A Hitchhiker's Guide to SAP Fiori UX and its Technologies

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PUBLIC

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Flow of this session (2h)

1. A Hitchhiker's Guide to SAP Fiori UX (1)

2. Break (5 min)

3. A Hitchhiker's Guide to SAP Fiori UX (2)

4. Q&A (15 min)

The Hitchhiker's Guide to the Galaxy

A comedy science fiction story created by Douglas Adams. Originally a 1978 BBC radio comedy, it was later adapted to other formats, including stage shows, novels, comic books, a 1981 TV series, a 1984 text-based computer game, and 2005 feature film.

The broad narrative follows the misadventures of the last surviving man, Arthur Dent, following the demolition of the Earth by a Vogon constructor fleet to make way for a hyperspace bypass.
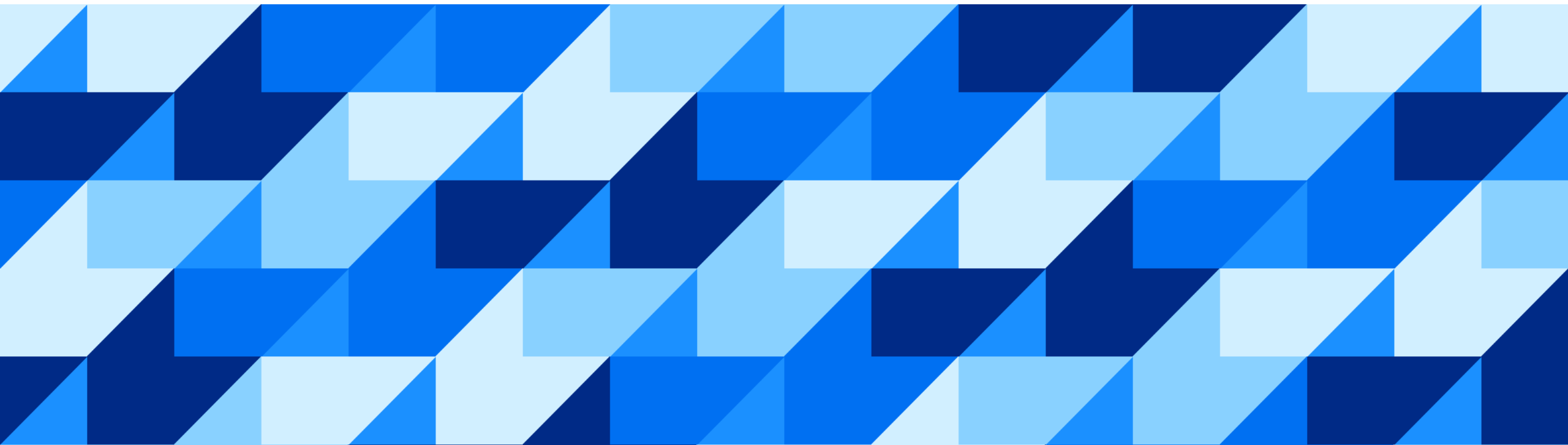

Arthur Dent is rescued from Earth's demolition by Ford Prefect—a human-like alien writer for the eccentric, electronic travel guide:
The Hitchhiker's Guide to the Galaxy.

Following his rescue, Dent explores the galaxy …

SAP Fiori User Experience

We care about your needs

"If you start with a **technology** then it just becomes a **feature list**, but when you start with a **person** then really **amazing things happen**."
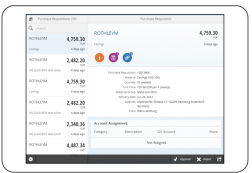
Mike Vanis - Interaction Designer

How we live determines how we want to work.
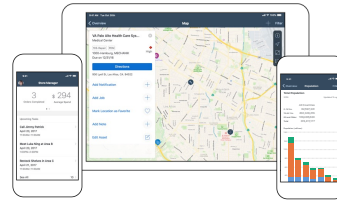
SAP Fiori continues to evolve

Casual users
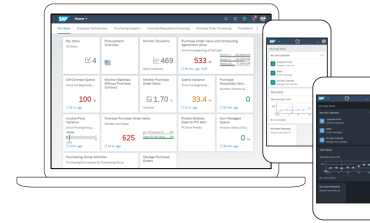Self-service apps

Desktop user
The new face of SAP S/4HANA

Native mobile
for iOS & Android

Next steps of the SAP Fiori evolution
SAP Fiori with Quartz

SAP Fiori with Horizon

Conversational

Consistent

Intelligent

Integrated

Collaborative

2013

2016

2019

2022+

SAP Fiori

SAP Fiori 2.0

SAP Fiori 3

SAP Fiori with Horizon

SAP Fiori visual design: Horizon themes
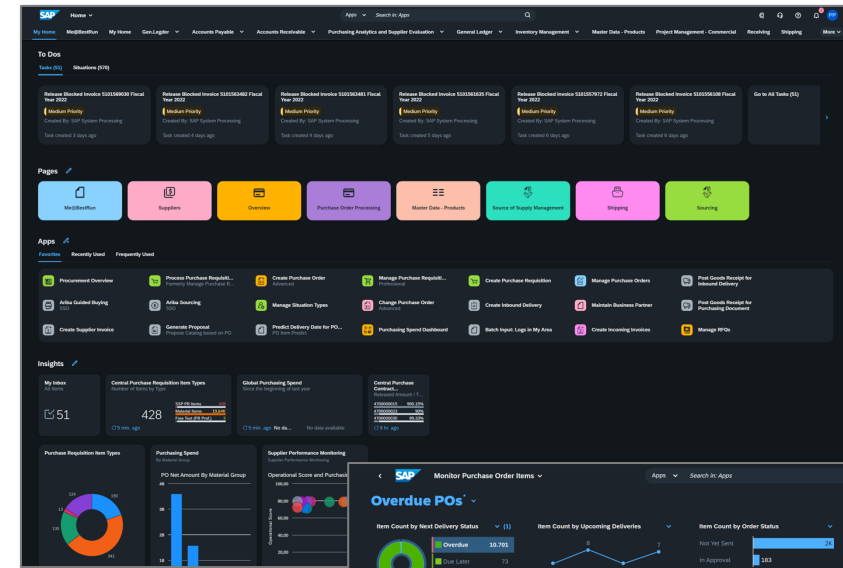
For low-light environments

Morning Horizon

Evening Horizon

Also available for accessibility: high contrast light and dark themes

Examples show SAP S/4HANA Cloud, private edition 2208
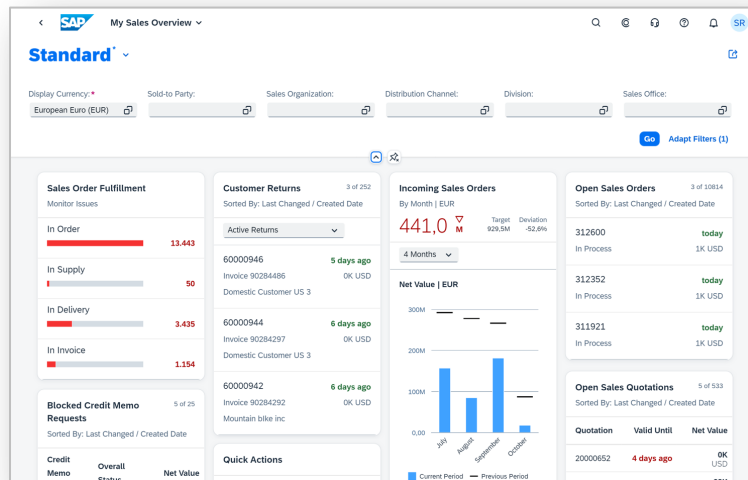
SAP Fiori provides UX Consistency

SAP S/4HANA with Horizon

SAPUI5
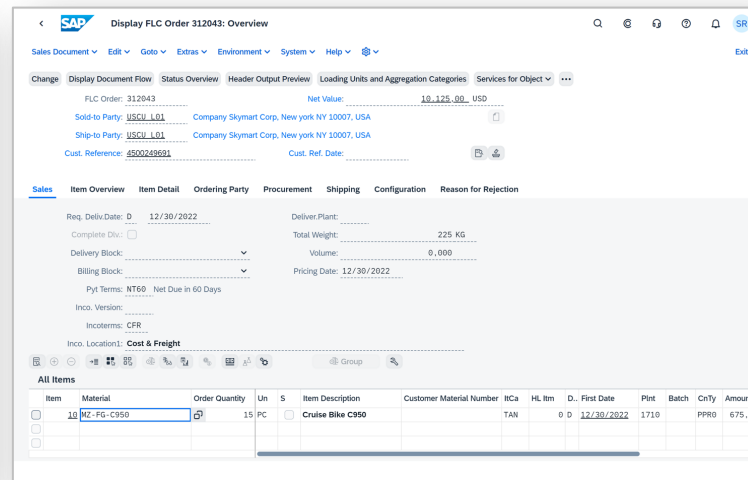
SAP GUI for HTML
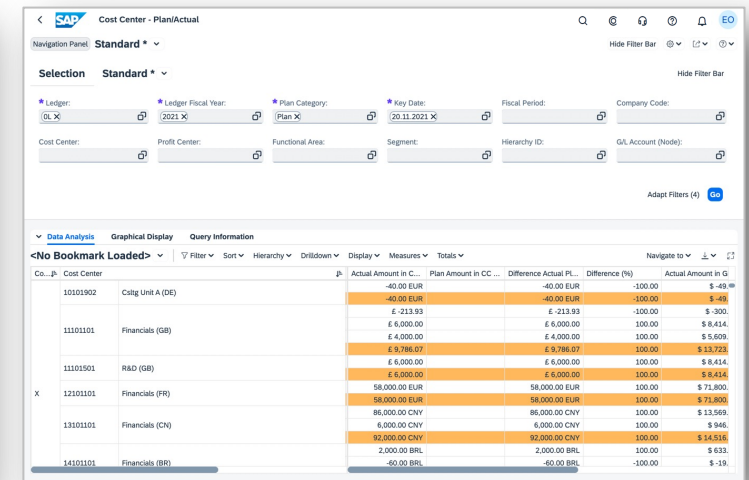
Web Dynpro for ABAP

SAP SuccessFactors with Horizon

SAP Concur with Horizon: Hotel booking and Managing Expenses
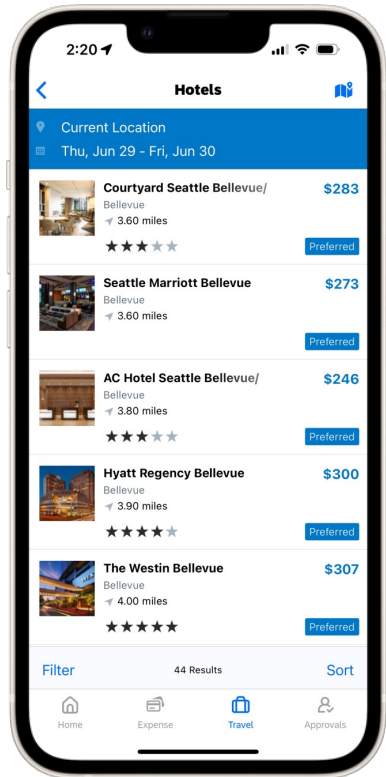
Hotel booking

Manage expenses

Joule

Hello Nolan,

How can I help you?

Talk to me naturally. For example, "what are my tasks for today?"

Get started

Create purchase order   Create new position

Change name

Type or speak something...

