SAP TechEd

Application Development
and Automation

Build SAP Fiori Apps with ABAP Cloud powered by Joule's ABAP developer capabilities

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Agenda

Introduction

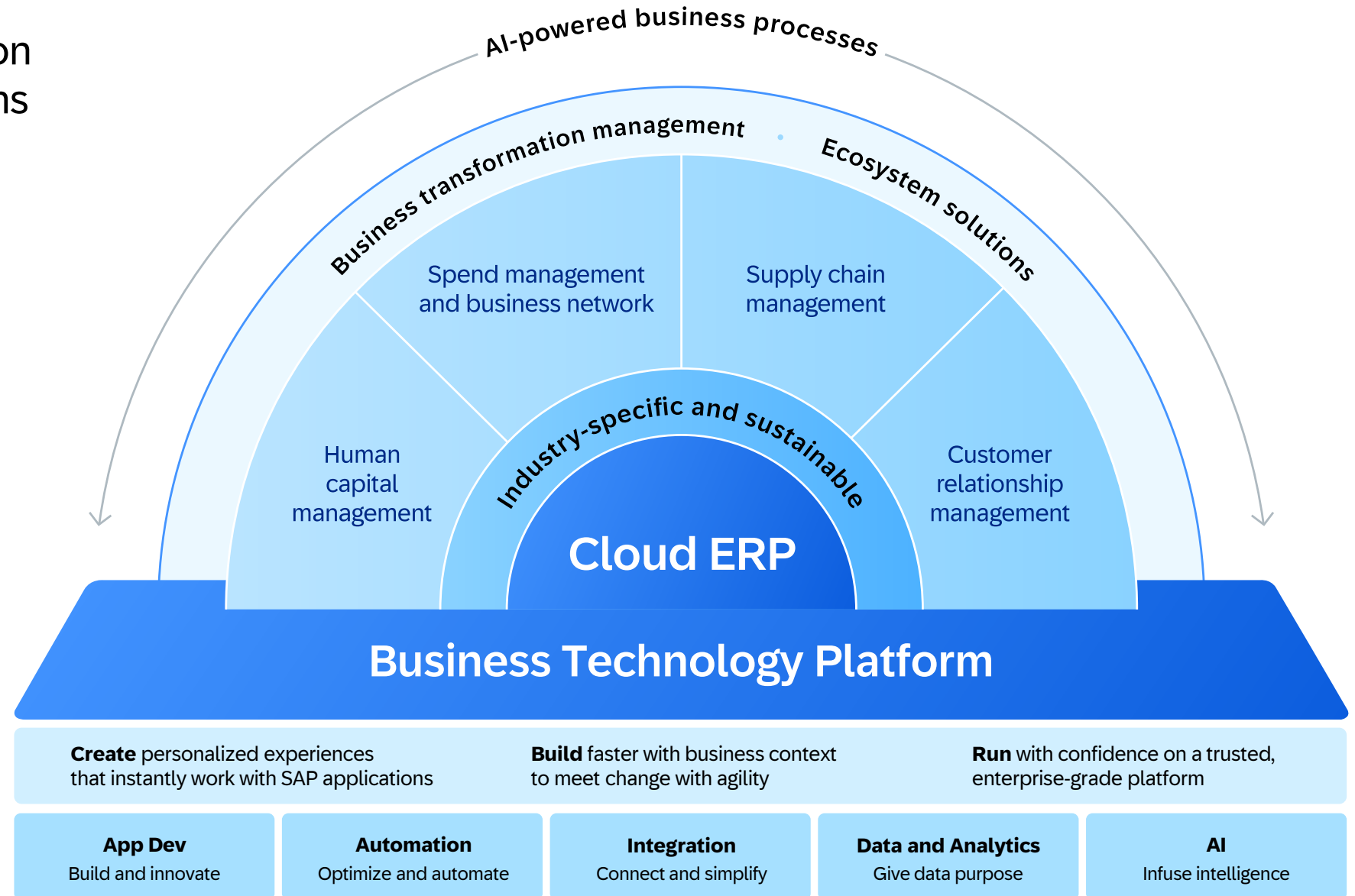Today's scenario – Overview

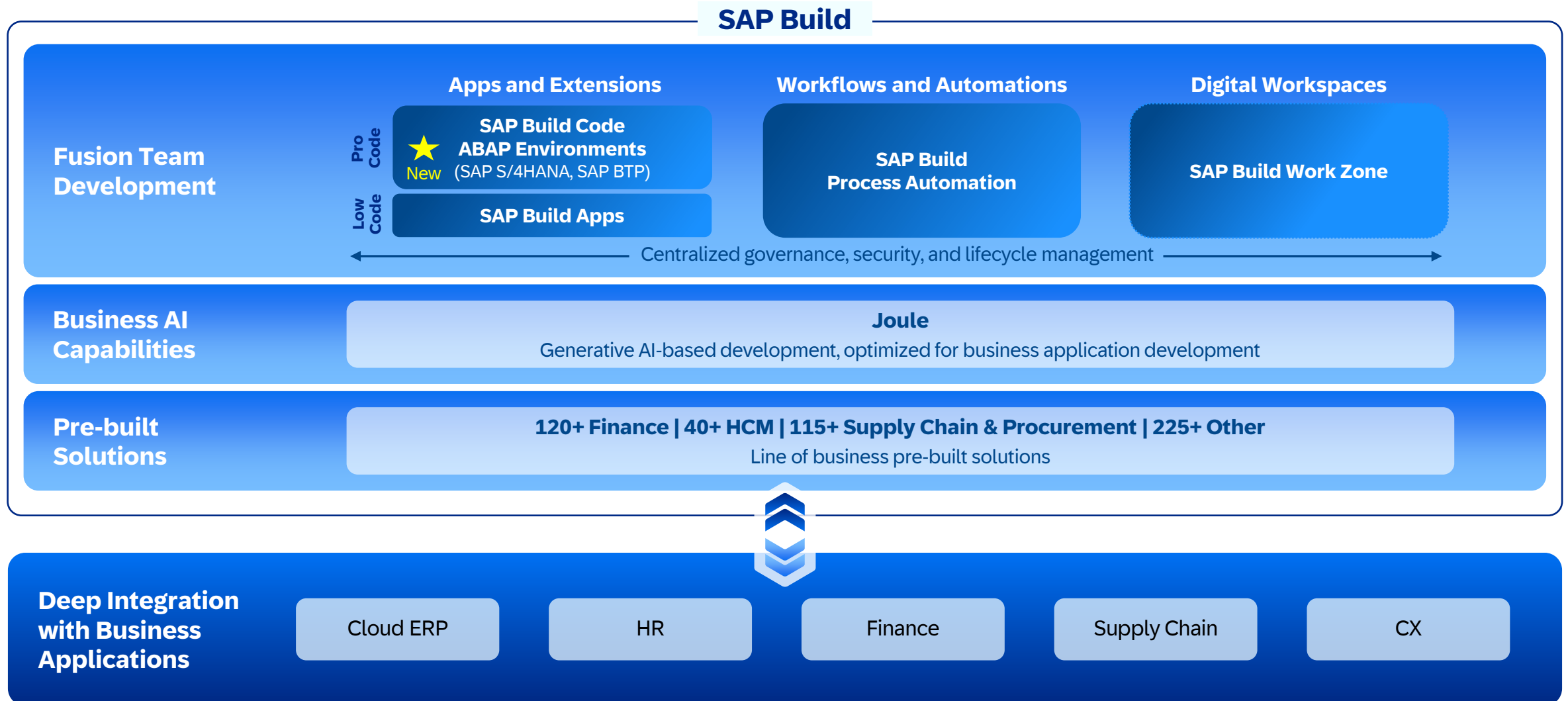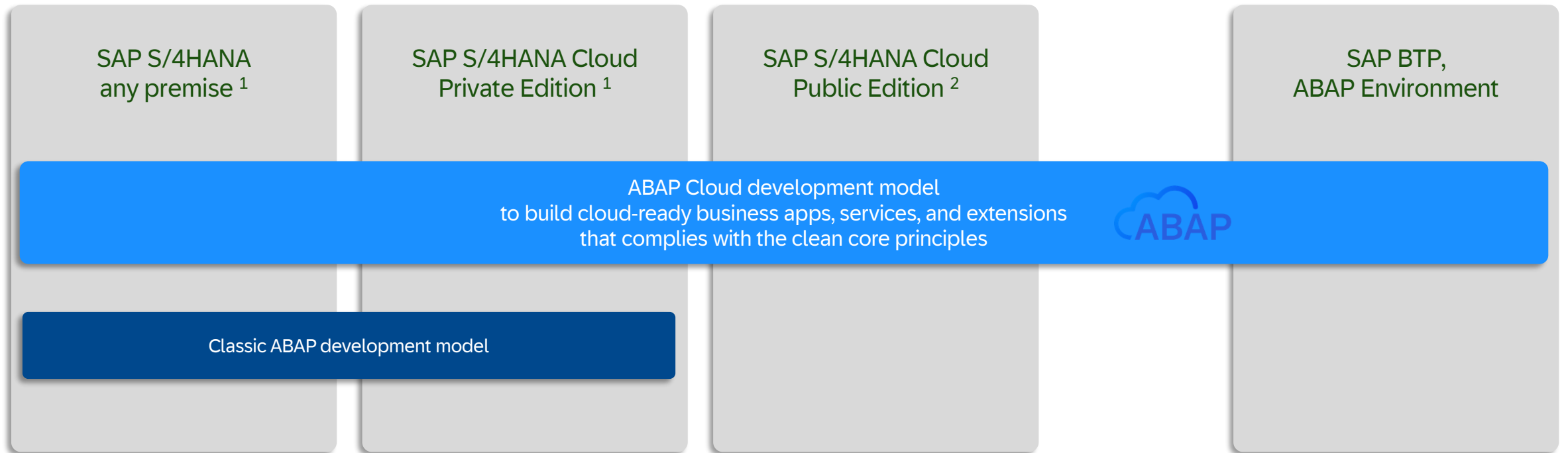Today's exercise – Exercises

