Outline Business Case

Research Data Scotland

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Scottish Government
Riaghaltas na h-Alba
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Outline Business Case

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Contents

Executive Summary

Introduction

This Outline Business Case (OBC) sets out proposals for the set-up and operation of a new national service delivery entity, which will support improved access to linkage-ready public sector datasets for research in the public interest.

This OBC follows standard HMT Guidance, and is aligned to both the Green Book and the “5 Cases” model it includes an option appraisal. The information presented in the OBC will be further developed as part of the Full Business Case (FBC).

A glossary is included at Appendix A.

Strategic Case

The offering from Scotland around data needs to be much stronger; speed of delivery, ease of access and linking of diverse datasets are impacting on the strength of our offering. There are also challenges with how long it takes to access Scottish data and about the quality and costs of the services required to enable that. More specifically, for academia, this means we are not securing a suitable share of the available UK research funding, and for public bodies, this means that they do not have the data to support public service reform.

Data are also dispersed both between and within public sector organisations. Multiple data controllers mean multiple data access processes. This also leads to blockages in data being available for research and innovation. In essence, we are currently facing a variety of concurrent challenges, including multiple data controllers; multiple data access processes; and data not always linkage-ready.

To address these particular challenges and realise our ambition for Scotland’s data vision we need to make progress in a number of areas. A key improvement is providing a single-entry point for researchers regardless of data controller and offering a seamless access pathway by bringing together and coordinating the various moving parts of the researcher access journey, including the commissioning arrangements.

Research Data Scotland (RDS) will provide a service for accessing public sector datasets that have the potential to save time, money and lives. It will offer safe, secure and cost-effective access to data for research, innovation and investment by enabling its users to deliver insight and understanding that will help create a more successful country through increased wellbeing, sustainable and inclusive economic growth, and improving the health of the nation. We will work collaboratively with data controllers and users to develop the service while building trust and support from the public.

Scotland has a rich history of public sector data informatics, which has served to enrich and inform our most valued public services. Collaboration in Scotland between academia and the public sector has supported a national model of cross-

sectoral research which has delivered path finding innovation and won numerous civil service awards, delivering key insights and furthering our understanding of some of the most pressing public policy issues.

While this collaboration has proven hugely successful, embedding learning and cultivating long-term relationships across organisational and sector boundaries, it has grown out of the efforts of a small number of dedicated individuals and teams across Scotland to make it work. It has also relied on informal collaborative arrangements around services and infrastructure.

This small scale has delivered efficient research flexibly; however, more recent innovations in the way public value is added through data mean the system needs to grow and flex if it is to stay relevant and meet the needs of a growing community of users. Changes to the types of data being collected and brought together for analysis, combined with advancing analytical techniques and computing power are placing tensions on a system, which was not designed to service this activity at scale and at pace.

The present work is therefore needed to place the current national arrangements supporting cross-sectoral research on a more formal footing, within an entity to be known as RDS, and to ensure the service model within this possesses the necessary resources, skills and infrastructure to meet changes to demand, technology and legislation.

The Strategic Case looks at the model proposed under RDS, which will enable services to invest in future-proofing, expanding the range of data that is available for use in research, whilst creating ongoing efficiencies.

The programme will:

- Seek the full support of the Scottish public, acting in an open and transparent way.

- Strive to deliver value for money.

- Improve the service quality to users, by improving reliability and efficiencies by responding to the needs of different types of user.

- Maintain/build strong relationships with data controllers, acting under clear information governance processes.

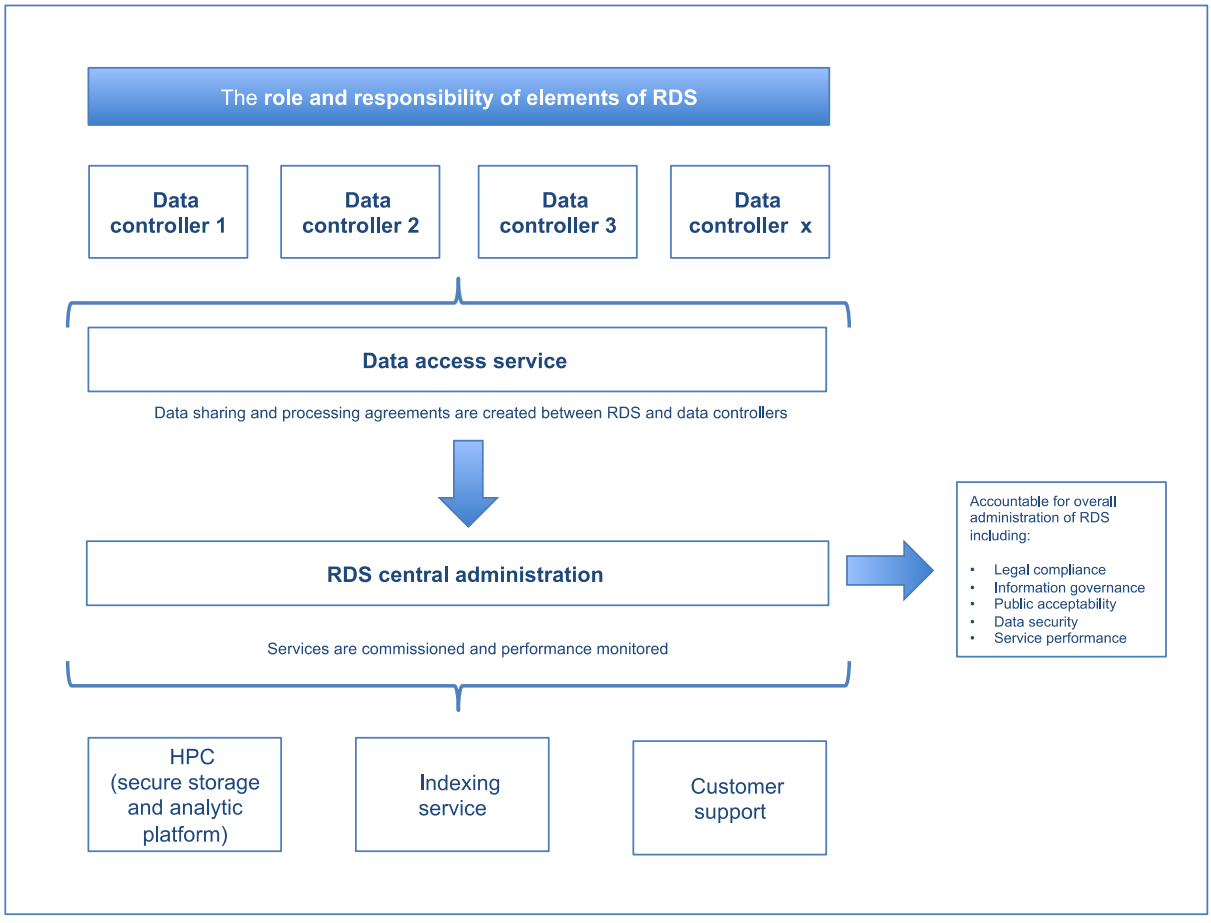
- Comply with all legal requirements and protect the privacy of citizens and businesses. This will build upon the “5 safes” principles (safe projects, people, settings, data and outputs).

These expectations will be delivered via a programme of activities covering:

- Service
- Public trust and transparency
- Cost-effectiveness
- Commercial and procurement
- Safety and security
- Financial
- Accountability
- Legislation

The services that RDS will oversee, are detailed in Figure 1:

Figure 1: **Elements of RDS**



Socio-Economic Case

This section focuses on setting out the option appraisal, demonstrating public value through specifying a set of success criteria against which each of the options for delivering RDS are assessed. A set of Critical Success Factors will form part of this process of assessment.

Five delivery options are identified and set out below. The analysis assesses four strategic options for the service delivery vehicle, alongside the status quo option of maintaining the current informal contracting arrangements. These were formulated following consultation with internal Scottish Government colleagues, including legal teams and external delivery leads.

In addition to following the standard Her Majesty's Treasury (HMT) guidance on Business Cases and being aligned to both the Green Book and the "5 Cases" model, the OBC is consistent with the wider approach taken by the Scottish Government (SG) in considering the wider Socio-Economic impacts of spend and policy decisions.

The difference between the various options relates to the structure of the overseeing organisation that will deliver the function of the delivery vehicle and where these functions operate within the existing Scottish public service landscape.

The four options are:

a) Amending the functions of an existing body

b) Amending the functions of the emerging Public Health Scotland as an arm's length body

c) Establishing a new public body, such as a new standalone body

d) Establish a joint venture (e.g. under Section 84B, NHS Act 1978[1])

These options are compared against the base case "Do Nothing" option which consists of maintaining the current arrangements or business as usual (BAU).

The preferred option highlighted under the Socio-Economic Case is to establish a joint venture (e.g. under Section 84B, NHS Act 1978).

Commercial Case

The procurement path and commercial risk for the establishment of RDS is covered in the Commercial Case. This section considers the interactions between the legal and governance set-up of RDS and the risks associated with contracting and commissioning. Commercial risk will depend upon the preferred legal option for RDS and will also have a bearing on the governance set-up of the new organisation. These issues will be further explored in the FBC for the preferred option.

[1] NHS Scotland 1978 Act Data protection | National Services Scotland (nhs.scot)

The Commercial Case sets out the implications for procurement and considers the requirements, proposed sourcing options, commercial arrangements and identified risks at this early stage. This section also summarises the preferred delivery option for RDS. The objective is to consider options for the participation in RDS of public sector bodies and other partners and service providers and to establish which vehicle/strategy should be pursued in order to achieve organisational objectives. As part of this, contractual and legal considerations are set out.

A Legal Working Group (LWG) was convened in 2019 comprising representation from service partner organisations, along with solicitors contracted by SG. The remit of the Finance Working Group is to provide information and advice to support the process of identifying options for legal models for establishing RDS as a legal entity, including the contractual and regulatory requirements. Further legal advice is being sought and the OBC will be shared with the group for input and consideration. This work will develop through the FBC.

A brief summary of existing procurement and governance arrangements is presented. Further detail on this will be sought from existing service partners as business planning develops to inform a collective picture of the current legal and contracting landscape.

The areas required for procurement are:

- Office space
- IT equipment, telephony services
- Web domain and development
- Staffing

Financial Case

The Financial Case sets out a detailed picture of the financial and funding position for RDS over the first five financial years of RDS's operations. It captures a detailed contemporary account of current income and expenditure associated with the services that will form the service model under RDS.

Some backdated information on the Scottish Informatics Linkage Collaboration (SILC) funding and financing is presented where this was available. The main sources of income for RDS are identified and modelled, with assumptions and caveats set out. It is anticipated that RDS will take over the revenue-raising function of eDRIS and will combine this with grant income sources to capture an entire income profile out to 2025/26.

Where grant income sources are ring-fenced to particular activity, this is noted. Expenditure is driven by demand and by modelling of agreed requirements for RDS to achieve its longer-term objectives, including R&D function and investment. To

ensure a sustainable and quality service, staffing levels are modelled on forecast volumes of work.

Existing financial and commissioning arrangements for RDS are described. These identify the current avenues through which funds feed into the existing service model and currently fund any element of costs of providing these services.

Financial sustainability is addressed, with some reference to how the model was set-up and maintained in the past. The existing project charges and more widely the revenue-generation function will be revisited as part of the FBC.

Some discussions have commenced with funders and these are highlighted in the 'How could RDS be funded?' section.

The financial model concludes that based on the assumed future service model, which includes development of the service, and a core grant of £5m from SG, there is a surplus position of approximately £0.3m per annum and RDS would be sustainable. This financial position does, however, remain sensitive to increased costs and the Financial Case will be updated in the FBC.

Management Case

The purpose of the management dimension of the Business Case is to demonstrate that robust arrangements are in place for the delivery, monitoring and evaluation of the scheme, including feedback into the organisation's strategic planning cycle.

It is about seeking external assurance, scrutiny, monitoring and contract management. Much of this will cover practical issues around execution of the service and will need again to map out a transition journey for Day 1, Month 1, Year 1 and then further out. It will set out something about the RDS product and arrangements for the website and how they will be built up during the first year.

This covers contingency and risk management plans across service providers. The material will be developed further for the FBC.

Conclusion

This OBC concludes that it is possible to establish RDS to achieve the stated objective of realising greater value from Scotland's data to inform our public services and support social and economic development, maintaining public confidence in the appropriate use of data, whilst making access quicker and delivering a more effective service for researchers who want to access data.

The establishment of RDS will build on Scotland's existing investment and expertise to do the following:

- Deliver a service to researchers enabling secure access to linked data about Scotland's people, businesses and places for projects in the public good.

- Transform the design, commissioning and funding of processes and services to promote more efficient access to data, whilst maintaining security and privacy.

- Creating a “social contract” to ensure public awareness and support.

- Enable access to a secure computing infrastructure.

However, we also recognise the challenge of doing this in a highly innovative, competitive and evolving data–driven environment. As a result, an overriding consideration for the establishment of RDS is how to ensure RDS provides a compelling, and competitive research data service representing a one-stop-shop solution in a diverse and multi-faceted data landscape.

This challenge requires further detailed scrutiny of the available operating models, including the most cost-effective way to utilise and maximise Scotland’s world leading capabilities and technology in the data-driven innovation space.

Strategic Case

Purpose

The purpose of the Strategic Case is to provide strategic justification for the Project, including outlining the background and associated objectives of the Project, as well as assessing stakeholders, opportunities and risks.

The chapter is set out in the following sections:

1. Strategic Context: Drivers for Change and Opportunities
2. Project Background
3. Mission Statement
4. Founding Principles
5. What RDS will Do and Deliver: Scope. Required organisational capability
6. Benefits of RDS
7. Business Needs – Responding to Covid-19 research requirements
8. RDS Delivery Programme
9. Strategic Risks
10. Constraints and Dependencies
11. Conclusions

1. Strategic Context: Drivers for Change and Opportunities

Scotland has a rich history of public sector data informatics, which has served to enrich and inform our most valued public services. Collaboration in Scotland between academia and the public sector has supported a national model of cross-sectoral research which has delivered path finding innovation and won numerous civil service awards, delivering key insights and furthering our understanding of some of the most pressing public policy issues.

While this collaboration has proven successful, it has grown out of the efforts of a small number of specialist technical teams and academics across Scotland to make it work. This has made it less resilient to change as data science and innovation have progressed and the system needs to grow and flex if it is to stay relevant and fit for purpose to meet the needs of a growing community of users.

