UKRI UK Research and Innovation
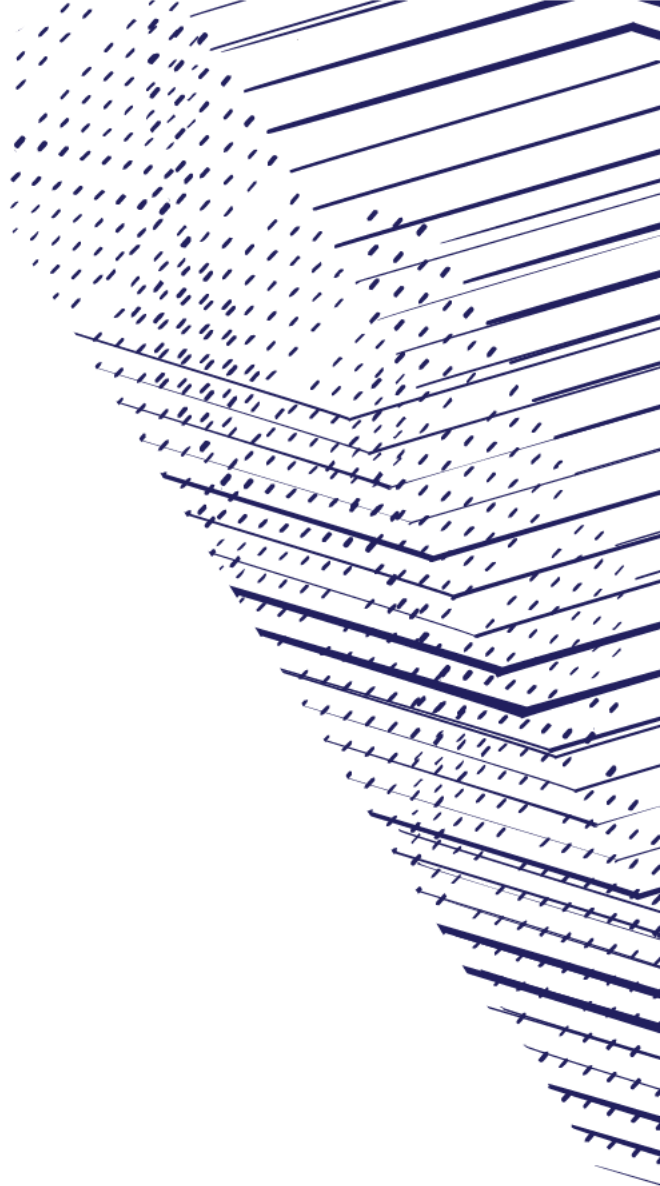
Digital, Data and Technology Strategy

2020–23

Contents

Introduction

This document outlines the strategic direction in Digital, Data and Technology (DDaT) for 2020 – 2023. It covers the enduring and emerging challenges, the strategic themes that constitute our response to those challenges and overall benefits

In the first year as the Chief Technology Officer (CTO) I have been able to formulate a UK Research and Innovation (UKRI) DDaT strategy and identify the workforce plan necessary to deliver it through the creation of a DDaT organisation. This will ensure that UKRI establishes capability to implement and continuously improve the business-impacting digital, data and technology services it requires to deliver on its strategic objectives.

DDaT is more than a simple name change from "IT", but a recognition of the importance of DDaT services to enable transformational change and drive efficiency and evidence-based decision making.

We have recruited the heads of function to establish the leadership necessary to build an enduring and sustainable DDaT capability. A key part of this process was the transfer of the council IT staff to the DDaT functions most appropriate to each person's current role. This realignment of existing staff will evolve further by formally aligning individuals to appropriate roles in the Government Digital Service (GDS) DDaT[1] profession framework. This is a key element of our evolving people strategy which will establish DDaT staff as part of a 17,000 strong professional community across the public sector.

Although we have transferred staff to a centralised DDaT organisation, the existing commitments to councils for change and maintenance of existing networks and legacy operational systems remains, but now rests with DDaT. This responsibility consumes the bulk of our existing capability. This is limiting our ability to transform the DDaT organisation and reduce the complexity of our technology estate for which additional resources will be needed and for which a workforce plan is being developed.

As a cornerstone to our strategy we have identified 5 strategic challenges we face; Complexity, Organisational Transformation, Consumerisation of IT, the Rise of Data and the need for Scalability. From these we have identified corresponding strategic themes for the DDaT strategy:

- Simplify
- Transform our services
- Flexibility with Control
- Discover and Decide
- Upskill to Upscale

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[1] or alternative professional frameworks where appropriate

Examples of key roadmap activities to help deliver the strategy include; a clear Target Operating model for the provision of digital, data and technology services, one UKRI network, The Funding Service, rationalising grant application services to move to having fewer systems supporting each business capability, and our move to expand self-service and automation.

This strategy will yield significant benefits for UKRI, that align with the transformational themes of efficiency, effectiveness, engagement and reputation. Furthermore, the Simplicity strategic theme aligns strongly with the government's sustainability agenda.

We will define and measure delivery against the strategy and each initiative will define the measures for operational delivery including; financial performance, customer satisfaction, delivery, service level, risk, workforce management and satisfaction.

Nigel Townley
Chief Technology Officer

DDaT is more than a simple name change from IT, but a recognition of the importance of digital, data and technology services to enable transformational change, drive efficiency and evidence-based decision making

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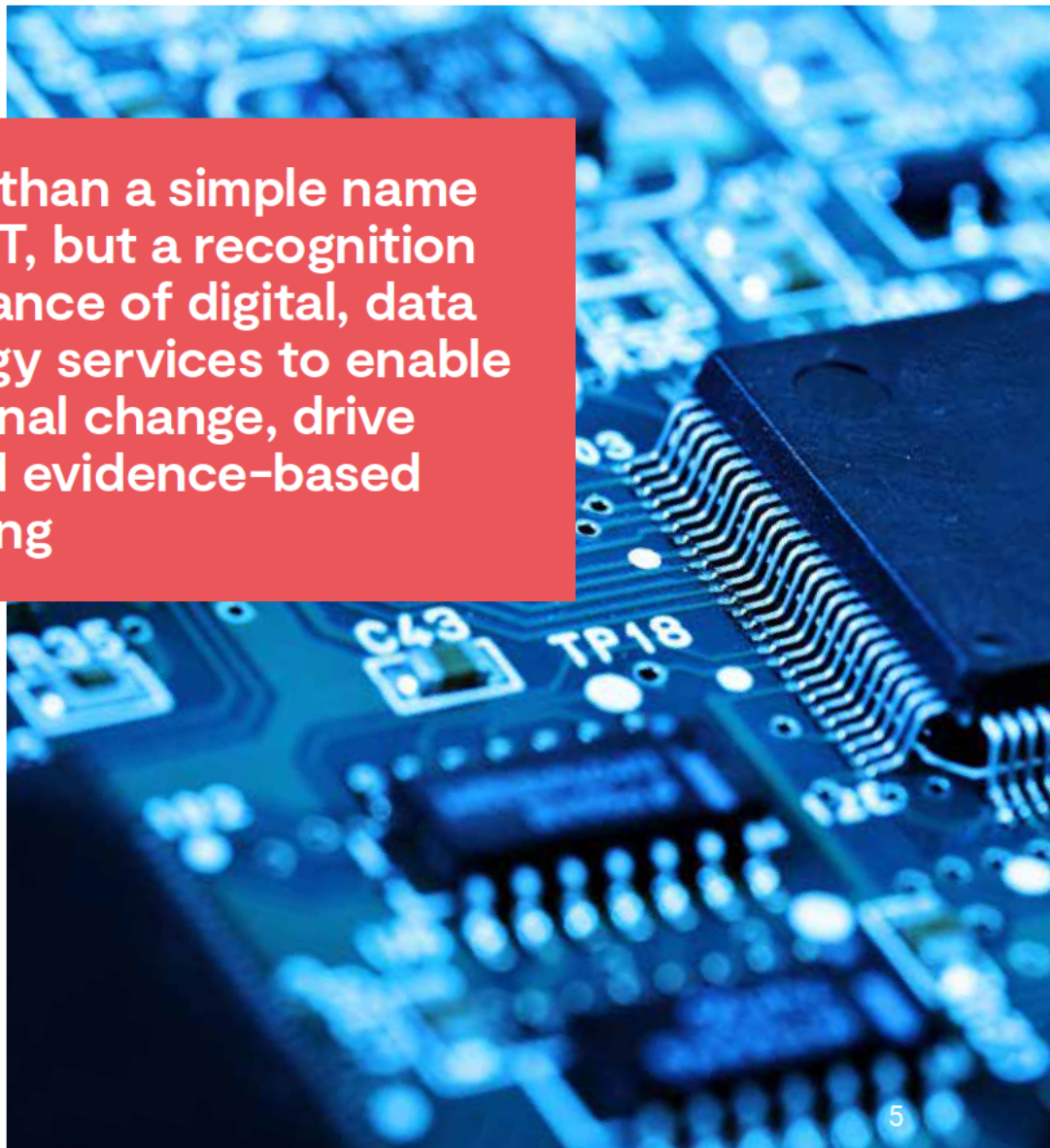
1

Digital, Data and Technology (DDaT)

The DDaT function exists to provide leadership across digital, data and technology areas delivering services directly or through its suppliers and strategic partners like UK Shared Business Services (UK SBS). Our overarching goal is to enable the business to deliver our corporate strategy and objectives through the provision of the right services. DDaT services are focused on delivering corporate IT and operational systems and services across UKRI[1].

