

The last Overview you need on how to extend S/4HANA On-Premise

***as a developer**

The last Overview you need on how to extend S/4HANA On-Premise

Agenda

- For whom is this?
- So many sources!
- The gist of it
- What do i actually need as a developer?
- The Decision Guide
- Open Source Project: Extension Inspector

For whom is this?

So many sources!

Public Documents

Shoutout to Lukas Bretschneider & Lukas Käser and
their talk „[Clean Core & ABAP Cloud](#)
- [Bericht aus der Praxis](#)“ at ABAPConf2024



PUBLIC

Extend SAP S/4HANA in the cloud and on premise with ABAP based extensions

Guidelines for extension project managers, key users, and ABAP developers

VERSION 2.2 / APRIL 2024



[Link](#)



PUBLIC

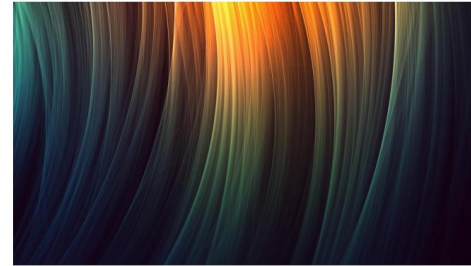
ABAP Cloud API Enablement Guidelines for SAP S/4HANA Cloud, private edition, and SAP S/4HANA

Guidelines for administrators and ABAP developers

VERSION 1.0 / MAY 2023



[Link](#)



PUBLIC

ABAP Cloud

Technical use cases and recommended technologies

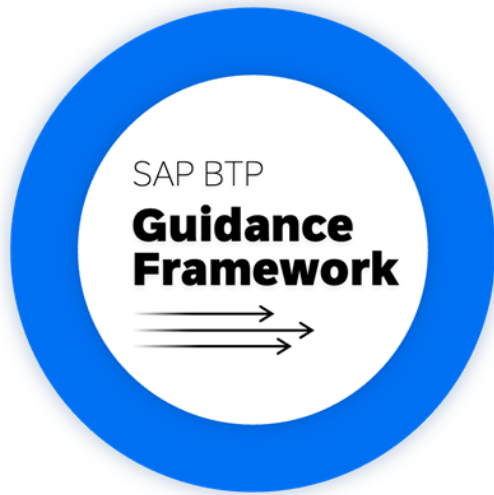
Version 1.0 / May 2023



[Link](#)

So many sources!

SAP BTP Guidance Framework



[Source](#)

Explore your compass toward architecting, developing, and operating solutions on SAP BTP. The framework comprises of the following elements:

- **Decision guides**, which help you to identify the technology option that best fits your needs.
- **Reference architectures** that allow you to explore how to architect solutions on BTP with the help of curated solution templates.
- **Methodologies**, which offer you a guided approach toward increasing your cloud technology maturity level, covering both technical and organizational aspects.
- **Recommendations** for different technology domains that help you to evaluate and choose the right implementation option.
- **DevOps** principles, which enable your development and operations teams to be more efficient.

Get started with exploring **best practices**, grow your skills with **learning and enablement** offerings for SAP BTP and engage with us at **SAP Community**.

