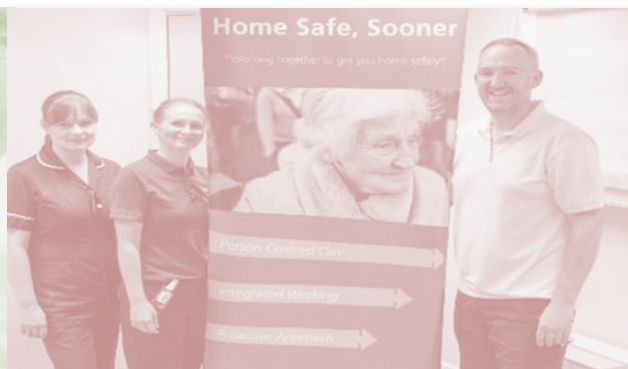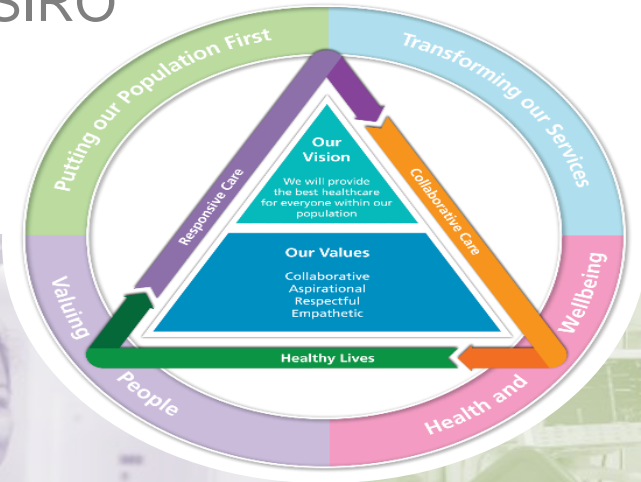# Digital Health Rewired 2022
Digital Transformation

"*The Digital Hospital of Things*"

Prof. Graham Evans
Chief Information & Technology Officer/SIRO

Excellence as our Standard

Collaborative | Aspirational | Respectful | Empathetic

National and Local Context

Life expectancy has stopped increasing in England, and in some areas is reducing

Health inequalities are widening and England lags behind comparable nations of many key measures of health outcomes

Demand on NHS services has been increasing, but much of that extra demand is for treatment of conditions which are preventable
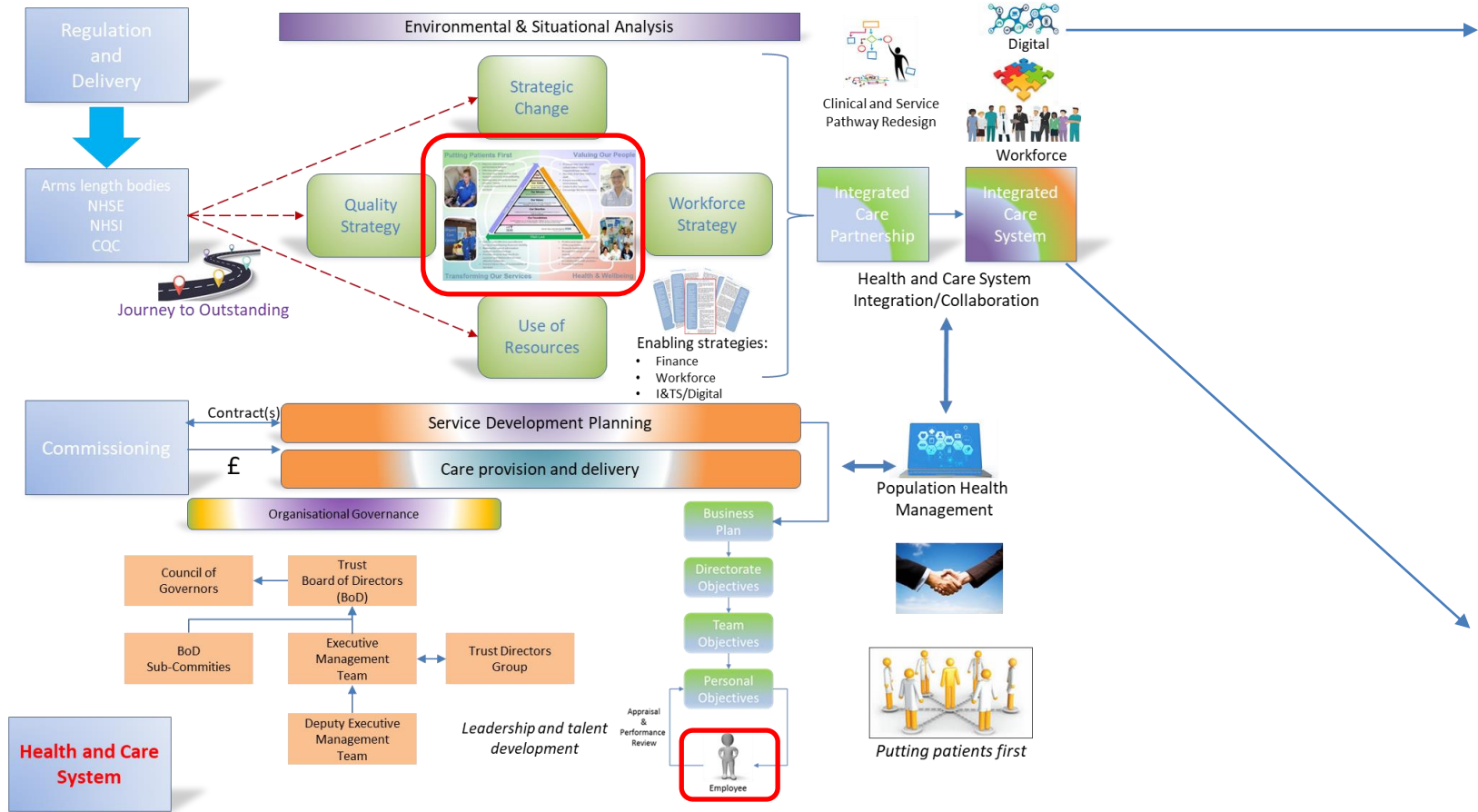
COVID and more complex conditions