Joined Up Data for Better Decisions

In 2012, following public consultation, the Scottish Government published Joined-Up Data for Better Decisions. This Strategy set out Scottish Government's ambitions for making better use of existing public sector data sources. The focus was on building outward from the strengths and successes of health data informatics[2].

The Data Linkage Framework was established as a mechanism to deliver this Strategy and set out three core ambitions:

[2] Scottish Health Informatics Programme (SHIP)

i. To build on existing successful programmes collaboratively to create a culture where legal, ethical, and secure data linkage is accepted and expected;

ii. To minimise the risks to privacy and enhance transparency, by driving up standards in data sharing and linkage procedures;

iii. To encourage and facilitate full realisation of the benefits that can be achieved through data linkage to maximise the value of administrative and survey data.

A set of Guiding Principles were consulted on and published alongside the Strategy and laid out a consistent decision making framework for data controllers and others involved in data linkage for research and statistics. These are still valid today and support all of the data linkage activity that takes place.

While the aims have not changed – the ambition has. Projects that have delivered policy insight have only served to increase interest in the use of administrative data and linkage methods to address public policy challenges. Fiscal consolidation has further heightened the need to look beyond expensive longitudinal surveys and studies toward more efficient and cost-effective methods of answering research questions.

Covid-19

The onset of the Covid-19 pandemic and urgent need to progress the scientific evidence relating to the virus and its transmission has also reinforced the need to transform the existing service offering. The system faces a variety of concurrent challenges that require solutions; some of these are new – others, identified earlier, require fresh thinking and renewed commitment.

Office for Statistical Research: UK Statistics Authority

In 2018, the Office for Statistical Regulation published their systematic review of data linkage, Joining up Data for Better Statistics, which set out to identify key priorities and areas for improvement to the way the UK statistical system makes use of data linkage methods to deliver public policy insight. The report identified six key outcomes designed to deliver an effective and safe data linkage system and evaluated the existing services against these. The report celebrated success stories and found impactful examples of data linkage being used to inform policy making; however it noted that this was the exception rather than the rule. It warned that the time and effort required to deliver projects was putting people off relying on this as a core research method.

In Scotland as elsewhere, it takes too long to access and link diverse datasets, for a range of reasons, and information about these datasets is not readily available. Data are dispersed both between and within public sector organisations and are not always available in a linkage-ready format.

Furthermore, the system of information governance is not designed to deliver projects that draw in data from multiple data controllers. This also leads to delays in data being available for research and innovation. For academia, this means we are not securing a suitable share of the available UK research funding, and for public bodies, this means that they do not have the data to support public service reform.

Scotland is fortunate to have some of the best data in the world. Some data are about people; their characteristics and behaviours. Other data are non-personal; such as data about climate or pollution. Bringing this data together can help address complex social and environmental issues and fill vital evidence gaps. Scotland also possesses world-leading expertise, particularly in our universities, in ethical, legal and social disciplines, as well as resources and skills in data infrastructure, data management, analysis and informatics.

Scotland is therefore well placed to harness the value and benefit inherent in our public sector data assets to deliver better outcomes for the people of Scotland whilst safeguarding the privacy of individuals.

There is a real opportunity for RDS to serve as a catalyst in unlocking the social value inherent in our data assets and research. This is coupled with potential economic benefits too; a recent study for Scottish Enterprise[3] suggested data innovation could potentially benefit Scotland by £20bn. A report on the value of big data to the UK Economy for the Centre of Economics and Business Research (CEBR) identified similar value[4]. Using data better supports improvements to society, productivity and organisational efficiency, attracting new businesses and highly paid jobs to Scotland. The average salary of a data professional in Scotland in 2018 was £50,000[5]. However, due to delays in provisioning data, investment that could be happening in Scotland is beginning to flow elsewhere.

System Challenges

The current data linkage set-up has delivered effective research flexibly; however several challenges remain unaddressed and are further exacerbated as new demands are placed on the system. The most pressing of these challenges are set out here.

Uncoordinated data governance processes and structures

Policies and structures supporting information governance (IG) functions have come into existence over time in response to data protection and other legislation. However, this has given rise to a system that is not set-up to support cross-sectoral research. IG policies are perceived as a hurdle rather than as a springboard to ethical research in the public interest. This perspective needs to shift.

[3] https://www.scottish-enterprise.com/support-for-businesses/develop-products-and-services/data-driven-innovation
[4] CEBR (2015) https://www.sas.com/content/dam/SAS/en_gb/doc/analystreport/cebr-value-of-big-data.pdf
[5] In September 2018 https://www.indeed.co.uk/salaries/Data-Scientist-Salaries,-Scotland

This is particularly the case where different data sources are linked for a single project, requiring several un-coordinated data access processes. This has resulted in difficulty knowing who owns the data of interest with decision-making and data linkage projects taking too long to progress, and timelines difficult to predict. There is a need to better co-ordinate and streamline data availability processes and promote sharing of best practice across the community of public sector data controllers. This builds trust, expertise and experience.

The public also hold mixed views about the use of their data in research. We need to ensure there is ongoing engagement, trust, support and feedback from the public.

Data is often of unknown or poor quality; lack of information about data

It can be unclear what public sector data are available for use in research and data can be of unknown or poor quality. This means that some data are collected more than once and significant effort is expended to find out where helpful data is and the route for access. We need to work with data controllers and users to improve the quality for research use.

There is an increasing demand for more recent and real-time data. This poses challenges for our infrastructure due to the investment and automation required in securing that data, as well as ensuring the quality of this information.

Projects require a lot of effort in preparing data where this is not already done. This means that the Business Case for using existing data sources rather than collecting fresh data is less clear-cut in many cases, again, a barrier to helpful research happening.

Less mature service model for cross-sectoral data linkage research

It can take a long time to assemble data for cross-sectoral research projects and be expensive: we need to address this such that it becomes a standardised approach. This means fitting a service model around such needs and supporting the skills, training and resources to deliver on this demand.

To date, to get projects over the line, has required several teams stepping in to support delivery with valuable and diverse skillsets but the result is a process where the roles across service providers become blurred. This leads to inefficiencies and has meant reduced resilience within each of those functions and some skill and technology deficiencies that make the current landscape sub-optimal.

Bilateral/separate commissioning arrangements in Scotland

Existing funding and commissioning arrangements for the data infrastructure and data linkage service model comprise largely of a set of bilateral arrangements and financial transfers between the various funders and the various recipients (service providers) of those funds. This arrangement does not lend itself to ready appraisal of the cost-effectiveness of the system as a whole in meeting its objectives, or of the individual parts therein. Alignment of the various funding sources through RDS with single contracts for activity with each service provider is expected to promote more

efficient and effective service provision, to better align incentives and to realise efficiencies.

Stakeholder-specific issues

Ongoing feedback from stakeholders has highlighted several challenges and communicated expectations around data provisioning and access for research in Scotland. These views were further captured as part of a Discovery Phase to inform this Business Case. Some of the issues raised consistently by stakeholders, and that RDS is seeking to address, are as follows.

Academics/researchers/analysts

- It is unclear which administrative datasets are available for use in research and information is not readily available to potential users about what the process to gain access to the data involves.

- There is increasing demand for more recent and real-time data. This is currently difficult due to the investment and automation required in securing that data, as well as ensuring the quality of this information.

- Data are not always “linkage-ready” so projects require a lot of preparatory effort; some of this upstream work and curation could be done earlier so that at the point a researcher expresses interest in using the data, it is clear what is available and how that can be used.

- Assessments of the privacy/public benefit and ethics are not co-ordinated and researchers are left to navigate several processes for a single programme of work. This duplicates effort and can introduce delays in decision-making.

- There are several legal frameworks in the data and data protection space including common law, Digital Economy Act 2017, Human Tissue Act 2006, Human Rights Act 1998, Data Protection Act 2018, and UK GDPR – and their application and interaction is not always clear.

Data linkage service providers (NRS, EPCC, eDRIS/PHS)

- While there has been funding for data linkage services in recent years and many successful data linkage projects have been delivered, there has not been a sustainable business model that enables services to invest in future proofing, expands the range of data that is available for use in research, or creates ongoing efficiencies and innovation.

- The lack of distinct legal footing of the Scottish Informatics Linkage Collaborative (SILC) from its partner organisations and the collective of people, resources, technologies and platforms means that there has not been

the accountability, transparency and openness which is a required of a modern efficient service.

Government

- Government researchers and analysts need access to data too in a timely and cost-effective fashion.

- As regards data held by Government and the public sector there are also clear costs savings in terms of enabling data access via RDS instead of burdening individual data controllers with many individual requests.

- A centralised system of access/brokering point will ensure greater consistency of decision-making about what public data can be used for, who can access it, as well as more consistent management of directorates/departments risks.

- It will promote further confidence in the data hosting and provisioning system in Scotland – to seek and attain accreditation through the UK DEA for use of the National Safe Haven (NSH) to host data from UK Reserved Departments such as HMRC and DWP.

Data controllers

- Under RDS data controllers will have the opportunity to host linkage-ready datasets in the national safe haven (NSH).

- RDS will work with data controllers to agree clear, efficient and proportionate data access arrangements and IG processes.

- RDS will also facilitate access to non-linked datasets – for both individual level and aggregate level data, thereby relieving burden on data controllers to service these requests.

- It is anticipated that these changes will deliver efficiencies and economies of scale and will enable ongoing learning and testing of IG processes.

- Provide resources and/or skills to facilitate the holding and curation of data which some data controllers currently lack, hence: access to data is often seen as a costly and time-consuming operational exercise.

- A centralised system of access will foster greater consistency in decision-making about what data can be used for, who can access it, and how the risk management of the data can be undertaken more consistently.

- A clearer offering for data controllers in terms of benefits they will derive from sharing their data, for example by supporting a specific and well-identified research or policy challenge; helping with own evaluation and assessment /audit requirements (e.g. statutory and non-statutory); and improving operational effectiveness and service improvements.

Data professionals: statisticians/data scientists

- Improved coordination of data access and better data provision will enhance the opportunity to address important research and policy challenges and will therefore encourage more people to work with data by building capacity and capability in skills and experience that is in demand by Government and businesses, but currently in short supply.

- Building wider data science skills will benefit the wider economy.

- Building and enhancing skills capacity in the data space will also support social scientists to develop quantitative skills which is vital for the development of social science and maximise the wealth of data which already exist.

2. Project Background

Scottish Informatics Linkage Collaboration (SILC): Business As Usual Service Model

The Scottish Informatics and Linkage Collaboration (SILC) came together in 2014 with the participation of several public sector and research council funding partners. Its purpose was to realise the vision of the Data Linkage Framework through delivery of a shared service model to support public benefit research using data linkage methods in Scotland. It aimed to promote collaborative cross-sector working, the sharing of best practice and joined-up approaches to resource investment across public bodies operating within the research data landscape. Oversight was provided by the SILC Senior Management Board (SILC-SMB).

This investment supported the set-up of the state-of-the-art facility with associated national infrastructure located at No. 9, Edinburgh BioQuarter. Both Scottish nodes of the Farr Institute and Administrative Data Research Centre (ADRC) located with eDRIS, and further funders joined at later dates. The SILC-SMB acknowledged the importance of establishing a legacy for SILC with respect to the grant-based funding mechanisms of many of its component parts, and ensure its future success as a national resource.

The model comprised a set of shared resources that reflect closely how the service model delivers currently. This comprised the eDRIS team of research co-ordinators, NRS indexing team, FARR IT infrastructure located now at the EPCC.

Project Update

SILC SMB discussion about the need for change, SOC to OBC

Following discussions among senior stakeholders and funders participating in the Scottish Informatics and Linkage Collaboration (SILC)[6] and taking on board feedback from users of the SILC resources, a sub-group of the SILC-SMB was convened to scope priorities and options for transforming the system supporting public benefit research in Scotland, with the aim of addressing some of the highlighted challenges and to ensure any solution was fit for the future.

This work rehearsed the shortcomings of the existing legal and commissioning arrangements and explored how these might best be addressed. The Board reached consensus on the need to place the current national arrangements supporting cross-sectoral research on a more sustainable and formal footing and to ensure the service model within this possesses the necessary resources, skills and infrastructure to meet changes to demand, technology and legislation.

It was agreed that a key priority would be provision of a single-entry point for researchers and offering a seamless data access pathway, by bringing together and coordinating the various moving parts of the researcher access journey, including the commissioned services.

This culminated in a Strategic Outline Case (SOC), which explored the initial long list of options to determine the purpose and feasibility of establishing RDS on a more formal footing.

The strategic objective is that the future offer from Scotland becomes much stronger, with public benefit research undertaken at scale. This strategic Case outlines the model proposed under RDS.

3. Research Data Scotland: Mission Statement

The proposed mission statement for RDS is as follows:

> Research Data Scotland will provide a service for accessing public sector datasets that have the potential to save time, money, and lives. It will offer safe, secure and cost-effective access to data for research, innovation and investment by enabling its users to deliver insight and understanding that will help create a more successful country through increased wellbeing, sustainable and inclusive economic growth, and improving the health and social care of the nation. We will work collaboratively with data controllers and users to develop the service while building trust and support from the public.

[6] SILC and SILC-SMB were formally wound down in 2019.

4. RDS Seven Founding Principles

Supporting the achievement of the mission statement are seven key founding principles:

1. RDS will only enable access to data for research that is for the public good.
2. RDS will ensure that researchers and RDS staff can only access data once an individual's personal identity has been removed.
3. RDS will ensure that all data about people, businesses or places is always kept in a controlled and secured environment.
4. RDS will only create a dataset if it is requested for a research programme or study that is in the public good.
5. All income that RDS generates will be re-invested into services to help researchers continue to access data.
6. RDS will secure a share of commercial benefits from any firms that access our public data, ensuring benefits are returned into public services.
7. RDS will be transparent about what data it provides access to and how it is being used for public benefit.

5. What RDS will Do and Deliver

RDS will provide a "one-stop-shop" for access to a range of services and resources aimed at supporting access to data about people, places and business in Scotland.

