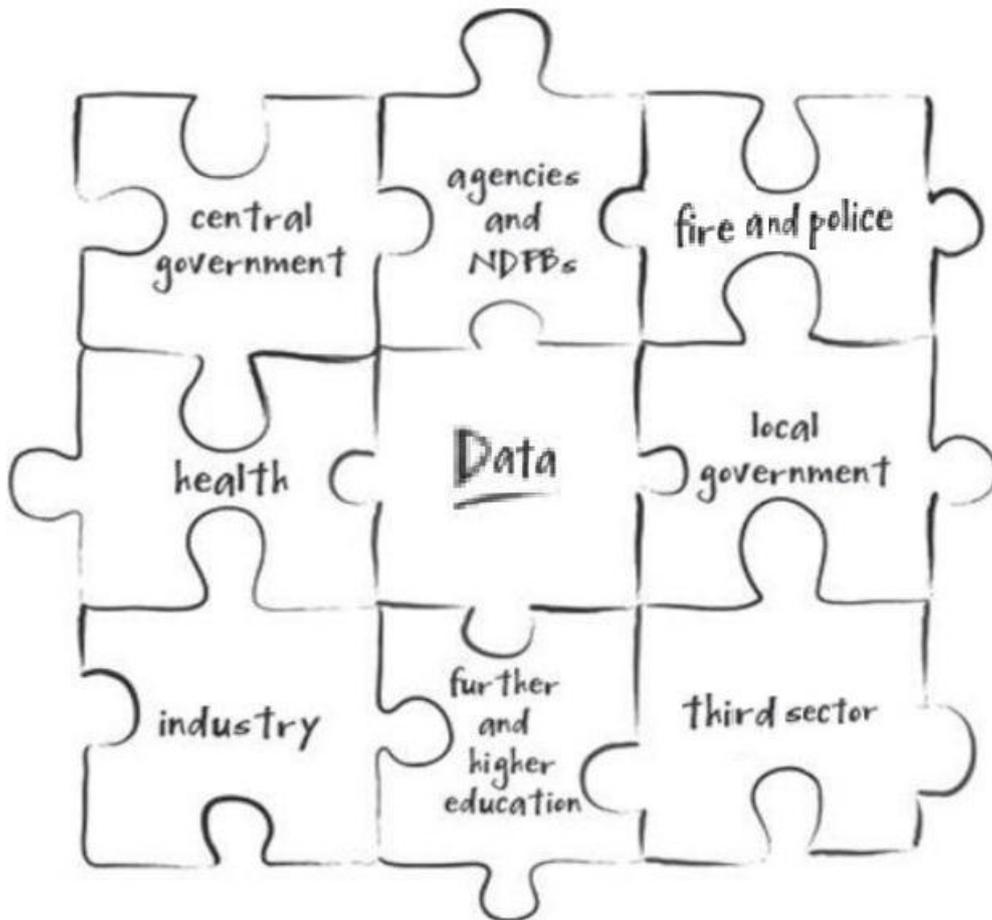


Strategic Action Plan for effective and responsible collection, management and use of data across Scottish Public Services

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Introduction: Meeting our Data Vision

“[Scotland’s Digital Future: Delivery of Public Services](#)” identifies effective management of data as one of four themes in the digital enablement of public services. The Data Management Board oversees achievement of this objective. The Board has set out its [Data Vision](#) for 2020. This states:

“Our objective is to champion, and unleash across Scotland, trustworthy uses of data for public benefit. In doing so we wish all involved to maintain and enhance Scotland’s reputation for the safe, secure and transparent use of data; rapidly translating our strengths into benefits for citizens, businesses and communities, locally and globally.

The Vision sets and expands on 10 guiding principles.



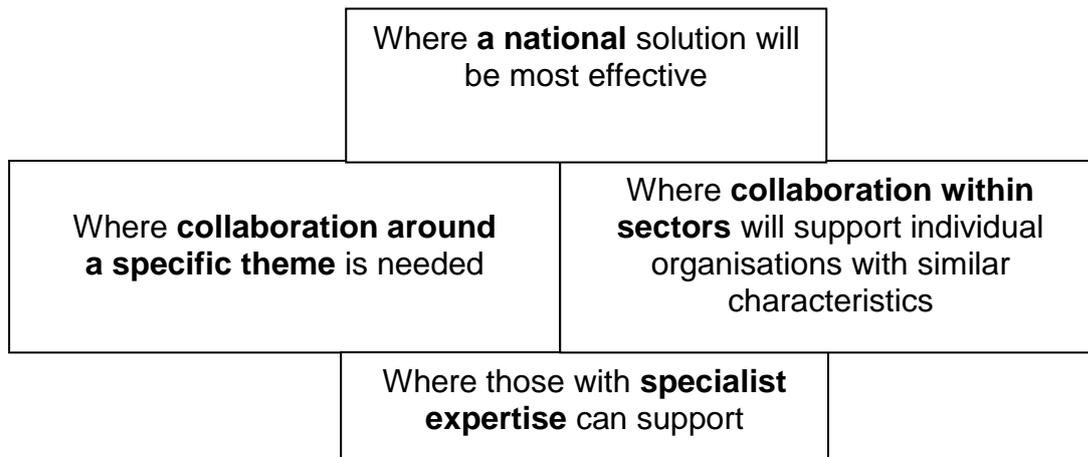
The Data Vision recognises that high quality, relevant and timely data is essential to providing public services which are responsive to the needs of the user, embody a preventative approach and are resource-efficient. Access to open data, expanded analytical capacity and the need and ability to share data will support innovation that re-engineers public service delivery at both a national and local level. Public sector data is also a valuable asset more generally, with substantial benefits still to be realised from data as an input to new products and services which will support productivity and jobs growth.

The Strategic Action Plan aims to inspire and drive decision makers to engage with purpose and ambition to meet the Data Vision. Public trust in the use of data is integral to delivering the Data Vision.