Wrap up

Introduction

SAP BTP

Unleash digital innovation across business functions

AI-powered business processes

Business transformation management

Ecosystem solutions

Spend management and business network

Supply chain management

Industry-specific and sustainable

Human capital management

Customer relationship management

Cloud ERP

Business Technology Platform

Create personalized experiences that instantly work with SAP applications

Build faster with business context to meet change with agility

Run with confidence on a trusted, enterprise-grade platform

App Dev	**Automation**	**Integration**	**Data and Analytics**	**AI**
Build and innovate	Optimize and automate	Connect and simplify	Give data purpose	Infuse intelligence

SAP Build: Generative AI-powered business application development & automation on SAP BTP

SAP Build

Fusion Team Development

Apps and Extensions

Pro Code

★ New

SAP Build Code
ABAP Environments (SAP S/4HANA, SAP BTP)

Low Code

SAP Build Apps

Workflows and Automations

SAP Build Process Automation

Digital Workspaces

SAP Build Work Zone

Centralized governance, security, and lifecycle management

Business AI Capabilities

Joule
Generative AI-based development, optimized for business application development

Pre-built Solutions

120+ Finance | 40+ HCM | 115+ Supply Chain & Procurement | 225+ Other
Line of business pre-built solutions

Deep Integration with Business Applications

| Cloud ERP | HR | Finance | Supply Chain | CX |

ABAP Cloud – One development model for SAP S/4HANA and SAP BTP

SAP S/4HANA
any premise [1]

SAP S/4HANA Cloud
Private Edition [1]

SAP S/4HANA Cloud
Public Edition [2]

SAP BTP,
ABAP Environment

ABAP Cloud development model
to build cloud-ready business apps, services, and extensions
that complies with the clean core principles

ABAP

Classic ABAP development model

[1] SAP S/4HANA any premise or SAP S/4HANA Cloud Private Edition release ≥ 2022
[2] SAP S/4HANA Cloud Public Edition release ≥ 2208, 3-system landscape required

ABAP Cloud – high-level abstraction model

APP

SAP FIORI APPS
ANALYTICAL APPS

BUSINESS SERVICE EXPOSURE

UI SERVICES
for SAP Fiori and analytical clients
(OData and InA[1])

INTEGRATION SERVICES
for process and data integration
(OData, business events, HTTP, SOAP, RFC, SQL)

DOMAIN-SPECIFIC IMPLEMENTATION

DOMAIN-SPECIFIC MODELS

CDS[2] entity, RAP[3] Business Object, CDS analytical provider

DOMAIN-SPECIFIC LOGIC

ABAP, CDS

DATABASE

SAP HANA

(SQL and SQLScript)

BUSINESS SERVICE CONSUMPTION

INTEGRATION SERVICES
for process and data integration
(OData, business events, HTTP, SOAP, RFC, SQL)

REUSE SERVICES AND LIBRARIES Output management, jobs, workflow, XCO, …

BUILT-IN QUALITIES Cloud-readiness, IAM[4], BC[5], extensibility, security, …

LIFECYCLE MANAGEMENT Git based transport management with gCTS and abapGit

TOOLS ADT[6], BAS[7], key user & monitoring tools

[1] SAP Information Access
[2] Core Data Services
[3] ABAP RESTful application programming model
[4] Identity & Access Management
[5] Business Configuration
[6] ABAP Development Tools
[7] SAP Business Application Studio

