SAP

# SAP Business Unleashed Innovation Day

**When you connect everything,**
you can achieve anything.

Unleashed

AI+Data+Applications

## Agenda

The five dimensions of a Clean Core – focus of presentation is on extensibility

Classic extensibility in ERP 6

S/4HANA Extensibility – key user extensibility and developer extensibility
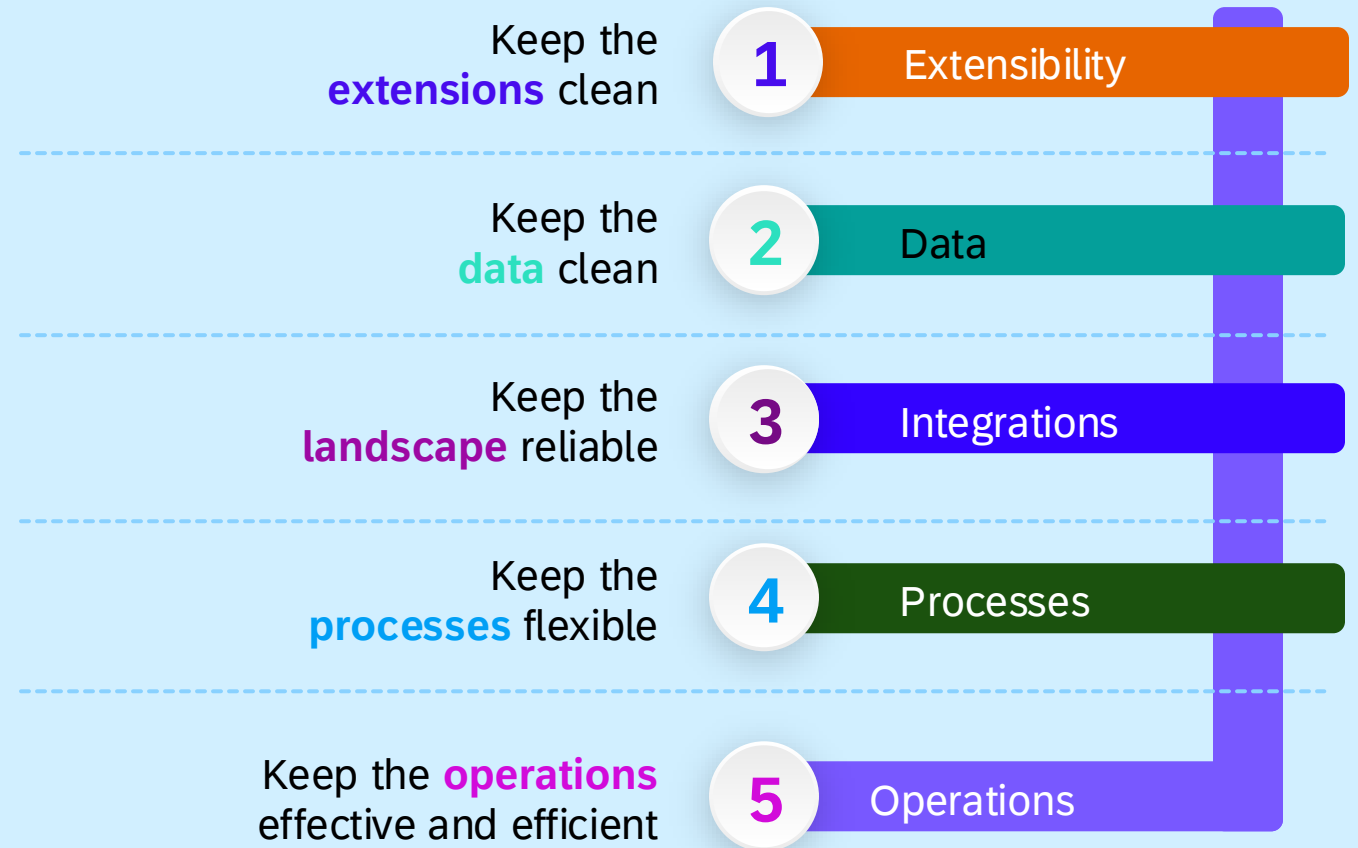
Getting started – **FREE** clean core assessment service

# The clean core dimensions

A **clean core** is a system that is as close to standard as possible, while running cloud-compliant extensions and integrations.

It allows you to **adapt your system** to changing business requirements and to **adopt new capabilities.**

Keep the **extensions** clean
**1** Extensibility

Keep the **data** clean
**2** Data

Keep the **landscape** reliable
**3** Integrations

Keep the **processes** flexible
**4** Processes

Keep the **operations** effective and efficient
**5** Operations

# Today's presentation will focus on extensibility

**Main aspects:**

- Extensions should be **avoided** when possible.
- Create **cloud-compliant extensions**
- Leverage the full capabilities of extensibility **on the stack** as well as side-by-side **with SAP BTP.**
- Create **technical debts** only as informed decision.

Keep the **extensions** clean

**1** Extensibility

Keep the **data** clean

**2** Data

Keep the **landscape** reliable

**3** Integrations

Keep the **processes** flexible

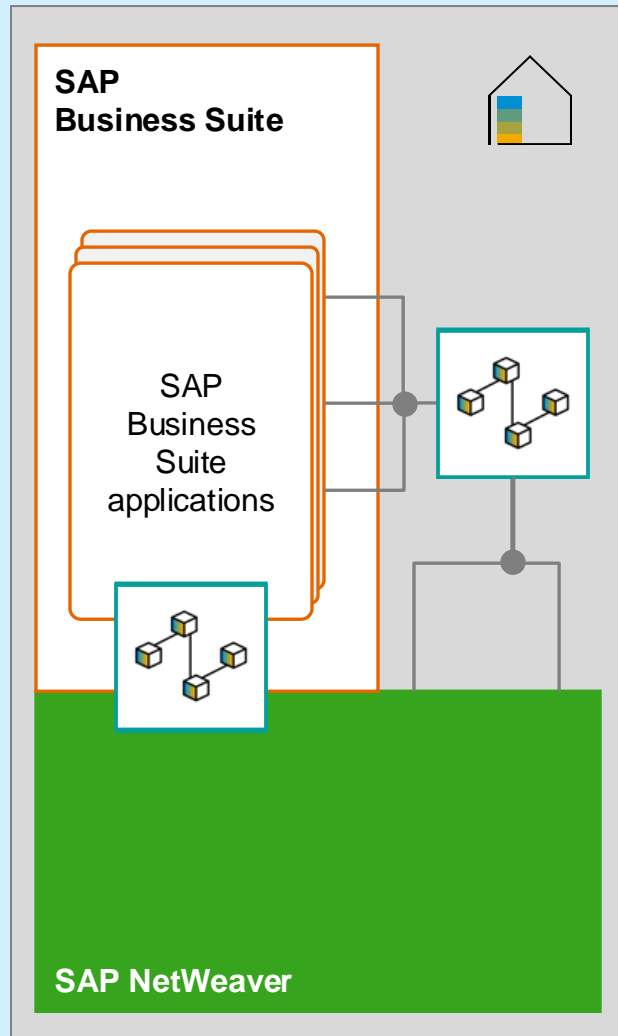**4** Processes

Keep the **operations** effective and efficient

**5** Operations

# ERP Classic extensibility: Good and bad.

**SAP Business Suite**

SAP Business Suite applications

SAP NetWeaver

**Classic, custom ABAP development**

Use and modify all SAP objects

**All SAP objects can be used in custom code**

```
10    data mtart type mara-mtart.
11
12    select single mtart from mara into mtart wher
```

