NHS
Essex Partnership University
NHS Foundation Trust

EPUT Data Strategy

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Why this strategy matters

Data and technology provides an opportunity to enable transformation and achieve the quadruple aim of better patient outcomes, national leaders for mental and community health, improved patient experience, and an organisational culture of learning.

The Strategy builds upon the Digital Strategy with a focus on how best the Trust can utilise data and transform it's business intelligence function and service provision to improve patient outcomes.

Our Vision

To be the leading Mental Health & Community Care services provider and a commitment to becoming a data-driven organisation to drive quality, change and patient outcomes.

Delivering our vision

We want to empower our people to use data to make informed decisions, helping them realise the value of the data collected across the organisation. This will require a focus on the quick-wins whilst implementing the longer term supporting technology infrastructure and data literacy programmes to support insightful analytics provision across the Trust.

We will invest in our technology and people to:

- Establish better processes and develop a proactive **culture of learning and workforce engagement** from data to develop data orientated analytics products and services
- Deliver insights to improve **patient experience and safety and initiatives**
- Support overall **operational efficiency across capacity and flow** to enable more accurate and timely reporting
- Introduce **advanced analytics capabilities** for scenario modelling and predictive analytics

What this means for our patients, clinicians and people

Patient, Families & Experience

Accessible healthcare records to enable better coordinated care for patients

I spend less time repeating the same information at appointments as clinicians have access to all my medical records. I can also **access my records** giving me confidence that clinical decisions are based on accurate data to ensure I'll receive the best possible quality of care. I feel empowered to **share this data** with others meaning both me and my family can manage and **contribute to the planning and delivery of my care**, improving my overall healthcare experience.

Clinician

A single view of our patient and service user data

I have **access to digital tools** that provides insights on my patients' **full care record** and support that helps me provide safe, high quality and personalised care every day. I am confident the data I can see is accurate and complete to avoid repeating tests or treatments already completed.

Senior Leader

PHM approach enabling greater clinical and resource allocation insights from data

I have the information I need to continuously improve our services whilst managing pressures here and now. I can take a **proactive Population Health Management (PHM) approach** to improving people's health and wellbeing. Information is shared across systems, is accessible and is designed to make the most of existing resources.

Executive Summary 1

Developing the strategy

The approach taken to develop the Data Strategy included the following stages:

1) Data Discovery

Documentation review to gather information required to inform current state and future state

2) Current State Assessment

Conducting 1-1 interviews and current state assessment workshops to validate key findings

3) Define Future State

Stakeholder sessions to define and articulate the future desired state of data adoption across the organisation, and the development of design principles to shape and guide the Data Strategy

4) Identify Initiatives

The identification of key initiatives to support the transition from current state to the desired future state

5) Data Strategy and Strategic Roadmap

Creation of an action-orientated roadmap with initiatives grouped by complexity; **High, Medium** and **Low,** and priority; **Foundational, Transformational** and **Leading Edge**

This Data Strategy document is the culmination of significant organisation-wide engagement and co-creative thinking and planning to define the future state of the organisation's data vision.

51 people were engaged via one-to-one interviews and collaborative design workshops

38 documents reviewed including Five Year Strategy, Digital Strategy and Accountability Framework

5 workshops covering current state, future state and initiatives

Consideration for existing programmes

- **EPR Appraisal**
  To address administrative and systematic burdens identified from existing EPRs
- **Time to Care**
  To provide a single avenue for data sharing and reduce complexities to siloed system-to-system interface
- **Shared Care Records**
  To provide a single avenue for data sharing and reduce complexities to siloed system-to-system interfaces
- **Digital Strategy**

'To be the leading Mental Health & Community Care services provider and a commitment to becoming a data-driven organisation to drive quality, change and patient outcomes.'

Executive Summary 1

Current challenges

1. Access to real-time data is limited to support immediate and strategic decision-making to improve patient outcomes and direct care
2. Demand for business intelligence capacity is overstretched and is driven from complex BAU reporting requirements
3. Stakeholders lack confidence in the data quality of reports primarily driven by misalignment to good data governance standards
4. Reporting compliance is challenged due to lack of available and up-to-date or real-time data
5. Data literacy improvements are required across the Trust to support in developing a data-driven culture
6. Limited interoperable standards across systems which decrease opportunities to develop a single patient view
7. Existing KPIs are exhaustive but limited to performance reporting and not focused on driving patient outcomes
8. Processes to access key datasets and definitions are complex resulting in poor user experiences for stakeholders

Future state key themes

1 User friendly self-service

- User friendly visualised reports and insights that are readily accessible and allow users to customise views to obtain the relevant intelligence. Support available to perform additional and advanced analytics to gain further insights

2 A single view of our patient and service user data

- Interoperable data systems allowing information to be shared across the ICS creating a single source of truth that ensures all partners are making evidence-based decisions from the same data

3 Accurate and real-time data to support decision making and research

- Access to accurate and real-time integrated datasets driven by intelligent data capture methods to draw on trends, leverage opportunities in research and enable immediate and strategic decision making for improved patient outcomes

4 A single approach to data management

- Aligned data management governance principles that ensures ownership and accountability is in place. Standardised processes and controls are in place to enable maximum value gain from data

5 Advanced business intelligence (inc. Population Health Management)

- Advanced analytics capabilities and use of intelligent systems and technologies (e.g. Artificial Intelligence, Machine Learning) to enable predictive analytics and drive PHM initiatives

6 Enable patients and families to contribute to their care delivery

- Patients are able to access and choose who their healthcare records is shared with enabling wider participation in the planning and delivery of care of all those involved, leading to better joined-up care and improved self-management

'To be the leading Mental Health & Community Care services provider and a commitment to becoming a data-driven organisation to drive quality, change and patient outcomes.'

Executive Summary 1

Delivering sustainable change

We have developed a roadmap of prioritised initiatives structured into three stages (Foundational, Transformational, and Leading Edge) with clear timescales for implementation providing a well-defined, actionable path to deliver the Strategy. The key programmes of work are highlighted below:

Foundational – ensuring the core building blocks are in place

- **Power BI Governance Model** – Establish governance for an enterprise level reporting platform (Power BI)
- **Performance Indicator Review** – Review existing KPI's to ensure they are outcome driven and fit for purpose

Transformational – building on the foundations to get better value from data

- **Data Literate and Data-Driven Culture** – Develop data literacy programme and embed data related KPI's into Trust's performance management processes
- **PHM, Maturity Assessment, Strategy and Key Initiatives Implementation** – Undertake a PHM maturity assessment, develop a PHM strategy and joint development of a PHM strategy with MSE ICS
- **Data Platform** - Develop a high-level data solution architecture and a roadmap to establish a data platform for both business intelligence and research. ***Phase 1 to be considered first.**

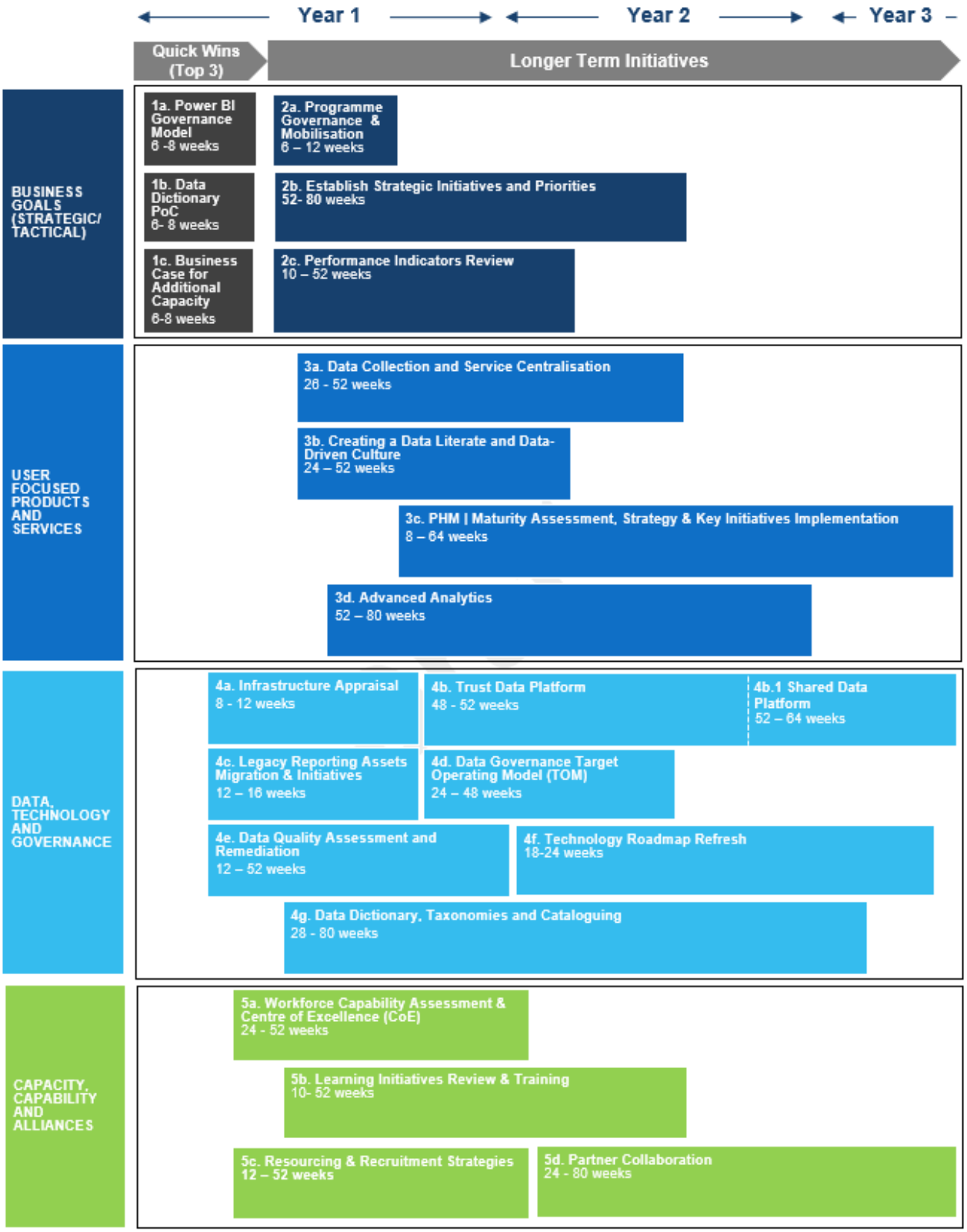
Leading edge – maximising the potential of data to enable data-driven decision making and improve patient care delivery and outcomes

- **Advanced Analytics** – Create environments to enable experimentation, explore use cases for scenario modelling and piloting/adopting Artificial Intelligence and Machine Learning
- **Intelligent data capture** – Develop and adopt an intelligent data collection approach from real-time data captured from voice and digital systems (e.g. video cameras) using advanced technologies to automate data processing and improve data quality
- **Learning and Improving Together** – Explore benchmarking and collaboration opportunities with regional Trusts and carry out an assessment of available TRE/SDE's to facilitate greater research and data sharing opportunities

Delivering the Strategy in full will take 3 to 5 years, however we will start by focusing on quick wins (see below) that will deliver value in the short term and then address the full list of initiatives (see page 8) to build on the outcomes delivered:

- ✓ **Power BI Governance Model** (Opportunity to integrate with Phase 1 of the Data Platform initiative and introduce as a collective quick-win)
- ✓ **Proof of Concept for Data Dictionary** (Opportunity to integrate with Phase 1 of the Data Platform initiative and introduce as a collective quick-win)
- ✓ **Phase 1 of the Data Platform / Business Case and Additional Capacity**

Our plan for meeting our strategic aims



There may be an opportunity to integrate programmes 1a and 1b with Phase 1 of Data Warehouse

'To be the leading Mental Health & Community Care services provider and a commitment to becoming a data-driven organisation to drive quality, change and patient outcomes.'

Why an EPUT Data Strategy?

2

This document outlines the Data Strategy (“the Strategy”) for the Essex Partnership NHS Foundation Trust (EPUT) for the next three years.

The Strategy defines the strategic direction and the role of the Trust in delivery of data and technology across the geography. The Strategy seeks to demonstrate the potential value from implementing best-practice procedures and delivering products, services and platforms in a co-ordinated way across the organisation.

Why an EPUT data strategy?

Data and technology provides an opportunity to enable transformation and achieve the quadruple aim of better patient outcomes, national leaders for mental and community health, improved patient experience, and an organisational culture of learning.

The Strategy seeks to build upon EPUT’s digital strategy with a specific focus on where the Trust can accelerate data transformation and support valuable care across our landscape.

The Strategy represents our collective ambition and underpins our Trusts operational planning and budgeting.

The Strategy aims to provide clarity on the Trusts role, the direction of travel for data and technology and a roadmap for delivery.

Related initiatives

The following were considered when developing the data strategy:

01 The findings and recommendations contained within the EPUT Digital Strategy Development Report (December 2021)

02 Initial findings and quick wins from the ongoing ‘Time to Care’ programme focused on helping clinicians focus even more on giving high quality care to patients

03 Data related observations from the ongoing five year strategy planning process

04 The findings and recommendations contained within the Mid and South Essex Health and Care Partnership ICS Business Intelligence Strategy and Roadmap (January 2021)

National Strategy & Policy

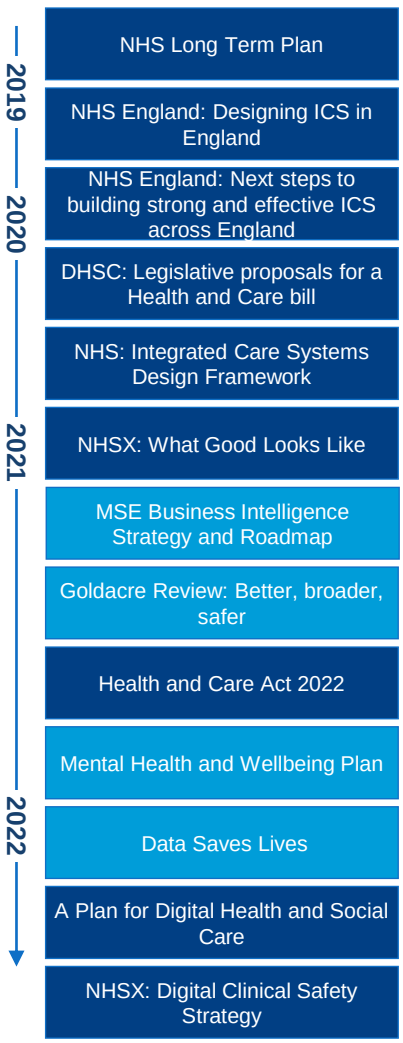
2

The NHS Long Term Plan (LTP) provides the national strategy mandate underpinning transformation of the Health and Social Care system. Data and Digital is highlighted as imperative to achieve the aims outlined in the LTP.

> The Long-Term Plan, Goldacre Review and Data Saves Lives White Paper aim to deliver a technology and data enabled healthcare service that supports the needs of the population, as well as those of the workforce providing care.

1. Empowering People
2. Supporting Health and Care Professionals
3. Supporting Clinical Care
4. Improving Population Health
5. Improving Clinical Efficiency and Safety

The following papers have been considered during the development of the Strategy to ensure it aligns to both local and national objectives.



Data Saves Lives

Success measures for data transformation:

- Prevention. Personalisation, Performance and People.
- Investing in secure data environments to power life-saving research and treatments
- Using technology to allow staff to spend more quality time with patients
- Giving people better access to their own data through shared care records and the NHS App

Goldacre Review: Better, broader, safer

Success measures for data transformation:

- Investing in a coherent approach to data curation, and a small number of secure platforms
- Show the public that we have built secure platforms for data sharing, then every patient can confidently embrace sharing their records, safely and securely
- Utilise the Office of National Statistics (ONS) and the GDS best practice principles for modern, open, collaborative work with data

Mental Health and Wellbeing Plan

Success measures for data transformation:

- Use innovative approaches to collect and share data to provide the best possible care for patients and better integrate services
- Improve the availability, quality and use of data for the whole of the patient's journey
- Improve data literacy of front-line staff, as well as managers and policy makers to ensure the greatest potential of data is harnessed to improve the mental health and wellbeing of the population

MSE and SNEE Data Strategy

Success measures for data transformation:

- Clear visibility of responsibilities to implement data governance processes, via a data governance steering group and have localised data owners for specific datasets
- Develop an iterative data quality improvement process in order to drive consistent data quality improvement and improve workforce productivity with integrated technology
- Use data and information safely and whenever needed to make evidence based and data driven decisions to improve patient care and experience
- People and carers are empowered to manage their own care through having access to their own health and care records as well as coordinated ways for people to look after themselves accessing clinical support

Essex Partnership NHS Foundation Trust

Essex Partnership University NHS Foundation Trust (EPUT) was formed on 1 April 2017 following the merger of North Essex Partnership University NHS Foundation Trust (NEP) and South Essex Partnership University NHS Foundation Trust (SEPT).

EPUT provide community health, mental health and learning disability services for a population of approximately 3.2 million people across three ICSs: Suffolk and North East Essex, Mid and South Essex, and Hertfordshire and West Essex.

Our Objectives:

- **We will deliver safe, high quality integrated care services.**
- **We will enable each other to be the best that we can.**
- **We will work together with our partners to make our services better.**
- **We will help our communities to thrive.**

Extra considerations

The following are

- EPUT deliver a number of services in the community requiring data flows across a number of organisations including those in the Voluntary Community and Social Enterprise (VCSE) sector
- EPUT deliver services across three ICS, each having different processes and priorities
- There is a significantly larger proportion of free text clinical notes used within mental health services

>£450m turnover	**>5,400** NHS Staff	**200** Sites	**6** Clinical Operational Delivery Units	**7** CCGs
3.2m Population	**>1.3m** Covid-19 Vaccines	**3** Principle Local Authorities	**2** Ambulance Services	**3** Number of ICS'

Digital Strategy

2

It's imperative that the newly formed Data Strategy is aligned to the Trust's existing five year Digital Strategy and be seen as an enabler for data-related initiatives listed in the Digital Roadmap.