The gist of it

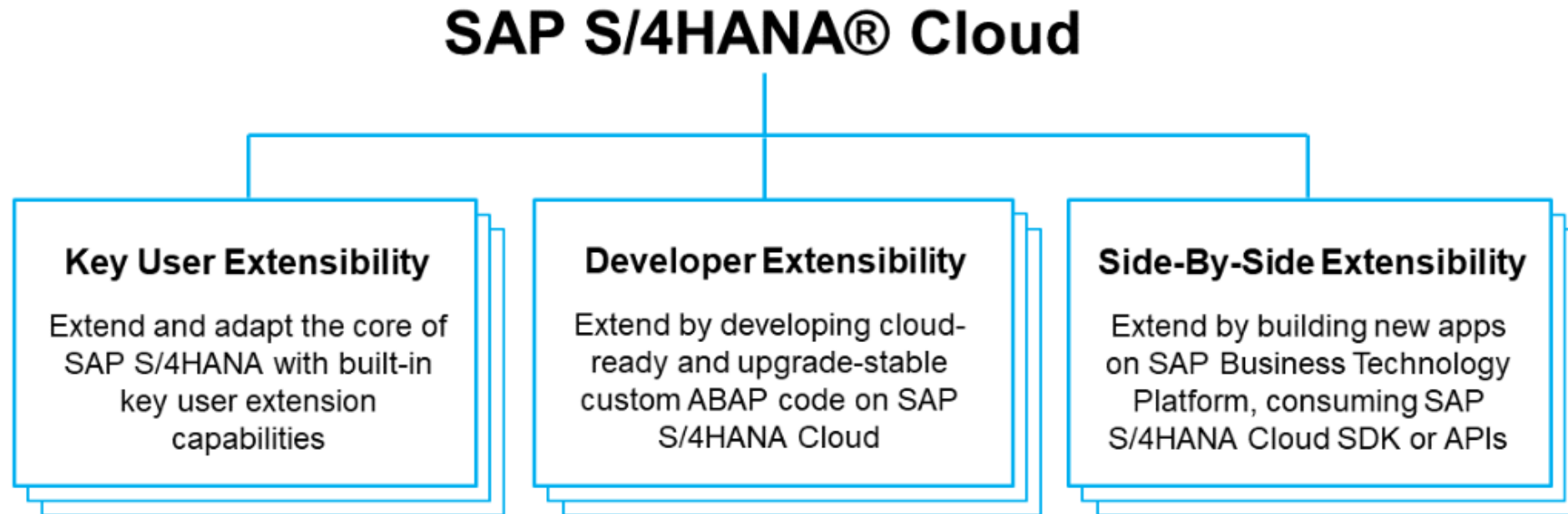
Cloud Extensibility Model

Three Tier Model

Application Extension Methodology

The gist of it

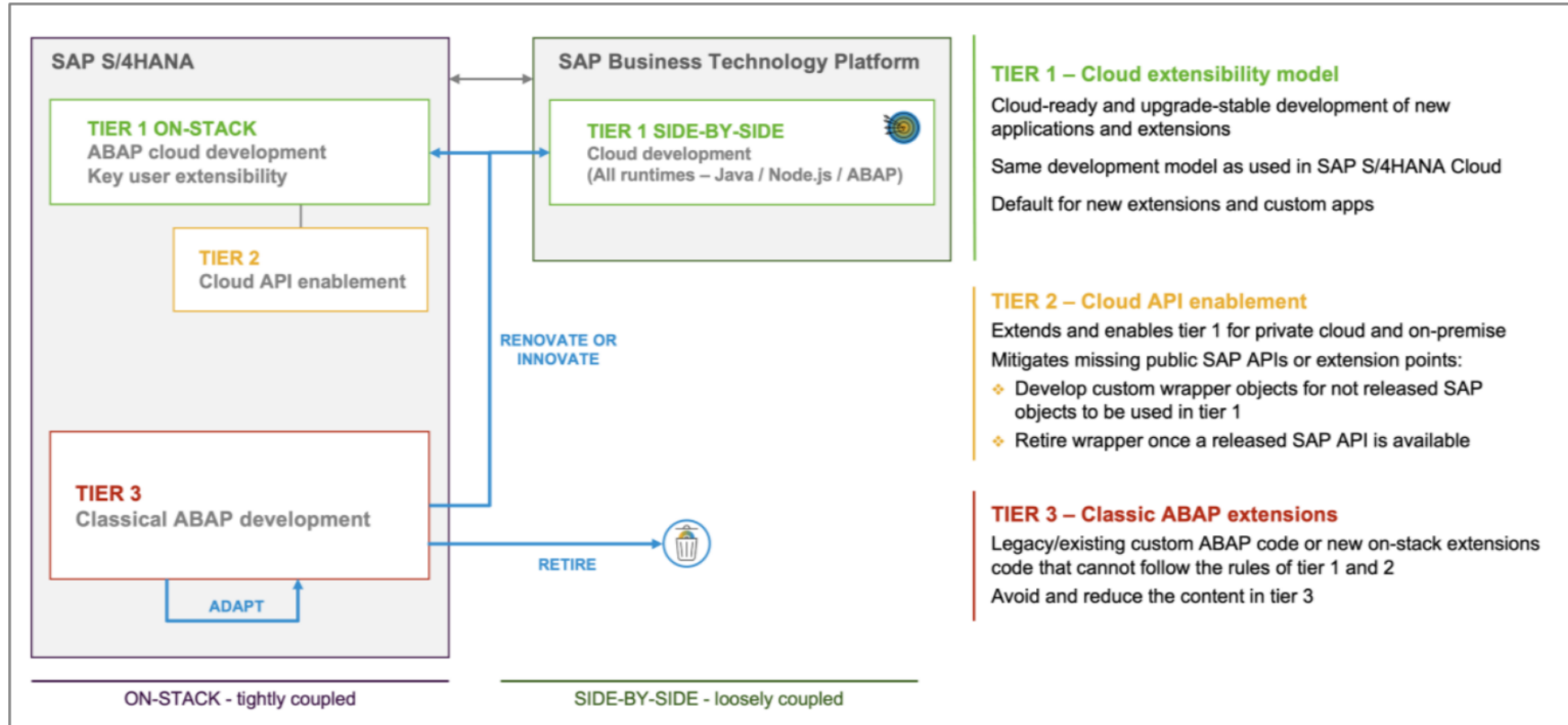
