Public Health Scotland – Requirements for IT and Digital services

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1. Summary

1.1 Purpose
The purpose of this document is to detail the requirements for IT Services provision to Public Health Scotland (PHS).

The working assumption at this stage is that PHS will take many of its IT and Digital services via shared services with NSS – although this will be subject to change via the PHR Corporate Services project which will look at the broader issues of shared service provision into the new body. It should be noted that the requirements will vary based on who the main IT / Digital service supplier will be. The IT services will initially include most of the existing shared services for PHI and the existing shared services for HS. However, this will require a major component of the relationship to be collaborative planning, design and development of services as the new body transitions and develops its remit over the coming years.

1.2 Audience
This document is intended for the senior IT representatives from PHS, NSS and the Public Health Reform Programme Board.

1.3 Current Position
There is an existing IT and Digital SLA for Public Health & Intelligence (PHI) and there are provisions for exceptions to the standard NSS and Digital support cover, details of priority systems and Business As Usual support and maintenance for an extensive list of PHI Applications and Data Marts.

There is an existing IT SLA for Health Scotland focussed around the infrastructure services from NSS including: telephony, network infrastructure, firewall management, data centre hosting and VPN services.

1.4 IT and Digital Services
Aligning to the strategic direction for Public Health priorities, IT and Digital service anticipated for Public Health Scotland would fall under the following headings

- Standard Operational Services
- Digital Transformation Services
- Specialist Public Health Data Solutions
- Solution Design & Development
- Solution Management
2. Standard Operational Services
The following is intended to provide a high level position of the IT and Digital Services. See IT Service Catalogue for most service descriptions.

In general there are 3 options which should be considered as the technical solution and service solution required for each service:

1. A fully NSS managed/shared service
2. A hybrid model of some NSS support and some in-house support
3. A fully in-house (PHS) service

However in all cases the default position would be the infrastructure/solution is either shared or converges with that of NSS. These options will be considered for each service.

2.1. Customer Support Service
PHS will require a customer support desk and service management service for escalations for PHS users and external partners who use PHS products. This will include both 1st and 2nd line support and also liaising with 3rd party support contracts where necessary. We propose converging on the Service Now platform and full requirements for this will be defined via the Infrastructure work package, including PHS support service processes.

2.2. Endpoint Support service
PHS will require desktop and licence management. This includes management of software licences for PHS endpoint devices, antivirus service including Windows security patch management for endpoint devices and continued use of Personal Inventory and Asset Register.

There are NSS Enterprise agreements in place from various suppliers for NSS software licences. There are HS Enterprise agreements in place from various suppliers for HS software licences but the Microsoft ones have generally moved to the central NHS EA, managed by NSS.

PHS staff will require to be fully agile at current locations and to allow them to work at partner locations. This will require a strategy for mobile devices, application and connectivity solutions.

As part of the O365 project, every device will require to be running Windows 10 E5 licences. This will require to be implemented by day 1.

License management and Asset Management could be further centralised where appropriate for shared service options and left with PHS for PHS specific software/services – this would include convergence on systems (e.g. SCCM) and processes (e.g. deployment to desk by Capito) used. Opportunities exist for convergence on the Service Now platform and this will be investigated as part of the Infrastructure work package.

2.3. Server support service
PHS will require to continue to host a multitude of physical and virtual servers in a managed server environment in the short to medium term. PHS anticipate a planned migration to Cloud providers where appropriate as services are up for renewal. Due diligence of the infrastructure estate would be carried out in advance.

a. PHI specific infrastructure and resources
There exists specific infrastructure of physical and virtual servers within the NSS Atos data centre for hosting PHI applications and tools. Security is in place for restricting access to those that have a
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business requirement. There is no proposal to change this setup unless it is requested to be separated out. Domain trusts will be in place to enable this to continue smoothly.

b. PHI shared infrastructure and resources
PHI currently have shared servers for physical and virtual servers. Again security is in place for restricting access to those that require it on the shared infrastructure.

