NAO Digital Plan

2020 – 2022 Year 3

March 2022

Summary

The NAO Digital Plan 2020-2022 is in the final year of a 3-year plan which centres around the transition of all NAO digital services on to secure function-rich cloud platforms

- This NAO Digital Plan 2020-2022 (v3 – March 2022) updates the previous version (v2), published in Summer 2020. Through the plan, our vision continues to be to offer a secure and well-integrated digital environment which enables the NAO to deliver its strategic objectives.
- Our cloud journey is 85% complete and we aim next year to complete that journey and turn the focus to value delivery from our cloud investments. Since the previous iteration of the Digital Plan, we have delivered:
  - New cloud platforms for our audit management systems and for various administrative corporate databases and functions
  - A tactical new risk and response tool for financial audit and AIMS data analytics capability for every financial audit team
  - New content storage for the VFM practice alongside various ODP activities to simplify and streamline VFM publication
  - Improved remote working capabilities including Teams, new remote architectures and online portals
  - A new corporate incident & asset management solution and enhancements across our resource management systems
  - A revised digital curriculum for our people, new more influential communication approaches and new knowledge products
- This updated plan continues the theme of three core pillars; digital audit, the digital workplace and People & Knowledge. We have plans for further developments in all three areas, including within ATP the piloting of a new strategic solution; laptop and mobile phone refresh for all NAO people including a new more resilient connectivity architecture; and further developing our people's digital competencies and knowledge. Annex B contains the updated technology roadmaps.
- This plan continues to be iterative, allowing for priority changes and directional influences which will arise during the final year. We aim for a more fundamental refresh of our Digital Plan, which is now in its last year, in this financial year and as we start preparing for a wider office-wide strategic review.

Our external context

Digital transformation is one of the most powerful forces facing organisations today. The digital external environment within which we operate is a key contributor to our approach to digitisation.

- The strategic case for investment in digital remains the same but continues in sharper relief with the ongoing impact of COVID-19. Technology continues to play a key role in the delivery of public services - but now even more so for extended remote working and remote communications. Our migration to cloud provision has been timely and has positioned the NAO well for a new working model. The pandemic has accelerated certain developments, with easy remote working on the go becoming the standard digital operational model. Replacement of legacy, on-premises systems and architecture is key to such an approach – and this is in particular an area where we are witnessing government struggle.

- Cloud platform providers are each consolidating and expanding their services, responding to copious demand, in turn leading to everchanging, function-rich services which organisations are expected to adopt (at times with minimal notice). In the NAO we have aligned ourselves with Microsoft, as has a lot of the UK public sector and our systems and solutions reflect the latest commonly used technologies that are moving and evolving at considerable pace.

- These platforms come with low-code 'app' development capabilities, enabling the rapid build of previously complex technology solutions by non-developers. This opens up the possibility of far more content management, analytic and presentation systems. Audit is no exception to this, becoming far more digitised and reliant on data analytics, and our new audit software will make ample use of these new development capabilities.

- As systems grow, so does the underlying content and data. This brings fresh challenges in terms of management, privacy and appropriate usage. The NAO has a privileged position in terms of data access and with that comes responsibility to steward the data that we access but also to maximise the value and intelligence that we derive from it.

- In the wider market we are experiencing severe shortages in deeply skilled technology personnel. This is forcing us to find more sophisticated resourcing solutions, such as Capability as a Service (CaaS) contracts. Similarly, we are experiencing short to medium term supply chain issues for semiconductor technologies. This impacts device and hardware refresh lead times and elevates the cost of replacements.

- Finally, on the horizon for digital in the public sector, we see our clients putting new technologies on their agenda e.g. artificial intelligence, quantum computing, blockchain and energy management. We are tracking a few early initiatives they are attempting but these are early days and government have a number of existing issues that need to be addressed such as poor-quality data and underfunded legacy systems which will mean fairly slow progress in this area.

Context for Digital, Internal

Within the NAO there are many factors which shape and influence our digital plans

- **Operations**: Within the NAO we have achieved a lot during the pandemic. Our focus has been on sustaining digital operations to minimise corporate impact. This has centred around maintaining connectivity, ensuring the right digital equipment is distributed to people's homes at the time they require it; and that remote systems are accessible and secure from wherever our NAO people are

- We have rapidly scaled remote communication solutions like Microsoft Teams and steadily developed new meeting room audio visual conferencing around this new technology. We have evolved a new standard digital operating model which allows for extended remote working as well as working within our London and Newcastle offices. We have also introduced new or enhanced systems for managing incidents, assets, resources, cyber security and communications – all of which have ambitious programmes for further developments

- Connectivity – there have been recent connectivity issues for NAO people as our legacy firewall architecture has struggled with the capacity and functionality demands of a highly mobile workforce. An interim tactical solution is in place ahead of the plan, later in 2022, to introduce new laptops, with new direct connectivity architecture which will bypass the legacy on-premises network constraints.

