

Data-Driven Public Administration

National Data Strategy

PSI Directive Implementation

&

Internal Data Sharing Platform

Executive Summary

“A network of linked official registers built over base registries representing the core vocabularies and managed under a comprehensive classification scheme; accessed and updated on the basis of authorised administrative roles and acquired personal roles for an integrated, version controlled, auditable, enterprise wide records management system exposed through modern communication channels and using the appropriate technologies”.

This single statement is meant to capture the long-term vision and the essence of the main objectives driving the **National Data Strategy** proposed for the Maltese Public Administration.

The whole strategy can be demonstrated as per diagram in [Appendix 1](#) which shows how the inter-related pillars of information services dealing with **Authorisation, Identity Management and Official Registers** revolve around the **Governance Structures** in a continuous cycle of inputs, dependencies and outcomes.

This is then expanded in the strategy document through the [Guiding Principles and Best Practices](#) which are explained under the various topics reflecting the build-up from the holistic approach and the central oversight to the legal basis and data ownership identification process as a pre-requisite for the classification of data under the relevant headings. Mappings to W3C and Share-PSI best practices are included both under the relevant topic and as a table in [Appendix 5](#).

The principle that official records and their metadata are to be procured from the accredited sources only is emphasised in order to ensure that redundant copies of corporate data in the line-of-business systems is discouraged and should only be tolerated in exceptional and justified cases.

The use of **Core Vocabularies** as per [Appendix 2](#) forming the **Base Registries** is then explained together with the proposed use of standard identity protocols as an important component of the interoperability enablers.

Access to data is allowed only in terms of roles which are pre-identified and authorised or acquired on the basis of previously established and clear criteria in the context of a visible and easily available system of reference data designed to sustain the master records.

This leads to the need for a new layer of what is called the [National Data Infrastructure](#) which shall be maintained as part of the horizontal middleware platform consisting of both the technology and the data assets.

On the basis of these building blocks implemented across the enterprise, the [Digital by Default](#) and the [Open by Default](#) principles can then become a possibility and a reality. The document also outlines the basic **Organisational Structures** proposed as per [Appendix 3](#) and concludes with the [Critical Success Factors](#) and the [Way Forward](#) for this strategy.

The [Appendix](#) contains a number of topics which are very briefly described so that in future will be developed into technical documents and relevant functional specifications.

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1 Introduction

This is the first in the planned publication of three distinct but related set of domain specific documents which will expose the proposed **National Data Strategy** from the **Public Administration**¹, the **Citizen**² and the **Business Community**³ perspectives.

The complete set of documents will produce a holistic view and a 360° approach covering all the benefits as aligned to the needs and expectations of all the stakeholders and clients of the various products and services managed by the **Government of Malta**.

As the first document focusing on the use of data within the information systems employed by the Public Administration, the emphasis of the this strategy is on how the information assets available to the administrative processes can be used, shared and re-used to help in the attainment of the declared targets and objectives.

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1.1 Objectives

The following declared objectives can be realised if the available data resources are used, shared and re-used in a correct, legitimate and effective manner by the processes used by the Public Administration to deliver its products and services.

- 1) Implementation of the “Once Only” principle,
- 2) Reduction of the administrative burden and the elimination of duplication of efforts,
- 3) Reduction of administrative costs,
- 4) Delivery of products and services in an equitable, efficient, timely and effective manner.

The Citizen (Individual Person or a Family unit), the Business Community (including all types of organisations) and the Public Administration entities requiring such services do not really care about the details of the data or standards in use. Their only interest is on how easy it is to discover and to use the products and the services they need according to their current situation and their most urgent and immediate needs.

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1.2 Scope

The scope of this strategy is to ensure the proper level of governance and management of all the data and records used to support the normal administrative functions of the Government of Malta with the exclusion of the processes and data used by the units responsible for national security.

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¹ **Data-Driven Public Administration (Malta)**

² **Citizen Information Empowerment and User Managed Access**

³ **Open Data for Innovation and Economic Growth**

2 Background

2.1 Brief History of Data Sharing in Malta

The first major information digitisation projects were completed between 1980 and 1990 when most of the information systems started being computerized, namely transferred from paper based hard-bound ledgers to computer systems and files.

In the next decade between 1990 and 2000 the government embarked on a number of major reforms addressed towards a renewal of the public service and also technology upgrades. This was done through the creation of the Management Systems Unit having two distinct arms namely the Information Systems Division and the consultancy arm which was named the Management Efficiency Unit.

Most of the systems developed in the previous decade were re-developed to introduce new corporate systems aligned to the major areas of government expenditure or revenue. It was also during this period that a special section named the “Information Resource Management Unit” was created with the specific task to manage data as a corporate resource.

2.1.1 Common Database (CdB)

During the year 1994, the Common Database system was launched as a corporate system that was designed to serve as the central repository for records which are aggregated from the Birth Acts and the Death Acts in the Public Registry and the records from the Identity Cards system and the Voters Register maintained by the Electoral Office which is under the direct responsibility of the constitutionally established Electoral Commission. This resulted in a system with details of persons and their place of residence together with links between the parents and their children.

When the CdB was being designed, the office of the Attorney General was heavily involved and because of the technology constraints at that time in regard to ‘real-time’ updating it was agreed that as proposed by the Attorney General the data displayed by the CdB system would be static for a period of 24 hours. This was in order to give some stability in regard to the data and information being displayed.

2.1.2 Corporate Data Repository (CDR)

About ten years after the launch of the [Common Database](#) (CdB), it was felt that other data entities were required and a more technology advanced platform named the Corporate Data Repository (CDR) was launched to provide the CdB data and the new datasets in the form of web services and to enable a federated updating model of the stored records through an intranet system.

The problem with these national information management developments is that none of these systems and the datasets provided through their services has any form of legal basis and backing in the laws of Malta.

2.1.3 Ad-Hoc Domain Specific Data Sharing

A number of bilateral data sharing arrangements have been introduced mainly in the areas of Social Security, Inland Revenue and Employment and Training services.

The methods in use at the time were periodical bulk downloads of person and other related details from the main systems deployed in the major areas of revenue and expenditure of the Government.

2.2 International and EU Drivers

A number of international and EU driven initiatives have also been launched mainly in the last decade with a direct effect on Malta as a member state of the European Union since its accession in 2004.

2.2.1 Europe 2020

Europe 2020 is a ten (10) year strategy for the advancement of the European Union economy published on the 3rd March 2010 following the expiry of the Lisbon Strategy for the period 2000 to 2010.

This strategy includes a number of targets aimed at boosting growth and employment across the member states of the EU.

Within the Europe 2020⁴ strategy one finds the Digital Agenda for Europe as part of the Digital Single Market objective which is one of the seven pillars of this strategy.

2.2.2 Digital Agenda for Europe

The Digital Agenda for Europe⁵ (DAE) is aimed at the rebooting of the European economy and to assist the European citizens and businesses to get the most benefits out of the digital technologies within the digital economy, which is growing at seven times the normal rate of the rest of the economy.

The Digital Agenda contains 13 specific goals dealing with broadband penetration and usage, buying online, roaming charges, internet usage, cross-border public services and the use and uptake of e-Government services.

As part of the Digital Agenda for Europe, in July 2014 the Commission published a communication outlining a new strategy on Big Data⁶ based on a thriving data-driven economy⁷.

