Web Clients

"Simplicity is the ultimate sophistication."

Leonardo Da Vinci

Distance Learning

Try the chat (++, --, ??, !!)

Try questions-answers, polling

Try asking a question verbally

Before all else

Kleines CSS Goodie

Punktevergabe

Was wollen wir beibehalten?

Was wollen wir anders probieren?

Drehbuch (initial)

1	Drehbuch, Intro, Classic MVC	UI Architecture
2	Validation, Conversion, Attribute	
3	Attribute Projector	
4	Master-Detail	
5	Projector Pattern	
6	CSS++	Custom UI Elements
7	SVG and Canvas	
8	Animation	
9	Custom Elements, PEP Aufbau	
10	Big_UI_FW(TM) Integration	
11	Connecting to REST	Remoting
12	Service Abstraction	
13	Reactive, Stable Binding	
14	Applied Concepts	
15	Team App: Putting it all together	

From Zero to Hero 1

Web Programming:
Observable, ObservableList, Scheduler
Testing
Classic MVC

From Zero to Hero 2

Attribute
Converter, Validator
Reichhaltige Attribute
Spezialisierte Projektoren

Master-Detail

Klassisch: Liste plus Formular

Unoffensichtliche Master-Detail Views

Wie mit der Selektion umgehen?
(wir machen es erstmal falsch...)

Checkliste

Alle Tests grün
Alle nötigen Tests vorhanden
Demo läuft
Architekturkonzepte eingehalten
Performance, Speicherleaks?
Concurrency, Hysterese?

From Zero to Hero 3

- Allgemeines Projector Pattern

Projector Pattern

efficient creation of ambitious user interfaces

Dierk König

Context

User interfaces with potentially many screens that can be classified into typical schemes

