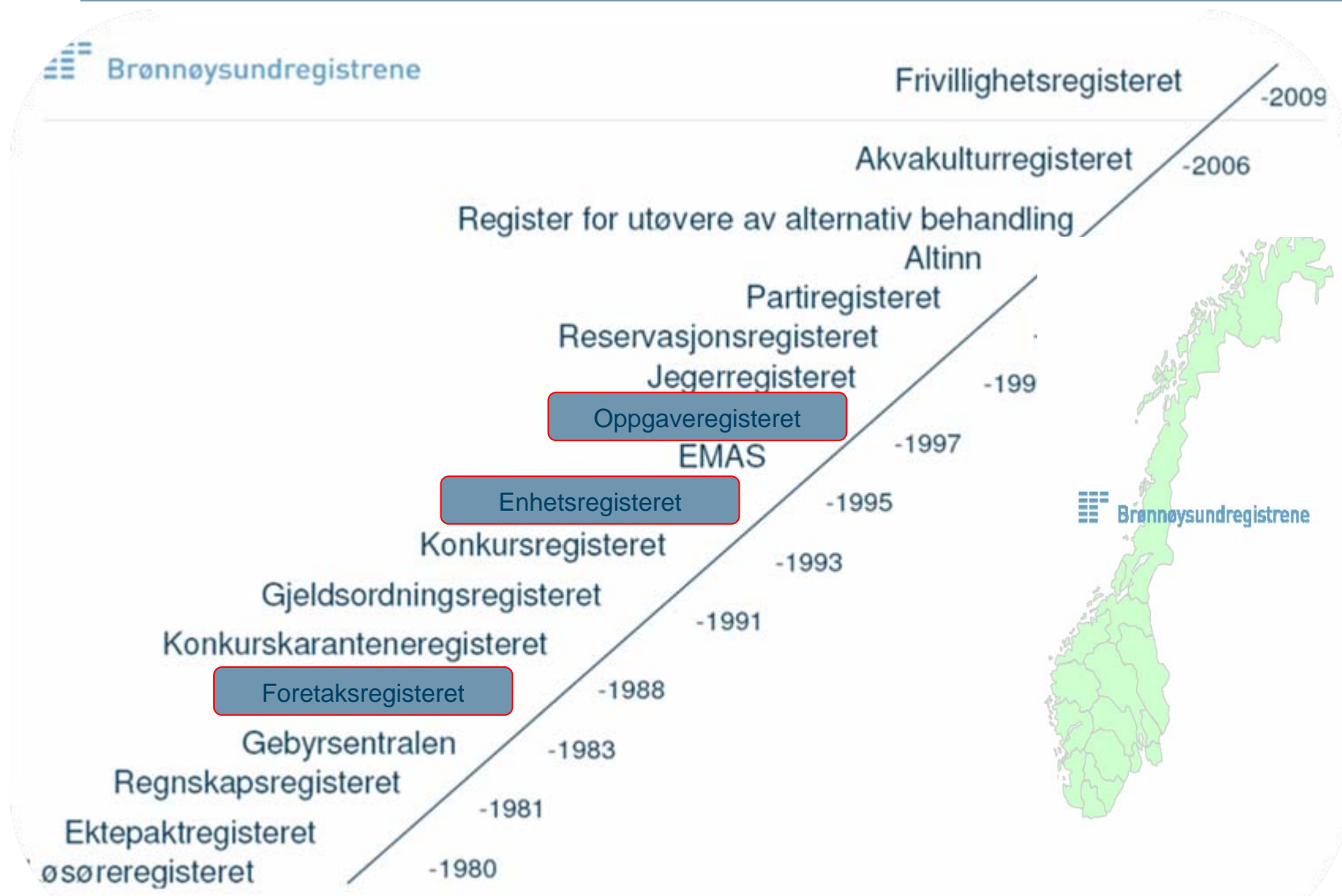


# SERES: A SEMANTIC REGISTRY FOR ENTERPRISE SERVICES

Geir Jevne – 9.juni 2011

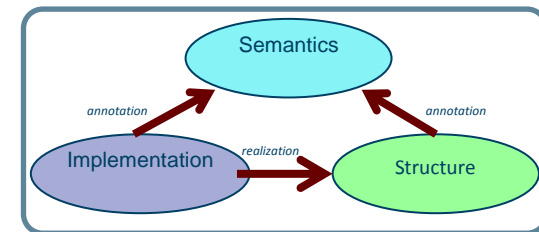
## Brønnøysundregistrene – ”the register authority and source of information”

- An agency under the Norwegian Ministry of Trade and Industry
    - Brønnøysundregistrene had 562 employees in 2010
    - Approximately 2 400 000 documents
    - Approximately 140 800 000 Internet and online hits
    - Approximately 610 000 telephones
    - Approximately 3 000 000 year end accounts and annual reports
    - Approximately 1 480 000 business units registered
- (Tall fra 2010)

