

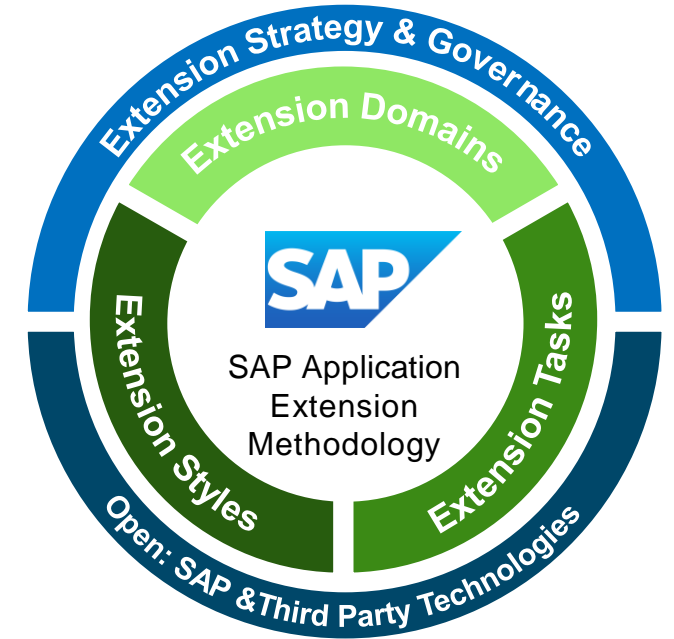
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SAP Application Extension Methodology



