

# AI-Powered Modernization of OpenEdge Applications

Mike Fechner

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Consultingwerk

The full stack modernization framework  
**SmartComponent Library**  
by Consultingwerk

## Mike Fechner



36 years of experience in Progress  
(from Version 5 to OpenEdge 13)

Active member of the OpenEdge  
community and speaker at international  
conferences

Expert in software architecture, object-  
oriented design, and web technologies

# Our Focus: Modernizing OpenEdge Applications



**Modernization of  
Legacy OpenEdge  
Applications**



**Deep Technical  
Expertise**



**Global IT Partner  
with Local  
Presence**



**More than  
Consulting – We  
Deliver Tools &  
Solutions**

# Why Now? AI Changes the Economics of Modernization

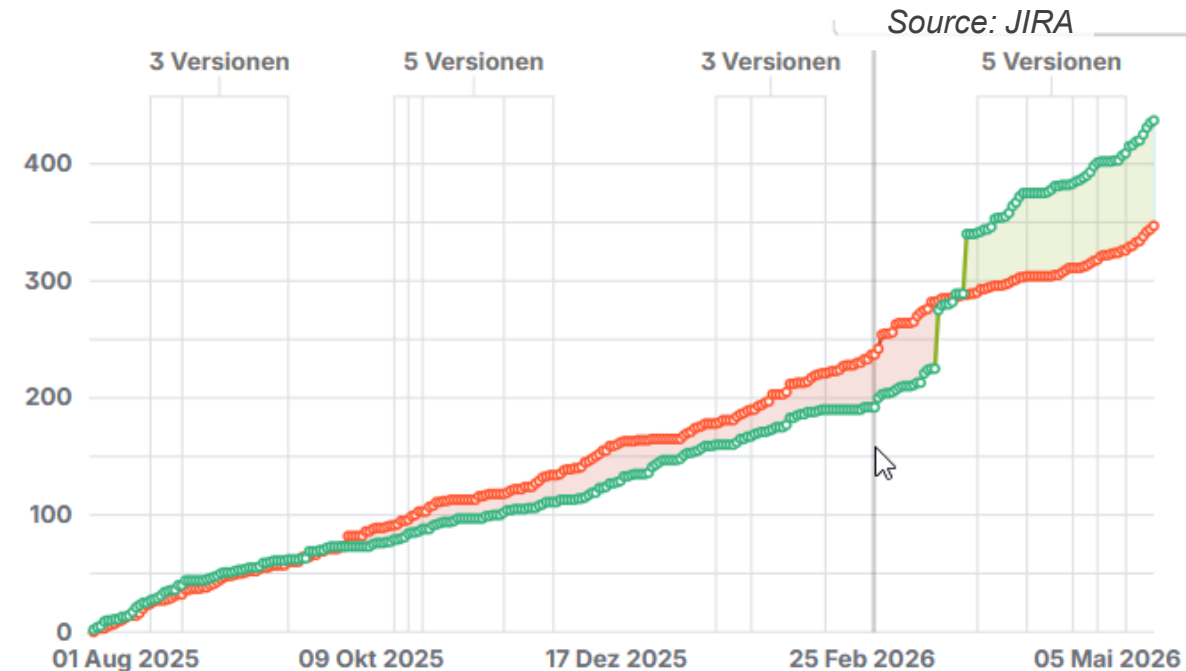
- **The problem:** large aging code bases, missing or outdated documentation, and key developers retiring soon – making refactoring slow and risky
- **Refactoring takes time** – typical projects span at least 12–24 months
- Long timelines often force a **freeze on functional requirements**
- The business can't stand still – projects stall or get cancelled
- **AI compresses the timeline dramatically** – modernization without the freeze

## Two Eras of Gen AI for ABL: Before 2026, and Now

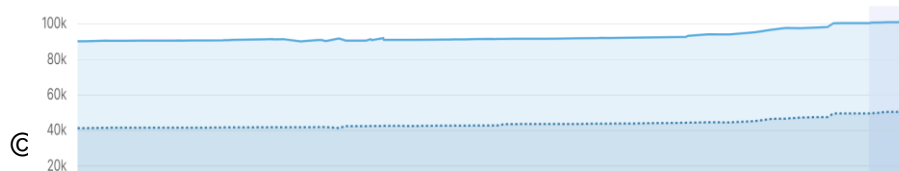
- **Mid-2025 reality check:** at WeAreDevelopers, GitHub CEO Thomas Dohmke couldn't prompt a working snake game live in his 30-minute keynote with an audience of 10,000 – in *mainstream* tech
- **2026 turning point:** Claude Opus 4.6/4.7, GPT-5.4/5.5 – these models know ABL out of the box
- **OpenEdge AI Assistant** (formerly MCP Connector) – ABL syntax mastery, soon every OpenEdge KB article
- **The result:** AI is finally productive for ABL developers, not just mainstream stacks
- **Coding Assistants in use:** Claude Code, Windsurf, VS Code Copilot ...

# Consultingwerk Reality Check: The Practical Impact of AI

- Faster implementation
- Growing share of support tickets fixed without developer touch
- Larger, harder tickets – including refactoring nobody wanted to touch
- More unit tests
- Better quality
- More documentation



Graph type: Coverage  
 — Lines to Cover    ··· Covered Lines    ■ New Code    Source: SonarQube



Coverage

**50.1%**

On 101k lines to cover



See Radu's most recent comment in SCLNG-143 and my two most recent comments there.

So we add a OwnerType property with value "User" or "Group" to the response quoted by Radu (mention, ADF format). That's a new SCL ticket in the SmartFramework component.

