

# Voorbeeld Logisch Applicatie Model (Engels)

# Table of Contents

<b>Voorbeeld Logisch Applicatie Model (Engels)</b> .....	<b>5</b>
Logisch Applicatie Model (Engels) Navigatie .....	5
Logical Application Model .....	5
Overview Logical Scenario models .....	5
Overview Logical Scenario models .....	5
Scenario model data collaboration .....	5
Scenario model data collector .....	6
Scenario model data registry .....	6
Scenario model data service .....	6
Scenario models consumer perspective .....	6
Logical Scenario models .....	6
Scenario models consumer perspective .....	6
<i>Register Data Consumption</i> .....	7
ERP .....	7
Other Data Producers .....	7
Register Data Consumption via Integration .....	7
Register Data Consumption via User Interface .....	7
<i>Register Data Publication and Integration Service</i> .....	7
<i>Register Data Consumption via Integration</i> .....	7
<i>Register Data Consumption via User Interface</i> .....	7
Scenario model data collaboration .....	7
<i>Register Data Consumption</i> .....	8
ERP .....	9
Other Data Producers .....	9
Register Data Consumption via Integration .....	9
Register Data Consumption via User Interface .....	9
<i>Register Data Production</i> .....	9
Data Register .....	9
Geo .....	9
<i>Register Data Publication and Integration Service</i> .....	9
ERP .....	9
Other Data Producers .....	9
<i>Register Data Consumption via Integration</i> .....	10
<i>Register Data Consumption via User Interface</i> .....	10
Data Register .....	10
Geo .....	10
Scenario model data collector .....	10
<i>Register Data Consumption</i> .....	11
ERP .....	12
Other Data Producers .....	12
Register Data Consumption via Integration .....	12
Register Data Consumption via User Interface .....	12
<i>Register Data Production</i> .....	12
Data Register .....	12
Geo .....	12
<i>Register Data Publication and Integration Service</i> .....	12

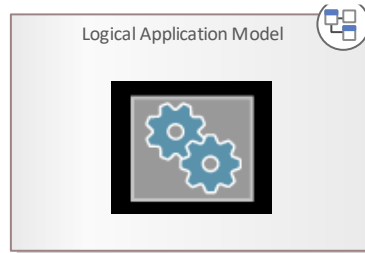
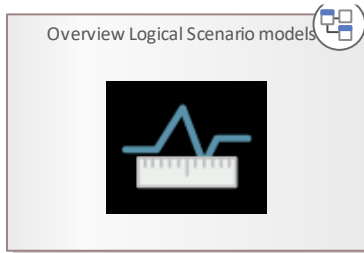
<i>ERP</i> .....	12
<i>Other Data Producers</i> .....	13
<i>Register Data Consumption via Integration</i> .....	13
<i>Register Data Consumption via User Interface</i> .....	13
<i>Data Register</i> .....	13
<i>Geo</i> .....	13
Scenario model data registry .....	13
<i>Register Data Consumption</i> .....	14
ERP.....	15
Other Data Producers .....	15
Register Data Consumption via Integration .....	15
Register Data Consumption via User Interface .....	15
<i>Register Data Production</i> .....	15
Data Register .....	15
Geo .....	15
<i>Register Data Publication and Integration Service</i> .....	15
ERP.....	15
Other Data Producers.....	15
Register Data Consumption via Integration .....	16
Register Data Consumption via User Interface .....	16
Data Register .....	16
Geo .....	16
Scenario model data service .....	16
<i>Register Data Consumption</i> .....	17
ERP.....	17
Other Data Producers .....	17
Register Data Consumption via Integration .....	17
Register Data Consumption via User Interface .....	17
<i>Register Data Production</i> .....	17
Data Register .....	17
Geo .....	18
<i>Register Data Publication and Integration Service</i> .....	18
ERP.....	18
Other Data Producers.....	18
Register Data Consumption via Integration .....	18
Register Data Consumption via User Interface .....	18
Geo .....	18
Logical Application Model .....	18
Logical Application Model.....	18
<i>Data Acquisition/Registration Service</i> .....	19
<i>Data Publication</i> .....	19
Data Model Transformation .....	19
Data Protocol Transformation .....	19
<i>Data Registration</i> .....	19
Data Processing .....	19
Data Storage .....	19
<i>Data Validation</i> .....	20
Automated Data Validation .....	20
Manual Data Validation .....	20
<i>Master Data Management and Governance</i> .....	20