Joule

This is the current state of planning and may be changed by SAP at any time without notice.
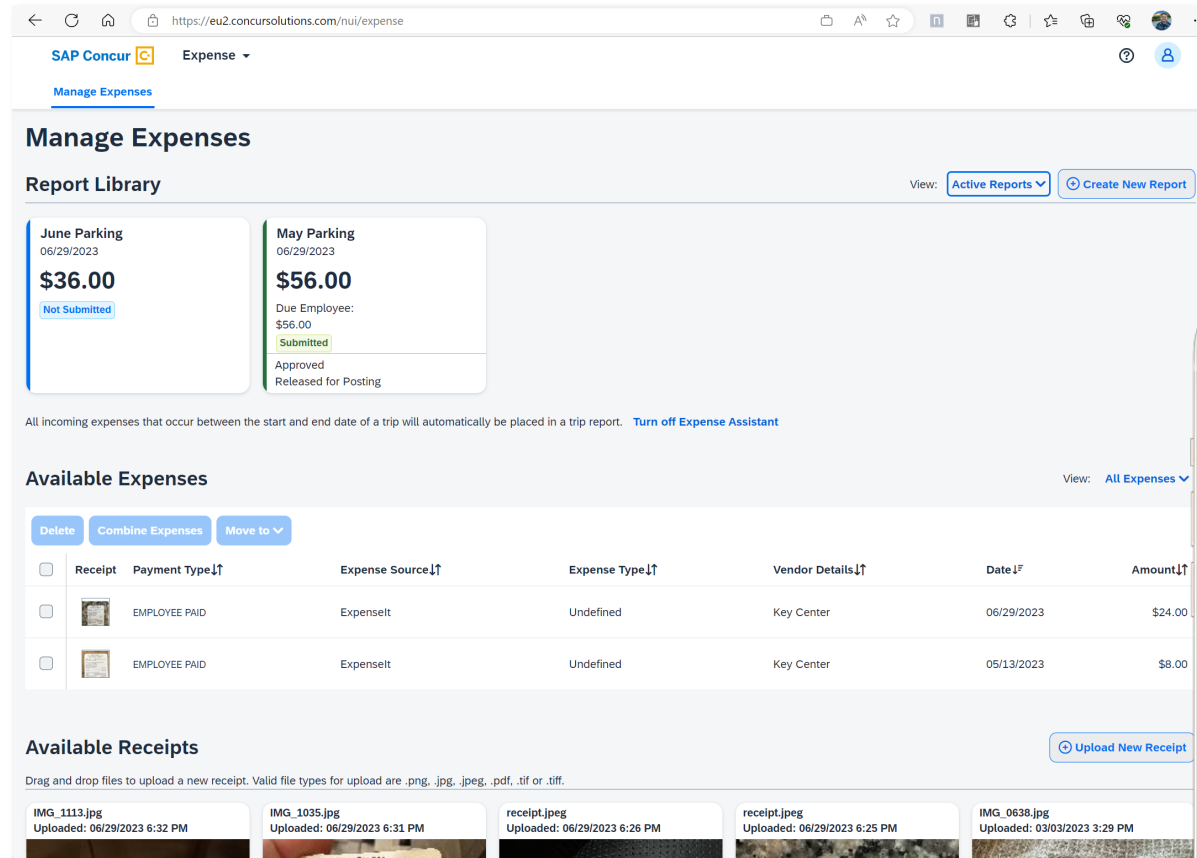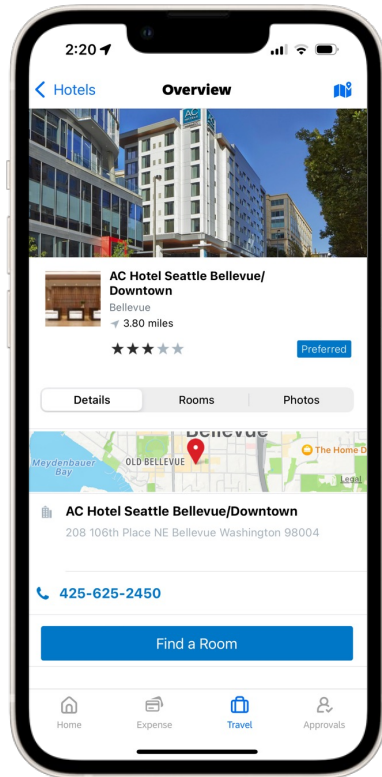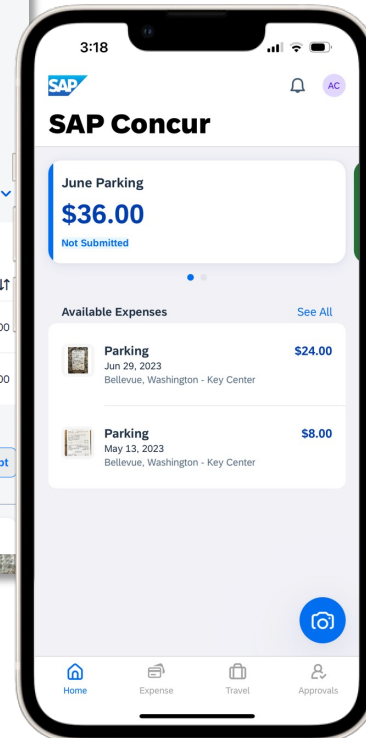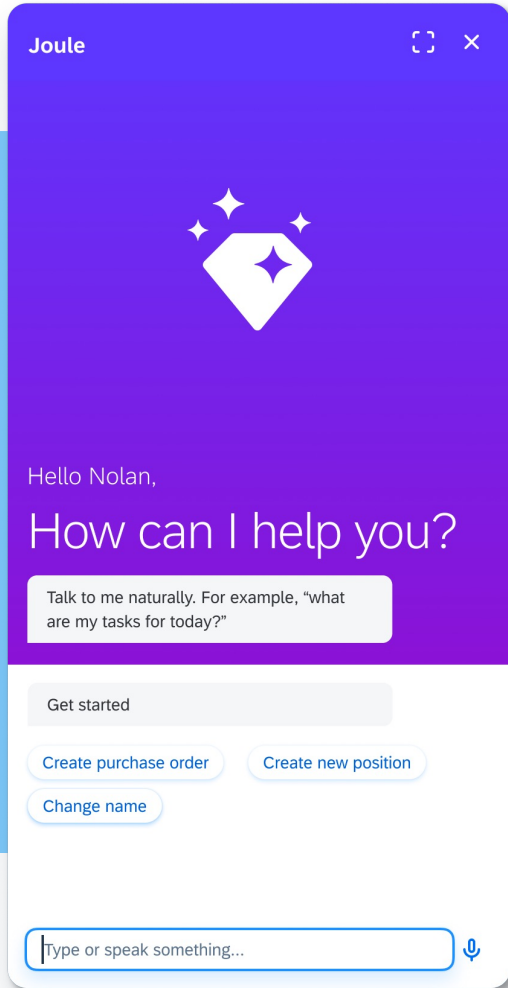
SAP Fiori User Experience

[SAP Fiori Design Guidelines](#)

[SAP Fiori for Web - Designer Toolkit](#)

[SAP User Experience Update: What's New for SAP S/4HANA 2023](#)

Source: https://en.wikipedia.org/wiki/Marvin_the_Paranoid_Android

SAP Fiori User Experience Enabled by Technologies & Tools

Teaching concept

Developer | Citizen Developer | Key User | Business User

Pro-Code | **Develop** | **Low-Code No-Code** | **Adapt** | **Desktop / Web** SAPUI5, SAP Fiori elements SAP GUI for HTML, Web Dynpro | **Run** | **Mobile** Native Android / iOS

| Visual Studio Code (non-ABAP) (SAP Fiori tools) | SAP Build Code (SAP Business Application Studio, SAP Fiori tools) | SAP Build Apps | SAPUI5 flexibility | SAP Start | SAP Work Zone, standard edition | SAP Work Zone, advanced edition | SAP Mobile Start |
| ABAP Development Tools in Eclipse | SDK for iOS / Android | Mobile Dev. Kit | SAP Screen Personas (SAP GUI / WD ABAP) | | | | |

Local laptop | SAP Business Technology Platform | Business application | SAP Business Technology Platform | Mobile device

Backend

| SAP S/4HANA Cloud | | SAP S/4HANA | SE80 | ECC | SE80 | ... |
| ABAP | | ABAP | | ABAP | | |

SAP Fiori User Experience Enabled by Technologies & Tools

Business User

Desktop / Web
SAPUI5, SAP Fiori elements
SAP GUI for HTML, Web Dynpro

Run

SAP Start | SAP Work Zone, standard edition | SAP Work Zone, advanced edition

SAP Business Technology Platform

SAP S/4HANA Cloud		SAP S/4HANA	SE80	ECC	SE80	
ABAP		ABAP		ABAP		...

Backend

Entry point to SAP Fiori: SAP Work Zone

Our vision:

Increase **user productivity** by intelligently providing access to **applications**, **processes**, and **information** anywhere on any device

SAP Build Work Zone is part of the SAP Build Family

Compose apps

Automate processes

Design business sites
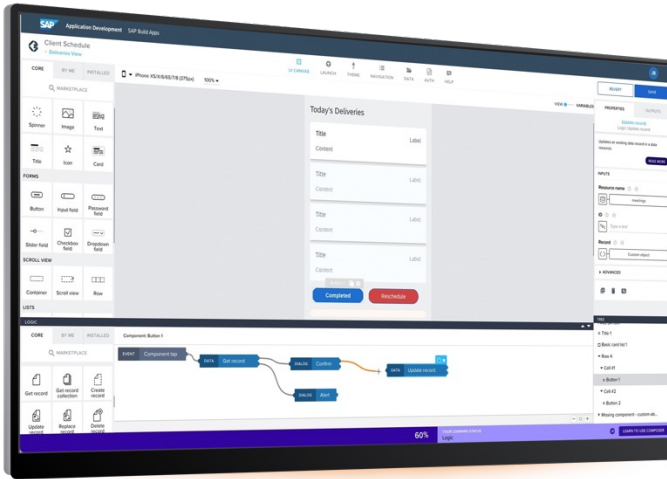
SAP Build Apps
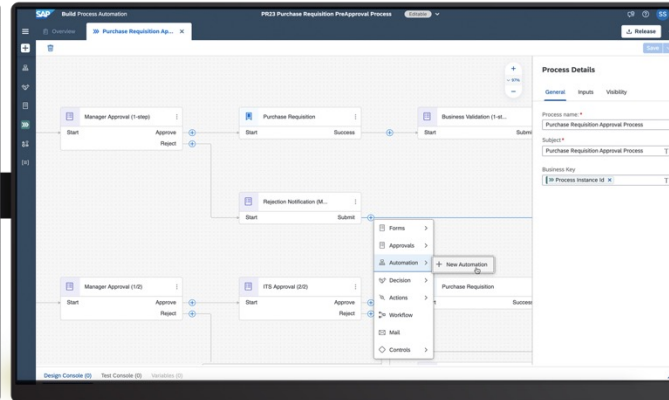
SAP Build Process Automation
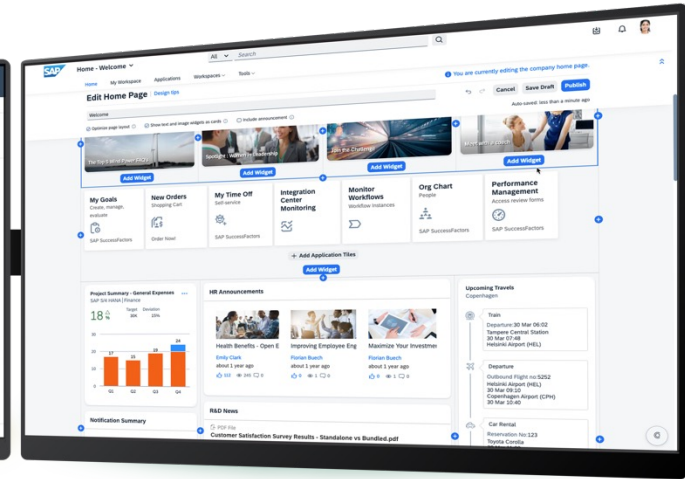
SAP Build Work Zone

Build Visually
Integrate Seamlessly
Collaborate Securely

SAP Business Technology Platform

Bringing together our product home pages into a cross-system entry point

Cross-system entry point
Access apps, tasks, notifications, and unstructured content across multiple SAP systems and cloud solutions

Product home pages
Access relevant content within a single SAP system or cloud solution

Organize apps and analytics in pages
Organize resources per business role

Apps
Details and in-depth exploration

SAP Business Technology Platform (SAP BTP)

SAP Start | SAP Build Work Zone

| SAP S/4HANA Cloud | SAP Success Factors | SAP S/4HANA (on prem) | other solutions |
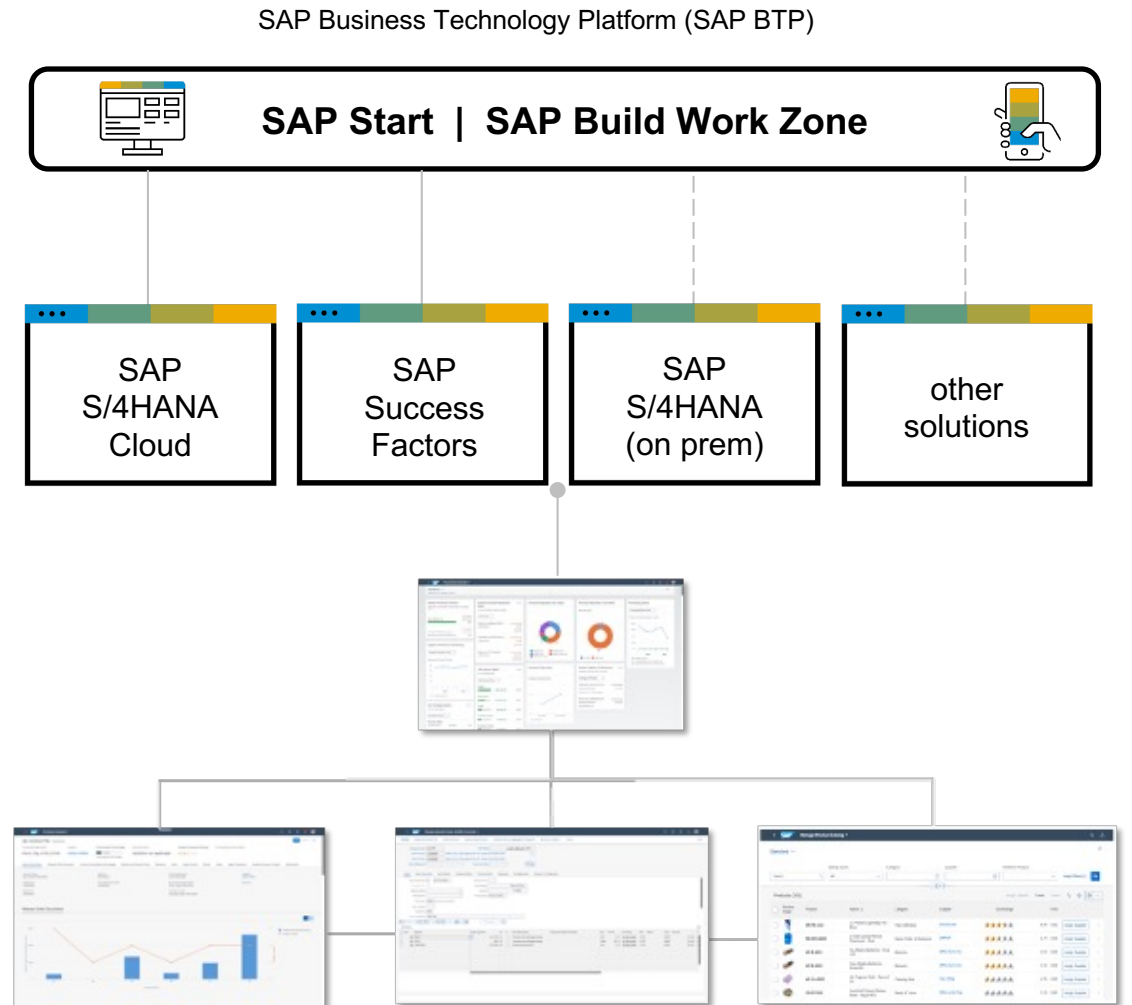
A modular offering for the Central Entry Point from SAP

SAP Start

Pre-packaged Entry Point

- Search, to dos & interest cards
- Content from SAP Cloud LoBs (S/4HANA & SuccessFactors for now)
- Zero configuration costs