Cloud Extensibility Model



[Source](#)

The gist of it

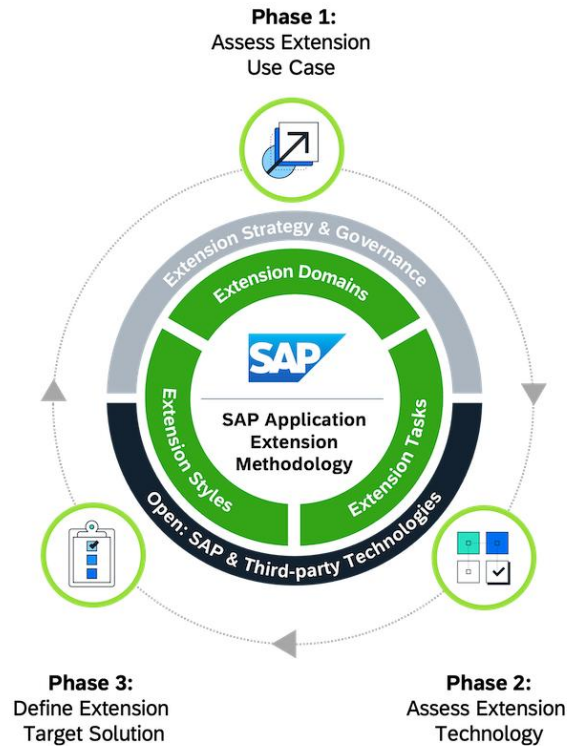
Three Tier Model



[Source](#), Figure 1.1

The gist of it

Application Extension Methodology



[Source](#)