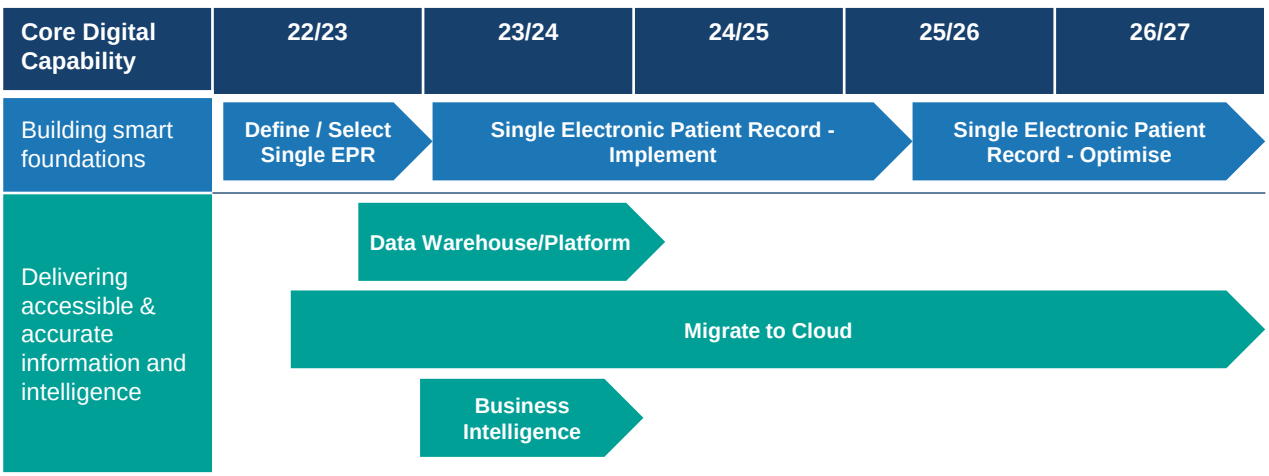
Given a number of the transformation programmes included as part of the Digital Roadmap are data-related, these have been further developed and explained within this Data Strategy.

Below are the data initiatives taken directly from the Digital Strategy:

Building smart foundations	
Single Electronic Patient Record	A single electronic record with modern tools and capabilities replacing the multiple systems used today

Delivering accessible & accurate information and intelligence	
Data Warehouse/Platform	A data warehouse to meet the Trust needs and enable sharing with partner organisations to support business intelligence requirements.
Migrate to Cloud	Progressive migration to secure cloud solutions in line with WGLL for new projects freeing up resources.
Business Intelligence	Tools to provide real time business intelligence capability to those who need it.

As per the Digital Roadmap, the timelines for these programmes are outlined below:



Methodology and Approach

3

This Data Strategy document is the culmination of significant organisation-wide engagement and co-creative thinking and planning to define the future state of the organisation's data vision.

51 people were engaged via one-to-one interviews and collaborative design workshops.

EPUT's Transformation Leads presented progress across senior representation from operational and clinical groups for feedback, as well to validate, gain buy-in and commitment on the approach where the Data Strategy becomes central to their day to day work and direct care delivery.

01 Data discovery

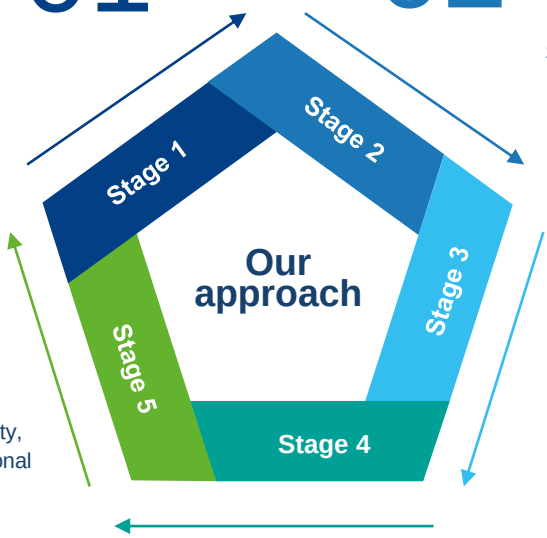
Carry out documentation review to gather information required to inform current state and future state

See section: 3

02 Current state assessment

Conducting 1-1 interviews and carrying out current state workshops. Identification of current challenges, opportunities and capabilities

See section: 4 5 10



03 Define future state

Continued stakeholder engagement from future state workshops, articulating organisation's future vision and design principles for data to guide the strategy

See section: 6

04 Identify initiatives

Identify the initiatives to support the transition from current state to desired future state

See section: 7 8 10

05 Data strategy and strategic roadmap

Creation of an action orientated roadmap with initiatives by complexity, priority; Foundational, Transformational and Leading Edge

See section: 7 8

Approach: Data Strategy Framework

3

To deliver system-wide data transformation, we have identified eight aspirational components and where the organisation can add most value. The Strategic Pillars will enable and be used to evaluate progress in delivering the desired outcomes for our patients, service users and workforce.

Data Strategy Framework

The framework comprises of four core building blocks and will form the foundations of the strategy and developing a data-driven culture:

- Business goals
- User focused service
- Data and technology platform
- Capacity and capability plan

These blocks ensure that the data strategy will be comprehensive and tailored to varied user needs. The strategy will be actionable and establish clear processes for data management.

The roadmap will prioritise the recommendations by their success criteria over the short, medium and long term, indicating strategic aims and quick wins.

Assessing the current level of maturity

4

The maturity framework provides a mechanism to assess EPUT's **current approach to data & insights** and standardises it against the **desired maturity**. This assessment has been derived from stakeholder one-to-one interviews, collective workshops and documents provided to us (please see Appendix). The current level of maturity is highlighted below:

Please note: this is not an assessment of individual teams but of the organisation as a whole

Current State

	1	2	3	4	5
Business Goals (Strategic Objectives and Tactical Priorities)	Majority siloed data transformation initiatives with some integration and collaboration.	A high level data vision exists, but no one leader to drive the data agenda, causing varied interpretations and limited benefits.	Appointment of data transformation lead to drive strategy and support with investment.	Data transformation lead has established relationships and influence across the organisation.	Dedicated data transformation lead drives accountability and investment in line with agreed priorities & requirements.
User Needs	Analysis is largely descriptive and not fully trusted by stakeholders. Limited engagement with data functions and no self-service capabilities available to drive autonomy for divisions.	Analysis generates basic insights, but still a highly manual process to generate reports. Some engagement and interaction with divisional teams.	Established data reports are automated, with limited advanced analytics capabilities. Customer requirements are embedded into analysis effectively.	Business partnering and increased domain understanding. Established with self-service, user-friendly visualised reports and insights are readily available, with support for advanced analytics available.	Customer requests systematically prioritised with agreed timeframes. Reports are automated, with standardised quality assurance and advanced analytics insights regularly embedded.
Products & Services	Some awareness of emerging technology products and services but reluctancy and little appetite to explore the across organisation.	Some appetite to procure new products and pockets of innovation however lack of knowledge and resources transformation programme.	Executive team sponsored technology and analytics transformation journey and roadmap, with allocated funding for innovation	Dedicated advanced analytics capabilities supported with investment and leadership to drive initiatives and change.	Digital teams manage pipeline of innovative use cases ad existing implementation of advanced techniques e.g. NLP in a BAU environment
Data Governance	Data management standards are unclear with no or limited governance framework in place to inform of data assets available along with their quality.	Data quality processes and root cause analysis for issues varies between teams with some good governance frameworks established.	Real-time data catalogues and business glossaries to describe data assets and to encourage system interoperability.	User-friendly and interface driven data repositories that are interactive and searchable with a view to improve the underlying data assets.	Data assets are auditable, searchable and include robust metadata. Consistent governance approach across organisation and wider partners.

Assessing the current level of maturity

4

The maturity framework provides a mechanism to assess EPUT's **current approach to data & insights** and standardises it against the **desired maturity**. This assessment has been derived from stakeholder one-to-one interviews, collective workshops and documents provided to us (please see Appendix). The current level of maturity is highlighted below:

Please note: this is not an assessment of individual teams but of the organisation as a whole

Current State

	1	2	3	4	5
 **Technology Platform**	Minimal oversight of technology inventory leading to limitations in interoperability, frequent duplication and systems that are obsolete and nor fit for purpose.	Technology supports existing basic direct care needs but lacks flexibility and interoperability with wider strategic datasets	Some centralisation to support a' single version' of the truth (some interoperability) to support intervention and tracking of outcomes.	Use of contemporary infrastructure e.g. cloud technology to promote interoperability, with a front-end UI for systems and embedded workflow monitoring capabilities	A Cloud infrastructure supporting scalability, centralisation and economies of scale and used on interoperable data and systems standards for the application of advanced analytics
 **Suppliers and Alliances**	Relationships and integration with vendors, partners and alliances are limited with minimal opportunity to collaborate and adopt strategic products.	Some collaboration with suppliers and alliances with a view to directly support ongoing transformation programmes however minimal trusted external research partners.	Working with partners for mutual benefit realisation and some data integration with all partners to develop ongoing transformation programmes e.g. PHM initiatives	Comprehensive engagement with wider providers to establish a culture of learning to learn from each other and implementation of best practices.	Effective use of technology to support provider level integration / movement of data between all partners and systems to support learning and collaboration
 **Capacity and Capability**	Fundamental resourcing challenges and data skills gaps and key person dependencies resulting in ineffective knowledge sharing	Capacity constraints limiting data skills growth and limiting the successful execution of ongoing transformation programmes.	Some consolidation of skills and capabilities and an understanding of the core skill gaps existing in teams with plans to resolve through training and development.	Career paths established and programmes in place to develop organisation wide data literacy and encourage a data-driven approaches.	Stakeholders are confident interrogating data independently and have defined and user roles training. Bench marking with market talent standards in place to align to a 'workforce of the future'.

Key findings on current state

Summarised below are a set of key findings on the Trust's current approach to data and insights. These findings have emanated from interviews and workshops across the engaged stakeholder mix. **More detailed findings against each framework pillar can be found in the Appendix section of this strategy document.**

1 Strategic Objectives

- **Significant leadership buy-in** to drive change and an overall forward thinking and **progressive organisational culture.**
- **Well defined Digital Strategy blueprint** and good **investment commitments** to drive digital and advanced analytics priorities to align to contemporary forward looking organisations.
- Existing KPIs are **limited to internal performance reporting** and not focused on **driving patient outcomes** or supporting effective decision making across functions. **KPIs needs to be reviewed and re-established to ensure purposefulness.**
- **Increased data intelligence and insights** needed to improve patient safety outcomes and **learn from experiences**, to develop a **'culture of learning'** across the organisation.

Score: 3 — Appointment of data transformation lead to drive strategy and support with investment.

2 Tactical Priorities

- The responsibility to drive decisions relating to t**actical priorities** is **unclear and misaligned** across the various tiers of the organisation.
- Short term **investment for additional BI capacity is required** to support elements of existing transformation programmes e.g. development of reports on to new reporting platform.
- **Pockets of siloed BI capabilities** exist throughout the Trust **increasing risk of misaligned governance practices** to data collection, quality management and reporting.
- **Skills & capability assessment** of the performance team is required to identify gaps that need closing to align the Trust's talent pool to contemporary market standards.
- **Demand for BI capacity is overstretched** and is driven from complex BAU reporting requirements, which can better **automated through self-service BI**

Score: 3 — Appointment of data transformation lead to drive strategy and support with investment.

3 User Needs

- Trust wide stakeholders find it **difficult to infer on data to generate insights** due to limited domain understanding and contextual analysis, resulting in the **data rich but information poor** notion**.**
- **Improvements are needed to organisational-wide data literacy** to develop a **data driven culture** as existing capabilities are often limited to the digital and data teams.
- **Limited understanding on the impact of good quality data ,** (and manual and inefficient data collection processes) resulting in missed opportunities in attaining real-time data. This highlights the need for a **cultural shift** across teams to improve data collection at source and it's utilisation.
- Service users are **not served through self-service or autonomous reporting** as there is a heavy reliance on **manual reporting processes** and data and technology limitations.
- Information requests are **not managed effectively via a workflow system** with appropriate timescales and priorities allocated, ultimately **increasing the disengagement** from wider teams.
- **Feedback cycles on existing reporting and data products is limited** and reduces opportunities for product enhancements and embedding of best practices e.g. Agile.
- Stakeholders across the Trust are often seeking **direct access to key datasets and it's metadata** for bespoke analysis, research and ability to collaborate with partners.

Score: 2 — Analysis generates basic insights, but still a highly manual process to generate reports. Some engagement and interaction with divisional teams.

Key findings on current state

4

Summarised below are a set of key findings on the Trust's current approach to data and insights. These findings have emanated from interviews and workshops across the engaged stakeholder mix. **More detailed findings against each framework pillar can be found in the Appendix section of this strategy document.**

4 Products and Services

- **Existing EPR appraisal programme** to address **administrative and systematic burdens identified from current EPRs** and opportunities to improve patient safety and clinical outcomes.
- Current **Shared Care Records programme** aims to provide a **single mechanism for data sharing** and reduce complexities to siloed system-to-system interfaces.
- Stakeholder wide ambition exists to use **data intelligence for proactive PHM purposes** however the strategy and operating model is not clearly defined.
- Existing tools for PHM e.g. MAST are increasing in algorithm maturity however face issues with disjointed and untimely data resulting in **missed opportunities for wider indicators.**

Score: 2 — Some appetite to procure new products and pockets of innovation however lack of knowledge and resources transformation programme.

5 Data Governance

- An accountability framework is in place to **drive data quality improvements** however stakeholders have expressed the need for the agenda to be re-enforced.
- Data is **recognised as a strategic asset** across stakeholders, however roles and responsibilities around data ownership and management are not always clear.
- Stakeholders **lack confidence in the quality of data** contained within reports due to **misalignment to good data governance** standards and limited application of **data owners and stewards.**
- Multiple Trust **systems often offering functionality similar in nature** has given rise to data integrity challenges e.g. duplications and inconsistencies.
- Data management and governance best practices are **not embedded into core IT functions,** limiting the need for a **common data model and language** with data dictionaries and taxonomies.

Score: 2 — Data ownership and data quality processes and root cause analysis for issues vary between teams with some good governance frameworks are established.

6 Technology Platform

- Challenges have been identified with the current BI landscape, including a **lack of data warehouse**, single source of truth and the **need to improve data management and governance** for real-time data to improve patient outcomes.
- **Use of legacy technology and reporting infrastructure increases** the risk of manual processing when **self-service capabilities** could be better utilised with a robust data platform.
- **Limited interoperability** across systems limiting opportunities to develop a **single patient view** and supplement with external third party datasets for full rounded patient care management.
- **Established plan and roadmap to consolidate existing EPR systems** over the next five years.
- **Legacy technical debt** accumulated from prior Trust system merges **requires an assessment and a plan** for it's removal with the associated priority mechanism to improve infrastructure maturity.
- Incident data provided through **Datix is difficult to interrogate** and is not real-time enough

Score: 2 — Technology supports existing basic direct care needs but lacks flexibility and interoperability with wider strategic datasets to form a single and holistic patient view.

Key findings on current state

Summarised below are a set of key findings on the Trust's current approach to data and insights. These findings have emanated from interviews and workshops across the engaged stakeholder mix. **More detailed findings against each framework pillar can be found in the Appendix section of this strategy document.**

7 Suppliers and Alliances

- Progressive vision to **partner with leading technology** vendors (e.g. Microsoft) and a clear appetite to explore Power Platform capabilities and align to current market standards.
- **Limited maturity in partner collaboration opportunities to share best practices** and develop a culture of knowledge sharing and learning. Leadership requires strengthening to increase partnership with ICS' and local authorities to feed into the Direct Care and PHM agendas.
- **Supplier information is comprehensive** and sits in a database however transparency on available suppliers and it's corresponding data is limited across the organisation.
- **Limited interoperability** has resulted in **challenges in collecting and collating data** from wider strategic partners e.g. local authorities and government bodies.
- **Legacy reporting products** (SSRS, Excel) utilised and **no robust data platform** supporting user centricity and self-service capability. Additionally a strategy is needed to develop formal **Trusted Research Environments (TREs)** to collaborate with academia, clinical groups and wider partners.
- Datix is adopted across the organisation however teams responsible for Datix agendas receive a **lack of response and limited support** from the supplier.

Score: 2 Some collaboration with suppliers and alliances with a view to directly support ongoing transformation programmes however minimal trusted external research partners.

8 Capacity and Capability

- **Considerable capacity constraints** within performance team and concerns identified on increasing workloads, potentially exacerbated by the various ongoing transformation programmes. Better oversight is needed on performance team workload and activities.
- Clear appetite to develop skills however existing capabilities require review in line with market standards to support a natural progression towards **advanced analytics capability.**
- Acquisition of a new reporting platform requires **additional training requirements** to upskill existing teams in new technology and where possible employ the 'train-the-trainer' approach.
- Contextual understanding needs improvements to support stakeholder requests for targeted analysis and the need to adopt **business partnering across the Trust.**
- **Better utilisation of apprenticeship funding** to minimise existing constraints.

Score: 2 Capacity constraints limiting data skills growth and limiting the successful execution of ongoing transformation programmes.

Existing Programmes | Shared Care Records 5

The **Shared Records** platform is intended to provide EPUT with a single means of sharing data, reducing the complexity of individual system-to-system interfaces.

Current State

- Information is currently published and consumed using PDF's accessible via a portal. The need to move away from PDFs is recognised but this is currently the easiest way to get information out of the EPR systems
- Information is not timely and not fit for purpose for non- technical users
- Majority of datasets are non-transformable and can't be used by systems
- The current format of the information limits the ability to perform insightful analysis
- Currently unable to access and share information with other providers

Desired State

- To have access to live structured patient data direct from systems, in accordance with national standards
- To be able to share patient data with other providers and systems
- To be able to reliably deliver the right information, at the right time to health professionals and to patients, to enable them to make good decisions
- Improved integration with other Shared Records across the NHS as they come online

EPUT Shared Records Programme:

- The intent of the programme is to create a means of publishing and consuming data to and from a wide variety of sources and organisations, including in the Health, Social Care, Police and Third Sector.
- The existing Shared Records platform is in the process of being moved to a new infrastructure which will provide greater capability in terms of performance and function. The new infrastructure will enable the use of the new Tiani product, reduce outages, enhance monitoring and increase capability to publish and consume additional information.