SAP Build Work Zone
standard edition
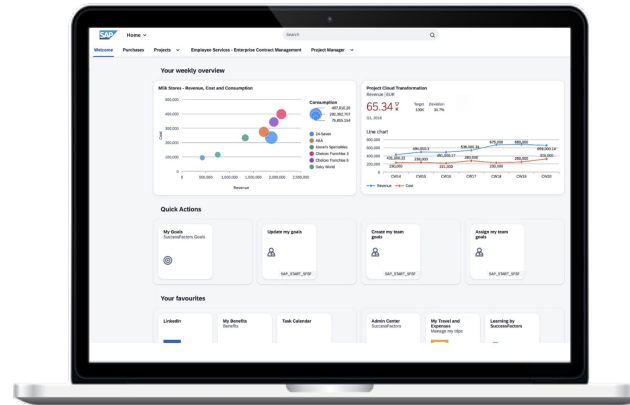
Application Sites

- Central access to SAP cloud, on-prem, custom and 3rd party applications
- Multiple pages, drag/drop page editor & business data visualization cards
- Custom branding and extensions

SAP Build Work Zone
advanced edition

Business Sites

- Optimize business processes with employees, partners, customers & suppliers
- Pre-packaged line-of-business workspaces & guided experiences
- Content management, knowledge management, Q&A, ideas, polls & MSFT integration

A modular offering for the central entry point from SAP

SAP Fiori with the Horizon theme
SAP Mobile Start

SAP Build Work Zone,
advanced edition

SAP Build Work Zone,
standard edition

SAP **Start**

Upgrade[1]

Upgrade[1]

- Extend the standard offering with enhanced capabilities for content management, Web content, team workspaces, and integration with third-party solutions (such as Microsoft Teams)
- Empower business users to create and publish content
- Provide solution-specific, premium content

- Provide central access to multiple cloud and on-premise systems
- Integrate custom low-code/no-code apps
- Access multiple pages through the navigation menu
- Leverage customizations and extensions (such as branding, translations, shell plug-ins, and domains)

- Pre-configured home page for SAP cloud solutions
- Access apps and tasks from the connected systems
- Tap into preconfigured cross-LOB business content

[1] In-place upgrade on roadmap

Best practice: Choosing the right solution for your business

	Product home page	SAP Start	SAP Build Work Zone, standard edition	SAP Build Work Zone, advanced edition
Number of integrated systems	1	2 +	1 +	1 +
Integration with cloud-only, cloud, and on-premise systems		cloud	cloud	cloud
Integration with low-code/no-code apps and custom-defined process automations			✓	✓
Integration of unstructured content such as Web content, documents, news, and multimedia				✓
Interactive workspaces created by business users				✓

Entry point to SAP Fiori: SAP Work Zone

My Home in SAP S/4HANA Cloud (Video)

What is SAP Build Work Zone (Video)

Tutorial: SAP Build Work Zone, standard edition

Tutorial: SAP Build Work Zone, advanced edition

SAP Fiori Deployment Options and Landscape Recommendations

Source: https://en.wikipedia.org/wiki/Marvin_the_Paranoid_Android

The Strategic UI Technology of SAP Fiori:
SAPUI5
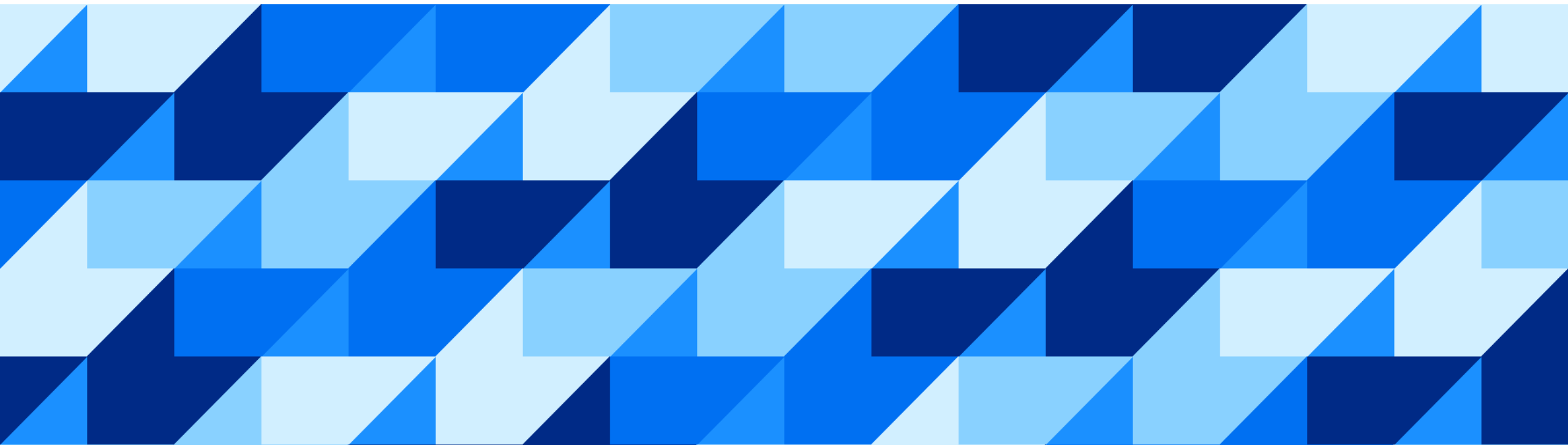
Building Modern Web Applications with SAPUI5

SAPUI5 is an HTML5 framework for creating cross-platform, enterprise-grade applications

- **Consistent UX**: SAPUI5 enables the SAP Fiori design evolution across SAP solutions (and beyond).

- **Use anywhere**: SAPUI5 allows a single, responsive app implementation for all browsers, platforms, and devices.

- **Hundreds of enterprise UI elements** to build professional UIs. UI5 Web Components extend UI5 to all web technology stacks.

- **Powerful extension options**: You can adapt SAP standard apps and customize UIs without coding.

- **Flexible tools for any developer**: SAPUI5 comes with tools to efficiently build, test, and deploy apps. Both in pro-code as well as low-code ways.

- **Innovations**: SAPUI5 brings a separation of apps and framework to centrally innovate while staying upgrade-compatible.

- **Open-Source**: SAPUI5 qualities available as OpenUI5.
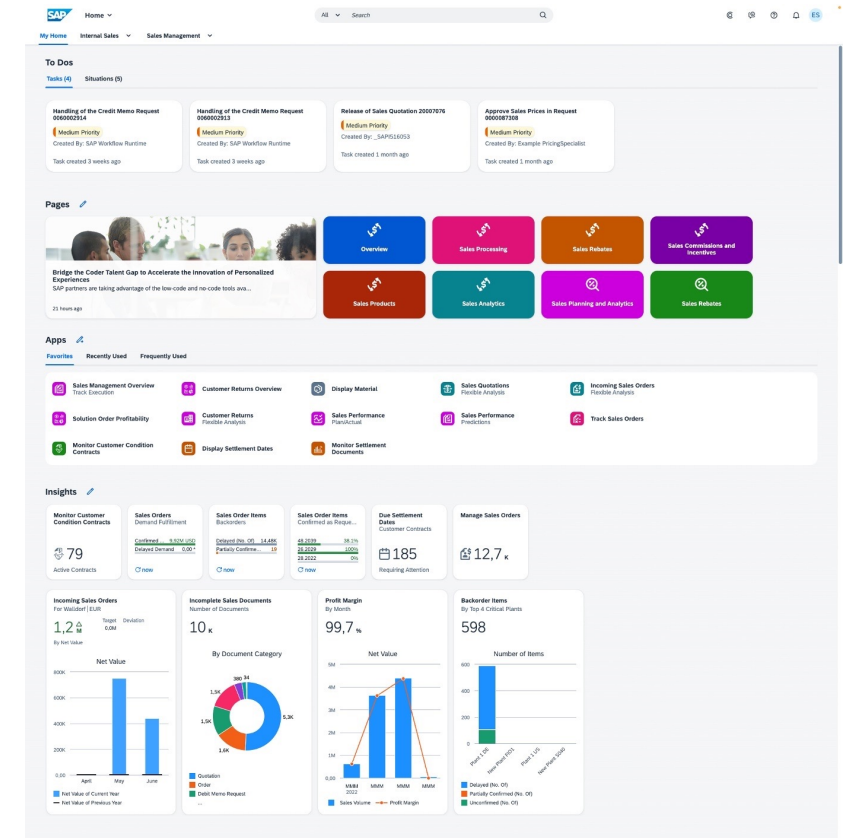
Video: What is SAPUI5?

SAPUI5 applications

A single app implementation for all

- Browsers
- Platforms
- Devices

Browsers

Platforms

Devices
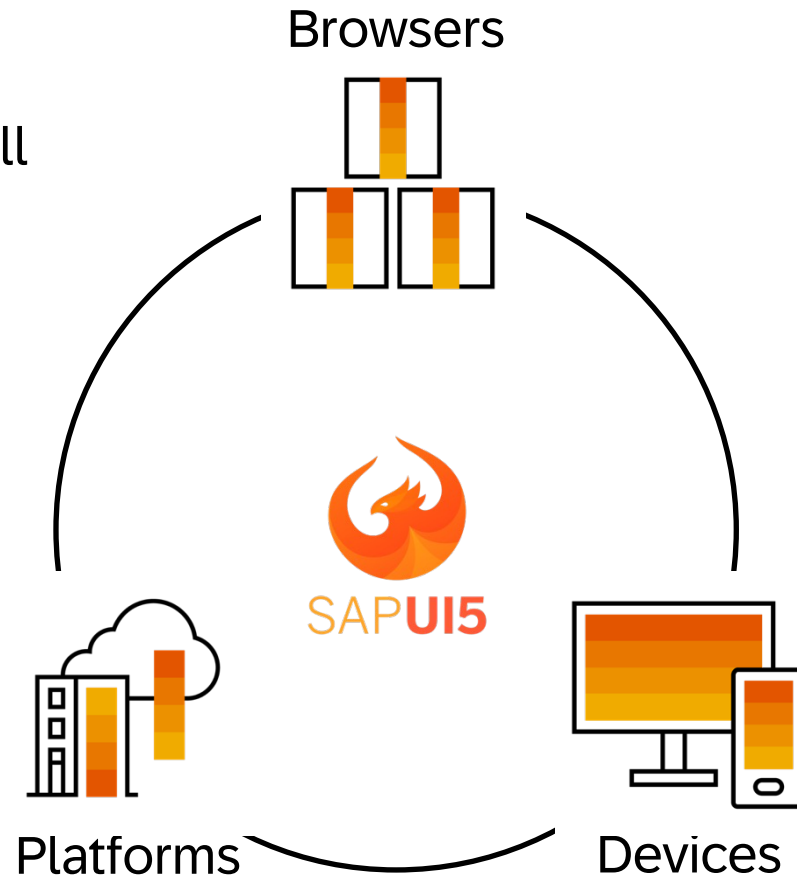
SAPUI5 Browser and Platform Support

UI5 Web Components: Using SAPUI5 capabilities in any programming model

Native HTML

add

Hello

- Apples
- Oranges
- Bananas

```
<body class="sapUiBody">
    <h2>Native HTML</h2>

    <button>add</button><br>
    <input placeholder="Hello"></input>
    <ul>
        <li>Apples</li>
        <li>Oranges</li>
        <li>Bananas</li>
    </ul>
</body>
```

UI5 Web Components

+ add

Hello ✕
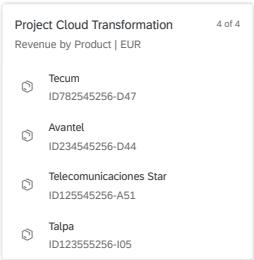
Apples

Oranges

Bananas

```
<body class="sapUiBody">
    <h2>UI5 Web Components</h2>

    <ui5-button>add</ui5-button><br>
    <ui5-input placeholder="Hello"></ui5-input>
    <ui5-ul>
        <ui5-li>Apples</ui5-li>
        <ui5-li>Oranges</ui5-li>
        <ui5-li>Bananas</ui5-li>
    </ui5-ul>
</body>
```

HTML5

UI5 Web Components for any programming model
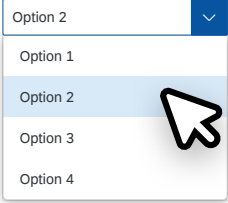
UI5 Web Components
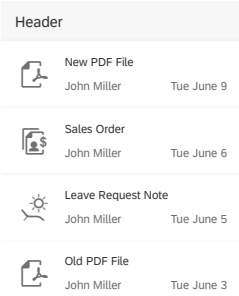
| ui5-card | ui5-datepicker | ui5-combobox | ui5-list |

HTML5

Programming models

React   Angular   VueJS

UI5 Web Components are not a successor of SAPUI5, they are complementary.

