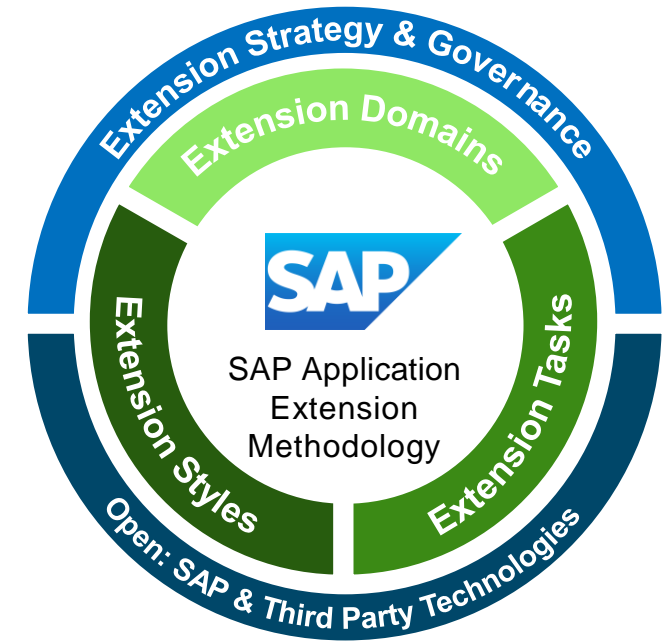


# Worry-free Innovation and extensions on SAP

SAP Application Extension Methodology  
Derive Extension Guidelines for Your Organization

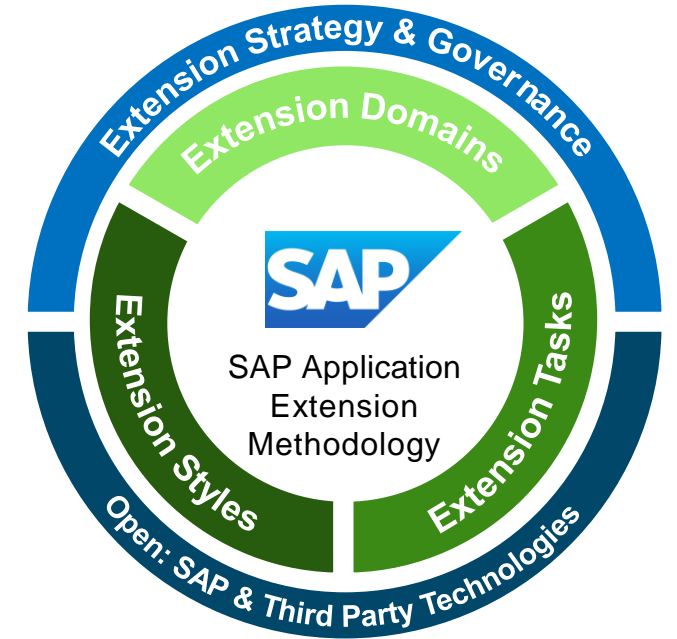
< Your Organization >



PUBLIC

# SAP Application Extension Methodology

## Template



0

Overview &  
Terms of Use

1

Assess  
Extension  
Use Case

2

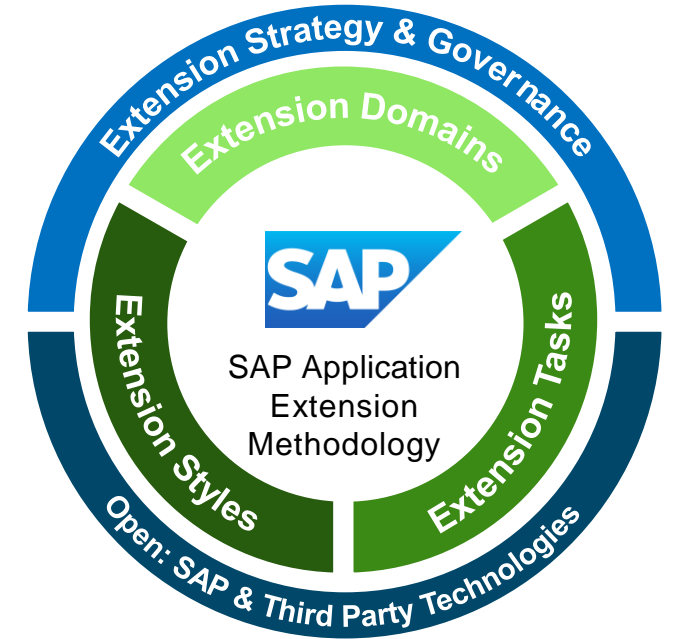
Assess  
Extension  
Technology

3

Define  
Extension  
Target  
Solution

# SAP Application Extension Methodology

## Template



0

Overview &  
Terms of Use

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Assess  
Extension  
Use Case

2

Assess  
Extension  
Technology

3


Define  
Extension  
Target  
Solution


# Customer Challenge

A word cloud illustrating various SAP cloud migration strategies. The words are arranged in a horizontal, overlapping manner, with 'Clean Core' and 'Cloud Ready' being the most prominent. Other strategies include 'Cloud First', 'Transition', 'Side-by-Side', 'In-App', 'Custom code', 'Steampunk', 'Decoupling', 'Modification', 'Guidelines', 'Upgrade-Stability', 'Legacy Code', 'Transformation', and 'Classic'.

Cloud Readiness  
Classic  
Cloud First  
Decoupling  
Modification  
Transformation  
Guidelines  
Upgrade-Stability  
Legacy Code  
Transition  
Cloud Ready  
Clean Core  
Steampunk  
Side-by-Side  
In-App  
Custom code