It will:

- Help facilitate the creation of "linkage-ready" versions of high value datasets and provision for key metadata and data access criteria for each dataset.
- Deliver a service for researchers, assisting them with research design and providing secure access to "linkage-ready" datasets, with the flexibility to link to other data where required or to be used as standalone datasets in their own right.
- Commission and monitor an IT infrastructure to securely transfer, store and provide secure access to datasets, allocating resources to three services; high performance computing, indexing and customer support.
- Stay in touch with technical and methodological developments to continuously improve the service seeking ongoing feedback on performance and progress from stakeholders.

Research Data Scotland will build upon our regional and national data informatics expertise, to:

- Enhance the eDRIS service that already delivers hundreds of health and non-health data access requests and linkage projects each year.

- Utilise the Edinburgh International Data Facility (EIDF) being developed at the University of Edinburgh Parallel Computing Centre (EPCC).

- Use expertise for data indexing that exists at the National Records of Scotland (NRS).

- Build on the national data infrastructure being developed by SG: the underpinning of data policies, standards, legislation, approaches to ethics and information governance, and arrangements for cyber resilience.

- Work to make our National and Regional Data Safe Havens interoperable.

While longer term, it will be important to use data from both public and private sectors in research, our initial focus will be on getting arrangements working well for data collected by any part of the public sector providing services to people in Scotland, and should cover both linked and standalone de-identified datasets. There must be secure and carefully controlled access for different types of users from various sectors (NHS, SG, academics, third sector and industry).

Building upon existing arrangements, critical success factors for the RDS service are to:

- Have the support of the public, acting in an open and transparent way

- Deliver value for money

- Improve the service quality to users, both delivering faster and more reliably, responding to the needs of different types of user

- Foster strong relationships with data controllers, acting under clear and consistent information governance processes

- Comply with all legal requirements and protect the privacy of citizens and businesses. This will build upon the 5 safes principles (safe projects, people, settings, data and outputs).

Trustworthiness will be at the heart of everything RDS does and this includes:

- Maintaining the security and privacy of the data by removing personal identifiers

- Holding data in a very secure place

- Only allowing access to accredited researchers for linked datasets.

6. Benefits of RDS and Spending Objectives

RDS will not address all of the current challenges inherent in accessing data for research; however the approach to strengthen institutional capability, investment and profile, will enable it to work with other public sector partners on these issues.

- RDS will be able to commission services in its own right. This will improve co-ordination and promote a more effective and efficient system.
- The establishment of RDS will address the issue of service quality, working to improve the end-to-end user journey, addressing strengths and weaknesses of current processes.
- RDS will also facilitate the sharing of information about what data is available and the quality of that data via an interactive website and service.
- To provide underpinning investment for research at greater scale than data linkage current model delivers – more linkage projects through each year and projects progressing more quickly.

The RDS team and its stakeholder partners agree that the following indicators will demonstrate successful delivery against scope:

- Service – consistency in the level and quality of service
- Safety and security – compliance with legal, IG and ICT requirement
- Public trust and transparency – people trust their data is used appropriately
- How people's data is processed will be clear and readily understandable by users and providers of services as well as the public at large
- Timeliness – data access is streamlined and efficient
- Sustainability – sustainable model operationally and financially
- Cost-effectiveness – efficient use of resources. Take Value for Money (VfM) into account when making decisions, and allocating roles, responsibilities and resources amongst service delivery partners
- Accountability – RDS held to account through external scrutiny and audit adopting a strategic, proportionate and risk-based approach.

7. Business Needs – Responding to Covid-19 Research Requirements

The vision is for a partnership, initially between SG, PHS and the University of Edinburgh, which accelerates the realisation of public value and economic

advantage through data driven research and innovation. Shortcomings of the current data linkage service arrangements are likely to become more acute over time. The establishment of RDS future-proofs capability for both data linkage and non-linkage projects, addressing future business needs by thinking longer term about service requirements, resource, investment and infrastructure.

Present health challenges reinforce the need for a more strategic approach at a time where data about people, places and businesses has never been more important, supporting Government in assessing the full impact of Covid-19; evaluating strategies for re-opening the nation; and safeguarding people's health and wellbeing.

RDS will provide a single system approach to realising greater social benefits (via research) from existing public sector datasets, bringing these together in novel ways to respond to new research questions and gaps. It is appreciably a lengthy journey to source, clean, link and assemble data for individual research projects and there are clear gains to be had from coordinating this work to serve many users, thereby realising/recouping the investment in data quality, curation and service development.

Public sector data possesses some of the attributes of a public good[7] making it unlikely that the service of RDS will be provided by the market at the scale required to realise full social and economic benefit – that highlights the *market failure*. So RDS facilitates the unlocking of this potential, enabling research and acting as a trusted institution that bears risk (reputational, privacy, financial, security, cyber).

Establishing RDS will also harness the potential of the Edinburgh City Deal to foster innovation and development in Scotland and will support our ambition to make Scotland a data destination, attracting inward investment which is currently going elsewhere. A breakdown of the economic benefits is provided in the Socio-Economic Case.

8. RDS Delivery Programme

The RDS Delivery Programme comprises six integrated elements, each with a separate delivery work-stream.

1. Public engagement and provision of clear information to citizens about the use of public sector data in Scotland.

2. Transparent IG processes and procedures, these must incorporate public sector data controllers' requirements.

3. Provision of a secure de-identification and data linkage service.

4. Provision of a secure high performance computing environment.

[7] See discussion of research ready data https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/731349/20180730_HMT_Discussion_Paper_-_The_Economic_Value_of_Data.pdf

5. Provision of a one-stop-shop user service.

6. High-quality data assets.

These expectations will be delivered via a programme of activities covering:

- Service
- Public trust and transparency
- Cost-effectiveness
- Commercial and procurement
- Safety and Security
- Financial
- Accountability
- Legislation

The development of RDS is a specific part of the Scottish Government's Programme for Government[8].

9. Strategic Risks

The RDS project will face several strategic risks including:

- Service – complexity of the "as is" model and a lack of widespread understanding as to how this works. This will require further work to understand the current service journey. Stakeholder engagement will be an important means of ensuring consistency with the level and quality of service and confidence with the new process, whilst ensuring data access is streamlined and efficient.

- Public trust and transparency – people must trust that their data is used appropriately, how data will be processed will be made clear and transparent through public engagement with users and providers of the service as well as the public at large.

- Cost-effectiveness – review of service resources to ensure VfM taken into account during decision making, allocation of roles, responsibility and resource capacity.

[8] Protecting Scotland's Future: the Government's Programme for Scotland 2019-2020

- Commercial and procurement – the model must be sustainable operationally and financially. An overview of the likely procurement arrangements for the preferred option is include in the Commercial Case with more details in the subsequent FBC

- Safety and security – as data will be involved in the role of RDS, sensitivity and transparency is required as concerns from data controllers around privacy, security, data storage and sharing need to be managed

- Financial – developing, implementing and supporting RDS requires agreement on longer-term funding models. That model should be acceptable to all while delivering value for money. The proposed model is documented in the Financial Case.

- Accountability – RDS will be held to account through external scrutiny and audit adopting a strategic, proportionate and risk-based approach

- Legislation – (UK and Scottish) RDS will liaise with legal teams and other stakeholders to consider perceived legislative or statutory constraints, and follow-up action where needed.

- Covid-19 – key staff across the stakeholder organisations will be diverted to responding to the pandemic in the short and medium term.

The RDS project team has developed a detailed risk register and is managing the risks associated with the establishment of RDS. A risk management plan will be included in the FBC, with a defined process for handing over risk to the newly formed RDS.

10. Constraints and Dependencies

Legislation

RDS will operate within a framework of regulations governing the use and processing of personal data for research: (Digital Economy Act 2017), physical and cyber security (replacements for EU ENISA regulations, EU NIS Directive) and data protection law (Data Protection Act, UK GDPR), and other legal codes (Human Rights Law, Human Tissue Act), common law duty of confidentiality.

Covid-19

A key dependency is the development of the Covid-19 Research Data Service, that has been brought together from across the existing service partners and that will be commissioned under RDS. The need to urgently address priority Covid-19 research projects has drawn on existing resources and people in the short term, displacing other activity that would have taken place in its absence. While this is inevitable, there will need to be some form of debrief and review to reconsider funding requirements in order to ensure service transformation work is progressed.

A wider Covid-19 Data and Intelligence Network across the Scottish public sector is overseeing the development of a strategy to address the data requirements for the pandemic, covering both use for research and for service delivery and operations, including the information governance and information assurance frameworks for making the data available via bespoke infrastructure.

It will be important to seek clarity from service partners and stakeholders in SG and more widely about how this work interacts with RDS; where this network addresses some of the identified challenges and where it may introduce new tensions.

ADR-Scotland, Edinburgh South East Scotland City Deal

Two other key initiatives will support the delivery of RDS.

The first is partnership with Administrative Data Research UK which is the UK wide data acquisition and research programme funded by the Economic and Social Research Council (ESRC). Its aim is to develop capacity and capabilities that support innovative and cutting-edge research in the public interest using existing administrative data sources. The ADR UK investment in Scotland is administered through the Administrative Data Research-Scotland partnership.

The ADR delivery team within Scottish Government have been designing and building a new method for linking personal data within the Scottish National Safe Haven. Working with partners from the University of Edinburgh and the electronic Data Research and Innovation Service (eDRIS – part of Public Health Scotland (PHS)) a new ingest process has been designed to securely hold and manage a wide range of datasets from across the Scottish public sector.

Secondly, the investment into data-driven innovation through the Edinburgh City Deal and partnership with the Edinburgh Parallel Computing Centre will ensure RDS can harness wider resources and secure the momentum for a wider partnership between public sector and academia, building on existing data infrastructure, and Scotland's reputation for how we manage and use data and trustworthiness in what we do.

Both the ADR-S programme and the Edinburgh City Deal taken together will kick-start and support the delivery of a new data linkage user service provided through RDS.

11. Conclusion

The existing services and investment supporting public benefit research in Scotland have delivered valuable insight through ground-breaking programmes, embedding a culture of evidence-based policy making and extending our understanding of the most complex of public policy issues facing Scotland.

However the contractual and financial arrangements that supported the initial phase of delivery of the partnership over the last seven years require to be formalised in order to take advantage of the scale of opportunity now facing Scotland. This requires a step change to the way services are supported and contracted for; and to

the way the system and its parts work toward shared and agreed collective outcomes.

We need to place these arrangements on a more formal footing, to attract significant new investment and promote a more efficient and scaled-up model that can respond to future needs. The opportunity cost of not responding to this growing demand for change and reform is significant including both the direct impacts on research and public services – and the indirect impacts on the Scottish economy if a healthy and growing data innovation sector fails to take off at scale.

A Ministerial commitment in the 2019 Programme for Government, the establishment of RDS will provide a researcher support service across the whole public sector and ensure that the service is sustainable and resilient.

Socio-Economic Case

Introduction

A key part of the OBC is the Socio-Economic Case, in which the potential delivery options for RDS are assessed to identify the one that offers best value. This builds on and extends the findings and conclusions of the Strategic Outline Case (SOC), which undertook an initial appraisal of potential options and, in addition to the status quo, identified four potential delivery options. These options were formulated following consultation with internal SG colleagues, including legal teams, and external stakeholders from delivery-focused leads.

In addition to following the standard Her Majesty's Treasury (HMT) guidance on Business Cases and being aligned to both the Green Book and the "5 Cases" model, the OBC is consistent with the wider approach taken by the Scottish Government in considering the wider Socio-Economic impacts of spend and policy decisions.

The Socio-Economic Case assesses the options available to deliver RDS, identifies their costs and benefits including the effect on public welfare, and sets out the preferred option. In line with HMT's appraisal requirements, the impacts considered are not limited to financial or economic criteria but include wider social costs and benefits. Critical success factors that RDS must meet have been identified and each of the options is scored against these.

Early discussions with stakeholders ruled out the possibility of including an option to place RDS within a private sector, for-profit company; this would neither align with RDS' public interest mission, nor be acceptable to the Scottish public. The four options all align with the seven founding principles of RDS. They are described and appraised to identify a preferred option.

Summary of Options

Option 1: Retain the status quo (SQ) – this represents "business as usual" using the SILC model. The status quo is based on a series of agreements between various partners and faces several issues relating to the complexity of the current arrangements:

- No clear structure under SILC
- No single financial overview of SILC's activities
- Administration, budgeting and governance sit across numerous organisations.

SILC is not a legal entity in its own right and does not have the capability to enter into contractual arrangements.

Option 2: Amend the functions of an existing public body (EPB) – this option involves housing RDS as part of an existing public body. Given data protection considerations, there could be a requirement that the existing public body has a health focus. In this option, RDS would not be a separate legal entity and would not be able to enter in contractual arrangements in its own right. RDS would not be the

sole focus of the existing public body and RDS is likely to have to adhere to the existing public body's operational processes, working culture, and governance requirements.

Option 3: Amend the functions of Public Health Scotland (PHS) – this option relates specifically to the amendment of the functions of Public Health Scotland, which launched in April 2020 and includes NHS Health Scotland, Health Protection Scotland and the Information Services Division. In this option, RDS would be established as a part of PHS. As with Option 2, RDS would not be a separate legal entity and would not be able to enter in contractual arrangements in its own right. RDS would not be the sole focus of PHS and RDS is likely to have to adhere to PHS's operational processes, working culture, and governance requirements. Given the health focus of PHS, there may also be a constraint on RDS's ability to focus on non-health related research.

Option 4: Establish a new public body, such as a new standalone body (NPB) – in this option, RDS would be created as a new public body in its own right. Delivery of the RDS business plan would be the sole focus of the new public body. It is likely that Scottish Ministers would have control of a new public body although there are options where this could be shared with other stakeholders. To create a new public body, legislation would have to be enacted and this would take considerable time and cost.

Option 5: Establish a Joint Venture (e.g. under 84B, NHS Act 1978) (JV) – this option involves a joint venture company being created, in which each of the key current stakeholders could be involved (if they wished to be so). Delivery of the RDS business plan would be the sole focus of the JV. Governance of the JV would include the relevant partners. If RDS were established as a JV, the legal recommendation is that it should be constituted as a Company Limited by Guarantee (CLG), which would allow it to achieve charitable status.

Socio-Economic Appraisal

The Socio-Economic appraisal focuses on the value of the different options including non-cash efficiencies, qualitative benefits and opportunity costs. The status quo would have an ongoing operational cost but would also incur an opportunity cost due to the current arrangement's competitive disadvantage.