**SAP objects can be modified**

```
18    *
19    *       This form is called from form FV45PF0K
20    *
21    *----------------------------------------------
22    FORM USEREXIT_MOVE_FIELD_TO_KOMK.
23    *{   INSERT          &$&$&$&$
24 ▶  If...here I modify the SAP code ...*
25    *}   INSERT
26
27    *  KOMK-zzfield = xxxx-zzfield2.
28
29    ENDFORM.|
30    *eject
31
```
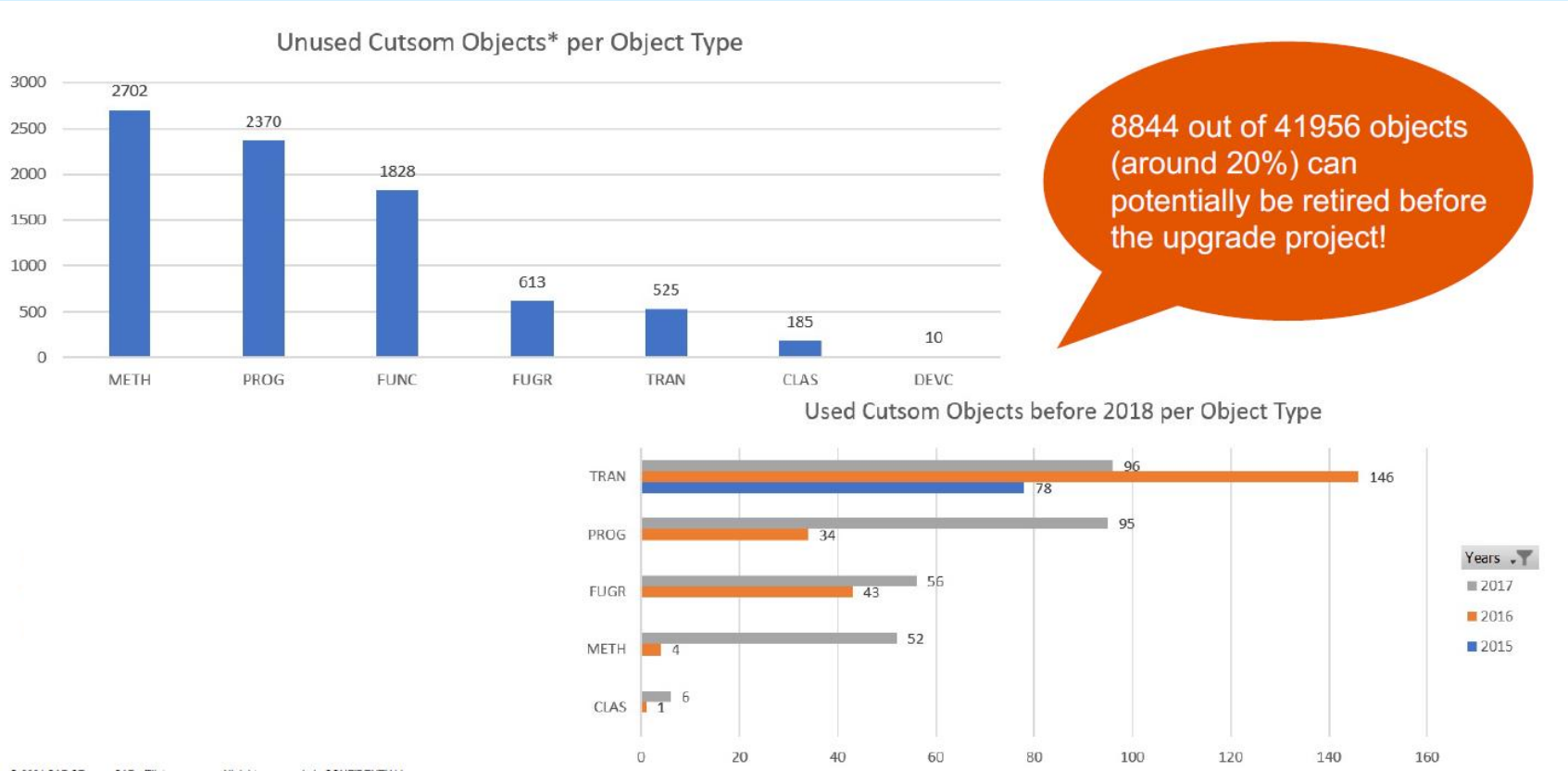
**PRO**

**No restriction for extensions** ✎ Extremely flexible and powerful

**CON**

There is no interface between SAP code and the extension
SAP software changes lead to high test and adaptation efforts

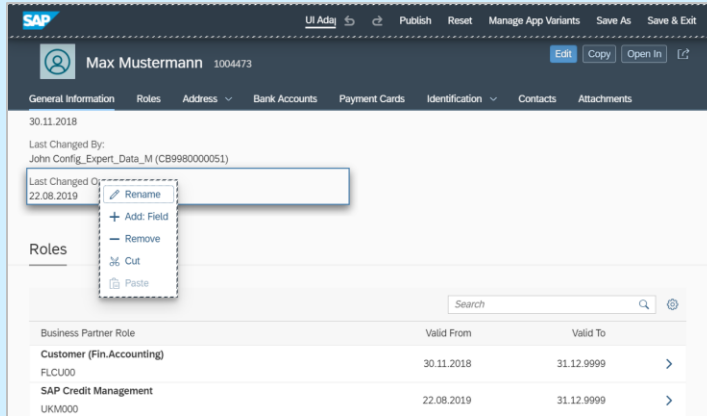→SAP upgrade effort increases and agility and innovation speed decrease
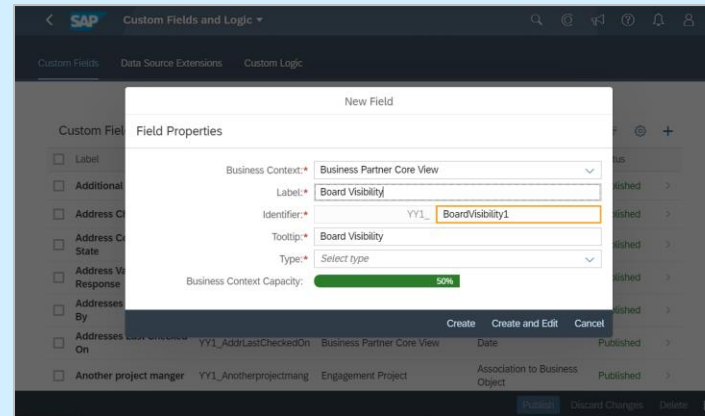
# ERP classic extensions – corporate memory lapse