<i>Master Data Modelling and Meta Modelling</i> .....	20
<i>Register Data Publication and Integration Service</i> .....	20
<i>Application integration for publication</i> .....	20
<i>Application integration for registration</i> .....	20
GEO ETL .....	20
Geo webservices.....	20
Managed File Transfer .....	21
Relational ETL .....	21
SOAP-XML webservices .....	21
<i>User Interfaces for Publication</i> .....	21
Export Office documents.....	21
Forms and reports .....	21
Geo viewer .....	21
<i>User Interfaces for registration</i> .....	21
Data entry screens.....	21
Import Office documents.....	21
Unmanaged File Transfer .....	21
<i>Data entry screens</i> .....	22
<i>Import Office documents</i> .....	22
<i>Unmanaged File Transfer</i> .....	22
<i>Export Office documents</i> .....	22
<i>Forms and reports</i> .....	22
<i>Geo viewer</i> .....	22
<i>GEO ETL</i> .....	22
<i>Geo webservices</i> .....	22
<i>Managed File Transfer</i> .....	22
<i>Relational ETL</i> .....	22
<i>SOAP-XML webservices</i> .....	23
<i>Data Processing</i> .....	23
<i>Data Storage</i> .....	23
<i>Automated Data Validation</i> .....	23
<i>Manual Data Validation</i> .....	23
<i>Data Model Transformation</i> .....	23
<i>Data Protocol Transformation</i> .....	23

# Voorbeeld Logisch Applicatie Model (Engels)

Voorbeeld van een logisch architectuur model voor een register of MDM module. Geeft een voorbeeld van hoe je applicatiefuncties, interfaces en services in ArchiMate kunt combineren om een beschrijving te geven van de gewenste requirements.

## Logisch Applicatie Model (Engels) Navigatie



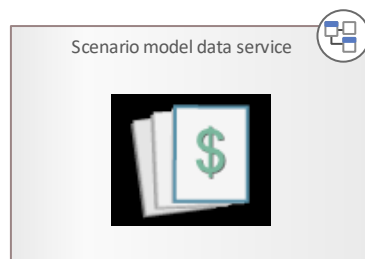
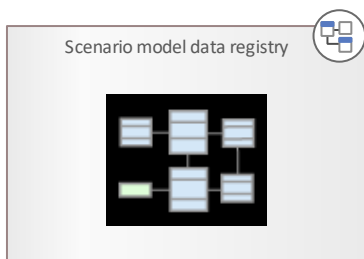
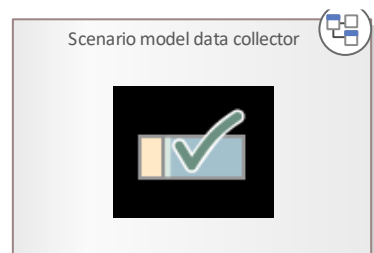
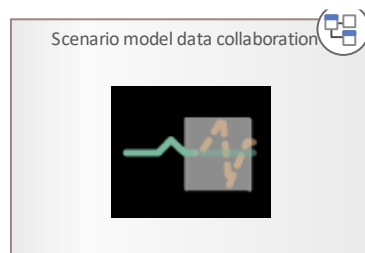
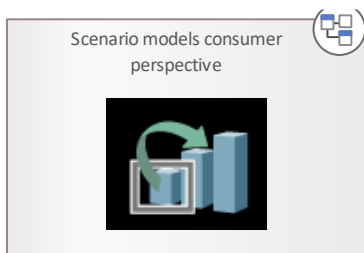
## Logical Application Model

