Leveraging SAP BTP Developer Tools for a Clean Core Strategy

PUBLIC

What we cover...

- What is the clean core?
- What are the benefits?
- How to get to a clean core?
- Myth and Facts
- Information on where to get started

How often do you upgrade your ERP system per year?

Show with your hands …

1x per year

2x per year

Let’s not talk about it ...

How familiar are you with what Clean Core is?

Show with your hands …

Heard about it

Adapted some areas

Fully Clean

What I often year

"BTP is the only means of making and keeping the core clean"

"Clean Core is only about Custom Code and Extensibility."

"Fit-to-standard is the only means of making and keeping the core clean"

"Clean Core is only about TCO"

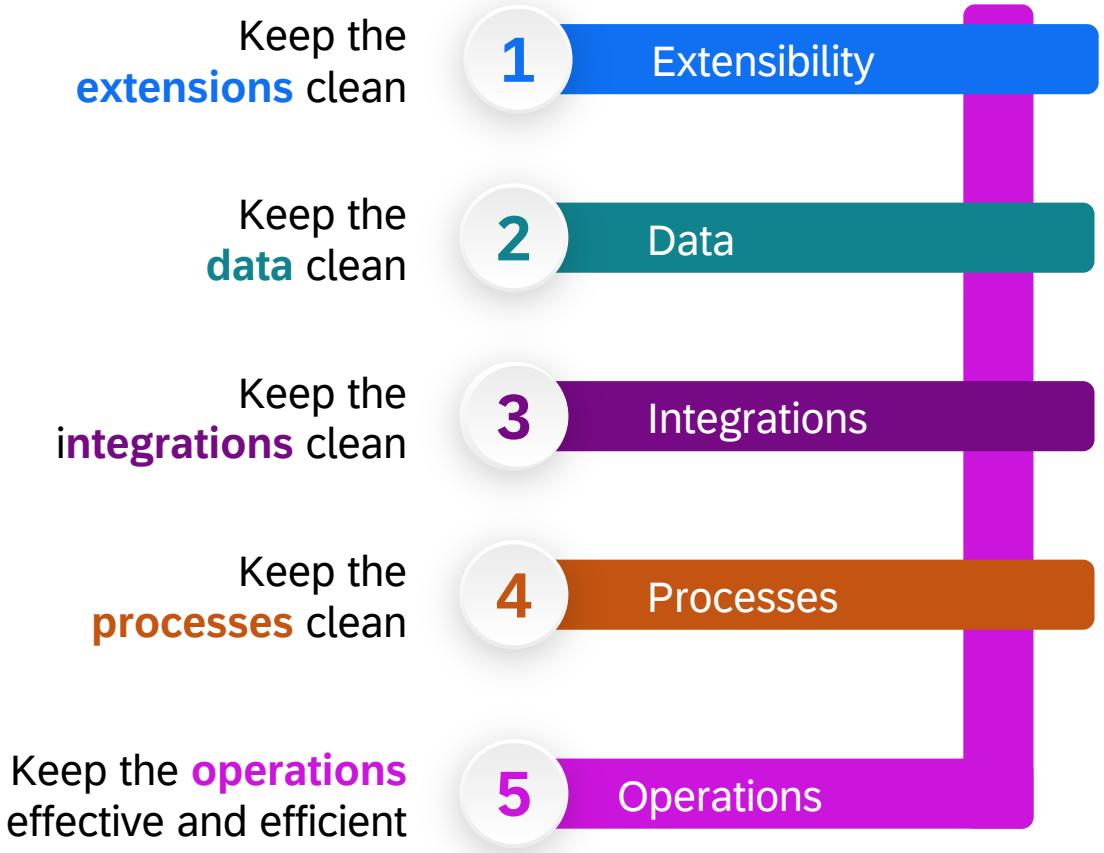
What is clean core?

It describes **modern approaches to design:**

1. business processes,
2. extensions,
3. integration scenarios, and
4. data architectures

in a

a. **stable,**
b. **upgrade-safe,**
c. **transparent** manner,
d. along with a **separate platform to innovate** for additional differentiation


Keep the extensions clean
1
Extensibility
Keep the data clean
2
Data
Keep the integrations clean
3
Integrations
Keep the processes clean
4
Processes
Keep the operations effective and efficient
5
Operations

What is clean core?

CLEAN

Clean means **up-to-date, transparent, unmodified, consistent, efficient**, and **cloud compliant.**

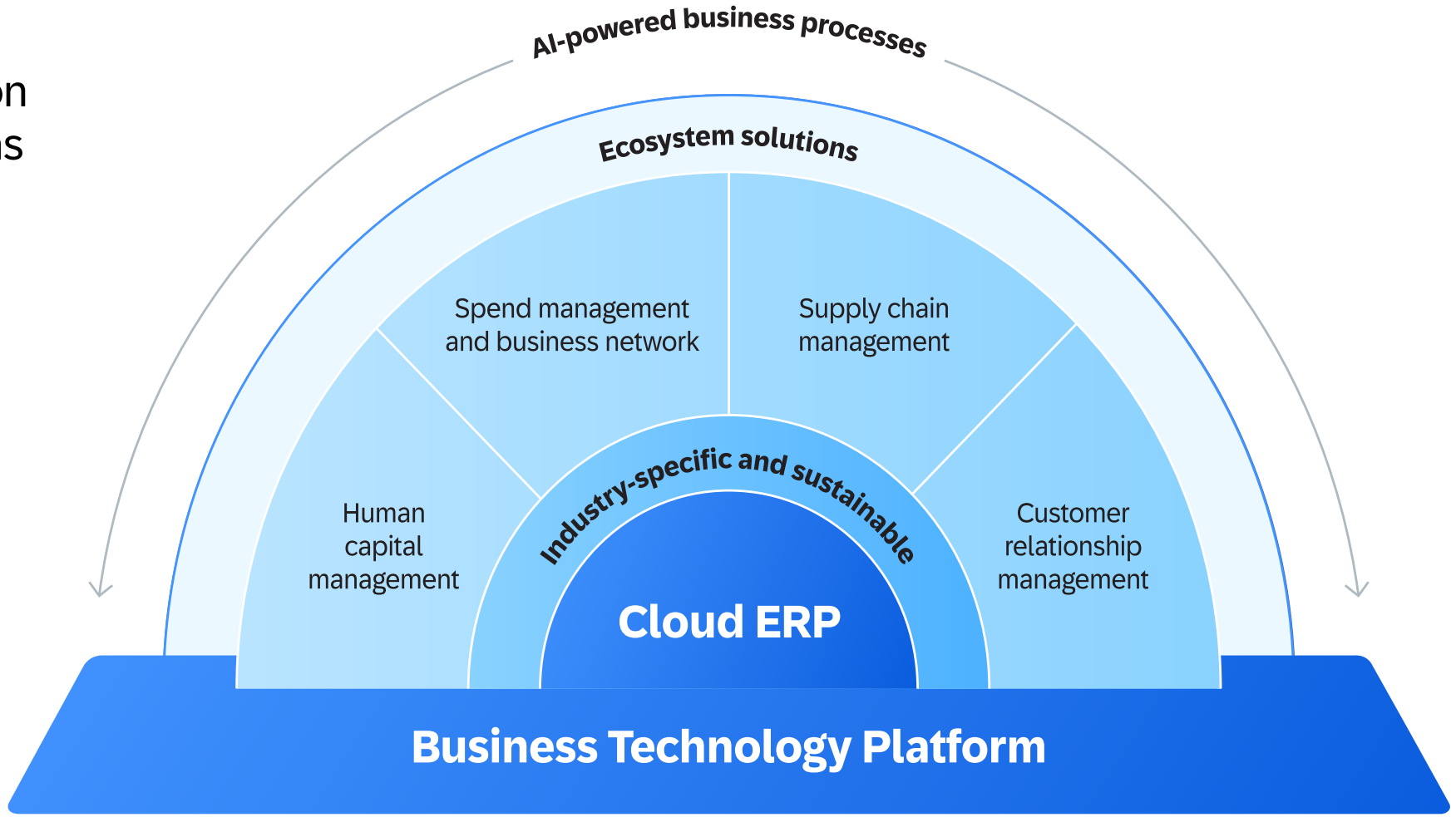
+

CORE

The core describes the main aspects of an ERP system landscape, namely **extensibility, processes, data, integration, and operation**. Capabilities of the core depend on the implemented software stack.

SAP BTP

Unleash digital innovation across business functions



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

“A new public cloud system is clean per the definition.”

Benefits of clean core

1. Agility and flexibility
2. The ability to leverage the latest innovations (stay current)
3. Efficient and more secure operations
4. Data to value

How to clean core

Following a clean core strategy means:

- **Reducing** data and process **inconsistencies**
- Establishing suitable **housekeeping processes** and **governance structures**
- Maximizing the use of **standard functionality** and its ROI
- Building **cloud-compliant** extensions that are integrated using **stable interfaces**
- **Minimizing** customization **complexity**


Keep the extensions clean
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Keep the data clean
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Operations

Keep the extensions clean

Main Aspects:

- Extensions should be **avoided** when possible
- Create **cloud compliant Extensions**,
- **Custom extensions** do not break an upgrade and **upgrades** do not break an extension
- Leverage 1: **on the stack** & 2. side-by-side **with SAP BTP**

What makes extensions clean core compliant?

What is a “good” extension?

Main aspects

- **Avoid** extensions when possible
- Set up a **strong governance** to create decoupled extensions in a way that they would work in the cloud (three-tier model)
- Separate extensions by leveraging released APIs – **custom extensions** do not break an upgrade and **upgrades** do not break an extension*
- 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

*Ensuring upgrade stability can be a short-term workaround for transforming a whole application from traditionally developed code into cloud-compliant (Tier 1) extensions.

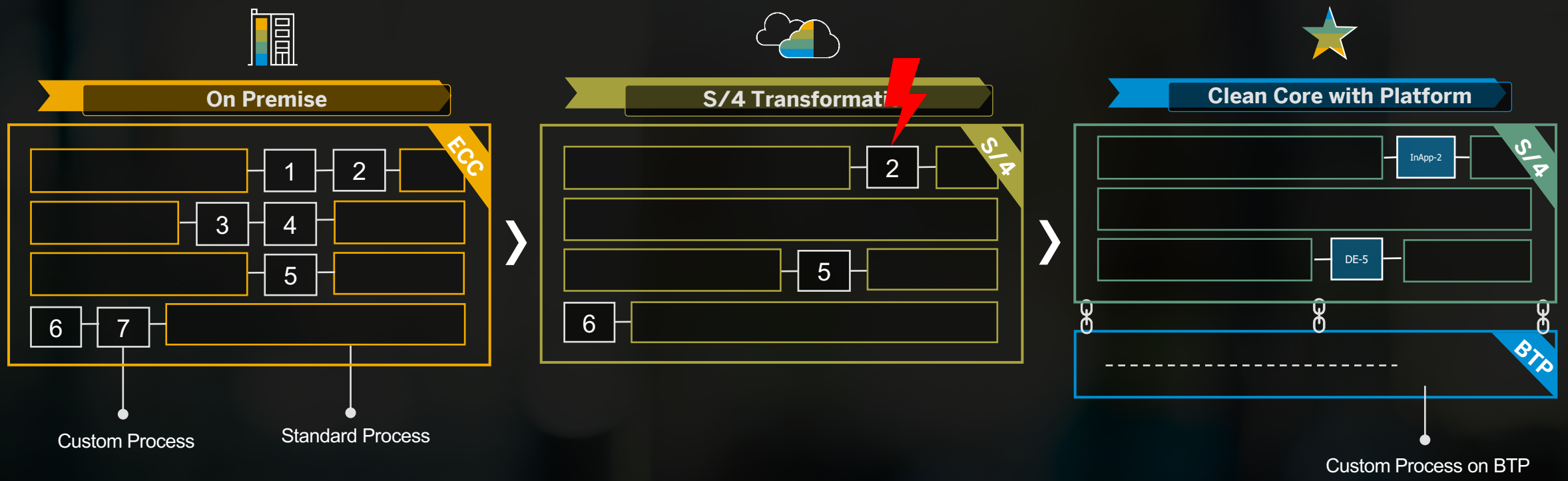
How to achieve

- Establish a governance model – a clearly defined process with high demands to approve any extension.
  - Prefer standard over custom development by leveraging fit-to-standard best practices.
  - Avoid custom code where possible. Don’t extend for rarely needed use cases.
  - Prefer “clean” extension options over “unclean” ones.
  - Use SAP Application Extension Methodology and extensibility guidance to identify the best path in your landscape.
- If you need to extend, a clear separation is key.
  - Only access standard objects through released and stable APIs (either remote or locally; access for reading and changing access possible).
  - Choose only “clean” tools or environments and extensibility options (in SAP S/4HANA: key user, developer, or side-by-side extensions).
- Choose extension domain based on requirements only.
  - SAP BTP automatically decouples extension but is not the only “clean” approach.
  - Do not extend in the core simply because “we always do so.”
- Enable awareness.
  - In on-premise installations, you can actively decide to develop some extensions not clean core, as long as they are documented and informed decisions (use cases: copy routines; API not available, and more).
  - Mitigate missing APIs in private cloud or on premise by using wrappers as described in ABAP Cloud API Enablement Guidelines for SAP S/4HANA Cloud, private edition, and SAP S/4HANA.
  - Create requests for APIs using a customer influence tool (for public or private cloud editions).

App Dev – Why and how to achieve a Clean Core?

Extensibility Options in S/4HANA

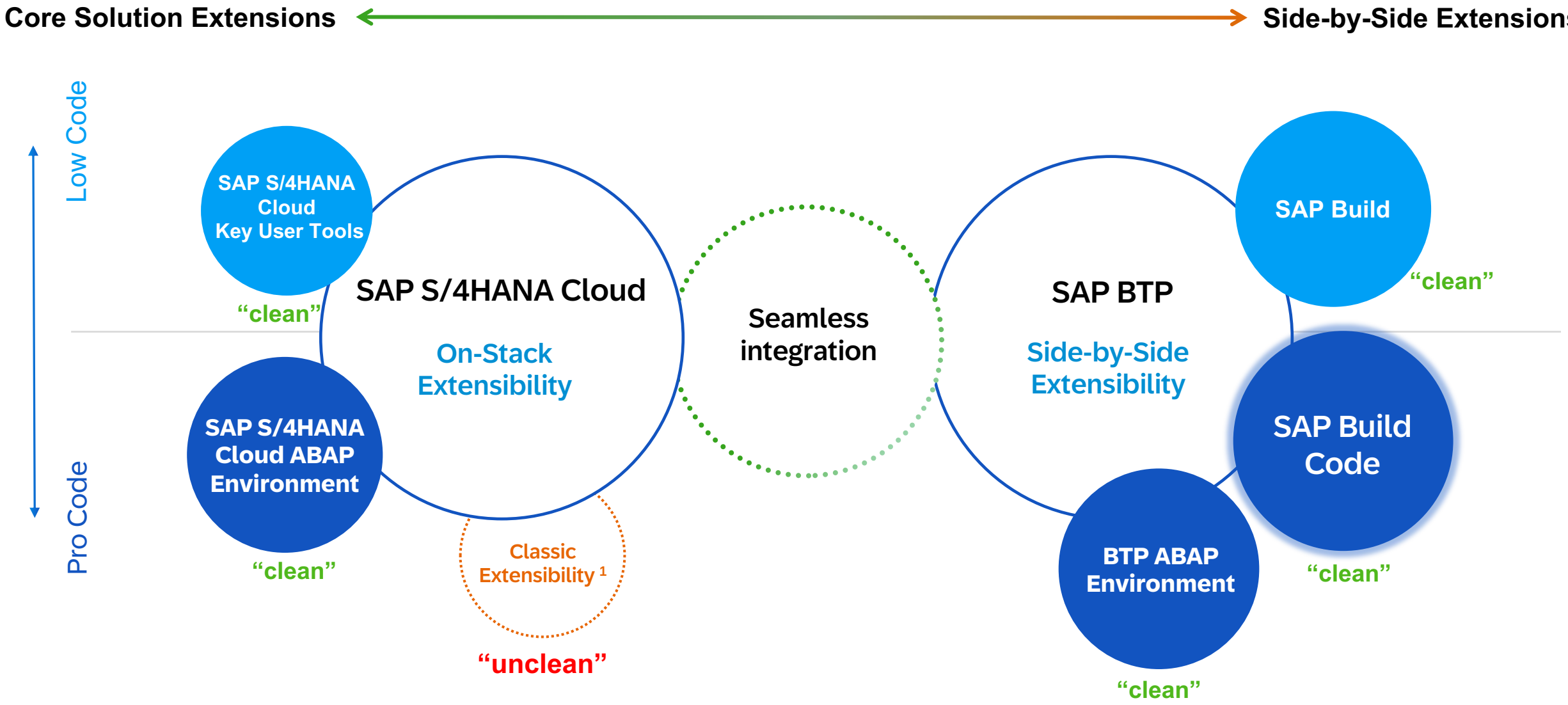
- InApp = In-App Extensibility
- DE = Developer Extensibility



Extensibility Options

1. **In-App Extensibility S/4HANA**
2. **Developer Extensibility S/4HANA**
3. **Side-by-Side Extensibility SAP BTP**

Clean Core Extensibility Options for SAP S/4HANA

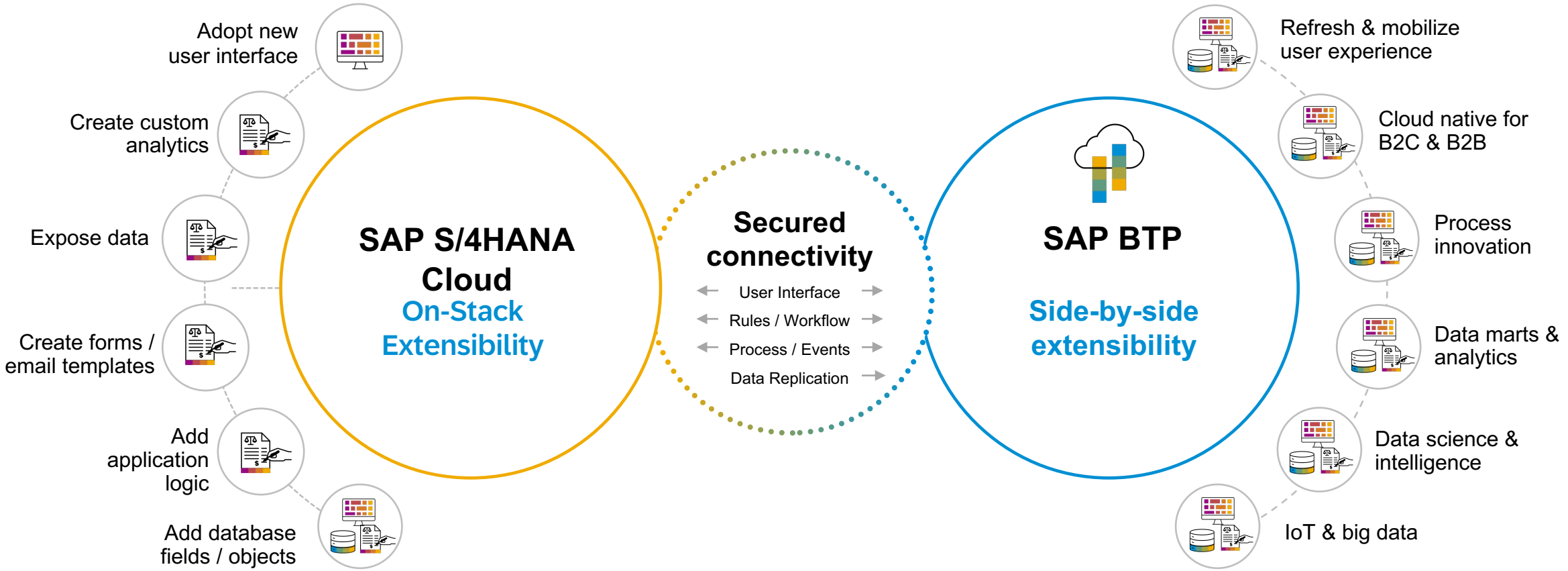


1 SAP S/4HANA Cloud Private Edition and on premise only; **not** "clean core"

When to use use which tool?

Extensibility Options Today

In-App Extensions ⟷ **Cloud Extensions**



[1] as part of product roadmap | may be changed by SAP at any time without prior notice

[2] SAP S/4HANA on premise only

When to use use which tool?