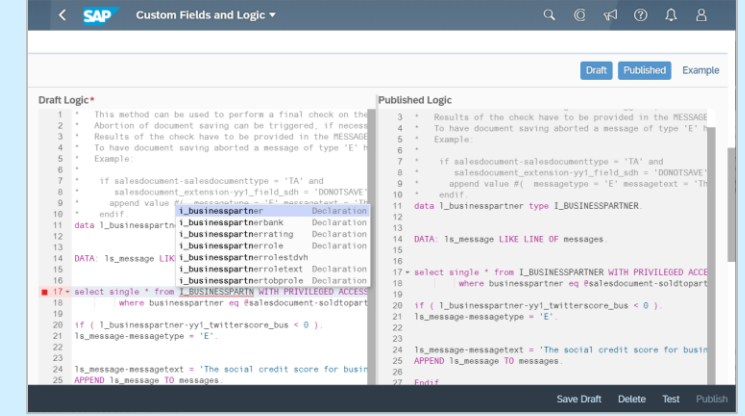# Give me an example of a clean core system

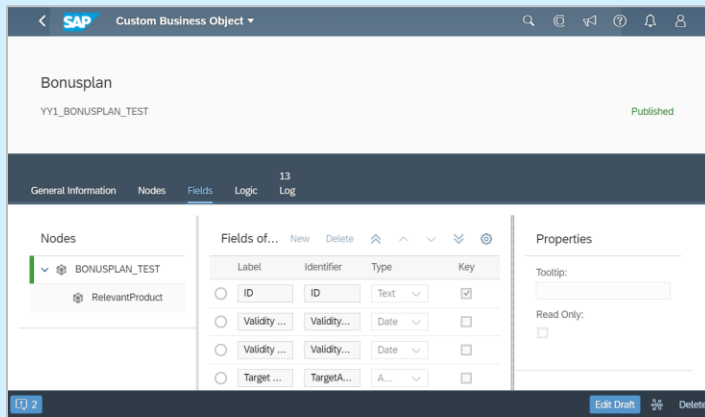# S/4HANA Key User Extensibility



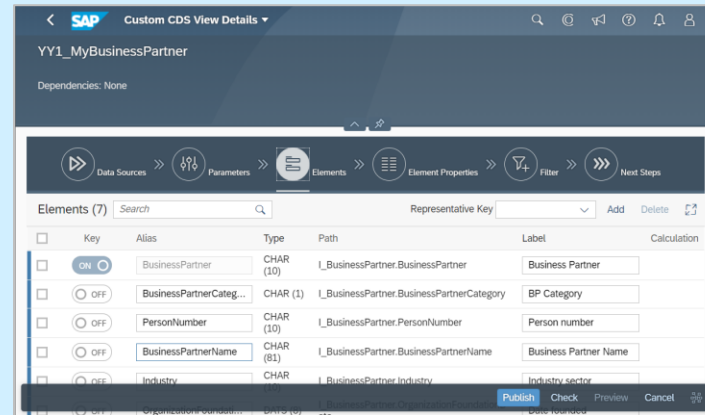**UI adaptation** mode – adaptation mode with drag-and-drop configuration



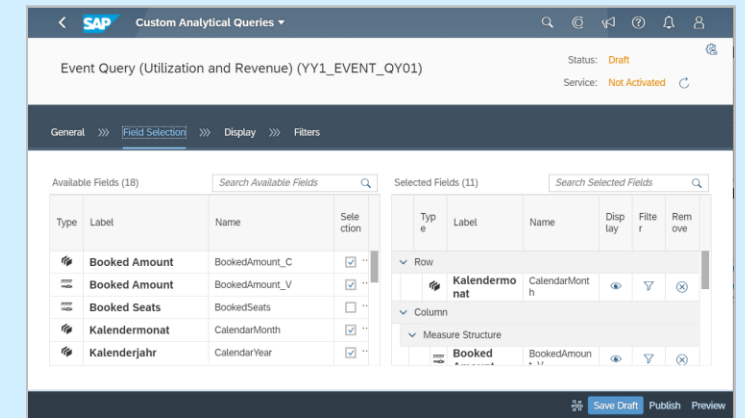**Custom fields** SAP Fiori app



**Custom logic** SAP Fiori app


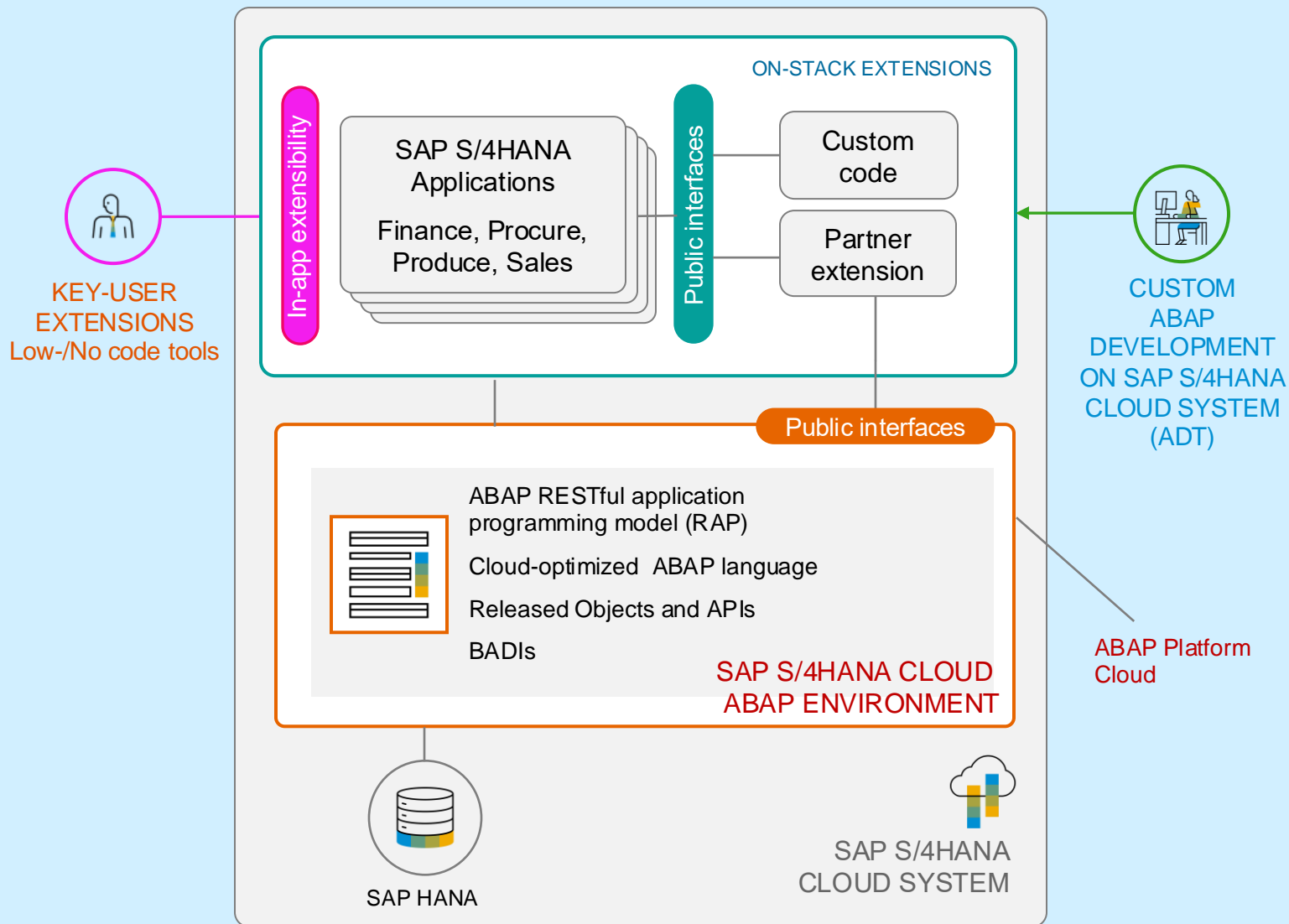
**Custom business objects** SAP Fiori app