ABAP Cloud – Supported scenarios

Business Events Consumption

OData Service Consumption

SAP Fiori Launchpad

SAP Fiori app based on OData (e.g. via SAP Fiori elements)

Process integration[1]

Integration services for remote communication

Point-to-point via OData or event-driven

Enterprise Search

★ **SAP Fiori app**

SAP Fiori Notifications[2]

+ ABAP Push Channels[2]

★ **Business Events Exposure**

OData Service Exposure

Analytics

InA-based advanced analytics

System locally via SAP Fiori based multi-dimensional reporting

Externally via SAC

Multi-dimensional reporting

SAP Analytics Cloud (SAC)

ABAP

RAP BO Interface

Consumption via EML and services
Very useful for on-stack extensibility

★ **Local Events**

Event handler for RAP BO events
Asynchronous execution

Data integration

SQL-based replication with ABAP as data source

SQL based replication

★ **CDS entities / RAP Business Object**

Background Processing Framework (bgPF)

Asynchronous post-processing in background

Legend
- RAP : ABAP RESTful application programming model
- CDS : Core data services
- BO   : Business object
- InA   : SAP Information Access protocol

[1] HTTP, SOAP etc. are also part of ABAP Cloud

[2] This presentation and SAP's strategy and possible future developments are subject to change and may be changed by SAP at any time for any reason without notice.   8

Joule copilot's ABAP developer capabilities – Main use cases[1]

Accelerate
Creation of ABAP Cloud applications and services, including test cases

Transform
Classic ABAP code into ABAP Cloud

Empower
Developers to infuse AI into business scenarios

[1] This presentation and SAP's strategy and possible future developments are subject to change and may be changed by SAP at any time for any reason without notice.

Accelerate: Joule's ABAP developer capabilities *

Increase development efficiency by leveraging GenAI assistance in the ABAP Development Tools

- Generation of RAP business objects and services
- Code prediction
- Code explanation
- Unit test generation for ABAP classes and CDS views

⭐ Session's focus

Example: Generation RAP business objects and services
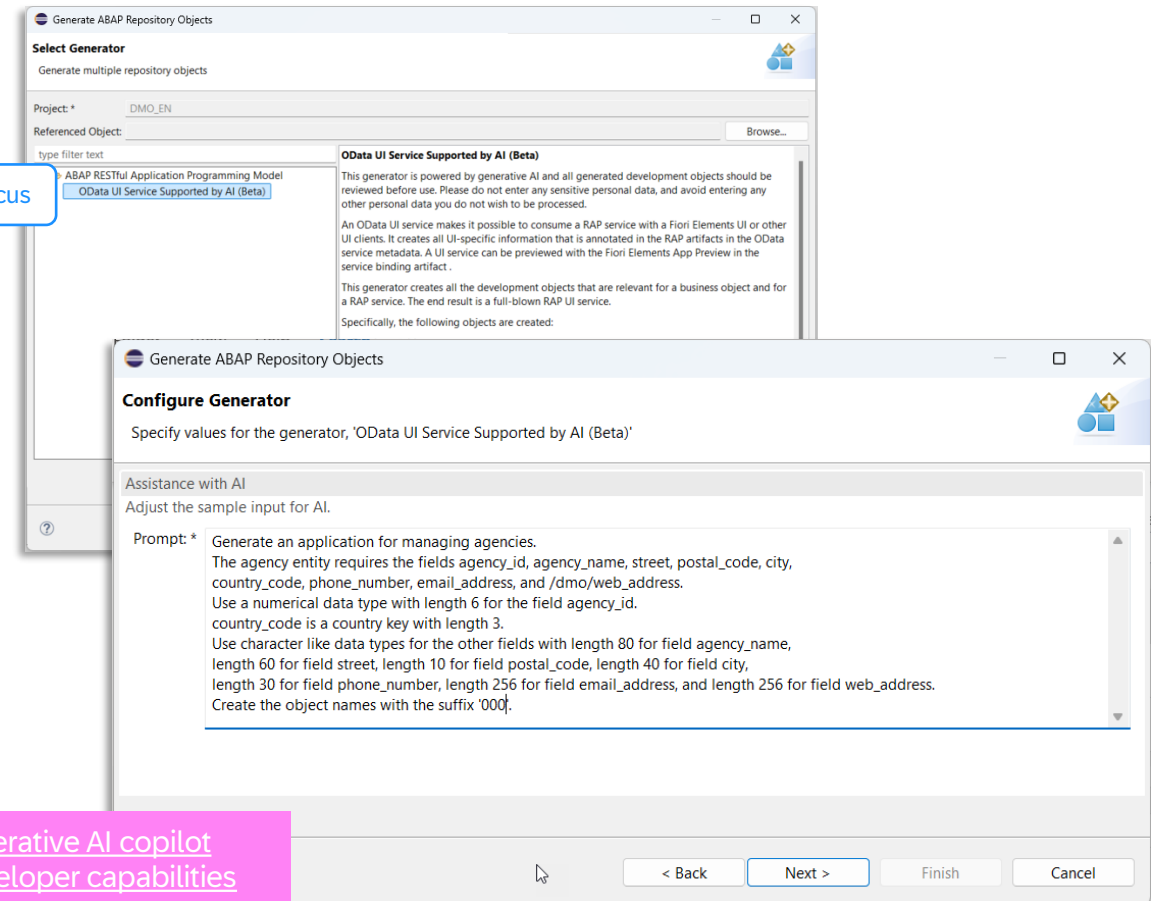
/Watch deep dives

