

# Modernizing a Business Applications with Scout

A real world Example



**Eclipse Scout**

# The Application

# «WebKat» Application

- **Customer** Raiffeisen Group, Switzerland
- **Application** Core Banking Application
- **Purpose** Credit/loan/mortgage applications
- **Users** 10'000 (in 300 individual Banks)
- **App. Age** 10 years

## Status

- «WebKat» is vital for business
- Contains legacy technology
- Will remain vital for many more years

# «WebKat» Screenshot

DIALBA2000 - Backoffice

TC [ ] Schnellzugriff [ ] Gesamtobligo [ ] Beratungs-Modus

**Basiskredit verarbeiten**

31301, Muster Hans  
8000 Zürich

- Betreuungsauskunft erstellen
- Objekt verwalten
- Sicherheit verwalten
- Deckungen verwalten
- [2440] Deckungen verwalten
- Kreditantrag erstellen
- [2440] Hypothekarantrag erstellen
- Tragbarkeit berechnen
- Rating natürliche Person
- Klumpenrisiko berechnen
- Prüfung auf etp
- Kompetenzträger ermitteln
- Kreditvorlage drucken
- Basiskredit bewilligen
- Basiskreditvertrag erstellen
- [2440] Hypothekvertrag erstellen
- Produktvereinbarung erstellen
- [2440] Produktvereinbarung erstellen
- Pfandbestellung erstellen
- Beitrittsklärung erstellen
- Basiskredit freigeben
- Zahlungsverprechen erstellen
- Sicherungsübereignung erstellen
- Titelsendung erstellen
- Gläubigerrechtsanmeldung erstellen
- Anmeldung von Pfandrechten erstellen
- Zusicherung/Schuldbriefbestellung erstellen

**Hypothekarantrag erstellen**

Basiskredit-Nr. / Basiskreditart: 2440 Hypothek  
 Verwendungszweck (intern): Test  
 Antragsteller: Muster Hans  
 Branche: Private Haushalte mit Hauspersonal  
 Überwachungsart: fristenorientiert  
 Überwachungsperiode / Datum nächste PNB: 10 Jahre 31.01.2024

Zu finanzierende Objekte

Objekt-Nr.	Subobjekt-Nr.	Objektart	Eigenheim	Beschreibung	Beleihungsbasis	Beleihungsgrenze in %	Beleihungsgrenze in CHF
1251		1 Einfamilienhaus	ja	EFH, Zürich	1'000'000.00	80.00	800'000.00

Finanzierungsplan | Finanzierungsplan je Objekt | **Konditionen** | Konditionen je Objekt | Sicherheiten

**Plafondierung und Zinsen**

	Plafond gemäss GR	Plafond für Berechnung	Zinsen p.a. effektiv	Zinsen p.a. kalkulatorisch
1. Hypothek	500'000.00	500'000.00	12'500.00	25'000.00
2. Hypothek ohne Zusatzsicherheiten	0.00	0.00	0.00	0.00
2. Hypothek mit Zusatzsicherheit	0.00	0.00	0.00	0.00
Überbeleihung	0.00	0.00	0.00	0.00
	500'000.00	500'000.00	12'500.00	25'000.00

**Amortisation**

Amortisationsart / BVG-Maximum: direkte Amortisation nein  
 Betrag p.a. direkt / indirekt: 0.00  
 Plafond gemäss GR / für Berechnung: 0.00  
 Erstmals / Nächstmals per: Erstmals 31.12.2014  
 Kadenz: halbjährlich

Übersteuern

# «WebKat» Pain Points

- High maintenance **costs**
- The used UI framework (in-house) is considered **legacy**

# «WebKat» Modernization Project

## Two Goals

1. Reduce maintenance costs
2. Replace the RTK UI framework

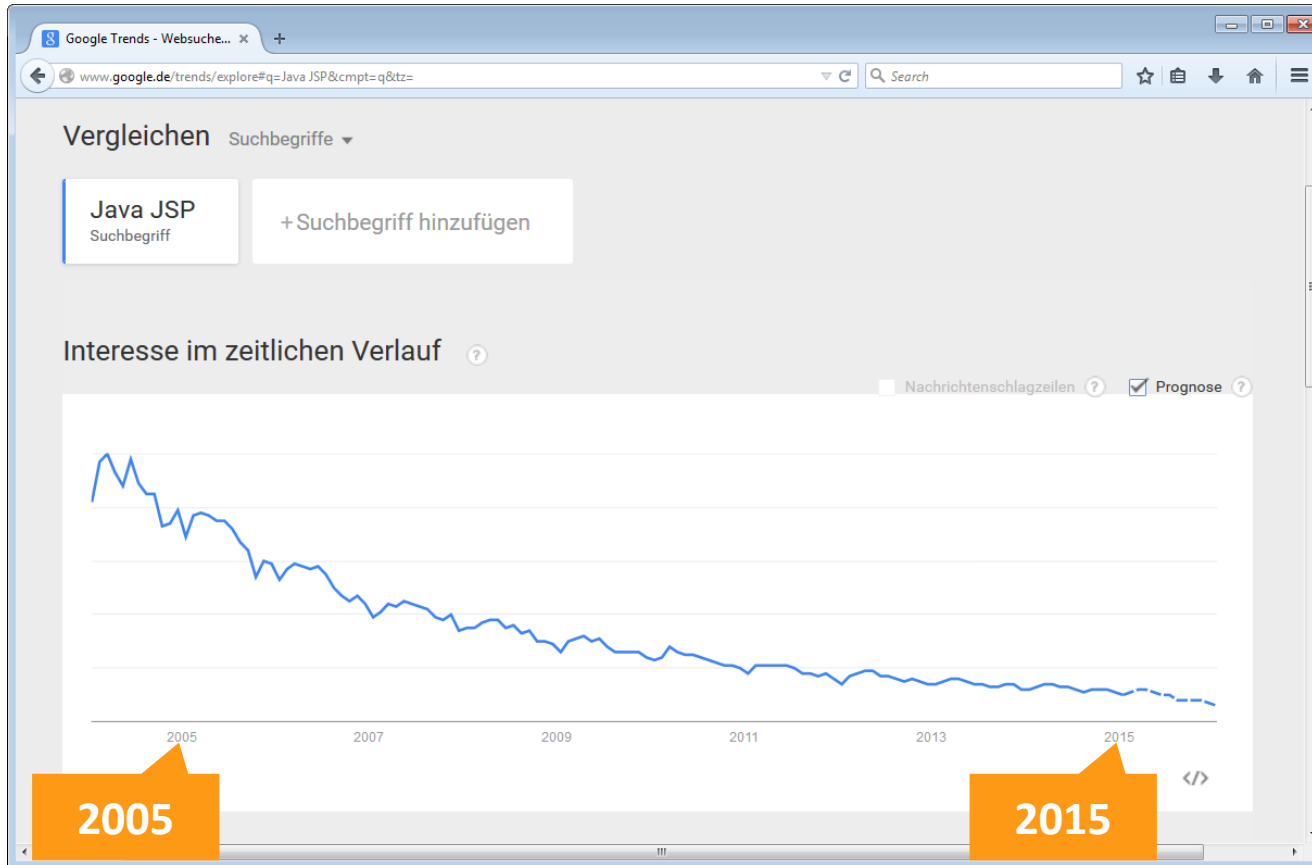
## Scope / Requirements

- Only modernize the Frontend
- Backend out of scope
- No (re)training of users
  - 1:1 dialog layout
  - 1:1 functionality

# RTK UI Framework

- Developed in-house
- High maintenance/support costs
- No interest in continuation of framework
- Based on JSP technology

# Google Trends JSP



Clearly, JSP no longer does it ...

... but where to go?



