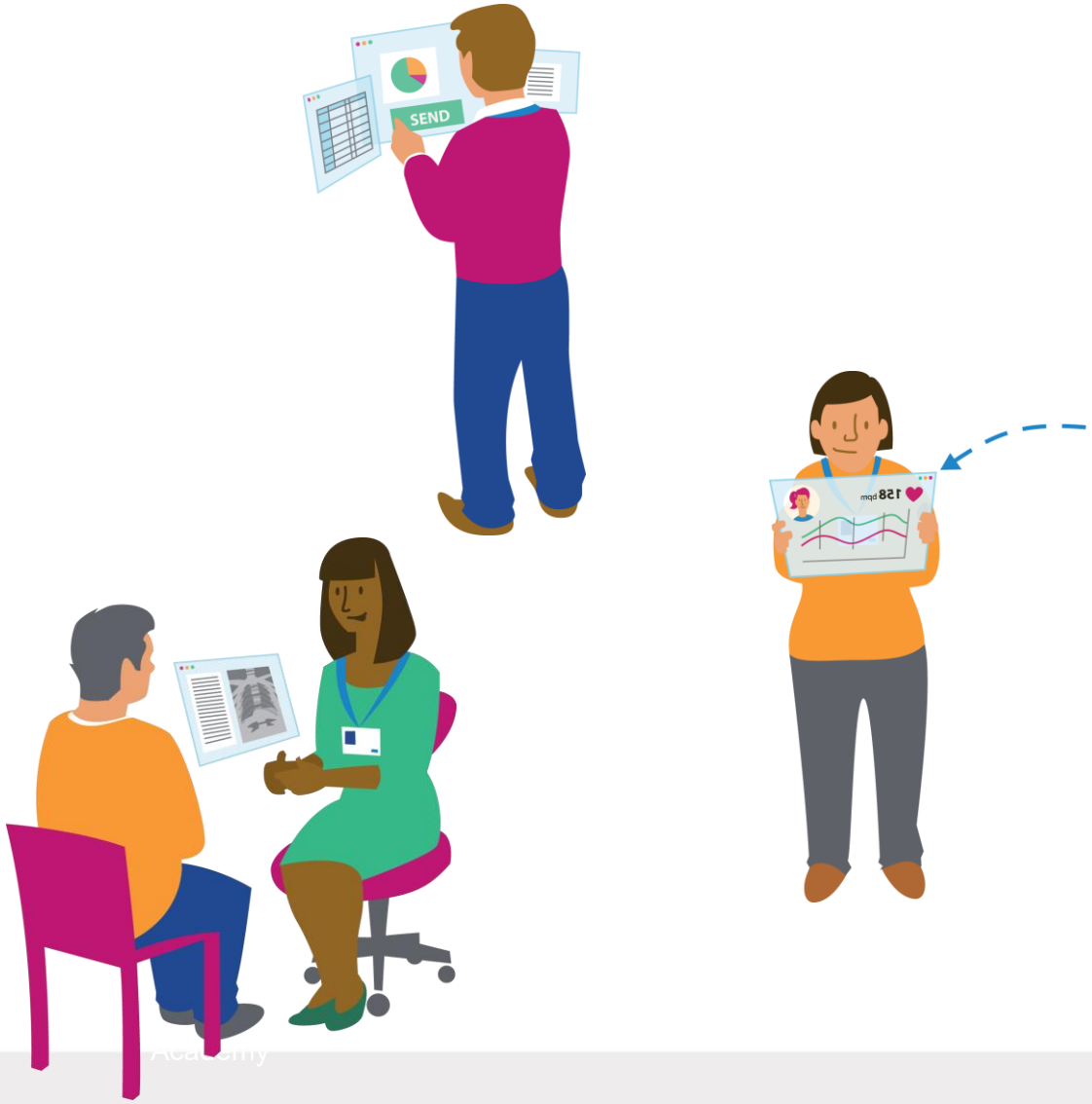
NHS Digital Academy

Graduates into Health

What is digital literacy?

Health Education England Definition

"Digital literacies are those capabilities that fit someone for living, working, learning, participating and thriving in a digital society."



