

ABAP Cloud & ABAP RESTful Application Programming Model (RAP) Overview

ABAP Platform Product Management, SAP
May 2023

PUBLIC

Agenda



INTRODUCTION

BIG PICTURE

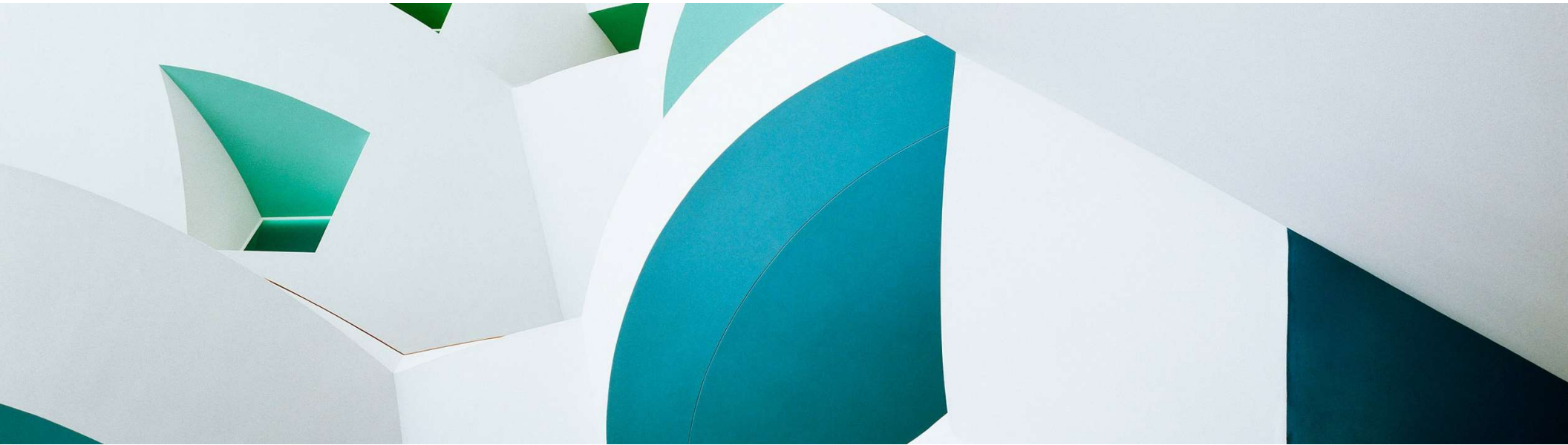
BUSINESS OBJECTS

BUSINESS SERVICES

SUMMARY



INTRODUCTION

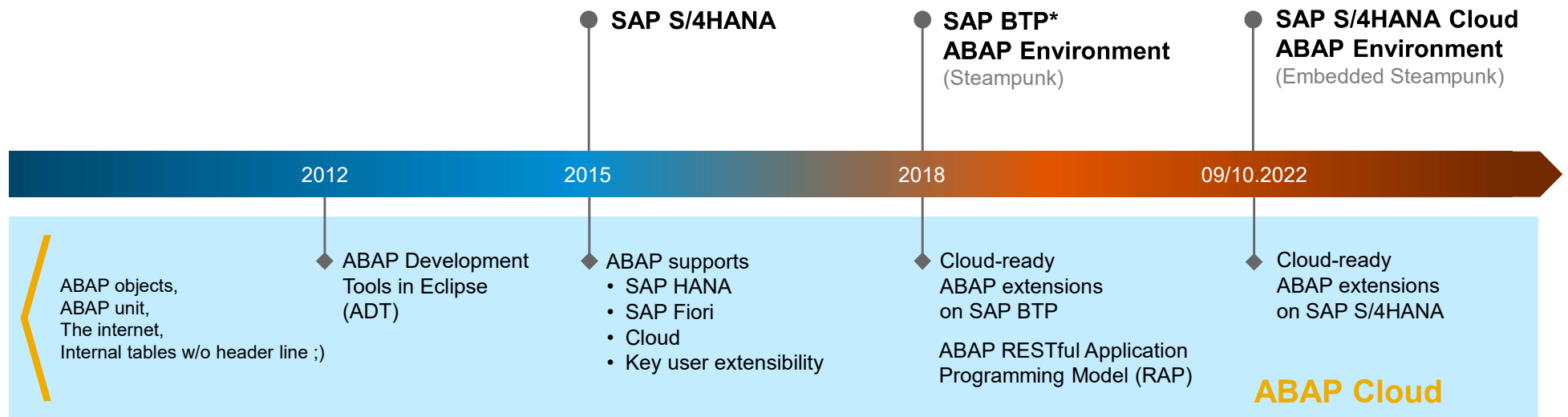


Clean core with the ABAP cloud development model

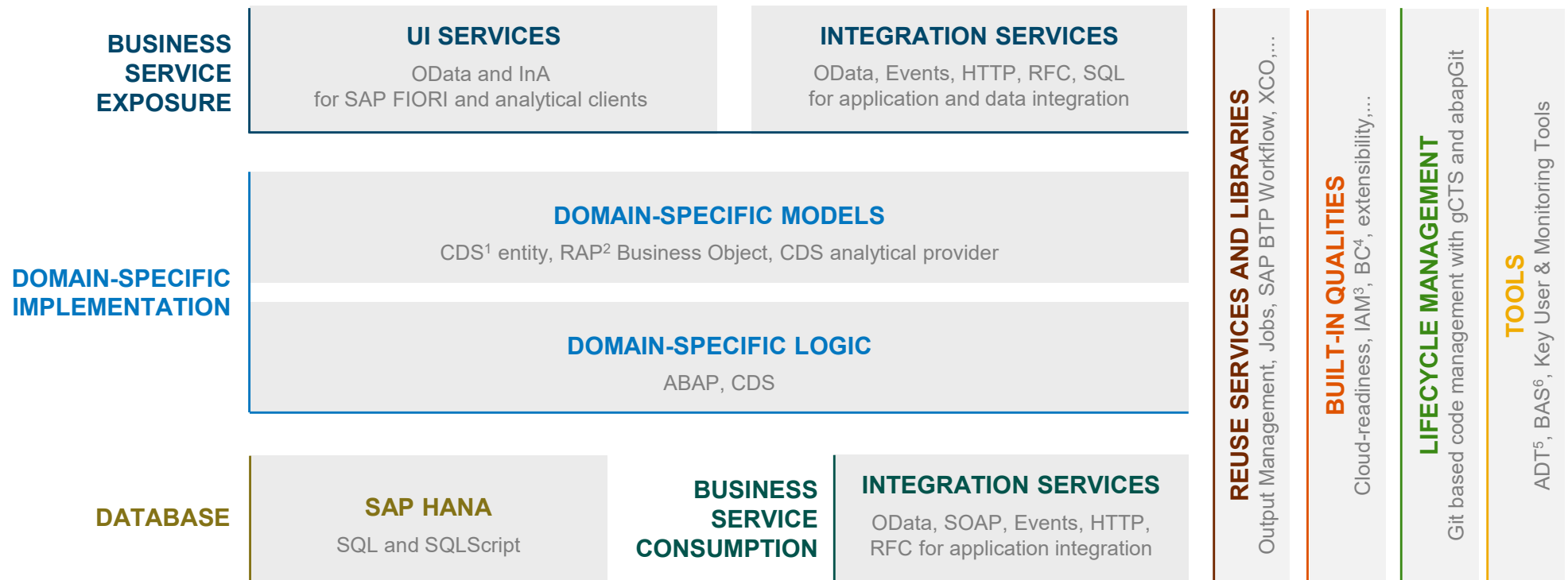
ABAP Cloud

- ... is the ABAP **development model** to build cloud-ready business apps, services and extensions
- ... comes with SAP Business Technology Platform (BTP) and SAP S/4HANA
- ... works with public or private cloud, and even on-premise

