



MODEL DRIVEN DEVELOPMENT

With smart use cases, domain driven design and Tobago MDA

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- Global agile thought leader

Other

- Author books and articles
- Speaker at international conferences
- Microsoft Partner Advisory Council .NET
- Capping IT Off Blog
- Magazine columns
- Editorial boards & Advisory boards

Web

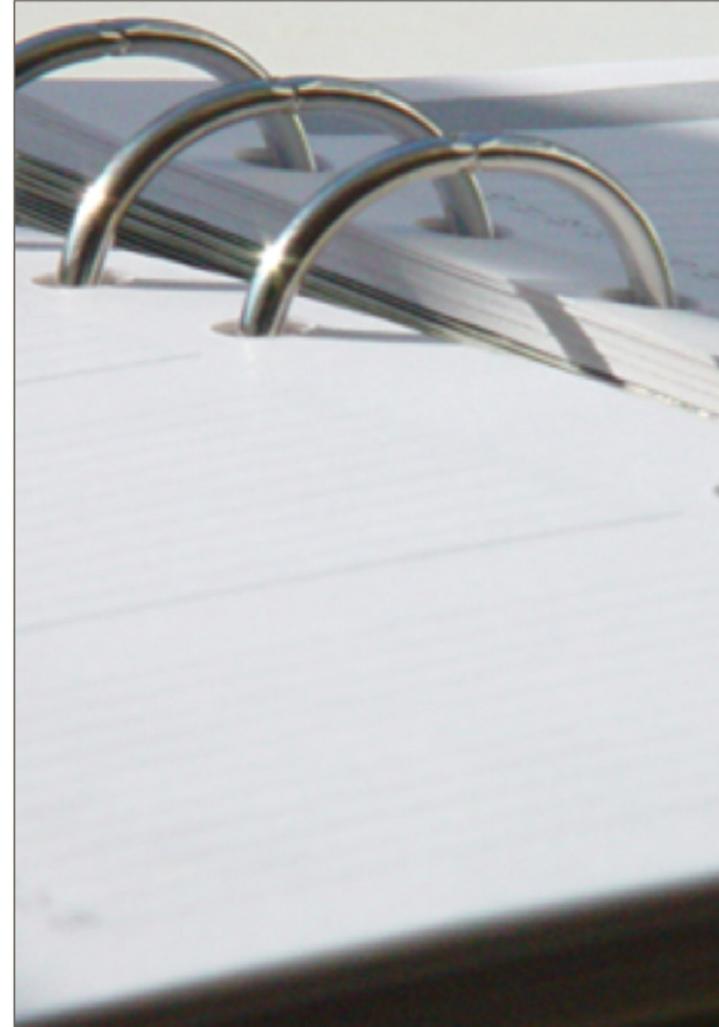
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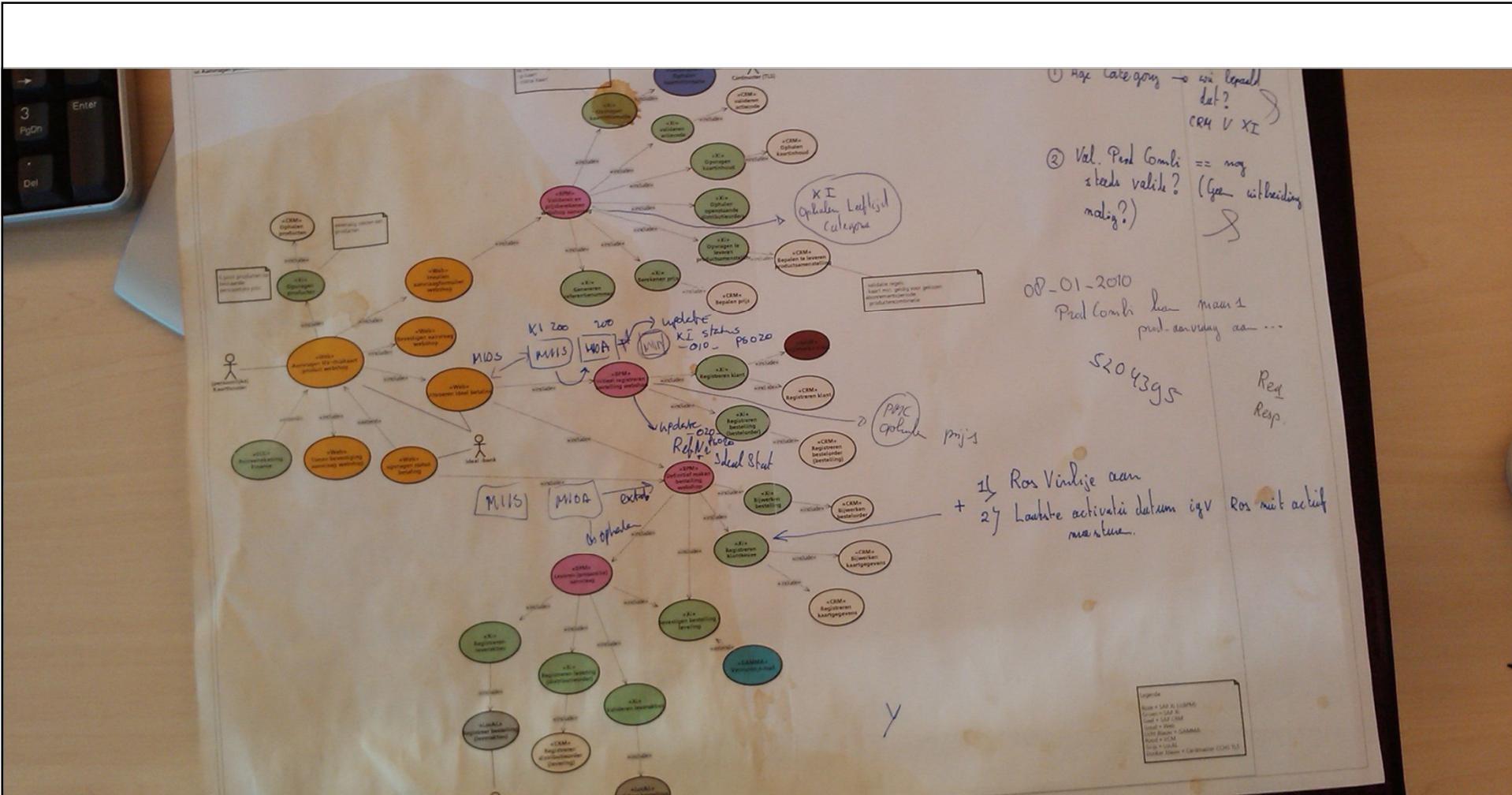


AGENDA

Today's topics

- Smart use cases
- Domain driven design
- Software architecture
- Model driven development with Tobago MDA
- Generating code with Tobago MDA
- Demo(s)!