- **Audit**: With the Audit Transformation Programme (ATP) we are delivering our largest digital related programme for some time. This will consume most of the NAO's digital transformation resource for some years with the end product. On data analytics we have made good progress in developing more sophisticated tooling and seeing them deployed across the office. We are also seeing increased demand for digitising and modernising all parts of the office. Within VFM we have updated how we store and manage studies and will introduce more efficient practices and further streamline publication and outputs.

- **Knowledge and digital training**: Our new Digital Hub is both servicing and generating demand for digital in the NAO. We are seeing the benefits of digital training for senior stakeholders and also elevated demand for digital learning and development across the office.

- **Office-wide**: All of the above is within the ODP or has arisen as circumstances have demanded different priorities. There are growing numbers of continuous improvement projects with digital elements. All of which combines to highlight elevated levels of demand on our digital people and services. We have further developed our Digital services portfolio management capability to manage this pipeline of demand, but we need to recognise the need for central 'demand-led' services to grow in line with NAO service lines. In 2022, we will look to complete ODP and developments related to the current Digital Plan and begin to focus on a new 3-year digital plan.

Our vision & high-level principles

Our **vision** continues to be to offer a secure and well-integrated digital environment that enables the NAO and its people to deliver high quality audits, add value to Parliament and our clients, and run its operations efficiently

Our approach continues to be based on four key guiding **principles** which describe and govern our strategic decisions about the use of technology. These have further sub-principles (at Annex A) which remain unchanged from the previous iteration of the Plan, where additional detail can be found.

Secure. In the current environment, where cyber security is an ever-evolving risk, our strategy is to ensure that the trust of Parliament and our clients is maintained through managing client information appropriately

Simple & agile. We must ensure that our technology choices are as simple and consistent as possible. Similarly, adopting agile principles will ensure that services are suitable – utilising delivery methods which allow flexibility in what digital solutions we deliver and how we respond to related threats and opportunities

User-oriented. Our core mission is to help Parliament hold government to account and help ensure public money is spent well to improve public services. Our technology choices must reflect this ultimate purpose and consider the implications for our ability to undertake financial audit and value for money work and fully exploit our cross-office information and knowledge assets

Long term value. As with all our decisions, we must be able to demonstrate to Parliament that our spending itself represents good long-term value for money
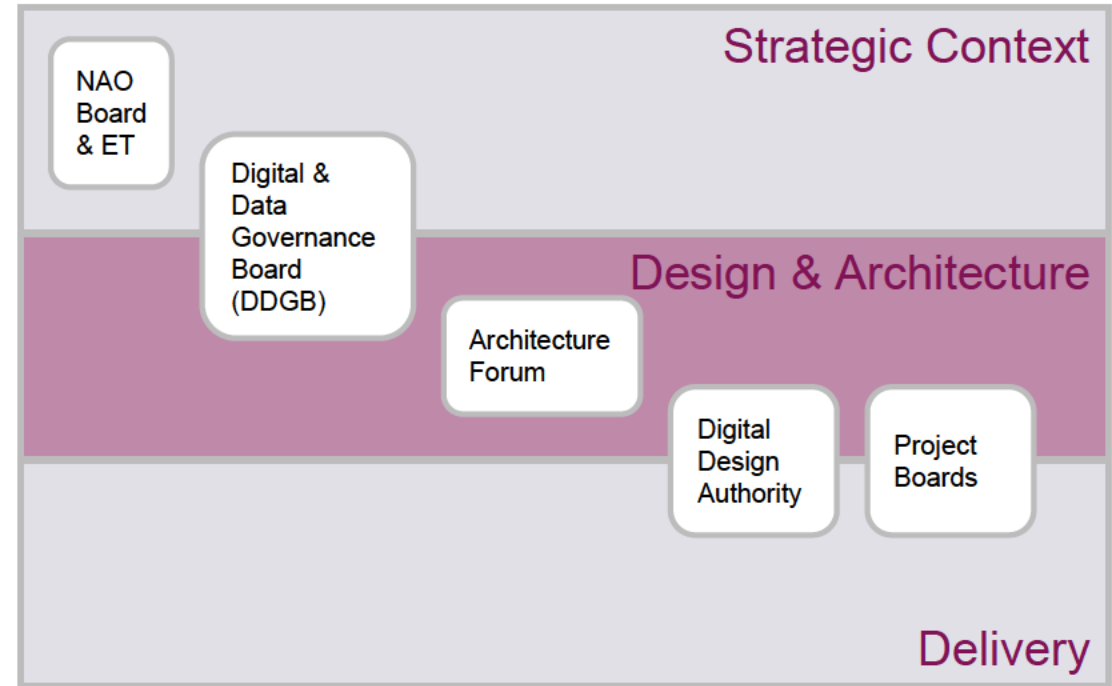
National Audit Office

Our digital governance model

Our governance model for digital initiatives has further evolved in 2021

- Our governance model for digital initiatives has grown during 2021 in line with elevated demand for digital modernisation across the office. Individual projects, beyond a given size, have their own governance boards. All projects with digital elements will have Digital Services (DS) people involved.