The evolution to ABAP Cloud



ABAP Cloud at a glance



¹ Core Data Services

² ABAP RESTful application programming model

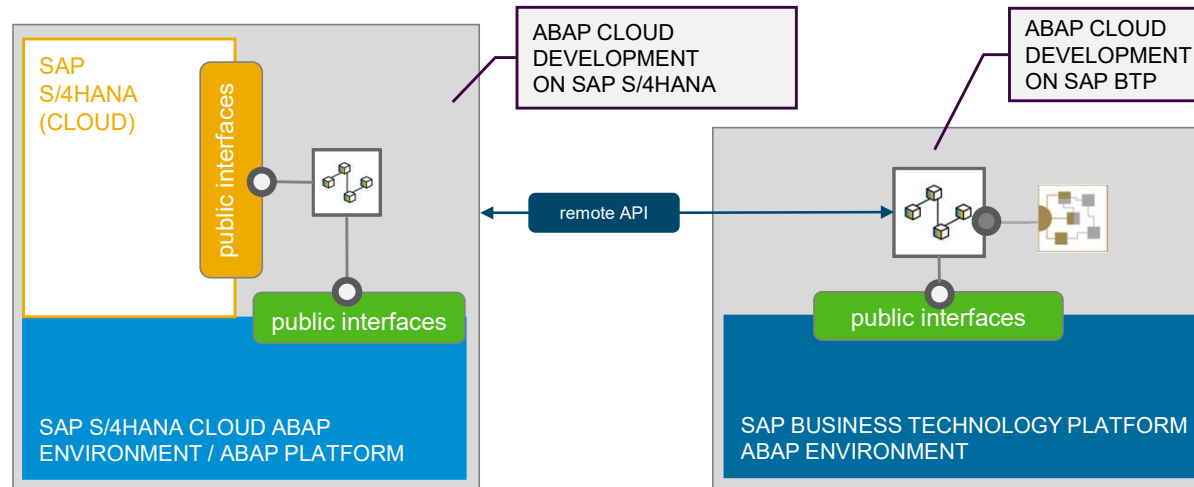
³ Identity & Access Management

⁴ Business Configuration

⁵ ABAP Development Tools

⁶ Business Application Studio

Availability of ABAP Cloud

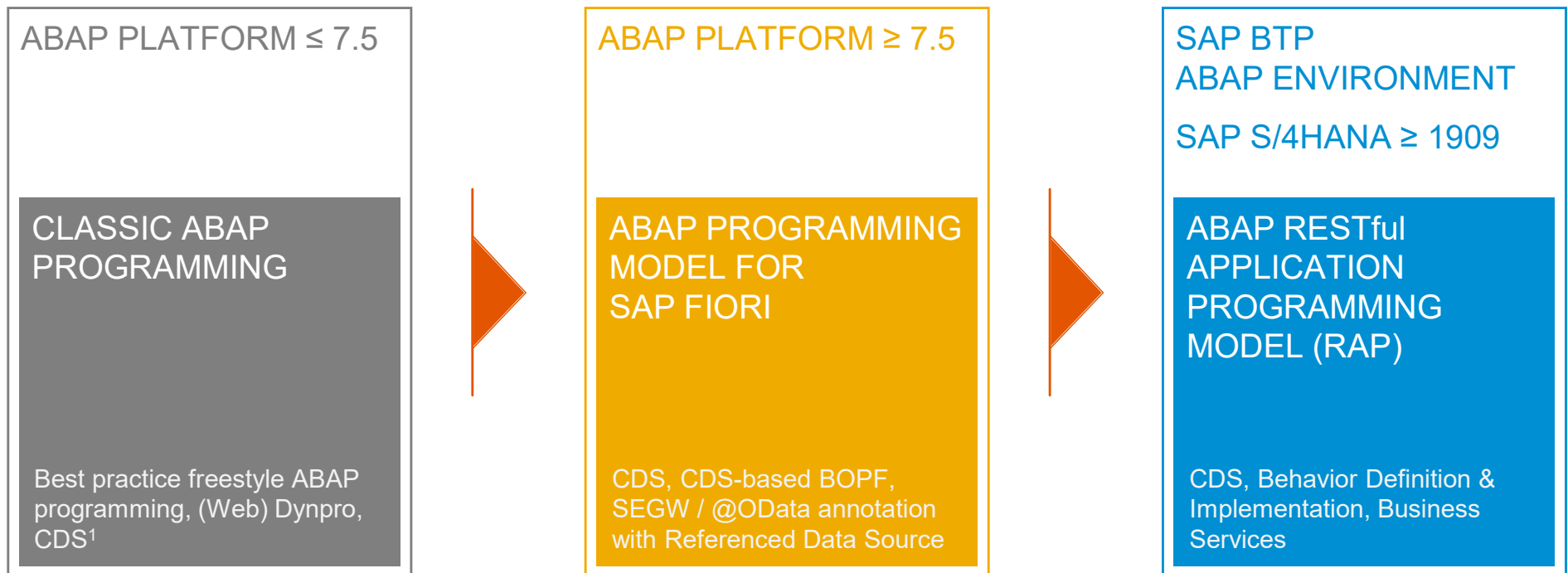


ABAP CLOUD IS AVAILABLE IN THE FOLLOWING PRODUCTS

PRODUCT	RELEASE	ABAP CLOUD USAGE
SAP BTP ABAP Environment	All	Mandatory
SAP S/4HANA Cloud, public edition	≥ 2208 (new customers)	Mandatory
SAP S/4HANA Cloud, private edition and SAP S/4HANA on-premise	≥ 2022	Recommended *