0

Overview

1

Assess
Extension
Use Case

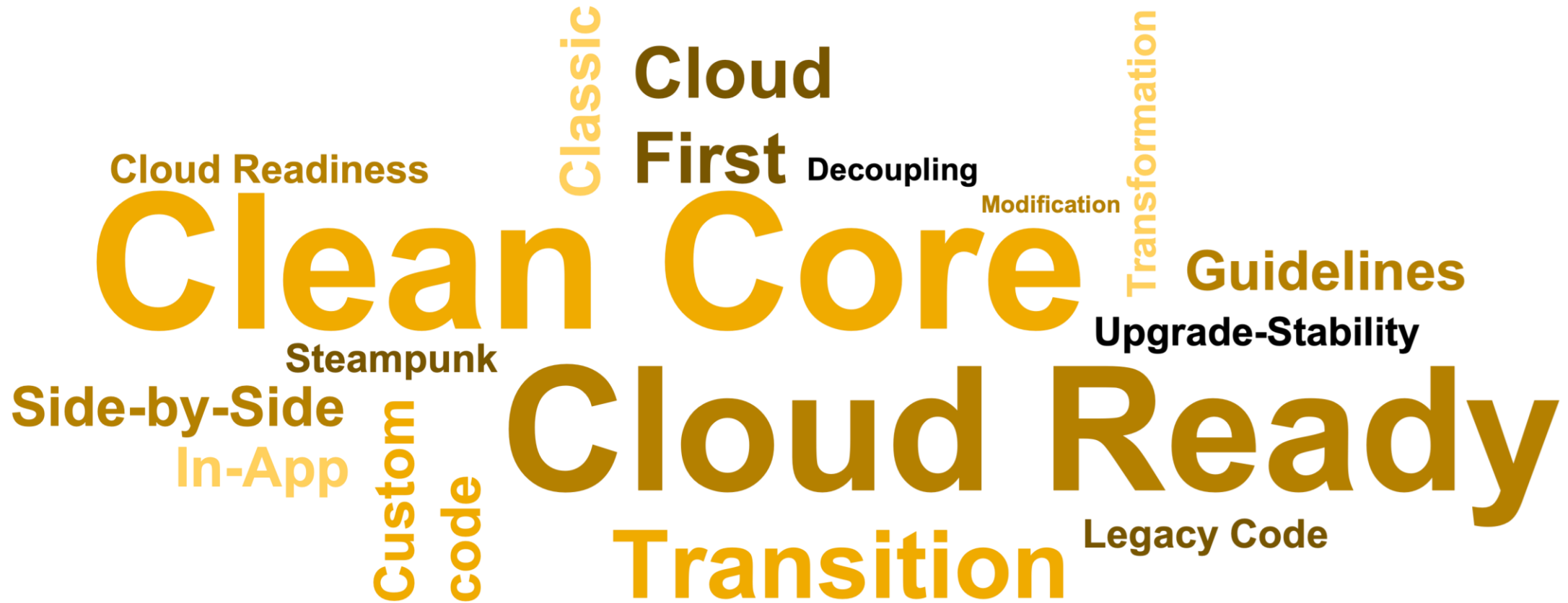
2

Assess
Extension
Technology

3

Define
Extension
Target
Solution

Customer Challenge



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

Cloud Readiness

Classic

Cloud First

Decoupling

Modification

Transformation

Guidelines

Upgrade-Stability

Steampunk

Side-by-Side

In-App

Custom code

Clean Core

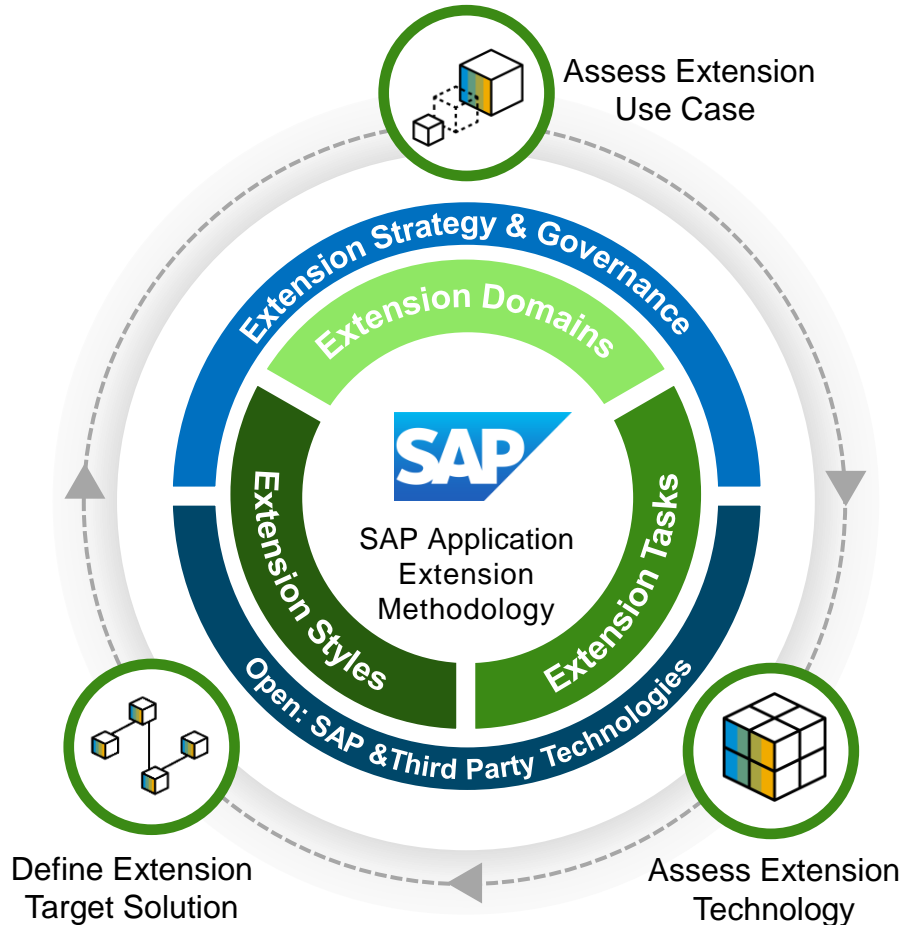
Cloud Ready

Transition

Legacy Code

SAP Application Extension Methodology

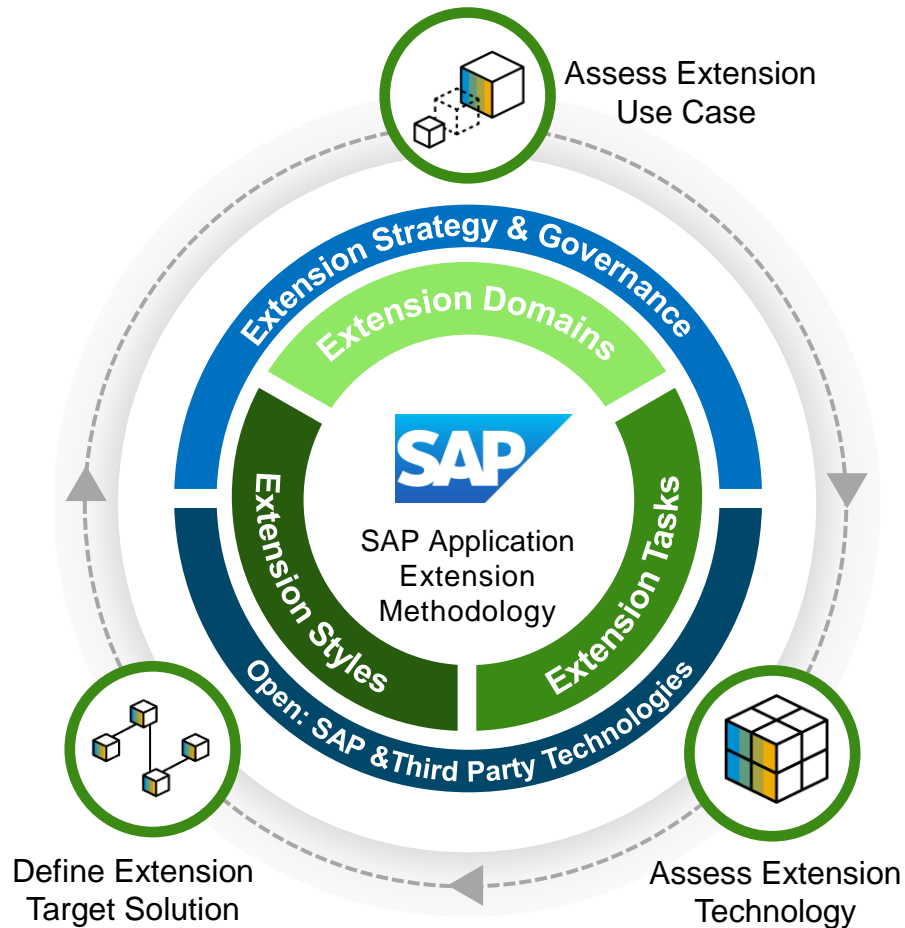
Goal & Outcome



- **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



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

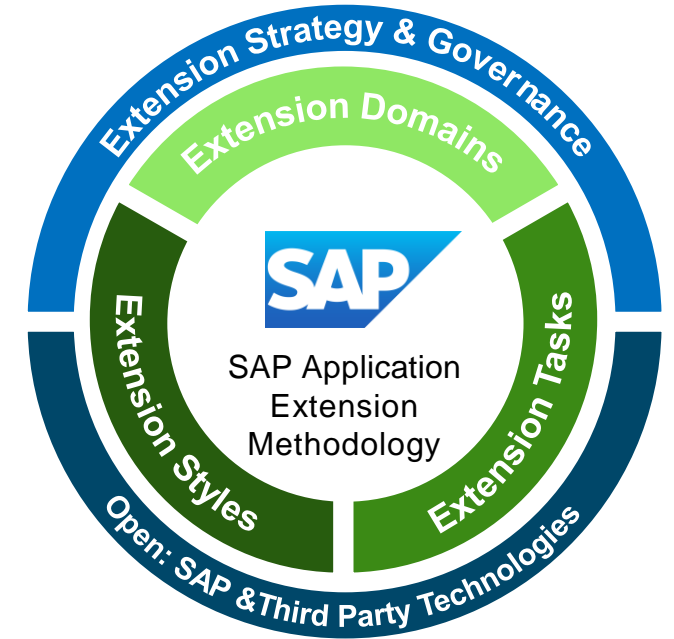
Phase 3: Define Extension Target Solution

Extension
Technology per
Extension Task

Decision
Guidance
Assets

Extension
Target Solution

SAP Application Extension Methodology



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Phase 1: Assess Extension Use Case



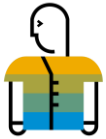
Description:

In this phase you lay the foundation for any extension application use case based on the business context and requirements in a defined area (corporate function, domain, ...) while considering the system context of the respective area.