Lack of suitably trained and experienced staff

Cost of care increasing at a greater rate

Inequality of access to services and poorer outcomes

NHS COVID-19

The importance of Digital for NTHFT

***Our Trust*..**

- considers digital as an 'investment' not a cost.

- has a history and legacy of technology (digital) enabled change, what we do is not an accident..

- organisational transformational change, is about; "*People, Process and Technology*".

- corporate strategy enacted by underpinning enabling strategies – i.e. digital.

- leadership and vision – Executive Director professionally qualified and experienced.

- create the conditions and environment on solid digital foundations, from this the future opportunities can be built as we will now see…..

Digital journey and strategy

Organisational – Strategic alignment

Digital Hospital of Things - origins

The **Internet Of Things** (**IoT**) describes the network of physical objects, so known as, "things" — that are embedded with sensors, software, and other technologies that is used for the purpose of connecting and exchanging data with other devices and systems over the Internet

GDE – "Digital Hospital of Things" - initiatives
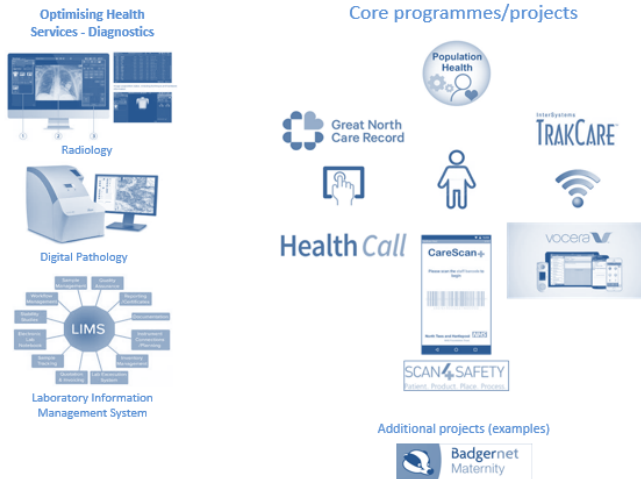
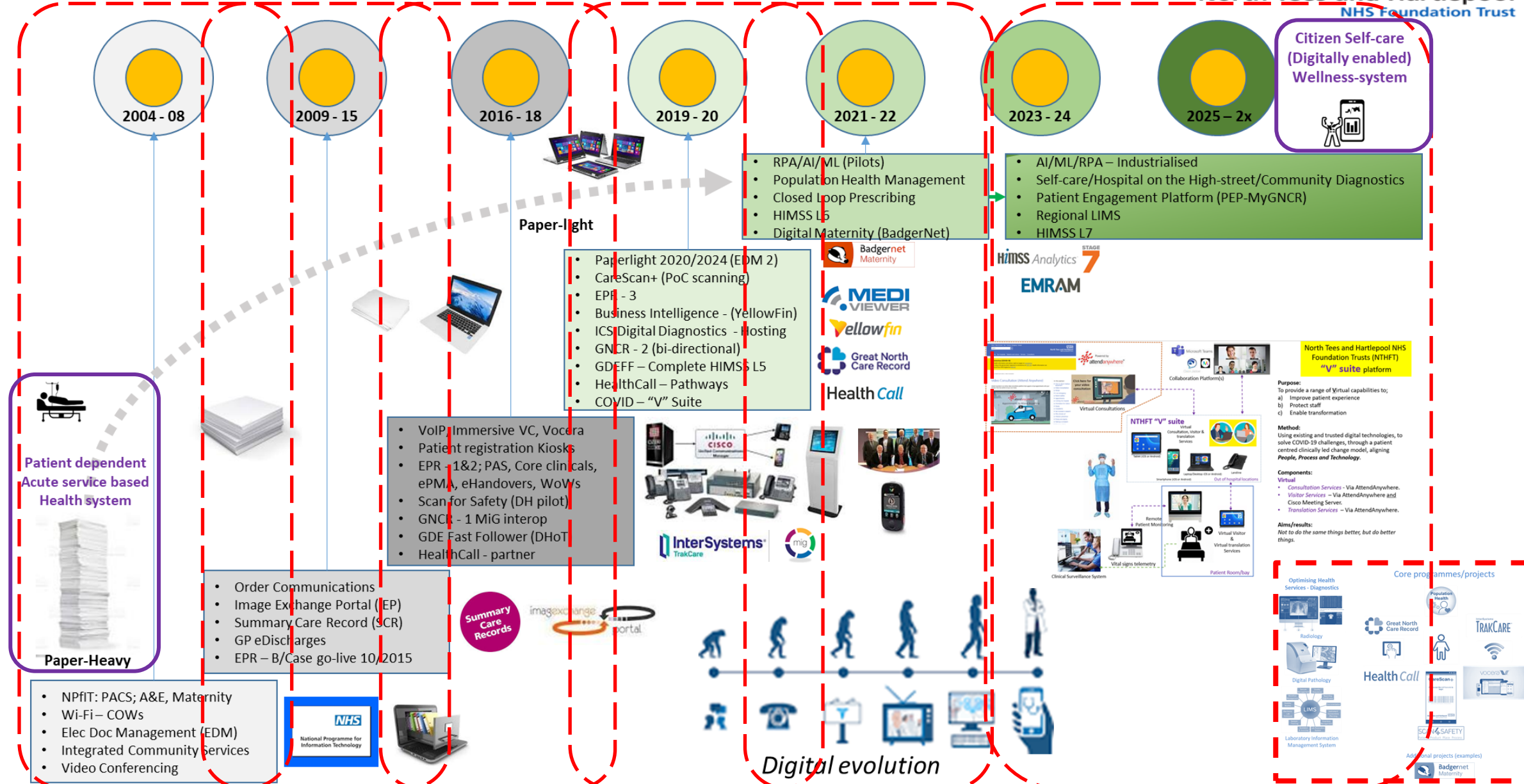The **Digital Hospital of Things (DHoT)** is our overarching digital transformation programme, that brings together, a range of physical and virtual elements "things" — these systems, technologies and services are used for the purpose of providing an "enterprise-wide" experience for the patients and population we serve and our clinical support teams delivering high quality care.

