WS1: Presentation

20 Jul 2018 21:53:53

Purpose

Views and elements prepared for the first workshop in the "Data Management by Design" activity under the Danish national Data Management forum established by DeiC and DEFF.

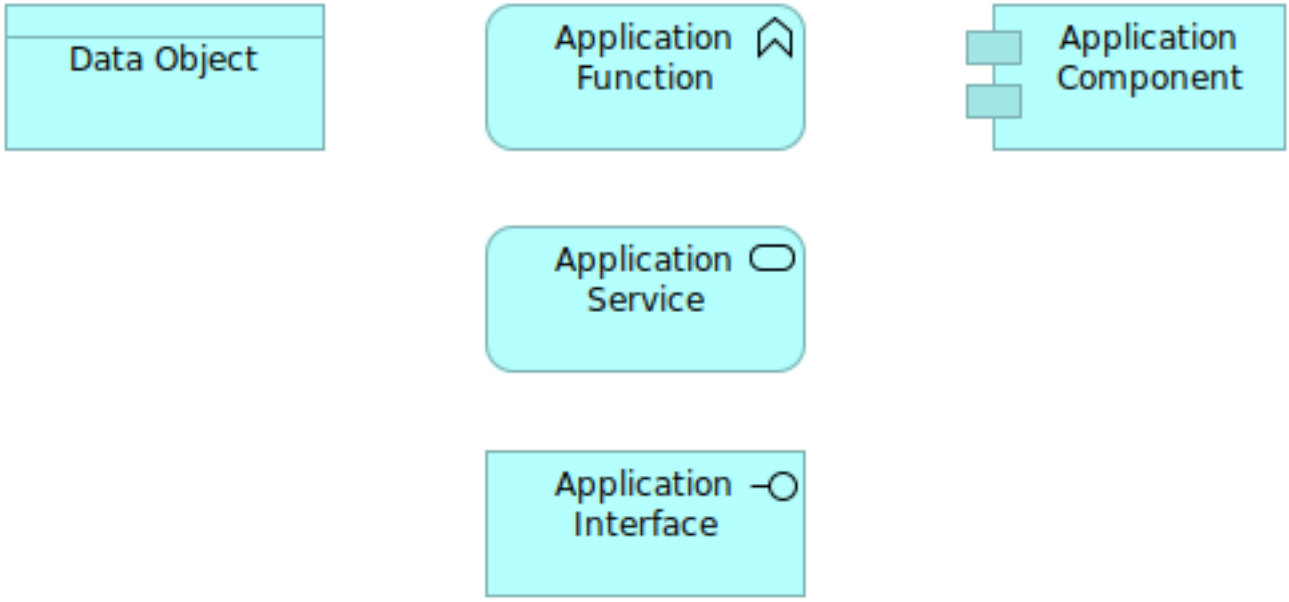
These views and examples where made by Bo Bai:
http://personprofil.aau.dk/104023?lang=en

The modelling and this file was produced using the Archi | Open Source ArchiMate Modelling Tool: https://www.archimatetool.com/

Views

Apllication Layer Subset

No viewpoint



Documentation

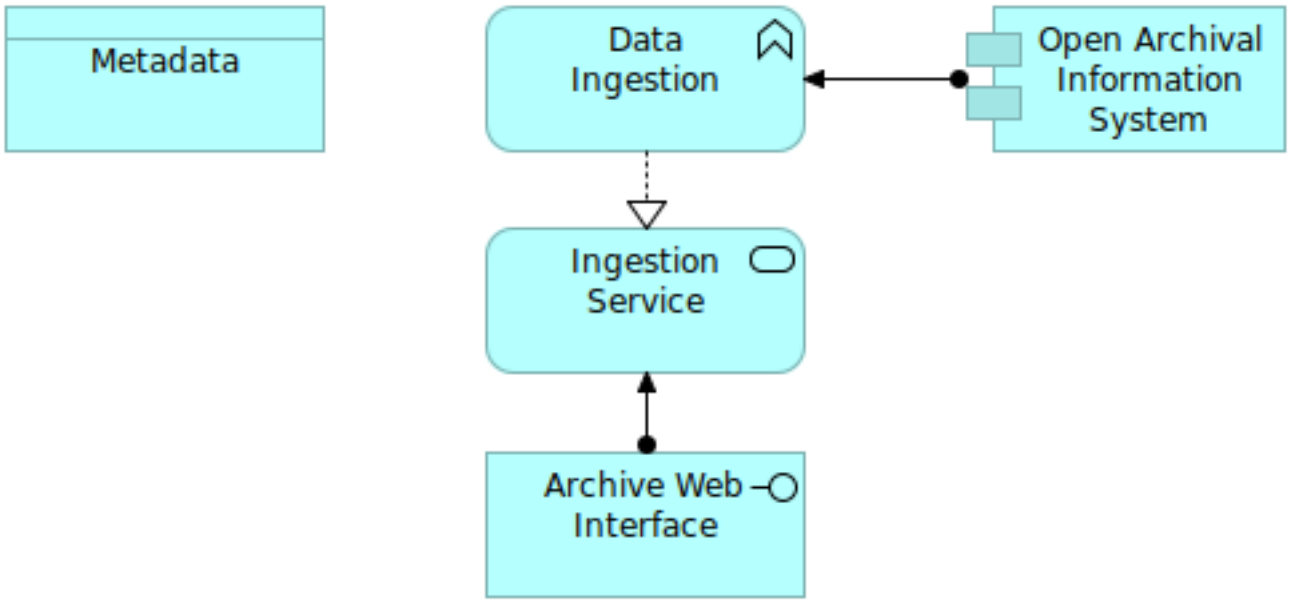
> The subset of application layer elements used in the workshop

Elements

Element	Type
Application Component	Application Component
Application Function	Application Function
Application Interface	Application Interface
Application Service	Application Service
Data Object	Data Object

Application Layer Subset Examples

No viewpoint



Documentation

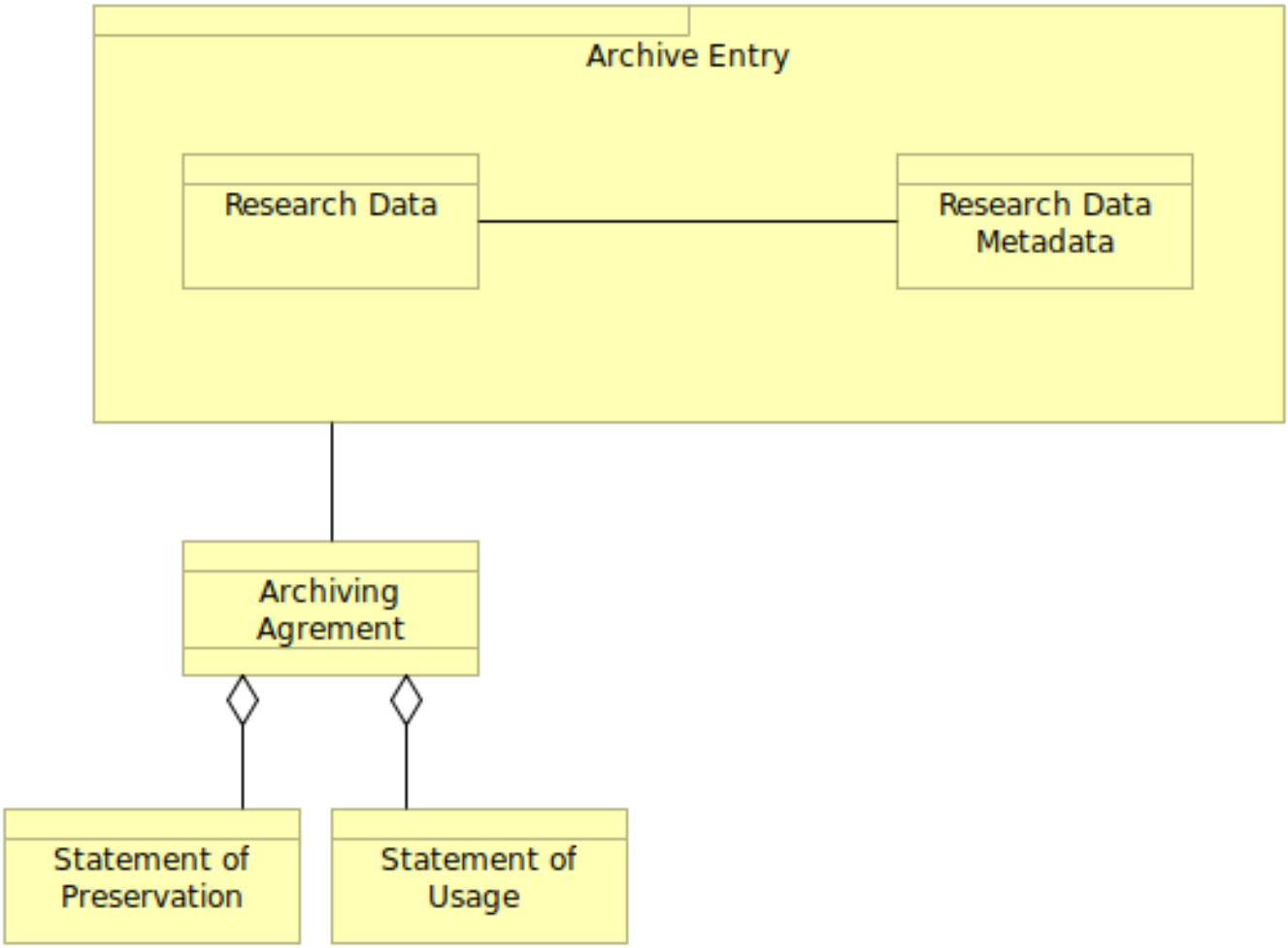
Concrete examples of the application layer elements from a university setting

Elements

Element	Type
Archive Web Interface	Application Interface
Data Ingestion	Application Function
Ingestion Service	Application Service
Metadata	Data Object
Open Archival Information System	Application Component

Archived Data Object

No viewpoint



Documentation

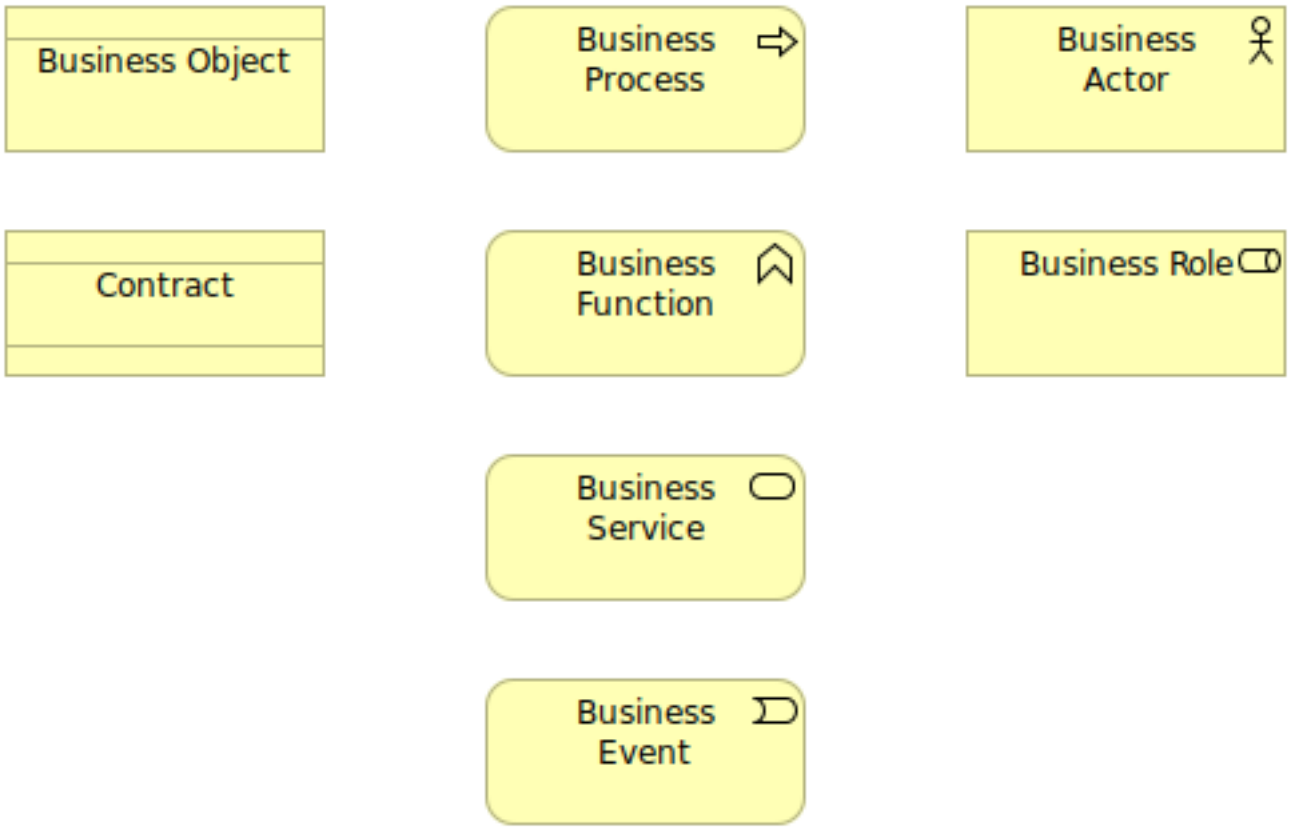
> Illustration of an entry in the research data archive and the corresponding aggrement(s) that govern how the archive can manage preservation and access in the future.

Elements

Element	Type
Archive Entry	Product
Archiving Agrement	Contract
Research Data	Business Object
Research Data Metadata	Business Object
Statement of Preservation	Business Object
Statement of Usage	Business Object

Business Layer Subset

No viewpoint



Documentation

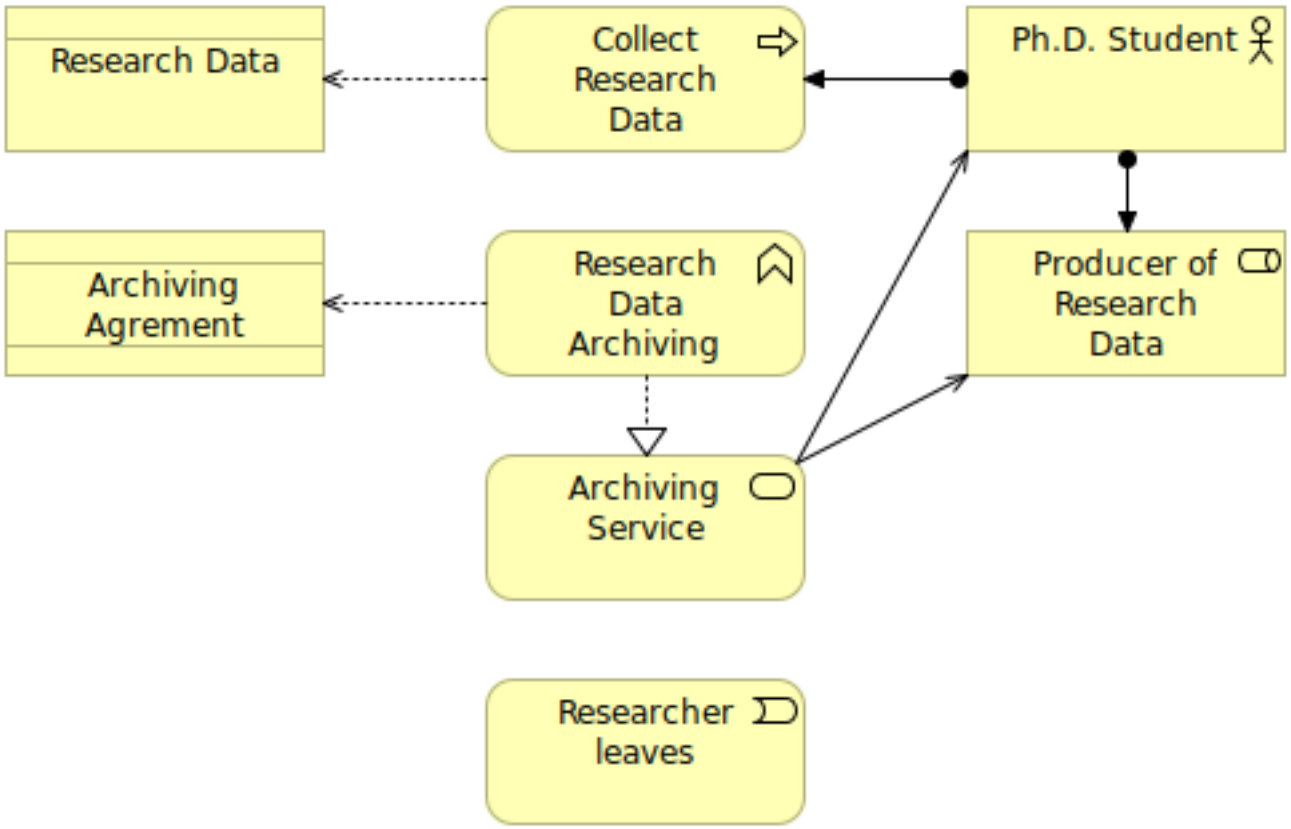
The subset of business layer elements used in the workshop