Involved Persona:



Enterprise Architect



Domain Architect



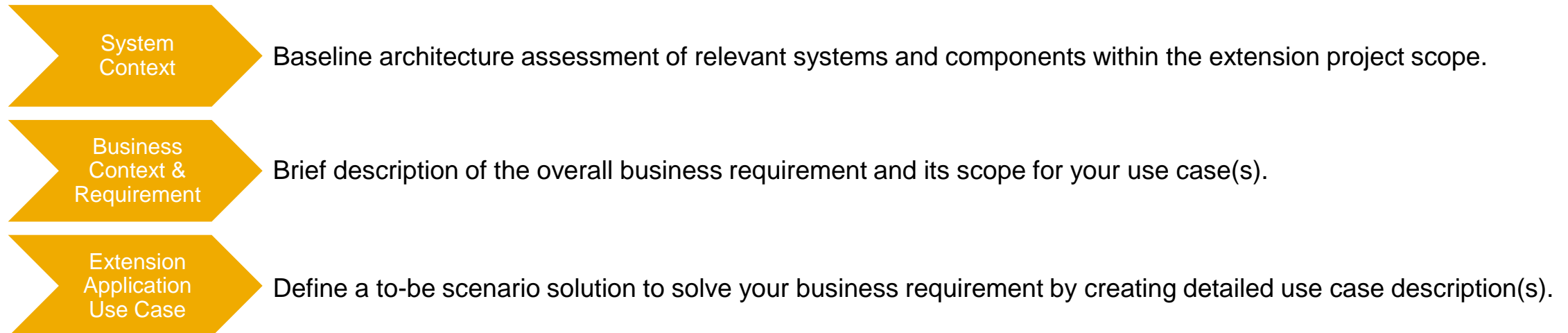
Business User

Goal:

- Understand system context
- Described detailed Extension Application Use Case Description(s)

Deliverables:

- System Context
- Business Context & Requirement(s)
- Extension Application Use Case Description(s)



Extension Application Use Case Description Template



	Extension Name	Business Context	Contributor and Role	Volumetrics	...	Scene description
Actions <ul style="list-style-type: none"> Description of visualization and interaction What actions does the user perform in which User Interface? 						
Application Logic <ul style="list-style-type: none"> What existing process needs to be extended? How does the extension work together with existing process application logic? What application logic needs to happen within this extension? 						
System <ul style="list-style-type: none"> Description of existing systems. Needs to be mapped to system context. How does the extension work together with existing systems? 						
Required Data <ul style="list-style-type: none"> Description of required data for the extension. Which data is from the core system? Where is the data for the extension created and stored? Is there a need for a data persistence in the core solution? 						

Extension Application Use Case Scene

Template



	Scene 01:		Scene 02:		Scene 03:		Scene 04:	
Actions								
Application Logic								
System								
Required Data								

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.