# Requirements for RTK Replacement

- Open Source → **Cost control**
- Actively maintained → **Protection of investment**
- Consulting and Support available → **Progress, Reliability**
- Minimal training necessary → **Productivity**

# JSP Replacement Candidates



Struts

vaadin }>



Play! ▶

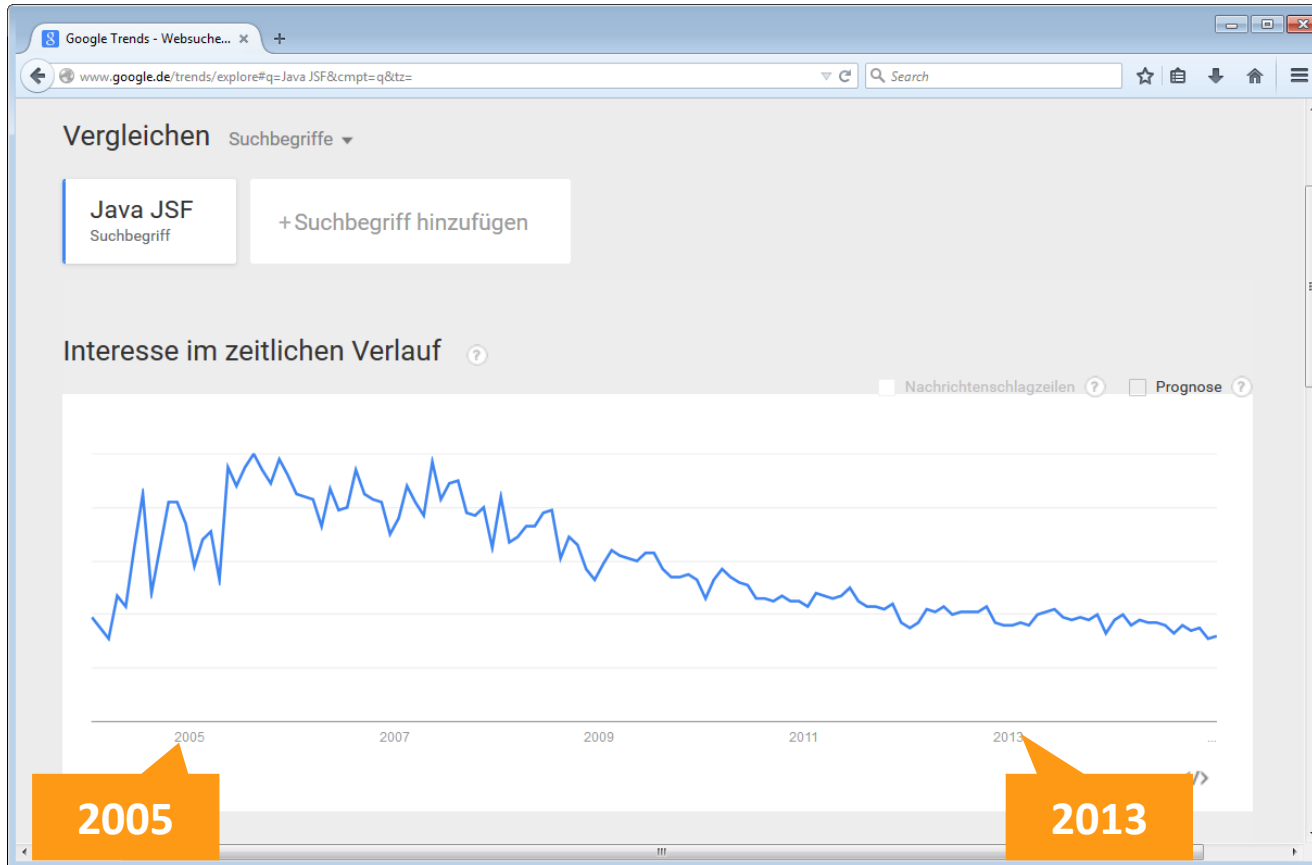
spring ie



///Stripes



# Interest in JSF

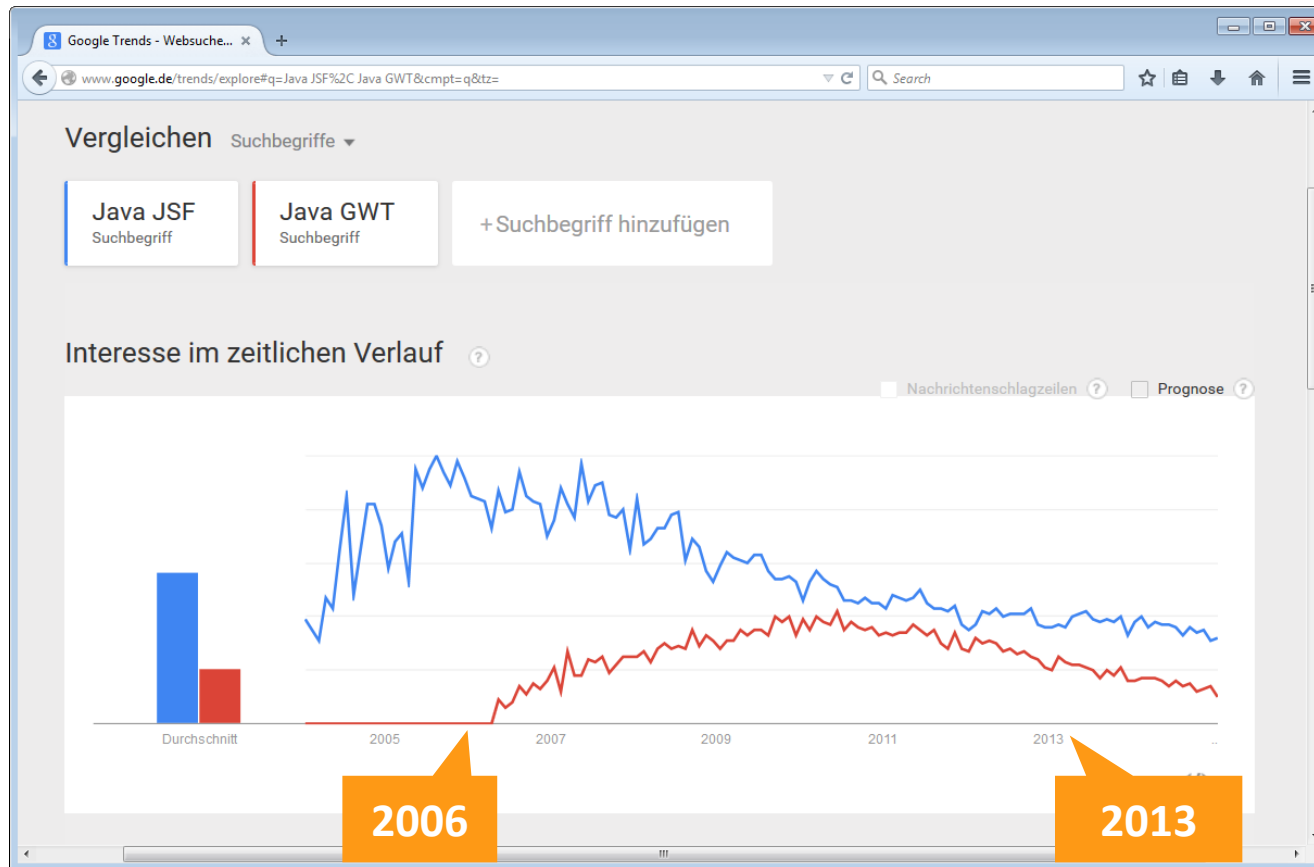


Why not JSF?