Elements

Element	Type
Business Actor	Business Actor
Business Event	Business Event
Business Function	Business Function
Business Object	Business Object
Business Process	Business Process
Business Role	Business Role
Business Service	Business Service
Contract	Contract

Business Layer Subset Examples

No viewpoint



Documentation

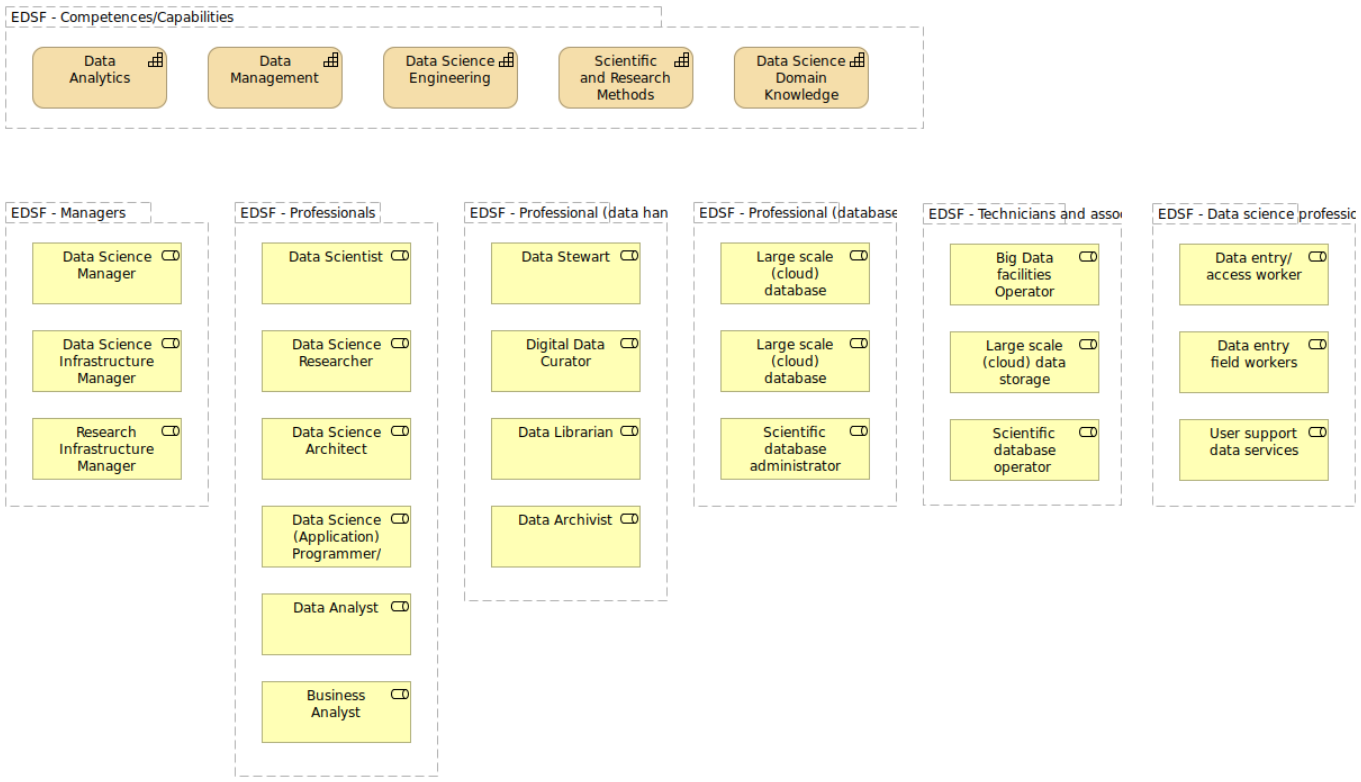
Concrete examples of the business layer elements from a university setting

Elements

Element	Type
Archiving Agrement	Contract
Archiving Service	Business Service
Collect Research Data	Business Process
Ph.D. Student	Business Actor
Producer of Research Data	Business Role
Research Data	Business Object
Research Data Archiving	Business Function
Researcher leaves	Business Event

EDISON Data Science Framework (copy)

No viewpoint



Documentation

The EDISON project is designated to create a foundation for establishing a new profession of Data Scientist for
European research and industry. The EDISON vision for building the Data Science profession will be enabled
through the creation of a comprehensive framework for Data Science education and training that includes such
components as Data Science Competence Framework (CF-DS), Data Science Body of Knowledge (DS-BoK), Data
Science Model Curriculum (MC-DS), and Data Science Professional profiles definition.

-- EDISON Data Science Framework (EDSF)

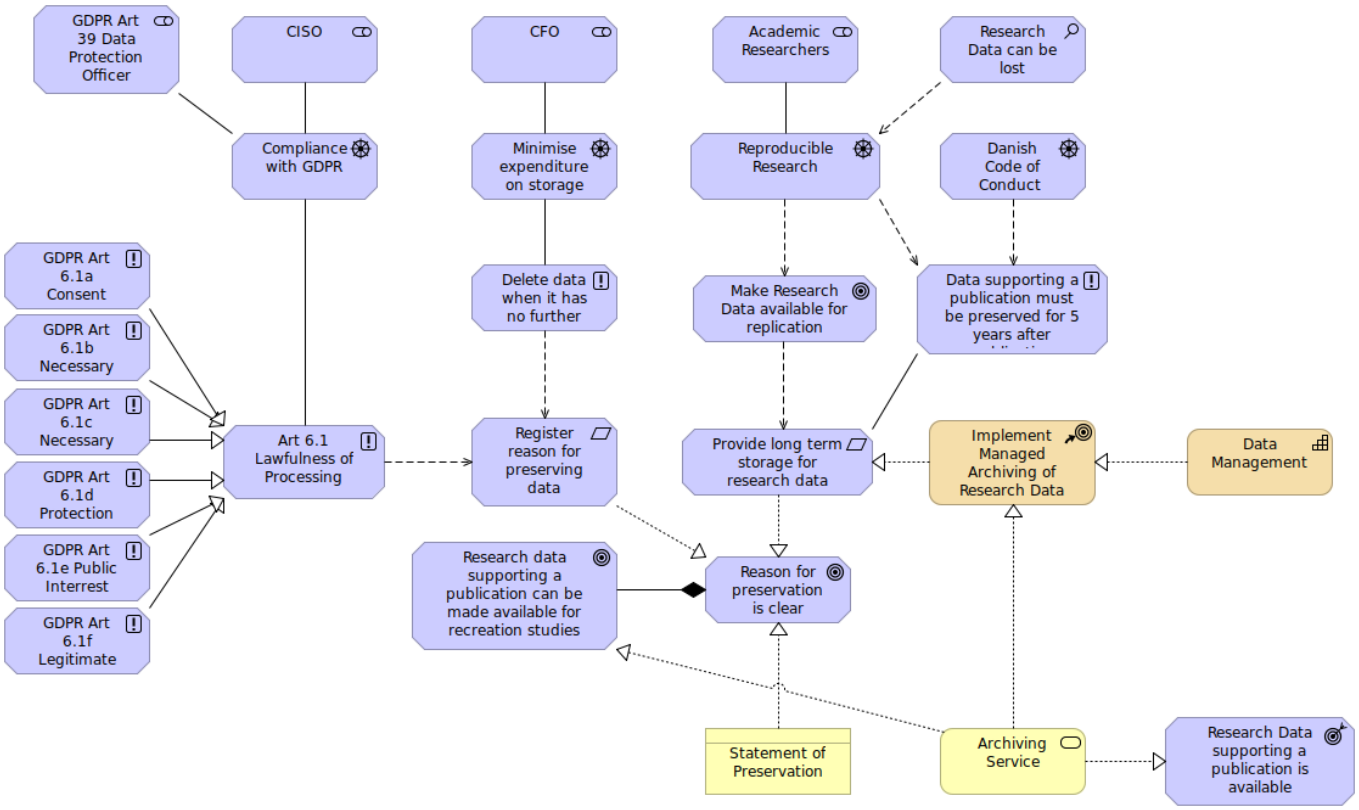
Elements

Element	Type
Big Data facilities Operator	Business Role
Business Analyst	Business Role
Data Analyst	Business Role
Data Analytics	Capability
Data Archivist	Business Role
Data entry field workers	Business Role
Data entry/access worker	Business Role

Element	Type
Data Librarian	Business Role
Data Management	Capability
Data Science (Application) Programmer/Engineer	Business Role
Data Science Architect	Business Role
Data Science Domain Knowledge	Capability
Data Science Engineering	Capability
Data Science Infrastructure Manager	Business Role
Data Science Manager	Business Role
Data Science Researcher	Business Role
Data Scientist	Business Role
Data Stewart	Business Role
Digital Data Curator	Business Role
EDSF - Competences/Capabilities	Grouping
EDSF - Data science professional profiles	Grouping
EDSF - Managers	Grouping
EDSF - Professional (data handling/management)	Grouping
EDSF - Professional (database)	Grouping
EDSF - Professionals	Grouping
EDSF - Technicians and associate professionals	Grouping
Large scale (cloud) data storage operator	Business Role
Large scale (cloud) database administrator	Business Role
Large scale (cloud) database designer	Business Role
Research Infrastructure Manager	Business Role
Scientific and Research Methods	Capability
Scientific database administrator	Business Role
Scientific database operator	Business Role
User support data services	Business Role

Example 1 - Why archive

No viewpoint



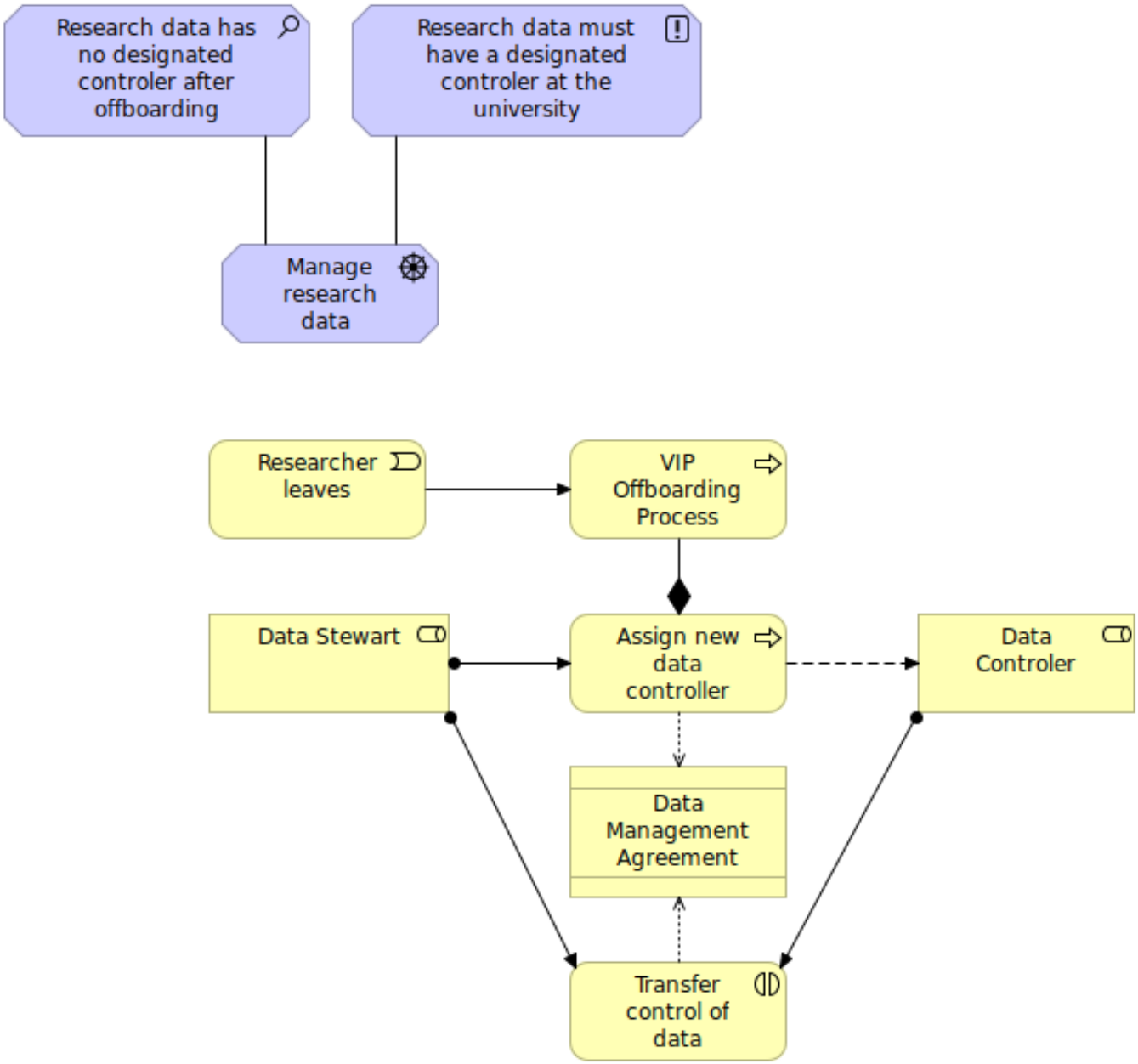
Elements

Element	Type
Academic Researchers	Stakeholder
Archiving Service	Business Service
Art 6.1 Lawfulness of Processing	Principle
CFO	Stakeholder
CISO	Stakeholder
Compliance with GDPR	Driver
Danish Code of Conduct	Driver
Data Management	Capability
Data supporting a publication must be preserved for 5 years after publication	Principle
Delete data when it has no further use	Principle
GDPR Art 39 Data Protection Officer	Stakeholder
GDPR Art 6.1a Consent	Principle
GDPR Art 6.1b Necessary for Contract	Principle
GDPR Art 6.1c Necessary for Compliance with Legal Obligation	Principle
GDPR Art 6.1d Protection of Vital Interests	Principle
GDPR Art 6.1e Public Interrest	Principle
GDPR Art 6.1f Legitimate Interests	Principle
Implement Managed Archiving of Research Data	Course of Action
Make Research Data available for replication	Goal

Element	Type
studies	
Minimise expenditure on storage	Driver
Provide long term storage for research data	Requirement
Reason for preservation is clear	Goal
Register reason for preserving data	Requirement
Reproducible Research	Driver
Research Data can be lost	Assessment
Research data supporting a publication can be made available for recreation studies	Goal
Research Data supporting a publication is available	Outcome
Statement of Preservation	Business Object

Example 2 - Governance

No viewpoint



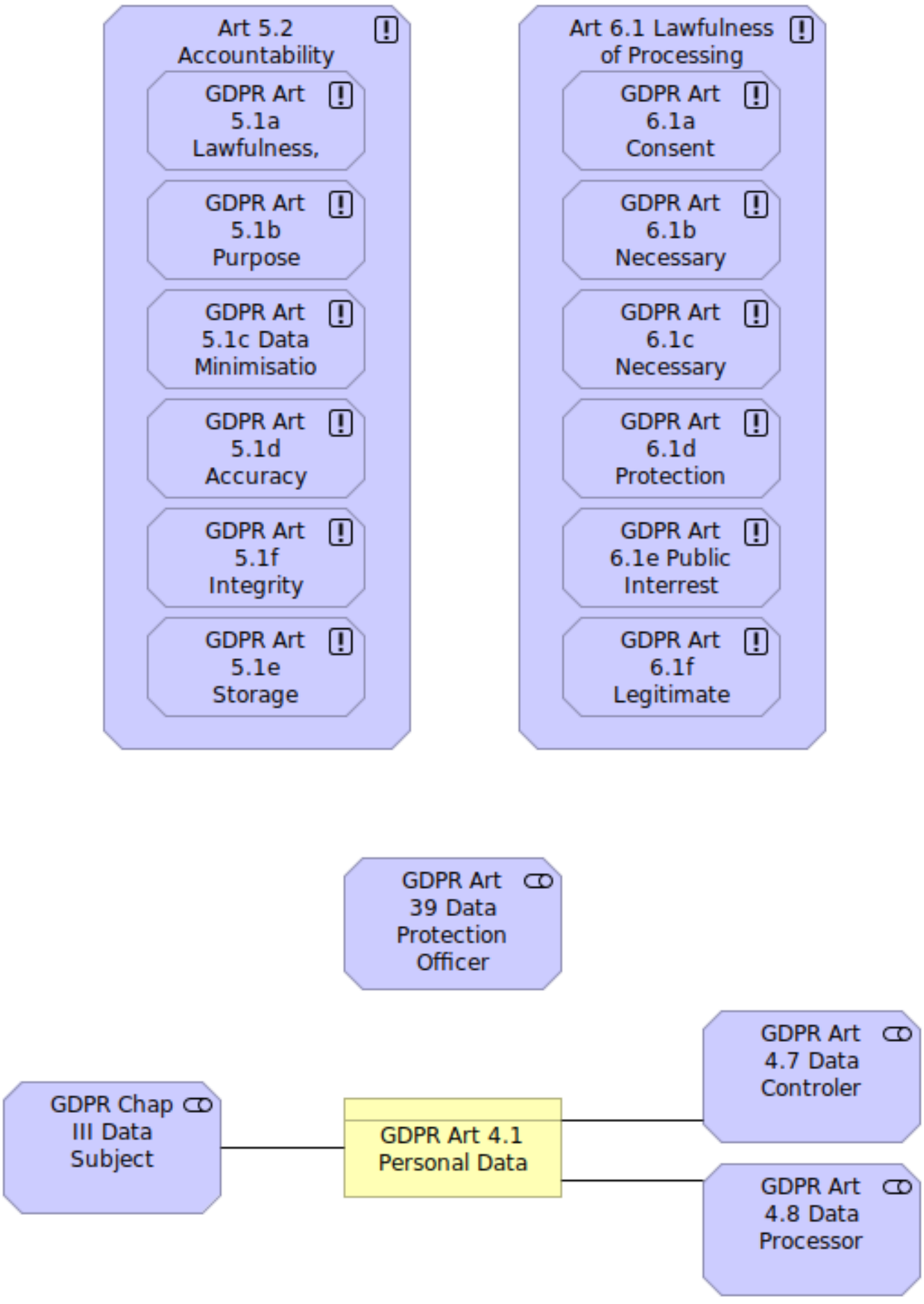
Elements

Element	Type
Assign new data controller	Business Process
Data Controler	Business Role
Data Management Agreement	Contract
Data Stewart	Business Role
Manage research data	Driver
Research data has no designated controler after offboarding	Assessment
Research data must have a designated controler at the university	Principle
Researcher leaves	Business Event

