## Blueprint Laboratories: Process

Start	Interim	End
Current model not optimised to deliver sustainable services to underpin current and future NHSScotland requirements	Baseline and activity map. Design and incrementally deliver a distributed service to meet current and emerging demands	Sustainable distributed service model with a form that follows required function
Intrinsic Variation- variation in service provision/ configuration within disciplines across territorial Boards. Extrinsic Variation – variation in clinical practice	Convergence of approaches to enable reduction of intrinsic variation Engagement with users to align service delivery/use with best practice	Optimal distributed service configuration subject to optimal demand. Efficient, effective, equitable & affordable
Funding models vary from board to board and are board focussed	Identification of resource envelope surrounding current model and development of suitable funding model	National funding framework
Considerable overhead associated with delivery of quality systems and compliance with regulatory requirements proving challenging to individual Boards	Convergence of quality management systems, discussions with accreditation bodies to enable flexibility of approach across a distributed service: develop do once and share approach	Common quality management system/service across Scotland. NHSScotland distributed service model compliant with ISO standards and all relevant regulatory instruments.
Sub optimal use of service capacity	Document and map capacity of existing system/ processes and identify opportunities for optimal utilisation while enabling equitable access	Optimal use of labs services
Inconsistency in testing repertoires, report content and delivery format/mode within disciplines across boards.	Work with MDNs and users to enable convergence of reporting mechanisms. Convergence of testing strategies/reference intervals etc where possible.	Timely, safe accurate and effective application of laboratory outputs across NHSScotland with standardised reporting processes addressing governance issues
High dependence (inconsistencies) of all lab disciplines and users on information data and knowledge to enable business processes and to address clinical impact effectiveness	Indentify needs and devise an infrastructure to deliver these making best use of current resource while planning future infrastructure	<ul> <li>Electronic interface with lab services that hides</li> <li>organisational complexity of the provider, but enables optimal use of service.</li> </ul>
Multiple electronic ordering systems delivering an inconsistent interface with labs and varying capacity to support demand optimisation	Specification and development of electronic requesting interfaces to enable optimal service usage by health care professionals	Information, data and knowledge management team/ infrastructure with appropriate national and local focus to enable best care
Health boards individually design, prioritise, and implement lab services with limited national co-ordination delivering a significant overhead for boards presenting challenges, conflicts and inequity	Compliance with guiding principles, development of shared priorities sharing of outputs from process such as procurement exercises	National distributed service with unified vision configured to enable consistent delivery of national and local plans and priorities enabling equity of service.
Complex logistics for transport of materials and samples from locations to labs and between labs	Identification of logistics requirements to support a distributed service model. Identify existing transport systems that may be utilised to enable transformation	Logistics operation designed to deliver safe and resilient transport of materials to and between laboratories

## Blueprint Laboratories: People

Start	Interim	End
Absence of optimised workforce to deliver sustainable services to underpin current and future NHSScotland requirements	Identify future model and use six steps methodology to delivery of an optimised workforce plan	Workforce plan to support optimal workforce delivery within a form follows function service model: Delivery of a national work force for labs
Intrinsic service variation across Boards, extending also to management and governance structures, delivers complexity of workforce issues and prevents cross boarder/discipline working.	Identify future model and remove constraints to delivery of new ways of working	Staff working across traditional boundaries
Variation in application of knowledge and skill: staff not being used to full potential or capitalising upon existence of generic skills	Release knowledge & skills to enable focus on value added tasks. Release full potential of staff and deliver job enrichment and opportunities for future service and staff development	Optimal use of knowledge & skills within a form follows function service delivery model delivering a productive and motivated workforce.
Variation in interpretation of roles and job descriptions	Review of roles applications of JD's (Workforce Reference Group)	Reduction of variation in roles and remuneration delivering a level playing field to support staff mobility
Service requirement outstripping capacity of various staff groups	identify opportunities for role extension, service redesign and role extension. Identify mechanism to expand critical workforce groupings	Sustainable and resilient workforce with staff groups working co-operatively and synergistically.
Variation in AFC bandings across boards and pay protection agreements (e.g. AFC out of hours)	Put in place a framework to enable convergence of bandings and remove impediments to mobility arising from protection.	Equality of remuneration for staff and increased mobility across geography and between grades.
Conservatism and resistance to changes in working practices and roles	Fully engage professions and support staff in design and change processes.	Delivery of a new service model with an engaged staff open to development and change.
Resources for education and training not necessarily linked to need across the he whole system	Work with NES to develop an approach that links to a national workforce plan and supports CPD	Educational and CPD investment id consistent with the workforce plan and staff development requirements of a distributed service model
New skills sets required to enable delivery of services dependent upon new technologies	Identify needs enable central developments and appropriate dissemination of education training and skills	Process in place to deal with skills gap arising from new and emerging technologies
Modern lab services have been described as information and knowledge management services. In this context there is a deficit of staff appropriately skilled in IKMT	Identify the skills and knowledge requirement to support IKMT needs and develop infrastructure.	A service that is appropriately staffed to address operational, health intelligence and business intelligence needs re IKM&T and web based interfaces with users
NHS/University interfaces lead to complexity of management of services	Identify the interdependencies of the NHS/Universities on delivery of respective and shared roles. Engage with Universities to involve them in the service re design exploring responsibilities and accountability.	A service model that is engaged with the Academic partners that is focussed on good care with buy into shred values and goals.
Developing demand for delivery of diagnostics in the community with requests for laboratory support outstripping available resource or delivering requirements for new staff resource	Identify current and future scope with staffing requirements to support community diagnostics/POCT	Laboratory service able to deliver appropriate support delivery community diagnostic services in ways that address accreditation and governance issues