This is a follow up to SCL-5252 we did last night.

Then comment to Radu in the original ticket indicating that we're clauding this improvement in the new ticket (number).

9 Befehle ausgeführt, 5 Tools verwendet, geladene Tools >

I have everything I need. Let me check available issue types for SCL before creating the ticket.

atlassian-Integration verwendet, 2 Tools verwendet, geladene Tools >

New ticket created: **SCL-5255**. Now linking to SCL-5252 and commenting back on SCLNG-143.

5 Tools verwendet, atlassian-Integration verwendet, hat einen Befehl ausgeführt >

Done.

**New ticket:** SCL-5255 — Add OwnerType property ("User" or "Group") to StoredViews response

- Project: SCL · Type: Verbesserung · Component: SmartFramework
- Description references Radu's proposal from SCLNG-143, includes the current response shape and the target shape with `OwnerType: "User" | "Group"`, and captures your

Nachricht schreiben...

+ >> Handeln ▾

Opus 4.7 ▾



Fortschritt ▾

- ✓ Read Radu's most recent comment and Mike's 2 most recent comments in SCLNG-143
- ✓ Create new SCL ticket for OwnerType property in SmartFramework
- ✓ Link new SCL ticket to SCL-5252
- 4 Comment back on SCLNG-143 with the new ticket number
- ✓ Monitor Jenkins build for feature/SCL-5255

Arbeitsordner ▾

> Notizblock

Kontext ▾

Konnektoren

M ms365

A atlassian

Fähigkeiten

jenkins-build-status



**AI Coding Assistants for OpenEdge  
accelerate development and  
refactoring with  
AI-powered assistance.**

## Customer Case 1: Modernization of an ERP Application

- **Legacy stack:** mix of V8 ADM, V9 ADM2, and some GUI for .NET
- **Localized codebase:** German data model and German identifiers throughout the code
- **Customer goal:** migrate the application to the web browser
  - Target UI: Angular Web UI of the SmartComponent Library
- **Deduplication of business logic** a major parallel concern
- **Prepare the application for localization** (multi-language support)
- **Selective DB redesign** during modernization
  - e.g. customer address split out of the Customer master into its own table



Kurzbezeichnung: ASB Soziale Dienste gGmbH GP, Wilkau-Haßlau

MVZ Ärztehaus Planitz II

 Gelöscht Mitglied Einkaufsgemeinschaft

Anschrift | Kont. / Kon | Abrechnung | Hinweise | RG-Empfär | Kommentar | Vertreter | Parameter | Personal | Kostenstell | Kundenben | KD-Numme

KD-ID: 7525

Geändert von: s.duengel

Geändert am: 15.10.2012

Datenursprung:

Anrede 1:

Anrede 2:

Name: ASB Soziale Dienste gGmbH

Name erster Arzt: Dr. med. Andrea Pufe

Postzusatz 1: MVZ Ärztehaus Planitz II

Postzusatz 2:

Postzusatz 3:

Staat: D

Strasse: Gewerbering 4

PLZ / Ort: 08112 Wilkau-Haßlau

Bundesland: Sachsen

Praxisart

- Einzelpraxis  
 Gemeinschaftspraxis  
 Praxisgemeinschaft  
 Krankenhaus  
 Uniklinik  
 Kunde ist Einkaufsgemeinschaft

Gueltig Von:

Gueltig Bis:

Praxistyp

- Privatpraxis  
 Medizinisches Versorgungszentrum  
  
 Privatperson     Firma  
 Kassenärztliche Vereinigung  
 Mitarbeiter     Apotheke

Genehmigung gem. §52a AMG

erforderlich

vorhanden

 ja ja nein nein

Ausgestellt am:

Kundennummer: 940328300

GLN: 0

Kundenstatus: 2 Kunde

KV-Zuordnung: KV Sachsen,



Home / Kundenstamm



&lt;&lt; First &lt; Previous &gt; Next &gt;&gt; Last

+ Add

Copy

Update

Save

× Cancel

Delete

Umsatzliste

Kunden zusammenführen

Suchen



KD-ID 7,525

Kurzbezeichnung ASB Soziale Dienste gGmbH GP, Wilkau-Haßlau

 Mitglied Einkaufsgemeinschaft

Anschrift

Kontakt

Ansprechpartner

**Abrechnung**

Zahlungsziele

Adressen

Hinweise

RG-Empfänger

Vertreter

Personal

Kostenstelle

Betriebsstättennummer 940328300

Verwalten

Vertragskennzeichen

Kassen-IK/alte Arzt-Nr.

Kasse-Info

Kostenstellenummer/-name

Abrechnungsstelle

Kassentyp

Keine Kasse

Rabatt

0.00

%

Zahlungsziel

30

Tage

Skonto

1.50

%

Skonto innerhalb Tage

10

Tagen

 Nutze als Kostenstelle die BSNR der Praxis Abbuchung Arztnamen drucken Rechnung weitere Daten Skonto Als Rabatt Nullmehrwertsteuerkunde Anzeige alte ANR in Rechn-Pos-Auswahldialog Rechnung per Mail

IBAN:

BIC:

Bank

Währungssymbol

EUR

Rechnungsformular

Rechnung ohne alles

## Customer Case 2: Dutch Courts & Enforcement App

- **Domain:** applications for Dutch courts and enforcement – complex business logic
- **UI stack:** GUI built on the legacy Unit4 OpenEdge framework
- **Architecture:** central functions delivered via include files with many parameters
- **Codebase size:** ~10,000 .p files · ~2,500 .w files · ~1,000 .i files