# SAP S/4HANA extensibility today

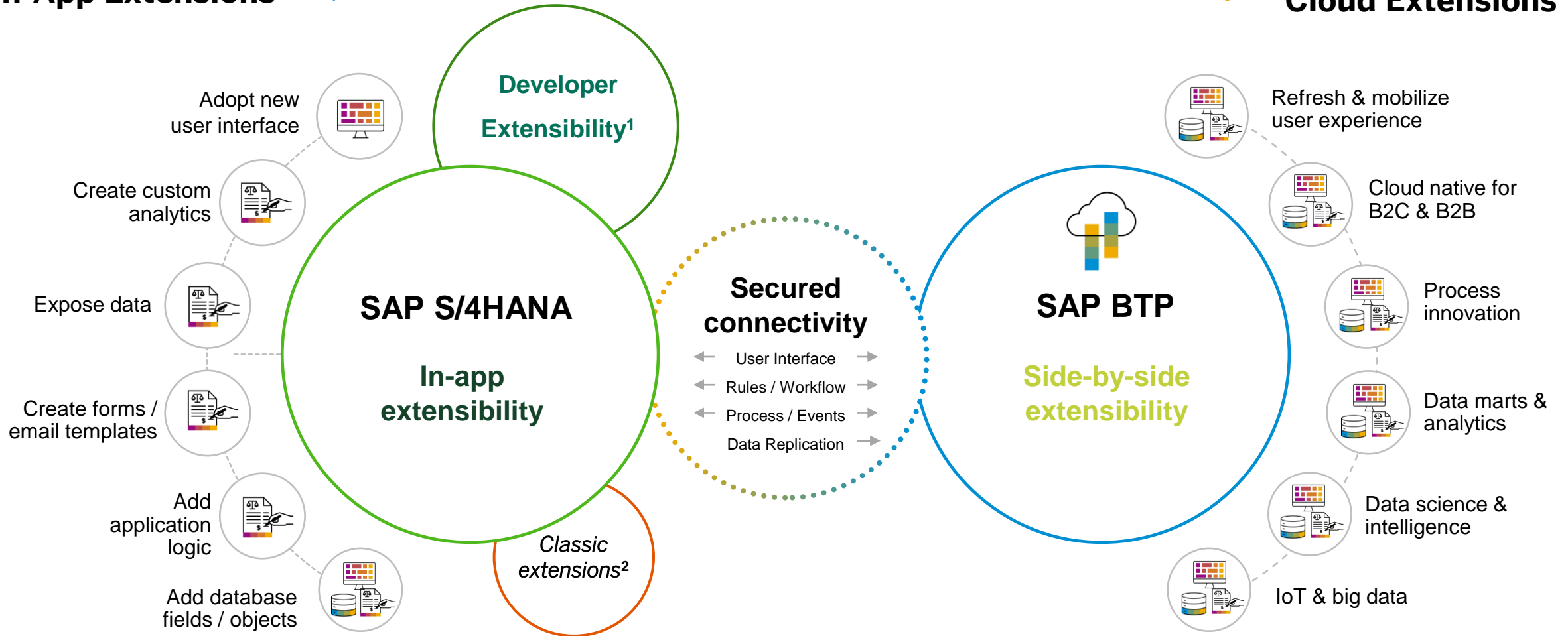
User Interface Layer 

Application Layer 

Database Layer 

## In-App Extensions

## Cloud Extensions



<sup>1</sup> SAP BTP ABAP Environment (Steampunk\*), since the launch in 2018

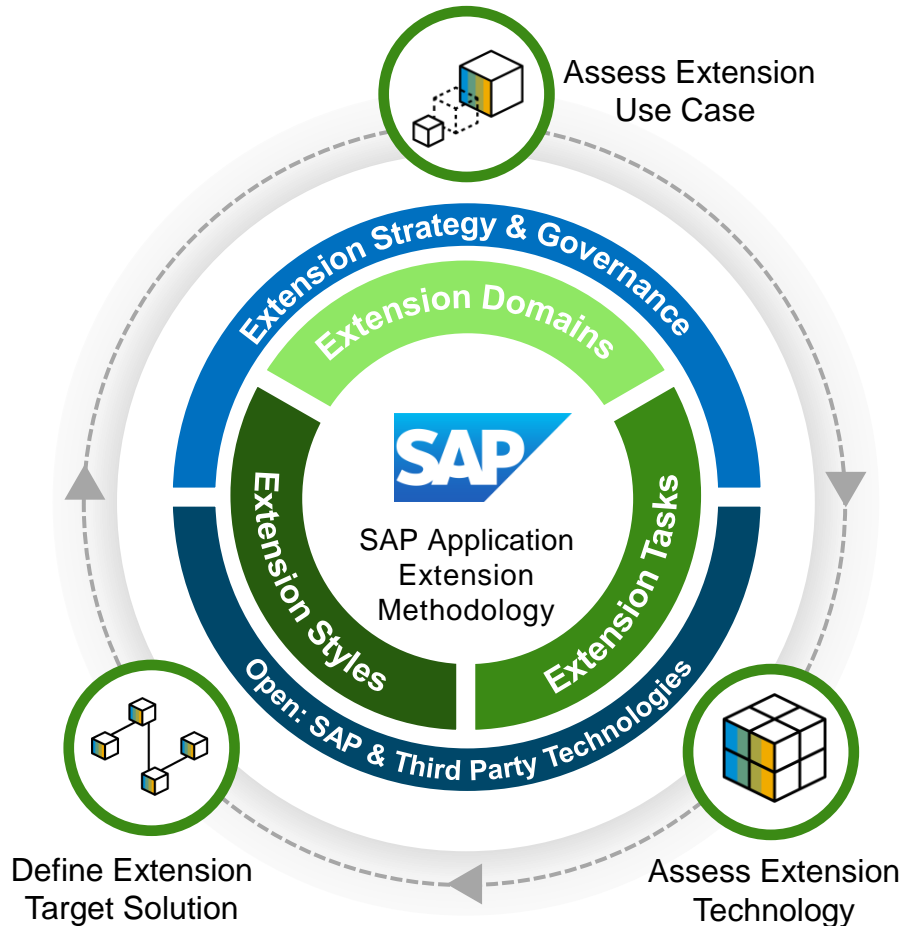
SAP S/4HANA Cloud, public edition, since the 2208 release for new customers (Embedded Steampunk\*)

SAP S/4HANA Cloud, private edition and on-premise, since the SAP S/4HANA 2022 release (Embedded Steampunk\*)

<sup>2</sup>SAP S/4HANA Private cloud and onPrem

# SAP Application Extension Methodology

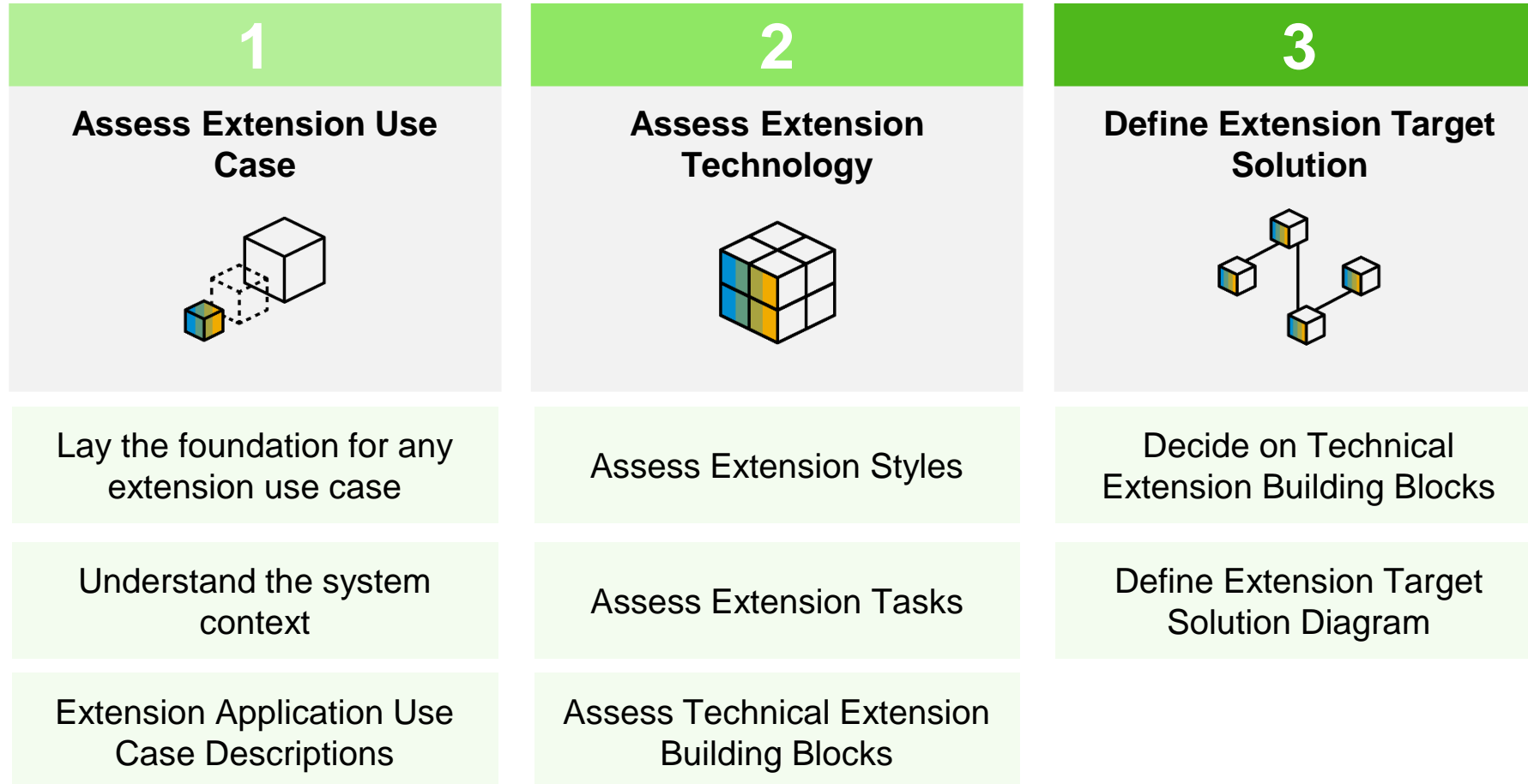
## Goal & Outcome



- **Goal:**
  - SAP Application Extension Methodology provides a structured, technology-agnostic approach for customers and partners to define an organization specific extension strategy, that guides and supports the extension implementation of standard business applications
- **Outcome:**
  - Enable Enterprise Architects to assess extension use cases and define an extension target solution

# SAP Application Extension Methodology

## Overview: Phase 1 - 3



### How To Use

This slide provides an overview on how SAP AEM can be applied in organizations. Depending on the specific needs of your organization you can flexibly select from the possible phases and use the SAP AEM template as a starting point and adapt/ extend it to your specific needs. Based on this template, you can create your customer-specific extension strategy and/or guidance document(s).

# SAP Application Extension Methodology

Simplify extensions by a systematic approach

Extension Domains

Extension Domain

An Extension Domain describes the "location" of the Technical Extension Building Block and explains where it "runs"

1 Core Solution Extension Domain:  
Running on the same technology stack as the core solution  
(Example: SAP S/4HANA Cloud)

2 Side-by-Side Extension Domain:  
Using extensibility capabilities outside the core solution like using the SAP Business Technology Platform based on standard APIs/events  
(Example: SAP Business Technology Platform)

3 Hybrid Extension Domain:  
Extension using a combination of Core Solution Extension and Side-by-Side Extension Domain

Phase 2: Assess Extension Technology

Extension Styles

Extension Tasks

Extension Technology Mapping

Core Solution

Core Solution Extension 1

Side-by-Side Extension Platform

Side-by-Side Extension 2

Core Solution

Side-by-Side Extension Platform

Hybrid Extension Domain

Side-by-Side Extension

Core Solution Extension 3

Extension Styles and Extension Tasks

Extension Styles

Phase 2: Assess Extension Technology

Extension Styles

Extension Tasks

Extension Technology Mapping

Presentation Tier

Application Tier

Data Tier

User Interface Extension

New User Interface

Form and Template

Business Logic Extension

Data Model Extension

Adapt the standard User Interface of the core solution by adding, removing and changing UI elements like labels, buttons and input fields

Create a custom user interface in addition to or in replacement of a standard UI catering for specific usability needs

Adapt existing or create new forms and e-mail templates

Realize business requirements by implementing additional business logic and add, exchange or re-wire a process by creating additional process steps

Store additional information by extending the entities of an existing data model or define a new data model

Explanation

Extension Styles frame the overall technology for building extensions and structure extension tasks. They can be categorized into the Three-Tier Architecture model: Presentation Tier, Application Tier and Data Tier.