Next Steps/Roadmap

01 As stated in the Digital Roadmap, the Shared Care Record programme commenced at the start of 22/23 and is due to be complete at the end of 23/24

02 The Clinical Steering Group has been stood up to oversee the programme

03 The move to the new infrastructure is due to be complete by mid October 2022

04 Access to current regional shared records is planned to be in place across System One, Mobius and Paris by end of November 2022

Existing Programmes | Electronic Patient Record 5

Fundamental requirements for a single view of the patient which enables better patient safety either for the trust or for the wider systems within which it is a partner.

Current State

- The current EPR architecture (seven different electronic patient systems) does not support a future vision of working in an integrated way
- EPUT do not have a view of the other systems data of a patient which causes inefficiency when delivering patient care
- Data capture duplication is a burden and gets in the way of doing day-to-day job
- Multiple EPR systems cause increased patient safety breaches due to lack of information sharing

Desired State

- To have a single joined up patient record that provides rich insights into the full patient story
- Have the ability to share patient data with partner organisations
- Allow patients and carers to be involved and engaged
- Have the ability to improve patient safety due to having a complete record and improved access
- Forensic review function to allow for an audit trail to be kept

Progress to Date:

EPUT is embarking on a business case development for a new EPR. The goal is to reduce duplication and disjointed patient care records. Strategically, all options will be considered in order to serve the overarching objectives of:

- Increasing patient safety
- Enabling a patient-centric and more seamless way of working across Mental Health, Community, Social Care, Acute Care and ICS
- Enabling a population health management approach at regional and local level

Next Steps/Roadmap

Upcoming milestones for a new EPR are outlined below with their planned timelines:

01 OBC approval (Jan 2023)

02 Procurement launched (Jan 2023)

03 FBC approved (Jul 2023)

04 Deployment (Jul 2023)

Assessing Maturity and Ambition

6

Discussions with stakeholders highlighted a **clear need** to advance the Trust's data maturity. Outlined below are the **desired maturity levels for the future state** articulated during stakeholder sessions for what is achievable following the **implementation of the Data Strategy initiatives.**

Desired outcome will be realized over an 18-24 month period after the data strategy signoff.

Current State Future State

	1	2	3	4	5
Business Goals (Strategic Objectives and Tactical Priorities)	Majority siloed data transformation initiatives with some integration and collaboration.	A high level data vision exists, but no one leader to drive the data agenda, causing varied interpretations and limited benefits.	Appointment of data transformation lead to drive strategy and support with investment.	Data transformation lead has established relationships and influence across the organisation.	Dedicated data transformation lead drives accountability and investment in line with agreed priorities & requirements.
User Needs	Analysis is largely descriptive and not fully trusted by stakeholders. Limited engagement with data functions and no self-service capabilities available to drive autonomy for divisions.	Analysis generates basic insights, but still a highly manual process to generate reports. Some engagement and interaction with divisional teams.	Established data reports are automated, with limited advanced analytics capabilities. Customer requirements are embedded into analysis effectively.	Business partnering and increased domain understanding. Established with self-service, user-friendly visualised reports and insights are readily available, with support for advanced analytics available.	Customer requests systematically prioritised with agreed timeframes. Reports are automated, with standardised quality assurance and advanced analytics insights regularly embedded.
Products & Services	Some awareness of emerging technology products and services but reluctancy and little appetite to explore the across organisation.	Some appetite to procure new products and pockets of innovation however lack of knowledge and resources transformation programme.	Executive team sponsored technology and analytics transformation journey and roadmap, with allocated funding for innovation	Dedicated advanced analytics capabilities supported with investment and leadership to drive initiatives and change.	Digital teams manage pipeline of innovative use cases ad existing implementation of advanced techniques e.g. NLP in a BAU environment
Data Governance	Data management standards are unclear with no or limited governance framework in place to inform of data assets available along with their quality.	Data quality processes and root cause analysis for issues varies between teams with some good governance frameworks established.	Real-time data catalogues and business glossaries to describe data assets and to encourage system interoperability.	User-friendly and interface driven data repositories that are interactive and searchable with a view to improve the underlying data assets.	Data assets are auditable, searchable and include robust metadata. Consistent governance approach across organisation and wider partners.

Assessing Maturity and Ambition

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Desired outcome will be realized over an 18-24 month period after the data strategy signoff.

Current State Future State

	1	2	3	4	5
Technology Platform	Minimal oversight of technology inventory leading to limitations in interoperability, frequent duplication and systems that are obsolete and nor fit for purpose.	Technology supports existing basic direct care needs but lacks flexibility and interoperability with wider strategic datasets	Some centralisation to support a' single version' of the truth (some interoperability) to support intervention and tracking of outcomes.	Use of contemporary infrastructure e.g. cloud technology to promote interoperability, with a front-end UI for systems and embedded workflow monitoring capabilities	A Cloud infrastructure supporting scalability, centralisation and economies of scale and used on interoperable data and systems standards for the application of advanced analytics
Suppliers and Alliances	Relationships and integration with vendors, partners and alliances are limited with minimal opportunity to collaborate and adopt strategic products.	Some collaboration with suppliers and alliances with a view to directly support ongoing transformation programmes however minimal trusted external research partners.	Working with partners for mutual benefit realisation and some data integration with all partners to develop ongoing transformation programmes e.g. PHM initiatives.	Comprehensive engagement with wider providers to establish a culture of learning to learn from each other and implementation of best practices.	Effective use of technology to support provider level integration / movement of data between all partners and systems to support learning and collaboration
Capacity and Capability	Fundamental resourcing challenges and data skills gaps and key person dependencies resulting in ineffective knowledge sharing	Capacity constraints limiting data skills growth and limiting the successful execution of ongoing transformation programmes.	Some consolidation of skills and capabilities and an understanding of the core skill gaps existing in teams with plans to resolve through training and development.	Career paths established and programmes in place to develop organisation wide data literacy and encourage a data-driven approaches.	Stakeholders are confident interrogating data independently and have defined and user roles training. Bench marking with market talent standards in place to align to a 'workforce of the future'.

Assessing Maturity and Ambition

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Discussions with stakeholders highlighted a **clear need** to advance the Trust's data maturity. Outlined below are the **desired maturity levels for the future state** articulated during stakeholder sessions for what is achievable following the **implementation of the Data Strategy initiatives.**

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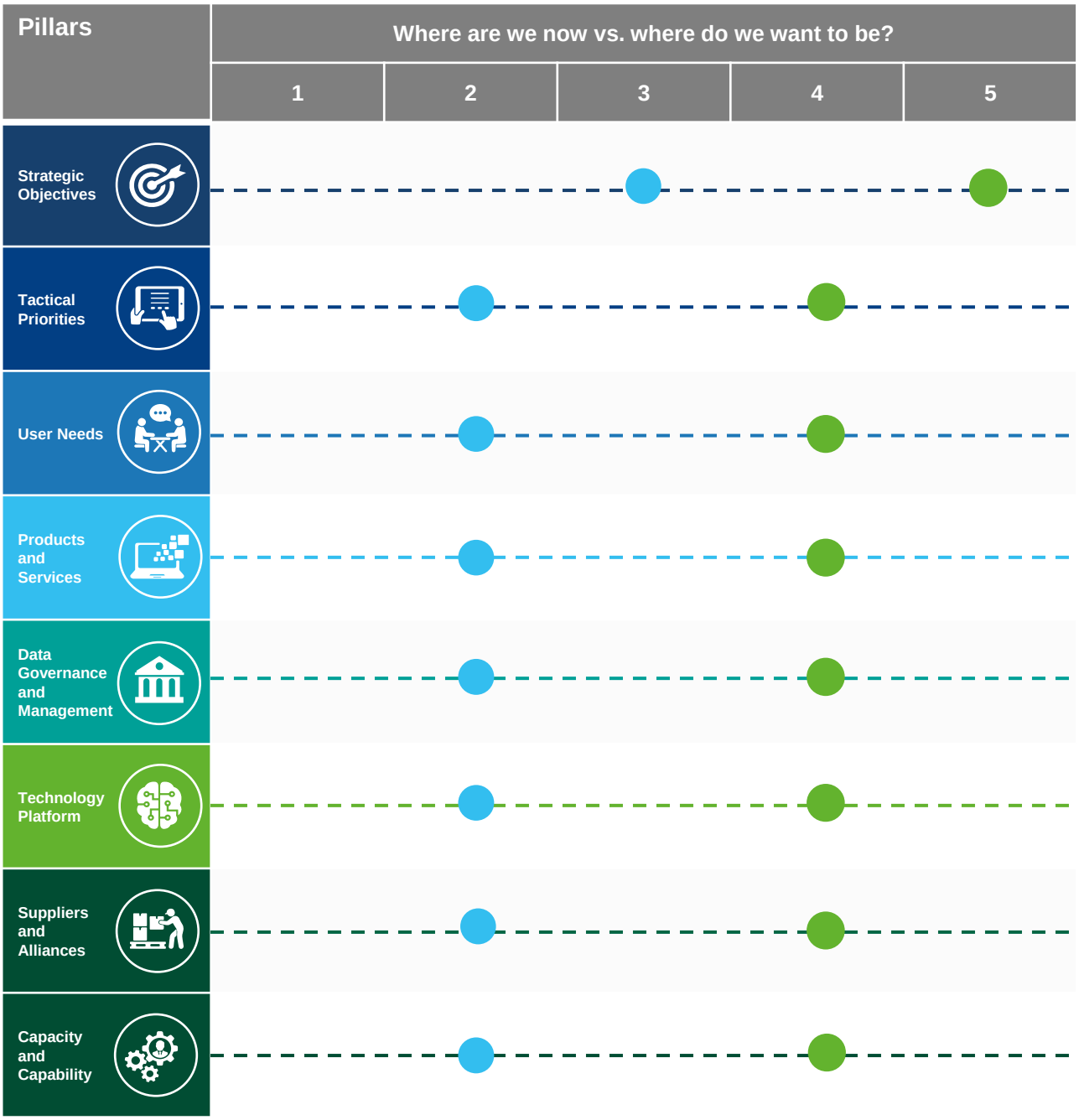


Design principles for future state

Stakeholders **across the Trust's multi-disciplinary teams** contributed to the development of the design principles across the stakeholder engagement sessions. Design principles below have been **co-designed to establish values on which data is utilised, shared and managed** and should be developed into **a set of standards and frameworks** to achieve the strategic objectives.

- Be brave and ambitious in investment and decision making
- Processes in place to improve data quality and interpretation through common definitions and glossaries.
- Adopt of a culture of learning to improve patient experiences and research approaches
- Data and insights will be made as real-time and accessible as possible to support decision making, data transformation and research initiatives
- Develop common IT reference architecture to promote open architecture and to enforce interoperability standards
- Adapt to change and new technology solutions must not limit progress
- Increase data literacy to develop a data-driven culture
- Performance indicators will focus on driving outcomes
- Data assets to enable key decisions and PHM approaches to support patient safety outcomes
- Data should be managed and processed securely with a view to share and collaborate with local and national partners

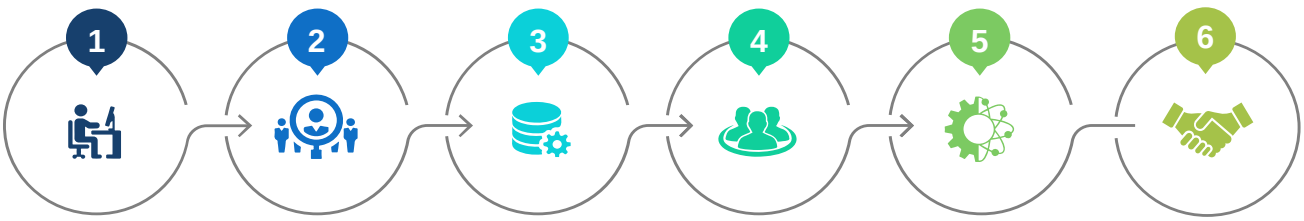
User Persona: Impact of future state

6

Interview and workshop discussions with EPUT's executive, clinical and operational stakeholders provided opportunities for the wider Trust teams to feedback on ideas and suggestions to support the current state assessment and the potential target 'to-be' state for the data strategy.

Feedback received from stakeholders has been reflected in the user personas below.

Future State Key Themes



1. **User friendly self-service**
2. **A single view of our patient and service user data**
3. **Accurate and real-time data to support decision making and research**
4. **A single approach to data management**
5. **Advanced business intelligence (inc. Population Health Management)**
6. **Enable patients and families to contribute to their care delivery**

User Personas

User Persona	Current State Pains…	Future State Expected Gains…
Patient Safety Lead	Even though we have an established patient safety strategy, I can't monitor patient safety metrics effectively or support developing a 'Culture of Learning'. Data stored in different systems can lead to inaccuracies and are a risk to patient safety.	**A single view of our patient and service user data** Systems are sharing data and I can see a 'single view' of the patient, making it easy to access and reducing errors. I can use information to monitor progress and gather feedback and to drive a 'Culture of Learning'. I can proactively look at the information and identify opportunities to improve patient safety.
Senior Leader	I am keen to move from 'reactive' care to 'proactive' PHM. I am supporting improvements to the EPR and Shared Care systems to ensure they meet user needs and data sharing standards. However, we don't have the all of the skills and team to fully support this.	**PHM approach enabling greater clinical and resource allocation insights from data** I have the information I need to continuously improve our services whilst managing pressures here and now. I can take a proactive Population Health Management (PHM) approach to improving people's health and wellbeing. Information is shared across systems, is accessible and is designed to make the most of existing resources.

User Persona: Impact of future state maturity

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Interview and workshop discussions with EPUT's executive, clinical and operational stakeholders provided opportunities for the wider Trust teams to feedback on ideas and suggestions to support the current state assessment and the potential target 'to-be' state for the data strategy.

Feedback received from stakeholders has been reflected in the user personas below.

User Persona	Current State Pains…	Future State Expected Gains…
 **Patient, Families & Experience**	I am always giving the same details about myself when I access NHS and Local Authority services. Clinicians can't see all of my medical records and often clinicians outside of primary care can't see any details at all. I cannot access or share my records which makes me worried that decisions about my care will be made without all the correct information. It also prevents me from taking ownership of my own care planning.	**Accessible healthcare records to enable better coordinated care for patients** I spend less time repeating the same information at appointments as clinicians have access to all my medical records. I can also access my records on my patient portal giving me confidence that clinical decisions are based on accurate data to ensure I'll receive the best possible quality of care. I can choose to share this data with others and both me and my family can contribute to the planning and delivery of my care, improving my overall healthcare experience.
 **Clinician**	I often don't have access to my patients' full medical history because it's on a paper records or not in the shared care record systems. It's hard for me to get information about my patients from other services to get a full understanding of my patient's health and wellbeing history and activity.	**A single view of our patient and service user data** I have access to digital tools that provides insights on my patients' full care record and support that helps me provide safe, high quality and personalised care every day. I am confident the data I can see is accurate and complete to avoid repeating tests or treatments already completed.
 **BI Analyst**	Most of my time is taken up doing routine reporting, and I don't always have time to help with important projects that can really improve patient outcomes. The quality of data is inconsistent so I need spend a lot of time cleaning the data before I can develop reports.	**User friendly self-service and accurate real-time data to support decision making** With routine reporting tasks automated and users being able to access and customise their reports, I can spend more time working with other teams on analytical projects that help the Trust improve the quality of care. Users trust the data in the reports are accurate because they know where the data is from and that we have robust processes to manage the quality.
 **Corporate Lead**	I don't have the information to assess whether we are investing in the right things to meet our strategic objectives. We monitor and manage contracts, procurement activities and workforce planning reactively. It takes me extra time to log on to different systems as I need to login separately each time.	**A single approach to managing data to enable quick, easy access to information** I can access information I need to create a complete view of the organisation so I can effectively allocate capital into the right place. I can proactively monitor and make informed decisions about contract renewals, procurement and workforce planning. I can easily and quickly access different systems without having to login each time.

User Persona: Impact of future state maturity

6

Interview and workshop discussions with EPUT's executive, clinical and operational stakeholders provided opportunities for the wider Trust teams to feedback on ideas and suggestions to support the current state assessment and the potential target 'to-be' state for the data strategy.

Feedback received from stakeholders has been reflected in the user personas below.

User Persona	Current State Pains…	Future State Expected Gains…
 **Mental Health Nurse**	I often work with patients who have complex and long-term mental health conditions and it can be challenging to track and monitor the progress of patients using the manual reporting processes which often do not provide a single patient view or real-time updates, making it difficult to understand and analyse error prone data.	**Accurate and real-time data to support clinical decision making** I have access to accurate, real-time data and insights that is easy to understand and allows me to monitor the condition of my patients to identify patterns and changes in behavior early on. This means I can make more timely and accurate interventions and clinical decisions to improve patient outcomes.
 **Operational Lead**	I don't have all the information I need to understand and forecast where supply is not meeting demand at a Place level. I can't find and predict service bottlenecks in the system before they reach a crisis levels. I don't have the detailed information I need to fully evaluate the performance of commissioned services.	**User friendly self-service to generate information and insights** Whenever I need them, I have access to dynamic dashboards and reports which allow me to easily visualise the information I need to help make informed decisions. The tools also help me look ahead and identify bottlenecks before services reach crisis levels. I can easily see the current status, for example 'ward heat map' to understand referrals and patient flow.
 **Information Governance Lead**	We have processes and resources in place to support IG including mandatory training, and documentation that is readily available via the intranet. However, not everyone fully understands and follows IG requirements.	**A single approach to bringing together and managing data** Everyone has a clear understanding where to access relevant IG documentation and how to get support. I work closely with colleagues to promote safe data sharing practices and support the strategic initiatives to collaborate with suppliers and partners.
 **Clinical Research Manager**	I need access to accurate and timely data to produce reliable results from my analysis. Currently, data is manually collected and processed giving little confidence in it's assurance, quality and accuracy. Clinicians often do not understand the importance of recording high quality data and this impacts the validity of my research and makes it more difficult to spot trends and patterns.	**Accurate and real-time data to support research initiatives** The use of automated systems and improved data collection processes for clinicians means I now have access to accurate and more complete real-time data to draw on trends and generate better insights to form more meaningful conclusions. It also provides new sources of data to enhance my research.