## From PoC to Scale: 5 → 20 Screens

- **First PoC:** 5 screens – prove the approach works
- **Extended PoC:** 20 screens – broad coverage of Unit4 framework features
- **Custom Claude Code skills** for analyzing and documenting existing programs
- **Largely automated implementation** with AI + SmartComponent Library MCP servers and specialized skills

## What the AI Produced

- **Structured per-screen analysis** – one folder per screen, separate files for:
  - User interface
  - Use of framework include files
  - Business logic
  - Database tables used
- **Human-in-the-loop checkpoint:** analysis reports let architects verify correctness *before* the AI converts the code
  - and to instruct targeted changes (e.g. deduplication) before conversion
- **Unit4 framework documentation translated** Dutch → English Markdown, split by feature blocks
- Usable by both architects *and* the AI

ab-14102\_businesslogic

- \_businesslogic
- \_includefiles
- \_layout

DatabaseTables

Packages

README

Translations

analysis

### 3. Screen fields — data source classification

18  
19  
20  
21  
28  
29  
30  
31  
32  
33

Widget	Source	Persisted?	Notes
cmb_Boekjaar	Context (drives c_BoekJaar / i_Boekjaar scope)	No	Validated via &ForTable=ab-151 + &ForWhere at line 337; &Enable mode U at line 452
fin_boekjaar	Calculated display	No	NO-ENABLE at line 250; filled by &DispFld of cmb_Boekjaar at line 337
ab-141.kostendrager	Persisted key	Yes	&SavKey at line 463; &PrimField=* at line 359; &Enable mode P at line 454 (locked after insert)
ab-141.omschr-30	Persisted non-key	Yes	&SavFld at line 464; &Enable mode U at line 455
ab-141.zoeknaam	Persisted non-key	Yes	&SavFld at line 465; &Enable mode U at line 456

Notes on non-persisted / calculated widgets:

- **cmb\_Boekjaar** — context combo. Its screen value is assigned into the program-level variable `c_BoekJaar` by `&Change2` at line 337 and again by `&DisInit` at line 443; `c_BoekJaar` is then converted to `i_Boekjaar` via `&DisJoin = "ASSIGN i_Boekjaar = INT(c_BoekJaar)."` at line 451, which is what `&SavKey` writes into `ab-141.boekjaar`.
- **fin\_boekjaar** — marked `NO-ENABLE` at line 250. Populated by the `&DispFld` expression on `cmb_Boekjaar` at line 337, which formats `ab-151.datum-in`, `ab-151.datum-uit` and `ab-151.cdafgesloten` into the fill-in.

Note on the `&SavFld` encoding: the `&SavFld` block at lines 464–465 contains one explicit assignment (`ab-141.omschr-30 = ab-141.omschr-30 ~ {&SVD~}`) followed by a **bare field reference** `ab-141.zoeknaam` (line 465, verbatim: `ab-141.zoeknaam`). Because the bare entry has no `= <expr>` right-hand side, the extractor records it as `{"target": "ab-141.zoeknaam", "expr": null}`, i.e. framework-default screen-value persistence with no custom expression.

... COLOR-RELATED labels appear to the left of the widget at runtime, this report shows only the widget box, not its side label.

### Frame frm\_Main

Defined at line 166  
Declared size (cols x rows): 81.86 x 11.38  
Widgets placed: 14

### ASCII layout

```

34 +-----+
35 | .Boekjaar..... |
36 | .....[cmb_Bo.[fin_boekjaar]..... |
37 | .Kostendrager..... [btn_Save] |
38 | :+-----+: [btn_Delete] |
39 | :|[browse brw_Browse] | [btn_New] |
40 | :| | [btn_Close] |
41 | :| | |
42 | :| | |
43 | :| | |
44 | :| | |
45 | .+-----+. |
46 | | | |
47 +-----+

```

### Overlap warnings

The following non-rectangle widgets share cells in the rounded integer grid. Some overlaps may be rendering artefacts from rounding fractional ROW/COL values; others may indicate a genuine layout collision worth checking in the UIB.

Widget	Conflicts with	At cell (row, col)
ab-14102 omschr=30	ab-14102 kostendrager	(11, 15)

# GenAI



# Refactoring with Generative AI

- **ABL programs are typically very verbose** – which makes them a relatively easy task for AI coding assistants to understand, no matter how complex
- **Refactoring = building *new* programs**, with the existing code as part of the requirements:
  - Apply modern patterns, APIs and architecture
  - Separate UI from business logic
  - Separate domain logic from application logic
  - De-duplicate logic that has spread across the codebase
- **Functional requirements typically stay the same** – refactoring modernizes the *how*, not the *what*