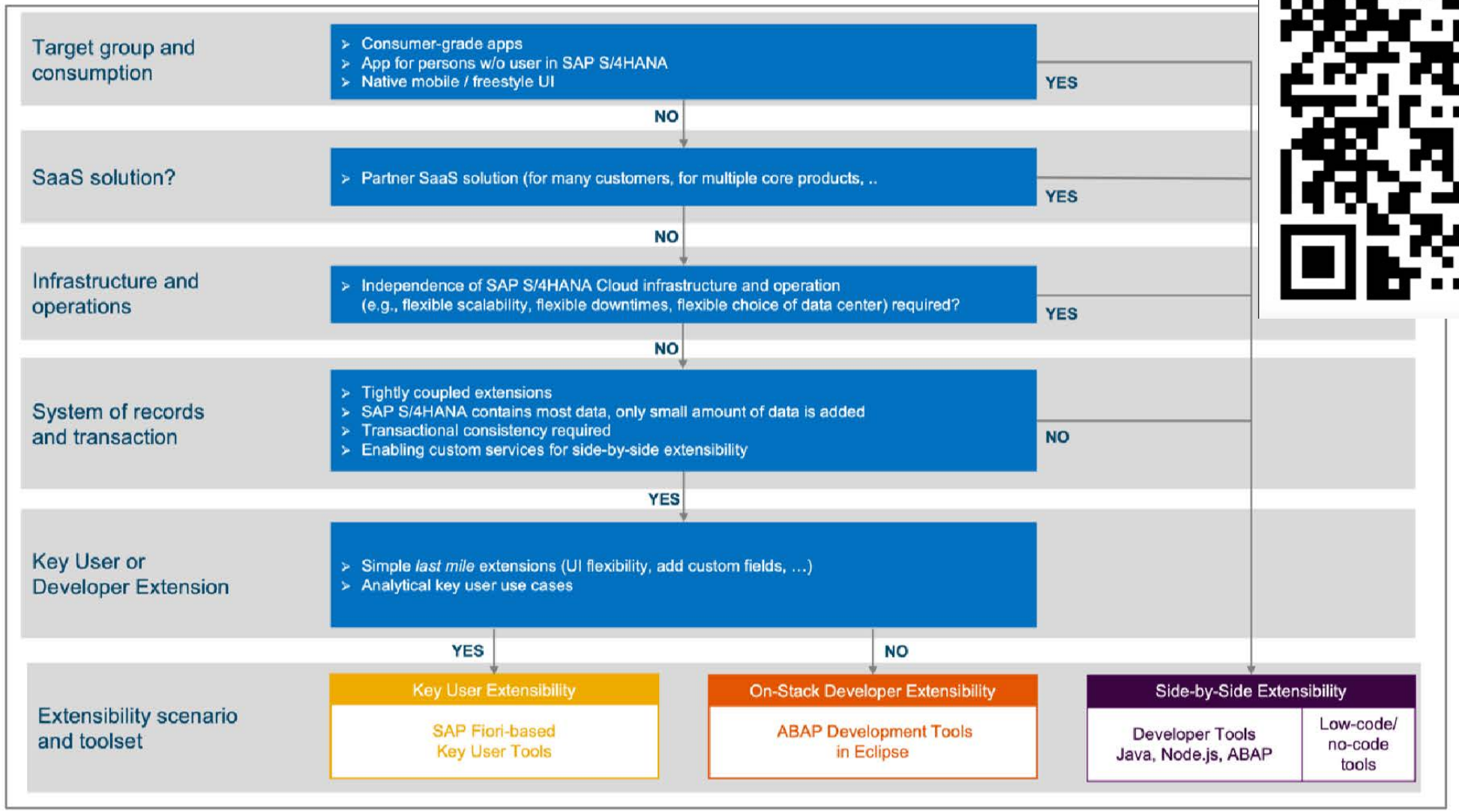
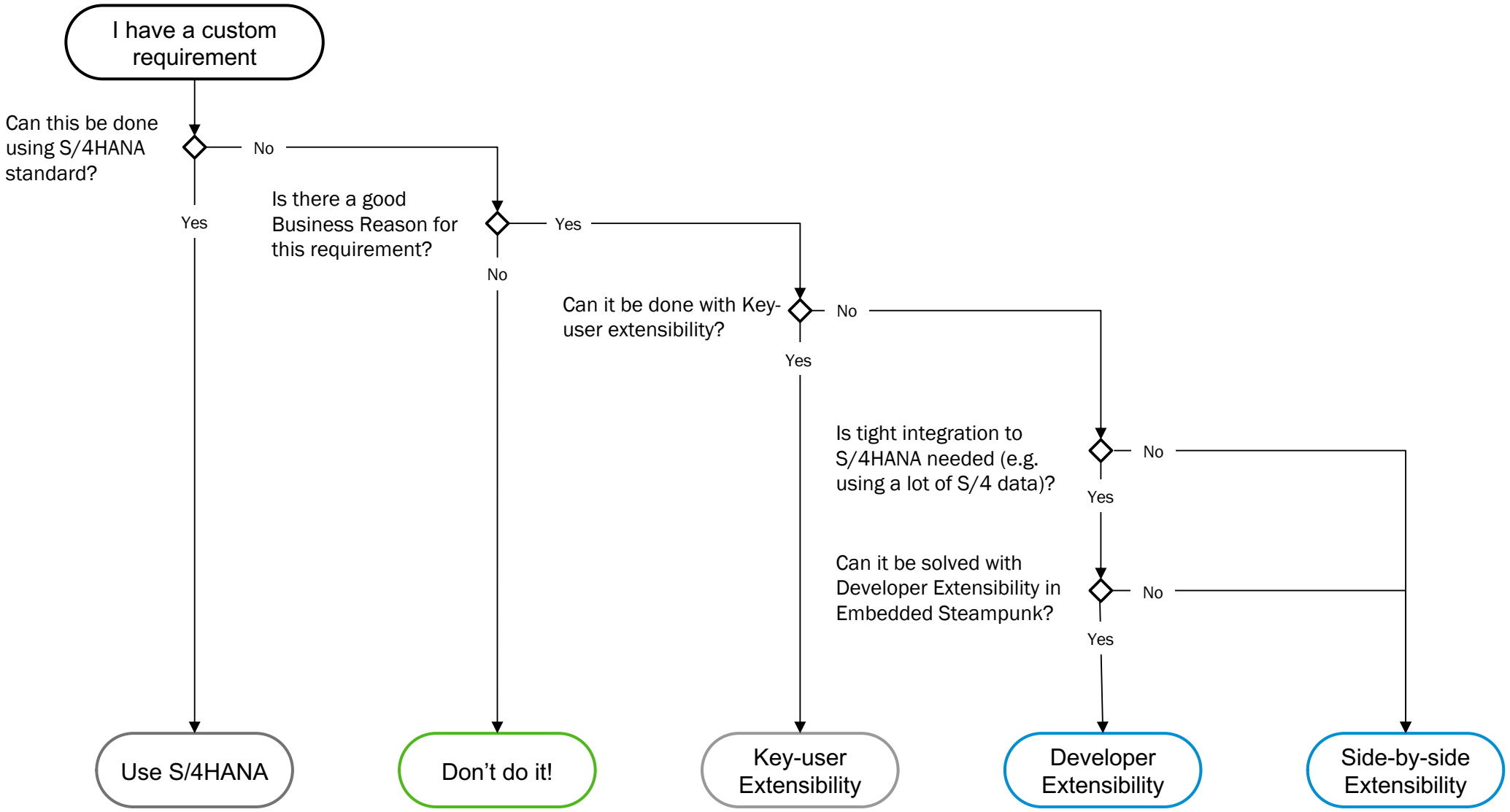


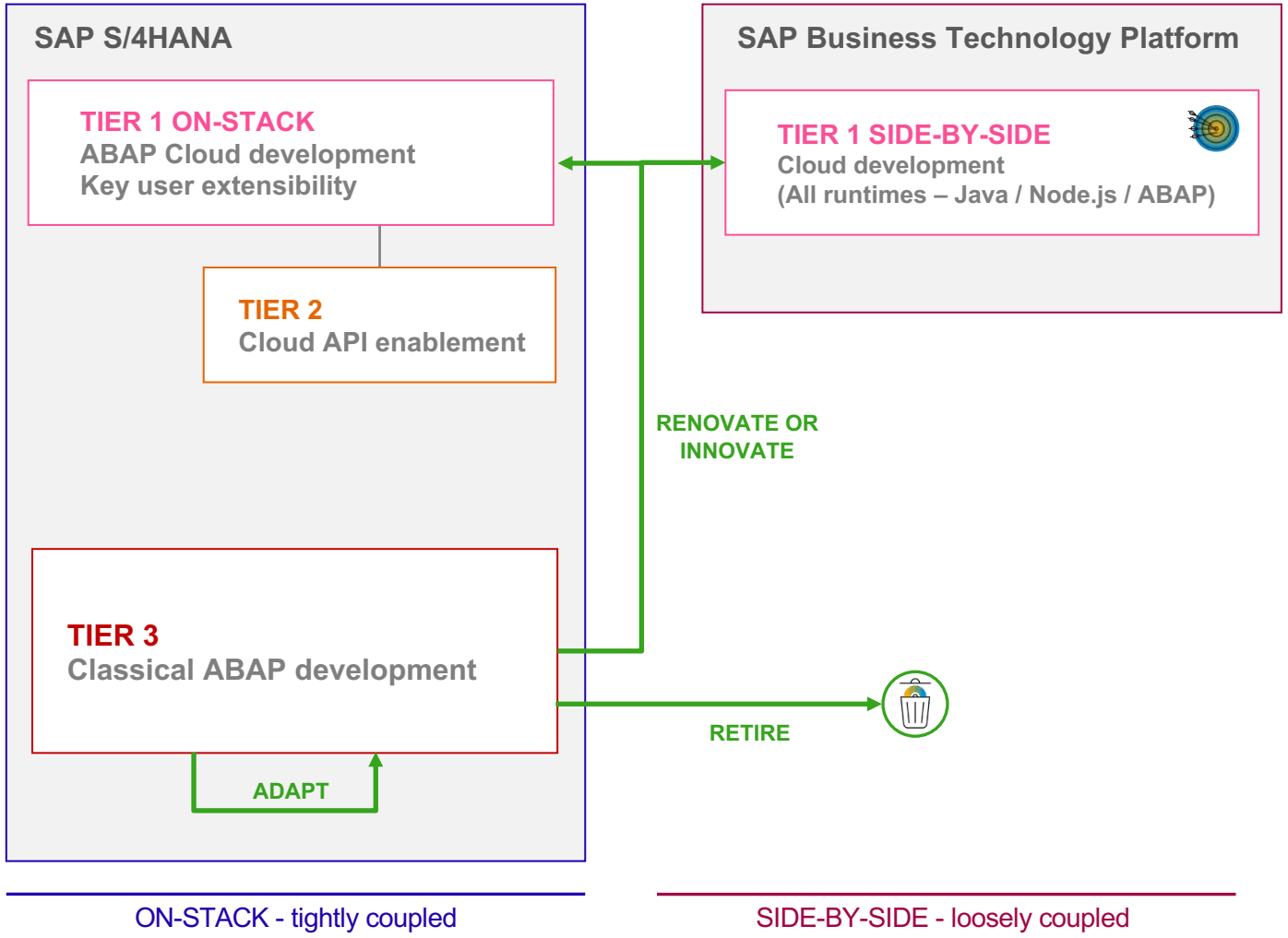
Figure 3.1 - Sequence diagram on how to find the right extensibility options.

Decision Diagram – Disclaimer Apply ;-)



What if no API is available?

3-tier extensibility model for SAP S/4HANA private cloud and on-premise



TIER 1 – Cloud extensibility model

Development of cloud-ready and upgrade-stable applications and extensions

Same development model as used in SAP S/4HANA Cloud, public edition

Default for new extensions and custom apps

TIER 2 – Cloud API enablement

Extends and enables tier 1 for private cloud and on-premise

Mitigates missing public SAP APIs or extension points:

- Develop custom wrapper objects for not released SAP objects to be used in tier 1
- Retire wrapper once a released SAP API is available

TIER 3 – Classic ABAP extensions

Legacy/existing custom ABAP code or new on-stack extensions code that cannot follow the rules of tier 1 and 2

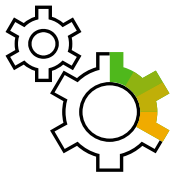
Avoid and reduce the content in tier 3

Local APIs – Current Status and Future Direction

- Success of all **Extension Projects** depends on a rich set of local APIs

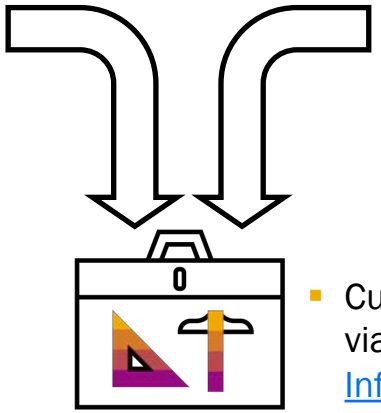
Available APIs

4130 Read APIs + **101** Write APIs + **6975** Other artefacts

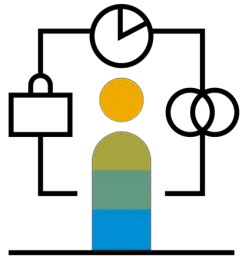


Upcoming New APIs

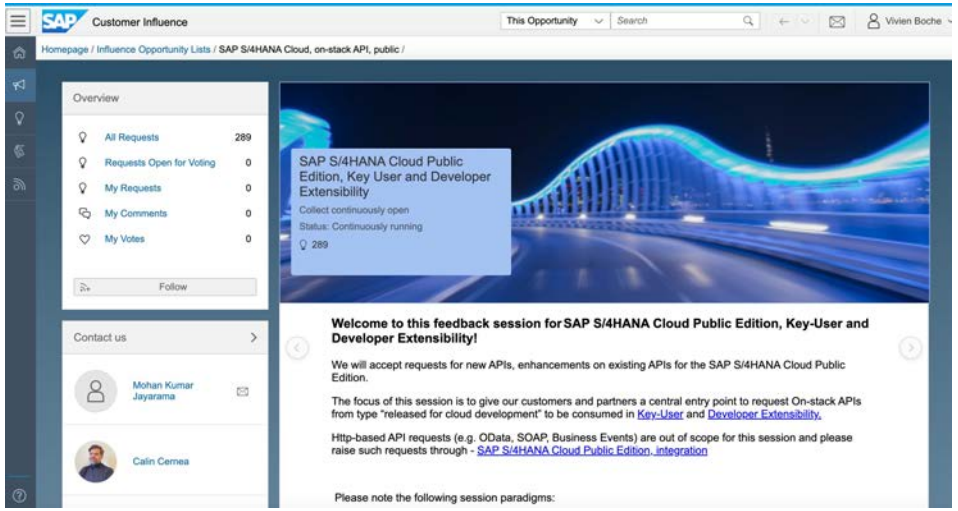
- SAP continuously delivers new local APIs with high priority



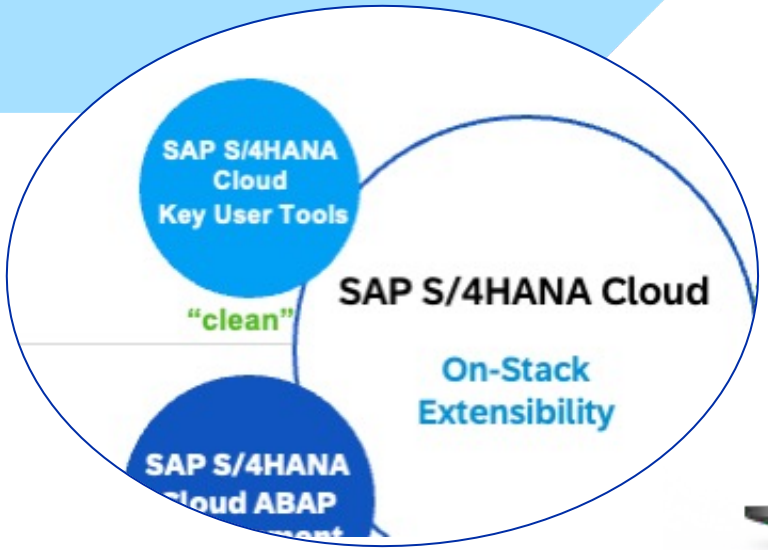
Additional Local APIs

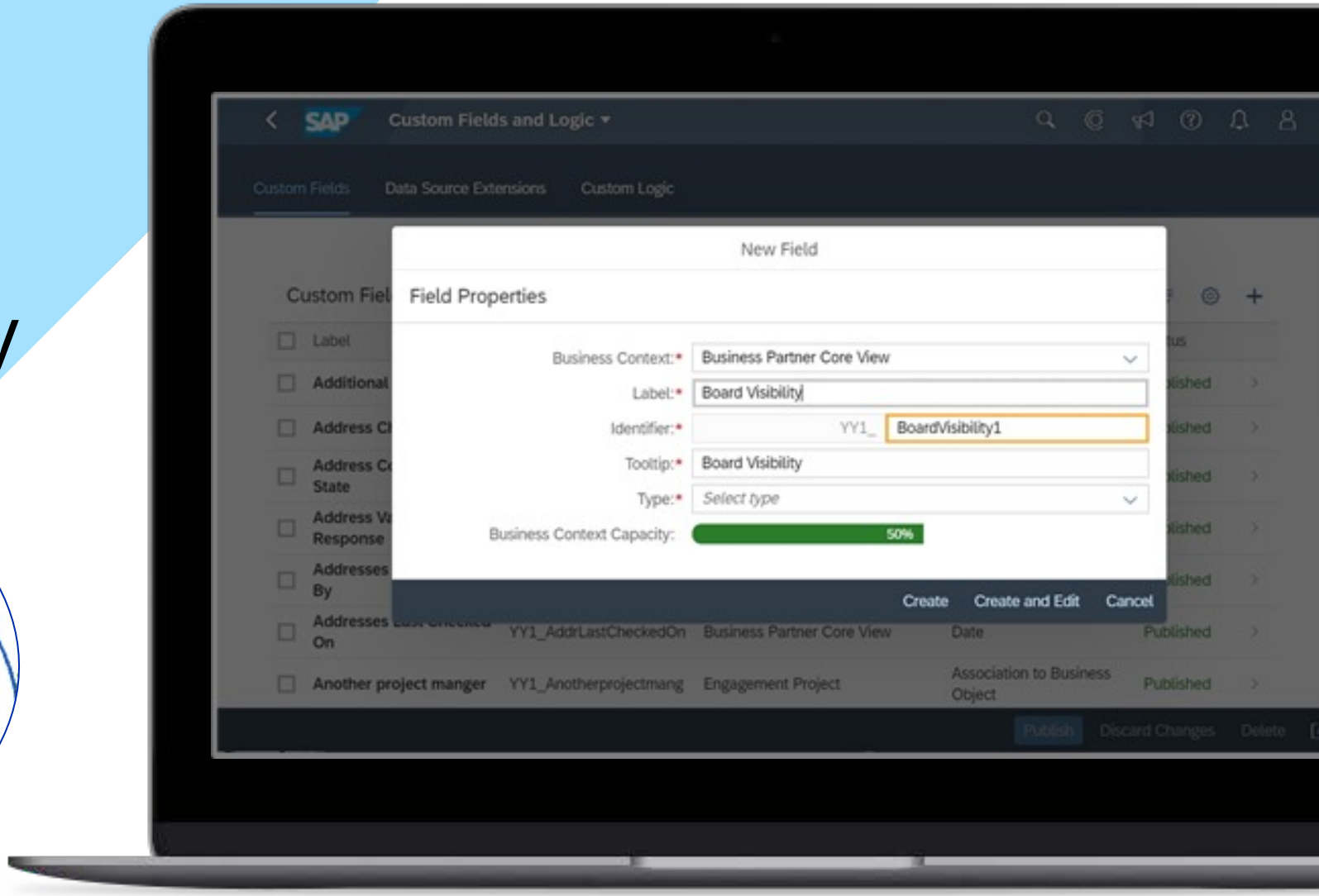


- Customers can request APIs via dedicated Customer Influence Session
- Shipment of API via Continuous Feature Delivery (CFD) or with next Release

