ICT Strategic Plan

2017 – 2020

ICT Strategic Plan 2017-20

1. Introduction

1.1 The draft Council Plan sets out a clear ambition for Nottinghamshire and establishes the direction for transformation and change reflecting the rapidly changing financial landscape, the growth in demand for services and the way in which local people want to receive their services in a modern society.

1.2 Successful organisational change and transformation will rely on the effective deployment and use of technology and the empowering of our workforce to use it. This ICT strategy is therefore shaped to support the next phase of business transformation with an emphasis on delivering increasingly joined up public services that are effective, affordable and designed around the needs of service users.

1.3 The core outcomes that this strategy will support are:

- *A workforce able to work flexibly, where and when it best suits them, their customers and service users and managed by results*

- *Improving the health and wellbeing of the local population through technology enabled integrated health and social care services*

- *Robust, timely and accessible information that drives informed decision making, service commissioning and business transformation*

- *A flexible, scalable and secure cloud infrastructure where service cost is tied to applications and usage and user experience is managed*

1.4 Throughout the life of this strategy the underpinning ICT operating model (*staffing, suppliers, contractors, processes, technology*) will be adapted to most effectively support the various stages of the journey and to reposition current resources following the successful delivery of the 2014-17 ICT strategy. The core focus of the 2014-17 strategy was to support the delivery of **business transformation** and **reliability** which has provided an excellent baseline on which to build.

Summary of deliverables from the ICT Strategy 2014-17

- Improved public access to services over the web through a revamped web site and platform that works across device types, enhanced web journeys which have increased self-serve activity and increased process automation requiring less manual input.

- A more mobile workforce taking advantage of new technologies to work flexibly across sites and away from the office, with better use of premise space through 10:7 and 10:6 staff to desk ratios and savings of £3.1 million in annual running costs from these new ways of working.

- More agile and productive social care workforce using innovative technology to record case notes and undertake assessments at the point of service delivery.

- New arms-length operating models and entities for highways, property and library services launched.

- Established *Connected Nottinghamshire* and developed the *Local Digital Roadmap* for Nottinghamshire which is a plan to use technology to improve health and social care integration, developed shared Wi-Fi arrangements with some NHS trusts and piloted automated workflow in conjunction with King's Mill Hospital.

- Transitioned 400 sites from a private broadband network to an innovative high speed network through Virgin Media Business, delivering annual savings of £800k.

- Piloted the use of technology to automatically schedule the work activities of front-line social care teams in conjunction with the Short Term Assessment and Reablement Team (START).

- Developed an *integration platform* of technologies that sits between core back-end systems and user devices that supports mobile working, workflow automation and secure systems integration.

- Delivered 99.9% aggregated systems availability for business critical applications and services.

- A revamped ICT support service utilising a hybrid model of in-house, supplier and contractor resources that employs 23% fewer in-house staff and costs £2 million less annually.

2. Strategic Context for ICT Services

2.1 The ICT strategy has been developed in the context of the key business drivers which will support the County Council in delivering its strategic priorities as set out in the draft Council Plan. These business drivers fall into three main categories: Strategic, Stakeholder and Technology.

2.2 Strategic Drivers

- Annual cuts and changes in Central Government funding allied to increased demand and spiralling costs of children's and adults social care mean that current forecasts show a funding gap in excess of £60 million up until the financial year 2020/21.

- The long term financial constraints and the increased demand for services continually challenges the County Council's existing models of service delivery to remain affordable, sustainable and relevant to service users. Key to the success of any new/revised operating models will be the manner in which the local population access services and support, with a growing reliance on new media and technology.

- The draft Council Plan sets out a clear vision for Nottinghamshire with core values to guide decision making and a set of strategic priorities to achieve its vision. Underpinning this plan is the need to be innovative, creative and collaborative in the way that we operate and deliver services in order to maximise quality whilst delivering cashable savings and real value for money.

2.3 Stakeholder Drivers

- The size, shape and nature of the workforce and how employees undertake their work is changing significantly as the County Council transforms with more services commissioned, provided through alternate service delivery models and in conjunction with partners. Underpinning this approach will be the use of technology to effectively manage and deliver services in a coherent and productive way.

- There is a need for an increasingly mobile confident workforce operating out of fewer premises, using technology suited to the work style, delivering greater productivity and lower cost services.