Logical Application Model

## Overview Logical Scenario models

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## Scenario model data collaboration

Scenario model data collaboration

## Scenario model data collector

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## Scenario model data registry

Scenario model data registry

## Scenario model data service

Scenario model data service

## Scenario models consumer perspective

Scenario models consumer perspective

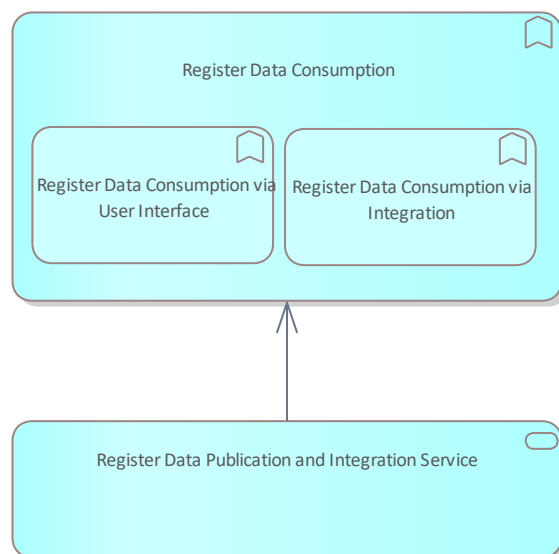
## Logical Scenario models

This is a package with four logical scenarios for the implementation of a register solution. These logical models have no relation with any physical implementation. Therefore the long list of alternatives is more relevant.

These scenarios can help in the following situations:

- Mapping functional requirements to scenarios
- Mapping non functional requirements and qualities to scenarios
- Complexity analysis of scenarios
- Mapping possible solutions and components to scenarios
- Describe scenarios with advantages and disadvantages

## Scenario models consumer perspective



In this master data consumer model a limited view of the relevant architectural entities are displayed. Here you see a high level model of register data consumption. Via different application functions data is consumed. For example via user interfaces like reports, portals, geo viewers etc data is directly consumed by various end users. A detailed inventarization of these end users and user interfaces will be modeled.

## ***Register Data Consumption***

Abstract architectural entity for the register data consumers, all user interfaces and data integrations are an master data consumer

### **ERP**

ERP (or EAM) functionality for the registration of data within a number of highly standardized processes using asset data.

### **Other Data Producers**

Other MDM data producing application functions like the delivery of office files etc.

### **Register Data Consumption via Integration**

Application and database integration like webservices, file transfer, database links, views etc. In a later phase we will model the various integration methods and model these in detail

### **Register Data Consumption via User Interface**

All kinds of user interfaces in which an user can consume data via a (graphical) user interface. Examples of user interfaces are reports, forms, portals graphs, geoviews etc.

## ***Register Data Publication and Integration Service***

Logical services that publish the data from the register to various register data consumers