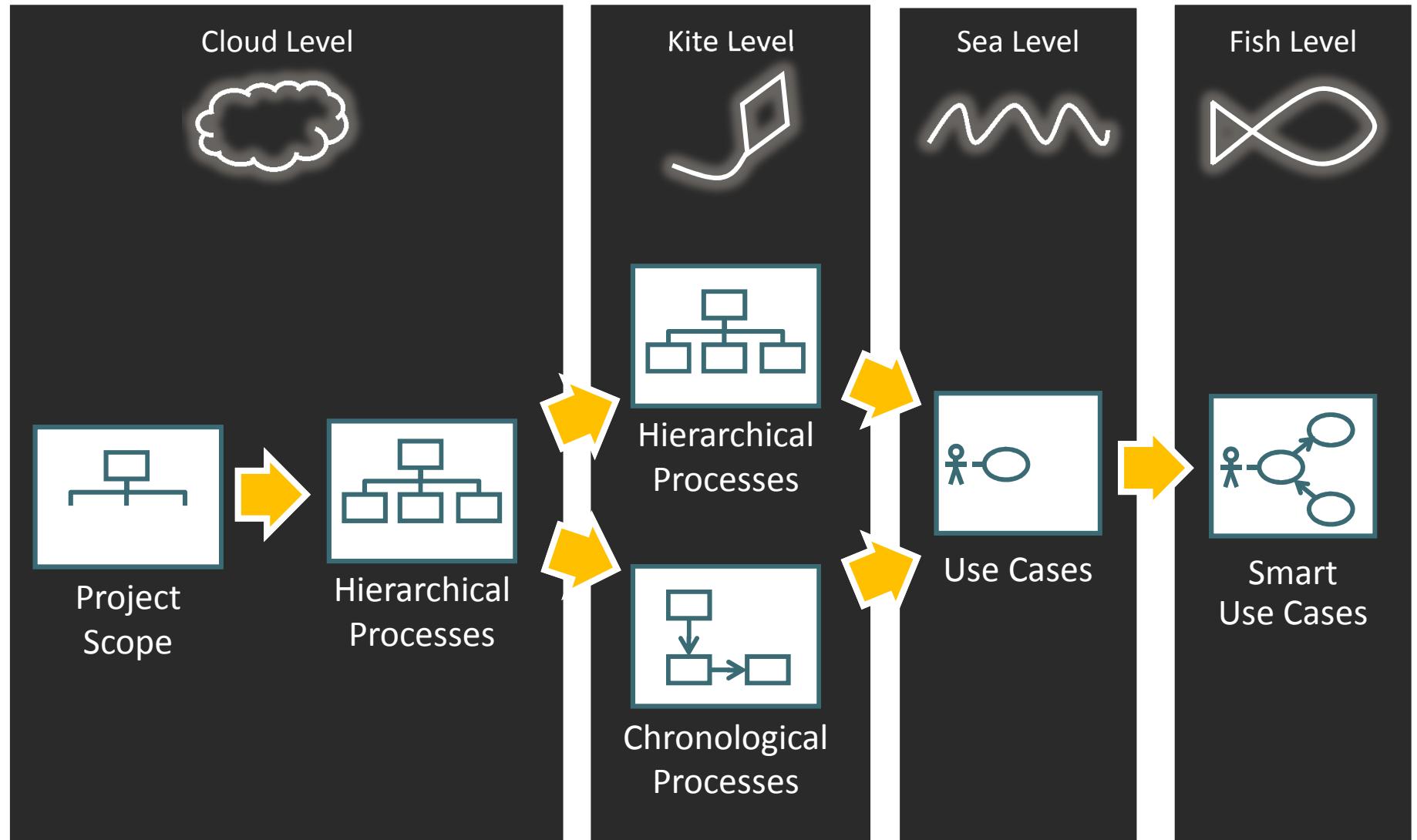




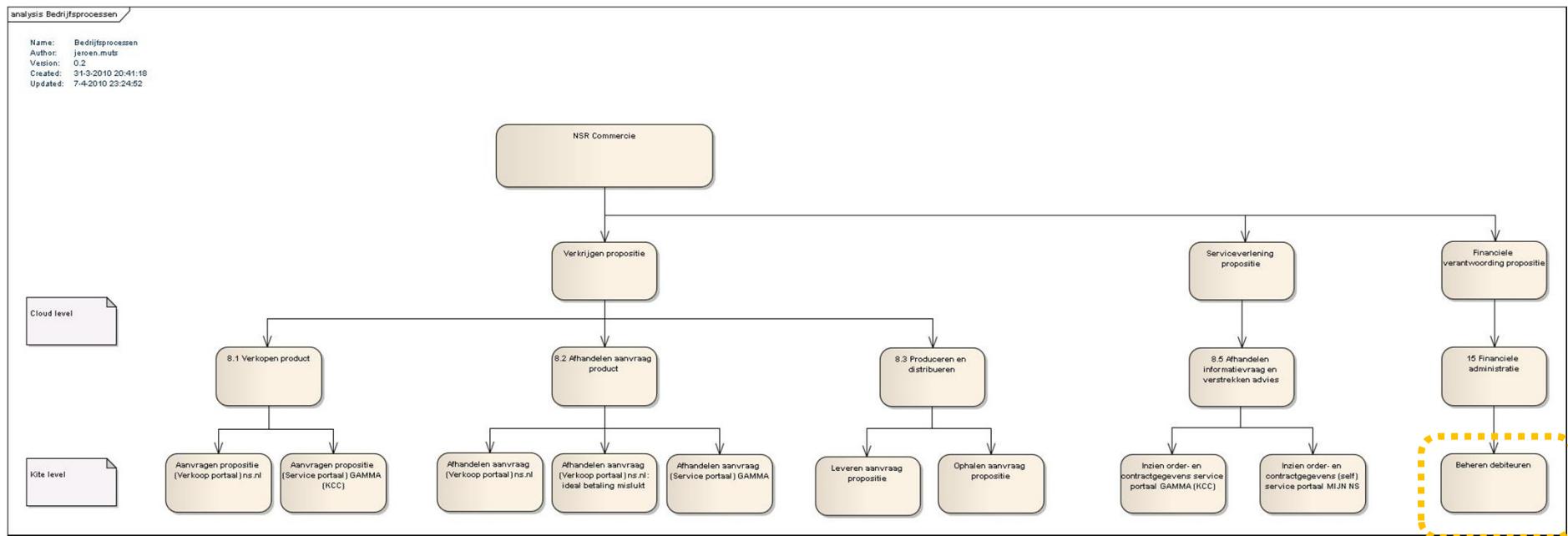
SMART USE CASES

A YAGNI approach to requirements

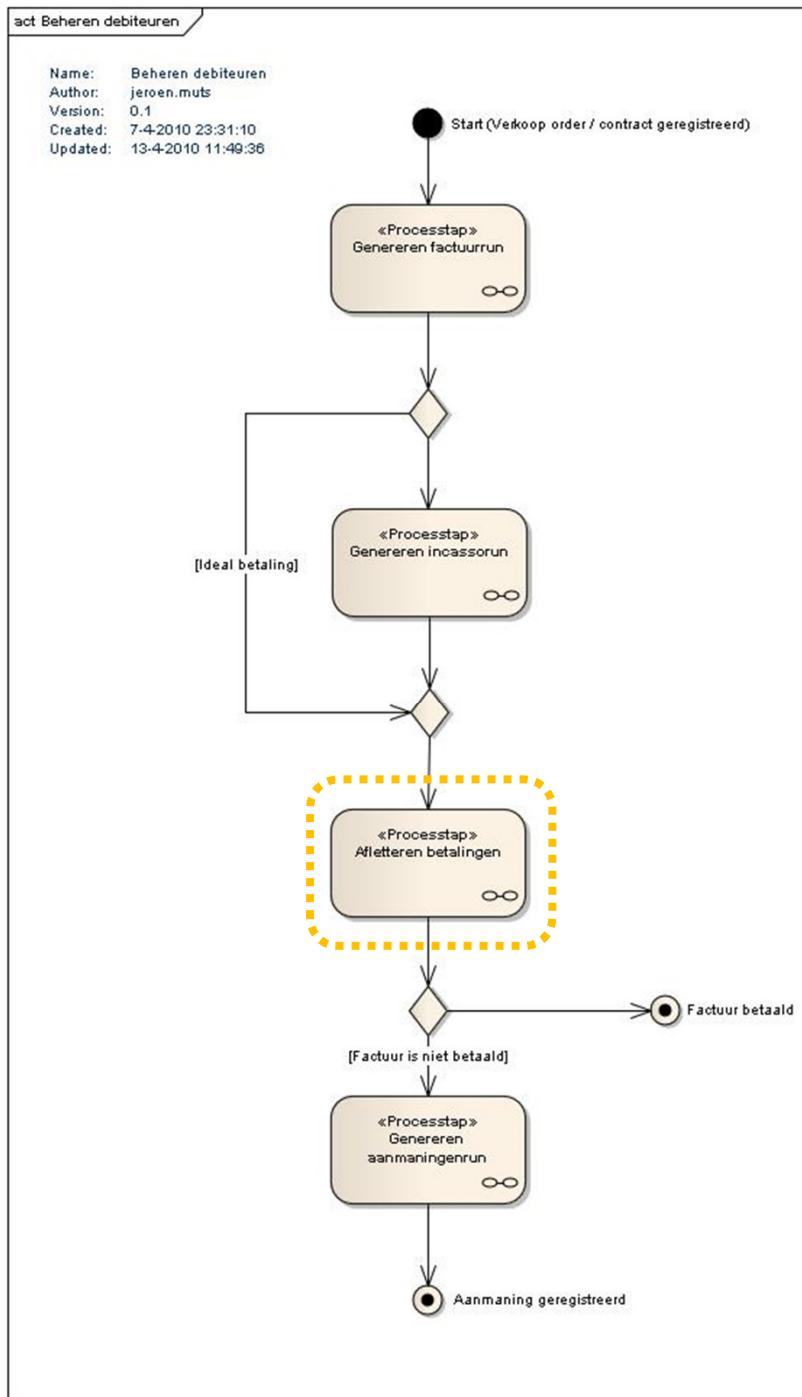
AGILE REQUIREMENTS - APPROACH