* This presentation and SAP's strategy and possible future developments are subject to change and may be changed by SAP at any time for any reason without notice.

Simplified architecture for the AI-based RAP BO Generator [1]

SAP BTP — **SAP Business Technology Platform**

SAP BTP ABAP Environment

ABAP AI SDK powered by ISLM[2]

prompt

response

SAP AI Core

Large Language Model optimized for ABAP

AI-based RAP BO Generation Wizard

ABAP Development Tools for Eclipse
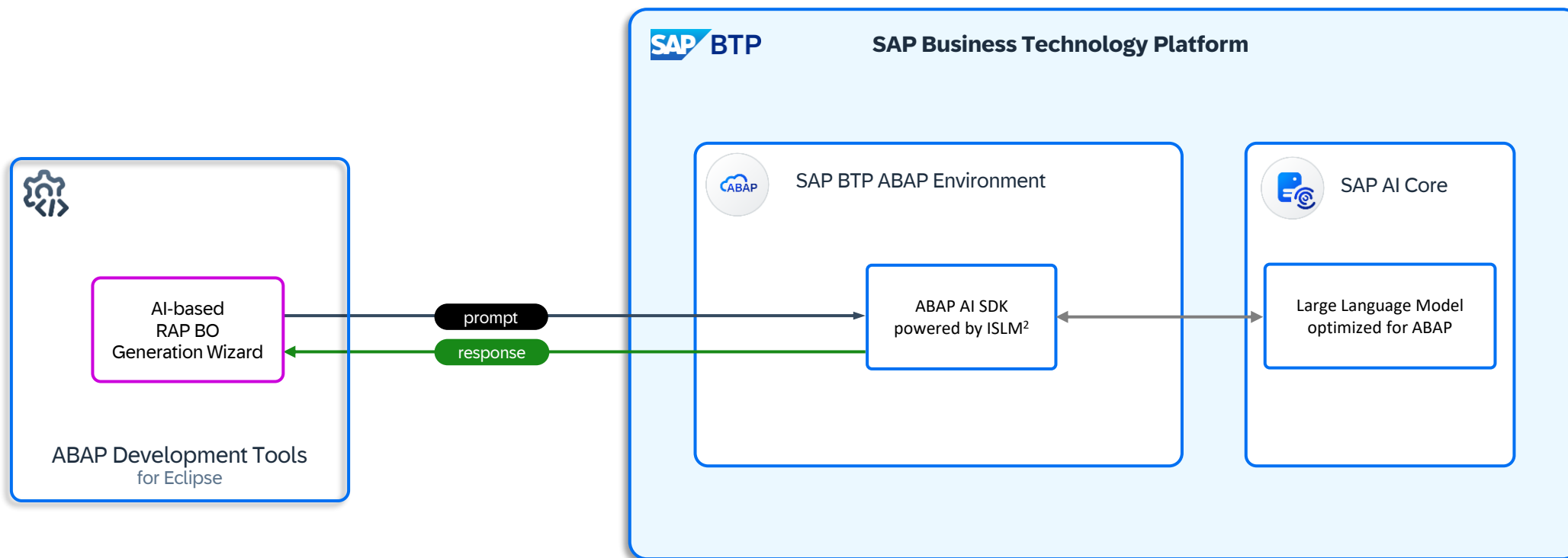
[2] ISLM: Intelligent Scenario Lifecycle Management

/please note — The SAP BTP ABAP Environment trial is only connected to the SAP AI Core for the SAP TechEd Virtual 2024 from 8 to 11 October 2024.

[1] This presentation and SAP's strategy and possible future developments are subject to change and may be changed by SAP at any time for any reason without notice.