2.2.3 ISA – Interoperability Solutions for Public Administrations

The Interoperability Solutions for European Public Administrations (ISA)⁸ programme is the European Commission's initiative which aims to address the electronic collaboration beyond borders and

⁴ (Europe 2020 - Digital Strategy n.d.) – <http://ec.europa.eu/digital-agenda/en/digital-agenda-europe-2020-strategy>

⁵ (Digital Agenda for Europe n.d.) – <http://ec.europa.eu/digital-agenda/en/digital-agenda-europe>

⁶ (Towards a thriving data-driven economy n.d.) - <http://ec.europa.eu/digital-agenda/en/towards-thriving-data-driven-economy>

⁷ (Data Driven Economy 2014) – <http://ec.europa.eu/digital-agenda/en/news/communication-data-driven-economy>

⁸ (ISA - Interoperability Solutions for European Public Administrations n.d.) – http://ec.europa.eu/isa/index_en.htm

sectors between Public Administrations to make administrative procedures simpler and cheaper for all concerned.

The ISA programme which covered the period 2009 to 2014 followed the IDABC⁹ programme running between 2005 and 2009.

A major output of the ISA Programme was the document containing the specification for the Access to [Base Registries](#)¹⁰ published by the EU Commission on the 28th February 2014.

A Base Register is defined as a *'trusted authentic source of information under the control of an appointed public administration or organisation appointed by government'*. Base Registers are *'reliable sources of basic information on items such as persons, companies, vehicles, licenses, buildings, locations and roads and are authentic and authoritative and form the cornerstone of public services'*.

The Base Registers are considered from three (3) different perspectives namely:

- EU dimension
- Cross-border dimension
- National & cross-sector dimension.

Then this is further focused on four (4) main types of base registries:

- Business registry
- Land registry
- Vehicle registry
- Citizen registry

On 26th June 2014 the European Commission adopted a proposal for the establishment of a renewed programme on interoperability solutions for European public administrations called the ISA2¹¹ which is to serve as a central tool for the modernisation of the public sector.

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2.3 Best Practices and International Standards

2.3.1 G8 Open Data Charter

The European Union officially endorsed the G8 Open Data Charter in June of 2013 and committed its members to the implementation of the Collective Action Plan as agreed by the G8 members.

The main challenges to the required level of progress in the availability and openness of information resources are:

- to make data available in an open format
- the enabling of semantic interoperability

⁹ (Interoperable Delivery of European eGovernment Services (IDABC) n.d.) – <http://ec.europa.eu/idabc/en/chapter/3.html>

¹⁰ (ISA Work Programme - Access to Base Registries 2014) - http://ec.europa.eu/isa/documents/initial-report_en.pdf

¹¹ (ISA 2 n.d.) – http://ec.europa.eu/isa/isa2/index_en.htm

- quality of data and reconciliation across various data sources
- implementation of software solutions for easy publication and visualisation of datasets
- simplified clearance of intellectual property rights

The main actions included in the commitments undertaken by the EU include:

- Revised Public Sector Information (PSI) Re-Use Directive
- EU Open Data Portal
- Commission Rules on re-use of its own documents

The (PSI) Public Sector Information Re-use¹² ([EU Directive 2013/37/EU](#)) and the [EU Open Data portal](#) had a direct effect and resulted in the transposition into Maltese legislation of this Directive. It will also enforce the eventual harvesting of the local datasets from the National Open Data portal to be published directly on the EU Open Data portal.

2.3.2 Share-PSI and LAPSI

Share-PSI 2.0¹³ is the name of the European network for the exchange of experiences and ideas about implementing Open Data in the public sector.

It brought together government departments and agencies, standards bodies, academic institutions, commercial organisations, trade associations and interest groups to identify best practices in this domain.

This network was formed in 2013 under a grant agreement between the consortium formed for this purpose and the European Commission for the implementation of a project called 'Shared Standards for Open Data and Public Sector Information' as part of the Information and Communications and Technologies Policy Support Programme.

This project was also complimentary to the LAPSI¹⁴ Project which was more concerned with the legalistic aspects of the PSI Directive. The LAPSI project had the objective to identify the remaining legal barriers and obstacles to the access and the re-use of public sector information hindering the full development of the Open Data ecosystem. One of the main outcomes of this project was declared to be the development of a PSI toolbox aimed at assisting the users through the maze of regulatory and legal frameworks applicable to PSI.

The LAPSI project dealt also with the licensing and interoperability, privacy and fundamental rights, intellectual property rights and competition issues.

On the other hand the Share-PSI project is mainly concerned with the practical and technical challenges and the standards and best practices that need to be built for the sharing of public sector information and the opening up of government data to actually happen.

¹² (Re-cast PSI Directive 2013) - <http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32013L0037&rid=13>

¹³ (Share-PSI 2.0 - Thematic Network n.d.) - <http://www.w3.org/2013/share-psi/>

¹⁴ (LAPSI Project n.d.) - <http://www.lapsi-project.eu/blog/46-lapsi-2-0/> (accessed June 2, 2016)

2.3.3 W3C Data on the Web Best Practices

The World Wide Web Consortium (W3C) also published a number of best practices for data on the web¹⁵.

In this context, the Share-PSI consortium which includes also the W3C as a member, worked hard to come up with localised best practices and community guidelines around the use of Public Sector Information.

The list of already published W3C best practices is grouped under:

- Metadata
- Data Identification
- Data Formats
- Data Vocabularies
- Data Licenses
- Data Provenance
- Data Quality
- Sensitive Data
- Data Access
- Data Versioning
- Data Preservation
- Data Feedback

These best practices cover the different aspects of data management and are intended to improve the consistency in the way data is managed and re-used, irrespective of the technology platform employed.

2.3.4 European Interoperability Framework

The European Interoperability Framework (EIF)¹⁶ is a set of recommendations addressed to member states on the way the public administration, the business community and the citizens can communicate with each other within the jurisdictional borders of the different member states and beyond.

This framework was initially launched under the IDABC¹⁷ initiative and is now at its second version¹⁸ under the ISA programme.

Interoperability addresses the need for improved cooperation among public administrations on the way these deliver the public services, the exchange of information to fulfil legal or political requirements and the sharing and reuse of information to increase administrative efficiency and to reduce the administrative burden.

The results expected from such initiatives are:

¹⁵ (W3C Data on the Web Best Practices n.d.) - <http://w3c.github.io/dwbp/bp.html> (accessed March 13, 2015)

¹⁶ (European Interoperability Framework (EIF) 2010) – http://ec.europa.eu/isa/documents/isa_annex_ii_eif_en.pdf

¹⁷ (Interoperable Delivery of European eGovernment Services (IDABC) n.d.) - <http://ec.europa.eu/idabc/en/chapter/3.html>

¹⁸ (EIF - Towards Interoperability for European Public Services 2011) – http://ec.europa.eu/isa/documents/eif_brochure_2011.pdf

- Improved public service delivery achieved also through the 'one-stop shop' facilities
- Lower cost of public administration services also for citizens and businesses.

The twelve (12) underlying principles of the EIF are:

- Subsidiarity and Proportionality
- User-Centricity
- Inclusion and Accessibility
- Security and Privacy
- Multilingualism
- Administrative Simplification
- Transparency
- Preservation of Information
- Openness
- Reusability
- Technological Neutrality and Adaptability
- Effectiveness and Efficiency.