Widget creation and binding through UI toolkit

Presentation model abstraction

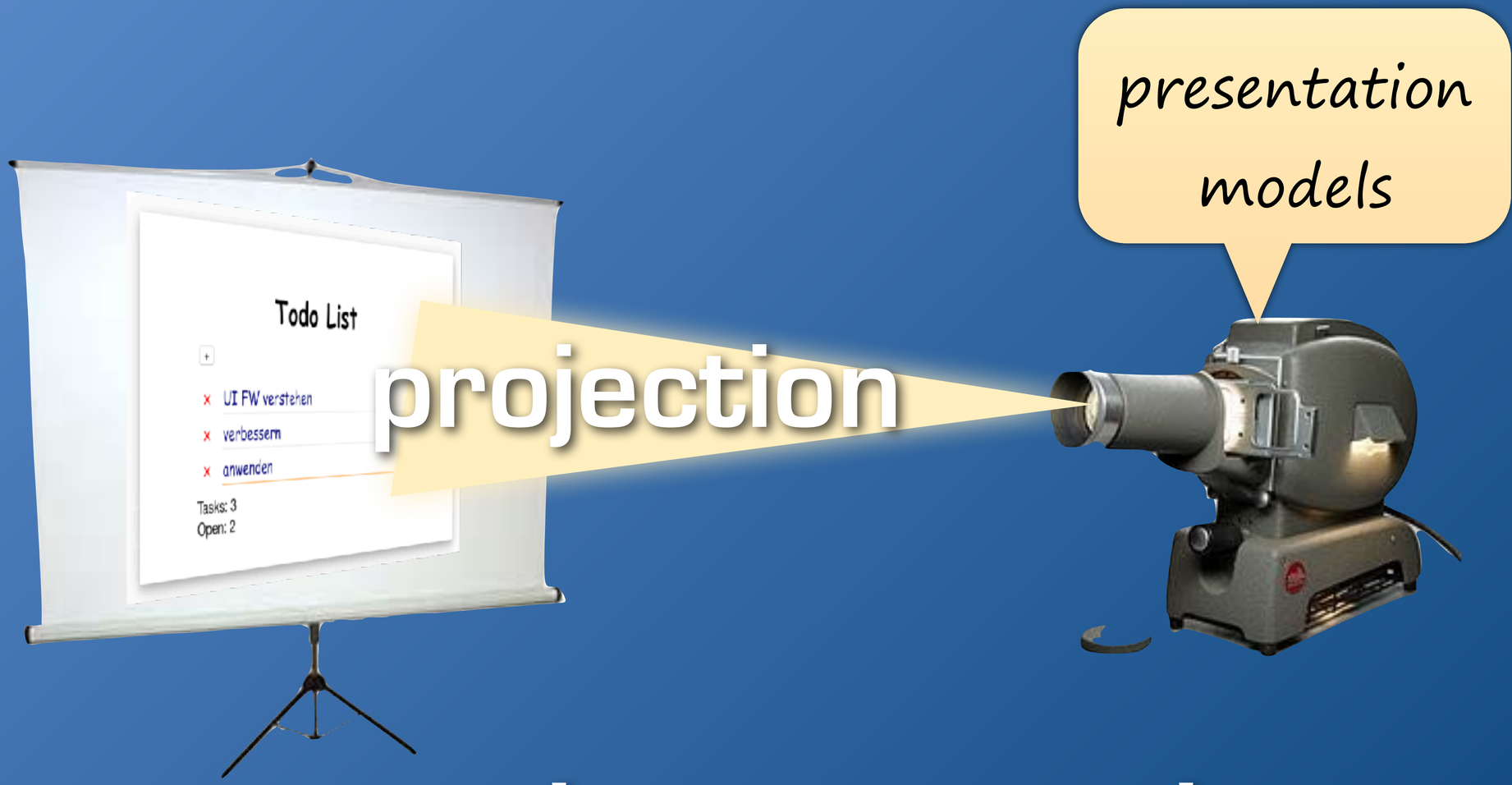
Problem

- Implementing dedicated views for many screens including model binding leads to much code that needs to be created, tested, and maintained.
- Moreover, this code is UI-toolkit specific and needs to be replaced with any change of the toolkit. The sheer amount of code can make this prohibitively expensive.

Forces

Static code generation and templating approaches often don't yield enough flexibility in the view construction:

- the model binding & interaction paradigm
- dynamic modifications and extensions
- compositional aggregates
- Even more importantly, statically created structures are generally difficult to re-apply when the structure needs modification



presentation

projector

Solution

Rich Presentation Models / Attributes

- Abstract Factory (GOF): **IProjector**
  - **Projection Methods** create **IPresentation**s
  - IPresentations are composable
  - IPresentations reveal inner widget

Richness

- Attributes: Value, BaseValue, -> dirty
- Bindable Tags: Label, Visible, Optional, Enabled, Editable, Regex, Valid, ValidationError, HelpUrl, Tooltip, WidgetHint, <custom>

Solution

- Rich Presentation Models (@OpenDolphin)
- Abstract Factory (GOF): **IProjector**
  - **Projection Methods** create **IPresentation**s
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Projector use