Today's scenario – Overview

Block A – Build a transactional SAP Fiori app with RAP
with search, filter and draft capabilities, and business events

LIST REPORT PAGE

Standard* ∨

1 filter active: Editing Status

	Agency Id	Agency Name	City	
☐	70001	Sunshine Travel	Rochester	›
☐	70002	Fly High	Duesseldorf	›
☐	70003	Happy Hopping	Berlin	›
☐	70004	Pink Panther	Frankfurt	›
☐	70005	Your Choice	Nuernberg	›
☐	70006	Bella Italia	Roma	›
☐	70007	Hot Socks Travel	Sydney	›
☐	70008	Burns Nuclear	Singapore	›
☐	70009	Honauer Reisen GmbH	Neumarkt	›
☐	70010	Travel from Walldorf	Berlin	›
☐	70011	Voyager Enterprises	Stockholm	›
☐	70012	Ben McCloskey Ltd.	Birmingham	›
☐	70013	Pillepalle Trips	Zuerich	›

Create   Delete

Navigation
to object page

Navigation

70005
Your Choice

General Information

Agency Id:
Your Choice (70005)

Agency Name:
Your Choice

Street:
Gustav-Jung-Str. 425

Postal Code:
90455

City:
Nuernberg

Country Code:

Phone Number:

Email Address:

Web Address:

Draft updated   Create   Discard Draft

Some of the used features:

❖ AI-based generation of draft-enabled UI services

❖ Freestyle fuzzy search

❖ Value helps

❖ RAP business events

❖ Local event consumption

Block B – Build a read-only SAP Fiori app with hierarchical treeview

LIST REPORT PAGE

Standard* ⌄

Freestyle fuzzy search

Collapsible tree

Employee ID	First Name	Last Name	Manager ID	
⌄ 1	Friedrich	Meier		>
› 986	Vlora	Leisert	1	>
› 1831	Illya	Marshall	1	>
› 830	Georg	Mustermann	1	>
⌄ 3	Lee	Neubasler	1	>
› 798	Anna	Babilon	3	>
› 725	Felix	Benz	3	>
› 787	Georg	Benz	3	>
› 4	Holm	Illner	3	>
⌄ 168	Andreas	Martin	3	>
› 440	Johannes	Barth	168	>
› 373	Claire	Buchholm	168	>
447	August	Columbo	168	>
› 625	Uli	Deichgraeber	168	>
372	Georg	Gutenberg	168	>
724	Achim	Gutenberg	168	>
› 449	Annemarie	Heller	168	>

Navigation to object page

Some of the used features:

❖ AI-based generation of read-only UI services

❖ Freestyle fuzzy search

❖ Filter bar

❖ Data hierarchy definition

❖ Read-only hierarchical treeview in SAP Fiori app

Today's scenario – Exercises

The AD180 hands-on exercises

PREREQUISITES
Create a free SAP BTP ABAP Environment trial user (see Tutorial) – connected to SAP AI Core **only** during the SAP TechEd Virtual 2024 week
Set up your ABAP Development Tools for Eclipse (see Tutorial)
Create an ABAP cloud project to connect ADT to the ABAP environment (see Tutorial)

BLOCK A
01 Generate a transactional OData UI Service E2E with Joule's ABAP developer capabilities

02 Enhance the RAP BO behavior with a business event and consume it locally

03 Play around with the AI-based ADT Wizard

BLOCK B
04 Generate a read-only OData UI service with Joule's ABAP Developer capabilities

05 Implement the read-only treeview for hierarchical data display

OPTIONAL
06 Create an SAP Fiori elements app with SAP Business Application Studio and deploy it to the ABAP Environment

ACCESS THE EXERCISES
https://github.com/SAP-samples/teched2024-AD180 (see Link)

DEMO

The AD180 hands-on exercises – Working on GitHub (1)

Follow the step-by-step instructions provided on GitHub.

Exercise 1: Generate transactional OData UI Service E2E with GenAI and RAP

Introduction

In this exercise, you will create a transactional UI service along with the underlying RAP business object to manage agencies using the GenAI-based ABAP repository object generator (*Beta*) provided in the ABAP Development Tools for Eclipse (ADT).

You will create an ABAP package, generate all development artefacts using the GenAI-based ADT wizard and a predefined promt with a natural description of the application, and then create am ABAP class to populate demo agency data in the generated database table. The generation will create the required database table, the CDS data model, RAP BO behavior definition, service definition, and service binding. At the end, you will publish and preview your **Manage Agencies** application using the *Fiori Elements App Preview* function provided in ADT.