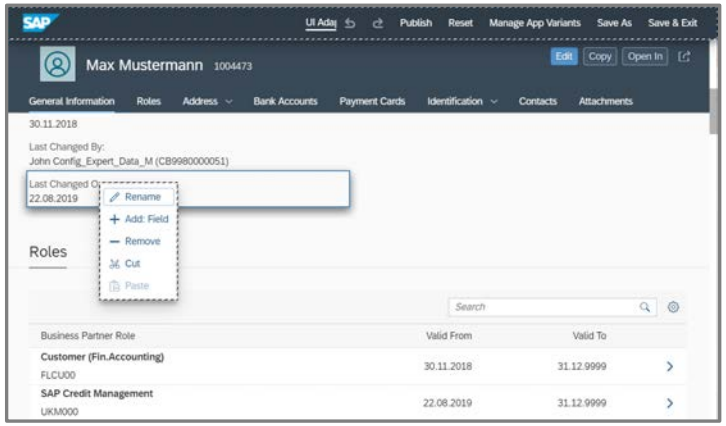


Key User Extensibility

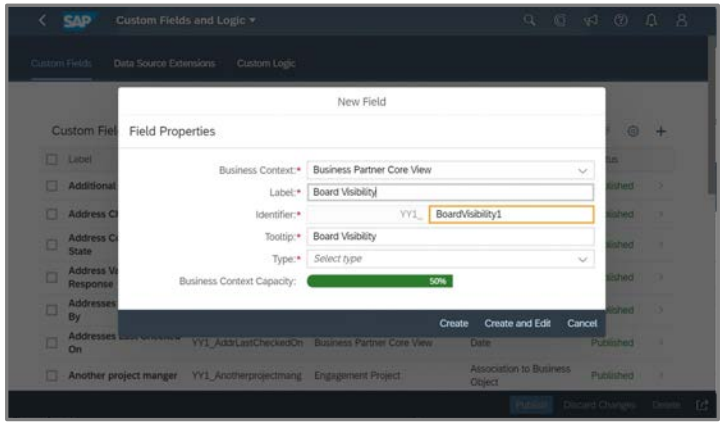




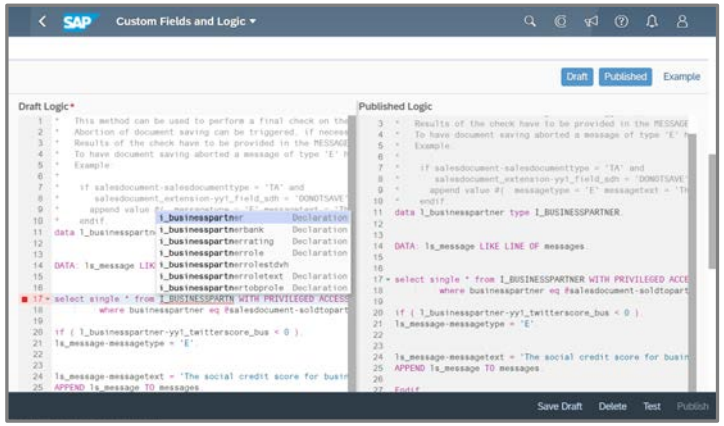
In-App Extensibility
(Key user)



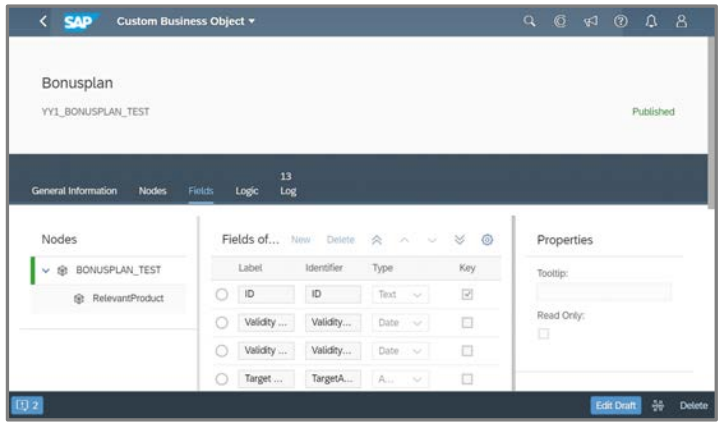
UI Adaptation Mode – Adaptation mode with drag & drop configuration



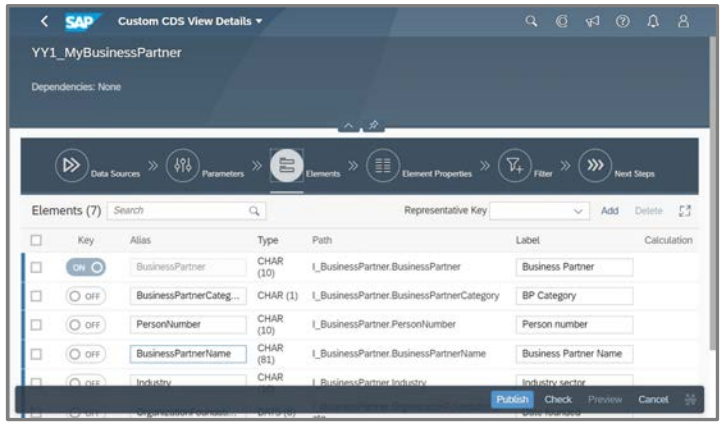
Custom Fields SAP Fiori App



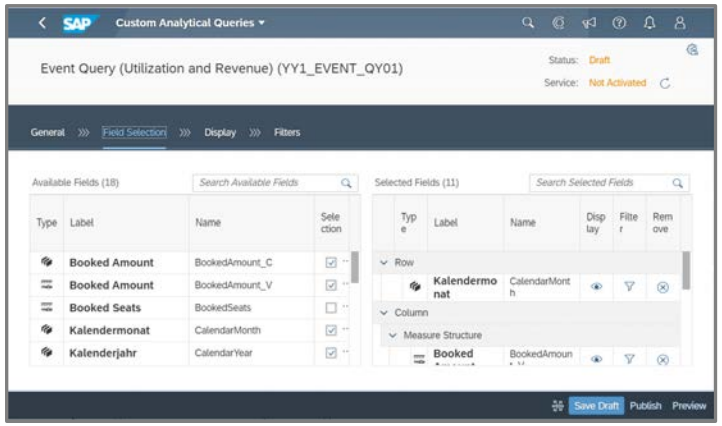
Custom Business Logic SAP Fiori App



Custom Business Objects SAP Fiori App



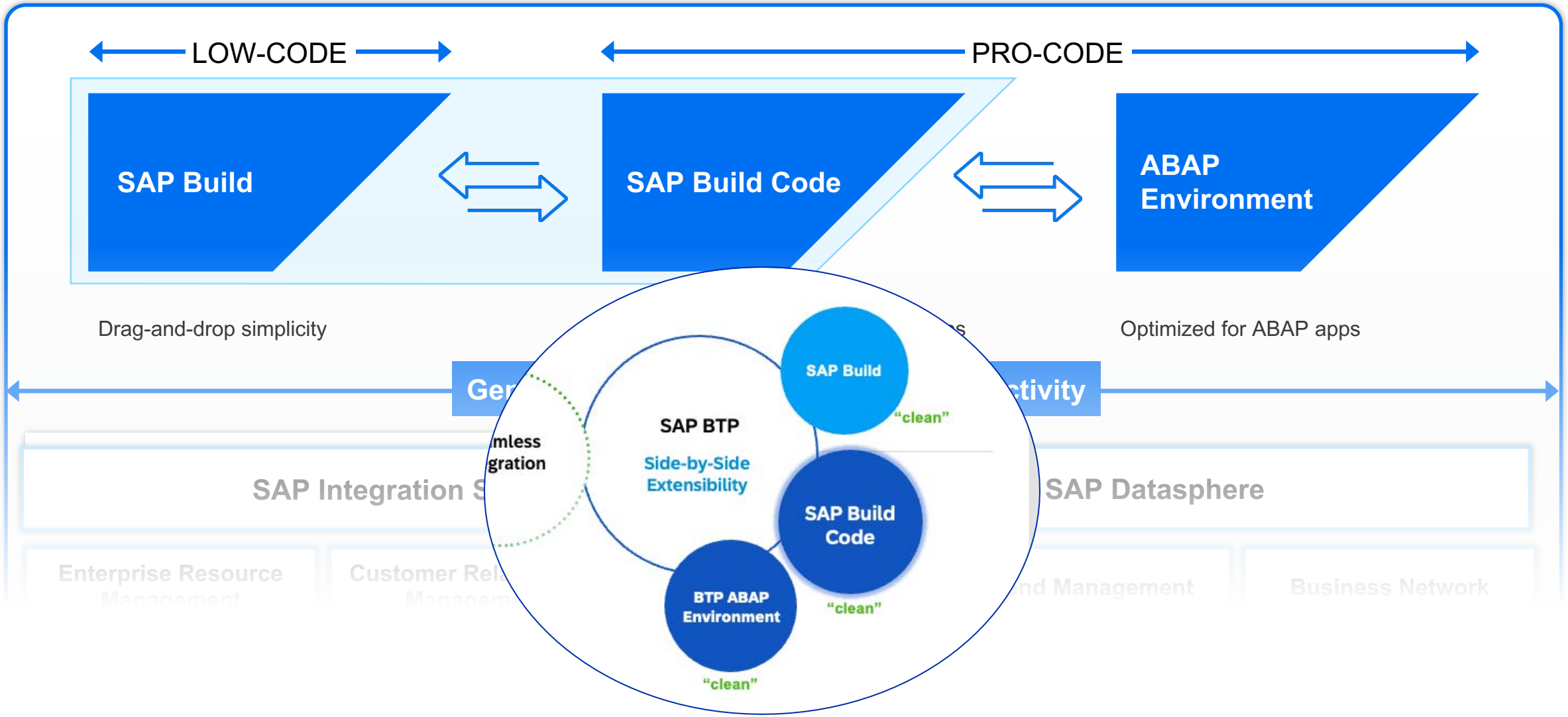
Custom CDS Views SAP Fiori App



Custom Analytical Queries SAP Fiori App

Application development and automation on SAP BTP

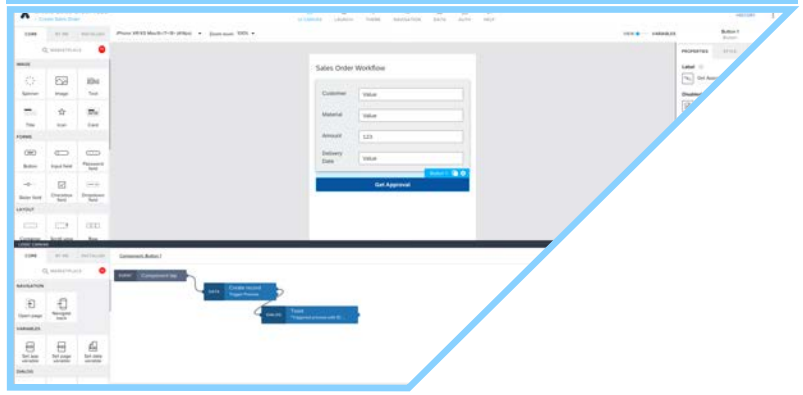
Integrated solutions enabled by generative AI



SAP Build

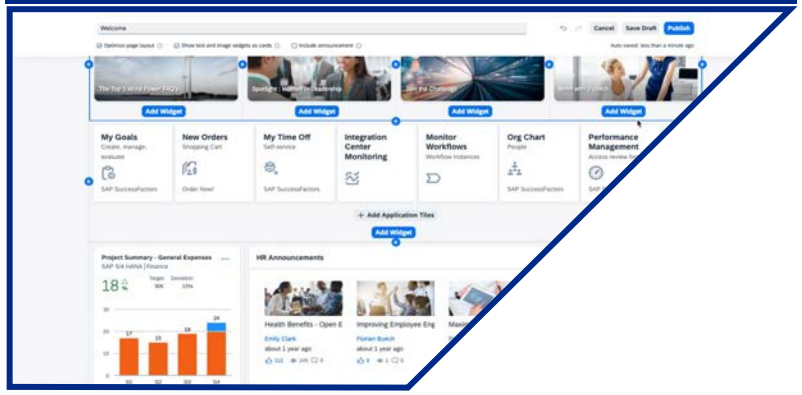
SAP Build enables everyone no matter their skill level to create and augment enterprise applications, process automations and business sites with drag-and-drop simplicity.

SAP Build Apps



SAP Build Process Automation

SAP Build Work Zone



Build visually

Integrate seamlessly

Collaborate in fusion teams

SAP Build Apps

Build full-stack enterprise-apps in minutes - absolutely zero coding required

Drag-and-drop the user interface

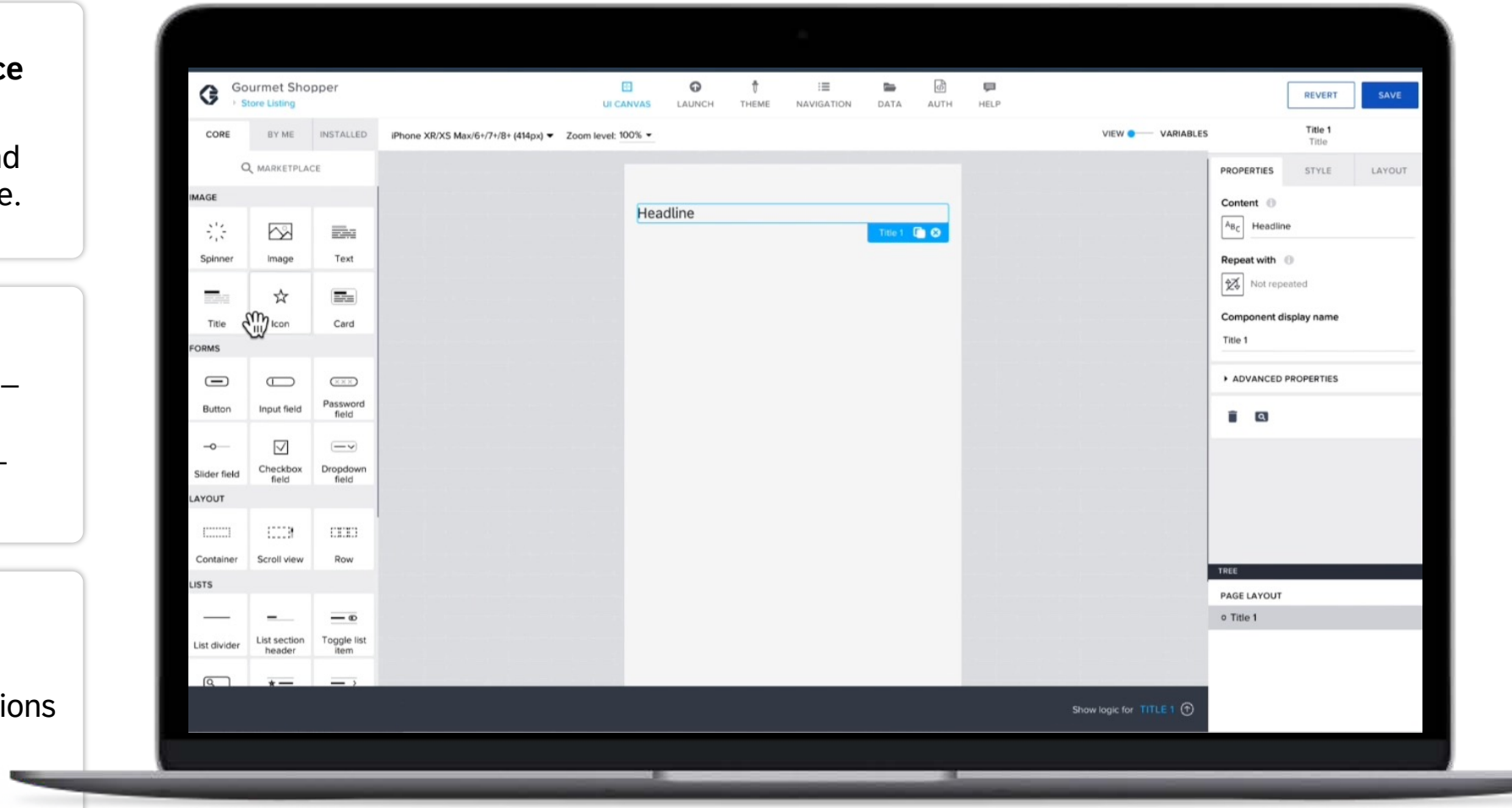
Access a pallet of user interface controls, drag them into place, and preview the final result in real time.

Create any logic without code

Drag-and-drop any logic function – sensors, file operations, data functions, animations, and more – onto a canvas.

Easily integrate data

Easily add your own data integrations or get started with some of ours.