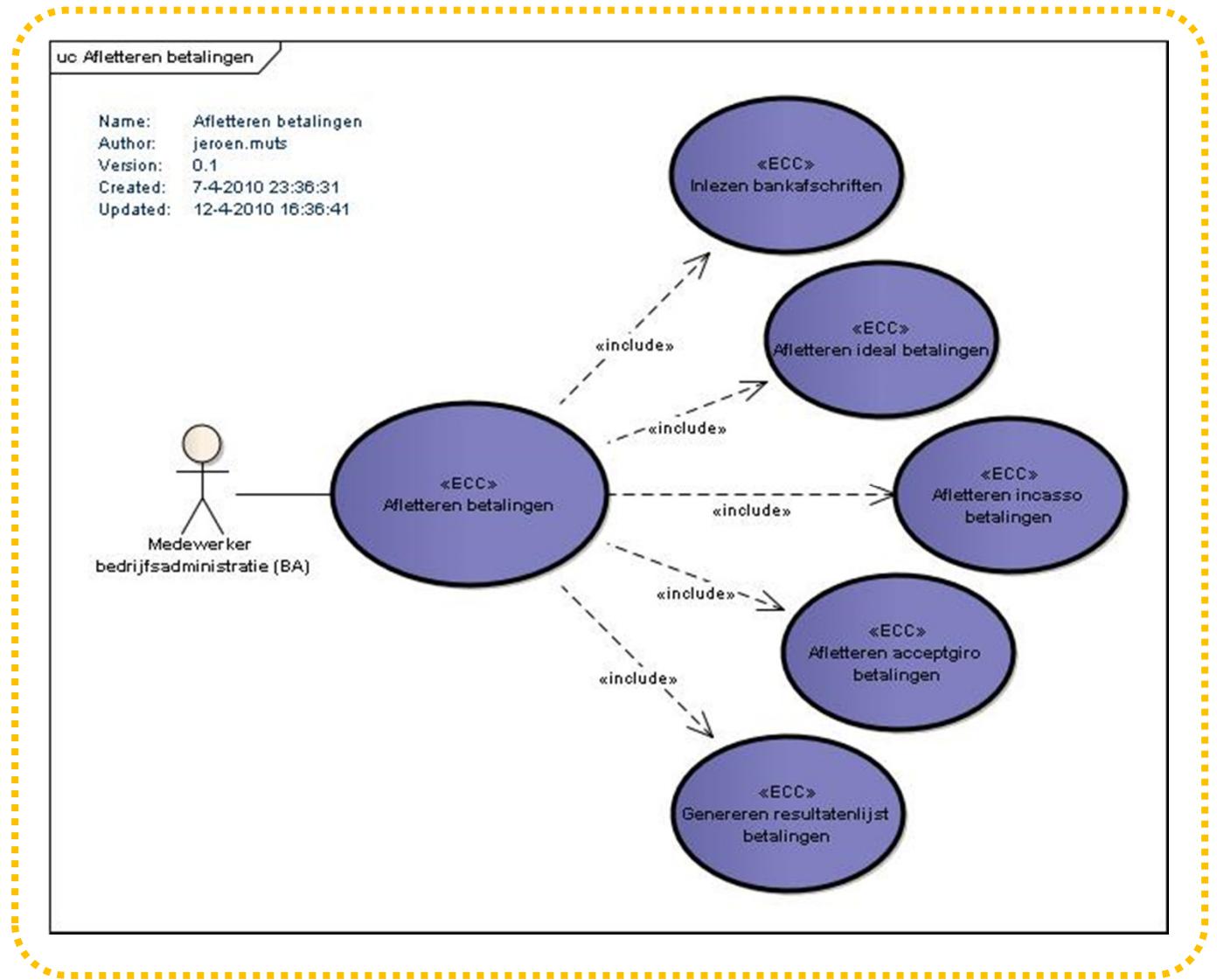
CLOUD LEVEL

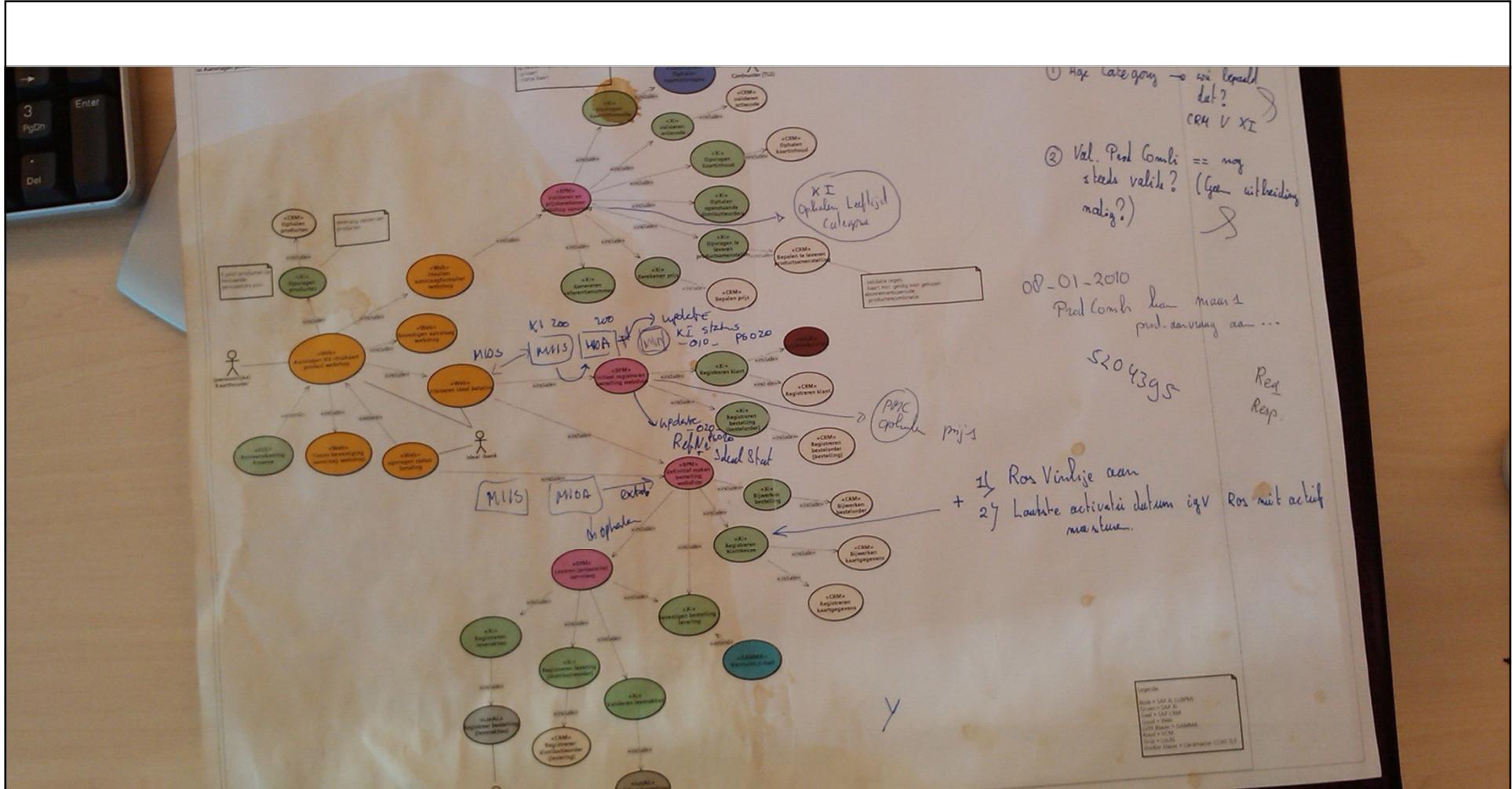


KITE LEVEL



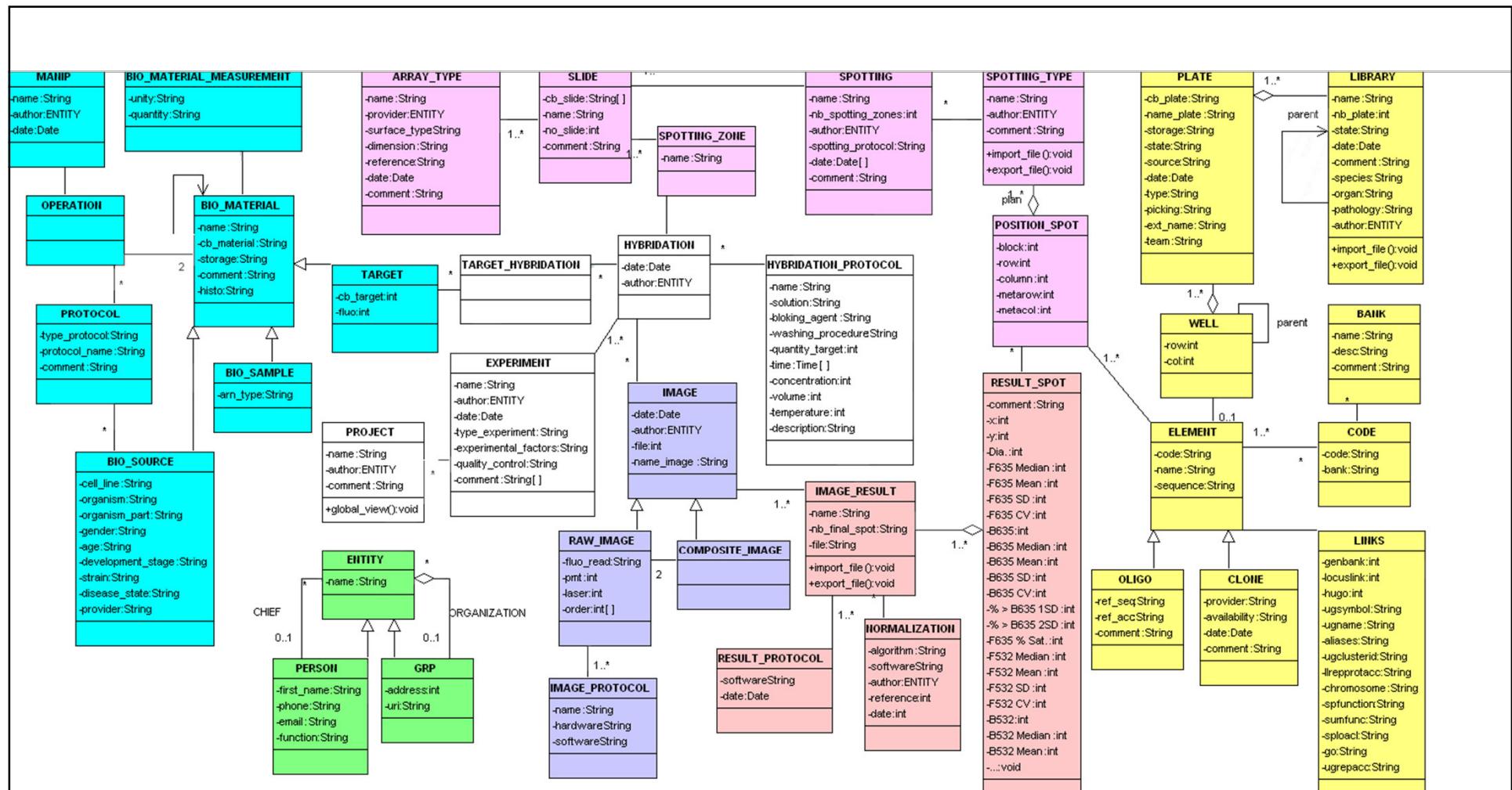
MODELING SMART USE CASES – SEA AND FISH LEVEL





