



**HAL**  
open science

## Spy On Your Models

Frédéric Madiot, Hugo Bruneliere

► **To cite this version:**

Frédéric Madiot, Hugo Bruneliere. Spy On Your Models. EclipseCon 2011, Mar 2011, Santa Clara, Californie, United States. hal-00610552

**HAL Id: hal-00610552**

**<https://hal.science/hal-00610552v1>**

Submitted on 11 Apr 2023

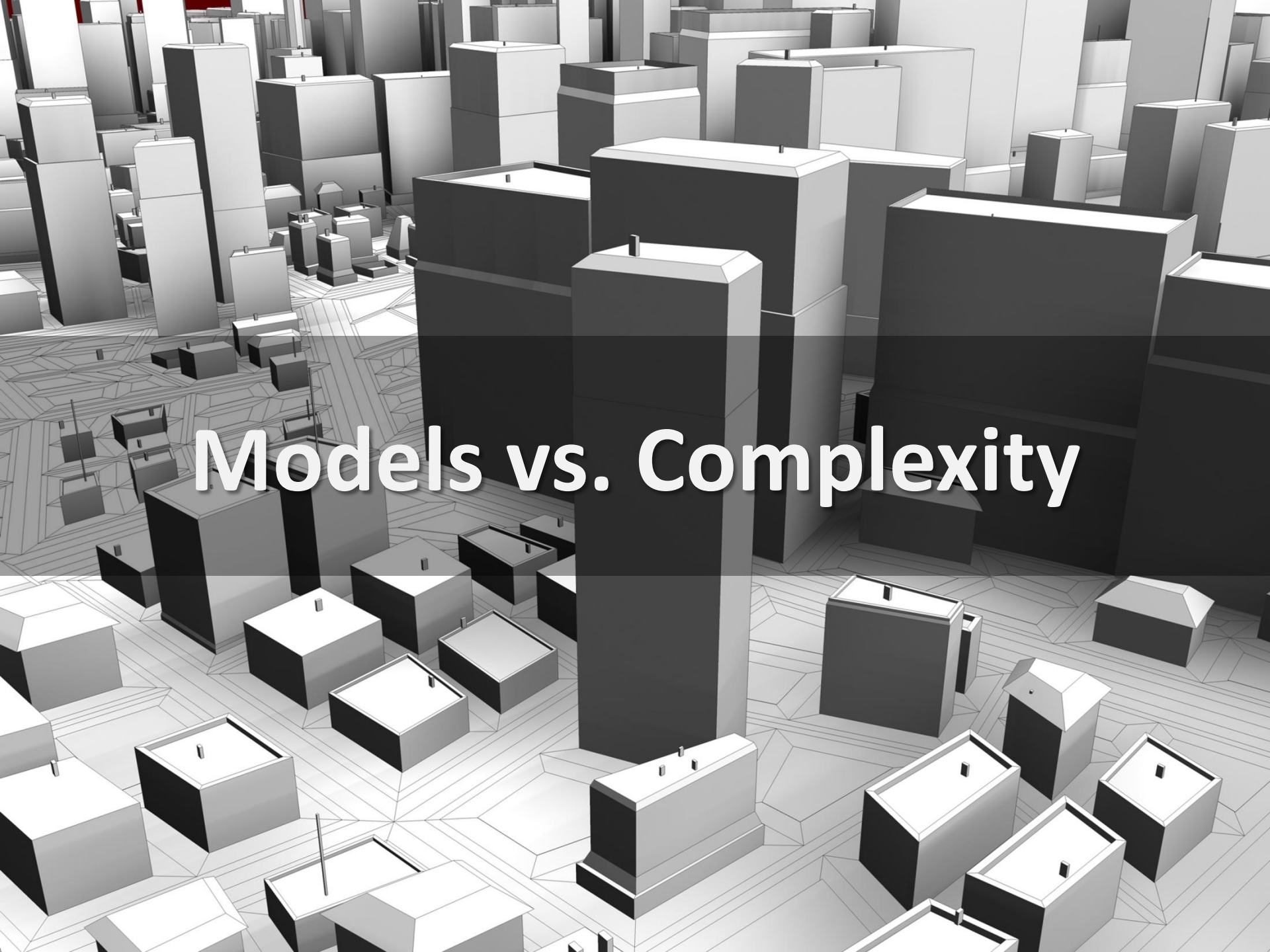
**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.