# HUMAN-IN-THE-LOOP

HUMAN

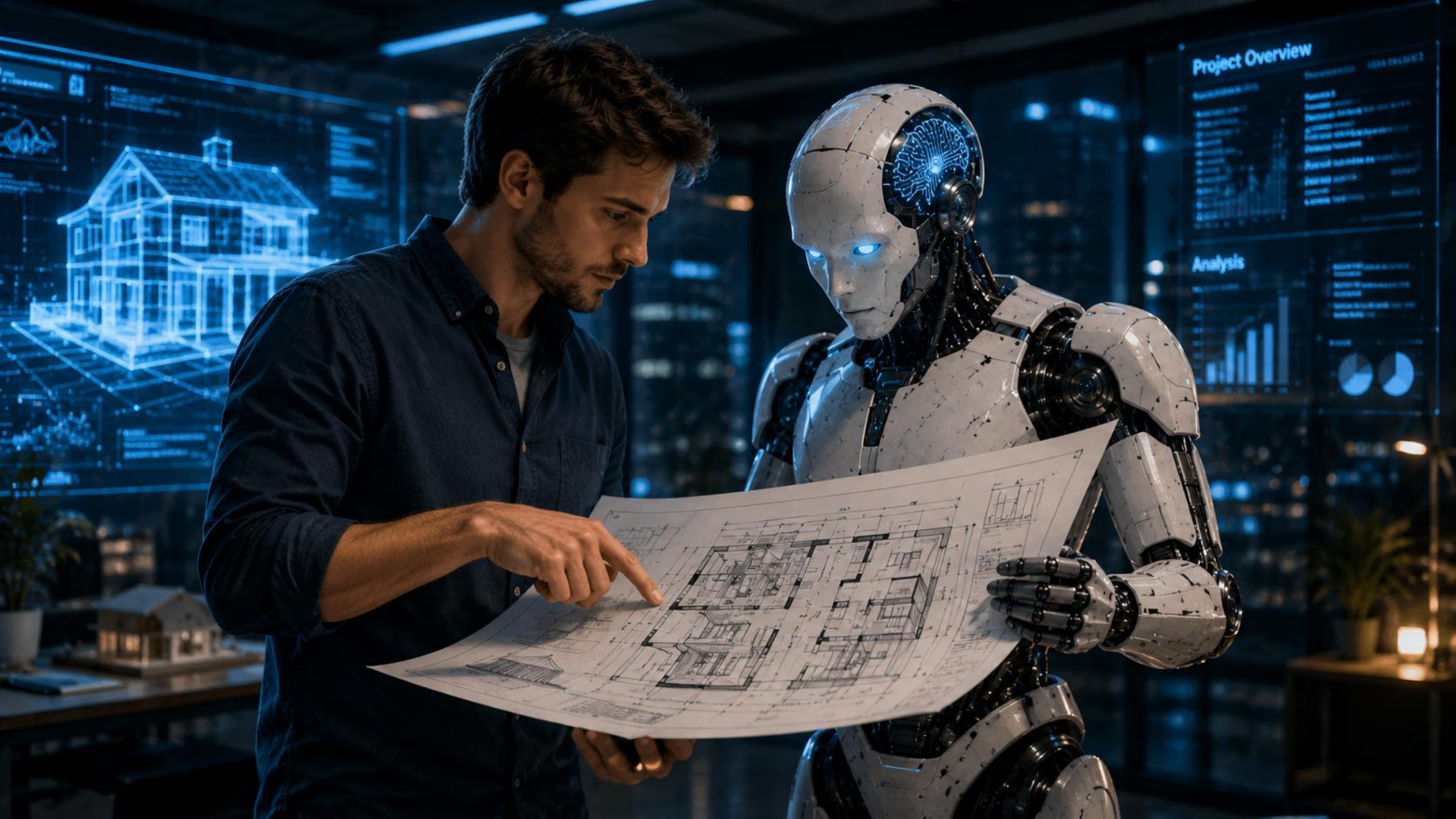


AI



# Human-in-the-Loop: AI as Assistant, Not Replacement

- **AI tooling stays an assistant** – not a replacement for experienced ABL developers or architects
- **Iterative workflow with checkpoints at every step:**
  - Analysis → Feedback → Generation → Test & Review → Refine (if needed)
- **Balances refactoring speed with code quality** – architects steer, AI executes
- **Avoids AI slop** – ABL applications are too complex and too business-critical for pure vibe coding
- **Built to last years or decades** – not the next tiny app you replace in a few weeks when something shinier shows up



### Project Overview

Task	Status	Due Date
Task 1	Completed	2023-10-25
Task 2	In Progress	2023-10-30
Task 3	Not Started	2023-11-05
Task 4	On Hold	2023-11-10
Task 5	Completed	2023-10-20
Task 6	In Progress	2023-10-28
Task 7	Not Started	2023-11-02
Task 8	On Hold	2023-11-08

### Analysis



# A Growing Library of Modernization Skills

- **Continuously expanding our AI automation** – more skills, deeper coverage, every project
- **Skills that understand the legacy application** – separate legacy framework code from code implementing functional requirements
- **Skills that generate the modernized code** – not just the skills themselves, but their definitions
- **Skills that generate skills** – meta-automation that compounds our coverage over time
- **Starting point: SmartComponent Library skills** – some adapt to any legacy application, others are tailored to the original architecture:
  - TTY · GUI · ADM2 · frameworks like Unit4 or DWP



# How Our Framework Supports Modernization

- **Robust & flexible framework architecture**
  - Foundation for scalable, maintainable, future-ready applications – ~6,000 modern sample classes in the box
- **End-to-end developer enablement**
  - Tools that cover every phase of the development lifecycle
- **Deep legacy ABL expertise**
  - Strong understanding of existing systems, with proven transformation track record
- **AI-driven modernization process**
  - Intelligent automation for faster, more accurate application modernization

# Coding Agents and LLMs in Use

- **Coding agents**
  - **Claude Code** – current preference
  - **Windsurf** – long-standing choice, now closer integration with Devin
  - **VS Code / GitHub Copilot** – for Microsoft-focused customers
  - **Google Antigravity / Gemini, Mistral Code** – under continuous evaluation
- **LLMs behind them**
  - Anthropic Claude (Sonnet, Opus) and OpenAI GPT models – chosen per task and customer policy
  - *Code-generation quality took a major leap at the end of 2025 / early 2026*