SMART USE CASES

Stereotypes



DOMAIN DRIVEN DEVELOPMENT

A brief introduction

DOMAIN DRIVEN DEVELOPMENT - VOCABULARY

Entity

- Object in the domain model not defined by its attributes, but by a thread of continuity and identity

Value object

- Has no conceptual identity.
- Describe a characteristic of a thing

Repository

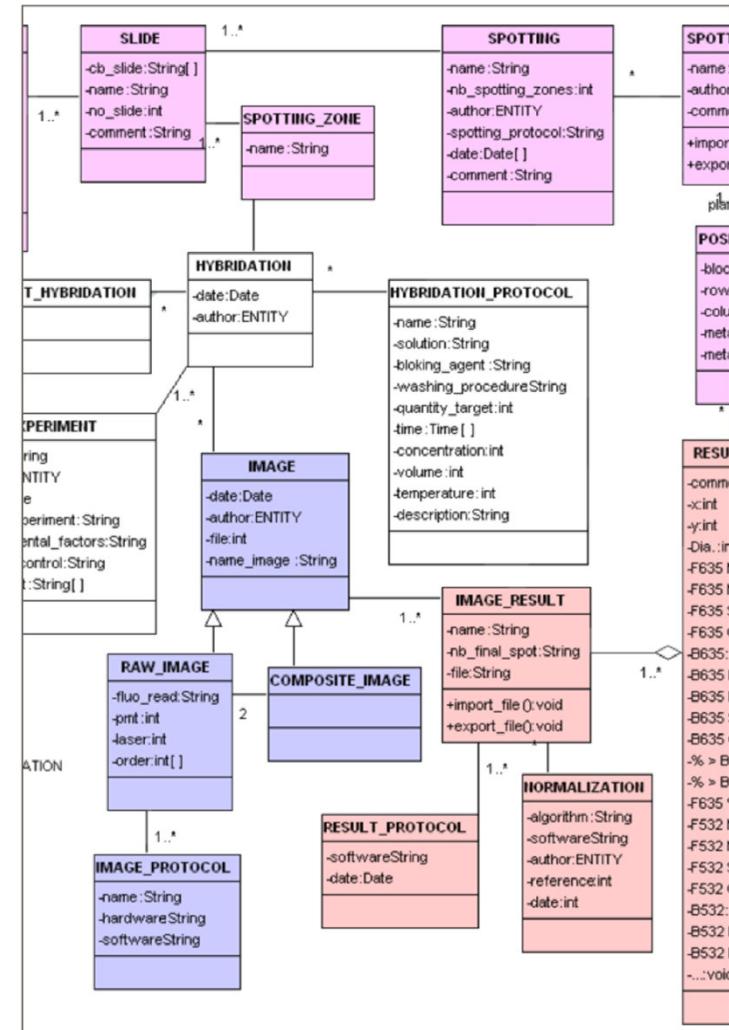
- Methods for retrieving domain objects should delegate to a specialized 'repository' object such that alternative implementations may be easily interchanged.

Factory

- Methods for creating domain objects should delegate to a specialized 'factory' object such that alternative implementations may be easily interchanged.

Service

- Implement if an operation does not conceptually belong to any entity
- Implement these operations in services



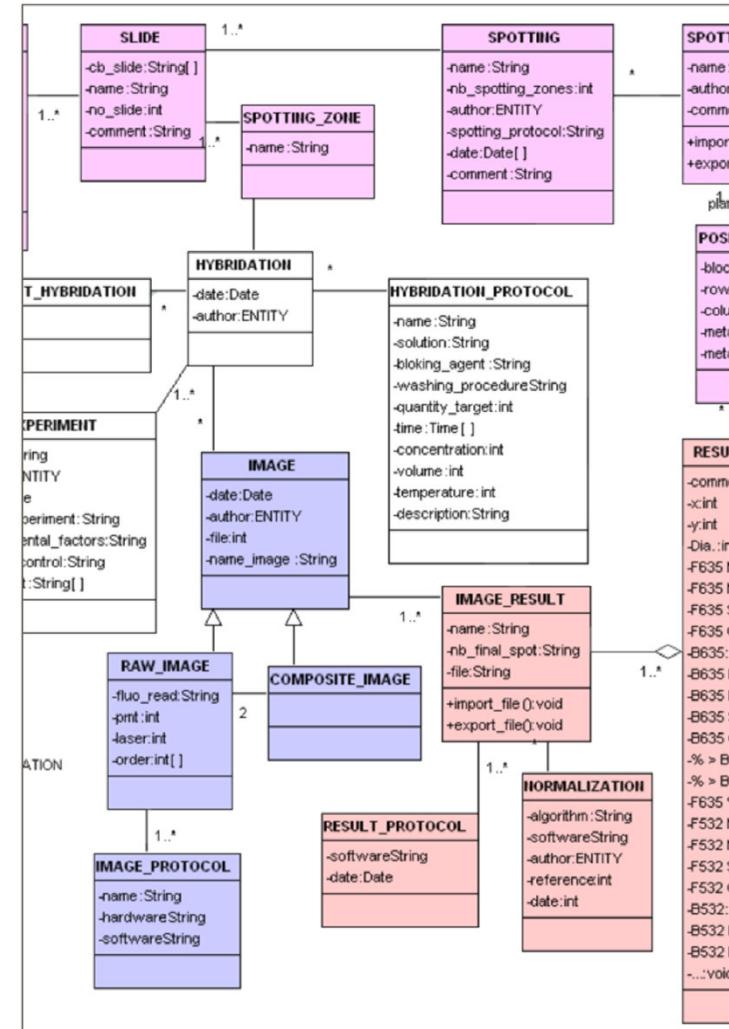
DOMAIN DRIVEN DEVELOPMENT – EXTENDED VOCABULARY