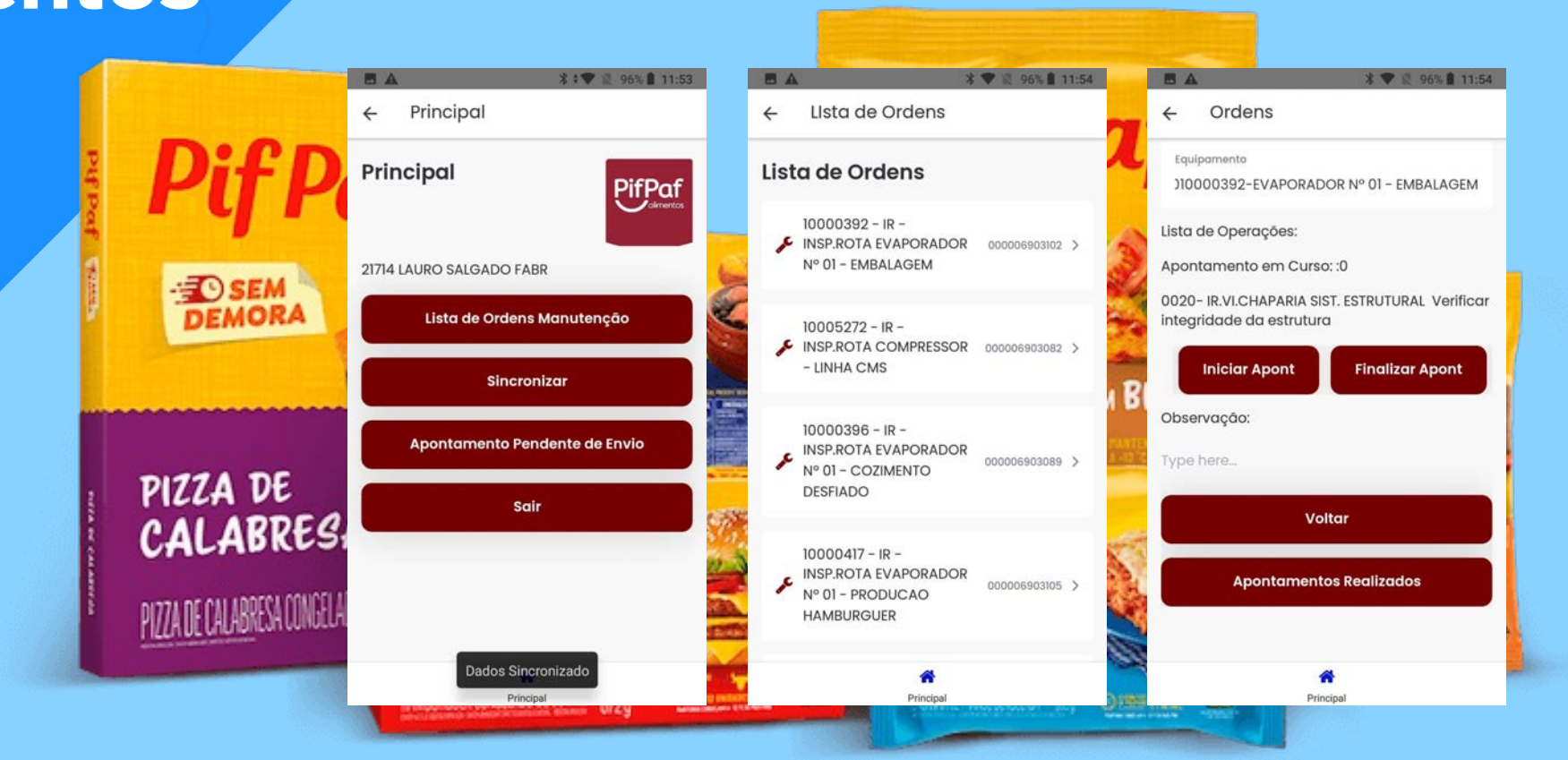
Pif Paf Alimentos

A mobile application for maintenance technicians using SAP Build Apps

SAP Innovation Awards 2024

Pif Paf Alimentos

A mobile application for maintenance technicians using SAP Build Apps



SAP Innovation Awards 2024

3 weeks

To go-live with a mobile application

30%

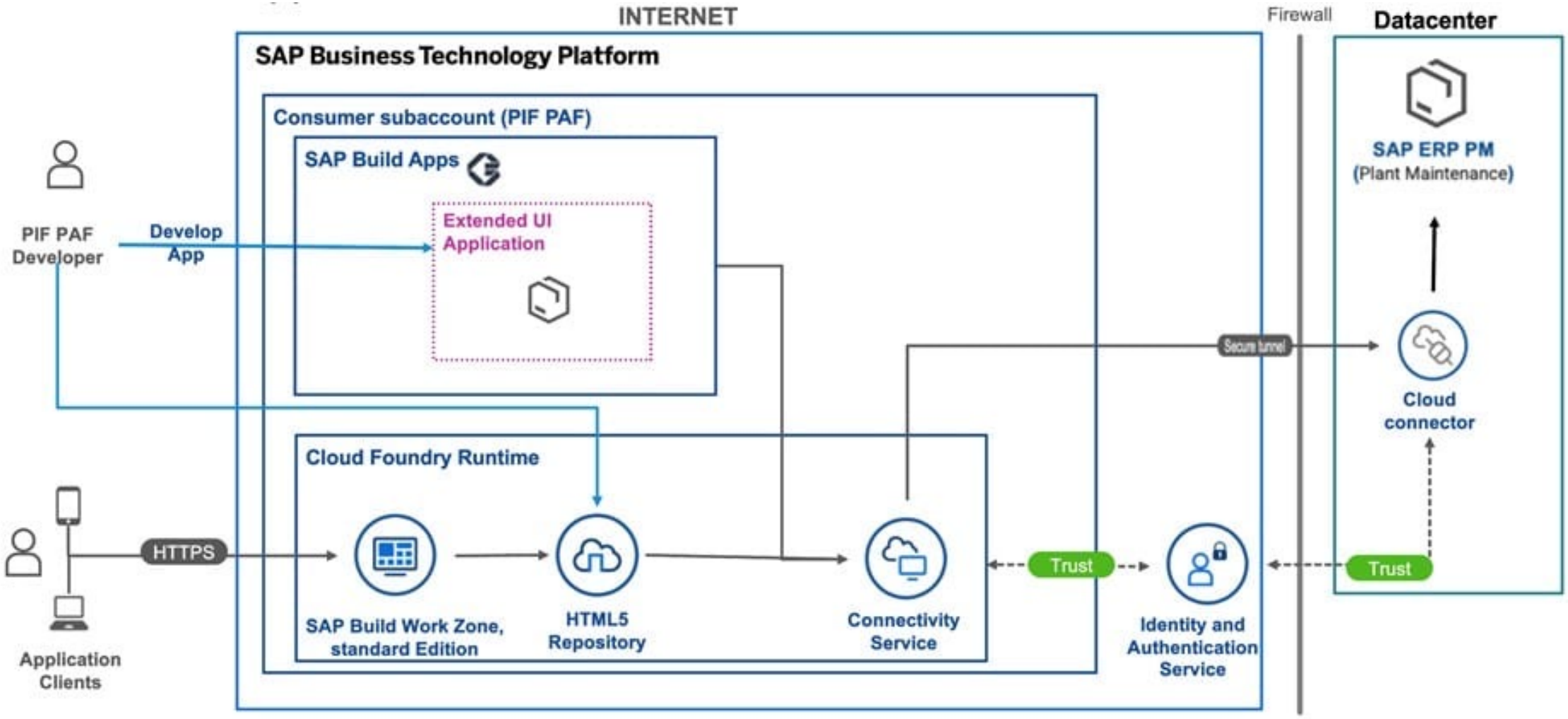
Reduction in time and cost of technician data entry

10%

Reduction in paper waste

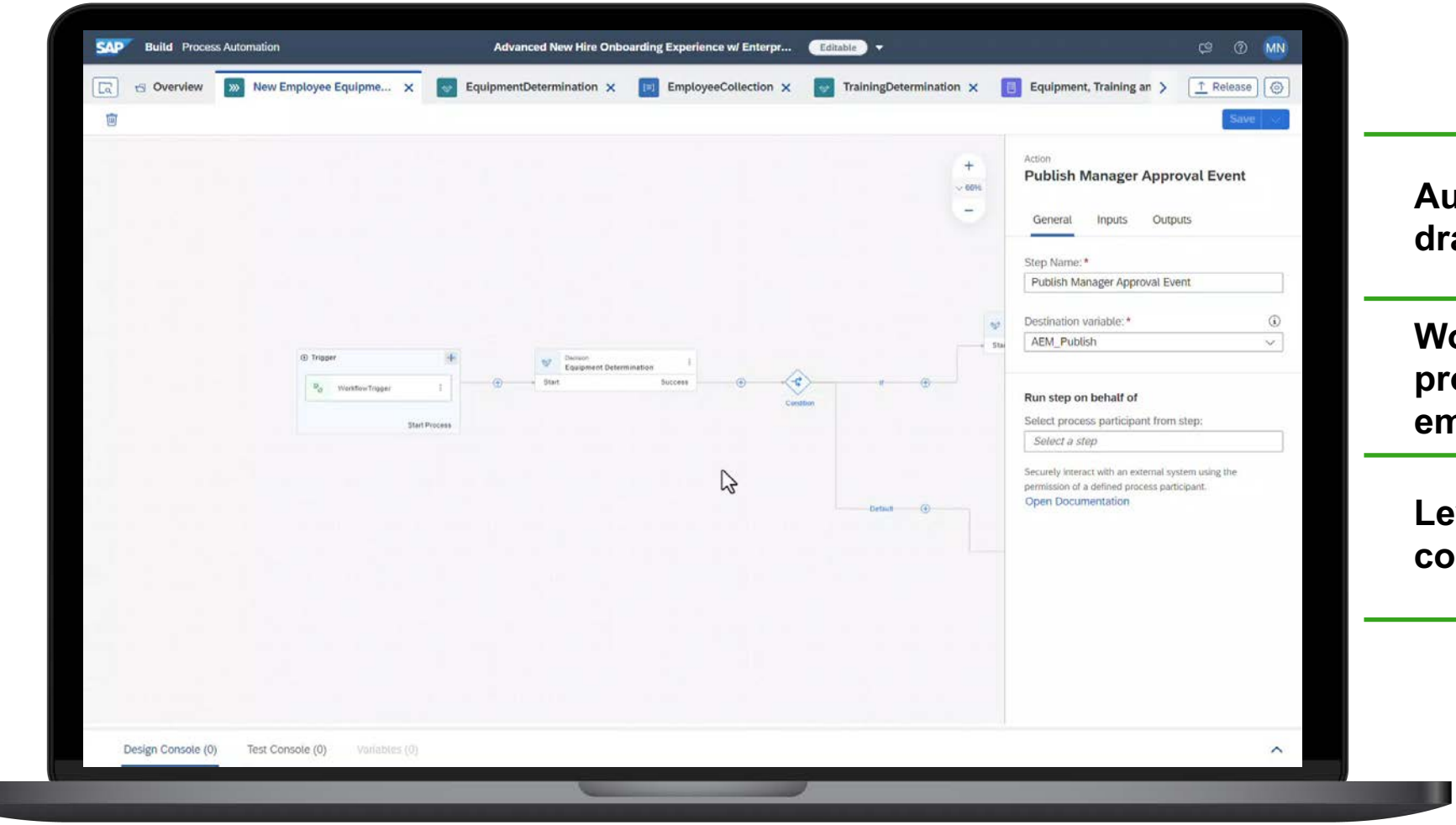
Pif Paf Alimentos

Architecture details



Automate visually

Simplify process and task automation

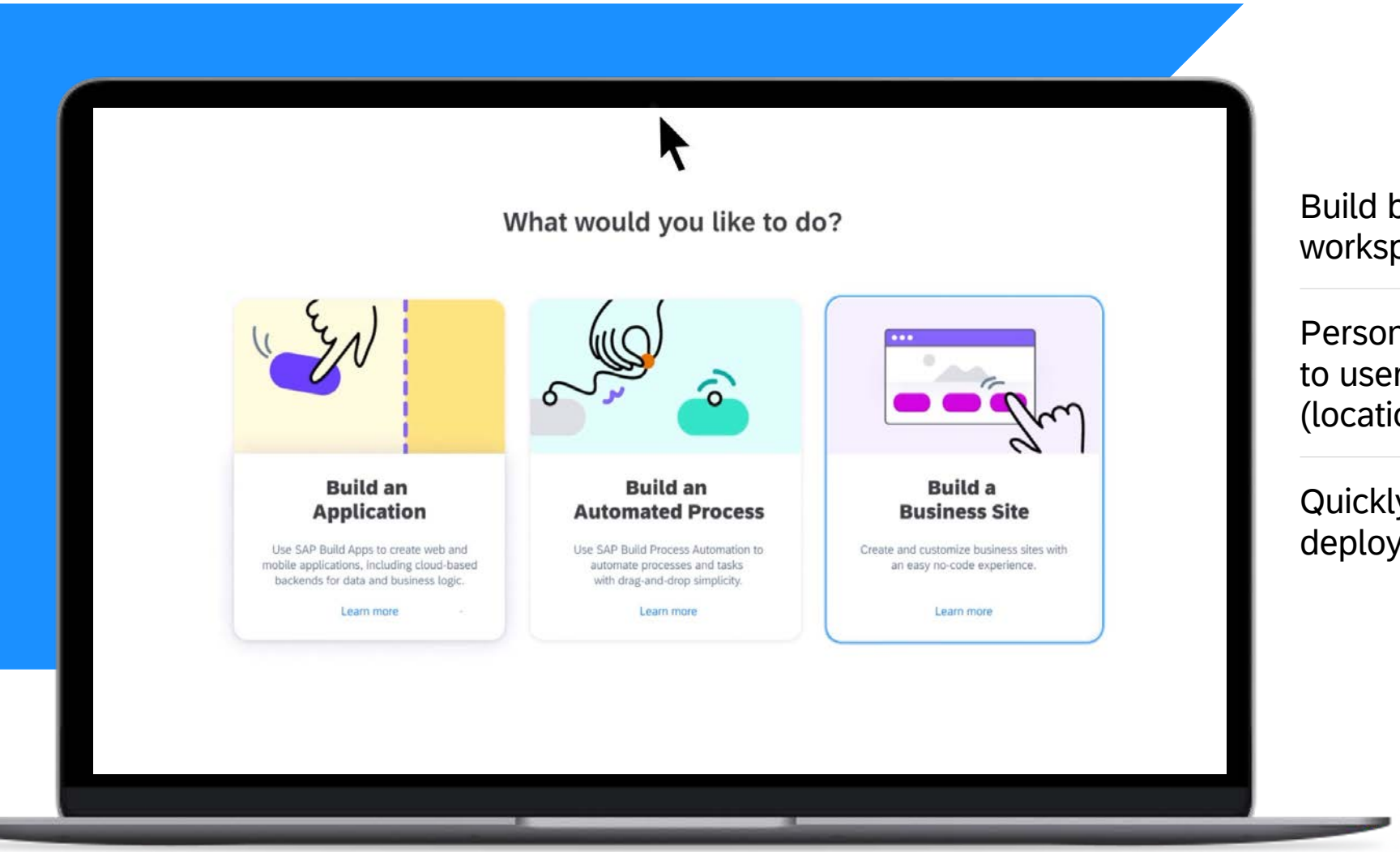


Automate processes and tasks with drag-and-drop simplicity

Workflow management, robotic process automation (RPA), and embedded AI in a single solution

Leverage process expertise without coding

Build simpler and faster – Empower everyone to build and personalize business sites visually



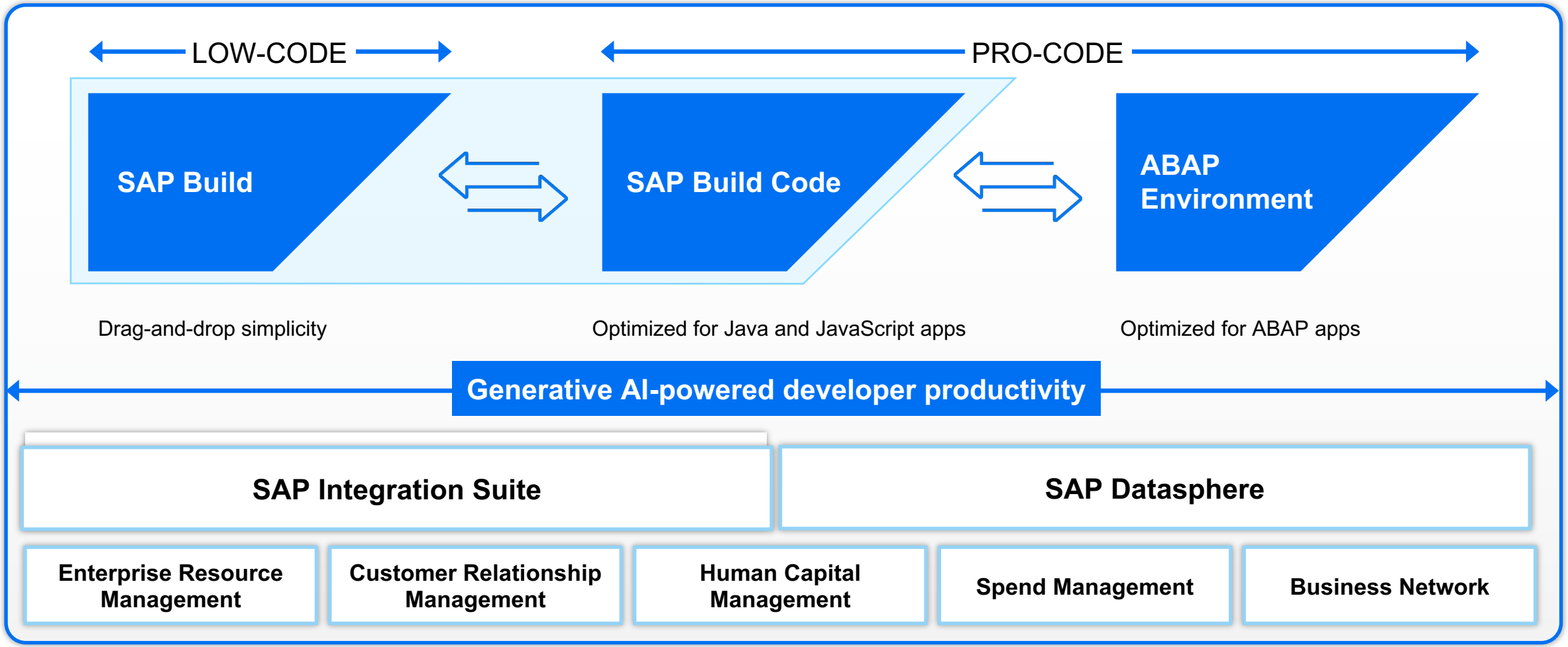
Build branded sites, pages and workspaces without writing any code

Personalize sites and target content to users based on profile information (location, department, role)

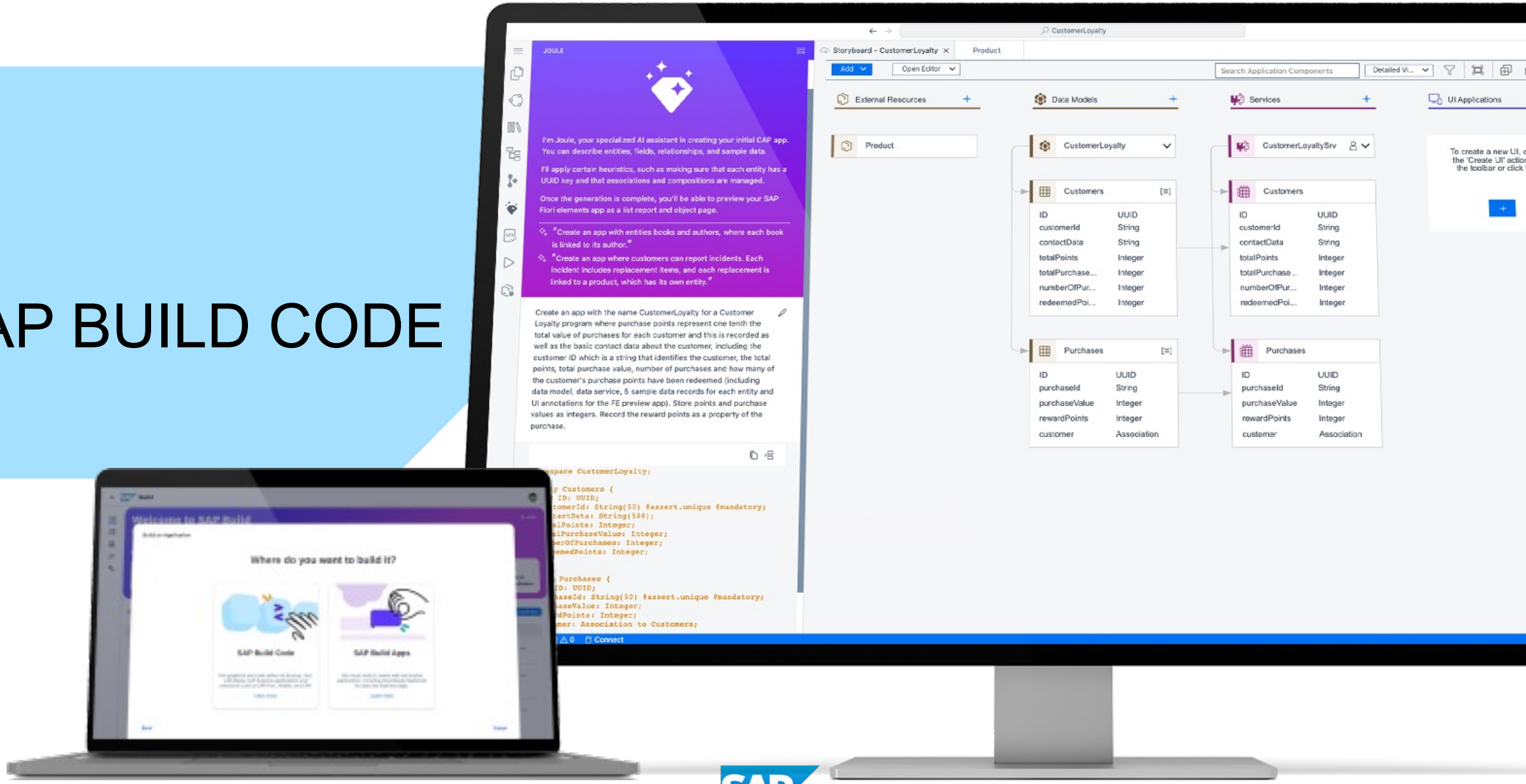
Quickly add new users and deploy business site updates