**Custom CDS views** SAP Fiori app



**Custom analytical queries** SAP Fiori app

# SAP S/4HANA Public Cloud – Developer extensibility

**KEY-USER EXTENSIONS**
Low-/No code tools

**In-app extensibility**

ON-STACK EXTENSIONS

SAP S/4HANA Applications

Finance, Procure, Produce, Sales

**Public interfaces**

Custom code

Partner extension

CUSTOM ABAP DEVELOPMENT ON SAP S/4HANA CLOUD SYSTEM (ADT)

Public interfaces

ABAP RESTful application programming model (RAP)

Cloud-optimized ABAP language

Released Objects and APIs

BADIs

**SAP S/4HANA CLOUD ABAP ENVIRONMENT**

ABAP Platform Cloud

SAP HANA

SAP S/4HANA CLOUD SYSTEM

**ENABLE CUSTOM ABAP DEVELOPMENT DIRECTLY ON SAP S/4HANA CLOUD STACK**

**RULES**

**Clear separation between SAP solutions and extensions**

- **Only stable and reliable public interfaces and released objects from both ABAP platform and SAP S/4HANA Cloud applications can be used**

- **No modifications**

# A more controlled ABAP environment – ABAP cloud development

**Custom ABAP on SAP S/4HANA Cloud**

ABAP development tools in Eclipse

Cloud-optimized ABAP

Proven ABAP transport management

**Access to public SAP APIs ONLY – otherwise, syntax error!**

No access to old dynpro APIs

No direct select on the MARA table from SAP

**Local APIs from SAP S/4HANA**

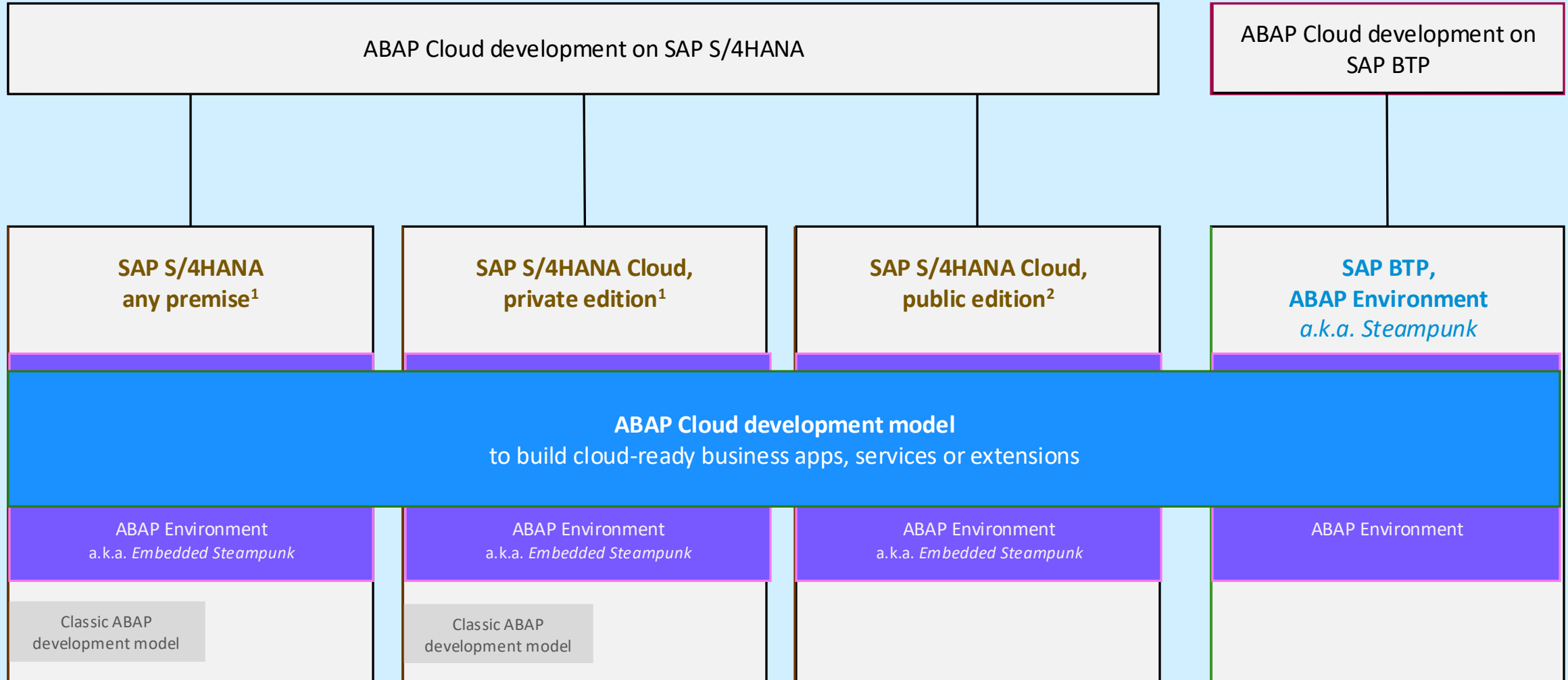SELECT products from SAP S/4HANA tables using the public i_product CDS view



```abap
▶ ⓖ ZCL_BGTEST ▶
 4    CREATE PUBLIC.
 5
 6    PUBLIC SECTION.
 7      INTERFACES if_oo_adt_classrun.
 8    PROTECTED SECTION.
 9    PRIVATE SECTION.
10  ENDCLASS.
11
12
13  CLASS zcl_bgtest IMPLEMENTATION.
14
15    METHOD if_oo_adt_classrun~main.
16
17      DATA lv_countryname TYPE I_CountryText-CountryName.
18
19      SELECT CountryName FROM I_CountryText WHERE Language = @sy-langu ORDER BY CountryName INTO @lv_countryname.
20        out->write( lv_countryname ).
21      ENDSELECT.
22
23
24      CALL FUNCTION 'POPUP_TO_CONFIRM'.
25    SELECT matnr FROM mara INTO TABLE @DATA(lt_mara).
26
27    SELECT ProductExternalID FROM i_product INTO TABLE @DATA(lt_mara_new).
28
29    ENDMETHOD.
```