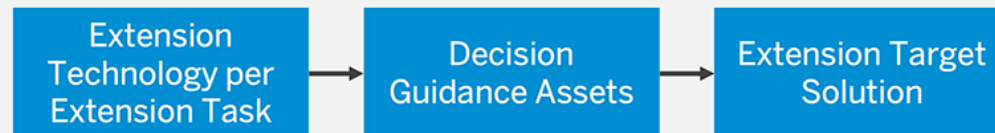
Phase 1: Assess Extension Use Case



Phase 2: Assess Extension Technology



Phase 3: Define Extension Target Solution



The gist of it

Application Extension Methodology

Three-Tier Architecture	Extension Style	Extension Task	Extension Domain	On-Stack Extension Domain	Technical Extension Building Block	Help Portal Documentation
Presentation Tier	User Interface Extension	Adapt standard UI: add/hide/create/re-name/re-arrange field/label/headlines	On-stack	Key-User Extensibility	SAPUI5 Flexibility: Key-User Adaptation	https://help.sap.com/docs/UI5_FLEXIBILITY/430e2c1a4ff241bc8162df4b51e077
			On-stack		SAPUI5 Flexibility: Developer Adaptation	https://help.sap.com/docs/UI5_FLEXIBILITY/430e2c1a4ff241bc8162df4b51e077
			On-stack		SAP Screen Personas (for Classic Dynpro, WebDynpro, Classic dynpro)	https://help.sap.com/docs/SAP_SCREEN_PERSONAS?locale=en-US
			On-stack	Classic Extensibility	Dynpro: Screen Enhancements (BAAdI)	https://help.sap.com/docs/SAP_NETWEAVER_750/46a2cfc13d25463b8b9a3d2
			On-stack	Classic Extensibility	Dynpro: Modification	https://help.sap.com/docs/ABAP_PLATFORM_NEW/9d31c01d526747e898a60
			On-stack	Classic Extensibility	WebDynpro ABAP: Screen Enhancements (BAAdI)	https://help.sap.com/docs/SAP_NETWEAVER_750/46a2cfc13d25463b8b9a3d2
	New User Interface	Create custom UI	On-stack	Classic Extensibility	WebDynpro ABAP: Modification	https://help.sap.com/doc/saphelp_nw75/7.5.5/en-US/e9/635fa6e01e11d195490
			Side-by-Side, On-stack		SAP Fiori Elements (supported floorplans)	https://experience.sap.com/fiori-design-web/smart-templates/#supported-floorp
			Side-by-Side, On-stack		SAPUI5	https://help.sap.com/viewer/product/SAPUI5/External/en-US
			Side-by-Side		UI5 Web Components	https://help.sap.com/docs/SAPUI5?version=External#discover_task-ui5-web-co
			Side-by-Side		SAP Mobile Services	https://help.sap.com/doc/f53c64b93e5140918d676b927a3cd65b/Cloud/en-US/
			Side-by-Side		SAP Build Apps	https://help.sap.com/docs/BUILD_APPS
	Create central entry point		On-stack	Classic Extensibility	Dynpro	https://help.sap.com/docs/SAP_S4HANA_ON-PREMISE/68e489816e043f1add
			On-stack	Classic Extensibility	WebDynpro ABAP	https://help.sap.com/saphelp_snc700_ehp01/helpdata/en/77/3545415ea6f523e
			Side-by-Side		SAP Build Work Zone, standard edition	https://help.sap.com/viewer/product/WZ/Cloud/en-US
			Side-by-Side		SAP Build Work Zone, advanced edition	https://help.sap.com/viewer/product/TASK_CENTER/Cloud/en-US
			Side-by-Side		SAP Task Center	https://help.sap.com/docs/start
			Side-by-Side		SAP Start	https://help.sap.com/docs/mobile-start?locale=en-US