Options 2-5 are based on the new RDS service operating as part of an existing public sector organisation, a new public body or in some form of public sector joint venture. All these options are likely to enable RDS to achieve its mission and deliver greater value to Scotland.

The operational and delivery costs of the different options are not expected to be materially different with the exception of Option 4, which would have a longer, more constrained and more involved delivery that would require legislation and the commitment of considerable resource and time.

The benefits to government from spending typically fall into four main categories:

- Cash-releasing benefits (CRB). These benefits reduce the costs to organisations in such a way that resources can be re-allocated elsewhere. This typically means that an entire resource is no longer needed for the task for which it was previously used. This can be staff or materials/assets. For RDS, there are unlikely to be short-term material CRB: this is because the existing SILC data linkage service is being replaced with the new linkage service under RDS (initially on a largely like-for-like basis).

- Financial but non-cash-releasing benefits (non-CRB). This usually involves reducing the time that a particular resource takes to do a particular task but not sufficiently to re-allocate that resource to a totally different area of work. For RDS, the expected non-CRB benefits include quicker and clearer processes for researchers and investment in linkage-ready data meaning linkage projects can be processed more efficiently.

- Quantifiable benefits (QB). These benefits can be quantified, but not always easily. The extent to which QBs are measured will depend on their nature and significance; however, as a general rule every effort should be made to quantify benefits financially wherever possible and proportionate to do so. The benefits of RDS very much focus on the high level of opportunity cost from the status quo with a belief that Scotland is missing out on research opportunities: investment that could be secured in Scotland, is currently going elsewhere, e.g. a major (£58m) research programme on lung diseases went to England. If RDS were to be established, it is assumed that service delivery would be improved, thus avoiding competitive disadvantage and reducing the opportunity cost. In doing so, there could be considerable value to the Scottish economy: a recent study for Scottish Enterprise suggested data innovation could potentially benefit Scotland by £20bn[9]: using data better to improve productivity and organisational efficiency, and attracting new businesses and highly paid jobs to Scotland.

- Non-quantifiable benefits (non-QB). These are the qualitative benefits, which are of value to the public sector but cannot be quantified.

Option Appraisal Criteria: Critical Success Factors

To achieve the anticipated benefits from RDS, there are several critical success factors (CSFs), which RDS will have to meet, and these are shown in the following table.

[9] CEBR (2015) https://www.sas.com/content/dam/SAS/en_gb/doc/analystreport/cebr-value-of-big-data.pdf

Table 1: RDS critical success factors

Critical Success Factors	Rationale
Service	This will ensure consistency in the level and quality of data access and a linkage service with smoother research user journeys. The timeliness of service delivery. The extent to which RDS will be the sole focus of the organisation.
Safety and security	Compliance with legal, IG and ICT requirements. Does the option promote a continued focus on the specialist processes and systems of IG, information assurance and cyber security that underpin the research data holding of RDS?
Public trust and transparency	A key element of delivering RDS is ensuring trust and public acceptability. People should trust their data is used appropriately. How people's data is processed will be clear and readily understandable by users and providers of services as well as the public at large.
Sustainability	This aims to address the need to ensure that the RDS data access and linkage model is a sustainable business model operationally and financially.
Cost-effectiveness	RDS should maximise Value for Money (VfM). VfM should also be considered when making decisions, and allocating roles, responsibilities and resources amongst service delivery partners.
Accountability	RDS needs to be held to account through external scrutiny and audit adopting a strategic, proportionate and risk-based approach. Good governance is also an important consideration.

These criteria have been used as the basis of assessing the short list of potential options for RDS. The methodology for the options appraisal has included:

- Weighting the relative importance of each of the attributes listed in Table 1.
- Scoring each of the short-listed options on the basis of its ability to deliver the CSF attributes on a scale of 0 (worst score) to 10 (best score).
- Deriving a weighted benefits score for each option (i.e. score x weighting).

Based on this methodology, scoring of the options was undertaken independently by two senior members of the RDS project team with a subsequent meeting held to justify and moderate scores. An average of the scores was then input into an options appraisal tool that had been developed for the purpose. The options appraisal assessed how well each option would support RDS in achieving its CSFs, which principally focus on the benefits that RDS would bring to Scotland, the public sector and the Scottish research community.

The scores for each of the RDS critical success factors and justification for the scores is shown in the next few pages followed by a summary of all the scores.

Criteria 1: Service

Consideration of the likely service provision from the different options included an assessment of whether there would be consistency in the level of service, the quality of service, a clear user journey, equality of health and non-health data, whether data would be accessed in a timely manner, and whether the option would enable process improvements.

Relative to the other options, option 1, the SQ, scored less well across all the questions. This was because of its greater focus on health data, an unclear user journey, and the complexity of the current arrangements, based on Memoranda of Understanding. Option 2 (EPB) and option 3 (PHS) scored only slightly higher than option 1 (SQ) with justification of this based on their greater focus on health data, RDS having to adhere to the existing organisations' operational processes, and operate with a lower level of autonomy. Option 4 (NPB) and option 5 (JV) scored well due to having a single focus on RDS, offering a 'blank canvas' that could be used to develop bespoke arrangements specific to RDS's service requirements, and being able to adopt a more balanced approach to health and non-health data.

Table 2: Service scores

Option	Unweighted score (out of 10)
Option 1: Status quo (SQ)	4.0
Option 2: Amend existing public body (EPB)	4.9
Option 3: Add to Public Health Scotland (PHS)	5.3
Option 4: New public body (NPB)	7.4
Option 5: Public sector joint venture (JV)	7.5

Criteria 2: Safety and security

This criterion assessed the extent of the options' legal compliance (including 1978 Act[10], state aid and data protection), compliance with IG requirements, and compliance with ICT requirements.

The SQ is already compliant with the 1978 Act and data protection so had a maximum score; however, the SQ was considered to have neither optimal processes, nor meet IG or ICT requirements optimally and, consequently, received a lower overall score. Placing RDS in an existing body had mixed scores depending on whether it was assumed the body had current obligations under the legislation.

The fact that these organisations would not have a sole focus on RDS, again, prevented them scoring higher. Although legal, IG and ICT compliance would not happen immediately, the NPB and JV options scored well as it was considered that

[10] NHS Scotland Act 1978 Data protection | National Services Scotland (nhs.scot)

they would achieve compliance quickly, particularly as this would be a priority in organisations with a sole focus on RDS.

Table 3: Safety and security scores

Option	Unweighted score (out of 10)
Option 1: Status quo (SQ)	6.9
Option 2: Amend existing public body (EPB)	6.1
Option 3: Add to Public Health Scotland (PHS)	7.1
Option 4: New public body (NPB)	7.9
Option 5: Public sector joint venture (JV)	8.2

Criteria 3: Public trust and transparency

This critical success factor related to assessment of the public trust and transparency relating to the different options. The appraisal assessed the options' ability to earn and retain the trust of stakeholders, scored how well they would enable RDS to build itself as a brand, and how well they would promote a culture of transparency and openness within RDS.

The SQ had a relatively low score due to the complexity of the current arrangements and the feeling that stakeholders do not have complete trust because few know the full extent of the infrastructure and the intricacies of the current arrangements; and that the SILC brand has not been developed. Scoring higher than the SQ, the EPB and PHS options scored similarly in questions relating to potential conflict between the RDS brand and the host organisation's brand; however, there were also some differences with the PHS option scoring better for stakeholder trust and IG.

The NPB did not score as well as PHS on trust at it would take time to build trust in a new organisation. The JV scored better in trust, as the partners would already have existing stakeholder trust on which to build. The NPB and JV options, again, scored well because of their single focus on RDS.

Table 4: Public trust and transparency scores

Option	Unweighted score (out of 10)
Option 1: Status quo (SQ)	3.5
Option 2: Amend existing public body (EPB)	4.8
Option 3: Add to Public Health Scotland (PHS)	6.0
Option 4: New public body (NPB)	7.3
Option 5: Public sector joint venture (JV)	7.4

Criteria 4: Sustainability

This part of the options appraisal assessed the potential sustainability of RDS (financially and operationally). The SQ scored less well due to the current deficit funding position in SILC, which is likely to worsen over time as grant income reduces. Although the SQ is closely tied to stakeholders, there is not a single central budget for SILC and there is uncertainty over the actual funding situation, which is complex and reliant on grant funding. The EPB and PHS options could mean that existing cost structures would be affected and RDS would not be the sole focus with the possibility that, although deficits could be absorbed, surpluses may be transferred elsewhere within the organisations. In these options, there will still require some form of budget agreement amongst stakeholders. The NPB and JV options scored well as RDS would be their sole focus and this would not only open up opportunities but would provide greater control over the RDS budget. Although a deficit would not be absorbed into a parent body, surplus would be reinvested into developing the service.

Table 5: Sustainability scores

Option	Unweighted score (out of 10)
Option 1: Status quo (SQ)	3.6
Option 2: Amend existing public body (EPB)	4.4
Option 3: Add to Public Health Scotland (PHS)	6.1
Option 4: New public body (NPB)	7.6
Option 5: Public sector joint venture (JV)	7.6

Criteria 5: Cost-effectiveness

This critical success factor related to consideration of value for money when making decisions and allocating roles, responsibilities and resources. The lower SQ score was based on the complexity and uncertainty of the current SILC budget, which projects a deficit position. The EPB and PHS options scored only slightly higher as, although these options would allow soft budgeting, there was the possibility of resources being transferred to higher priority areas within the parent bodies. The NPB and JV options scored slightly higher because, despite hard budgets, RDS would be the sole focus.

Table 6: Cost-effectiveness scores

Option	Unweighted score (out of 10)
Option 1: Status quo (SQ)	5.5
Option 2: Amend existing public body (EPB)	6.0
Option 3: Add to Public Health Scotland (PHS)	6.5
Option 4: New public body (NPB)	7.8
Option 5: Public sector joint venture (JV)	7.8

Criteria 6: Accountability

This criterion related to accountability, specifically external scrutiny, the support of good governance, and the inclusion of relevant stakeholders in that governance.

The SQ does not score well as there is not a great deal of scrutiny evident at present: stakeholders are not included in governance satisfactorily and there are insufficient data controllers on the SILC senior management board. Improvement in this area is one of the drivers for RDS.

Whilst EPB and PHS would provide increased scrutiny, RDS would be controlled by the parent body and would be subject to its governance, which may have more of a health focus, and may see some stakeholders excluded. Whilst NPB and JV would have a sole focus on RDS, the JV scores higher due to its inclusive nature and the fact that relevant stakeholders are coming together as equal partners.

Table 7: Accountability scores

Option	Unweighted score (out of 10)
Option 1: Status quo (SQ)	4.2
Option 2: Amend existing public body (EPB)	5.0
Option 3: Add to Public Health Scotland (PHS)	5.2
Option 4: New public body (NPB)	6.8
Option 5: Public sector joint venture (JV)	7.3

Mandatory considerations

In addition to the above criteria, there are two mandatory stop/go considerations for the RDS service delivery option: whether the options will allow RDS to become a legal entity in its own right; or give RDS the ability to contract in its own right. Only the NPB and JV options enable RDS to perform these functions.

The EPB and PHS options would not allow RDS to exist as a legal entity in its own right, and would not allow it to enter into its own contractual arrangements: consequently, these options should be discounted.

Similarly, the status quo could not legally be a standalone entity and in the current arrangements, RDS cannot contract in its own right. Consequently, options 1, 2 & 3 are not credible and should be discounted.

A summary of the weighted scores from the options appraisal and the mandatory questions is shown in the following table.

Table 8: Summary options appraisal (some figures rounded)

Critical Success Factors	Weight	Option 1- Status quo (SQ)	Option 2- Amend existing public body (EPB)	Option 3- Add to Public Health Scotland (PHS)	Option 4- New public body (NPB)	Option 5- Public sector joint venture (JV)
Service	30%	4.0	4.9	5.3	7.4	7.5
Safety & security	25%	6.9	6.1	7.1	7.9	8.2
Public trust & transparency	20%	3.5	4.8	6.0	7.3	7.4
Sustainability	10%	3.6	4.4	6.1	7.6	7.6
Cost-effectiveness	5%	5.5	6.0	6.5	7.8	7.8
Accountability	10%	4.2	5.0	5.2	6.8	7.3
Weighted score /10	100%	4.7	5.2	6.0	7.5	7.7
Rank	-	5	4	3	2	1
Legal stand-alone entity?	-	No	No	No	Yes	Yes
Contract in own right?	-	No	No	No	Yes	Yes
Final position	-	**N/A**	**N/A**	**N/A**	**2**	**1**