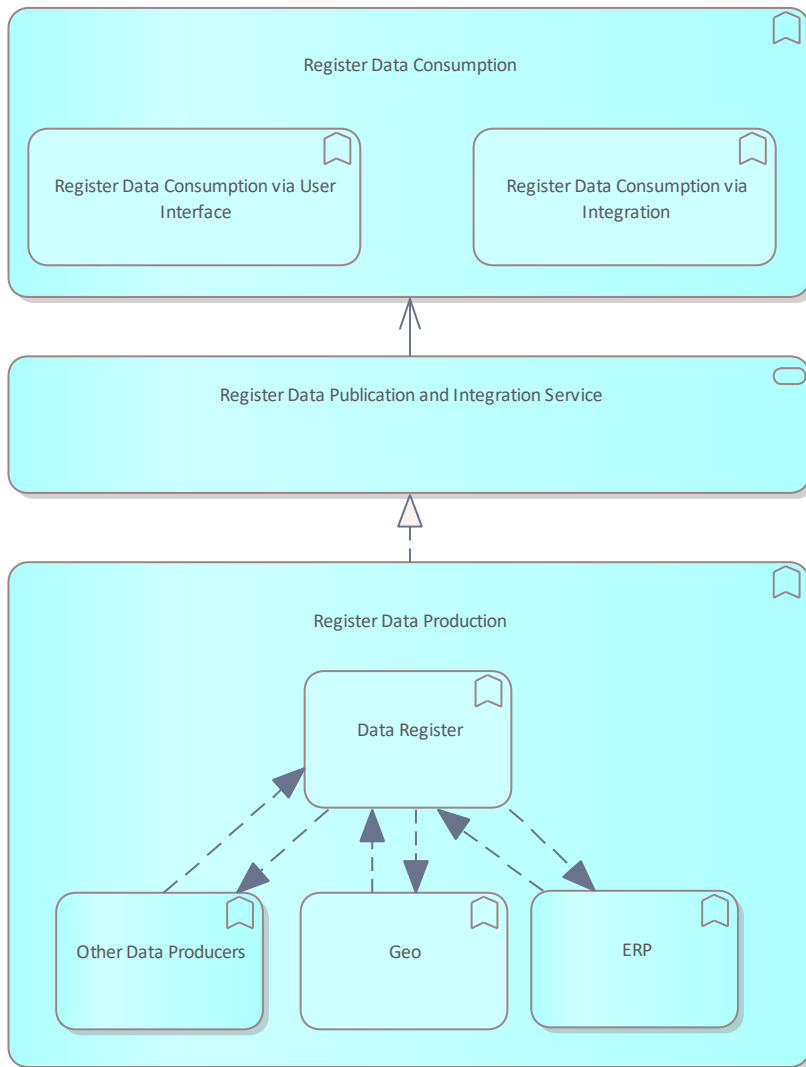
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## **Scenario model data collaboration**



In this scenario the master data register collaborates with the various data producing application functions. This means that when data is modified in one of the systems these modifications are shared between all collaborating functions. Therefore the integration between these data producers is essential in this scenario

An interesting scenario in this is where the Data Register is only used as a key store or key cabinet and the detailed data is kept in the other source systems

#### Advantages

- Data is gathered directly from source systems and thus it is always accurate and real time.
- Data can be stored within the source systems in a specific format supporting the business processes within these systems
- Differences in availability between consumers and sources can be handled by the Data Register
- Reuse of screens, workflows and validations in the source systems
- Data standardization within the Data Register
- Introduction of a key store or key cabinet.

#### Disadvantages

- Managing the synchronization between systems is an extra piece of work and complexity.
- Replication of data
- Complex data transformations from sources to register and back

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## ***Register Data Production***

Logical application function for the storage and transformation of master data in various source function and the data register function

### **Data Register**

MDM like function that aggregates all the data in a standardized data model

### **Geo**

Geo functionality and register in combination with the extraction of asset data in combination with geo data and maps

## ***Register Data Publication and Integration Service***

Logical services that publish the data from the register to various register data consumers