The implementation of the European Information Framework is based on four (4) layers of interoperability or views:

- **Legal** – Legislative alignment to give the same weight to the data exchanged
- **Organisational** – Organisational alignment for coordinated process for agreed objectives
- **Semantic** – Alignment of previously agreed meanings and definitions affecting exchanged data to be properly understood and preserved by all parties
- **Technical** – Technical issues involved in the linking of automated systems and services

The EIF also proposes Interoperability Agreements which are designed to ensure that cooperation between public administrations is formalised through contracts that contain a sufficient level of detail conformant to their aims whilst also respecting the individual autonomy of each organisation.

2.3.5 National Interoperability Framework

As a direct result of the European Interoperability Framework and Strategy, each member country was requested to build the National Interoperability Framework in order to implement the four views at the national and regional level as may be applicable depending on the size and the model of government adopted in the respective member state.

In order to keep track of the latest information and state of play of these initiatives in all countries within the scope of the EIF, the National Interoperability Framework Observatory (NIFO)¹⁹ makes available factsheets which highlight the main activities on interoperability in the respective country and a summary of the National Information Framework and how this is aligned to the EIF.

¹⁹ (National Interoperability Framework Observatory (NIFO) Factsheets n.d.) - <https://joinup.ec.europa.eu/elibrary/factsheet/national-interoperability-framework-observatory-nifo-factsheets>

The latest National Interoperability Framework Observatory factsheet²⁰ available for Malta is dated December 2015 and can be downloaded from the documentation section.

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²⁰ https://joinup.ec.europa.eu/sites/default/files/ckeditor_files/files/NIFO%20-%20Factsheet%20Malta_12_2015.pdf

3 Current Situation

The current situation in the data management domain is briefly analysed mainly from the e-Government perspectives and covers also the directly linked EU Directives and the main strategies developed in the context of the Digital Economy.

3.1 Maltese Information Laws

The following is a brief mention of the three main legislative tools that inform the processing of data and information in the context of this strategy.

3.1.1 Personal Data Protection

The protection of personal data entered the Maltese statute book in 2002 when the Data Protection Act²¹ was introduced as Chapter 440 of the Laws of Malta.

This will now be superseded by the new EU wide General Data Protection Regulation²². This Regulation entered into force on the 17th May 2016 and shall be binding in its entirety and directly applicable in all Member States as from the 25th May 2018.

The new EU wide data protection rules for personal identifiable information will apply across all member states in a uniform manner with a European wide supervisory authority which will ensure that all national data protection authorities are using the same yardstick and the same definitions.

3.1.2 Freedom of Information

The [Freedom of Information Act](#)²³ was enacted in 2008 “to establish a right to information held by public authorities in order to promote added transparency and accountability in government”.

This law was promulgated at the same time and together with the [Public Administration Act](#)²⁴ which for the first time gave flesh to a number of provisions in the [Constitution of Malta](#)²⁵ in regard to the way the senior appointments and other matters of the Public Administration are administered.

3.1.3 Public Sector Information (Re-Use)

The first PSI Directive [2003/98/EC](#) was published by the European Parliament and the Council in 2003 and in Malta this was transposed under the European Union Act in 2007 as Subsidiary Legislation 460.13 through Legal Notice 20 of 2007.

The re-cast [EU Directive 2013/37/EU](#) was published in 2013 with a deadline for transposition in the member states of 18th July 2015 with the first review scheduled for three years later in 2018.

The Maltese implementation of the transposition of this directive is the “[Re-Use of Public Sector Information Act](#)” which is Chapter 546 of the Laws of Malta. This was promulgated on the 13th October 2015 through Act XXIX of 2015.

²¹ Data Protection Act - <http://justiceservices.gov.mt/LOM.aspx?pageid=27&mode=chrono&gotoID=440>

²² General Data Protection Regulation - http://ec.europa.eu/justice/data-protection/reform/index_en.htm

²³ Freedom of Information Act - <http://justiceservices.gov.mt/LOM.aspx?pageid=27&mode=chrono&gotoID=496%20>

²⁴ Public Administration Act - <http://justiceservices.gov.mt/LOM.aspx?pageid=27&mode=chrono&gotoID=497>

²⁵ Constitution of Malta - <http://justiceservices.gov.mt/DownloadDocument.aspx?app=lom&itemid=8566&l=1>

3.2 Digital Malta Strategy

The National Digital Strategy for Malta²⁶ for the seven (7) year period from 2014 to 2020 was published on the 24th March 2014.

The strategy includes three strategic themes namely:

- Digital Citizen,
- Digital Business,
- Digital Government.

These three pillars are then supported by three enablers:

- Regulation and Legislation
- Infrastructure
- Human Capital.

The vision statement for the Digital Malta strategy is that 'Malta will prosper as a digitally-enabled nation in all sectors of society'.

This reflects an opportunity to advance the digital economy as a means to help businesses to prosper and to improve the quality of life of citizens.

To achieve these goals, the public administration must be reformed by making full use of the resources at its disposal and by sharing and re-using its most important assets, namely the data and records generated by the business transactions.

Under the Government (Public Administration) theme, the strategy document states that '*better application of digitisation will result in reduced bureaucracy and transparency. Information sharing across government systems will be promoted, as will be the re-use of public sector information by third parties*'.

Under the enabling drivers the document declares that 'Regulation and legislation will ensure that an empowered digital society is realised'.

The Article 32 of the Digital Malta strategy deals with the subject of Open Government Data and Big Data.

3.3 eGovernment

One of the main units within MITA dealing with issues of digitisation is the e-Government department.

Over the years this department was responsible for the e-Forms platform and for a number of initiatives aimed at providing services in a 24 X 7 (anytime and anywhere) basis mainly using the ubiquitous nature and facilities of the internet.

²⁶ (Digital Malta Strategy Document Download n.d.) – <http://www.digitalmalta.gov.mt/en/Pages/Content/DMDownload.aspx>

3.3.1 eGovernment Action Plan

In April 2016 the EU Commission published the communication “EU e-Government Action Plan 2016–2020 – Accelerating the digital transformation of government”²⁷.

The Action Plan is designed to be based on the observance of the following underlying principles:

- Digital by Default
- Once Only Principle
- Inclusiveness and Accessibility
- Openness and Transparency
- Cross-border by Default
- Interoperability by Default
- Trustworthiness and Security

The published document includes a number of discrete actions and target dates for the expected launch of the relative initiatives.

3.3.2 Cross Border Exchange of Information

One of the main actions under the ISA Programme is the “Trusted Information Exchange”²⁸.

This cluster deals with a number of topics and *inter alia* includes:

- Promoting semantic interoperability
- Access to base registers
- Catalogue of Services
- Electronic Identities
- Electronic procurement
- Open Government Data
- Common Information Sharing Platforms

3.4 Inspire Directive

The INSPIRE Regulation²⁹ and its related Directive are the main sources of EU law that inform this domain. The Maltese transposition of the Directive was concluded in 2013 through Subsidiary Legislation³⁰ enacted through Legal Notice 185.13 under the Environment and Development Planning Act (Cap 504).