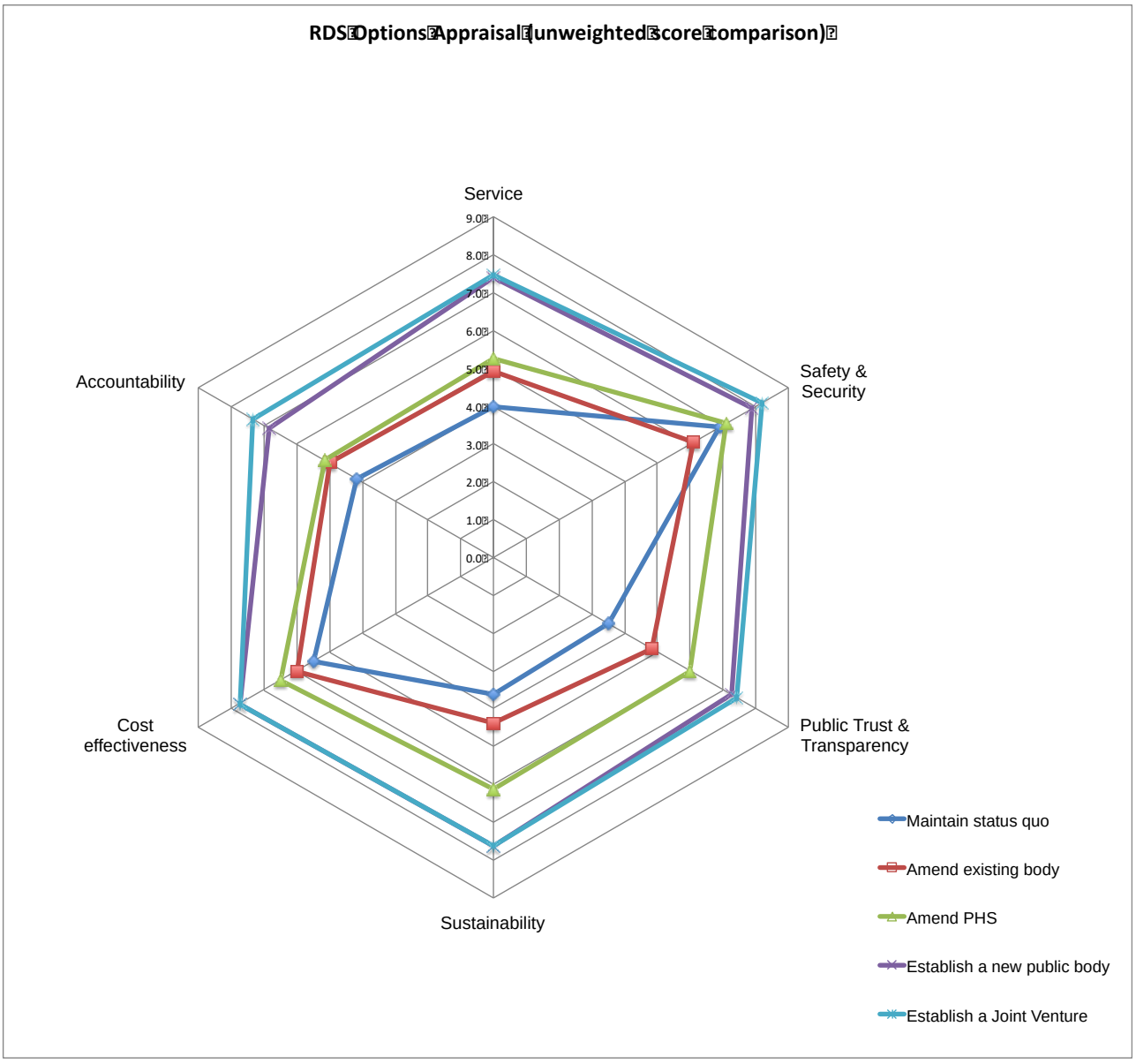
Therefore the decision as to which option should be the preferred option is between NPB and JV. These options have similar scores but one difference is in the legal structure of these options: a new public body would have its main control resting with Scottish Ministers; whereas the JV would not have this restriction and all relevant stakeholders could be included in the governance.

It is because of this distinction, and a marginally higher score, that **Option 5, Establish a Joint Venture company (e.g. under section 84B, NHS Act 1978)** is

recommended as the preferred option for RDS. Overall, on strategic fit, legal advice and outline delivery terms, this is the preferred option.

A diagram of the relative scores of the different options for RDS is shown in the following diagram. It should be noted that the diagram shows un-weighted scores.

Figure 2: RDS options appraisal relative scores



Under the preferred option, a joint venture can take on a number of different legal forms as follows.

Table 9: Potential structures for RDS

Structure	Remarks
Company Limited by Shares (CLS)	This option would not allow RDS to achieve charitable status and so would not be seen as a viable option. An example of a public sector company limited by shares is SFT, which has 100% of its shares owned by Scottish Ministers.
Company Limited by Guarantee (CLG)	Different stakeholders would hold "membership", with liability limited to a nominal amount (often £1 or £5). This model is suited to charitable status or CIC status and is a viable option for RDS. A public sector example is the Moredun Institute.
Scottish Charitable Incorporated Organisation (SCIO)	The organisation must at all times be a charity. This may be a viable option instead of a CLG if charitable status is required. An example of a SCIO is LAR Housing.
Limited Liability Partnership	This option would not allow RDS to achieve charitable status and so is not a viable option.
Community Interest Company (CIC)	When a CIC is formed, a specific "community of interest" must be defined (e.g. community public health researchers) with the CIC's assets and surpluses locked in. There is CIC regulator. CIC status can be given to a CLS or a CLG.

Initial legal advice suggests the two most likely legal forms for RDS are a company limited by guarantee or a SCIO.

Risk Analysis

There are some key risks relating to the Socio-Economic Case as follows:

- A full economic cost-benefit appraisal has not been conducted on all the options due to the degree of uncertainty associated with delivery. Rather, the approach taken identifies the likely key attributes and strengths of each option and potential constraints/weaknesses as per the success criteria.

- The discussion focuses on benefits and costs relative to the counterfactual – this is the Do Nothing option.

Conclusion

The Socio-Economic Case lays out the options available for establishing a central administration for accessing public sector data.

The option of establishing a Joint Venture (e.g. under section 84B of the NHS Act 1978) is the preferred approach with the joint venture having charitable status either as a CLG or a SCIO.

Commercial Case

Introduction

The Commercial Case sets out the implications for procurement as developed from the initial work on RDS. It considers the requirements, proposed sourcing options, commercial considerations and identified risks at this early stage.

The Commercial Case also summarises the preferred delivery option for RDS. The objective is to consider options for the participation in RDS of public sector bodies and other partners and service providers and to establish which vehicle/strategy should be pursued in order to achieve organisational objectives. As part of this, contractual and legal considerations are set out.

A brief summary of existing procurement and governance arrangements is presented. Further detail on this will be sought from existing service partners as the OBC develops to inform a collective picture of the current legal and contracting landscape.

A Legal Working Group convened in 2019 comprising representation from service partner organisations, along with solicitors contracted by Scottish Government. The remit of the Group is to provide information and advice to support the process of identifying options for legal models for establishing RDS as a legal entity, including any contractual and regulatory requirements. It will also reach agreement on the form of founding partners in RDS, to align with strategic objectives for RDS and for the participating organisations.

Further legal advice is being sought and the OBC will be shared with the group for input and consideration. This work will develop through the FBC.

RDS Commercial Structure: Company Limited by Guarantee (CLG)

Based on the work conducted through the SOC, the Strategic Case and the Socio-Economic Case, the preferred approach to be delivered is a Joint Venture company – to be limited by guarantee in order to seek charitable status. A CLG is a legal form of organisation, which is regularly established to conduct business for the benefit of the community.

RDS as a company limited by guarantee will be a “not for profit” entity on the basis that any profits arising will be reinvested in its public mission. The organisation may "trade" but only in accordance with its objects. A CLG may be charitable, in which case if approved by HMRC certain sources of income may be exempt from corporation tax.

Governance Arrangements and Legal Status of founding RDS partners

The Socio-Economic Case presented options for delivering RDS via alternative legal structures, along with examining the status quo. Various success criteria were used to score and rank options for the preferred legal structure for RDS in light of its public

mission and longer-term objectives. This identified the JV as the preferred vehicle for delivering RDS.

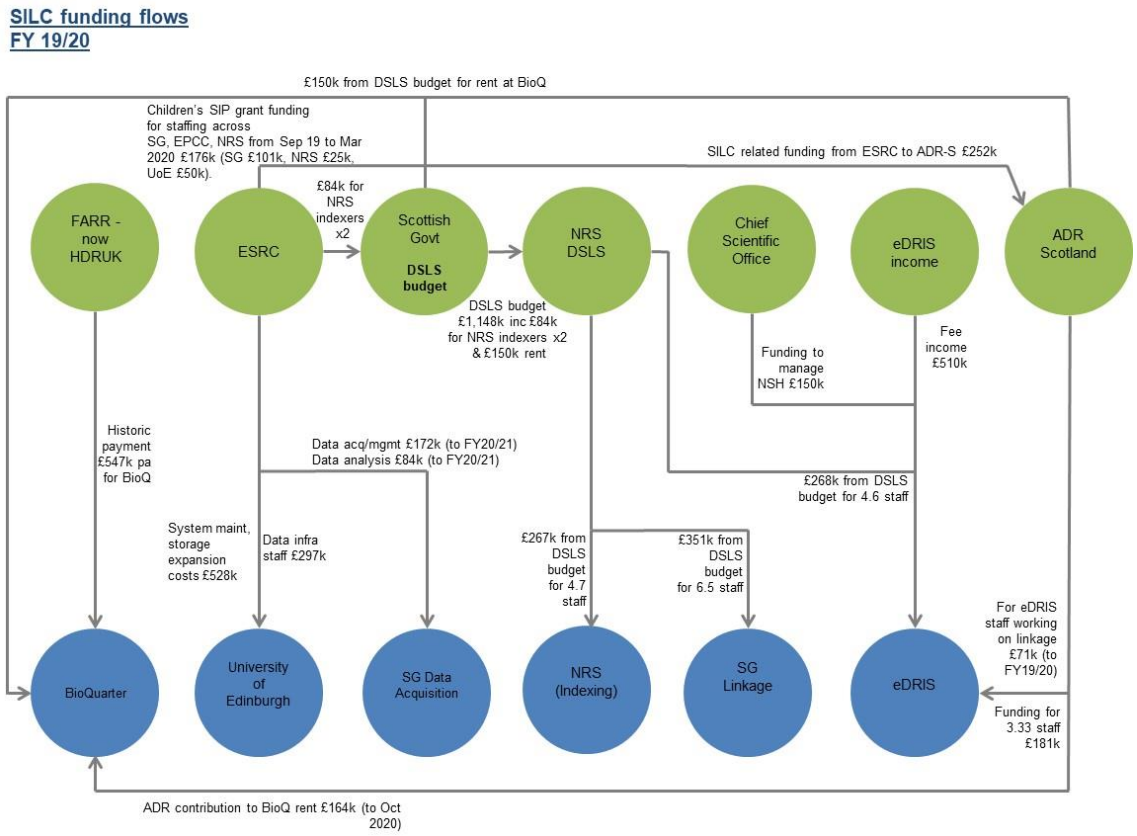
Potential founding partners in RDS are still under consideration. In light of the Founding principles of RDS and its public mission, founding partners are likely to constitute other public bodies, (including SG) and/or academic institutions. Users of the services provided by RDS may also choose to participate and the network of Regional Safe Havens based in academic institutions may also have the option of joining. Public sector data controllers might also wish to hold a stake in RDS. Depending on the founding partnership a set of contracting arrangements will be drafted with service providers. The LWG are taking forward these considerations to agree a workable and effective set of articles for the setting up of RDS as a JV.

Roles and Responsibilities

National Records of Scotland (NRS)
NHS National Services Scotland (NSS)
Public Health Scotland (PHS)
Scottish Government (SG)
Data Controllers
Scottish Universities
Users

Contracting Arrangements under Existing Service Model

Figure 3: SILC Funding Flows



The existing commissioning arrangements comprise a set of bilateral agreements between the various partners, depending on their role and involvement.

The arrangements do not lend themselves to a ready appraisal of the effectiveness of the individual services, either within each of the contract terms, or at a more strategic level across the system. Various funders contribute to different services and risks are not borne or aligned in a way that promotes efficiency, stability and sustainability.

An improved commissioning framework will be developed as the FBC is worked up, in collaboration with partners and the support of the Legal Working Group.

- The National Safe Haven was commissioned by NHS NSS to be delivered by EPCC, University of Edinburgh, and this remains the case; this contract has now transferred from NSS to PHS. A set of service agreements and legal contracts underpin this relationship.

- The Chief Scientist's Office holds an existing SLA with PHS/eDRIS for delivery of the National Safe Haven and it is envisaged that this funding be channeled via RDS. This will facilitate a single structure.

- SILC was defined through a Memorandum of Agreement (MoA), which outlined a governance structure for the collaboration.

- A number of Service Level Agreements (SLA's) were developed between the groups operating within SILC, with each individual organisation reporting to the SILC-SMB.

- A set of collaboration agreements, lease agreements and licenses to occupy the space at Nine BioQuarter were also developed for FARR and ADR-S.

- FARR IT infrastructure – shared infrastructure resource.

Proposed RDS Operating/Commissioning Model: Required Services

This section describes briefly the legal structure and core components of RDS.

Recognising that health data and health informatics generally are core to the aims and ambitions of RDS, PHS, a key NHS organisation, will be one of the founding members of RDS. PHS has wide functions under NHS legislation to, for example, provide research and development services, collect, disseminate and analyse epidemiological data, participate in epidemiological investigations and provide information services, in the NHS context plus facilitate health research generally. RDS will be set-up under NHS legislation as a joint venture company limited by guarantee (with SG, PHS and the University of Edinburgh as the three founding members) and whilst its core purpose will be to perform these functions, such services and activities will also be provided outwith the NHS arena.

This is based on a commissioning model with a small core RDS staff. Various assumptions on the future operating model have been made and will be tested with service partners and key stakeholders. It is assumed that:

- RDS will focus on a range of data sources and types – recognising its core purpose, it will have a strong focus on health and social care data, but will also operate with other data sources.

- It will act as a 'shop-front' for data access by researchers, with most data continuing to be held by relevant public sector bodies.

- Data sharing agreements or data processing agreements as appropriate will be put in place with each of the organisations whose data RDS makes available to others will be put in place between the partners.

- RDS will have its own governance structure (members/directors/trustees – as appropriate to the choice of legal structure).

- It will commission all services and staff needed to operate, principally:
    - eDRIS (from PHS) – customer support
    - EPCC computing infrastructure and support (from University of Edinburgh, via PHS)
    - NRS – data indexing and matching

- The exact details of commissioning arrangements, priorities and structures are yet to be agreed.

Discussions have opened with the regional safe havens in Scotland to explore their current offering and potential collaboration with RDS in the future. This work will also set out a short-term plan for ensuring the regional safe havens are appropriately joined up with RDS in the short term when the RDS service is launched in FY 2021/2022.

Contract Structures

The following key contractual arrangements will need to be put in place to implement the preferred commercial solution. They are not considered to be a complete list of considerations and are subject to full and thorough legal review by appointed legal advisors.

- **Stakeholders/Members' Agreement** – between public sector stakeholders who wish to take a stake in RDS. This will set out the respective roles in funding and governance of the Project.

- **Service Agreements** – with commissioned service partners.

- **Lease** – if required as identified, provided from an office provider to RDS to provide a space for RDS staff to operate from.

- **Finance agreements** – entered into by RDS with stakeholders, setting out the funding and equity/debt arrangements (if required).

Indicative Terms and Conditions will require to be drafted, setting out the key contractual clauses between RDS and its service providers; it is anticipated that these will be developed in detail throughout the procurement phase of the project.

The Scottish Government will also need to obtain specific legal advice to ensure compliance with relevant regulation, including:

- Vires (legal capacity)
- State aid
- Procurement regulations
- Employment law
- Regulatory law
- Financial treatment
- Office for National Statistics (ONS) treatment.