Application development and automation on SAP BTP

Integrated solutions enabled by generative AI



SAP BUILD CODE



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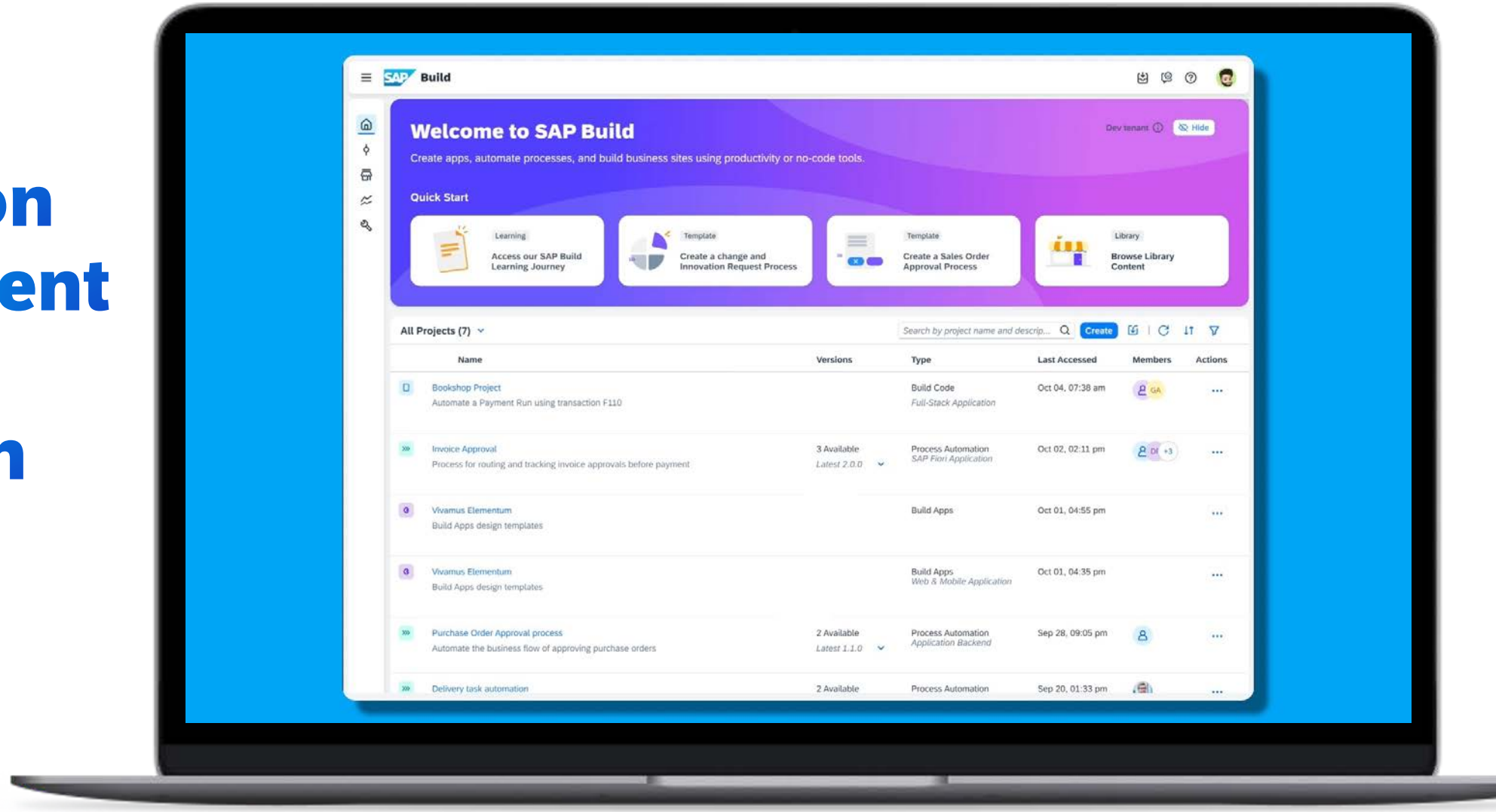
SAP Build Code

Faster Application development via code generation



SAP Build Code

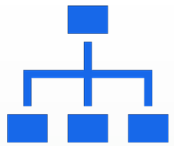
Application development for all key extension use cases in SAP environments

Extend SAP Solutions

Build Fiori web apps with
SAPUI5 and SAP Fiori elements

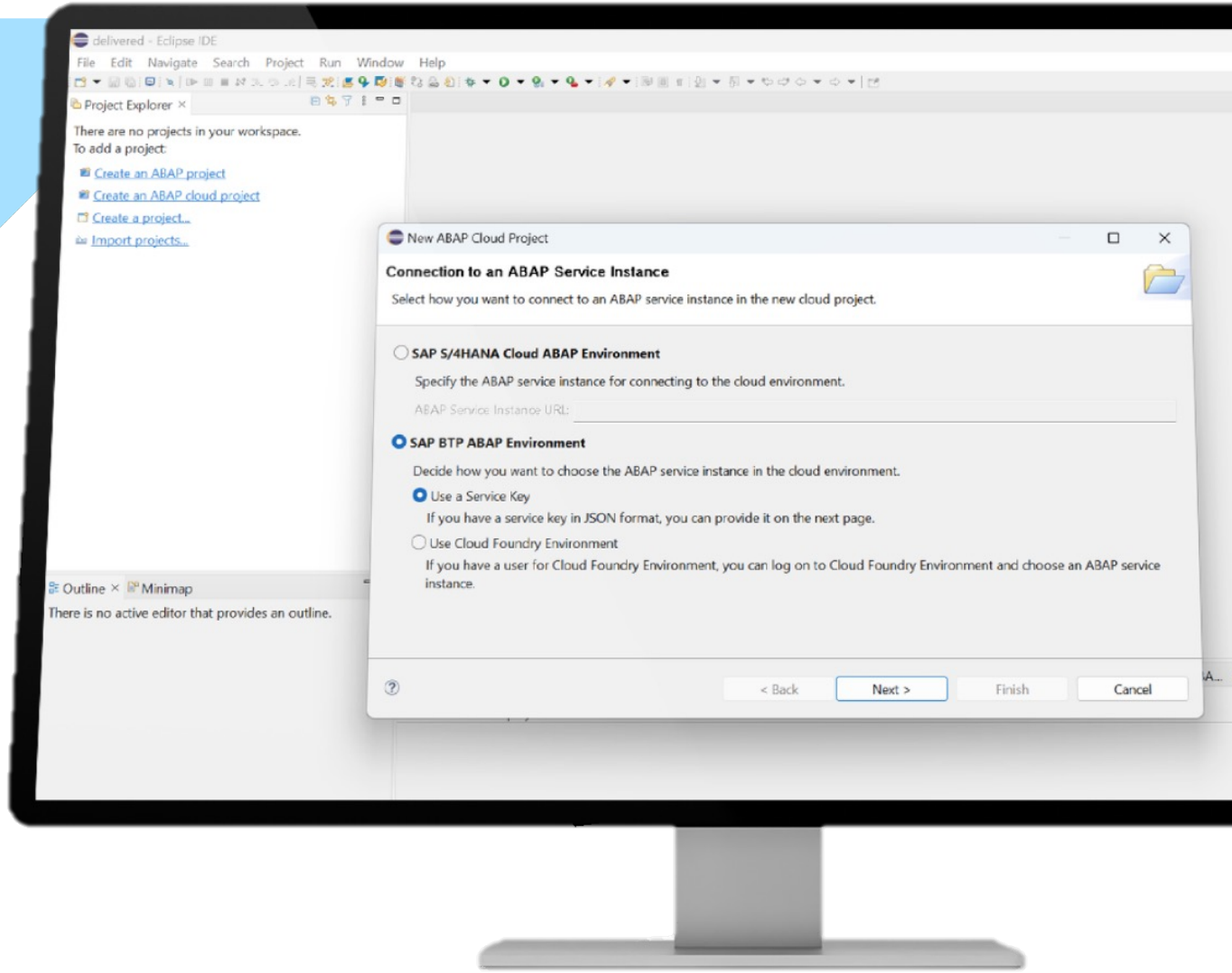
Build and run
mobile apps

Develop SAP HANA
Native applications



Build multi-tenant
SaaS applications

SAP BTP,
ABAP Environment



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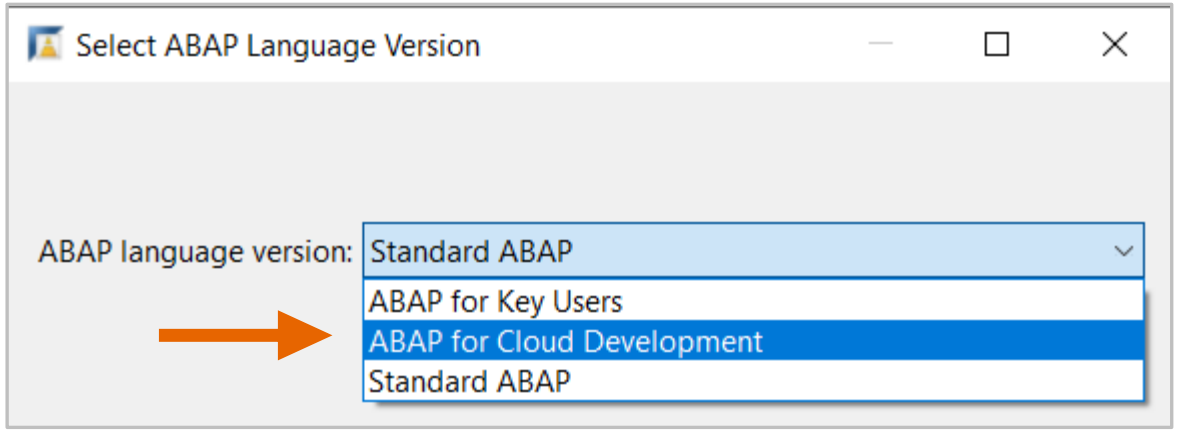
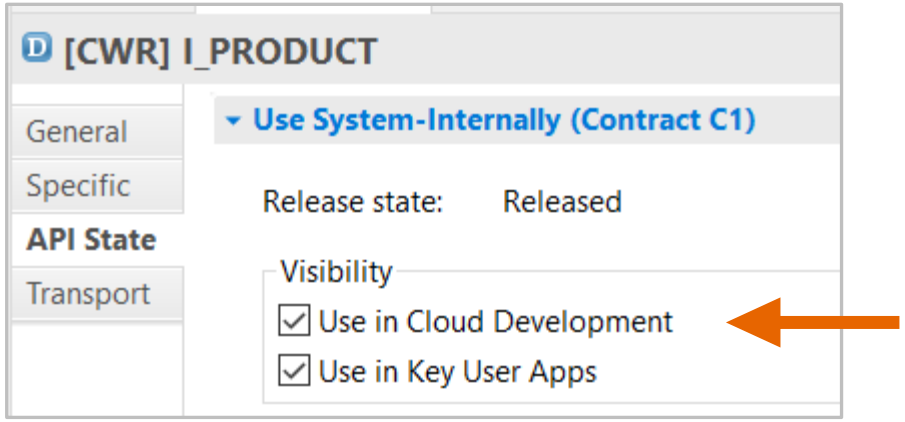
SAP S/4HANA, private cloud and on-premise editions
ABAP language version and public SAP APIs

ABAP cloud development in the private cloud and on-premise editions of SAP S/4HANA

- Switch ABAP language version for development object or package
- Inspect the “Release state” for used APIs and objects



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



SAP released the CDS view for *ABAP cloud development*

ABAP Cloud – IDE and API examples

Custom ABAP on SAP S/4HANA Cloud

ABAP development tools in Eclipse

Cloud-optimized ABAP language

Proven ABAP transport management

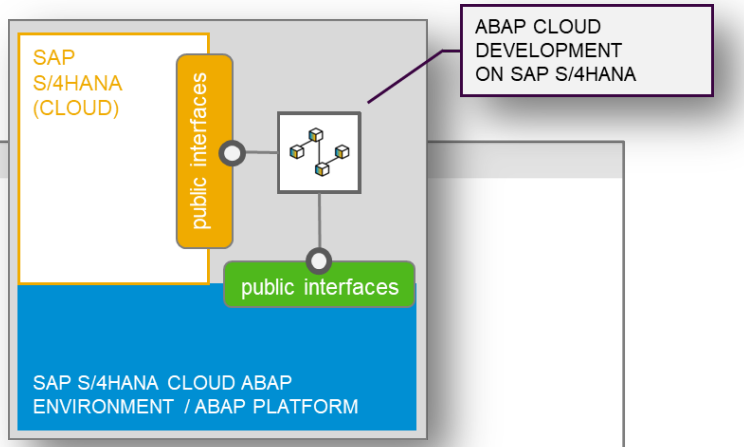
Access to public SAP APIs ONLY – otherwise, syntax error!

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



ZCL_BGTEST

```
1  CLASS zcl_bgtest DEFINITION
2    PUBLIC
3    FINAL
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     SELECT CountryName FROM I_CountryText WHERE Language = @sy-langu ORDER BY CountryName INTO @DATA(l_countryname).
18       out->write( l_countryname ).
19     ENDSELECT.
20
21     CALL FUNCTION 'POPUP_TO_CONFIRM'.
22     SELECT matnr FROM mara INTO TABLE @DATA(l_matnr).
23
24     SELECT ProductExternalID FROM I_Product INTO TABLE @DATA(l_matnr_new).
25
26   ENDMETHOD.
27
28 ENDCLASS.
```

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

Problems | Properties | Templates | Bookmarks | Feed Reader | Transport Organizer | Error Log | Search | Console

3 errors, 0 warnings, 0 others

Description	Resource	Path	Location	Type
Errors (3 items)				
The use of Function Module POPUP_TO_CONFIRM is not permitted.	zcl_bgtest.aclass	/CWR_EN/.adt/classli...	line 21	ABAP Syntax C...
Use of Table MARA is not permitted. See object documentation for replacement.	zcl_bgtest.aclass	/CWR_EN/.adt/classli...	line 22	ABAP Syntax C...

SAP Application Extension Methodology

SAP Application Extension Methodology

The SAP Application Extension Methodology helps you to define, document and execute an enterprise extension strategy for your organization.


Keep the extensions clean
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Extensibility
Keep the data clean
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Keep the data clean

Main Aspects:

- **Modern data requirements**
- **Data volume**
- **Outdated, unused or redundant information**
- **Personal master data**

What makes data clean core compliant?

What is “clean” data?

Main aspects

Data quality

(Configuration, master, and transactional data)*

- Accuracy
- Completeness
- Consistency
- Timeliness
- Validity
- Uniqueness

Data volume efficiency

(Master and transactional data)

- Optimized memory and disk consumption
- No outdated, unused, or redundant information
- Data lifecycle management (creation, updates, end of life)

Data privacy compliance

- Storing and processing personal master data only with justifiable purposes

***Configuration data**: General data that defines the organization‘s structure and is of static nature (such as company code, plants, purchase organisations, controlling area, or sales area); **Master data**: Consistent and uniform set of identifiers and extended attributes that describe the core entities of the enterprise, such as customers, vendors, products and general ledger accounts; **Transactional data**: Information directly derived as a result of transactions, this data always has a time dimension, a numerical value, and refers to one or more (master data) objects

How to achieve

For data quality:

- Analyze and define data quality measures for critical data objects. SAP provides data quality measures for several standard data objects.
  - If necessary, involve SAP or third-party vendors (such as CDQ) for getting further help and advice.
- Establish a “get clean” process.
  - Define a tool-based, reusable data cleansing process (such as through the SAP Master Data Governance application [consolidation], SAP Information Steward software, SAP Data Intelligence solution, quality services for SAP BTP, or other third-party tools) for deduplication, generation of best records, and more.
- Establish a continuous “keep clean” process.
  - Define a validation rule framework, approval process, and automated distribution framework to connected receiver systems for newly created, changed, or deleted data records (such as using SAP Master Data Governance or SAP Master Data Integration service).
  - Define continuous data monitoring.
- Adhere to SAP One Domain Model (universal language across SAP systems) and SAP Data and Analytics Advisory Methodology.

For data volume efficiency (from creation until end of life):

- Enable efficient continuous analysis and monitoring of the database by reducing outdated, unused, or redundant data.
- Define archiving or deletion of data-tiering processes to improve efficiency of the database (for example, using the SAP Information Lifecycle Management component).

For data privacy compliance:

- Analyze data usage to clarify business purposes of collecting and processing personal master data.
- Establish policies to govern personal master data lifecycle (using SAP Information Lifecycle Management).

Benefits

Reliable results when using data in processes and analytical applications (data to value)

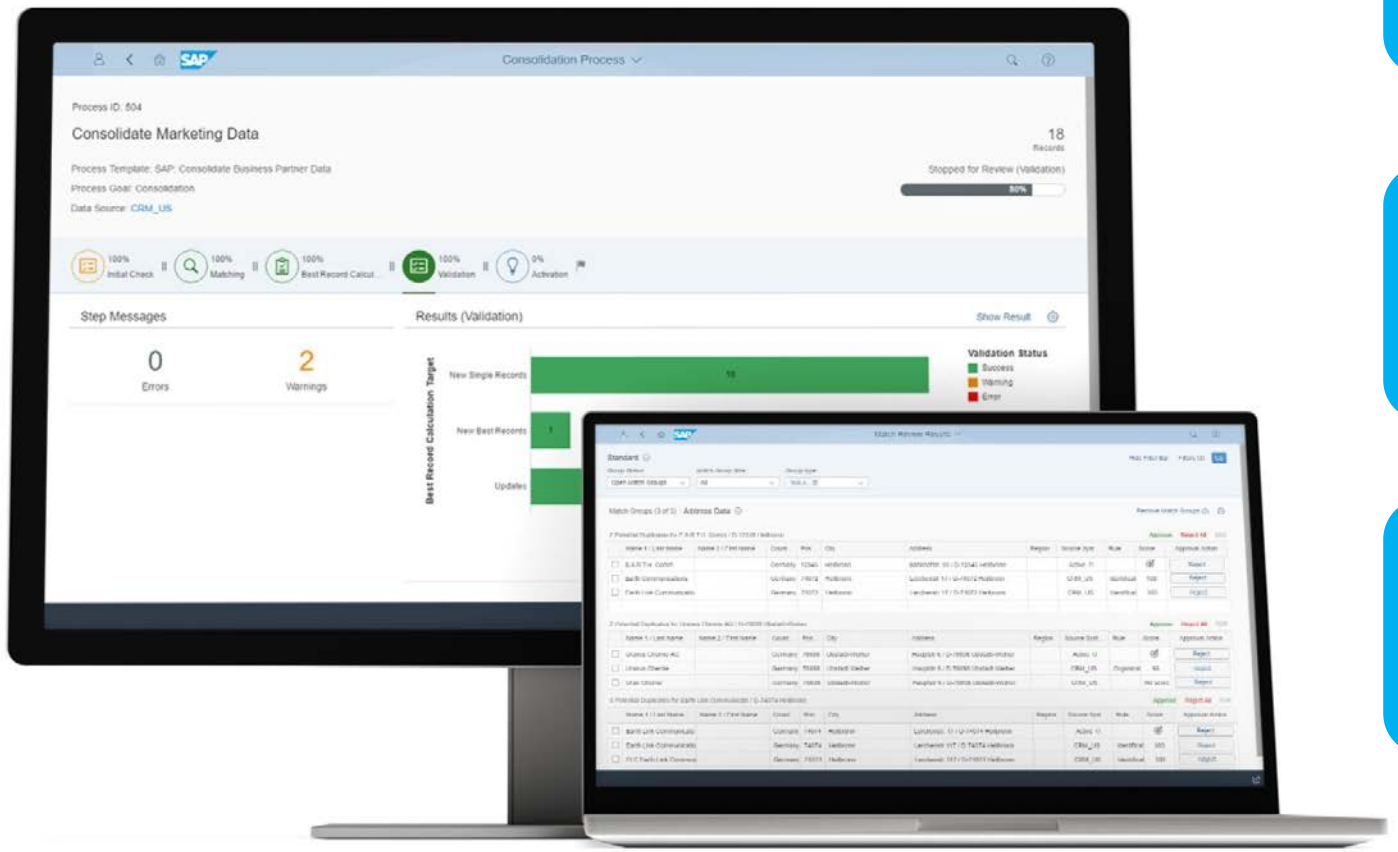
Business process efficiency to improve stability and quality of business process steps

Reduced TCO due to efficient data volume management

Improved data exchangeability between different solutions

Lower risk of breaching **data privacy protection regulations**

SAP Master Data Governance



Consolidation

Central governance

Data quality & process Analytics

Consolidation Process

Process ID: 5254

Load Runners Data

12936
Records

Process Template: SAP: Consolidate Business Partner Data

Process Goal: Consolidation of Source Records

Data Source: REGISTERED_RUNNERS

Stopped for Review (Matching)

40%

100% Initial Check | 100% Matching | 0% Best Record Calcul... | 0% Validation | 0% Activation