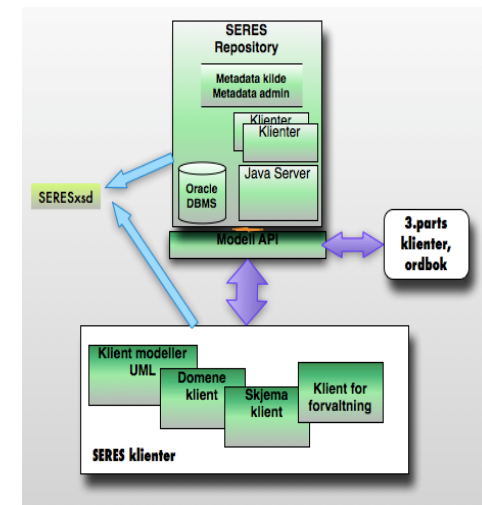


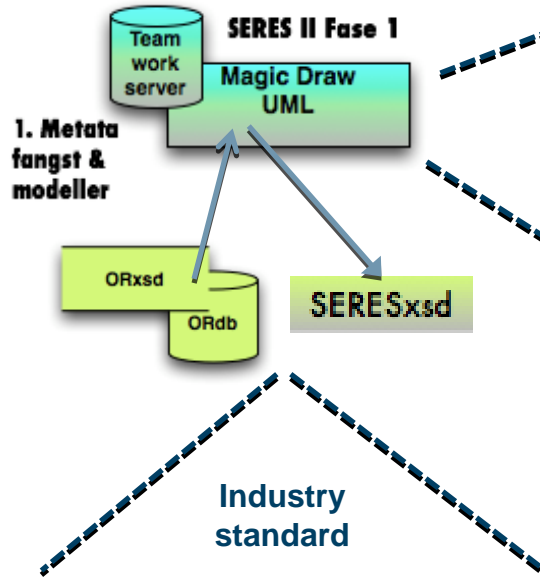
# WHAT IS SERES TODAY?

A.  
A METHOD FOR META DATA MODELLING

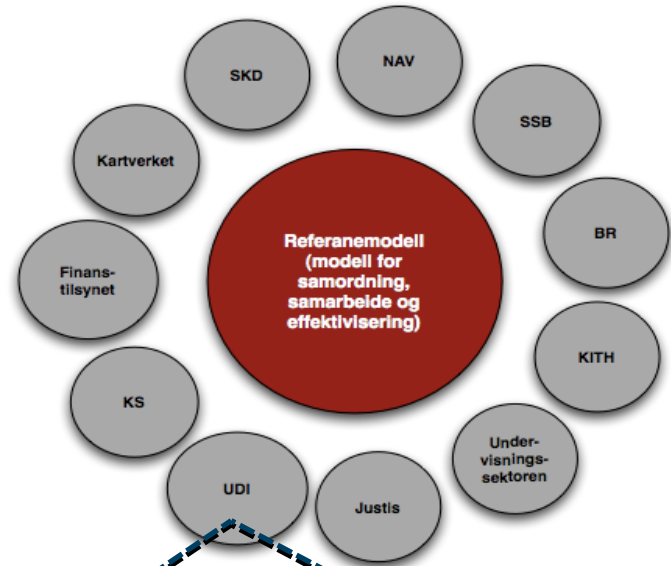


B.  
A SOLUTION FOR METADATA CAPTURE,  
MODELLING, ADMINISTRATION, CONTROL  
AND PUBLISHING

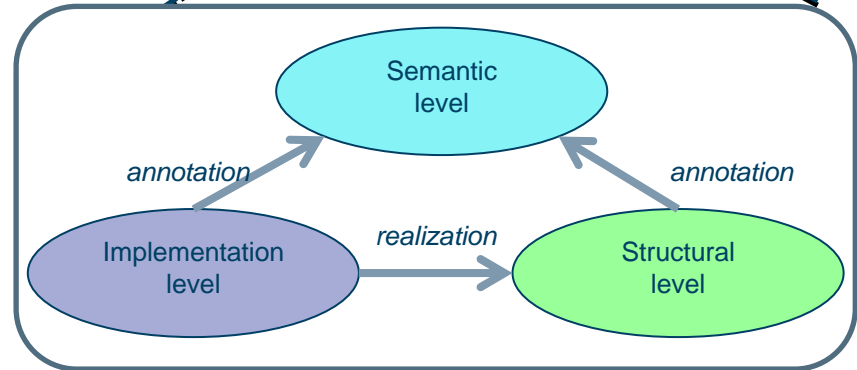
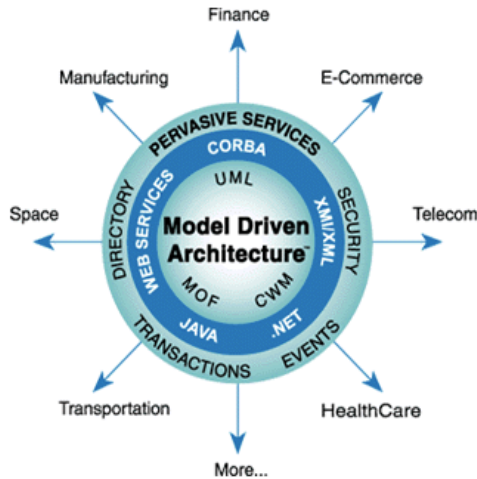