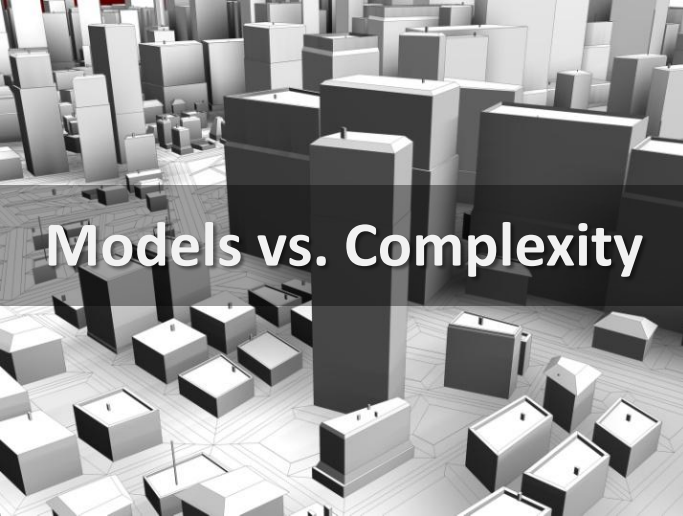
# Spy On Your Models

**Frederic Madiot (Obeo) - Hugo Bruneliere (INRIA)**

**22<sup>nd</sup> of March 2011**



# Models vs. Complexity



Granularity of the concepts to be represented

**Metamodel (viewpoint)**

Complexity

Size of the subset to be represented

Addresses

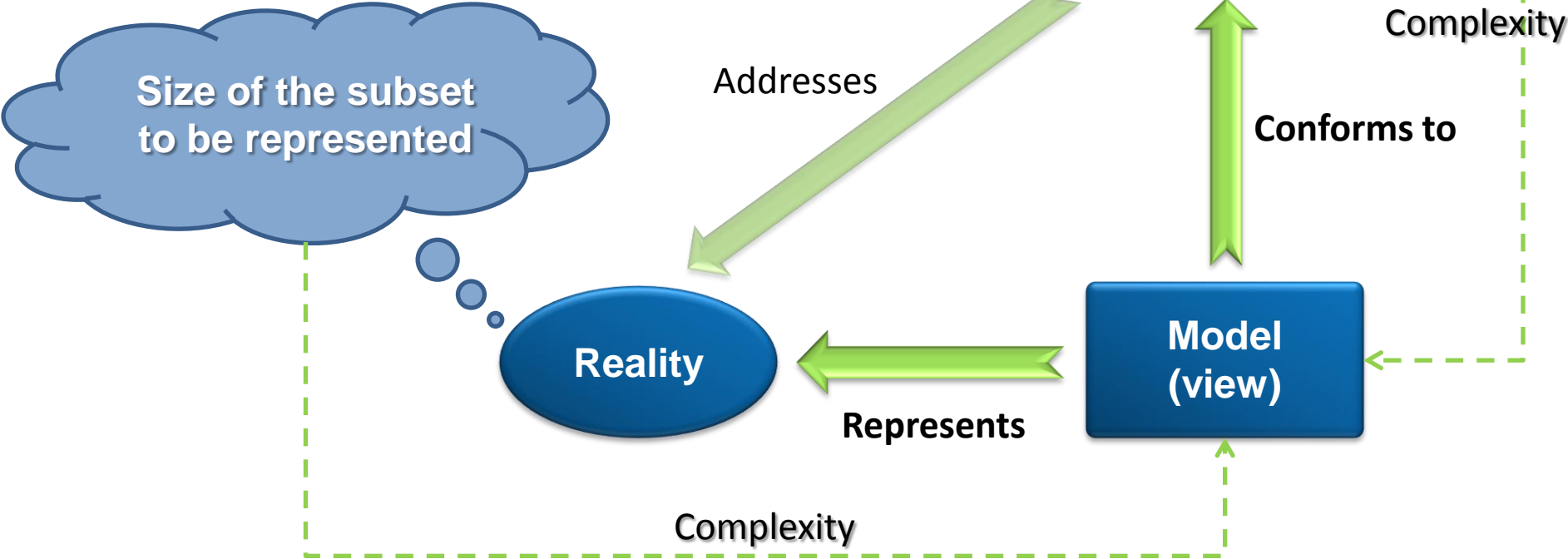
Conforms to

**Reality**

Represents

**Model (view)**

Complexity



# Complex Models

## Reverse Engineering

- Large legacy applications
- Variety of concepts (architecture, data structure, algorithms, etc)