Step Messages

0
Errors

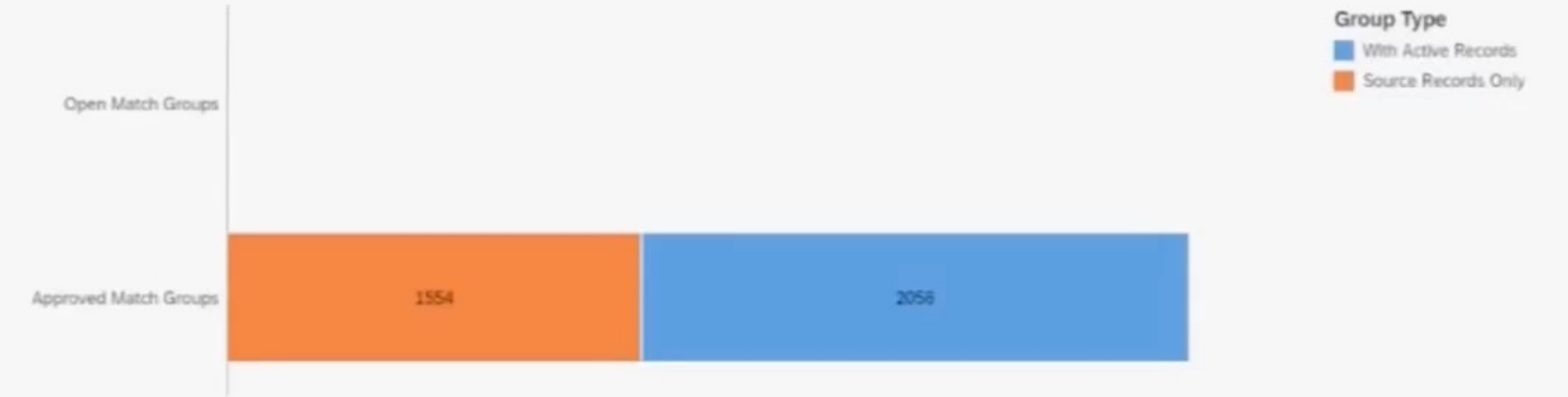
0
Warnings

Match Group Information

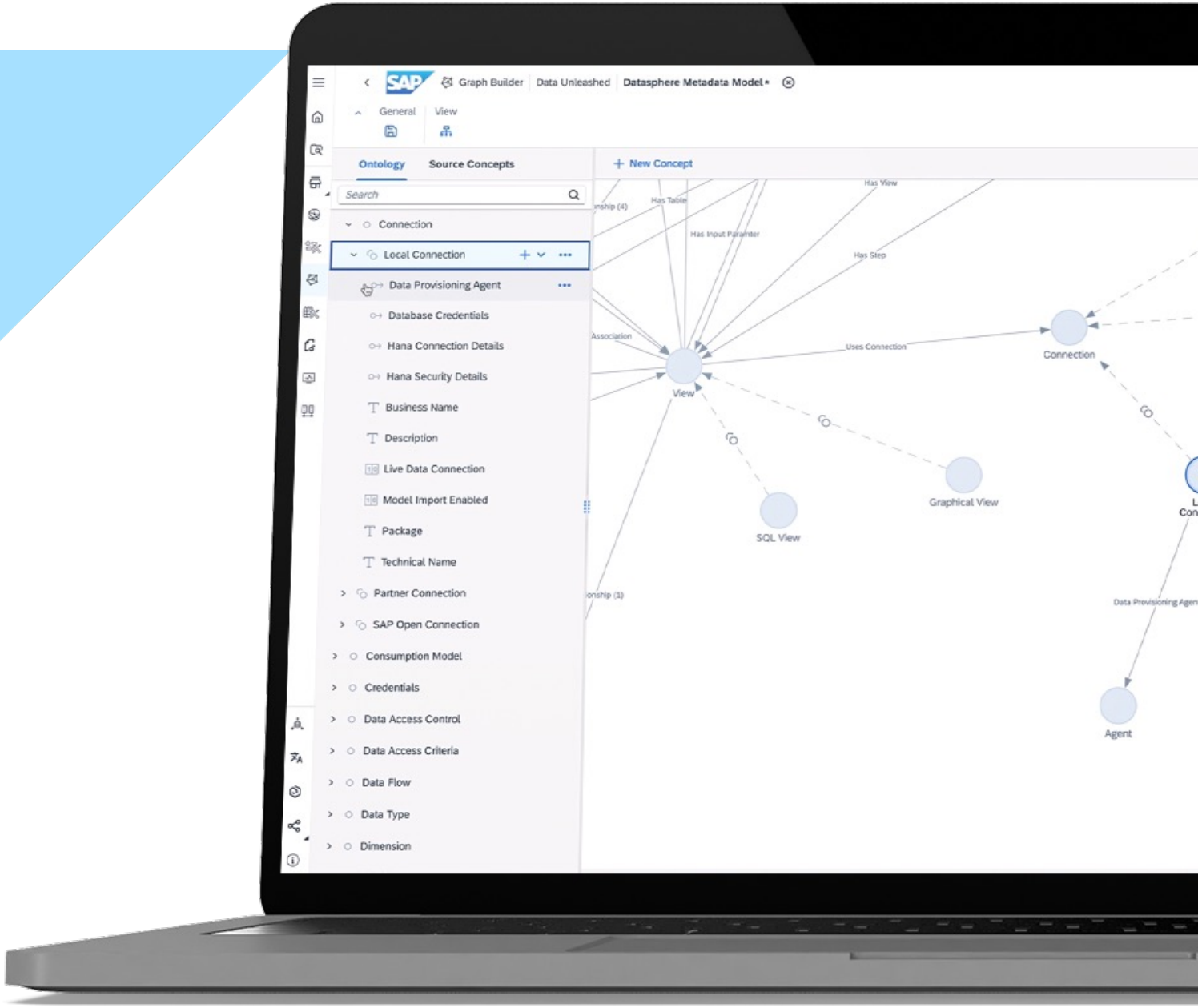
Status	Groups	Records
Open	3	6
Approved	3610	12628
Rejected	0	0

Results (Matching)

Match Review



SAP DATASPHERE



PUBLIC

SAP Datasphere is the foundation for a business data fabric architecture

Data consumers

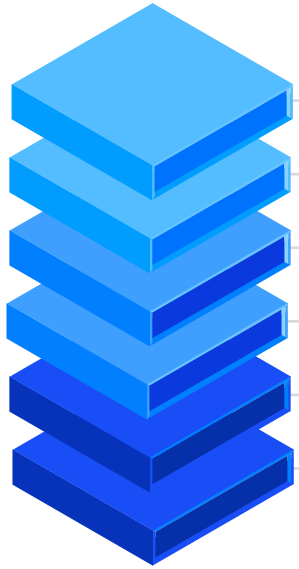
Planning and analytics | **Intelligent data apps** | **Data science**

SAP Datasphere running SAP BTP

Security

Access control

Availability



Self-service data access | Virtual data products

Data discovery | Business content, data marketplace, recommendations

Orchestration | Data transformation and data ops

Processing and persistency | Warehousing, business semantics (analytic/relational models), knowledge graph

Data governance | Metadata management, catalog, lineage, privacy, quality

Data ingestion | Data replication, data federation, real-time, application integration

SAP and non-SAP data

Applications | **On-premises Data Warehouses** | **Cloud Data Warehouses and Lakehouses** | **Relational Databases** | **Unstructured/ Semi-structured Data**


Keep the extensions clean
1
Extensibility
Keep the data clean
2
Data
Keep the Integrations clean
3
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Keep the processes clean
4
Processes
Keep the operations effective and efficient
5
Operations

Keep the integrations clean

Main Aspects:

- **Integrations: standard API's**
- Loosely coupled integrations: **Event-Driven Design**
- Avoid **traditional API's** (RFC and IDoc)
- **SAP Application Interface Framework**

What makes integrations clean core compliant?

What is “clean” integration?

Main aspects

- **Base integrations on standard APIs** (OData and SOAP)
- **Aim for side-by-side extensibility with API integration or even SAP Cloud SDK** by utilizing the tight coupling with **SAP Integration Suite**
- Realize loosely coupled integrations in an **event-driven design** based on standard **events***
- Avoid **traditional APIs** (RFC and IDoc) and their related **classical extension options**
- Ensure proper monitoring and error resolution capabilities using **SAP Application Interface Framework**

How to achieve

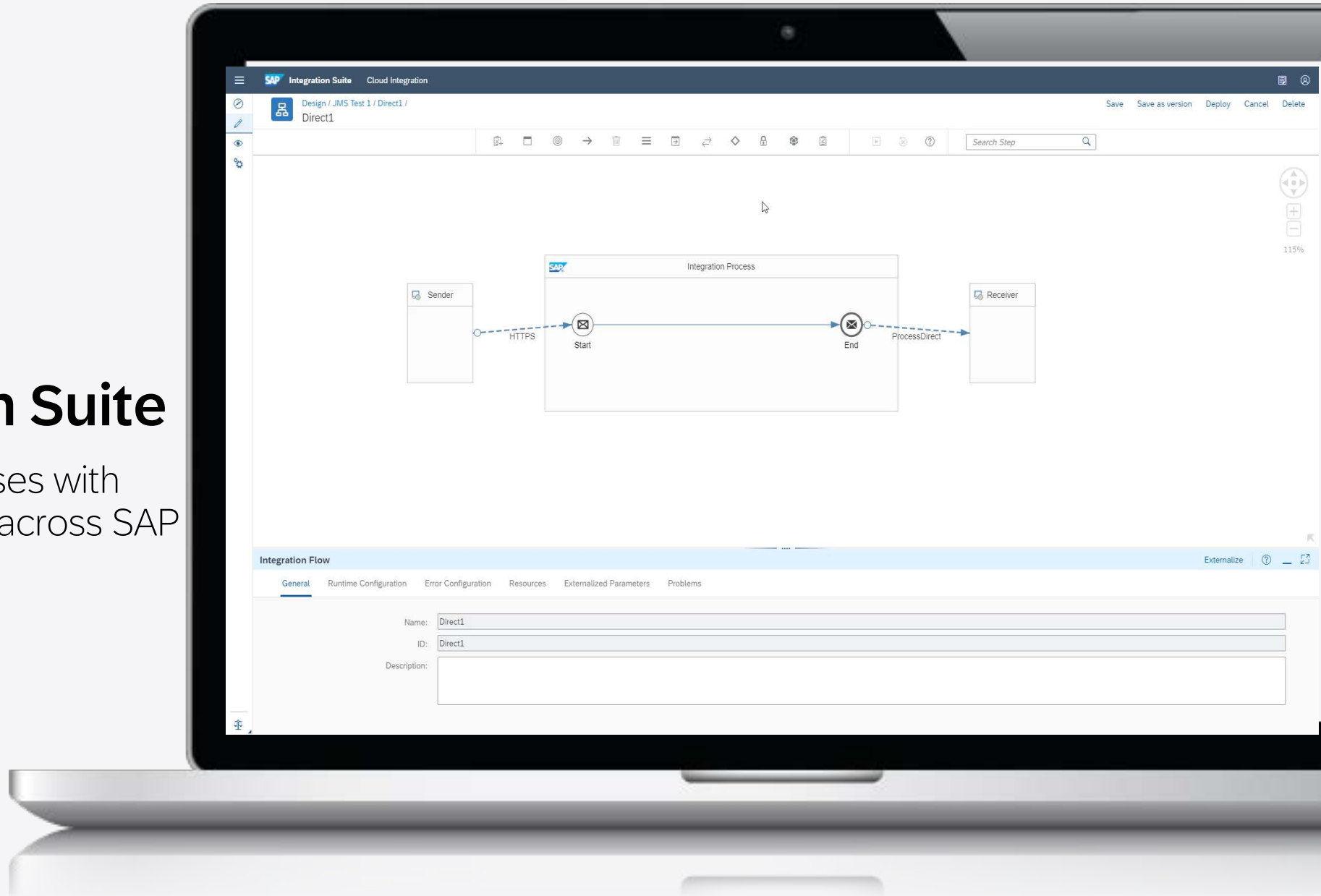
- Establish a clearly defined integration strategy with SAP Integration Solution Advisory Methodology:
  - The central access point to discover integration artifacts like standard APIs, events, and integration flows is SAP Business Accelerator Hub.
  - If mediation is required, use SAP Integration Suite to benefit from the tight integration with other SAP BTP capabilities.
- Define a one-time “get-clean” process:
  - Create an integration repository (included in SAP Solution Manager) to identify existing integrations and the technology or protocol on which they are based.
  - Establish “get clean” service inside the company to evaluate how utilized traditional APIs (RFC and IDoc) as well as their classical extensions could be converted into standard interfaces (fit to standard).
- Establish a continuous “keep clean” process (governance model):
  - Define central governance functionality for evaluation of new interface requirements or any interface adjustment based on defined SAP Integration Solution Advisory Methodology characteristics. The Integration Assessment capability could be used as an accelerator.
  - Apply a “keep clean” process for the most important and critical integrations.

***Event**: A data record expressing a significant change in state (for example, change of a business partner) and consisting of data representing the occurrence and context metadata. It is sent to an event provider such as the **SAP Event Mesh** capability, where consumers can subscribe to it. The business object data needs to be pulled by each consumer individually by using standard APIs.

Connect the disconnected

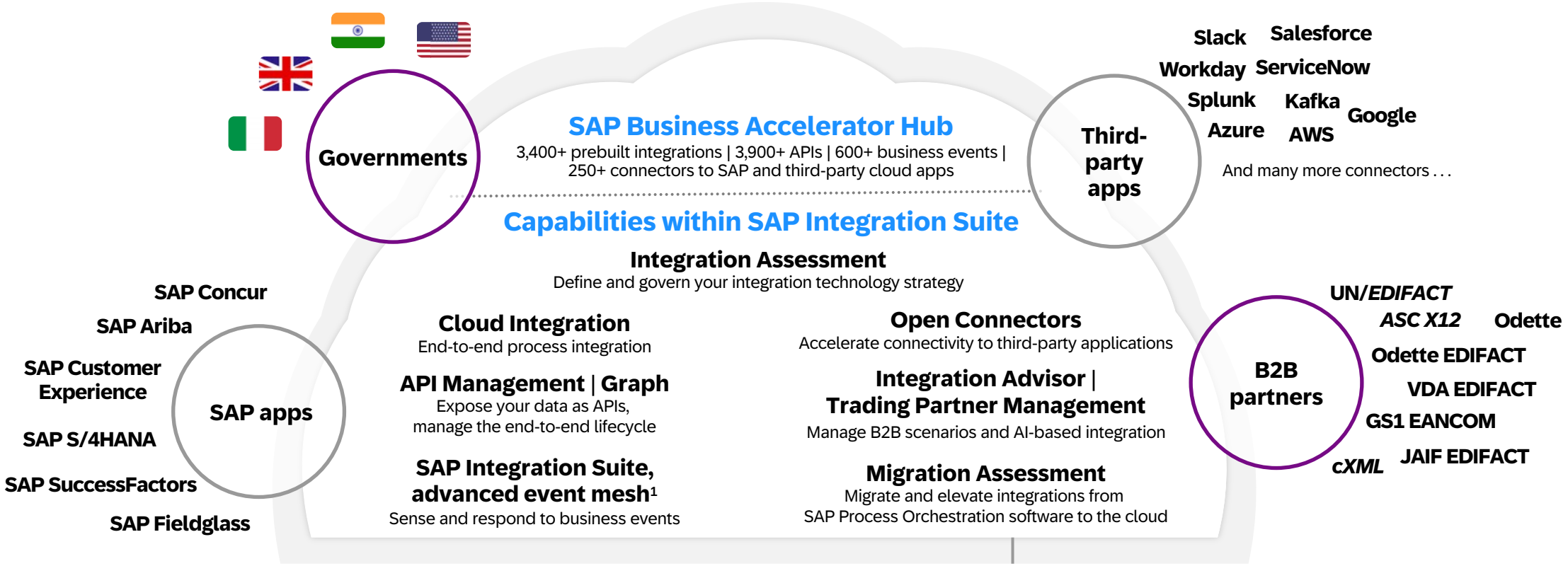
SAP Integration Suite

Connect apps & processes with prebuilt tools & content across SAP & non-SAP.



SAP Integration Suite

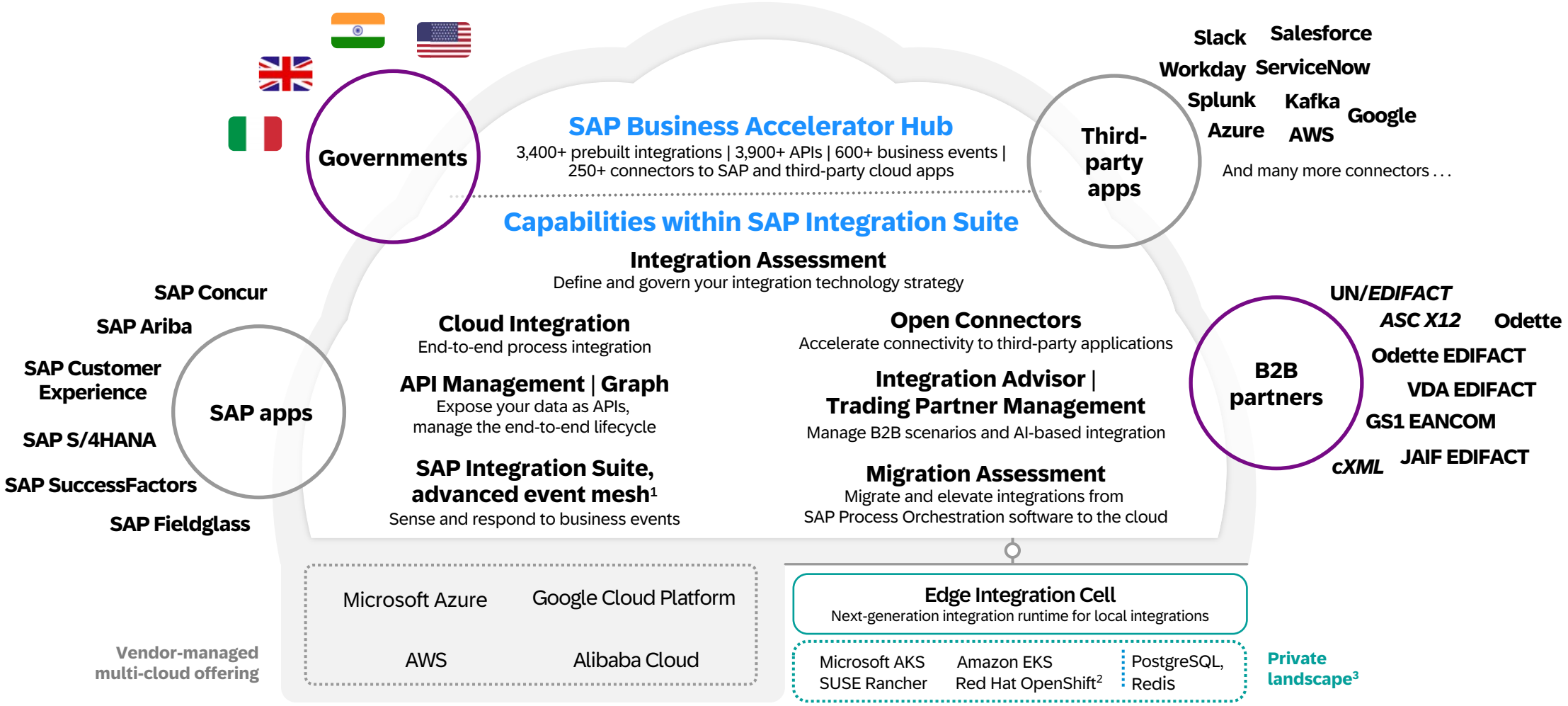
SAP's hybrid integration platform for the Intelligent Enterprise



[1] Optional separate license | [2] Part of the road map, subject to change | [3] Private landscape corresponds to on premise or private cloud

SAP Integration Suite

SAP's hybrid integration platform for the Intelligent Enterprise



[1] Optional separate license | [2] Part of the road map, subject to change | [3] Private landscape corresponds to on premise or private cloud

SAP Business Accelerator Hub

Accelerate your integrations, extensions, and innovations

Search by product, package, or category

Discover
Products, Processes, and Partners.

Explore
Integrations, APIs, and Accelerators.

Consume
Visualize and consume integrations and workflows.

Choose a Product to Explore

See the various resources that each product has to offer

View All Products

SAP S/4HANA Cloud Public Edition

Ready-to-run cloud ERP that delivers the latest industry best practices and continuous innovations. You can also accelerate and grow your business with continuous innovations.

+7

SAP S/4HANA

A future-ready ERP system with built-in intelligent technologies, including AI, machine learning, and advanced analytics which transforms business processes with intelligent automation.

+5

SAP Customer Experience

Bring together customer data, machine learning technology, and microservices to power real-time customer engagements across sales, service, marketing, and commerce.

SAP Business Technology Platform

Accelerate business outcomes with integration, data to value, and extensibility.

+6

SAP SuccessFactors

SAP Ariba

SAP Concur

SAP Fieldglass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Keep competitiveness while reducing complexity

Main aspects

- **State-of-the-art process governance**
- **Application architecture**
- **SAP Best Practices packages**
- **Business process design**
- **Established process management**

What makes business processes clean core compliant?

What is a “clean” process?