* Classic ABAP can still be used

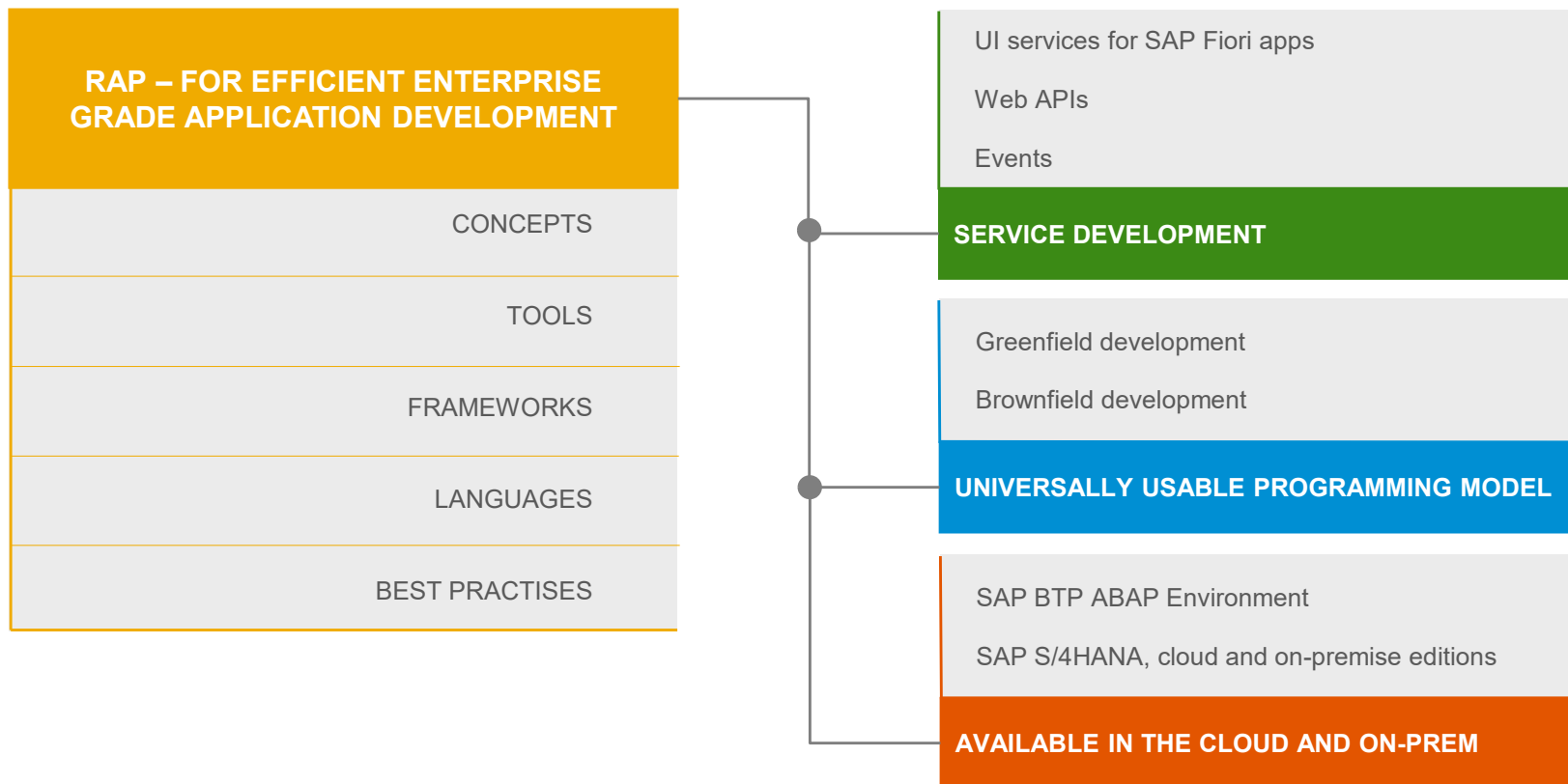
Evolution of the ABAP programming model



¹ starting with release 7.4 SPS05

ABAP RESTful Application Programming Model (RAP) at a glance

The centerpiece of ABAP Cloud for building transactional apps



The key players

ABAP Development Tools in Eclipse for all development tasks

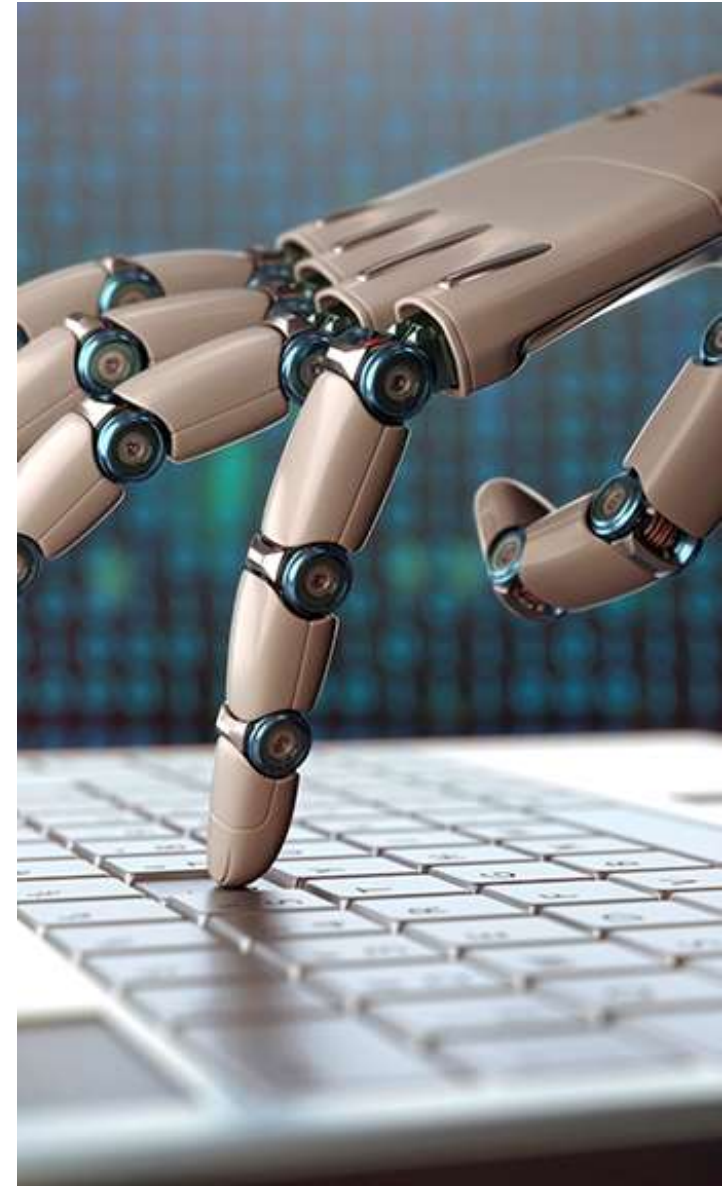
- Easy developer onboarding
- End-to-end development flow

Languages: ABAP and Core Data Services (CDS)

- Standard implementation tasks via typed APIs supporting static code checks, auto-completion, element info

Powerful frameworks

- Take over technical implementation tasks
- Business logic added in code exits on protocol-agnostic layers



