|  |
| --- |
| 1. **JOB IDENTIFICATION**

**Job Title:** Infrastructure Development Specialist**Responsible to:** eHealth Programme Manager – Contractor Services**Department:** Strategy & Programmes **Directorate:** eHealth |
| **2. JOB PURPOSE** |
| The post-holder will be a member of the IT Infrastructure Development Service.The key objectives of the Infrastructure Development Service are:* To assess, design, develop and deliver the IT infrastructure for new-builds, new business/clinical services and new IT systems/applications.
* To improve the cost effectiveness and resilience of the existing underpinning NHSGGC IT infrastructure, especially in light of changes in technology and business requirements.
* To work closely with eHealth Senior Managers to scope, prioritise and develop these services.
* To take a lead role in managing IT investment projects.
* Across all areas to consider a range of approaches, from innovative use of new technologies to rationalisation of existing systems.
* And be a source of expertise / consultancy on IT Infrastructure for eHealth.

The post-holder’s particular focus will be on the development and delivery of infrastructure for new-builds, new business/clinical services and new IT systems/applications, and on providing specialist technical skills in support of this and the wider Infrastructure Development Service. |
| **3. ROLE OF DEPARTMENT** |
| The overall aim of the eHealth Directorate is to deliver and maintain a comprehensive integrated information, technology and record management strategy in order to ensure that the right information is provided in the right place at the right time, to support highest possible levels of diagnosis, treatment and care of patients and clients, to support continuous improvement of the health of the populations we serve and to achieve more effective integration between Health and the care services of our Local Authority partners. This includes patients’ case notes and other information for clinicians working in the community and primary care, in outpatient clinics, on the point of admission for inpatients/day cases and for review after discharge: it includes developing and supporting electronic information systems for clinical and management use: and it includes collection and analysis of data required by the Scottish Executive Health Department, for local monitoring of activity or performance, and for surveillance and protection of the health of our populations. The eHealth has approximately 1,480 staff, a revenue budget of approximately £57m (incl annual Scottish Government ring fenced funding), annual capital budget ranging between £3-5m and non-recurring eHealth budget of approximately £15.8m. The eHealth Directorate comprises the following departments:* **Operations** – responsible for the overall IT service delivery to NHSGGC including the delivery of the underpinning technical infrastructure and applications to support the health and corporate directorates across NHSGGC to agreed KPI’s and SLA’s.
* **Strategy and Programmes** - responsible for the development of the medium to long term eHealth Strategy and the delivery of a large number of highly complex programmes and projects including significant service reconfiguration.
* **Information Management** – responsible for the collection and analysis of information, information governance and delivery of knowledge management services. This service comprises Knowledge Services (Libraries), Information Governance and Business Intelligence.
* **Health Records** – delivery of Health Records services across NHSGGC, including provision of outpatient clinics.
* **Patient Administration and Transformational Change** – responsible for a change programme to ensure the significant investment in eHealth systems meets the Board’s strategic plans for clinical services and that the potential benefits for patients are maximised and exploited.
* **Business and Resource Management** – responsible for financial management, procurement & contract management, audit & FOI responses and overarching aspects of Human Resource and Organisational Development, Health & Safety, general Directorate wide governance and facilities management activities.
* **Telecommunications -**   provide and managed fixed and mobile telephony on behalf of the board, they operate our contacts centres (operator services).
 |
| **4. ORGANISATIONAL POSITION** |
|  |
| **5. SCOPE AND RANGE** |
| The post-holder is responsible for resourcing a large range of eHealth developments. The exact mix of work will vary across the teams, and will change over time in line with business requirements and technology developments. Over time the post-holder will likely move between teams to best utilise and develop their skills and knowledge.The different teams are focused on:* **Acute Projects** – Glasgow and Clyde Acute Operating Divisions;
* **Infrastructure Projects** – focused on several areas – underlying IT infrastructure improvements; supporting the other Infrastructure Development teams with specialist knowledge in areas such as desktop application deployment; and working with eHealth operational teams to improve current infrastructure services.
* **Major Programmes** – focused on delivering large-scale programmes such as new hospital builds; working closely with the business and capital programme teams, senior managers and eHealth Leads.
* **HSCP Projects –** HSPC Services will be delivering improvements across each respective service area. These can and will include staff changes, technical changes, re-locations and technology changes that will require eHealth representative