DDaT includes colleagues that have come together from the Biotechnology and Biological Sciences Research Council (BBSRC), Innovate UK, Medical Research Council (MRC), Natural Environment Research Council (NERC) and the Professional Services Unit (PSU)[2] serving internal customers in the UK, overseas, and external customers, working with the department for Business Energy & Industrial Strategy (BEIS), GDS and UK SBS.

In partnership with our customers, we learn, understand, inform and respond to business needs and together we work and strive to continually improve how we deliver digital and technology services for the future.

There is considerable work still to be done, as this strategy will demonstrate. In particular, the move to highly business aligned work and the development of a target operating model that creates clear lines of accountability between DDaT and its strategical suppliers and partner organisations. This is essential to the improvement of the staff, collaborator and customer experience.

Currently services are delivered through a mixture of functions from DDaT, UK SBS, Science and Technology Facilities Council (STFC) and Office for Students. We also deliver services in partnership with UKRI units, centres and institutes. All of these organisations have something to contribute through their particular expertise and delivery capability to the overall service, however the structure of the service mix requires a review.

The Functions of DDaT

DDaT is currently structured into nine functions whose mission contributes to the overall departmental objectives.

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[1] specialist IT and technology services (e.g High Power Compute and Data Centre services) employed to support Science and Research are delivered from teams within UKRI facilities and centres (e.g. STFC Digital Infrastructure or NERC BGS IT).
[2] covering AHRC, EPSRC, and ESRC

Head of Architecture
Designing and assuring the design of solutions to maintain confidentiality, integrity, availabi ity when needed, and fitness for purpose

Head of Business Operations
The proper control, procedures, and resources in place to deliver financial strength and operating efficiency

Head of Data Services
Providing the infrastructure and systems to allow UKRI to access the data they need effectively and efficiently

Head of Digital Services
To provide the digital capability to support digital services across UKRI

Head of Engineering
Automation and management of testing and deployment for cloud environments

Head of Information and Collaboration
Making UKRI corporate information easier to create and collaborate on to support sound evidence-based decision making
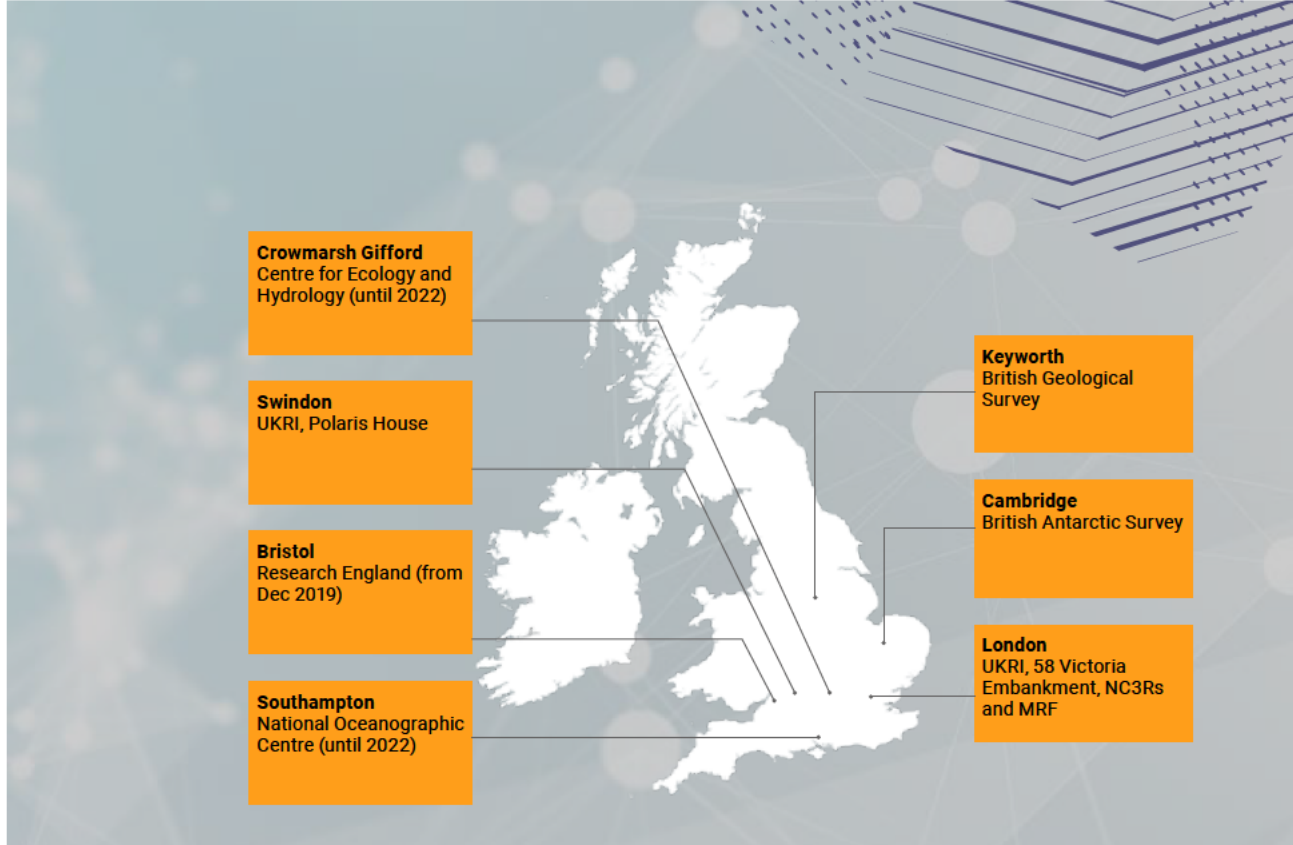
Head of Information Security
To promote, encourage and support the safe and secure use of information by UKRI and its collaborators

Head of Live Operations
Delivery and management of high quality IT services that support the business in the de ivery of their objectives

Head of Portfolio
To de iver the right technology solutions representing best value for UKRI

Crowmarsh Gifford
Centre for Ecology and
Hydrology (until 2022)

Swindon
UKRI, Polaris House

Bristol
Research England (from
Dec 2019)

Southampton
National Oceanographic
Centre (until 2022)

Keyworth
British Geological
Survey

Cambridge
British Antarctic Survey

London
UKRI, 58 Victoria
Embankment, NC3Rs
and MRF

UKRI USA
(British Embassy,
Washington DC)

UKRI China
(British Embassy
Beijing)

UK Research Office
(UKRO) and Innovate
UK, Brussels

UKRI India
(Bristish High
Commission, New
Delhi)

DDaT services across the UK and overseas

DDaT supports locations around the UK, including UKRI sites in London, Swindon, and from 2020, Bristol as Research England migrate from Office for Students to DDaT service provision.

DDaT also support institutes including; British Geological Survey, the British Antarctic Survey, Medical Research Foundation and the National Centre for the Replacement Refinement & Reduction of Animals in Research (NC3Rs) - and will continue to support the Centre for Ecology and Hydrology and the National Oceanographic Centre as they go independent.

DDaT provides key IT support services to all UKRI's international offices, either directly or via the Foreign & Commonwealth Office, as in Beijing - as well as for UK staff travelling internationally. One of the key achievements in 2019/20 is the stabilisation of support services delivered to the international offices where it was previously unreliable or failed to meet the needs of UKRI users.

2

Challenges – Enduring and Emerging

Challenges – Enduring and Emerging

We have made significant progress, however structural challenges remain and are supplemented by new challenges emerging in the digital, data and technology industry and wider societal trends.

Complexity

Organisational Transformation

Consumerisation of IT

The Rise of Data

Scalability

Complexity

The legacy IT service provision that DDaT has inherited from the small council teams that preceded it, is now highly segregated and duplicated in the context of UKRI.

This includes:

- duplication of platforms and process to achieve same organisational objectives
- a legacy application base has been allowed to endure without understanding if it continues to meet the business need
- legacy applications used as quasi data stores for business-critical information
- credential management for a plethora of IT services is a daily challenge for all users.

The result is: higher than expected running costs for services, an inability to release staff and investment from the maintenance of legacy services and firefighting to ensure they remain operational. Duplication of provision also means that services that we have invested in are not being exploited to their full extent. The risk of cyber-attacks increases as UKRI becomes a more attractive target and duplicated services offer additional points of entry.

For the user, the reality is, that it is extremely difficult to use the services provided. Who do they call to get something fixed and who is accountable for service failure? Outages are common, take longer to fix and responsibility "ping-pong" is entrenched to the point that issues stop being reported, further masking underlying, long standing, problems.

Organisational Transformation

As a government organisation, UKRI is expected to provide services that are easy to use and generate positive outcomes for the users of those services. Primarily this is achieved through the delivery of digital services with the

concept of a work "place" becomes where you are vs a place you go to.