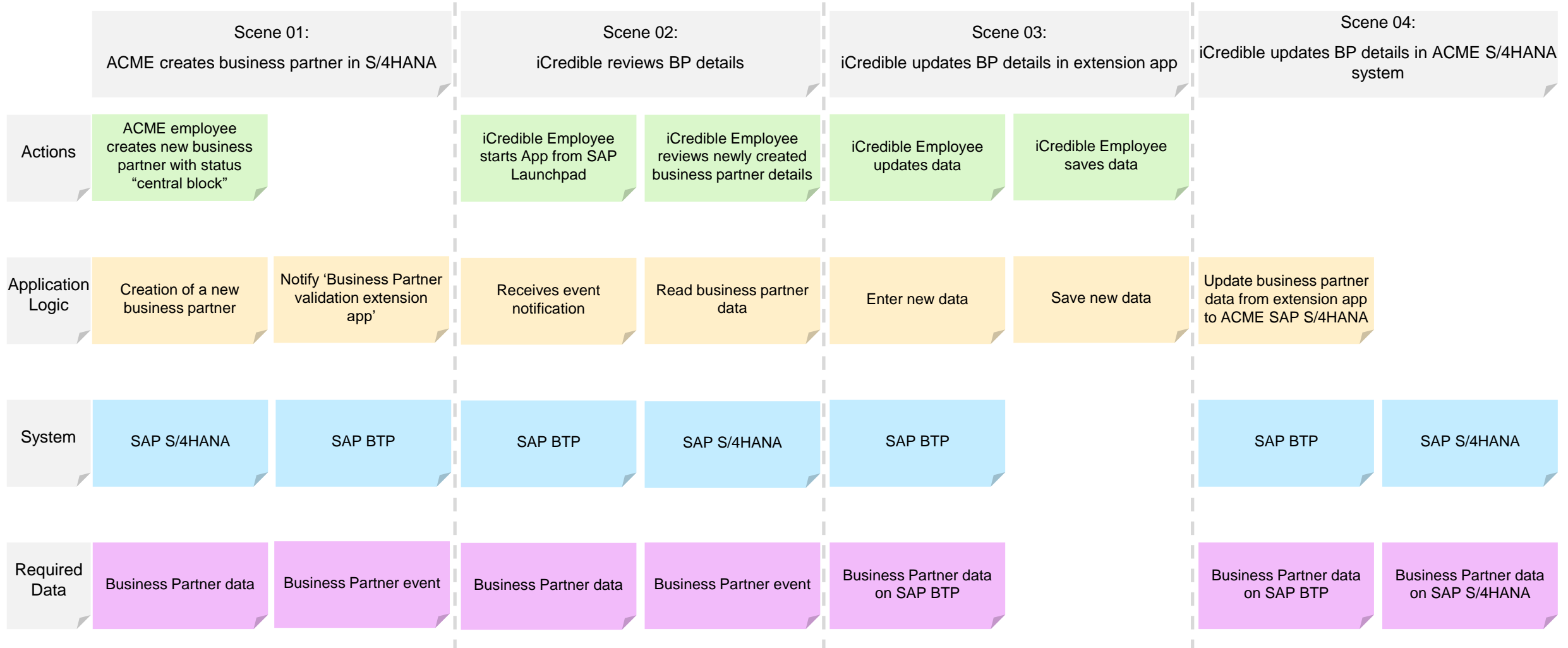


How To Use

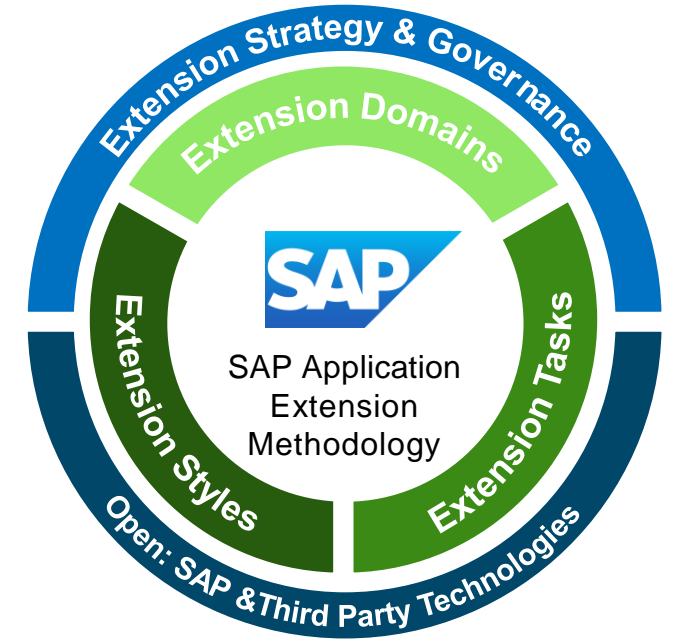
Find out which systems are involved. Learn about the business context and requirement. Structure the use case into different scenes. Check Discovery Center for services. Translate business requirements from use case and try to find matching extension tasks. For each extension task find a fitting technical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

Use Case: External Business Partner Validation

Scene 01 - 04



SAP Application Extension Methodology



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Phase 2: Assess Extension Technology



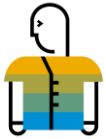
Description:

Understand Extension Styles, Extension Tasks and get an overview about possible Technical Extension Building Blocks. These will help you to translate the business requirements into technical requirements.

Involved Persona:



Enterprise Architect



Domain Architect

Goal:

- Understand and map Extension Styles, Extension Tasks to the use case
- Get an understanding about the available Technical Extension Building Blocks

Deliverables:

- Extension Tasks
- Indication of extension technology mapping

Extension Styles

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

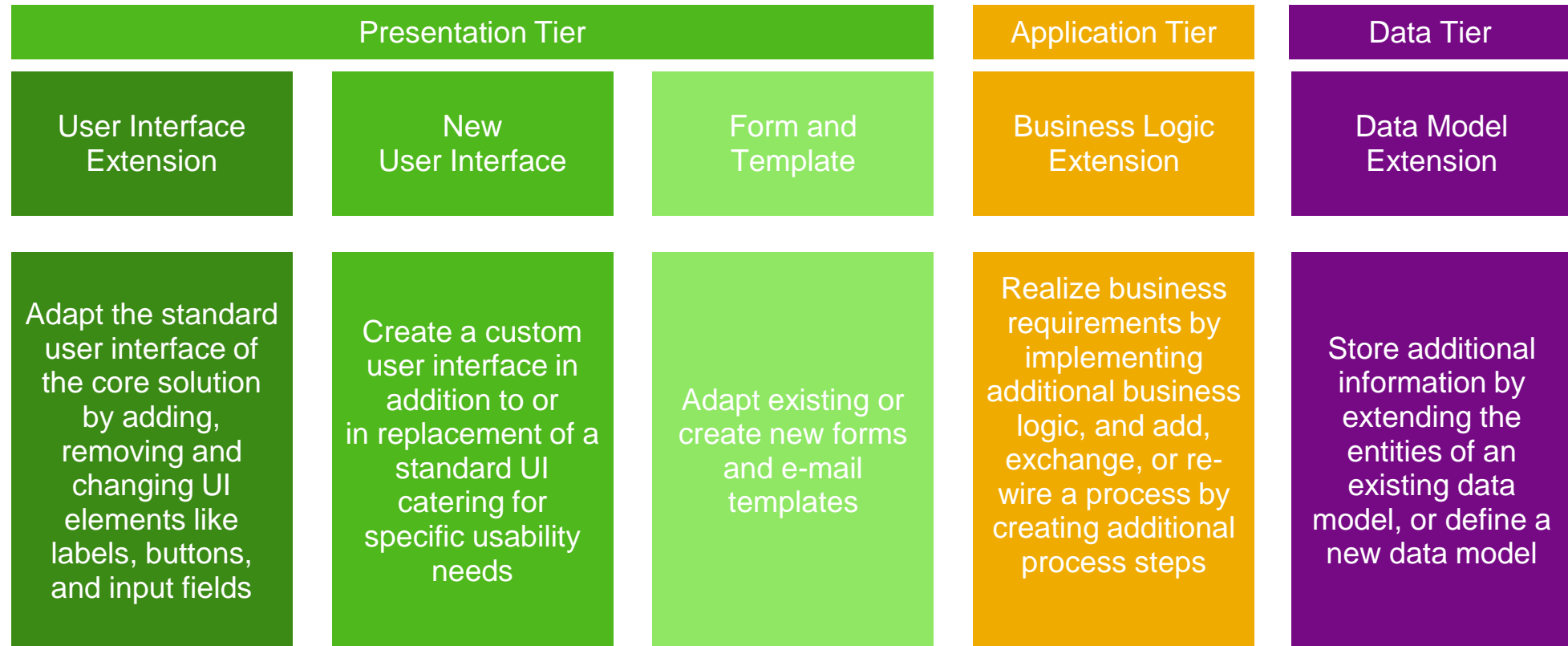
Extension Task

Describe technology agnostic extension task to solve a specific part of your extension use case description. Extension Tasks can be categorized in Extension Styles.

Extension Technology Mapping

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.

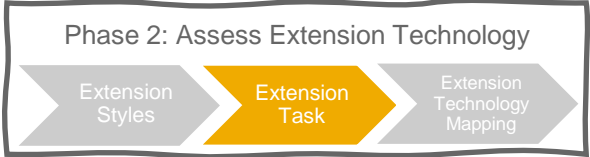
Extension Styles



Explanation

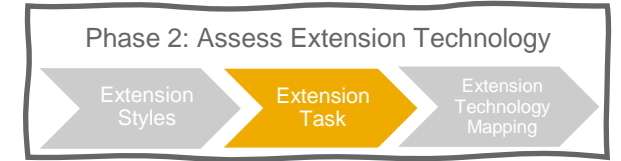
Extension Styles frame the overall technology for building extensions and structure extension tasks. They can be categorized into the Three-Tier Architecture model: Presentation Tier, Application Tier and Data Tier.