At any one time the post-holder is likely to be working on 5 to 20 projects within their team area, under the mentorship of senior team members and team leads, and with project timescales ranging from 3 months to 3 years.The range of projects includes:* New hospital, Health Centre or general site builds
* Regional and national services
* Clinical systems (real-time, results services, support services, etc.)
* Business / administration systems
* Underpinning data and voice communications infrastructure
* Underpinning IT infrastructure services and systems
* And from brand new systems / services to evolving existing services to meet the changing needs of clinical and business services
* With project budgets ranging from £10Ks to several £Ms

To deliver these the post-holder will undertake:* Scoping of projects (including developing technical design, implementation resource requirements and operational resource requirements)
* Provide project management
* Research and development
* Technical IT implementation services
* Risk assessment and planning around project infrastructure and existing IT infrastructure
* Development of eHealth procedures
* A wide range of IT infrastructure skills, expertise and certifications
* Development of a wide understanding of NHSGGC business areas
* Clear and effective transition of developments and projects across to operational eHealth teams

And in doing so will:* Work with, and manage where required, junior staff assigned to the projects from other eHealth teams (to provide areas of operational expertise), temporary contract staff and 3rd parties
* Work closely to priorities from senior team members, managers and eHealth Applications Account Managers
* Work closely with, and provide services to, other eHealth teams and other sections of the Infrastructure Development team
* Work closely with Capital Planning, Estates and Facilities departments.
* Develop and maintain good working relationships with other departments, NHS Boards, public sector organisations and strategic suppliers
* Work with and develop the understanding of many third party service, systems and applications providers (including major medical equipment companies)

Across an IT environment / infrastructure which includes:* 20,000 desktop devices with 44,000 potential users
* All NHSGG&C sites (incl. acute campuses and health centres)
* Partner sites, including other public sector organisations and health boards
* Remote access / workers, including staff homes and mobile locations
* Comms infrastructure covering all locations
* Server infrastructure distributed over at least 25 computer rooms, and comprising 100s of servers

The end result / deliverable for many of the developments will include:* A clearly defined service and responsibilities with appropriate underpinning Operational and Service Level Agreements between IT support teams, suppliers and business areas
* With on-going operational support and other resources funded and in place
* A stable service, with resilience and capacity proven as per the developed specification
* Appropriate availability and support (from 9-5 to 24\*7\*365)
 |

|  |
| --- |
| **6. MAIN TASKS, DUTIES AND RESPONSIBILITIES** |
| **Infrastructure / Systems Implementation Management (Main Duties)**1. Refine the technical standards, processes and products to be delivered (as part of projects, planned developments, service improvements, cost-reduction measures, etc.)
2. Manage the implementation of new infrastructure, services and systems.
3. Develop the roles and deliverables for involved staff and suppliers.
4. Manage appropriate junior, seconded and temporary staff.
5. Assist in the recruitment of temporary contract staff where needed.
6. Management of 3rd parties (suppliers, National Services, other Boards).
7. Manage the inter-dependencies, complexities and conflicts for delivering projects with timescales ranging from a few months to many years (for new-builds and major infrastructure improvements).
8. Assist in the research, development and customisation of the solutions being implemented as necessary and within policies and strategy and as guided by senior team members.
9. Support implementation work through appropriately applying process and project documentation, reporting on project progress and decisions, and demonstrating the success or otherwise of the work.
10. Develop and manage project resource plans.
11. Assist in the management of project budgets and expenditure in relation to delivering their IT infrastructure.
12. Work with, and to guidance from, the eHealth Contracts & Procurement Manager to appropriately progress procurement of IT infrastructure solutions.
13. Review (with eHealth colleagues and business users) developments and new systems at periods after implementation to establish feedback, best practices, lessons learnt, etc.
14. Maintain and develop working relationships with key customers to foster feedback from previous project implementations and develop interests and stakeholders for future developments.

**Infrastructure / Systems Technical Implementation**1. Provide IT technical implementation services:
	1. Particularly in areas of expertise and in all other areas as required.
	2. Interpreting the project implementation plan and technical designs.
	3. Working to agreed policies and procedures, broad guidance from senior team members, and developing procedures for their approval where necessary.
	4. Documenting the system implementation from project to operational handover perspectives.
	5. Physically installing and configuring servers, hardware and connectivity
	6. Logically building, installing and configuring server software, database software and applications.
	7. Undertaking software packaging, scripting and deployment.
	8. Undertaking comprehensive system infrastructure testing and base-lining (performance, stress, resilience).
2. For Desktop specialists within this post, the particular focus is on:
	1. Developing desktop PC builds / configurations.
	2. Undertaking software packing, scripting, deployment and testing.
	3. Similarly developing and testing desktop related hardware such as printers, mobiles, etc. to achieve economies of scale and standardised centrally manageable deployment processes.
3. Develop appropriate procedures to support the implementation and eventual operation of the infrastructure.
4. Work closely with eHealth operational teams to transition the developments over to operational support, with appropriate documentation, skills transfer and mentoring.
5. Provide limited operational support for systems as part of this transition, and where phased implementations best fit this model.