# James Gosling on JSF

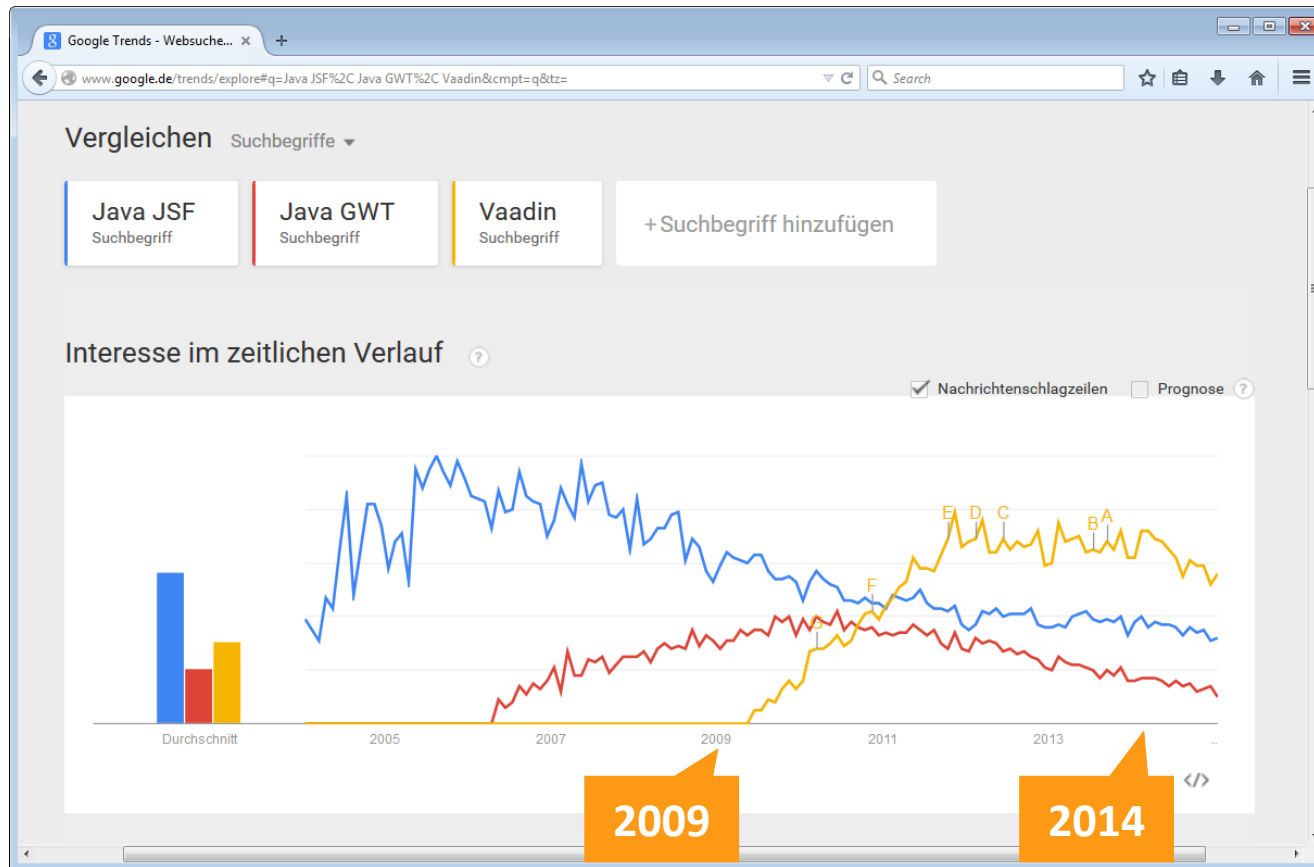


# GWT



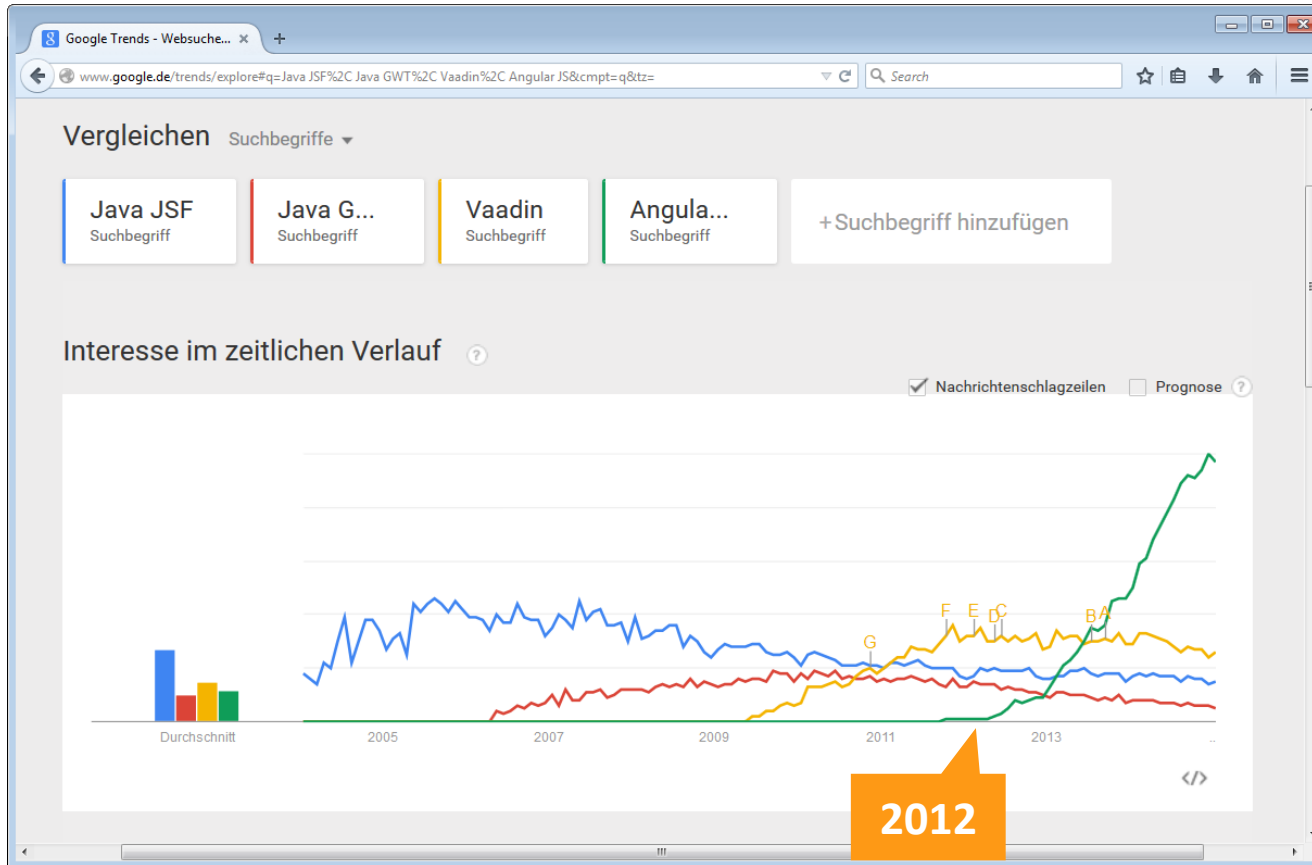
Interest already moves elsewhere ...

# Vaadin



... maybe?

# Angular JS



Or moving to JavaScript?

# Whatever we evaluate ...

## 2018

- Is the UI Framework still relevant?
- What about Newcomers?

## 2025

- Ideas? Anyone?
- What now?



# Back to the Drawing Board ...

## What do we really want?

- Create value to the business
- Invest in **business needs**
- Invest in **external requirements** (legal, ...)