The plan has been developed with, and for, the Scottish public sector and its partners across the wider data community. It will be implemented within a legislative framework: the Data Protection Act, the EU INSPIRE Directive which establishes an infrastructure for spatial information and the EU Directive on the re-use of Public Sector Information (PSI Directive). It also delivers under the Information Commissioner’s Office (ICO) Data Sharing Code Practice, which applies to public, private and third sector organisations. It will be reviewed and updated annually.

A wide range of partners need to support delivery against this plan: those designing and delivering public services including the third sector, research institutions, the

business community and the users of services themselves. In planning for delivery we have sought to identify those actions:



Our actions must have impact and deliver benefits. The Digital Public Services Measurements and Benefits Framework will help us assess this. The Framework contains 16 measures which provide coverage of the main benefits which Scotland's Digital Public Services Strategy aims to achieve. Measures relevant to this Plan are:

- Our Public bodies are sharing more data to help improve the quality and effectiveness of their services (Benefit 12, baseline results published Jan 2015)
- More Open Data sets are available for use by our citizens, businesses and research organisations (Benefit 7 – data collection and reporting during 2015)

The Action Plan will be developed in response to evidence drawn from the Measurements and Benefits Framework.

The Action Plan is broken down into **2 sections**.

Section 1: The policy narrative, which identifies specific data themes, and the key actions for these which need to be undertaken in the short to medium term to pursue these. (Actions for the longer term will be identified and added). Case studies are referenced throughout, highlighting current and emerging good practice across Scotland. The Plan should be a catalyst for cross-fertilising progressive thinking and approaches across the data themes. The annual review of the Plan will allow further case studies to be identified, building up a portfolio of evidence of culture and practice change across Scotland.

Section 2: Signposts to supporting resources and provides clarity on ownership of actions and a delivery schedule which tracks progress towards implementing the Data Vision by 2020 and beyond.

Section 1: Data Themes

To support delivery of the Data Vision’s guiding principles, and building upon work already underway in Scotland, the action plan is split into broad data themes. The themes build upon those identified within the Digital Public Services Strategy.

- **Sharing of Personal Data for Operational Purposes** – data which can identify an individual - is shared in an effective and responsible way across relevant public bodies to improve the design and delivery of public services while maintaining citizen trust.
- **Sharing and Linking of Data for use in Statistics and Research** across organisational and functional boundaries to increase the power of data analysis; better inform policy, research and practice; and promote integrated service delivery.
- **Open Data** – non personal data which is made freely available in an electronic format to anyone to use, reuse and redistribute. Making data open allows others to reuse and add value to the data e.g. by developing new products and services from the data. Making data open also supports a greater understanding and transparency of public bodies and the services they provide.
- **Data Innovation** - using existing and emerging data in new and creative ways including making use of advanced data analytics. Investing in the innovative use of data to drive public service reform and sustainable economic growth.

Cutting across the data themes are a number of **cross-cutting issues**

Public Confidence, Privacy and Ethics	<ul style="list-style-type: none"> ➤ awareness raising and consultation with citizens on use of data so as to build confidence and trust ➤ ensuring that high standards are being used consistently across the public sector in Scotland
Leadership, Data Management and Data Quality	<ul style="list-style-type: none"> ➤ awareness among public sector leaders of data as a valuable asset ➤ a robust data management system is recognised as a core requirement for any public sector organisation to enable data to be:- <ul style="list-style-type: none"> • recorded in an accurate, timely and complete way • used directly with the potential to be shared • made discoverable through good metadata ➤ where there are shortfalls in the quality of data, these are clearly highlighted by the principal owner
Skills	<ul style="list-style-type: none"> ➤ ensuring the capacity, skills and resources in the public sector are of a standard to collect and manage data with rigour, and ensure decisions on data release make data accessible, and meaningful downstream.
Data Infrastructure	<ul style="list-style-type: none"> ➤ having an ICT infrastructure and standards that provide interoperability and support exchange of data

To enable a common understanding of key data terms, a glossary is available at - <http://www.gov.scot/Resource/0044/00448597.pdf>

Section 1.1 - Sharing of Personal Data for Operational Purposes

What is Personal Data?

Personal data is data which identifies a living individual, and its use is governed by the Data Protection Act 1998. This framework is not a barrier; it ensures that data is handled responsibly by organisations.

Background

The Christie report, Future Delivery of Public Services¹ identified a decisive shift towards prevention as one of the four pillars of reform. Having good data and sharing that data in an intelligent way is a prerequisite for a preventative policy approach.

In addition, we are aiming for people to take a more active role in their care and support, including the production and continued updating of their personal information. This can be seen in the [Talking Points](#) outcomes-focussed approach to assessment and care management for adults, and the [GIRFEC](#) approach to greater involvement of children and their supporting network in their care decisions.

But while data sharing is happening every day between service providers, it is also unnecessarily avoided or, at times, undertaken reluctantly and inefficiently. There can be a lack of understanding of what the legislative framework allows and of the guidance available, as well as a lack of awareness of good practice.

Progress to Date

Within Scotland there are already a number of approaches taken to facilitate the effective and responsible sharing of data. Requirements may be set out in law, such as The Children (Scotland) Act 1995. Public sector parties have entered local information sharing agreements. More recently, [SASPI](#), the Scottish Accord for the Sharing of Personal Information was launched to provide a data sharing framework available for any agency to use based on template documentation.

SASPI – Scottish Accord for the Sharing of Personal Information

Developed for use across the public sector agencies in Fife, with input and support from the Scottish Government, NHS Lothian and NHS Tayside, SASPI is a two-tier data sharing framework based on the well-established national Welsh model: the WASPI. Available for any agency to use, SASPI offers template documentation for information sharing arrangements. Fife has completed work to consider the timescales needed for developments, estimating that as little as 15 hours input from a co-ordination role is required to develop an information sharing protocol from scratch, or migrate existing documentation.

Sharing will increasingly be required in the provision of integrated health and social care. The Information Sharing Board (ISB) was established to set a framework for action in this area, particularly around digitally enabled sharing of personal data. The Health and Social Care Information Sharing Strategic Framework encourages partnerships to review existing processes to ensure greater involvement of people in creating and contributing (co-production) to the information that underpins their care

¹ <http://www.scotland.gov.uk/Publications/2011/06/27154527/0>

and support. This will support the recent Scottish Government commitment that citizens will have personalised electronic health records by 2020.