Extension Technology Mapping

Three-Tier Architecture	Extension Styles	Extension Task (agnostic)	Extension Domain	Techn
Presentation tier	User Interface Extension	Adapt standard UI: add/hide/create/re-name/re-arrange label or headlines	Core	SAP C
			Core	SAP C
			Core	SAP C
			Core	SAP W
			Core	SAP W
			Core	SAP K
			Core	SAPUI
			Core	SAPUI
			Core	SAPUI
			Core	SAPUI
		Add custom field to standard UI	Core	SAP C
			Core	SAP C
			Core	SAP C
			Core	SAP W
			Core	SAP W
			Core	SAPUI
			Core	SAPUI
			Core	SAPUI
			Core	SAPUI
			Core	SAPUI
New User Interface		Create custom UI	Core	SAP C
			Core	SAP W
			Side-by-Side	SAPUI
			Core	SAPUI
			Side-by-Side	SAP FI
			Core	SAP FI
			Side-by-Side	SAP N
			Side-by-Side	SIS Ex
			Side-by-Side	SIS Ex
			Side-by-Side	SAP TI
		Create custom form templates based on standard object	Rapide	
			Side-by-Side	SAP B
			Side-by-Side	SAP A
			Core	SAP K
			Core	SAP C
			Core	Devel
			Side-by-Side	SIS Ex
			Side-by-Side	SIS Ex
			Core	SAP K
			Core	SAP K

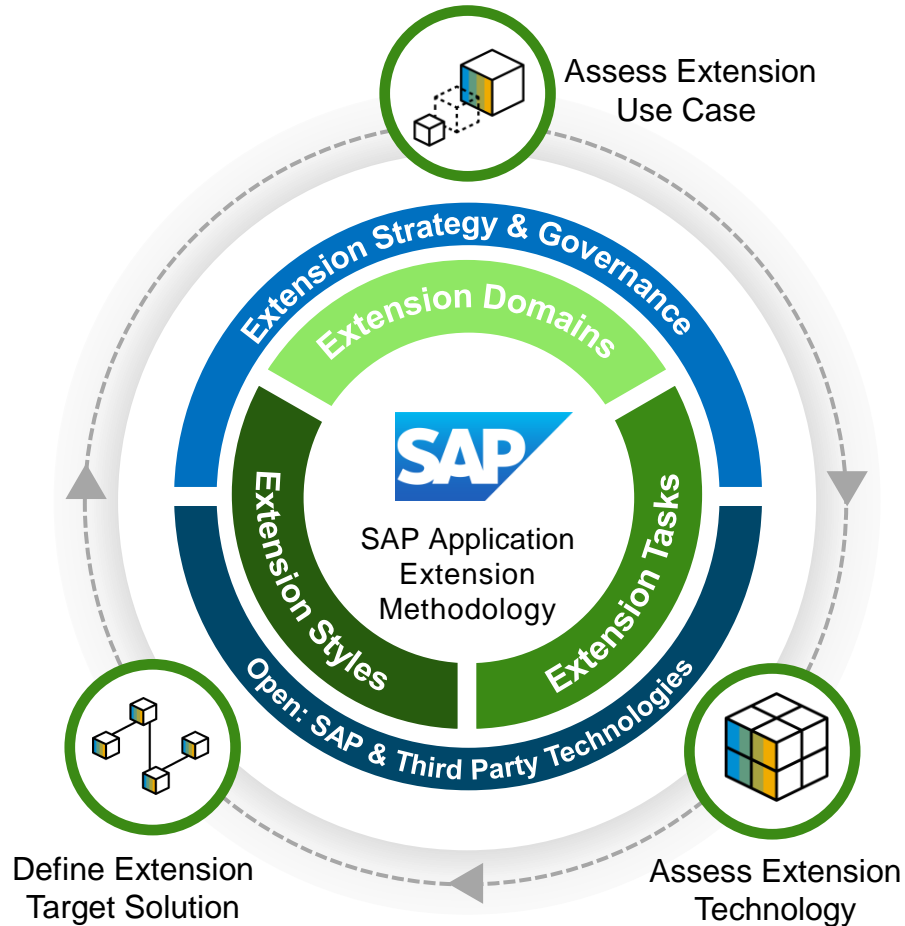
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8



# SAP Application Extension Methodology

## Overview: Phase 1 - 3



### Phase 1: Assess Extension Use Case

System  
Context

Business  
Context &  
Requirement

Extension  
Application  
Use Case

### Phase 2: Assess Extension Technology

Extension  
Styles

Extension  
Task

Extension  
Technology  
Mapping

### Phase 3: Define Extension Target Solution

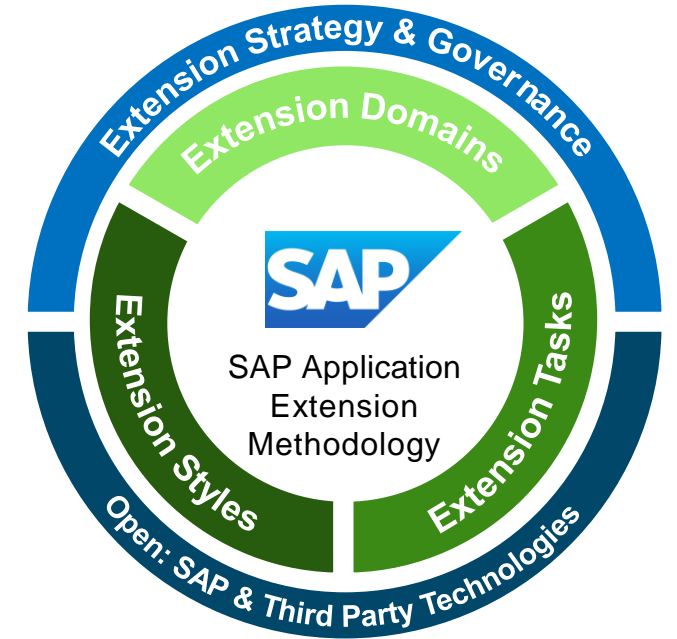
Extension  
Technology per  
Extension Task

Decision  
Guidance  
Assets

Extension  
Target Solution

# SAP Application Extension Methodology

## Template



0

Overview &  
Terms of Use

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Assess  
Extension  
Use Case

2

Assess  
Extension  
Technology

3

Define  
Extension  
Target  
Solution

# Use Case: External Business Partner Validation

## Business Case and Task Description

### Business Case:

ACME Corporation needs help with the **validation of new business partners**. Therefore, they buy and consume a service offering from iCredible. John is an employee of the company iCredible. Every time a **new business partner is added** in the SAP S/4HANA system of ACME Corporation, John would like to **get notifications**. John would then be **able to review** the business partner details. He would proceed to check the business partner's registered office and do some background verification. In a next step, John **would update the verification details**. Once the details are verified, the business partner **gets activated** in ACME Corporation's SAP **S/4HANA** system.

### Architecture Principals and Business Context:

- Extensions needs to be upgrade stable
- Easy maintenance and using standard software/service are preferred
- Side-by-Side options are preferred due to “cloud first” strategy
- Only internal ACME Corporation Employees are allowed to have access to the SAP S/4HANA system
- Employees are used to work with SAP Launchpad

### Your Role and Task:

You work for ACME Corporation, and you are part of the Enterprise Architecture team.

**You want to create a target solution diagram** in order to prepare the implementation of the extension use-case.

Recently, you learned about the SAP Application Extension Methodology, and you want to try out this approach for this project.