One approach would be as applications are renewed that this is migrated to specific infrastructure for the new Public Health Body, with consideration given to provide specific virtual environments or cloud services as new or replacement hosting environments.

We need to identify a longer term plan for separating out these services to ensure flexibility over time. This can be done as the systems come up for review/renewal.

c. Health Scotland infrastructure
Currently Health Scotland sublet racks in the ATOS data centre from NSS IT. They also have servers on Meridian 5th floor. They also obtain an IAAS service from Brightsolid for the majority of their servers. The IAAS infrastructure could be moved to an appropriate shared cloud hosting environment either at the end of the contract 31/3/2020 or over time as appropriate.

2.4. File and print server support
There currently exists a Business Classification Scheme Data Storage, Backup and Retrieval with associated Print Service.

There are shared file and print servers with permissions and restrictions in place.

A PHS file structure would need to be separated out within existing file servers. This may also involve porting across copies of files from corporate BCS areas or corporate non BCS areas that users still need access to. NSS would retain certain files for any activity up to an agreed date for auditors.

Shared Services staff (IT and Digital, Finance, Project staff and HR) would need access to shared meeting files, business cases, and project documentation.

The move to O365 will give new opportunities to migrate once to a new O365 site for PHS. HS current Sharepoint and file servers would migrate and PHI current files would also migrate.

The IT and Digital service would be needed to manage and support this. Requirements for the O365 implementation for PHS will be identified via the Infrastructure work package.

2.5. Network Support
PHS will continue to use NSS network services and transition the 5th floor Comms room in Meridian Court to NSS management before Day 1. This is all within the SWAN public sector network service and so the user experience would not change. This would require some review/re-setup of the switch infrastructure to NSS configurations.

There would also be some reconfiguration following the potential moves within the office areas to consolidate PHS onto specific floors should that be required.

The final and fuller requirements for this will be defined as part of the Infrastructure work package outputs. This is expected to describe a new network for PHS on SWAN with new IP ranges. This work should be implemented at the earliest opportunity. There would be a planned migration of the multiple existing networks to the new SWAN address. This will provide maximum flexibility to allow all PHS and NSS users to
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access any physical networked desk within existing locations. The IT and Digital service would be needed to manage and support this.

2.6. LDAP / Active Directory Domain Structure

It is anticipated a new separate forest and domain for PHS would be setup and this would have full trust relationships setup to the NSS forest and domain. This option will have minimal business impact and minimal security risk, while giving full flexibility for future direction and development.

PHS will require management of this domain and joint processes in place with NSS to ensure shared planning and implementation of changes to ensure the integrity of the setup.

As part of the migration to the new domain structure we will need to identify all user personas currently in use. The majority of users are specialist data users who have a higher usage of IT and Digital services.

- Standard business user e.g. Admin staff, senior management staff
- Specialist or remote data user e.g. Information Analysts, LIST user, graphics / web staff

The work package for Infrastructure will provide full details of this proposal.

2.7. Firewall and Internet service

This would include Internet, N3 (SWAN) and LAN with Connect VPN/RAS Service. The new domain/forest described above (2.6) would utilise the same NSS shared firewall management service.

VPN/ RAS service would also continue to be required and will continue to utilise the same NSS shared service.

2.8. Business As Usual (BAU) Support and Change Management services

Incidents, change requests and new projects would have resources in place. PHS would require continued access to available IT and Digital resources to support existing and new public health priorities.

Currently NSS IT / Digital service provide resources which PHI have an allocation they can use or supplement with additional funding.

a. Application Development resources

There are 31 WTE NSS IT / Digital staff providing software development services for support and maintenance and changes. This resource and the systems they provide are aligned to Public Health strategic programmes. These are ringfenced resources for PHS owned systems.

b. BI resources

There is a team of NSS IT / Digital staff who provide support and maintenance and change to data systems relevant to public health. There are additional funded posts to support Public Health strategic programmes with new data platform requirements.

c. Infrastructure resources

Infrastructure staff include server, network and desktop engineers, as well as helpdesk staff. These provide a service and would continue to provide a service to PHS.
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**d. IT and Digital Projects and Programme Management resources**

The IT and Digital Project Management and Support resources are available to PHS projects upon request. NSS IT / Digital Service would continue to charge for these resources as per current arrangements.