## What we don't want

- Maintaining legacy technology
- In-house frameworks redundant to open source
- Being forced to rewrite applications to stay up to date

# Where is the business value?

Front End

Client

UI Layout / Functionality

Application

Map Business to UI

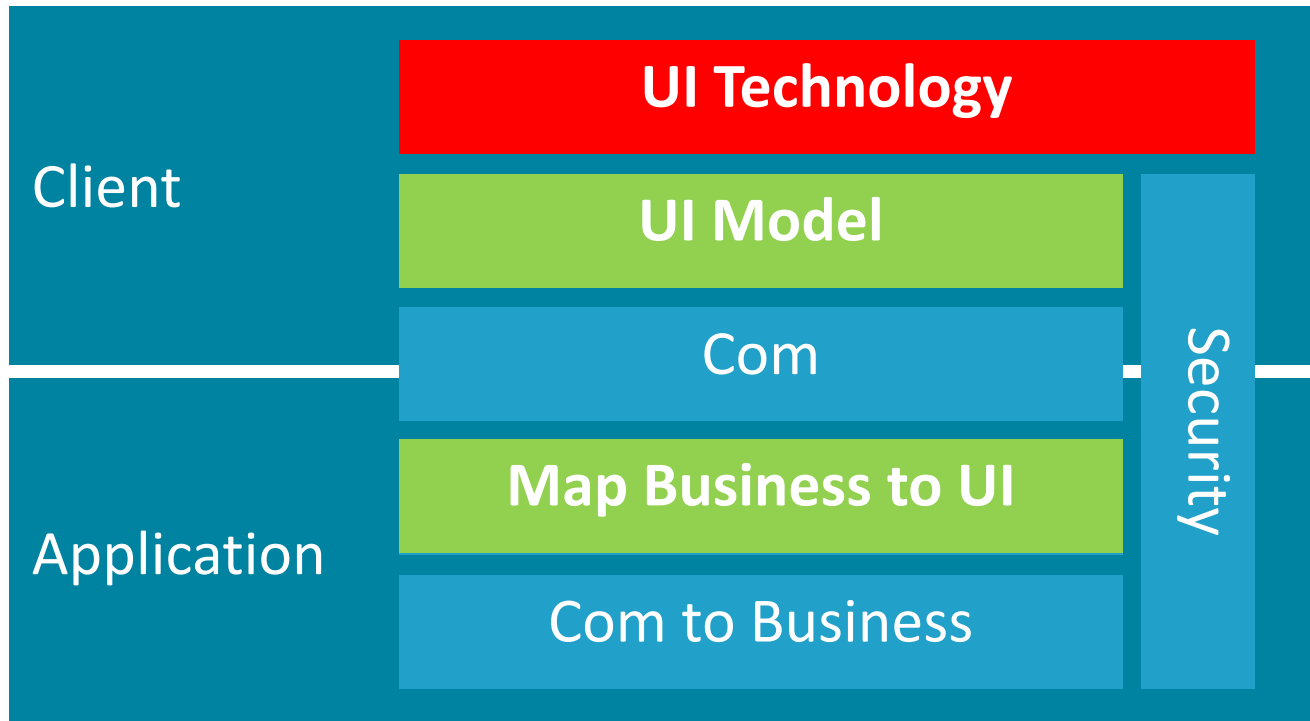
Back End

Business Business Functionality

Persistence

...

# Where is the business value?



- **Low value** to business, short life cycles, but visible to users
- **High value** to business, but frequent changes
- Look for a corresponding solution

# Back to the RTK Replacement ...

- Customer did not decide for a UI Framework
- RTK framework was to be replaced by **Eclipse Scout**
  - Scout factors out the UI Technology
  - The UI is written against an application model
  - Scout Developers can focus on business value

# What we have learned so far ...

- UI Frameworks come and go
- Business Applications live longer than UI technologies
- Factor out UI Frameworks
- Concentrate on the business value
- Eclipse Scout matches well with these points

# The Scout Framework

# What is Eclipse Scout?

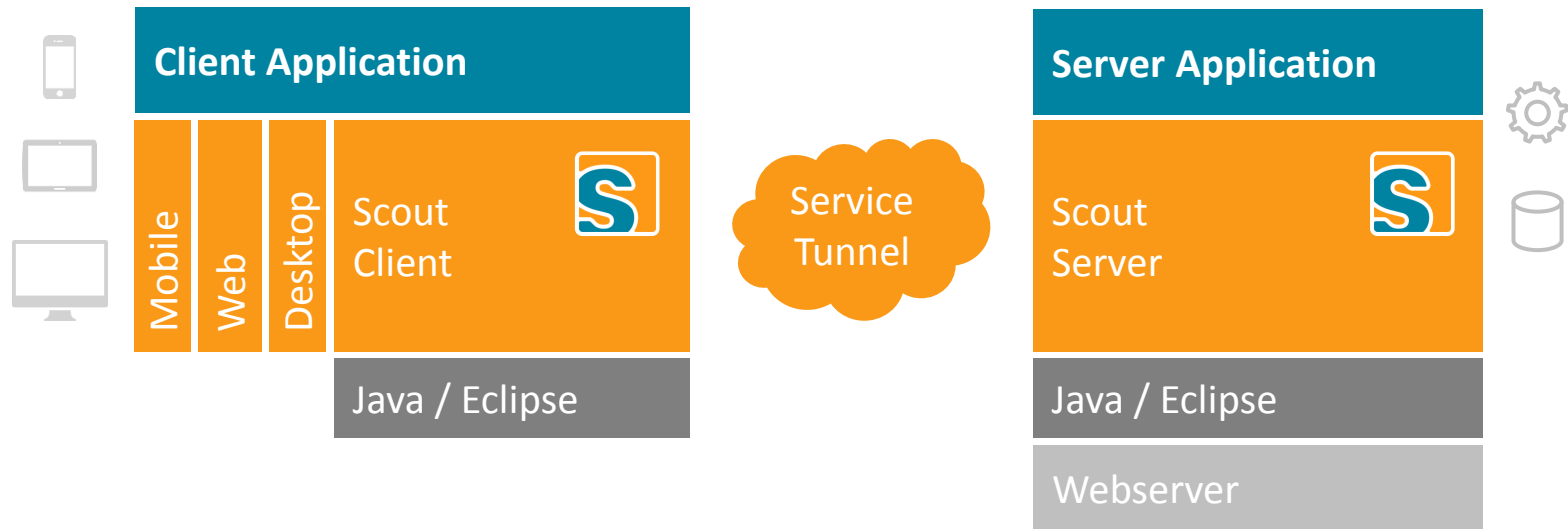
- Framework for **Business Applications**
- **Multi Device** Support (Desktop, Web, Mobile)
- **Client Server** Architecture
- Based on **Java / Eclipse**
- **Open Source**