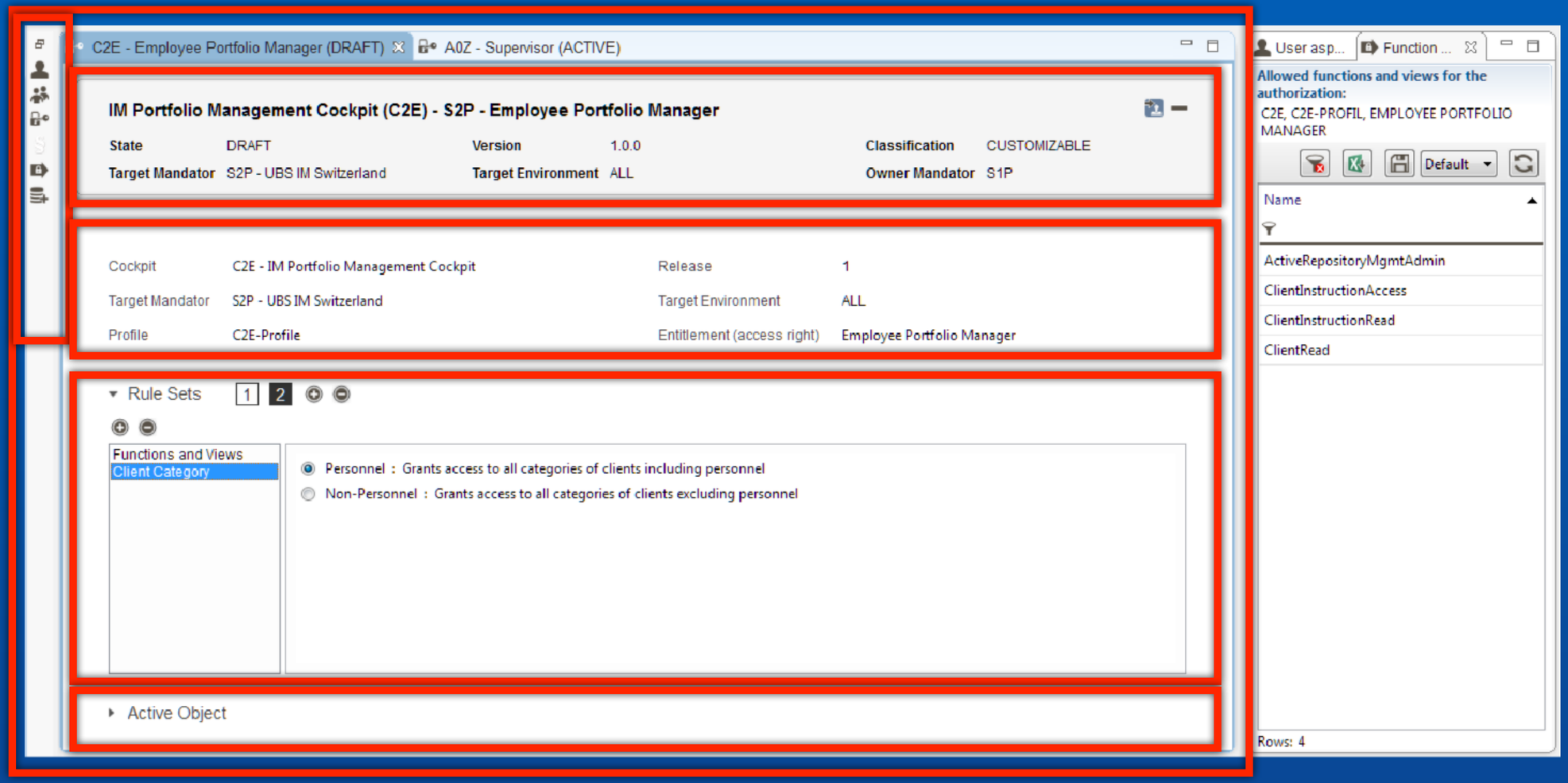
```
IProjector projector = new XXXProjector(controller, ...)
```