**Infrastructure Development Consultancy**1. In business projects, under the broad guidance of senior team members, take an IT lead role:
	1. Participate in GGC, regional and national projects.
	2. Provide input on existing eHealth strategies.
	3. Interpret, analyse and develop business requirements, IT systems / applications requirements and utilise eHealth strategies and policies to refine the ranges of options available leading to recommend infrastructures and implementation plans.
	4. Propose designs, cost and implement appropriate solutions, escalating any conflicts with established strategy.
	5. Concisely present the involved complex IT infrastructure and systems issues to business and clinical staff.
	6. Implement appropriate policies and procedures for the development of the solutions, and propose / escalate where there is a clear conflict with wider eHealth or business policies and strategies.
	7. Guide customers to consider their business processes, ensuring the IT solution can support these or that appropriate business change is recommended.
2. Lead and participate in NHSGGC IT infrastructure development projects, groups and forums, and national groups where specialist skill-set is required.
3. Propose developments in the NHSGGC eHealth infrastructure, especially within areas of expertise.
4. Contribute to tender specifications:
	1. For specific IT Infrastructure solutions.
	2. For translating business requirements into an appropriate IT technical specification.
5. Develop business cases, project briefs and project technical scopes.
6. Undertake research and development:
	1. In support of projects to determine appropriate solutions and likely issues.
	2. In support of developing the eHealth strategy and forecasting likely future change within areas of specialist expertise.

**In All Work**1. Develop and apply analytical and best practices in the formulation of solutions and implementation of services.
2. Work to broad priorities agreed with the Area / Team Lead.
3. Ensure the confidentiality, integrity and availability of the Directorates IT technical infrastructure.
4. Maintain an in-depth, highly technical and up-to-date knowledge of the very wide range of applications, environments, systems, software and hardware used within the Division.
5. Keep abreast of the changing technical environment, in terms of both hardware and software, ensuring NHSGGC is making best use of available technologies.
6. Work within Estates procedures and electrical regulations and industry best practices, especially for safe methods of working.
7. Work within Directorate policies, procedures and guidelines, including IT asset management, inventory and software management policies; Network Connection Policy; Network Administration Accounts Policy; Network Share and Security Management Procedures; Health & Safety procedures, etc.
8. Comply with the requirements of Freedom of Information, Data Protection and Access to Health Records, and other appropriate legislation.
9. Be familiar with the NHSGGC’s divisions, departments, directorates, management structures and operational environments.
10. Ensure that any network security issues and all IT related security breaches are escalated to the IT Infrastructure Development Manager or another eHealth Senior Manager.
11. Ensure that customers are kept fully informed of progress throughout all work and escalate problems in a timely manner.
12. Ensure that all customer communications are undertaken in a professional manner and take account of customer perception of the issues involved and overall IT service delivery.

The above is not exhaustive, and the post-holder may be required to fulfil other reasonable requests for support whilst working with integrity and following best practice guidelines. |
| **7a & 7b. EQUIPMENT & MACHINERY AND SYSTEMS** |
| The post-holder will provide knowledge of many aspects of IT infrastructure, plus develop specialisms in certain areas. These areas will vary across the teams and roles, and will change over time in line with business requirements and technology developments. The post-holder will be required to develop / redevelop skills as part of this process.The post holder will use, develop and deliver computer equipment, systems and solutions, including:* Server hardware
* Server operating systems (currently including UNIX, Microsoft Windows Server)
* Storage area networks
* User directories (currently including Microsoft)
* Group policies (currently within Active Directory)
* Capacity Management
* Thin client (currently including VMWare ESX, Horizon View, MS Hyper-V & MS Terminal Services)
* Local Area Network hardware
* Wireless
* Email systems
* Network services
* Network security
* Desktop environment inc. client software, desktop, laptop & tablet PC’s.
* Applications running within the Network and Desktop Environment
* Creating and programming of network management and application deployment scripts (including VB Script & MS PowerShell)
* Infrastructure for SQL database systems (currently including MS SQL Server 2000 and 2005, 2008 MDAC and interconnecting technologies)
* Web services (currently including MS IIS 4, 5, 6)
* Application packaging software (currently including Wise, MSI transforms, SCCM and App-V)

This infrastructure underpins and delivers many IT systems / applications. The post holder will be required to maintain an operational awareness of these and further develop such systems as part of new / upgrade / rollout projects. Typical systems include:* Real-time clinical care systems such as Intensive Care charting & recording
* Clinical support systems such as Clinical Portal, Pharmacy, Radiology, electronic prescribing, digital dictation
* Patient administration systems such as Trakcare, EMIS Web and similar
* Business admin systems.