## Blueprint Laboratories: Technology

Start	Interim	End
Variation in levels of automation across disciplines across boards and failure to take full advantage of functionality	Identify potential in existing systems and exploit them. Consolidate workloads where appropriate to deliver the step volumes that make automation viable and affordable. Enable integration of automatable workloads	Integrated automated facilities that deliver cross disciplinary repertoires, exploiting functionality afforded by robotics, integrated technologies and IT to deliver efficiencies, effectiveness and value from investment
There are new a technologies available that will enable transformation of service provision and clinical pathways that may prove difficult to introduce/or access under existing organisational arrangements	Enable larger integrated system of delivery that can effectively distribute/consolidate workloads to establish viable business cases for introduction of new technologies.	All patients within NHSScotland have equitable access to the benefits of emerging and proven technologies
Application of differing technologies to deliver clinical results deliver different values between boards (e.g. haematology cell counters, troponin)	Identify issues, assess risks and impacts and deliver strategies to address the findings. Aim for convergence of technologies where negate where necessary	Reduced variation test results across NHS Scotland enabling delivery shared pathways with common reference intervals and decision limits
Multiple configurations of multiple IT systems perpetuating historical approaches to service delivery making transformation and cross system working challenging.	Identify transformational opportunities and remove the constraints delivered by historical IT configurations. Begin a process of convergence of systems around sound laboratory processes. Enable consolidation of databases removing historical barriers to multidisciplinary reporting and cross system working	Convergent interoperable or uniformly configured national IT systems that work for and support the service rather than define the service
Generational changes in analytical technology with varying rates of adoption by boards leading to variation in clinical pathways between boards	Identify issues and enable convergence to enable best care.	Equitable access to patients to technologies that afford best care
Transformational technologies available but difficulties in delivery of business cases for adoption in each board (e.g. adoption of molecular techniques by various disciplines)	Do once to share enable projects. Delivery of transferable business cases or identification centralised funding framework	Rapid translation of transformational technologies into practice to deliver better patient outcomes and improved service delivery
NHS Labs have limited capacity for development of new tests and are reliant on diagnostic companies to deliver R&D and opportunities for co-production	Identify opportunities for co-production with industry and Academia. Consider delivery of an environment in Scotland that provides opportunities for diagnostic companies to develop concepts, validate and extend the applications of their systems.	Delivery of science based service that has an innovation focus at all levels of delivery and able to co-produce with multiple stakeholders
IT limits capacity for wider system working within and between boards	Identify systems of working to be delivered and remove barriers underpinned by IT.	IT configurations and functionality that support cross system working within and between boards
IT and data heterogeneity limits big data approaches	Adoption of common codings, taxonomies and delivery of standardised data archetypes across Scotland for lab investigations. Explore development of infrastructure in terms of staff and technical architecture to enable big data benefits	Laboratory data for a service serving 5.3 million available to deliver benefits of big data studies.
Laboratory accommodation limiting realisation of benefits of combined multi- disciplinary approaches to automation (Total laboratory automation (TLA))	Quantify scale of the challenge and identify potential solutions across the wider system. New builds? Consolidation of workloads into alternate sites with suitable real estate	TLA solutions in place delivering benefits of discretionary delivery of wide repertoires of testing within very predictable time frames. Reduced time to diagnosis.
Technologies blurring the historical boundaries between disciplines providing opportunities for improvement in efficiency and effectiveness of the wider service	Explore new approaches to service delivery with new boundaries. Consider technology rather than speciality based distribution of resource, using information technology to deliver outputs to specialists (digital images, web enabled access to knowledge, information	<ul> <li>Technology clustered and shared across disciplines with technical specialists delivering high quality data to laboratory medicine specialists at remote locations. Clusters and expertise may be around molecular facilities, mass spectrometry, separation sciences.</li> </ul>

## **Blueprint Laboratories: Information**