²⁷ EU Commission Communication – <https://ec.europa.eu/digital-single-market/en/news/communication-eu-egovernment-action-plan-2016-2020-accelerating-digital-transformation>

²⁸ Trusted Information Exchange - http://ec.europa.eu/isa/actions/01-trusted-information-exchange/index_en.htm

²⁹ (INSPIRE - Regulation (Implementing Rules) 2008) – <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:32008R1205&from=EN>

³⁰ (Infrastructure for Spatial Information Regulations (INSPIRE Directive) - SL504.89 2013) - <http://justiceservices.gov.mt/DownloadDocument.aspx?app=lom&itemid=11566&l=1>

The interest in this spatial data legislation is the fact that under these regulations, Malta is obliged to publish amongst other spatial data the list of place names (geo-names), thoroughfares (streets) and also a list of (postal) Address points.

The postal address is considered as a type of Location together with other types of geo-spatial datasets like an agricultural land parcel, public building or private dwelling.

3.5 Mobile Government Strategy

A green paper on the subject of [Mobile Government](#) was published in the first half of 2016. This is part of the consultation process before a fully-fledged strategy is developed, published and implemented.

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4 Guiding Principles and Best Practices

The following is the list of the high-level and technology neutral guiding principles on the basis of which this strategy is built.

1. [Holistic Approach and Central oversight](#)
2. [Legal Basis and Data Ownership](#)
3. [Classification of Data](#)
4. [Master and Reference Data Management](#)
5. [Metadata and Records from the Accredited Sources Only](#)
6. [National Vocabularies for Semantic Interoperability](#)
7. [Common Identity Management Protocols](#)
8. [Role-Based Authorisation and User Managed Access](#)
9. [Base Registries](#)
10. [Linked Official Registers](#)
11. [Digital by default](#)
12. [Open by default](#)

4.1 Holistic Approach and Central Oversight

There shall be a comprehensive and technology neutral service backed by the appropriate legal framework enabling discoverability, access and use of data and records from the Official Registers mandated by the Laws of Malta.

To enable this holistic and enterprise wide approach a central data oversight function is considered necessary to ensure that the data products required can be designed and made available as corporate assets to be made available to all potential consumers on a need basis and as authorised and to be freely used and reused in the case of Open Data.

[Best Practice - Develop and Implement a Cross Agency Strategy - Appendix 5](#)

4.2 Legal Basis and Data Ownership

The Official Registers included in the Catalogue of Registers shall be linked to the legal sources from which they emanate. This should also establish the ownership and custodianship responsibility for the records held in the respective register.

When a new Register is identified and does not currently feature in the Laws of Malta or any directly applicable EU legislation, then efforts shall be made to ensure that such legal basis can be established.

Once the legal basis is established for the Official Registers and the datasets that can be extracted from them then the data ownership, data custodianship and the data control of such assets can be better ascertained, documented and published accordingly.

The use of administrative procedures and appropriate communication channels may be used to supplement or enforce the legal basis and data ownership issues internally within the public administration structures.

4.3 Classification of Data

There shall be a comprehensive data classification scheme which covers the main aspects of enterprise data management.

The classification of data shall be the duty of the identified “Data Owner” who may involve the Office of the Data Protection Commissioner where questions about restrictions in regard to personal sensitive data arise.

When the established and standard classification criteria is applied to an Official Register or a Dataset, this shall be published as part of the details to be made available as part of the “Register of Registers” and the “Catalogue of Datasets”.

4.4 Master and Reference Data Management

The effective management of records classified as “Master Data” shall be made on the basis of properly managed “Reference Data” which is used as part of the official taxonomy scheme applied to the respective dataset.

The reference data shall be subjected to the same disciplined and data owner managed approach where such records are also created and updated using the same standards and version control procedures as for the “Master Data” on which it is applied.

The currently applicable “Reference Data” lists together with the historical and previous versions of each such entry shall be published and made available as Open Data as part of the information provided from the metadata platform.

4.5 Metadata and Records from Accredited Sources Only

There shall be a central metadata platform supporting the National Data Portal which will contain the Catalogue of Registers and Datasets. This platform shall provide mapping facilities that enable the discovery and access to the required central or line-of-business records as authorised on the basis of the Role-based access control mechanisms.

The identified Official Registers and the Datasets included in the catalogue shall be the only source of data and records required as part of the processes used by the public administration functions.

The same principle applies to the metadata and the Reference Data relative to these registers and datasets.

The copying of corporate and enterprise records to local data stores should be done only when unless such a copy is available locally this can have a direct negative effect on the operational systems.

When such local copying is justified and duly authorised, it will be the responsibility of the line-of-business owner to ensure that the periodical refresh of the data and records used does not jeopardise or compromise the processes and services.

4.6 National Vocabularies for Semantic Interoperability

There shall be established a number of national core vocabularies as part of the Foundation Data Layer on the basis of which the interoperability of data and official records both at the local level and at an EU level can be managed with a high level of data quality and the required certainty of the identities involved.

The national vocabularies should be aligned and mapped to the published vocabularies as suggested by the relevant EU projects, without limiting the possibility of having local extensions which can be considered as beneficial to the Maltese specific requirements.

4.7 Common Identity Management Protocols

There shall be a shared service which enables the publication and the creation of identities in a standard and uniform manner and which can be used both locally and at an EU or international level.

The notion of “identity management” is normally understood to refer mainly to natural persons in the context of the issuance of identity documents including travel documents like passports and national identity cards.

In this strategy the need for standard protocols for identity management is applied to all objects being the subject of a public administration process and is considered a major pre-requisite for the effective use of the data and records contained under the various types and headings.

The “Identity of Things” notion is an important principle and forms part of the national Uniform Resource Identifier (URI) scheme.

4.8 Role-Based Authorisation and User Managed Access

Access and use of officially classified data and records shall be driven on the basis of institutional or personal roles which group together a number of processes or services for process management purposes.

The natural person shall be featured only in the context of such roles and all statutory and administrative functions shall not link to named natural persons but to the roles which are then linked to government functions, processes and services.

The natural person shall have the mechanisms and the possibility to be assigned to such roles on a temporary or permanent basis and subject to the necessary criteria and the authorisation from the owner of the process, dataset or service as the case may be.

On the basis of the identity issuance protocols, the user (person or automated function) can be safely authenticated and allowed access to the authorised datasets, processes and services.

4.9 Base Registries

There shall be a number of registers which will be classified as “Foundation Data” and such a layer of data will serve to establish a horizontal data infrastructure on the basis of which the links and the relationships that reflect the “real world” entities represented by such records can be established.

The pivotal register on which the whole Foundation Data infrastructure revolves is the “Catalogue of Services” which shall expose the basic information on the basis of which priorities for investments in information related projects can be made.

This is closely related to the “Register of Public Organisations” because each Public Service or Product must be linked to such an organisation which is then expected to be the provider and the responsible authority for all matters related thereto.

The Foundation Data Layer shall also be made up of a number of officially maintained registers which hold data and records about the Person and the (postal) Address as the common denominator in almost all processes and services and also for a number of other datasets which represent the organisational structures of the Public Administration.

4.10 Linked Official Registers

The Latin maxim *“quod non est in registro, non est in mundo”* shall be the guiding principle on which the data-driven public administration depends for its success.

The Official Registers as included in the “Register of Registers” shall form the basis of all data management processes and services.