# Scout Business Application Multi Device Support

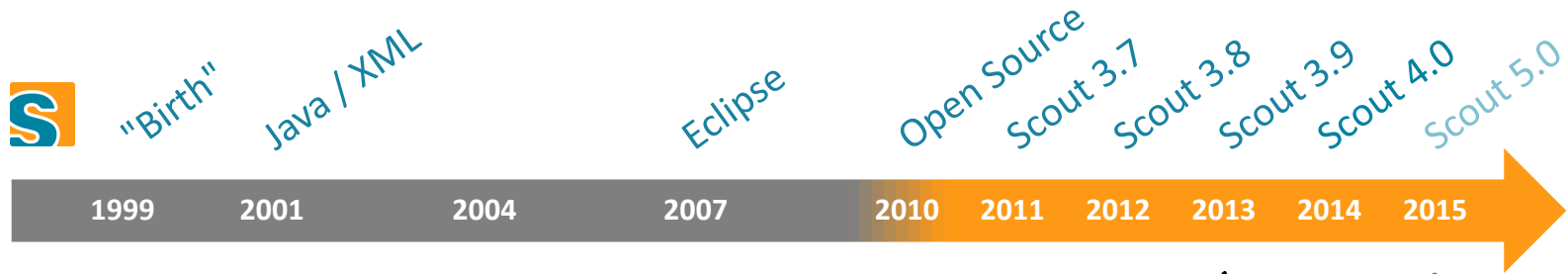




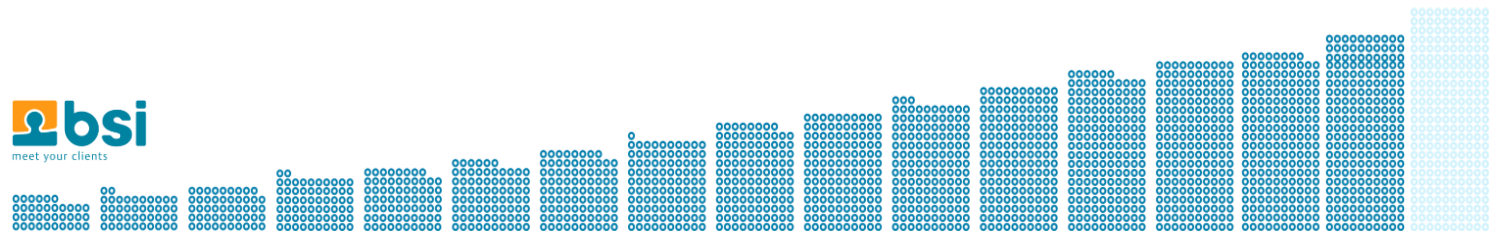
# Scout Architecture



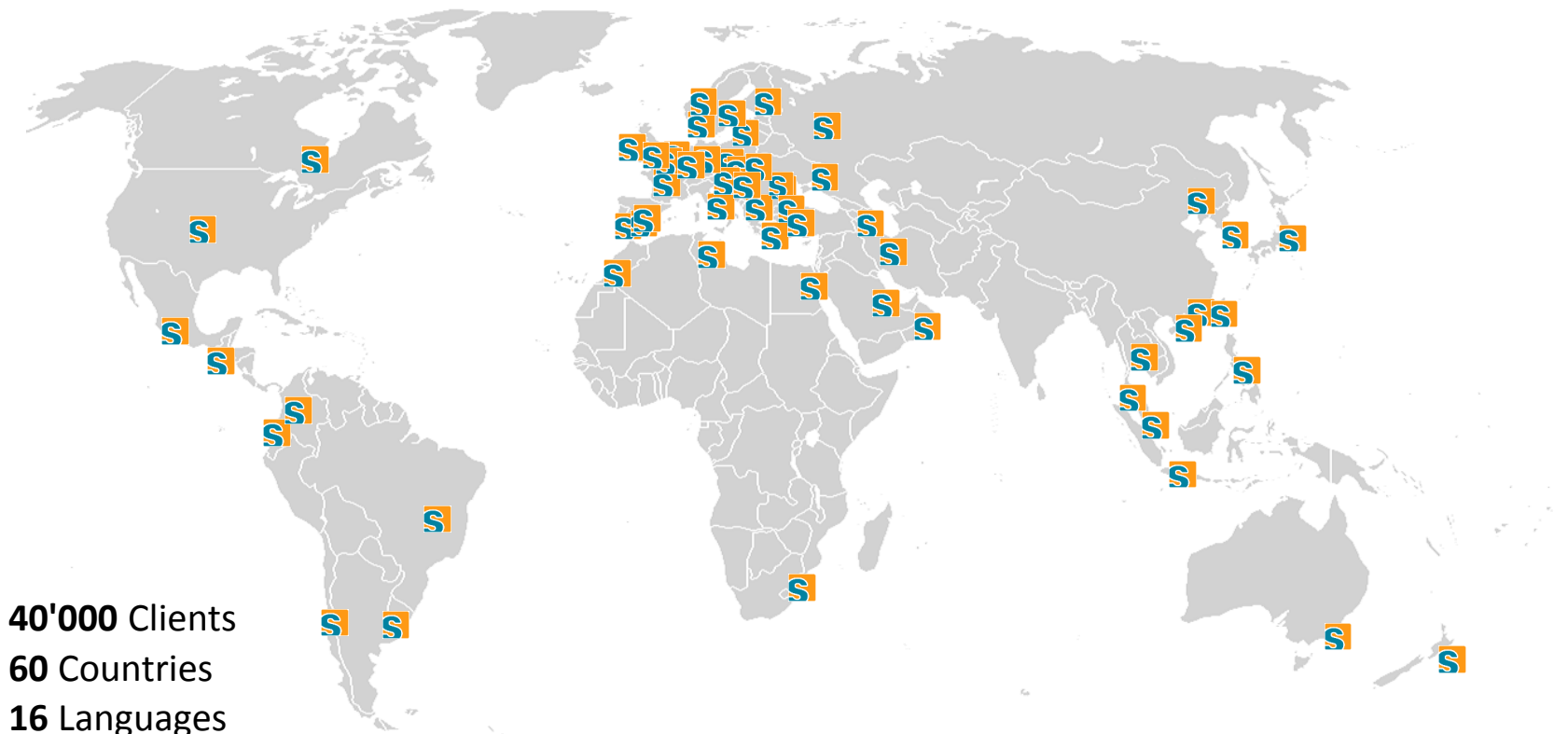
# Scout History



200 Employees



# Scout Deployments



# Scout References at BSI



# Back to «WebKat» Why Eclipse Scout?

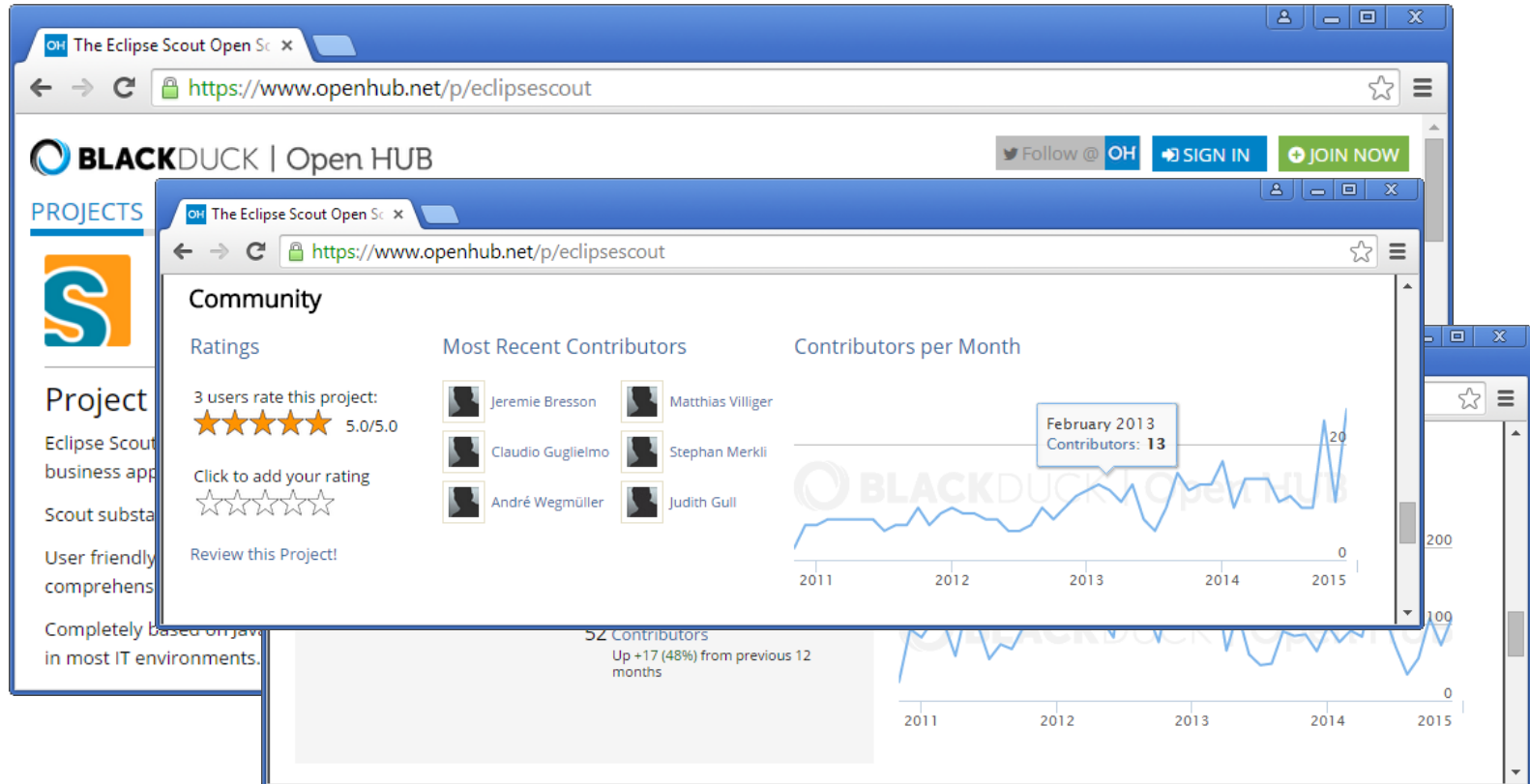
- Separation of UI Technology from UI Logic
- Application becomes independent of UI Technology
- Eclipse Scout is simple to learn for Java Developers
- Scout meets requirement to replace RTK framework
  - Open Source
  - Actively Maintained
  - Consulting/Support available
  - Minimal Training required