Articulating the future state

6

Summarised below are a set of key ideas on the Trust's future aspiration with regards to data and insights. These ideas have emanated through discussions from interviews and workshops across the engaged stakeholder mix.

1 Strategic Objectives

- An **established leader in mental health and community care services**, providing the best possible patient experiences and zero compromise to patient safety to drive care outcomes.
- **Top-down leadership drive and buy-in** to encourage and develop a culture of learning across workforce and patient safety via the provision of good data intelligence and reporting.
- Data is viewed as a strategic asset to **make better and informed decisions** to support patient safety objectives and **accelerate the growth of digital and data capabilities** across the Trust.
- Greater **collaboration across partners and ICS'** to encourage evidence based care and effective outcome-driven PHM strategy development, and related initiatives design and implementation.
- **KPIs are utilised to drive outcomes** and are not ineffective or limited to performance reporting. Metrics are strengthened to include wider strategic objectives and not just for mental health.

Score: 5 — Dedicated data transformation lead drives accountability and investment in line with agreed priorities & requirements.

2 Tactical Priorities

- A data steering group providing **leadership** and resources with **clear roles and responsibilities** to drive the data strategy delivery, as well as drive and monitor tactical objectives
- Appropriate investments to **acquire additional BI capacity to help deliver immediate priorities** such as report redevelopment and to enable longer term BI team capability and capacity development
- A **strategic approach** to the implementation of new technologies, accompanied by the appropriate governance protocols, including the finalisation of Power BI licensing and understanding backlog and prioritisation of work required
- A **comprehensive view** is available of all data sources and their respective owners via a dataset inventory to have visibility of available resources and individuals responsible for them

Score: 5 — Dedicated data transformation lead drives accountability and investment in line with agreed priorities & requirements.

3 User Needs

- Intelligent data capture mechanisms and a data-driven culture in place to support clinicians with having access to **accurate** and **real-time integrated datasets to** draw on trends, research opportunities and support immediate and **strategic decision making**
- **Clear processes for reporting requests and new development items** with associated SLAs and prioritisation mechanism in place with **technology integration to support custom views.**
- **Accessible tools for PHM are utilised maturely for risk stratification and for actional insights**, supporting the wider shared care planning and patient safety initiatives.
- **Non-technical users upskilled** in the use of modern technology to generate insights to eliminate key person dependencies and reduce burden on BI functions.

Score: 4 — Business partnering and increased domain understanding. Established with self-service, user-friendly visualised reports and insights are readily available, with support for advanced analytics available.

Articulating the future state

Summarised below are a set of key ideas on the Trust's future aspiration with regards to data and insights. These ideas have emanated through discussions from interviews and workshops across the engaged stakeholder mix.

4 Products and Services

- Consistent **product development standards** to **unlock efficiencies and technology best practice** to support wider opportunities for interoperability across systems.
- Business intelligence reports and services should be **easily accessible and located centrally** for subject matter experts to review, opine on and explore further development iterations.
- Technology products must be **better aligned** to support real-time, **broader and rounded views of patient data (a single EPR)** and accessible by clinicians to review insights for outcome driven decisions. Products to contribute overall to the improved Shared Care and PHM agendas.
- Campaigns to **embed awareness and training for existing product and services** to continue to prioritise on strategic objectives on patient safety (e.g. Datix).
- **Exploration of cognitive computing and remote monitoring devices** to align with wider technology agenda and leverage **opportunities to mitigate patient risks.**
- **Sandbox environments** to encourage experimentation and **hypothesis testing** to support the adoption of new capabilities in a safe learning environment

Score: 4 — Dedicated advanced analytics capabilities supported with investment and leadership to drive initiatives and change.

5 Data Governance

- **Top-down commitment and ownership of data assets** to promote robust data standards and develop a data driven culture to view and **utilise data as a strategic asset.**
- Data assets structured into **accessible inventories** with associated data dictionaries and business glossaries to increase **comprehension and opportunities for interoperability**, and to provide local and wider stakeholders transparency on available data assets to enhance clinical interactions.
- **Robust controls** in place to **guide data sharing agreements** and data ethics commitment to patients to enable consent management and the effective and safe use of patient data.
- **Data quality assurance and standardised processes across key datasets** with opportunities for automated detection, cleansing and resolution of poor quality data within catalogues.
- Data governance processes need to be streamlined through the **application of robotics**. Manual fixes must be avoided and ways of working adapted to a **contemporary technology** market.

Score: 4 — User-friendly and interface driven data repositories that are interactive and searchable with a view to improve the underlying data assets.

6 Technology Platform

- **Patients** to **access live patient data** and connect into 3rd party data systems and sources to empower patients and carers to **manage their own care** and choose who their records is **shared** with, leading to **better joined-up care** and overall improved self-management
- A cloud infrastructure promoting **scalability across partners and better economies of scale** – integrated with contemporary technologies across hosting, ETL and data visualisation, and blended with **ambitious technology roadmap** with advanced tools e.g. dictation technology for data capture
- **Self-service dashboards** and intelligence with real-time data streams to allow clinicians to customise views as necessary and to assist in **reducing capacity constraints** in BI teams. Dashboards are integrated with the Trust's infrastructure layer to enable single sign on capability.
- A **modern data warehouse and data platform** to collate, cleanse and curate data across data sources and accessible to stakeholders. One source of truth and i**ntegration into the wider shared platform** initiatives across partners. Considerations on using wider cloud components (e.g. data lakes) to house all unstructured data to be written back to the data warehouse.

Score: 4 — Use of contemporary infrastructure e.g. cloud technology to promote interoperability, with a front-end UI for systems and embedded workflow monitoring capabilities

Articulating the future state

6

Summarised below are a set of key ideas on the Trust's future aspiration with regards to data and insights. These ideas have emanated through discussions from interviews and workshops across the engaged stakeholder mix.

7 Suppliers and Alliances

- **Alliances between strategic partners, academia and local authorities** to encourage data sharing to support primary/secondary care and PHM use cases to deliver positive patient outcomes. Adoption of tried-and-tested best practices across partners to underpin key decisions.
- Collaborative workforce across partners to establish **virtual resource models** to aid capacity constraints and create an efficient and collective approach to strategic programmes**.**
- Effective use of regional and national trusted research and secure data environments (TRE/SDE) to **unlock new opportunities, methods and processes for service improvement**.
- **Early integration** with procurement teams to ensure economically viable decisions are made with the right capital considerations and the right people in mind.

Score: 4 — Comprehensive engagement with wider providers to establish a culture of learning to learn from each other and implementation of best practices

8 Capacity and Capability

- **Capacity and capability assessment** to ensure BAU demand can be met with **sufficient resourcing and skillset** by tapping into analyst potential and to inform funding requirements.
- **Transparent technical career paths** and established L&D curriculums to encourage career drive and develop a **culture of upskilling to be professionally recognised i.e. accreditation.**
- Stakeholders are comfortable in utilising new technologies to execute patient safety decisions and are supported by **data literacy programmes and business partners**.
- Increased internal specialisms i.e. in **advanced analytics capabilities** and develop appetite for AI/ML to leverage predictive and statistical analytics to improve patient safety initiatives,
- **Knowledge sharing** between partners on data science implementation to explore opportunities to contribute to the strategic agenda of review the art of the possible.
- Behavioural change management and **accelerated change cycles** for **faster benefit realisation** to develop the organisation's culture to be built upon data driven initiatives.

Score: 4 — Career paths established and programmes in place to develop organisation wide data literacy and encourage a data-driven approaches

What benefits will the Data Strategy unlock?

Below are the **key benefits the data strategy aims to unlock to** support the Trust in achieving it's strategic objectives in becoming a data-driven organisation to support patient outcomes.

Benefits were discussed and validated throughout stakeholder engagement sessions.

Single Version of the Truth

Interoperable systems ensures all partners are making evidence-based decisions from the same data.

Capacity and Productivity

Automating ingestion, self-service performance reporting and removal of manual processes creates capacity for BI teams for more value-add analysis.

Data-Driven Decision Making

Integrated datasets and revised KPIs create a holistic view to fuel clinical, operational and corporate decision making.

Culture of Learning

Having interconnected datasets can give greater insights for root cause analysis and feed into a 'Culture of Learning' improving the service we provide to patients.

Workforce Learning

Improved learning platforms and clear training pathways can develop system wide data literacyy, capabilities and increase compliance.

Patient Safety & Experience

Improvements to services are data driven and not based on professional instinct. Patients and carers can easily view and choose to health care records to help manage own care and allow others to contribute.

Data Literacy

System-wide, data dictionary providing sight of assets, definitions and architecture, and improved access to self-service BI fosters a cultural shift across the organisation.

Proactive Insights

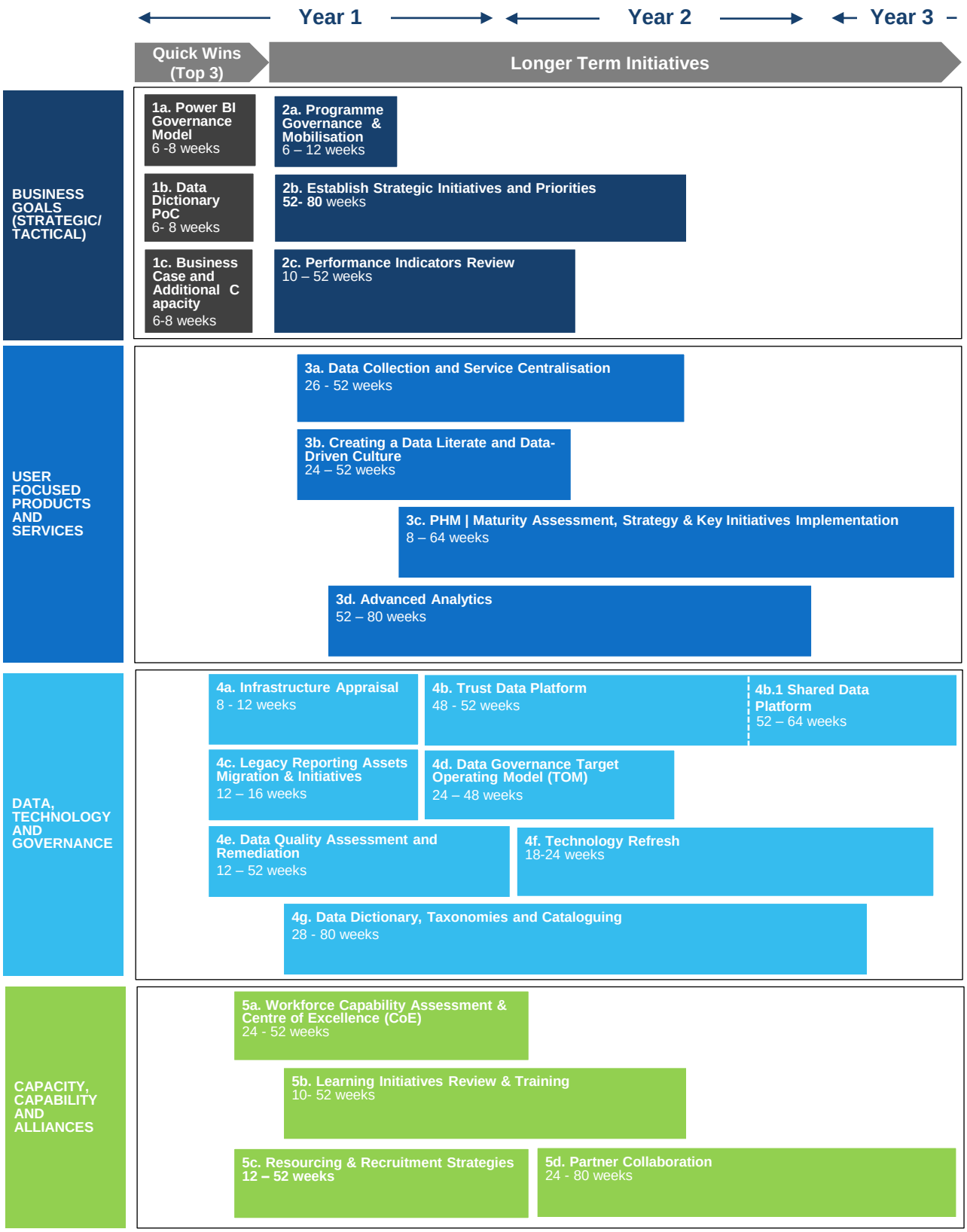
With more integrated, longitudinal and trustworthy data, BI teams can shift away from historical analysis to more advanced predictive analysis and PHM initiatives.

Population Health Management

Integrating more datasets into MAST advanced analytics tool can help identify cohorts of high risk patients for targeted interventions.

Roadmap Overview

7



There may be an opportunity to integrate programmes 1a and 1b with Phase 1 of Data Warehouse

Initiatives Overview

7

Roadmap Ref	Term	Year Commencing	Priority	Initiative	Pillar
1a. Power BI Governance Model	0-6	Year 1	Foundational	Power BI Governance Model	Technology Platform
1b. Data Dictionary PoC	0-6	Year 1	Transformational	PoC for data dictionary (in Purview)	Data Governance & Management
1c. Business Case and Additional Capacity	0-6	Year 1	Foundational	Business case and investment support to acquire additional external BI capacity	Business Goals
2a. Programme Governance & Mobilisation	0-6	Year 1	Foundational	Establish data governance sponsor	Data Governance & Management
	0-6	Year 1	Foundational	Establish a Programme Office and Central Data Steering group	Business Goals
2b. Establishing Strategic Initiatives and Priorities	0-6	Year 1	Transformational	Establish a Strategic Partner	Business Goals
	0-6	Year 1	Foundational	Fully utilise apprenticeship and learning funding	Business Goals
	0-6	Year 1	Transformational	Develop a balanced score card approach	Business Goals
	0-6	Year 1	Foundational	Review and identify opportunities to develop intranet	Business Goals
	0-6	Year 2	Leading Edge	Develop Open Data Strategy	Business Goals
2c. Performance Indicators Review	0-6	Year 1	Foundational	Review of existing KPIs	Business Goals
	6-12	Year 1	Transformational	Develop a suite of KPI reporting products	Business Goals
3a. Data Collection and Service Centralisation	6-12	Year 1	Transformational	Develop and adopt an intelligent data collection approach	User Needs
	6-12	Year 1	Transformational	Review and assess workflow processes	User Needs
	6-12	Year 1	Transformational	Establish a centralised report request process	User Needs

*There may be an opportunity to integrate programmes 1a and 1b with Phase 1 of Data Warehouse

Initiatives Overview

7

Roadmap Ref	Term	Year Commencing	Priority	Initiative	Pillar
3b. Creating a Data Literate & Data-Driven Culture	0-6	Year 1	Foundational	Internal outreach programme	Business Goals
	0-6	Year 1	Transformational	Develop a data literacy training programme and implementation plan	Business Goals
	0-6	Year 1	Transformational	Identify data and insight change ambassadors across the organisation	Capacity & Capability
	6-12	Year 1	Transformational	Embed data related KPIs into the Trust's performance management processes	Capacity & Capability
	6-12	Year 1	Transformational	Develop a data culture survey	Capacity & Capability
3c. PHM | Maturity Assessment, Strategy & Key Initiatives Implementation	0-6	Year 1	Transformational	Undertake a PHM maturity assessment to assess capacity and capability across 4 key areas	Products & Services
	12-18	Year 1	Transformational	Develop PHM strategy	Business Goals
	12-18	Year 1	Transformational	Joint development of a PHM strategy with MSE ICS	Products & Services
	18-24	Year 2	Leading Edge	Develop on local EPUT initiatives and support MSE ICS initiatives as per PHM strategy	Products & Services
3d. Advanced Analytics	18-24	Year 2	Leading Edge	Create environments for ML experimentation	Products & Services
	18-24	Year 2	Leading Edge	Explore use cases for scenario modelling, forecasting and strategic interventions	User Needs
	18-24	Year 2	Leading Edge	Artificial Intelligence / Machine Learning piloting and adoption	Products & Services
4a. Infrastructure Appraisal	0-6	Year 1	Transformational	Carry out data warehouse readiness assessment and roadmap for the migration to cloud.	Technology Platform
	6-12	Year 1	Transformational	Adhere to framework management organisations (such as INTEROPen)	Technology Platform
	6-12	Year 1	Transformational	Detailed assessment of enterprise technology	Technology Platform
4b. Trust Data Platform	12-18	Year 1	Transformational	Develop a high-level data solution architecture and roadmap	Technology Platform
	12-18	Year 1	Transformational	Review internal procedures and policies in line with ISO9001	Technology Platform
	12-18	Year 1	Transformational	Develop a Common IT Reference Architecture	Technology Platform
4b.1 Shared Data Platform	24-30	Year 2	Leading Edge	Develop a data solution architecture for a shared data platform	Technology Platform

Initiatives Overview 7

Roadmap Ref	Term	Year Commencing	Priority	Initiative	Pillar
4c. Legacy Reporting Assets Migration & Initiatives	0-6	Year 1	Foundational	Agree and finalise Power BI licensing	Technology Platform
	0-6	Year 1	Transformational	Develop a plan to re-develop existing and new reporting to a new reporting platform	Technology Platform
	0-6	Year 1	Foundational	Develop uniform reporting standards	Products & Services
	6-12	Year 1	Transformational	Develop a reporting catalogue	Technology Platform
4d **Governance Target and Operating Model (TOM)**	0-6	Year 1	Transformational	Create a Technical Design Authority	Technology Platform
	6-12	Year 1	Transformational	Develop a Data Governance Operating Model	Data Governance & Management
	6-12	Year 1	Transformational	Develop a Data Ethics framework	Business Goals
	6-12	Year 2	Transformational	Develop a data charter	Data Governance & Management
	6-12	Year 2	Transformational	Develop role based access (RBAC) rules and access restrictions	Data Governance & Management
4e. Data Quality Assessment and Remediation	0-6	Year 1	Foundational	Reinforce the Accountability Framework	Data Governance & Management
	0-6	Year 1	Foundational	Establish a data quality management programme	Data Governance & Management
	6-12	Year 1	Foundational	Data Quality Assessment	Data Governance & Management
4f. Technology Refresh	18-24	Year 2	Leading Edge	Establish plan to develop a Mental Health and Community Care specific EPR	Products & Services
	18-24	Year 2	Transformational	Assessment of low code solutions (e.g. Power Platform, RPA)	Technology Platform
	24-30	Year 2	Leading Edge	Review technology roadmap to refresh capabilities	Technology Platform
4g. Data Dictionary, Taxonomies and Cataloguing	6-12	Year 1	Transformational	Develop data dictionaries, taxonomies and business glossaries	Data Governance & Management
	6-12	Year 1	Transformational	Develop and publish a data asset catalogue	Data Governance & Management
	24-30	Year 2	Leading Edge	Supplement the data catalogue with additional datasets	Data Governance & Management

Initiatives Overview

7

Roadmap Ref	Term	Year Commencing	Priority	Initiative	Pillar
5a. Workforce Capability Assessment and Centre of Excellence (CoE)	0-6	Year 1	Foundational	Skill mix and capability Assessment	Capacity & Capability
	0-6	Year 1	Foundational	Improved oversight on performance team capacity	Capacity & Capability
	6-12	Year 1	Transformational	Review of Trust-wide analytics capabilities with a view to develop a Centre of Excellence (CoE) to establish a BI and data management function	Capacity & Capability
5b. Learning Initiatives Review & Training	0-6	Year 1	Transformational	Create investment case for training	Capacity & Capability
	0-6	Year 2	Transformational	Work with Trust Estates and Learning and Development colleagues to optimise the use of physical training facilities.	Suppliers & Alliances
	6-12	Year 1	Transformational	Review of Trust's internal learning platform to review module quality and opportunities to incorporate additional material	Capacity & Capability
	6-12	Year 2	Transformational	Data Analytics training programme	Capacity & Capability
5c. Resourcing & Recruitment Strategies	0-6	Year 1	Transformational	Recruitment of data architects to have an advanced analytics/data science capability	Capacity & Capability
	6-12	Year 1	Transformational	Improve workforce strategy by using comprehensive workforce data	Capacity & Capability
5d. Partner Collaboration	6-12	Year 1	Transformational	Explore benchmarking and collaboration opportunities with regional Trusts (across Mental Health and Communicate Care)	Suppliers & Alliances
	18-24	Year 2	Leading Edge	Carry out assessment of available TRE/SDEs	Suppliers & Alliances

Population Health Management (PHM)

8

PHM enables effective allocation of healthcare resources to meet the “Quintuple Aim” - enhanced experience of care, improved health and wellbeing of the population, reduced per capita cost of healthcare and improved productivity, increased wellbeing and engagement of the workforce and reduced health inequalities.