Those collaborative relationships can bring non-UKRI staff into scope for the delivery of services. Agile ways of working demand improved methods of collaboration to be successful.

DDaT itself is also in the process of transforming. We have made rapid strides in merging our council-based IT teams, however there is still much to do. Reforming our target operating model will provide clear lines of accountability for services. We must ensure our processes and governance can scale to ensure the golden thread from business idea to live service and eventual service retirement is clear and appropriately resourced, to meet the needs of UKRI.

Consumerisation of IT

The rise of Software as a Service (SaaS) means that anyone with a credit card and access to the internet can stand up an IT service, these are often used as business-critical services and repositories of corporate data; however, questions arise:

- is UKRI's data and information secure?[1]
- is UKRI getting economies of scale for its investment in that service?

Business stakeholders often feel that, "I know my business much better than IT. I know what I need, and I can find it for myself." With SaaS, business domain expertise, rather than technical expertise will increasingly be the key to selecting the right service.

Traditional IT governance can respond poorly to this challenge by setting itself against the business and characterising any technology initiative emerging from the business as 'Shadow IT'. DDaT needs to be able to respond more flexibly.

Additionally, for staff, there is an increasing expectation that corporate service and device provision will be as flexible and as diverse as it is in the consumer space. Traditional approaches to IT tend to want to provide Enterprise scale tools that fits most people reasonably well and failing to recognise the needs of specific UKRI user groups which may well be in the minority but have major impact on UKRI. Increasingly, a one size fits all provision leaves UKRI inflexible and less productive in relation to peer organisations.

A consequence of the trend towards SaaS as well as changing expectations and behaviour, is the opportunity for new cyber or social engineering attacks. DDaT governance and service provision will need to balance ease of access and use against the requirement to keep our infrastructure and data safe from unauthorised use and malicious attack.

As increased mobility moves staff away from fixed desks and traditional office space, work becomes where you are rather than where you go

expectation from our customers that these services should be available 24/7 and from anywhere.

Furthermore, a changing working culture and the requirement to do more with less means, is driving UKRI to transform the way it provides funding and how it works. Flexibility of working arrangements need to be supported as part of our employee value proposition and as a response to the pressure on space due to increasing numbers. Also, increased mobility, moves staff away from fixed desks and traditional office space such that the

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[1] providing confidentiality, integrity and availability

Rise of Data

UKRI exists on the basis that it can direct funding to the research and innovation that has the most impact benefit to the UK economy, yet decisions are often made based on incomplete, incorrect or anecdotal evidence.

The business is constrained from maximizing its use of data and information in four ways:

- data is segregated across infrastructures and information systems making it difficult to share between councils and with external stakeholders
- analysis of the data continues to be a largely manual process, the emphasis on 'data wrangling' over interpretation means that insights will be missed
- the information we create is hard to get hold of, duplication for sharing is still the norm, and version control is poor, leading to multiple sources of the truth. Ownership of information is dysfunctional – ranging from none to individuals seeing corporate data and information as their personal property
- the interactions with our external stakeholders and customers are poorly recorded and co-ordinated. Our interactions are duplicated and at cross-purposes, with the consequence that our influence and reputation are diminished.

Fundamentally, for many, data and information are still not regarded as strategic assets for UKRI, and the infrastructure and systems reinforce such attitudes.

Scalability

The size of UKRI and the level of change within it mean that the old ways of provisioning and delivering services to councils will not scale. DDaT is faced with three key challenges:

Capacity

The contention of maintaining BAU services created for the old councils, transforming IT teams into a centralised DDaT function, taking on additional responsibilities[1] and delivering the change that UKRI requires to deliver our corporate objectives is putting considerable strain on the existing DDaT workforce. This is exacerbated by the competition for skills where recruiting (in a timely manner) and retaining the right skills and experience are key to successful delivery. At the same time increasing demand for digital, data and technology services will always outstrip DDaT's capacity to deliver them, and the more that successful services are adopted by the business, the more acute that situation becomes.

Provisioning

While on-premise infrastructure is appropriate for some use-cases (science and supercomputing) it comes with significant risks that make it less attractive for business IT services. The capital investment is high and it can be less responsive to changing demands. With Infrastructure as a Service (IaaS) becoming more prevalent, in the long term is unlikely that UKRI will want to carry the burden and risk of running IT server rooms[2] in a business context, with associated power, cooling and capital investment implied. Also, with the general trend to SaaS and introduction of 5G mobile networks, services may come under similar scrutiny.

How we deliver

High touch delivery and support, particularly in the fulfilment of ad-hoc requirements for solutions creates a delivery overhead with small benefits to the organisation as a whole. The latency of an "IT does it all for you" increasingly not tolerated, users expect or be enabled to self-serve. There is also potential for artificial intelligence (AI) to assist in low value work which is under appreciated (IT and business) e.g. chatbots for simple issue resolution.

DDaT will respond to these challenges – evolving as an effective delivery partner to UKRI.

DDaT will respond to these challenges – evolving as an effective delivery partner to UKRI

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[1] e.g. the migration of Research England IT services to UKRI

[2] UKRI will still have a need to maintain Data Centres in its facilities and Centres to support specialist processing in support of science and research where the scale and performance dictate local capability that cannot be matched by cloud.

3

Vision, Strategic Themes and Roadmap

Our Vision

Delivering Digital, Data and Technology services that maximise user productivity and empower effective decision making by unlocking UKRI business data and information.

- for our customers - we will enable UKRI to deliver on its corporate objectives by equipping the organisation with easy to use integrated systems and appropriate tools to provide access to coherent information that is accurate, timely and relevant
- our people will feel proud to work in DDaT and part of a community of IT professionals. We will build a team in which they feel challenged and supported in equal measure, and in which their career development is taken seriously
- for UK PLC - The information and systems we provide empower UKRI to make informed investment decisions that stimulate growth.

The Strategic Themes

Our strategic themes represent our considered response to the challenges outlined in Part 2. Each is supported with a roadmap of initiatives that are designed to meet those challenges.

Complexity	Simplify

In the face of the IT service and infrastructure complexity that we have inherited, we will **Simplify** to provide a suite of services that are easy to use, meet the business need, are simple to maintain and represent real value for money for UKRI.

Organisational Transformation	Transform our Services

As the business, our customers and external partners adopt new ways of working, we will **Transform** to meet their expectations. We will implement and continuously improve new digital services, such as the Funding Service, that are fundamental to transform the operation of the business. This will require an enduring digital capability within DDaT to ensure these services are constantly available and adapt to the needs of UKRI.

Consumerisation of IT	Flexibility with Control

As IT services become ever more accessible to the consumer, we need to show the **Flexibility** to accept innovation from any quarter, while providing the **Control** that ensures that our assets are protected, and our legal obligation are met.

Rise of Data	Discover and Decide

As data and machine learning become increasingly integral to the evidence-based decision making that UKRI requires to ensure UK PLC retains its competitive advantage – DDaT will provide the platforms and services to enable any member of UKRI to **Discover** new insights and **Decide** based on real-time data and information.

Scalabi ity	Upskill to Upscale

As digital, data and technology services become increasingly integral to the operation of a successful organisation, the demand for those services outstrips the ability of the function to deliver them – this is especially so when the service is widely adopted. To upscale and increase the impact of digital, data and technology services, we will enable self-service and upskill our customers to ensure that they are empowered to access and consume the services they need, when and where they need them.
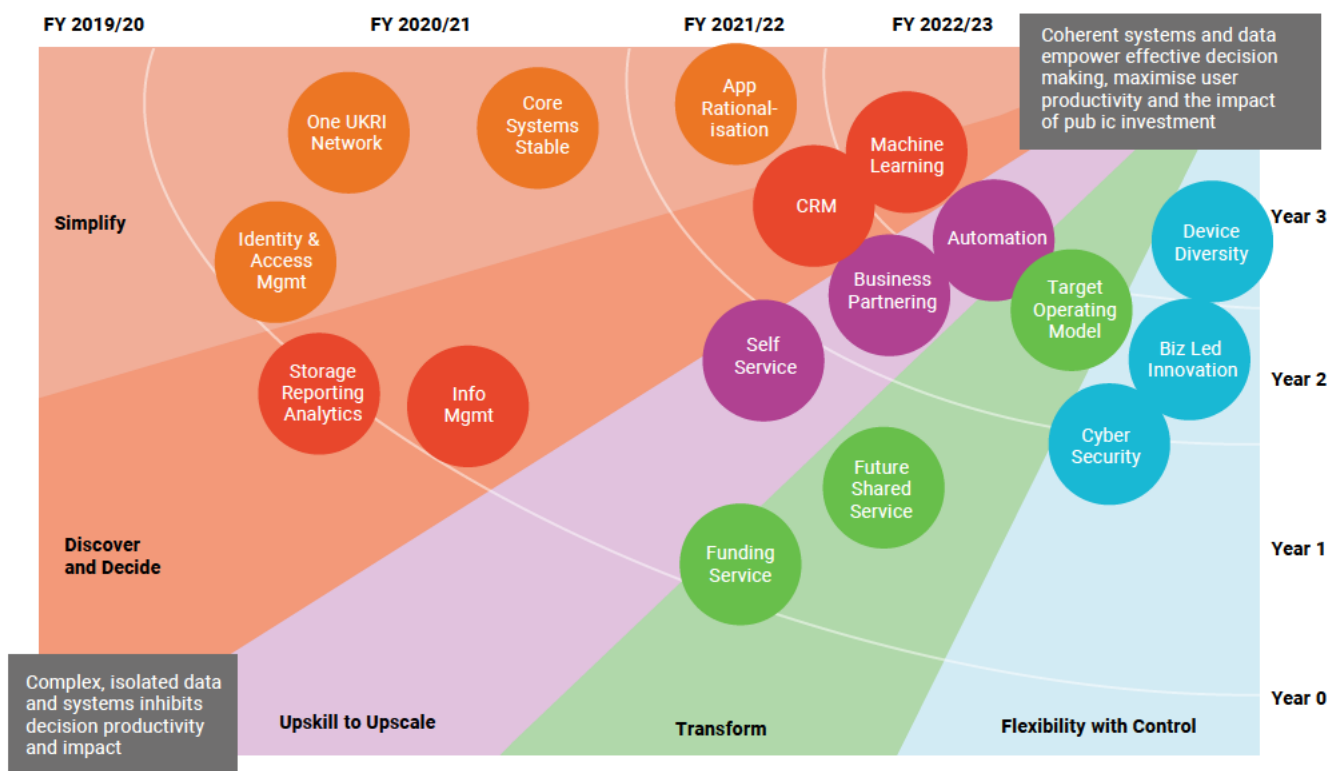
Key Roadmap Activities