Digital Hospital of Things - evolution

2004 - 08 | **2009 - 15** | **2016 - 18** | **2019 - 20** | **2021 - 22** | **2023 - 24** | **2025 – 2x**

Citizen Self-care (Digitally enabled) Wellness-system

Paper-light

- RPA/AI/ML (Pilots)
- Population Health Management
- Closed Loop Prescribing
- HIMSS L5
- Digital Maternity (BadgerNet)

- AI/ML/RPA – Industrialised
- Self-care/Hospital on the High-street/Community Diagnostics
- Patient Engagement Platform (PEP-MyGNCR)
- Regional LIMS
- HIMSS L7

Badgernet Maternity

MEDI VIEWER

Yellowfin

Great North Care Record

HealthCall

HIMSS Analytics STAGE 7
EMRAM

- Paperlight 2020/2024 (EDM 2)
- CareScan+ (PoC scanning)
- EPR - 3
- Business Intelligence - (YellowFin)
- ICS Digital Diagnostics - Hosting
- GNCR - 2 (bi-directional)
- GDEFF – Complete HIMSS L5
- HealthCall – Pathways
- COVID – "V" Suite

North Tees and Hartlepool NHS Foundation Trusts (NTHFT) "V" suite platform

Patient dependent Acute service based Health system

- VoIP, Immersive VC, Vocera
- Patient registration Kiosks
- EPR -1&2; PAS, Core clinicals, ePMA, eHandovers, WoWs
- Scan for Safety (DH pilot)
- GNCR - 1 MiG interop
- GDE Fast Follower (DHoT)
- HealthCall - partner

CISCO Unified Communications Manager

InterSystems TrakCare   mig

- Order Communications
- Image Exchange Portal (IEP)
- Summary Care Record (SCR)
- GP eDischarges
- EPR – B/Case go-live 10/2015

Summary Care Records

imagexchange portal

Paper-Heavy

- NPfIT: PACS; A&E, Maternity
- Wi-Fi – COWs
- Elec Doc Management (EDM)
- Integrated Community Services
- Video Conferencing

NHS National Programme for Information Technology

Digital evolution

Optimising Health Services - Diagnostics
Core programmes/projects

Digital Hospital of Things - initiatives

Optimising Health Services - Diagnostics

Radiology

Digital Pathology

Laboratory Information Management System

Core programmes/projects

Population Health

Great North Care Record

InterSystems TrakCare

Health Call

CareScan+
Please scan the staff barcode to begin

vocera V

SCAN4SAFETY
Patient. Product. Place. Process.

Additional projects (examples)

Badgernet Maternity

Accreditations

Data Security and Protection Toolkit

NHS mail

CYBER ESSENTIALS PLUS

Electronic Document Management

ISO®

Digital exemplars

GDE FF £ Investment
Where appropriate, business "owned" schemes, business benefits, supported by approved **business cases**