- The concept of a wider workforce across Nottinghamshire is becoming more prevalent in the health and social care sectors where work is underway as part of the Sustainability and Transformation Plan (STP) for increasing technology enabled service integration.

- There is a need for technology to help staff deliver more care services more efficiently and use new technology to support independent living and care at home.

- The County Council needs to work with key partners, stakeholders and providers to deliver more effectively across the wider public sector to ensure local people receive good quality, value for money services.

- There is a greater demand from the public for web based access to public services and information tailored to their needs, and so irrespective of the service provider, and for the ability to easily transact and pay for services online.

- There is increased information sharing and technology supported workflow across organisations.

- Increased use of technology to automate services and increase self-serve opportunities, will facilitate reduced staff numbers and lower service delivery costs.

- There is an increased reliance by service providers on ICT systems availability and for business continuity planning.

- There is a demand for multi-faceted performance information to inform service delivery and improvement.
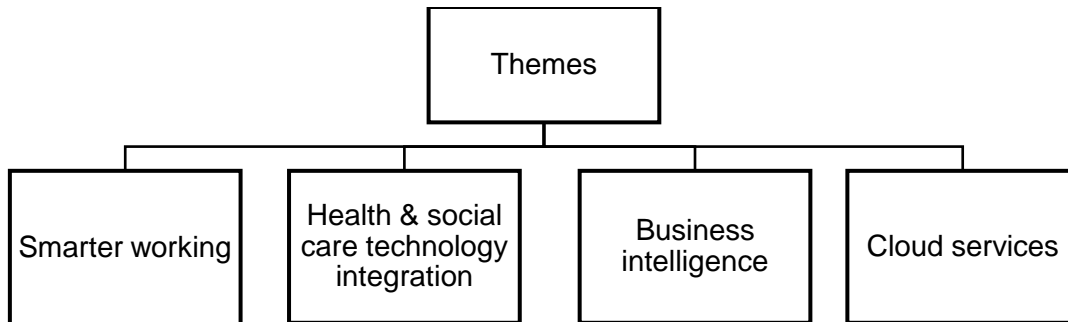
2.4 Technology Drivers

- The County Council has a clear direction to fully embrace off-premise (Cloud) solutions and decommission current data centre services by the end of 2019. ICT Services will shape these solutions and manage the transition, and adapt the operating model to take advantage of this rapidly developing and changing market place.

- Mobile technology deployments include a wider adoption of Microsoft Windows 10 laptop and tablet devices, the extended use of secure 4G and wireless connectivity and the use of supporting business tools (Skype for Business, video conferencing, SharePoint collaboration platform etc.).

- Maintaining secure solutions that integrate effectively with partners to support automation, workflow and information sharing.

- Consolidate the use of, and leverage maximum benefit from existing platforms and applications such as Microsoft and SAP.

- Taking an Enterprise Architecture approach to technical solutions that embraces a cross organisational view of public service re-design, built around the needs of local people.

- The technology market place and *Internet of Things* will increasingly evolve with more solutions and assistive technologies becoming a part of the service provision.

3. ICT Strategic Themes

3.1 Given the context above there are **four ICT strategic themes** that shape the **business transformation** delivered through this strategy, underpinned by the delivery of ongoing

reliability of day to day ICT services that are crucial across the broad range of services that the County Council provides. The 4 key themes are smarter working, health and social care technology integration, business intelligence and cloud services.

```
                        ┌──────────────┐
                        │    Themes     │
                        └──────┬───────┘
        ┌──────────────┬───────┴───────┬──────────────┐
┌───────────────┐┌───────────────┐┌───────────────┐┌───────────────┐
│Smarter working││Health & social││   Business    ││ Cloud services │
│               ││care technology││ intelligence  ││                │
│               ││  integration  ││               ││                │
└───────────────┘└───────────────┘└───────────────┘└───────────────┘
```

3.2 Strategic Theme 1 – Smarter working

A workforce able to work flexibly, where and when it best suits them, their customers and service users and managed by results

- A more mobile and effective workforce is considered by the County Council as one of the key enabling factors for the transformation of service delivery. This includes both the in-house teams and the extended workforce provided with and through partners and alternate delivery models.

- Staff will use technology suited to the work style and requirements of the role. This will include devices as well as secure connectivity for wherever they are, with the capability to also work off-line.

- Efficiencies will be gained through the extended use of automated technologies so that staff can focus on the value added activities that their professions provide and to be better aligned to the needs of service users. This builds on the technology capabilities used by social care teams for assessments and case notes, by the Customer Services Centre to manage enquiries and service requests from the public, and through the self-serve components of the web site.