Metadata:  
macro-  
organization



Metadata:Micro-  
organization



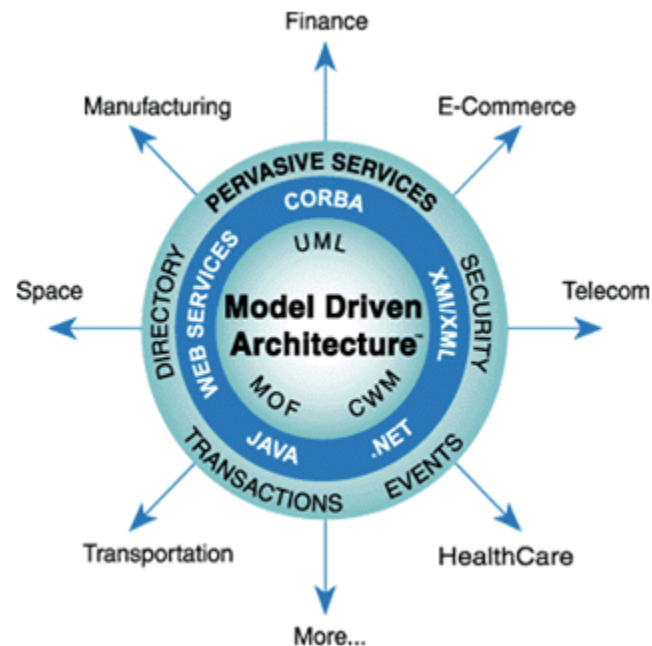
# Concepts and methods

# SERES: Core concepts and methods

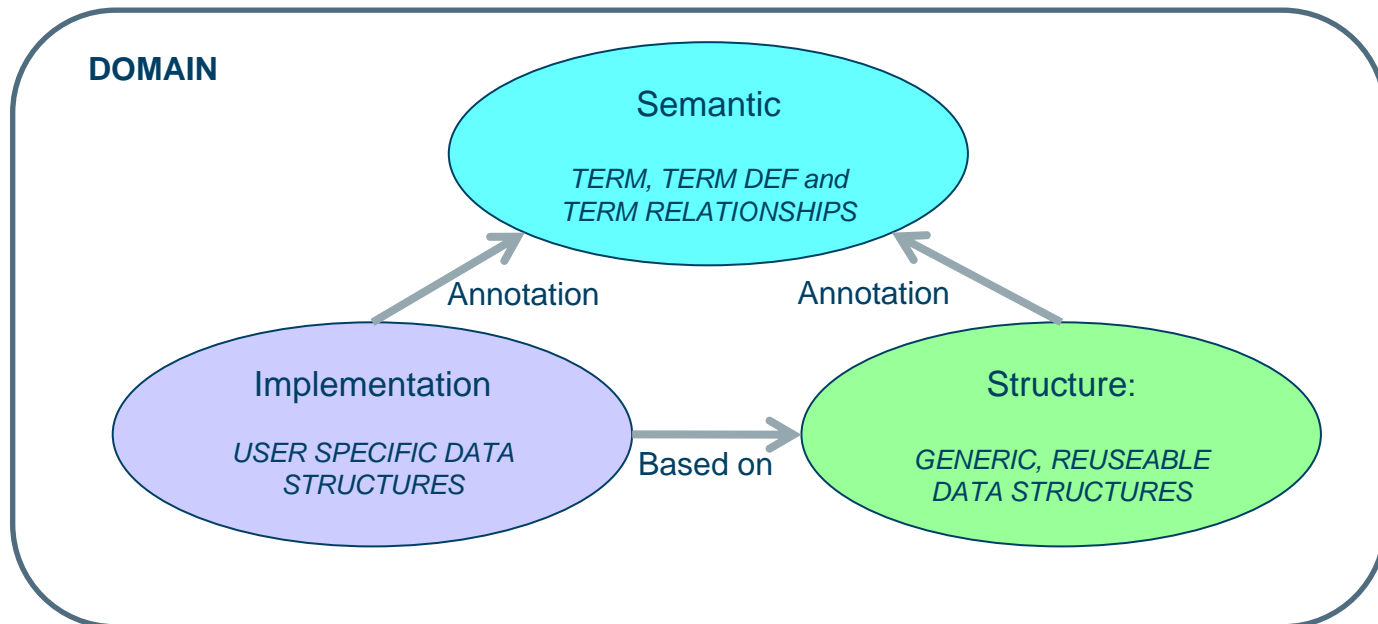
Model Driven Architecture (MDA)  
trademark of Object Management  
Group (OMG)

OMG Standards:

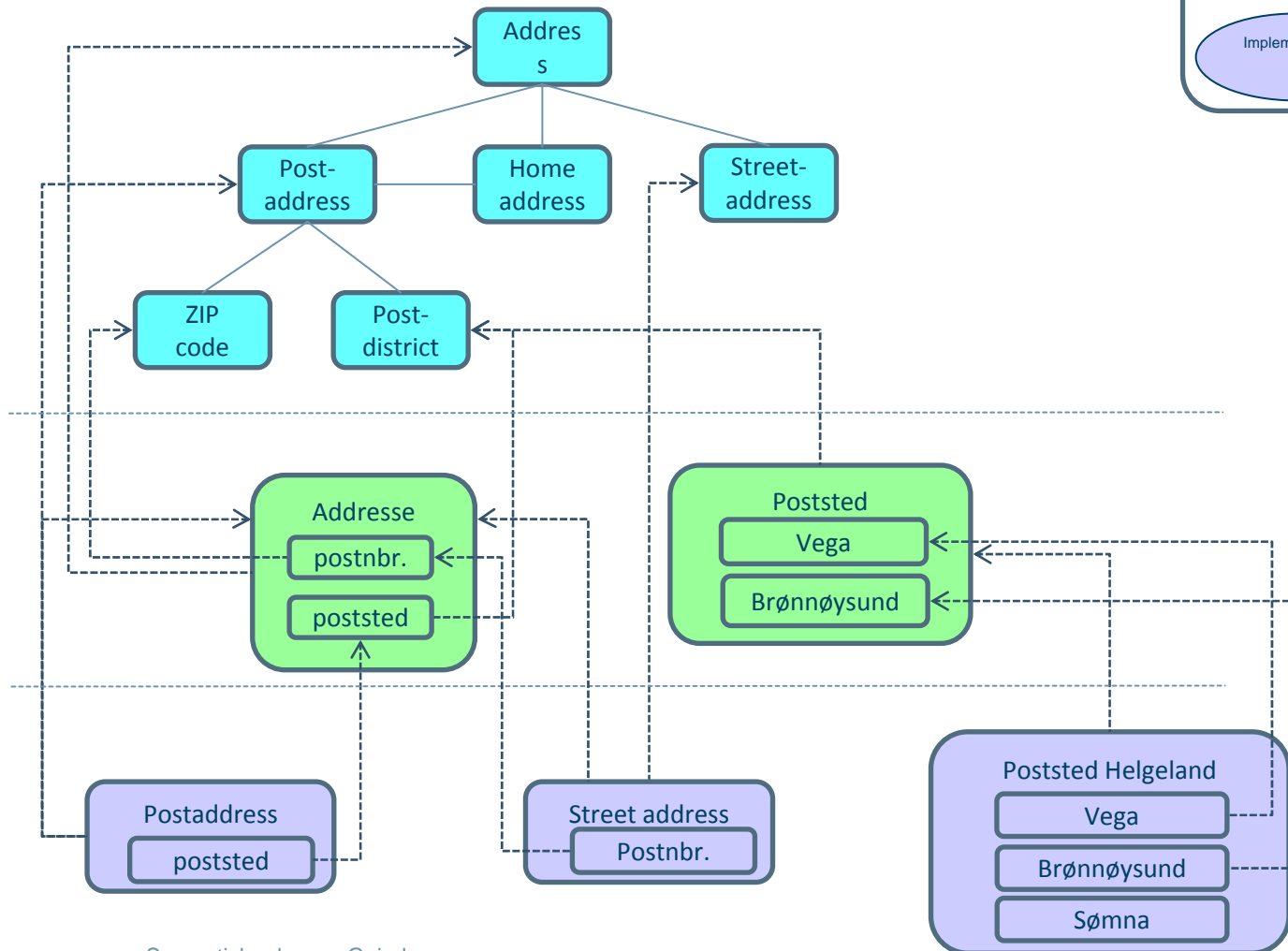
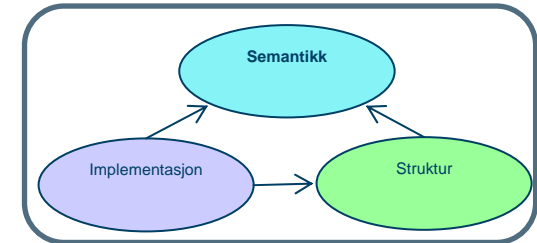
- Meta Object Facility
- Unified Modeling Language
- Common Warehouse metamodel
- Business Process Management notation



# SERES: METAMODELL



# Using the metamodel: example





## Metadata building blocks provided by Brønnøysundregistrene

### 1. SERES

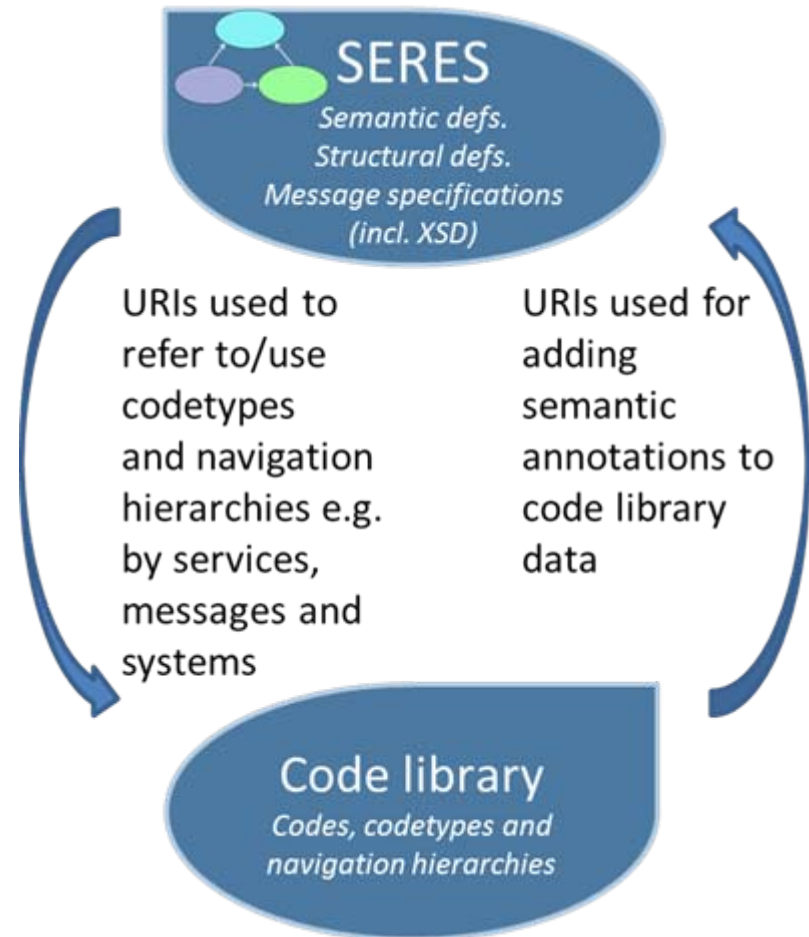
*Repository and tools for maintaining and providing semantic, structural and message definitions*