- Digital project designs and deliverables are subject to an architecture forum which determines applicable standards and principles which must be adhered to. A Design Authority within Digital Services oversees the technical viability of new digital initiatives before they transition beyond development.

- A newly constituted Digital & Data Governance Board (DDGB) comprises key stakeholders across the NAO to ensure that developments are sequenced, resourced, prioritised appropriately and that the NAO's technical debt is effectively managed.

- Finally, the chair of the DDGB reports to the Executive Team who approve all digital developments of scale and ultimately approve the digital resource envelope for the NAO.

Governance

Strategic Context

NAO Board & ET

Digital & Data Governance Board (DDGB)

Design & Architecture

Architecture Forum

Digital Design Authority

Project Boards

Delivery

Achievements since previous iteration

Our achievements against the three workstreams have been considerable in 2021

- The three pillars of the current plan have various workstreams, each of which has achieved a lot since the previous iteration of the Digital Plan.
- **Digital Audit** has seen great strides within the ATP, with the identification of a strategic partner and the commencement of Phase 1 pilots. VFM has seen the migration of all studies on to the SharePoint platform. Modern IT Audit approaches and AIMs is now in use across the majority of Financial Audits.
- Within the **Digital workplace** we now see use of Microsoft Teams as commonplace, we are 85% complete on our cloud migrations and we have introduced greater sophistication within our Infosec tools and analytics.
- On **People & Knowledge** we have seen new digital curriculums launched and new knowledge models in widespread use.

More details of these can be found on the following slides.

Digital Audit	Digital Workplace	People & Knowledge
Modernising Financial Audit • Audit Transformation Programme • IT audit capabilities • Applications & automation	**Content, Collaboration & Continuous Improvement** • Content delivery • Collaboration & conferencing • Continuous improvement	**People** • Development of digital skills & competencies • Improved digital learning • Improved employee experience
Modernising VFM • Modernising VFM production • Software, storage & management	**Technology** • Cloud migrations • Remote working enhancements • Net zero targets	**Knowledge** • New knowledge model • Wider engagement channels • Improved use, re-use & impact
Audit Information Management • Enhanced data service & analytics • Simplified approach • AIMS 1.0 phase 2	**Information Security** • ISO27001 & continuous assurance • Identify, protect & detect • Respond & recover	

National Audit Office

Achievements in the last year - Digital Audit (1)

Modernising Financial Audit

Audit Transformation Programme

- The primary development for the Financial Audit service line has been through the Audit Transformation Programme (ATP) which will improve the quality and efficiency of audits and bring greater insight to audit recipients. The programme has delivered fundamental changes to audit methodology and is delivering improved contemporary technology to support it.

- As well as establishing a new methodology and converting that into operating requirements for a solution, the programme has appointed a strategic partner, Tisski, to design and implement an operational solution in 2023. Work on the design and build commenced in early 2022.

- In addition, the programme has delivered a tactical solution to pilot, for ensuring audits which commence in 2022 are compliant with new ISAs.

IT Audit, data analytics and AIMs

- During the last audit season we delivered 1,350 days of IT Audit work over 47 IT audit engagements, included 22 engagements where the client was implementing new systems or going through major IT change.

- Our data analytics work relies on our proprietary cloud based data platform called AIMS (Audit Information Management System).   Over the last 12 months we have established AIMS as the main way Financial Audit teams undertake their testing of general ledger journals. We have:

  - Created a team of data specialists. One of the barriers to doing more data work has been the difficulty that audit teams face in getting data and the team of data specialists has been able to support audit teams in this area. As a result, 70% of our audits have used AIMS. We have also de-risked the data ingestion onto the AIMs platform by building a single, text-file based template and associated Azure pipeline for all audit teams to use.

  - Provided training on AIMS and related application to over 200+ APs, AMs and Directors.

  - Developed a range of applications, including

    - Enhancements to our data analytics tool to enhance further our approach to journals testing

    - Data extraction tools for interacting with data

    - Developed and launched versions of the sampling tool to support the new audit methodology.

Achievements in the last year - Digital Audit (2)

Modernising Value for Money audit

- Our main achievement last year in value for money was embedding SharePoint for VFM across the service line. This was delivered well ahead of schedule and the practice experienced a successful landing and transition to standard working, achieved within minimal impact and at very low cost.
- The service line has also incorporated new remote working and collaboration practices through Microsoft Teams. This has added greater flexibility and efficiency to how we work on VFM and has opened up new opportunities for knowledge sharing. We have started a programme of monthly VFM showcases where teams talk about best practice, challenges and issues they have faced. These are extremely well attended.