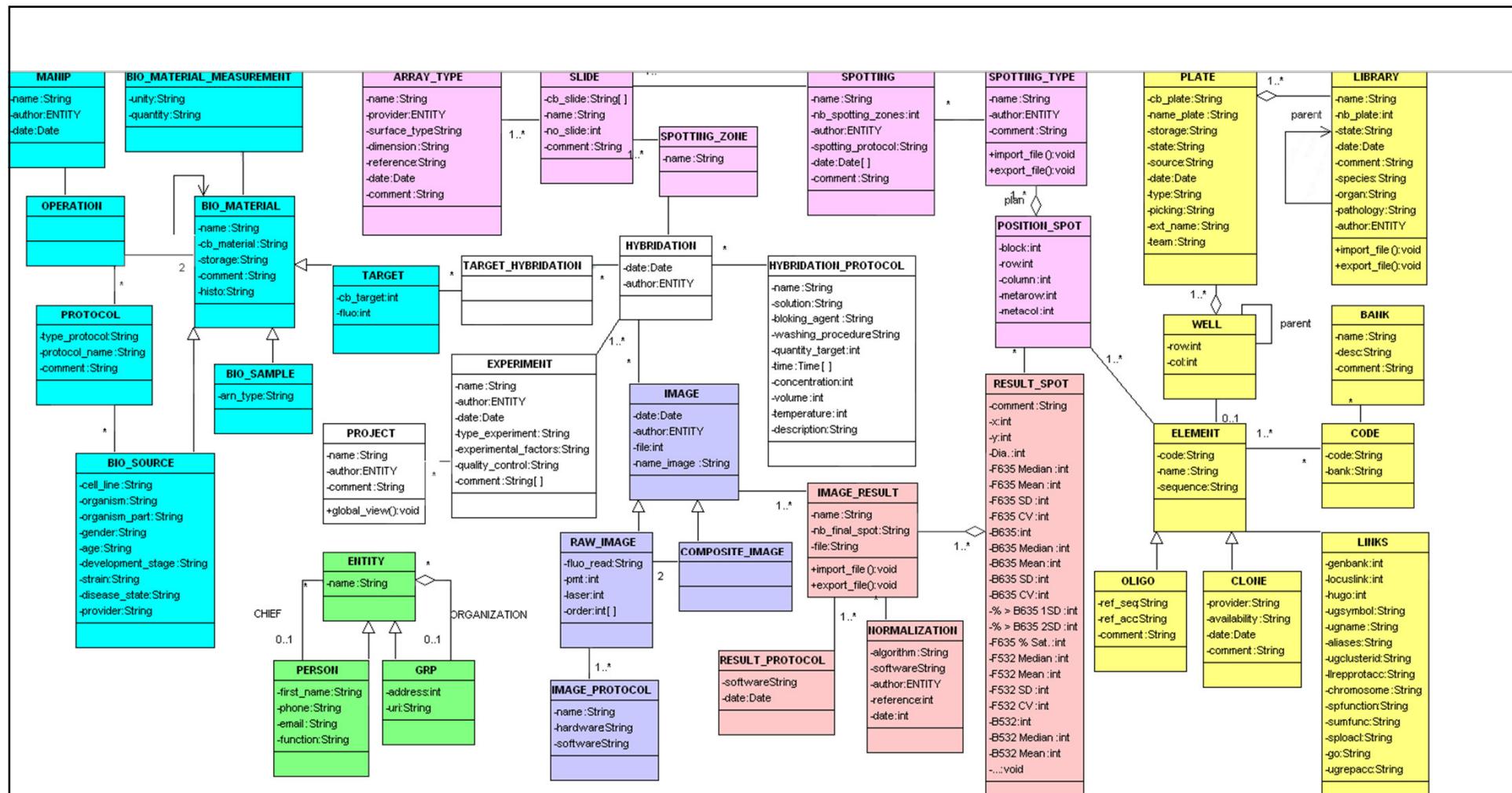
Enumeration *

- Restricted and limited set of possible values
- Apply only when set of values never changes

Smart reference *

- Generic reference entity
- Restricted but unlimited list of possible values
- Apply when only reference matters, not additional values, like in reports or drop downs





ENTITY ATTRIBUTES

ENTITY ATTRIBUTES – TYPES OF ATTRIBUTES

Basic types

- string, integer, DateTime
 - Including nullable wrapping

Enumerations

- ## ■ Genders, Categories

Value objects

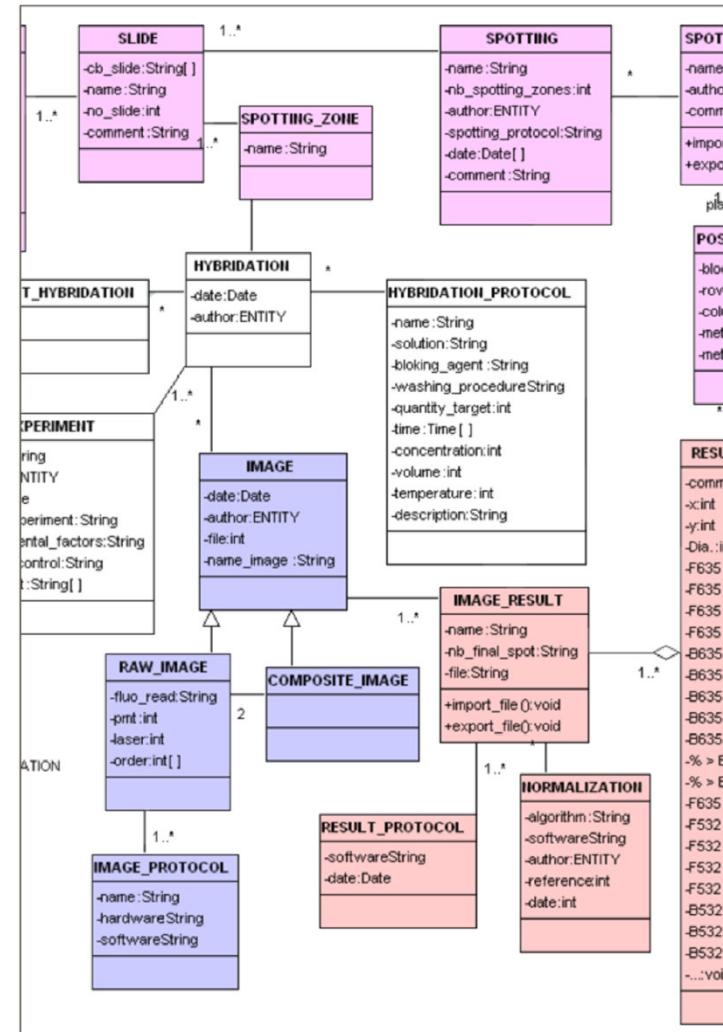
- No specific instances
 - Isbn, Postcode, Bsn

Simple references

- Smart references, such as Language, County

Associations

- Other entities such as Customer, Product
 - Within or outside aggregate



VALUE OBJECT – IN USE

Budapest | Administrative Panel

Manage Customer



Exceptions

City for customer 'De@Meern' contains invalid characters.

Site Administrator Menu

- [Home](#)
- [Manage Account Manager](#)
- [Manage Contact](#)
- [Manage Customer](#)

Customer

Name *	McDonalds
Address *	Riesenbergs 27
Postcode *	3453PE
Website	
City *	De@Meern
Country *	Belgium
Type *	Netherlands
AccountManager *	France
	Belgium
	Germany
	Great Brittain

Buttons: Select, Save, Remove, Back

[All contacts](#)

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15

SMART REFERENCE - TABLE

	ID	Name	Description	IsDefault	Type
▶	5-4ff0-a0de-3623a4fb6c88	Netherlands	NL	True	Country
	c89f25d5-3975-47a4-9d...	France	F	False	Country
	dc3c7346-3945-46b2-87...	Belgium	B	False	Country
	65ddbfb4-a4f7-436a-b1...	Germany	DE	False	Country
	7f73771a-1f5d-425c-86e...	Friesland	Leeuwarden	False	Provincie
	11e6159f-e937-427a-b8...	Zeeland	Middelburg	True	Provincie
	af99b565-1776-4179-bc...	Utrecht	Utrecht	False	Provincie
	0cd6b602-5050-4ed2-84...	Noord-Holland	Haarlem	False	Provincie
	c2fe69d2-8609-4af3-8b...	Zuid-Holland	Den Haag	False	Provincie
	920a9432-79e1-4d1c-97...	Miele	German brand	True	Brand
	7fd3ca2e-f5fc-4e3f-b21...	Bosch	Another German brand	False	Brand
	600e95a5-5fe8-4db6-84...	Bauknecht	Another fucking German...	False	Brand
	331d93f5-9eed-4ba8-ab...	Philips	Finally something not Ger...	False	Brand
	dae2489a-d797-4a38-a0...	Sony	There's the Japanese	False	Brand
*	NULL	NULL	NULL	NULL	NULL

SMART REFERENCE – IN USE

Budapest | Administrative Panel

Manage Customer



Exceptions

City for customer 'De@Meern' contains invalid characters.

Site Administrator Menu

[Home](#)
[Manage Account Manager](#)
[Manage Contact](#)
[Manage Customer](#)

Customer

Name * McDonalds

Address * Riesenbergs 27

Postcode * 3453PE

Website

City * De@Meern

Country * Belgium

Type * Belgium

AccountManager * Belgium

Germany
Great Brittan

Select Save Remove Back

All contacts

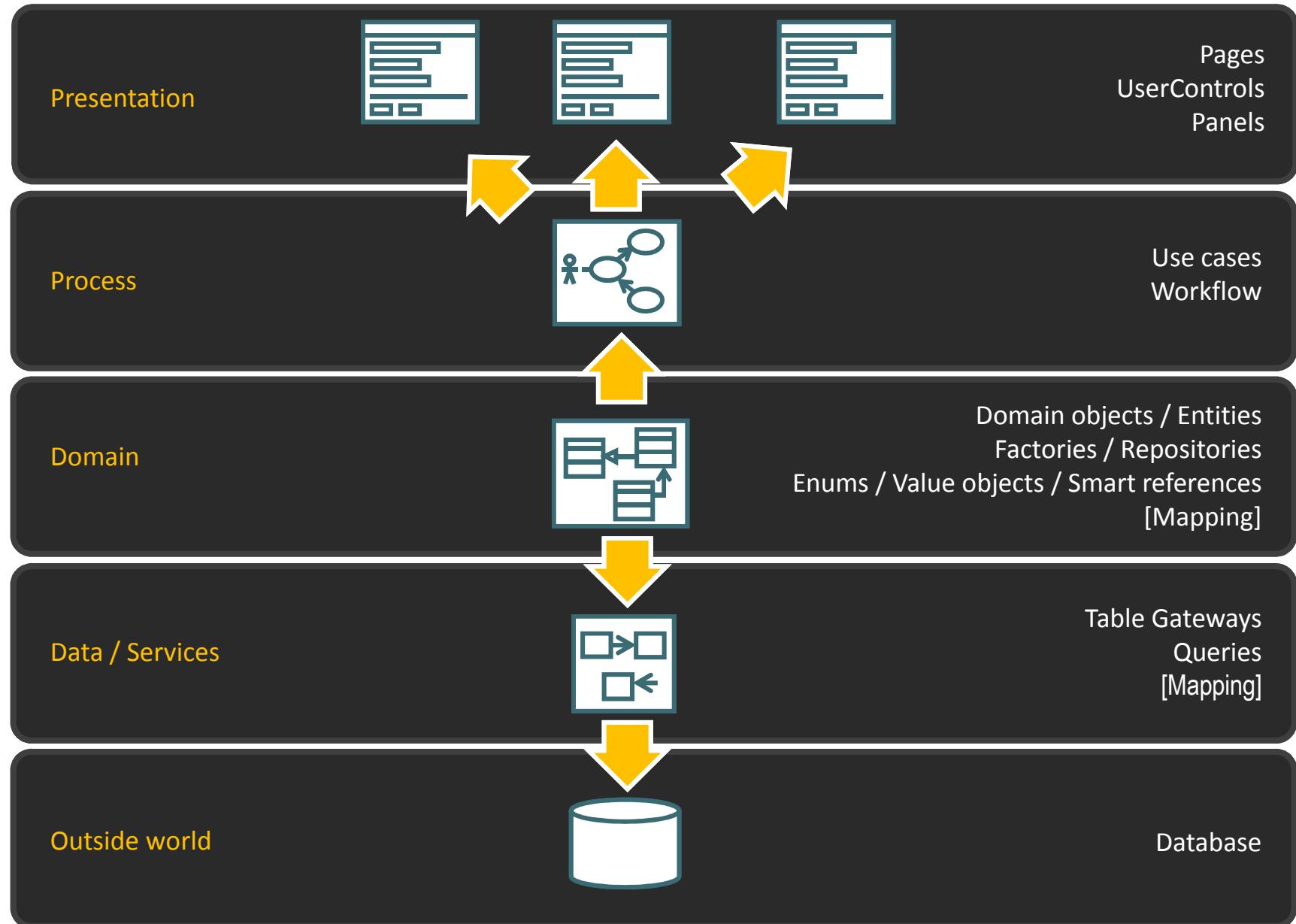
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17