- Productivity enhancements will be supported through an extended use of scheduling technology to better align service demand with resource availability. This will build on the current pilot project with the START service.

- The application of business rules in automated process flow enables a lighter touch service delivery model where staff intervention is only required when appropriate and not at every stage in every case.

Core focus of the smarter working theme:

People:	Support the development of a mobile confident workforce
Automation:	Utilise workflow and scheduling technology to optimise and automate more processes, reducing manual intervention and unnecessary face to face contact for service delivery

Devices:	Transition away from desktop computers and companion devices to using Windows 10 laptop computers, tablet computers and smartphones aligned to work style
Connectivity:	Extended use of wireless and 4G networks
Security:	Use of County Council managed devices for all business activity running Cisco AnyConnect
Property:	Re-purpose key buildings to support a more mobile and co-located workforce as the property estate is reduced and shared with partners
Tools:	Extended use of *Skype for Business* telephony (building on the current 5,000 users where there is a business case), extension of video conferencing, digital minute taking for meetings, secure document share with partners, transition to Microsoft Office 365, plus scanning and fax solutions as part of the corporate print strategy

Core anticipated benefits:

- o Measurable improvements in workforce productivity and identified cash savings through the medium term financial strategy
- o A reduction in the property estate with £2.6 million ongoing savings in buildings and travel costs by the end of the strategy, with estimated capital receipts of £1.4 million
- o A more mobile workforce using technology to operate effectively and confidently at the point of service delivery

Business outcomes:

- The skills based scheduling capability reduces turn-around time from request to service delivery in front-line service departments.
- Referrals from 'trusted' parties can be actioned with manual intervention only required where defined business rules dictate that it is required.
- Co-location of multi-disciplinary teams becomes the default position rather than by request. Location becomes less relevant when generic connectivity to networks is ubiquitous.
- Access to information from other sources e.g. health systems, housing etc. will be provided using online and offline solutions enabling the right information to be available to the right staff member in the right place, at the right time.

3.3 Strategic Theme 2 – Health and social care technology integration

Improving the health and wellbeing of the local population through technology enabled integrated health and social care services

- The Sustainability and Transformation Plan (STP) sets out for Nottinghamshire how the local NHS organisations and local councils are collaborating to provide joined leadership in order to make improvements to health and social care around the needs of the local population. Underpinning this STP is a *Local Digital Roadmap* that sets out priorities for

how technology will be used by these organisations to better integrate health and social care services wherever the user needs them – at home, in the local health centre or in hospital.

- *Connected Nottinghamshire* is a collaborative programme, put together and attended by local authority and health partners, which has established the *Local Digital Roadmap* and will oversee its delivery. Through the development of a more shared approach to technology investment and use, more information can be shared, more workflow can be automated, workforces will be more efficient and productive, and local services will be more integrated and improved.

Core focus of the health and social care technology integration theme:

Information sharing and workflow:	Establish automated workflows in care and patient pathways that improve service delivery to users and enhance efficiencies and performance in health and social care teams (building on the 2017 pilot with King's Mill Hospital), develop workflow integration with the East Midlands Ambulance Service and support enhancements to homecare services through the use of technology
Infrastructure:	Develop common and shared technology platforms and standards that facilitate integrated working including: community Wi-Fi and broadband networks (linking to the health *Community of Interest Network*), interoperability platform (*Enterprise Messaging Bus*) enabling the County Council to electronically interface to multiple partners in a standard way, and improvements to identity management and maintenance of NHS numbers that support improved integration capability
Citizen & professional access:	Use of web portals that support professional collaboration and sharing of data (e.g. GP Repository for Clinical Care, Electronic Comprehensive Geriatric Assessment, access to Child Protection Information Systems), and web portals that support enhanced citizen access (e.g. web interfaces for the public to do more self-serve, Acorn portal for integrated care and health data)
Technology enabled supported living	Using the interoperability platform to better interface with assistive care technologies in the homes of service users, to provide the information to better shape and organise effective health and social care services

Core anticipated benefits:

- o Measurable improvements in workforce productivity and efficiency, with identified cash savings through the medium term financial strategy
- o Funding from NHS England and the STP to part finance the activity
- o More web based self-serve options for the public, encouraging channel shift and supporting reductions in overheads
- o More timely assessment and discharge of patients from hospital, and over extended hours