Use of data analytics and related methods in Value for Money

- We have made more effective use of data analysis to help VFM teams to make better use of the existing opportunity and access new insights.
- We have rolled out a series of Analytical Insights, involving assessment and exploratory analysis of government's data holdings to support specific areas of audit enquiry, in order to help teams understand what's available and target their work. We used data mining and novel analytical methods such as process mining to explore these datasets and other publicly available datasets to create a series of new analytical insights for teams to support study selection, scoping and data-driven findings.
- We have also engaged earlier on the potential for using data analytics in value for money studies through bespoke methods scoping sessions, and targeted work on studies with high potential for data analytic approaches. This includes using code-based approaches to derive insights from data sets that would otherwise be too large and inaccessible, such as text analytics to automate bulk text analysis and find common themes, webscraping, primary regression analysis to find relationships between variables, and data visualisations to help teams understand large datasets.
- We have also enhanced features within the Data Service application, such as 'live' mapping and the automatic creation of briefs for committee members, and developed or delivered improvements to self-service applications such as the back catalogue analyser, geocoding app for postcode conversion and data reconciliation tool to automate VFM tasks, save time and improve the quality of our reports.

Achievements in the last year, Digital Workplace

Content & Collaboration

- We have further enhanced the NAO's primary content store (SharePoint) through structural and content management enhancement for VFM, corporate users, external document sharing, and various content database migrations. We have improved the interface of our resource management systems, introducing new functionality and reporting, such as balanced scorecards.

- We have responded to the need for our people to continue to work effectively away from NAO offices through IT equipment supplies portal and through extensive use of remote communication tools including all NAO telephony and meeting services now routing through Microsoft Teams and Zoom for large corporate events. We have also commenced a video conferencing replacement exercise for meeting rooms in our London and Newcastle offices, introducing Microsoft Surface Hubs for seamless integration with Teams

- Within Digital Services we have implemented Service Now as the corporate incident and asset management system. This enables more effective resolution management, asset tracking and knowledge articles to allow users of the digital estate to get the most out of their digital systems

Technology

- The core of this Digital Plan has been to migrate all NAO digital systems in to cloud provision, this will reduce the administrative burden of having to maintain 200+ servers and provides access to levels of functionality and security which form key components of our knowledge and information security plans. The migration and subsequent decommissioning exercises will complete in 2022.

- During 2021 we moved our audit management software, and historical archived audits, on to secure high-performance cloud provision. We have commenced pilots for direct cloud connect architectures for NAO laptops and for cloud integration solutions

- We have baselined energy consumption for all NAO hardware and are preparing targets for future device specifications and for corporate usage to contribute towards the office achieving it's net zero targets

Information Security

- The updated NAO IA & Information Assurance Plan contains details on how we have further optimised our ISMS, improved our cyber maturity and taken steps to achieve security & privacy by design, in 2021

Achievements in the last year, People & Knowledge

Upskilling our people

- This year we put together a Digital curriculum to have oversight of the different types of digital training to ensure that we understand the staff training capacity given the demands of ATP training.

- As part of this, we delivered regular training on our key currently used technology (e.g. Pentana/ Mki, Huddle) and have produced the first module of an online training series on IT audit. Training has also continued on the importance of financial data in our audit work (transactions and balances) and the use of AIMs; and on our data analytics applications and tools. We have also provided training in our new SharePoint-based VFM audit sites as well as bespoke training, where needed on data analytics methods for VFM.

- To upskill our senior leaders we held three Digital Masterclasses for directors which are designed to illustrate the role that digital plays in today's world. It introduces common concepts and explains how they relate specifically to the UK central government context. We also held seminars on AI, blockchain, cyber and cloud.

Professionalising our approach to knowledge management

- In the past year, we have worked to restructure how we collect, organise and share knowledge . This including building dedicated SharePoint sites for the hubs to publish and share knowledge within the NAO.

- We have also developed toolkits and online training for MS teams and SharePoint to improve our user of our collaboration tools and will build on this as the year progresses.

- We have begun to build solutions for the capture of questions and queries that can be analysed and translated into reusable knowledge allow users to self-serve and self-help. The plan is to expand this over the coming months.

- Lastly, we have completed the Alpha phase of our project to create a new external website and have modernised and standardised our use of our key external digital communication channels (e.g. Twitter and LinkedIn).

Project Plans for 2022

Within each core pillar, there are various developments planned for the next 12-24 months

- **Digital Audit** will see office-wide deployment of Phase 1 and the beginning of pilots for the financial audit strategic solution within ATP. A key part of ATP is to increase our reliance on controls (and so IT audit work) and on the use of data (and so increased use of data analytics). For VFM we will continue to develop our how we manage our VFM workflow through SharePoint and MS Teams.
- Within the **Digital workplace** we will complete our cloud migration and begin the process of ensuring value from our cloud investments and undertake an extensive laptop and mobile phone exercise as the estate
- On **People & Knowledge** we will roll-out our digital masterclass to audit managers, train our people on ATP software and continue to roll-out further training modules on IT controls and use of data analytics.