The “What Good Looks Like” framework, “NHS Long Term Plan”, and the “Data Saves Lives” strategy each set out specific requirements for digital and data services, including enablers to support a PHM approach

Successful PHM requires capacity and capability in four key areas, for which data and analytics are essential:

1. Infrastructure
2. Intelligence
3. Interventions
4. Incentives

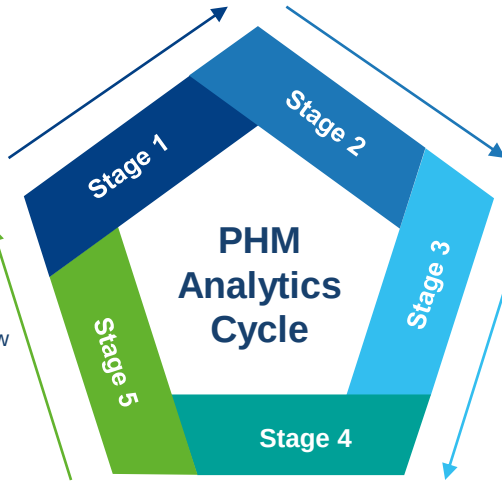
The following cycle highlights how data and analytics drives continuous improvement for PHM.

01 Understand your population

Understand and assess the needs and characteristics of your population, including health inequalities

02 Segment & stratify your population

Segment your population by need and characteristics, predict future risk and cost, and stratify by risk/cost



03 Plan for the future

Design new services and interventions for population segments, an outcomes framework to monitor performance, and determine the workforce to achieve your ambitions

04 Surveillance and care co-ordination

Tools and dashboard to monitor performance, manage operations and co-ordinates care

05 Evaluate performance

Evaluate the effectiveness of your new service and interventions

PHM analytics cycle

Case Studies

Case study #1

New mental health 111 service reduces A&E visits by a third.

Source: NHS England

Case study #2

A multidisciplinary and data driven approach to suicide prevention in Lancashire and South Cumbria.

Source: NHS England

Case study #3

Mental health nurses working with London Ambulance Service to prevent mental health hospital admission

Source: NHS England

Population Health Management (PHM) 8

PHM enables effective allocation of healthcare resources to meet the “Quintuple Aim” - enhanced experience of care, improved health and wellbeing of the population, reduced per capita cost of healthcare and improved productivity, increased wellbeing and engagement of the workforce and reduced health inequalities.

The “What Good Looks Like” framework, “NHS Long Term Plan”, and the “Data Saves Lives” strategy each set out specific requirements for digital and data services, including enablers to support a PHM approach

Current State

- There is no strategy for PHM, however a Director of Strategy is due start on the 19th of November 2022 who will provide (non-tech) leadership in this area
- There is no integrated and linked dataset to enable the analytics and insights needed
- Management and Supervision Tool (MaST) initial phase to identify patients at risk of requiring urgent medical care
- Social care and community teams working closely together in West Essex

Challenges

- The focus is on activity and input processes rather than outcomes, and there is a limited understanding of cost effectiveness of services provided
- The current dataset does not enable effective segmentation of patients

Recommendations

- Develop an integrated and linked dataset, supported by a modern and robust data architecture (please see ‘Data warehouse’ section for more details)
- Consider the importance of different parts of the system working with primary care, as highlighted by the Fuller stock take report when orientating to a local population health approach. For example, PHM risk stratification is best applied within a primary care setting, and neighbourhood-level interventions typically require primary care involvement.
- While EPUT can work on a limited number of focused PHM initiatives (for example building on MAST and collaborative working in West Essex), it will be more effective to work on PHM with system partners such as MSE ICS to ensure joined up thinking for the population and opportunities for the most efficient use of system resources.

Data Warehouse

8

A **data warehouse** is a type of data management system that is designed to enable and support business intelligence (BI) activities, with a focus on analytics to make informed decisions. Data warehouses are intended to perform queries/analysis and often contain large amounts of data.

Current State

- Multiple source data systems including 7 EPRs with varying data storage and (manual) reporting processes
- Varying data storage within SQL databases, PSD (Patient Summary Database) and extracted data 'stored' within Excel files
- No cloud resources at present (i.e. no Azure tenant). External agency is develop the first lot of Power BI resources (starting with board reports)

Desired State

- Enable the right people to access the right data and insights, in near real time where needed
- Have a linked, reliable and structured dataset that provides the foundation for informed decision making and population health management, and that can be shared with external partners
- Application of data governance best practice to have clear owners, provenance and appropriate access controls
- Automation of data pipelines and analytical processes to minimise 'BAU report creation', freeing up analyst time to engage with organisation and focus on highest value add insight generation
- Conduct predictive analytics to enable looking forward and correlation/causation to identify actionable insights on focus areas

Challenges

- Current infrastructure has resulted in a significant amount of technical debt with a risk of knowledge being concentrated with a small number of individuals
- Data needed is collated from various sources resulting in 'multiple sources of the truth'
- Preparation of data requires a significant amount of manual intervention, taking up the majority of analyst time
- The current data architecture does not enable real time reporting, a linked dataset or a consistent data model to support insights and self service reporting

Next Steps/Roadmap

- Consolidate disparate data storage into a data lake within a cloud based environment
- Align technology choices (i.e. Microsoft) with MSE ICS to benefit from better information and knowledge sharing, and potential cost efficiencies with scale
- Automate data cleansing, data curation and implement semantic models to support optimal self serve BI functionality
- Staged and iterative approach with realistic outcomes at end of each stage, and quick wins to demonstrate value to wider stakeholders
- Prioritise organisational and strategic outcomes needed when considering which data sources to integrated first (For example, the board report that is currently being developed in Power BI).

How to get there:

- Vision document to articulate the case for change, the future state and benefits, and indicative roadmap to achieve the transformation
- Business case to articulate the necessary detail including options appraisal and costing
- Indicative roadmap to achieve transformation

KPI Redevelopment Approach & Methodology 8

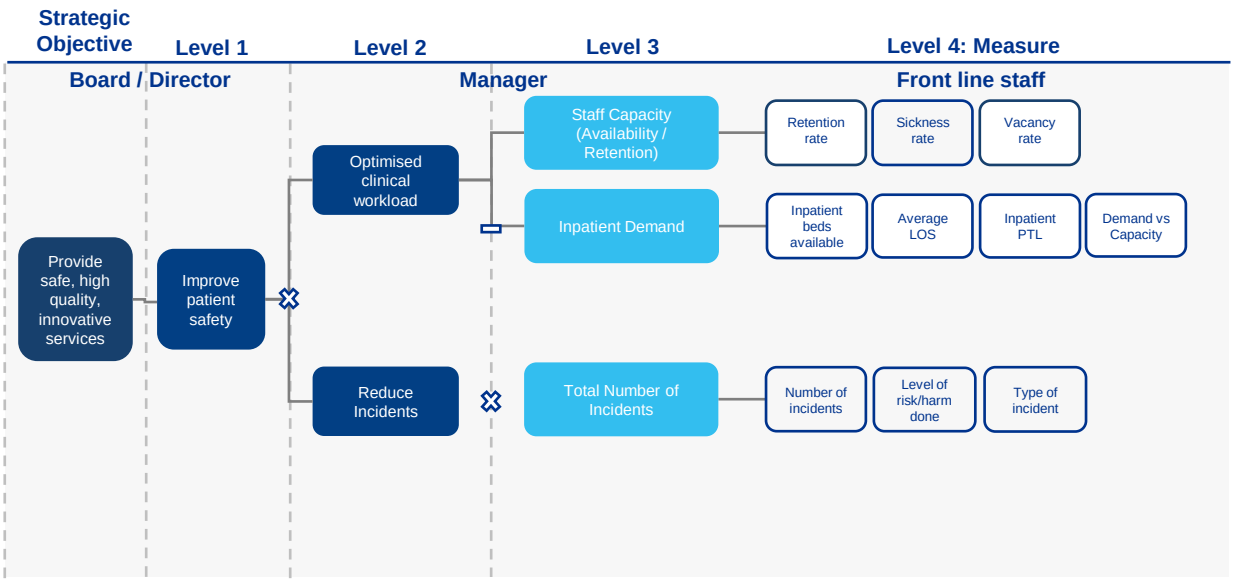
The methodology below will act as a guide for **developing meaningful KPIs that support clinical, operational and corporate decision making**. The top-down steps ensure alignment to the organisation strategies, and the bottom-up steps help drive the right behaviours, decisions, and accountability for each driver. The approach is based on industry and healthcare best practices.

KPI methodology overview:

	Top-down		Bottom-up			
Steps	**Strategy and Commitments**	**1. Develop Driver-based KPI Tree**	**2. Identify Personas**	**3. Identify Key Business Questions by persona**	**4. Select KPIs per persona** from the driver tree	**Visualise the data** (Dashboard)
Key Activities	• Define and **agree on strategic objectives**	• Develop **KPI driver tree to link KPIs to strategic objectives**. Use **national guidance** as support. • **Review existing and new KPIs** to prioritise and consolidate.	• **Identify personas** (based on EPUTs target operating model).	• Identify and select: – **Understand key business questions** required to support clinical, operational and corporate decision making against each persona. – **Link personas to KPI driver tree** that can answer to the key business questions		• **Prototype Development** Develop Dashboard Prototype and template for specific persona(s) • **Enhancement** Create advanced dashboards (e.g. Augmented analytics)

1) Top Down: Develop Driver-based KPI Tree

First, the Driver-based KPI Tree creates a direct alignment to the organisations strategic objectives (top-down) and clarifies the outcome drivers of each KPI. Below provides an illustration example of a driver diagram:



KPI Redevelopment Approach & Methodology 8

National Guidance

Whilst developing and implementing the Data Strategy, consideration of National Guidance needs to be taken into account, to ensure adherence to national standards and standardisation of care across trusts.

The below provides example of external bodies that should be considered:

- The NHS England Oversight Framework - NHS England » NHS oversight framework 2022/23
- Care Quality Commission's key components:
  - Safe
  - Effective
  - Caring
  - Responsive
  - Well-led

Review existing and new KPI's

Developing a shortlist of KPIs is essential to ensure you are concisely measuring your performance and your organisation focusses on critical issues. **We recommend regular reviews of KPIs.**

KPIs to deprioritise / retire:

- KPIs that do not bring value to the organisation i.e. not relevant to supporting strategic initiatives
- KPIs that do not provide significant benefit given the time and resource requirements to monitor
- Indirect KPIs that provide a small degree of impact on strategic objectives but are not essential

KPIs to prioritise:

- KPIs that have a direct impact on achieving our strategic goals and are essential for performance monitoring
- KPIs that are required to monitor key operational activities and/or for performance reporting

2) Bottom Up: Identify Personas

Second, personas represent **different individuals** that use reports in a similar way. This matrix includes detailed description of 3 suggested role based personas as well as some variances around function and speciality. This information would feed into additional variance of standard reports.

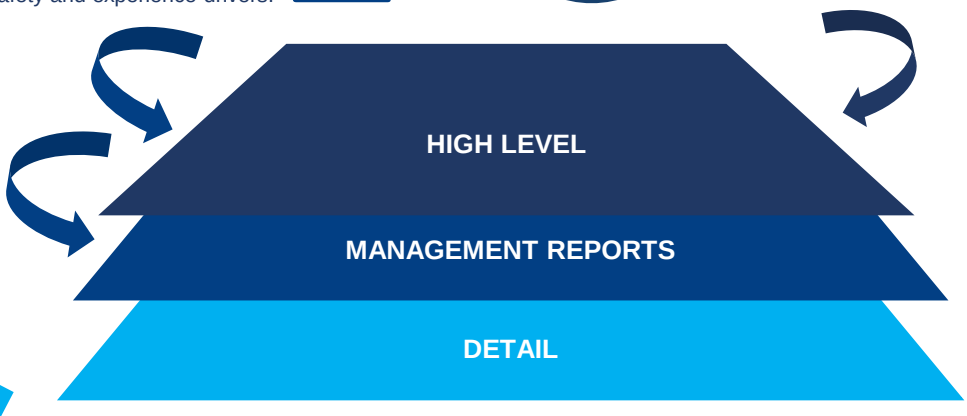
Director/Board	Manager	Front Line Staff
		
E.g. Corporate Lead	E.g. Business Process Lead	E.g. Clinician

Area / Functions	Clinical Specialty
Finance	Oncology
Estates	Pediatrics
Workforce	Orthopedics
People & Culture	Psychiatry
IT	Dermatology
Mental Health	Neonatal
Community	Cardiology
IG	Neurology

Below provides an example of different persona aspirations encapsulated in three views in each of the standard reports:

Manager
Uses Management Reports to understand trust performance, and patient safety and experience drivers.

Director/Board
Gets high-level view of trust performance, including admission rates, wait times, and performance against national standards.



Front Line Staff
I need access to my patient's complete records in order to make clinical decisions and provide the best possible care and contribute to patient safety

Example: as a Director I am most interested in viewing the high level summary data and trends of how the Trust is performing, and be able to compare my Trust performance against other Trusts nationally. I don't need to see the low level detail day-to-day, but instead want to get an overall understanding of the data to see how patient safety can be improved at the Trust.

3) Bottom Up: Identify Key Business Questions by persona

Create Business Question per User Persona

For each user persona define business questions that are specific to the role and function as shown below. The examples provided are centred around Patient Safety.

Persona 1: Director / Board	Persona 2: Manager	Persona 3: Front Line Staff
Do I have enough capacity to provide safe care across the organisation?	Do staff have the required equipment and tools to treat patients?	Am I delivering the best quality care to my patient?
Are we reducing safety incidents?	What is the average time for patients waiting to be seen?	How am I performing against other consultants?
Do patient feel safe? Are patients providing feedback on the quality of our care?	Does the staff rota provide adequate staffing cover to support demand?	Are we reducing the number of self-harm incidents?
How does EPUT compare to other Mental Health Trusts performance?	What is my forecast demand for beds?	How long have patients been in my care? Are any patients exceeding 21 day bed times?

4) Bottom Up: Business Questions and Strategic Objectives

Persona	Business Questions	Strategic Objectives		
		Improve service user experience and outcomes through the delivery of high quality, safe, and innovative services	Be a high performing health and care organisation and in the top 25% of community and mental health trusts	Be a valued system leader focused on integrated solutions that are shaped by the communities we serve
Director / Board	Do I have enough capacity to provide safe care across the organisation?	X		
	Are we reducing safety incidents?		X	
	Do patient feel safe? Are patients providing feedback on the quality of our care?	X		
	How does EPUT compare to other Mental Health Trusts performance?		X	X
Manager	Do staff have the required equipment and tools to treat patients?	X		
	What is the average time for patients waiting to be seen?	X		
	Does the staff rota provide adequate staffing cover to support demand?	X		
	What is my forecasted demand for beds?	X		
Front Line Staff	Am I delivering the best quality care to my patient?		X	
	How am I performing against other consultants?			X
	Are we reducing the number of self-harm incidents?		X	
	How long have patients been in my care? Are any patients exceeding 21 day bed times?	X		

Using the user persona matrix, business questions and KPI driver tree you can effectively allocate KPIs. **This process will ensure KPIs are directly linked to strategic objectives and are aligned to individual business needs**. An example is show below:

Persona 1: Director of Patient Safety

Business Questions

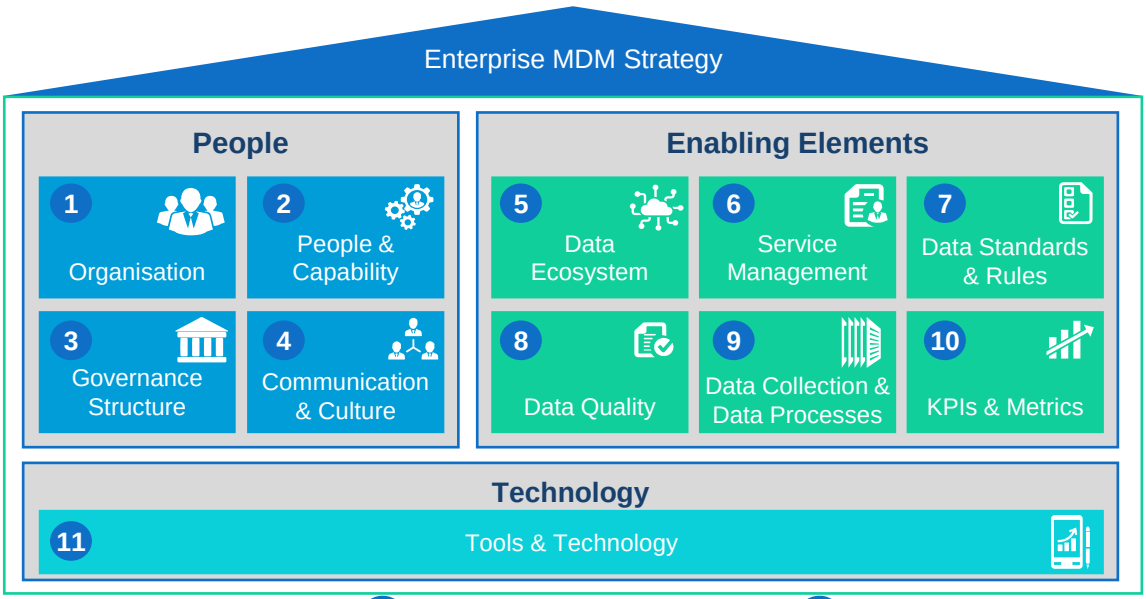
Do I have enough capacity to provide safe care to my patients?