The base registers as represented by the **Person**, **Location** and **Organisation** shall form the foundation records providing the unique identifiers (URI’s) to serve as the linking values establishing this ecosystem of linked official registers.

[Best Practice - Identify what you already publish - Appendix 5](#)

4.11 Digital by Default

The delivery of Government services using digital channels is usually branded under the “digital services” banner and the transformation of conventional services into digital services is a major effort under the e-Government objectives. This also necessitates that the required data and records are also in digital format. The “by default” indicates that new services are planned and born as “digital services” from the outset.

When the guidelines explained in the first ten proposals are implemented and fully operational, it shall be opportune to consider the “digital by default” principle where records are primarily created and stored as digital assets and any other medium or expression will have the status of an authorised copy.

The golden record or the official source will remain in the digital format and this necessitates a full array of services and technology refresh projects that ensure the preservation and safe handling of records which are in digital format only.

4.12 Open by Default

The “Open by Default” principle is the state of data management when a dataset is created and implemented according to the “open”³¹ definition. Needless to say that not all data can be made available using these standards and this depends to a large extent on the classification applicable to the relative dataset.

However where the classification permits such method of publication shall be the preferred method and will be provided accordingly.

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³¹ Open Definition - <http://opendefinition.org/>

5 Organisational Structures

The organisational structures identified to support the implementation of the PSI Directive and to co-ordinate the internal data sharing services have been discussed and agreed as follows. A general description and pictorial of these structures is included in [Appendix 3](#).

5.1 Regulatory Authority

Article 25(b) of [Cap 546](#) of the Laws of Malta dealing with “Regulations” empowers the responsible Minister to *“to establish a regulatory authority responsible for the monitoring of the implementation of the provisions of this Act”*.

Following high-level discussions in regard to the options available to establish this Regulatory Authority, the decision was made to use the services of the [Office of the Information and Data Protection Commissioner](#) who will assume such role and as a result will be responsible for the Protection of Personal Data (Cap 440), for Freedom of Information (Cap 496) and for PSI.

The links between FOI and PSI are also very evident at the legal basis for the “Request for Information” under Article 11 which refers and makes use of the relevant and similar provisions in Cap 496.

The Information and Data Protection Commissioner will thus have the legal mandate to perform the required oversight of the PSI Directive implementation.

5.2 Data Governance Council

The Data Governance Council shall be the national forum for all data related proposals and recommendations on the basis of which decisions will be taken by the administrative arm of Government before any legal drafting is made for eventual legal notices or subsidiary legislation under the relevant law including the Chapter 546 which is designed to be the enabling law for generic registers and standards applicable at the national level.

Before submission to the Data Governance Council, proposals emanating from the public administration or from the national IT agency (MITA), these shall be discussed and fine-tuned first at the Data sub-committee level and then at the CIO Council level as the technical teams responsible for the initial assessment.

Proposals that may be received from outside the public administration should be put directly on the agenda but may also be forwarded to the technical teams for their initial feedback.

It shall be in the interest of all stakeholders concerned if the Data Governance Council provides and publishes on the Open Data portal details of the proposals and requests received in connection with the provisions of the PSI Directive and also to publish details of the recommendations made on the basis of the proposals received. The publication of the Agenda of its meetings will also help to provide the visibility required in this domain.

The present primary act transposing the PSI Directive (Cap 546) at present does not include any direct mention or provisions in regard to this body. However this could easily be accommodated under the provisions of Article 25(e) which states that the minister may make regulations *“to provide*

for such matters as are contemplated by or necessary for giving full effect to this Act and for its due administration”

5.3 Operational and Implementation Arm

The “operational and the implementation arm” also envisaged in Chapter 546. Article 25(c) states that the minister responsible may make regulations *“to establish an entity responsible for the implementation of the provisions of this Act”*.

The entity assigned this task shall be given the adequate and appropriate resources in terms of quantity and quality of human resources and investment in the required tools.

The success of the whole data strategy depends to a large extent on the efficiency and effectiveness of this small unit which shall be entrusted to perform the following main tasks.

5.3.1 Updating and Maintenance of the Data Strategy

There shall be an ongoing effort to keep that data strategy updated with the latest developments both at the legislative level and also in regard to technology innovations that may be adopted.

The strategy update and maintenance shall be the responsibility of the implementation arm and the normal consultation cycle as adopted for the first publication will be followed.

5.3.2 PSI Directive Implementation

The implementation of the practical arrangements as required by the PSI Directive will be the responsibility of the operational and implementation unit as established by the legal notice envisaged by article 25(c) of Chapter 546.

The operational aspects of the data sharing and the data re-use services mark a very important function in the context of this strategy as the success or otherwise of the vision depend on the implementation actions and the day-to-day support services that must be made available.

5.3.3 Co-ordination with the INSPIRE team

The need for coordination and information sharing and reciprocal support is a critical factor in the context of the already existing and mature INSPIRE portal related services.

However while the INSPIRE services will continue to be given and supported by the present team and the already allocated resources, the same data services need to be visible also from the National Open Data Portal and the need to register all the existing data / web services and API's in the appropriate register is part of this cooperation that is essential for the avoidance of duplication or repeat of processes within the two main national portals.

5.3.4 Co-ordination with Ministry Chief Information Officers

The organisational and governance structures as shown in [Appendix 3](#) involve the Office of the CIO within each ministry as the first line of communication between the implementation arm and the line-of-business units.

The Office of the CIO together with the Office of the Permanent Secretary within each ministry will be responsible to ensure that the data stewardship and the data management directives and standards are also percolated and disseminated to all entities within the units and entities under the ministry portfolio.

5.3.5 Data Requests and Feedback received

The requests for data and feedback in regard to the quality and availability of datasets shall be managed in a structured approach using the appropriate facilities of the National Data Portal.

[Best Practice - Enable feedback channels for improving the quality of existing government data - Appendix 5](#)

5.3.6 Data Stewardship Coordination

The coordination and enterprise level supervision of the data stewardship responsibilities at the line-of-business level shall be the responsibility of the operational and implementation arm in order to ensure that any standards and directives in force in this regard are being followed and applied correctly.

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6 National Data Infrastructure

In order for this strategy to be implemented, a number of new building blocks need to be created in order to establish the “National Data Infrastructure”. This shall comprise of all the underlying services without which the proposed paradigm shift will not be possible.

6.1 Interpretation Statements (Definitions)

One of the most important aspects of this infrastructure is the Interpretation Statements and the Definitions which must be agreed and officially sanctioned.

This layer shall also deal with existing definitions by collating an official list or register of such definitions and the context within which these are applicable.

New Definitions will need to be given the necessary legal basis in order to be enforceable across the applicable Official Registers.

6.2 Standards and Directives

The detailed technical standards and schemas required for the foundation data layer together with the directives and the statutory enforcement organisational arrangements shall be agreed and published accordingly.

6.3 Foundation Data Layer

The Foundation Data Layer is the range of Official Registers which are of a corporate nature and which are applicable in a horizontal manner across all areas and functions of government.

The main registers considered to form the backbone of this data layer include the [Core Vocabularies](#) together with a number of Administrative Registers which are the essential elements of the Data Governance function.

The backbone of the Foundation Data Layer is the “Register of Registers” and its derivative the “Catalogue of Datasets”.