Extension Tasks for Presentation Tier



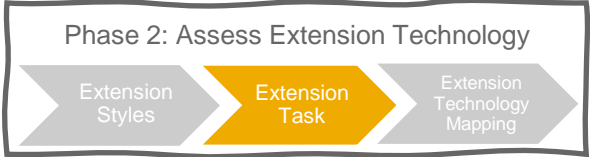
ID	Extension Style	Extension Task
P01	User Interface Extension	Adapt standard UI: add/hide/create/rename/rearrange label or headlines
P02	User Interface Extension	Add custom field to standard UI
P03	New User Interface	Create custom UI
P04	Form and Template	Create custom form templates based on standard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

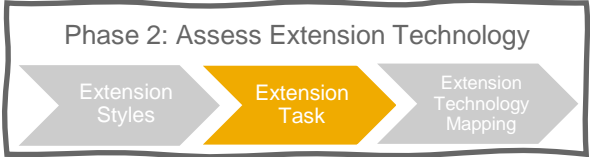
Extension Tasks for Data Tier



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

Extension Task Mapping

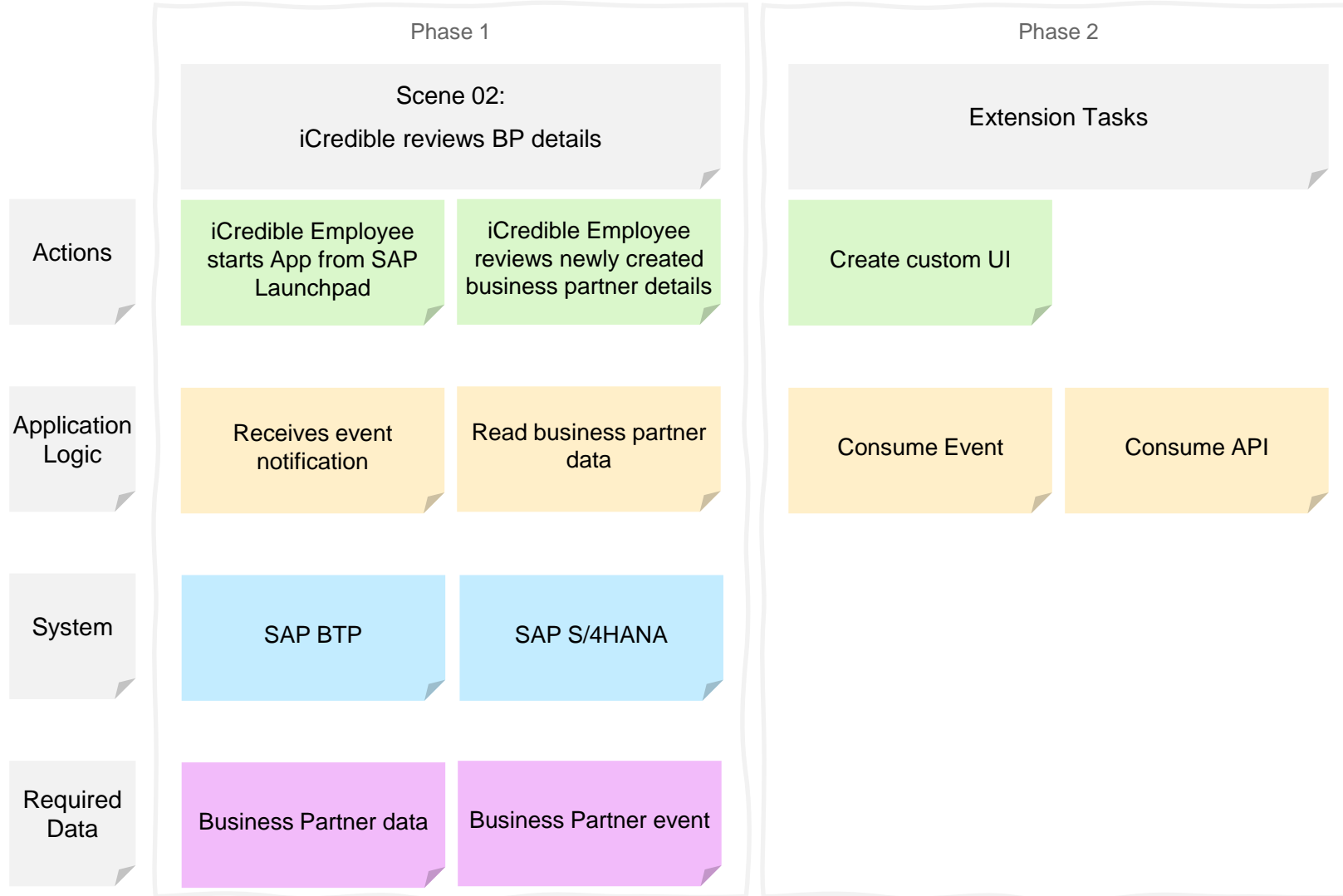
Template



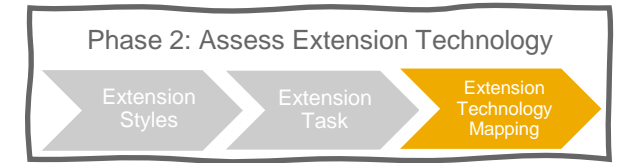
	Phase 1		Phase 2	
	Scene 01:		Extension Tasks	
Actions				
Application Logic				
System				
Required Data				

Use Case: External Business Partner Validation

Scene 02 – Phase 1 and Phase 2

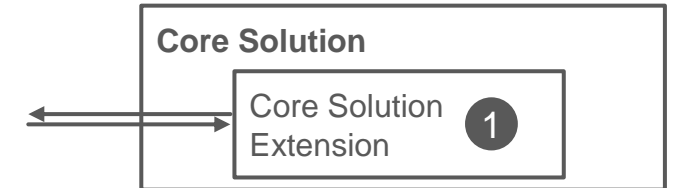


Extension Domain

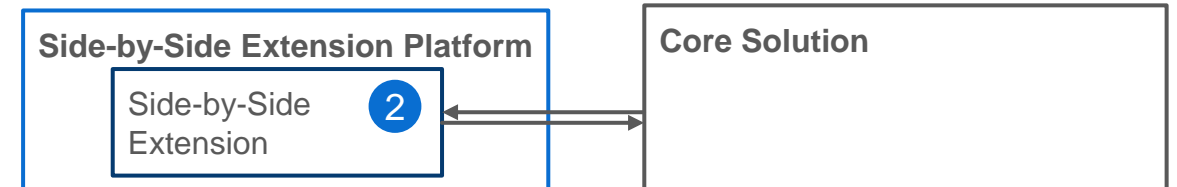


- An Extension Domain describes the “location” of the Technical Extension Building Block and explains where it “runs”