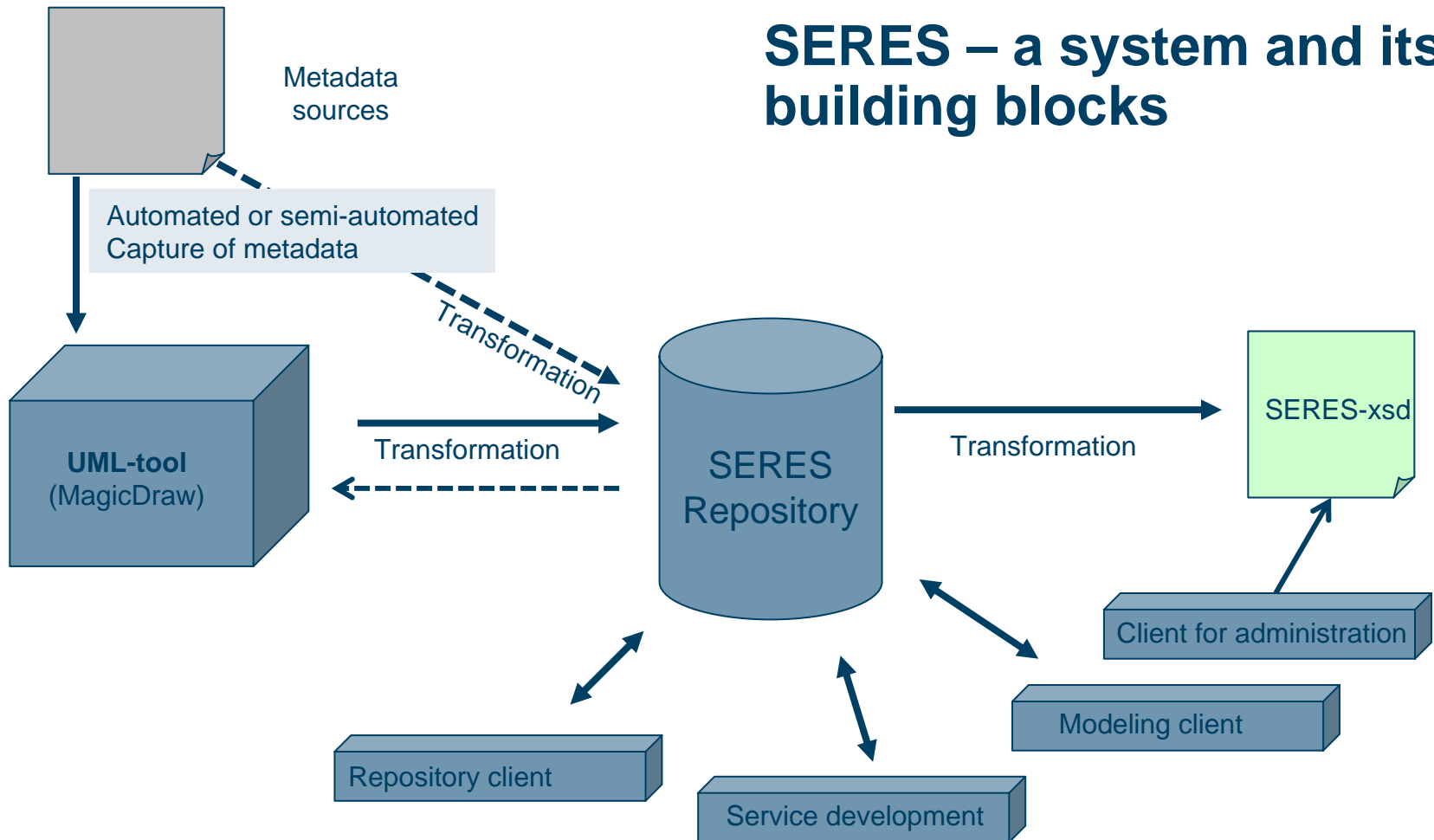
- domain vocabularies
- structural metadata
- Message specifications (service datastructures)
- XSD-generator and XSD-library

### 2. Code library

*Repository and tools for maintaining and providing coderelated definitions*

- Codes and codetypes
- Navigation hierarchies over an ordered set of codetypes





# SERES repository

- Commercial product, Adaptive Metadata Manager
- Drives interoperability through standards

## Currently Supported

- **MOF** (Meta Object Facility)
- **MOF Versioning+Facility**
- **XMI** (XML Metadata Interchange)
- **UML** (Unified Modeling Language)
- **DI** (Diagram Interchange)
- **CWM** (Common Warehouse Metamodel)
- **KDM** (Knowledge Discovery Metamodel)
- **SPEM** (Software Process Engineering Metamodel)
- **EDOC CCA** (Component Collaboration Architecture)
- **RAS** (Reusable Asset Specification)

## Under implementation

- **MOF QVT** (Queries, Views Transformations)
- **SKOS** (Simple Knowledge Organization System)
- **ODM** (Ontology Definition Metamodel)
- **SoaML** (Service Oriented Architecture Modeling Language)
- **IMM** (Information Management Metamodel – “CWM 2.0”)
- **BMM** (Business Motivation Model)
- **BPMN 2** (Business Process Model and Notation)
- **SBVR** (Semantics of Business Vocabulary and Rules)
- **Diagram Definition**