The roadmap below presents a selection of the activities that form the basis of this Strategy. For the detailed roadmap, please see Appendix A. For the purposes of this document, each initiative is situated within one of our key themes; however, it is recognised that several of them will play a part in a number of the themes.

While there is a prima facia case for all the initiatives in the roadmap, they will all be subject to the normal governance around project initiation, with business case approval supported with discovery findings to ensure that they stand up as the most impactful way to invest in digital, data and technology services.

Coherent systems and data empower effective decision making, maximise user productivity and the impact of public investment

FY 2019/20   FY 2020/21   FY 2021/22   FY 2022/23

Simplify

One UKRI Network
Core Systems Stable
App Rationalisation
Machine Learning
CRM
Identity & Access Mgmt
Automation
Business Partnering
Target Operating Model
Device Diversity — Year 3
Self Service
Biz Led Innovation — Year 2
Storage Reporting Analytics
Info Mgmt
Cyber Security
Future Shared Service
Funding Service — Year 1

Discover and Decide

Year 0

Complex, isolated data and systems inhibits decision productivity and impact

Upskill to Upscale   **Transform**   **Flexibility with Control**

Simplify

UKRI Network

One UKRI Network will collapse the multiple networks that exist within UKRI to ensure everyone can access the data, information and collaboration toolsets on the same network as if they were working for the same organisation. This will also establish clear segregation between UKRI user and service provider networks, such as those used by UK SBS to deliver services.

Core Systems Stabilisation

This will stabilise the infrastructure and support regimes on platforms and systems that provide, or have the potential to provide, UKRI-wide strategic capability.

Identity and Access Management (IAM)

IAM will bring flexibility and ease of use to the management of information security across UKRI, by providing seamless integration with on-boarding processes and user provisioning.

Application Rationalisation

This initiative will review the application landscape, decommissioning systems that are unsupported or no longer provide enough business value to offset the running costs, and rationalising duplicate systems that support a business capability. The overall goal is, where practical, to have one system supporting one business capability.

DDaT will embrace and provide a safe environment for 'technical' innovation coming from the business
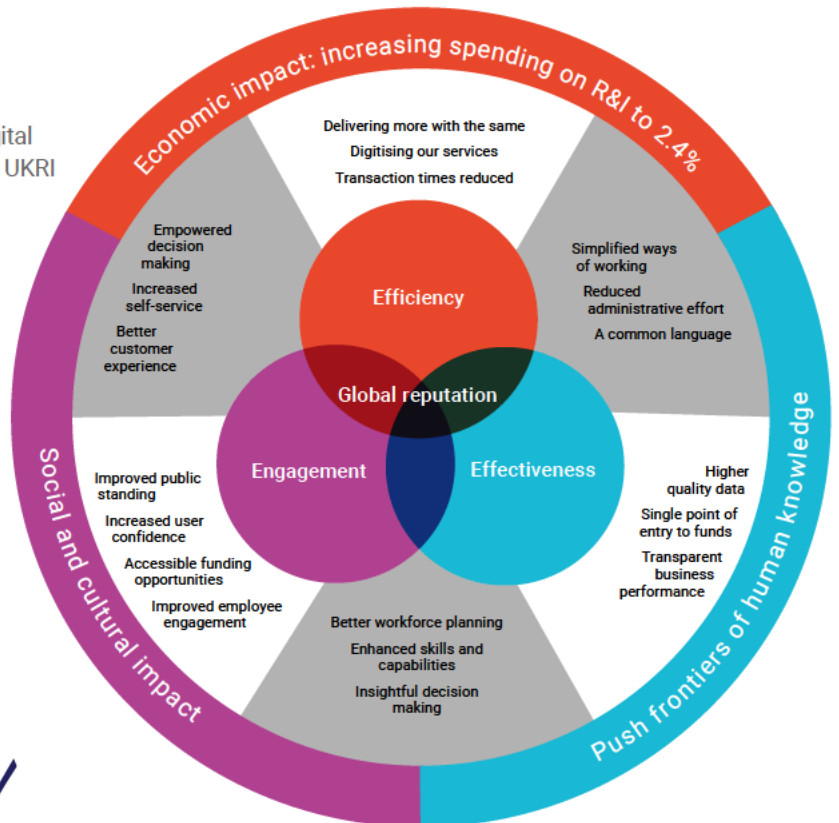
Transform

Target Operating Model (TOM)

This represents both the re-organisation of DDaT to allow a refocusing on activities that are of the most value to the business and will also create clear lines of accountability for the delivery and operation of all IT services. This will transform UKRIs relationship with UK SBS.

The Funding Service

The Funding Service and associated business transformation (including building the enduring Digital Capability) will transform the activity of funding for UKRI and its customers

Future Shared Service (FSS)

DDaT will support corporate Service hub colleagues implementing a new system to cover HR, Finance and procurement. This provides the opportunity to empower our staff with a suite of self-service facilities that will encourage direct engagement with key processes in these areas.

Economic impact: increasing spending on R&I to 2.4%

Delivering more with the same
Digitising our services
Transaction times reduced

Efficiency

Empowered decision making
Increased self-service
Better customer experience

Simplified ways of working
Reduced administrative effort
A common language

Global reputation

Engagement

Effectiveness

Improved public standing
Increased user confidence
Accessible funding opportunities
Improved employee engagement

Higher quality data
Single point of entry to funds
Transparent business performance

Better workforce planning
Enhanced skills and capabilities
Insightful decision making

Push frontiers of human knowledge

Social and cultural impact

Flexibility with Control

Business Led Innovation

Business Led Innovation represents a new approach to governing IT services not emerging from within traditional IT departments. With effective business partnering, and the right control, including the appropriate governance and service wrappers, DDaT will embrace and provide a safe environment for 'technical' innovation coming from the business.

Device Diversity

We will support alternative approaches to device provision for a highly-technically, literate, workforce. Initially this may include diversification and tailoring in corporate provision – picking devices that suit the needs of an individual and enable them to work most effectively. This may include looking at 'Bring your own device' (BYOD) in time; trending away from fixed services such as desk telephony; new ways to interact with devices other than keyboards, voice, pen.

Cyber Security

New approaches to Cyber Security:

- using a risk based, non-technically led, approach to information security assurance by selecting appropriate, pragmatic, means to protect and share information between UKRI and its collaborators
- adopting innovative solutions not constrained by restrictive compliance schemes
- using open and transparent communication to build trust within UKRI, and with our collaborators. We can raise awareness of the real risks to information and promoting and encouraging an awareness of personal responsibility and accountability when sharing information.
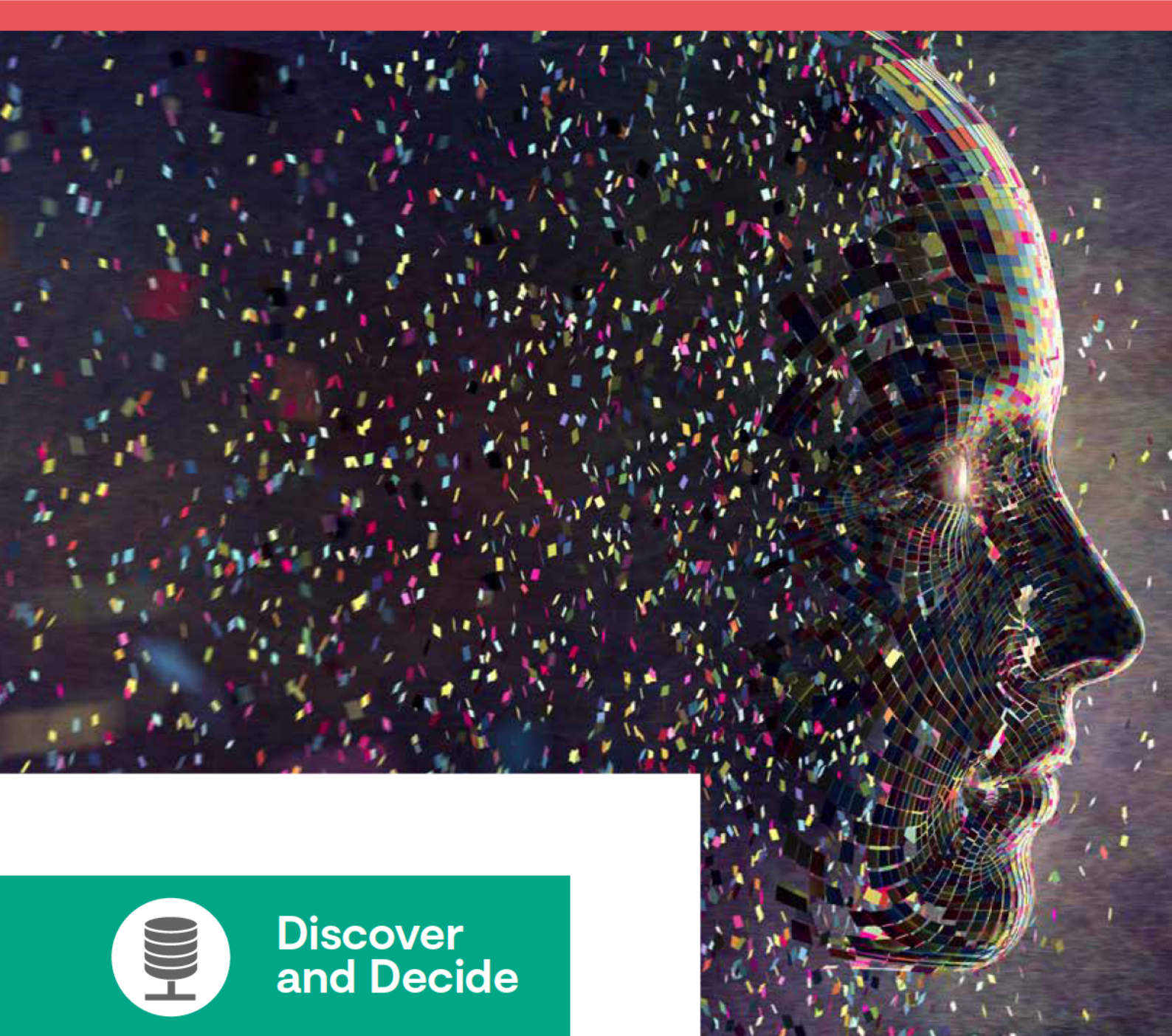
Discover and Decide

Storage Reporting and Analytics (SRA)
SRA will deliver the infrastructure and single source of truth data sets to enable consistent analytics and reporting.

Information Management
Is a project in two distinct stages. The first collapses the information repositories inherited from the old council structures, removing duplication of provision and simplifying access to information. The second allow us to unlock the value of the information that UKRI holds to make effective use of it to inform decision making.

Customer Relationship Management (CRM)
A single CRM system has the potential to transform the way that UKRI engages with business, academia and the general public, allowing communication to be more targeted, reduce duplication and allowing a more joined up approach. This will maximise the effectiveness of our external communication, increasing our influence and public awareness of our work.

Machine Learning (ML)
ML and the increasing availability of turn-key platforms that allow for machine learning processing of data, e.g. Google Cloud Platform, should release data scientists from the manual processing associated with data analysis and help UKRI to derive new insights.

Upskill to Upscale

Self-Service

Self-Service covers several of our initiatives as the primary delivery mechanism for most IT services, this removes the latency of waiting for a colleague to respond to a request and deliver it. This will cover standard service catalogue items in the first instance but will be extended to several other platforms.

Automation

Much of the day to day work we do, involves the manual manipulation and processing of data. We will be looking at automation in several areas, including workflow and machine learning – to release people from manual processing to concentrate on interpretation and extracting insights from our data.

Business Partnering

This will scale up our stakeholder management and business relationship management activities (currently conducted with institutes to which we supply services) to ensure that the value that DDaT can add is raised. By creating a Business Partnering capability we will ensure that the services we design and operate continue to align with business needs. Furthermore, deeper understanding of upcoming business initiatives will allow DDaT to plan to have the capacity and capabilities the business requires.

The Strategic Benefits

The benefits from all the initiatives within the strategy can be grouped in alignment with the UKRI transformation programme. Although each of the roadmap initiatives will have their own specific benefits (see Section 4, Appendix A for more detail) the strategy itself will have its own overarching benefits outlined below.

Efficiency
- lower total cost of operation, by simplifying our infrastructure and identifying and reducing duplication across the IT service landscape
- reducing our on-going requirement for capital investment by reducing on-premise service provision
- decrease time spent finding help by providing easy to navigate support structures
- improved productivity of business and DDaT staff.

Effectiveness
- staff gain greater insight from the data UKRI holds
- pivoting of DDaT staff to highly business aligned, high value work
- clear oversight from DDaT across all IT services regardless of who is delivering them
- clear lines of accountability for the delivery of IT services
- greater ability to meet National Audit Office (NAO) and General Data Protection Regulation (GDPR) obligations
- ensure data and information used as strategic assets to inform decision making at all levels.

Engagement
- unlock business knowledge and energy in the selection of the right IT services
- staff empowered to get and use tools they need without having to wait for IT
- DDaT Business Partnering to ensure that stakeholders get the support from DDaT that they require.

Reputation
- improve the security across our IT estate, reducing the risk of security breaches that could damage the reputation of UKRI
- high user and citizen satisfaction with UKRI digital services
- increased operational assurance that outages will become less frequent and downtime will be shorter in length reducing impact on customer facing functions and digital services.

How we will validate and enrich the strategy over time

The strategy and the direction of travel for DDaT is based on the existing challenges and industry trends. It also represents an evolving dialogue with the business. We intend to socialise the strategy and adjust where the business identify gaps or misalignment.

This is an ongoing process and while we expect the broad strokes to remain the same, the business will have considerable input in the detail of what we deliver and the approach to delivery.
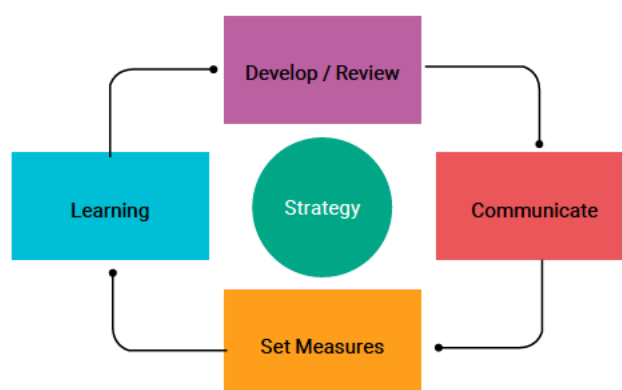
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Defining and Measuring Success

Defining Success

We will know that the strategy has been successful in the most direct sense, by reaping the benefits that each initiative has identified, and those benefits will be measurable. However, there will be fundamental changes in what DDaT does, how it engages with the business, how it relates to its delivery partners. It will change how it governs digital, data and technology services that will demonstrate the permanent change in the way DDaT adds value to UKRI.

Measuring success

The criteria that follow represent our intent to measure success in three areas:

- the measures by which we will know we have transformed successfully
- measuring the delivery of the strategy
- measuring delivery day to day.

These measures demonstrate that DDaT is making progress on delivering the strategy. Some measures are already in place because they are good management practice. Acknowledging that the strategy is three years, some areas do not yet have a mechanism for measurement so these will be developed in due course.
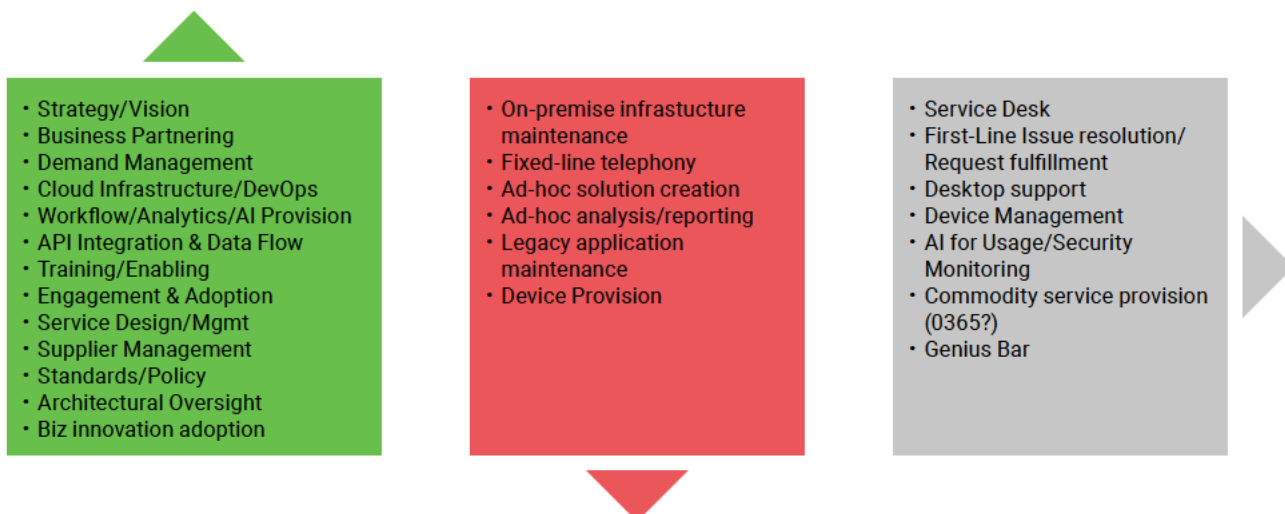
The measures follow the structure of a balanced scorecard to assess how DDaT sees itself and how users of DDaT services see it, without emphasis on one part of the balance over another. It will help DDaT focus on what must be done in order to create high performance while integrating a variety of programmes and day-to-day operation. It will also help break down DDaT measures so that local managers and employees can see what they need to do well to improve organisational performance while breaking down the perception of isolated and independent functions.