West Lothian Council ‘C-me’

C-me is a mature information sharing solution, supporting both children’s and adults’ services. It has achieved particular success in the sharing of Inter-Agency Referral Discussion documents, both for child and adult protection cases, with strong involvement from police and third sector, particular in their co-located teams at the Livingston Civic Centre. Engaging with all agencies in the specification of service from the outset has contributed to the success.

Data Sharing Objectives

ISB’s Vision is that:

By 2020, digitally enabled information sharing solutions will be in place in Scotland so that everyone, including citizens, involved in health and social care can:

- access and interact with the services and information they require quickly and easily at the point it is needed, and in accordance with the law;
- provide or enter information once, which can then be shared and reused proportionately;
- share information appropriately, with the relevant people, to support efficient, effective and safe care;
- have a common understanding of the information they share and confidence in its accuracy, quality, integrity and security.

We can share these objectives across public services.

Data Sharing Actions

Through the Information Sharing Board (ISB), we have:

- Published an [information sharing strategic framework for health and social care](#) which sets out the following key principles:-
 - requires partnerships to have information sharing agreements
 - sets out what will be done at national level and what at partnership level
 - supports mobile and flexible working
- Develop a national level information architecture and information sharing standards for health and social care linked to the public sector High Level Operating Framework for digital public services
- Develop guidance and support for the use of personal identifiers for health and social care. This work should be applicable to other areas.

Scottish Government will disseminate good practice via web-based signposting.

Sectors and organisations will make use of the case studies and resources identified in this Plan to build a more knowledgeable and confident workforce.

Measurements –

We will measure success by:

- Our public bodies are sharing more data to help improve the quality and effectiveness of their Services (Benefit 12 – Digital Public Services Measurement and Benefits Framework).

1.2 Sharing and linkage of data for use in statistics and research

What is Data Linkage

Data linkage is a process which brings together two or more sets of data from different organisations to produce a wealth of information which can be used for research and statistical purposes to inform the design of services. This allows for the enhanced value of the data to be realised, significantly increasing the power of analysis.

Background

Through linking the findings from studies such as the Scottish Health Survey to administrative or other survey data, the resulting evidence can produce better informed policy and improved public services.

For example, the Scottish Health Survey collects information on a range of health issues from a sample of the population through face-to-face interviews. If participants consent, their data (collected as part of this survey) are linked to administrative data, such as their medical records or hospital admissions records. The data linkage is done in such a way as to ensure that no single organisation has access to both the survey data and the administrative data at any one time. This safeguards against identification of individuals as the administrative data contains personal identifiers, for example an individual's name or date of birth.

Although all identifying material is removed from the linked data (a process termed de-identification), there is a small risk that an individual could still be re-identified. Further safeguards have been put in place to protect against this, including holding the data on secure systems and only allowing trusted, qualified researchers to access the data under strict conditions.

Progress to Date

Following extensive consultation with stakeholders and deliberative research into public opinions, [Joined Up Data for Better Decisions: A strategy for improving data access and analysis](#) was published in November 2012.

The Strategy was published alongside the [Guiding Principles for Data Linkage](#) which are recommended as the basis for all decision making relating to data sharing and linkage for research and statistical purposes. The Guiding Principles support data users and controllers through the decision making processes to ensure that statistical data can be securely and efficiently linked for public benefit. There is tangible evidence that these are being adopted and supported by significant enhancements to technical and methodological capacity. For example, the establishment of a data indexing team at the National Records of Scotland (NRS) will provide one element of the linkage process for SILC (see below). The indexing team is separate from the linking and analysis of data, ensuring that privacy of the data is maintained.

In March 2014 the Scottish Informatics and Linkage Collaboration (SILC) was established, representing a major step in delivering against the ambitions outlined in 'Joined Up Data for Better Decisions'.

The Scottish Informatics and Linkage Collaboration (SILC)

SILC is a collaboration between many academic and public bodies to ensure that Scotland realises the benefits that can be derived through the legal, ethical and carefully controlled use of administrative, survey and other types of data.

At its inception, SILC brings together the [Farr Institute](#), the [Scottish Administrative Data Research Centre](#) (ADRC) and the [electronic Data Research and Innovation Service](#) (eDRIS) along with Scottish Government investment and expertise to create a joined-up hub of innovation in data linkage. It is anticipated that others operating within the data linkage arena will join the collaboration. SILC will operate in-line with the 'Guiding Principles for Data Linkage' to ensure that citizens' privacy is maintained whilst simultaneously ensuring that research which is in the public interest is supported.

Community planning, the process of multiple public bodies working together to deliver local public services, is another key area where the effective sharing of data is essential. The Outcomes, Evidence and Performance Board has been established to support community planning partnerships by providing a prioritising and governance channel for analytical and research activity. This will support the partnerships in making better use of evidence and data to support and deliver improved outcomes for their community.

Data Linkage Objectives

- build collaboratively on existing successful programmes to create a culture where legal, ethical and secure data linkage is accepted and expected;
- minimise any risks to privacy and enhance transparency, by driving up standards in data sharing and linkage procedures;
- encourage and facilitate full realisation of the benefits that can be achieved through data-linkage to maximise the value of administrative and survey data.

Data Linkage Actions.