# MCP: Bringing Determinism into AI Workflows

- **MCP = Model Context Protocol** – standard interface between AI agents and tools/data
- **Enables the AI agent to make calls into PASOE** – reach live OpenEdge logic, schema and data, not just static source
- **Tools, not prompts** – agents call typed functions instead of guessing from text
- **Deterministic results** – same input, same output, no hallucinated structure or syntax
- **Auditable & verifiable** – every tool call is logged with its parameters and result
- **The right primitive for enterprise modernization** – combines AI flexibility with engineering reliability

# MCP Design Patterns: Where to Draw the Line

- **Use AI where flexibility helps** – understanding code, refactoring validation logic and other business logic, generating tests, drafting documentation
- **Use deterministic tools where correctness matters** – schema lookups, code analysis, structural transforms, repository operations
- **Letting an LLM hallucinate ABL syntax or structure is Russian Roulette** – for an enterprise codebase, not an option
- **MCP draws a clear line** – AI orchestrates and decides; tools execute precisely and verifiably

# SmartComponent Library MCP Servers

- **Generation services** – create new business entities, services, and UI artifacts from a structured request
- **Code analysis** – identify framework code vs. business logic, dependencies, references
- **Database & schema introspection** – tables, fields, indexes, relationships exposed as deterministic tools
- **Refactoring transforms** – safe, repeatable code modifications applied via the framework
- **Project & lifecycle integration** – aligned with our standards, ready for any AI agent that speaks MCP

# Refactoring Demo

- Migration of GUI application
  - AppBuilder
  - ADM2 SmartObjects
  - Mix of SDO and direct DB access

The image shows a screenshot of a development environment. At the top, the AppBuilder IDE window is visible with a menu bar (File, Edit, Compile, Tools, Options, Layout, Window, Help) and a toolbar. Below the menu bar, the object path is shown as 'Object: h\_b-order' and 'Master: demo\adm2sample\b-order.w'. The main area of the IDE displays a table of order data.

Below the IDE window, the 'Order entry' application window is shown. It features a header with fields for 'Order Num: 7239225', 'Ordered: 26/02/11', 'Order Status: Ordered', and 'Name: Beefsteak Charlie's'. The main area contains a table of order lines with columns for Order Num, Ordered, Promised, Shipped, Order Status, Cust Num, and Name. To the right of the table, there is a detailed view for the selected order line (Line Num: 1), showing 'Item Num: 28', 'Item Name: Fins', and 'Qty: 41'. Below this, summary statistics are displayed: 'On Hand: 13022', 'On Order: 433', 'Re Order: 1', 'Qty: 41', 'Price: 23,00', 'Extended Price: 754,40', and 'Order Line Status: Ordered'. A 'Discount: 20%' is also shown at the bottom.

Order Num	Ordered	Promised	Shipped	Order Status	Cust Num	Name
7239245	24/09/11	29/09/08	29/09/2008	Shipped	2003470	Beefsteak Charli
7239235	15/01/11	20/01/09		Ordered	2003470	Beefsteak Charli
7239225	26/02/11	03/03/09		Ordered	2003470	Beefsteak Charli
7239215	05/11/11	10/11/08		Ordered	2003470	Beefsteak Charli
7239205	31/01/11	05/02/09	05/02/2009	Shipped	2003460	Sav-A-Center
7239195	03/12/11	08/12/08	08/12/2008	Shipped	2003460	Sav-A-Center
7239185	30/01/11	04/02/09	04/02/2009	Shipped	2003460	Sav-A-Center
7239175	07/02/11	12/02/09	12/02/2009	Shipped	2003460	Sav-A-Center
7239165	03/11/11	08/11/08	08/11/2008	Shipped	2003460	Sav-A-Center
7239155	29/11/11	04/12/08		Ordered	2003450	Parts and Piece:
7239145	03/01/11	08/01/09		Ordered	2003450	Parts and Piece:
7239135	25/02/11	02/03/09		Ordered	2003450	Parts and Piece:
7239125	31/10/11	05/11/08		Ordered	2003450	Parts and Piece:
7239115	20/12/11	25/12/08		Ordered	2003440	Tech Hifi
7239105	26/11/11	01/12/08	01/12/2008	Shipped	2003440	Tech Hifi
7239095	28/10/11	02/11/08		Ordered	2003440	Tech Hifi
7239085	15/01/11	20/01/09	20/01/2009	Shipped	2003440	Tech Hifi
7239075	23/02/11	28/02/09		Ordered	2003440	Tech Hifi
7239065	26/09/11	01/10/08	22/07/2011	Shipped	2003430	Endicott Shoes
7239055	29/12/11	03/01/09	23/05/2009	Shipped	2003430	Endicott Shoes
7239045	09/09/11	14/09/08	24/05/2009	Shipped	2003430	Endicott Shoes
7239035	02/12/11	07/12/08	23/05/2009	Partially Shipped	2003430	Endicott Shoes
7239025	19/09/11	24/09/08	24/09/2008	Shipped	2003430	Endicott Shoes
7239015	09/02/11	14/02/09	14/02/2009	Shipped	2003420	Wilson's Jewelei
7239005	01/02/11	06/02/09		Approval Pending	2003420	Wilson's Jewelei

Lokal ABL develop Worktree +

Analyze the ADM2 window Demo/Adm2Sample/w-orderentry.w - this time I do not want to reuse any Business Entity. All new business entities should be in the Demo.SmartComponentsWebinar.Order package. For the domain UI objects, please use prefix Demo on top of the naming patterns from the skill