Pivoting the DDaT function

Key to the successful delivery of the strategy is a permanent change to the capabilities of DDaT. Central to that change is the belief that DDaT's key differentiator is and will continue to be its close relationship and alignment to the business. What we therefore need to do is to transform the engagement, partnering and empowering capabilities in DDaT.

	Simplify	Transform our services	Flexibility with Control	Discover and Decide	Upskill to Upscale
Efficiency	• Lower total cost of ownership • Productivity boost from reduced service duplication	• Reduced transaction times for key digital services	• Increased productivity as units/individuals have best fit devices/ services	• Reduced manual wrangling of data • Reduced duplication of information	• Greater number self-service/automated services • Reduced latency in request resolution
Effectiveness	• All service lines are measured against clear KPIs • Using UKRI's size to get better value from new contracts	• Process outcomes and demonstrably more consistent • More responsive release cycles	• More accurate and responsive monitoring of anomalous activity and intrusion	• More decisions informed by data insights • Search covers all corporate info repositories	• Tools adoption/user proficiency increased
Engagement	• More staff know what services on offer and how to access them	• Our digital service offerings are used by a wider group of people	• Increased awareness of how behaviour impacts security risk	• Increased awareness of the strategic value of data/info created	• DDaT is a strategic partner of the business
Reputation	• Increased stakeholder confidence in supplied services	• Increased citizen satisfaction in digital journeys	• Increased user satisfaction with digital environment in which they work	• Transparency/ availability of data shows value of work	• Increased user satisfaction in being able to help themselves

- Strategy/Vision
- Business Partnering
- Demand Management
- Cloud Infrastructure/DevOps
- Workflow/Analytics/AI Provision
- API Integration & Data Flow
- Training/Enabling
- Engagement & Adoption
- Service Design/Mgmt
- Supplier Management
- Standards/Policy
- Architectural Oversight
- Biz innovation adoption

- On-premise infrastucture maintenance
- Fixed-line telephony
- Ad-hoc solution creation
- Ad-hoc analysis/reporting
- Legacy application maintenance
- Device Provision

- Service Desk
- First-Line Issue resolution/ Request fulfillment
- Desktop support
- Device Management
- AI for Usage/Security Monitoring
- Commodity service provision (0365?)
- Genius Bar

Activities that are essential to any organisation should be viewed as commodities, deliverable by strategic partners and market leaders. Above we have given an indication of the specific capabilities that change, indicating where we intend to **increase** and **decrease** our focus and investment and those which we will manage / **outsource** through strategic partners and suppliers.

Working with UK SBS

As we do today, we will continue to work closely with UK SBS and consume their procurement and business IT services but the services we provide directly, will evolve over time as will the services we commission from UK SBS. As a strategic partner of UKRI we will be working much more closely and collaboratively to define and deliver critical projects to support Transformation.
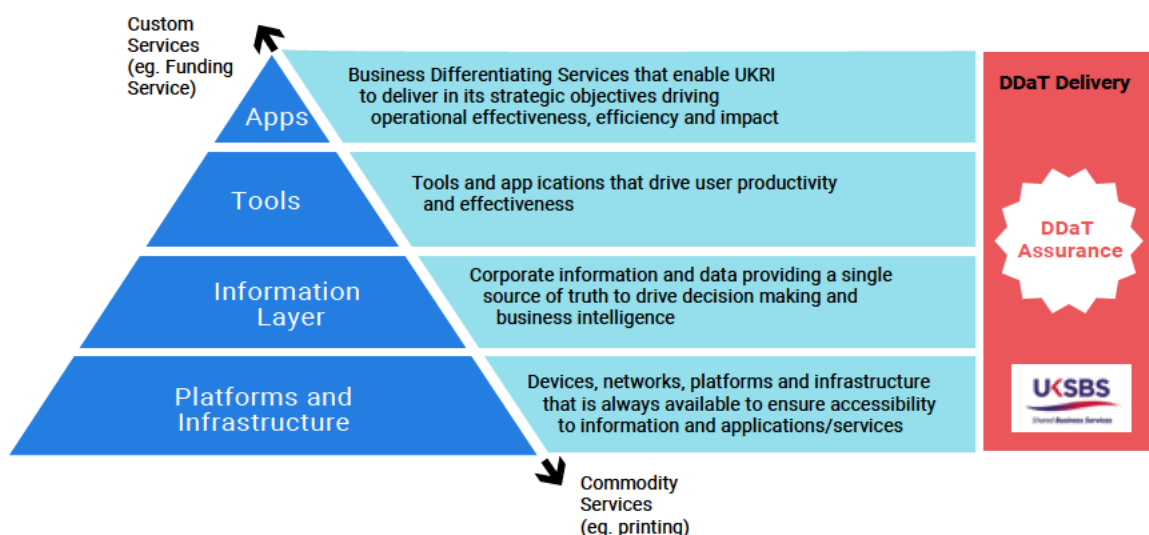
An example in this area would be the consolidation of service desks and the implementation of a new cloud

based UKRI service desk tool which will allow us to provide more of a one-stop shop for service.

It is our intent to focus DDaT on delivering Business Differentiating Services that enable UKRI to deliver on its strategic objectives, driving operational effectiveness, efficiency and impact. We will also become an Intelligent client to UK SBS, defining, ensuring and assuring services meet the needs of UKRI and the agreed service and performance indicators. Ultimately, if services are consistently not delivered to the requirements of UKRI, alternative sources of service provision will be sought.

We expect UK SBS to focus on the delivery of User and Business supporting services that enable UKRI to be more efficient, drive value for money service provision while meeting user needs and risk appetite, Increased customer engagement and promotion of self service.

Intelligent Client – Value Chain Proposition UKRI DDaT increased focus on high impact service

Custom Services (eg. Funding Service)

Apps — Business Differentiating Services that enable UKRI to deliver in its strategic objectives driving operational effectiveness, efficiency and impact

Tools — Tools and app ications that drive user productivity and effectiveness

Information Layer — Corporate information and data providing a single source of truth to drive decision making and business intelligence

Platforms and Infrastructure — Devices, networks, platforms and infrastructure that is always available to ensure accessibility to information and applications/services

DDaT Delivery

DDaT Assurance

UKSBS
Shared Business Services
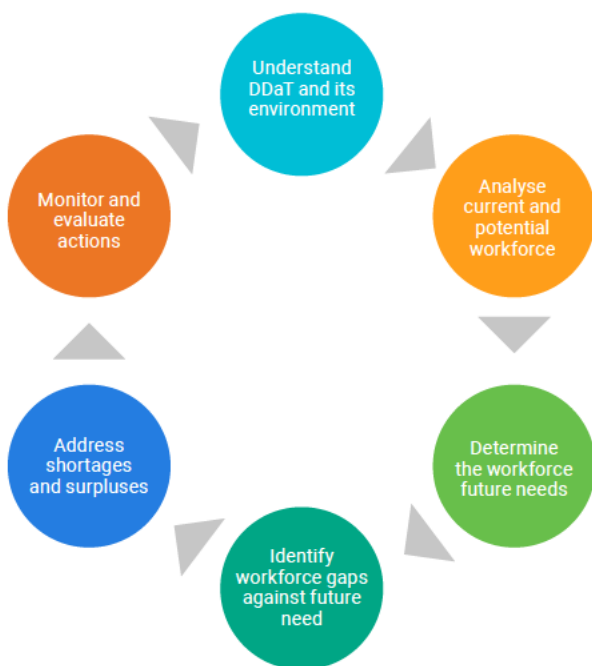
Commodity Services (eg. printing)

Assuring the Strategy – Workforce Planning

Workforce planning is a core business process to align changing organisation needs with people strategy. It can be the most effective activity an organisation can engage in. DDaT will use it focus on the range of challenges and issues, paving the way for the roadmap initiatives that support longer term business goals.

Our overall workforce plan will describe the capabilities and the investment in our staff required to ensure we have the right mix of skills, and capacity to deliver the strategy.