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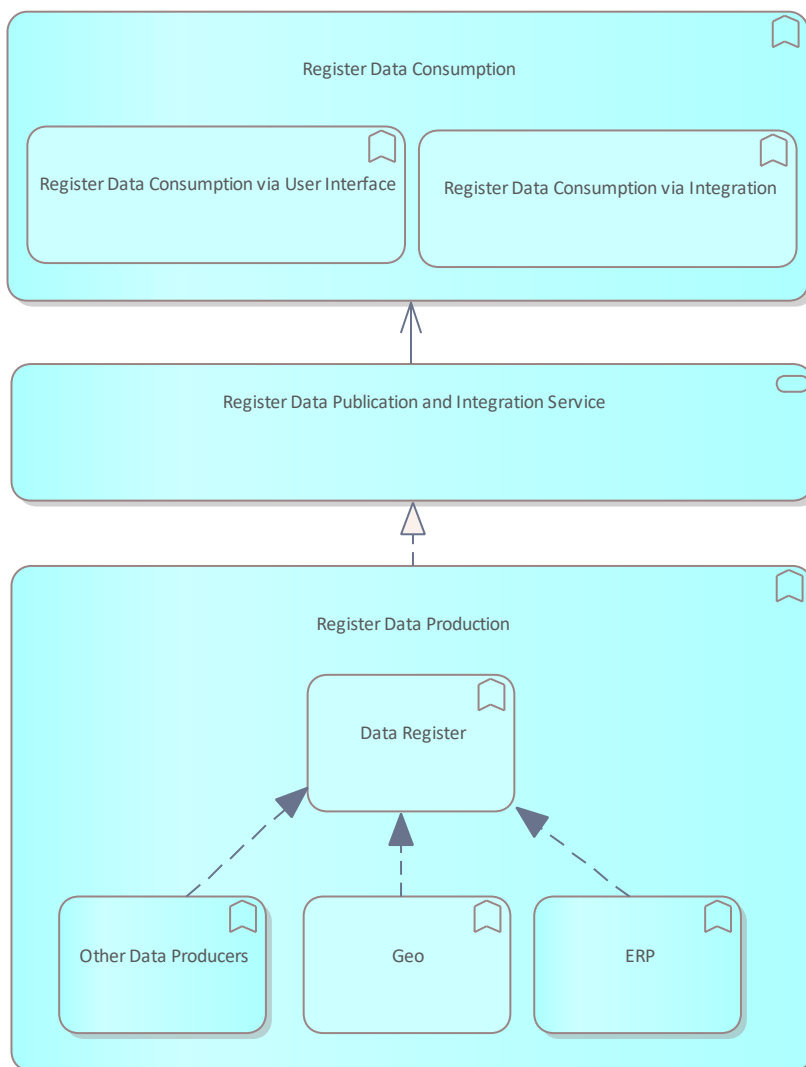
### Data Register

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### Scenario model data collector



In this scenario data is collected form the various data producing applications and combined and standardized in the master data register. This means that data is modified in one of the data producing

applications and eventually enriched in the data register. The data register is mainly a data replication with a standardized data model of the other data producers. An example is a datawarehouse

#### Advantages

- All data directly integrated at hand.
- Standardization of data is possible within the Data Register
- There is a possibility to enhance data by intelligently combining it to new information.
- High availability only for the data register when consumers need a high availability
- Data validation can be implemented in the system where it is most advantageous/efficient
- Reuse of screens, validations, existing data integrations and workflows
- Supports a iterative migration to a more centralized (register) scenario

#### Disadvantages

- When integration of data is asynchronous the data is not the same as in source systems on every moment. This will not be a problem if timing is not an issue.
- When synchronization of data is synchronous high availability requirements for the registry systems is necessary
- Data replication and need for extra storage
- Fetching and distributing data back and forth is equally much work as with an MDM solution
- Possible very complex data transformations necessary