[Best Practice - Identify what you already publish - Appendix 5](#)

6.4 Metadata Platform

The currently missing metadata platform providing a standard facility for the management of mapping records between the line-of-business systems and the Base Registries shall be created as part of the enterprise and corporate facilities to be made available as a shared service.

6.5 National Data Portal

There shall be one National Data Portal to serve as the one-stop shop for all data discovery functions irrespective of whether the data is Open Data or when the Dataset or Register is classified as non Open Data.

Thus the main portal will serve two functions namely as the national Open Data Portal and as the Internal Data Sharing Platform.

6.5.1 Open Data Portal

The Open Data Portal shall be the only officially sanctioned website from which the harvesting of metadata for the EU Open Data portal will be allowed.

[Best Practice - Establish Open Government Portal for data sharing - Appendix 5](#)

6.5.2 Internal Data Sharing Platform

The sharing of data between government processes according to registered agreements which regulate such justification and duration of sharing of non Open Data shall be done in a structured manner where the available data services and the permissions granted are managed through appropriate registers which will form part of the Data Governance function.

[Best Practice - Establish Open Government Portal for data sharing - Appendix 5](#)

6.6 Data Bank (Digital Objects Repository)

The establishment of a technology platform based on the appropriate legal framework to enable the storage of official records on the basis of URI's by any identified legal or natural person in a process neutral fashion where the record is given the status of an independent information asset that can be traded and made available to third parties by the recognised owner.

This repository can also be used to power the "My Data" concept where the User retains full control on the information assets in digital format in his possession so that the principle of User Managed Access can be implemented.

6.7 Digital Letter Box (Official Communications Channel)

On the basis of the existence of the [Data Bank](#) facilities, the concept of a Digital Letter Box can be realised in order to streamline all inward and outward digital communication between previously identified and authorised account holders.

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7 Critical Success Factors

The way forward as proposed by this National Data Strategy is based on a gradual and incremental approach using a non-disruptive metadata platform that allows the information about the datasets and the registers to be introduced and maintained without having to change the existing systems and services.

7.1 Paradigm Shift

In order for this strategy proposal advocating such a paradigm shift to be successful, there is a definite need for high-level support both from the ministry responsible for the Digital Economy and from the office of the Principal Permanent Secretary within the office of the Prime Minister.

[Best Practice - High-Level Support - Appendix 5](#)

7.1.1 Free-Flow of Data

The EU Commission is currently beginning to push forward the agenda for the free flow of data between member states. In order for this to happen it is argued that the data needs to flow efficiently and in a managed way initially within the Public Administration where it is created and maintained.

7.1.2 Data-Driven Public Services

The EU communication on the subject of Data-driven economy shall be used to promote the concept of a data-driven public administration which while being by the Citizen and Business Services.

7.1.3 Elimination of Information Silos

The Once-Only principle can only be successfully implemented if the present system of information silos is gradually dismantled to be replaced by an enterprise data management culture where records are treated as assets that can be used to improve processes and to gain insight into otherwise obscure or invisible possibilities.

7.1.4 Implementation of the Once-Only Principle

The introduction of a data-driven public administration culture and the elimination of information silos shall promote effective and efficient processing using good quality data and sharing of such data. This will then make it possible to implement the requirements of the Once-Only principle.

7.2 Non-Disruptive and Gradual Implementation Approach

The approach proposed in this strategy is such that any changes being proposed can be introduced through new platforms and services which do not necessitate changes of database schemas and other data repositories as a pre-requisite to start implementing these measures.

The idea is that by working on the metadata platform to establish the new Data Governance registers and to establish the mappings between existing line-of-business records to the new National Data Infrastructure registers, this can be done without disrupting unnecessarily the

currently operational systems supporting the existing customer facing processes unless the new facilities are introduced in a parallel processing mode which can be used concurrently in order to gain the required confidence, user acceptance and user preference.

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8 Way Forward

8.1 Implementation Milestones

- Data Portal (Simple Front-End)
- Regulatory, Governance and Operational Setup
- Definitions and URI Components
- Foundation Data Layer Registers
- Data Governance Registers
- National Data Portal (Extended functionality)
- Publication of High-Priority / High-Impact Datasets
- National Metadata platform for non-disruptive mapping

8.2 Continuous Evolution and Managed Change

The proposed roadmap for the implementation of this strategy is through a continuous process of small evolutionary steps performed in the context of medium to long term objectives are clearly spelled out under the section dealing with the National Data Infrastructure.

8.3 Next Version (Digital/Open Data)

The next version of this document which is born digital³² using the format of a document published electronically as a PDF shall be web-based and will be an integral and active component of the Open Data Portal.

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³² No official paper-based version is intended to be printed

9 Appendix

9.1 List of Appendices

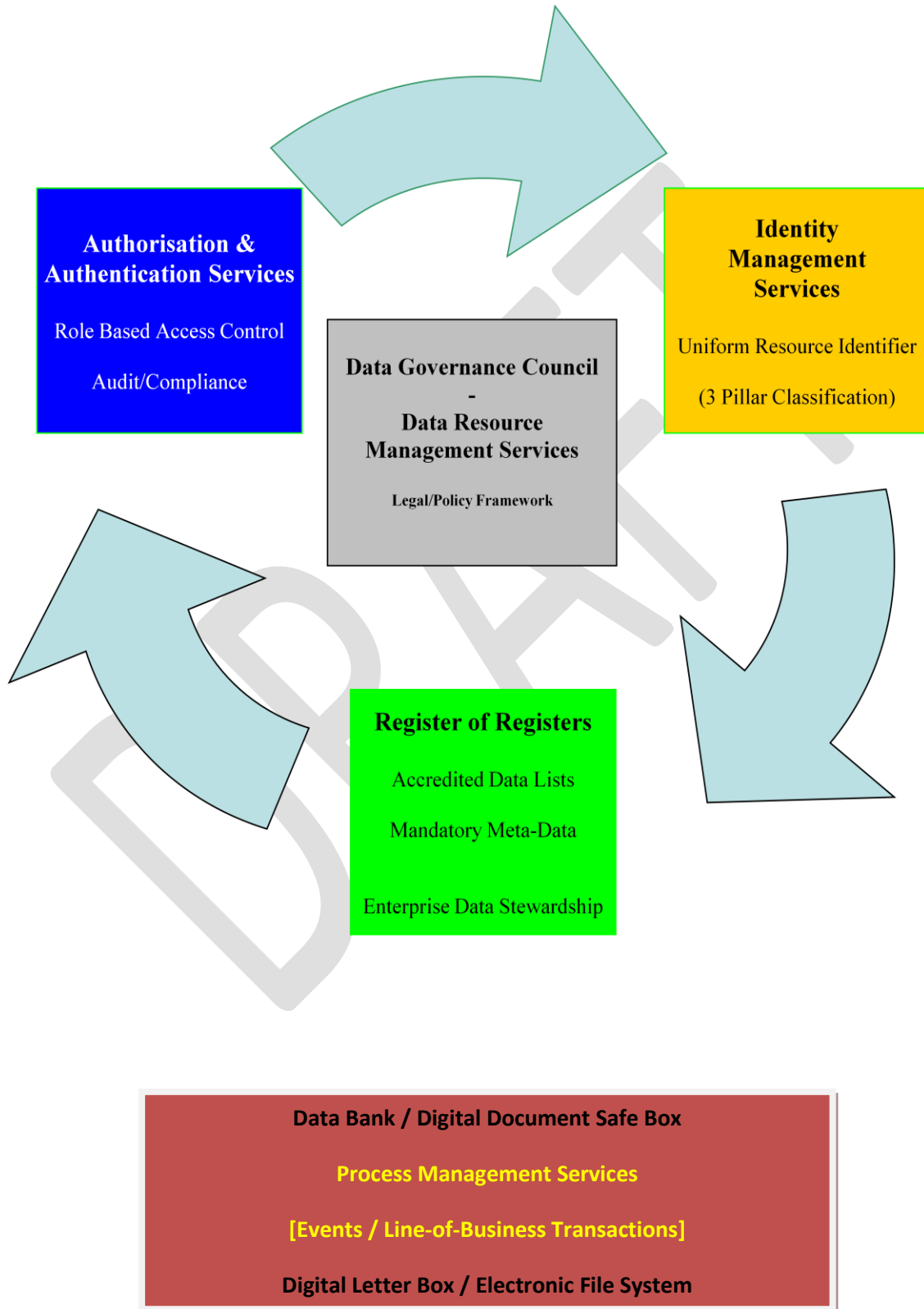
- [Appendix 1– Interconnected Information Services](#)
- [Appendix 2 – Data Stewardship Classifications](#)
- [Appendix 3 – Governance Organisational Structures](#)
- [Appendix 4 – Share-PSI \(Localised Guides\)](#)
- [Appendix 5 - Best Practice Mapping Table](#)
- [Appendix 6 - Comprehensive Data Classification Scheme](#)
- [Appendix 7 - Core Vocabularies](#)
- [Appendix 8 - Uniform Resource Identifier Scheme](#)