“Analyze the ADM2 window Demo/Adm2Sample/w-orderentry.w - this time I do not want to reuse any Business Entity. All new business entities should be in the Demo.SmartComponentsWebinar.Order package. For the domain UI objects, please use prefix Demo on top of the naming patterns from the skill”

The analysis is complete. Here's a summary:

JIRA Ticket: [MISC-135](#) - Migration of w-orderentry.w

#### Key Findings

- 9 SmartObjects across 3 pages (page 0 = shared, page 1 = Order header, page 2 = Order lines)
- 2 SmartDataObjects: d-order.w (Order + Customer) and d-order-line.w (OrderLine + Item, ForeignFields: Ordernum)
- 1 Header Viewer ( v-order-header.w ) always visible on page 0
- 1 Master Grid ( b-order ) on the left, TabFolder on the right --> horizontal layout
- 1 Typo detected: "Order llines" --> "Order lines" (double "l")
- Direct FIND on Item table in v-order-line.w (price lookup) -- needs refactoring
- Custom code: Menu trigger runs order-confirmation.p, viewer triggers calculate ExtendedPrice

#### Proposed Repository Objects (all new, Demo prefix)

ADM2	Proposed Name
d-order.w	DemoOrderDataSource
d-order-line.w	DemoOrderLineDataSource
v-order-header.w	DemoOrderHeaderView
v-order.w	DemoOrderViewer
v-order-line.w	DemoOrderLineViewer
b-order.w	DemoOrderGrid
b-order-line.w	DemoOrderLineGrid
w-orderentry.w	DemoOrderEntryForm

#### New Business Entities (Demo.SmartComponentsWebinar.Order)

- OrderBusinessEntity (Order + Customer)
- OrderLineBusinessEntity (OrderLine + Item)
- ItemBusinessEntity (Item -- for direct FIND refactoring)

#### Recommended Template

Template Master/Detail Form with TabFolder and Header Viewer - Horizontal -- an exact structural match with header viewer, master grid on the left, TabFolder on the right, master viewer on page 1, and detail grid + viewer on page 2.

## Migration of w-orderentry.w



<https://consultingwerk.atlassian.net/browse/MISC-135>

### Beschreibung

Beschreibung verbessern H, B, A, %/

#### Proposed MetaForm Name

SmartWindow File	Proposed MetaForm Name
w-orderentry.w	DemoOrderEntryForm

#### Window Attributes

Attribute	Value
Title	Order entry
Width	220.2
Height	26.86

## Database Tables

#	SDO / Source File	Primary Table	Secondary Table(s)	Table Descriptions	BE Exists	Package	Business Entity Name	Matching DataSource
1	d-order.w	Order	Customer	Order: order header information; Customer: customer information including balance and address	N (new)	Demo.SmartComponentsWebinar.Order	OrderBusinessEntity	--
2	d-order-line.w	Orderline	Item	Orderline: order	N (new)	Demo.SmartCo	OrderlineBusine	--

v-order-line.w  
(direct FIND)

Item

--

Item: quick  
reference for  
items in stock  
and quantity on-  
hand

N (new)

Demo.SmartCo  
mponentsWebin  
ar.ItemsItemBusinessEn  
tity

Stay in control of names:

- Describe rule / naming patterns
- Provide lookup document / MCP server
- Edit on a case by case basis in JIRA

## Create Business Entities (retry)

Skill verwendet >

Let me fetch the JIRA ticket fresh from the API.

getJiraIssue verwendet >

Ticket fetched. Parsing the Database Tables section from the ticket:

#	SDO	Primary	Secondary	Package (from ticket)	BE Name
1	d-order.w	Order	Customer	Demo.SmartComponentsWebinar.Order	OrderBusinessEntity
2	d-order-line.w	OrderLine	Item	Demo.SmartComponentsWebinar.OrdeLines	OrderLineBusinessEntity
3	v-order-line.w (direct FIND)	Item	--	Demo.SmartComponentsWebinar.Items	ItemBusinessEntity

Note: Row 2 has package `Demo.SmartComponentsWebinar.OrdeLines` which may be a typo for `OrderLines`. Per the updated skill, I'll flag this but use the ticket value as-is.

Now let me get product modules, then read the SDO files for secondary table fields.

Gelesen 2 Dateien, verwendet ein Tool >

Secondary table fields extracted:

- d-order.w (Customer): `Customer.Name`, `Customer.City`, `Customer.Country`
- d-order-line.w (Item): `Item.ItemName`, `Item.Onhand`, `Item.OnOrder`, `Item.ReOrder`

Using product module "Demo". Now creating Business Entities sequentially, using package names exactly as they appear in the ticket.

BE 1: OrderBusinessEntity (Package: `Demo.SmartComponentsWebinar.Order`)

Verwendet create businessentity ▾

databaseTableName: Order

packageName: Demo.SmartComponentsWebinar.Order

businessEntityName: OrderBusinessEntity

additionalFieldNames: Customer.Name, Customer.City, Customer.Country

- Authentication & Authorization
- Menu
- Scheduler
- System
- Repository
  - Attribute Maintenance
  - Attribute Group Maintenance
  - DataSource Maintenance
  - Dynamic Business Entity Maintenance
  - Class Type Maintenance
  - Dynamic Launcher
  - Entity Table Maintenance
  - New Object Master From Template
  - Object Master Designer
  - Repository Objects
    - All Repository Objects
    - Components
    - Container
      - MetaControlGroup - Repository
      - MetaForm - Repository
      - MetaGrid - Repository
      - MetaViewer - Repository
    - Data
  - Search Attribute Values
  - Screen Type Maintenance
  - UI Type Maintenance
  - Customization Type Maintenance
  - Repository Integrity Report
- Tools
- Web