More details of these can be found on the following slides

Digital Audit	Digital Workplace	People & Knowledge
Modernising Financial Audit • Audit Transformation Programme • IT audit capabilities • Applications & automation	**Content, Collaboration & Continuous Improvement** • Content delivery • Collaboration & conferencing • Continuous improvement	**People** • Development of digital skills & competencies • Improved digital learning • Improved employee experience
Modernising VFM • Modernising VFM production • Software, storage & management	**Technology** • Cloud operating model • Hybrid ways of working • Net zero targets	**Knowledge** • New knowledge model • Wider engagement channels • Improved use, re-use & impact
Audit Information Management • Enhanced data service & analytics • Simplified approach • AIMS 2.0 phase	**Information Security** • Optimising our ISMS • Improving cyber maturity & reducing cyber exposure • Security & privacy by design & accelerating incident response	

Project plans for 2022, Digital Audit (1)

Modernising Financial Audit

- At the heart of modernising financial audit is our Audit Transformation Programme where in 2022 we will roll out our Risk & Response (RAPT) tool to all financial auditors as part of our office wide roll-out of our new financial audit methodology. This will be delivered with integration with other NAO systems, revised methodology and ways of working and comprehensive guidance & training for all Financial Audit teams (ATP – Phase 1). Having appointed new strategic partners, Tisski, we will design, construct and commence pilots for our strategic solution in 2022/23 (ATP – Phase 2). This will provide the key building blocks, for full implementation later in 2023, of an iterative strategic solution which will be continuously developed throughout it's ten-year lifespan. This will be the main focus of the digital change in the financial audit service line. Also worth noting the impact this will have on Digital Services – it will be key to implement a competency and talent development plan to ensure sufficient capability and capacity exists to support and develop the Microsoft Power platform as the strategic development tool for the NAO

- Our ambition for our financial audit is to continue to increase the controls work we do for some of our largest and most complex audits as well as focussing on clients with high dependence on IT systems for their operations. The changes in auditing standards (ISA315 revised) built into the revised audit methodology will require our financial audit teams to obtain and document a greater understanding of our clients' business processes and supporting IT systems necessitating additional IT Audit input to the financial audit.

- In relation to data analytics our plans are to continue to enhance and expand the use of AIMS including: (i) Improving data ingestion to increase automation and standardisation – for both General Ledger data and expanding to additional data sets; (ii) Enhancing the AIMS Data Model and supporting infrastructure to prepare for more advanced analytics; (iii) Build additional Data Analytics functionality on the data within AIMS – for both General Ledger data and expanding to additional data sets; (iv) Integrate the AIMS data platform with the new strategic solution of our audit software.

- Whilst we are seeking to develop tools that can be used across the entire financial audit client base we have developed, and continue to develop, bespoke tools for our largest clients where it is cost efficient to do so and can deliver efficiency and/or client insight. The learning from developing these bespoke tools can be shared across the wider client bases even if not the specific app or tool.

Project plans for 2022, Digital Audit (2)

Modernising VFM

- Our main digital develop in VFM will be to create a self-contained way of VFM working in SharePoint. We will link our new VFM guidance (hosted across MS365 technologies) through SharePoint audit files. We plan to do this by integrating VFM quality and risk plans into those files and to push teams to use guidance and templates at the point they need to do something. The goal being we guide people through the process and our approach to risk and quality management.

VFM Data Analytics

- We continue to roll out the use of data analytics across the value for money service line, and embed our new processes for engaging early with study teams on the potential for data analytic approaches and using data more effectively.

- We will horizon scan for future data analytics developments and opportunities, and build on our relationships with the government and external data science community.

- We have an R&D pipeline of new or improved self-service applications and analytic tools, such as an analytical Parliament App for providing insight about what members are interested in and supporting the creation of individual member briefs, based on data provided by Parliament.

- We aim to test and de-risk novel analytical techniques such as cluster analysis, machine learning and more advanced text analytics to support teams in accessing new insights.

Project plans for 2022, Digital Workplace

Content, Collaboration & Continuous Improvement

- We will further enhance the NAO's primary content store (SharePoint) through more integrated content management and enhanced findability. We will implement external file sharing portals and complete the migration of corporate databases into secure cloud provision. We will introduce content retention policies to better manage information overload and review new knowledge tools (like Microsoft Viva) to better curate the wealth of information we possess

- We have extensive functional enhancements planned for our resource management systems, including more integration with other corporate systems, mobile apps and a new Learning & Development system (Thrive).