Exercises

- 1.1 - Create an ABAP Package
- 1.2 - Generate OData UI Service using GenAI
- 1.3 - Adjust the Generated UI Service
- 1.4 - Populate Demo Data
- 1.5 - Preview the *Agency* App
- Summary & Next Exercise

> **Reminder:**
> Don't forget to replace all occurences of the placeholder `###` with your suffix or Group ID in the exercise steps below.
> You can use the ADT function **Replace All** (**Ctrl+F**) for the purpose.
> If you haven't been assigned a Group ID, select a combination of three (3) numbers and/or letters, such as e.g. `000` or `AI1`.

Exercise 1.1: Create an ABAP Package

^Top of page

> Create your exercise package⌗.
> This ABAP package will contain all the artefacts you will be creating in the different exercises of this hands-on session.

▶ 🔵 Click to expand!

Exercise 1.2: Generate OData UI Service using GenAI

^Top of page

> Generate an OData UI service using the AI-based RAP BO generator (Beta) provided in ADT.

▶ 🔵 Click to expand!

Exercise 1.3: Adjust the Generated UI Service

^Top of page

The AD180 hands-on exercises – Working on GitHub (2)

Use the Outline view to get a quick overview of the exercises.

Always click on ▶ ●
to expand the details

The AD180 hands-on exercises – Working on GitHub (3)

Make use of Copy raw contents **button** to easily copy code snippets

```
▼ ● 📄 Click to expand the source code!

    CLASS zgenerate_agency_data_### DEFINITION
      PUBLIC
      FINAL
      CREATE PUBLIC .

    PRIVATE SECTION.
    ENDCLASS.


    CLASS zgenerate_agency_data_### IMPLEMENTATION.
     METHOD if_oo_adt_classrun~main.
        "delete any existing active and draft data, if available
        DELETE FROM zagency###
```
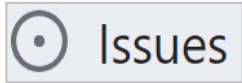
Always replace all occurrences of ### with your chosen suffix in code snippets

`/please note`

The names of the generated repository objects and fields in your exercise package may differ from those used in the exercise description, code snippets, and screenshots.

The AD180 hands-on exercises – Working on GitHub (4)

Open GitHub Issues to get help from the SAP experts.
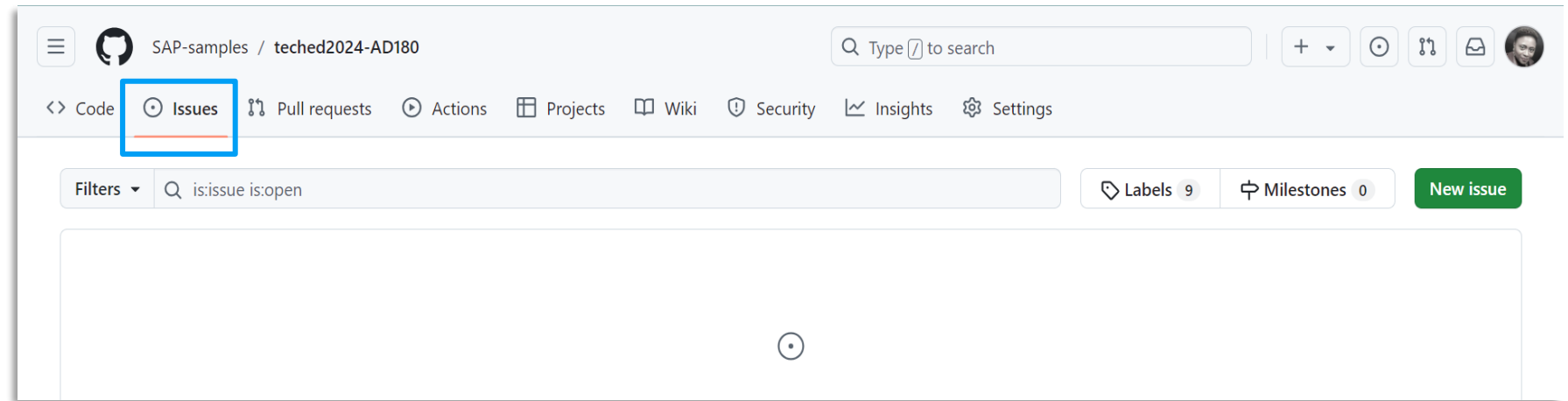
Wrap up

Key takeaways

ABAP Cloud is the development model provided for building cloud-ready enterprise services, apps, and extensions on SAP BTP ABAP Environment and all editions of SAP S/4HANA[1], in the cloud and on-premise.

