Data Centre & Central Infrastructure Replacement Update

1.   Status – Official

2.   Executive Summary

This paper provides an update on progress with replacing the NHSBT Data Centres and Infrastructure, setting out:

- the position in January 2019

- progress made, and actions taken, since then

- forward plans for presentation of the overall Detailed Business Case (DBC)

- forward plans for the replacement infrastructure for the Pulse Core Blood System (Pulse) and National Transplant Database (NTxD)

NHSBT is currently sitting on several major Data Centre and Infrastructure risks:

- significant underinvestment in ICT Infrastructure exacerbated by the non-delivery of CSM which was expected to retire considerable parts of the infrastructure

- the end of the current Data Centre Contract with SCC in March 2020

- Intel ending production of the Itanium Processor in 2020 (though support will be provided to 2026) which is integral to the safe functioning of Pulse.

Good progress has been made towards establishing the way forward and building consensus on how to mitigate the significant risks outlined above.

The forward plan, with anticipated dates, is described below.

3.   Action Requested

The Board is asked to –

- **Review and feedback on priorities, initial position and progress made to date**

- **Approve the options that the team propose to take forward to the Outline Business Case (OBC)**

- **Confirm the forward plan and timetable for delivering the DBC**

- **Confirm the plan for providing replacement Infrastructure for Pulse and the National Transplant Database (NTxD)**

5.   Initial Position

The majority of NHSBT IT services are delivered from two data centres owned and operated by SCC in Birmingham. NHSBT has been using these facilities for three years following exit from an NHSBT owned Data Centres in Elstree and migration of IT services from Colindale. SCC were chosen at the time as they were one of a few partners capable of meeting the requirements in 2016.

Additionally, there are a small subset of services, such as the National Transplant Database which are delivered from infrastructure hosted in NHSBT offices in Bristol. Whilst service from these data rooms has been effective, they are also no longer fit for purpose and the infrastructure needs migrating to purpose built facilities or replacing. This would also remove the need for Estates to take core IT services into account when considering the consolidation of the Bristol sites.

NHSBT is sitting on several major Data Centre and Infrastructure risks:
- significant underinvestment in ICT Infrastructure exacerbated by the non-delivery of CSM which was expected to retire considerable parts of the infrastructure
- the end of the current Data Centre Contract with SCC in March 2020
- Intel ending production of the Itanium Processor in 2020 (though support will be provided to 2026) which is integral to the safe functioning of Pulse.

Though these risks were reasonably well understood in 2018, and proposals were developed to address the risks, the proposals only really gained traction early in 2019.

6.   Progress

The case for the necessary investment in data centre and infrastructure, and the proposed approach, were approved by the NHSBT Board in March 2019.

At the beginning of May NHSBT issued a tender document to engage a partner to:
- carry out a strategic review of our current Data Centres and Infrastructure, and the approach, proposals and outline costs previously developed by NHSBT.
- provide a proposal and recommendation for transformation in the format of a HM Treasury 5 x Business Case Model.
- then advise on the best route / approach for a procurement exercise culminating in the production of a DBC (based on recommended bids/supplier/s).

ATOS were successful in this tender and commenced work at the beginning of June.

Their work to date has been focused on developing and assessing a long list of options which are outlined below:

- **Option 1a / 1b – Do Nothing / Do Minimal ('Stay in SCC')–** *(1a)* Find a procurement vehicle to extend the existing SCC contract and stay on the current platform *(1b)* includes replacing some critical Infrastructure

- **Option 2a / 2b / 2c / 2d / 2e / 2f – Crown Hosting** ('**Buy new hardware and move to Crown')** – *(2a)* Migrate SCC and Stoke Gifford to Crown Hosting Datacentres replacing only the Pulse Infrastructure *(2b)* replacing Pulse and some other critical Infrastructure *(2c/2d)* Replacing all Infrastructure with conventional Servers with the option of a Managed Services *(2e/2f)* Replacing all Infrastructure with an Integrated Infrastructure with the option of a Managed Service