## System Engineering

- Complex engineering projects
- Interdisciplinary field of engineering (ex: Autosar for the Automotive industry)

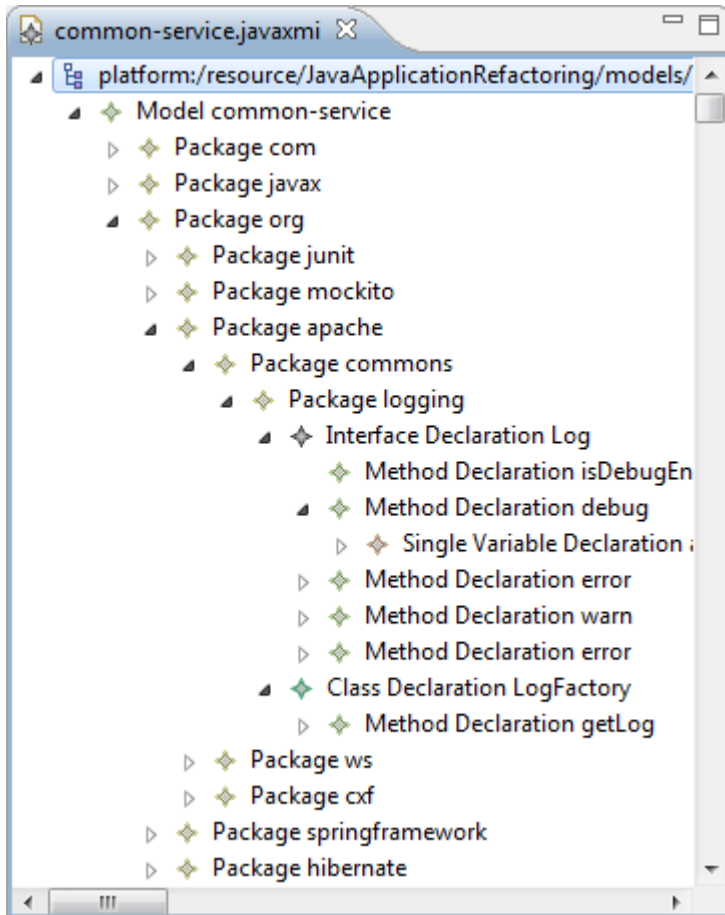
## Data Representation

- Complex data structures
- Volumetry



# EMF Reflexive Editor

## Default EMF model editor



Metamodel independence



Direct access to elements

- Tree must be browsed



Advanced navigation

- Only container, relations not visible



Dynamic customization