Element	Type
Transfer control of data	Business Interaction
VIP Offboarding Process	Business Process

GDPR (copy)

No viewpoint

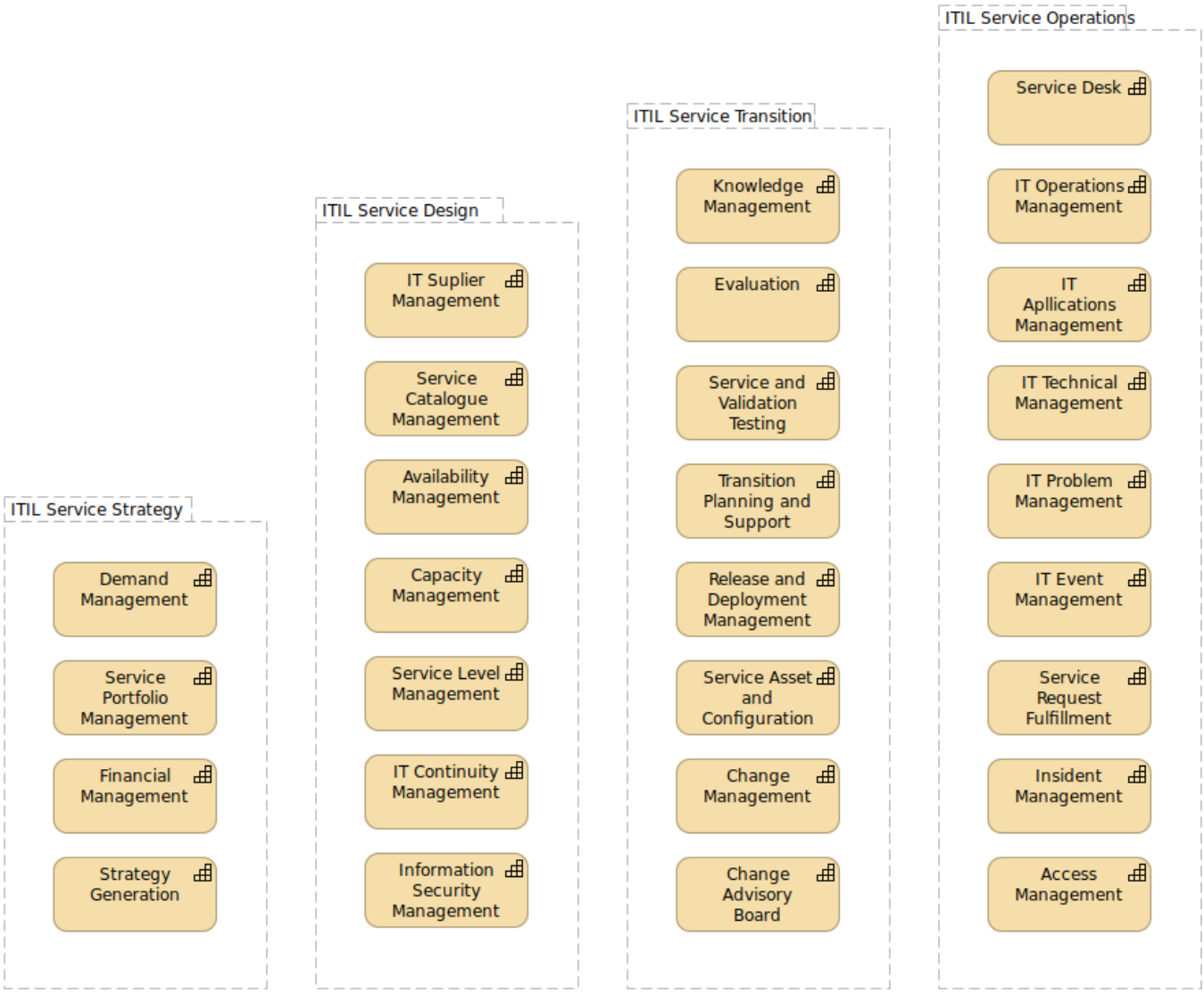

Art 5.2 Accountability
GDPR Art 5.1a Lawfulness,
GDPR Art 5.1b Purpose
GDPR Art 5.1c Data Minimisatio
GDPR Art 5.1d Accuracy
GDPR Art 5.1f Integrity
GDPR Art 5.1e Storage
Art 6.1 Lawfulness of Processing
GDPR Art 6.1a Consent
GDPR Art 6.1b Necessary
GDPR Art 6.1c Necessary
GDPR Art 6.1d Protection
GDPR Art 6.1e Public Interrest
GDPR Art 6.1f Legitimate
GDPR Art 39 Data Protection Officer
GDPR Art 4.7 Data Controler
GDPR Chap III Data Subject
GDPR Art 4.1 Personal Data
GDPR Art 4.8 Data Processor

Elements

Element	Type
Art 5.2 Accountability	Principle
Art 6.1 Lawfulness of Processing	Principle
GDPR Art 39 Data Protection Officer	Stakeholder
GDPR Art 4.1 Personal Data	Business Object
GDPR Art 4.7 Data Controler	Stakeholder
GDPR Art 4.8 Data Processor	Stakeholder
GDPR Art 5.1a Lawfulness, Fairness and Transparency	Principle
GDPR Art 5.1b Purpose Limitation	Principle
GDPR Art 5.1c Data Minimisation	Principle
GDPR Art 5.1d Accuracy	Principle
GDPR Art 5.1e Storage Limitation	Principle
GDPR Art 5.1f Integrity and Confidentiality	Principle
GDPR Art 6.1a Consent	Principle
GDPR Art 6.1b Necessary for Contract	Principle
GDPR Art 6.1c Necessary for Compliance with Legal Obligation	Principle
GDPR Art 6.1d Protection of Vital Interests	Principle
GDPR Art 6.1e Public Interrest	Principle
GDPR Art 6.1f Legitimate Interests	Principle
GDPR Chap III Data Subject	Stakeholder

ITIL v3 simplified capability map (copy)

No viewpoint



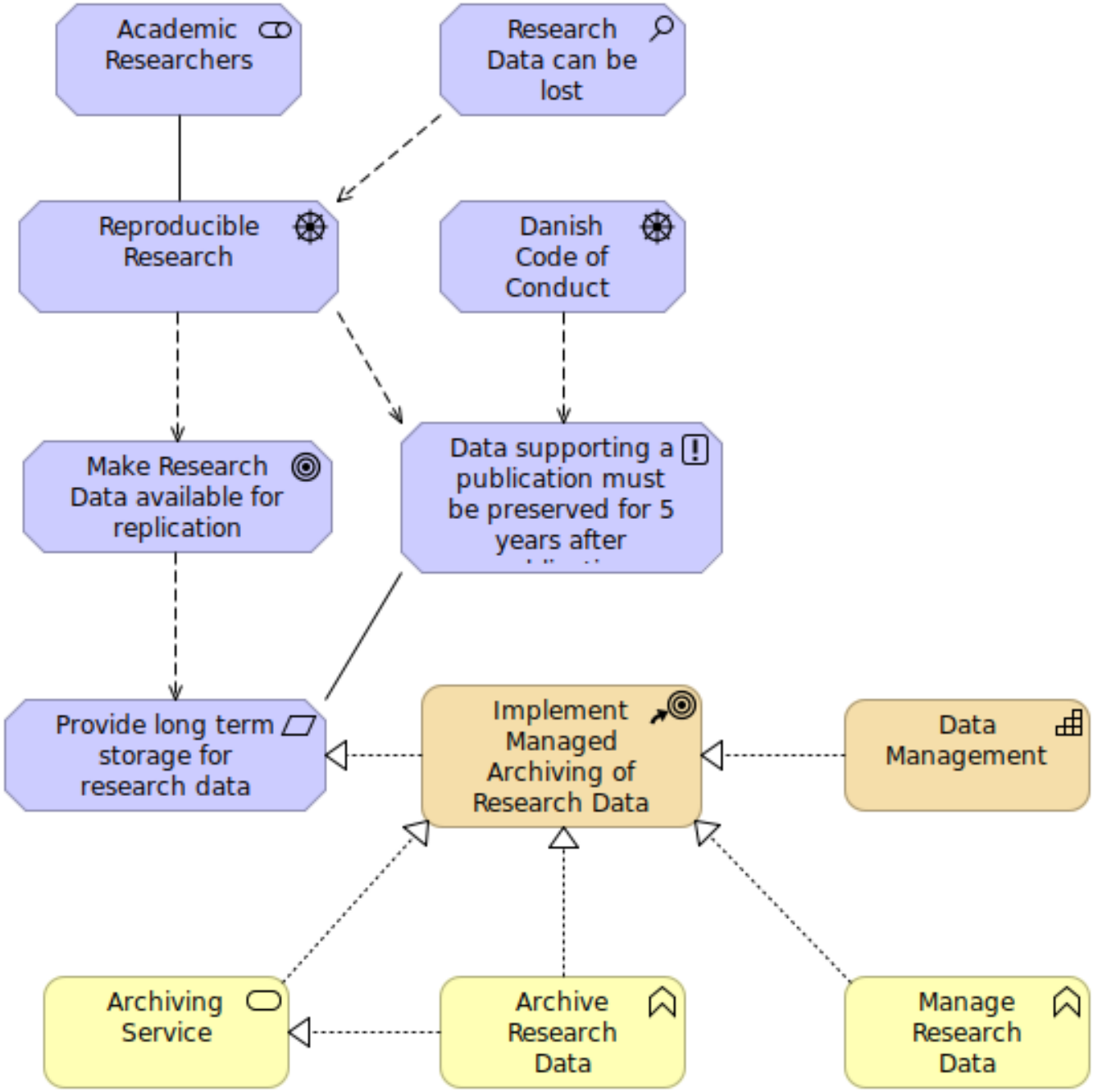
Elements

Element	Type
Access Management	Capability
Availability Management	Capability
Capacity Management	Capability
Change Advisory Board	Capability
Change Management	Capability
Demand Management	Capability
Evaluation	Capability
Financial Management	Capability
Information Security Management	Capability
Insident Management	Capability
IT Apllications Management	Capability
IT Continuity Management	Capability
IT Event Management	Capability

Element	Type
IT Operations Management	Capability
IT Problem Management	Capability
IT Suplier Management	Capability
IT Technical Management	Capability
ITIL Service Design	Grouping
ITIL Service Operations	Grouping
ITIL Service Strategy	Grouping
ITIL Service Transition	Grouping
Knowledge Management	Capability
Release and Deployment Management	Capability
Service and Validation Testing	Capability
Service Asset and Configuration	Capability
Service Catalogue Management	Capability
Service Desk	Capability
Service Level Management	Capability
Service Portfolio Management	Capability
Service Request Fulfillment	Capability
Strategy Generation	Capability
Transition Planning and Support	Capability

Motivation example 1

No viewpoint



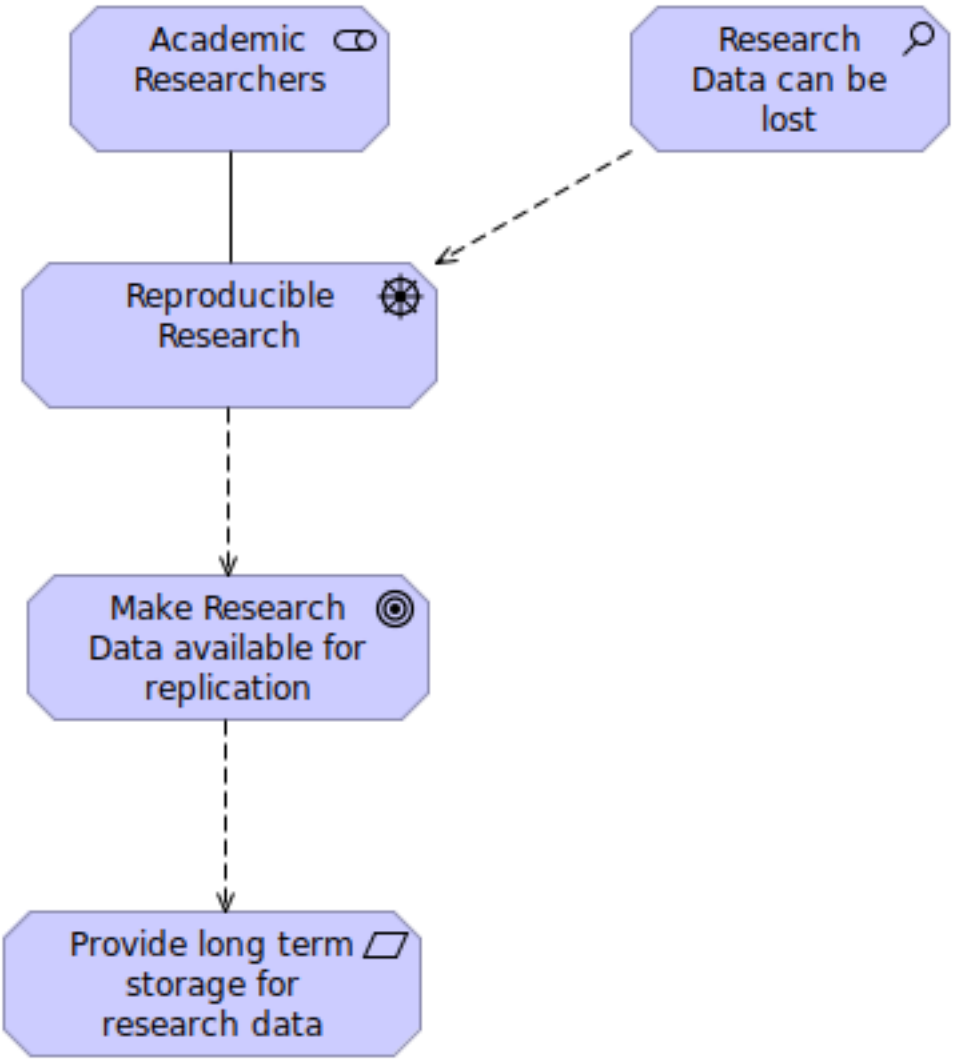
Elements

Element	Type
Academic Researchers	Stakeholder
Archive Research Data	Business Function
Archiving Service	Business Service
Danish Code of Conduct	Driver
Data Management	Capability
Data supporting a publication must be preserved for 5 years after publication	Principle
Implement Managed Archiving of Research Data	Course of Action

Element	Type
Make Research Data available for replication studies	Goal
Manage Research Data	Business Function
Provide long term storage for research data	Requirement
Reproducible Research	Driver
Research Data can be lost	Assessment