In delivering major infrastructure projects and new-builds the post-holder will need to understand and apply:* Structured cabling systems (copper, fibre optic)
* Electrical supply systems and uninterruptable power supply systems
* Computer room systems including air-conditioning and fire suppression
* Single phase and three phase electrical power supplies
* Estates building and working regulations
* Electrical and environmental monitoring systems

The post holder will also use:* PC spreadsheets, word-processing and email
* Presentation packages (PowerPoint, Visio, Project)
* Complex databases (creating and using)
* IT Service Desk / Ticket logging systems

The post holder will use a range of manual recording and reporting systems.* Files (contracts, personnel, technical and supplier literature, professional docs)
* Key and room access systems

The post holder will use a range of office machinery and equipment, including PCs, peripherals, scanners, faxes, telephony and photocopiers. |
| **8. DECISIONS AND JUDGEMENTS** |
| Areas of responsibility will be allocated by the Area / Team Lead in response to strategic direction from the Infrastructure Development Manager and agreed business project timescales. The majority of the post-holder’s activity will be self-initiated and proactive in response to meeting objectives of the job with freedom to act / autonomy in many areas, including:* Interpretation and response to customer requests for areas of work
* Resolution of highly complex problems, taking into account their impact on a wide range of project issues, design issues, IT services, systems, users and patient-facing processes
* Guiding business project teams on many areas of eHealth strategy and best practices
* Ensuring all infrastructure and systems designed, procured and implemented fit with eHealth infrastructure strategies and support capabilities
* Advising IT colleagues and customers on complex IT infrastructure and system issues
* Working with senior colleagues to determine how limited project budgets can provide the most appropriate and resilient technical solutions, balancing and assessing complex risks to the availability and functionality of the overall system and IT infrastructure
* Assessing and determining whether IT colleagues, customers, and third parties should progress with system installations work potentially impacting other NHSGGC IT systems, including weighing up the risks involved and determining compliance with policies
* Assisting in the development of best practices in areas of specialist expertise
* Applying policies, standards and industry/professional best practices
* Seeking external (industry) best practices, references and involvement of third parties where appropriate
* Managing project deliverables, timescales and workload
* Managing project infrastructure budgets where agreed / delegated from business owners and senior team members

The post-holder will formulate and develop work-plans for themselves and staff, based on their assessment of priorities and as instigated by the Area / Team Lead, IT Infrastructure Development Manager, eHealth Head of Strategy & Programmes or Head of Operations. They will also be able to call on, and work to senior team members where required, and depending on the mix and scale of project workload at any given time. |
| **9. COMMUNICATIONS AND RELATIONSHIPS** |
| Communication is a key element to this role, from handling project support issues, working with business project teams, working with suppliers, communicating complex problems to business owners and managing customers’ perceptions of IT services and issues.It is essential that the post holder can communicate complex technical issues and problems with conflicting solutions to non-technical clinicians, managers and users at all levels, as well as understand the patient, clinical and business issues associated with current and proposed IT systems.It is also essential that the post holder can effectively manage supplier relationships and work closely with IT Operations Service Support staff to ensure full and appropriate customer communication around planned changes, system deployments, etc.With many competing priorities for limited IT resources the post-holder must be able to diplomatically negotiate and clearly explain highly technical and IT management decisions to project teams, managers and end users, often in stressful situations.The post-holder will be required to deliver technical training to team and department colleagues as part of handover of projects to support. Small-scale training of key end users (system administrators) is also occasionally required to facilitate this.The post-holder will communicate via in-person, email, letter, telephone, report and presentations with:* All eHealth colleagues
* General Management and Service Managers concerning current and proposed projects and inter-dependencies with existing services
* Potentially all users and some focus groups
* External Social Work, Local Authority partners, support organisations, SEHD and strategic partners to progress infrastructure projects, business projects, utilising partners on project teams and utilising partners to present technology issues to business project teams
* Business project teams and managers to progress all aspects of projects, including chairing project meetings, agreeing prioritisation of project resources and agreeing timescales for IT requirements
 |
| **10. PHYSICAL, MENTAL, EMOTIONAL AND ENVIRONMENTAL DEMANDS OF THE JOB** |
|