# Scout is Open Source (Cost Control)

The image displays three overlapping browser windows showcasing Eclipse Scout resources:

- Eclipse Downloads:** The top-left window shows the Eclipse Downloads page. It features the Eclipse logo, navigation links for "GETTING STARTED" and "MEMBERS", and a sidebar with "HOME / DOWNLOADS" and "PACKAGES / JAVA™ 8 SUPPORT". The main content area highlights "Eclipse Standard 4.4" (Downloaded 1,325,002 Times) and "Eclipse for Scout Dev" (Downloaded 74,976 Times).
- Eclipse Community Forums:** The top-right window shows the Eclipse Community Forums page. It includes the Eclipse logo, navigation links, a search bar, and a list of forum topics. The current topic is "Saving users table customisation".
- Eclipse Scout Tutorial:** The bottom window shows the Eclipse Scout Tutorial page. It features a large "S" logo and a list of tutorial topics: "Get started with a simple 'Hello World'", "Create a Scout application", "Deploy a Scout application", "Permissions: Authentication and Authorization", and "Table Field".

# Actively maintained (Investment Protection)



# Professional Support (Security, Progress)



## **BSI Business Systems Integration AG**

- Training
- Consulting
- Development
- Support
- Audits



# Minimal Developer Training (Productivity)



**Client**  
AGRO International GmbH & Co. KG.  
[www.agro.eu](http://www.agro.eu)

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F +41 56 484 19 30  
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**Nils Israel**  
Head of IT at AGRO International  
GmbH & Co. KG.

the available tutorials, the short training times and the large group of active Scout committers," stated Nils Israel. Since 2012 we are now replacing the previous Excel solutions successively by special software based on the Scout Framework.

## **Productive in a week**

Nils Israel and his team were ready to work with the Scout framework within just one week. "We received two days of training and were already able to develop on our own for the two following days. The BSI experts were standing by to answer our questions. We attended the continuous integration workshop on the fifth day. This day in particular really took us a great leap forward. We certainly would not have received as much if we'd taught ourselves," explained Nils Israel, who continued: "We really liked the workshop and felt very comfortable. The BSI Scout team is very competent. The best thing though, was that beyond this initial training we needed very little support. The forum is actively supported and the tutorials are continually updated. We appreciated the exchange, but in terms of concept, we can stand entirely on our two feet." It was precisely this autonomy that Nils Israel considers to be a major added value for AGRO: "We can do everything ourselves. We can connect multiple data sources through a single platform, have a standard interfaces and can store data centrally. This represents a huge benefit to us."

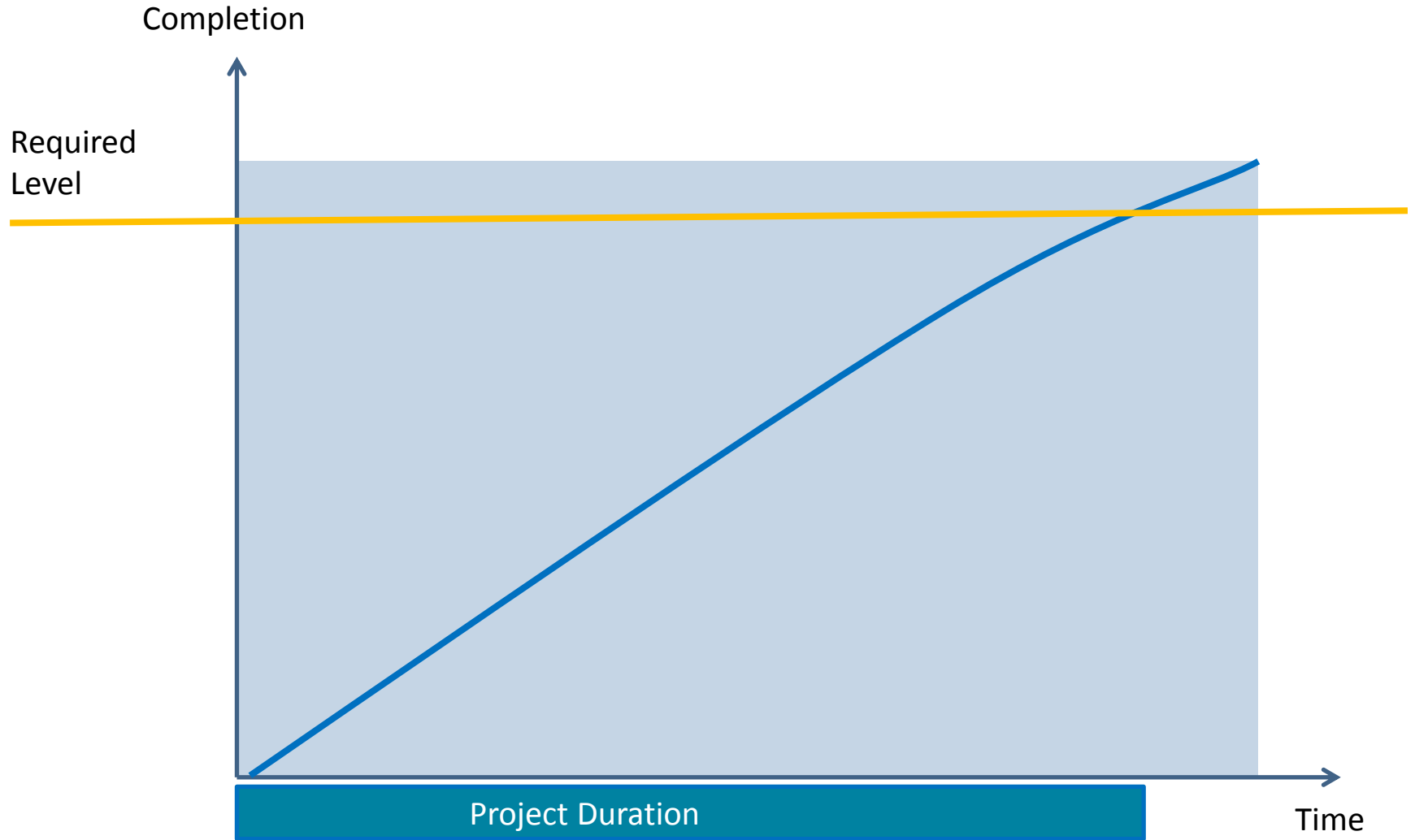
«We received two days of training and were already able to develop for ourselves on the two following days.»