Digital Hospital of Things - delivery

The initiatives

The alignment

The delivery plan

Rolling - plan
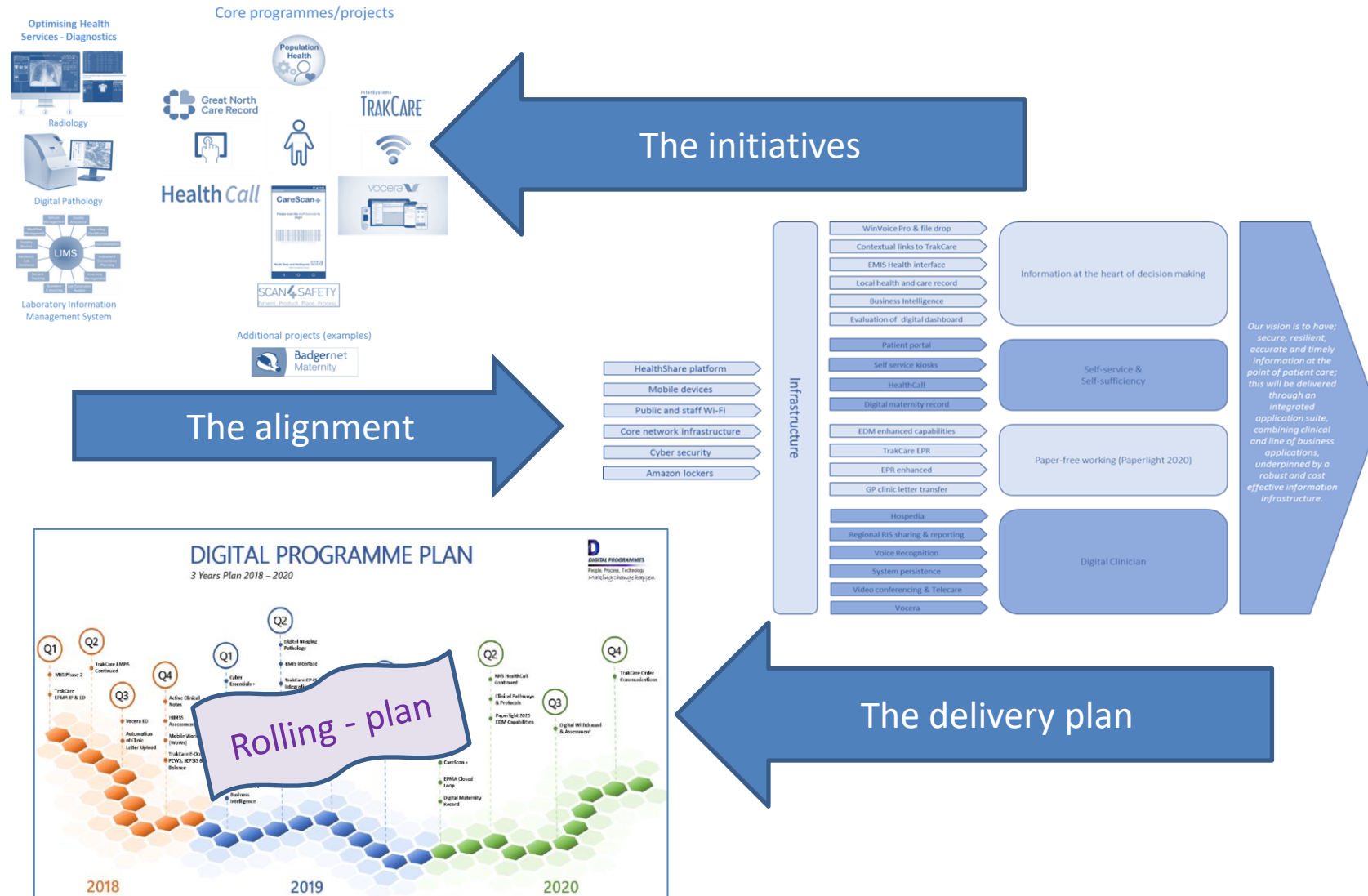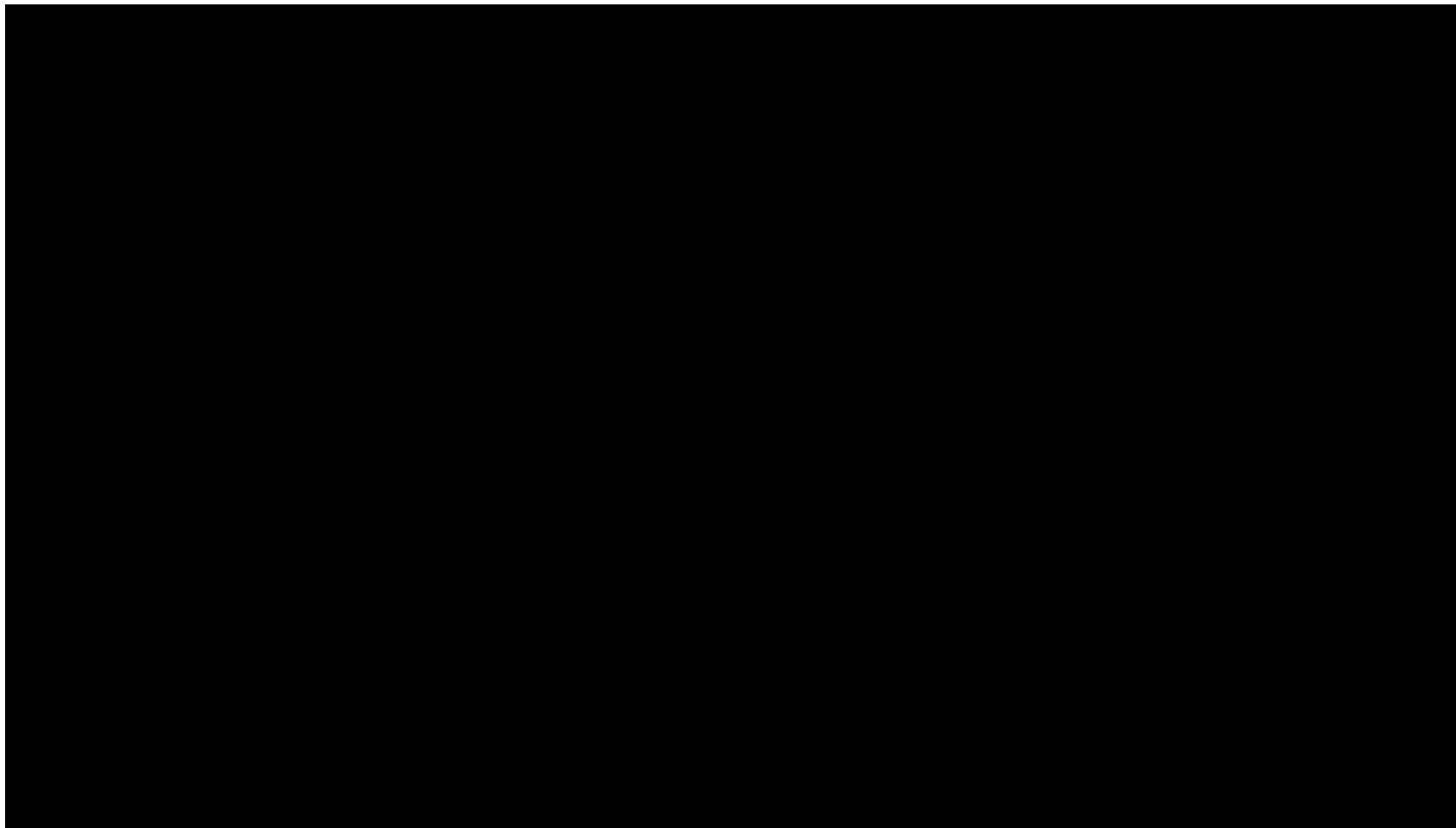
Measuring the impact