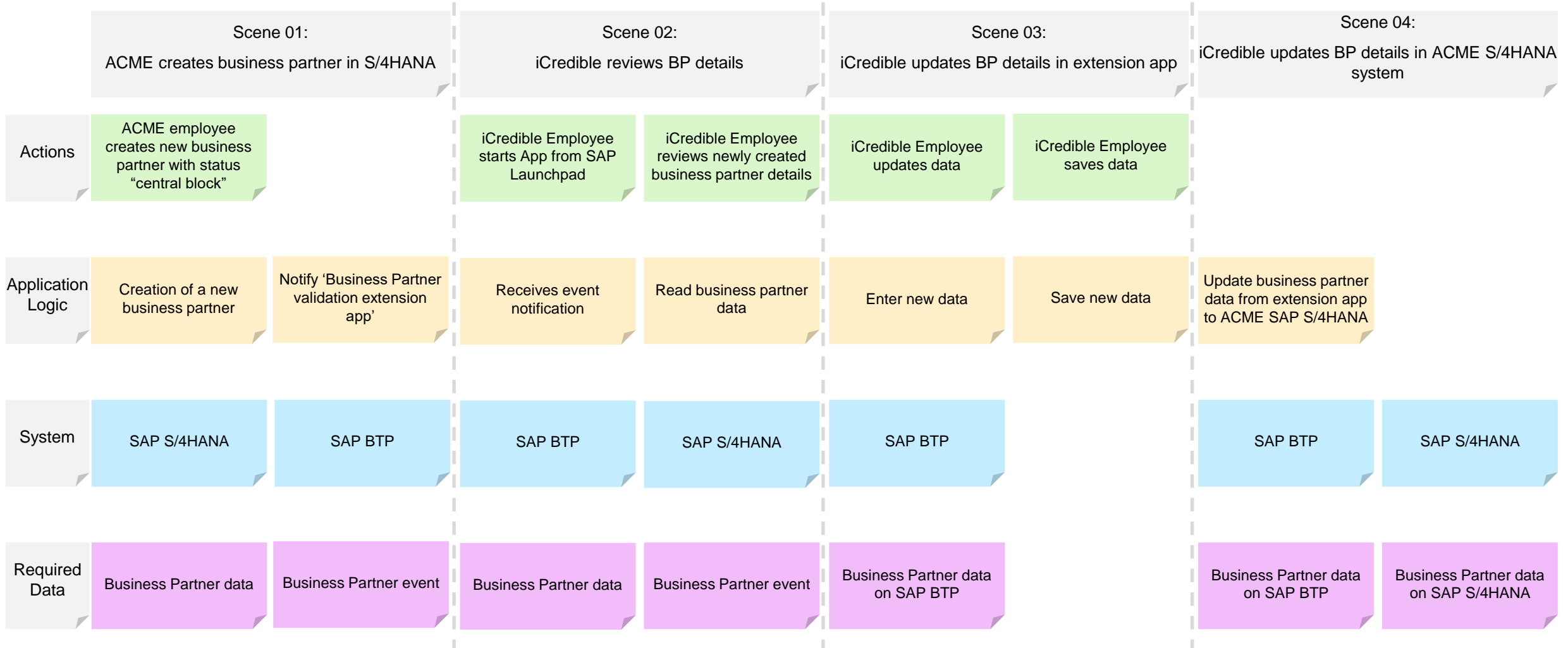


### How To Use

Find out which systems are involved. Learn about the business context and requirement. Structure the use case into different scenes. Check Discovery Center for services. Translate business requirements from use case and try to find matching extension tasks. For each extension task find a fitting technical building block.

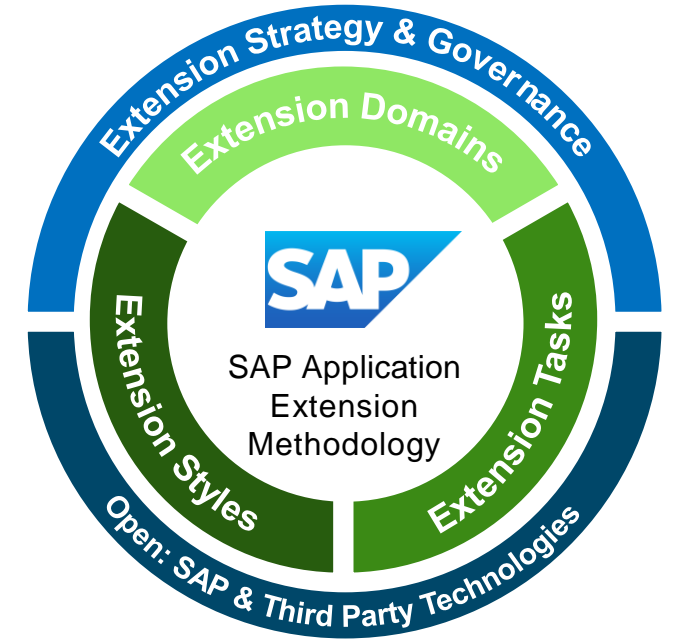
# Use Case: External Business Partner Validation

## Scene 01 - 04



# SAP Application Extension Methodology

## Template



0

Overview &  
Terms of Use

1

Assess  
Extension  
Use Case

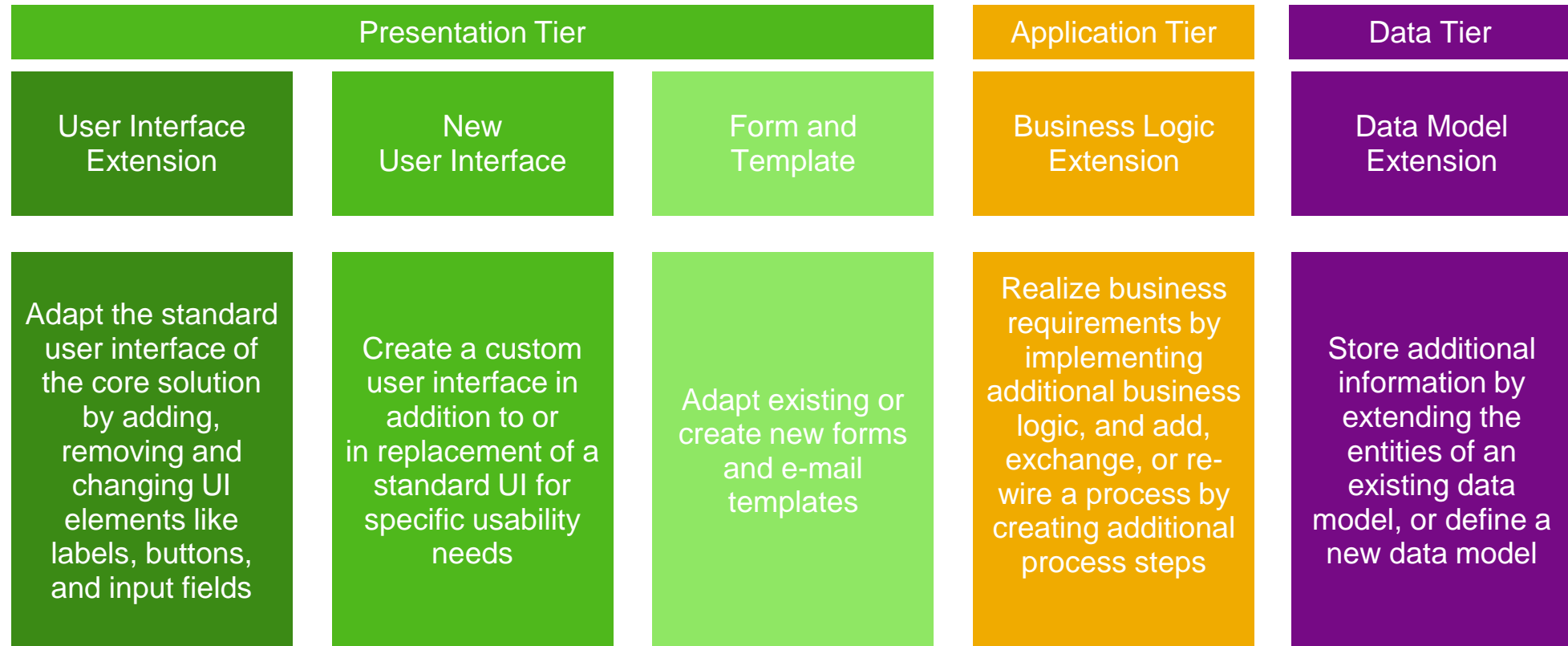
2

Assess  
Extension  
Technology

3

Define  
Extension  
Target  
Solution

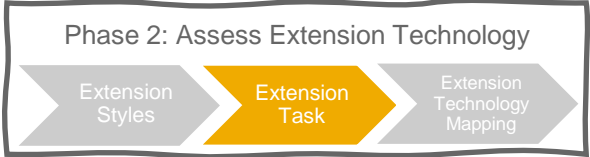
# Extension Styles



## Explanation

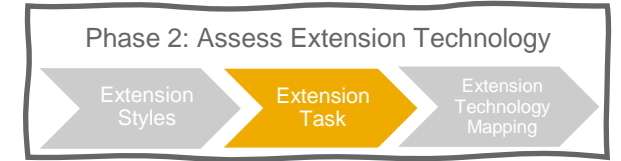
Extension Styles frame the overall technology for building extensions and structure extension tasks. They can be categorized into the Three-Tier Architecture model: Presentation Tier, Application Tier and Data Tier.