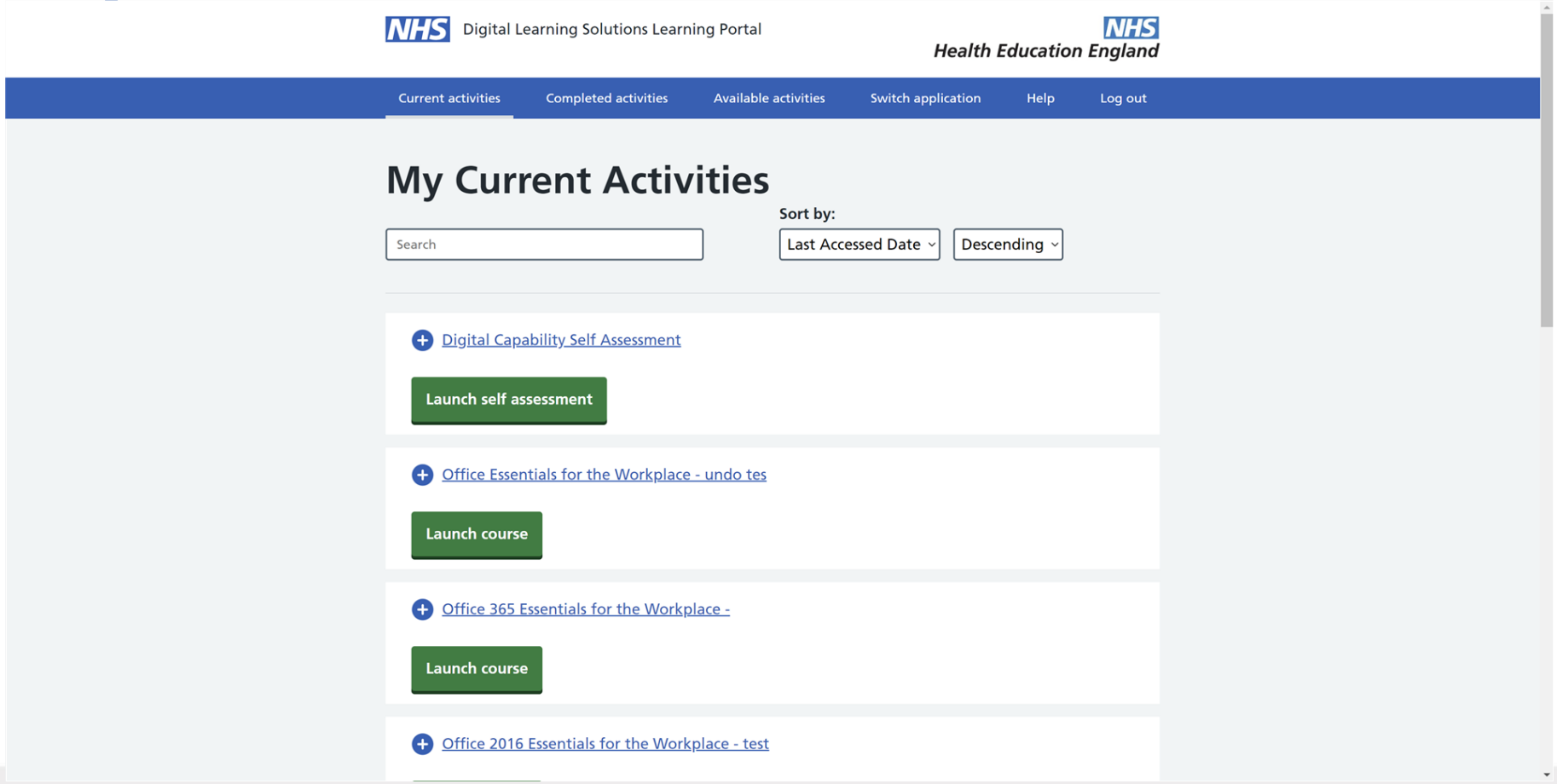
1 // How are we set up to deliver?

Digital literacy of the wider workforce

- Define digital literacy / assessment of needs
- Digital into undergraduate curricula
- Specific workforce areas (digital needs)
- Digital champions and pioneers
- Commission and curate learning
- Signposting tech and tools

2 // How are we set up to deliver?

Digital literacy healthcare of the wider workforce



2 // How are we set up to deliver?

Digital literacy healthcare of the wider workforce

NHS Digital Capability Self Assessment

Current courses > Self Assessment

Data, information and content

I can find, use and store information that exists in different digital locations e.g. on a PC, shared drives, via the internet

Where are you now

Beginner — Very confident

4

Where do you need to be

Beginner — Very confident

6

Question 1 of 32

Save and continue

< Go back

Skip >

X Exit Self Assessment

Terms of use | Accessibility | Privacy

2 // How are we set up to deliver?