KPIs

- Retention rate
- Sickness rate
- Vacancy rate

Master Data Management Framework

Master Data Management (MDM) is a technology-enabled framework allowing EPUT to ensure technology, tools, processes and data assets are coordinated across the organisation in uniformity and consistency to promote stewardship, accuracy and accountability.



1 Organisation

Structure of the team for both data operation and data management including defined roles and authority to the governance organisation

2 People & Capability

Defines best practices to implement focus, clear accountability, efficiency and enhanced employee experience for the MDM organisation

3 Governance Structure

Provides the chain of command required to make strategic and tactical decisions, Including the escalation process and decision-making process

4 Communication & Culture

Support processes to help deliver and manage change in MOM activity across the organisation including stakeholder engagement and facilitating change in behaviours

5 Data Ecosystem

Defines the Master Data Management roles & responsibilities

6 Service Management

Defines the structure for service delivery, including the service catalogue and service SLAs & KPIs

7 Data Standards & Rules

Defines the common data definitions and standards including data quality standards that support processes using each data which use data entities

8 Data Quality

Defines the common data quality standards and activities to ensure clean and consistent master data for the business

9 Data Collection & E2E Processes

Defines standardised and simplified procedures for creating new data records and managing existing data across the organisation. A single global process from creation to archive

10 KPIs & Metrics

Defines metrics to support performance management and continuous improvement for both the MOM organisation and data quality

11 Tools & Technology

Defines the enabling tooling options and requirements that can support each step of the data lifecycle (Definition, Quality, Collation and E2E Process Integration)

What is Data Governance

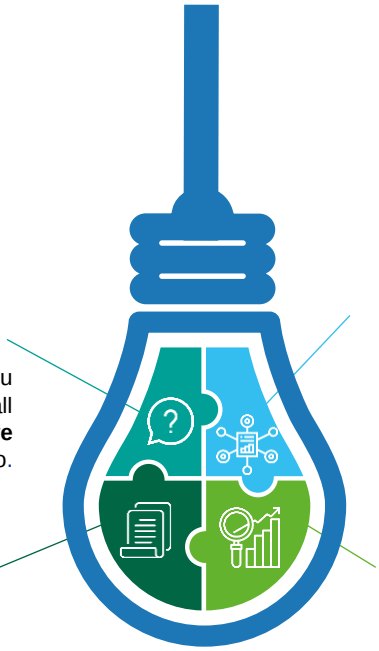
9

What Data Governance Is

Data Governance is all the things you do to enhance the overall management of data to help **achieve the data outcomes** you aspire to.

Principles & Practices

Data Governance is a set of principles and practices that help **control** the complete lifecycle of your data.



The Data Governance Framework

A Data Governance Framework sets out the **overarching structures, roles and ways of working** through which you will address the management, improvement and protection of data, including all regulatory requirements and risks associated with data.

What Data Governance Does

Data Governance develops, strengthens and enhances the overall data management activities within an organisation. It crosses various organisational levels, from strategic to operational, to ensure that ownership and accountability is in place and standardised processes and controls are available to achieve data value.

Data Standards, Definitions & Rules Overview 9

Data Definitions

The business definitions of data, including the attributes that are required to describe the object. They are a business artefact and technology agnostic. Data definitions will deliver the common languages for all data objects within scope of the MDM service. Data definitions are owned by the relevant Global Process Owner

Components:

- Business data definition
- Technical data definition
- Metadata framework – business
- Taxonomies
- Rules
- User Guide

Data Standards

Instructions about how to build data definitions, and how to implement them. Data standards will give clear instruction on how to maintain and use data definitions and are defined for each master data object. Defined standards ensure data is managed in line with relevant quality assurance standards and industry standards

Components:

- Design Principles
- Lifecycle management
- Naming conventions
- Attribute/ entity/domain rules
- Metadata framework
- Technical metadata
- Operational metadata

Data Rules

Describe how the data should exist in order to be useful and usable. The rules can be aligned with quality dimensions (accuracy, veracity and validity etc.). *Data rules will be defined in Collibra*

Components:

- Conformity to definitions
- Data completion validation
- Data consistency validation
- Data range validation
- Data accuracy validation
- Data uniqueness validation

Communicating Definitions, Standards & Rules

Roadmap and strategy for ensuring that the data definition, and standard artefacts are discoverable.

Components:

- Portal – presents data standards, DQ KPI and business rules, and meta data
- Links to data policies, and data standards
- Links to data to process mappings
- Links to taxonomies
- Maintenance/update and links to the user guides

Approach to developing data definitions

9

Summary

Business

1 Business Definition

- The business definition consists of a short statement that sets scope for the master data object
- Permits business sign off
- Provides guidance and boundaries for subsequent detailed definition work

MDM

2 Concept Definition

- Concept definitions reflect the way that the business talk about the master data object
- For example, the business concepts that a vendor fulfils include payee, legal, intercompany
- Most business rules are articulated at this level

Technology

3 Logical Definition

- The Logical Definition is the home for the description and rules about each attribute
- It also defines how entities relate, for example how a person can have many addresses, a work address, a home address
- It is the model that will be used by the developers to ensure the right data is kept in the right place
- It provides the home for defining taxonomies and drop-down lists

4 Physical Model

- The physical data model is what relates the business definition to the chosen implementation technology
- It is out of scope of the MDM programme, and belongs to the solution provider

Detail

Data Quality High Level Approach

9

The complete Data Quality Management program is an **ongoing process of understanding the data, solving its quality issues, enhancing it and monitoring the status of data and its quality**. This approach is followed so that the initial effort for data cleansing is not wasted and data quality continues to improve.

Ensuring Data Quality means ensuring that:

- Data Content for Data Objects is complete, accurate, precise, consistent, unique, and valid.
- Data Content presented to any business process can be trusted as being fit for purpose
- Fit for purpose Data Content is easily accessible and available when needed

	 **Define**	 **Report**	 **Assess**	 **Embed**	 **Cleanse**	 **Monitor**
	Identify & prioritise data items that need to be monitored for quality and define the associated rules and metrics	Report data residing in the repositories in order to measure the rules and metrics defined	Uncover data anomalies by inspecting the true content, structure and relationships hidden within the data sources	DQ checking and validation at the point of creation and maintenance rather than as an post-hoc exercise	Reconcile, correct, consolidate and enhance the value of the data prior to loading	Provides the confidence and assurance that once you've fixed your data problems, they will stay within limits
Key Considerations						
	• Understand content of data held in operational systems • Define metrics and business rules for Data Quality • Define what needs to be measured • What can be fixed and what can be accepted as wrong/unknown	• Require both a reactive (address issues) and proactive (prevention) DQ Management program • Four types of DQ reports: (1) Technical reports, (2) Technical Status of DQ, (3) DQ Tooling effectiveness & (4) Business data reliability reports	• Identification of outliers and duplications • Discover and validate data patterns and formats • Validate data specific business rules within a single record or across sources • Identify redundant data	• Integration into operational systems • Sustaining the integration on an ongoing basis • Culture of continuous improvement will drive the right first time data at source	• Correct errors, standardise information across sources and validate information that is inconsistent • Cleansing procedures typically include (1) Accuracy, (2) Consistency and (3) Validity (Inc. Data parsing, format correction and content-based cleansing)	• Method for managing DQ over time based on pre-set metrics • Define measures to maintain consistent, accurate and reliable data • Identify trends in DQ • Systems for alerts of violations in established DQ and business rules • Continuous improvement programme to fix violations issues at source

Key steps to improving data culture and adoption

1 Make it clear

- Articulate a clear statement of the strategic aims, ambition and scale of change and align with leadership.
- It is often useful to have a specific senior sponsor of the initiative e.g. the head of BI or Head of AI and Machine Learning

2 Make it known

- Communicate the change vision and case for change and begin to create owners and promoters of the solutions. We have found that the combination of an engaging Vision document and a specific "roadshow" activity to be an effective way to "make it known"
- A careful stakeholder mapping exercise is recommended to support the communication and engagement process

3 Make it real

- Translate the change vision into reality for people in the organisation and define what it means for them as well as the organization as a whole. A useful tool for this is the development of change profiles for specific corporate personas.

4 Make it happen

- Demonstrate value early by picking and delivering the right use cases in the right order.
- In parallel, the organisation's "data foundation" must be brought up to a sufficient level of quality to drive trust in data. Upskilling/re-skilling of staff is critical, as is embedding a DevOps/DataOps-based culture to maintain the pace of delivery.

5 Make it stick

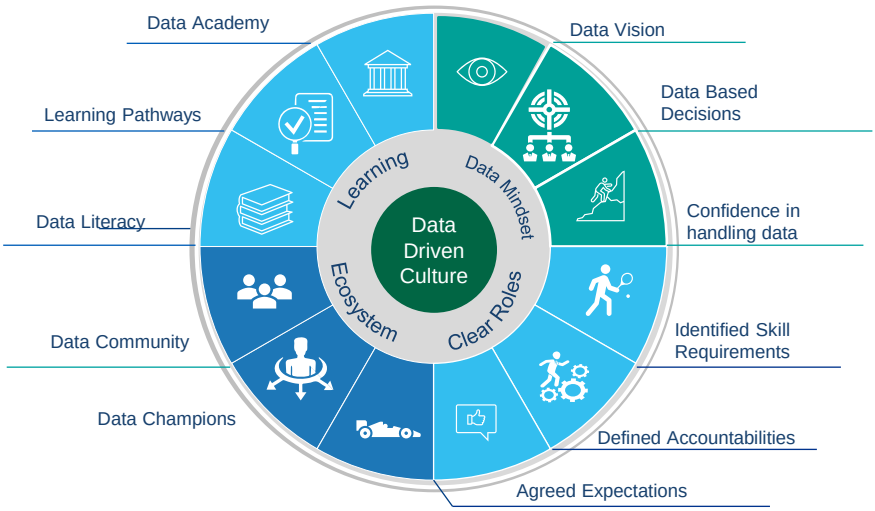
- Ensure there is capability and governance and an attitude of continuous improvement in the organisation to sustain the change.
- Take specific steps to promote "data literacy" (e.g. drop in surgeries and webinars) and embed data communities within the organisation.

Driving Culture and Adoption

9

Data Culture and adoption

For you to become fully “Data Driven” and drive adoption the right level of data culture must be in place alongside leading practice capabilities



The four key drivers which will establish a data driven culture:

- **A learning framework** which builds and maintains overall data literacy and capability in the organisation.
- **Injection of a data mindset** which promotes data and **evidence based decision making.**
- **A data Ecosystem and clear roles** which identify **data related skills, responsibilities and accountabilities of each individual.**

Appendix 1 – Detailed Initiatives

Detailed Initiatives

10

This table below provides an **overall narrative for the short, medium and long-term outcomes** as a combined view of the eight framework domains.

Roadmap Ref	Term	Priority	Initiatives	Outcome	Benefits	Complexity	Impact
1a. Power BI Governance Model	**0-6**	Foundational	Power BI Governance Model	• Enterprise level reporting platform governance established	• Centralization of reporting governance in requesting licensing, dashboards and data.	Medium	High
1b. Data Dictionary PoC	**0-6**	Transformational	PoC for data dictionary (in Purview)	• Selected datasets used in PoC to demonstrate capabilities • Scoping, identify key scenarios, design documentation and deployment of client environment • Data mapping. Source connectivity and canning • Azure AD integration	• Early benefits realised on Purview adoption	Medium	High
1c. Business Case and Additional Capacity	**0-6**	Foundational	Business case and investment to acquire additional external BI capacity	• Additional analyst capacity to support the team in the short term to expediate the removal of technical debt incl. to review/creation of reporting scripts, review/application of business rules and support in the development reports on new reporting platform.	• Utilise capacity to back-fill routine tasks with additional analysts to free up senior developers to strategic initiatives • Create capacity to allow more automation of manual tasks	Low	High
2a. Programme Governance & Mobilisation	**0-6**	Foundational	Establish data governance sponsor	• Drive funding and data governance activities to support the achievement of strategic objectives.	• Allocated person(s) to drive accountability	Low	Low
	0-6	Foundational	Establish a programme office and central data steering group reporting to the executive team	• Office to drive the delivery of the data strategy. • Benefits realisation and outcome reporting. • Review of data strategy at a quarterly/yearly basis which will be presented to the board.	• Established forum to oversee and direct data strategy implementation • Iterative development of data capabilities over time • Drive fair funding and investment decisions	Low	High

Detailed Initiatives

10

This table below provides an **overall narrative for the short, medium and long-term outcomes** as a combined view of the eight framework domains.

Roadmap Ref	Term	Priority	Initiatives	Outcome	Benefits	Complexity	Impact
2b. Establishing Strategic Initiatives and Priorities	**0-6**	Transformational	Establish a Strategic Partner	• Strategic partner to drive data and digital transformation programmes	• Transformation expertise from an independent organisation	Low	High
	0-6	Foundational	Fully utilise apprenticeship and learning funding	• Recruitment of apprentices within existing performance teams • Existing teams incremented with additional resources to support with administrative burdensome tasks	• Opportunities for increasing cost saving initiatives • Improvements to capacity constraints within performance teams • Opportunities to develop future/new talent pools	Low	Medium
	0-6	Transformational	Develop a balanced score card approach to identify and prioritise strategic activities	• A consolidated view of ongoing strategic transformatio n programmes. • An evaluation of progress, outcomes and capability of Trust technology transformation to date, with decision gateway to refine current capabilities or progress to further transition stages.	• Improved visibility of new/existing transformation programmes to support monitoring and prioritisation • A new approach to strategic projects, led by a strategy lead.	Low	Medium
	0-6	Foundational	Review and identify opportunities to develop/ extend intranet	• One stop shop for possible BI and reporting capabilities	• Promote centralisation ease of access	Low	Low
	0-6	Leading Edge	Develop an Open Data Strategy	• Develop a public reporting strategy • Aligned with open data standards	• Public service improvement through efficiency in data processing and transparency • Opportunities for public to contribute to their data records and control how this is accessed and shared • Opportunities for researchers to access clinical data to support research initiatives	High	Medium

Detailed Initiatives

10

This table below provides an **overall narrative for the short, medium and long-term outcomes** as a combined view of the eight framework domains.

Roadmap Ref	Term	Priority	Initiatives	Outcome	Benefits	Complexity	Impact
2c. Performance Indicators Review	**0-6**	Foundational	Review of existing KPIs	• Re-define existing KPIs to ensure they are outcome driven and fit for purpose • Re-consolidated and re-prioritised	• Greater understanding of existing KPIs and how they feed into the strategic objectives to understand current position and deliver interventions and outcomes	Low	High
	6-12	Transformational	Develop a suite of KPI reporting products across various tiers of management and (at a relevant level of granularity) for different stakeholders.	• Prioritised & targeted KPIs to drive outcomes • Defined KPI trees aligned to strategic objectives, user personas and key business questions.	• An increase in clinical representation at local, tactical and strategic level • Robust monitoring with a focus on driving outcomes as opposed to arbitrary performance reporting	Medium	High
3a. Data Collection and Service Centralisation	**6-12**	Transformational	Develop and adopt an intelligent data collection approach	• Framework to support data capture at source and identify opportunities to collect data from voice and digital systems (e.g. video cameras) using advanced technologies (e.g. Ambient Clinical Intelligence, NLP, and Machine Learning)	• Improved and consistent data quality across datasets and opportunities to increase richness of data assets. • Opportunities to use RPA to automate manual and burdensome data entry tasks	Medium	High
	6-12	Transformational	Review and assess workflow processes to identify opportunities to integrate and automate workflows	• Assessment detailing opportunities for automating workflow and use business services ticketing and workflow management tools	• Real time notifications for clinicians on event changes	Medium	Medium

Detailed Initiatives

10

This table below provides an **overall narrative for the short, medium and long-term outcomes** as a combined view of the eight framework domains.