# Extension Tasks for Presentation Tier



ID	Extension Style	Extension Task
P01	User Interface Extension	Adapt standard UI: add/hide/create/rename/rearrange label or headlines
P02	User Interface Extension	Add custom field to standard UI
P03	New User Interface	Create custom UI
P04	Form and Template	Create custom form templates based on standard object
P05	Form and Template	Create custom form templates based on custom object/process
P06	Form and Template	Adapt e-mail template

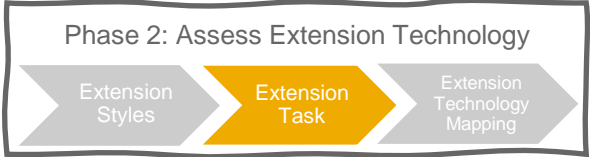
# Extension Tasks for Application Tier



ID	Extension Style	Extension Task
A01	Business Logic Extension	Add business logic/pre-fill/validate fields before/within/after existing business process
A02	Business Logic Extension	Add rules within existing process
A03	Business Logic Extension	Add workflow within existing process
A04	Business Logic Extension	Add custom field to standard API
A05	Business Logic Extension	Create API
A06	Business Logic Extension	Consume API
A07	Business Logic Extension	Create Event
A08	Business Logic Extension	Consume Event
A09	Business Logic Extension	Create workflow
A10	Business Logic Extension	Create rules
A11	Business Logic Extension	Create application logic
A11	Business Logic Extension	Create and schedule a new background job



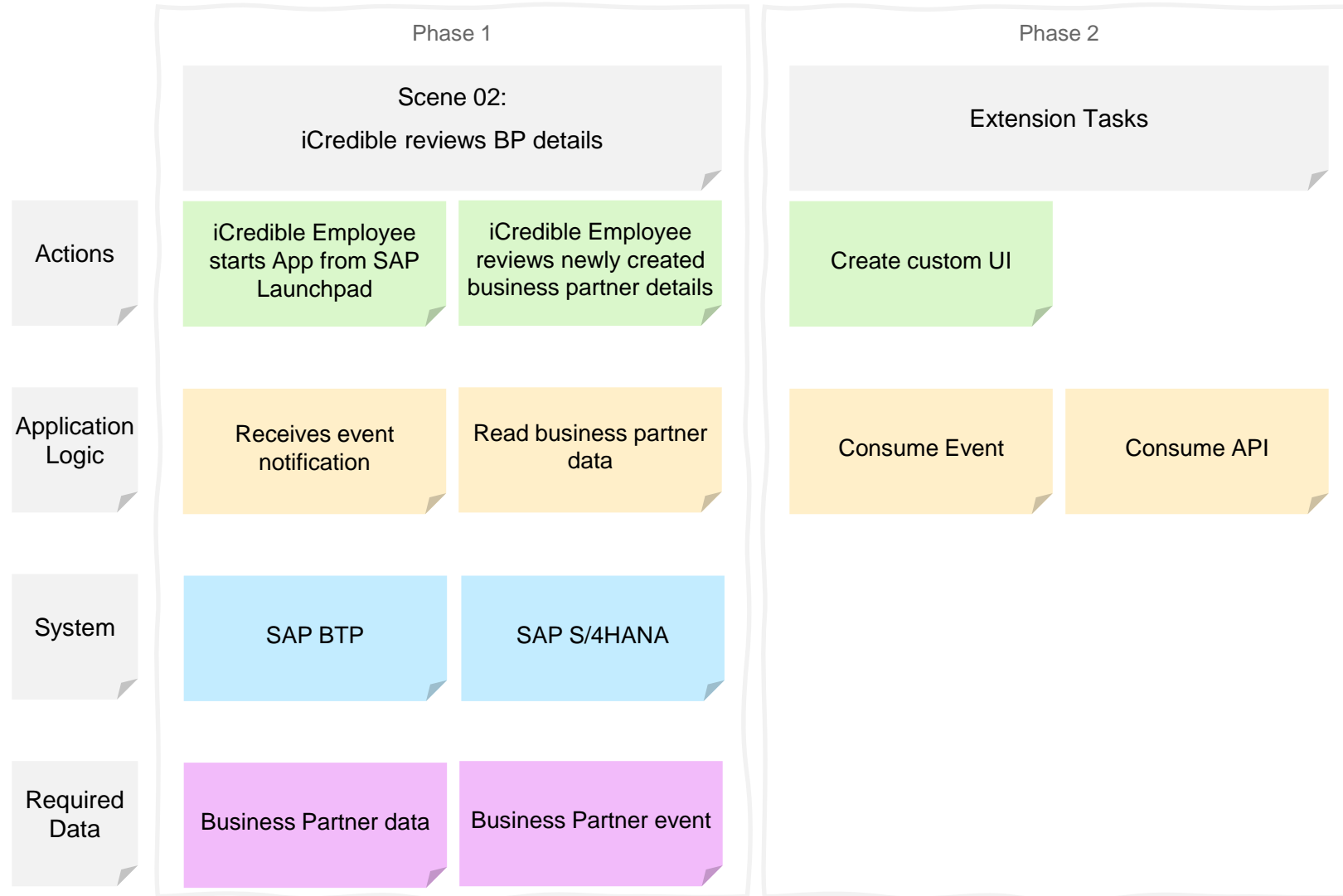
# Extension Tasks for Data Tier



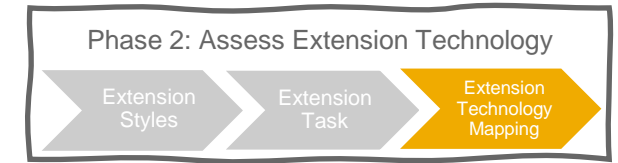
ID	Extension Style	Extension Task
D01	Data Model Extension	Create persistence
D02	Data Model Extension	Create custom business object
D03	Data Model Extension	Add custom field to existing business object
D04	Data Model Extension	Enrich/Expose Data Model

# Use Case: External Business Partner Validation

## Scene 02 – Phase 1 and Phase 2

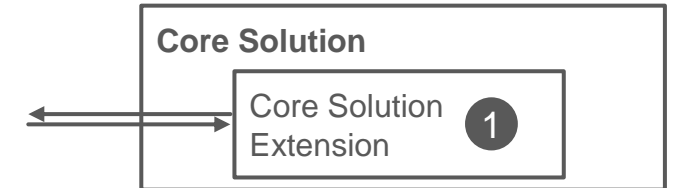


# Extension Domain

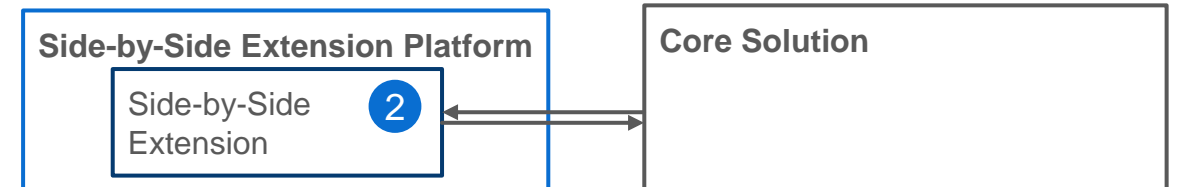


- An Extension Domain describes the “location” of the Technical Extension Building Block and explains where it “runs”

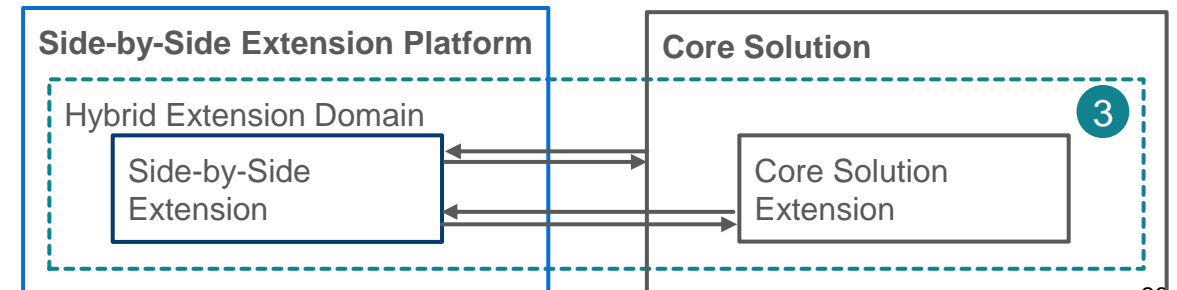
- 1 Core Solution Extension Domain:  
Running on the same technology stack as the core solution  
(Example: SAP S/4HANA Cloud)



- 2 Side-by-Side Extension Domain:  
Using extensibility capabilities outside the core solution based on standard APIs/events  
(Example: SAP Business Technology Platform)



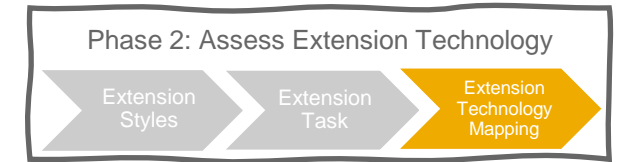
- 3 Hybrid Extension Domain:  
Extension using a combination of Core Solution Extension and Side-by-Side Extension Domain



# Extension Technology Mapping



Microsoft Excel  
Worksheet



- The extension technology mapping outlines the relationship between Extension Task and Technical Extension Building Blocks.
- Extension Tasks can be implemented by using one or more Technical Extension Building Blocks.
- A Technical Extension Building Blocks can be categorized into Extension Domains such as Core Solution Extension Domain and Side-by-Side Extension Domain.