- o Freeing up professional time to focus on more complex service needs
- o Reduction in the delays associated with the transfer of care provision between health and social care teams

Business outcomes:

- Professionals involved in the delivery of care for a patient or citizen will have real time information relevant to the context of the intervention or care being delivered. In isolation, this results in efficiencies in processes involving information flow, more timely commissioning of assessments and support plans and decisions being made with a more holistic view of the individual's needs. However, when merged with the capability delivered through the smarter working theme then whole service re-design opportunities become evident.
- Provides the platform to enable information to flow in and out of the council's systems and workflows enabling the right information to be available to the right care professional at the right time, in the right place. Relevant information obtained by one professional will be available to all professionals involved in an individual's care and if relevant, can be made available to the advocates and wider support networks involved.
- Empowering individuals by providing access to information relevant to the care they receive is a statutory requirement across the health and social care system. The platform delivered through this strategy enables a greater maturity in the delivery of these requirements by amalgamating this information and allowing the individual to share elements of their records with a wider audience as they see relevant.

3.4 Strategic Theme 3 – Business intelligence

Robust, timely and accessible information that drives informed decision making, service commissioning and business transformation

- A cross organisational approach to the management of data and business intelligence supports the County Council to operate efficiently, more effectively with partners and to better target services to the local population. This encompasses a common approach to data, databases, analysis work, processes, technical reports, data quality, sharing of data and "Big data".

- The approach reinforces the County Council's information governance and data protection principles around data security, and improves approaches to data capture and data quality so that effective business intelligence and analytics is available to users that informs improved decision making. In order to enable business performance reporting in this way a new approach to reporting technology is required and the ICT strategy is integral to providing this capability. In order to merge data from multiple systems there is also a need for common unique identifiers to be available which requires good information management principles being applied to the current disparate back-office applications and datasets.

- A Business Reporting and Management Information Project (BRMI) is already underway to develop the initial *data warehouse* of social care information and to produce the dashboards, reports and statistical returns needed by the business users. The value of information produced will be reliant on the quality and content of the source data available.

Core focus of the business intelligence theme:

Data sources:	Capture the key data sources from the multiple back-office applications that are used by departments to support the delivery of day to day services
Data warehouse:	Provides a repository of single sources of data for all business analysis and reporting across the organisation
Business intelligence:	Provision of appropriate dashboards, business intelligence reports, statutory returns and collections, analysis, map information and partnership intelligence
Tools:	The Microsoft reporting toolset and technologies will be used to provide and interrogate the datasets and to present the information, and some upgrades to the infrastructure will also be required

Core anticipated benefits:

- o Provision of improved business intelligence to support informed decision making
- o Achieve a consistent approach to data capture, management and sharing
- o Develop the analytical approaches for forecasting, modelling and trend analysis to support improved decision making

Business outcomes:

- Delivers the capability to provide information to manage the service.
- Enables the capability to review cause and effect and predict the demand.
- Provides three categories of information: *What are we delivering* – the metrics of supply, demand, cost and quality. *The impact of the delivery* – how have outcomes been altered. *The cause and effect of previous and potential changes* – the prediction of the effects of internal and external changes.

3.5 Strategic Theme 4 – Cloud services

A flexible, scalable and secure cloud infrastructure where service cost is tied to applications and usage and user experience is managed

- The County Council's technology direction of travel includes the transition away from owning and operating a data centre and all of the associated infrastructure (servers, storage, switches, racking, power, air conditioning etc.) by the end of 2019, with a move to using off-site data centre services, commonly referred to as cloud services.

- The approved business case for cloud services identified that a move to full off-premise based delivery is both possible and, in the medium term, is more cost effective and provides significantly more flexibility to the County Council as it moves into different models of service delivery.

- Although the current data centre model works effectively, the business case concluded that now would be a good time to progress to a full cloud model because:

- Major investment will be required over the next 3 years to update the current ICT equipment within the County Hall data centre as it increasingly reaches obsolescence.
- The data centre environment itself is ageing and will require investment to maintain it.
- The current infrastructure costs are very difficult to reduce even if the service usage shrinks, as we are tied to a physical infrastructure which we own. This lack of flexibility becomes more of an issue as services (such as VIA, Inspire) exercise more choice and as the operating model of the County Council changes.
- The ongoing programme of upgrades to keep the current infrastructure up to date is resource intensive and expensive.