Motivation Example 2

No viewpoint

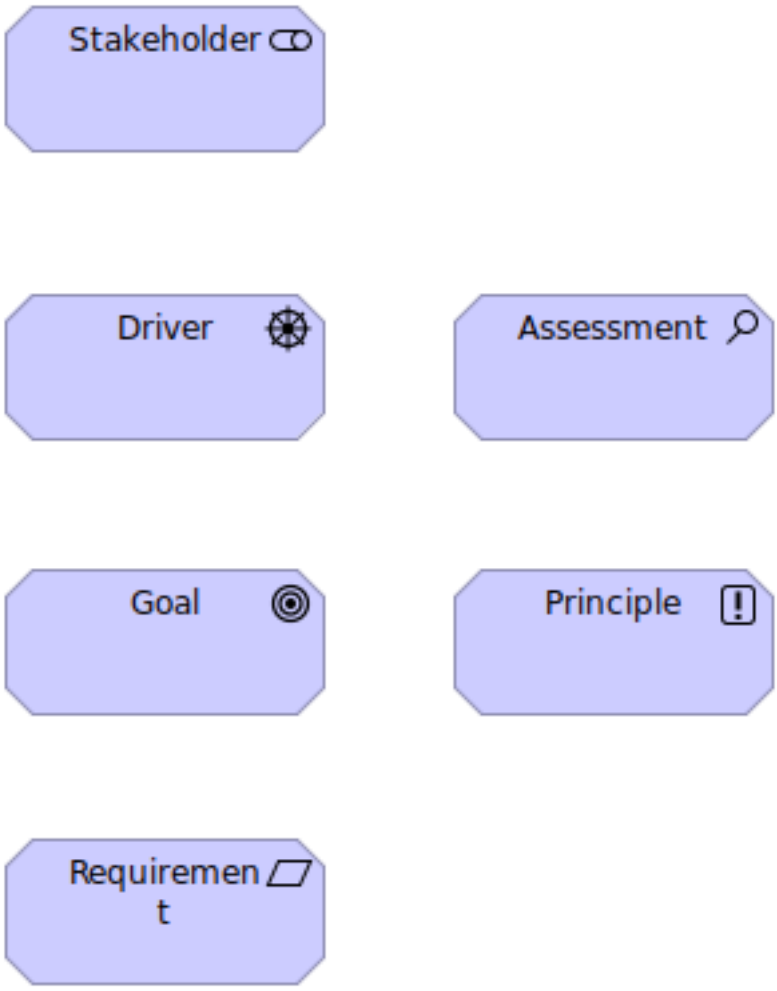


Elements

Element	Type
Academic Researchers	Stakeholder
Make Research Data available for replication studies	Goal
Provide long term storage for research data	Requirement
Reproducible Research	Driver
Research Data can be lost	Assessment

Motivation Subset

No viewpoint



Documentation

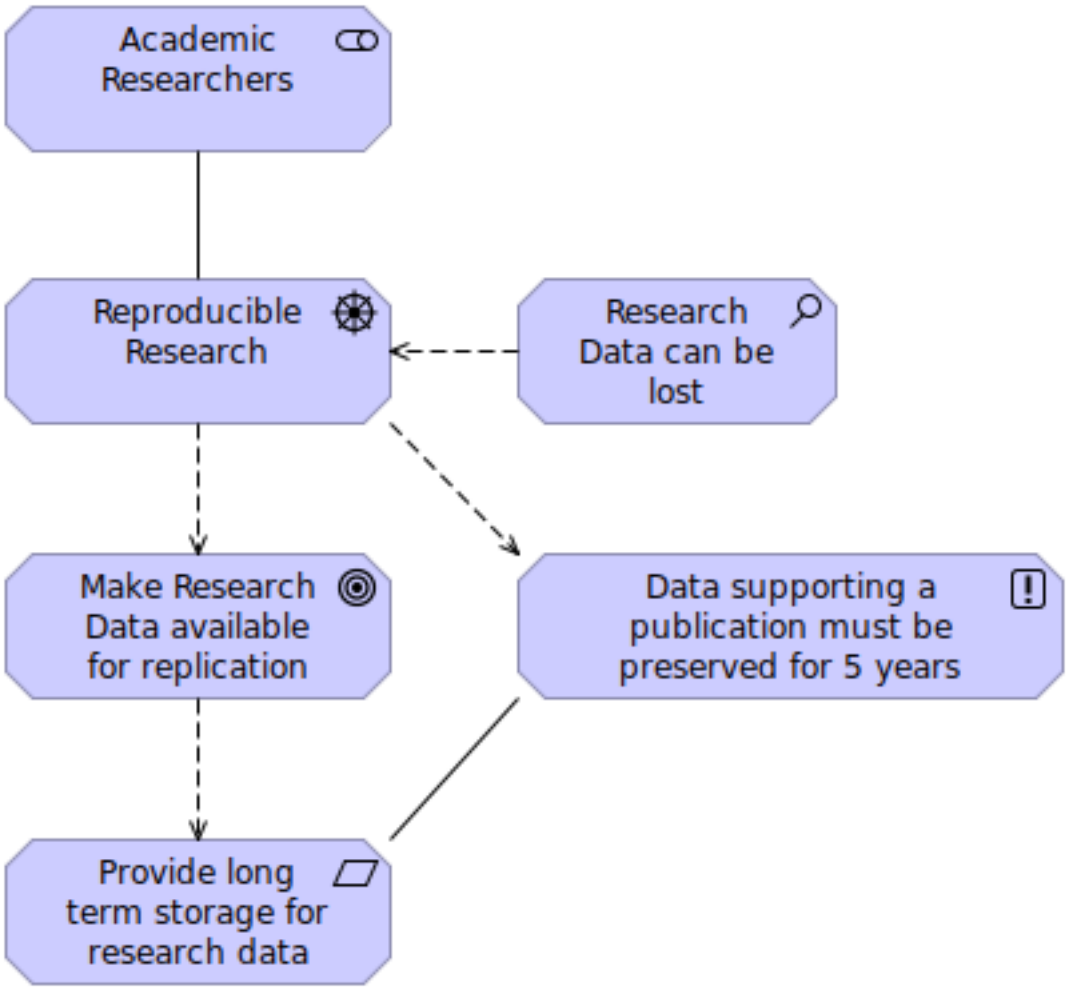
> The subset of motivation layer elements used in the workshop

Elements

Element	Type
Assessment	Assessment
Driver	Driver
Goal	Goal
Principle	Principle
Requirement	Requirement
Stakeholder	Stakeholder

Motivation Subset Examples

No viewpoint



Documentation

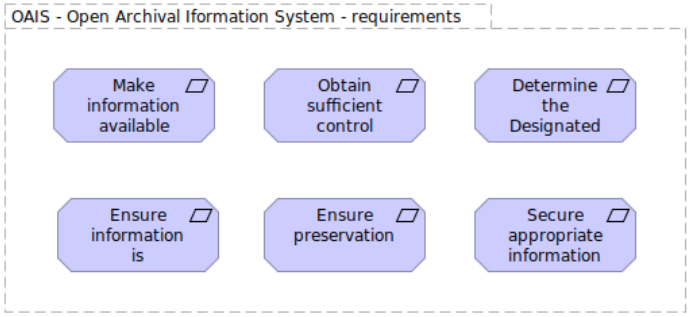
Concrete examples of the motivation layer elements from a university setting

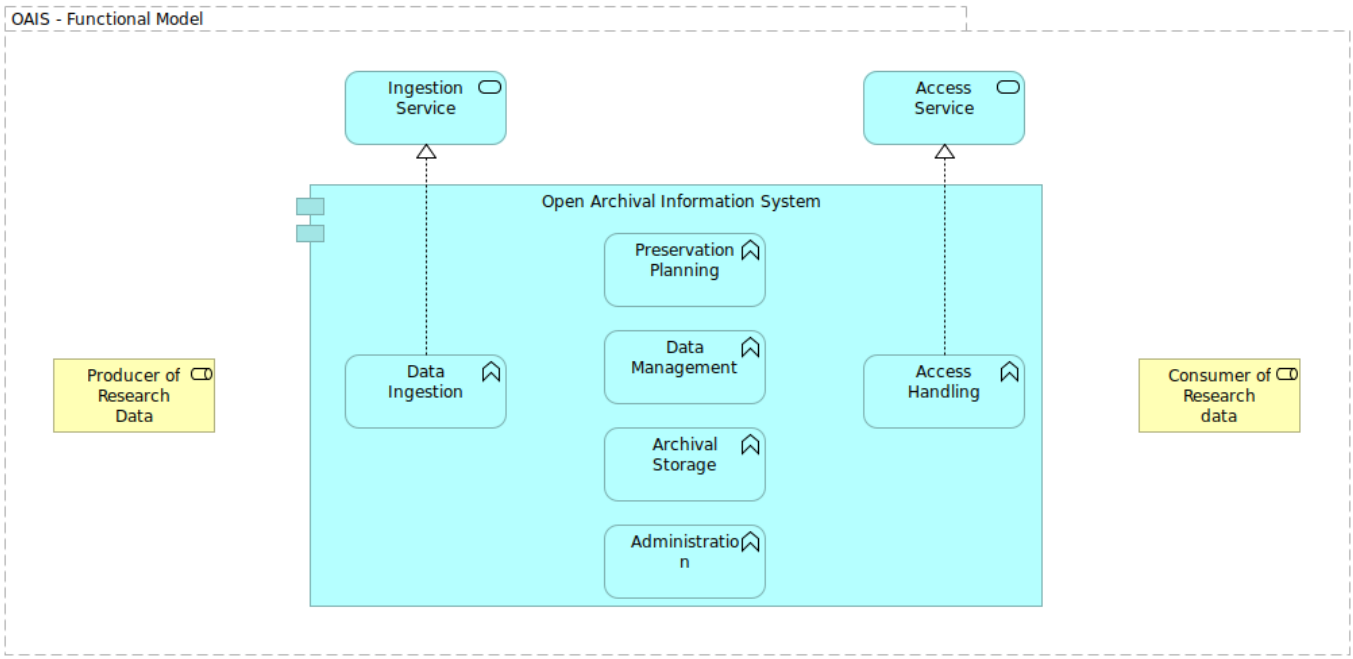
Elements

Element	Type
Academic Researchers	Stakeholder
Data supporting a publication must be preserved for 5 years after publication	Principle
Make Research Data available for replication studies	Goal
Provide long term storage for research data	Requirement
Reproducible Research	Driver
Research Data can be lost	Assessment

OAIS Framework (copy)

No viewpoint





Documentation

An Open Archival Information System (or OAIS) is an archive, consisting of an organization of people and systems, that has accepted the responsibility to preserve information and make it available for a Designated Community.

The term OAIS also refers, by extension, to the ISO OAIS Reference Model for an OAIS. This reference model is defined by recommendation CCSDS 650.0-B-2 of the Consultative Committee for Space Data Systems;[1] this text is identical to ISO 14721:2012. The CCSDS's purview is space agencies, but the OAIS model it developed has proved useful to a wide variety of other organizations and institutions with digital archiving needs.

-- Wikipedia

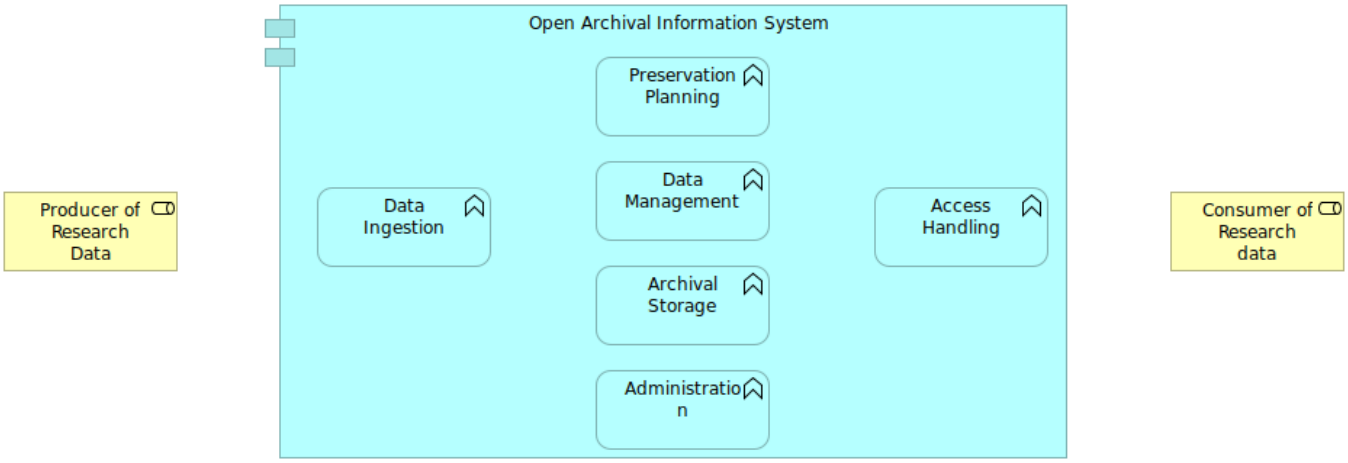
Elements

Element	Type
Access Handling	Application Function
Access Service	Application Service

Element	Type
Administration	Application Function
Archival Storage	Application Function
Consumer of Research data	Business Role
Data Ingestion	Application Function
Data Management	Application Function
Determine the Designated Community	Requirement
Ensure information is understandable	Requirement
Ensure preservation	Requirement
Ingestion Service	Application Service
Make information available	Requirement
OAIS - Functional Model	Grouping
OAIS - Open Archival Iformation System - requirements	Grouping
Obtain sufficient control	Requirement
Open Archival Information System	Application Component
Preservation Planning	Application Function
Producer of Research Data	Business Role
Secure appropriate information from producers	Requirement

OAIS Model

No viewpoint



Documentation

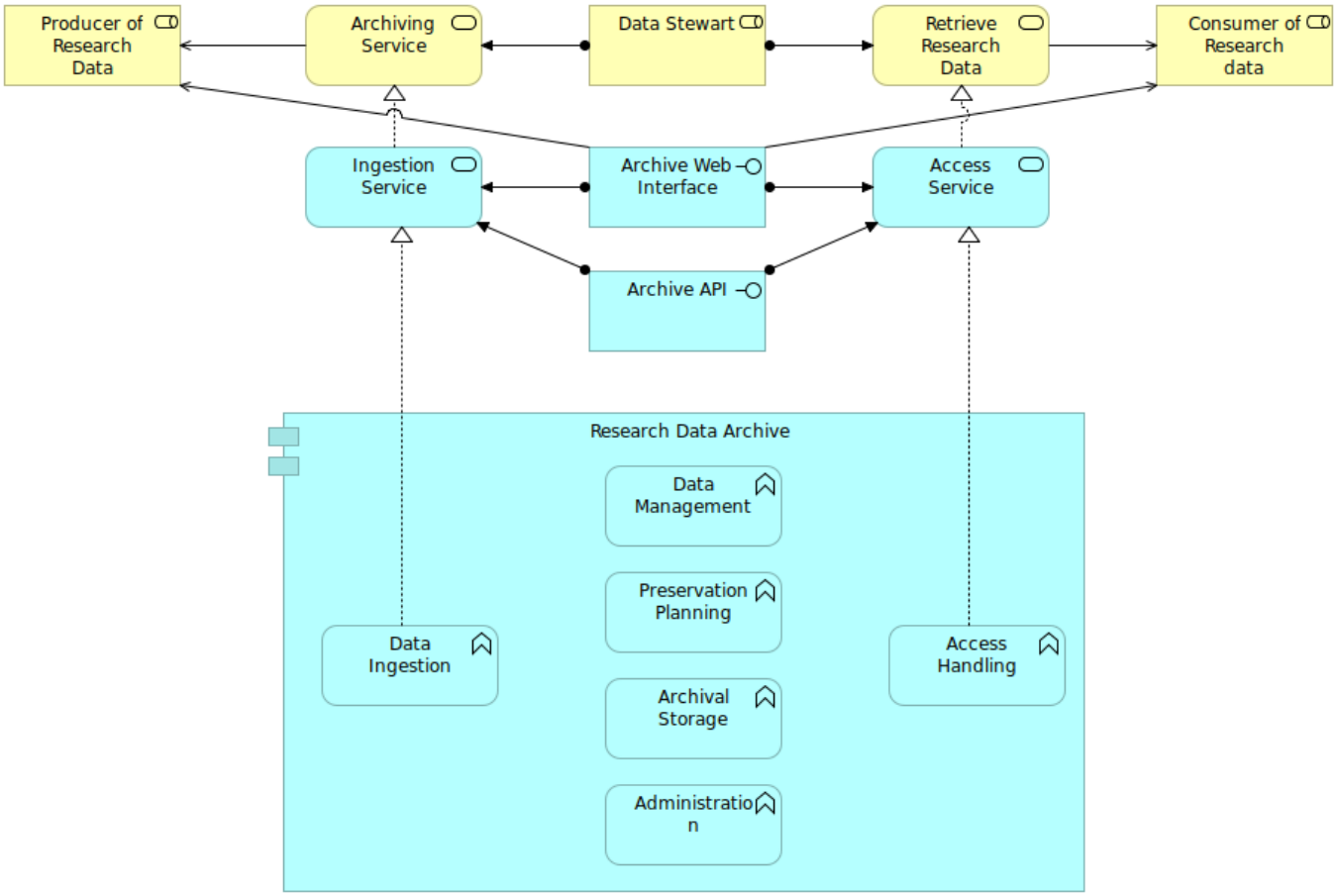
> The Open Archival Information System (or OAIS) framework (simple vesion) illustrated using ArchiMate elements.

Elements

Element	Type
Access Handling	Application Function
Administration	Application Function
Archival Storage	Application Function
Consumer of Research data	Business Role
Data Ingestion	Application Function
Data Management	Application Function
Open Archival Information System	Application Component
Preservation Planning	Application Function
Producer of Research Data	Business Role

OAIS Model expanded

No viewpoint



Documentation

The OAIS model expanded to business level services.