Reaping the benefits – what our 'customers' said…

"*Active Clinical Notes* has made managing the shop floor easier as we no longer have to search for notes, they are now easily accessed, instantly available on the screen in front of you and are legible. This has also had a positive impact on re-viewing abnormal results as we no longer need to request historic notes." - *Dr George Simpson, Consultant in Emergency and Paediatric Medicine*

"*Vocera* has already helped me improve patient flow communications throughout the department. It means I can just get in touch with someone by name, rather than trying lots of different numbers" *James Willingham, Patient Process Facilitator*

"*The way we manage and access patient information has massively changed since the first time I worked at the University Hospital of North Tees. Ultimately, it just makes much more sense when I compare it to my time using more paper-based systems. *TrakCare EPMA* has made it so much easier to ensure I can spend more time actively treating and caring for my patients, rather than being sat in a doctor's office hidden under piles of paperwork." – *Luke Ventress, Junior Doctor*

File Drop - "*Really get the feeling we've gone past tipping point, I can be at one PC and access handover/primary care/radiology /lab data/old letters/old ecg's/prescription/referrals…
Heaven!" – *Dr Nick Roper, Clinical Director (Emergency Services)*

The process was painless and I am loving *e-Obs*. The machines work faster and it makes handover of patients and huddles much quicker, safer and improves the quality of information at a glance. A big thank you to the Digital Programme team and all the staff on Ward 32.
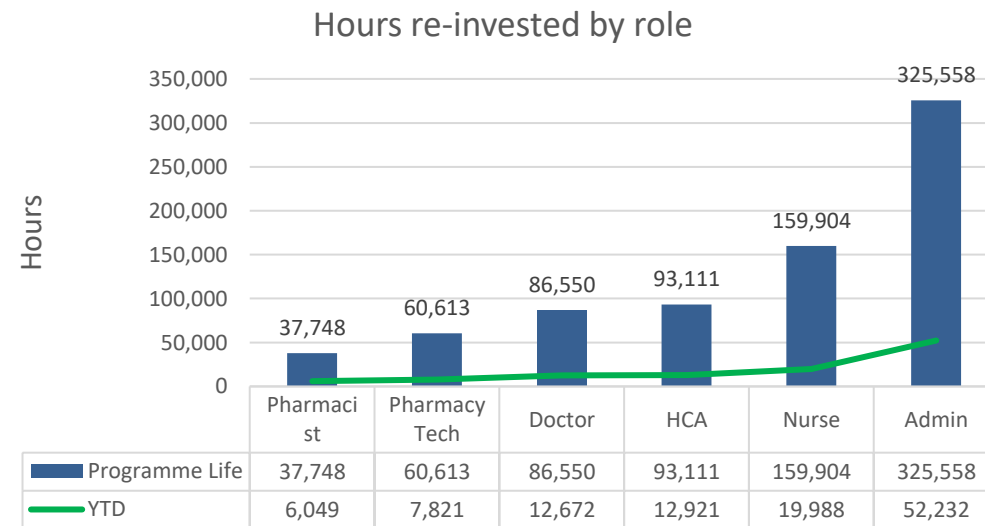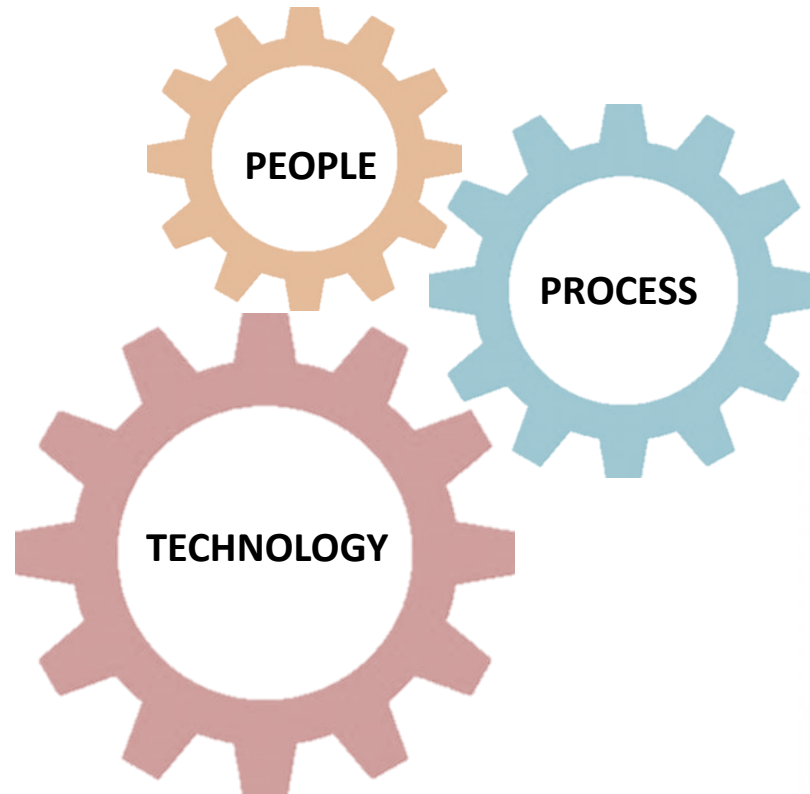*Hazel Jones – Ward Matron, Ward 32*