In particular, we will align to the GDS Digital, Data and Technology Capability Framework to professionalise the workforce and enable our staff to measure their own career progression.

We will align to the GDS Digital, Data and Technology Capability Framework to professionalise the workforce and enable our staff to measure their own career progression

- Understand DDaT and its environment
- Analyse current and potential workforce
- Determine the workforce future needs
- Identify workforce gaps against future need
- Address shortages and surpluses
- Monitor and evaluate actions

Assuring the Strategy – Architecture

It is essential to maturing our Architecture to assure successful delivery and operation. This falls into three phases:

Getting the basics right

This is about building a foundation to be able to enable effective and informed technology decisions. It is about setting in place the components that will have a professional team of architects that are not only technically competent but able to interact at any level across the business to interpret technology direction in business
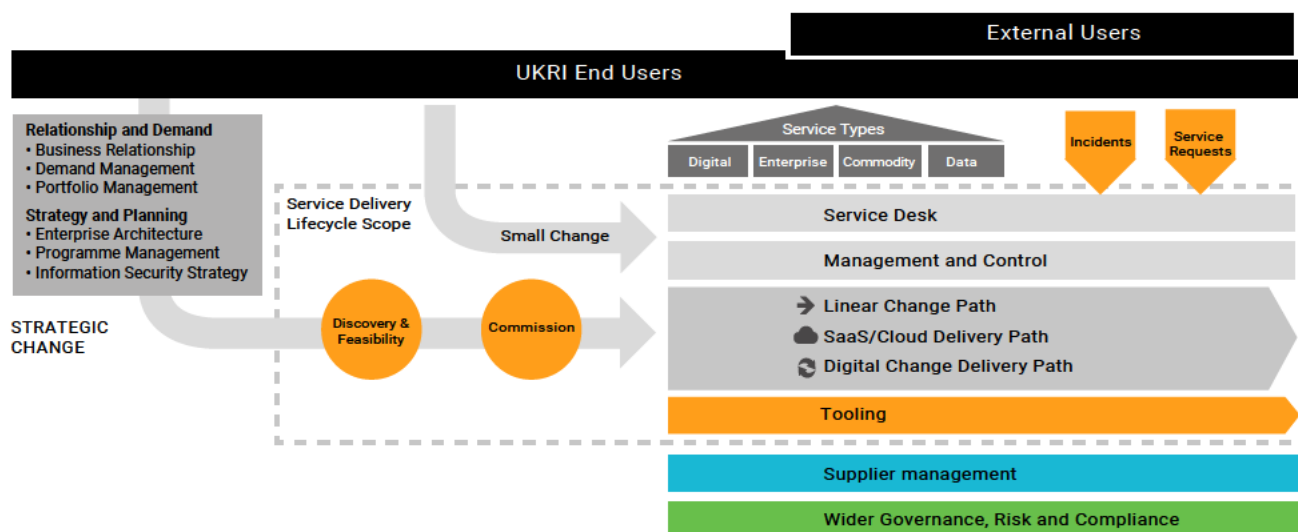
terms and business needs in technology direction. Also, looking across the organisation to identify use of technology that can be applied wider or set in place the mechanisms that will provide technology can then be used across the organisation.

Developing the direction

In conjunction with getting the basics right, the DDaT architecture function will develop the technology direction. This will be done by understanding the technology risk well in advance of equipment going out-of-support or software that is out of date and develop plans to manage that risk effectively. Additionally, it will look to integrate technology choices with project and programme delivery, and business plans. This will be done while keeping an eye on technology innovation that could benefit UKRI, making an assessment on the state of maturity and applicability, so avoiding technology hype that this is a new silver bullet.

Delivery assurance

As a maturing architecture organisation, it will enable projects to make informed decisions themselves so that they are aligned to the technology direction or understand how they can request an exception, without hindering progress. Roadmaps for technology will not only explain the direction of travel but will also explain what will be done with the system through to retirement and disposal of data, which could be several years after the system has been decommissioned.

To become fully informed about new technology, there will be small, short-lived, experiments to test the applicability of technology in UKRI by following the Government Digital Services mantra of "test, fail fast and learn lessons" and having tangible evidence to avoid costly, uniformed, technology choices.

Assuring the Strategy – the Service Delivery Lifecycle

UKRI DDaT's Service Delivery Lifecycle (SDLC) describes how UKRI will deliver ICT Change through multiple internal and external suppliers and how it will deliver Services through a consistent, **multi-speed**, delivery approach.

With the wide use of Digital and Cloud services, UKRI must take on the responsibility for system integration. It should be noted that for system integration to be successfully executed, it requires many skills and capabilities to work together – including non-technical disciplines such as finance and human resources, as well as introducing skills, such as digital and enterprise architecture which are currently lacking in UKRI.

The multi-speed nature of delivery means that UKRI must manage change that is constrained by legacy contracts or technology alongside new Digital ways of working. It must also allow change at the speed of business and modern tools and contemporary techniques such as SaaS, DevOps and WebOps must be accommodated into the overall delivery framework, meaning that we may not have a "one-size fits all" approach.
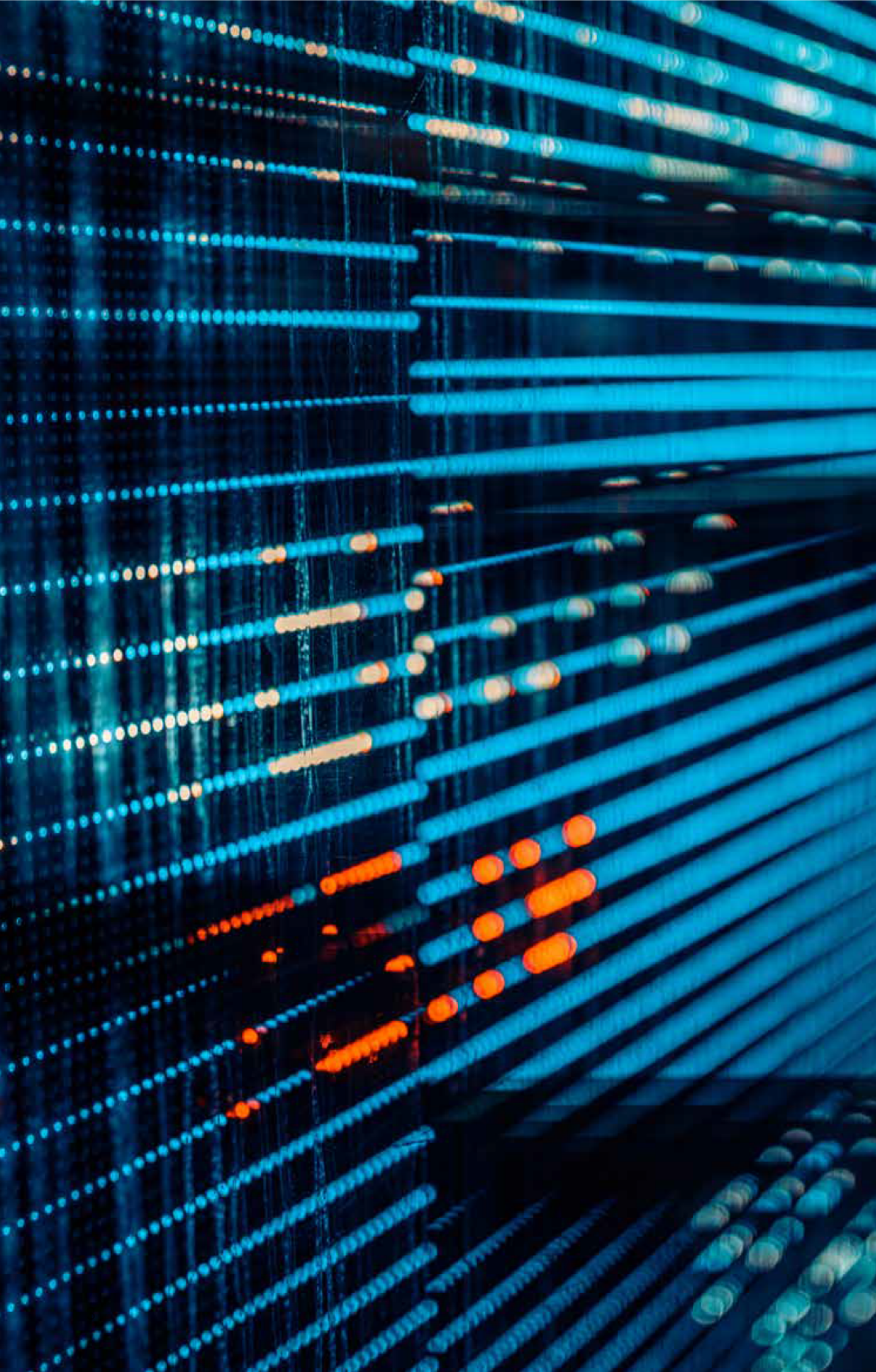
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Appendix A — The Detailed Roadmap