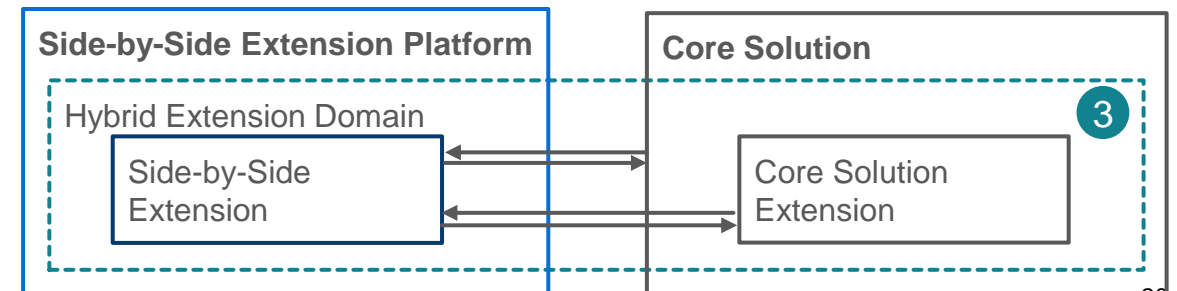
- 1 Core Solution Extension Domain:
Running on the same technology stack as the core solution
(Example: SAP S/4HANA Cloud)



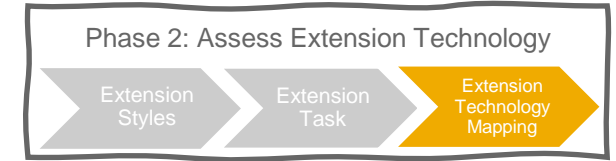
- 2 Side-by-Side Extension Domain:
Using extensibility capabilities outside the core solution based on standard APIs/events
(Example: SAP Business Technology Platform)



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



Extension Technology Mapping

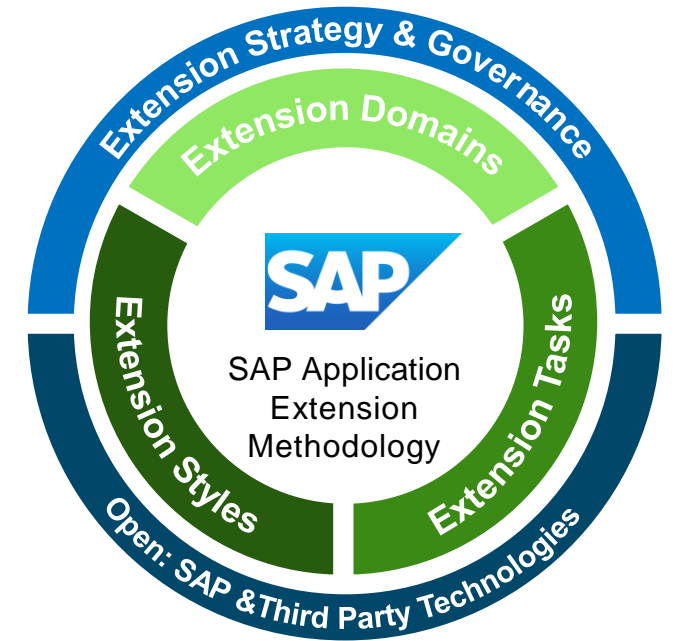


- The extension technology mapping outlines the relationship between Extension Task and Technical Extension Building Blocks.
- Extension Tasks can be implemented by using one or more Technical Extension Building Blocks.
- A Technical Extension Building Blocks can be categorized into Extension Domains 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	SAP Fiori Elements deployed on S/4HANA
			Core	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

SAP Application Extension Methodology



0

Overview

1

Assess
Extension
Use Case

2

Assess
Extension
Technology

3

Define
Extension
Target
Solution

Phase 3: Define Extension Target Solution



Description:

Based on the overall requirements and the Technology Mapping in the previous phase, you can decide on Technical Extension Building Blocks to create your target solution.

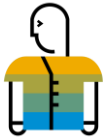
Goal:

Created Extension Target Solution e.g., as a diagram

Involved Persona:



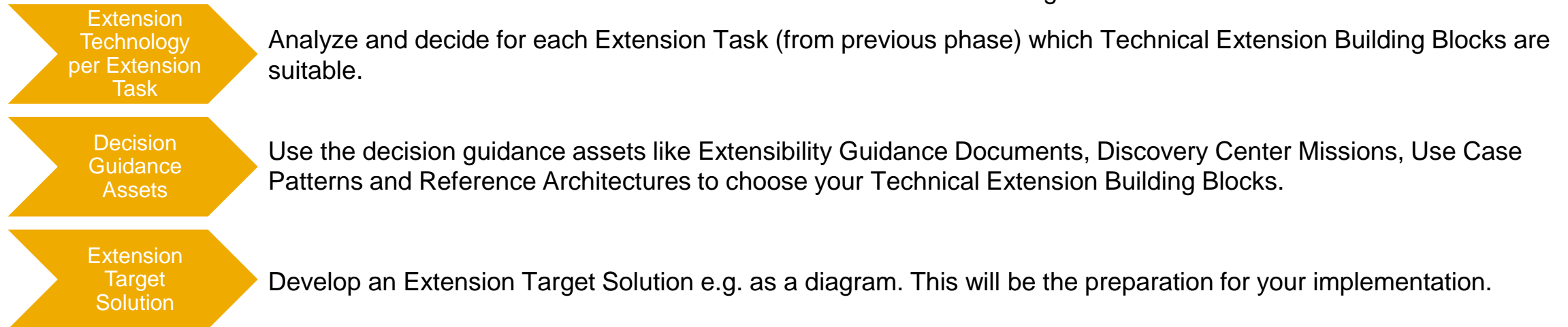
Enterprise Architect



Domain Architect

Deliverables:

- Extension Tasks Guidance
- Decision on Technical Extension Building Blocks
- Extension Target Solution Reasoning
- 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>