Order Num: 5    Ordered: 09.02.2009    Order Status: Shipped    Name: Birdy's Badminton

Order Num	Ordered	Promised	Shipped	Order Status	Cust ...	Name	Stadt
1	23.01.2...	28.01.2...	28.01.2009	Approved	54	Spokes Cycles	Ipswich
2	02.10.2...	07.10.2...	07.10.2008	Shipped	81	Off The Wall	Export
3	20.09.2...	25.09.2...	25.09.2008	Shipped	66	First Down Football	Loudon
4	14.01.2...	19.01.2...	19.01.2009	Shipped	83	Fallen Arch Running	Codys Co
5	09.02.2...	14.02.2...	14.02.2009	Shipped	72	Birdy's Badminton	Hydro
7	03.03.2...	08.03.2...	08.03.2009	Shipped	51	Butternut Squash Inc	El Centro
8	15.09.2...	20.09.2...	20.09.2008	Shipped	38	Hoopelin Pesapallo	Hyvinkaa
9	19.02.2...	24.02.2...	24.02.2009	Shipped	61	Squash Mestarihalli	Parkano
10	18.01.2...	23.01.2...	23.01.2009	Shipped	11	Keilailu ja Biljardi	Helsinki
11	25.01.2...	30.01.2...	30.01.2009	Shipped	28	Luistin ja Pyora Oy	Laihia
12	29.11.2...	04.12.2...	04.12.2008	Shipped	37	Abc Mountain Bikes	Salzburg
13	12.01.2...	17.01.2...	17.01.2009	Shipped	69	Sukellusvarustus	Turku
14	03.12.2...	08.12.2...	08.12.2008	Shipped	82	Second Skin Scuba	Yuma
15	22.12.2...	27.12.2...	27.12.2008	Shipped	61	Squash Mestarihalli	Parkano
16	06.11.2...	11.11.2...	11.11.2008	Shipped	11	Keilailu ja Biljardi	Helsinki
17	06.01.2...	11.01.2...	11.01.2009	Shipped	48	Purjehdustarvike Oy	Tampere
18	19.02.2...	24.02.2...	24.02.2009	Shipped	30	Fast Flipper Pinball	Troy
19	25.11.2...	30.11.2...	30.11.2008	Shipped	58	Flying Fat Aerobics	Harfield
20	21.11.2...	26.11.2...	26.11.2008	Shipped	14	Paris St Germain	Paris
21	05.02.2...	10.02.2...	10.02.2009	Shipped	4	Go Fishing Corporation*#	Harr
22	30.12.2...	04.01.2...	04.01.2009	Shipped	70	U-jump Parachuting	Felldown
23	26.01.2...	31.01.2...	31.01.2009	Shipped	16	Thundering Surf Inc.	Coffee Cit
24	30.11.2...	05.12.2...	05.12.2008	Shipped	73	Auffi Bergausrustung	Innsbruck
25	07.10.2...	12.10.2...	12.10.2008	Shipped	10	Just Joggers Limited !!!	Ramsbott
26	05.12.2...	10.12.2...	10.12.2008	Shipped	53	Offside Hockey	Gavle
27	24.10.2...	29.10.2...	29.10.2008	Shipped	59	Holvin juoksukeskus	Kuopio
28	24.02.2...	01.03.2...	01.03.2009	Shipped	32	Kiiskin Jaavarustus	Mikkeli
29	13.10.2...	18.10.2...	18.10.2008	Shipped	60	Hou Hoog die Bat	Amsterda

Order Status: Shipped    Name: Birdy's Badminton

+ Add   Copy   Update   Save   Cancel   Delete

Order header    Order Lines

Order Num: 5

Ordered: 09.02.2009

Order Status: Shipped

Cust Num: 72    Birdy's Badminton

Stadt: Hydro

Country: USA

Promised: 14.02.2009

Shipped: 14.02.2009

Terms: Net30

PO:

Carrier: Standard Mail

Credit Card: Visa

Instructions:



- Consultingwerk software architecture and development
- Authentication & Authorization
- Menu
- Scheduler
- System
- Repository
  - Attribute Maintenance
  - Attribute Group Maintenance
  - DataSource Maintenance
  - Dynamic Business Entity Maintenance
  - Class Type Maintenance
  - Dynamic Launcher
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  - New Object Master From Template
  - Object Master Designer
  - Repository Objects
    - All Repository Objects
    - Components
    - Container
      - MetaControlGroup - Repository
      - MetaForm - Repository
      - MetaGrid - Repository
      - MetaViewer - Repository
    - Data
    - Search Attribute Values
    - Screen Type Maintenance
    - UI Type Maintenance
    - Customization Type Maintenance
    - Repository Integrity Report
  - Tools
  - Web

Order Num: 5 | Ordered: 09.02.2009 | Order Status: Shipped | Name: Birdy's Badminton

Order Num	Ordered	Promised	Shipped	Order Status	Cust ...	Name	Stadt
1	23.01.2...	28.01.2...	28.01.2009	Approved	54	Spokes Cycles	Ipswich
2	02.10.2...	07.10.2...	07.10.2008	Shipped	81	Off The Wall	Export
3	20.02.2...	25.02.2...	25.02.2009	Shipped	66	First Down Football	Kinder
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23	26.01.2...	31.01.2...	31.01.2009	Shipped	16	Thundering Surf Inc.	Coffee Cit
24	30.11.2...	05.12.2...	05.12.2008	Shipped	73	Auffi Bergausrüstung	Innsbruck
25	07.10.2...	12.10.2...	12.10.2008	Shipped	10	Just Joggers Limited !!!	Ramsbott
26	05.12.2...	10.12.2...	10.12.2008	Shipped	53	Offside Hockey	Gavle
27	24.10.2...	29.10.2...	29.10.2008	Shipped	59	Holvin juoksukeskus	Kuopio
28	24.02.2...	01.03.2...	01.03.2009	Shipped	32	Kiiskin Jaavarustus	Mikkeli
29	13.10.2...	18.10.2...	18.10.2008	Shipped	60	Hou Hoog die Bal	Amsterdc