UI5 Web Components home page

Web UI technology strategy

Patterns and blueprints, low-code to no-code	SAP Fiori elements
Patterns and blueprints, pro-code	
Programming model layer	UI5 Web Components for Angular / UI5 Web Components for React / SAPUI5
UI components – Behavior	UI5 Web Components
UI components – Visual design	
Design language	Common CSS / Theming Base Content

SAP Design – System

● Application development
● Framework development
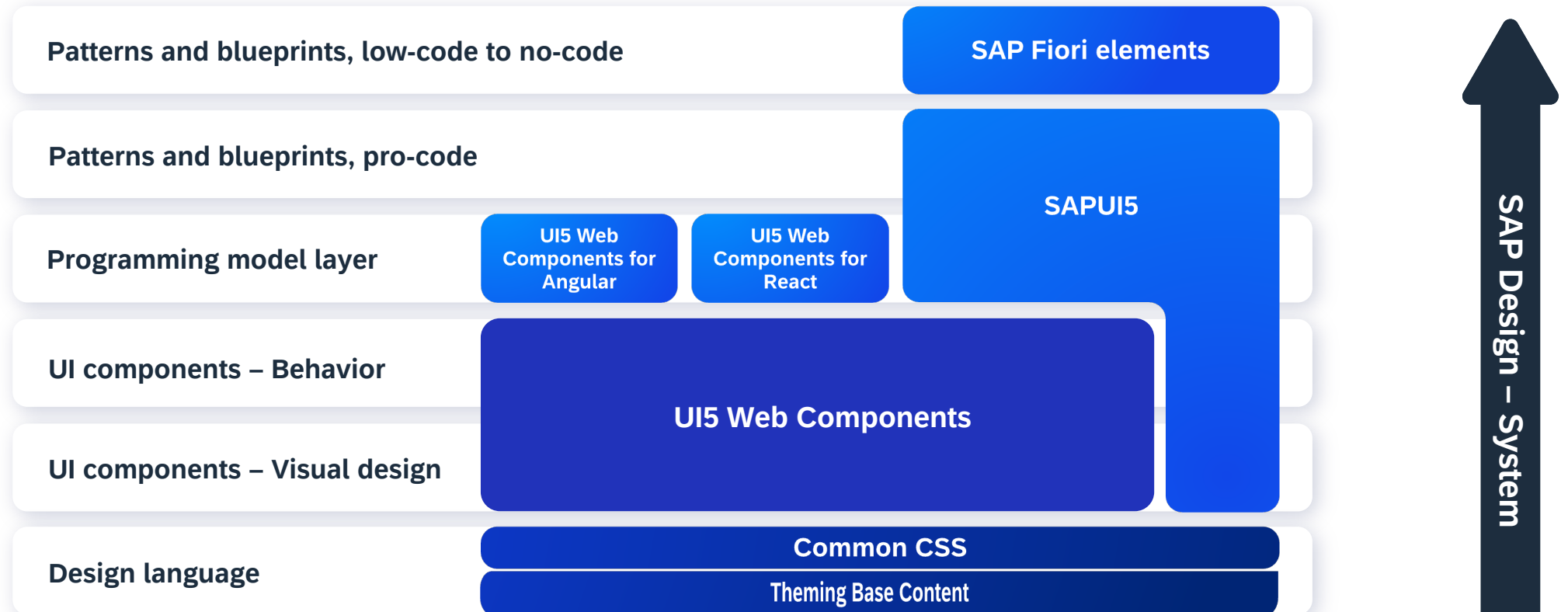
The Strategic UI Technology of SAP Fiori: SAPUI5

What is SAPUI5?
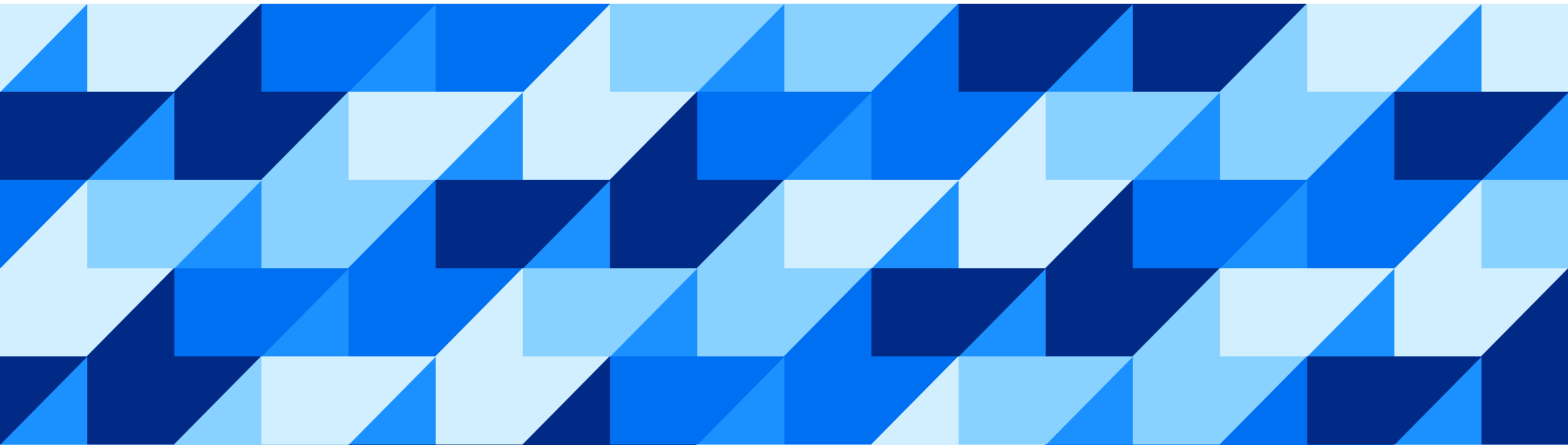
SAPUI5 Demo Kit (https://ui5.sap.com)

Get Started: Setup, Tutorials, and Demo Apps

SAPUI5 Community

Efficiently Developing SAPUI5 apps:
SAP Fiori elements

UX consistency is at the heart of a great user experience
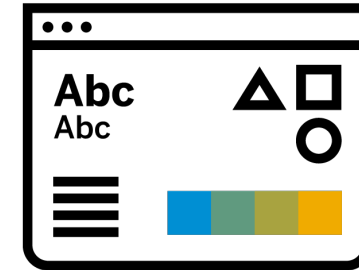
UX consistency drives measurable business benefits

- Increases **adoption** of your app

- Improves business **user productivity**

- Decreases **training time**

- Improves **data quality**

- Enhances **user satisfaction**

UX Consistency includes

- **Look and feel**
  (Colors, icons, fonts, dimensions, motion design)

- **Controls and floorplans**
  (UI components, layout)

- **Behaviors and interactions**
  (Actions like save, cancel, etc., confirmation dialogs, filtering, sorting)

SAP Fiori elements provides enterprise-ready SAPUI5 apps out of the box

Filtering   Actions   Sorting   Personalization

Variant Mgmt

Search

Data Lists

Export to Excel

Editing (incl. draft mgmt.)

Navigation

Object Details

SAP Fiori elements / SAPUI5 enterprise readiness features

- Accessibility
- Internationalization
- Mobile compatibility
- Responsiveness
- Performance optimizations
- Integration
- Security checks
- Lifecycle stability
- Test automation support
- …and more

OData annotations are metadata that define attributes and relationships

Business data
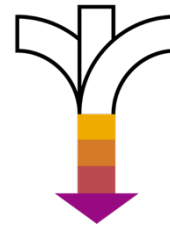
How is it displayed?

SAP Fiori elements patterns
- Overview page
- List Report page
- Object page
- Analytical list page
- Worklist page

Provided by:
SAP framework development

at runtime

What is displayed?

- Semantic metadata / annotation
- Behavior
- Consumption hints

Provided by:
Application Developers

"Consumption hints"

Which fields allow a human to identify the entity?

Which fields are clickable?

"This entity can be edited"

"This is the currency for the amount"

"These fields shall be displayed together in a form"

"Behavior like creatable, updatable"

SAPUI5 View

There are several ways to build SAPUI5 apps

SAP Fiori elements
Floorplans
Best when desired app is close to a standard pattern
- Reduce time, coding to develop and maintain apps
- Match look and feel of apps that SAP ships

Flexible Programming Model
Building Blocks
Best to add standard functionality to a custom page
- Speed development by using pre-built blocks
- Combine building blocks for more complex designs

Freestyle SAPUI5
SAPUI5 controls
Best to have full control of every item on the screen
- Allow complete customization of your app
- Shift more maintenance of the app to the dev team

More Efficiency ← → **More Flexibility**

Flexible Programming Model blends SAP Fiori elements and freestyle SAPUI5

Using OData V4, developers have a **range of options** instead of an either/or decision

| **Standard SAP Fiori elements floorplans**

Customize using annotations | **Floorplans**
+
Building blocks
+
freestyle SAPUI5 | **Custom layout**
+
Building blocks
+
freestyle SAPUI5 | **Custom layout**
+
freestyle SAPUI5 |
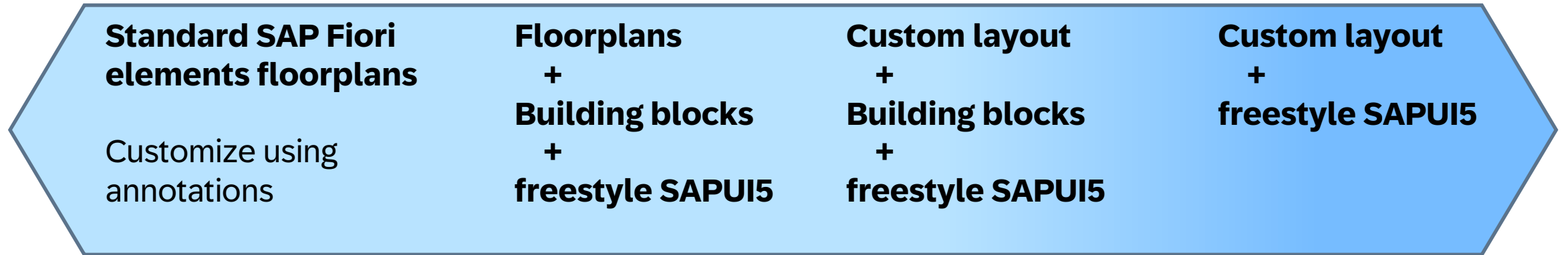
Efficiency ⟵⟶ **Flexibility**

SAP Fiori elements
Metadata-driven
SAPUI5 development
using annotations

Freestyle SAPUI5
JavaScript framework
and UI library

Choose the right development approach for your SAPUI5 app

SAP Fiori elements	Overall approach	freestyle SAPUI5
Efficiency	**Overall approach**	Flexibility
Standard floorplans	Design requirements	Anything you want
Annotations (XML, wizards, development guides)	Development knowledge	Web development (JavaScript, HTML)
Own annotations, SAP's UI logic	App ownership / maintenance	Own coding, own UI logic
Lower	**Total cost of development and maintenance**	Higher

Flexible programming model lets you use as much SAP Fiori elements as possible for efficiency and as much freestyle SAPUI5 as needed for flexibility.

SAPUI5 brings scalability and flexibility to SAP Fiori app development

Efficient development based on metadata

Framework for application development

UI element with visual design & behavior

UI5 Web Components   SAPUI5   SAP Fiori elements
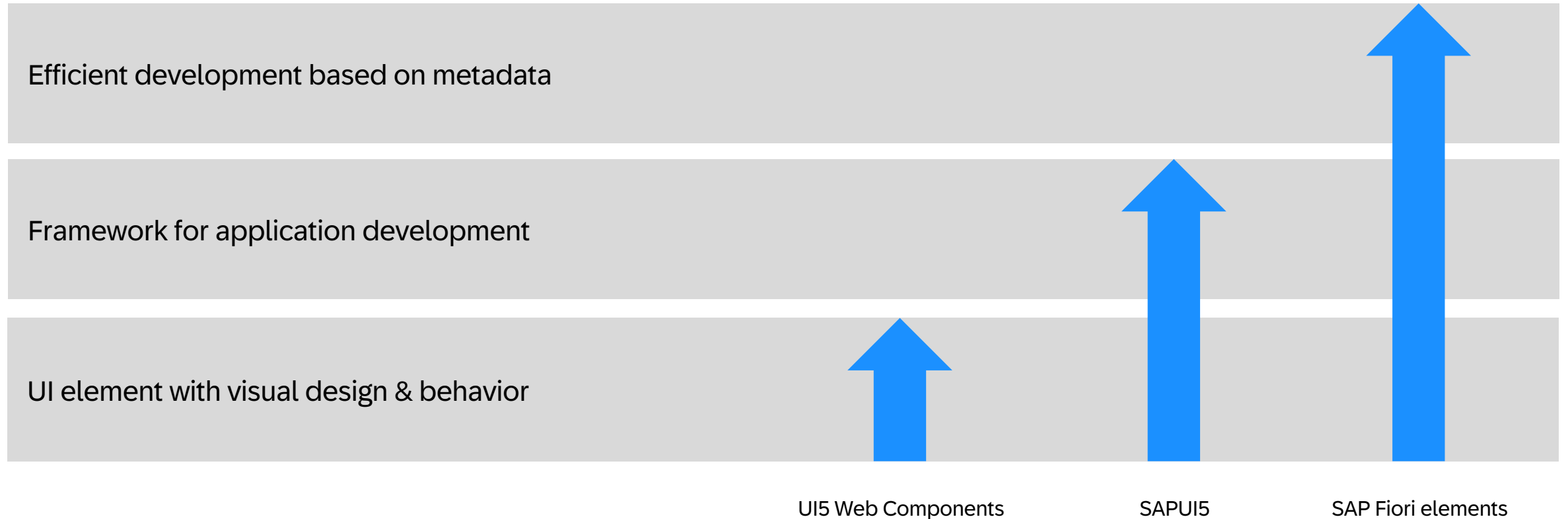
SAP Fiori elements

[Developing Apps with SAP Fiori Elements](#)

[Tutorial: Create a List Report Object Page App with SAP Fiori Tools](#)

[SAP Fiori elements: Flexible Programming Model Explorer](#)

SAP Fiori User Experience Enabled by Technologies & Tools

Developer	Citizen Developer		Key User	Business User	

Pro-Code | **Develop** | **Low-Code No-Code** | **Adapt** | **Desktop / Web**
SAPUI5, SAP Fiori elements
SAP GUI for HTML, Web Dynpro | **Run** | **Mobile**
Native
Android / iOS

Pro-Code

Visual Studio Code (non-ABAP) (SAP Fiori tools)

ABAP Development Tools in Eclipse

Local laptop

Low-Code No-Code

SAP Build Code (SAP Business Application Studio, SAP Fiori tools)

SAP Build Apps

SDK for iOS / Android

Mobile Dev. Kit

SAP Business Technology Platform

SAPUI5 flexibility

SAP Screen Personas (SAP GUI / WD ABAP)

Business application

SAP Start

SAP Work Zone, standard edition

SAP Work Zone, advanced edition

SAP Business Technology Platform

SAP Mobile Start

Mobile device

SAP S/4HANA Cloud	SE80	SAP S/4HANA	SE80	ECC	SE80	
ABAP		ABAP		ABAP		...

Backend

SAP Fiori User Experience Enabled by Technologies & Tools

Citizen Developer

Developer

Pro-Code

Develop

**Low-Code
No-Code**

SAP Build Code
(SAP Business Application Studio,
SAP Fiori tools)

SAP Build
Apps

SDK for iOS / Android

Mobile Dev. Kit

SAP Business Technology Platform

SAP S/4HANA Cloud	SAP S/4HANA	SE80	ECC	SE80
ABAP	ABAP		ABAP	

...