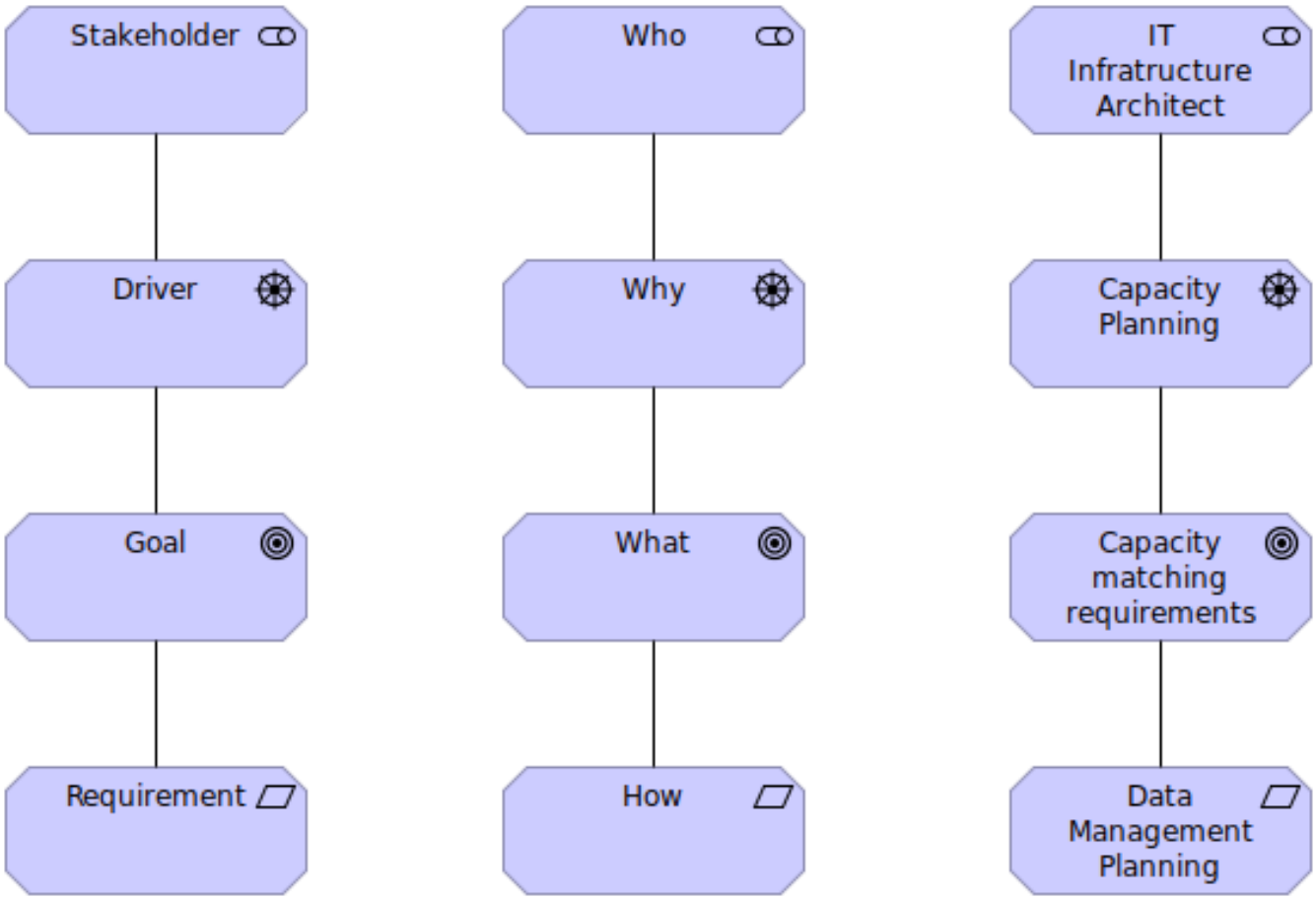
Elements

Element	Type
Access Handling	Application Function
Access Service	Application Service
Administration	Application Function
Archival Storage	Application Function
Archive API	Application Interface
Archive Web Interface	Application Interface
Archiving Service	Business Service
Consumer of Research data	Business Role
Data Ingestion	Application Function
Data Management	Application Function
Data Stewart	Business Role
Ingestion Service	Application Service
Preservation Planning	Application Function
Producer of Research Data	Business Role

Element	Type
Research Data Archive	Application Component
Retrieve Research Data	Business Service

Simple Motivation Modelling Example

No viewpoint



Documentation

A subset of the ArchiMate language is used to model the motivations and goals of stakeholders having requirements to the handling of research data at universities.

Elements

Element	Type
Capacity matching requirements	Goal
Capacity Planning	Driver
Data Management Planning	Requirement
Driver	Driver
Goal	Goal
How	Requirement
IT Infratructure Architect	Stakeholder
Requirement	Requirement
Stakeholder	Stakeholder
What	Goal
Who	Stakeholder
Why	Driver

Strategy Subset

Strategy viewpoint

Documentation

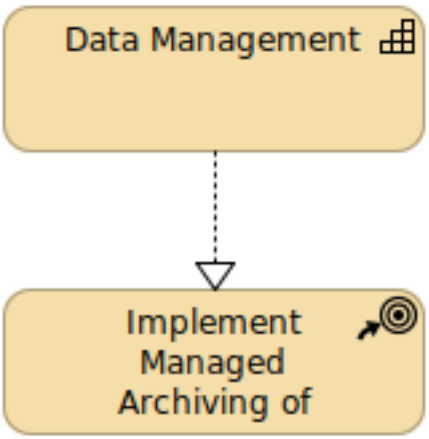
> The subset of strategy layer elements used in the workshop

Elements

Element	Type
Capability	Capability
Course of Action	Course of Action

Strategy Subset Examples

Strategy viewpoint



Documentation

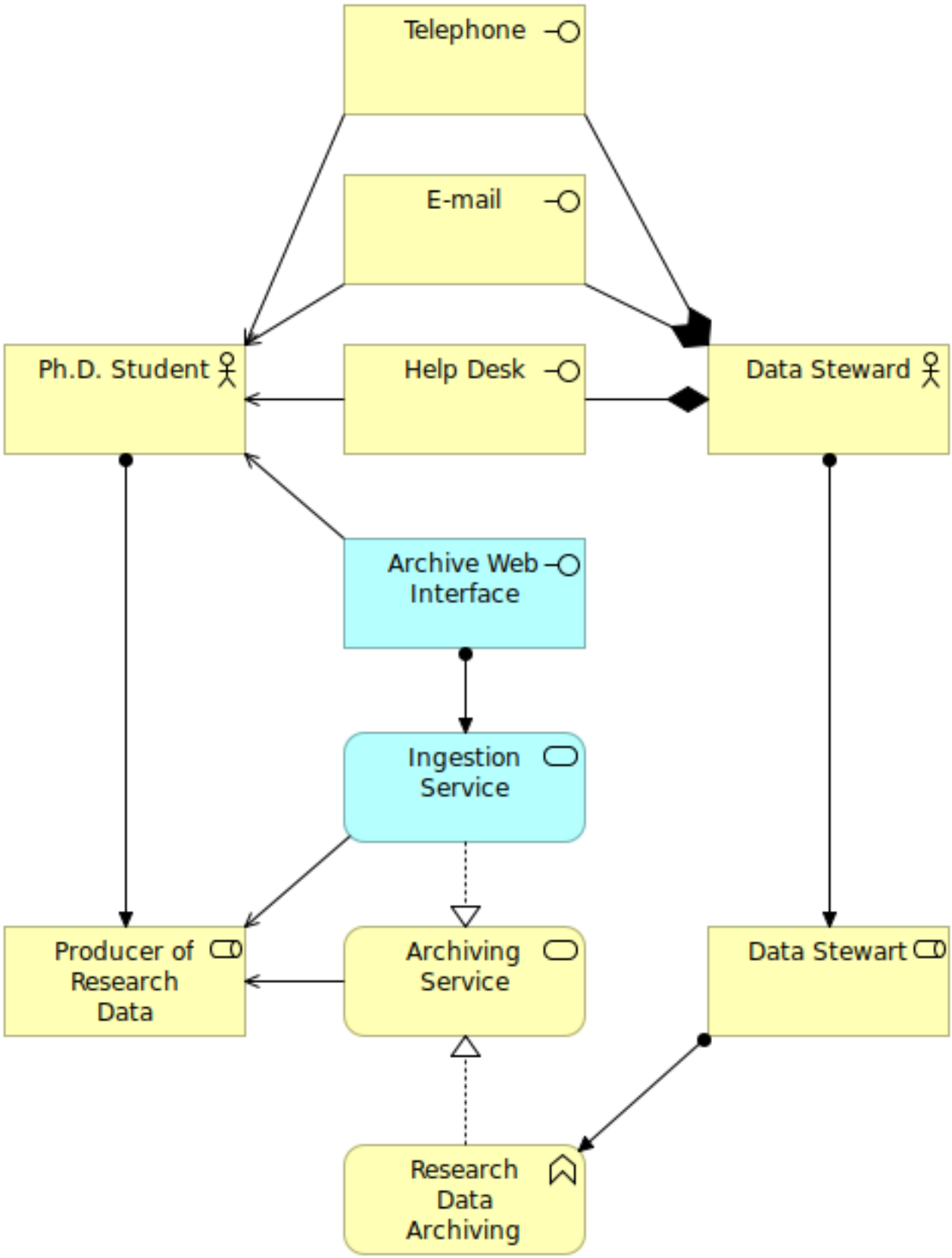
Concrete examples of the strategy layer elements from a university setting

Elements

Element	Type
Data Management	Capability
Implement Managed Archiving of Research Data	Course of Action

The Ph.D. Student Wiev

Layered viewpoint



Documentation

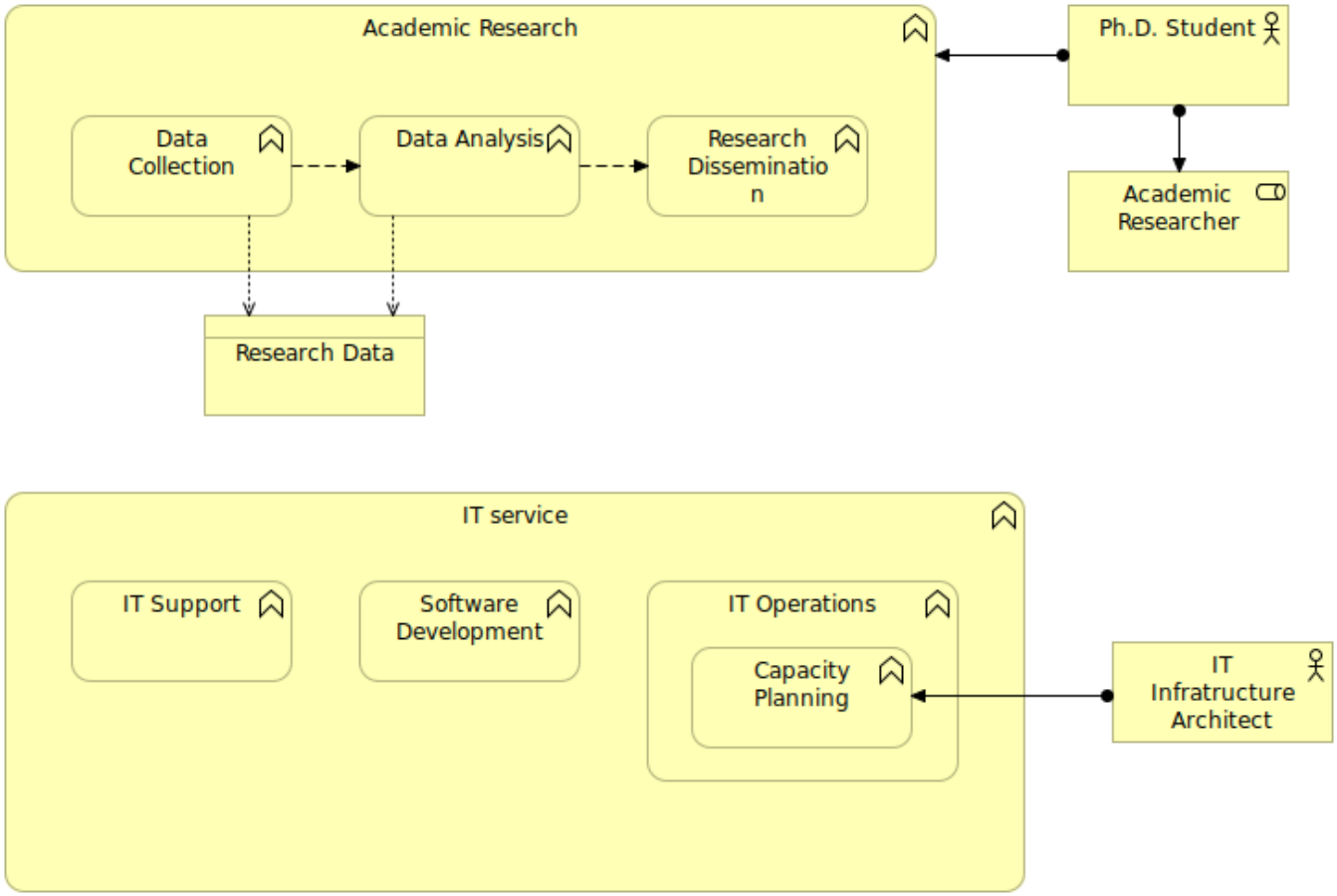
Research data archive view for a Ph.D. student

Elements

Element	Type
Archive Web Interface	Application Interface
Archiving Service	Business Service
Data Steward	Business Actor
Data Stewart	Business Role
E-mail	Business Interface
Help Desk	Business Interface
Ingestion Service	Application Service
Ph.D. Student	Business Actor
Producer of Research Data	Business Role
Research Data Archiving	Business Function
Telephone	Business Interface

University Business Function Examples

Layered viewpoint



Elements

Element	Type
Academic Research	Business Function
Academic Researcher	Business Role
Capacity Planning	Business Function
Data Analysis	Business Function
Data Collection	Business Function
IT Infratructure Architect	Business Actor
IT Operations	Business Function
IT service	Business Function
IT Support	Business Function
Ph.D. Student	Business Actor
Research Data	Business Object
Research Dissemination	Business Function
Software Development	Business Function

What How Who

No viewpoint

Elements

Element	Type
Collect Research Data	Business Process
Ph.D. Student	Business Actor
Research Data	Business Object

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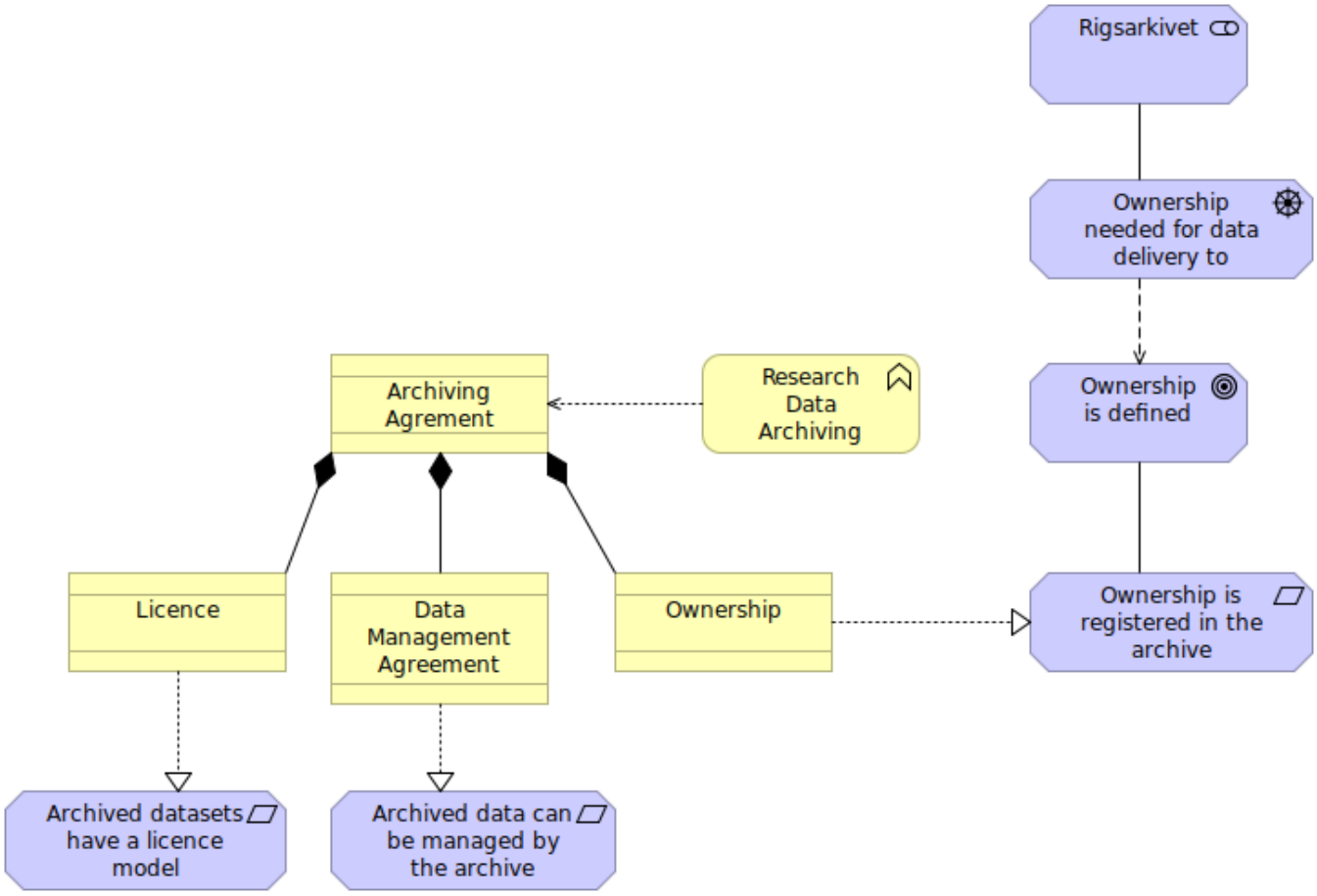
No viewpoint



Documentation

Starting point for the first subject of the worskshop.