Nils Israel, AGRO



# The «WebKat» Project

# Modernization: Manual Approach



# Modernization: **Manual Approach**

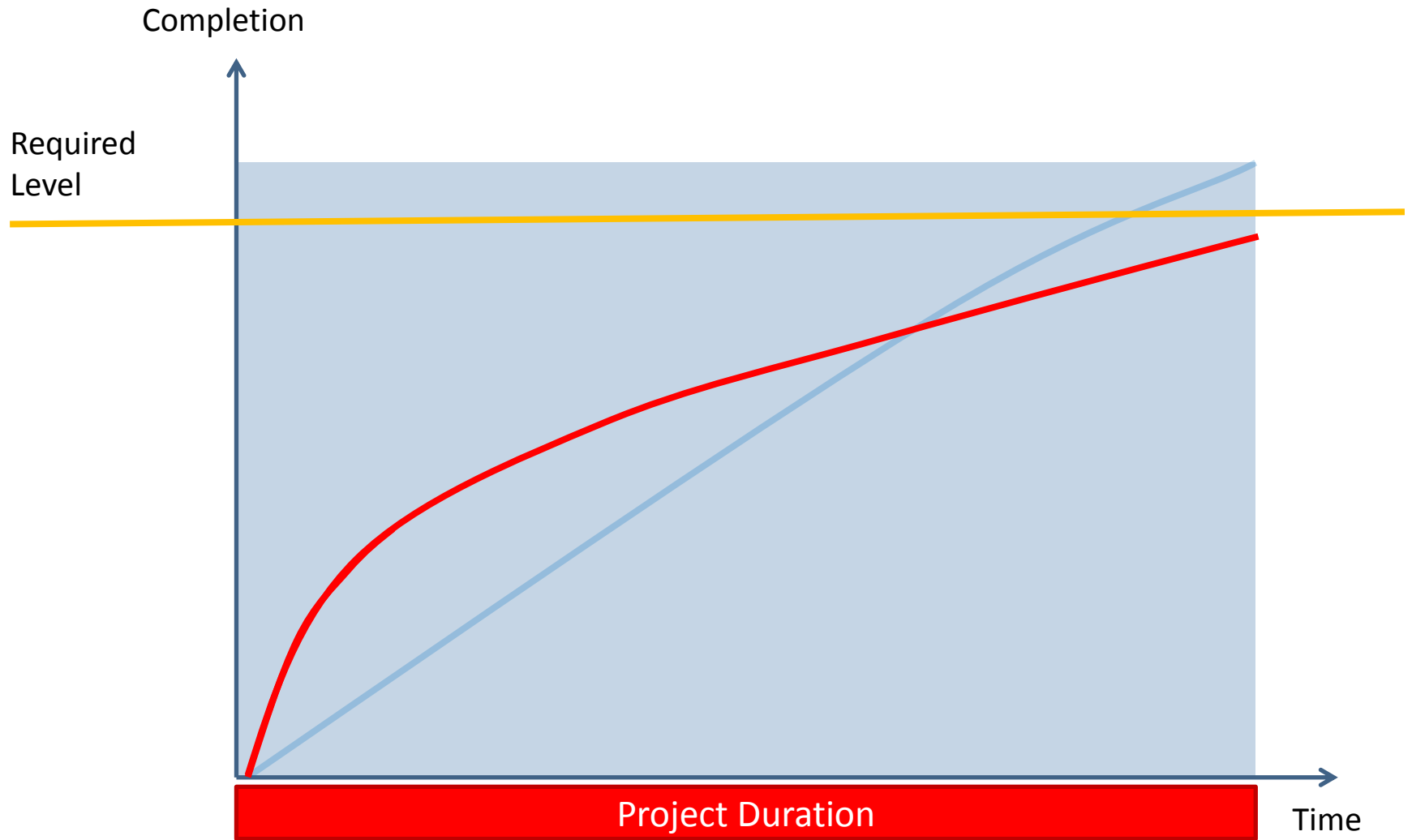
## **Advantages**

- Developers can also handle complex cases
- Managing progress in this setup is «simple»

## **Issues**

- Manual modernization takes time
- Costly (for simple and repetitive tasks)
- Quality of resulting code base
  - Inconsistencies
  - Bugs

# Modernization: Fully Automatic Approach



# Modernization: **Fully Automatic Approach**

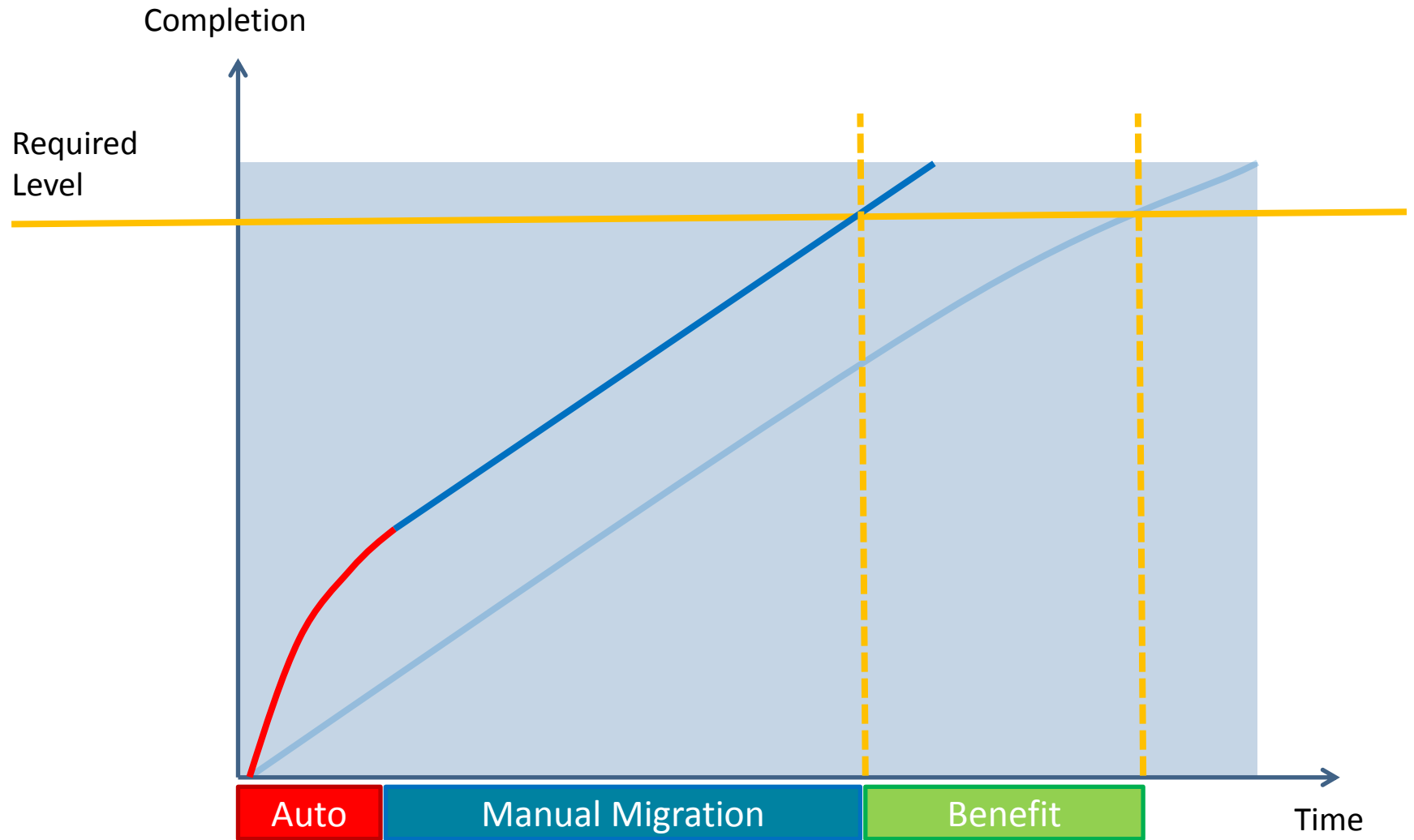
## **Advantages**

- Rapid progress (initially)
- Quality of Code Base
  - Highly consistent
  - No bugs

## **Issues**

- Writing a good transformers is hard
- Transformers are task specific
- Complexity of transformer increases quickly