**e. Service Now Platform Development**

PHS would make use of new features within Service Now. This is a ‘software as a service’ product that includes helpdesk, service catalogue, knowledge base, demand / problem / change management, agile project management tool, and digital forms. It can reduce cost, time and effort for processes. Existing PHI teams use Service Now for day to day operations and HS are in discussions about using Service Now prior to the PHS body setup.

The current allocation of resources in these areas will need to be matched with the newly defined requirements for the new PHS body. The requirements for these areas will be defined through the various commission and corporate projects.

**2.9. Hosted Desktop Service**

PHS have a requirement for selected users to be provided with a Virtual Desktop application, usually users working in remote locations. The current plan is that a solution will be provided for PHS staff who still require this service but the need for VDI services across PHS will be reviewed as part of the Infrastructure work package.

**2.10. Fixed Telephony**

PHS would continue to require Switchboard / Telephony Services. This is currently delivered as a shared service to PHI and HS. There is a replacement programme in progress which we expect will move this service to a hybrid cloud model. This will utilise the O365 Teams application functionality which would move the telephony provision away from desk handsets to laptop, mobile app and mobile telephony. An NSS business case will be completed by end December working with a third party supplier to define the technical requirements, adoption plan and implementation plan. Implementation of this new service is dependent on the O365 rollout and increased network capacity. Full requirements for this will be defined via the Infrastructure work package.

**2.11. Mobile Telephony**

“Voice”, “Voice + Data” and “3g SIM Data Only” Services will be delivered via the national NHS contract. We will require to review data usage, storage, business requirements, business processes, security etc for mobile use in PHS based on need for mobile apps such as RSA, O365 Teams and other apps to be defined for PHS. This will include consideration of a mobile device management solution. A replacement programme for Windows handsets will be undertaken in PHI and HS before day 1. Full requirements for this will be defined via the Infrastructure work package.

**2.12. Multi-functional Devices (MfD)**

PHS would require multi-functional devices providing printing, scanning, faxing facilities and follow me printing (Equitrac). The recommendation from the Support Workshop is that there is an opportunity to have convergence of Equitrac setup with multiple domains to allow co-located staff from PHS and NSS to use any MfD. This will be progressed by the Infrastructure work package.
2.13. Web conferencing
PHS will be engaging with a wide variety of stakeholders and sectors and so users will require access to:
- One-to-Many Video Conferencing and Presentation Sharing Service
- Microsoft Teams will be available to all users on O365
- Desk, meeting room and home services will be required
- Quality and ease of use will be a key requirement

2.14. NHS Mail
PHS would continue to require an eMail System which will be provided via the O365 programme of work. Details of this will be fed in from the Infrastructure work package. Note that PHS may require a secondary address such as “publichealth.scot” for branding purposes.

2.15. Service Management and Reporting
PHS would require formal service management and service reporting. Monitoring, alerting and reporting requirements will be define for each service, whether internal or shared. This would include regular service meeting, action plans etc.

2.16. Corporate Applications
PHS will use various corporate applications in line with nationally agreed platforms. These currently include:

Workforce systems
- eESS – national NHS system. It should be noted that eESS provides user data for staff Personal Inventory, LDAP/OID and the Customer Support Desk.
- HR Portal
- Special Leave & Joiners, Movers Leavers
- Crown Flexi
- Turas/ VLE/LearnPro

Finance systems
- PECOS – national NHS system
- ePayroll – national NHS system
- SSTS – national NHS system
- eExpenses – national NHS system

Other
- IRMA (Risk Management system)
- Incident Reporting
- MASS Room booking
- Corporate Intranet
- Decision Support Tool (DST)
- Corporate Planning Tool
- Service Now
- Secure File Transfer (Globalscape)
We will require to review the full suite of applications to be used by PHS and determine where these are hosted, supported etc.