The proposed commercial structure should be subjected to a Legal Compliance Check to ensure compliance with relevant legal requirements.

Procurement Strategy

The procurement strategy will be developed on the basis of a number of assumptions.

- It has been assumed that the necessary inputs and functions required to be commissioned by RDS from each of NRS, University of Edinburgh and PHS can be contracted for directly. Depending on the out-turn structure of RDS, the basis for compliance with procurement requirements includes:
    - reliance on Regulation 13 of the Public Contracts (Scotland) Regulations 2015 either (i) where the partner has a joint controlling membership of RDS and/or (ii) on the basis of a collaborative arrangement in furtherance of public duties and objectives.
    - that certain contracts will be capable of direct award in compliance with Regulation 33 of the Regulations for technical reasons.
- It is considered that the proposed remit, scope and funding arrangements for RDS will be structured such that no state aid issues arise.
- RDS will have its own core staff who will be responsible for fronting RDS, undertaking an initial ‘triage role’ following enquiries, and managing the commercial relationships that RDS will have with its delivery partners.

- Staff resources and assets of the current operating model would not “transfer in” to RDS but remain where they are with RDS, in effect, paying for their use.

- RDS will have in place appropriate service agreements with each of the bodies from whom it obtains commissioned inputs.

- Underpinning legislative basis for PHS’s current operation of eDRIS in the current model would apply equally to eDRIS being available to RDS going forward.

- It is yet to be determined whether RDS would lease particular premises. A Location Review is underway to scope criteria and potential options for siting RDS. Conclusions of this will inform the FBC.

- RDS is to be put in place without supporting / additional legislative measures.

RDS will require a procurement strategy that sets out what components it requires and how it will go about procuring them. It is assumed that RDS will be a contracting authority and, for general items, will have to adhere to the appropriate procurement legislation. This will mean there is likely to be a time lag between a requirement being identified and its procurement. This should be included in any planning assumptions.

A key assumption of the operating model is that RDS will commission services such as indexing, safe haven, and computer infrastructure from partners. Given the importance of data security and public trust it is assumed that these services will only be able to be sourced from established and trusted public sector partners. These arrangements will require contractual terms to be put in place with partners. A more detailed procurement strategy will be developed for the FBC and further details of the RDS operating model will be provided in the FBC.

The Management Case provides detail on the procurement strategy. Throughout the process, it is recommended that SG has externally appointed technical, financial and legal advisers in place to act in the best interest of the public sector and ensure that the procurement specifications are sufficiently detailed to achieve the desired outcomes. In order to maximise the recoverability of project expenditure, it is anticipated that RDS will be incorporated and VAT registered in advance of the incurrence of costs relating to the establishment of the operation.

Based on the assumed operating model, for RDS to function as a service for data controllers and users, the following components will require to be sourced.

Table 10: RDS components

RDS component	Remarks
Staff	Hiring a small number of new technical, operational and managerial staff.
Office space	Includes rent, rates, and related utility costs. This could be a shared office space with a suitable partner organisation or a stand-alone facility rented from private or public sector.
ICT equipment	Staff computers, telephones, printers and related infrastructure will have to be procured through the relevant procurement frameworks including shared services solutions
Office equipment	Office fixtures and fittings, consumables and amenities will have to be procured through the relevant procurement including shared services solutions
Professional services	RDS is likely to require legal, insurance, consulting, financial and tax advice during planning, transition and RDS business as usual. These can be procured through the relevant procurement frameworks including shared services solutions.
RDS operational	RDS specific activities such as indexing, parallel computing capability, website build/maintenance. Most likely to be commissioned from other public sector organisations through service level agreements (SLAs) and/or Memoranda of Understanding (MoU). It is expected that due to the specialist nature of these services, these activities will fall under specific exemption from procurement rules.

Key Contractual Terms and Risk Allocation

The commissioning model will require contractual terms to be agreed between RDS and the partners who are supplying it with services. RDS will require legal support to achieve signed contracts. The key contractual terms will set out the requirements of the service, availability, response rates, and payment terms. The relative risk allocation between the parties will be included in the contractual arrangements but, given the principles of partnership, the risk allocation should be equitable whilst agreeing who is better placed to manage/bear the risk.

Procurement route and timescales

Procurement is likely to be through four main strands as follows.

- Procurement of private sector goods and services: this could take up to three months from development of the specification to the goods/services being delivered to RDS.

- Staff recruitment: this could be undertaken using or could be supported by a private sector recruitment firm. Timescales from job specification to start could be as much as five months (including successful candidates' notice periods). RDS could consider transfer and/or offer secondment opportunities to accelerate this process.

- Office space: the choice of office space will depend on what is available on the market. A specification of requirements has been developed.

- RDS operational capabilities: these will need to be commissioned from partner organisations and it would be sensible to identify which organisations could meet RDS's requirements. If there were several potential partners, then some form of appraisal would have to be undertaken to determine who would be best placed to meet RDS's needs. RDS's legal support would have to agree some form of SLA and draft the necessary agreement. This whole process could take three-to-four months. Because of the specificity of these services and the importance of using public data correctly, it is assumed that these services will not require to follow EU or Scottish procurement rules.

Efficiencies and Commercial Issues

The following commercial issues will need to be considered in arriving at a preferred commissioning model:

- The market in Scotland and supply of required specialist skills is limited and requires investment.

- Requirements of specialist data holdings.

- Statutory functions which mean there is a limited set of potential suppliers.

- Tax treatment of alternative partnership and contracting options.

- Regional - versus national-level demand and how to configure supply.

Conclusion

The Commercial Case lays out the initial procurement requirements and commissioning considerations for RDS. Discussions with the LWG and stakeholders will progress toward a preferred set of arrangements for participation in RDS and for optimal commissioning arrangements consistent with those preferences. The FBC will cover the requirements in further details based on these decisions.

Financial Case

Introduction

The Financial Case focuses on the viability and financial sustainability of the preferred option given RDS's strategic objectives and mission. This section presents the income and expenditure totals for RDS by financial year, from FY 2021/22 out to FY 2025/26. Assumptions and caveats are highlighted, noting where analyses are to develop further and be tested with stakeholders.

A brief summary of past and existing financial arrangements for the service model coming under RDS is also set out. This highlights some of the constraints and weaknesses of existing funding arrangements.

A scan of the wider landscape is conducted. This reveals how similar entities elsewhere in the UK have structured their financial activities. This helps identify risks and points of similarity/difference, which will need to be considered further in the context of RDS.

The chapter addresses affordability of the preferred option and presents choices for consideration of a financial nature in order to ensure a sustainable approach to resource investment for RDS going forward.

As such, based on the preferred option, it will:

- Provide a description of how the financial model was developed.
- Estimate the total cost of the solution over a five year period.
- Calculate how much the preferred option costs each year, with a split across key cost categories.
- Consider capital and revenue expenditure.
- Identify funding avenues, their constraints and attributes.
- Set out the key financial risks.

Financial Case Summary

In order to be acceptable to its partners, the Financial Case for RDS must be sustainable with financial risk carefully managed. Due to the ending of some grant funding, the current SILC financial model will increasingly show a deficit position: if the RDS financial model were to be based on this, it is likely that this too would show a deficit situation making it more difficult to involve partners. Consequently, the Scottish Government Health portfolio has approved a proposal for £5m in each of the five financial years from FY 21/22.

This blend of SG core grant augmented by other funding streams is an essential condition of RDS's viability: it not only makes RDS financially sustainable (with all sensitivity scenarios in surplus), but also mitigates the financial risk to partners.

Financial Modelling Approach

A financial model has been developed for this OBC and sets out potential future income and expenditure for RDS. The model forecasts future demand and project volumes coming through RDS based on consultation with key service partners and research programme funders (ADR-S, HDR-UK, ESRC), as well as Scottish Government and Public Health Scotland partners. Other activity associated with RDS's objectives is also identified.

The modelling takes account of the significant upsurge in research and analysis required to support the evidence base around the Covid-19 pandemic – including clinical research, treatments, drugs and vaccines trials, and wider research exploring variation in outcomes for those testing positive for the virus and other impacts on health and non-health outcomes resulting from the pandemic.

A set of services and activities are modelled to meet this demand and the costs of these resources are estimated. This exercise is presented for the current financial year and for each year to FY 2025/26. The financial modelling includes a transition period with associated start-up/transition costs. The figures are being developed in close consultation with service partners and all assumptions tested with the Finance Working Group.

In developing the Financial Case, the following components have been included:

- Baseline costs and income for the relevant activities undertaken in the current system based on Scottish Informatics Linkage Consortium (SILC) in the status quo model.
- Outline costs for the preferred option (a new body established as joint venture). This has been based on an assumption that RDS will operate through a commissioning model, managed by a small core staff.
- Income from both revenue and grant funding streams, based on forecast project volumes and demand.
- A more detailed analysis of the costs used for the Strategic Outline Case.
- Conversations with key stakeholders in relevant partner organisations such as eData Research and Innovation Service (eDRIS), Edinburgh Parallel Computing Centre (EPCC), and the National Records for Scotland (NRS).
- Benchmark data on outline costs sourced from organisations offering a similar service such as NHS Digital, SAIL, and ONS, UK Data Service/Archive.
- A core SG grant of £5m per annum for five years commencing FY21/22.

Finance Working Group

A Finance Working Group has been established to input to and support the development of the business and financial modelling underpinning the set-up of RDS, to inform the OBC, the FBC and various applications for further funding and financial support. This Group will support work to take forward a review of charging structures.

SILC (2014) and Historic and Existing Funding Sources

Figures detailing the costs and funding of the existing service model have been compiled as part of this OBC. These capture recent and current year income and expenditure and provide a contemporary baseline account of activity, which is expected to come through RDS.

The current model under SILC is intended to operate as a balanced budget based on an aggregate income from grants and revenue of approximately £4m and costs relating to staff, data infrastructure, building costs and other costs totalling a similar amount. This can be seen for FY 19/20 and FY 20/21 in the following table:

Table 11: SILC income and expenditure

	FY 19/20	FY 20/21
Income	£	£
Grant funding from SG	1,147,768	1,172,362
Grant funding from ESRC	1,346,873	1,640,935
Grant funding from CSO	150,000	150,000
Grant funding from ADR S	251,817	190,000
Other grant funding	556,835	503,189
eDRIS income	510,000	640,049
Other income	-	-
Total	3,963,293	4,296,535
Expenditure		
Staff costs	2,556,621	3,359,078
Non staff costs	1,228,004	833,793
Transition and set-up costs	-	-
Commissioning costs	-	-
Total	3,784,625	4,192,871
Surplus/(deficit)	178,668	103,664

The SILC service model relies upon various grant income and research council funding streams, along with revenue generated from charging for the services of the eDRIS team. The Scottish Government and NHS NSS also contributed to some of the costs of setting up SILC in 2014. This mixed funding model remains in place, with some users accessing the service for free, at the point they undertake a research project, and others paying on a project-by-project basis.

As SILC was not constituted as a legal entity the financial flows funding the service were supported by a set of bilateral MoAs, SLAs and other agreements between each of the funders and service partners. These arrangements, which exist still, do not lend themselves to ready appraisal of the cost-effectiveness of the system as a

whole in meeting its objectives, or of the individual parts therein. Due to the ending of some grants, it is likely that the SILC model will move to a deficit position in future years. A predicted income and expenditure is shown in the following table.

Table 12: Predicted SILC Income & Expenditure FY 21/22 to FY 25/26

	FY 21/22	FY 22/23	FY 23/24	FY 24/25	FY 25/26
Income	£	£	£	£	£
Grant funding from SG	1,100,000	1,111,000	1,122,110	1,133,331	1,144,664
Grant funding from ESRC	1,817,000	1,485,000	1,485,000	1,485,000	1,485,000
Grant funding from CSO	150,000	-	-	-	-
Grant funding from ADR S	190,000	190,000	190,000	190,000	190,000
Other grant funding	296,882	286,882	286,882	286,882	258,597
eDRIS income	652,258	674,828	717,118	775,958	849,557
Other income	-	-	-	-	-
Total	4,206,140	3,747,710	3,801,110	3,871,171	3,927,818
Expenditure					
Staff costs	3,161,809	3,217,767	3,283,593	3,371,073	3,458,397
Non staff costs	906,134	906,134	906,134	906,134	906,134
Transition & set-up costs	-	-	-	-	-
Commissioning costs	-	-	-	-	-
Total	4,067,943	4,123,901	4,189,727	4,277,207	4,364,530
Surplus/deficit	138,197	(376,191)	(388,617)	(406,036)	(436,712)

Alignment of these various funding sources through RDS, with single contracts for activity, is expected to promote more efficient and effective service provision, to better align incentives and to realise non-cash releasing efficiencies. In addition, it will allow for surpluses to be carried over and reinvested in the service model and activity of RDS to support access to public sector data for research in the public interest.

To achieve these benefits through the establishment of RDS will require a different model: modelling for RDS has been predicated on similar levels of grant funding as per the status quo but costs are based on a commissioning model. RDS has additional costs over the SILC model in respect of staff and board costs, and transition costs relating to its establishment. These costs are shown in the following tables.

Summary of findings

Over the five year period, without any grant funding or revenue, the estimated investment required for RDS is as follows, based on the hypotheses made in terms of volume and the scope of organisations included in the Business Case, and a commitment to significant development of the service:

Table 13: RDS financial summary

	Investment required £	Including risk contingency £
Staff costs	4,352,061	5,657,679
Non-staff costs (i.e. infrastructure, etc.)	3,914,416	4,697,299
Transition costs and set-up costs	505,000	606,000
Commissioning costs	17,896,298	23,265,188
Service development costs	16,229,554	19,475,465
Total	**42,897,331**	**59,359,310**

Forecast demand and volumes of work

The figures include estimates of likely future demand, based on current demand for eDRIS. The demand modelling uses actual figures from previous years to develop ratios that allow prudent predictions on project numbers, revenue and staffing requirements in future years.

The eDRIS calculations represent a 'stock and flow' approach: the model starts with an opening balance of projects to which new enquiries are added and closed projects/enquiries subtracted to give a closing balance for each year, which becomes the opening balance for the following year. The model shows increasing demand with progressively higher number of projects/enquiries.