Main aspects

- Establish **state-of-the-art business process governance**, including proper requirement management and transparent organizational structures
- Use recommended **SAP Reference Solution Architecture** to leverage **SAP solutions** such as SAP S/4HANA and others
- Implement respective **SAP Best Practices** where available and applicable
- **Tailor or enhance standard solutions from SAP** only where competitive advantages can be created
- Achieve **business process management excellence** by documenting processes and continuously monitoring process flow as well as process performance and efficiency

How to achieve

- Governance model and organizational structures:
  - Proper requirement management includes a solution standardization board or a similar deciding structure, a suitable methodology (for example, SAP Application Extension Methodology – see slide “Clean extensions”), and proper documentation and tooling support such as the SAP Cloud ALM solution or the Focus Build solution for SAP Solution Manager.
  - A business process management structure is established and transparent across relevant organizations, including process owners and related contact persons.
- The solution architecture can be based on the SAP Enterprise Architecture Framework methodology. Supporting resources can be leveraged using the SAP Transformation Navigator tool, SAP Signavio Process Explorer solution, SAP Signavio Process Manager solution, SAP Signavio Process Collaboration Hub, and the partner solution LeanIX.
- SAP Best Practices can, in general, be compared to SAP Signavio Process Explorer, the SAP Signavio Process Navigator solution, SAP Signavio Process Manager, or SAP Signavio Process Collaboration Hub. Find more general guidance in the Administration Guide to Implementation of SAP S/4HANA with SAP Best Practices.
- For individual implementation projects, the SAP Activate innovation adoption process and the related road map viewer can be leveraged. Further preconfiguration is provided through the enterprise management layer for SAP S/4HANA. Industry-specific best practices can be requested through SAP standard content activation service.
- The solution design is focused on the following principles:
  - For nondifferentiating processes, SAP standard is strictly applied; for differentiating processes, SAP standard solutions are tailored to business needs and enhanced where needed.
  - A focus on mandatory and key process variants helps avoid unnecessary customizing and process complexity.
  - For required extensions the recommendations for “clean extensions” are followed.
- Business process management excellence covers the following three aspects:
  - Customer-specific process design is documented (SAP Signavio Process Manager and SAP Signavio Process Collaboration Hub).
  - As-is process execution can be measured (SAP Signavio Process Insights, SAP Signavio Process Intelligence, and using the plug and gain approach).
  - Business processes are efficiently executed based on measurable process performance indicators (SAP Signavio Process Insights and SAP Signavio Process Intelligence).

Enterprise Architecture Blog Posts

Need a little more room to share your thoughts with the community? Post a blog in the SAP Enterprise Architecture group to explain the more complex topics.

All community | What are you looking for today?

SAP Enterprise Architecture Framework

Rene_de_Daniel
Product and Topic Expert

11-08-2022 4:49 PM

33 Kudos

This article will provide further insights into the SAP Enterprise Architecture Framework which was presented by Andreas Poth at the SAP Enterprise Architecture Global Summit (March '22) and the TOGAF® Standard 1010th Edition – Launch event (May '22).

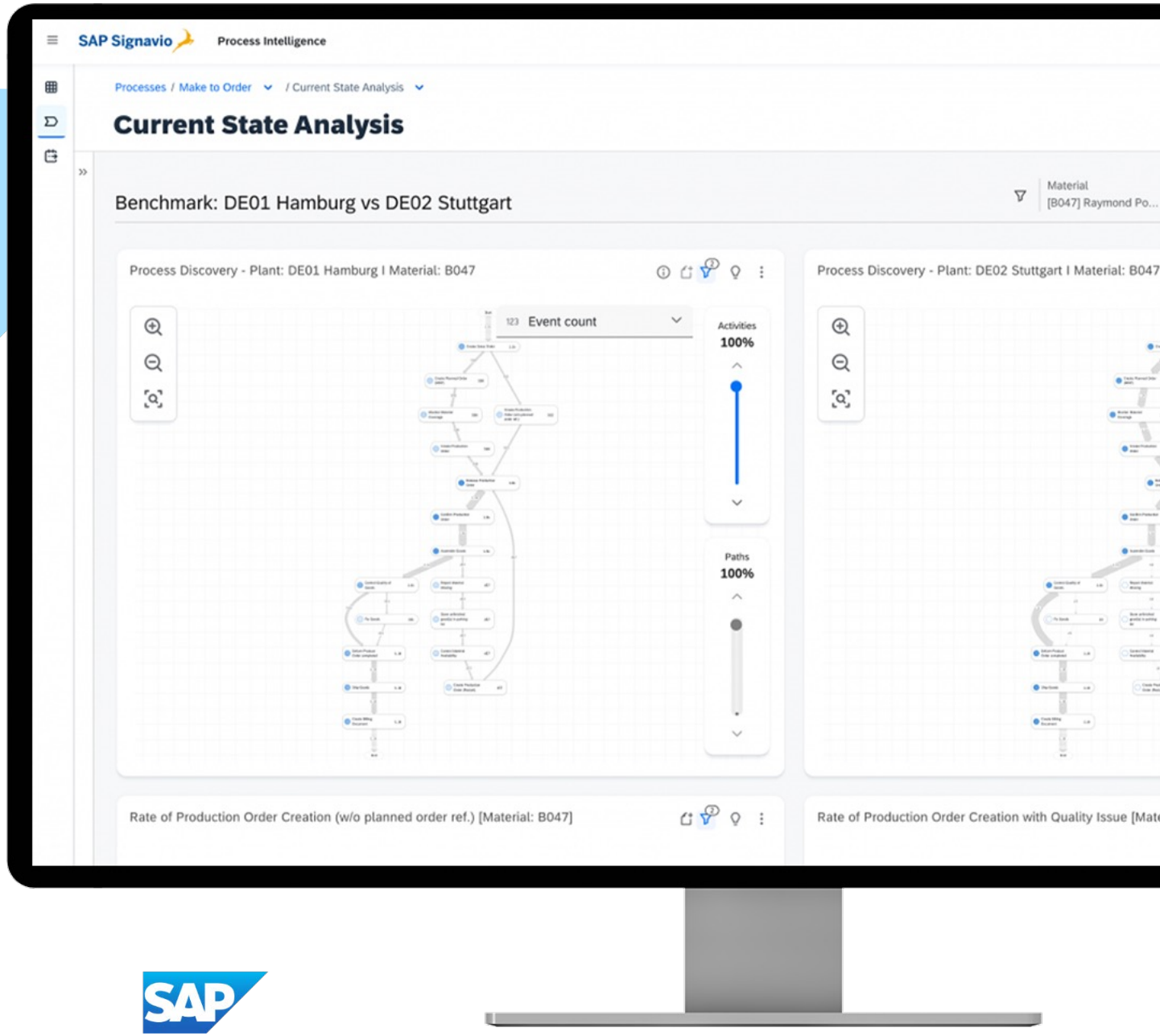
The need for a common and aligned framework

Labels In This Area

- Application Architecture 23
- Business Architecture 33
- Data Architecture 19
- Emerging Trends 20
- Enterprise Architecture 55
- Frameworks 22
- Hybrid and Multi Cloud 3
- Innovation 14
- Integration Architecture 18
- Portuguese 1
- Roadmaps 12
- Skills and Learning 29
- Solution Architecture 22
- Sustainability 3
- Technology Architecture 24
- Tools 14

SAP Signavio

Process Insights &
Process Intelligence



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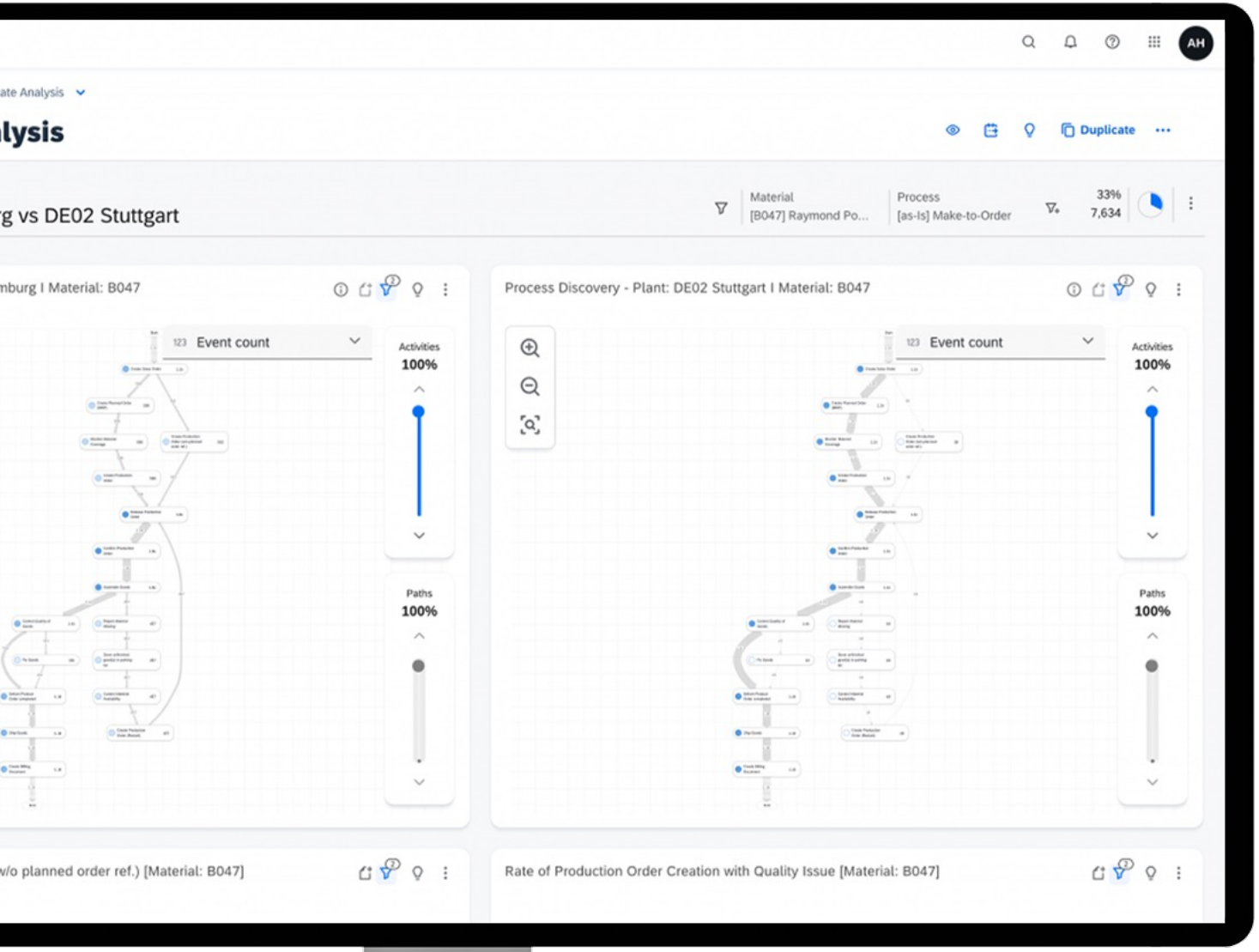
SAP Signavio



Business Process Management

Process Mining and recommendations

Process best practices


Keep the extensions clean
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Keep the data clean
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Operations

Keep operations effective and efficient

Main aspects

- **End-to-end concept for operations**.
- **Release management**
- Housekeeping activities that are in line with SAP Best Practices

Keep the **extensions** clean — 1 Extensibility

Keep the **data** clean — 2 Data

Keep the **Integrations** clean — 3 Integrations

Keep the **processes** clean — 4 Processes

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

What makes operations clean core compliant?

What are “clean” operations?

Main aspects

- The paradigm of keeping the core clean is integrated into the **end-to-end concept for operations**.
- **Release management** is an established foundation for a clean core; the latest release should always be targeted.
- **Housekeeping** activities that are in line with SAP Best Practices are pursued, and the distribution of roles and responsibilities that are agreed with SAP are followed.
- It is agreed that SAP performs maintenance for technology within the preapproved **CMPs**.

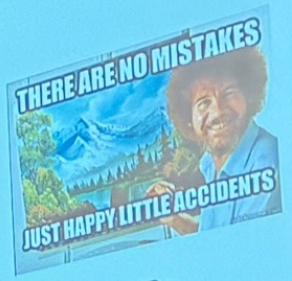
How to achieve

- Establish keeping the core clean as an integral part of the end-to-end operations concept:
  - Consider “keep clean” as an IT service to add business value and establish IT as a service provider to own the end-to-end view and end-to-end processes.
  - Integrate monitoring and alerting of a “keep clean” process into the overall concept for operations to have an integrated view on KPIs for affected areas that define a clean core (integration, extensibility, processes, data).
  - Establish procedures for event management and escalations that are in line with the established governance models for integration, extensibility, processes, and data. Consider using SAP’s operations platforms to achieve this – SAP Cloud ALM or SAP Solution Manager.
- Release management is based on two core principles:
  - CMPs create preapproved monthly maintenance windows that are agreed by all involved parties and adequately documented.
  - Only in exceptional rare cases, it is requested to skip maintenance windows ("opt out").
- Regular housekeeping is established and supports keeping the core clean, for example:
  - Background job management (including approval, documentation, monitoring, and improvement) is implemented to contribute to an efficient utilization of infrastructure.
  - The usage of file interfaces for importing or exporting data from or into the system is avoided to strengthen security, maintainability, and consistency.
  - End-user authorizations are reviewed and adapted on a regular basis. Unneeded authorizations are unassigned from users and discontinued.

SAP Cloud Application Lifecycle Management


How to and why upgrade
Aurobay

Set a clear responsibility - System Management, Developing and Testing



- SAP is responsible for the core application
- Platform team is reponsible for the systems are technically running
- Application/product teams are responsible for their configurations
- Go for the clean core approach
- Implement automated testing tools
- Create and govern guardrails with clear allowed "roads" to build solutions. Don't use CABs
- Treat developers as you would treat your kids – Dont punish them when they make mistakes, use the opportunity to learn new skills
  - Some times even accidents can be successes
- Most important: Establish continous improvement culture and "I break it, I fix it"-mindset

Aurobay

HITACHI

Leveraging SAP Business Technology Platform to accelerate move to the cloud and keeping the core clean

Watch the video

Read the Story

Reduced custom ERP add-ons

94% fewer

SAP ERP add-ons decreased from over 9,000 to 520

Accelerated S/4HANA Cloud upgrade cycles

1 month

Time spent on upgrading ERP versions cut from one and a half years to approx. one month

MYTHS & FACTS

"BTP is the only means of making and keeping the core clean"

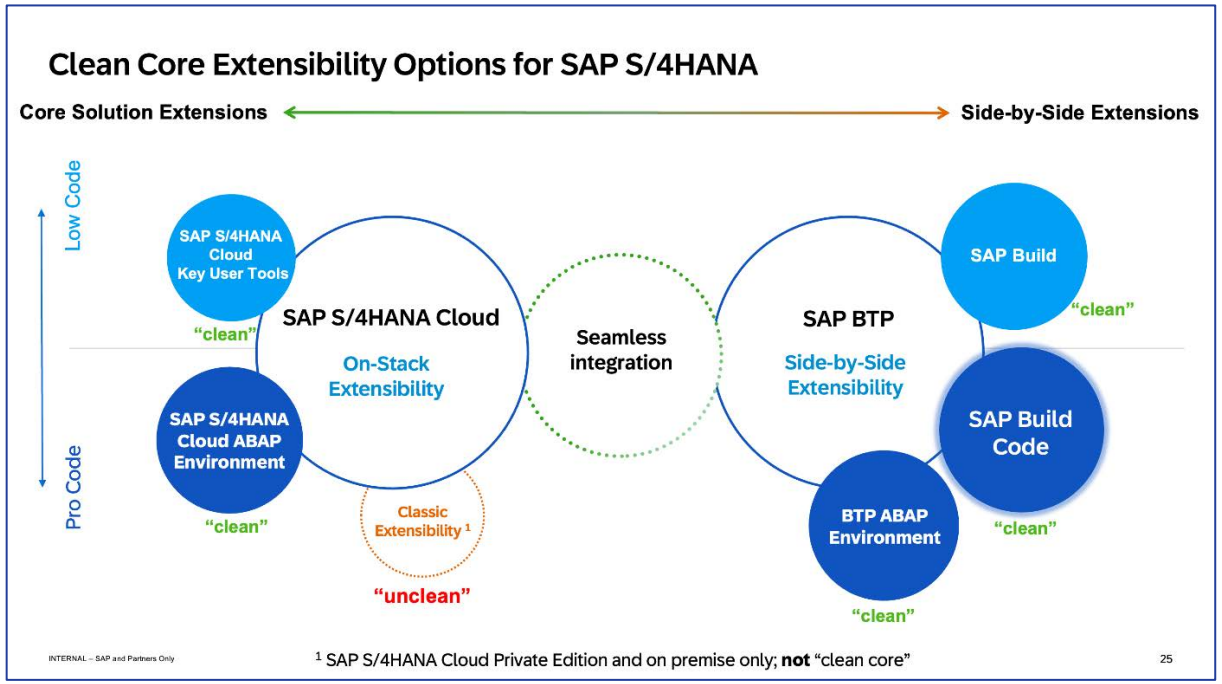
"Clean Core is only about Custom Code and Extensibility."

"Fit-to-standard is the only means of making and keeping the core clean"

"Clean Core is only about TCO"

MYTHS & FACTS

"BTP is the only means of making and keeping the core clean"

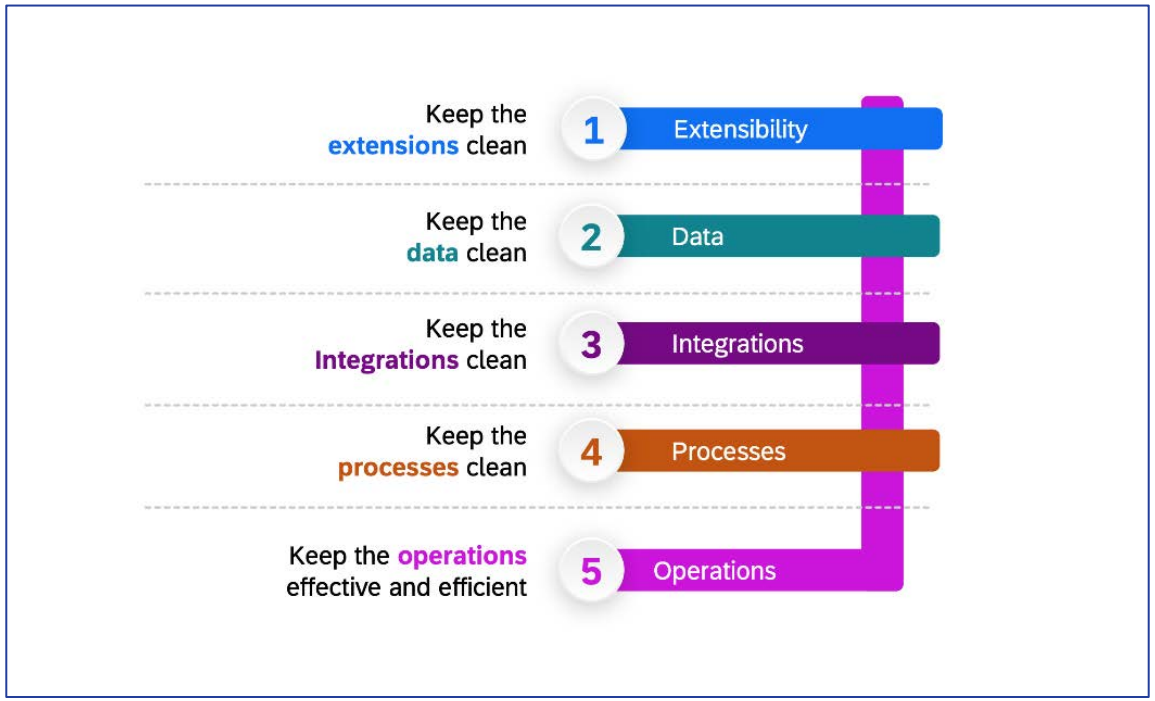


A Clean Core can be achieved by:

1. On-stack (key-user & developer extensibility)
2. Side-by-side extensibility (BTP)
3. Fitting processes to standard or
4. A mix of all of the above

MYTHS & FACTS

"Clean Core is only about Custom Code and Extensibility."