Under SILC, a Scottish Informatics and Linkage Collaboration Strategic Management Board (SILC-SMB) has been created. It will oversee delivery of data linkage objectives and actions, continuing work started by the previous **Data Linkage Framework Programme Board**. **National and local actions include:**

- Develop and launch a SILC website that directs researchers and data controllers to useful resources, and provides lay-friendly explanations of procedures for the public
- Improve co-ordination and harmonisation of high standards in safe and ethical data management and linkage practices across Safe Havens via establishment of a Safe Haven Charter
- Define suitable training for researchers who wish to access personal or

potentially disclosive data via any SILC route and produce a clear and consistent approach for approving safe researcher training courses in Scotland

- Stimulate data linkage activities across the public sector and explore opportunities for joint working between SILC and the centres and programmes within the 'Innovative Data' landscape
- Support use of the [Guiding Principles for Data Linkage](#) across all sectors operating within the landscape

The Scottish Government will, in addition:

- Establish proportionate, transparent and non-bureaucratic procedures by which a) analytical services data can be requested and b) decisions about whether to release data can be made consistently and in line with the Guiding Principles for Data Linkage.
- Disseminate a 'decision tree' with associated guidance and templates to support data controllers so as to ensure that data access for research and statistics, where given, is legal and ethical.
- Where appropriate, make data available for linkage purposes via SILC in a timely manner.

Measurements –

We will measure success by:

- delivery of a Safe Haven Charter
- identify a formal approval route for safe researcher training (published)
- the amount of traffic through the SILC website (using Google Analytics)
- the number of safe researchers using Scotland's Safe Haven (as recorded by eDRIS)
- the number of completed linkage projects conducted through SILC (recorded and published independently by Farr, ADRC, eDRIS)
- the number of Official Statistics series enhanced by inclusion of linked data to provide deeper insights into Scottish society and economy (published)
- the number of cross-sectoral data linkage projects that involved the public sector and provide insights pertinent to policy and delivery

1.3 Open Data

What is Open Data?

Open data is data that is easily discoverable, accessible to anyone and can be freely used, re-used and redistributed by anyone. Open Data is data made available, via the internet, in an electronic format which supports its ready re-use. Open data is non-personal and non-commercially sensitive.

Background

Organisations hold large amounts of data. The data itself is valuable, however, opening it up and making it available to others can add further value to it and support:

- 1) Wider social and economic benefits through innovative use of the data
- 2) Accountability and transparency of delivery of our public services
- 3) Delivery of improved public services through public bodies making use of the data

The European Union, in driving forward an open data culture, has legislated two directives which encourage the public sector to publish and make more data available as open data: (1) the EU INSPIRE Directive² which focuses on Spatial Data and (2) the Public Sector Information (PSI) Directive (2003). In particular, revisions to the PSI Directive which will come into force in 2015 adopt an increasingly mandatory element to what public bodies should publish as open data.

Progress to Date

Within Scotland public sector organisations are currently pursuing open data at different speeds, or not at all. The greatest progress has been seen in the areas of spatial data and environmental data.

Using spatial data web services

Scotland's Environment ([SEWeb](#)) – brings environmental information together in one place for the first time. It aims to provide an authoritative and up-to-date account of the state of Scotland's environment. SEWeb's map page draws on publicly available web services (WMS) from a range of public sector partners and external sources. The SEWeb land information search provides spatial data which is used by applicants for SRDP Rural Development Contracts and/or felling licences who are required to take this information into account when applying for grants or licences.

The Spatial Information Board (SIB) have set a number of priorities that will increase exploitation of spatial data in ways that are cost effective, including implementation of the EU INSPIRE Directive. The Scottish Spatial Discovery Infrastructure (SSDI) metadata catalogue³ has been developed to provide a means for data publishers to create INSPIRE compliant metadata for datasets and web services and publish these in a searchable catalogue.

Progress is being made within local government where a number of local authorities have been proactively publishing data and engaging with citizens, businesses and communities to encourage the re-use of it.

² <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CELEX:32007L0002:en:NOT>

³ <http://scotgovsdi.edina.ac.uk/srv/en/main.home>.

At EU level, the Share PSI 2.0 programme⁴ is looking across the requirements of the EU PSI Directive with the intent of bringing together a catalogue of best practice for publishing data on the web. A report is expected in 2016.

Economic value of Open Data

Recognising the potential economic value open data has to offer, the December 2013 National Economic Forum discussed “[The Data Opportunity: realising business opportunities from open access to public sector and other data](#)”. The recent EU Communication on a Data Driven Economy⁵, adopted in July 2014 identifies the digital economy, innovation and services as drivers for economic growth and jobs.

Open Data Strategy for Scotland

Published in February 2015 following the deliberations of the Open Data Working Group and wider Open Data forum, the Open Data Strategy recognises economic value as a key driver and aims to ensure Scotland is well placed to benefit from the opportunities it offers.

Open Data Objectives

- To adopt the G8 Open Data principles⁶:
 - Open Data by Default
 - Quality and Quantity
 - Useable by All
 - Releasing Data for Improved Governance
 - Releasing Data for Innovation
- To ensure we meet all legislative requirements and commitments with regards to publishing data (EU INSPIRE, EU PSI)

Open Data Actions

- To support implementation of the Open Data Strategy:
 - develop an implementation resource pack
 - provide a framework for training
 - develop a Scottish Data Discovery site
 - promote engagement with data users and promote compliance to amended PSI directive.
- By 2020, ensure the effective management of spatial data through ensuring public sector bodies comply with Inspire obligations to publish using open standards, and encourage and promote collaborative projects amongst the public sector to procure or develop new spatial data products.
- Continue development of the Scottish spatial data infrastructure

The Scottish Government will:

- Expand the capability of the current Scottish Neighbourhood Statistics data portal, using Open Data technologies to make statistical data more accessible and easier to re-use.

⁴ <http://www.w3.org/2013/share-psi/>

⁵ <http://ec.europa.eu/digital-agenda/en/news/communication-data-driven-economy>

⁶ <https://www.gov.uk/government/publications/open-data-charter>

Measurements

- More Open Data sets are available for use by our citizens, business and research organisations (Benefit 7 – Measurements and Benefits Framework).

In addition we will:

- Measure the improvement in the format data is published (formats which facilitate re-use and are machine readable)
- Assess the impact of making more data available for re-use

1.4 Data Innovation

What is Data Innovation?

Making innovative use of data to support the development and improvement of products and services in the private, public and third sectors with benefits for economic growth and societal wellbeing. This includes using unstructured and real time data and using analytical techniques dependent on computing power.

Background

Increasing quantities of data are available to us and we are increasingly able to exchange, transmit and analyse that data more effectively.