Benefits summary

CASH RELEASING SAVINGS

	Stationary Savings	Resource	Licences
YTD	£144,598	£26,478	£12,548
Overall Programme	£1,117,092	£169,456	£408,470

LICENCES: £12,548 / £408,470
RESOURCE: £26,478 / £169,456
STATIONARY SAVINGS: £144,598 / £1,117,092

Reduction Secondary Carbon Footprint

Tonnes C02e / Year

2019	2020	2021	2022	2023	2024	2025	2026	2027
9.36	20.37	20.92	39.21	39.34	39.34	39.34	39.34	39.34
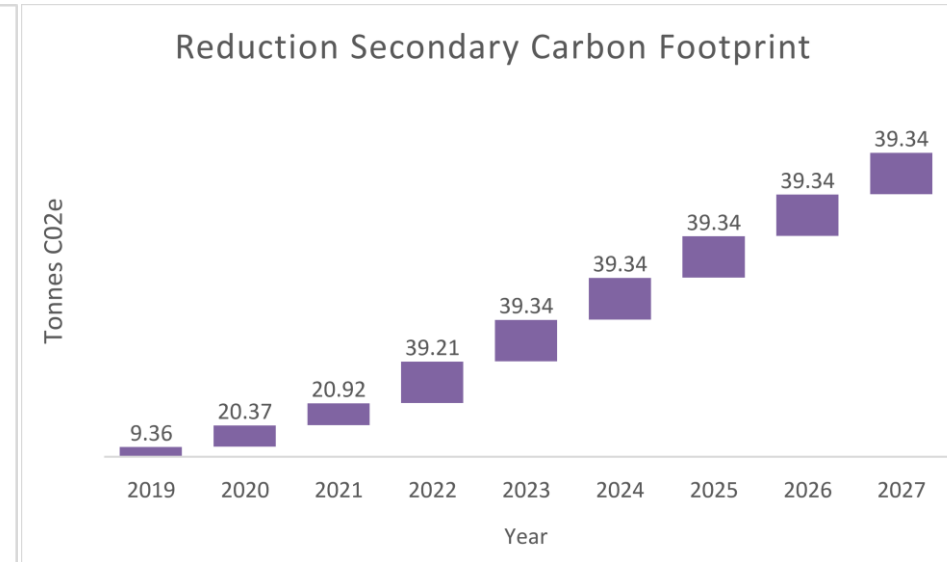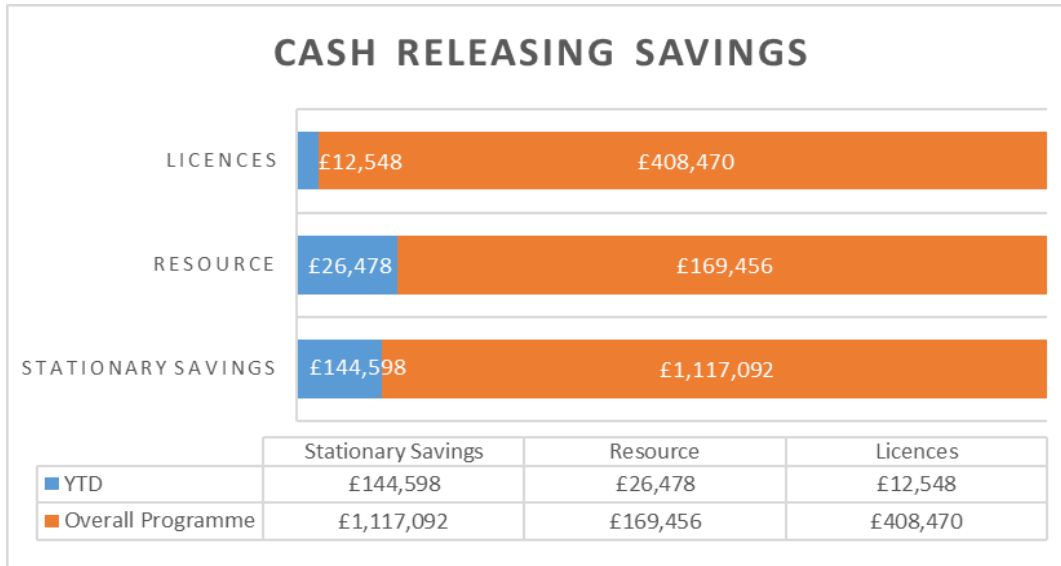
£1,695,018 cash saved by 2027

763,484 hours reinvested by 2027

286.56 tonnes of C02e saved by 2027

Hours re-invested by role

Hours

	Pharmacist	Pharmacy Tech	Doctor	HCA	Nurse	Admin
Programme Life	37,748	60,613	86,550	93,111	159,904	325,558
YTD	6,049	7,821	12,672	12,921	19,988	52,232

Success

PEOPLE

PROCESS

TECHNOLOGY

Once *people* are aligned,
the *process* is developed and clarified,
then *technology* can be applied.