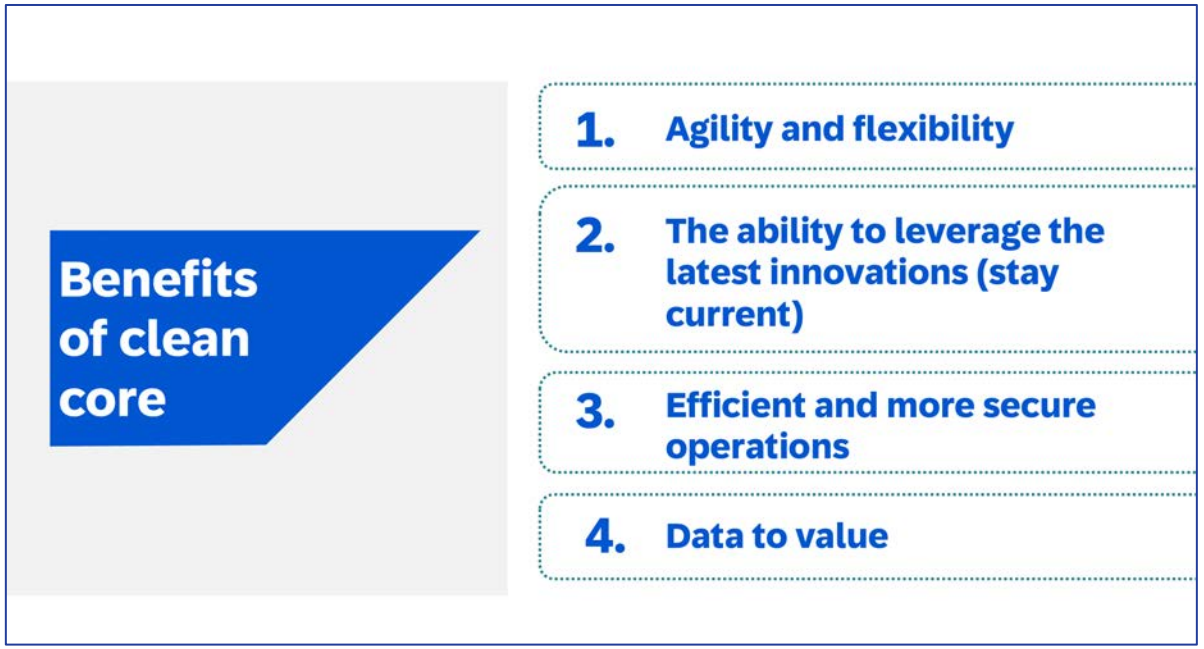


Clean Core affects:

- Custom Code i.e. Extensibility as well as
- Data,
- Processes,
- Integration and
- Operations

MYTHS & FACTS

"Clean Core is only about TCO"

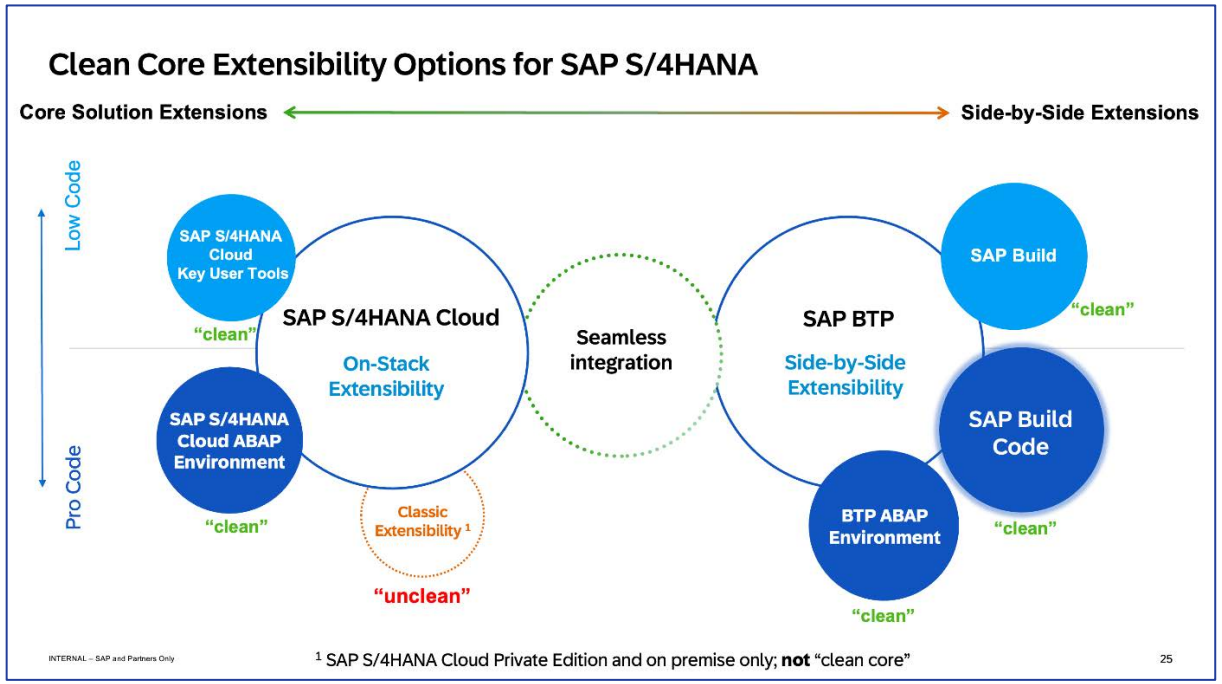


Clean Core not only contributes to a TCO reduction:

- It also enables the consumption of the latest innovations
- A mindset and paradigm shift from OnPrem to Cloud
- Provides you with more flexibility in your business

MYTHS & FACTS

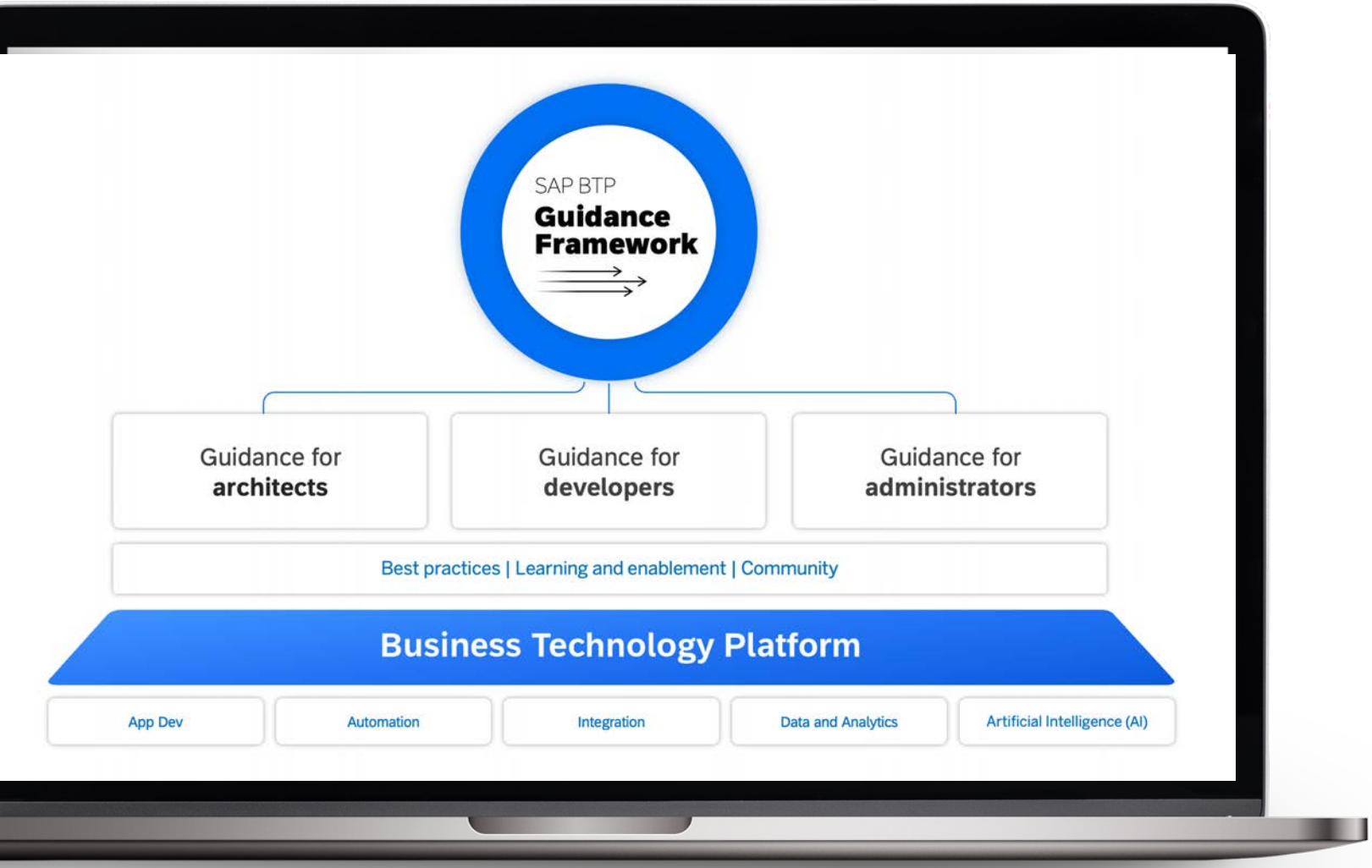
"Fit-to-standard is the only means of making and keeping the core clean"



- Although a fit-to-standard system is probably mostly clean
- the usage of "on-stack" and "Side-by-side" extensibility options also make and keep the core clean.

How to start from here?

SAP BTP Guidance Framework



SAP BTP Guidance Framework

The SAP BTP Guidance Framework provides a central access point for architects, developers and administrators to build and run enterprise-grade solutions on SAP BTP.

Key SAP Services Offerings for Clean Core

Typical customer situations (1/2)

Typical Customer Situation	Key Service Offerings		… and in addition
1 Customer wants to get a **first understanding** about Clean Core with SAP [1]	Discovery Workshop for SAP S/4HANA On-site workshop provides guidance about **the benefits and transformation paths** of adopting SAP S/4HANA **in a clean core compliant way**	Value and Implementation Strategy (VIS) Follows customer's business priorities to **define the target landscape and identify key innovations** to benefit most from SAP S/4HANA, including clean core guidelines. Evaluates the **best-fitting transformation path**	Overview Sessions by E-CSPs External L0 / L1 Deck Definition Deck + Document
2 Customer would like to get a **deep dive** on Clean Core and to understand "what does Clean Core mean for me" [1]	IT strategy and enterprise architecture road map service While defining our customer's IT strategy & enterprise architecture, this service provides **advisory on the clean core paradigm**	Migration and Upgrade Planning Workshop (MPW) Supports planning the conversion to SAP S/4HANA with a system-level transition roadmap and milestone plan, **clarifying the conversion readiness and the functional and technical scope in compliance with clean core**	Clean Core Assessment as part of Preferred Success Clean Core Business Scenario as part of Max Attention (preparation for Move to S/4HANA)
3 Customer would like to understand how to start a journey with regard to "**clean extensibility**"?	Application development planning service on SAP BTP Supports the customer in upfront discovery and assessment of his SAP BTP development project, including **side-by-side extensibility in a clean core compliant way**	SAP BTP Capabilities Empowerment Supports an understanding of SAP Integration Suite and SAP BTP extensibility capabilities to **build state-of-the-art cloud applications in a clean core compliant manner**	Extensibility Strategy Workshop for Max Attention Customers
4 Customer would like to understand how to **act on existing custom code?**	Cloud Service Development evaluation Uses Design Thinking and user-centered tools & methods to create a vision & scope document and come to a proposal for the customer how to leverage BTP for their custom code	Intelligent Custom Code Management Analysis Supports the analysis of existing custom code. Custom code objects and references are clustered and prioritized. Suitable follow-up activities are recommended to increase clean core compliant extensions	Intelligent Custom Code Management Transformation

[1] for customers planning a journey to SAP S/4HANA. If the customer is already on SAP S/4HANA, start from situations 3-7.

Services available Professional Services customers

Services available only for Premium Engagement customers

Key SAP Services Offerings for Clean Core

Typical customer situations (2/2)

Typical Customer Situation	Key Service Offerings		… and in addition
5 Customer wants to understand how he can stick to Clean Core from a **business processes perspective?**	**SAP Standard Content activation services** Pre-defined **Industry and LoB content** which can be used in the context of fit-to-standard or fit/gap analysis workshops	**Fit to Standard Analysis / Design** F2S workshops validate the predefined content and identify delta requirements with **advice on best solutions considering SAP standard, SAP's latest technologies, and the clean core concept**	Accelerated process discovery service with SAP Signavio and other SAP Signavio Services
6 Customer would like to understand how Clean Core affects the topic of **integration**?	**Integration planning service** Conducts comprehensive information analysis and workshops in order to create a **customer-specific implementation/upgrade plan** for SAP Integration Suite	**Integration Design Workshop** Supports customers with best practices and industry standards on **how to design critical interfaces in an optimal, clean core compliant manner,** and gives guidance on using SAP Integration Suite	Integration implementation service
7 Customer would like to understand how Clean Core affects the topic of **data**?	**Data Quality Service** Assesses and improves the quality of data and provides **action plan for data management to get and keep data clean**	**Data Management Design** Provides a detailed overview of how aspects of SAP solutions for **data management** can be implemented based on **design principles of scalability & performance, transition to operations, and SAP best practices**	Data Volume Management (PE: Scoping, Planning, PS: Optimization) Financial Data Quality Analysis

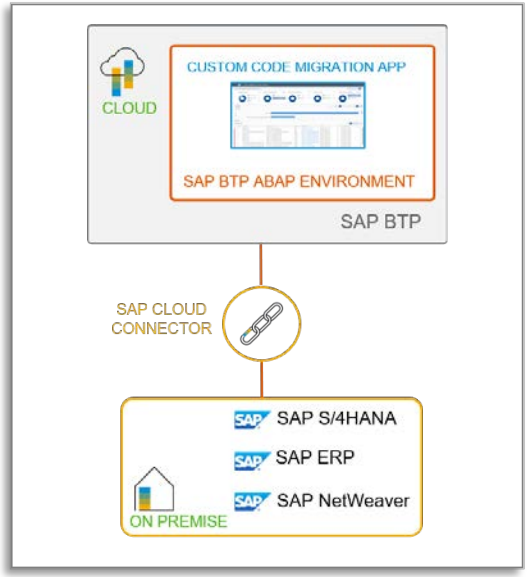
Services available Professional Services customers

Services available only for Premium Engagement customers

Custom code analysis with Custom Code Migration app

SOLUTION OVERVIEW

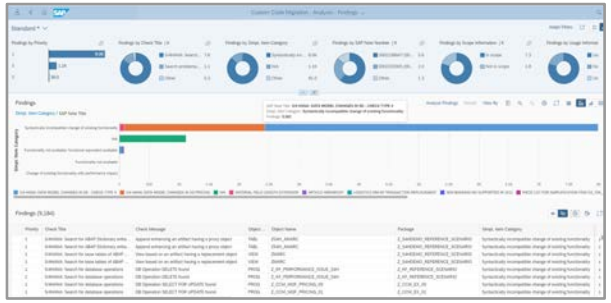
- Available in an SAP S/4HANA >=1809 system or in SAP BTP ABAP Environment
- Technically based on remote ABAP test cockpit
- Analysis of custom code for SAP S/4HANA, SAP BTP, ABAP Cloud, classic ATC use cases
- Simplified custom code remediation
- Obsolete custom code removal based on usage data
- Identification of custom code candidates for back-to-standard and redesign
- Evaluation of custom code for semi-automated adaptation
  (quick fixes in ABAP development tools for Eclipse)



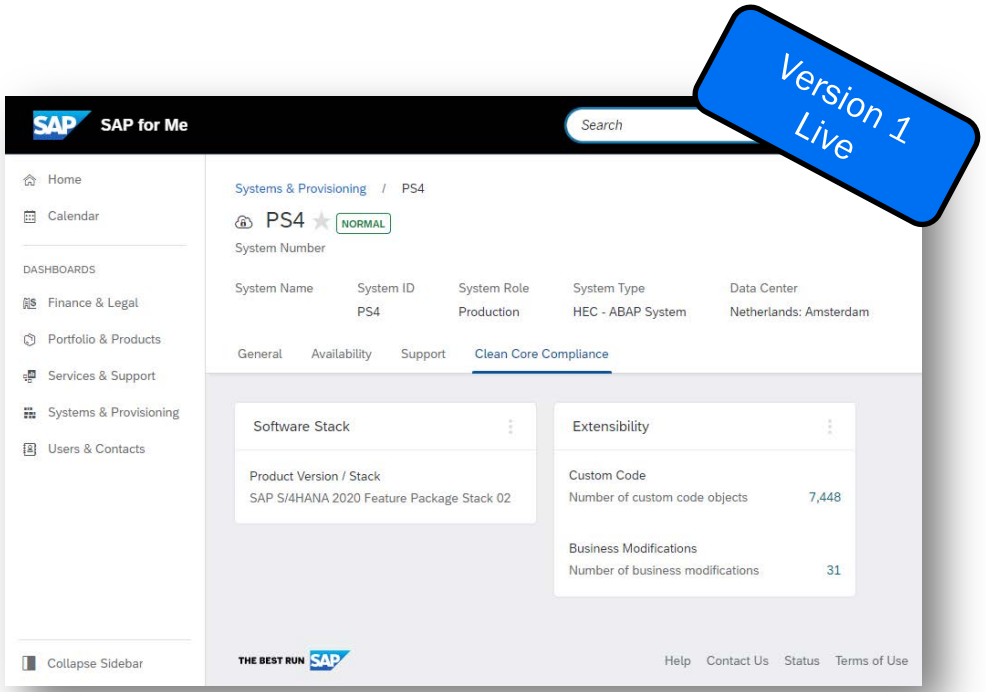
HIGH LEVEL FEATURES

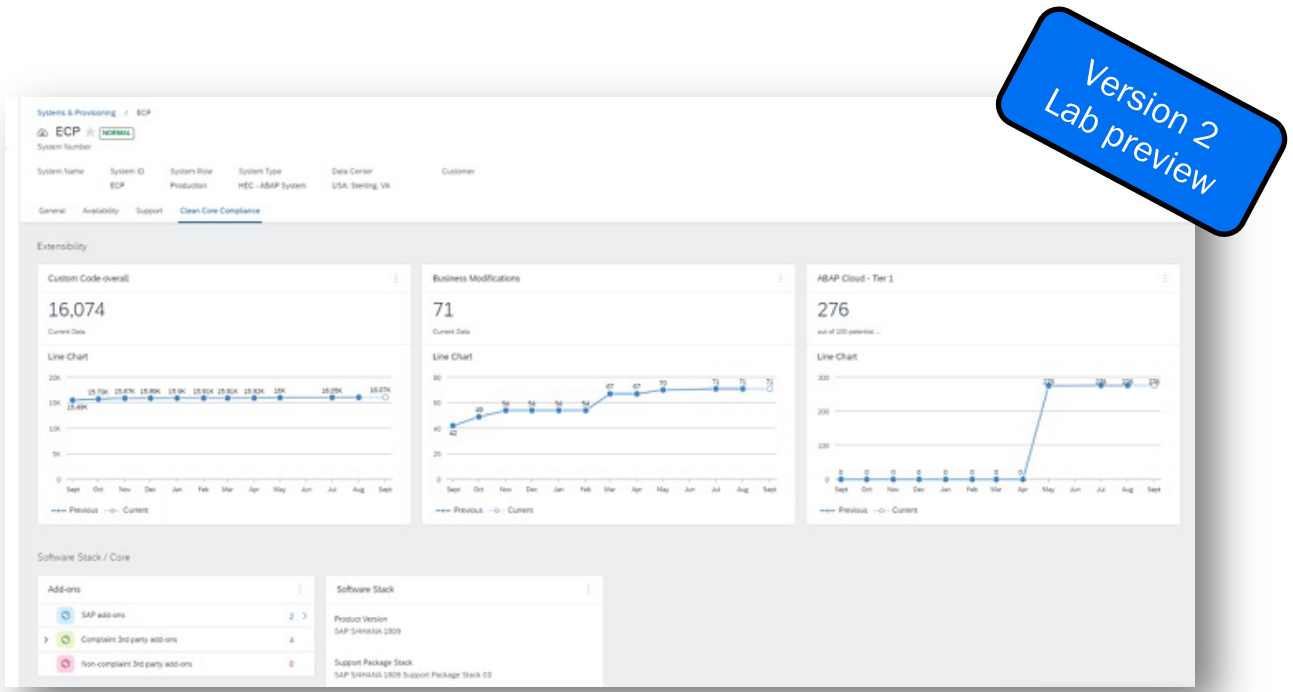
SCOPING

ANALYSIS



Self Service – Transparency - Clean Core Dashboard





- Available for productive SAP S/4HANA Cloud, private edition systems in SAP for Me (Systems & Provisioning area)
- Gives a technical overview on the “clean core compliance” of your SAP S/4HANA Cloud, private edition systems
- Includes link to guides, services and tools (SAP and partner) that help to get closer to a clean core.

Thank you

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