SOFTWARE ARCHITECTURE

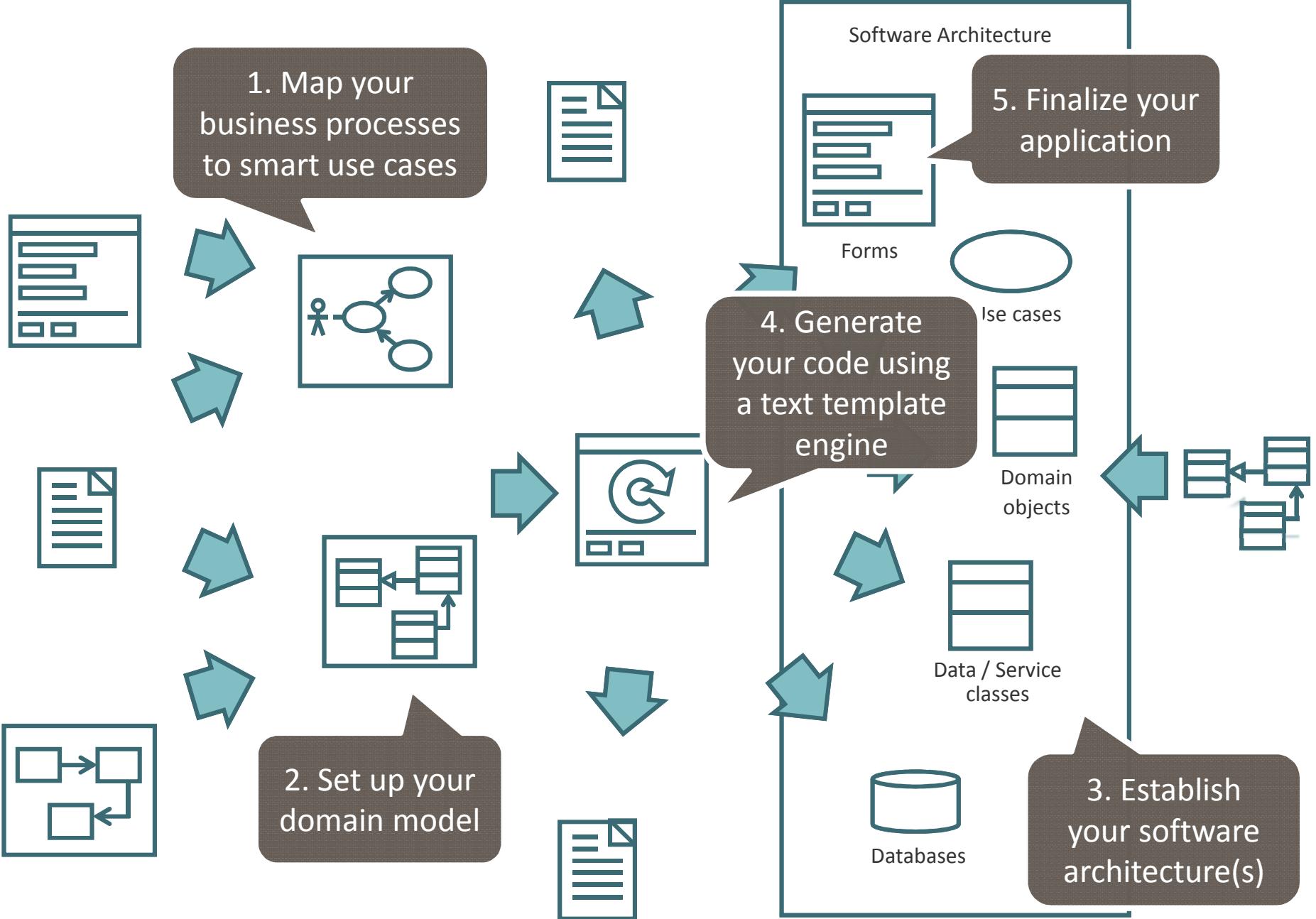
A true requirements for model driven development





MODEL DRIVEN DEVELOPMENT

With Tobago MDA



MODEL DRIVEN DEVELOPMENT – TEMPLATE ENGINES

Characteristics

- Load UML model (expressed in XMI)
- Load templates (from flat files)
- Combine elements from UML model with templates to generate deliverables

Templates

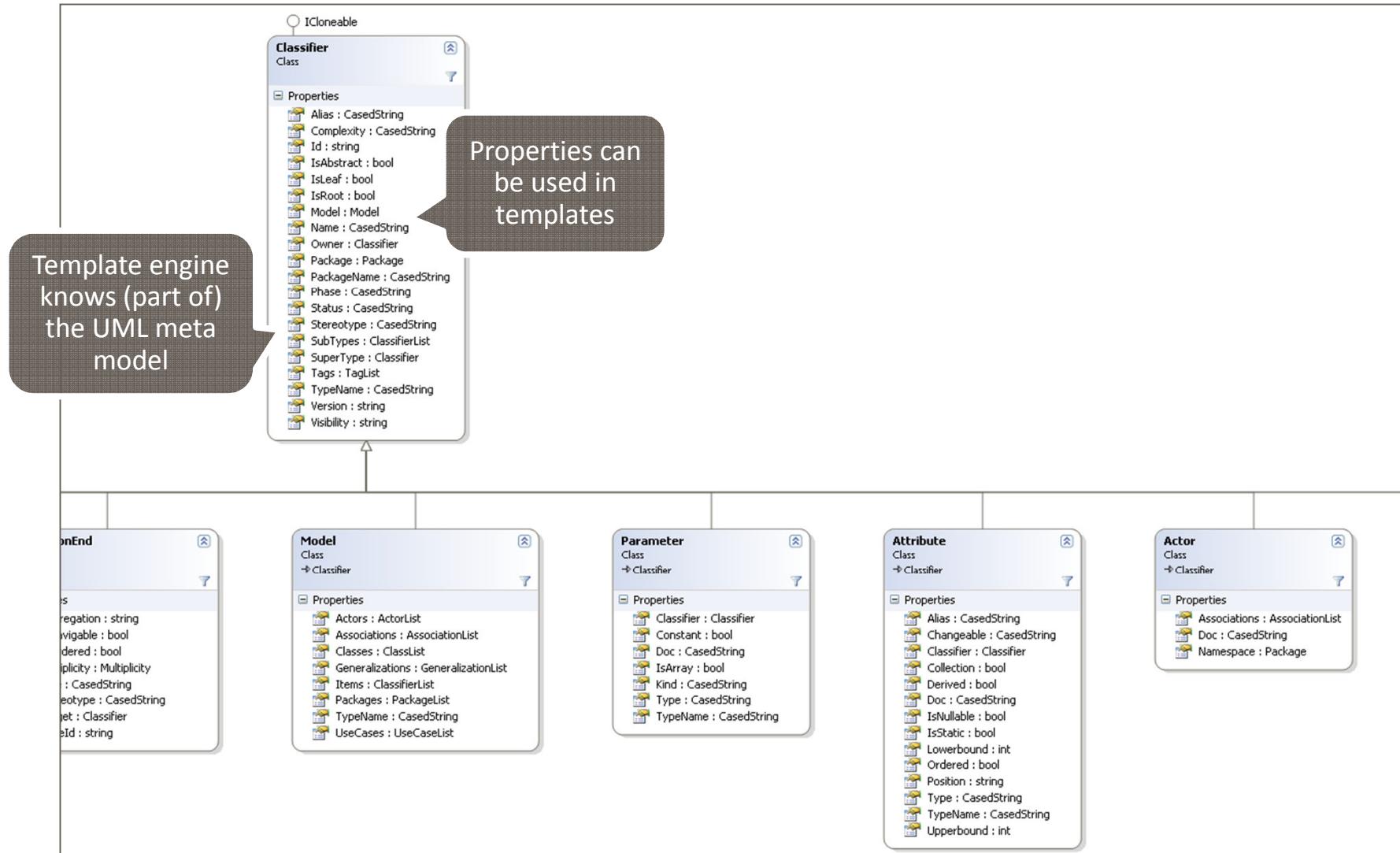
- Templates contains code that runs in template engine
- Templates might use a folder model