# Modernization: Mixed Approach



# «WebKat» Mixed Approach

1. Definition of Target Application Setup
2. **Automatic** Transformations of
  - Dialog **Layout**
  - Dialog **Controls and Texts**
  - JSP **Logic as Comments** in Source Code
3. **Manual** Completion of generated Sources
  - Logic of UI Model
  - Mapping with Backend Services
4. Regression Testing to ensure 1:1 Functionality



# Example 1: Automatic JSP Transformation

```
<td>
  <label><%=getString("FLD_V_ZINSSATZABWEICHUNG_GRUND")%></label>
  <select property=... >
    <optionsCollection codeGroup=CDE_GRP_D2K_1074_ZINS_ABWEICHUNG_BEGR />
  </rctl:select>
</td>
```



```
public class ZinssatzAbweichungGrundField extends AbstractSmartField<Long>{
  /**
   * jsp: code type = 'CDE_GRP_D2K_1074_ZINS_ABWEICHUNG_BEGR'
   */
  @Override
  public TextCodeAbs getConfiguredTextCode () {
    return new ZinsAbweichungBegrCodeType ();
  }

  @Override
  public String getConfiguredLabel () {
    return TEXTS.get ("Grund");
  }
}
```

## Example 2: Manual Completion required

```
<td>
  <label><%=getString("FLD_V_ZINSSTUFE_BEZEICHNUNG") %></label>
  <select property=... >
    <optionsCollection codeGroup=
      "<%= uiFormLimiten.getProdukteLimiten().getZinsstufeGroup() %>" />
  </select>
</td>
```



```
public class ZinsstufeField extends AbstractSmartField<Long>{
  ...
  /**
   * jsp: <optionsCollection name="WkatDynamicHtmlHelper.DYN_CODE_REQUEST_ID«
   * valid="false"/>
   */
  public TextCodeAbs getConfiguredTextCode () {
    // TODO: code type =
    // 'uiFormLimiten.getProdukteLimiten().getZinsstufeGroup()'
    return null;
  }
  ...
}
```

# «WebKat» The Numbers

## Project Phase Duration (and Efforts)



- Adapting the **Transformer**
  - 2 Months (2 Man Months)
- **Automatic Transformation** from RTK/JSP to Eclipse Scout
  - 1 Hour
- **Manual Completion**
  - 4 Months (13 Man Months)

## Comparison with Manual Approach

- 19 Man Months (Estimate)
- **Savings for Mixed Approach:** 4 Man Months (20%)



# «WebKat» Q1 2014

**Hypothekarantrag erstellen**

Bearbeiten  

Basiskredit-Nr. / Basiskreditart: 2440 / Hypothek  
 Verwendungszweck (intern): Test  
 Antragsteller: Muster Hans  
 Branche: Private Haushalte mit Hauspersonal  
 Überwachungsart: **fristenorientiert**  
 Überwachungsperiode / Datum nächste PNB: 10 Jahre / 31.01.2024 **1**

Zu finanzierende Objekte

Objekt-Nr.	Subjekt-Nr.	Objektart	Eigenheim	Beschreibung	Beleihungsbasis	Beleihungsgrenze in %	Beleihungsgrenze in CHF	
▶	1251	1 Einfamilienhaus	ja	EFH, Zürich	1'000'000.00	80.00	800'000.00	 

Finanzierungsplan | Finanzierungsplan je Objekt | **Konditionen** | Konditionen je Objekt | Sicherheiten

Plafonierung und Zinsen

	Plafond gemäss GR	Plafond für Berechnung	Zinsen p.a. effektiv	Zinsen p.a. kalkulatorisch
1. Hypothek	500'000.00	500'000.00	12'500.00	25'000.00
2. Hypothek ohne Zusatzsicherheiten	0.00	0.00	0.00	0.00
2. Hypothek mit Zusatzsicherheit	0.00	0.00	0.00	0.00
Überbeleihung	0.00	0.00	0.00	0.00
	500'000.00	500'000.00	12'500.00	25'000.00

Amortisation

Amortisationsart / BVG-Maximum: **direkte Amortisation** / **nein**  
 Betrag p.a. direkt / indirekt: 0.00  
 Plafond gemäss GR / für Berechnung: 0.00 / 0.00  
 Erstmals / Nächstmals per: Erstmals / 31.12.2014 **1**  
 Kadenz: **halbjährlich**

# «WebKat» Q3 2014, Result

DIALBA2000 - Backoffice

TC  Schnellzugriff  Gesamtbligo   Beratungs-Modus

Hypothekarantrag erstellen

## Hypothekarantrag erstellen

**Antrag Allgemein**

Basiskredit Nr.  Basiskreditart

Verwendungszweck (intern)  Antragsteller

Branche  **Überwachungsart**

**Überwachungsperiode**  **Datum nächste PNB**

**Zu finanzierende Objekte**

Objekt-Nr.	Subobjekt-Nr.	Objektart	Eigenheim	Beschreibung	Belehnungsbasis	Belehnungsgrenze in %	Belehnungsgrenze in CHF
189	1	Luxus-/Liebhaberob...	nein	MaiersA:ss	360'000.00	65.00	234'000.00

Finanzierungsplan | **Finanzierungsplan je Objekt** |  | Konditionen je Objekt | Sicherheiten

**Plafonierung und Zinsen**

	Plafond gemäss GR	Plafond für Berechnung	Zinsbetrag p.a. eff.	Zinsbetrag p.a. kalk.
1. Hypothek	<input type="text" value="180'000.00"/>	<input type="text" value="180'000.00"/>	<input type="text" value="5'400.00"/>	<input type="text" value="9'000.00"/>
2. Hypothek ohne Zusatzsicherheit	<input type="text" value="20'000.00"/>	<input type="text" value="20'000.00"/>	<input type="text" value="800.00"/>	<input type="text" value="1'200.00"/>
2. Hypothek mit Zusatzsicherheit	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>
Überbelehnung	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>	<input type="text" value="0.00"/>
	<input type="text" value="200'000.00"/>	<input type="text" value="200'000.00"/>	<input type="text" value="6'200.00"/>	<input type="text" value="10'200.00"/>

**Amortisation**

**Amortisationsart**  BVG-Maximum

Betrag p.a. direkt  indirekt

Plafond gemäss GR  für Berechnung

**Erstmals / Nächstmals**  **per**

**Kadenz**

# «WebKat» Modernization Benefits

- Clean Architecture with Scout Application Model
- Business Code is separated from UI Technology
- JSP Technology removed from Application
- RTK Framework can be discontinued

# «WebKat» Learnings

- Mixed modernization approach worked well
- JSP Technology was well suited for mixed approach
- Manual completion took more time than anticipated
- Only modernizing the front-end helped
- Close collaboration with client was vital

**Wrap Up**



# General Observations

- Business Applications live for a long time
- UI Technologies don't
  - They have short live spans
  - Make applications look old quickly
  - Need to be replaced during the Applications live span
  - Are not considered valuable
  - Can trigger modernization projects

# Modernization Recommendations

- Select a small initial Scope
- Get rid of legacy technologies one-by-one
- Go to production as quickly as possible
- Consider an automatic/manual mixed approach
- Separate valuable parts from technical parts
- Be independent of a specific UI technology
- Check out Eclipse Scout for your modernization project

**Thanks**

# Scout Links

- Homepage [www.eclipse.org/scout](http://www.eclipse.org/scout)
- Wiki [wiki.eclipse.org/scout](http://wiki.eclipse.org/scout)
- Forum [www.eclipse.org/forums/eclipse.scout](http://www.eclipse.org/forums/eclipse.scout)
- Twitter [@EclipseScout](https://twitter.com/EclipseScout)
- Blog [www.bsiag.com/scout](http://www.bsiag.com/scout)
- Support [scout@bsiag.com](mailto:scout@bsiag.com)

# Scout Enterprise Integration