Shared learning – *willing to learn, happy to share*

Case Studies

Poster Campaigns

Newsletters

Blueprints

"you asked, we did"

Collaborative | Aspirational | Respectful | Empathetic

Digital priorities

PEOPLE
PROCESS
TECHNOLOGY

EPR
InterSystems® TrakCare

Electronic Prescribing

DIGITAL PROGRAMME PLAN (Q2)
3 Year Plan 2020-2023

DIGITAL PROGRAMME
People, Process, Technology
Making change happen

GDEFF - PDC 'matched' fund
Wisely invested, enabled transformations, business "owned".

Used to supplement and speed up rate of transformation. Build on solid organisational foundation.
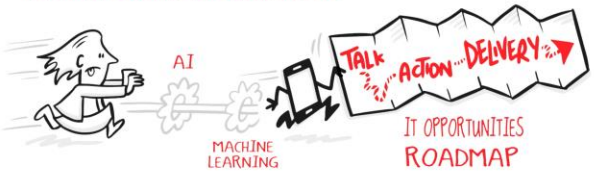
Opportunity
Share, learn and transform

Outcome of GDE/FF Programme
HIMSS Level 5
National Digital Leader

HIMSS Level 6
Gap analysis undertaken

Several years of significant technology investment and delivery
Good level of Digital Maturity

HIMSS Level 6
Target

Q1
- HIMSS 5 Accreditation
- Central Obs Monitoring System (POC)
- P1 Sunquest ICE interface to TrakCare
- Trust wide Migration to NHS.Net

Q2
- CP–IS (adhoc)
- eObs across all Inpatients
- Clinician Admission Document Digitised
- NEAS Handover
- GNCR Health Info Exchange
- COVID19 Results Pre-Assessment
- HealthCall Hypertension Path'y

Q3
- Nursing & Doctors Handover (POC)
- Carescan+ in Theatres HP
- EPMA Optimisation
- TrakCare T2020 testing to commence
- **HIMSS 6 Gap Analysis**
- Diagnostics eObservations

Q4
- EDM initiation commences
- Carescan+ in Theatres NT
- Assessment & Withdrawal
- Interface with HIE
- iCan

Q1
- HealthCall Pain Management Diary
- HealthCall Prostate Cancer
- P2 ICE Ordering via TrakCare
- Central Obs Monitoring System
- EPMA - Theatres
- T2020 TrakCare upgrade (MR4)
- Ascribe Interface
- A&E Continuous Monitoring
- Clinical Noting for ITU Initiation
- EPMA Injectables quick wins

Q2
- GNCR Patient Engagement Platform
- Nursing Admission Document Digitised
- A&E Mindray Interface
- eObs phase 2, ordering & escalation
- Cyber Essentials+ Accreditation
- Nursing & Doctors Handover
- WinVoice Pro upgrade
- Digital Communication Trust wide
- Maternity Enhancements
- EDM/MediViewer Soft Launch
- Imprivata roll out
- Observation Dashboard
- CareScan+ to external Trusts
- Endoscopy enhancements

Q3
- GP letter transfer through MESH
- Vocera
- TrakCare patch (MR6 or above)
- HealthCall API to TIE
- Voice Recognition
- Clinical Pathway
- IMO (coding Integration)

Q4
- iGrow Chart (Paeds)
- Closed Loop milk
- Closed Loop Blood from Point of Care
- NEAS Handover Pre-reg
- HealthCall Digital Consultations
- Closed Loop Medicine Administration
- EPMA Injectables
- Theatre/recovery eObservations
- PharmOutcomes
- EPMA Outpatients (FP10)
- **HIMMS 6 Achieved**

Q1
- Maternity EWS
- Theatres Module (TrakCare Improvements)
- ITU Module (TrakCare)

Q2
- EDM/MediViewer roll out complete
- Clinician Dashboards
- eConsent / Medical Decisions
- Outpatient eBooking
- Outpatient Active Clinical Notes

Q3
- T2021 TrakCare upgrade
- T2021 TrakCare MR6?

Q4
- Omnicell Interface
- Digital Keys
- Order Communications (TrakCare)
- ACN Optimisation
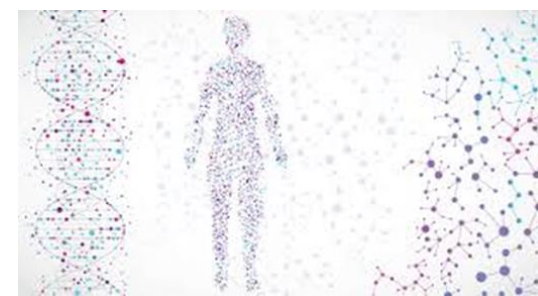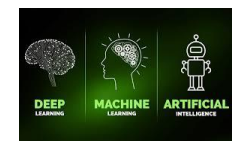- MEUI

2020-21
2021-22
2022-23

Digital transformation – where are we heading?