Backend

SAP's Development Environments:
pro-code, low-code and no-code
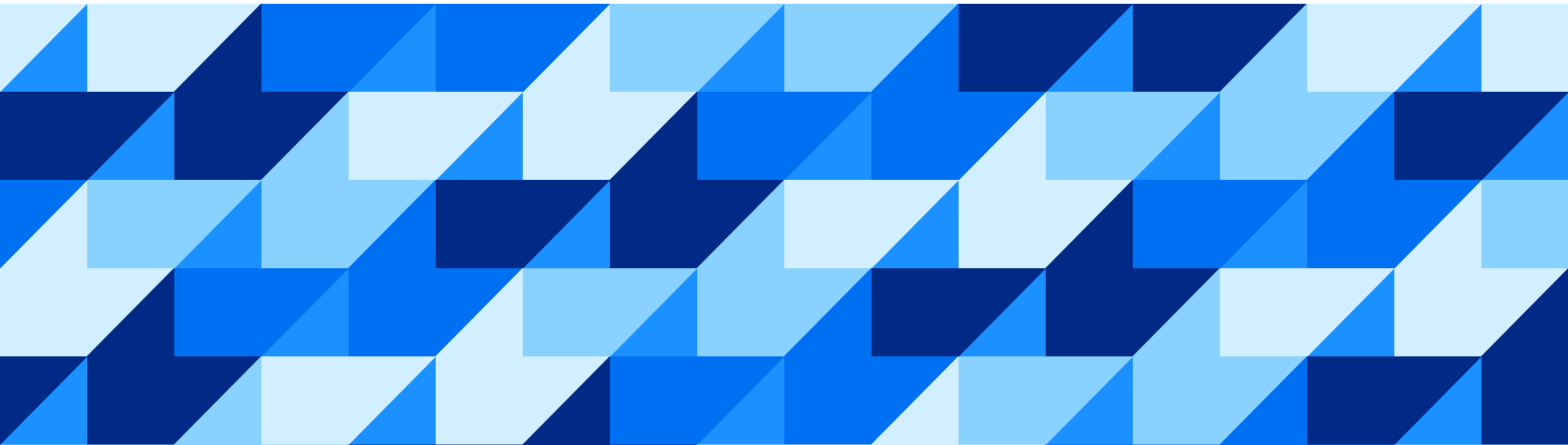
Application Development with SAP Business Technology Platform

SAP Business Technology Platform

Ecosystem and Marketplace

SAP content	Third-party content	Custom-built content	Community and technical forum

App Dev	Automation	Integration	Data and Analytics	AI

Consume

Digital Experience	SAP Build Work Zone	SAP Start	SAP Mobile Start

Build and innovate

Fusion development

With low-code development | **With pro-code development**

	Unified development experience	Lobby with best practices in SAP Build Code — SAP Business Application Studio
Unified development experience — SAP Build Apps	SAP Build Code — Services	SAP Document Management service / SAP Mobile Services
	Application frameworks	UI Technologies: SAPUI5, SAP Web Components / ABAP RESTful application programming model (RAP) / SAP Cloud Application Programming Model (CAP)

Runtimes	Built-in runtime: **visual cloud functions**	SAP BTP, Cloud Foundry runtime	SAP BTP, Kyma runtime	SAP BTP, ABAP environment

Personas (left):
- Business user
- Line-of-business (LoB) expert, business analyst
- Developer, IT administrator

Right-side list:
- ➔ Customer insights from Qualtrics
- ➔ SAP Signavio Process Insights
- ➔ SAP S/4HANA
- ➔ SAP SuccessFactors
- ➔ SAP Customer Experience
- ➔ SAP Fieldglass
- ➔ SAP Concur
- ➔ SAP Ariba
- ➔ Third-party software

Application development and automation on SAP BTP

Integrated solutions enabled by generative AI

LOW-CODE ← → PRO-CODE

SAP Build ⇄ **SAP Build Code** ⇄ **ABAP Environment**

Drag-and-drop simplicity · Optimized for Java and JavaScript apps · Optimized for ABAP apps

Generative AI-powered developer productivity

SAP Integration Suite	SAP Datasphere

Enterprise Resource Planning	Customer Relationship Management	Human Capital Management	Spend Management	Business Network

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.
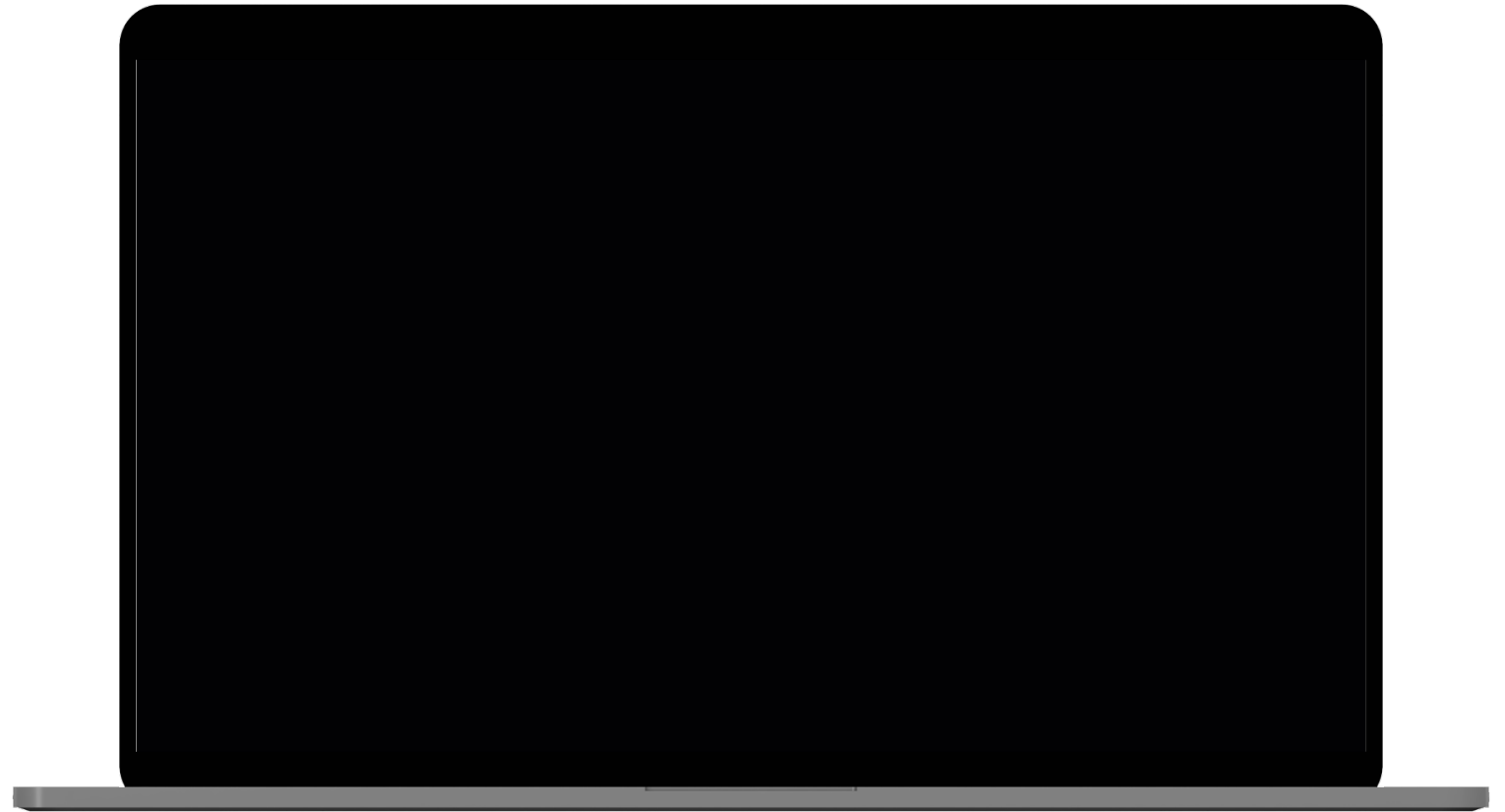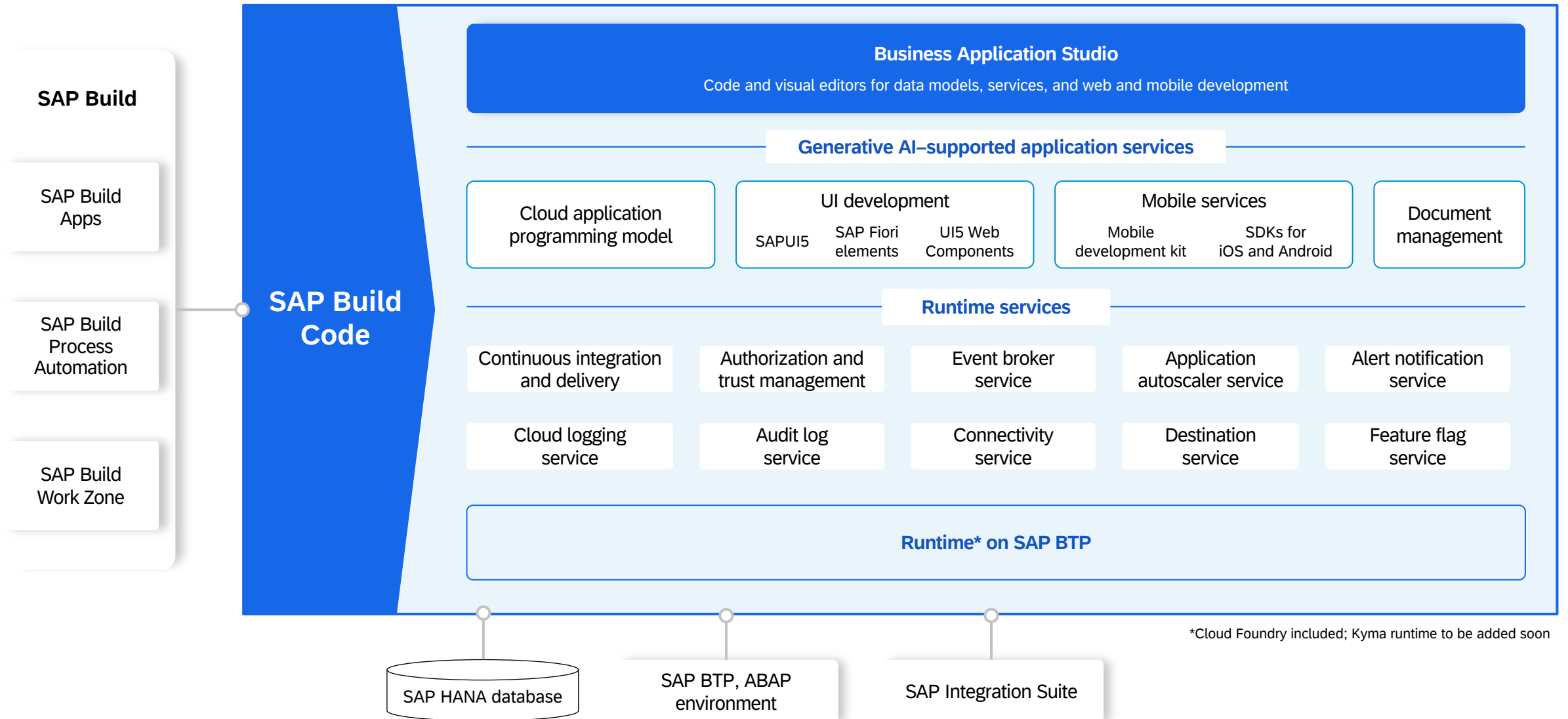
SAP Build Code: What you need to follow best practices of SAP

SAP Build

SAP Build Apps

SAP Build Process Automation

SAP Build Work Zone

SAP Build Code

Business Application Studio
Code and visual editors for data models, services, and web and mobile development

Generative AI–supported application services

Cloud application programming model

UI development
SAPUI5   SAP Fiori elements   UI5 Web Components

Mobile services
Mobile development kit   SDKs for iOS and Android

Document management

Runtime services

Continuous integration and delivery

Authorization and trust management

Event broker service

Application autoscaler service

Alert notification service

Cloud logging service

Audit log service

Connectivity service

Destination service

Feature flag service

Runtime* on SAP BTP

*Cloud Foundry included; Kyma runtime to be added soon

SAP HANA database

SAP BTP, ABAP environment

SAP Integration Suite

SAP Business Application Studio:
Professional Developer Tooling
Scale your Development and Build Smarter Enterprise Apps.

- Development environment, tailored for efficient development of business applications for the Intelligent Enterprise
- Easy path from visual tools to professional development tools

---

- Modern and intuitive web user interface
- Simplified, faster setup of the development environment
- Tight integration with SAP services, technologies, and systems

---

- Accelerated time to market with high-productivity development tools
- Based on industry best of breed IDE and tools, providing full, tool independent, developer flexibility

---

- #1 adopted SAP BTP service, across all channels, with thousands of paying customers
- Used daily by thousands of SAP customers as well as by SAP internal development teams

Modular Dev Spaces
Tailored for Intelligent Enterprise Development Use Cases

SAP Fiori: Develop SAP Fiori applications based on various environments, including Cloud Foundry, ABAP Cloud, and SAP S/4HANA.

Full Stack Applications with Productivity Toolkit: Easily develop, test, build, and deploy apps using the high productivity toolkit.

Full Stack Cloud Application: Build business services, business applications, and extend S/4HANA e.g. by using the SAP Cloud Application Programming Model, Fiori and Java or Node.js.

SAP HANA Native Application: Build and deploy native SAP HANA applications or analytical models.

SAP Mobile Application: The SAP Mobile Development Kit (MDK) lets you customize, deploy, and manage your customized iOS and Android apps in the cloud.

Basic: Contains the SAP basic tools extension.