2.17. IT and Digital Governance

PHS will require to have IT and Digital governance arrangements. Various services will be provided via Shared Services with NSS and this will require to be closely integrated with external partner/supplier governance arrangements.

2.18. Information Governance

Data sharing agreements will be required for PHS as it is a new legal entity. The legislation currently allows the ‘Common Services Agency’ to act as data processor. Requirements for this area for PHS will have to dovetail with requirements for access to various national data platforms being developed and also with new data sources from external partners/supplier. We will link closely with the Data and Intelligence commission on these requirements.
3. Digital Transformation Services

Scotland’s Digital Health and Care Strategy sets out the digital ambitions for Health and Social Care across Scotland. As a new national body Public Health Scotland has an opportunity to lead the transformation of digital service delivery by being the first organisation to adopt a digital first approach from the outset.

This would be enabled by a range of complimentary digital IT services including:

3.1. Digital Channels

The longer-term digital channel requirements for PHS and a detailed transition plan will include the Digital identity for PHS, the digital service delivery channels, public facing website, digital content strategy, social media strategy, open data platforms etc. Requirements for this will be delivered via the Digital Channels work package.

3.2. Digital Service Design & Development

PHS will require access to a range of digital design and development services to deliver its strategic objectives.

a. Application Design and Development

PHS will continue to design and develop applications in accordance with user expectations and modern practices including API-driven solutions.

b. Website Design and Development

PHS will continue to develop high quality user-focused web sites that increase digital participation, are compliant with modern standards and can be accessed from a range of browsers and devices.

c. Mobile Solutions

PHS may be required to develop mobile solutions to meet the specific needs of a service or user group.

3.3. Quality Assurance and Testing

PHS will require quality assurance and testing services to ensure that solutions meet user expectations, are performant and conform to national and local standards.

a. Application Testing

PHS will continue to test applications throughout the software design lifecycle and applying a test early approach in accordance with agile testing principles.

b. Cyber Security Testing

Cyber security is a major consideration in modern digital services and therefore security will be considered at every stage of the design lifecycle. There will also be a requirement for PHS to comply with the Cyber Essentials (or Cyber Essentials Plus) certification in line with the Cyber Resilience Strategy for Scotland.

c. Digital First Service Standard

Digital services will be developed in accordance with the Digital First Service Standard in line with the Digital Health and Care Strategy.
3.4. Cloud Services
In its Scottish Public Sector Cloud Computing Guidance the Scottish Government has stated that cloud computing is a priority option in the data hosting and data centre strategy and organisations must consider how they can adopt the policy and deliver the efficiency and flexibility it can offer. To adhere to the policy PHS will require access to a range of services to support the transition to cloud-based solutions including the development of a cloud migration roadmap, cloud readiness assessments for existing the existing applications portfolio and services for managing and monitoring a hybrid environment.

3.5. Shared Digital Platforms
PHS will adopt common NHS and public sector service technology platforms and software wherever possible and ensure that all new PHS solutions will be designed with reuse and interoperability as a core requirement.

3.6. Agile Project Management
PHS will adopt agile project management frameworks such as the Scaled Agile Framework (SAFe) and SCRUM for IT projects and will require PM services and resources to support this.

3.7. Identity & Access Management
PHS will require the implementation of identity management and access management solution/systems to provide self-service access to all our information assets. There will also be a requirement to link with any national solution for online identity for the public.

3.8. Additional Digital Services
PHS will continue to develop new digital IT services and capabilities to reflect advances in technology and emerging public health priorities.
4. Specialist Public Health Data Solutions

The Data & Intelligence commission will set out their requirements for this area which will feed into this section. The Data Platform corporate IT work package will also refine requirements.

4.1. Business Intelligence

PHS will require continued access to a BI Technical Infrastructure, data platforms and consultancy service. Strategic programmes require analysis, design, development and deployment of business intelligence solutions.

4.2. Analytics

PHS is involved in the identification and design of technical solutions to meet new and emerging business intelligence initiatives such as predictive and social analytics and big data, product evaluation and options appraisal.