New analytical and visualisation tools are helping to make data more accessible for everyone and allowing data to be used and presented in new ways. Many of the tools are designed for use by non-data specialists.

Ever increasing computational capabilities have resulted in the emergence of the 'Data Science' discipline and the ability to process very large and complex data sets, often referred to as 'Big Data'. This advancement of data analytics alongside other technological advances such as developments in sensors systems, wireless networks, mobile devices and social media has led to innovation in the development of intelligent urban management systems. It is becoming increasingly possible to capture and analyse data and automate responses in real time to improve the efficiency and functioning of multiple city systems & services. There is growing interest in this area – commonly referred to as *smart or future cities* – for its potentially transformative impact on the way in which multiple systems might converge and be managed simultaneously, and also in terms of how citizen engagement might be enhanced.

Progress to Date

In 2013 Glasgow was chosen ahead of 30 other cities in the UK to be a Future Cities' Demonstrator with funding from the UK Technology Strategy Board. Key elements of the demonstrator are making better use of data analytics in a number of service areas and making data on the city open and available for re-use by citizens and businesses. This can help empower citizens, lead to the development of new products and services, and provide enriched data for public services.

Recognising the value of mainstreaming this systems- approach, a Smart Cities Maturity Model and Self-Assessment Tool has been developed by the Scottish Government, in conjunction with the Scottish Cities Alliance. The aim is to support Scottish cities in assessing their progress towards being a smart city by 2020 and plan related investment. The cities expect to draw on European funding to support investment with the possibility of a collaborative approach to aspects of data infrastructure.

Both the public and private sectors can draw on expanded capacity to analyse data. Through the Scottish Funding Council we are investing £124 million over a six year period to the overall innovation programme. Innovation Centres, of which there are now 8 in Scotland funded by the SFC, bring a valuable contribution to Scotland bringing together key people from industry, academia and the public sector. The purpose is to use innovation to bring new insight, new products and services and to support Scotland's growth. In addition to the Innovation Centres there are a number of other publicly funded data programmes and centres in Scotland, collectively providing a valuable pool of analytical skills and capacity.

To capitalise on this capability, in June 2014 the Cabinet Secretary for Finance, Employment and Sustainable Growth participated in a Data Innovation Summit bringing together leaders of centres in Scotland with the objective of fostering collaboration and considering how their expertise could address complex policy challenges.

Data Lab Scotland – Innovation.

A [Data Lab](#) (one of 8 Innovation Centres), funded by the Scottish Funding Council, was launched in October 2014 and will provide an opportunity for academic and industry data experts to address challenges identified by business and the public sector. With a Scotland-wide presence and Hubs in Aberdeen, Edinburgh and Glasgow, it will be in close proximity to leading industry and university institutions with world-class research in informatics and computer science. The Data Lab's 3 key areas of focus will be collaborative innovation, skills & training and community building.

The Data Lab is unique in that to date it is the only centre which has the opportunity to contribute across all industry sectors. The Data Lab, along with the other centres, have now been tasked to use data innovation to address the public sector policy challenges of : prevention, reducing inequalities and civic participation.

Innovation and Civic Engagement

In 2013 Edinburgh City Council ran a Civic Challenge Event, "EdinburghApps" offering teams the opportunity, working with Council and partner data, to provide fresh ideas and solutions that would help improve the lives of those living, working and visiting the city. The high level of interest and innovative pitches received resulted in the Challenge Event being re-launched in 2014. These types of events are occurring more frequently around the world as cities realise the value and innovation citizens can bring to data.

Data Innovation Objectives:

- Build awareness of the scope for and benefits of innovative use of data
- Make use of new technologies and advanced data analytics (Data Science)

Data Innovation Actions

Scottish Government

- Will stimulate the innovative use of data to improve public service delivery through issuing a set of Data Challenges to the data community, each aligned with the Scottish Government's Purpose and National Outcomes.

Scottish Funding Council and the wider public sector [to be agreed]

- Will promote alignment and co-ordination of the work of the range of data innovation and analysis initiatives to maximise impact

1.5 Cross-Cutting Issues

Public Confidence, Privacy and Ethics

The public need to be confident in the public sector's handling of data: that the sharing and use of citizen's personal data is always conducted in the best interest of the individual in question; that the sharing and use of datasets that are derived from personal data is always done in the public interest; and that Government will not sell citizen's data.

To help raise confidence in the management of personal data and support good practice, in 2010 the Scottish Government published its Identity and Management Principles. The principles provide guidance for all organisations delivering public services. They Principles have recently been updated to reflect the sharing of data for statistics and research.

<http://www.scotland.gov.uk/Topics/Economy/digital/digitalservices/datamanagement/IdentityandPrivacy/IdentityManagementandPrivacyPrinciplesV2>

In addressing these issues, Scotland is in a strong position to build on its history of public engagement concerning data use, the research that has been carried out on public attitudes towards data sharing, and the concentration of relevant expertise in Scottish universities.

Leadership, Data Management and Quality of Data

We need a culture, steered by our senior leaders, of valuing and managing data as an asset, informing the continual improvement of, and potential re-design of, public services. The [Scottish Digital Champions Development Programme](#) is helping organisations to create awareness of the digital agenda within their own organisations and collectively act to drive the innovative use of digital technology across public services in Scotland. Understanding the value of data and making effective use of data will form part of the 2015/16 programme.

If an organisation is not sure of what data it holds, it cannot be making best use of it. There is a risk of opportunity loss if appropriate data management systems are not in place to support the quality of data, its use within the organisation, and potential for sharing for use to the wider public sector.

School Education Data in Scotland.

As an early innovator, the ScotXed programme was established in 2001 as a partnership between Scottish Government, local authorities and national agencies to improve the quality and efficiency of data collected on school education. The programme has delivered a programme of sustained investment and careful management of key datasets that now support not just production of National Statistics products but also a range of secondary outputs, such as school improvement tools, data linkage and cross sectoral research.