TECHNOLOGY IS CHANGING...FAST

AI
MACHINE LEARNING

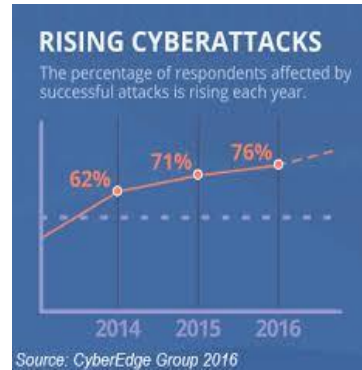TALK ACTION DELIVERY
IT OPPORTUNITIES ROADMAP

- Community Diagnostics
- Population Health (*Health Equality/Inequality/Digital Inequality*)
- Hospital on the High street
- Trusted Research Environment
- Artificial Intelligence (AI) Machine Learning
- Robotic Process Automation (RPA)
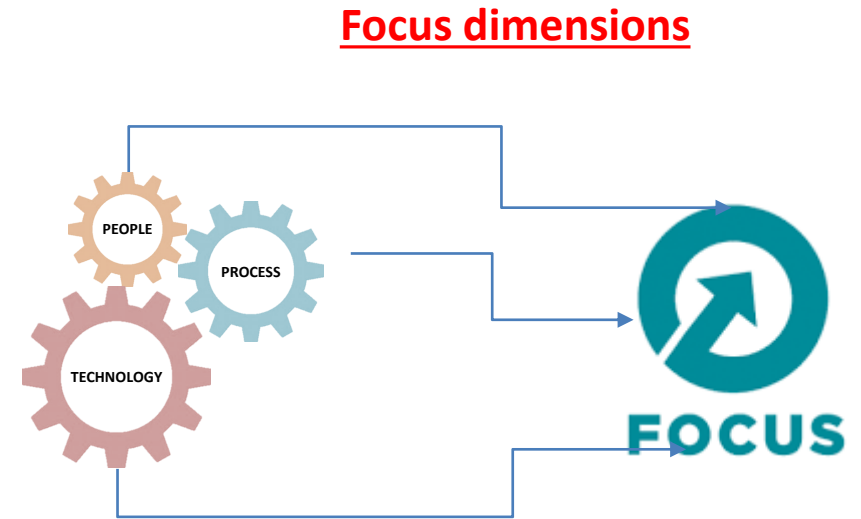- Genomics
- Precision Medicine
- Person centred care

THE GAME CHANGERS

Smartphones and wearables

Artificial intelligence

At-home or portable diagnostics

Smart or implantable drug delivery mechanisms

Digital therapeutics and immersive technologies

Connected community

Robotics and automation

Genome sequencing

Cloud Tech = Computation & Collaboration

Refine
Diagnose & Collect
Analyze & Store
Treat
Access & Compute
Map & Match

DEEP LEARNING MACHINE LEARNING ARTIFICIAL INTELLIGENCE

But the basic building blocks need to be in place

Unintended consequences of digital adoption

Focus dimensions

Increasing digital dependency (and increasing cyber risk to an extent)

RISING CYBERATTACKS
The percentage of respondents affected by successful attacks is rising each year.
62% 71% 76%
2014 2015 2016
Source: CyberEdge Group 2016

digital DIVIDE

PEOPLE
PROCESS
TECHNOLOGY

FOCUS

Paper Heavy

Document Management System
Secure Access
Knowledge Share
Storage
Workflow
Search
Archive Manage Collaboration

Paper-Light

Paperless

2016

2018

2020 - 2024

Unintended consequences of digital adoption

Focus dimensions

Increasing digital dependency (and increasing cyber risk to an extent)

Paper Heavy

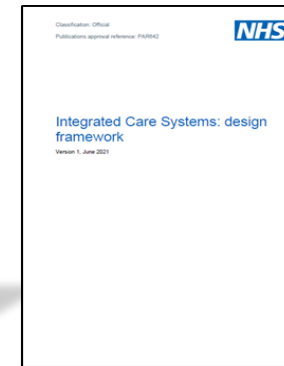**Paper-Light**   **Paperless**

2016

2018

2020 - 2024
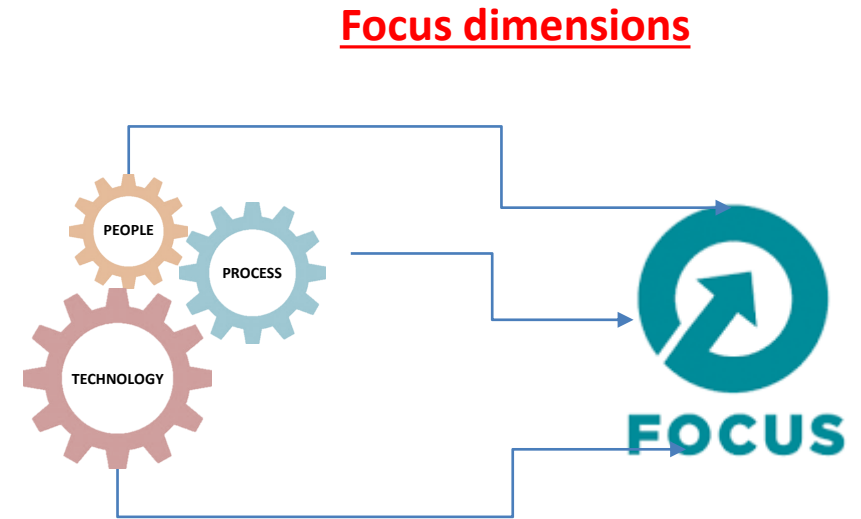
Strategy is delivery

- ❑ Digital dependency
  - ❑ *Digital is not an option, but a necessity.*
    - ▪ *What Good Looks Like (WGLL)*
    - ▪ *……….People, Process and Technology*
  - ❑ *Unintended consequences*
    - ▪ *Cyber-threat….*
    - ▪ *Digital exclusion*

- ❑ Alignment with;
  - ➢ ICS Next steps/Design Framework
  - ➢ Planning guidance
  - ➢ National Digital/Data Strategies

Integrating care
Next steps to building strong and effective integrated care systems across England

Integrated Care Systems: design framework
Version 1, June 2021

Digital transformation at scale: why the strategy is delivery

The Digital Hospital of Things…
Don't do the same things better, do better things