*Global Class | Class-relevant Local Types | Local Types | Test Classes | Macros

Properties | Problems ⊠ | Templates | Feed Read... | Transport ... | Console | Relation E... | Error Log | ATC Proble... | Search | ABAP Co

3 errors, 0 warnings, 0 others

| Description | Resource | Path | Location | Type |
|---|---|---|---|---|
| ⌄ ⊗ Errors (3 items) | | | | |
| ⊗ Use of Function Module POPUP_TO_CONFIRM is not permitted. | zcl_bgtest.aclass | /X1E_EN/.adt/classlib... | line 24 | ABAP Syntax C... |
| ⊗ Use of Table MARA is not permitted. | zcl_bgtest.aclass | /X1E_EN/.adt/classlib... | line 25 | ABAP Syntax C... |

# ABAP Cloud – common development model for SAP S/4HANA extensions

| ABAP Cloud development on SAP S/4HANA | | | ABAP Cloud development on SAP BTP |
|---|---|---|---|

| **SAP S/4HANA**<br>**any premise**[1] | **SAP S/4HANA Cloud,**<br>**private edition**[1] | **SAP S/4HANA Cloud,**<br>**public edition**[2] | **SAP BTP,**<br>**ABAP Environment**<br>*a.k.a. Steampunk* |
|---|---|---|---|

**ABAP Cloud development model**
to build cloud-ready business apps, services or extensions

| ABAP Environment<br>a.k.a. *Embedded Steampunk* | ABAP Environment<br>a.k.a. *Embedded Steampunk* | ABAP Environment<br>a.k.a. *Embedded Steampunk* | ABAP Environment |
|---|---|---|---|
| Classic ABAP<br>development model | Classic ABAP<br>development model | | |

[1] SAP S/4HANA any premise and private cloud release ≥ 2022
[2] SAP S/4HANA public cloud release ≥ 2208, new customers

# SAP S/4HANA, private cloud and on-premise editions
## ABAP language version and public SAP APIs

How can I use **ABAP cloud development** in the private cloud and on-premise editions of SAP S/4HANA?

- Switch on the strict ABAP cloud syntax check for the selected custom ABAP objects (such as a new Z-class)

- Use the public APIs that SAP released for ABAP cloud development (such as the CDS view I_PRODUCT)
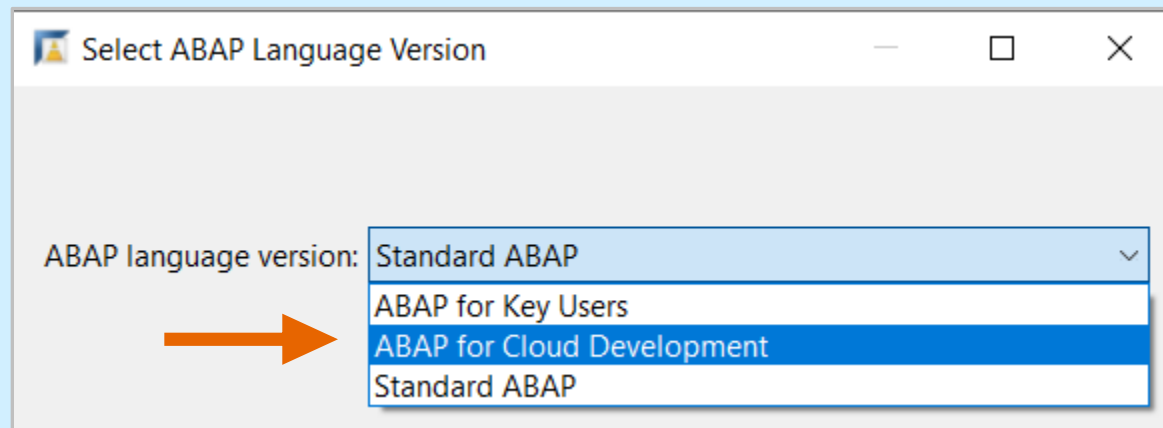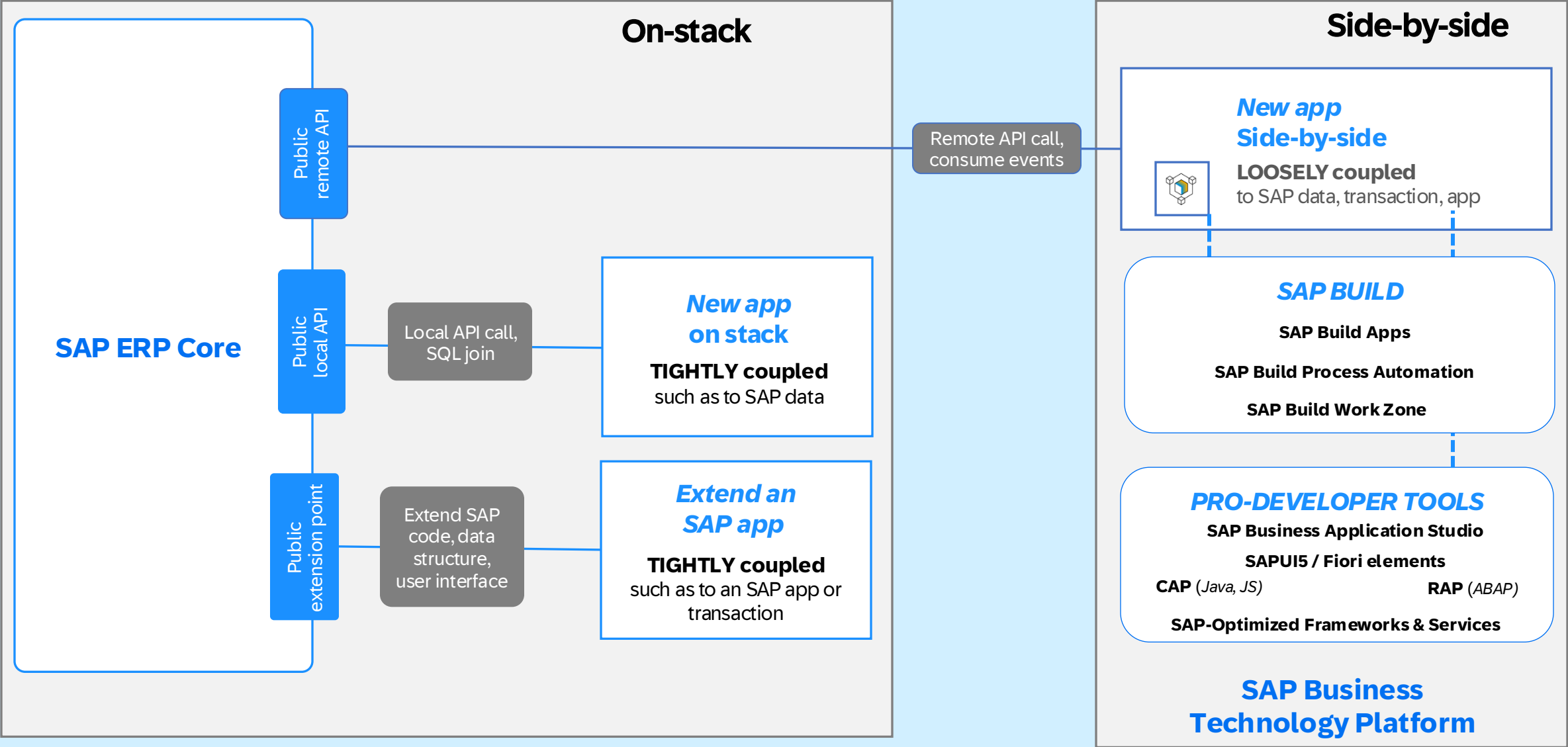