- Static with EMF Edit

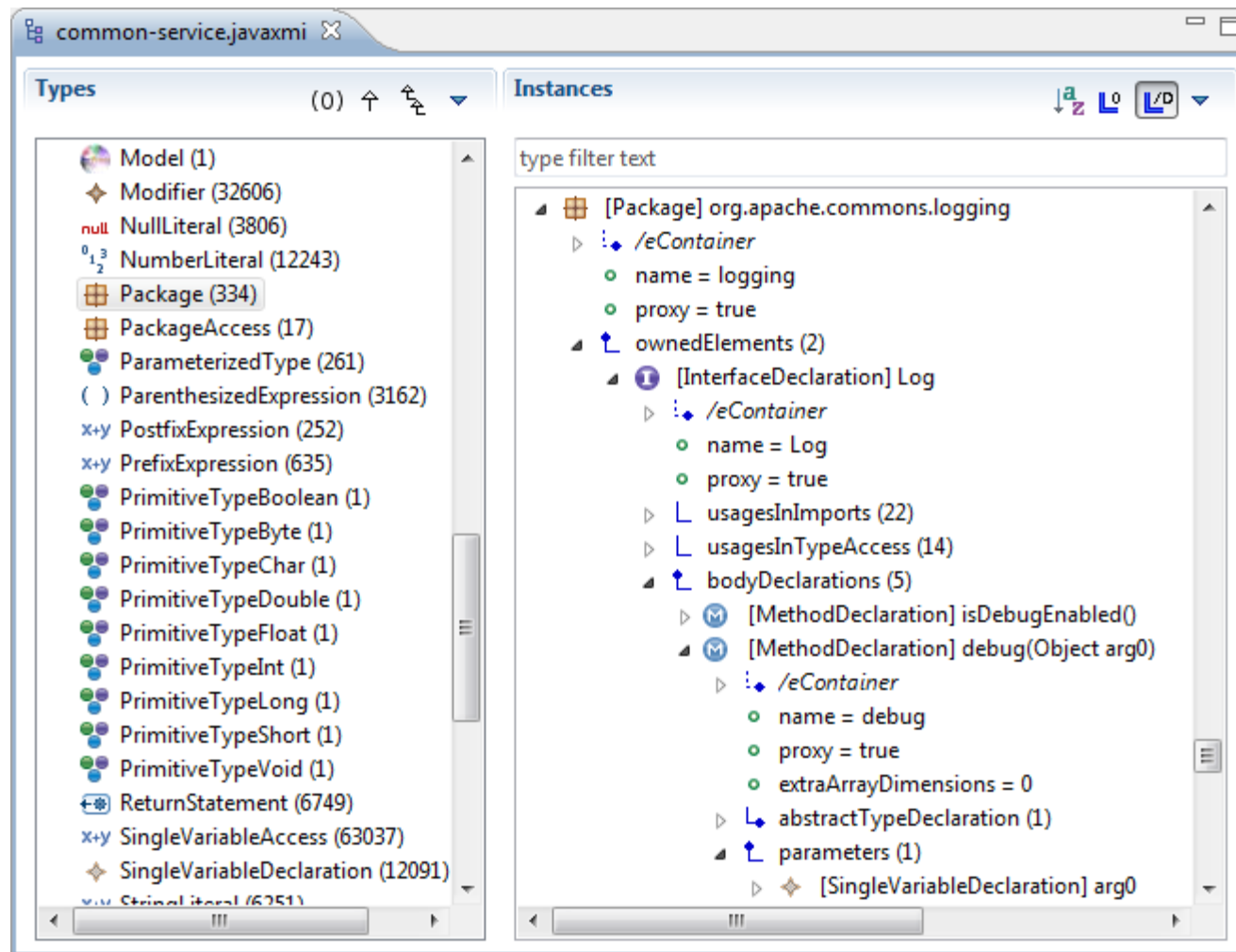


Multi-language querying

- Specific integration required

# MoDisco Model Browser

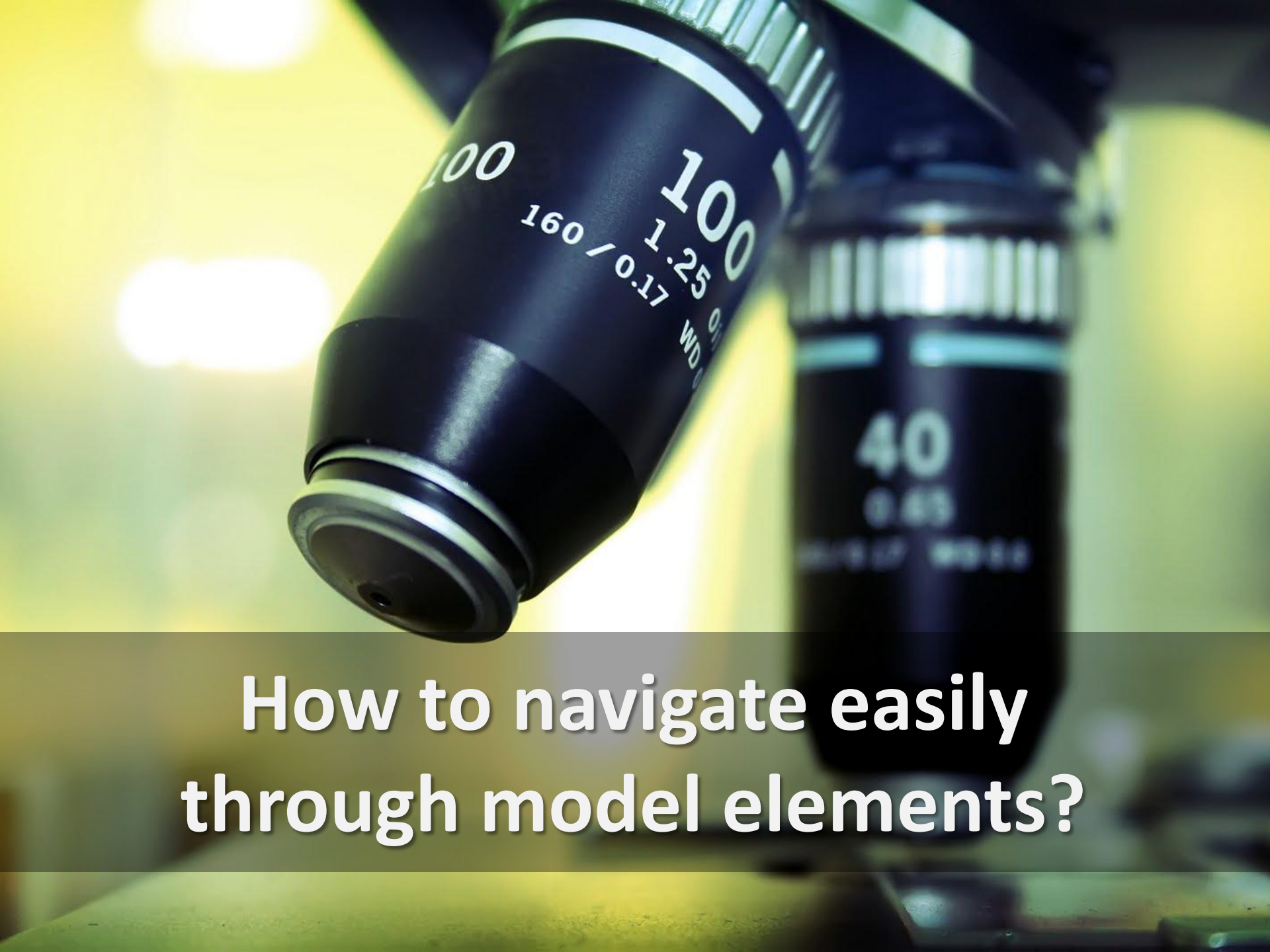
## A feature-rich EMF model editor





**How to directly access to  
model elements in large models?**





**How to navigate easily  
through model elements?**

**How to inspect  
the model using  
multi-language  
queries?**







**How to dynamically customize  
the MoDisco Model Browser?**

# Eclipse-MDT MoDisco Project

An **Eclipse platform** to support

**Software Modernization** projects

- Official Eclipse Modeling project (in MDT)
  - Open-source (EPL licence)
  - Based on other Eclipse Modeling projects
  - Released with Helios & coming Indigo
- Supported by the OMG
  - Eclipse implementations for
    - KDM (Knowledge Discovery Metamodel)
    - SMM (Structured Metrics Metamodel)
    - ASTM (Abstract Syntax Tree Metamodel)