Generation process

- Ability to generate all or individual UML model elements
- Which UML model elements are supported?
- Generated deliverables can be code but also any other document type



MODEL DRIVEN DEVELOPMENT - TEMPLATE ENGINES



MODEL DRIVEN DEVELOPMENT - TEMPLATES

```
Domain Object.tpl silverlight.config Web.Config StateManager.cs
13 using System.Runtime.Serialization;
14 using Adf.Business;
15 using Adf.Business.SmartReferences;
16 using Adf.Business.Validation;
17 using Adf. 1 | #region CodeGuard(Property $Attribute.Name$)
18
19 namespace 2 |
20 { 3 | [DataMember(Name = "$Attribute.Name$")]
21   /// <summary> 4 | protected $Attribute.Type$ $Attribute.Name.Lower$ = $Attribute.Type$.Empty;
22   /// Dom 5 |
23   /// </summary> 6 | <Tobago.If($Attribute.IsNotNullable$,"", "[NonEmpty]")>
24   [DataContract] 7 | public $Attribute.Type$ $Attribute.Name$ 8 |
25   public p 9 | {
26   { 10 |     get { return $Attribute.Name.Lower$; }
27   } 11 |     set { $Attribute.Name.Lower$ = value; }
28   <Tobago.L 12 |
29   <Tobago.L 13 | #endregion CodeGuard(Property $Attribute.Name$)
30   <Tobago.L 14 |
31   #region 15 |
32   #endregion CodeGuard(Custom)
```

GENERATE MANY THINGS E.G. TABLE CREATE SCRIPTS

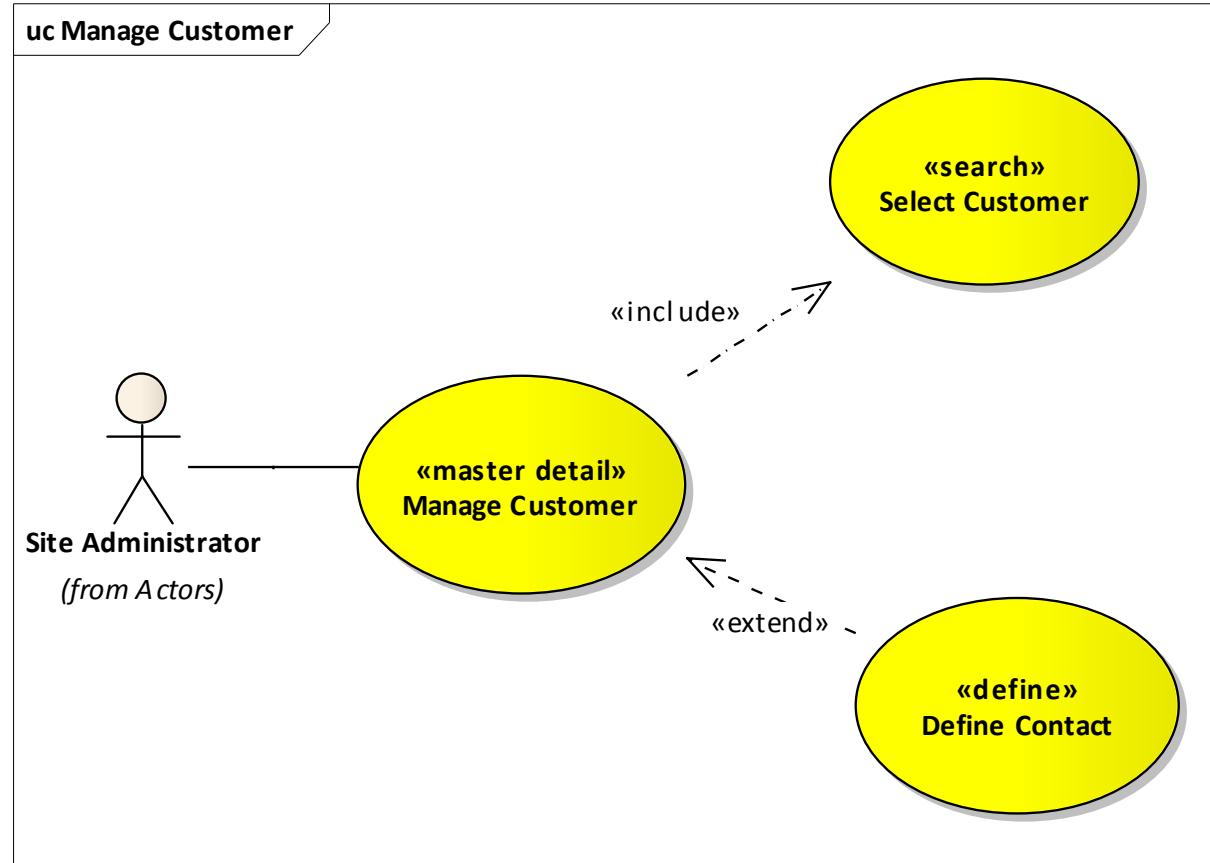
```
7  -- Generation date : 22-5-2008 1:32:35
8  --
9  -- Changes to this file may cause incorrect behavior and may be lost if
10 -- the code is regenerated.
11 --</auto-generated>
12 -----
13 IF EXISTS (SELECT * FROM dbo.sysobjects WHERE id = object_id(N'[Customer]) AND OBJECTPROPERTY(id, N'IsUserTable') = 1)
14 DROP TABLE [Customer]
15 GO
16
17 CREATE TABLE [Customer] (
18     [Id] [uniqueidentifier] NOT NULL,
19     [Name] varchar(255) NOT NULL,
20     [Address] varchar(255) NOT NULL,
21     [Postcode] varchar(255) NOT NULL,
22     [City] varchar(255) NOT NULL,
23     [Country] uniqueidentifier NOT NULL,
24     [Website] varchar(255) NULL,
25 )
26 GO
27
28 ALTER TABLE [Customer] ADD
29 CONSTRAINT [DF_Customer_Id] DEFAULT (newid()) FOR [Id],
30 CONSTRAINT [PK_Customer] PRIMARY KEY NONCLUSTERED
31 (
32     [ID]
33 )
34 GO
```