Digital literacy healthcare of the wider workforce

NHS Recommended Learning Resources

Current courses > Self Assessment > Recommended Learning Resources

< Back to Self Assessment

Recommendations

Favourites

How to innovate like a startup in association with Thomson Reuters

Online course | Barclays / Digital Eagles | 2 minutes

View resource

Based on your overall profile

Let's Bridge The Digital Divide

Video | TED | 10 minutes

View resource

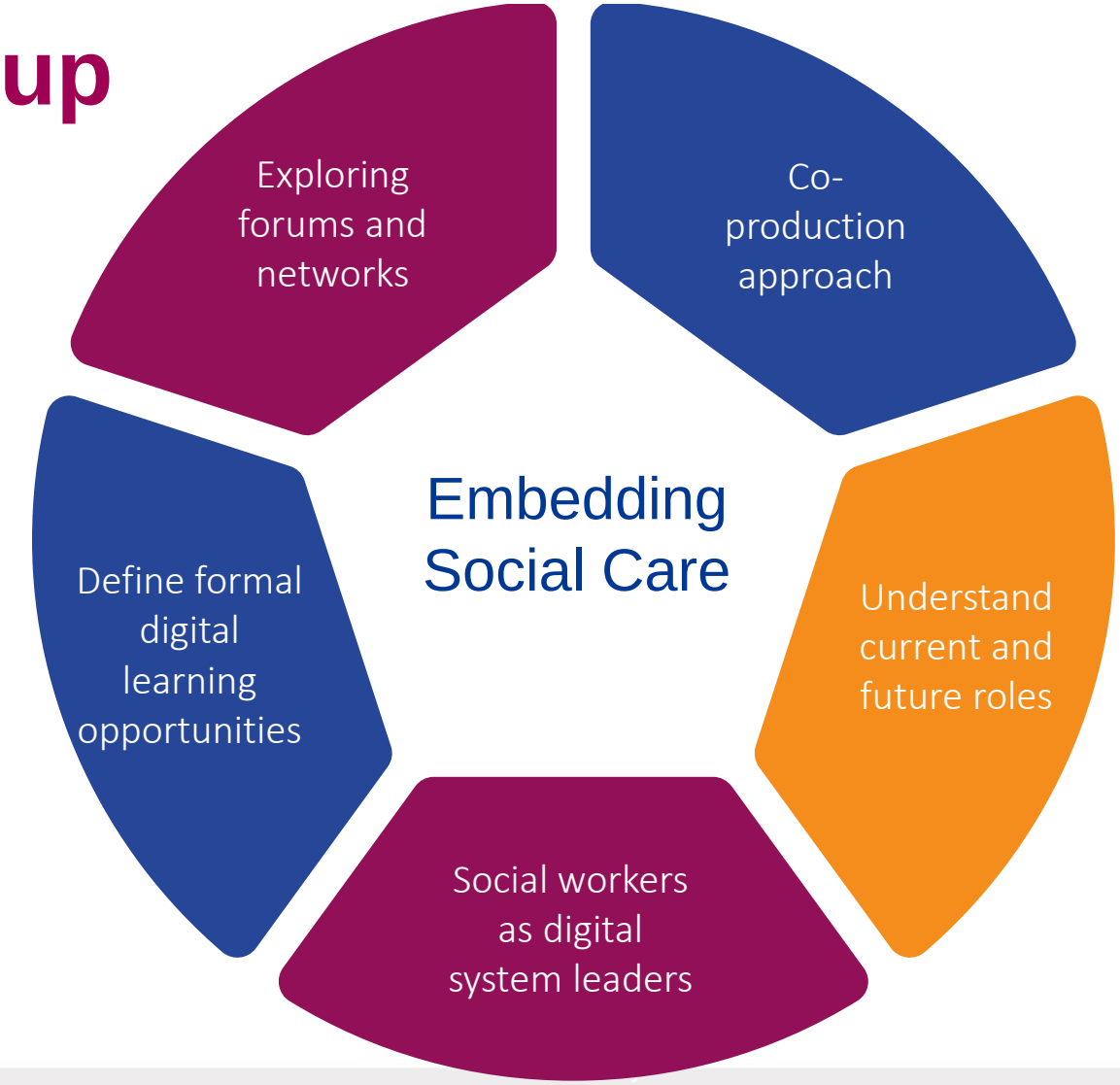
My computer keeps freezing – help!

Article | Digital Unite | 2 minutes

View resource

1 // How are we set up to deliver?

Delivery Workstreams



Technology Enhanced Learning
HEE Platforms and content development

We offer a comprehensive digital platform service to users across three of our own platforms and two 3rd party platforms

e-LfH
e-Learning for Healthcare

- Over 400 e-learning programmes
- The e-learning programmes are developed in partnership with the NHS, third sector and professional bodies across 1.3m registered users

NHS
Learning Hub Beta

- Launched May 2020
- Providing access to a wide range of resources shared and contributed by organisations and the health and care workforce across 1.3m registered users

Digital Learning Solutions

- Providing a platform that hosts national digital literacy training content and locally developed clinical systems learning
- Supports over 300 health and care organisations

Blended Learning Programme

The aim of the programme is to commission a creative, innovative, accessible and flexible nursing degree that uses innovative means in digital and other technologies.

HEE mandate to increase nursing workforce

Includes leading edge digital and immersive technologies – risk of overusing wrong tech

Developing digitally capable faculty and future workforce

Promotion of alternative routes e.g. blended learning

More flexible learning and widening access to nursing careers

Collaboration with 7 universities signed up, delivery from January 2021

The “health warning”

Digital technology is a game changer in an organisation grounded in human skills

The need for us not to lose sight of the human skills fundamental to working in healthcare - empathy, compassion, kindness - particularly as people’s jobs evolve in a more technological advanced way.

“It really will be transformative that eventually… the patient will be truly at the centre.”

Eric Topol, MD

Visit https://topol.hee.nhs.uk

@PMitchellHEE
@HEE_DigiReady
@HEE_TEL

Download the report
Films, blogs, resources
Weekly Tech bulletin