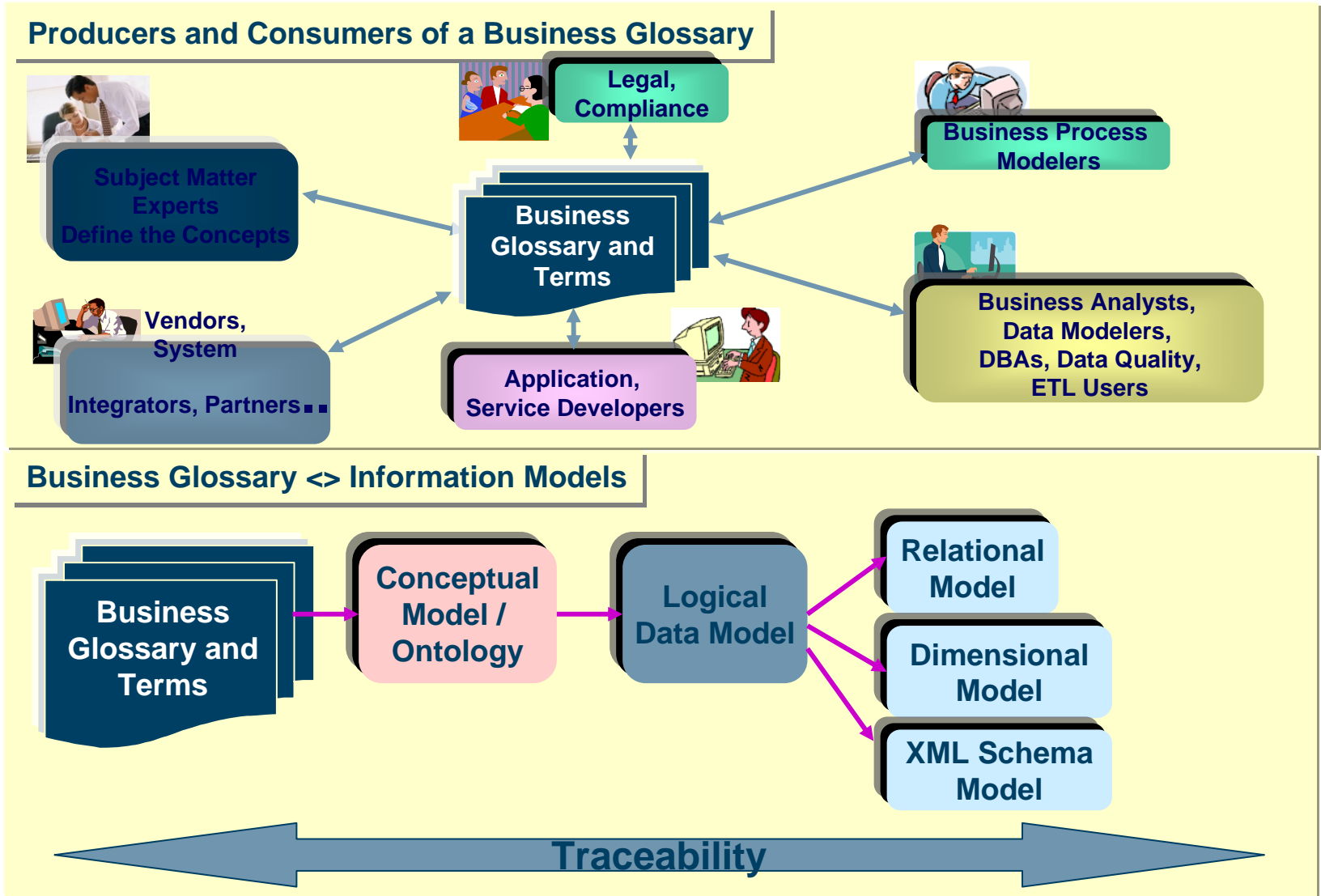
## Integrate with comprehensive set of 3rd party tools and metadata sources

- **Bundled bridges:** MS Access, MS Excel, MS Project, XML Schema Definition (XSD), XMI

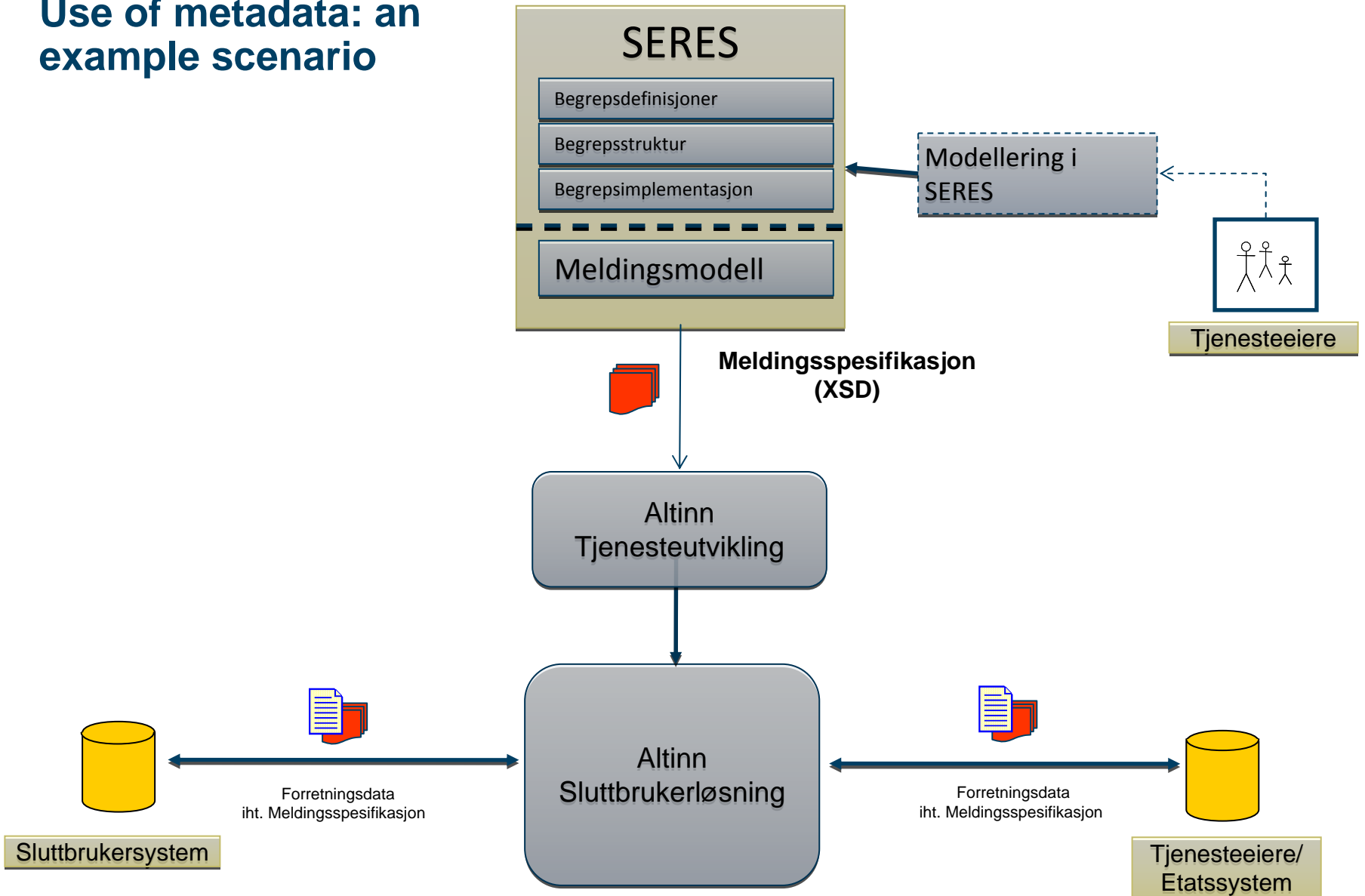
BI Tools	ETL	Data Modeling	Data Stores	Mainframe	UML Modeling
IBM Cognos	IBM DataStage	CA ERwin	IBM DB2	COBOL Copybook	IBM Rational Rose
MicroStrategy Intelligence Server	Informatica PowerCenter	Embarcadero ER/Studio	Microsoft SQL Server	IBM JCL	IBM RSM/RSA
Oracle Business Intelligence (Siebel Analytics)	Microsoft SQL Server Integration Services	Sybase PowerDesigner	Netezza	IBM IMS	No Magic MagicDraw
MS SQL Server Analysis & Reporting Services	SAS Data Integration	Oracle Designer	Oracle DBMS		Sparx Enterprise Architect
SAP Business Objects Crystal Reports, Desktop Intelligence, Web Intelligence			Sybase ASE		
SAP Business Warehouse			Teradata		
SAS					