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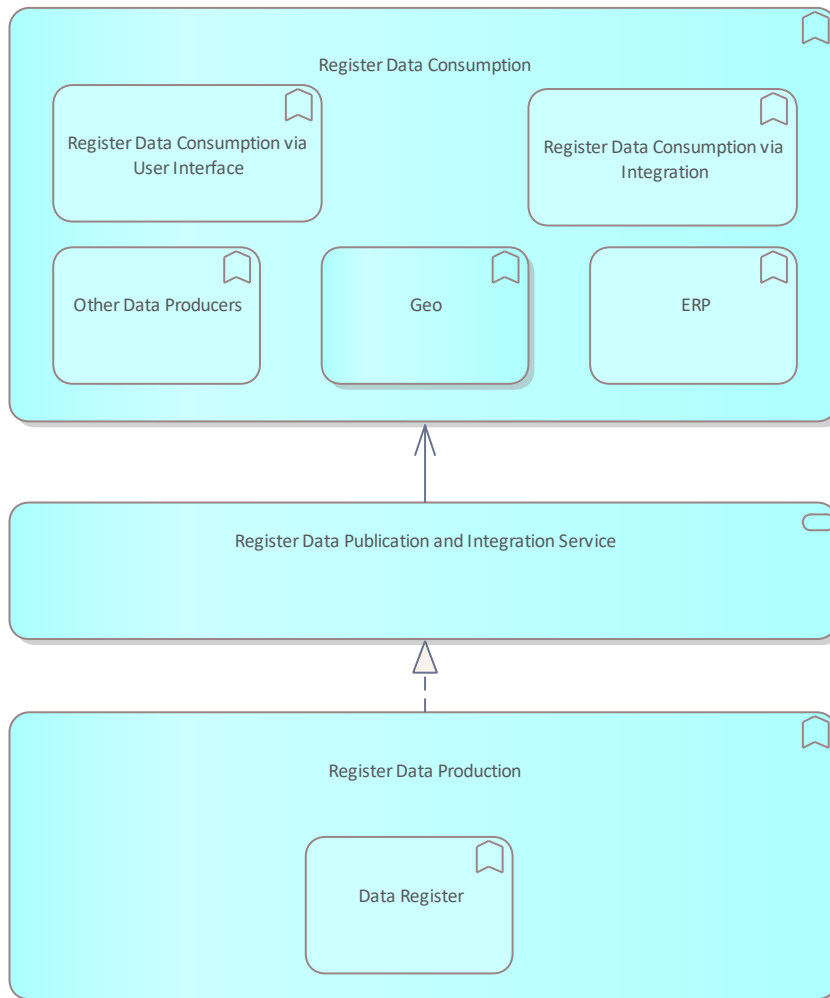
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### **Scenario model data registry**



In this scenario there is only one master data producing application. That is the data register. It can also be one of the existing source systems. All other applications are consuming this data from the data register and use this in their application processes. This includes the application functions for ERP and geo etc.

#### Advantages

- The service design is directly mapped in the data register.
- Possibility to standardize the information model and service interfaces
- Verification and business rules are implemented only in the data register.
- Real time alignment of the data only upon read/request
- High availability only necessary for the data register.
- Eventually no replication of data (depends on the maturity of the consuming systems)

#### Disadvantages

- Any change in data model in consumers leads to change in service, this should be aligned or require a large standardized datamodel in the service interface.
- Information provisioning to applications needs to be redesigned which is a lot of work
- Redesign of the full application landscape
- High demand in performance and availability for the data register
- Introduction of a single point of failure so extra non functional requirements in AIC