projection

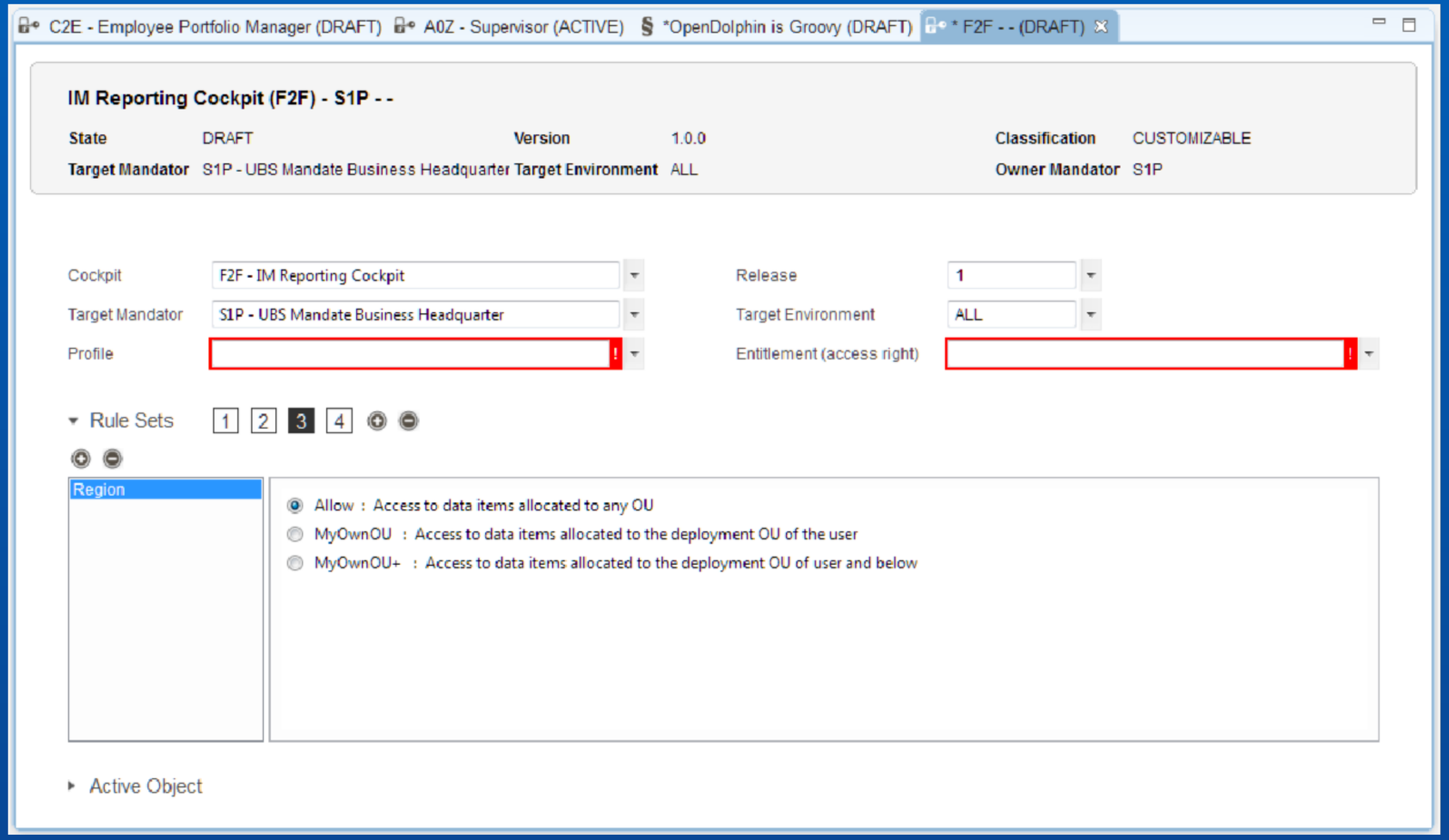
```
IPresentation form  = projector.createSimpleForm(model)
IPresentation frame = projector.createFrame(form, 400, 200)
```