Where different organisations or parts of an organisation deal with the same customers it is common for multiple datasets with overlapping content to evolve in isolation from each other. This can result in duplicate records being created and the

same information being recorded in different ways. This is an inefficient use of resources and fails to deliver a joined-up user-journey for those accessing public services.

Taking time to cleanse data and produce an accurate single or linked record of an individual (“golden record”) within an organisation gives a service provider the ability to improve service delivery. Where sharing of personal data with another organisation is allowed and takes place it also ensures that this sharing rests on accurate data.

myaccount golden record example - North Lanarkshire Council

Recognising the value of being able to match customer records to better deliver public services, North Lanarkshire Council has invested time in creating golden customer records with the assistance of myaccount. myaccount is a service offered by the Improvement Service and supported by National Records of Scotland to assist in the matching of customer records via the matching of core attributes and the assignment of a unique identifier. Using myaccount allowed them to match customer records across council systems, reducing administration and ensuring customers receive a cohesive service.

The public sector in Scotland therefore needs to consider the management structures for people, protocols and systems within and between organisations, as well as the information-architecture, tools and skills in place. Multidisciplinary working whereby managers, analysts, data managers, ICT professionals and ethicists, for example, work together to make better use of data is ideal and can be highly effective.

Data can only be used effectively to inform decisions and feed into innovations if it is of sufficient quality. Often data are held primarily for administrative purposes and the administration of the service in question may appear to be adequate without every field being complete or every record being updated promptly. However, if the data has many missing fields and is not updated promptly then its use for service planning and management is limited. In addition to the data itself there is also a need when capturing data to think about how we create supporting metadata, i.e. the data which describes the data. Metadata is extremely useful in supporting the discovery of data and helping organisations to understand what data they hold. Clear metadata guidance already exists for the publishing of spatial data (EU INSPIRE) and there are examples of good practice for non-spatial data.

The increasing emphasis on the sharing of data between public sector bodies, where appropriate to improve service delivery, and an assumption of Open Data by default, should catalyse efforts to improve data quality for both partners and customers. Where there are data quality gaps, these should be identified and acknowledged by the data controller.

The quality of data will be improved by increasing the awareness of those involved in developing and maintaining data that the potential secondary uses (eg. downstream use of datasets available through an Open Data regime) are worthy of serious consideration and can feedback benefits to the data controller.

We can also learn from the requirements set by European legislation (INSPIRE) on spatial data. Under Inspire, spatial data must be transformed to comply with a standard set of data models or data specifications. This makes sure that spatial data is of a standard quality and interoperable across Europe.

Skills

We need to build awareness across the public sector of the range of roles people can play in order to contribute to more effective collection, management and exploitation of data. Data use and management is a responsibility of all rather than a responsibility of technical experts.

Skills requirements include: strong leadership skills coupled with recognition of the value of data; understanding relevant legislation and ethical issues and; understanding the value and potential of data. Then we also need technical analytical skills and skills relating to innovative use of information technology. There are known shortages and gaps in the latter area and these have been assessed as part of a recent skills gap survey (of ICT skills within the Scottish public sector) Further work is planned to consider how to address the findings of the survey in the context of supporting the wider Digital Public Services Strategy.

The Farr Institute (Scotland), the Data Lab (Data Science Innovation Centre) and the Administrative Data Research Centre (Data Linkage Centre) will all build capacity for data use and this could be enhanced further and shared widely through staff interchange programmes incorporating existing public sector organisations, universities and the private sector.

Data infrastructure

Justice Digital Strategy: Collaborating agencies will put in place a digital platform which will host a digital evidence vault allowing agencies to share digital evidence which is accessible solely to approved justice organisations. By presenting the right information at the right time there will be a reduction in the timescales, costs and risks associated with paper systems, benefitting all users of the justice system.

Delivering services which call on the expertise and resources of more than one organisation demands the effective and safe exchange of data. This requires an agile, resilient infrastructure which enables interoperable systems and standards. The High Level Operating Framework establishes a set of architecture and design principles which promotes and supports the use of commonly agreed standards and specifications; and an information assurance approach.

<http://www.scotland.gov.uk/Topics/Economy/digital/digitalservices/HLOF>)

In addition, and recognised as a cross-cutting issue, the Scottish Government will consult on a Cyber Resilience Strategy. This will take a positive approach to developing cyber resilience as a digital enabler, confirming Scotland on the world's map as a good and safe place to do business with a robust, resilient infrastructure and a strong informed skilled workforce.

The Scottish Wide Area Network (SWAN) is a national ICT initiative delivering a single, secure public services communication network for public sector organisations in Scotland. This will help to reduce the technology barriers to the sharing of data, and is an enabler for the transfer of both personal and non-personal data in a safe and controlled environment.

For spatial data the Scottish spatial data infrastructure (SSDI), essentially a framework of connected open standards, spatial datasets, metadata and tools (for analysis or visualisation) is being developed as a portal that allows for spatial data to be shared and used in an efficient and flexible way.

Cross-cutting actions. The Data Management Board will

- Develop a shared communication strategy to raise awareness and understanding a) amongst the public about why, when and how public sector organisations hold, share and use data, and b) amongst the public sector about public opinions on why, when and how organisations should hold, share and use data and (c) make the business case to public sector leaders about how services and lives have been improved through better data sharing, data linkage, data quality improvement, and data innovation, particularly those that involve citizen empowerment
- Create an expectation of all boards and committees with oversight of personal or potentially identifiable data issues to act transparently, for example through publication of all papers and minutes, publication of details of who to contact if anyone wishes to comment, and inclusion of a lay-member in all meetings.
- Build awareness and encourage application of the [Identity Management and Privacy Principles](#) across all public sector bodies in Scotland.

Sectors and Organisations will

- Identify priority databases and invest in data quality improvement programmes for these.
- share and co-develop training and development activities in emerging data and ICT, Open Data tools, data linkage methodologies, and Geographical Information Science. This will draw on wider plans for collaborative approaches to training in digital skills being developed as part of the implementation of “Scotland’s Digital Future: delivery of public services”.