# Business Terminology: The Foundation of Data Management, *Adaptive illustration*



# Use of metadata: an example scenario



# A typical Altinn service, simplified

## Søknad om lån

Skjema for søknad om bil- eller boliglån

### Informasjon om søker

Vennligst fyll ut informasjon om lånesøker

Fødselsnummer

Navn

Adresse

E-postadresse  \*

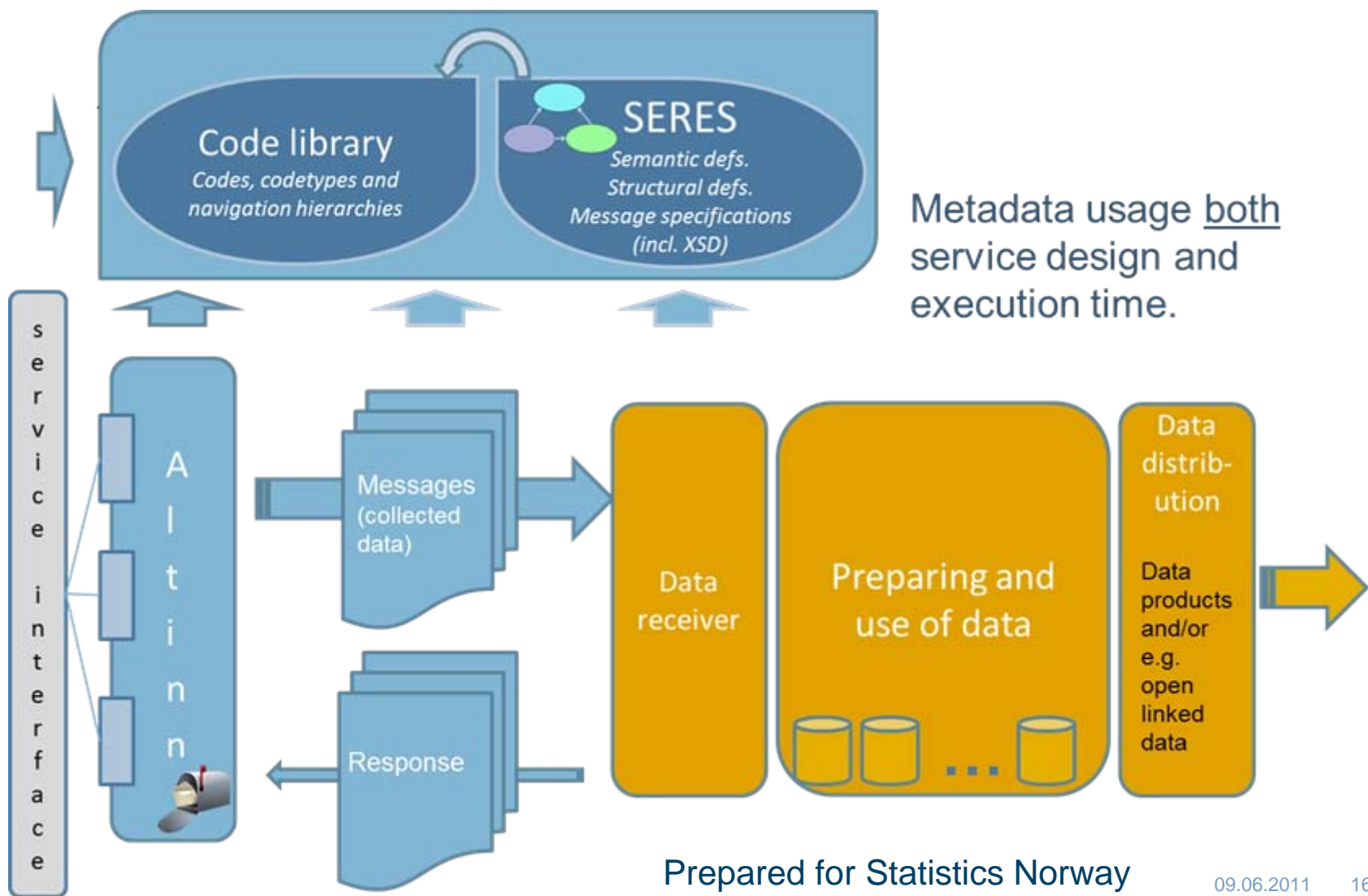
Inntekt

### Gjeldsoversikt

Dersom du har andre lån skal dette fylles ut her

Har du annen gjeld?  Ja  Nei

# Use of metadata: an example scenario, interacting metamodels





## Example issues

- How can SERES be used as a commonly available dictionary?
- How can we edit the dictionary?
- How can SERES interface to my tools/the best tools?
- How can SERES be used for ontologies in Linked Data?

### *Comments*

*SERES is not built to be an all inclusive semantic tool  
SERES is a trade-off between existing needs – from  
semantics to implementation  
3000 concepts are defined covering 20 government  
agencies*

# SERES vs. RDF/OWL

seres.semantikk.Begrep	owl:Class
seres.semantikk.Begrep.navn	rdfs:label