Efficient ABAP development in Eclipse®

**HIGH DEVELOPER PRODUCTIVITY WITH THE
ABAP DEVELOPMENT TOOLS (ADT)
ON-PREMISE AND IN THE CLOUD**

MODERN DEVELOPMENT TOOLSET

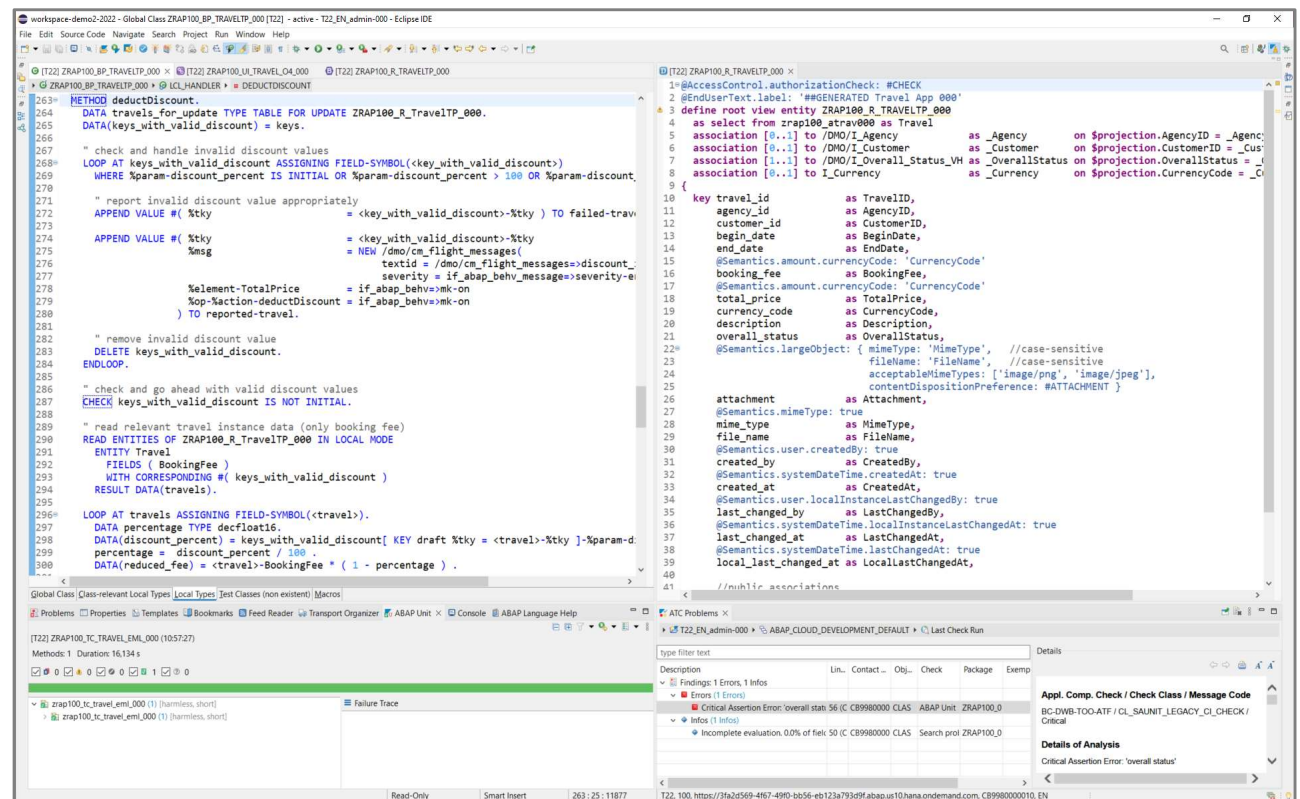
Fully eclipse-based
Syntax check, Code completion
Navigation, Search, Quick Fixes
Full support for the ABAP RESTful
Application Programming Model and CDS

QUALITY ASSURANCE

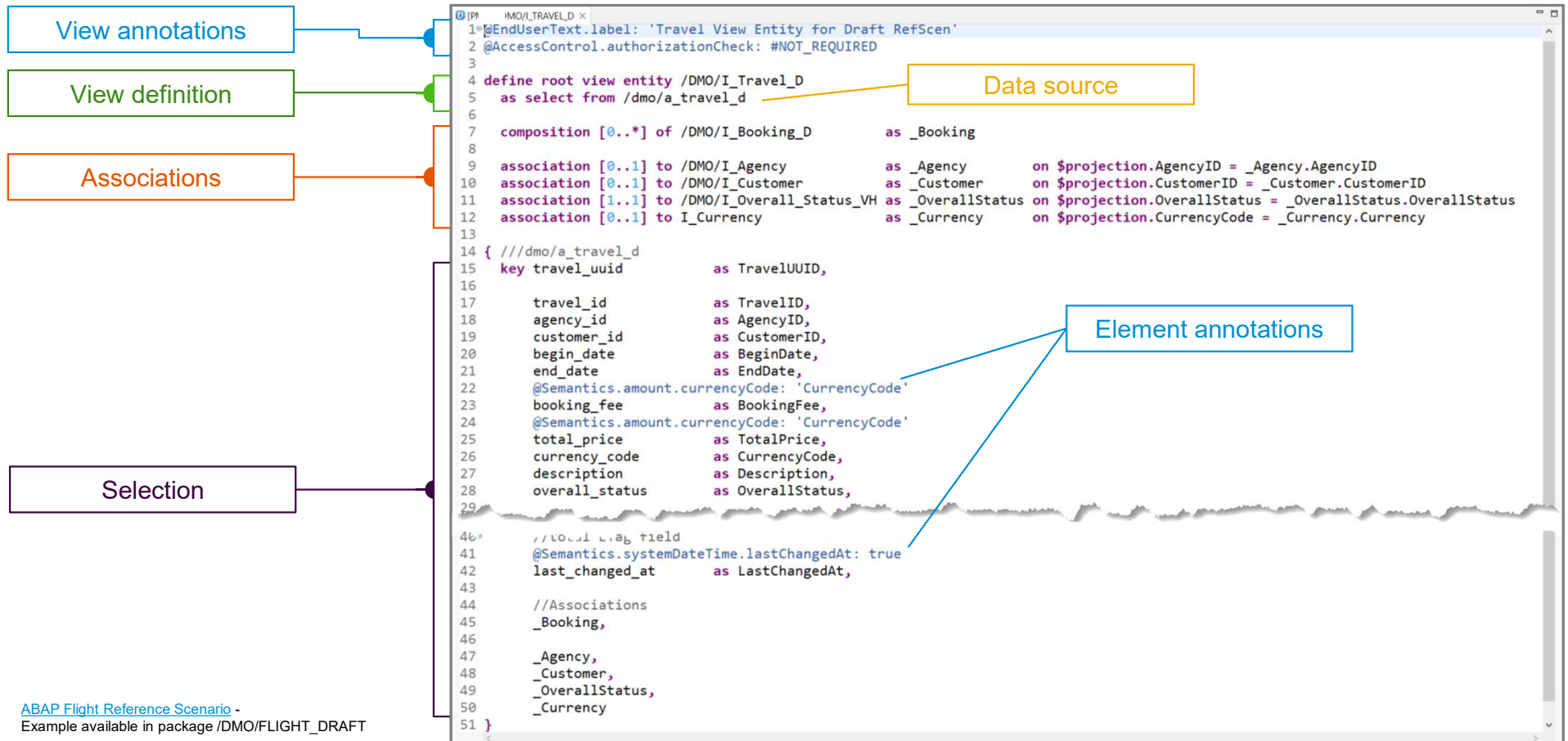
Static code checks (ATC, CVA) with
remote and local scenarios
Unit testing incl. isolation frameworks
Test seams and injections

SUPPORTABILITY

Debugging, profiling, tracing
Static and dynamic logging
Runtime monitoring and analysis



Next generation data modeling and access with ABAP CDS – Example



Entity Manipulation Language (EML) – At a glance

Extension of the ABAP Language
with SQL-like syntax

Used to control the transactional
behavior of RAP business objects (BOs)

Provides API-based access to RAP BOs,
even outside of the RAP context

API reference available in the ABAP
keyword documentation ([link](#))