Switch from classic ABAP extensibility (standard ABAP) to ABAP cloud (ABAP for cloud development)
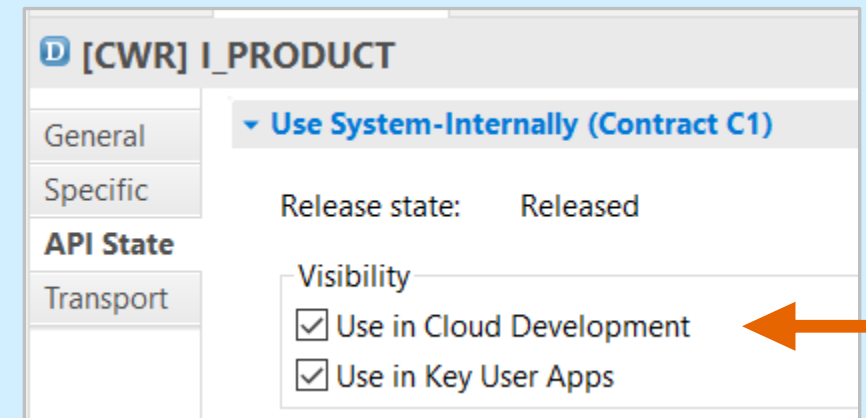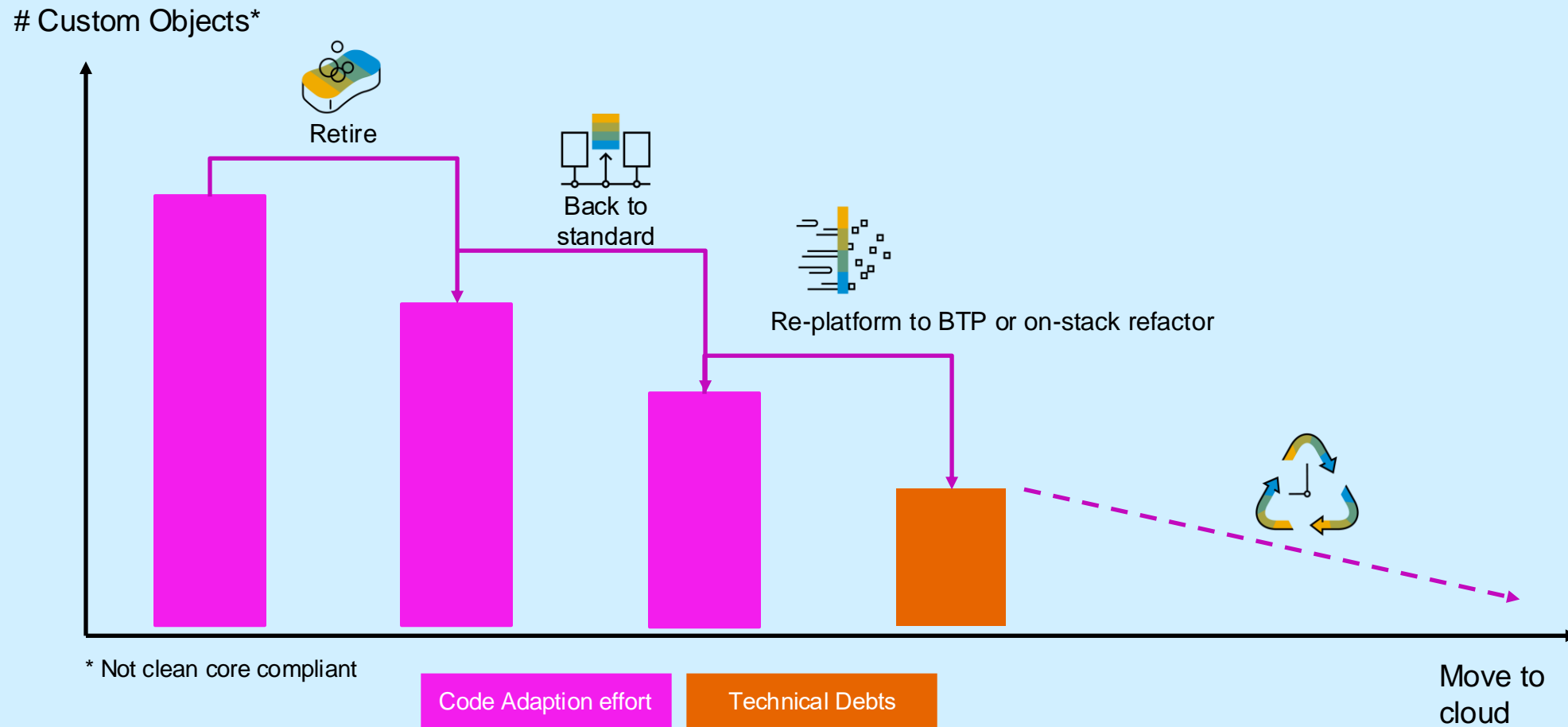