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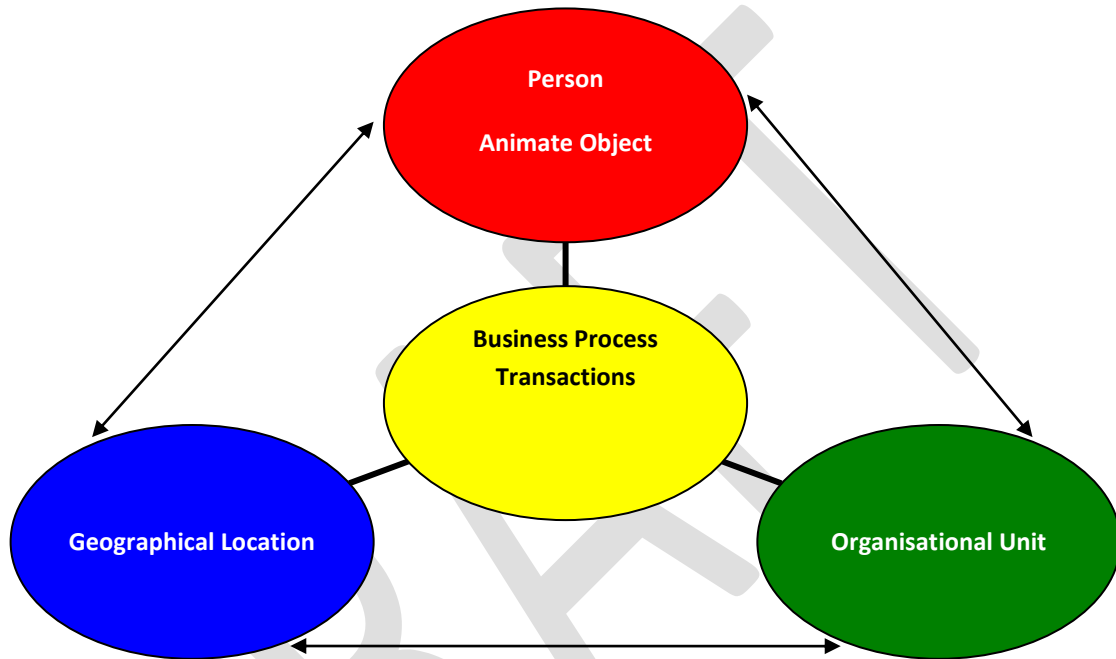
9.2 Appendix 1 – Interconnected Information Services

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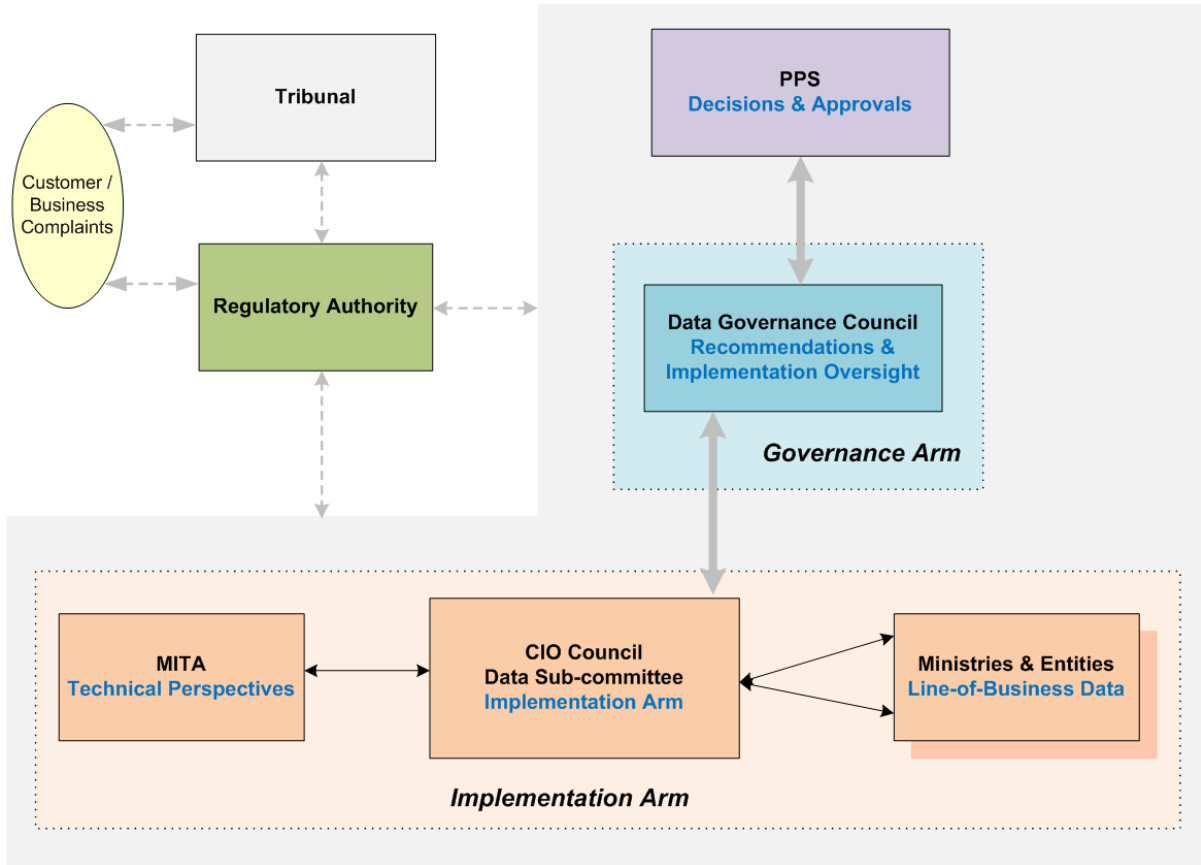
9.3 Appendix 2 – Data Stewardship Focus

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9.4 Appendix 3 – Governance and Organisational Structures

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9.5 Appendix 4 - Share-PSI (Localised Guide)

This document is also intended to serve as the [Share-PSI \(Localised Guide\)](#) as prepared by the [Malta Information Technology Agency \(MITA\)](#) being the official [Share-PSI 2.0](#) member and [partner](#) of this [thematic network](#) as the official representative for Malta.