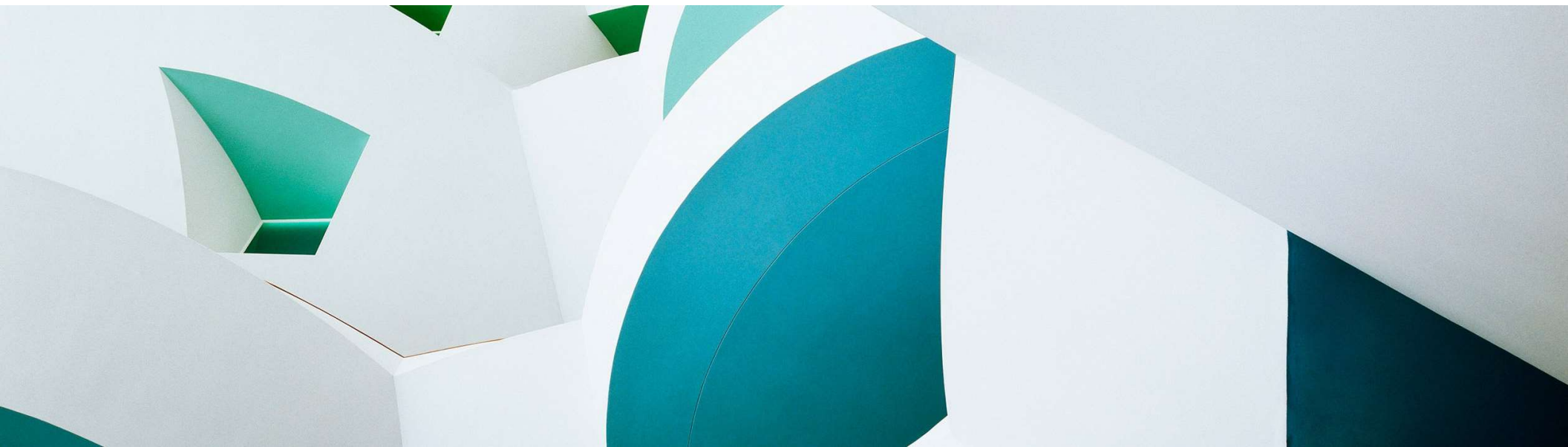
EXAMPLES

```
"Modify travel instance
MODIFY ENTITIES OF /DMO/I_Travel_D IN LOCAL MODE
ENTITY Travel
  UPDATE FIELDS ( OverallStatus )
  WITH VALUE #( FOR key IN keys ( %tky          = key-%tky
                                   OverallStatus = travel_status-accepted ) ).
```

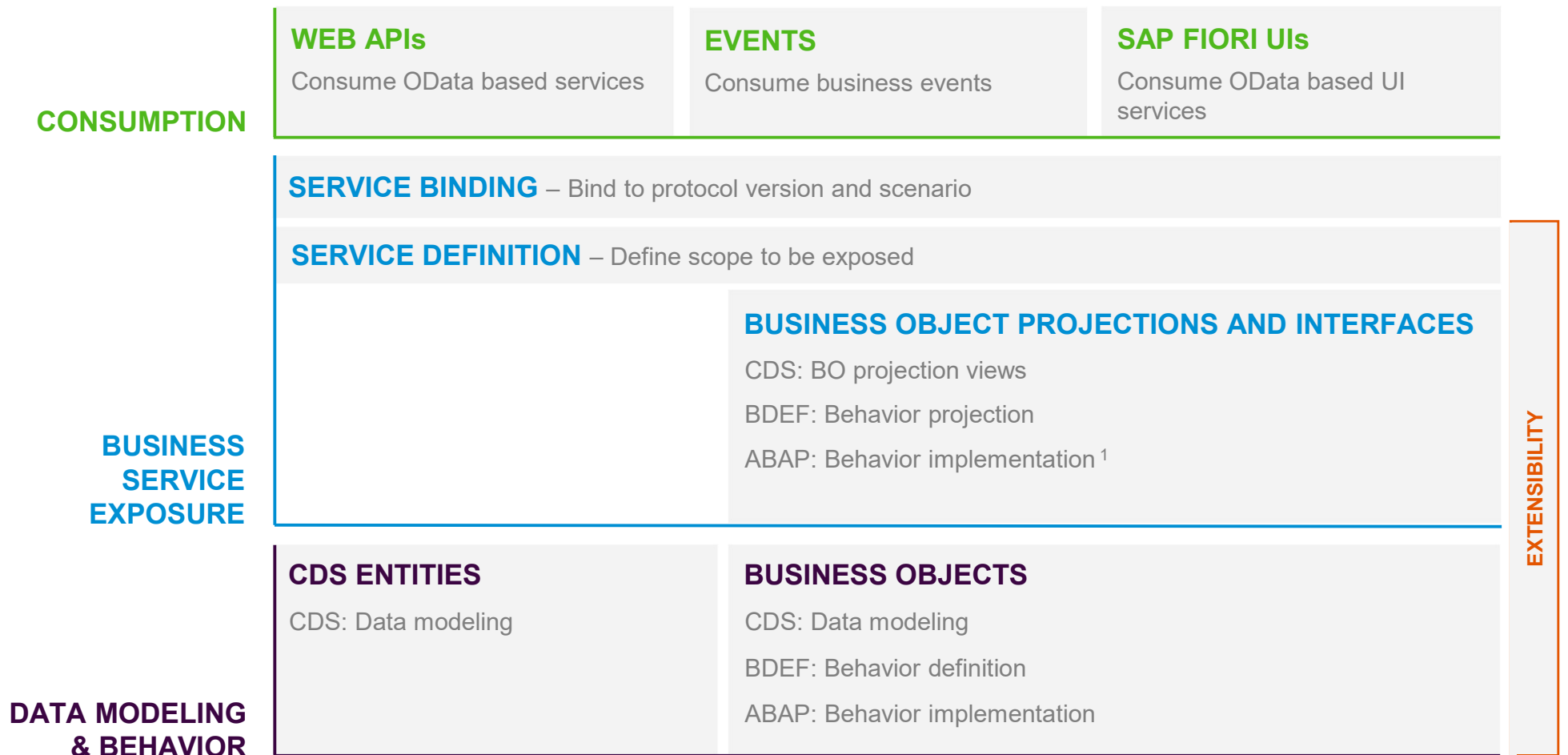
```
"Read changed data for action result
READ ENTITIES OF /DMO/I_Travel_D IN LOCAL MODE
ENTITY Travel
  ALL FIELDS WITH
  CORRESPONDING #( keys )
  RESULT DATA(travels).

result = VALUE #( FOR travel IN travels ( %tky   = travel-%tky
                                           %param = travel ) ).
```