SAP Fiori tools guides developers through the full cycle

Generates the project environment for development
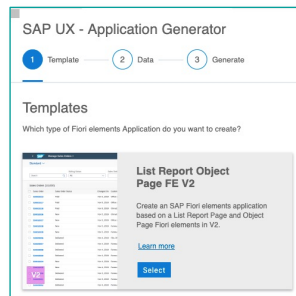
Allows editing of the app structure: pages, content, properties, and navigation
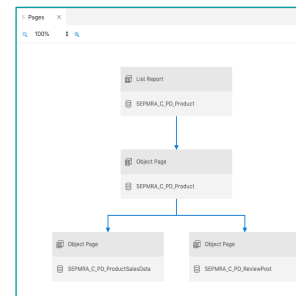
Provides step-by-step development instructions and generates code snippets in-line
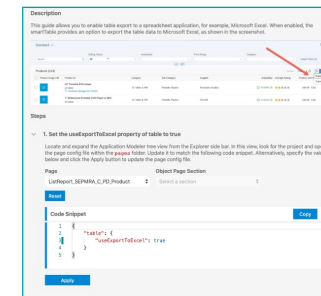
Provides preview of web app in the browser either with mock data or live data
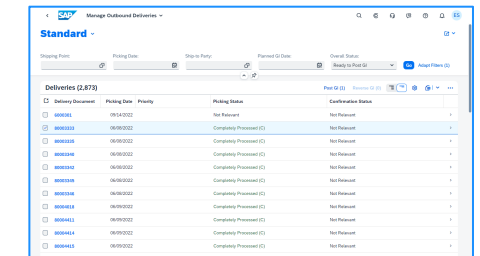
Offers troubleshooting tips (open source)
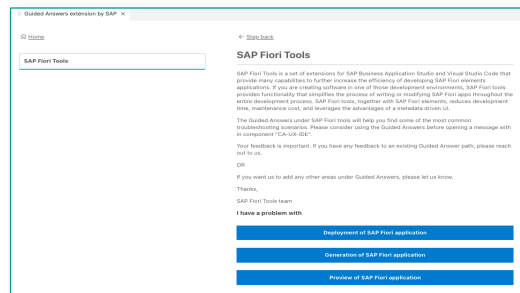
Delivers code completion using a language server protocol for annotations
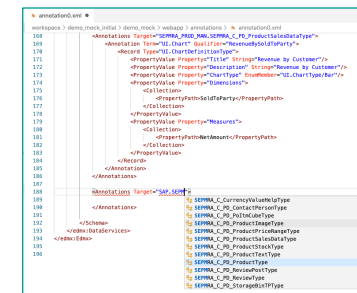
SAP Build Lobby facilitates fusion development

One entry point for all business users and developers building on SAP BTP

Unified lobby for app composability, a single entry point for all projects

Consume components created with SAP Build Code in SAP Build Apps, SAP Build Process Automation, and SAP Build Work Zone

View and manage applications pipeline status

View and manage projects source-code activities
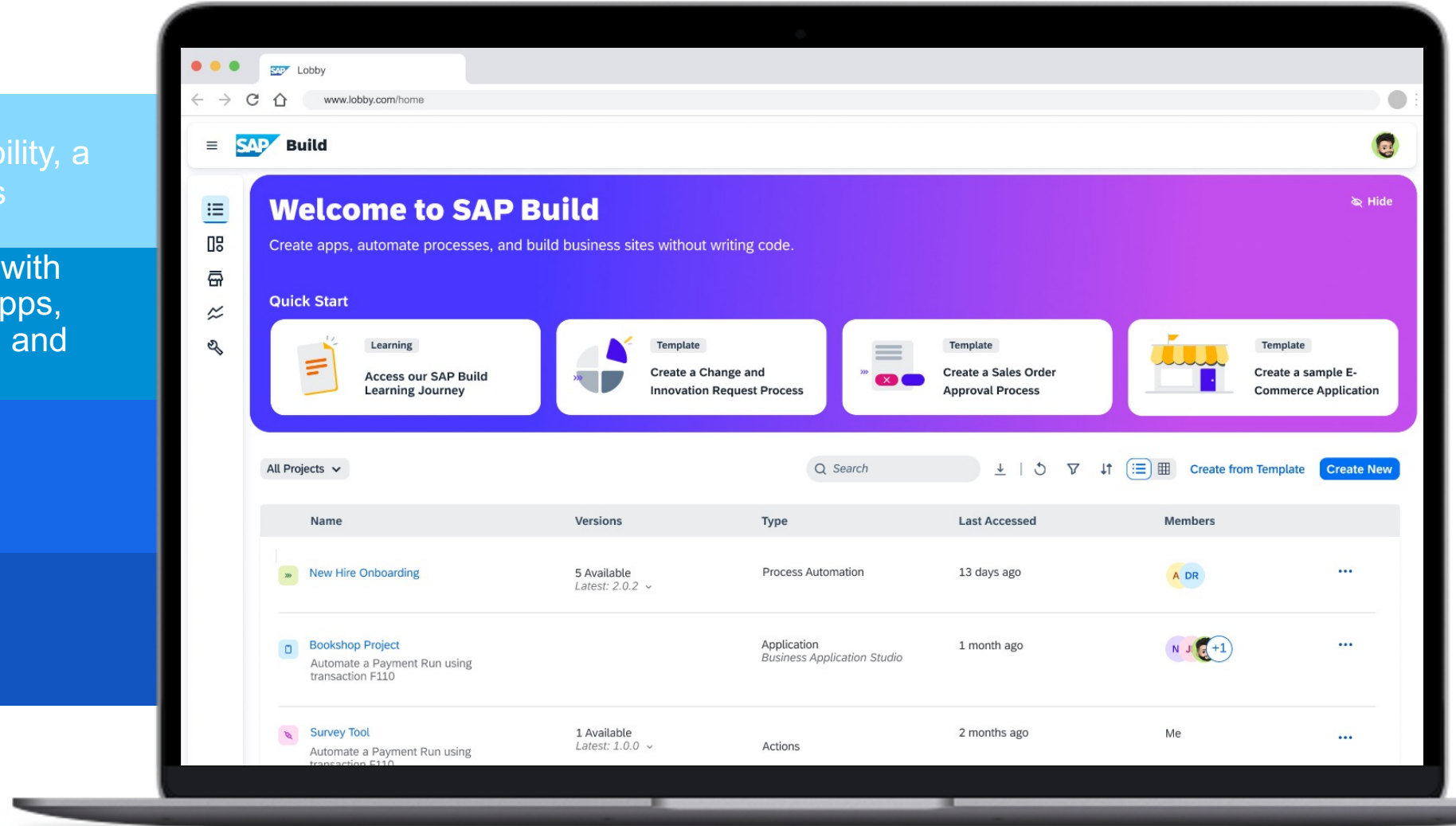
SAP Business Application Studio

SAP Build Apps: Tutorial: [Get started with SAP Build Apps with an SAP BTP Trial Account](#)

SAP Business Application Studio

1. Tutorial (focus on SAP Business Application Studio)
   [Build an SAP Fiori App consuming Data from On-Premise](#)

2. Tutorial (focus on SAP Fiori tools)
   [Create a List Report Object Page App with SAP Fiori Tools](#)

3. Tutorial (focus on Flexible Programming Model)
   [Boost Your Productivity in Developing SAP Fiori Apps](#)

4. Tutorial (focus on BAS Productivity Tools)
   [Develop Full-Stack App Using the High Productivity Tools of BAS](#)

5. Learning Journey (focus on BAS Productivity Tools)
   [Develop Full-Stack Apps Using Productivity Tools in SAP Business Application Studio](#)

6. Video (Developing Cloud Apps – Big Picture)
   [The Universe of SAP BTP in a Nutshell – Cloud Native App Development](#)

More missions / tutorials: [SAP Discovery Center](#) / [Developer tutorials](#)

[SAP Business Application Studio Community](#)

SAP Fiori for Mobile - Native mobile experience for iOS and Android
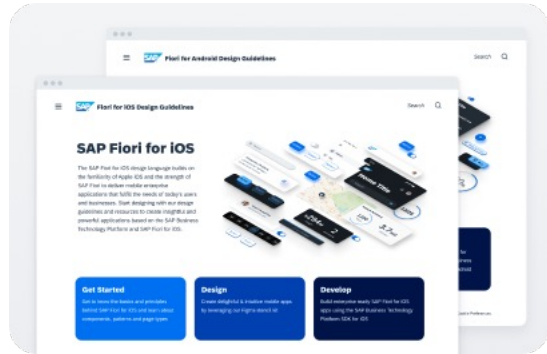
Design Guidelines

Android   iOS
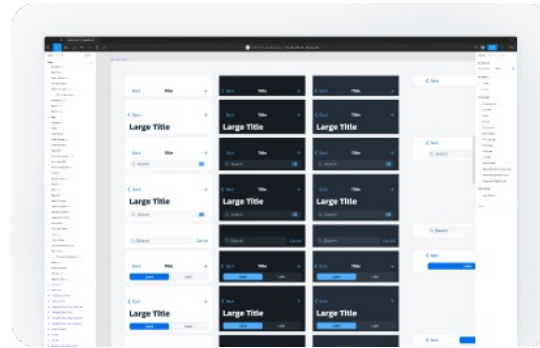
Design Stencil Kits

Android   iOS
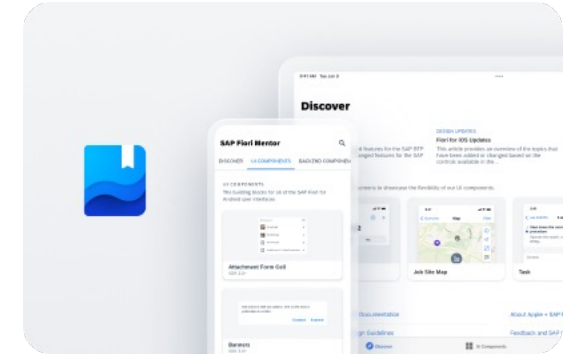
SAP Fiori Mentor App for iOS and Android

Android & iOS

SAP Mobile Development Kit (MDK)

SAP BTP SDK for iOS

SAP BTP SDK for Android

SAP Fiori User Experience Enabled by Technologies & Tools

Developer | Citizen Developer | Key User | Business User

Pro-Code | **Develop** | **Low-Code No-Code** | **Adapt** | **Desktop / Web** SAPUI5, SAP Fiori elements SAP GUI for HTML, Web Dynpro | **Run** | **Mobile** Native Android / iOS

| Visual Studio Code (non-ABAP) (SAP Fiori tools) | SAP Build Code (SAP Business Application Studio, SAP Fiori tools) | SAP Build Apps | SAPUI5 flexibility | SAP Start | SAP Work Zone, standard edition | SAP Work Zone, advanced edition | SAP Mobile Start |
| ABAP Development Tools in Eclipse | SDK for iOS / Android | Mobile Dev. Kit | SAP Screen Personas (SAP GUI / WD ABAP) | | | | |

Local laptop | **SAP Business Technology Platform** | **Business application** | **SAP Business Technology Platform** | **Mobile device**

| SAP S/4HANA Cloud | SE80 | SAP S/4HANA | SE80 | ECC | SE80 | ... |
| ABAP | | ABAP | | ABAP | | |

Backend

SAP Fiori User Experience Enabled by Technologies & Tools

Developer

Pro-Code

Develop

Visual Studio
Code
(non-ABAP)
(SAP Fiori tools)

ABAP
Development
Tools in Eclipse

Local laptop

SAP S/4HANA Cloud		SAP S/4HANA	SE80	ECC	SE80	
ABAP		ABAP		ABAP		...

Backend

Local Development Environments:
Visual Studio Code (VSCode) &
ABAP Development Tools (ADT) / Eclipse

Visual Studio Code and SAP Business Application Studio

Visual Studio Code

- Provides development flexibility with **offline** capabilities

- Features a **developer-controlled**, highly configurable development environment

- Allows access to thousands of extensions from the Visual Studio Code marketplace

- Is part of a fast-growing open source community
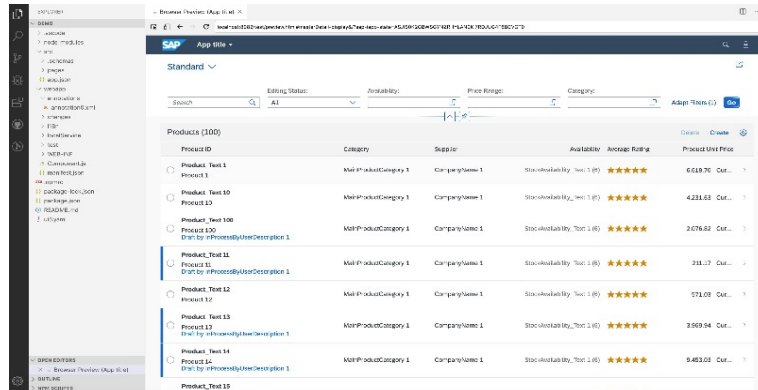
SAP Business Application Studio

- Provides a **managed**, preconfigured, **hosted environment**, optimized for SAP application development (including client and server side extensions).