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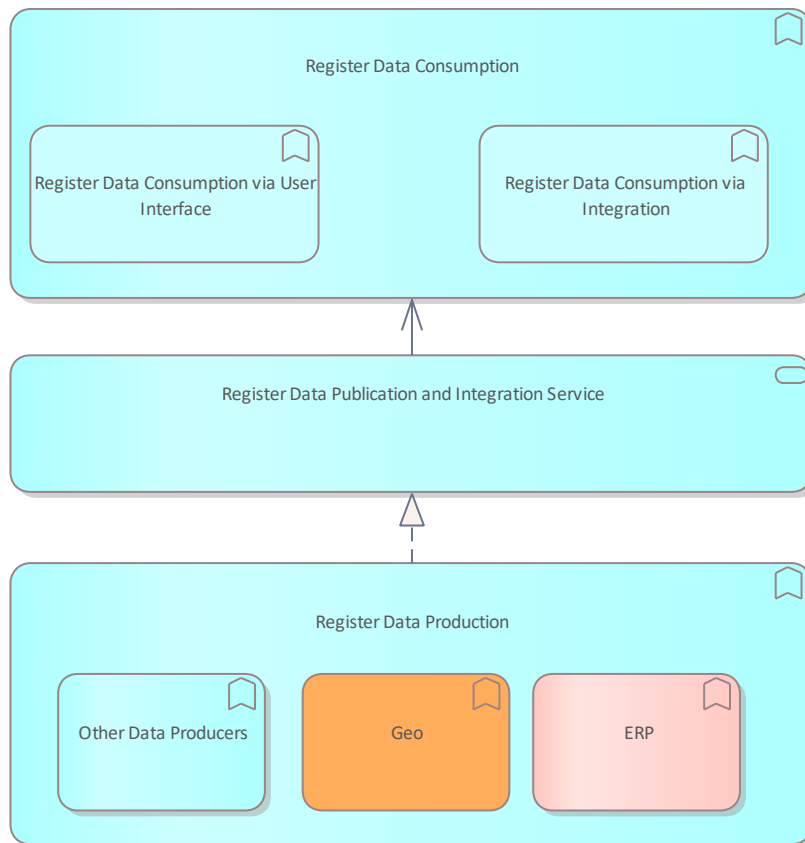
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### Scenario model data service



In this scenario there is no data register but all master data is stored within the data producers like ERP and geo functions. However for the data consumers the data is available via the asset data services in a standardized manner. This means that when a consumer needs asset data this is requested via the data services and collected from the various data producing applications. The implementation of the data services handles the standardization of the master data model and the data exchange protocol

#### Advantages

- Real time alignment of the data.
- Single Point of Truth and Maintenance

- No replication of data (and the involved complexity)
- Reuse of existing user interfaces, validations and (hidden) integrations

#### Disadvantages

- The service design should not enhance the data so the application might have to be redesigned.
- Any change in data model in sources leads to change in service, this should be aligned.
- Verification and business rules are implemented in source systems.
- High availability and performance needs for all the producing systems
- Complex model transformations within the service layer to transform for specific producer system model to the required model by the consumers
- Releases of the source systems become more complex because of the new dependencies in the data services

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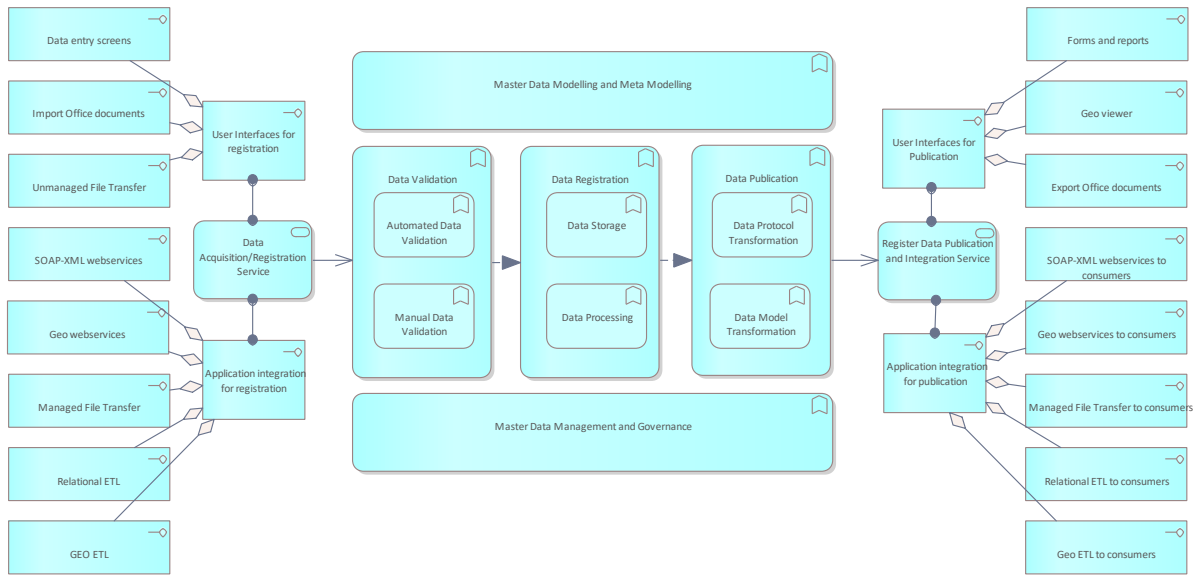
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## **Logical Application Model**