Elements

Element	Type
Archived data can be managed by the archive	Requirement
Archived datasets have a licence model	Requirement
Archiving Agrement	Contract
Data Management Agreement	Contract
Licence	Contract
Ownership	Contract
Ownership is defined	Goal
Ownership is registered in the archive	Requirement
Ownership needed for data delivery to preservation	Driver
Research Data Archiving	Business Function
Rigsarkivet	Stakeholder

Strategy Layer

Access Management

Type	Capability

Availability Management

Type	Capability

Capability

Type	Capability

Capacity Management

Type	Capability

Change Advisory Board

Type	Capability

Change Management

Type	Capability

Course of Action

Type	Course of Action

Data Analytics

Type	Capability

> Use appropriate statistical techniques and predictive analytics on available data to deliver insights and
> discover new relations
>
> -- EDISON Data Science Framework (EDSF)

Data Management

Type	Capability

> Develop and implement a data management strategy for data collection, storage, preservation, and
> availability for further processing.
>
> -- EDISON Data Science Framework (EDSF)

Data Science Domain Knowledge

Type	Capability

> Use domain knowledge (scientific or business) to develop relevant data analytics

applications, and adopt
general Data Science methods to domain specific data types and presentations, data and process
models, organizational roles and relations

-- EDISON Data Science Framework (EDSF)

Data Science Engineering

Type	Capability

Use engineering principles to research, design, develop and implement new instruments and
applications for data collection, analysis and management

-- EDISON Data Science Framework (EDSF)

Demand Management

Type	Capability

Evaluation

Type	Capability

Financial Management

Type	Capability

Implement Managed Archiving of Research Data

Type	Course of Action

Implement the use of a central archive for long term storage of research data. This is part of Use data management to drive the implement

Information Security Management

Type	Capability

Insident Management

Type	Capability

IT Apllications Management

Type	Capability

IT Continuity Management

Type	Capability

IT Event Management

Type	Capability

IT Operations Management

Type	Capability

IT Problem Management

Type	Capability

IT Suplier Management

Type	Capability

IT Technical Management

Type	Capability

Knowledge Management

Type	Capability

Release and Deployment Management

Type	Capability

Scientific and Research Methods

Type	Capability

> Create new understandings and capabilities by using the scientific method (hypothesis, test/artefact,
> evaluation) or similar engineering methods to discover new approaches to create new knowledge and
> achieve research or organizational goals
>
> -- EDISON Data Science Framework (EDSF)

Service and Validation Testing

Type	Capability

Service Asset and Configuration

Type	Capability

Service Catalogue Management

Type	Capability

Service Desk

Type	Capability

Service Level Management

Type	Capability

Service Portfolio Management

Type	Capability

Service Request Fulfillment

Type	Capability

Strategy Generation

Type	Capability

Transition Planning and Support

Type	Capability

Business Layer

Academic Research

Type	Business Function

A core function of a university is to conduct academic research

Academic Researcher

Type	Business Role

A practitioner of research through academic study.

Archive Entry

Type	Product

An entry in the archive that be discovered, accessed, referenced, preserved, deleted as a unit. This is the main product of the research data archive.

Archive Research Data

Type	Business Function

Archiving Agrement

Type	Contract

The archiving agrement is the contract that governs the rights and obligations of the archive.

Archiving Service

Type	Business Service

Assign new data controller

Type	Business Process

Big Data facilities Operator

Type	Business Role

Manages daily operation of facilities, resources, and responds to customer requests. Includes all operations related to data management and data lifecycle.

-- EDISON Data Science Framework (EDSF)

Business Actor

Type	Business Actor

Business Analyst

Type	Business Role

> Analyses large variety of data Information System for improving business performance.
>
> -- EDISON Data Science Framework (EDSF)

Business Event

Type	Business Event

Business Function

Type	Business Function

Business Object

Type	Business Object

Business Process

Type	Business Process

Business Role

Type	Business Role

Business Service

Type	Business Service

Capacity Planning

Type	Business Function

Collect Research Data

Type	Business Process

> The process of collecting data from primary material as the subject for academic study and research

Consumer of Research data

Type	Business Role

> Any consumer of research data. The consumer is normaly assumed to be a member of the designated community.

Contract

Type	Contract

Data Analysis

Type	Business Function

Data Analyst

Type	Business Role

Analyses large variety of data to extract information about system, service or organisation performance and present them in usable/actionable form.

-- EDISON Data Science Framework (EDSF)

Data Archivist

Type	Business Role

Maintain historically significant collections of datasets, documents and records, other electronic data, and seek out new items for archiving.

-- EDISON Data Science Framework (EDSF)

Data Collection

Type	Business Function

Collection of and preparation of data for later analysis in connection to conducting or prepairing for academic study.

Data Controler

Type	Business Role

Data controller collects and determines the purposes and means of the processing of personal data. This is the entity for the benefit of which the data is being collected, treated, used.

Data entry field workers

Type	Business Role

The same work (as a data access worker) done on field when collecting data from disconnected sensors or doing direct counting or reading.

-- EDISON Data Science Framework (EDSF)

Data entry/access worker

Type	Business Role

Enter data into data management systems directly reading them from source, documents or obtained from people/users.

-- EDISON Data Science Framework (EDSF)

Data Librarian

Type	Business Role

Data librarians perform or support one or more of the following: acquisition (collection development), organization (cataloguing and metadata), and the implementation of appropriate user services. Data librarians apply traditional librarianship principles and practices to data management, including data citation, digital object identifiers (DOIs), ethics and metadata.

-- EDISON Data Science Framework (EDSF)

Data Management Agreement

Type	Contract

The data management agreement defines how data can be managed by the archive.

Data Science (Application) Programmer/Engineer

Type	Business Role

Designs/develops/codes large data (science) analytics applications to support scientific or enterprise/business processes.

-- EDISON Data Science Framework (EDSF)

Data Science Architect

Type	Business Role

Designs and maintains the architecture of Data Science applications and facilities. Creates relevant data models and processes workflows.

-- EDISON Data Science Framework (EDSF)

Data Science Infrastructure Manager

Type	Business Role

Designs and maintains the architecture of Data Science applications and facilities. Creates relevant data models and processes workflows.

-- EDISON Data Science Framework (EDSF)

Data Science Manager

Type	Business Role

Proposes, plans and manages functional and technical evolutions of the data science operations within the relevant domain (technical, research, business).

-- EDISON Data Science Framework (EDSF)

Data Science Researcher

Type	Business Role

Data Science Researcher applies scientific discovery research/process, including hypothesis and hypothesis testing, to obtain actionable knowledge related to scientific problem, business process, or reveal hidden relations between multiple processes.

-- EDISON Data Science Framework (EDSF)

Data Scientist

Type	Business Role

Data scientists find and interpret rich data sources, manage large amounts of data, merge data sources, ensure consistency of data-sets, and create visualisations to aid in understanding data. Build mathematical models, present and communicate data insights and findings to specialists and scientists, and recommend ways to apply the data.

-- EDISON Data Science Framework (EDSF)

Data Steward

Type	Business Actor

Data Stewart

Type	Business Role

Plans, implements and manages (research) data input, storage, search, presentation; creates data model for domain specific data; support and advice domain scientists/ researchers. Creates data model for domain specific data, support and advice domain scientists/researchers during the whole research cycle and data management lifecycle.

-- EDISON Data Science Framework (EDSF)

Digital Data Curator

Type	Business Role

Finds, selects, organises, shares (exhibits) digital data collections, maintains their integrity, up-to- date status and freshness, discoverability.

-- EDISON Data Science Framework (EDSF)

E-mail

Type	Business Interface

An e-mail

GDPR Art 4.1 Personal Data

Type	Business Object

Personal Data - any information related to a natural person or ‘Data Subject’, that can be used to directly or indirectly identify the person

-- GDPR Glossary, EUGDPR.org

‘personal data’ means any information relating to an identified or identifiable natural person (‘data subject’); an identifiable natural person is one who can be identified, directly or indirectly, in particular by reference to an identifier such as a name, an identification number, location data, an online identifier or to one or more factors specific to the physical, physiological, genetic, mental, economic, cultural or

> social identity of that natural person;
>
> -- EU General Data Protection Regulation

Help Desk

Type	Business Interface

> The central helpdesk for research data services

IT Infratructure Architect

Type	Business Actor

IT Operations

Type	Business Function

IT service

Type	Business Function

IT Support

Type	Business Function

Large scale (cloud) data storage operator

Type	Business Role

> Manages daily operation of cloud storage, including related to data lifecycle, and responds to requests from storage users.
>
> -- EDISON Data Science Framework (EDSF)

Large scale (cloud) database administrator

Type	Business Role

> Designs and implements, or monitors and maintains large scale cloud databases.
>
> -- EDISON Data Science Framework (EDSF)

Large scale (cloud) database designer

Type	Business Role

> Designs/develops/codes large scale data bases and their use in domain/subject specific applications according to the customer needs.
>
> -- EDISON Data Science Framework (EDSF)

Licence

Type	Contract

Manage Research Data

Type	Business Function

Ownership

Type	Contract

Ph.D. Student

Type	Business Actor

Producer of Research Data

Type	Business Role

> Any producer of research data. The data may be original or sourced but the particular collection of data is still a produc made by the producer.

Research Data

Type	Business Object

Research Data Archiving

Type	Business Function

Research Data Metadata

Type	Business Object

Research Dissemination

Type	Business Function

> The dissemination of research is central to conduction academic research. Through the dissimination of hypothesis and findings research is reviewed by peers to reach a consensus.

Research Infrastructure Manager

Type	Business Role

> Proposes plans and manages functional and technical evolutions of the research infrastructure within the relevant scientific domain.
>
> -- EDISON Data Science Framework (EDSF)

Researcher leaves

Type	Business Event

Retrieve Research Data

Type	Business Service

Scientific database administrator

Type	Business Role

Designs and implements, or monitors and maintains large scale scientific databases.

-- EDISON Data Science Framework (EDSF)

Scientific database operator

Type	Business Role

Manages daily operation of scientific databases, including related to data lifecycle, and responds to requests from database users.

-- EDISON Data Science Framework (EDSF)

Software Development

Type	Business Function

Statement of Preservation

Type	Business Object

Establishes the reasons for preserving the data and any limitations on its preservation.

* What is the purpose of preserving the data?
* Requirements for preservation
** Minimum 5 years requred by: Danish Code of Conduct for Research Integrity

Statement of Usage

Type	Business Object

Roles and responsabilities

* What can data be used for?
* Who can get access to data?

Telephone

Type	Business Interface

Transfer control of data

Type	Business Interaction

User support data services

Type	Business Role

Provides support to users to entry their data into governmental service and user

> facing applications.
>
> -- EDISON Data Science Framework (EDSF)

VIP Offboarding Process

Type	Business Process

> Handle offboarding of an employee who has taken part in academic research.

Application Layer

Access Handling

Type	Application Function

> This function includes the user interface that allows users to retrieve information from the archive. It generates a DIP from the relevant AIP and delivers it to the customer who has requested the information
>
> -- Wikipedia

Access Service

Type	Application Service

> Apllication service for accesing searching and extracting.

Administration

Type	Application Function

> Administration function: manages the daily operations of the archive. This function attains submission agreements from information producers, performs system engineering, audits SIPs to ensure compliance with submission agreements, develops policies and standards. It handles customer service and acts as the interface between Management and the Designated Community in the OAIS environment.
>
> -- Wikipedia

Application Component

Type	Application Component

Application Function

Type	Application Function

Application Interface

Type	Application Interface

Application Service

Type	Application Service

Archival Storage

Type	Application Function

> Archival storage, stores, maintains, and retrieves AIPs. It accepts AIPs submitted from the Ingest function, assigns them to long term storage, migrates AIPs as needed, checks for errors, and provides requested AIPs to the Access function
>
> -- Wikipedia

Archive API

Type	Application Interface

The Archive Aplication Programming Interface (API) enables exposes the archive applications services to programs. This enables automated processes to use the archive.

Archive Web Interface

Type	Application Interface

The Archiving Web Interface is target at a human operator. It exposes the archives services over the web. It enables a data producers and consumers or a data stewart acting on their behalf to use the archive as a web application.

Data Ingestion

Type	Application Function

Ingest function: receives information from producers and packages it for storage. It accepts a SIP, verifies it, creates an AIP from the SIP, and transfers the newly created AIP to archival storage.

-- Wikipedia

Data Management

Type	Application Function

The data management function coordinates the Descriptive Information of the AIPs and the system information that supports the archive. It maintains the database that contains the archive's information by executing query requests and generating results; generates reports in support of other functions; and updates the database.

-- Wikipedia

Data Object

Type	Data Object

Ingestion Service

Type	Application Service

Apllication service ingesting data into the archive.

Metadata

Type	Data Object

Open Archival Information System

Type	Application Component

There are six functional entities in an Open Archival Information System (OAIS):

* Ingest function: receives information from producers and packages it for storage. It accepts a SIP, verifies it, creates an AIP from the SIP, and transfers the newly created AIP to archival storage
* Archival Storage function: stores, maintains, and retrieves AIPs. It accepts AIPs submitted from the Ingest function, assigns them to long term storage, migrates AIPs as needed, checks for errors, and provides requested AIPs to the Access function
* Data Management function: coordinates the Descriptive Information of the AIPs and the system information that supports the archive. It maintains the database that contains the archive's information by executing query requests and generating results; generates reports in support of other functions; and updates the database.
* Administration function: manages the daily operations of the archive. This function attains submission agreements from information producers, performs system engineering, audits SIPs to ensure compliance with submission agreements, develops policies and standards. It handles customer service and acts as the interface between Management and the Designated Community in the OAIS environment.
* Preservation Planning function: supports all tasks to keep the archive material accessible and understandable over long terms even if the original computing system becomes obsolete, e.g. development of detailed preservation/migration plans, technology watch, evaluation and risk analysis of content and recommendation of update and migration.
* Access function: This function includes the user interface that allows users to retrieve information from the archive. It generates a DIP from the relevant AIP and delivers it to the customer who has requested the information.[3]

-- Wikipedia

Preservation Planning

Type	Application Function

Preservation planning supports all tasks to keep the archive material accessible and understandable over long terms even if the original computing system becomes obsolete, e.g. development of detailed preservation/migration plans, technology watch, evaluation and risk analysis of content and recommendation of update and migration.