- Having implemented the Service Now ecosystem, we will look to optimise and gain value from it. This will be aligned to a new multi-year contract with a strategic support partner for the provision of primary IT support for all NAO users

Technology

- Cloud migrations will complete in 2022 (backup & monitoring services) and the process of optimising what we have migrated will commence. Similarly, there is a large decommissioning exercise underway

- We have piloted 'direct cloud connect' technologies for NAO laptops (the architecture supersedes legacy NAO direct access networks and connects directly to Microsoft 365 and Salesforce platforms) and will implement this technology for all NAO users as part of a corporate-wide laptop refresh exercise.

- We are implementing iterative hybrid working technologies through a new network architecture which enables flexible, scalable networks within NAO offices. We are also updating meeting conferencing technologies in meeting rooms (audio-visual and full collaboration through Teams) and further enhancing Microsoft Teams functionality, including office-wide broadcast events and tight integration with the strategic solution for ATP.

Information Security

- The updated NAO Information Assurance Plan details 2022 plans, which cover enhancements to; identify, protect, detect, respond, recover and continuously assure our information assets

Project plan 2022, People & Knowledge

Upskilling our people

- We will continue to roll out our digital curriculum, in particular provide an L&D programme to help our senior leaders gain general digital knowledge and provide more insights into our clients' attempts to modernise. We will rollout to AMs the Digital Masterclass training which introduces common digital concepts and explains how they relate specifically to the UK central government context

- On Financial audit, the core of our digital training will be around the introduction to the Audit Transformation Programme. We will also continue to roll out the next modules of our IT audit training series. Across Financial Audit and VFM we will also introduce a organisational data literacy course and continue with focused technical L&D offers on specific tools and methodologies we have introduced such as web-scraping, text-analytics.

Knowledge management

- Our main emphasis on knowledge management is to continue to develop our knowledge model and ensure we embed new knowledge ways of working, including consistent use of SharePoint, MS teams and other content and collaboration channels. In particular, we will launch a change project aimed at modernising our Intranet and work to improve enterprise search and navigation around our knowledge assets. We are also looking to digitise the current manual process for tracking NAO recommendations.

- We will also complete the launch our new external website and continue to focus on user need for our digital channels, including a review key external channels, such as our YouTube channels.

Digital Costs for 2022/23

Our digital investment portfolio for 2022/23 spans a number of areas

	Total NAO investment in digital (external costs) in 2022-23	
Financial Audit	ATP	£3,313,000
	IT (Audit & AIMS) comprising:	£633,000
	Financial Audit system costs	£461,000
	AIMS	£102,000
	IT Audit	£70,000
Digital Services	(includes £2.2m laptop refresh)	£6,012,000
Digital Hub	Subscription services for latest technology news	£41,000
Knowledge & Communications	Analytics for NAO365, technical consultancy for knowledge sharing	£80,000
Information Security	See separate IS plan	£275,000
Total		**£10,354,000**

Going beyond – plans for 2023/24
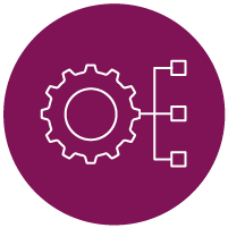
- Using next year in run-up to strategic review we plan to understand how we can make the NAO a proper digital organisation – leading to a more radical refresh of the digital plan

- This includes an honest assessment of skills we have in NAO which ones we no longer need and which ones to expand.

- After having new strategic service partner consider medium-longer term what balance lies in in-house staff and being able to draw down on external support – particularly in a difficult ever more fragmented digital market.

- In line with government digital standards, enterprise and data architecture will be key to drive this plan – informed by our strategic objectives as an organisation.

Annex A - Principles

NAO Architecture Principles

Note: these remain unchanged, more detail is available in the previous iteration of the plan which is available on request

Secure
- Principle SE1: Information & data are securely managed assets
- Principle SE2: Compliance
- Principle SE3: Business continuity