SAP released the CDS view for *ABAP cloud development*

# What does Clean Core Look Like with BTP?

## Side-by-side extensions on SAP BTP are loosely coupled

### On-stack

**SAP ERP Core**

Public remote API

Public local API

Public extension point

Remote API call, consume events

Local API call, SQL join

Extend SAP code, data structure, user interface

**New app on stack**

**TIGHTLY coupled**
such as to SAP data

**Extend an SAP app**

**TIGHTLY coupled**
such as to an SAP app or transaction

### Side-by-side

**New app Side-by-side**

**LOOSELY coupled**
to SAP data, transaction, app

**SAP BUILD**

**SAP Build Apps**

**SAP Build Process Automation**

**SAP Build Work Zone**

**PRO-DEVELOPER TOOLS**

**SAP Business Application Studio**

**SAPUI5 / Fiori elements**

**CAP** (*Java, JS*)          **RAP** (*ABAP*)

**SAP-Optimized Frameworks & Services**

**SAP Business Technology Platform**

# Clean up

# Custom Objects*

Retire

Back to
standard

Re-platform to BTP or on-stack refactor

* Not clean core compliant

Code Adaption effort

Technical Debts

Move to
cloud

# Free Clean Core Assessment Program

### What is it?

A program to help customers advance on their clean core journey by:

- Understanding the clean core dimensions principles and benefits
- Providing an SAP guided approach for ERP modernization
- Validating extension use cases from customer's code base

### Key Output

- Readout of clean core analysis
- Clean core solution approach
- Architecture recommendation for select developments
- BOM proposal for BTP services

## Project Phases
(Times are in working days)

**SAP** SAP Led    👥 Customer Led



### Discover
**Day 0**

- **SAP** + 👥 Kickoff Meeting
- **SAP** + 👥 Clean Core Maturity Assessment

### Prepare
**Day 5**

- 👥 Prepare ERP system (DEV)
- 👥 Enable usage data collection (PROD)
- 👥 Configure Cloud Connector
- **SAP** Connection Test

### Analyze
**Day 25**

- **SAP** Readout of technical analysis
- **SAP** Correlation of usage data
- 👥 Functional team to validate and confirm proposed scope for SAP deep dive

### Deliver
**Day 30**

- **SAP** Present Clean core benefits
- **SAP** Present top clean core recommendations
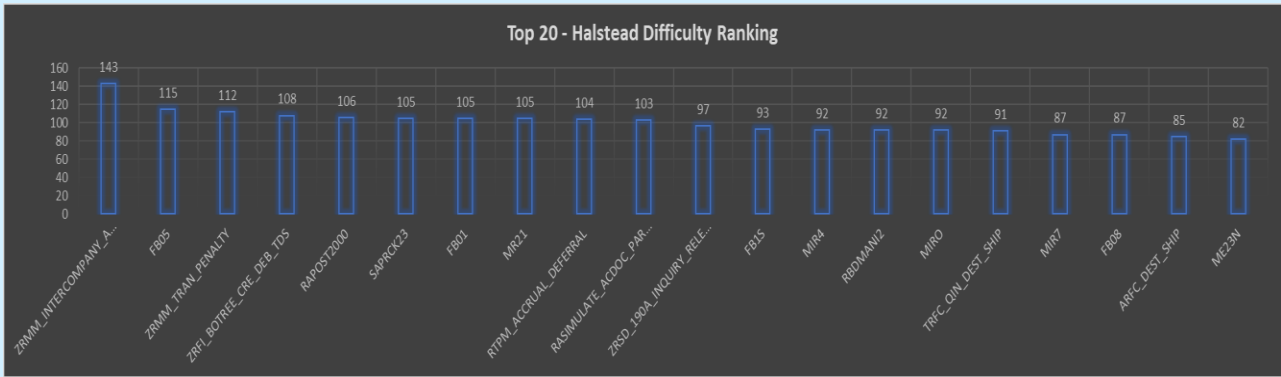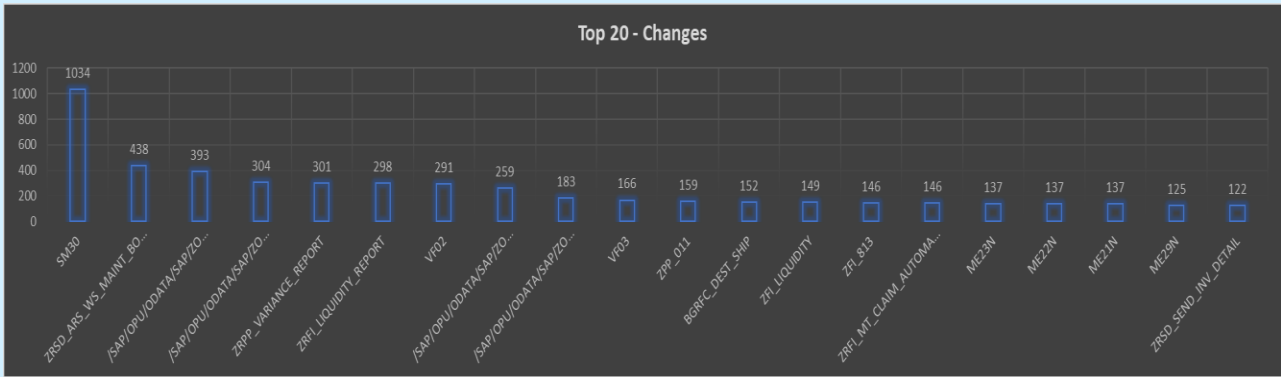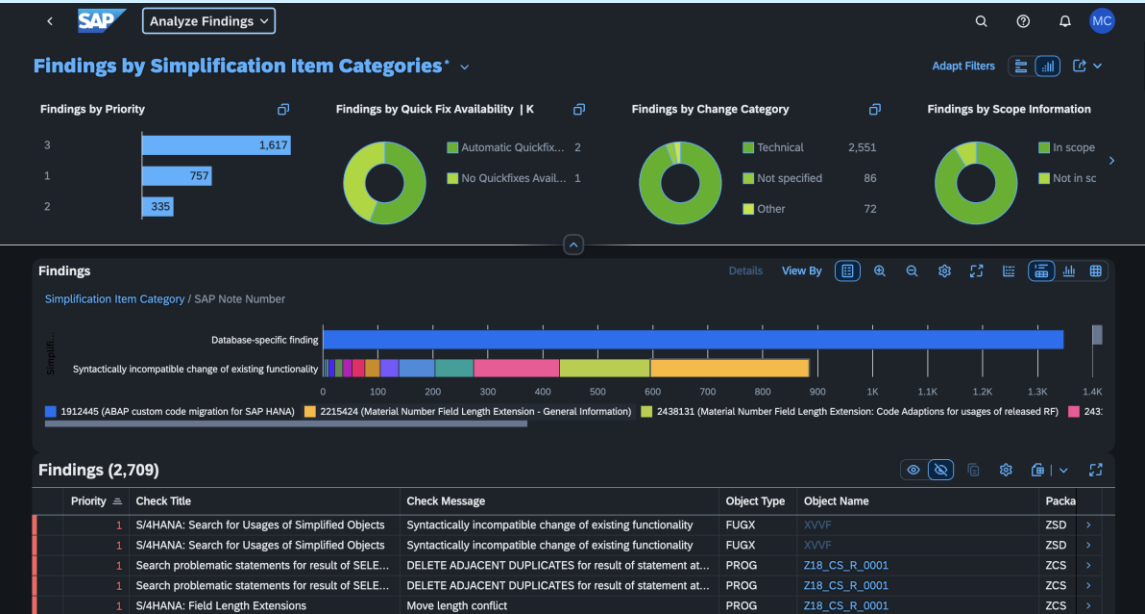- 👥 Develop clean core Roadmap
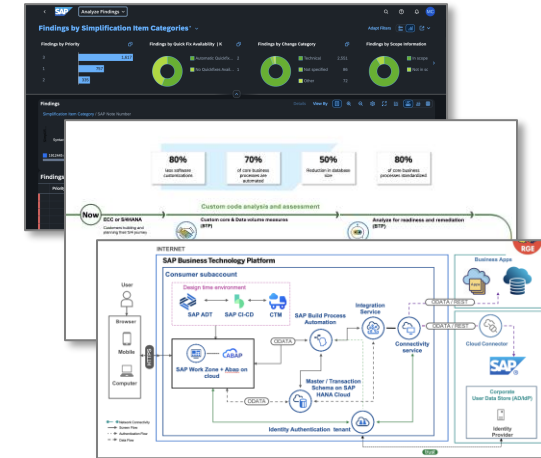
### Contact