4.3. Data Visualisation – dashboard and infographics

PHS will be a major developer and user of data visualisation tools. PHS will continue to access an established Tableau environment with data driven content from large health and social care data repositories. NSS IT / Digital is a Tableau Centre of Excellence with user support, drop in clinics, user community, platform support, software upgrades and vendor relationship management.

4.4. Data / Technology Platforms

PHS will require to have access to national data platforms to provide evidence and advice on public health priorities. There will be existing data platforms such as the NSS Corporate Data Warehouse and completely new data sources such as:

a. Existing Data warehouse / data marts

PHS will required continued access to the existing NSS Corporate Data Warehouse (CDW). This is an Oracle Exadata on premises cloud to support provision of data analytics and data integration.

b. New data platforms

PHS will work with existing and new partners to identify new data sources required and co-create new data platforms. The data and intelligence commission will help identify the new data requirements. New data sources from third sector and social care such as housing, workforce etc will be included.

c. Data Virtualisation

PHS will require to use the most appropriate tools for data access. Data Virtualisation tools provide a capability to deliver virtual data warehouses. It has potential to reduce data sprawl and storage costs.

d. Open data platform

PHS would have continued access to the CKAN platform hosted by NSS IT / Digital to provide an Open Data platform for routine publication of open data.

e. Data governance

Includes data sourcing, validation, cleansing, mapping, linkage, enrichment, secure storage and presentation. We must ensure this are links in with information governance teams to clarify requirements around data owners, data controllers etc.
f. Data value management
Monitoring of routine data loads and system performance to ensure optimal levels of service are achieved.

4.5. Analytical Platforms and Tools
There is a platform provided for analysing data within the CDW using statistical toolsets. Similarly, other analytical platforms and additional tool may be required in future.

PHS also require areas to evaluate new tools in a safe environment, such as synthetic data, which allows multiple sources of data, including unstructured data, to be contextually linked using a Resource Descriptive Framework (RDF) for research purposes.

There will be an agreed list of analytical tools that will be hosted and supported.

4.6. Support for specialist data tools
PHS would require support for specialist data tools, software licence management, procurement, contract management and hosting of specialist data tools with planned upgrades for infrastructure and versions.

GeoSpatial analysis will be used to support PHS requirements for improved data analysis and presentation, to link health, environmental and geographical information for areas such as epidemiological study and public health risk assessment. This will also be used as a digital service direct to the public.
5. Solution Design and Development

To support service redesign programmes for PHS, this will need to look at how solutions integrate with the wider system and processes and redesign the end-to-end process to be effective.

5.1. Enterprise Architecture and Consultancy
Enterprise solution architecture consultancy service to ensure target technology architecture is aligned to current technology strategy and business objectives. Solutions need to be compliant with national standards around this area, supported platforms, interoperability platforms and data and digital standards.

5.2. Business Analysis Consultancy
Business analysis service to include business requirements, options appraisal, business cases.

5.3. Product / service development
PHS require a pool of trained and experienced developer resources with a breadth and depth of knowledge of PHS and national systems to ensure continued maintenance and development of the PHS portfolio of applications. They would need an understanding of the Public Health Priorities and architecture vision. To support this there would be a digital technical community of practice to discuss tools and deployment and agree proofs of concepts to establish developer capability and collaborative environments for DevOps and product development.

5.4. Agile solution development including prototyping and MVP’s
PHS would require agile solution development for PHS web based application developments, proofs of concept, API development, agile testing etc.

5.5. Web services
Requirement for web hosting, development and support services. The service creates websites and applications on a range of platforms. PHS will make use of the national NHS Scotland tenancy for Azure with a PHS instance for public facing web estate. A review of the existing web hosting environment will be part of the digital channels work package.

5.6. System Integration Service
A service for development, hosting and support of integration solutions to interface or integrate separate IT systems. The hosting and support of Ensemble, the national IT integration platform for NHSScotland. This underpins existing PHS applications.