In the logical application model we describe only which logical application functions are necessary within the solution without looking at the available components and information systems. This helps to create a technical independent application model which can later be used to model various solution scenarios and component stacks. These stacks will be analysed and compared with each other based on the functional and non functional requirements.

## **Logical Application Model**



## ***Data Acquisition/Registration Service***

Logical service for the import of data from other systems and sources

## ***Data Publication***

Functionality to publish the data as stored in the data registration for use of various consumer types.

## **Data Model Transformation**

Transformation of the data as stored in the asset data registration and transformation to a model for messages (CGMES, data marts or file formats).

## **Data Protocol Transformation**

Transformation of data to various protocols, for example for the implementation of webservices, REST but also to a format readable for reports

## ***Data Registration***

Actual registration function with storage and processing of the master data

## **Data Processing**

Processing of data before it is stored in the data storage and when the data is retrieved from the storage

## **Data Storage**

Physical storage of the data in a (relational) database.

## ***Data Validation***

Validation of data based on the data entered in the system and eventually on the existing data stored in the master data registration. It is essential that all the data received from the acquisition/registration service is processed in these functions before it is stored in the data register

### **Automated Data Validation**

Machine based validation of the data entered in the system but also based on timely intervals within the stored data. This is implemented in a kind of rule engine.

### **Manual Data Validation**

Validations when data is entered by hand (via screens etc)

## ***Master Data Management and Governance***

Application functionality that support data management and governance processes. Think about data quality processes, data ownership and data security policies etc.

## ***Master Data Modelling and Meta Modelling***

Data modeling and meta modeling for example models based on UBL and CIM. These models are used for the storage of the data but also for the data integration, - transformation and - validation

## ***Register Data Publication and Integration Service***

Logical services that publish the data from the register to various register data consumers

## ***Application integration for publication***

Application interfaces for application to application integration. This includes the fully automated system integration processes, ETL implementations and the automated and managed file transfer.

## ***Application integration for registration***

Application integration interfaces for machine 2 machine integration

### **GEO ETL**

ETL implementations specific for the transfer of geo data (for example FME)

### **Geo webservices**

Message based transfer of geo data for example based on WMS/WFS/WMTS or GML over webservices

### **Managed File Transfer**

Fully automated file transfer without manual handling of the data

### **Relational ETL**

ETL processes for the transformation of data from relational to relational databases or structured files

### **SOAP/XML webservices**

SOAP/XML webservices including eventually REST services

### ***User Interfaces for Publication***

Publication of asset data to various user interface types

### **Export Office documents**

Unmanaged and user driven export of asset data to various office documents including CSV and XML.

### **Forms and reports**

Forms and reports interfaces in which users can retrieve asset data in an interactive manner

### **Geo viewer**

Geo viewer interface for the retrieval of asset data in combination with geographical selection and representation functionality

### ***User Interfaces for registration***

User interfaces for human interaction with the data stored in the data registration

### **Data entry screens**

Modification of data via (webbased) screens. This includes geo based screens

### **Import Office documents**

Import and manual transformation of office documents like excel sheets etc.

### **Unmanaged File Transfer**

Transfer of files that are manually handled and eventually modified before implementation in the data storage

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