Roadmap Ref	Term	Priority	Initiatives	Outcome	Benefits	Complexity	Impact
3a. Data Collection and Service Centralisation	**6-12**	Transformational	Establish a centralised report request process	• Structured process by which information requests are logged, prioritised and managed, with continued oversight, workflow and tracking. • Requests should be assigned an appropriate urgency with clear timescales for delivery • Formalised SLAs allowing requests to be tracked against this	• Prioritisation approach and improvements to capacity constraints • Ensures uniformity and consistency in the logging of requests and KPIs can be generated to measure turnaround times.	Medium	High
3b. Creating a Data Driven Culture	**0-6**	Foundational	Internal outreach programme	• Increased collaboration and feedback on data strategy • Clinical representation at domestic & strategic level and increased input to BI • Clinical champions at each service line to support develop use cases for descriptive and advanced analytics	• Improved dissemination of information across various stakeholders to get buy-in	Low	Medium
	0-6	Transformational	Identify data and insight change ambassadors across the organisation to encourage utilisation of insight products and assist in translating business needs in to use case requests	• Introduce a Business Partner model into the team structure where analysts are embedded into Operational, Corporate and Clinical teams with the aim of improving engagement, providing support with day-to-day intelligence, insight and analysis, planning, forecasting and business support. • The analysts will be under the management of the central Informatic function.	• Corporate, clinical and Divisional teams have a specialist informatics resource to assist them in intelligent monitoring, planning and decision making using a plethora of Trust data and information • Single point of contact for all digital queries • Establish super users and train the trainer approaches.	Medium	Medium

Detailed Initiatives

10

This table below provides an **overall narrative for the short, medium and long-term outcomes** as a combined view of the eight framework domains.

Roadmap Ref	Term	Priority	Initiatives	Outcome	Benefits	Complexity	Impact
3b. Creating a Data Literate and Data - Driven Culture	**0-6**	Transformational	Develop a data literacy training programme and implementa-tion plan	• Established training programme • Clear training plan aimed at improving data literacy across the clinical and operational workforce • Adherence to training plan and linking back to the existing Accountability Framework	• Improved data literacy and ability to make data-driven decisions • Better understanding on the value of data across the clinical workforce and increased participation in data-driven initiatives	Medium	Medium
	6-12	Transformational	Embed data related KPIs into the Trust's performance management processes	• Culture change to make informed decisions on data driven metrics	• Better transparency and improved impact on decisions	Medium	Medium
	6-12	Transformational	Develop a data culture survey	• Focus groups with key stakeholders to evaluate effectiveness of data awareness initiatives	• Targeted evaluation of data literacy programmes	Medium	Medium
3c. PHM | Maturity Assessment, Strategy & Key Initiatives Implementation	**12-18**	Transformational	Undertake a PHM maturity assessment across the four key capacity and capability areas to understand current state and gaps	• Focused current state assessment • Identification of key priorities • PHM lifecycle assessment	• Identification of areas for improvement to address in wider initiatives • Sets foundation to do more efficient and effective PHM strategy	Medium	Medium
	12-18	Transformational	Develop a PHM strategy, identify key datasets outlining the mission, roadmap and blueprint for delivery.	• Enables a data-driven holistic view of the population health needs	• Improve health and wellbeing outcomes for the population • Alignment to regional/system PHM strategies to ensure coordination and efficiency in approach	High	High

Detailed Initiatives

10

This table below provides an **overall narrative for the short, medium and long-term outcomes** as a combined view of the eight framework domains.

Roadmap Ref	Term	Priority	Initiatives	Outcome	Benefits	Complexity	Impact
3c. PHM | Maturity Assessment, Strategy & Key Initiatives Implementation	**12-18**	Transformational	Joint development of a PHM strategy with MSE ICS	• Detailed current state assessment • Defined future state • PHM data platform strategy • Strategic roadmap	• Prioritised roadmap of PHM initiatives • Alignment with MSE ICS ensures effective use of resources and maximum impact	High	High
	18-24	Leading Edge	Develop on local EPUT initiatives and / or support MSE ICS initiatives as per PHM strategy	• Application of PHM approach to patient care delivery – joining up data strategy and care coordination ambitions to improve pathways and outcomes e.g. risk stratification models	• Improved patient outcomes • Better utilisation of resources	Medium	High
3d. Advanced Analytics	**18-24**	Leading Edge	Create environments for Machine Learning experimenta-tion (Dev, Test, Prod)	• Dedicated sandbox environments	• Opportunities for hypothesis development/ testing and advanced analytics exploration	High	Medium
	18-24	Leading Edge	Explore use cases for scenario modelling, forecasting and strategic interventions	• Combined view of workforce linked across care settings and understanding of affordability • Future workforce requirement better understood	• Model supporting dynamic/ multiple interventions • Realistic interactions between key drivers	High	High
	18-24	Leading Edge	Artificial Intelligence / Machine Learning piloting and adoption	• Discovery on advanced tools and piloting to support use case development(e.g. NLP for data quality management) across operational and clinically remits • Use solutions such as Dataiku as an option to develop PoCs using collaboration and automatic Machine Learning features. • Automated detection of data quality issues using AI techniques (NLP) to establish DQ assessments	• Develop and test new data transformation initiatives and transition from purely descriptive to predictive and prescriptive analytics • The use of Natural Language Processing to allow users to ask questions of their data, which the tool is able to understand and return a chart or value.	Medium	High

Detailed Initiatives

10

This table below provides an **overall narrative for the short, medium and long-term outcomes** as a combined view of the eight framework domains.

Roadmap Ref	Term	Priority	Initiatives	Outcome	Benefits	Complexity	Impact
4a. Infrastructure Appraisal	**0-6**	Transformational	Carry out data warehouse readiness assessment and roadmap for the migration to cloud.	• High-level readiness for cloud adoption • Allocated funding for cloud adoption and resources • Assessment of existing data architecture and data feeds • High level vision document articulating the need for data warehouse • Business case for data warehouse acquisition	• Opportunities to move towards contemporary technology • Complete options analysis to agree product, hosting environment and high level design of a centralised cloud data store. • Data warehouse built for robust intelligence provision and analytics • Support effective and wider use of data • Controlled monitoring and governance of datasets	High	High
	6-12	Transformational	Adhere to framework management organisations (such as INTEROPen (Healthcare IT Interoperability in the UK).	• Increased use of APIs to enhance interoperability and linkage between datasets and other external 3rd party systems. • Integration options with devices to support remote patient monitoring and support.	• Interoperable system standards and consistency	Medium	High
	6-12	Transformational	Detailed assessment of enterprise technology and establish single inventory of software systems within the Trust	• Assess tooling required for MDM • A systems map of all legacy / contemporary technology detailing interactions between systems, overlaps and score against levels of effectiveness and completeness, in conjunction with the system inventory. • Proactive approach to identifying and removing legacy technology and engaging with the Trust to support change processes and renew technology when appropriate.	• Opportunities to review of system endpoints/connectivity's with high availability and low latency • Reduced disparate systems and reduced risk of data duplication and inconsistencies • Opportunity to increase interoperability between wider systems e.g. Datix • Single source of truth and single inventory of software systems within the Trust	Medium	High

Detailed Initiatives

10

This table below provides an **overall narrative for the short, medium and long-term outcomes** as a combined view of the eight framework domains.

Roadmap Ref	Term	Priority	Initiatives	Outcome	Benefits	Complexity	Impact
4b. Trust Data Platform	**12-18**	Transformational	Develop a high-level data solution architecture and a roadmap to achieve new level target architecture to establish a data platform.	• Development of reports and analytical dashboards and pathways for data science, AI and research, built upon robust data warehouse and analytical standards. • Continued migration of data assets to a single data warehouse to ascertain a 'single source of truth' **Platform considerations** • **Data Characteristics** (e.g. complexity, frequency of data update and size) • **Data Environment Characteristics** (e.g. data flows, breadth of solution, frequency of data usage, data versions, data security, data transformation complexity, connection persistence, sharing/access audit) • **Scope constraints** (e.g. time, cost and quality) • **Organisation considerations** (e.g. approval to share, data usage license, PII, GDPR) • **Consumer characteristics** (e.g. format, interface & transfer protocols)	• Data platform used purely for data gathering, sharing and intelligence, with a single source of truth • Clear technical architecture to transition towards a data platform and aligned to ICS choices	High	High

Detailed Initiatives

10

This table below provides an **overall narrative for the short, medium and long-term outcomes** as a combined view of the eight framework domains.

Roadmap Ref	Term	Priority	Initiatives	Outcome	Benefits	Complexity	Impact
4b. Trust Data Platform	**12-18**	Transformational	Develop a Common IT Reference Architecture	• Common standards and architectural principles • All future developments, implementations, and legacy replacements will be measured against across interoperability, security, and data accessibility	• Technology consistencies across the board • Build once and reuse many times	High	High
	12-18	Transformational	Review internal procedures and policies in line with ISO9001 quality management system.	• Set of system and product standards to support the Trust to meet patient and stakeholder needs.	• Improved efficiency and consistency in standards through appropriate controls in place	Medium	Medium
4b.1 Shared Data Platform	**24-30**	Leading Edge	Develop a data solution architecture for a shared data platform and a roadmap for integration with ICS'	• Alignment of system-wide data platforms to support data sharing initiatives • Link in with the roll out of the Patients Know Best (PKB) portal across ICS	• Collaboration across partners and increased transparency of data	High	High
4c. Legacy Reporting Assets Migration & Initiatives	**0-6**	Foundational	Agree and finalise Power BI licensing to self-service BI.	• Finalised Power BI licensing agreement for Trust-wide stakeholders	• Deployed licenses to access reports • Support user access to self-service BI	Low	Low
	0-6	Transformational	Develop a plan to re-develop existing/new reports to new reporting platform	• Report stocktake to identify reports that are obsolete, not fit for purpose, duplicated • Power BI training • Prioritisation roadmap for development activities (e.g. ward reports) • Develop a new BI reporting pipeline for division wide reporting needs	• Consolidation of legacy reporting assets into Power BI • Improved user interface, functionality and engaging dashboard giving the ability to visualise information and insights • Align on one self-serve platform to use, with multiple access levels, to allow for reports to be agile, flexible and dynamic	Low	Medium

Detailed Initiatives

10

This table below provides an **overall narrative for the short, medium and long-term outcomes** as a combined view of the eight framework domains.

Roadmap Ref	Term	Priority	Initiatives	Outcome	Benefits	Complexity	Impact
4c. Legacy Reporting Assets Migration & Initiatives	**0-6**	Foundational	Develop uniform reporting template and standards	• Templates with a clear structure to include uniform formatting, sections for report specification and purpose, high-level contextual analysis (i.e. what are the key themes and take-home messages), • Data quality and assurance rating, detailed data breakdown and author	• Consistency in reporting with a clear and articulated structure making reports more user friendly and effective	Low	Medium
	6-12	Transformational	Develop a reporting catalogue	• Reports driven from a contemporary reporting platform	• Improved visibility of reporting assets in a library • Promotes self-service reporting capabilities	Medium	High
4d. Data Governance Target Operating Model (TOM)	**0-6**	Transformational	Create a technical design authority	• Central steering group to promote standards and best practices for new product development initiatives	• Consistent coding and development standards • Promotion of agile cultures in product development	Low	Medium
	6-12	Transformational	Develop a Data Ethics framework	• Agreed assurance principles and sensitivities to support ongoing and safe data usage • Consent management process plans to ensure patients/community are engaged to provide consent on how their data is used.	• Data protection measures at the forefront of strategic initiatives • Establish a Data Ethics committee • Address community concerns on data usage and increase opportunities for PHM development	Low	Medium
	6-12	Transformational	Develop a Data Charter	• Clear responsibilities across partners	• Prioritising the developments of sharing agreements	Medium	High
	6-12	Transformational	Develop role based access (RBAC) rules and access restrictions for each reporting/data product based on IG principles	• Aligned to governance framework	• Increased governance and transparency on data accessed across the user personas • Key stakeholders having access to the information they need	Medium	High

Detailed Initiatives

10

This table below provides an **overall narrative for the short, medium and long-term outcomes** as a combined view of the eight framework domains.

Roadmap Ref	Term	Priority	Initiatives	Outcome	Benefits	Complexity	Impact
4d. Data Governance Target Operating Model (TOM)	**6-12**	Transformational	Develop a Data Governance Operating model	• Defined processes and principles for data taxonomies • Defined role profiles and additive roles (owners and stewards) and RACIs, forums, processes and policies • Documented terms of reference for central returns, assigning executives to each return, detailing out the purpose, timetables, and verification m • Established understanding of data retention and the role and responsibility of IT and BI in the execution of decisions related to data retention. • Adherence to the Master Data Management (MDM) framework to increase standardisation.	• Established principles to promote and support better governance/management, data quality and data sharing • Established data governance steering group • Data managed against good standards and by defined owners to establish single version of the truth • Consistent approach for sign-off • SOPs for data validation governing all major statutory returns and submissions. • Improved awareness on sharing agreements via existing tools and better understanding of information governance processes	High	High
4e. Data Quality Assessment and Remediation	**0-6**	Foundational	Reinforce the existing Accountability Framework to ensure everyone is adhering to ensure compliance	• Compliance to existing framework	• Increase awareness of existing protocols in place to address data quality	Low	Medium

Detailed Initiatives

10

This table below provides an **overall narrative for the short, medium and long-term outcomes** as a combined view of the eight framework domains.

Roadmap Ref	Term	Priority	Initiatives	Outcome	Benefits	Complexity	Impact
4e. Data Quality Assessment and Remediation	**0-6**	Foundational	Establish a Data Quality Management Programme	• Established process in place to identify and deal with data quality issues and hold individuals to account. • Board, operational and clinical teams should receive regular, detailed and actionable information highlighting data quality issues and act upon these in a timely manner.	• Mechanism to identify, monitor and address systemic data quality issues across the trust. • Alignment to operational and clinical teams to provide rapid remedial action to fix issues at source. • Awareness of good data quality embedded within the organisational culture.	Low	Medium
	6-12	Foundational	Trust wide data quality assessment	• Assessment and plan to define scale of effort and scope of remediation activities and prioritisation required across key datasets • Undertake a detailed review of the data ingestion, transformation and calculation process (extract, transform, load processes) to resolve upstream issues to positively impact downstream reporting. • Prioritised list of opportunities for technical debt removal activities	• Legacy technical debt addressed and ongoing plans for continuous improvement • Agile and iterative systematic data quality improvement	Medium	High
4f. Technology Refresh	**18-24**	Leading Edge	Establish plan to develop a Mental Health and Community Care specific EPR	• Outcome following existing system capability audit and assessment	• Focused and one-top-shop for datasets on core subject matter • Developed based on open EPR standards	High	High

Detailed Initiatives

This table below provides an **overall narrative for the short, medium and long-term outcomes** as a combined view of the eight framework domains.

Roadmap Ref	Term	Priority	Initiatives	Outcome	Benefits	Complexity	Impact
4f. Technology Refresh	**18-24**	Transformational	Assessment of low code solutions (e.g. Power Platform, RPA)	• Cost benefit analysis of capability assessment available and opportunities for collaboration • RPA to automate legacy and manual processes surrounding data collection, collation an curation and allow analysts additional time to focus on product development.	• Broaden opportunity to partner with Microsoft and develop capabilities • Opportunities for non-technical users to collaborate in data transformation exercises • Accelerate traditional data cleansing processes	Medium	High
	24-30	Leading Edge	Review technology roadmap for opportunity to refresh capabilities	• Iteration of the digital strategy • Review and refresh research budgets and capital allocation as technology roadmap evolves	• Technology in tune with modern architectures	Medium	Medium
4g. Data Dictionary, Taxonomies and Cataloguing	**6-12**	Transformational	Develop data dictionaries/ taxonomies and business glossary	• 'Data Dictionary' following central government best-practice guidance and will include datasets, owners, elements, relationships attributes, classes, NHS business definitions and supporting information for non-technical users. • Short term requirement may be to develop taxonomies in MS Excel pre-Cloud migration.	• Develop a common data model between partner organisations driven by common standards and definitions • Improved visibility of datasets and their meaning across service users	Medium	High
	6-12	Transformational	Develop and publish a data asset catalogue	• Searchable user interface repository for stakeholders to access the real-time data they need • Centralised data store to access assets • Link into existing Azure cloud migration and acquisition of extended cloud resources e.g. Purview/Data Catalogue	• Increased self-service and innovation once catalogue is accessible and data assets are visible • Available metadata supporting stakeholders to search for data needed and evaluate its fitness to improve quality	High	High

Detailed Initiatives

10

This table below provides an **overall narrative for the short, medium and long-term outcomes** as a combined view of the eight framework domains.

Roadmap Ref	Term	Priority	Initiatives	Outcome	Benefits	Complexity	Impact
4g. Data Dictionary, Taxonomies and Cataloguing	**24-30**	Leading Edge	Supplement existing data catalogue with additional datasets	• Iterative data catalogue as collaboration increases with data partners	• Continuous enhancements to data asset portfolio • Real-time access to latest published datasets	Medium	Medium
5a. Workforce Capability Assessment and Centre of Excellence (CoE)	**0-6**	Foundational	Skill-Mix and Capability Assessment	• Skills-matrix detailing skill-mix and capabilities in the Trust both in the core BI function and across the clinical workforce • Review job descriptions and update to align specifically to the role advertised and what is required	• Ensures the Trust has the capability and skills required for its informatics provision and can address gaps through recruitment, training and development • Regularly refreshed skills needs assessments ensure internal capabilities keep up with industry advances	Low	High
	0-6	Foundational	Improved oversight on performance team capacity	• Conduct a capacity audit of the BI function, • Understanding of priority and lead times • Inform the development of a new BI team structure and operating model, ensuring that the service is correctly configured to respond to future service demand	• Improved resource allocation • Better visibility on capacity constraints	Low	Medium
	6-12	Transformational	Review of Trust-wide analytics capabilities with a view to develop a Centre of Excellence (COE) to establish a BI and data management function	• Detailed review of the provision and function of business intelligence, analytics and reporting practices carried out outside the central BI team and how best to consolidate all roles, reports, data outputs and business rules	• Stable platform to centralise capabilities via a single channel • Establish single source of truth	Medium	Medium

Detailed Initiatives

10

This table below provides an **overall narrative for the short, medium and long-term outcomes** as a combined view of the eight framework domains.