composition

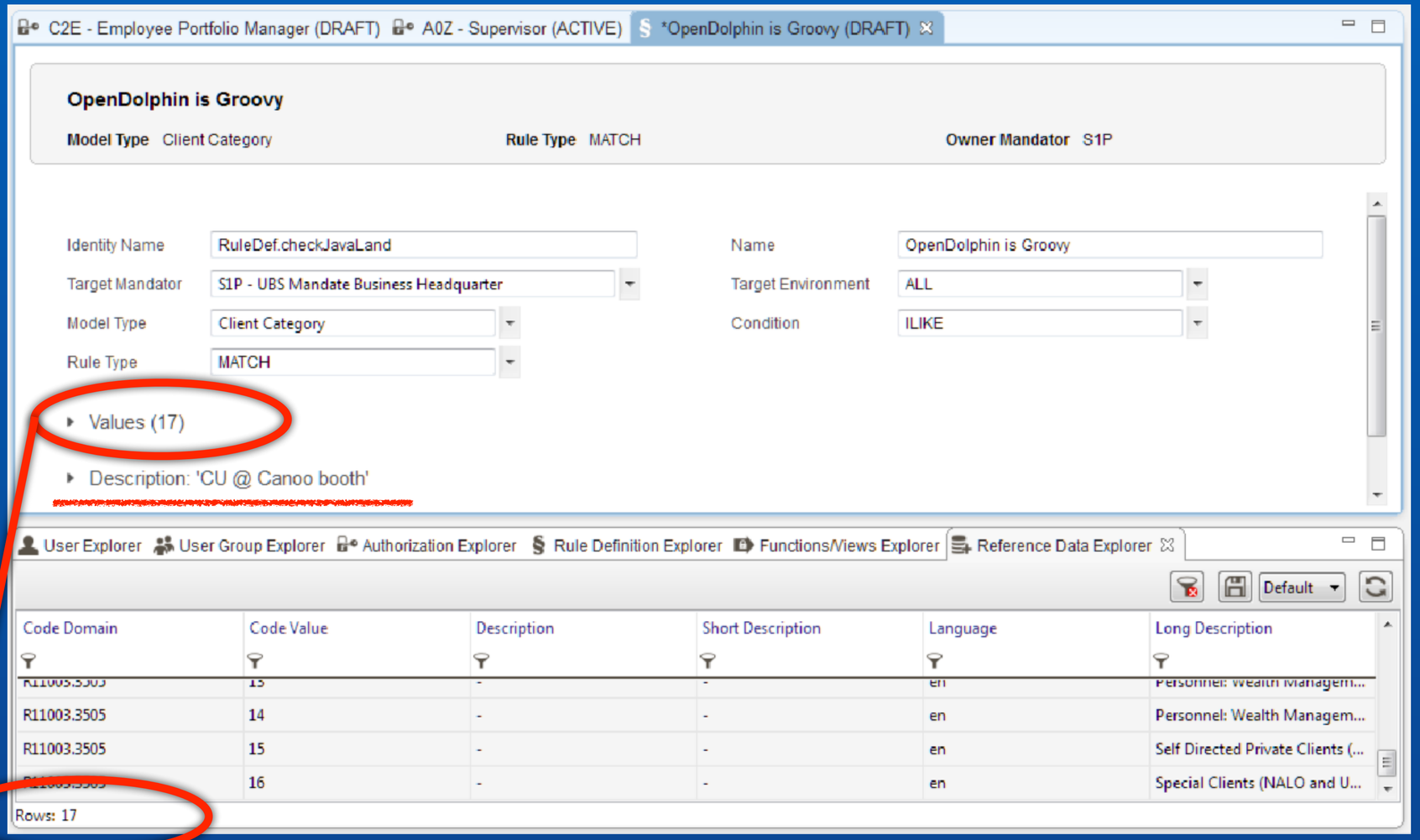
Composite Structure



Behavior: Validation



Flexibility



Your Catalog

Simple Form, 2-Column Form, Search Form,
Navigation, Master-Detail, Foldable Groups,…

Not only layout but also **Interaction Paradigm**!

Resulting Context

- Simple view creation by selecting a projection from a catalog
- Exchangeable Projectors enable quick and safe migration as well as multi-channel support
- Dramatically reduced code size, less structural duplication, reduced testing effort, and fewer bugs
- General, parameterized Projectors can be more complex to implement and test

Known Uses

- OpenDolphin / Dolphin Platform
- UBS STMP
- KBS KKVS 4
- Some P5/P6 Projects (GroupHub, DuploFX)
- A variety of customer projects at former Canoo

Related Patterns

- Components
  Dependency to data is reversed.
  Can be used as projection target.

- Abstract UI Toolkit
  Applicable in a limited context, where least common denominator between all UI technologies is OK

Aufgaben

Baue einen Projektor, der die Liste der Personen als HTML table anzeigt mit Visualisierung der selektierten table row.