BIG PICTURE

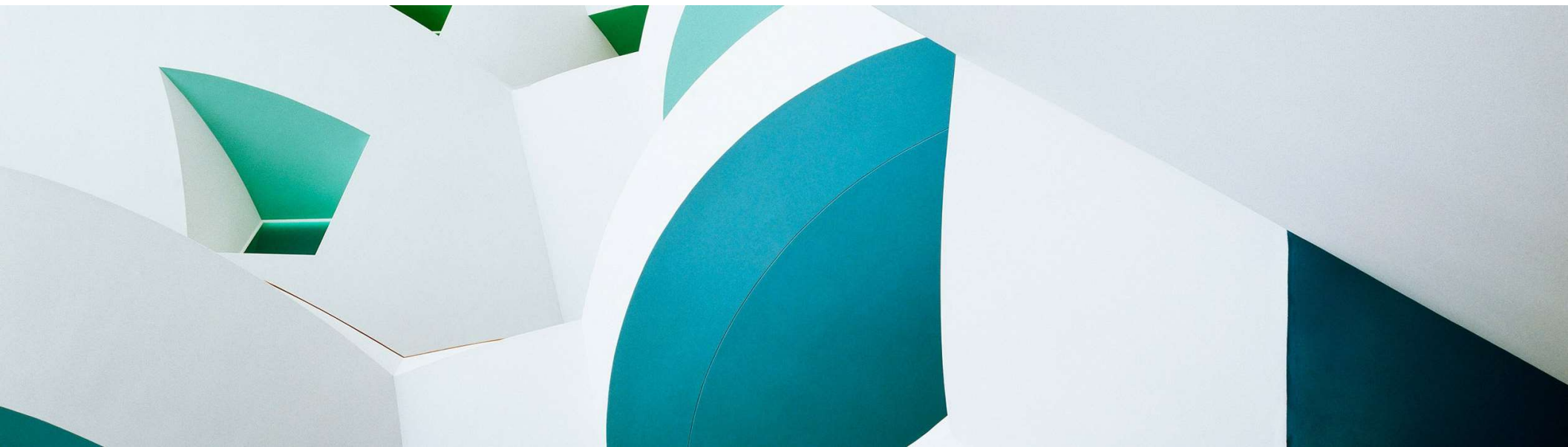


RAP – The big picture

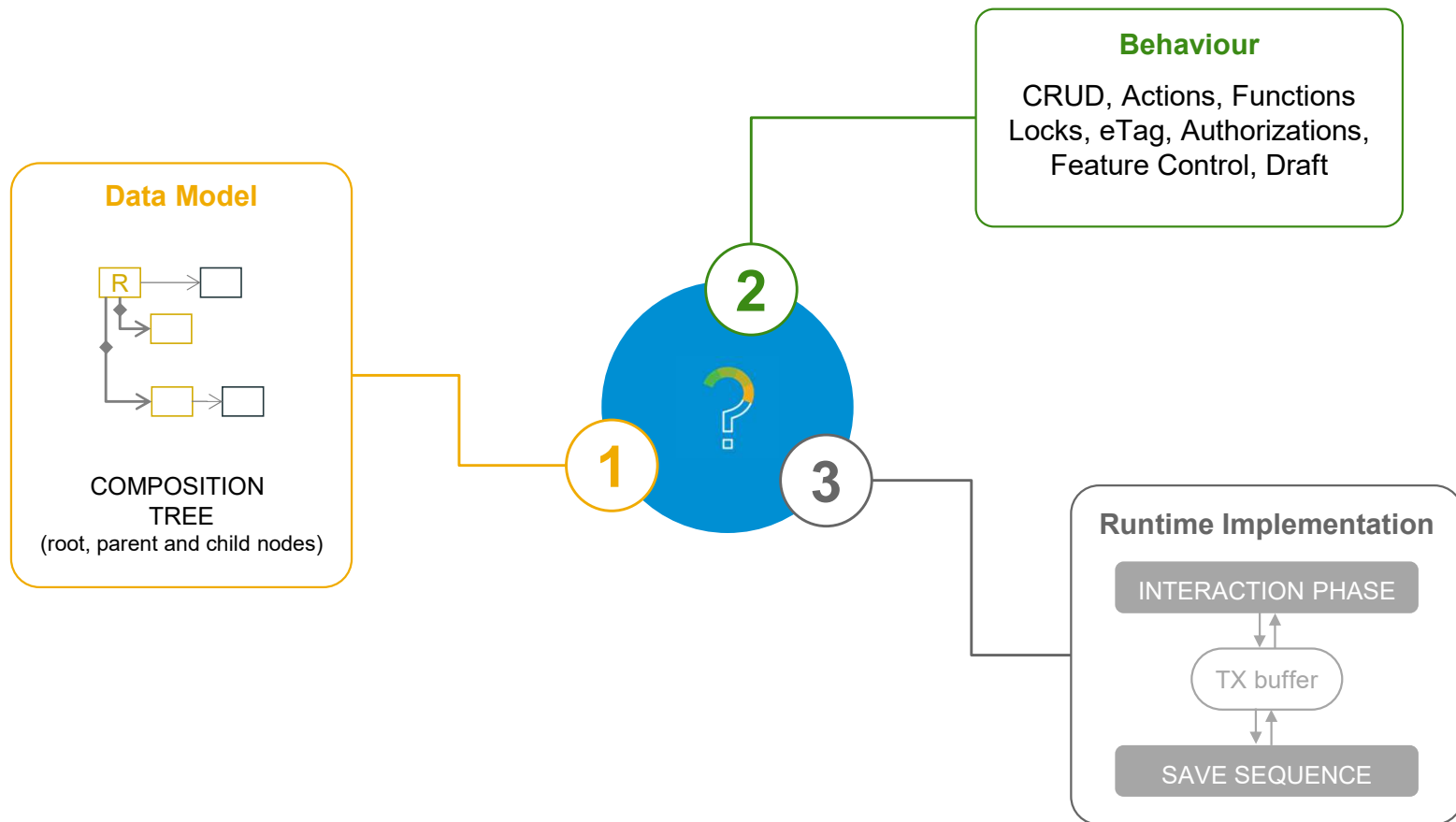


¹ Not applicable for RAP BO interfaces

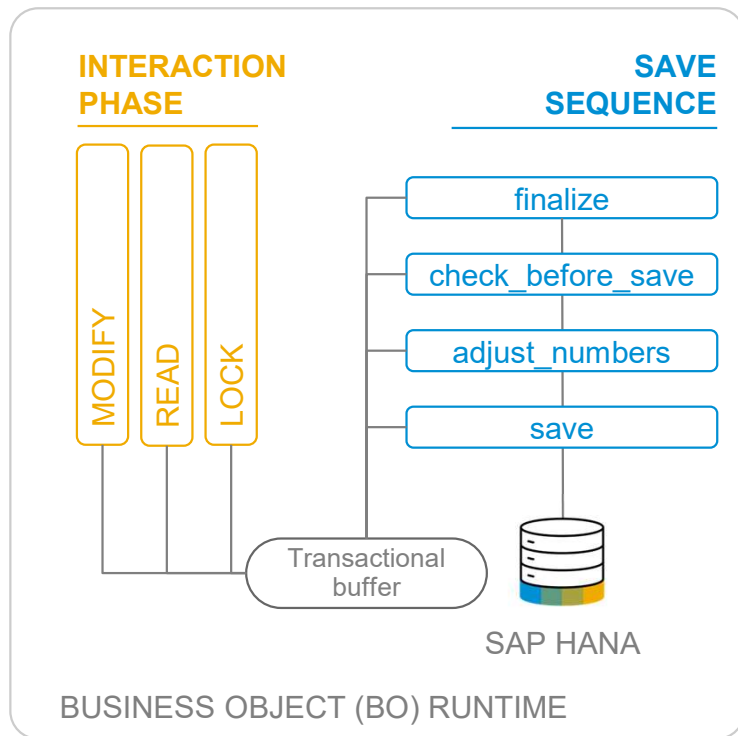
BUSINESS OBJECTS



What is a business object (BO) ?