Three-Tier Architecture	Extension Styles	Extension Task (agnostic)	Extension Domain	Technical Extension Building Blocks
Presentation tier	User Interface Extension	Adapt standard UI: add/hide/create/re-name/re-arrange label or headlines	Core	SAP Classic Dynpro: SAP Screen Personas
			Core	SAP Classic Dynpro: Screen Enhancements (BAdI)
			Core	SAP Classic Dynpro: Modification
			Core	SAP WebDynpro ABAP: Screen Enhancements
			Core	SAP WebDynpro ABAP: Modification
			Core	SAP Key-User In-App Extensibility: Adaptation Mode
			Core	SAPUI5 Flexibility: Developer Adaptation (View Extension)
			Core	SAPUI5 Flexibility: Developer Adaptation (View Modification)
			Core	SAPUI5 Flexibility: Developer Adaptation (View Replacement)
		Add custom field to standard UI	Core	SAP Classic Dynpro: Custom Fields App
			Core	SAP Classic Dynpro: Screen Enhancements (BAdI)
			Core	SAP Classic Dynpro: Modification
			Core	SAP WebDynpro ABAP: Screen Enhancements
			Core	SAP WebDynpro ABAP: Modification
			Core	SAPUI5 Flexibility: Key User Adaptation
			Core	SAPUI5 Flexibility: Developer Adaptation (View Extension)
			Core	SAPUI5 Flexibility: Developer Adaptation (View Modification)
			Core	SAPUI5 Flexibility: Developer Adaptation (View Replacement)
New User Interface		Create custom UI	Core	SAP Classic Dynpro
			Core	SAP WebDynpro ABAP
			Side-by-Side	SAPUI5 Freestyle deployed on BTP
			Core	SAPUI5 Freestyle deployed on S/4HANA
			Side-by-Side	SAP Fiori Elements deployed on BTP
			Core	SAP Fiori Elements deployed on S/4HANA
			Side-by-Side	SAP Mobile Services based UI
			Side-by-Side	S/5 Extensibility: SAP Launchpad
			Side-by-Side	S/5 Extensibility: SAP Work Zone
			Side-by-Side	SAP Task Center
			Side-by-Side	Rapid Application Development by Mendix
			Side-by-Side	SAP Business Application Studio (Low-Code and code generation)
			Side-by-Side	SAP AppGyver (No-Code)
			Core	SAP Key-User In-App Extensibility: Analytical UIs
			Core	SAP Classic: Accessing ABAP-Managed Data from External ODBC
			Core	Developer Extensibility: Accessing ABAP-Managed Data from Ext
			Side-by-Side	S/5 Extensibility: Accessing ABAP-Managed Data from External O
			Side-by-Side	S/5 Extensibility: Analytical Data Modeling and Live Data Connect
			Core	SAP Key-User In-App Extensibility: Generated UI based on custom
Form and Template		Create custom form templates based on standard object	Core	SAP Key-User In-App Extensibility: Custom Forms

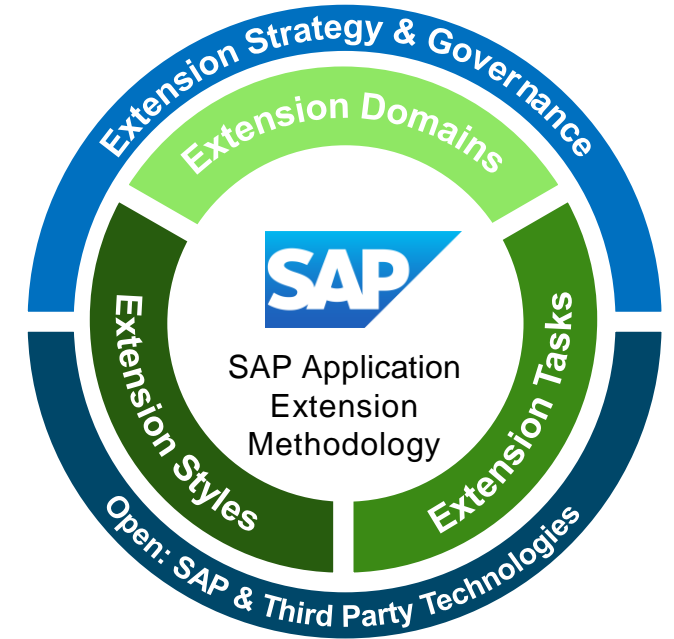
SAP Application Extension Methodology  
EXTENSION TECHNOLOGY MAPPING

	A	B	C	D	E	
1	Three-Tier Architect	Extension Styles	Extension Task	Extension Domain	Technical Extension Building Blocks	
2	Presentation tier	User Interface Extensior	Adapt standard UI: add/hide/create/re-name/re-arrange label or headlines	Core	SAP Classic Dynpro: SAP Screen Personas	
3	Presentation tier	User Interface Extensior	Adapt standard UI: add/hide/create/re-name/re-arrange label or headlines	Core	SAP Classic Dynpro: Screen Enhancements (BApI)	
4	Presentation tier	User Interface Extensior	Adapt standard UI: add/hide/create/re-name/re-arrange label or headlines	Core	SAP Classic Dynpro: Modification	
5	Presentation tier	User Interface Extensior	Adapt standard UI: add/hide/create/re-name/re-arrange label or headlines	Core	SAP WebDynpro ABAP: Screen Enhancements	
6	Presentation tier	User Interface Extensior	Adapt standard UI: add/hide/create/re-name/re-arrange label or headlines	Core	SAP WebDynpro ABAP: Modification	
7	Presentation tier	User Interface Extensior	Adapt standard UI: add/hide/create/re-name/re-arrange label or headlines	Core	SAP Key-User In-App Extensibility: Adaptation Mode	
8	Presentation tier	User Interface Extensior	Adapt standard UI: add/hide/create/re-name/re-arrange label or headlines	Core	SAPUI5 Flexibility: Developer Adaptation (View Extension)	
9	Presentation tier	User Interface Extensior	Adapt standard UI: add/hide/create/re-name/re-arrange label or headlines	Core	SAPUI5 Flexibility: Developer Adaptation (View Modification)	
10	Presentation tier	User Interface Extensior	Adapt standard UI: add/hide/create/re-name/re-arrange label or headlines	Core	SAPUI5 Flexibility: Developer Adaptation (View Replacement)	
11	Presentation tier	User Interface Extensior	Add custom field to standard UI	Core	SAP Classic Dynpro: Custom Fields App	
12	Presentation tier	User Interface Extensior	Add custom field to standard UI	Core	SAP Classic Dynpro: Screen Enhancements (BApI)	
13	Presentation tier	User Interface Extensior	Add custom field to standard UI	Core	SAP Classic Dynpro: Modification	
14	Presentation tier	User Interface Extensior	Add custom field to standard UI	Core	SAP WebDynpro ABAP: Screen Enhancements	
15	Presentation tier	45 Presentation tier	Form and Template	Adapt e-mail template	Side-by-Side	Sending mails using SMTP
16	Presentation tier	46 Application tier	Business Logic Extensior	Add business logic/pre-fill/validate fields before/within/after existing business proce	Core	SAP Key-User In-App Extensibility: Custom Lo
17	Presentation tier	47 Application tier	Business Logic Extensior	Add business logic/pre-fill/validate fields before/within/after existing business proce	Core	SAP Classic ABAP BAdIs (SE18/SE19)
18	Presentation tier	48 Application tier	Business Logic Extensior	Add business logic/pre-fill/validate fields before/within/after existing business proce	Core	Developer Extensibility: BAdIs
19	Presentation tier	49 Application tier	Business Logic Extensior	Add business logic/pre-fill/validate fields before/within/after existing business proce	Core	SAP Classic: Modification
20	Presentation tier	50 Application tier	Business Logic Extensior	Add business logic/pre-fill/validate fields before/within/after existing business proce	Core	SAP Classic: User Exits
21	Presentation tier	51 Application tier	Business Logic Extensior	Add business logic/pre-fill/validate fields before/within/after existing business proce	Core	SAP Classic: SMOD/CMOD (Customer exits)
		52 Application tier	Business Logic Extensior	Add rules within existing process	Core	SAP "Key-User": Standard App for rules exten
		53 Application tier	Business Logic Extensior	Add rules within existing process	Side-by-Side	SAP Workflow Management service business
		54 Application tier	Business Logic Extensior	Add workflow within existing process	Core	SAP Classic: ABAP Workflow
		55 Application tier	Business Logic Extensior	Add workflow within existing process	Side-by-Side	SAP Workflow Management service (workflo
		56 Application tier	Business Logic Extensior	Add custom field to standard API	Core	SAP Key-User In-App Extensibility: Custom Fie
		57 Application tier	02 Data tier	Data Model Extension	Core	SAP Key-User In-App Extens
		58 Application tier	03 Data tier	Data Model Extension	Core	Developer Extensibility: RA
		59 Application tier	04 Data tier	Data Model Extension	Core	SAP Classic: ABAP Dictiona
		60 Application tier	05 Data tier	Data Model Extension	Core	SAP ADT: Create CDS View
		61 Application tier	06 Data tier	Data Model Extension	Core	Developer Extensibility: Ac
			07 Data tier	Data Model Extension	Side-by-Side	Adapt CDS view with CDS m
			08 Data tier	Data Model Extension	Side-by-Side	ABAP Dictionary
			09 Data tier	Data Model Extension	Side-by-Side	SAP HANA Cloud
			10 Data tier	Data Model Extension	Side-by-Side	Data Intelligence Cloud
			11 Data tier	Data Model Extension	Side-by-Side	PostgreSQL, hyperscaler o
			12 Data tier	Data Model Extension	Side-by-Side	Redis on SAP BTP, hypersc
			13 Data tier	Data Model Extension	Side-by-Side	Object Store on SAP BTP
			14 Data tier	Data Model Extension	Core	SAP Key-User In-App Exten
			15 Data tier	Data Model Extension	Core	SAP Classic Extensibility: M
			16 Data tier	Data Model Extension	Core	Developer Extensibility: Cu
			17 Data tier	Data Model Extension	Side-by-Side	CAP based Object