	Form	Adapt custom form templates based on standard process	On-stack	Key-User Extensibility	SAP Mobile Start	https://help.sap.com/docs/SAP_FIORI_LAUNCHPAD?locale=en-US
			On-stack	Classic Extensibility	SAP Fiori Launchpad	https://help.sap.com/docs/ABAP_PLATFORM_NEW/30eef4341efd4a2c86f2f98f
			On-stack	Key-User Extensibility	Maintain Form Templates (Output control framework)	https://help.sap.com/docs/ABAP_PLATFORM_NEW/30eef4341efd4a2c86f2f98f
			On-stack	Classic Extensibility	Maintain Form Template (NAST based framework)	https://help.sap.com/docs/ABAP_PLATFORM_NEW/30eef4341efd4a2c86f2f98f
			Side-by-Side		SAP Forms Service by Adobe (via REST API)	https://help.sap.com/docs/forms-service-by-adobe/sap-forms-service-cf/sap-f
			On-stack	Developer Extensibility	RAP Data Services for Print Forms (via SAP Interactive Forms by Adobe)	https://help.sap.com/docs/btp/sap-business-technology-platform/rap-data-serv
	E-Mail	Adapt e-mail template based on standard process	On-stack	Classic Extensibility	Custom Print Program with custom form (via SAPScript & SAP Smart Forms)	https://help.sap.com/docs/btp/sap-business-technology-platform/rap-data-serv
			On-stack	Classic Extensibility	Custom Print Program with custom form (via SAP Interactive Forms by Adobe (IFbA))	https://help.sap.com/docs/ABAP_PLATFORM_NEW/b5670aaaa2364a29935f40
			On-stack	Key-User Extensibility	Maintain E-Mail Template (Output control framework)	https://help.sap.com/docs/ABAP_PLATFORM_NEW/b5670aaaa2364a29935f40
			On-stack	Classic Extensibility	Adapt E-Mail Template (NAST based framework)	https://help.sap.com/docs/ABAP_PLATFORM_NEW/b5670aaaa2364a29935f40
			Side-by-Side		Create E-Mail with Reuse-components of SAP Cloud SDK	https://sap.github.io/cloud-sdk/docs/js/features/mail-client
			Side-by-Side		ABAP Environment: Create E-Mail with Reuse-Components of ABAP Cloud	https://help.sap.com/docs/btp/sap-business-technology-platform/integration-an
		Add custom field to UI service	On-stack	Developer Extensibility	Create E-Mail with Reuse-Components of ABAP Cloud	https://help.sap.com/docs/btp/sap-business-technology-platform/integration-an
			On-stack	Key-User Extensibility	Custom Fields App	https://help.sap.com/docs/btp/sap-business-technology-platform/integration-an
			On-stack	Classic Extensibility	Dynpro: Screen Enhancements (BAAdI) (add field for Dynpro UI)	https://help.sap.com/docs/btp/sap-business-technology-platform/integration-an
			On-stack	Key-User Extensibility	Custom Fields App	https://help.sap.com/docs/SAP_S4HANA_CLOUD/0f69f8b28ac4b4f48d2b57b96
			On-stack	Developer Extensibility	Extend CDS view (C0 released) as basis of remote API with new field	https://help.sap.com/docs/SAP_S4HANA_CLOUD/0f69f8b28ac4b4f48d2b57b96