- Can be **centrally administrated** with tools repositories, systems access and company policies

- Integrates with existing SAP solutions, systems & services

- [Easy access to Visual Studio Code-compatible extensions](#) from VSCode
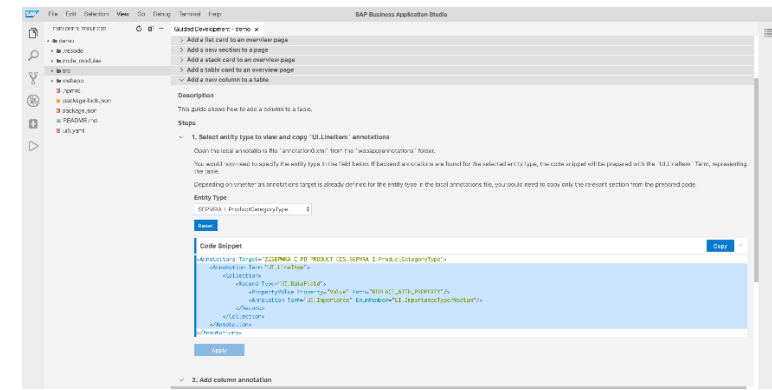
Efficient ABAP development in Eclipse©

MODERN DEVELOPMENT TOOLSET

Fully eclipse-based

Syntax check, Code completion

Syntax highlighting, Pretty printing

Navigation, Search, Quick Fixes

Available for ABAP releases ≥ 7.31

QUALITY ASSURANCE

Static code checks (ATC, CVA) with remote and local scenarios

Unit testing incl. isolation frameworks

Test seams and injections

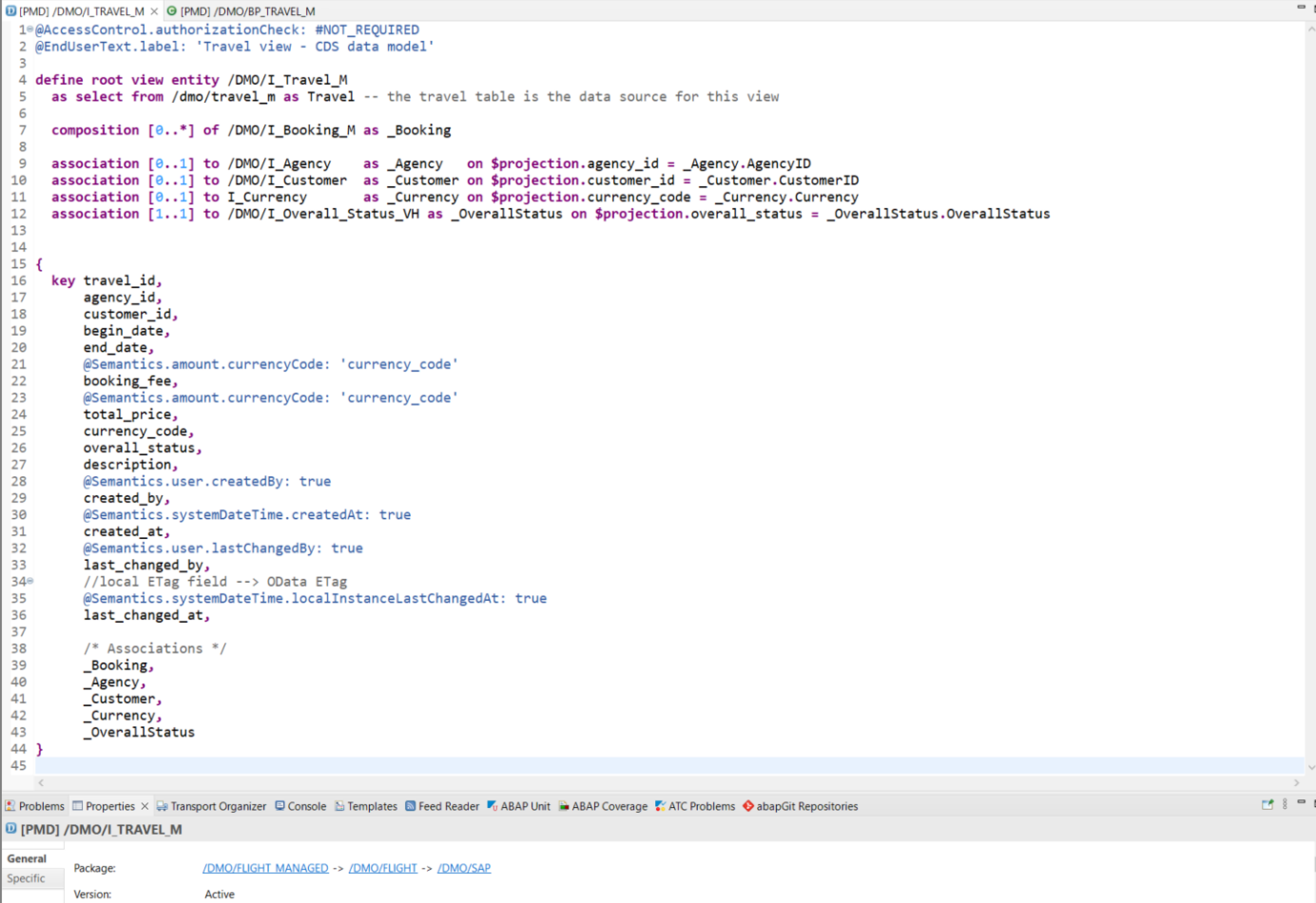## SUPPORTABILITY

Debugging, profiling, tracing

Static and dynamic logging

Runtime monitoring and analysis

```
[PMD] /DMO/I_TRAVEL_M  ×   [PMD] /DMO/BP_TRAVEL_M

 1 @AccessControl.authorizationCheck: #NOT_REQUIRED
 2 @EndUserText.label: 'Travel view - CDS data model'
 3
 4 define root view entity /DMO/I_Travel_M
 5   as select from /dmo/travel_m as Travel -- the travel table is the data source for this view
 6
 7   composition [0..*] of /DMO/I_Booking_M as _Booking
 8
 9   association [0..1] to /DMO/I_Agency     as _Agency    on $projection.agency_id = _Agency.AgencyID
10   association [0..1] to /DMO/I_Customer   as _Customer  on $projection.customer_id = _Customer.CustomerID
11   association [0..1] to I_Currency        as _Currency  on $projection.currency_code = _Currency.Currency
12   association [1..1] to /DMO/I_Overall_Status_VH as _OverallStatus on $projection.overall_status = _OverallStatus.OverallStatus
13
14
15 {
16   key travel_id,
17       agency_id,
18       customer_id,
19       begin_date,
20       end_date,
21       @Semantics.amount.currencyCode: 'currency_code'
22       booking_fee,
23       @Semantics.amount.currencyCode: 'currency_code'
24       total_price,
25       currency_code,
26       overall_status,
27       description,
28       @Semantics.user.createdBy: true
29       created_by,
30       @Semantics.systemDateTime.createdAt: true
31       created_at,
32       @Semantics.user.lastChangedBy: true
33       last_changed_by,
34       //local ETag field --> OData ETag
35       @Semantics.systemDateTime.localInstanceLastChangedAt: true
36       last_changed_at,
37
38       /* Associations */
39       _Booking,
40       _Agency,
41       _Customer,
42       _Currency,
43       _OverallStatus
44 }
45
```

Problems Properties × Transport Organizer Console Templates Feed Reader ABAP Unit ABAP Coverage ATC Problems abapGit Repositories

[PMD] /DMO/I_TRAVEL_M

General
Specific

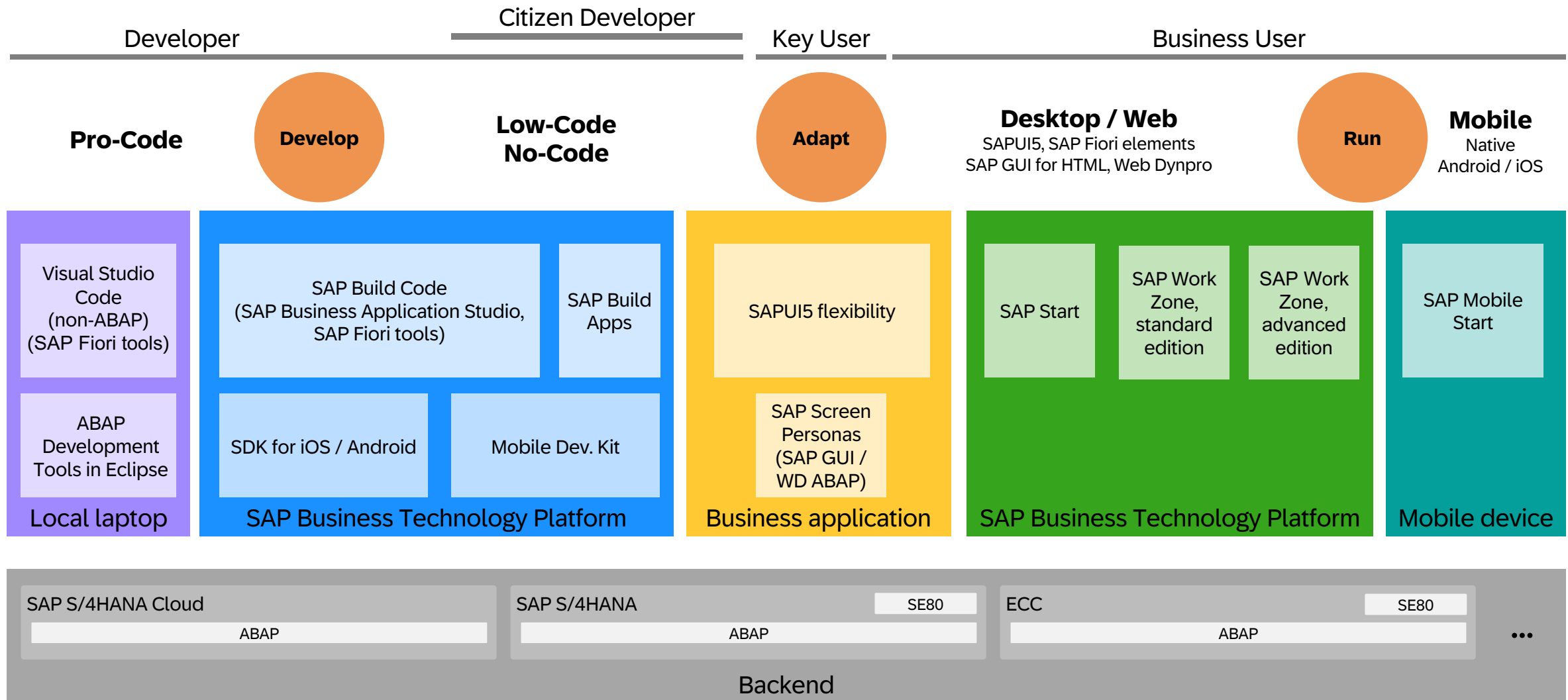Package: /DMO/FLIGHT MANAGED -> /DMO/FLIGHT -> /DMO/SAP

Version: Active

Local Development Environments

[Set Up SAP Fiori Tools in Your Visual Studio Code](#)
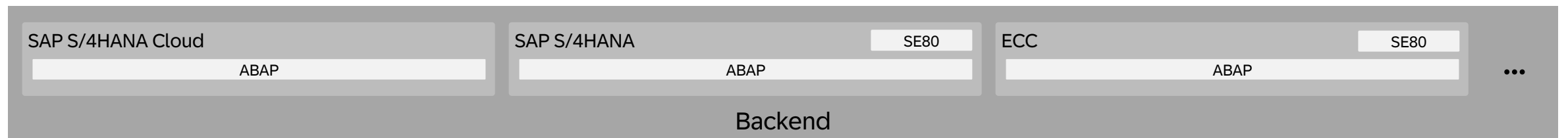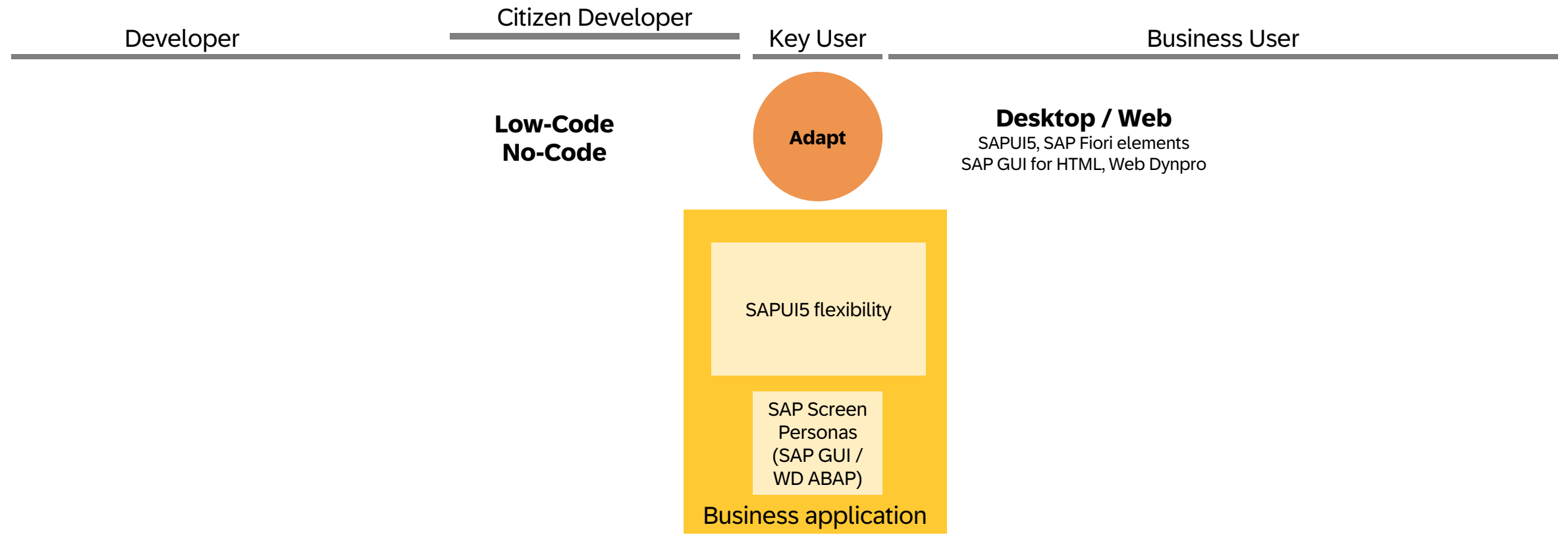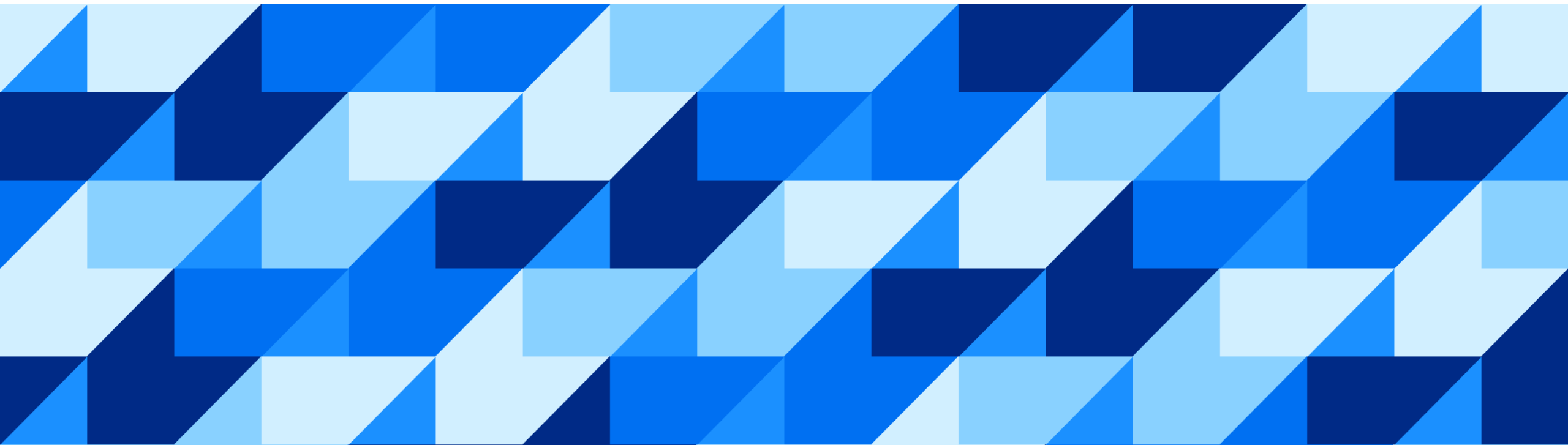
[Install ABAP Development Tools (ADT) in Eclipse](#)