- **Option 3 / Crown Hosting & Private Cloud ('Move to Crown but Lease Hardware')** – Migrate specialist Infrastructure to Crown Hosting and use local Private Cloud services at Crown Hosting for commodity Infrastructure

- **Option 4 / Crown Hosting & Public Cloud ('Public Cloud where possible')** – Migrate specialist Infrastructure to Crown Hosting and use Public Cloud services for commodity Infrastructure

- **Option 5 / Replace Applications with Cloud alternatives ('No physical hardware, use packages/software')** – Procure a range of Software as a Service (SAAS) applications to replace the current Application portfolio

Each of the options has been evaluated against a prioritised set of criteria – achievability, ease/speed of execution, business requirements, regulatory and quality compliance, partner capability, scalability/security, affordability, strategic fit. Following a rigorous assessment process led by our ATOS advisors, the team proposes that the following options be taken to shortlist and will therefore be the focus of the Outline Business Case:

- **Option 2 (c, d, e, f)** – Crown Hosting with replacement Infrastructure for legacy applications.
- **Option 3** – Crown Hosting with Private Cloud

Option 1b – Do Minimal will be used as a financial baseline but is not considered to be a practical delivery option. The SCC contract cannot be extended any further without a re-procurement (*1), and it is unlikely that SCC would be successful (Crown Hosting has a price advantage/in line with public sector guidance).

Option 4 / Crown Hosting & Public Cloud ('Public Cloud where possible') - Many of the easier applications to migrate to cloud have already been migrated. Migration of remaining legacy applications is more difficult and would require significant transformation.

Option 5 / Replace Applications with Cloud alternatives ('No physical hardware, use packages/software to replace current NHSBT applications') – Wholesale transformation would be required in this option with core applications (Pulse, Hematos etc) replaced with Commercial off the Shelf, SAAS equivalents (essentially the delivery of the original CSM objectives).

Alongside this work, significant progress has been made between NHSBT Technical teams and Savant to specify a replacement Infrastructure for the Pulse system. Due to the risk of lack of supply of the Intel Itanium processor we are accelerating this work to allow for early purchase of the hardware. We are also looking at the pros and cons of delivering the new infrastructure to the existing SCC Data Centres and move later, or to purchase hardware early and store the equipment for installation at Crown Hosting.

Early work has also been completed on the National Transplant Database. From this initial work, we believe that it may be possible to migrate to a Cloud platform, as components are more industry standard allowing easier transformation. A proof of concept will be carried out with Oracle.

8. Forward Plan

Next steps are:

- delivery of an OBC to the September Board, which will recommend one of the shortlisted options and seek approval to commence specification and procurement
- delivery of a DBC for the purchase of the Pulse infrastructure to the November Board (or earlier, if feasible), seeking approval to award contract, and purchase the required infrastructure.
- delivery of a DBC for the National Transplant Database in the first quarter of 2020.
- delivery of an overall DBC for the Data Centres and Infrastructure post specification and tender in the first half of 2020.

9 Delivery Approach

Our delivery approach seeks to address the core risks to the programme:

- ATOS have been appointed to lead the engagement, informed by NHSBT subject matter experts. They are expected to conduct this role from Project inception through to closure. (Capability/Capacity Risks)
- The use of Crown Hosting Data Centres. (Well understood public sector route)
- The early purchase of equipment to safeguard the Pulse Core Blood System (risk of Itanium chips being unavailable).
- The potential early commencement of transformation for the National Transplant Database to a commodity Cloud Service (Timescale risk).

In all cases, we are trying to ensure that key CSM lessons are learned, particularly ensuring that we have the skills and capabilities (Accountable Executive, Subject Matter Experts, Project/Programme Management) needed to be confident of delivering each element of the work before we start.

10 NED Scrutiny

Helen Fridell and Jeremy Monroe.

11 Appendices

Hybrid IT – supporting slides.

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<u>Notes</u>

*1 – An out of contract extension will be required with SCC as we will be unable to complete migration by the end of the current contract. However, assuming we are migrating to Crown Hosting the out of contract extension will only be required to facilitate a migration.