seres.semantikk.Begrep.guid	rdf:resource (IRI for the class)
seres.semantikk.Begrep.definisjon	rdfs:comment
seres.semantikk.Begrep.dokumentasjon	rdfs:?
seres.semantikk.Begrepsrelasjon	owl:ObjectProperty
seres.semantikk.Begrepsmodell	owl:Ontology

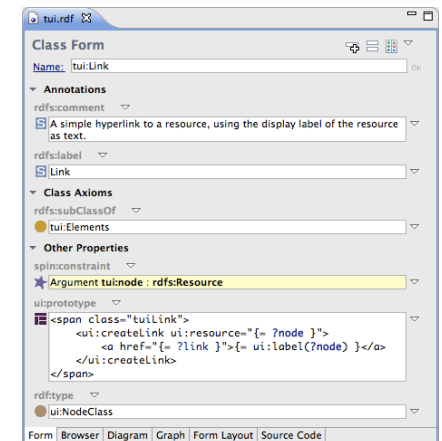
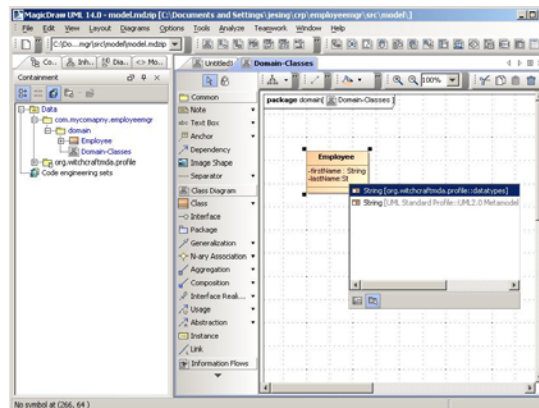
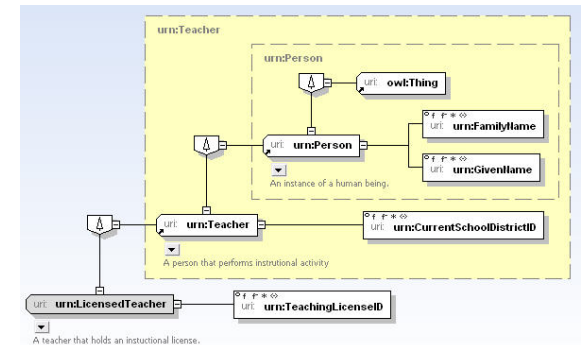
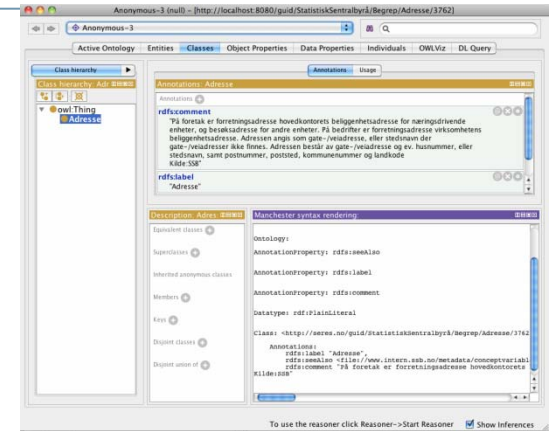
```
<owl:Class rdf:about="http://seres.no/guid/StatistiskSentralbyrå/Begrep/Adresse/3762"/>
```

Very clean mapping to OWL

# Clients

- All Semantic Web Clients (Protégé, Altova Semantic Works, Topbraid, etc.)
- UML-clients (Magic Draw, Enterprise Architect)

Other clients supporting RESTful services is easily supported



## Some future needs for SERES

- Migrate parts of the SERES metamodel to new available meta models in the Adaptive repository

*Examples:*

*SKOS, ODM, OWL*

*Better support for UML profiling mechanism  
and diagram interchange*

- Extend the solution to link data to methods, operations, behavior, business rules, events, transformations etc.
- Improve support for UML tools
- Enhance support for modeling service data