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# SAP Application Extension Methodology

## Template



0

Overview &  
Terms of Use

1

Assess  
Extension  
Use Case

2

Assess  
Extension  
Technology

3

Define  
Extension  
Target  
Solution

# Extension Tasks Guidance

## Template

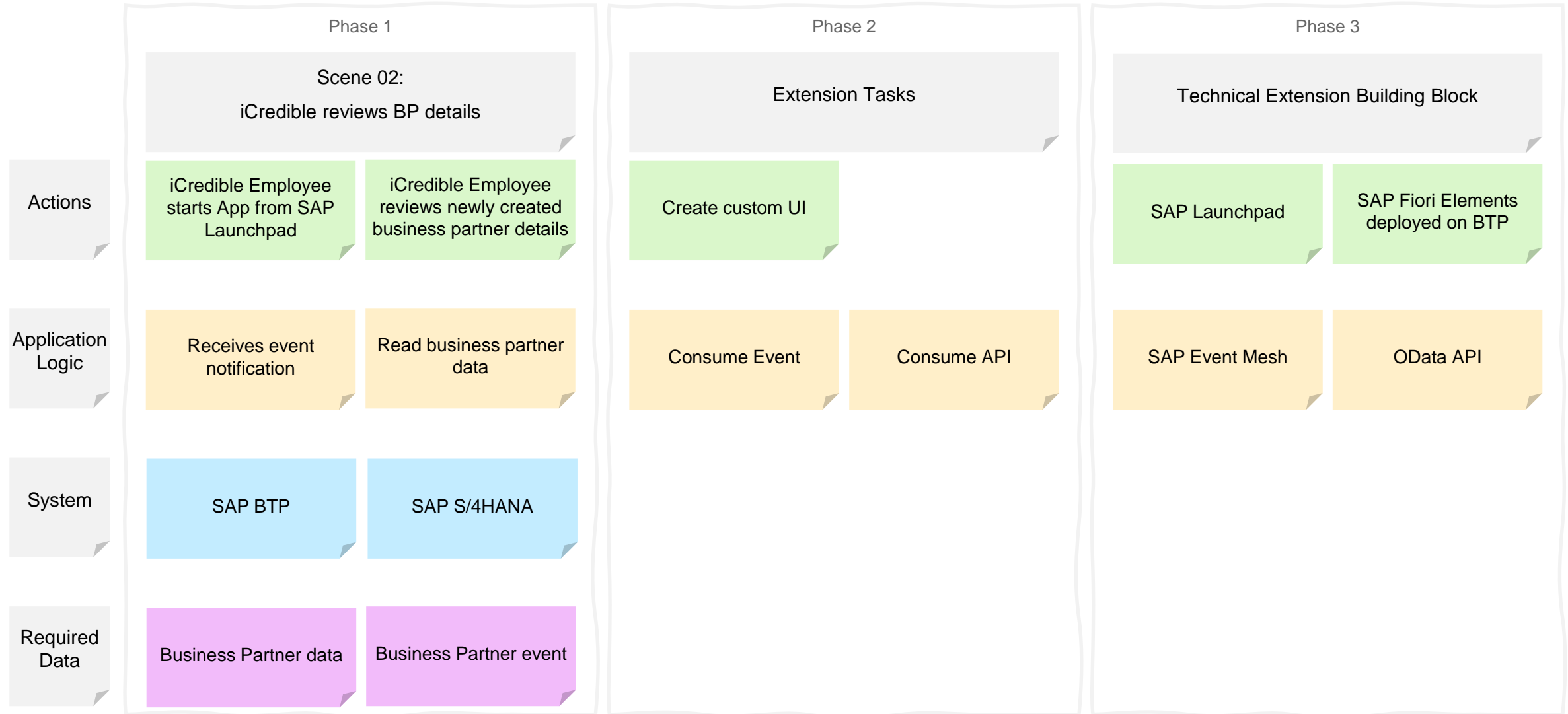


ID	Extension Style	Extension Task	Technical Extension Building Block	Guidance	Color Code
D01	Data Model Extension	Add custom field to existing business object	SAP Key-User Extensibility: Custom Fields App	<to be filled out by project team>	
			SAP Classic: Customizing Include	<to be filled out by project team>	
			SAP Classic: Append Structure	<to be filled out by project team>	
			SAP Classic: Extension Include	<to be filled out by project team>	
			SAP Classic: Table Modification	<to be filled out by project team>	

Color Code	Description
	<to be filled out by project team>
	<to be filled out by project team>
	<to be filled out by project team>

# Use Case: External Business Partner Validation

## Scene 02 – Phase 1, Phase 2 and Phase 3





# Join the Application SAP Application Extension Methodology version 2.0

Product Information



Marco Matha 

April 5, 2022 | 2 minute read

## Introducing SAP Application Extension Methodology version 2.0

2 39 5,140

I am pleased to announce the availability of the SAP Application Extension Methodology version 2.0. With this update we made some significant changes. In this blog, I would like to give you an overview about the methodology and the changes.

### Motivation

Extensibility is a key capability, because it allows customers and partners to differentiate their business processes and develop extension applications on top of existing standard functionality.

If you face complex challenges like "clean core", "cloud readiness" and "future proof" concepts, it becomes almost imperative to come up with a custom-tailored extension strategy for your organization.

### Next Steps:

You can learn more about the SAP Application Extension Methodology on the [SAP Help Portal](#).

Please request access to our community via e-mail to [sapaem@sap.com](mailto:sapaem@sap.com) and you will be invited to join.

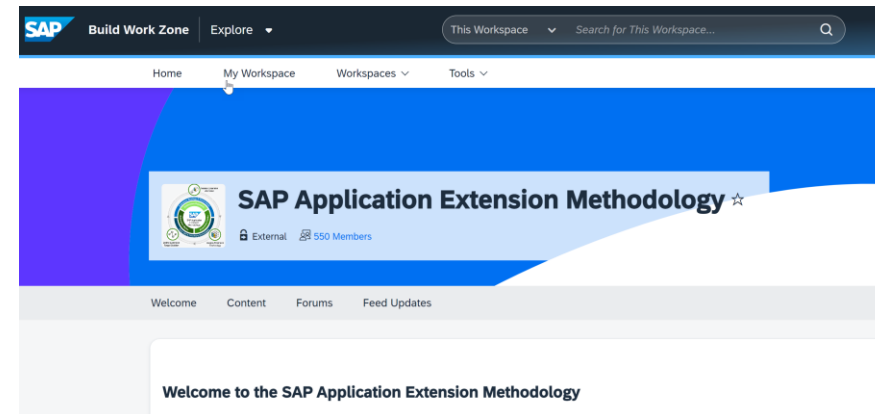
Feel free to like, comment and ask your questions!