# MoDisco Modernization Use Cases

## Legacy Technologies

Source code



Databases



Configuration files



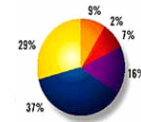
Other sources



## Scenarios

- Quality Analysis
- Understanding
- Code Refactoring
- Technical Migration

## Outputs



Metrics



Models



New system



Documentation



# MoDisco

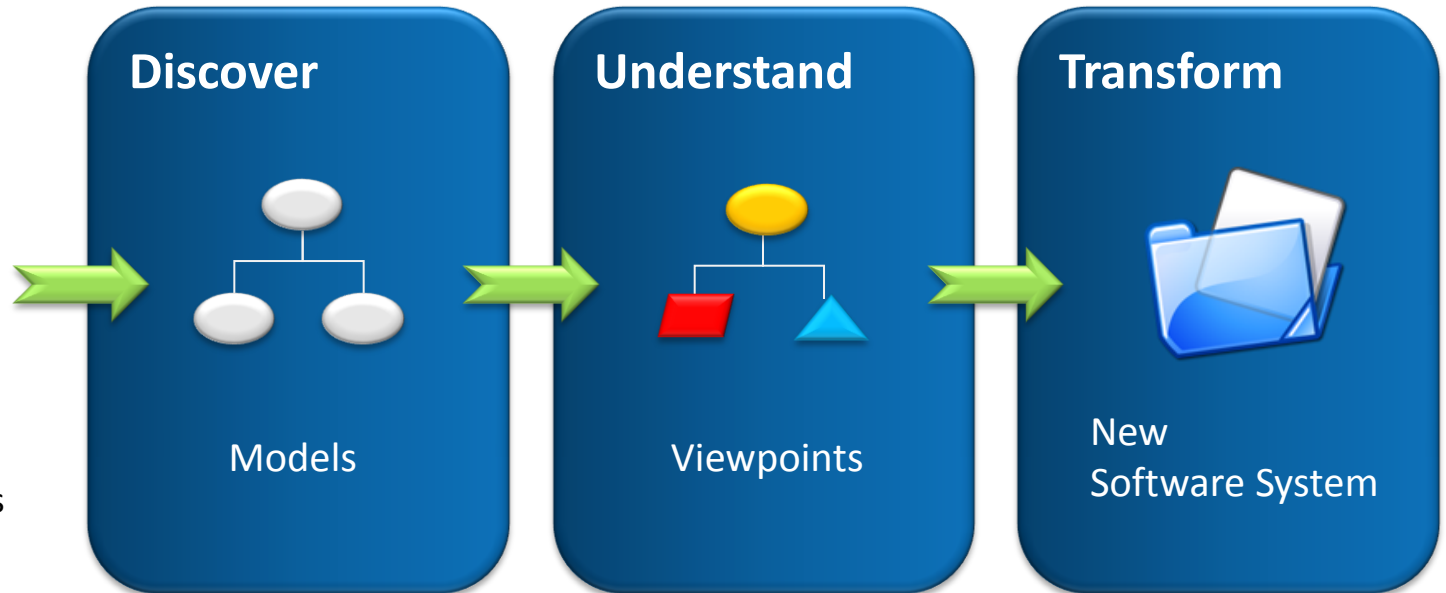
Use **models** to represent and manipulate  
**artifacts** of existing systems

Existing  
Software System



*Software artifacts :*

- source code
- configuration files
- tests
- database
- ...



# MoDisco Architecture

## Supported Technologies

### Java

- ✓ Metamodel
- ✓ Discoverer
- ✓ Generator
- ✓ Transfo. to KDM

### JSP

- ✓ Metamodel
- ✓ Discoverer
- ✓ Generator

### XML

- ✓ Metamodel
- ✓ Discoverer
- ✓ Generator

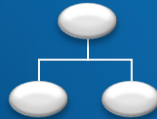
...

## Discovery Manager



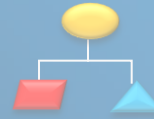
Plug and orchestrate transformations

## Model Browser



Navigation through complex models

## Customization & Extensibility



Definition of specific Viewpoints

## OMG/ADM Standards



Pivot Metamodels (SMM & KDM)

## Infrastructure

## Eclipse Modeling projects

# Who is working on MoDisco?



- Software company providing model-driven solutions
- Eclipse Member
- 2 committers on MoDisco (project col-leader)
- Leader of the EMFT-EMF Facet project



- Joint team between INRIA & Ecole des Mines de Nantes (EMN)
- Research focused on MDE core technologies and their concrete applications
- 1 committer on MoDisco (project co-leader)
- Committers on other projects (M2M-ATL, EMFT-EMF Facet)



- Software company specialized in the MDE approach
- Eclipse Strategic Member
- 1 committer on MoDisco
- 14 committers on other projects

# Thank You!

## MoDisco Links

- <http://www.eclipse.org/MoDisco/>
- <http://wiki.eclipse.org/MoDisco/Components/ModelBrowser>

## Partners

- <http://www.mia-software.com>
- <http://www.emn.fr/x-info/atlanmod>
- <http://www.obeo.fr>

## Blogs

- <http://fmadiot.blogspot.com/>
- <http://modeling-languages.com/blogs/jordi>