-- Wikipedia

Research Data Archive

Type	Application Component

Motivation

Academic Researchers

Type	Stakeholder

Archived data can be managed by the archive

Type	Requirement

Archived datasets have a licence model

Type	Requirement

Art 5.2 Accountability

Type	Principle

Art 6.1 Lawfulness of Processing

Type	Principle

> Processing shall be lawful only if and to the extent that at least one of the following applies:

Assessment

Type	Assessment

Capacity matching requirements

Type	Goal

Capacity Planning

Type	Driver

CFO

Type	Stakeholder

> The chief financial officer (CFO) is the officer of a company that has primary responsibility for managing the company's finances, including financial planning, management of financial risks, record-keeping, and financial reporting. In some sectors, the CFO is also responsible for analysis of data. Some CFOs have the title CFOO for chief financial and operating officer.[1] In the United Kingdom, the typical term for a CFO is finance director (FD). The CFO typically reports to the chief executive officer (CEO) and the board of directors, and may additionally have a seat on the board. The CFO supervises the finance unit and is the chief financial spokesperson for the organization. The CFO directly assists the chief operating officer (COO) on all strategic and tactical matters relating to budget management, cost–benefit analysis, forecasting needs and securing of new funding.
>
> -- Wikipedia

CISO

Type	Stakeholder

> A chief information security officer (CISO) is the senior-level executive within an organization responsible for establishing and maintaining the enterprise vision, strategy, and program to ensure information assets and technologies are adequately protected. The CISO directs staff in identifying, developing, implementing, and maintaining processes across the enterprise to reduce information and information technology (IT) risks. They respond to incidents, establish appropriate standards and controls, manage security technologies, and direct the establishment and implementation of policies and procedures. The CISO is also usually responsible for information-related compliance (e.g. supervises the implementation to achieve ISO/IEC 27001 certification for an entity, or a part of it).
>
> -- Wikipedia

Compliance with GDPR

Type	Driver

Danish Code of Conduct

Type	Driver

Data Management Planning

Type	Requirement

Data supporting a publication must be preserved for 5 years after publication

Type	Principle

Delete data when it has no further use

Type	Principle

Determine the Designated Community

Type	Requirement

> Determine which communities should become the Designated Community and, therefore, should be able to understand the information provided.
>
> -- Wikipedia

Driver

Type	Driver

Driver

Type	Driver

Ensure information is understandable

Type	Requirement

> Ensure that the information to be preserved is Independently Understandable to the Designated Community. In other words, the community should be able to understand the information without needing the assistance of the experts who produced the information.
>
> -- Wikipedia

Ensure preservation

Type	Requirement

> Follow documented policies and procedures which ensure that the information is preserved against all reasonable contingencies, and which enable the information to be disseminated as authenticated copies of the original, or as traceable to the original.
>
> -- Wikipedia

GDPR Art 39 Data Protection Officer

Type	Stakeholder

> Data Protection Officer - an expert on data privacy who works independently to ensure that an entity is adhering to the policies and procedures set forth in the GDPR
>
> -- GDPR Glossary, EUGDPR.org
>
> Tasks of the data protection officer
>
> 1. The data protection officer shall have at least the following tasks:
>
> (a) to inform and advise the controller or the processor and the employees who carry out processing of their obligations pursuant to this Regulation and to other Union or Member State data protection provisions;
>
> (b) to monitor compliance with this Regulation, with other Union or Member State data protection provisions and with the policies of the controller or processor in relation to the protection of personal data, including the assignment of responsibilities, awareness-raising and training of staff involved in processing operations, and the related audits;
>
> (c) to provide advice where requested as regards the data protection impact assessment and monitor its performance pursuant to Article 35;
>
> (d) to cooperate with the supervisory authority;
>
> (e) to act as the contact point for the supervisory authority on issues relating to processing, including the prior consultation referred to in Article 36, and to consult, where appropriate, with regard to any other matter.
>
> 2. The data protection officer shall in the performance of his or her tasks have due regard to the risk associated with processing operations, taking into account the

nature, scope, context and purposes of processing.

-- EU General Data Protection Regulation

GDPR Art 4.7 Data Controler

Type	Stakeholder

Data Controller - the entity that determines the purposes, conditions and means of the processing of personal data

-- GDPR Glossary, EUGDPR.org

‘controller’ means the natural or legal person, public authority, agency or other body which, alone or jointly with others, determines the purposes and means of the processing of personal data; where the purposes and means of such processing are determined by Union or Member State law, the controller or the specific criteria for its nomination may be provided for by Union or Member State law;

-- EU General Data Protection Regulation

GDPR Art 4.8 Data Processor

Type	Stakeholder

Data Processor - the entity that processes data on behalf of the Data Controller

-- GDPR Glossary, EUGDPR.org

‘processor’ means a natural or legal person, public authority, agency or other body which processes personal data on behalf of the controller;

-- EU General Data Protection Regulation

GDPR Art 5.1a Lawfulness, Fairness and Transparency

Type	Principle

Personal data shall be: processed lawfully, fairly and in a transparent manner in relation to the data subject (‘lawfulness, fairness and transparency’)

GDPR Art 5.1b Purpose Limitation

Type	Principle

Personal data shall be: collected for specified, explicit and legitimate purposes and not further processed in a manner that is incompatible with those purposes; further processing for archiving purposes in the public interest, scientific or historical research purposes or statistical purposes shall, in accordance with Article 89(1), not be considered to be incompatible with the initial purposes (‘purpose limitation’);

GDPR Art 5.1c Data Minimisation

Type	Principle

Personal data shall be: adequate, relevant and limited to what is necessary in relation to the purposes for which they are processed (‘data minimisation’);

GDPR Art 5.1d Accuracy

Type	Principle

Personal data shall be: accurate and, where necessary, kept up to date; every reasonable step must be taken to ensure that personal data that are inaccurate, having regard to the purposes for which they are processed, are erased or rectified without delay (‘accuracy’);

GDPR Art 5.1e Storage Limitation

Type	Principle

Personal data shall be: kept in a form which permits identification of data subjects for no longer than is necessary for the purposes for which the personal data are processed; personal data may be stored for longer periods insofar as the personal data will be processed solely for archiving purposes in the public interest, scientific or historical research purposes or statistical purposes in accordance with Article 89(1) subject to implementation of the appropriate technical and organisational measures required by this Regulation in order to safeguard the rights and freedoms of the data subject (‘storage limitation’);

GDPR Art 5.1f Integrity and Confidentiality

Type	Principle

Personal data shall be: processed in a manner that ensures appropriate security of the personal data, including protection against unauthorised or unlawful processing and against accidental loss, destruction or damage, using appropriate technical or organisational measures (‘integrity and confidentiality’).

GDPR Art 6.1a Consent

Type	Principle

The data subject has given consent to the processing of his or her personal data for one or more specific purposes;

Art. 7 GDPR Conditions for consent

1) Where processing is based on consent, the controller shall be able to demonstrate that the data subject has consented to processing of his or her personal data.

2) If the data subject’s consent is given in the context of a written declaration which also concerns other matters, the request for consent shall be presented in a manner which is clearly distinguishable from the other matters, in an intelligible and easily accessible form, using clear and plain language. Any part of such a declaration which constitutes an infringement of this Regulation shall not be binding.

3) The data subject shall have the right to withdraw his or her consent at any time. The withdrawal of consent shall not affect the lawfulness of processing based on

consent before its withdrawal. Prior to giving consent, the data subject shall be informed thereof. It shall be as easy to withdraw as to give consent.

4) When assessing whether consent is freely given, utmost account shall be taken of whether, inter alia, the performance of a contract, including the provision of a service, is conditional on consent to the processing of personal data that is not necessary for the performance of that contract.

Art. 8 GDPR Conditions applicable to child's consent in relation to information society services

1) Where point (a) of Article 6(1) applies, in relation to the offer of information society services directly to a child, the processing of the personal data of a child shall be lawful where the child is at least 16 years old. Where the child is below the age of 16 years, such processing shall be lawful only if and to the extent that consent is given or authorised by the holder of parental responsibility over the child. Member States may provide by law for a lower age for those purposes provided that such lower age is not below 13 years.

2) The controller shall make reasonable efforts to verify in such cases that consent is given or authorised by the holder of parental responsibility over the child, taking into consideration available technology.

3) Paragraph 1 shall not affect the general contract law of Member States such as the rules on the validity, formation or effect of a contract in relation to a child.

GDPR Art 6.1b Necessary for Contract

Type	Principle

Processing is necessary for the performance of a contract to which the data subject is party or in order to take steps at the request of the data subject prior to entering into a contract;

GDPR Art 6.1c Necessary for Compliance with Legal Obligation

Type	Principle

processing is necessary for compliance with a legal obligation to which the controller is subject;

Member States may maintain or introduce more specific provisions to adapt the application of the rules of this Regulation with regard to processing for compliance with points (c) and (e) of paragraph 1 by determining more precisely specific requirements for the processing and other measures to ensure lawful and fair processing including for other specific processing situations as provided for in Chapter IX.

GDPR Art 6.1d Protection of Vital Interests

Type	Principle

> Processing is necessary in order to protect the vital interests of the data subject or of another natural person;

GDPR Art 6.1e Public Interrest

Type	Principle

> Processing is necessary for the performance of a task carried out in the public interest or in the exercise of official authority vested in the controller;
>
> Member States may maintain or introduce more specific provisions to adapt the application of the rules of this Regulation with regard to processing for compliance with points (c) and (e) of paragraph 1 by determining more precisely specific requirements for the processing and other measures to ensure lawful and fair processing including for other specific processing situations as provided for in Chapter IX.

GDPR Art 6.1f Legitimate Interests

Type	Principle

> processing is necessary for the purposes of the legitimate interests pursued by the controller or by a third party, except where such interests are overridden by the interests or fundamental rights and freedoms of the data subject which require protection of personal data, in particular where the data subject is a child.
>
> Point (f) of the first subparagraph shall not apply to processing carried out by public authorities in the performance of their tasks.

GDPR Chap III Data Subject

Type	Stakeholder

> Data Subject - a natural person whose personal data is processed by a controller or processor
>
> -- GDPR Glossary, EUGDPR.org

Goal

Type	Goal

Goal

Type	Goal

How

Type	Requirement

IT Infratructure Architect

Type	Stakeholder

Make information available

Type	Requirement

> Make the preserved information available to the Designated Community
>
> -- Wikipedia

Make Research Data available for replication studies

Type	Goal

Manage research data

Type	Driver

Minimise expenditure on storage

Type	Driver

Obtain sufficient control

Type	Requirement

> Obtain sufficient control of the information provided to the level needed to ensure Long-Term Preservation.
>
> -- Wikipedia

Ownership is defined

Type	Goal

Ownership is registered in the archive

Type	Requirement

Ownership needed for data delivery to preservation

Type	Driver

Principle

Type	Principle

Provide long term storage for research data

Type	Requirement

> Provide managed long term storage for research that is available

Reason for preservation is clear

Type	Goal

Register reason for preserving data

Type	Requirement

> There must be a reason to preserve data

Reproducible Research

Type	Driver

Requirement

Type	Requirement

Requirement

Type	Requirement

Research Data can be lost

Type	Assessment

Research data has no designated controler after offboarding

Type	Assessment

> Research data can be without a designated controler after a its controler has left the university.

Research data must have a designated controler at the university

Type	Principle

Research data supporting a publication can be made available for recreation studies

Type	Goal

Research Data supporting a publication is available

Type	Outcome

Rigsarkivet

Type	Stakeholder

Secure appropriate information from producers

Type	Requirement

> Negotiate for and accept appropriate information from information Producers.
>
> -- Wikipedia

Stakeholder

Type	Stakeholder

Stakeholder

Type	Stakeholder

What

Type	Goal

Who

Type	Stakeholder

Why

Type	Driver

Other

EDSF - Competences/Capabilities

Type	Grouping

> The EDISON Data Science Framework is a collection of documents that define the Data Science profession. Freely available, these documents have been developed to guide educators and trainers, emplyers and managers, and Data Scientists themselves. This collection of documents collectively breakdown the complexity of the skills and competences need to define Data Science as a professional practice.
>
> -- EDISON Data Science Framework (EDSF)

EDSF - Data science professional profiles

Type	Grouping

EDSF - Managers

Type	Grouping

EDSF - Professional (data handling/management)

Type	Grouping

EDSF - Professional (database)

Type	Grouping

EDSF - Professionals

Type	Grouping

EDSF - Technicians and associate professionals

Type	Grouping

ITIL Service Design

Type	Grouping

ITIL Service Operations

Type	Grouping

ITIL Service Strategy

Type	Grouping

ITIL Service Transition

Type	Grouping

OAIS - Functional Model

Type	Grouping

An Open Archival Information System (or OAIS) is an archive, consisting of an organization of people and systems, that has accepted the responsibility to preserve information and make it available for a Designated Community.

The term OAIS also refers, by extension, to the ISO OAIS Reference Model for an OAIS. This reference model is defined by recommendation CCSDS 650.0-B-2 of the Consultative Committee for Space Data Systems;[1] this text is identical to ISO 14721:2012. The CCSDS's purview is space agencies, but the OAIS model it developed has proved useful to a wide variety of other organizations and institutions with digital archiving needs.

The information being maintained has been deemed to need "long term preservation", even if the OAIS itself is not permanent. "Long term" is long enough to be concerned with the impacts of changing technologies, including support for new media and data formats, or with a changing user community. "Long term" may extend indefinitely. In this reference model there is a particular focus on digital information, both as the primary forms of information held and as supporting information for both digitally and physically archived materials. Therefore, the model accommodates information that is inherently non-digital (e.g., a physical sample), but the modeling and preservation of such information is not addressed in detail. As strictly a conceptual framework, the OAIS model does not require the use of any particular computing platform, system environment, system design paradigm, system development methodology, database management system, database design paradigm, data definition language, command language, system interface, user interface, technology, or media for an archive to be compliant. Its aim is to set the standard for the activities that are involved in preserving a digital archive rather than the method for carrying out those activities.

The acronym OAIS should not be confused with OAI, which is the Open Archives Initiative.

-- Wikipedia

OAIS - Open Archival Iformation System - requirements

Type	Grouping

The reference model (ISO 14721:2003) includes the following responsibilities that an OAIS archive must abide by:

* Negotiate for and accept appropriate information from information Producers.
* Obtain sufficient control of the information provided to the level needed to ensure Long-Term Preservation.
* Determine, either by itself or in conjunction with other parties, which communities should become the Designated Community and, therefore, should be able to understand the information provided.
* Ensure that the information to be preserved is Independently Understandable to the Designated Community. In other words, the community should be able to understand the information without needing the assistance of the experts who produced the information.
* Follow documented policies and procedures which ensure that the information is

> preserved against all reasonable contingencies, and which enable the information to be disseminated as authenticated copies of the original, or as traceable to the original.
> * Make the preserved information available to the Designated Community.[2]:3-1
>
> -- Wikipedia

Relations

Composition relation

Type	Composition relation
Source	Art 5.2 Accountability
Target	GDPR Art 5.1a Lawfulness, Fairness and Transparency

Composition relation

Type	Composition relation
Source	Art 5.2 Accountability
Target	GDPR Art 5.1b Purpose Limitation

Composition relation

Type	Composition relation
Source	Art 5.2 Accountability
Target	GDPR Art 5.1c Data Minimisation

Composition relation

Type	Composition relation
Source	Art 5.2 Accountability
Target	GDPR Art 5.1d Accuracy

Composition relation

Type	Composition relation
Source	Art 5.2 Accountability
Target	GDPR Art 5.1f Integrity and Confidentiality

Composition relation

Type	Composition relation
Source	Art 5.2 Accountability
Target	GDPR Art 5.1e Storage Limitation

Specialization relation

Type	Specialization relation
Source	GDPR Art 6.1a Consent
Target	Art 6.1 Lawfulness of Processing

Specialization relation

Type	Specialization relation
Source	GDPR Art 6.1b Necessary for Contract
Target	Art 6.1 Lawfulness of Processing

Specialization relation

Type	Specialization relation

Source	GDPR Art 6.1c Necessary for Compliance with Legal Obligation
Target	Art 6.1 Lawfulness of Processing

Specialization relation

Type	Specialization relation
Source	GDPR Art 6.1d Protection of Vital Interests
Target	Art 6.1 Lawfulness of Processing

Specialization relation

Type	Specialization relation
Source	GDPR Art 6.1e Public Interrest
Target	Art 6.1 Lawfulness of Processing

Specialization relation

Type	Specialization relation
Source	GDPR Art 6.1f Legitimate Interests
Target	Art 6.1 Lawfulness of Processing

Aggregation relation

Type	Aggregation relation
Source	Research Data Metadata
Target	Statement of Preservation

Access relation

Type	Access relation
Source	Collect Research Data
Target	Research Data

Realization relation

Type	Realization relation
Source	Metadata
Target	Research Data Metadata

Association relation

Type	Association relation
Source	Research Data Metadata
Target	Research Data

Assignment relation

Type	Assignment relation
Source	Open Archival Information System
Target	Data Ingestion

Realization relation

Type	Realization relation
Source	Data Ingestion
Target	Ingestion Service

Assignment relation

Type	Assignment relation
Source	Open Archival Information System
Target	Archival Storage

Assignment relation

Type	Assignment relation
Source	Open Archival Information System
Target	Access Handling

Assignment relation

Type	Assignment relation
Source	Open Archival Information System
Target	Data Management

Assignment relation

Type	Assignment relation
Source	Open Archival Information System
Target	Administration

Assignment relation

Type	Assignment relation
Source	Open Archival Information System
Target	Preservation Planning

Association relation

Type	Association relation
Source	Archiving Agrement
Target	Archive Entry

Aggregation relation

Type	Aggregation relation
Source	Archiving Agrement
Target	Statement of Preservation

Aggregation relation

Type	Aggregation relation
Source	Archive Entry
Target	Research Data

Aggregation relation

Type	Aggregation relation
Source	Archive Entry
Target	Research Data Metadata

Aggregation relation

Type	Aggregation relation
Source	Archiving Agrement
Target	Statement of Usage

Composition relation

Type	Composition relation
Source	OAIS - Open Archival Iformation System - requirements
Target	Ensure information is understandable

Composition relation

Type	Composition relation
Source	OAIS - Open Archival Iformation System - requirements
Target	Secure appropriate information from producers

Composition relation

Type	Composition relation
Source	OAIS - Open Archival Iformation System - requirements
Target	Determine the Designated Community

Composition relation

Type	Composition relation
Source	OAIS - Open Archival Iformation System - requirements
Target	Obtain sufficient control

Composition relation

Type	Composition relation
Source	OAIS - Open Archival Iformation System - requirements
Target	Ensure preservation