Table 14: Predicted project volumes FY 21/22 to FY 25/26

	FY 21/22	FY 22/23	FY 23/24	FY 24/25	FY 25/26
Live enquiries & projects brought forward	665	668	680	712	760
New enquiries pa	331	348	383	421	463
Assumed growth rate of enquiries	5%	5%	10%	10%	10%
Total enquiries/projects handled by eDRIS pa	996	1016	1063	1134	1223
Project closure %	33.0%	33.0%	33.0%	33.0%	33.0%
Enquiries & projects closed	329	335	351	374	404
Projects carried forward	668	680	712	760	819
% of completing projects issued fees	22.8%	22.8%	22.8%	22.8%	22.8%
Number of projects issued fees	75	76	80	85	92
SG	12	12	13	13	14
ADR-S	46	46	47	49	53
Non SG/ADR-S	607	609	621	650	693
Average fee	£8,700	£8,831	£8,963	£9,098	£9,234
Revenue from projects	£652k	£675k	£717k	£776k	£850k

In addition to the self-generated revenue, it is assumed that RDS would maintain its grant funding. On this basis, the income and expenditure has been estimated.

Summary income

The income of RDS over the next five years is shown in the following table:

Table 15: Predicted RDS income FY 21/22 to FY 25/26

	FY 21/22	FY 22/23	FY 23/24	FY 24/25	FY 25/26
Income	£	£	£	£	£
SG core grant	5,000,000	5,000,000	5,000,000	5,000,000	5,000,000
Grant funding - SG	1,100,000	1,111,000	1,122,110	1,133,331	1,144,664
Grant funding - ESRC	1,747,743	1,416,590	1,417,446	1,418,311	1,419,184
Grant funding - CSO	150,000	0	0	0	0
Grant funding - ADR S	190,000	190,000	190,000	190,000	190,000
Other grant funding	296,882	286,882	286,882	286,882	258,597
eDRIS income	652,258	674,828	717,118	775,958	849,557
Other income	0	0	0	0	0
Total	9,136,883	8,679,300	8,733,556	8,804,482	8,862,002

Costs

For the OBC Financial Case, initial costs have been developed based on:

1. **Ongoing operational costs** – including staff costs and non-staff costs (eg premises, utilities, technology, and other equipment).

2. **Transition and set-up costs** – the cost of setting up the new RDS operation including one-off transition costs such as website creation, development of systems, transition staff costs, and legal costs.

3. **Commissioning costs** – the costs to RDS of 'buying' services from RDS partners such as EPCC, eDRIS, and NRS.

4. **Service development costs** – the costs of service improvements (mainly enhancements such as synthetic data, case tracking system, analytical workbench) relating to RDS's transition to its Target Operating Model (TOM).

Table 16: Predicted RDS expenditure FY 21/22 to FY 25/26[11]

	FY 21/22	FY 22/23	FY 23/24	FY 24/25	FY 25/26
Expenditure	£	£	£	£	£
Staff costs	863,078	866,708	870,376	874,079	877,820
Non staff costs	866,200	819,688	741,227	742,822	744,479
Transition & set-up costs	200,000	95,000	70,000	70,000	70,000
Commissioning costs	3,418,309	3,486,263	3,564,204	3,663,920	3,763,603
Service development costs	3,565,517	2,793,532	3,089,161	3,290,164	3,491,180
Total expenditure	8,913,105	8,061,191	8,334,967	8,640,986	8,947,082
Surplus/(deficit)	223,778	618,109	398,589	163,496	(85,080)

The financial modelling shows that RDS is in annual average surplus position of approximately £0.3m per year over each of the first five years of its operations. To test the robustness of this position, the financial model has included sensitivity analysis with various scenarios modelled to test their impact.

Sensitivity and Optimism Biases

The Financial Case offers a prudent and tested set of scenarios to draw out the nature and consequence of different financial risks:

- An end to the ESRC main grant in March 2022 (this is the biggest single grant).
- An end to all grant funding (except the SG core grant, SG DSLS grant and internal eDRIS grant funding).
- To mitigate optimism bias, an increase in costs (30% for staff costs, 20% for all other costs) .
- A drop in eDRIS project volumes by 15%.
- An increase in eDRIS project volumes by 15%.

The different scenarios have been modelled and the results are shown in the following table.

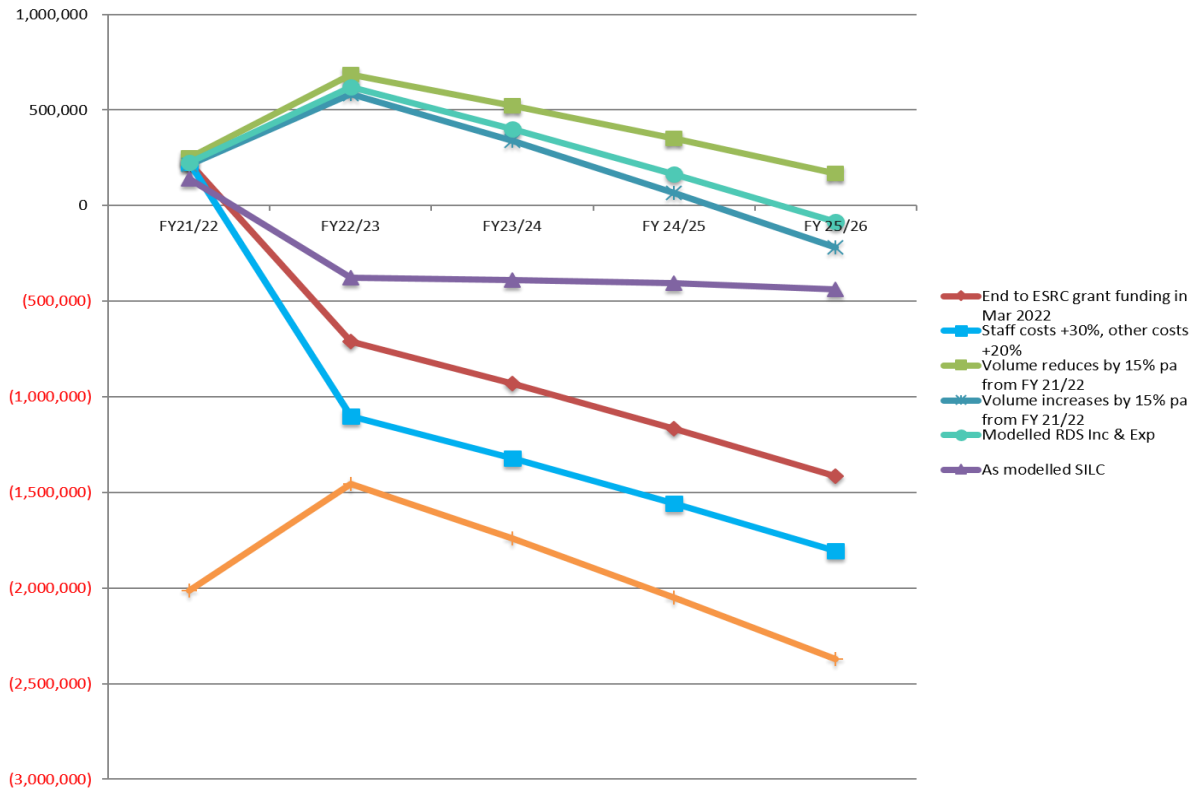
[11] Some minor rounding errors in Table 16.

Table 17: RDS sensitivity analysis FY 21/22 to FY 25/26

	FY 21/22	FY 22/23	FY 23/24	FY 24/25	FY 25/26
	£	£	£	£	£
As modelled RDS I&E	223,778	618,109	398,589	163,496	(85,080)
As modelled SILC I&E	138,197	(376,191)	(388,617)	(406,036)	(436,712)
ESRC grant funding ends Mar 2022	223,778	(712,891)	(932,411)	(1,167,504)	(1,416,080)
All grant funding ends Mar 2022	223,778	(1,102,891)	(1,322,411)	(1,557,504)	(1,806,080)
Staff costs +30%, other costs +20%	(2,012,609)	(1,456,486)	(1,740,554)	(2,049,261)	(2,371,467)
Volume -15% pa from FY 21/22	248,861	684,412	520,458	350,418	166,238
Volume +15% pa from FY 21/22	211,237	581,088	333,918	66,366	(217,183)

This can also be seen in the following graph.

Figure 4: RDS sensitivity analysis FY 21/22 to FY 25/26



Financial Sustainability and Risk

As shown above, whilst the base case is positive, some of the sensitivities are in a deficit position. This includes the scenario whereby the current ESRC budget is cut from March 2022 (average deficit of £0.8m pa), and the scenario whereby all grant funding (with the exception of the DSLS, which is in the control of SG) is cut (average deficit of £1.1m pa). In these scenarios, RDS could be returned to a surplus position by reducing the amount spent on service development.

The other sensitivity showing a deficit position assesses an increase in staff costs of 30% and an increase in other costs of 25%.

This scenario has an average deficit of £1.9m pa and is included to counter optimism bias but again the deficit could be returned to a surplus position by reducing the amount spent on service improvement. The sensitivities will be redone when there is greater detail on the costs, and the Financial Case will be updated accordingly. At this stage, it is clear that RDS is in a surplus position but this is sensitive to increasing costs: overall RDS will be dependent on the core SG grant in the short-to-medium term, and is unlikely to be established without this support.

Once established, the financial position of RDS will be improved through greater efficiency, cost reduction, increased revenue, and through securing further external grant funding. Whilst these actions are aligned to the benefits of RDS, it is unlikely that RDS will be able to achieve them in the short term. Consequently, the core SG grant is vital to underwrite RDS.

Factors affecting RDS's costs:

Experience delivering data driven research highlights the significant costs associated with supporting researchers and provisioning high-quality linkage-ready datasets. Efforts to improve data quality and metadata standards across the Scottish public sector will work to drive down the costs of conducting research. In addition, making better information about existing data sources available publicly will also help manage the burden on the service (research co-ordinators) and support a more informed user community.

Other efficiencies along the data pipeline are being tested both in Scotland and elsewhere and learnings from this can inform changes to RDS processes to improve efficiency and drive down costs.

Charges levied on users arguably do not reflect the full cost of provision and continue to be supported by grant funding. Preliminary analysis of management information from the existing service model suggests significant time is spent on pro bono work that is not invoiced. A review of charging structures and fees will be undertaken in the coming year.

The financial figures will be subject to further development and revision as part of the FBC. The Financial Working Group will continue to test further developments and output of the model. The FBC stage will also undertake an early 'sensitivity testing' exercise to allow the modelling of alternative cost scenarios over the 5-year period. The capability to model scenarios should be built into subsequent versions of the Financial Model.

Other financial risks facing RDS and the Financial Case modelling:

- Accuracy of the baseline costs.
- Ability to forecast demand and revenue – historically this has been a problem for the service model and has had direct implications for staff capacity and

ability of the entire journey to be managed, free of bottlenecks while also ensuring staff are always fully utilised.

- Complexity of projects to be undertaken and estimated time required from staff members.

- Optimal staff resource – level of resourcing, skills, expertise, turnover and capacity.

- Costs and resource estimates.

These risks will be further explored as part of the FBC.

How Could RDS Be Funded?

UK-wide Public Sector Data Access

An assessment of the wider UK landscape reveals considerable variation in how data access arrangements for public sector data are delivered via institutional and financial frameworks.

A number of the data access platforms/services are located within academic institutions and/or public sector bodies. In all cases, these rely on some level of ongoing public sector funding. This is the case for the SAIL databank (Swansea University), which is part-funded by Health and Care Wales and the Welsh Government. The Secure Research Service within Office of National Statistics (ONS), the UK Data Service and NHS Digital all receive support via research councils and central government departments to commission relevant services for making public sector data available for public benefit research. Some of these institutions are able to supplement service provision with income from commercial activity in other parts of their business model.

The analysis of fees charged for services in other parts of the UK suggests these are subsidised and not representative of the full economic cost of providing them. This mixed model of funding is typical and represents how the service model in Scotland has worked to date.

Further work in the coming year will explore an acceptable compromise on fees and charges – such that RDS remains an attractive offer to researchers and others wishing to access public sector data, while remaining on a healthy financial footing.

Income Generation

RDS will have opportunities to generate income from:

- Charging for research co-ordinator service and for costs of accessing datasets.

- Charging for analytical support.

- Annual Subscription fees to potential users.

- Profit-sharing arrangements where proceeds from IPR over products derived from accessing the data could potentially be shared with RDS in order to reinvest in the services and data.

Conclusion

The Financial Case presents the income and expenditure estimates for RDS, based on past and recent business activity and estimates of forward demand, presenting a set of five year budgets and net financial position. This analysis takes on board initial conversations with service providers and funders and with those involved in delivering the Covid-19 research data service.

The set-up of RDS is based on the current service model, which will gradually transition into the new data access model based on the commissioning of services from existing partners.

The financial model has shown that, at present, based on the assumed future service model, which includes development of the service, and a core grant of £5m from SG, there is a surplus position of approximately £0.3m per annum and RDS would be sustainable. This financial position remains sensitive to increased costs and the Financial Case will be updated in the FBC.

Management Case

Introduction

This chapter details arrangements for the programme of work necessary to establish RDS, adopting a programme management approach. It sets out a delivery plan with clear milestones, documents project planning, governance structures, risk management, communications and stakeholder management, benefits realisation and assurance mechanisms. It demonstrates that robust arrangements are in place for the delivery, monitoring and evaluation of the scheme, including feedback into the organisation's strategic planning cycle.

The FBC will include development of a more detailed delivery and operational plan and organisational strategy over the first two-to-three years.

Project Management, Governance, Roles and Responsibilities

Project management arrangements are led by the Data Sharing and Linkage Unit and oversee the activities of a core delivery team working on the implementation of RDS.

Programme governance is provided through the RDS Transition Board that meets regularly to review progress and provide advice and oversight for the overall direction of the project. The Board also oversee management of project risks and timescales.