Simple & Agile
- Principle SA1: Simplification
- Principle SA2: Avoid under/over engineered change
- Principle SA3: Reuse (solution breadth)
- Principle SA4: Process optimisation
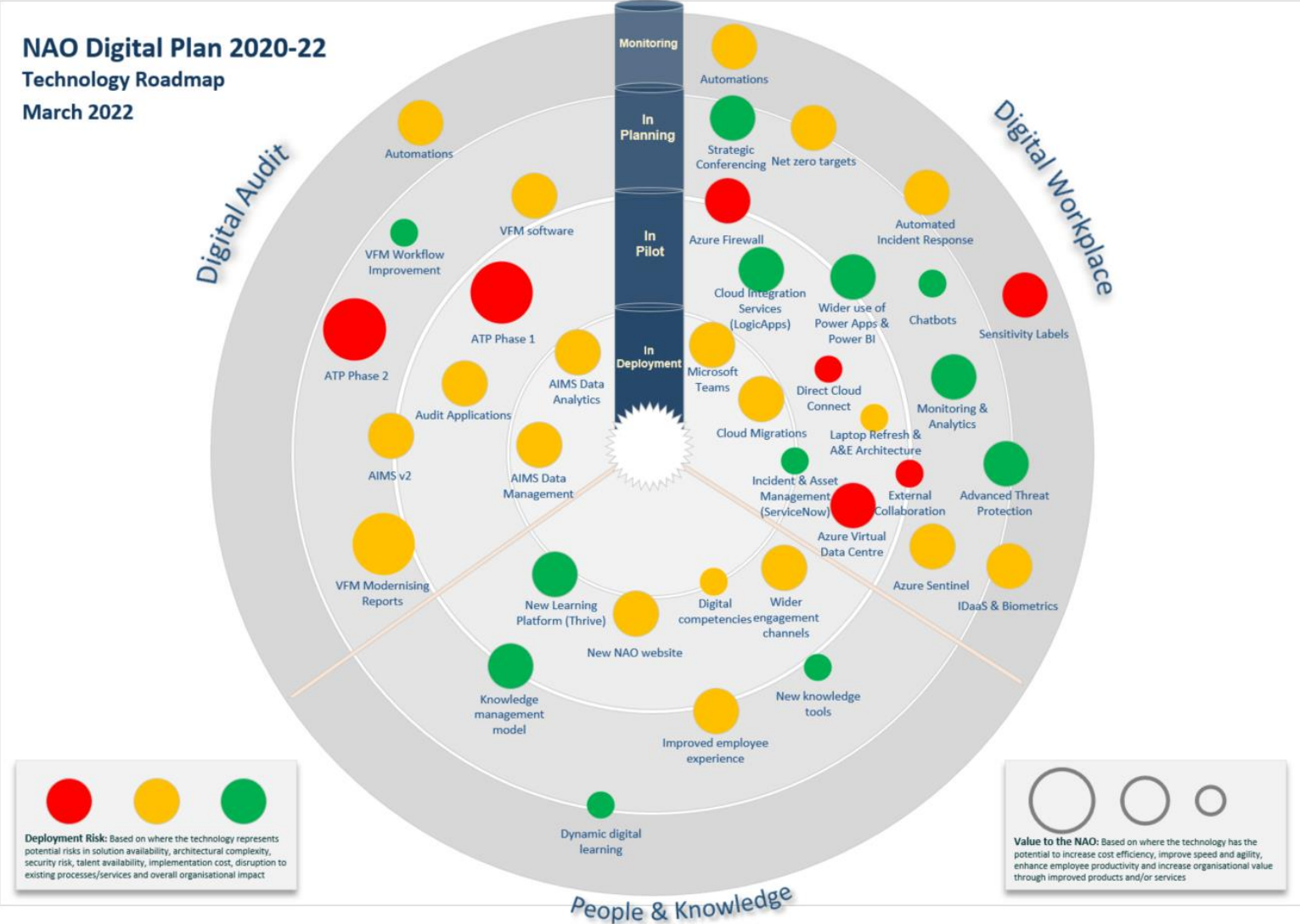
User-oriented
- Principle UO1: Business value
- Principle UO2: Be service and user oriented

Long-term
- Principle LT1: 'Architecture' best practice
- Principle LT2: Strategically focused
- Principle LT3: Open & integrated technology
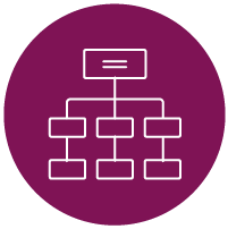- Principle LT4: Manage Enterprise Debt Ratio

Annex B – Technology Roadmap

Annex C – The NAO's digital estate

THE BUSINESS

Circa 1,200 IT users distributed across 6 Groups, 2 sites and over 1,000 remote locations (i.e. home working) and over 500 'Bring your own devices' (BYODs) used by NAO people

EXTERNAL STAKEHOLDERS

Support engagement with over 400 clients, 6 regulatory bodies and 9 other interested parties.

IT ASSETS

Provide assurance and manage vulnerabilities across over 1,400 computers, 700 mobile devices, 300+ external storage devices, 640 desktop applications, 200+ servers and over 100 network devices

The NAO Digital Estate 2022

INFORMATION

Provide assurance for over 9.5m documents and several terabytes of information and an unknown number of physical documents.

GOVERNANCE

Manage and maintain compliance with over 79 laws and regulations (8 specific to infosec), 114 ISO controls and 2 accreditation processes.

CLOUD SERVICES

Provide assurance and manage risks across 3 strategic cloud platforms, 523 cloud applications used by the business where circa 23TB* data was uploaded in FY21 Q4 alone.