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*Program Lead ANZ*
paul.fewster@sap.com

# Example program output: Identifying areas of focus



+ usage analysis data

# Clean core genie: AI-powered customization recommendations

Customer code base, analyzed by generative AI model

SAP recommendation, created together with customer team

| | Object Name | Overall Description | Functional Analysis | SAP Recommendation | Approach | SAP Services/ SAP BTP Services | First high-level analysis agai... |
|---|---|---|---|---|---|---|---|
| | | | | | | | https://fioriappslibrary.hat... |
| 2 | ZRFI_INCOMING_PAYMENTS_POST | Post Incoming Payments | The program 'ZRFI_INCOMING_PAYMENTS_POST' is designed to handle the posting of incoming payments. It allows users to select payment records based on various criteria such as payment reference, bank account number, and posting date. The program can display pending, posted, or deleted payment records. It also integrates with SAP's BAPI functions to check and post accounting documents. Additionally, the program sends email notifications with payment details and updates the database with the posted payment information. This functionality is crucial for financial operations, ensuring that incoming payments are accurately recorded and processed in the system. | First, verify if standard S/4HANA fits → Retire. If not, build it on SAP BTP replacing the Z-Tables in use and using the according APIs for S/4HANA to post incoming payments. | Side-by-Side | SAP Cloud Foundry/ SAP BTP Kyma as runtime | The functionality provided by... can potentially be replaced b... Post Incoming Payments' (Fi... Payments' (Fiori ID: F0858). ... nterface and leverage stand... ncoming payments. |
| 3 4 | ZTMM_PEN_TRANS | Penalty to Transporter | The program 'ZTMM_PEN_TRANS' is designed to manage penalties imposed on transporters for various reasons such as shortages, transhipment, loading other company goods, and more. It maintains a detailed record of penalties with specific indicators and associated data like material number, plant, storage location, batch number, posting date, and more. This helps in tracking and managing penalties efficiently, ensuring that transporters are held accountable for any discrepancies or issues during transportation. The program also calculates the net value in document currency for each penalty, providing a clear financial impact of the penalties imposed. | Parle-specific application - likely no SAP standard available. Rebuild on S/4HANA using whitelisted CDS Views for material documents and developer extensibility. | On-Stack | S/4HANA Developer Extensibility | SAP S/4HANA Transportation... apps for managing transport... used to substitute this custo... Freight Orders' and 'Manage... everaged. |
| | ZRSD_190_NEW_SPOILED_CLAIM | Spoiled Stock Claim Process | The program 'ZRSD_190_NEW_SPOILED_CLAIM' is designed to manage the spoiled stock claim process. It allows users to upload data related to spoiled stock, validate the data, and create sales orders for the spoiled stock. The program also provides functionalities to display data, search for reference invoices, and reverse inquiries. The program ensures that the data is accurate and consistent by performing various checks and validations. It also calculates the claim amounts based on the uploaded data and updates... | Parle-specific application - likely no SAP standard available. Rebuild on S/4HANA using whitelisted CDS Views for sales/invoice documents and developer extensibility. | On-Stack | S/4HANA Developer Extensibility | SAP S/4HANA provides stand... and handling claims through... Stock', 'Create Sales Orders',... These apps can potentially re... more integrated and user-fri... |

Summary | Structure_1 | Structure_2 | Structure_3 | Structure_4 | Structure_5 | Structure_6 | Structure_7 | Structure_8 | Structure_9 | Structure_10 | Structure_11 | Structure_12
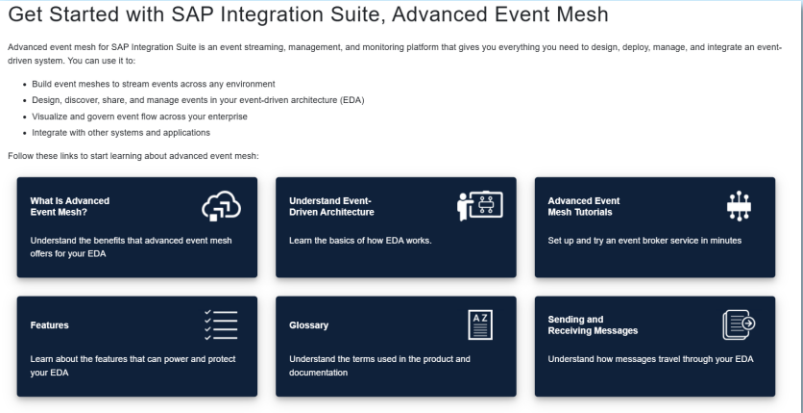
# Learn More
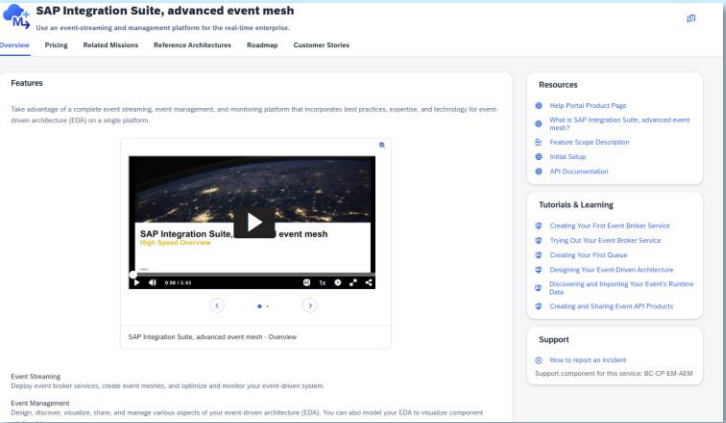


[Discovery Center](#)



[Learning Journey](#)



[Documentation](#)

# Thank you.

Contact information:

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**SAP**