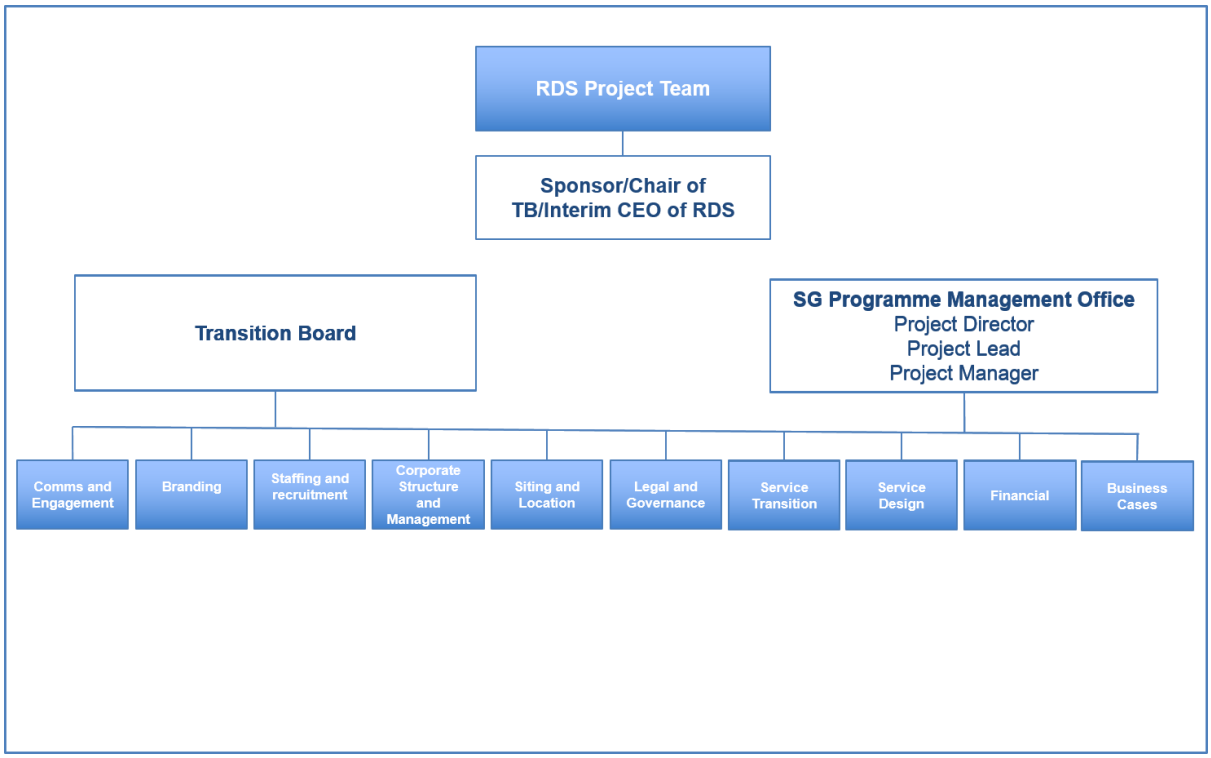
A number of themed working groups have been established to work on the more substantive considerations for the delivery of RDS:

- Legal Working Group
- Financial Working Group
- Regional Safe Havens short life working group

Terms of Reference for each of the Groups have been agreed and documented.

The project reporting structure is shown in the following diagram.

Figure 5: Project Reporting Structure



Project roles and responsibilities are as follows:

- Senior Responsible Officer
- Project Executive Manager
- Project Lead
- Project Manager
- Lead Business Case
- Lead Funding and Finance
- Lead Service Design/Transformation Manager
- Lead Communications and Stakeholder Engagement
- Business Analysts

Project Plan

A project plan has been developed to capture tasks, deliverables and timescales across the working groups and project roles. This maps out the set of activities to reach a final draft OBC and provides for a stock-take and further gap analysis to identify decisions and further work to reach the FBC, the Minimum Viable Product (MVP) and the future Target Operating Model.

A summarised version of this is presented to the Transition Board at each meeting.

Communications and Stakeholder Engagement

There is high interest in RDS across several key stakeholder groups. Project communications and stakeholder engagement will be an important aspect of implementing RDS. The SRO, Chief Statistician Roger Halliday has already commenced engagements with key delivery partners and produced public-facing summaries highlighting the longer-term benefits of RDS and the opportunity it presents. The key stakeholders are as follows:

Table 18: Key RDS stakeholders

Stakeholders	Role in RDS	Remarks
Scottish Government	Funder of RDS. Governance role in RDS.	Sets national outcomes, and Scottish Digital Strategy. Existing SILC partner.
Public Health Scotland	Governance role in RDS.	New organisation set-up in April 2020.
National Service Scotland	Oversight role for eDRIS.	Lead agency for SILC, previous home of eDRIS.
National Records Scotland	Indexing.	Existing SILC partner.
eData Research and Innovation Service (eDRIS)	Data Linkage provider.	Existing SILC partner within PHS.
University of Edinburgh	Governance role in RDS.	Provides EPCC to SILC. Existing SILC partner.
Edinburgh Parallel Computing Centre (EPCC)	Computing infrastructure/capability.	Part of the national safe haven. Existing SILC partner.
Health Data Research UK	Funder of RDS.	Successor to FARR Inst. Which was formal SILC partner.
ADR Scotland	Funder of RDS. Service recipient.	Existing SILC partner.
Chief Scientific Office		Funds five regional save havens as well as National Safe Haven.
Regional Safe Haven service partners	Regional indexing/linkage service and secure analytical platforms.	

Academics, researchers, analysts	Users.	Existing users of SILC.
Data controllers	Providers of datasets.	Existing providers of datasets to SILC.
Data professionals: statisticians/data scientists	Users.	Existing users of SILC.

Change Management Plan

Transition from the current service model to a Minimum Viable Product for RDS will enable changes occurring in response to Covid-19 to be built into the service and launch in 2021. This will require careful planning and change management to ensure continuity of service delivery. A more detailed future service model for RDS will be developed at the FBC stage, allowing a detailed change management plan to be developed and agreed with relevant stakeholders.

Benefits Realisation Plan

A profile of benefits has been captured in the preparation of this OBC, set out in the Strategic Case under spending objectives. During development of the FBC, this will include a detailed plan of how each identified benefit will be measured so its realisation can then be monitored.

The benefits realisation plan will be aligned with the project delivery plan: it is currently profiled so that full values will not be realised until at least Year 5 of the programme.

Contract Management Plan

This will set out arrangements where contracts are required and specify the accompanying documentation, in line with the Commercial Case.

Risk Management and Risk Register

Risk Registers and an overarching Risk and Issues log have been developed for the RDS Programme. These are updated regularly and used to capture and manage risks across the work-streams and are shared with the Transition Board.

A full risk management plan will be presented in the FBC.

Assurance

Whilst there are governance structures in place to oversee the planning and delivery of RDS, it may be prudent to consider independent assurance and/or a gateway review process. SG guidance should be consulted and implemented as required.

Post project evaluation

In accordance with SG guidance, a post implementation review will be included in the overall project and undertaken approximately nine months after RDS is operational.

A more detailed specification for the type and nature of evaluation (economic, impact or process) to be conducted and the information requirements for this will be set out in the FBC, building on the benefits realisation plan and broadening out.

Contingency plans

In the event that this project fails, the current operating model can be continued through the existing operational arrangements. It is planned to initially offer RDS on a minimum viable product (MVP) basis. This means that, if required, there would be the opportunity to operate on this basis for a longer period than anticipated if that were required.

Successful delivery

As an organisation, RDS will service two separate groups of stakeholders through its work and operations; those who contribute data to the repository and those who wish to access data held in the repository (or available via the repository).

Both groups of stakeholders will interact with RDS through a defined service model. This model must meet the needs of both these groups and be fit for the future in terms of anticipating future demand (of both data controllers and end users) and building a service to support this. Innovation and performance improvement will be at the heart of how the service model matures.

RDS will need to keep pace with changes to standards and cyber security practice to continue to gain the support of data controllers. Similarly data curation methods and systems must strive to innovate to keep pace with the requirements of increasingly sophisticated analytical techniques applied by end-users. RDS will need to devote resource to this horizon-scanning and relationship-building work.

RDS will lead an ongoing programme of public engagement and public-facing communications that explains what RDS is about, what it aims to achieve and how and takes views from the public on these issues. It will be transparent with users and the public concerning how and why data is processed and regularly provide examples of impactful work where projects have informed and evidenced Scottish policy and public services.

Data Controllers, Information Governance – Privacy at the Centre

It is recognised that different data have varying levels of sensitivity - from those which can be made freely available (i.e. open data) through to those that must be carefully controlled to protect citizens' privacy.

It is also recognised that the public hold subtly different views regarding the acceptability of people from the public/private/voluntary sectors accessing data for various uses – from development and improvement of public services through to the generation of private sector profit.

It is proposed that a mixed model of IG arrangements will be adopted under RDS across a broad spectrum of data. This approach will build in the flexibility to accommodate statutory requirements relating to some data holdings, while supporting a different approach for other types of less sensitive data.

IG under RDS will work toward ensuring robust, holistic and proportionate assessment of requests to access data and work with data controllers to explore how best this can be delivered within an environment where many different data sources are being combined for single analyses.

There will be the flexibility for data controllers to specify which data can be used, in which ways and by which types of users. In some cases this will involve data controllers depositing whole datasets into the secure computing environment, with the potential for permission for these to be used in specified ways. In other cases data controllers may wish to retain an approach wherein they retain source datasets within their local computing environments and only provision data after assessing each project. In still other situations, data controllers may agree to the creation of programme level datasets (involving linkage of more than one dataset) and sanction use for specified purposes.

RDS will offer all of these options, using standardised data sharing and data processing agreements. It will remain the responsibility of the data controllers to make the assessment concerning the risks and benefits of providing access to the data for specific requests.

Where data is made available for research, RDS will develop a data prospectus that outlines the datasets and what they contain (their metadata). This will allow researchers to search the prospectus to decide whether using this data would be worthwhile and if so to start to plan their research. Clear permissions around the use of such data will be agreed between RDS and data controllers and made available to researchers.

RDS Service Users, Data Catalogues

RDS will seek to engage with professionals from the:

- Public sector
- Academia
- Private sector
- Voluntary sector.

This will ensure that the potential of Scottish public sector data are released for public benefit. In order to develop viable and worthwhile projects users will need to understand what data are available and the likely logistics involved in provisioning that data.

RDS will develop a data prospectus that outlines the datasets that are available for research and linkage and what they contain (their metadata). This will allow researchers to search the prospectus to decide whether using this data would be worthwhile and if so to start to plan their research. RDS will commission work to set-up and maintain a web-based resource.

RDS Service Providers – Research Co-ordinators, Customer Support

RDS will commission research co-ordinator services to:

- Liaise with experts in the required datasets.
- Build knowledge of various datasets that are available (including meta data, coding structures etc.).
- Support study design and assessment of the logistics involved in creating the required dataset.
- Implement agreed information governance and data access processes – ensuring that agreements with data controllers are followed.
- Advise on the creation of study cohorts from single and multiple datasets
- Maintain appropriate project documentation (e.g. IG and researcher approvals).
- Regularly communicate across the technical parts of the data linkage service to drive progress (customer support, indexing and secure computing environment).
- Data provisioning and ad hoc/bespoke linkages.

Within the current data linkage system this function is currently provided by the eData Research and Innovation Service (eDRIS) within Public Health Scotland.

Current experience has demonstrated that not all users of RDS will be technically able to undertake data analysis and may wish to commission support from another organisation – this would be available (or sourced) through the RDS user service. RDS will therefore commission, and audit, this service currently provided by the eData Research and Innovation Service (eDRIS) within Public Health Scotland.

RDS Service Providers – Indexing Service

Identifiable personal information is not always required for the vast majority of research and innovation purposes. The current experience is that worthwhile projects often require large volumes of data and/or the joining of multiple datasets. However, this does not commonly require a concomitant need to provide personal identifiable information to researchers.

The new linkage model will continue to be based upon a technical approach which is known as the 'separation of function' model. Within this approach the linkage of individuals takes place separately, in a different organisation, from the joining of the information required for a research projects.

RDS will therefore commission, and audit, the services of the well-established de-identification and linkage service already in existence at National Records of Scotland.

This service replaces individual personal information with de-identified index numbers and allows datasets to be joined and provisioned without data custodians needing to exchange personal identifiable information. This approach will be central to the development of RDS and form the key underpinning for the de-identified data that is provisioned for data linkage projects.

RDS Service Providers – Secure Storage

In order to ensure public benefit is realised a secure, high-performance computing environment is required, which will have two key functions:

a) Secure storage of data for research and innovation
b) Provision analytic environments.

For this reason RDS will enforce contractual controls upon those accessing data in combination with state of the art computing security. To ensure public trust the secure computing environment will be subject to external, independent, scrutiny and be expected to achieve relevant kite marks relating to industry best practice.

The design of the IT architecture will be developed collaboratively between the IT service provider and RDS. This will ensure that the design takes account of multiple data controllers' requirements.

RDS will ensure the design and its operating processes are subject to external scrutiny and regular compliance testing.

Appendix One – Glossary

Term / Abbreviation	Meaning
ADR UK	Administrative Data Research, United Kingdom
ADR S	Administrative Data Research, Scotland
BAU	Business as usual
CIC	Community Interest Company
CLG	Company Limited by Guarantee
CLS	Company Limited by Shares
CSF	Critical success factor
CRB	Cash-releasing benefits
DWP	Department of Work and Pensions
eDRIS	eData Research and Innovation Service
EPB	Existing public body
EPCC	Edinburgh Parallel Computing Centre
ESRC	Economic and Social Research Council
EU ENISA	European Network and Information Security Agency
EU NIS	European Union Directive on Security of Network and Information Systems
FBC	Final Business Case
GDPR	General Data Protection Regulations 2018
HDR UK	Health Data Research UK
HMRC	Her Majesty's Revenue and Customs
HMT	Her Majesty's Treasury
ICT	Information and Communication Technology
IG	Information Governance
JV	Joint venture
MOA	Memorandum of Agreement
MVP	Minimum Viable Product
NHS	National Health Service
NPB	New public body

NRS	National Records for Scotland
NSH	National Safe Haven
NSS	NHS National Services Scotland
OBC	Outline Business Case
ONS	Office of National Statistics
PHS	Public Health Scotland
QB	Quantifiable benefits
RDS	Research Data Scotland
RSH	Regional Safe Haven
SCIO	Scottish Charitable Incorporated Organisation
SFT	Scottish Futures Trust
SILC	Scottish Informatics Linkage Collaboration
SILC SMB	Scottish Informatics Linkage Collaboration Senior Management Board
SLA	Service Level Agreement
SOC	Strategic Outline Case
SQ	Status quo
SRO	Senior Responsible Officer
TOM	Target Operating Model
UK	United Kingdom
VFM	Value for money

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