			On-stack	Developer Extensibility	Custom Logic App (BAAdIs)	https://help.sap.com/docs/SAP_S4HANA_CLOUD/0f69f8b28ac4b4f48d2b57b96
	Adapt standard business process with custom logic (e.g. pre-fill/validate field, within LUW - Logical Unit of Work)		On-stack	Developer Extensibility	ABAP BAAdIs (released for use in cloud development)	https://api.sap.com/products/SAPS4HANACloud/developerextensibility/badi
			On-stack	Classic Extensibility	ABAP BAAdIs (SE18/SE19)	https://help.sap.com/doc/saphelp_nw75/7.5.5/en-US/ee/6f3b42ea85b26be1000
			On-stack	Classic Extensibility	User Exits (SMOD / CMOD, Customer Exits)	https://help.sap.com/doc/saphelp_nw75/7.5.5/en-US/ee/6f3b42ea85b26be1000
			On-stack	Classic Extensibility	Modification	https://help.sap.com/doc/saphelp_nw75/7.5.5/en-US/ee/6f3b42ea85b26be1000
			Side-by-Side		CAP in SAP BTP Cloud Foundry Environment	https://help.sap.com/products/BTP/65de2977205c403bbc107264b8eccf4b/9c70
			Side-by-Side		ABAP Cloud in SAP BTP ABAP Environment	https://help.sap.com/products/BTP/65de2977205c403bbc107264b8eccf4b/11d6
	Create application logic		Side-by-Side		CAP in SAP BTP Kyma (Container)	https://help.sap.com/products/BTP/65de2977205c403bbc107264b8eccf4b/468c
			Side-by-Side		SAP BTP Kyma (Serverless)	https://kyma-project.io/#serverless-manager/user/README
			Side-by-Side		SAP Build Apps	https://help.sap.com/docs/build-apps?locale=en-US
			Side-by-Side		SAP Build Process Automation	https://help.sap.com/docs/build-apps?locale=en-US
			Side-by-Side		<various SAP BTP Services>	https://help.sap.com/viewer/product/PROCESS_AUTOMATION/Cloud/en-US
			On-stack	Developer Extensibility	ABAP Cloud in SAP S/4HANA	https://discovery-center.cloud.sap/viewServices/?category=all&regions=all&pro
			On-stack	Classic Extensibility	Classic ABAP	https://discovery-center.cloud.sap/viewServices/?category=all&regions=all&pro
			Side-by-Side		QData III Service based on custom entities using CAP	https://discovery-center.cloud.sap/viewServices/?category=all&regions=all&pro
			Side-by-Side		QData III Service based on custom entities using CAP	https://discovery-center.cloud.sap/viewServices/?category=all&regions=all&pro
			Side-by-Side		QData III Service based on custom entities using CAP	https://discovery-center.cloud.sap/viewServices/?category=all&regions=all&pro
			Side-by-Side		QData III Service based on custom entities using CAP	https://discovery-center.cloud.sap/viewServices/?category=all&regions=all&pro
			Side-by-Side		QData III Service based on custom entities using CAP	https://discovery-center.cloud.sap/viewServices/?category=all&regions=all&pro