BO runtime implementation types



UNMANAGED

For **brownfield developments** with available application code for interaction phase, transactional buffer, and save sequence

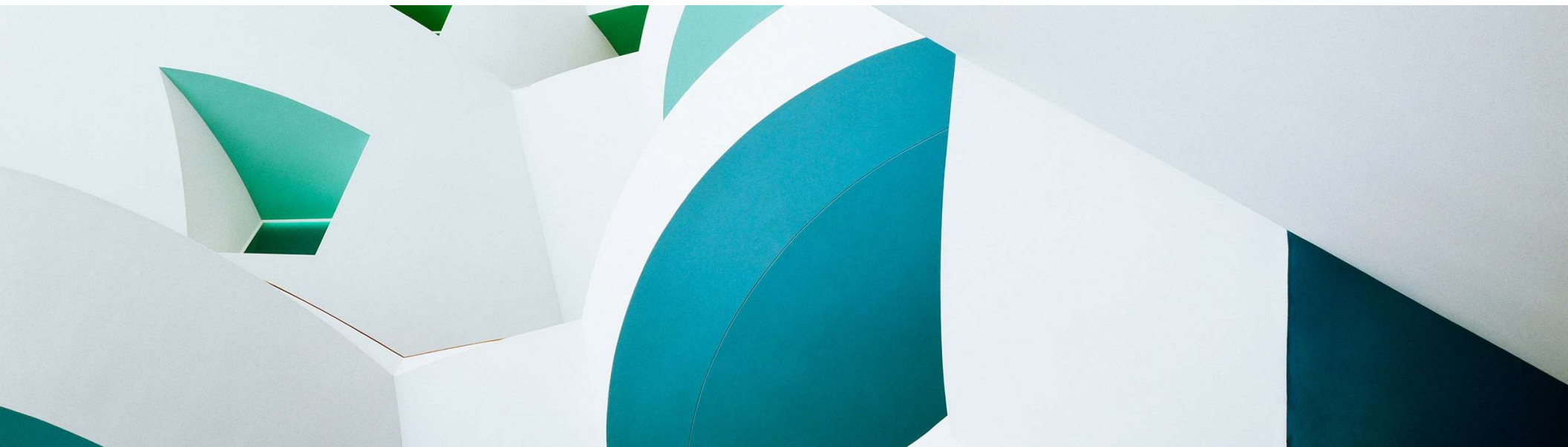
- Developers in charge of BO runtime: CRUD operations
- Adapters needed to integrate the existing code

MANAGED

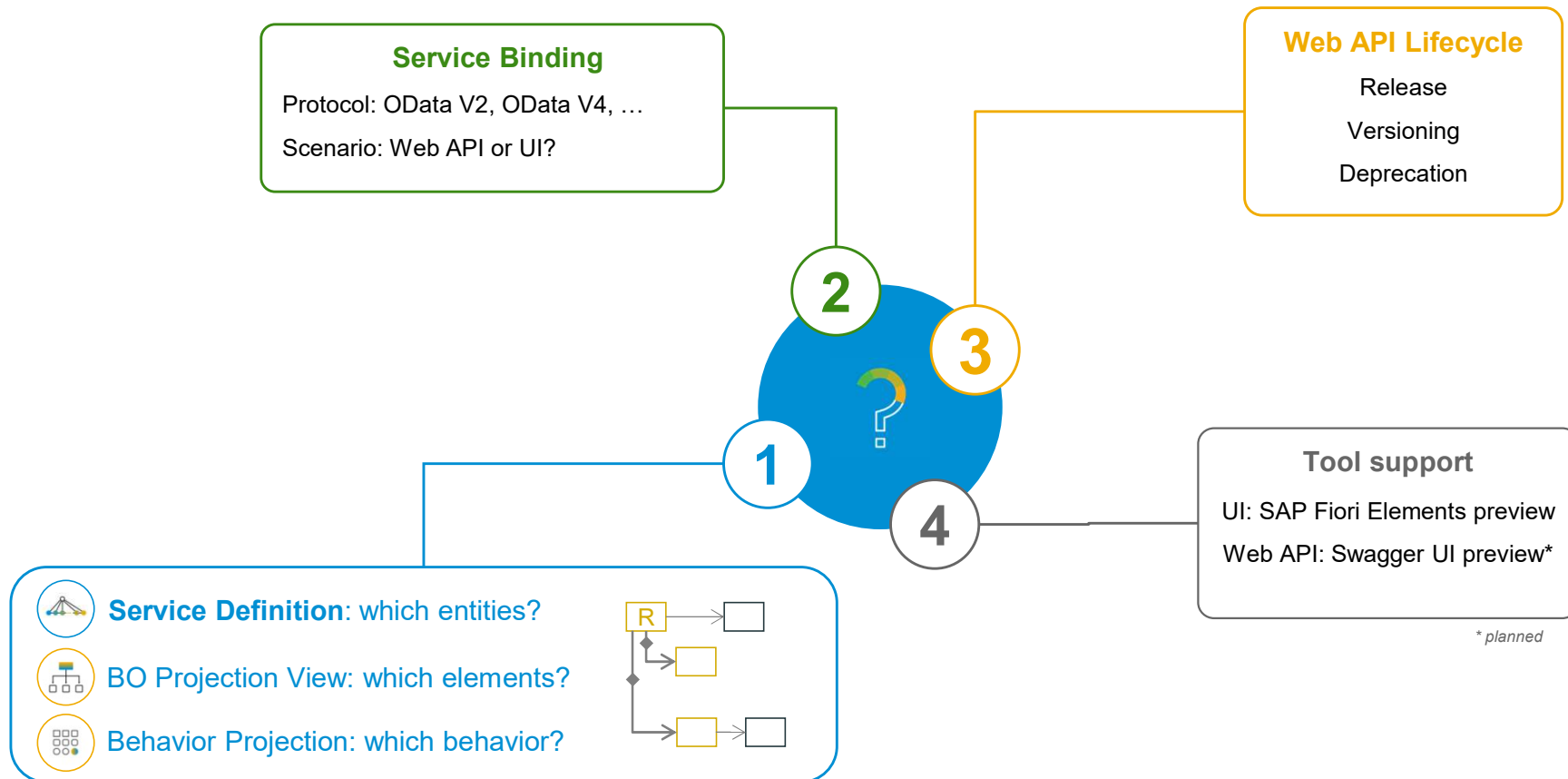
For **greenfield developments** with standard implementation
(Opt. unmanaged appl. components: DB tables, lock/PFCG object, update task FM)

- Standard CRUD operations work out of the box
- Developers add BO-specific business logic