Composition relation

Type	Composition relation
Source	OAIS - Open Archival Iformation System - requirements
Target	Make information available

Composition relation

Type	Composition relation
Source	EDSF - Competences/Capabilities

Target	Data Management

Composition relation

Type	Composition relation
Source	EDSF - Competences/Capabilities
Target	Data Analytics

Composition relation

Type	Composition relation
Source	EDSF - Competences/Capabilities
Target	Data Science Engineering

Composition relation

Type	Composition relation
Source	EDSF - Competences/Capabilities
Target	Scientific and Research Methods

Composition relation

Type	Composition relation
Source	EDSF - Competences/Capabilities
Target	Data Science Domain Knowledge

Realization relation

Type	Realization relation
Source	Access Handling
Target	Access Service

Realization relation

Type	Realization relation
Source	Access Service
Target	Retrieve Research Data

Realization relation

Type	Realization relation
Source	Ingestion Service
Target	Archiving Service

Composition relation

Type	Composition relation
Source	EDSF - Managers
Target	Data Science Infrastructure Manager

Composition relation

Type	Composition relation

Source	EDSF - Managers
Target	Data Science Manager

Composition relation

Type	Composition relation
Source	EDSF - Managers
Target	Research Infrastructure Manager

Composition relation

Type	Composition relation
Source	EDSF - Professionals
Target	Data Science Architect

Composition relation

Type	Composition relation
Source	EDSF - Professionals
Target	Data Science Researcher

Composition relation

Type	Composition relation
Source	EDSF - Professionals
Target	Data Analyst

Composition relation

Type	Composition relation
Source	EDSF - Professionals
Target	Data Scientist

Composition relation

Type	Composition relation
Source	EDSF - Professionals
Target	Business Analyst

Composition relation

Type	Composition relation
Source	EDSF - Professionals
Target	Data Science (Application) Programmer/Engineer

Composition relation

Type	Composition relation
Source	EDSF - Professional (data handling/management)
Target	Digital Data Curator

Composition relation

Type	Composition relation
Source	EDSF - Professional (data handling/management)
Target	Data Librarian

Composition relation

Type	Composition relation
Source	EDSF - Professional (data handling/management)
Target	Data Archivist

Composition relation

Type	Composition relation
Source	EDSF - Professional (data handling/management)
Target	Data Stewart

Composition relation

Type	Composition relation
Source	EDSF - Professional (database)
Target	Large scale (cloud) database designer

Composition relation

Type	Composition relation
Source	EDSF - Professional (database)
Target	Scientific database administrator

Composition relation

Type	Composition relation
Source	EDSF - Professional (database)
Target	Large scale (cloud) database administrator

Composition relation

Type	Composition relation
Source	EDSF - Technicians and associate professionals
Target	Large scale (cloud) data storage operator

Composition relation

Type	Composition relation
Source	EDSF - Technicians and associate professionals
Target	Big Data facilities Operator

Composition relation

Type	Composition relation
Source	EDSF - Technicians and associate professionals
Target	Scientific database operator

Composition relation

Type	Composition relation
Source	EDSF - Data science professional profiles
Target	User support data services

Composition relation

Type	Composition relation
Source	EDSF - Data science professional profiles
Target	Data entry field workers

Composition relation

Type	Composition relation
Source	EDSF - Data science professional profiles
Target	Data entry/access worker

Composition relation

Type	Composition relation
Source	OAIS - Functional Model
Target	Ingestion Service

Composition relation

Type	Composition relation
Source	OAIS - Functional Model
Target	Producer of Research Data

Composition relation

Type	Composition relation
Source	OAIS - Functional Model
Target	Consumer of Research data

Composition relation

Type	Composition relation
Source	OAIS - Functional Model
Target	Open Archival Information System

Composition relation

Type	Composition relation
Source	OAIS - Functional Model
Target	Access Service

Influence relation

Type	Influence relation
Source	Art 6.1 Lawfulness of Processing

Target	Register reason for preserving data

Realization relation

Type	Realization relation
Source	Register reason for preserving data
Target	Reason for preservation is clear

Association relation

Type	Association relation
Source	CFO
Target	Minimise expenditure on storage

Association relation

Type	Association relation
Source	Minimise expenditure on storage
Target	Delete data when it has no further use

Influence relation

Type	Influence relation
Source	Delete data when it has no further use
Target	Register reason for preserving data

Influence relation

Type	Influence relation
Source	Data supporting a publication must be preserved for 5 years after publication
	Register reason for preserving data

Association relation

Type	Association relation
Source	Data supporting a publication must be preserved for 5 years after publication
	Provide long term storage for research data

Realization relation

Type	Realization relation
Source	Provide long term storage for research data
Target	Reason for preservation is clear

Influence relation

Type	Influence relation
Source	Reproducible Research
	Data supporting a publication must be preserved for 5 years after publication

Association relation

Type	Association relation
Source	Academic Researchers
Target	Reproducible Research

Composition relation

Type	Composition relation
Source	Reason for preservation is clear
	Research data supporting a publication can be made available for recreation studies

Realization relation

Type	Realization relation
Source	Archiving Service
	Research data supporting a publication can be made available for recreation studies

Realization relation

Type	Realization relation
Source	Archiving Service
Target	Research Data supporting a publication is available

Realization relation

Type	Realization relation
Source	Statement of Preservation
Target	Reason for preservation is clear

Association relation

Type	Association relation
Source	Compliance with GDPR
Target	Art 6.1 Lawfulness of Processing

Association relation

Type	Association relation
Source	CISO
Target	Compliance with GDPR

Realization relation

Type	Realization relation
Source	Provide long term storage for research data
	Research data supporting a publication can be made available for recreation studies

Triggering relation

Type	Triggering relation

Source	Researcher leaves
Target	VIP Offboarding Process

Association relation

Type	Association relation
Source	GDPR Art 4.1 Personal Data
Target	GDPR Chap III Data Subject

Association relation

Type	Association relation
Source	GDPR Art 4.7 Data Controler
Target	GDPR Art 4.1 Personal Data

Association relation

Type	Association relation
Source	GDPR Art 4.8 Data Processor
Target	GDPR Art 4.1 Personal Data

Access relation

Type	Access relation
Source	Assign new data controller
Target	Data Management Agreement

Composition relation

Type	Composition relation
Source	Assign new data controller
Target	VIP Offboarding Process

Access relation

Type	Access relation
Source	Transfer control of data
Target	Data Management Agreement

Assignment relation

Type	Assignment relation
Source	Data Controler
Target	Transfer control of data

Assignment relation

Type	Assignment relation
Source	Data Stewart
Target	Transfer control of data

Assignment relation

Type	Assignment relation
Source	Data Stewart
Target	Assign new data controller

Flow relation

Type	Flow relation
Source	Assign new data controller
Target	Data Controler

Assignment relation

Type	Assignment relation
Source	Data Stewart
Target	Archiving Service

Assignment relation

Type	Assignment relation
Source	Archive Web Interface
Target	Ingestion Service

Assignment relation

Type	Assignment relation
Source	Archive API
Target	Ingestion Service

Serving relation

Type	Serving relation
Source	Archiving Service
Target	Producer of Research Data

Serving relation

Type	Serving relation
Source	Retrieve Research Data
Target	Consumer of Research data

Assignment relation

Type	Assignment relation
Source	Archive Web Interface
Target	Access Service

Assignment relation

Type	Assignment relation
Source	Archive API
Target	Access Service

Assignment relation

Type	Assignment relation
Source	Data Archivist
Target	Retrieve Research Data

Assignment relation

Type	Assignment relation
Source	Data Archivist
Target	Archiving Service

Assignment relation

Type	Assignment relation
Source	Data Stewart
Target	Retrieve Research Data

Serving relation

Type	Serving relation
Source	Access Service
Target	Consumer of Research data

Serving relation

Type	Serving relation
Source	Ingestion Service
Target	Producer of Research Data

Assignment relation

Type	Assignment relation
Source	Ph.D. Student
Target	Producer of Research Data

Assignment relation

Type	Assignment relation
Source	Data Steward
Target	Data Archivist

Assignment relation

Type	Assignment relation
Source	Ph.D. Student
Target	Data Archivist

Realization relation

Type	Realization relation
Source	Research Data Archiving

Target	Archiving Service

Composition relation

Type	Composition relation
Source	Data Steward
Target	Help Desk

Composition relation

Type	Composition relation
Source	Data Steward
Target	E-mail

Serving relation

Type	Serving relation
Source	E-mail
Target	Ph.D. Student

Serving relation

Type	Serving relation
Source	Help Desk
Target	Ph.D. Student

Serving relation

Type	Serving relation
Source	Archiving Service
Target	Ph.D. Student

Assignment relation

Type	Assignment relation
Source	Data Steward
Target	Data Stewart

Assignment relation

Type	Assignment relation
Source	Data Stewart
Target	Research Data Archiving

Serving relation

Type	Serving relation
Source	Archive Web Interface
Target	Ph.D. Student

Composition relation

Type	Composition relation

Source	Data Steward
Target	Telephone

Serving relation

Type	Serving relation
Source	Telephone
Target	Ph.D. Student

Association relation

Type	Association relation
Source	GDPR Art 39 Data Protection Officer
Target	Compliance with GDPR

Influence relation

Type	Influence relation
Source	Danish Code of Conduct
	Data supporting a publication must be preserved for 5 years after publication

Realization relation

Type	Realization relation
Source	Data Management
Target	Implement Managed Archiving of Research Data

Assignment relation

Type	Assignment relation
Source	Ph.D. Student
Target	Academic Research

Access relation

Type	Access relation
Source	Research Data Archiving
Target	Archiving Agrement

Influence relation

Type	Influence relation
Source	Reproducible Research
Target	Make Research Data available for replication studies

Influence relation

Type	Influence relation
Source	Make Research Data available for replication studies
Target	Provide long term storage for research data

Realization relation

Type	Realization relation
Source	Implement Managed Archiving of Research Data
Target	Provide long term storage for research data

Realization relation

Type	Realization relation
Source	Archiving Service
Target	Implement Managed Archiving of Research Data

Realization relation

Type	Realization relation
Source	Ensure preservation
Target	Make Research Data available for replication studies

Influence relation

Type	Influence relation
Source	Research Data can be lost
Target	Reproducible Research

Assignment relation

Type	Assignment relation
Source	Ph.D. Student
Target	Collect Research Data

Flow relation

Type	Flow relation
Source	Data Collection
Target	Data Analysis

Flow relation

Type	Flow relation
Source	Data Analysis
Target	Research Dissemination

Composition relation

Type	Composition relation
Source	Academic Research
Target	Data Analysis

Composition relation

Type	Composition relation
Source	Academic Research
Target	Research Dissemination

Composition relation

Type	Composition relation
Source	Academic Research
Target	Data Collection

Composition relation

Type	Composition relation
Source	IT service
Target	Capacity Planning

Composition relation

Type	Composition relation
Source	IT service
Target	IT Support

Composition relation

Type	Composition relation
Source	IT service
Target	IT Operations

Composition relation

Type	Composition relation
Source	IT Operations
Target	Capacity Planning

Composition relation

Type	Composition relation
Source	IT service
Target	Software Development

Assignment relation

Type	Assignment relation
Source	Ph.D. Student
Target	Academic Researcher

Access relation

Type	Access relation
Source	Data Collection
Target	Research Data

Access relation

Type	Access relation
Source	Data Analysis

Target	Research Data

Assignment relation

Type	Assignment relation
Source	IT Infratructure Architect
Target	Capacity Planning

Aggregation relation

Type	Aggregation relation
Source	Academic Researcher
Target	Consumer of Research data

Aggregation relation

Type	Aggregation relation
Source	Academic Researcher
Target	Producer of Research Data

Serving relation

Type	Serving relation
Source	Archive Web Interface
Target	Consumer of Research data

Serving relation

Type	Serving relation
Source	Archive Web Interface
Target	Producer of Research Data

Realization relation

Type	Realization relation
Source	Archive Research Data
Target	Implement Managed Archiving of Research Data

Realization relation

Type	Realization relation
Source	Manage Research Data
Target	Implement Managed Archiving of Research Data

Realization relation

Type	Realization relation
Source	Archive Research Data
Target	Archiving Service

Assignment relation

Type	Assignment relation

Source	Research Data Archive
Target	Data Management

Assignment relation

Type	Assignment relation
Source	Research Data Archive
Target	Archival Storage

Assignment relation

Type	Assignment relation
Source	Research Data Archive
Target	Administration

Assignment relation

Type	Assignment relation
Source	Research Data Archive
Target	Access Handling

Assignment relation

Type	Assignment relation
Source	Research Data Archive
Target	Data Ingestion

Assignment relation

Type	Assignment relation
Source	Research Data Archive
Target	Preservation Planning

Composition relation

Type	Composition relation
Source	Archiving Agrement
Target	Data Management Agreement

Composition relation

Type	Composition relation
Source	Archiving Agrement
Target	Licence

Association relation

Type	Association relation
Source	Rigsarkivet
Target	Ownership needed for data delivery to preservation

Influence relation

Type	Influence relation
Source	Ownership needed for data delivery to preservation
Target	Ownership is defined

Composition relation

Type	Composition relation
Source	Archiving Agrement
Target	Ownership

Association relation

Type	Association relation
Source	Ownership is defined
Target	Ownership is registered in the archive

Realization relation

Type	Realization relation
Source	Ownership
Target	Ownership is registered in the archive

Composition relation

Type	Composition relation
Source	ITIL Service Design
Target	Service Catalogue Management

Composition relation

Type	Composition relation
Source	ITIL Service Design
Target	Capacity Management

Composition relation

Type	Composition relation
Source	ITIL Service Design
Target	Availability Management

Composition relation

Type	Composition relation
Source	ITIL Service Design
Target	Information Security Management

Composition relation

Type	Composition relation
Source	ITIL Service Design
Target	IT Suplier Management

Composition relation

Type	Composition relation
Source	ITIL Service Design
Target	IT Continuity Management

Composition relation

Type	Composition relation
Source	ITIL Service Design
Target	Service Level Management

Composition relation

Type	Composition relation
Source	ITIL Service Strategy
Target	Financial Management

Composition relation

Type	Composition relation
Source	ITIL Service Strategy
Target	Strategy Generation

Composition relation

Type	Composition relation
Source	ITIL Service Strategy
Target	Demand Management

Composition relation

Type	Composition relation
Source	ITIL Service Strategy
Target	Service Portfolio Management

Composition relation

Type	Composition relation
Source	ITIL Service Transition
Target	Knowledge Management

Composition relation

Type	Composition relation
Source	ITIL Service Transition
Target	Change Management

Composition relation

Type	Composition relation
Source	ITIL Service Transition

Target	Evaluation

Composition relation

Type	Composition relation
Source	ITIL Service Transition
Target	Release and Deployment Management

Composition relation

Type	Composition relation
Source	ITIL Service Transition
Target	Change Advisory Board

Composition relation

Type	Composition relation
Source	ITIL Service Transition
Target	Service and Validation Testing

Composition relation

Type	Composition relation
Source	ITIL Service Transition
Target	Service Asset and Configuration

Composition relation

Type	Composition relation
Source	ITIL Service Transition
Target	Transition Planning and Support

Composition relation

Type	Composition relation
Source	ITIL Service Operations
Target	Insident Management

Composition relation

Type	Composition relation
Source	ITIL Service Operations
Target	IT Problem Management

Composition relation

Type	Composition relation
Source	ITIL Service Operations
Target	IT Event Management

Composition relation

Type	Composition relation

Source	ITIL Service Operations
Target	Service Request Fulfillment

Composition relation

Type	Composition relation
Source	ITIL Service Operations
Target	IT Apllications Management

Composition relation

Type	Composition relation
Source	ITIL Service Operations
Target	IT Technical Management

Composition relation

Type	Composition relation
Source	ITIL Service Operations
Target	Access Management

Composition relation

Type	Composition relation
Source	ITIL Service Operations
Target	IT Operations Management

Composition relation

Type	Composition relation
Source	ITIL Service Operations
Target	Service Desk

Realization relation

Type	Realization relation
Source	Licence
Target	Archived datasets have a licence model

Realization relation

Type	Realization relation
Source	Data Management Agreement
Target	Archived data can be managed by the archive

Association relation

Type	Association relation
Source	Research data has no designated controler after offboarding
Target	Manage research data

Association relation

Type	Association relation
Source	Research data must have a designated controler at the university
Target	Manage research data

Association relation

Type	Association relation
Source	Stakeholder
Target	Driver

Association relation

Type	Association relation
Source	Driver
Target	Goal

Association relation

Type	Association relation
Source	Goal
Target	Requirement

Association relation

Type	Association relation
Source	Who
Target	Why

Association relation

Type	Association relation
Source	Why
Target	What

Association relation

Type	Association relation
Source	What
Target	How

Association relation

Type	Association relation
Source	IT Infratructure Architect
Target	Capacity Planning

Association relation

Type	Association relation
Source	Capacity Planning
Target	Capacity matching requirements

Association relation

Type	Association relation
Source	Capacity matching requirements
Target	Data Management Planning