|  |
| --- |
|  |
| **Mental/Emotional Demands**:* Ability to deliver initiative, proactiveness and subjectivity at times of high demand, pressure and stress, such as project / system go-live
* Ability to deal with complexity of IT infrastructure and systems (100s of different systems, many different skill-sets and legacies of many separate and different systems)
* Knowledge that major impact on clinical and medical services can be affected by initiative, decisiveness and promptness of reactions to loss of IT services can create high levels of stress, often requiring explosive effort
* Lengthy periods of concentration are required whilst acknowledging interruptions and change of task are an unavoidable element of the role and working environment (e.g. many hours focused on developing solutions, but interruptions from customers and suppliers relating to many other projects and developments, or from operational issues associated with a system previously implemented)
* Maintaining knowledge in areas of expertise due to the constant rate of change and development in the IT industry and systems.
* Ability to frequently manipulate fine tools, including (logically) creating software packages, configuring software scripts and policies, and (physically) configuring and building server and hardware components
* Advanced keyboard use

**Physical Demands**:* Occasional requirement to undertake additional out-of-hours (evenings, weekend and holiday) work to minimise disruption to clinical services during IT system and infrastructure implementations and upgrades
* Inter-site and intra-site mobility, including travelling anywhere as required (especially within NHSGGC sites)
* Occasionally required to install and move items of IT equipment, including bulky and valuable servers and related hardware (values up to £50,000 or greater)

**Working Conditions**:* Occasionally required to work in clinical / patient areas where IT services are deployed, so exposed to working environments and patient areas in Theatres, ICU, etc.
* Occasionally required to work in areas that are cramped, dirty, dusty and hot (IT comms nodes)
* Occasionally required to work in cold / draughty areas (air-conditioned computer rooms)
 |
|  |

 |
| **11. MOST CHALLENGING/DIFFICULT PARTS OF THE JOB** |
| Working in an unpredictable and often highly stressful environment, where:* Project work is often reprioritised as a result of external factors including support issues, business-political issues and changing regional and national strategies
* Demand for delivering new projects and infrastructure improvements far exceeds funding and resources for achieving
* There are considerable periods of peaks in demand due to budget cycles, national targets, new-build developments

Interpreting and persuasively presenting complex technical and IT architecture issues to customers, project teams, eHealth colleagues, suppliers and other involved organisations; especially where they are not accustomed or do not understand the impact of such issues on a large-scale organisation and a large and complex IT infrastructure.Working within an increasingly technical, complex, rapidly evolving and growing environment; gaining, retaining and expanding appropriate technical knowledge and skills to support and develop this environment; and clearly communicating these highly complex issues to colleagues, project teams and customers.Developing solutions appropriate to a single NHSGGC organisation, while at the same time being cognisant of the legacy of previous NHSGGC divisions, IT infrastructures still aligned on these and their impact on the solution.Maintaining a working knowledge of 100’s of clinical IT applications and 100’s of customer departments and services. |
| **12. KNOWLEDGE, TRAINING AND EXPERIENCE REQUIRED TO DO THE JOB** |
| **Essential**:* Educated to degree level in computer science, engineering or similar
* Holds professional qualifications or equivalent accredited training in at least one of:
	+ Microsoft Certified Systems Engineer / Microsoft Certified Technical Specialist
	+ Cisco Network certification
	+ Citrix certifications
	+ Microsoft SQL and IIS certifications
	+ And continuously develops these
* At least 3 years’ experience in an infrastructure support role (covering comms, servers, user directories, desktop infrastructure)
* Knowledge of many of the network services, servers and communications environments used within the NHSGGC (as outlined in Systems and Equipment)
* Wide IT industry technical knowledge and interests
* Good communication and negotiation skills, and the ability to deal diplomatically with customers and senior management

**Highly desirable** (required to fully develop role):* Practical project management experience and knowledge of IT project management methodologies (ELMP, Six Sigma and PRINCE 2 an advantage)
* In depth knowledge of, and preferably certified training in, application packaging and deployment tools
* Qualified in, ITIL IT Service Management (International standard for Best Practice in IT Service Management) – if not qualified to at least foundation level will be required to undertake this as part of personal development plan
* Understanding of the business aspects of IT systems and applications (and preferably within the NHS).
* Experience of, and preferably certification in, server virtualisation technologies and storage environments.
* Experience in an infrastructure development role (delivering defined projects and exposure to project management methodologies)
* Experience of supporting and developing a large-scale, multi-site IT infrastructure

**Desirable**:* Understanding of Database environments, in particular MS SQL Server, to at least basic server support level
* Professional qualification or equivalent certified training in Microsoft SQL and IIS
* Experience of other database systems, including Microsoft and UNIX based platforms
* Experience of IT structured cabling installations and management
 |