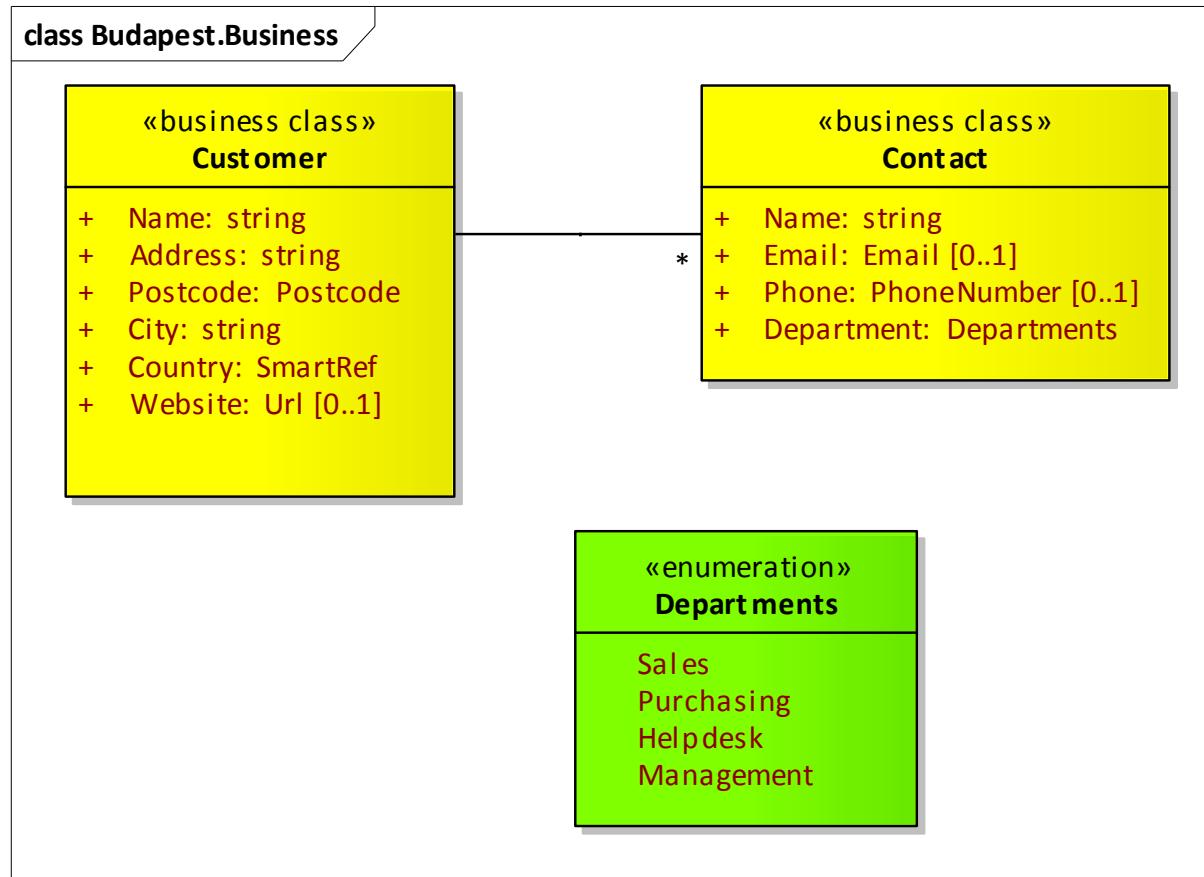
GENERATING CODE

A quick example

A SIMPLE SMART USE CASE MODEL



A SIMPLE DOMAIN MODEL



USING TOBAGO MDA

The screenshot shows the Tobago MDA Generator 1.6.0.0 application window. The left pane displays a hierarchical project tree under the 'Project' tab, listing various actors, models, and use cases. The 'Customer' class under 'businessclass' is currently selected. The right pane shows a table titled 'Budapest' containing a list of patterns, their stereotypes, and their corresponding folder paths. The table includes rows for Business Describer, Client Domain Object, Domain Object, Domain Object Custom, Domain Object Factory, Domain Object Factory C..., Domain Object Mapping, Domain Object Unit Test, Domain Service, Hibernate Mapping, Java Domain Object, Panel, Search Object, Search Panel, Search XAML Panel, Service Factory, Smart Panel, Smart XAML Panel, Table Create, Table Gateway, Table Gateway Custom, View Panel, and Windows Panel.

Name	Pattern	Stereotypes	Folder
Business Describer	Data	businessclass	D:\VADF\Accelerated
Client Domain Object	Business	businessclass	D:\VADF\Accelerated
Domain Object	Business	businessclass	D:\VADF\Accelerated
Domain Object Custom	Business	businessclass	D:\VADF\Accelerated
Domain Object Factory	Business	businessclass	D:\VADF\Accelerated
Domain Object Factory C...	Business	businessclass	D:\VADF\Accelerated
Domain Object Mapping	Business	businessclass	D:\VADF\Accelerated
Domain Object Unit Test	Test	businessclass	D:\VADF\Accelerated
Domain Service	Business	businessclass	D:\VADF\Accelerated
Hibernate Mapping	Data - NHibernate	businessclass	D:\VADF\Accelerated
Java Domain Object	Business	businessclass	D:\VADF\Accelerated
Panel	Presentation - Web	businessclass	D:\VADF\Accelerated
Search Object	Business	businessclass	D:\VADF\Accelerated
Search Panel	Presentation - Web	businessclass	D:\VADF\Accelerated
Search XAML Panel	Presentation - Silverli...	businessclass	D:\VADF\Accelerated
Service Factory	Business	businessclass	D:\VADF\Accelerated
Smart Panel	Presentation - Web	businessclass	D:\VADF\Accelerated
Smart XAML Panel	Presentation - Silverli...	businessclass	D:\VADF\Accelerated
Table Create	Database	businessclass	D:\VADF\Accelerated
Table Gateway	Data	businessclass	D:\VADF\Accelerated
Table Gateway Custom	Data	businessclass	D:\VADF\Accelerated
View Panel	Presentation - Web	businessclass	D:\VADF\Accelerated
Windows Panel	Presentation - Windo...	businessclass	D:\VADF\Accelerated

GENERATED CODE IN ASP.NET

Budapest | Administrative Panel

Select Customer



Site Administrator Menu

- [Home](#)
- [Manage Contact](#)
- [Manage Customer](#)

Enter search arguments to search for customers

Name

Address

Postcode

City

Country

Website

Search

customers

Customer	Name	Address	Postcode	City	Country	Website
+ Capgeminis (Utrecht)	Capgeminis	Papendorpseweg 100	3550CL	Utrecht	Netherlands	
+ Microsoft Nederland (Schiphol)	Microsoft Nederland	Ergens 1	1111EE	Schiphol	Netherlands	

New **Back**

GENERATED CODE IN SILVERLIGHT

Project Budapest

Manage Customer

Name * Capgeminis

Address * Papendorpseweg 100

Postcode * 3550CL

Website

City * Utrecht

Country * Netherlands

Select Save Remove Cancel

	Jansen
	Sales
	Hoogendoorn
	Helpdesk
	Erwin
	Sales

New Contact



Quick Search

 [Advanced Search »](#)

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Contents

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Modified on Thursday, 08 July 2010 11:00 by shoogend Categorized as [Uncategorized](#)

» Accelerated Delivery Platform » Downloads

This page contains a collection of all downloadable goodies in the Accelerated Delivery Platform.

White papers

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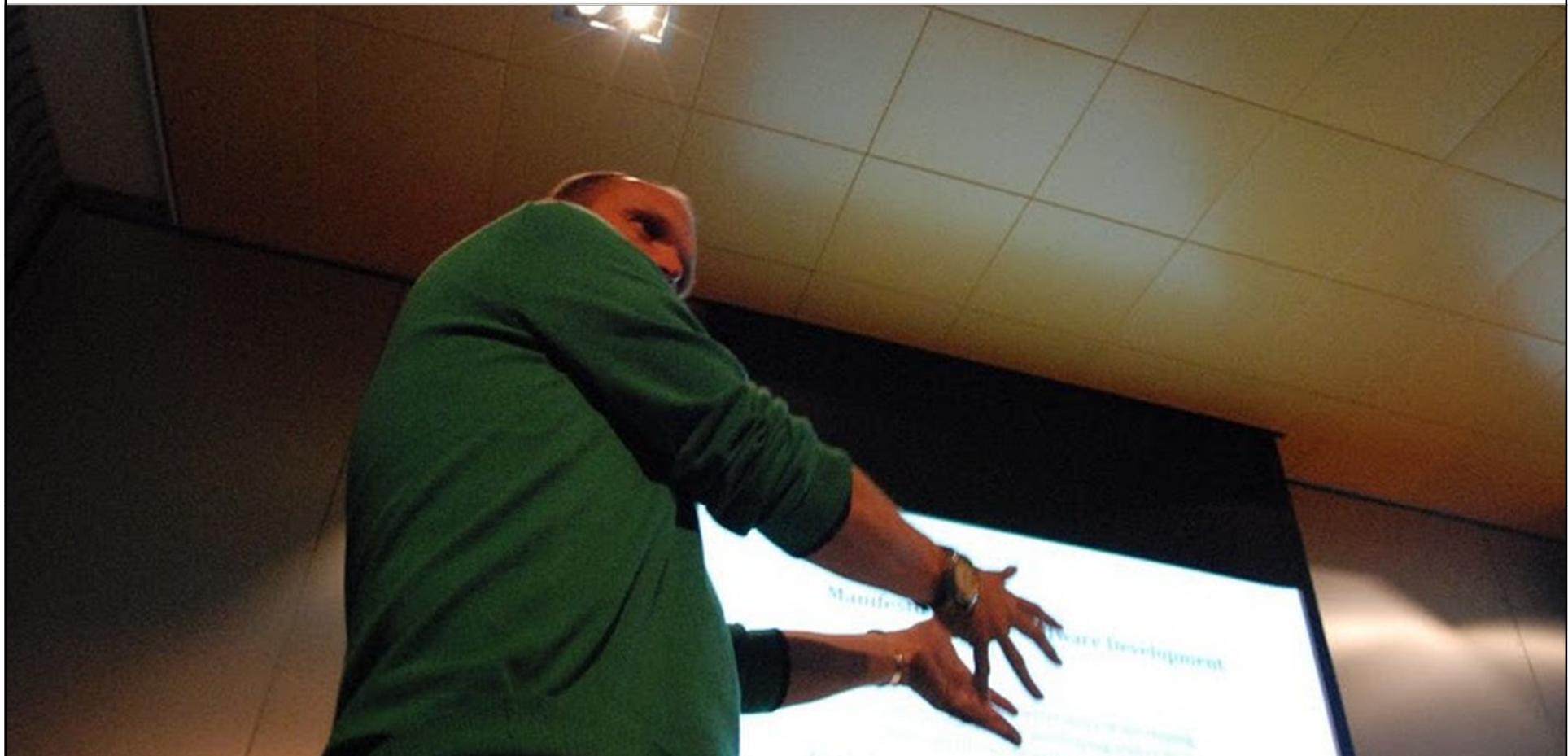
We have published a number of white papers associated with the Accelerated Delivery Platform. A good read to start with.

[Download them here.](#)

- [Accelerated Delivery Platform](#). Starting brochure for the Accelerated Delivery Platform (ADP). [Download brochure](#)
- [Shaping service orientation using smart use cases](#). White paper that displays the use of smart use cases and smart estimation to steer your enterprise agile service or cloud orientation projects. [Download white paper](#)
- [White paper Pragmatic model driven development](#). Great white paper that describes the pragmatic proven approach we are taking with model driven development, using smart use cases, domain driven design and the Tobago tool set. [Download white paper](#)

WWW.SMARTUSECASE.COM

www.accelerateddeliveryplatform.com



REFERENCES AND QUESTIONS

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