Simplify

Roadmap activities for 20-21

INITIATIVE	DESCRIPTION	BUSINESS BENEFITS
One UKRI Network (Phase One)	Collapsing of MRC and Innovate UK networks into UKRI network	Lower run costs, improved collaboration between business units
Service Catalogue Consolidation	A single catalogue of services that DDaT offer	Improved clarity for stakeholders on services offered allowing KPIs, clarity for further investment/ deprecation.
Core System Stabilisation	_Connect resilience IUK SIL Rehosting Orange Bus decommissioning IFS and ACC into Live Service	Improved operational assurance for business-critical systems, with reduced down-time for staff.
Information Management Phase One	O365 Consolidation Decommission legacy information stores	Lower run costs, improved collaboration between business units
One Win 10 build	A single build of Windows 10 for all laptop	Reduces duplication of effort Increases productivity
One Website	A new single website and hosting, promoting the new brand.	Decommissioning of 9 old websites and CMS. New hosting arrangement allow for 24/7 support.
Contract & Licence Aggregation	Replacement of council contracts for services with single enterprise contractual arrangements	Lower costs through economies of scale and greater purchasing power of UKRI. Better monitoring of usage.
Business Continuity & Emergency Comms	A suite of measures including the revision of BC plans for DDaT and DR solutions for systems	Operational Assurance – reduced downtime in the face of a business continuity incident, lowered risk of reputational damage
Identity and Access Management (IAM) Phase 1	Begins with a discovery and tactical actions to deal with most severe IAM issues, across application landscape.	Greater ease of use for key application, reduction in number of passwords to remember, improved behaviour and security
Research England Migration	Migration of operational services away from OFS to DDaT	Economies of scale, reduction in duplication of service provision

Roadmap activities for 21-23

INITIATIVE	DESCRIPTION	BUSINESS BENEFITS
One UKRI Network (Phase 2)	Further collapsing of Networks with UKRI	As per Phase One above
IAM Phase 2	Strategic implementation uniting people, place, service – integration to new ERP system	Assurance on security, granular and flexible security models. Greater productivity for staff
Application rationalisation	Review the application landscape to identify applications to decommission, move to a one system per business capability model, invest in key systems and platforms to gain greater benefits	Lower run costs, simpler service offering, costs freed to invest in strategically important systems/ platforms – fewer system barriers for data flow and collaboration.

Transform

Roadmap activities for 20-21

INITIATIVE	DESCRIPTION	BUSINESS BENEFITS
The Funding Service	A single digital service for the awarding and paying of grants for academia and business	Improved customer experience Quicker time from app to grant Reduced pressure on current workforce, lower run costs, greater operational assurance
DDaT Org Transformation (Intermediate TOM)	Workforce Planning Mapping to DDaT Framework Maturing Service Delivery Lifecycle processes	Professionalised workforce Clear lines of accountability Clear career progression
FSS Process Definition	Mapping of UKRI finance, HR and procurement process to global processes	Efficient implementation of new ERP system
Building Dev/WebOps Capability	This capability supports the requirement for continuous integration in the release of the funding service	More responsive release cycles, better quality assurance leading to lower operating costs for live systems

Roadmap activities for 21-23

INITIATIVE	DESCRIPTION	BUSINESS BENEFITS
The Funding Service (Later Phases)	Further phases of the Funding Service	As specified above
FSS Implementation	DDaT staff will be involved in the technical governance of this implementation, QA of process implementation	Technical assurance, quality of implementation, leading to a better system for the users, achieving programme benefits inc. increase self-serve, lower run costs.
Final Target Operating Model (TOM)	Develop a clear target operating model for the delivery of IT services across UKRI, with DDaT specialising in highly business aligned services. Outsourcing final commodity services	Headcount reverts to pre-transformation levels Less duplication Opportunity for specialist provision from market leaders Lower run costs
5G Networks	Introduction of 5G on mobile devices, Discovery for 5G as an alternative to fixed networking	Improved data throughput for mobile devices, improved productivity, greater resilience for office networking, reduction in capital investment for in-building networking equipment.
Augmented Reality Collaboration	Looking at AR equipment and its application to collaboration, e.g. virtual Kanban	Opportunity to create virtual agile teams without the strict requirement for co-location, improved cross-org working, reduce pressure on estates

Flexibility with Control

Roadmap activities for 20-21

INITIATIVE	DESCRIPTION	BUSINESS BENEFITS
Device Management	Improvements/consolidation of ways in which devices are managed across the estate	Greater flexibility and therefore productivity for users, lower run cost due to reduced duplication.
User Provisioning Tactical	Resolve some of the most severe issues related to the onboarding of staff	Improved experience for users joining the organisation, quick time to provision, more productive
Softphone Telephony	Replacing use of fixed line telephony with laptop/tablet softphones	Single number reach improves availability of staff, reduced run costs and investment in hardware

Roadmap activities for 21-23

INITIATIVE	DESCRIPTION	BUSINESS BENEFITS
Device Diversification	Review and procurement of end-user device suite (laptop, tablet, mobile mix)	Improved productivity Driving new approaches to device management
User provisioning (Strategic)	Linked to new ERP Self service	Security by design, link on-off boarding of staff and the privileges assigned/revoked to ERP system, simplification of security model
Device Diversity	Users can use their own devices in a corporate setting, containerised virtual corporate devices	Higher productivity with staff using the devices that they are familiar with, greater user satisfaction, lower device run cost.
Business Led Innovation	Flexible governance and improved business partnering allow innovation from the business to be integrated with the overall service model	Business lead in the assessment and procurement of services that meet specific needs, DDaT provides the technical assurance – more productive business units with the right services/tools
Cyber Security – new approaches	Creating a team of information security experts through a well-planned Security Operations Centre, building and enhancing on existing skills in conjunction with our partners across UKR	More accurate and responsive monitoring of anomalous activity and intrusion. Greater operation assurance, reduced risk of security incidents, lower cost of clean-up

Discover and Decide

Roadmap activities for 20-21

INITIATIVE	DESCRIPTION	BUSINESS BENEFITS
Storage, Reporting and Analytics – Phase One	Providing the data platforms and analytics that allow reporting and analysis of funding from the funding service	Drives decision making on the effectiveness of grant giving from UKRI, allow evidenced based decision making
Inventory and Asset Management	Software Asset Management and hardware inventory management	Drive adoption and get maximum benefit from investment, lower run cost where assets are not used, improve compliance with licencing agreement
Performance Reporting	Performance reporting to defined KPIs for all functions	Drive improved performance, identify areas for investment
CRM Discovery	Discovery to understand the requirement for a Customer Relationship Management system across UKRI	A single repository of all customer information, more joined up interaction with stakeholders, more effective communication and influencing.

Roadmap activities for 21-23

INITIATIVE	DESCRIPTION	BUSINESS BENEFITS
Storage, Reporting and Analytics – Later Phases	Providing the data platforms and analytics that allow reporting and analysis of funding from the non-funding service sources.	Enriches the data analysis further allow new insights to be drawn from a fuller dataset.
Information Management – Later Phases	Record Management by Default UKRI-wide Search Capabilities	Helps UKRI meet its NAO and GDPR obligation, unlocks information for staff by making it findable, improves productivity by reducing repeat work. Single version of the truth
Machine Learning Platforms	Start making use of SaaS ML platforms such as Google Cloud Platform. AI for fraud detection, prediction of trends, behaviour	Increased productivity through automation of analysis, greater insight from data we have, reduced risk from anomalous behaviour
GtR and ResearchFish Discovery	Looking at replacement for Gateway to research and ResearchFish	Improved mechanisms for gathering outcome data, with improved analysis and insight
Open Data Portal	Making our data available to the general public	Greater transparency, UKRI as the authority on research outcomes and grant giving. Virtuous circle as insights brought back to UKRI from third party analysis.
CRM Implementation	Full implementation of Customer Relationship Management	See above

Upskill to Upscale

Roadmap activities for 20-21

INITIATIVE	DESCRIPTION	BUSINESS BENEFITS
Engagement and Adoption	Engage staff with newly emerging services	Ensure awareness of IT initiatives, get input to shape service delivery, drive adoption of IT services
Extend Self-service provision (Service Now)	Extend ServiceNow to demand management. Single port of call for IT needs	Allows greater self-help, a single port of call means less time looking for help, better resource management.
UKRI Digital Signage	Digital Signage across the UKRI estate	Better informed staff

Roadmap activities for 21-23

INITIATIVE	DESCRIPTION	BUSINESS BENEFITS
Training Platform and Capability – Discovery & Implementation	Looking at the best ways and platforms to enable staff to make the best use of IT tools	Ensure benefits of IT services are maximised by ensuring training reaches wide audience. Improve productivity through better use of IT services
Business Partnering	Extending the business relationship management currently in place with NERC research centres to UKRI	Increase business alignment, working in the business to unlock value of technology
Workflow Automation	Provide platforms that allow staff to automate their own workflow	Increased productivity as manual processes are automated, improved information management as move from xls
Self-service analytics/ ML	Creating the service and support wrapper around platforms to enable autonomous usage of analytics and machine learning services	Reduced latency by having controlled direct access to analytics platforms
AI Helpers	Adding AI helpers to existing IT services to allow self-resolution	Reduced response times and increase first time fix, quicker adoption of services