Extension Technology per Extension Task Mapping

Template



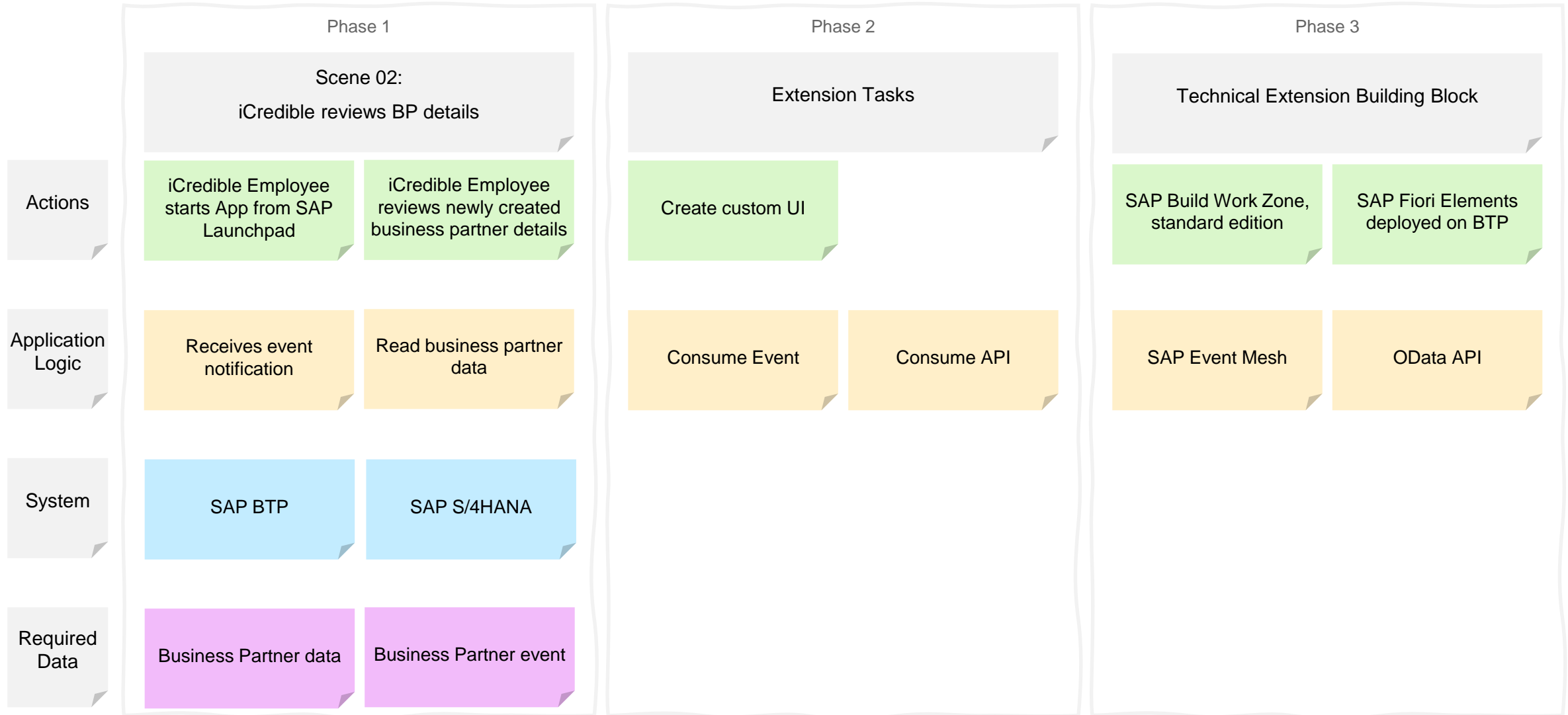
	Phase 1	Phase 2	Phase 3
	Scene 01:	Extension Tasks	Technical Extension Building Block
Actions			
Application Logic			
System			
Required Data			

Extension Technology Mapping: Create custom UI

	A	B	C	D	E
1	Three-Tier Architecture	Extension Style	Extension Task	Extension Domain	Technical Extension Building Block
12	Presentation tier	New User Interface	Create custom UI	Core	SAP Classic Dynpro
13				Core	SAP WebDynpro ABAP
14				Side-by-Side	SAPUI5 Freestyle deployed on BTP
15				Core	SAPUI5 Freestyle deployed on SAP S/4HANA
16				Side-by-Side	SAP Fiori Elements deployed on BTP
17				Core	SAP Fiori Elements deployed on SAP S/4HANA
18				Side-by-Side	SAP Mobile Services based UI
19				Side-by-Side	SAP Build Work Zone
20				Side-by-Side	SAP Task Center
21				Side-by-Side	Rapid Application Development by Mendix
22				Side-by-Side	SAP Build Apps
23				Core	SAP Key-User Extensibility: Analytical UIs

Use Case: External Business Partner Validation

Scene 02 – Phase 1, Phase 2 and Phase 3



Decision Guidance Assets for SAP S/4HANA



Type	Name
Guidance Paper	<u>Custom Extension in SAP S/4HANA Implementations</u> <u>Extend SAP S/4HANA in the cloud and on premise with ABAP based extensions</u>
SAP API Business Hub	<u>Developer Extensibility</u>
Missions	<u>SAP Discovery Center Missions</u>
Blog	<u>SAP S/4HANA Extensibility: A Learning Journey</u> <u>Embedded Steampunk</u>
Use Cases	<u>SAP BTP Use Cases</u>
SAP Help Portal	<u>Extend and Integrate Your SAP S/4HANA</u>

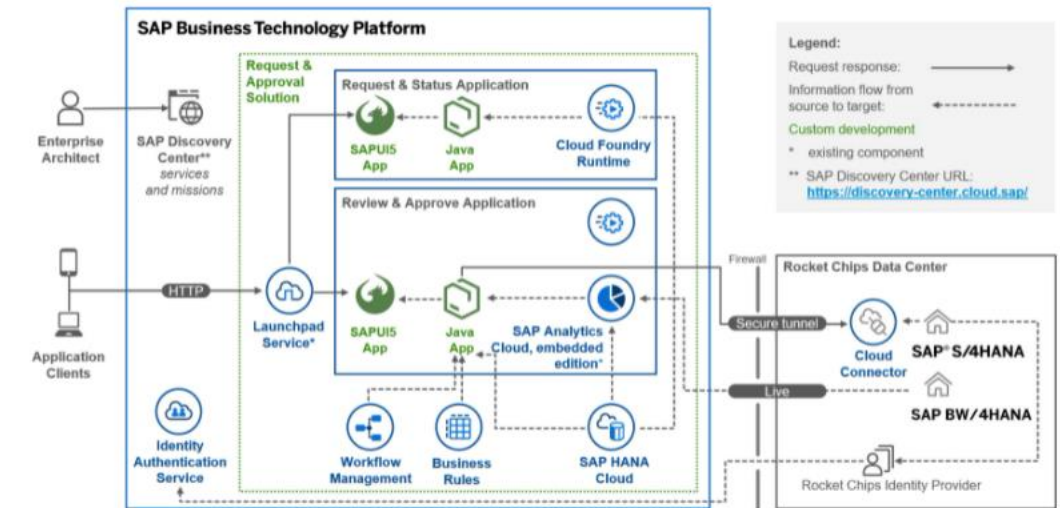
Extension Target Solution Diagrams & Icons



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.