The Scottish Government will:

- in partnership with Skills Development Scotland and the wider public sector address findings on skill shortages and gaps of the public sector ICT workforce where specific questions have explored skills gaps and needs including – data analysis/analytics, GIS, data management and business intelligence.
- Share lessons learned on improving data management with other organisations facing similar issues. A team is in place to scope the business requirements for this.
- Develop a prioritised set of approaches to support public sector organisations improve their data quality. IT tools and staff are in place to do this.

Infrastructure

- Enabled by the SSDI portal, Local Government will continue to pursue a collective approach to the management of spatial data with the purpose of providing access to any spatial data created by local government in a consistent form.
- Ensure any standards developed are aligned with the High Level Operating Framework and endorsed by the Technical and Design Board

SECTION 2: RESOURCES

Link to membership of the Data Management Board and minutes of all meeting held:

<http://www.scotland.gov.uk/Topics/Economy/digital/digitalservices/datamanagement>

Sharing of Personal Data for Operational Purposes

Data Protection Act: <https://www.gov.uk/data-protection/the-data-protection-act>

ICO Data Sharing Code of Practice: http://ico.org.uk/for_organisations/data_protection/topic_guides/data_sharing

Scottish Accord for the Sharing of Personal Information: <http://www.knowledge.scot.nhs.uk/ig/saspi.aspx>

Identity Assurance and Privacy Principles:

<http://www.scotland.gov.uk/Topics/Economy/digital/digitalservices/datamanagement/IdentityandPrivacy/IdentityManagementandPrivacyPrinciplesV2>

Sharing of Data for Analysis and Statistics and Data Linkage

Guiding Principles for Data Linkage: <http://www.scotland.gov.uk/Topics/Statistics/datalinkageframework/GuidingPrinciples>

Data Linkage Framework: <http://www.scotland.gov.uk/topics/statistics/datalinkageframework>

Scotland's Environment: <http://www.environment.scotland.gov.uk/get-interactive/>

Open Data

Scottish spatial data infrastructure: <http://scotgovsdi.edina.ac.uk/srv/en/main.home>

Glasgow's Open Data portal: <http://data.glasgow.gov.uk/>

UK Government's Open Data portal: <http://data.gov.uk/data/search>

Open Data Institute: <http://opendatainstitute.org/>

Open Knowledge Foundation Scotland : <https://www.facebook.com/OKFNScotland>

Data Innovation

Future City Glasgow - <http://futurecity.glasgow.gov.uk/>

Data Lab website - <http://www.thedatalab.com/>

Edinburgh Apps 2014 Challenge website: <http://www.edinburghapps.net/>

EU Legislation and Communications

INSPIRE Directive relating to Spatial Data - <http://inspire.ec.europa.eu/>

The Directive on the re-use of public sector information (Directive 2003/98/EC, known as the 'PSI Directive'):

<http://ec.europa.eu/digital-agenda/en/european-legislation-reuse-public-sector-information>

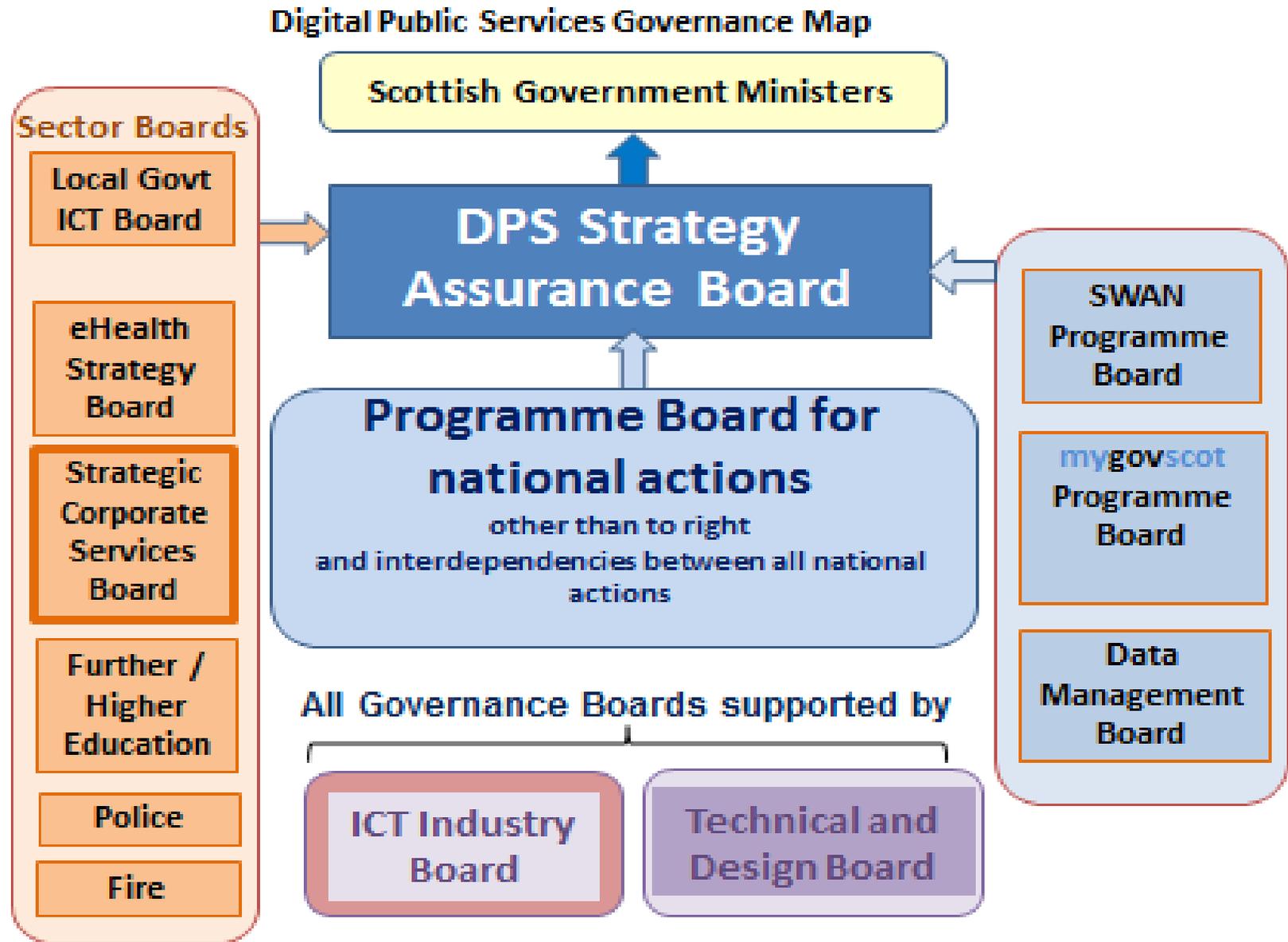
EU Communication on a Data Driven Economy: <https://ec.europa.eu/digital-agenda/en/news/communication-data-driven-economy>