Core focus of the cloud services theme:

Discovery:	The discovery phase assesses the different cloud options, produces the business case, makes recommendations and starts the activity to optimise the current ICT environment in readiness for a cloud model.
Requirements:	The requirements phase identifies the full set of services and outcomes required from a cloud service model and produces the delivery blueprint.
Procurement:	The procurement phase is the process to identify and approve the best solutions, partners, plans and contracts. A blend of safe landing with innovation and enhanced applications will be sought.
Design and build:	Following contract completion, the design & build phase involves the supplier in fully identifying infrastructure requirements, designing and building the new infrastructure and confirming transition plans.
Implementation:	The implementation phase is the transition to go-live by the cloud service provider, with the user experience managed throughout the process. A new ongoing support model will be established and current data centre services will be decommissioned.

Core anticipated benefits:

- Only paying for the infrastructure and services that you use
- An appropriate mix of public and private cloud solutions
- Flexibility to quickly grow or shrink the ICT estate
- The ongoing programme to upgrade and replace ICT infrastructure as it becomes obsolete is significantly reduced as this becomes the responsibility of the cloud supplier
- The business case identifies ongoing financial savings of £750k per annum from 2020-21
- It becomes easier to identify costs down to the level of business units enabling more transparency, and potentially a re-charging model
- Enhanced security protection in the medium term as industry providers continue to invest heavily in current solutions

4. Developing the Technology Platform

4.1 The ICT Strategy 2014-17 delivered a "transformation" technology platform that enabled opportunities to exploit greater efficiency and effectiveness in core business activities and led to process improvements and new ways of working. By building on the technology already delivered, the strategy for 2017-20 will exploit this approach and add further value by providing the capability to redesign how services are delivered. This will be through appropriate information sharing, better citizen access and a technology infrastructure that is consistent with our strategic partners, commissioners, delivery models and suppliers.
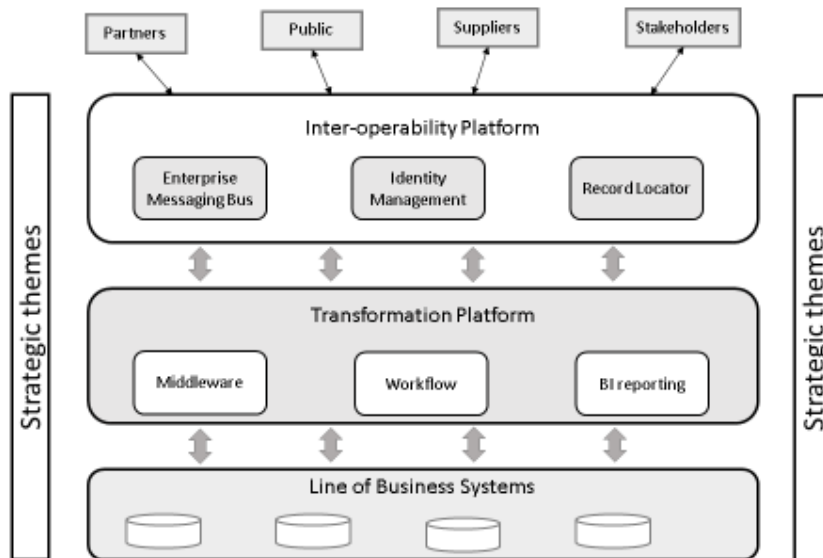
4.2 The technology platform now needs to be enhanced to enable a whole system approach to service redesign that will be key as we drive towards more innovative ways of delivering front-line services. Commissioning will be streamlined through the automated provision of service relevant information and resource availability, with the right information being provided to the right professional, at the right time, on the right device and in the right place.

4.3 In order to achieve this capability, a number of pre-requisites will need to be delivered through the strategic themes identified in this strategy:

- A clear understanding of the information assets the authority holds.
- The ability to share this information with relevant parties.
- The ability to consume relevant information from relevant parties.
- Automated workflows to present information that improves service delivery.
- The deployment of appropriate devices and tools that enables new service delivery models.
- Improved identity management and secure authentication technology.
- Citizen access solutions that empower individuals and provide greater self-determination.

4.4 Many of these pre-requisites will utilise the existing technology platform. However, there is a requirement to deliver enhancements to the platform to fully exploit the opportunities:

- A two way *inter-operability hub* to receive and send requests for information both internally and externally.
- A secure identity management capability to authenticate access to information.
- Network infrastructure that reduces organisational boundaries.
- Resource availability tools that provide capacity visibility.