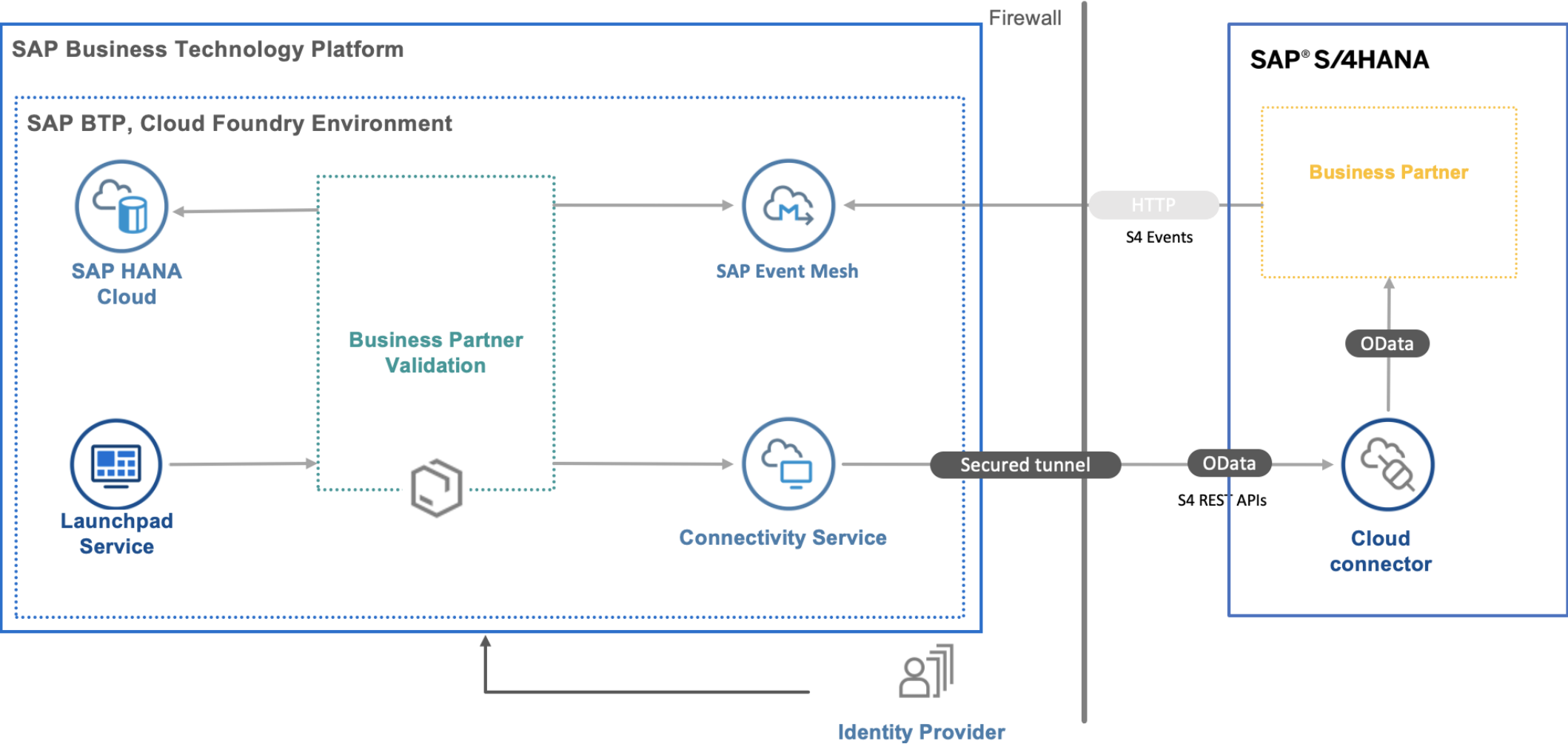
- <https://blogs.sap.com/2018/01/05/be-visual-use-official-icons-and-samples-for-sap-cloud-platform-solution-diagrams/>



SAP Business Technology Platform - Solution Diagram example

Use Case: External Business Partner Validation

Extension Target Solution Diagram



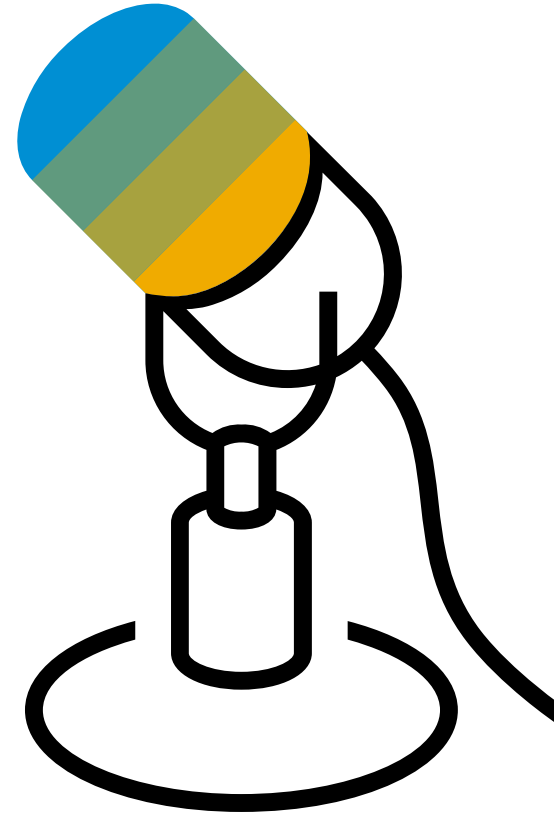
Q & A

Next Steps:

Request access to our community via e-mail:

sapaem@sap.com

Learn more on SAP Help Portal



Thank you.

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