[Source](#)

The gist of it

Application Extension Methodology

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>

[Source](#)

The gist of it

Application Extension Methodology

Requirement: Create a simple ToDo-List app.

Extension Style	Extension Task	Building Block	Reasoning
Data Model Extension	Create persistence	Custom Table	...
Business Logic Extension	Create API	RAP-based Odata	...
New User Interface	Create custom UI	SAP Fiori App	...

**What do i actually need
as a developer?**

What do i actually need as a developer?

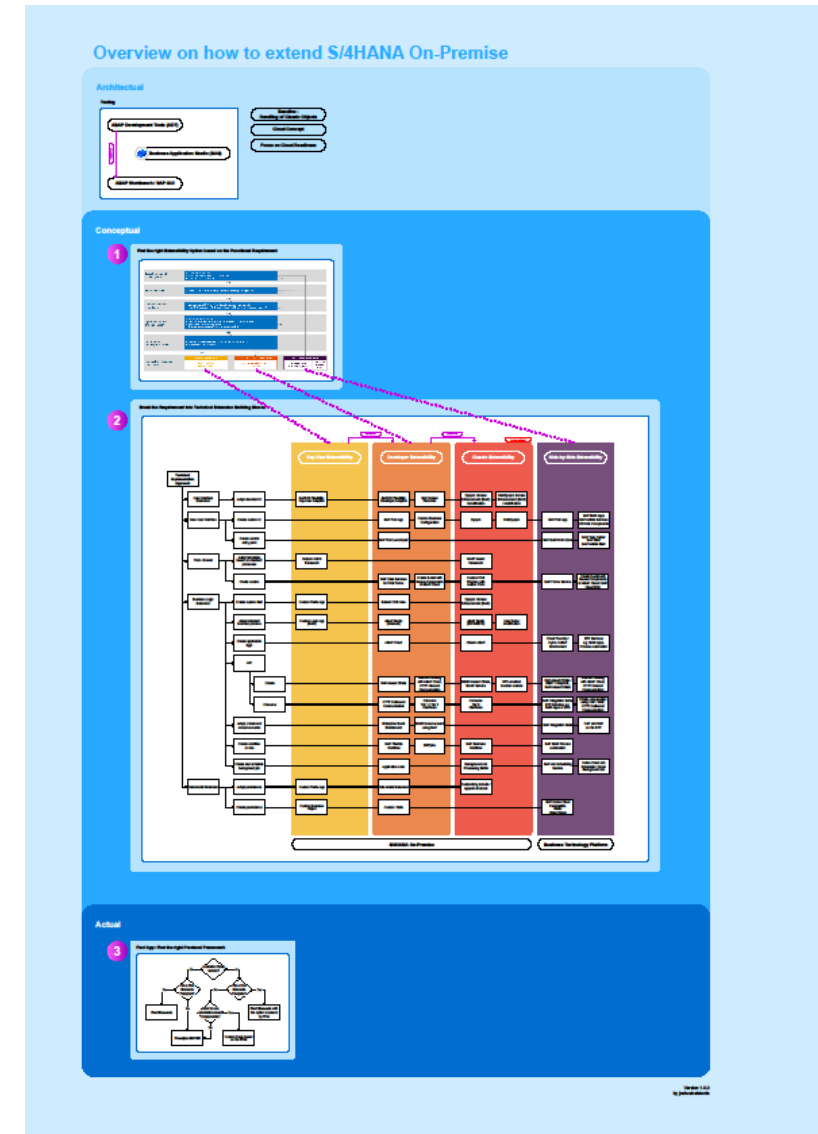
... to efficiently and effectively analyse and break down a requirement into workable building blocks

- A good understanding of the extensibility model and its options
- An actual well formulated functional requirement
- An unified and structured way handle most functional requirements

The Decision Guide

Overview on how to extend S/4HANA On-Premise

<https://github.com/joshuaheislerde/overview-on-how-to-extend-s4hana-on-premise>



Requirement

A list of special vendors need to be maintained. Whenever a service order with one of this special vendors is being created, this needs to be logged into a table. A user interface is necessary to view and maintain this logged information.

Extension Style	Extension Task	Building Block	Reasoning
Data Model Extension	Create persistence	Custom Table	to store special vendors
New User Interface	Create custom UI	Custom Business Conf.	to maintain special vend.
Data Model Extension	Create persistence	Custom Table	to store logging info
Business Logic Extension	Adapt standard b.proc.	ABAP BAdI (released)	to log creation info
Business Logic Extension	Create API	RAP-based Odata	to provide logging info
New User Interface	Create custom UI	SAP Fiori App / Elements	to view/maintain log. inf.

Requirement

Some customers should be able to create quality notifications in our system, based on their quality assurance results. A user interface for these customers is necessary to maintain this data over the internet. Our employees also need access to the user interface, to validate the data before the actual quality notification is being created.

Extension Style	Extension Task	Building Block	Reasoning
Data Model Extension	Create persistence	SAP HANA Cloud	to store data from cust.
Business Logic Extension	Create application logic	Cloud Foundry	to handle CRUD-logic
Business Logic Extension	Create API	CAP-based Odata	to provide CRUD-logic
New User Interface	Create custom UI	SAP Fiori App / FPM	to create/decide on data
New User Interface	Create centr. Entry point	SAP Build Work Zone	to allow access to app
Business Logic Extension	Consume API	HTTP Outbound / T1 Itf.	to write q. notif. to sys.

Open Source Project: Extension Inspector

Open Source Project

Extension Inspector

<https://github.com/extension-inspector/extension-inspector>