4.5 The Inter-operability Hub

- The ability to share and consume information with other parties which is secure, real-time and scalable will be key to providing joined up services in the future. In order to achieve this the *inter-operability hub* will provide the capability to define the information required from third parties and automate requests, responses and workflows within and across organisations.

- While some information sharing has already been delivered by point to point organisation or system integration, this would be difficult to scale to a county wide, regional or national basis as the number of integrations becomes unmanageable. By developing the *inter-operability hub* that is consistent with the principles and protocols of national initiatives, it enables the County Council to respond flexibly to local and national requirements.

4.6 Secure Identity Management

- As sharing information assets with third parties and individuals becomes more integral to the way in which services are delivered, so the need to have a robust, secure method of authenticating identity increases. This will require a solution with two key components – confidence that the individual is who they purport to be and what information they have rights to access, plus confidence that trusted organisations have appropriate authentication in place to enable the authority to be satisfied that information can be shared. For example, if a health professional requests access to our social care data, protocols must be in place to enable the authority to trust the credentials provided. Such services exist within both the public and private sectors and these would need to be integrated with current systems and processes deployed within the County Council.

4.7 Network Infrastructure

- To support a more flexible workforce and enable the benefits of multi-disciplinary teams then a consistent approach to connectivity is required across the public sector. Work has already taken place to align some network infrastructure and a generic Wi-Fi solution is currently being trialled by the County and City councils. However, in order to implement
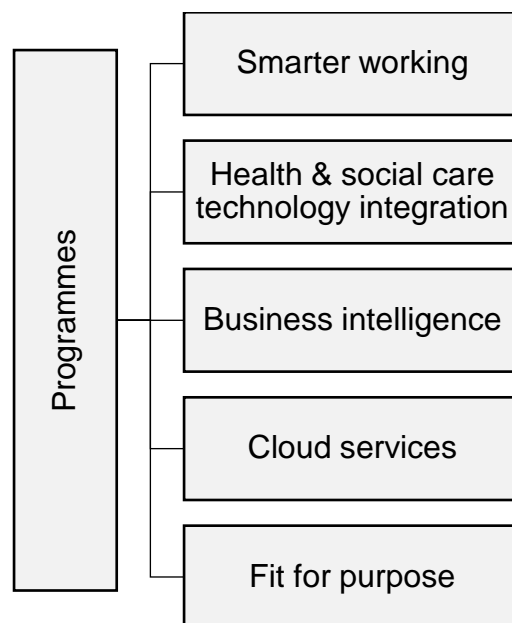
this approach across the whole footprint will require some investment in our network infrastructure.

4.8 Resource Availability Tools

- Significant benefits have been realised through the implementation of scheduling technology in some areas of social care. Integrating this technology with corporate calendar systems offers significant further benefits. This technology now needs to be scaled in order to exploit the benefits further.

5. Delivering the Strategic Themes

5.1 A programmes and projects approach will be taken to the delivery of the ICT strategy. There will be 5 programmes of work, one each for the 4 business transformation themes plus a *Fit for Purpose Programme* that ensures the ICT operating model is refreshed as appropriate, so that ICT Services adapts its staffing, supplier and contractor arrangements, processes and use of technologies to meet the changing organisational landscape.

```
                    ┌──────────────────────────┐
                    │      Smarter working      │
                    └──────────────────────────┘
                    ┌──────────────────────────┐
 ┌───────────┐      │   Health & social care    │
 │           │      │  technology integration   │
 │           │      └──────────────────────────┘
 │ Programmes│      ┌──────────────────────────┐
 │           │      │   Business intelligence   │
 │           │      └──────────────────────────┘
 │           │      ┌──────────────────────────┐
 │           │      │      Cloud services       │
 └───────────┘      └──────────────────────────┘
                    ┌──────────────────────────┐
                    │      Fit for purpose      │
                    └──────────────────────────┘
```

5.2 The programmes and projects approach will adopt appropriate PRINCE2 and Agile project methodologies that ensures effective governance and management of plans, milestones, resources, risks and issues.

5.3 ICT Services operates a hybrid staffing model of a core baseline in-house team and supplier contracts, supplemented by supplier and flexi-resources. The strategy will require the flexing up of these additional resources to ensure that the right capacity and capabilities are available to deliver across the concurrent programmes.