Talk to you soon,

Marco

Product Manager SAP Business Technology Platform

Join me online: <https://www.linkedin.com/in/marcomatha/>



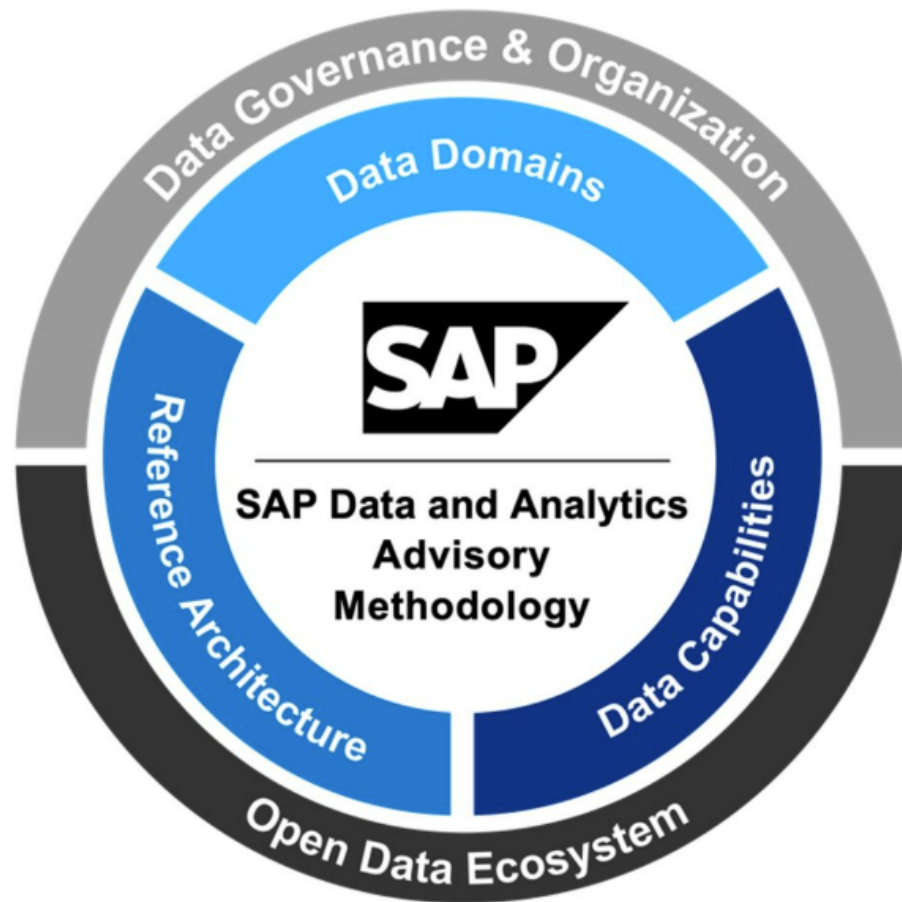
Microsoft Excel  
Worksheet

<https://blogs.sap.com/2022/04/05/introducing-sap-application-extension-methodology-version-2.0/>



**SAP Integration Solution Advisory Methodology**  
[Learn more](#)

[SAP Integration Solution Advisory Methodology: Template version 4.0 available now | SAP Blogs](#)



**SAP Data and Analytics Advisory Methodology**  
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<https://blogs.sap.com/2022/04/05/introducing-sap-application-extension-methodology-version-2.0/>

# Extension Target Solution Diagrams & Icons

Phase 3: Define Extension Target Solution

Extension  
Technology  
per Extension  
Task

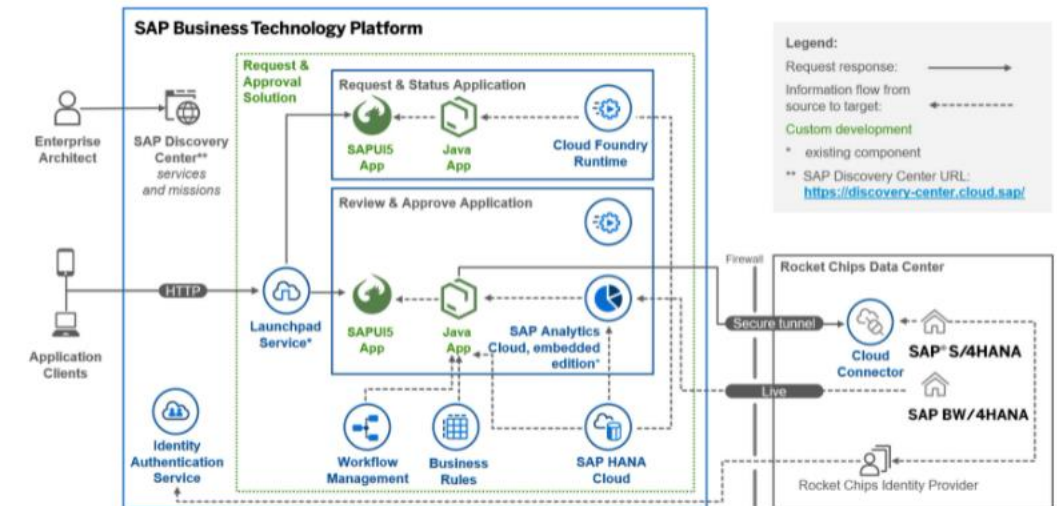
Decision  
Guidance  
Assets

Extension  
Target  
Solution

## SAP Business Technology Platform Solution Diagrams & Icons

- With the official set of icons, design guidelines and sample diagrams you can create your own SAP Business Technology Platform solution diagrams using MS PowerPoint. They are intended to reach a better and faster understanding of SAP Business Technology Platform end-to-end solution scenarios as customer, partner, client, solution architect, project lead or developer by using graphical diagrams for visual learning.

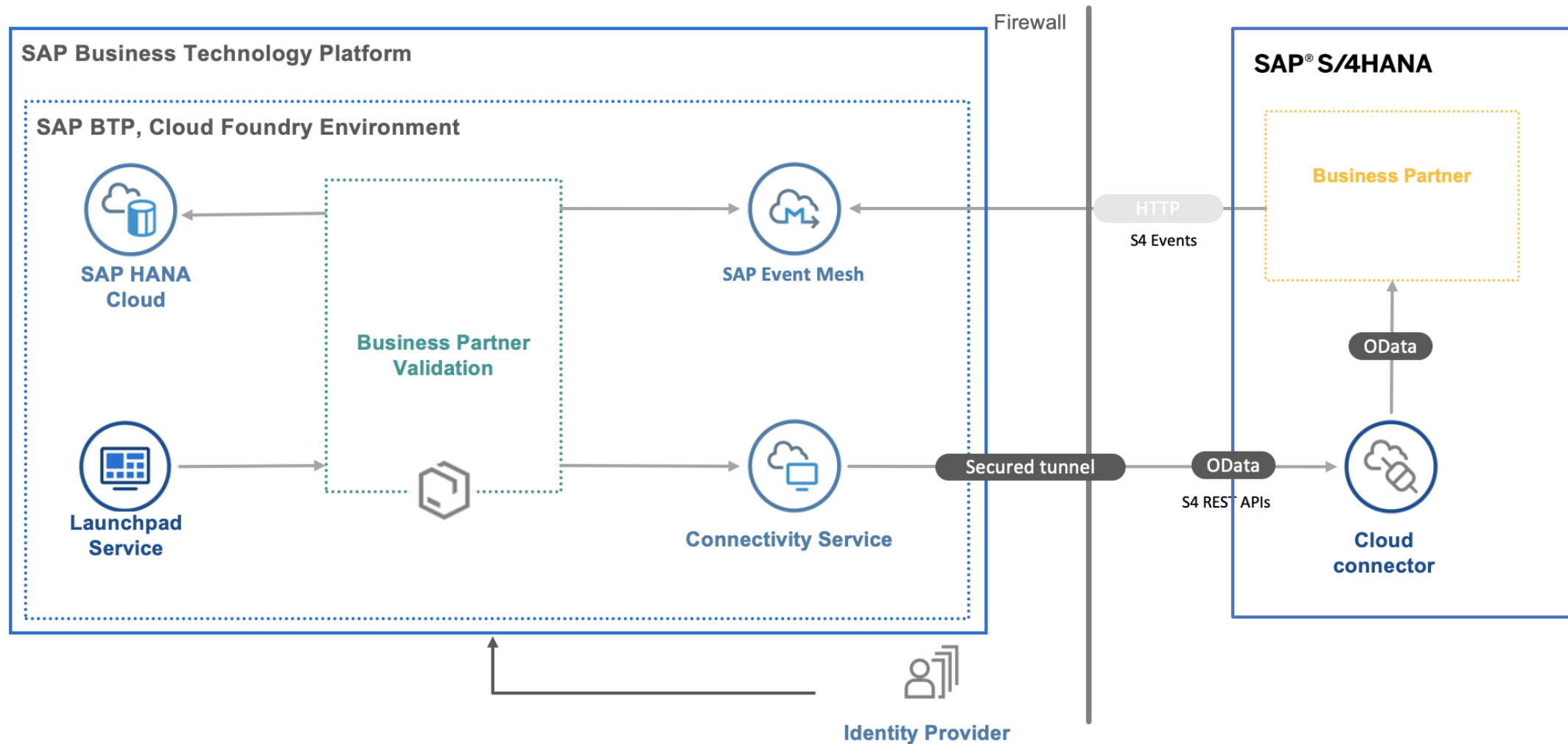
- <https://blogs.sap.com/2018/01/05/be-visual-use-official-icons-and-samples-for-sap-cloud-platform-solution-diagrams/>



SAP Business Technology Platform - Solution Diagram example

# Use Case: External Business Partner Validation

## Extension Target Solution Diagram



# Extension Target Solution Reasoning

## Template



ID	Extension Style	Extension Task	Technical Extension Building Block	Reasoning
<id>	<extension style>	<Which extension task has been chosen>	<Which technical extension building block has been chosen>	<to be filled out by project team>

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