+ Add Copy Update Save Cancel Delete

Order header Order Lines

Order Num: 5

**Lookup Customer**

City	Contact	Country	Cust Num	Name	Rep I
FLOWERDALE	Elaine Brennan	AU	136760	Life Map	
KRISTIANSAND S	Shelly Acosta	NO	137630	Life Map	
Baaigem	Clinton Biggs	BE	182620	Life Map	
KINNERTON	Zak Dorsey	GB	185140	Life Map	
TURRAWAN	Anastasia Kovach	AU	196290	Life Map	
Louveigné	Fulvio Jepsen	BE	211610	Life Map	
WETZMANN	Gabriel Baumgartner	AT	212330	Life Map	
<b>Nykebing F</b>	<b>Cosimo Cobbs</b>	<b>DK</b>	<b>228010</b>	<b>Life Map</b>	
Wembach	Franziska Beckett	DE	238810	Life Map	
BLACKFORDBY	Chad Bauer	GB	310750	Life Map	
Musson	Chung Avallone	BE	321020	Life Map	

100 items per page

OK Cancel

Instructions



- Authentication & Authorization
- Menu
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  - Attribute Group Maintenance
  - DataSource Maintenance
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  - Class Type Maintenance
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Order Num: 5 | Ordered: 09.02.2009 | Order Status: Shipped | Name: Birdy's Badminton

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1	23.01.2...	28.01.2...	28.01.2009	Approved	54	Spokes Cycles	Ipswich
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7	03.03.2...	08.03.2...	08.03.2009	Shipped	51	Butternut Squash Inc	El Centro
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12	29.11.2...	04.12.2...	04.12.2008	Shipped	37	Abc Mountain Bikes	Salzburg
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23	26.01.2...	31.01.2...	31.01.2009	Shipped	16	Thundering Surf Inc.	Coffee Cit
24	30.11.2...	05.12.2...	05.12.2008	Shipped	73	Auffi Bergausrustung	Innsbruck
25	07.10.2...	12.10.2...	12.10.2008	Shipped	10	Just Joggers Limited !!!	Ramsbott
26	05.12.2...	10.12.2...	10.12.2008	Shipped	53	Offside Hockey	Gavle
27	24.10.2...	29.10.2...	29.10.2008	Shipped	59	Holvin juoksukeskus	Kuopio
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29	13.10.2...	18.10.2...	18.10.2008	Shipped	60	Hou Hoog die Bal	Amsterda

Order Status: Shipped | Name: Birdy's Badminton

+ Add | Copy | Update | Save | Cancel | Delete

Order header | Order Lines

Line ...	Item Num	Item Name	Qty	Price	Extended Pri...	Order Line Stat...
1	52	Croquet ball	31	3.69	62.91	Shipped
2	16	Baseball Bat	82	13.95	629.15	Shipped
3	3	Golf Umbrella	69	2.55	96.77	Shipped
4	12	Sled	83	34.00	1,552.10	Shipped
5	20	Snow Shoes	17	225.00	2,103.75	Shipped
6	45	Golf shoes	12	81.00	534.60	Shipped
7	18	Wet Suit	82	225.00	10,147.50	Shipped

100 items per page

Line Num: 1

Item Num: 52 | Croquet ball

On Hand: 9.566

On Order: 245

Re Order: 14

Qty: 31

Price: 3.69

Extended Price: 62.91

Order Line Status: Shipped

# The Definition of a Good Developer Changes

- It's **not** the developer who codes the fastest
- It's **not** the developer who knows every rarely used keyword of the language by heart
- It's the developer who **understands the concepts of the language and the platform**
- It's the developer who **understands the concepts of the framework** being used
- It's the developer who **knows when to integrate with other technologies**
- It's the developer who **understands the business domain** the best
- It's certainly the developer who can **explain requirements** the best
- It's the developer who **thinks in terms of test cases**

## Lessons Learned: Treat the AI Like a Co-Worker

- **Give feedback to the AI** – even when fixing it yourself feels faster, the AI never *learns* if you don't:
  - Paste in the error messages
  - Share log files from the build server or runtime
  - Drop in screenshots
- **Give the AI access to user and lead-developer feedback** – emails, review comments, bug reports
- **Discuss how the feedback should improve rules and skills** – not just patch the current issue
- **Talk to the AI like a colleague** – tools like Wispr Flow let you dictate naturally instead of typing every prompt
- **AI is a co-worker, not just a tool you operate**

# Lessons Learned: Embrace AI-First Thinking

- **Ask “how can AI help?” for everything you do – not just code:**
  - Writing requirements
  - Analysis
  - Testing
  - Writing documentation and release notes
  - Communicating with colleagues and customers
- **Use AI for tasks well beyond code generation:**
  - Image manipulation – cropping, resizing, making images transparent
  - Editing config files, Swagger files, ProxyGen projects
  - ... really, everything – if it’s on your screen, AI can probably help



GOOD  
WORK  
BETTER  
TOGETHER

HUMAN + AI  
BETTER  
TOGETHER

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