5.7. System Accreditation & Testing
Requirement for an accreditation and testing service from early review of requirements, test planning and execution and to support customers to identify test requirements for new or existing Digital IT systems. This will include agile testing approaches to support the PHS application portfolio.

5.8. Information Security including Cyber Security
PHS will require an information security service with guidance on strategy, standards and risk assessment for health and social care data. This is currently a mix of internal, external and NSS IT / Digital national service provision.
It should be noted:

- that NSS IT / Digital service are developing capability to provide penetration testing, ethical hacking and web coding forensics.
- NES are also looking to procure a Pen Testing contract on behalf of special boards.
- Any service, tools etc must fit in with national programme guidance for Cyber Essentials, the NIS Directive etc.
6. Solution Management

6.1. IT Procurement, National Contract & Vendor Management
PHS will require Contract, Service and Vendor Management Services for national and PHS IT system procurements and service management for BAU services, including Atos managed services, NHSMail, Microsoft Office 365.

6.2. Solution Stewardship / Service Management
PHS will require solution stewardship for national IT health systems including product support and governance.
7. Service Arrangements

7.1. Service Hours and Service Requests
Service hours will need to be defined based on the service provision but are expected to be Monday to Friday during normal business hours (8am to 5pm except Friday 4pm). There should be out of hours arrangements in place during major public health incidents.

7.2. Change Management
PHS will require a regular forum for the change management process for infrastructure services. Requirements for this area will be defined through the Change Management workshop.

7.3. Resilience, Prioritisation and Escalation
Service requests usually exceed the capacity to deliver and so a process must be in place to manage this. PHS portfolio of systems has defined priority systems for resilience and recovery. The prioritisation process across PHS may be revised to accommodate new operating models. An escalation process would also be required to achieve service delivery.

7.4. Target Response Times
The target response times to complete each service for the PHS may need to be defined to accommodate new operating models and priority areas identified.
8. Current SLA specific arrangements

The contents of the two existing SLAs will need to be reviewed fully and updated to ensure are up to date and relevant.

8.1. PHI SLA documentation
Specific IT and Digital Services provided to PHI continue to be required (see appendix 1)

8.2. HS SLA documentation
Specific IT Services provided to HS continue to be required (see appendix 2)
Useful references

A. IT Service Catalogue
There is a current NSS IT Service Catalogue which has been used as a basis for reviewing the service details for PHS services. This will be reviewed over time (see separate document provided)

This covers the following services:-
1. Customer Support Desk - Consumer Service
2. Endpoint Support Service - Consumer Service
3. Personal Inventory Service - Consumer Service
4. Service Management - Consumer Service
5. Server Support Service - Consumer Service
6. Network Support Service - Consumer Service
7. Fixed Telephony Service - Consumer Service
8. Applications Support Service – Change Support Service
9. Demand Service – Change Support Service
10. Pre-Approved Change Service - Change Support Service
11. Business As Usual Workstream Change - Change Support Service
12. Business As Usual Change Projects - Change Support Service
13. Project Management Service - Change Support Service
14. Project Support Service - Change Support Service
15. Audio Visual Service - Ancillary Service
16. Video Conferencing Service - Ancillary Service
17. Mobile Telephony Service - Ancillary Service
18. Multi-Function Device (Mfd) Service - Ancillary Service

For Service Descriptions not included in the NSS IT Service Catalogue: -

BI Services
The BI department develop, maintain, and support the NSS Corporate Data Warehouse (CDW) that integrates clinical and non-clinical data sets within one secure, cleansed, and validated data repository. This facilitates analyse across disparate data sets to support quality improvement activities such as trend analysis, predictive modelling and outcomes analysis. The CDW is built on an Oracle platform, using Kimball design methodology. Over 40 data marts are held within the CDW currently. Clinical data marts are linked through common dimensions such as patient, practitioner and location. Non-clinical marts such as procurement, finance and facilities are linked to HB, location and time to support linkage to clinical activity for insight and planning.
BI also makes extensive use of Tableau for visual analytics and SAP Business Objects (BO) for ‘pre-canned’ and ad-hoc reporting.