Development that is done with ABAP Cloud adheres to the **clean core principles**.

The **ABAP Cloud feature set** is enhanced **quarterly** in SAP BTP ABAP Environment, **twice a year** in SAP S/4HANA Cloud Public Edition, and **every two years** in SAP S/4HANA and SAP S/4HANA Cloud Private Edition[1] as of release 2023.

Check out the ABAP Cloud Release Notes and the ABAP Cloud Roadmap Information.

The introduction of **generative AI in ABAP**[2] will help **accelerate** the development processes, **improve** the transformation of existing custom code, and **empower** developer to easily infuse AI into ABAP-based business scenarios. Check out the SAP Road Map Explorer for more details.

[1] SAP S/4HANA any premise or and SAP S/4HANA Cloud Private Edition release ≥ 2022
   SAP S/4HANA Cloud Public Edition release ≥ 2208, 3-system landscape required

[2] This presentation and SAP's strategy and possible future developments are subject to change and may be changed by SAP at any time for any reason without notice.

Further information

Discover more SAP TechEd Virtual 2024 sessions on ABAP Cloud and ABAP AI

- [AI104 | Revolutionize ABAP development with Joule, our generative AI copilot](#)
- [AD107 | Boost your coding efficiency: Explore Joule's ABAP developer capabilities](#)
- [AD106 | Clean core extension of SAP S/4HANA with the latest ABAP Cloud features](#)
- [AD100 | Unlock SAP Build and ABAP Cloud interoperability to elevate your extensions](#)
- [DT200 | Clean core extensibility for SAP S/4HANA Cloud Private Edition](#)
- [DT201 | Extensibility for SAP S/4HANA Cloud Public Edition](#)
- [DT280 | Build clean core extensions with ABAP Cloud for SAP S/4HANA Cloud](#)
- Find more: [ABAP Cloud sessions at SAP TechEd in 2024](#)

Documentation & Roadmap

- [ABAP Cloud Development Guide](#) | | [ABAP Cloud Release Notes](#)
- [ABAP Cloud Roadmap Information](#)
- [SAP Road Map Explorer](#)

SAP Community

- [ABAP Development](#)
- [ABAP RESTful Application Programming Model (RAP)](#)
- [SAP BTP ABAP Environment](#)

Learn more about
ABAP in SAP Build at SAP TechEd 2024

Check out the Session Catalog:
sap.com/events/teched/abap

Join the ABAP Community:
community.sap.com

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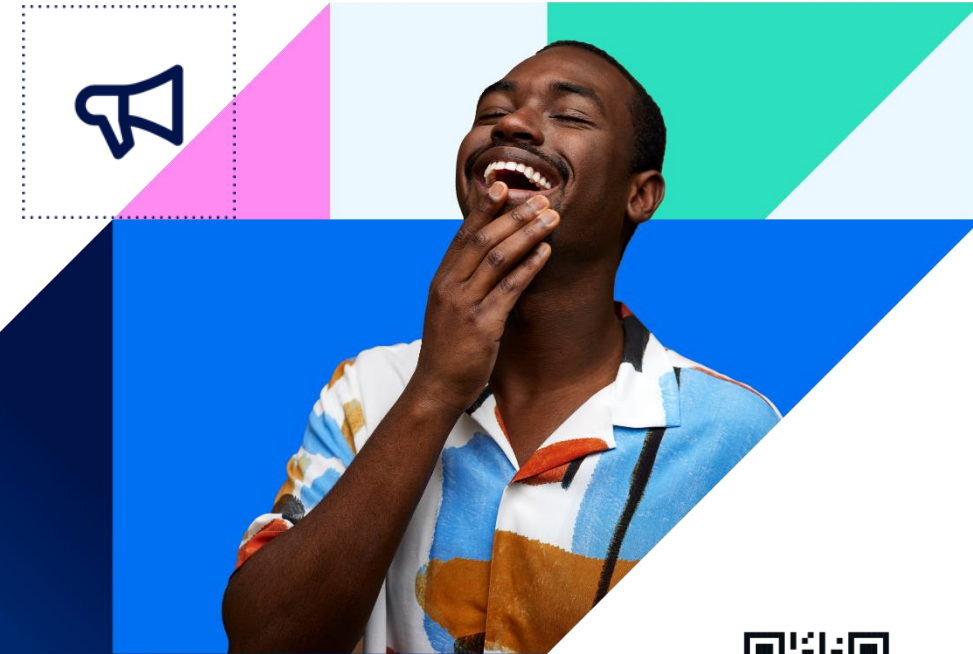
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/ thank you 👍

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