* **Source**: Microsoft Cloud App Security data for the period 21/01/2020 and 21/04/2020

National Audit Office

Annex D – Digital Services on a Page

2022

Digital Audit capabilities

1. Audit management (Pentana), Risk & Response (Power Apps)
2. Audit Automation (Digital Audit, Embedded Analytics, Sampling)
3. Analysis tools (IDEA, Oak, @Risk, ATLAS, STATA, QGIS)
4. VFM applications (One Stop Shop, Guidance, Surveys, Publishing)
5. Visualisations (Tableau, Power BI)
6. Data analytics (Python, R, Shiny Server, JSON, NLG)
7. Data transfer, Storage, Management & Collaboration
8. Website & extranets
9. Correspondence tracking, FOI & Exchequer

Digital Workplace capabilities

1. Financial Force (ERP services) & payroll
2. Business intelligence & corporate performance dashboards
3. Intranet & Guidance and wider communication services
4. Document & records management (SharePoint online)
5. Messaging & digital telephony (email, IM, calendar – Outlook & Teams)
6. Conferencing (VC, meeting room AV)
7. Office automation & productivity (Microsoft 365)
8. Incident, asset & response management (ServiceNow)
9. Service, incident, availability, change & asset management (3rd party support)

Technology Enablers & Digital Assurance

1. Laptops (1,200), desktops (25), monitors (900)
2. Phones: desk phones (10), mobiles (250) & BYOD (652 – 428 active)
3. Digital networks (all corporate connectivity, internal & external)
4. 100+ databases on 3 data centres in London, Newcastle & Azure (cloud)
5. Secure content/data: storage, transfer, search, print, copy & scan
6. NAO integration services (data sharing across all digital systems)
7. 50 physical servers and appliances, 50+ cloud services
8. Advanced threat protection for NAO information, identities & devices
9. Digital information assurance management – vulnerability & threat prevention / detection & response

33 Digital Services & 9 ATP people

1. Digital Services Leadership Team & Commercial (4)
2. Service Management & Operations (8)
3. Cloud, Network & Mobility (4)
4. Projects & Process Management (7)
5. Data Analytics & Application Delivery (10)
6. Audit Transformation Programme (9)

Total cost of NAO Digital Services (£8m in 2022)

1. Operations (£1,388,000)
2. Network & Telecoms (£500,000)
3. Cloud Services (£1,463,000)
4. Capital (£2,900,000)
5. Staff (£1,800,000)

Over 50 digital contracts (totalling £2.98m)

1. Communications (£385,000)
2. Support services (£860,000)
3. Microsoft (£910,000)
4. Infrastructure (£148,000)
5. Financial Force, XCD, Payroll (£475,000)
6. Data Analytics (£107,000)
7. Printing & other small contracts (£96,000)

1. Demandled & project related non-contract activity (£370,000)

2022 digital programmes

1. Audit Transformation Programme (ATP)
2. Strategic Support Contract
3. End User Device Management & Refresh A&E (Laptops & Phones)
4. Service Now Phase 2 – Integration & Enhancement
5. Network Upgrade & NAO Workspace planning
6. Cloud transition (Database Migrations, ceasing on-prem workloads)
7. Enhanced video conferencing (Hubs, Audio, Auditorium, Teams)
8. Content, Collaboration & Integrations (LogicApps, Extranets, FOI, VFM)
9. Continuous improvement across all Digital Services

Summary for ET / Board Meeting

- Digital Plan - designed to showcase what is happening in the context of digital across the office with a deep dive on the digital estate
- Essentially the final year of the 3 year digital plan launched in 2019, ahead of a significant review next year
- The crux of the iterative 3 year digital plan remains unchanged as does our vision and high level principles
- **3 core pillars: digital workplace, digital audit, people & knowledge:**
  - **<u>Digital Workplace</u>**
    - Better manage our digital estate and the legacy within it, solutions for addressing connectivity problems – Direct Connectivity architecture for laptops
      - <u>Cloud transition</u>
        - Through a multi-year transition to cloud service provision away from servers and data centres in the NAO's London computer room
        - 2022 will see the remaining services moved to cloud - data services, corporate reporting BI, backup & monitoring services and the architecture to enable new laptop connectivity
        - And see us begin to derive value from our cloud investments
      - <u>Continuous improvement</u>
        - Within Digital Services we continue to drive continuous improvement with a new tool for managing incidents and a new strategic support provider and a laptop refresh exercise introducing new direct connect architectures whereby new laptops connect directly to cloud service provision, bypassing the bottleneck of being authenticated by NAO firewalls and video conferencing

        - Information Security - see separate plan
  - **<u>Digital Audit</u>**
    - ATP, AIMS, further developing how VFM uses Sharepoint
  - **<u>People & Knowledge</u>**
    - Digital curriculum and improvements in digital training
    - Further develop knowledge model, embedding knowledge in to new ways of working
    - New external channels - website and YouTube etc.
- **External context**
  - Huge shortage in skilled personnel and in semi-conductor technologies
  - Pushing salaries prices up and increasing lead time for attaining people and kit
- **Internal context**
  - Demand led - aim to be able to scale up as demand increases, impacted by other corporate service areas also being able to scale up as demand increases - recruitment / procurement

National Audit Office