Roadmap Ref	Term	Priority	Initiatives	Outcome	Benefits	Complexity	Impact
5b. Learning Initiatives Review & Training	**0-6**	Transformational	Create an investment case for training	• In line with the Digital Strategy, a business case for training needs to be drafted to support the development of the function in line with market trends	• Dedicated funding pool for people development	High	Medium
	0-6	Transformational	Work with Trust Estates and Learning and Development colleagues to optimise the use of physical training facilities.	• Established sites for learning and development	• Maximise use of in-house estates facilities and reduce cost of outsourcing	Low	Low
	6-12	Transformational	Review of Trust's internal learning platform to review module quality and opportunities to incorporate additional material	• Increase mandatory training modules e.g. inclusion of Datix training	• Improved staff training and awareness of key technologies and domains across the Trust	Low	Low
	6-12	Transformational	Data Analytics' training programme.	• Review skills mix assessment and determine organisation capability needs and • Investment established for internal / external training programme to develop organisation analytics capability. • Enterprise skills initiative use (free training for NHS) • Microsoft enterprise skills indicative	• Improved team morale, confidence in stakeholder interactions, skills to perform and improve processes. • Enhance the capability to help meet organisational analytical and intelligence demands. • Clear path for users to follow for technology and data carer tracks.	Medium	High
5c. Resourcing and Recruitment Strategies	**0-6**	Transformational	Recruitment of data architects to have an advanced analytics/data science capability	• Support individual/shared data platform initiatives and enterprise data architecture review	• Increase in-house capabilities to support ongoing transformation programmes to become a data driven organisation	Medium	High

Detailed Initiatives

10

This table below provides an **overall narrative for the short, medium and long-term outcomes** as a combined view of the eight framework domains.

Roadmap Ref	Term	Priority	Initiatives	Outcome	Benefits	Complexity	Impact
5c. Resourcing and Recruitment Strategies	**6-12**	Transformational	Improve workforce strategy by using comprehensive workforce data	• Utilising comprehensive workforce data to inform recruitment and resourcing decisions. Improve retention and recruitment planning	• Better visibility of bank/agency workforce personnel • Will enable greater resource to support corporate functions such as patient experience to utilize data effectively	Medium	Medium
5d. Partner Collaboration	**6-12**	Transformational	Explore benchmarking and collaboration opportunities with regional Trusts across Mental Health and Community Care (e.g. Cambridge Children's Hospital)	• Increase learning to strengthen relationships across the local bodies and contribution from a mental health perspective	• Best practise sharing to help improve patient safety and staff wellbeing • Support wider data sharing/PHM agendas to address regional health inequalities • Develop league tables to compare with other areas	Medium	Medium
	18-24	Leading Edge	Carry out an assessment of available TRE/SDE's (e.g. Great Ormond Street research and innovation platform)	• Include a review of existing facilities i.e. EPUT lab and develop wider relationships with academia, AHSN and industry to create ecosystem and a breeding ground for new ideas. • Collaborate with partners for knowledge transfer and annual hackathons to test new approaches, tools and approaches • Data used for research is consented for • More structured engagement with industries and systems	• Researchers can maintain their own applications in a fully-governed, ethical and trustworthy environment without the complexity, cost, or delay of setting up individual systems. • Federated across and between TREs, rather than moving data around the system. • Easier to share and extract data instead of having multiple, difficult to navigate systems	Medium	Medium

Appendix 2 – Detailed Current State

A Closer Look: Strategic Objectives

11

Key Findings

Significant leadership buy-in to drive change initiatives and overall forward thinking and progressive culture

Existing internal KPIs are limited to performance reporting and not focused on driving patient outcomes or supporting effective decision making across functions. KPIs needs to be reviewed and re-established to ensure purposefulness.

Increased data intelligence and insights needed to improve patient safety outcomes and learn from experiences, to develop a 'culture of learning' across the organisation.

Additional Findings

1 & 2 Business Goals (Strategic Objectives & Tactical Priorities)

- Increased appetite for **advanced analytics** exists among stakeholders however there is a **lack of understanding** on the journey needed to make this achievable.
- Operational and clinical stakeholders recognise the **importance of exploiting data assets** to **improve patient experiences and outcomes,** and to support wider PHM initiatives.
- Challenges surrounding the Trust's IT infrastructure has given **rise to ineffective and insufficient provision of insights** resulting in inefficient decision making for strategic priorities
- **Datasets often lack richness** as a result of the **disconnect between systems** hindering the ability to view the wider Trust position on performance, risks and data issues.
- Performance teams **routinely use disjointed, manual and out-of-date data,** creating **inefficiency** for BAU tasks and capacity constraints.
- **KPIs are not driving outcomes**; there is too much focus on arbitrary performance reporting, particularly in the CCGs, rather than focusing on actionable insight to improve the level of care provided.
- Ongoing migration from legacy reporting tool to contemporary technology (Power BI). However, **licensing agreements require finalising**.

Score: **3**

Appointment of data transformation lead to drive strategy and support with investment

A Closer Look: User Needs

11

Key Findings

Trust wide stakeholders find it **difficult to infer on data to generate insights** due to limited domain understanding and contextual analysis within reports.

Improvements needed to overall data literacy to create a data savvy culture as existing capabilities are often limited to the digital and data teams.

Information requests are not managed effectively via a workflow system with appropriate timescales and priorities allocated, ultimately increasing disengagement from wider teams.

Additional Findings

3
User Needs

- **Good working relationship** between digital and data teams, with awareness of reporting demands and information requests.
- **Limited** non-technical user **accessibility** to systems. Reporting and analytics remains largely Excel based, however, there is **growing maturity** around adoption of Power BI. There is appetite for self-service analytics and automated BAU reports / dashboards with timely and relevant information.

Score: **2**

Analysis generates basic insights, but still a highly manual process to generate reports. Some engagement and interaction with divisional teams.

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A Closer Look: Products and Services

Key Findings

Existing **Shared Care Records programme** intends to provide a **single avenue for data sharing** and reduce complexities to siloed system-to-system interfaces.

Existing EPR appraisal programme to address **administrative and systematic burdens identified from existing EPRs** and opportunities to improve patient safety and clinical outcomes

Legacy reporting products (SSRS, Excel) utilised and **no robust data platform** supporting user centricity and self-service capability.

Additional Findings

4 Products & Services

- Plans to **expand the PHM model** to capture community, primary care, acute care, ambulance services and social care data.
- Report usage is **not monitored** and it is not clear if reports are fully fit-for-purpose. This **limits the ability** to identify opportunities to improve existing reports to increase the value add.
- No **maturity for ICS level self-service capability** due to limited data sharing, disparate data sources and lack of integration with ICS level data. Information governance standards differ across ICS/Trust limiting the ability to share patient records. Disparities between Trust and ICS systems create difficulties to integrate data sources effectively.
- Per Goldacre review and national recommendations, considerations are needed on implementing a **Trusted Research Environment** to facilitate better research, collaboration and sharing of insights.

Score: **2**

Some appetite to procure new products and pockets of innovation, however lack of knowledge and resources transformation programme.

A Closer Look: Data Governance

Key Findings

An accountability framework is in place to **drive data quality improvements** however stakeholders have expressed the need for the agenda to be re-enforced.

Multiple Trust **systems often offering functionality similar in nature** has given rise to data integrity challenges e.g. duplications and inconsistencies.

Data management and governance best practices are **not embedded into core IT functions,** limiting the need for a **common data model and language** with data dictionaries and taxonomies.

Additional Findings

5 Data Governance

- Clear **audit process in place to monitor Information Governance adherence and compliance.**
- Documented processes for improving data quality within Mental Health i.e. internal audit programmes however **no consistent approach to resolving data quality issues** across the Trust.
- Data is **recognised as a strategic asset** across stakeholders, however roles and responsibilities around data ownership and management are not always clear.
- A **government priority** and a successful data strategy deployment is patients being able to **control their data, contribute to it** and opt-out of sharing.
- **Differing data and Information Governance standards across ICS/Local Partners/Trust** which limit the ability to share data, and leads to quality inconsistencies.
- Information governance and data protection compliance **is seen as a risk** due to not meeting 95% compliance levels. Users are however familiar with navigating to the right knowledge resources.

Score: 2

Data ownership and data quality processes and root cause analysis for issues vary between teams with some good governance frameworks are established.

A Closer Look: Technology Platform

11

Key Findings

Use of legacy technology and reporting infrastructure increases the risk of manual processing when **self-service capabilities** could be better utilised with a robust data platform.

Limited interoperability across systems limiting opportunities to develop a **single patient view** and supplement with external third party datasets for full rounded patient care management.

Challenges have been identified with the current BI landscape, including a **lack of data warehouse**, single source of truth and the **need to improve data management and governance** for real-time data to improve patient outcomes.

Additional Findings

6 Technology Platform

- Current procurement system 'Business Objects' is **fit for purpose** and enables data to be reported and extracted for national requirements.
- There are **multiple non-interoperable data systems** resulting is no single source of truth. EPUT's Digital Strategy plans to **migrate to cloud** over the next five years. There is a plan to have a proposal and a cost model for EPUT's migration to cloud by the end of the financial year.
- Concerns have been raised on the **Shared Care programme** given it was designed to resolve the immediate need but **does not adapt to overall strategic objectives**. Gaps in resourcing have been identified to continue to support the ongoing programme.
- **Real-time data is currently unavailable** for Direct Care and Systems such as SystemOne can struggle to meet the required user and functionality demands.
- Stakeholders have **difficult user experiences** using Paris and Mobius systems which can impact data quality in entered at source.
- The current **learning system** requires **refreshing** to reflect the current systems and requirements of the staff. The training needs to be easily accessible and well presented, to maximise the effectiveness of the learning.
- Incident data provided through **Datix is difficult to interrogate** and is not real-time enough.

Score: 2

Technology supports existing basic direct care needs but lacks flexibility and interoperability with wider strategic datasets to form a single and holistic patient view.

A Closer Look: Suppliers and Alliances

11

Key Findings

Progressive vision to **partner with leading technology** vendors (e.g. with Microsoft) and a clear appetite to explore Power Platform capabilities and align to current market standards.

Progressive vision to **partner with consulting firms** to execute certain strategic and tactical priorities.

Limited maturity in partner collaboration opportunities to share best practices and develop a culture of knowledge sharing and learning. Leadership requires strengthening to increase partnership with ICS' and local authorities.

Additional Findings

7 Suppliers & Alliances

- The Trust has **strong relationships with key suppliers** e.g. Microsoft and has a vision to develop further relationships with some of the leading technology vendors.
- Datix is adopted across the organisation however teams responsible for Datix agendas receive a **lack of response and limited support** from the supplier.
- **Good relationships** with partnering **Universities, ICSs and NHSE** however minimal discussions on collaborating on initiatives, subsequently strengthening the relationships.
- **Limited cross-organisation engagement** during the **procurement process,** limiting expert advice and ability to share best practices. This can impact the ability to monitor and track KPIs.

Score: **2**

Some collaboration with suppliers and alliances with a view to directly support ongoing transformation programmes however minimal trusted external research partners.

A Closer Look: Capacity and Capability

11

Key Findings

Considerable capacity constraints within performance team and concerns identified on increasing workloads, potentially exacerbated by the various ongoing transformation programmes. Better oversight is needed on performance team

Contextual understanding requires improvements to support stakeholder requests for targeted analysis and the need to adopt **business partnering across the Trust.**

Clear appetite to develop skills however existing capabilities require review in line with market standards to support a natural progression towards **advanced analytics capability.**

Additional Findings

8 Capacity and Capability

- A number of factors were identified to be contributing to capacity constraints:
  - BAU reporting tasks have additional complexity due to **non-interoperable systems**
  - **Increased workload** caused by new COVID-19 national reporting requirements
  - Performance team is balancing transformation alongside BAU tasks and ad-hoc requests
  - **Over-reliance on the performance team** as a first point of contact.
- Across the organisation users are likely to require **training and support** on products and services to properly access, interpret and action any insights provided.
- **Limited technical and clinical expertise amongst the admin staff,** which is needed in areas such as data validation of frontline staff data input.
- **Siloed pockets of BI capabilities that exist across the organisation** limiting the ability to share best practice and build communities of knowledge sharing.
- L**ack of business partnering** across the organisation is resulting in the loss of benefits such as: expert advice to inform better decision making and improved understanding across various operational and clinical services.
- **Skills are not available to enable the 'build once use many**' strategic objectives for Shared Care, and this could be alleviated by better resourcing and training opportunities.

Score: **2**

Capacity constraints limiting data skills growth and limiting the successful execution of ongoing transformation programmes.

Appendix 3 – Stakeholders & References

Document Review 12

Five Year Strategy 2019 - 2024	Digital strategy report December 2021 Draft 2.0 (DHA)
Data Quality Policy	#6 Accountability Framework Q1 Update - Part 2
Data Quality Procedure	CP55 - Appendix 1 - Legal and National Guidance
Organisational Development Framework 2017-2021	EPUT Mental Health Urgent Care Inpatient Services
Goldacre Review	Skills Matrix from PHI Survey_MSE (300322)
ID05 Data Quality Improvement Plan 300622	West Essex Performance Report 2022-23 Updated
ID06.1 Data Quality Improvement Plan 300622	MH Quality report section 4
ID6_Data Quality May 2022	MG Quality Report section 6
Essex Partnership University NHS Foundation Trust Digital Strategy	MH Report
ID14 - 6Mth1 Quality and Performance Report Apr 2022	Quality report May 2022
ID14 - BAR Reporting 2022	01 - Chief Executive Office portfolios
ID18 Analysis Toolkit, etc	02 – Medical Directorate structure
13 Combined Part 1 Board Papers for 25 May 2022 FINAL V2	03 - Operations Directorate structure
ID14 - 6Mth3QualityandPerformanceReportJune2022	MSE BI Strategy & Roadmap – Final v1.3.pdf
ID15 Clinical systems and their governance	Digital Strategy Group Minutes - 150722 V1.1
Accountability Framework - Audit Committee 26052022 draft v2	MH ED Interop & Shared Records Strategic Architecture v2
Accountability Framework - EPUT - 230921 v11 (1)	MSE Skills Mapping Results 20220321 DRAFT
EPR Survey questions	Digital Strategy - Shared Records Brief
EPR Options appraisal	Time To Care

Interview & Workshop List

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Name	Role	Engagement
Matt Sisto	Director Patient Engagement	Interview, Workshop
Lynbritt Gale	Interim Director of Mental Health, Mid and South Essex	Interview
Zephan Trent	Executive Director of Strategy, Transformation and Digital	Interview, Workshop
Lizzy Wells	Associate Director of Mental Health, North East Essex	Interview
Nicole Rich	Director of Health & Care Services Delivery	Interview, Workshop
Emma Strivens	Associate Director of Mental Health, North East Essex	Workshop
Natalie Hammond	Executive Nurse	Interview
Robin Thornton	AD Business Analysis & Reporting	Interview, Workshop
Phil Stevens	Risk Analysis & Systems Manager	Interview, Workshop
Moriam Akendule	Patient Safety - Developing Learning Dashboard	Interview, Workshop
Claire Sladden	Acting Director of Electronic Systems, IG, Data Protection Officer	Interview, Workshop
Adam Whiting	Deputy Director of Digital Strategy, Operations & BI ICS Digital Lead Officer (Deputy Director of IT)	Interview, Workshop
Janette Leonard	Director of Digital Strategy, Business Analysis & Reporting (Director of IT)	Interview, Workshop
Alex Green	COO, Executive Chief Operations Officer	Interview
Loy Lobo	Non Executive Director	Interview, Workshop
Denver Greenhalgh	Director Compliance	Interview
Lauren Gable	Director of Finance	Interview
Marcus Riddel	Director for Organisational Development	Interview
Simon Covill	Director of Operational Finance	Interview, Workshop
Charles Hansford	Director of Estates	Interview
Anthony Akadiri	Programme Manager	Interview, Workshop
Kelly Gibbs	Associate Director HR	Interview, Workshop
Graeme Jones	Accountability Framework	Interview
Richard Whiteside	Head of Procurement	Interview, Workshop
Sarah Brazier	Flow and Capacity Lead	Interview, Workshop
Stuart Webster	AD of Digital Service Development - Shared Care	Interview, Workshop
Sean Leahy	Executive Director of People and Culture	Interview
Michelle Bourner	Learning from Deaths Co-ordinator	Interview
Stephen Gallagher	ICS Lead	Interview
Kate Walker	Digital Programme Director	Interview

Interview & Workshop List

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Name	Role	Engagement
Dr Justin Marley	Consultant	Workshop
Thomas Busby	Head of Performance and Information	Workshop
Dr Esther Kiehl	Head of IoT and HTT	Workshop
Lei Leonard	Digital Portfolio Support Officer	Workshop
Anorld Nyambara	Digital PMO Relationship and Engagement Manager	Workshop
Lisa Fricker	ESR Workforce	Workshop
Nicola Jones	Director of Risk and Compliance	Workshop
Stephanie Rea	Associate Director of Mental Health, West Essex	Interview, Workshop
Tendai Ruwona	Operational Service Manager Inpatient Services	Workshop
Claire Lawrence	Head of Complaints	Workshop
Martine Munby	Communications Director	Interview
Lesley Hanks	Integrated Clinical Team Manager	Workshop
Sarah Meade	Senior Project Support Officer	Workshop
Louise DeGernier	Interim Head of Electronic Systems	Workshop
Chris Jennings	Assistant Trust Secretary	Workshop
Ian Harrison	Associate Director of Healthcare Analytics	Interview
Jo Thomas	Head of Analysis and Reporting|	Interview
Pauline Young	Research Manager	Interview
Dr David Ho	Consultant Forensic Psychiatrist Head of Research & Innovation	Interview
Dr Nuruz Zaman	Consultant Forensic Psychiatrist	Interview
Kay Blencoe	Head of Electronic Systems and IG	Workshop

Appendix 4 – Acronyms

Acronyms 13

Acronym	Acronym Description
AI	Artificial Intelligence
Azure AD	Azure Active Directory
BAU	Business As Usual
BI	Business Intelligence
CCG	Clinical Commissioning Group
CoE	Centre of Excellence
DG	Data Governance
DQ	Data Quality
EPR	Electronic Patient Record
E2E	End-to-End
ETL	Extract, Transform & Load
FBC	Full Business Case
IT&S	Information Technology & Services
IG	Information Governance
KPI	Key Performance Indicator
L&D	Learning & Development
LTP	Long Term Plan
MaST	Management and Supervision Tool
MDM	Master Data Management
ML	Machine Learning
OBC	Outline Business Case
PHM	Population Health Management
PoC	Proof of Concept
PSD	Patient Summary Database
RACI	Responsible, Accountable, Consulted and Informed
RBAC	Role Based Access
RPA	Robotic Process Automation
SDE	Secure Data Environment
SLA	Service Level Agreement
SOP	Standard Operating Procedure
TOM	Target Operating Model
TRE	Trusted Research Environment
VCSE	Voluntary Community and Social Enterprise