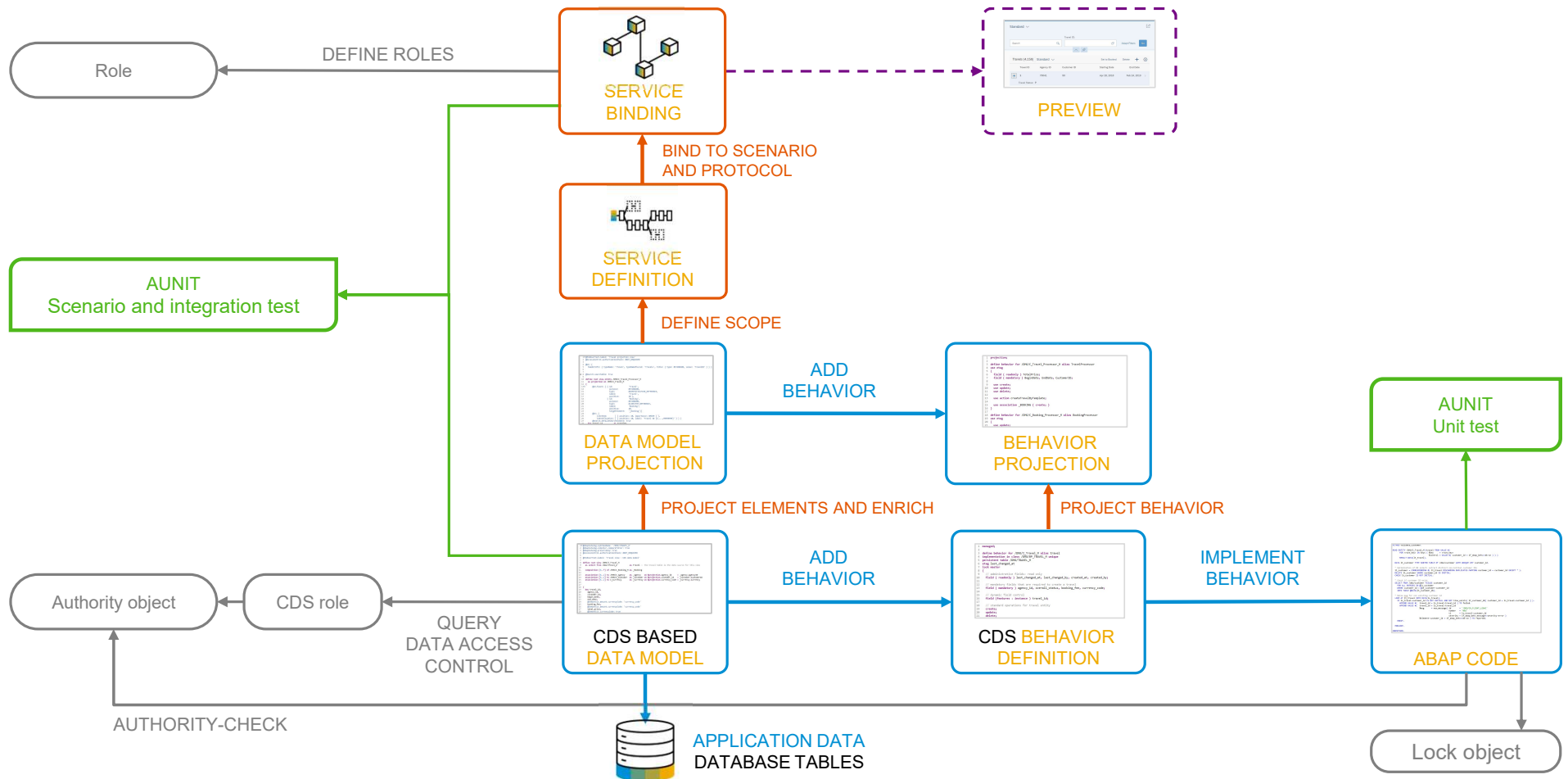
BUSINESS SERVICES



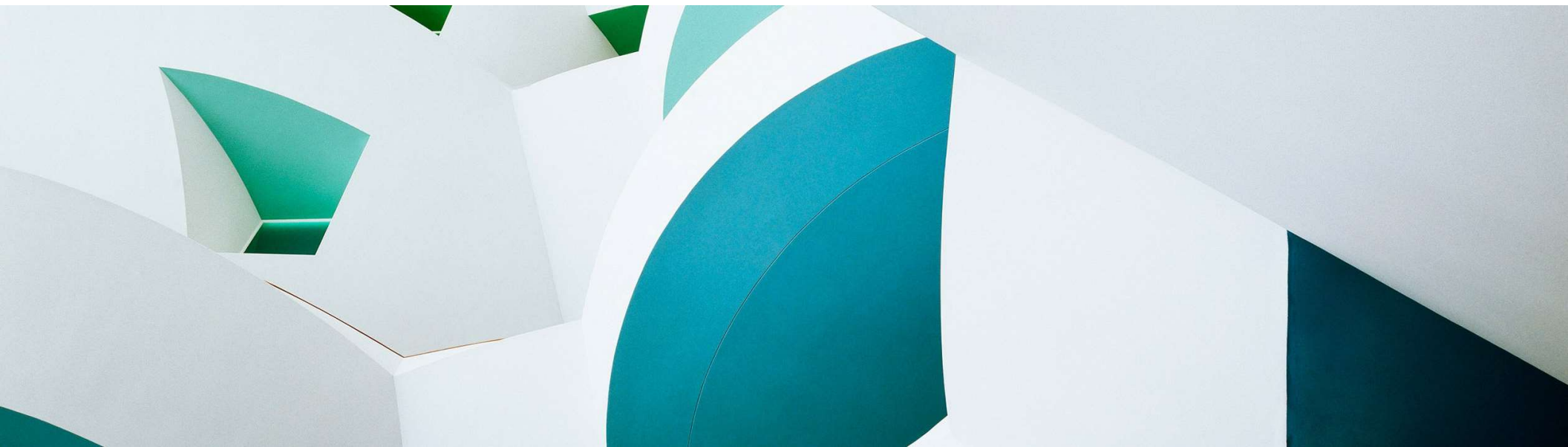
Business service



The development flow



SUMMARY



Key takeaways

The **ABAP RESTful Application Programming Model (RAP)** helps you efficiently and rapidly build enterprise-grade services with built-in cloud qualities.

RAP best support **SAP HANA** and **SAP Fiori elements**.

RAP is available on **SAP BTP ABAP Environment**, **SAP S/4HANA Cloud**, and **SAP S/4HANA** as of edition 1909.

The **RAP feature scope** is enhanced **quarterly** in SAP BTP ABAP Environment, **twice a year** in SAP S/4HANA Cloud ABAP Environment, and **annually** in SAP S/4HANA.



What's New: [SAP BTP ABAP environment](#) | [SAP S/4HANA](#) | [SAP S/4HANA Cloud](#)



What's Next: [ABAP Platform Roadmap Information](#) for all products



More information on RAP

Further information

[Modern ABAP Development with the ABAP RESTful Application Programming Model \(RAP\)](#) | SAP Community

[Modernization with RAP](#) | SAP Blogs

[Building Apps with RAP](#) | openSAP Course

[Acquire Core ABAP Skills](#) | SAP Learning Journey

What's New in RAP: [SAP BTP ABAP Environment](#) | [SAP S/4HANA](#) | [SAP S/4HANA Cloud](#)

Outlook: [SAP BTP ABAP Environment on the interactive SAP Road Map Explorer](#) | [ABAP Platform Roadmap Information](#)

Public SAP Web sites

ABAP Development Community: www.sap.com/community/topic/abap.html

SAP BTP ABAP Environment Community: <https://community.sap.com/topics/btp-abap-environment>

SAP S/4HANA Cloud ABAP Environment Community: <https://community.sap.com/topics/s4hana-cloud-abap-environment>

ABAP Testing and Analysis Community: <https://community.sap.com/topics/abap-testing-analysis>

SAP products: www.sap.com/products

SAP training and certification opportunities

www.sap.com/education – e.g. trainings S4D437, S4D430, HA400, and S4D400

learning.sap.com/learning-journey – e.g., search for ABAP

Exercises

<https://github.com/SAP-samples/abap-exercises-codejam>

Thank you.

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