Sharing and Linkage of Data to support Statistics and Research	Milestones	Lead Responsibility
<p>A range of national and local actions are planned:</p> <ul style="list-style-type: none"> • Develop and launch a SILC website that directs researchers and data controllers to useful resources, and provides lay-friendly explanations of procedures for the public • Improve co-ordination and harmonisation of high standards in safe and ethical data management and linkage practices across Safe Havens via establishment of a Safe Haven Charter • define suitable training for researchers who wish to access personal or potentially disclosive data via any SILC route and produce a clear and consistent approach for approving safe researcher training courses in Scotland • Stimulate data linkage activities across the public sector and explore opportunities for joint working between SILC and the centres and programmes within the 'Innovative Data' landscape • Support use of the Guiding Principles for Data Linkage across all sectors operating in data linkage 	<p>Beta Version complete – awaiting sign-off by SILC-SMB (being established) - end Feb 2015</p> <p>Sent out on 24 November for final consultation. Publish mid-March 2015.</p> <p>Safe researcher training defined and agreed by the Data Linkage Programme Board (August 2014). Approval process identified and will be proposed to the SILC-SMB at their inaugural meeting (TBC).</p> <p>Public Policy Challenges on prevention, reducing inequalities and increasing civic participation launched at Data Lab (October 2014). This will support collaboration across landscape including ADRC, urban big data centre and Farr.</p> <p>Guiding Principles will be incorporated into Safe Researcher Training delivered by Farr and ADLS (agreed August 2014). SILC will operate under the Guiding Principles (underwritten in MoA – final sign-off end Feb 2015).</p>	<p>Scottish Informatics and Linkage Collaboration - Strategic Management Board (SILC-SMB)</p> <p>(NB: previously the Data Linkage Framework Programme Board)</p>

	2020	
Ensuring public sector bodies comply with Inspire obligations to publish transformed spatial data using open and encourage and promote collaborative projects amongst the public sector to procure or develop new spatial data products	Inspire has a range of milestones running until 2020.	Spatial Information Board
Data Innovation	Key Milestones	Lead Responsibility
Stimulate the innovative use of data to improve public service delivery through issuing a set of Data Challenges to the data community, each aligned with the Scottish Government's Purpose and National Outcomes	Workshops to be held early 2015	Data Management Board
Promote alignment and co-ordination of the work of the range of data innovation and analysis initiatives to maximise Scotland's impact	By March 2015 Review progress annually	[Scottish Government to discuss with Scottish Funding Council]
Working with the Cities Alliance to achieve an agreed programme of collaborative and individual investments that will enable Scotland's cities to develop their smart city capabilities.	1) develop a smart city maturity model and self- assessment tool that will assist cities in defining their strategic intent, current capabilities and required future investments (October 2014 - completed) 2) Analyse combined assessments by cities to produce investment road map that identifies opportunities for collaboration across cities. January / February 2015 3) Obtain relevant approvals to progress with investment programme and pursue funding opportunities –including from European Structural Funds 2014-2020 programme. (by June 2015) 4) consider any resource / capability implications arising to enable delivery of the proposed programme. (March 2015).	Scottish Government and Cities Alliance

Public Confidence, Privacy and Ethics	Milestones	Lead Responsibility
Encourage application of the Identity Management and Privacy Principles across all public sector bodies in Scotland	Publish v2 by January 2015 – <u>completed</u> . Continued promotion.	Scottish Government Data Management Board members
Encourage transparency of all boards and committees with oversight of personal or potentially identifiable data issues, for example through publication of all papers and minutes under Open Government licence, publication of details of who to contact if anyone wishes to comment, and inclusion of a lay-member in all meetings.	Continued promotion	Data Management Board members
SILC – Strategic Management Board to provide Data Management Board with proposals for Citizen engagement	tbc once proposals received	tbc once proposals received
Leadership, Data Management and Data Quality	Milestones	Lead Responsibility
Develop approaches to support public sector organisations improve their data quality	Draft proposals in Spring 2015	Proposals to the Data Management Board from Scottish Government
Skills	Milestones	Lead Responsibility
Scottish Government/Skills Development Scotland have commissioned a skills gap analysis in relation to public sector ICT skills. Specific questions relate to data (analysis, GIS and data management). Will provide evidence base which will include how to support improved data collection, management and use across public bodies	Report published December 2014 and is informing next steps	Data Management Board working with the DPS National Level Actions Programme Board
Data Infrastructure	Milestones	Lead Responsibility
Local Government to continue to pursue a collaborative, sectoral approach to the management of spatial data with the purpose of providing access to any spatial data created by local government in a consistent form.	Business case by end June 2015.	Spatial Information Board
Ensure any standards developed are aligned with the High Level Operating Framework and endorsed by the Technical and Design Board	As developed	Data Management Board Members

SECTION 3 – GOVERNANCE



**GOVERNANCE
OVERSIGHT FOR THE STRATEGIC ACTION PLAN**

**DPS STRATEGY ASSURANCE
BOARD**



Data Management Board



**OPEN DATA WORKING
GROUP**



**SPATIAL
INFORMATION
BOARD**



**SILC-SMB
BOARD**



**INFORMATION
SHARING BOARD**



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