The list of [Best Practices](#) as discussed and agreed throughout the various meetings of the Share-PSI group can be found in the Share-PSI website and these have been classified under the main elements of the PSI Directive namely;

- [Policy and Legislation](#)
- [Platforms](#)
- [Dataset criteria](#)
- [Charging](#)
- [Techniques](#)
- [Organisation](#)
- [Formats](#)
- [Reuse](#)
- [Persistence](#)
- [Quality](#)
- [Documentation](#)
- [Selection](#)
- [Discoverability](#)

The mapping of some of these best practices to the Malta localized guide are listed using both the table in **Appendix 5** and also within this document where the BP is considered to be relevant.

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9.6 Appendix 5 – Best Practice Mapping Table

The details in **Appendix 4** give a brief background to the Share-PSI localized guide’s project and how the National Data Strategy document is being used as the Malta document for this purpose.

The following is the mapping of specific sections included within this document to the relevant items published on the Share-PSI / W3C [Best Practices](#) pages.

Develop and Implement a Cross Agency Strategy	Holistic Approach and Central Oversight	4.1
Enable feedback channels for improving the quality of existing government data	Requests for Data and Feedback	5.3.5
High Level Support	Paradigm Shift	7.1
Categorise openness of data	Open Data Readiness	9.7.7
Categorise openness of data	Traffic Lights Indicator	9.7.4
Dataset Criteria	Business Impact Indicators	9.7.5
Dataset Criteria	Risk Level Indicators	9.7.6
Enable Quality assessment of Open Data	Data Quality Indicators	9.7.3
Identify what you already publish	Linked Official Registers	4.10
Identify what you already publish	Catalogue of Datasets	6.3
Identify what you already publish	Register of Registers	6.3
Establish Open Government Portal for data sharing	Open Data Portal	6.5.1
Establish Open Government Portal for data sharing	Data Sharing Platform	6.5.2
Use persistent URI’s as identifiers of datasets	Uniform Resource Identifier	9.9
Use persistent URI’s as identifiers within datasets	Uniform Resource Identifier	9.9
Provide version history	Record Versioning	9.9.3
Reuse vocabularies, preferably standardized ones	Core Vocabularies	9.8

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9.7 Appendix 6 – Comprehensive Data Classification Scheme

A comprehensive data classification scheme shall be adopted to enable the proper decisions on the datasets and other information assets as may be produced from the official registers.

The obligation to apply the relevant classifications shall be on the identified “data owner” or the “data controller” who may delegate such a task to the “data custodian” but remains ultimately responsible.

The original working papers issued to discuss the classification elements is the following [Data Classifications](#) document.

9.7.1 Data Access and Security

Classified Data

- Confidential Data
- Personal Data
- Restricted Data
- Secret Data
- Top Secret Data

Un-Classified Data

- Anonymous Data
- Linked Open Data
- Non-Sensitive Data
- Open Data
- Premium Data
- Pseudonymous Data
- Public Domain Data
- Public Inspection Data
- Public Records
- Statutory Publication

9.7.2 Enterprise Data Stewardship Pillars

- Personal Data
- Geo-Spatial Data
- Organisational Data

9.7.3 Data Quality

- High Quality Data
- Medium Quality Data
- Low Quality Data

[Best Practice](#) – [Enable Quality assessment of Open Data](#) - [Appendix 5](#)

9.7.4 Data Sharing (Traffic Lights) Indicators

- Amber / Yellow – Controlled Sharing Allowed
- Green – Sharing without conditions
- Red – Sharing not considered

[Best Practice](#) - [Categorise openness of data](#) - [Appendix 5](#)

9.7.5 Business Impact Indicators

- Low – Negligible Effect
- Medium – Local Area Only
- High – Corporate Wide Visibility

[Best Practice](#) - [Dataset Criteria](#) - [Appendix 5](#)

9.7.6 Risk Level Indicators

- Green – No Risk
- Amber – Low Risk
- Red – High Risk

[Best Practice](#) - [Dataset Criteria](#) - [Appendix 5](#)

9.7.7 Open-Data Readiness

- Available from an intranet (authenticated login)
- Available on the web (Viewing Only)
- Available on the web (Viewing and Downloading)
- Not Published (Not available beyond original collection scope)
- Paper Publication

[Best Practice](#) - [Categorise openness of data](#) - [Appendix 5](#)

9.7.8 Data Volatility

- Aggregated Data
- Audit Data
- Joined Data
- Master Data
- Reference Data
- Transaction Data

9.7.9 Updating and Storage Mechanisms

- Local
- Central
- Federated

9.8 Appendix 7 – Core Vocabularies

The [eGovernment Core Vocabularies](#)³³ as published by the EU collaborative platform [Joinup](#)³⁴ is the main reference for the local development of a number of Registers to form part of the [Foundation Data Layer](#).

The main subjects covered by the initiatives to establish pan-European Core Vocabularies under the Interoperability Solutions for European Public Administrations (ISA)³⁵ programme are as follows;

- Person - [Core Person Vocabulary](#)
- Organisation – [Registered Organisation Vocabulary](#)
- Location – [Core Location Vocabulary](#)
- Public Organisation – [Core Public Organisation Vocabulary](#)
- Public Service - [Core Public Service Vocabulary](#)

[Best Practice](#) - [Reuse vocabularies, preferably standardized ones](#) - [Appendix 5](#)

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³³ https://joinup.ec.europa.eu/asset/core_vocabularies/description

³⁴ <https://joinup.ec.europa.eu/>

³⁵ <http://ec.europa.eu/isa/>

9.9 Appendix 8 - Uniform Resource Identifier (URI) Strategy

More details to be added in a later version of this document.

[Best Practice – Use persistent URI’s as identifiers of datasets - Appendix 5](#)

[Best Practice – Use persistent URI’s as identifiers within datasets - Appendix 5](#)

9.9.1 Permanent Anchors

There shall be established a number of officially authorised terms that can serve as permanent anchors for the Registers, Services and Processes. This may be achieved by maintaining a Register of Government Functions which shall be linked to the COFOG Classification and which should also be linked to the main economic and social Sectors normally associated with the workings of the government.

9.9.2 Structure and Components

More details to be added in a later version of this document.

9.9.3 Record Versioning

A technical specification shall be established as a local standard through which official records and documents can be amended and changed as required without losing track of the contents and metadata of the previous versions.

The ability to continue to link and access these previous versions of the same record as opposed to having only access to the current state is a major component of the URI strategy.

[Best Practice – Provide version history - Appendix 5](#)

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