Source: https://en.wikipedia.org/wiki/Marvin_the_Paranoid_Android

SAP Fiori User Experience Enabled by Technologies & Tools

Developer		Citizen Developer		Key User	Business User		

Pro-Code — **Develop** — **Low-Code No-Code** — **Adapt** — **Desktop / Web** (SAPUI5, SAP Fiori elements, SAP GUI for HTML, Web Dynpro) — **Run** — **Mobile** (Native Android / iOS)

Local laptop	SAP Business Technology Platform	Business application	SAP Business Technology Platform	Mobile device
Visual Studio Code (non-ABAP) (SAP Fiori tools)	SAP Build Code (SAP Business Application Studio, SAP Fiori tools) / SAP Build Apps	SAPUI5 flexibility	SAP Start / SAP Work Zone, standard edition / SAP Work Zone, advanced edition	SAP Mobile Start
ABAP Development Tools in Eclipse	SDK for iOS / Android / Mobile Dev. Kit	SAP Screen Personas (SAP GUI / WD ABAP)		

Backend

SAP S/4HANA Cloud	SAP S/4HANA	SE80	ECC	SE80	...
ABAP	ABAP		ABAP		

SAP Fiori User Experience Enabled by Technologies & Tools

Developer

Citizen Developer

Key User

Business User

Low-Code
No-Code

Adapt

Desktop / Web
SAPUI5, SAP Fiori elements
SAP GUI for HTML, Web Dynpro

SAPUI5 flexibility

SAP Screen
Personas
(SAP GUI /
WD ABAP)

Business application

| SAP S/4HANA Cloud | | SAP S/4HANA | SE80 | ECC | SE80 | |
| ABAP | | ABAP | | ABAP | | ... |

Backend

Extending / Adapting SAP Standard Apps:
SAP Screen Personas & SAPUI5 Flexibility

SAP Fiori Apps Reference Library

Library of all SAP content for the SAP Fiori launchpad. Explore, plan, and implement SAP Fiori apps as well as classic applications based on SAP GUI and WebDynpro.

- Overview of all SAP Fiori apps

- Information for each app, including technical data for installation and configuration

- Configuration information required to integrate classic SAP GUI and WebDynpro applications into the SAP Fiori launchpad

- Data for previous app versions

- Direct navigation to related resources, such as app documentation, Product Availability Matrix, and Maintenance Planner

- Recommendations for SAP Fiori apps for your needs

SAP Fiori Apps Reference Library

SAP Screen Personas simplifies complex classic ERP screens

Benefits

Improve business productivity

Increase SAP adoption by making screens easier to use

Decrease training time for SAP users with intuitive screens

Enhance user satisfaction

Reduce the cost of personalization compared to custom coding

Capabilities

Hide / rearrange screen elements, reduce scrolling

SAP Fiori design creation for custom or standard transactions, including SAP S/4HANA; embed into SAP Fiori launchpad

Adapt Dynpro or Web Dynpro ABAP screens

Pre-filled fields & pull-down menus as well as automation of repetitive tasks

Slipstream Engine renders flavors on desktop, tablet, or mobile phone

www.sapscreenpersonas.com

Using SAPUI5 flexibility to deliver a tailored user experience

Adapt standard applications for your own use cases in a **cost-efficient** way

Add **extensions wherever needed** compared to classical "extension points"

Benefit from **standard upgrades** while keeping extensions functional

Explore **intuitive tooling** tailored for different personas

Developer

Key user
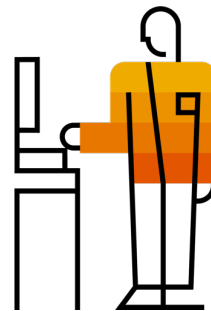
End user

Choose the path to the SAP Fiori user experience based on your needs
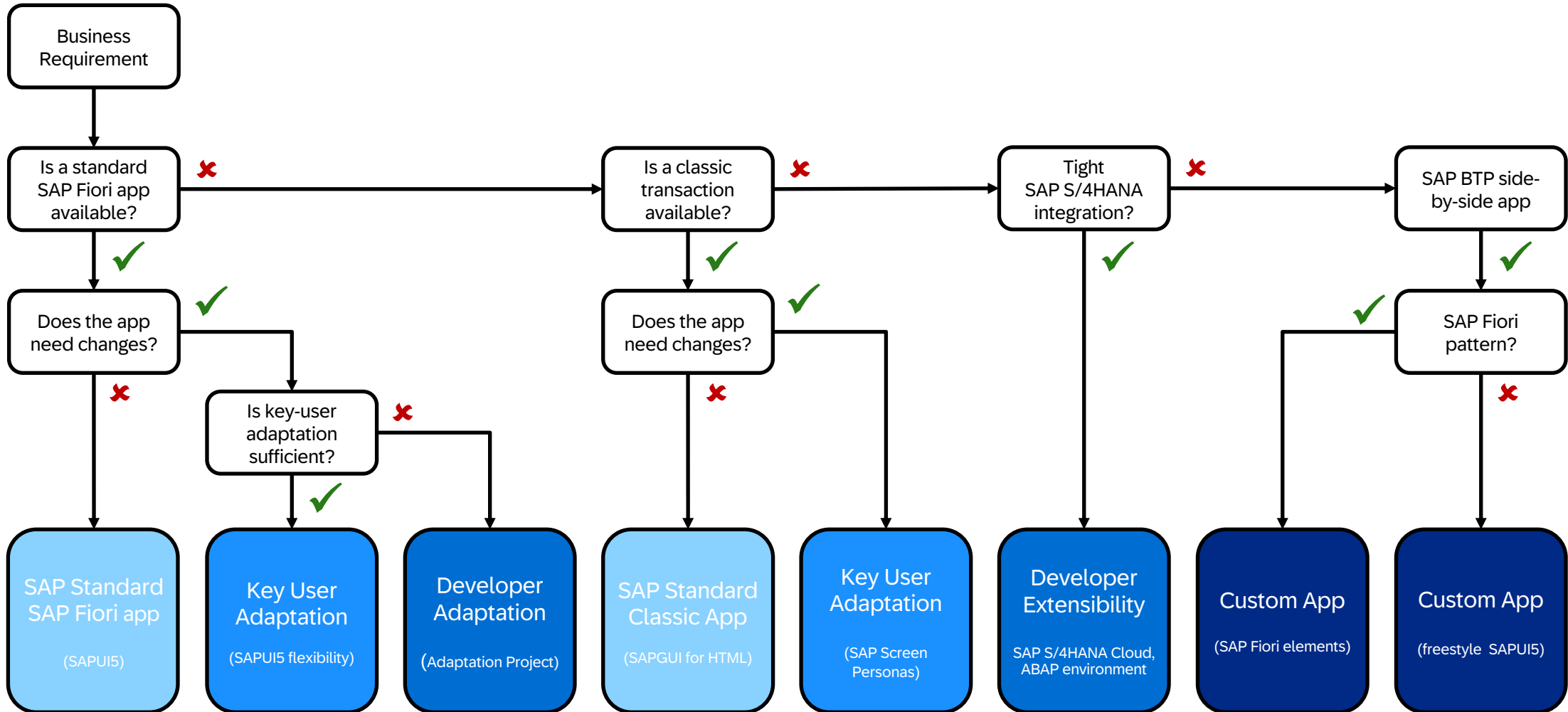
Extending SAP standard apps: SAP Screen Personas & SAPUI5 Flexibility

SAP Screen Personas - SAP Community topic page

SAPUI5 Flexibility - All You Need to Know

https://ui5.sap.com > Demo apps > SAPUI5 flexibility demo apps

SAP Fiori User Experience Enabled by Technologies & Tools

Teaching concept

| Developer | Citizen Developer | Key User | Business User |

Pro-Code

Develop

Low-Code No-Code

Adapt

Desktop / Web
SAPUI5, SAP Fiori elements
SAP GUI for HTML, Web Dynpro

Run

Mobile
Native
Android / iOS

Visual Studio Code (non-ABAP) (SAP Fiori tools)

ABAP Development Tools in Eclipse

Local laptop

SAP Build Code (SAP Business Application Studio, SAP Fiori tools)

SAP Build Apps

SDK for iOS / Android

Mobile Dev. Kit

SAP Business Technology Platform

SAPUI5 flexibility

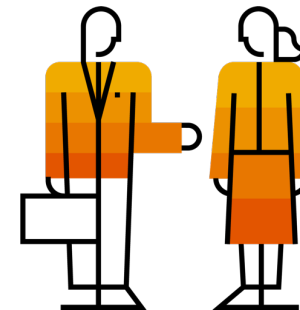SAP Screen Personas (SAP GUI / WD ABAP)

Business application

SAP Start

SAP Work Zone, standard edition

SAP Work Zone, advanced edition

SAP Business Technology Platform

SAP Mobile Start

Mobile device

SAP S/4HANA Cloud

ABAP

SAP S/4HANA

SE80

ABAP

ECC

SE80

ABAP

...

Backend

SAP Fiori User Experience Enabled by Technologies & Tools

Business User

Run

Mobile
Native
Android / iOS

SAP Mobile
Start

Mobile device

SAP S/4HANA Cloud		SAP S/4HANA	SE80	ECC	SE80	
ABAP		ABAP		ABAP		...

Backend

SAP Mobile Start: Native entry point to the Intelligent Enterprise
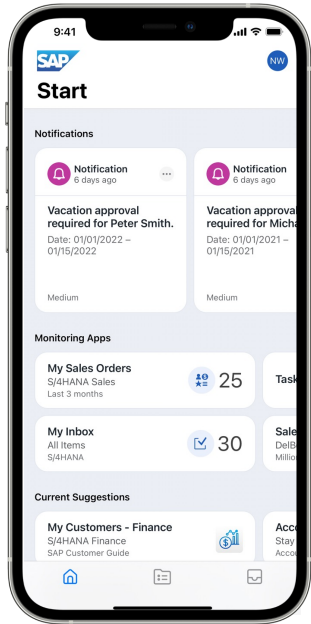
SAP Mobile Start

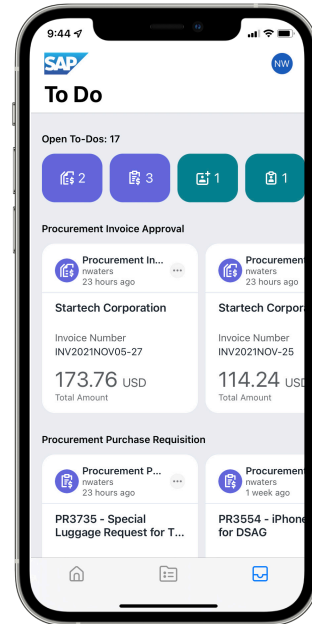## Native entry point to the Intelligent Enterprise Suite

Start screen
Latest notifications,
& app suggestions
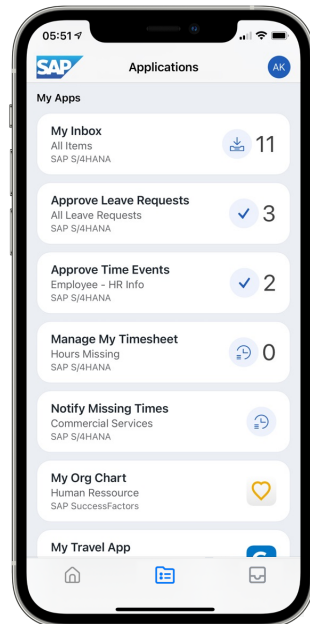
Applications
Native apps,
Web responsive apps,
Web links & News feeds

ToDo screen
Tasks and Notifications

Mobile device integration (Android, iOS)
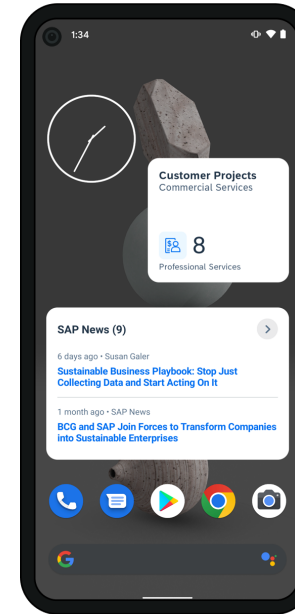
Widgets
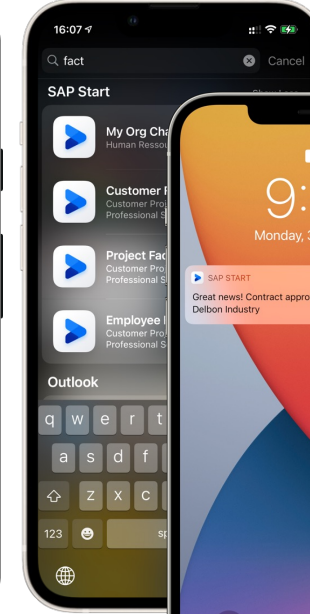
iOS Spotlight Search

Notifications

Watch Companion App for iOS

Complications*
Monitoring information and number of tasks

To Dos
List of your To Dos, with details and filter option

Take Action
Take action on suitable tasks right from your watch

Monitoring Info
Get your monitoring info on your watch

SAP S/4HANA

SAP Ariba

SAP SuccessFactors

SAP Fieldglass

SAP Concur

SAP Customer Experience

*This is the current state of planning and may be changed by SAP at any time without notice.

Extending SAP standard apps: SAP Screen Personas & SAPUI5 Flexibility

Video: SAP Mobile Start – Your native entry point to the Intelligent Enterprise

SAP Fiori User Experience Enabled by Technologies & Tools

Developer		Citizen Developer		Key User	Business User		

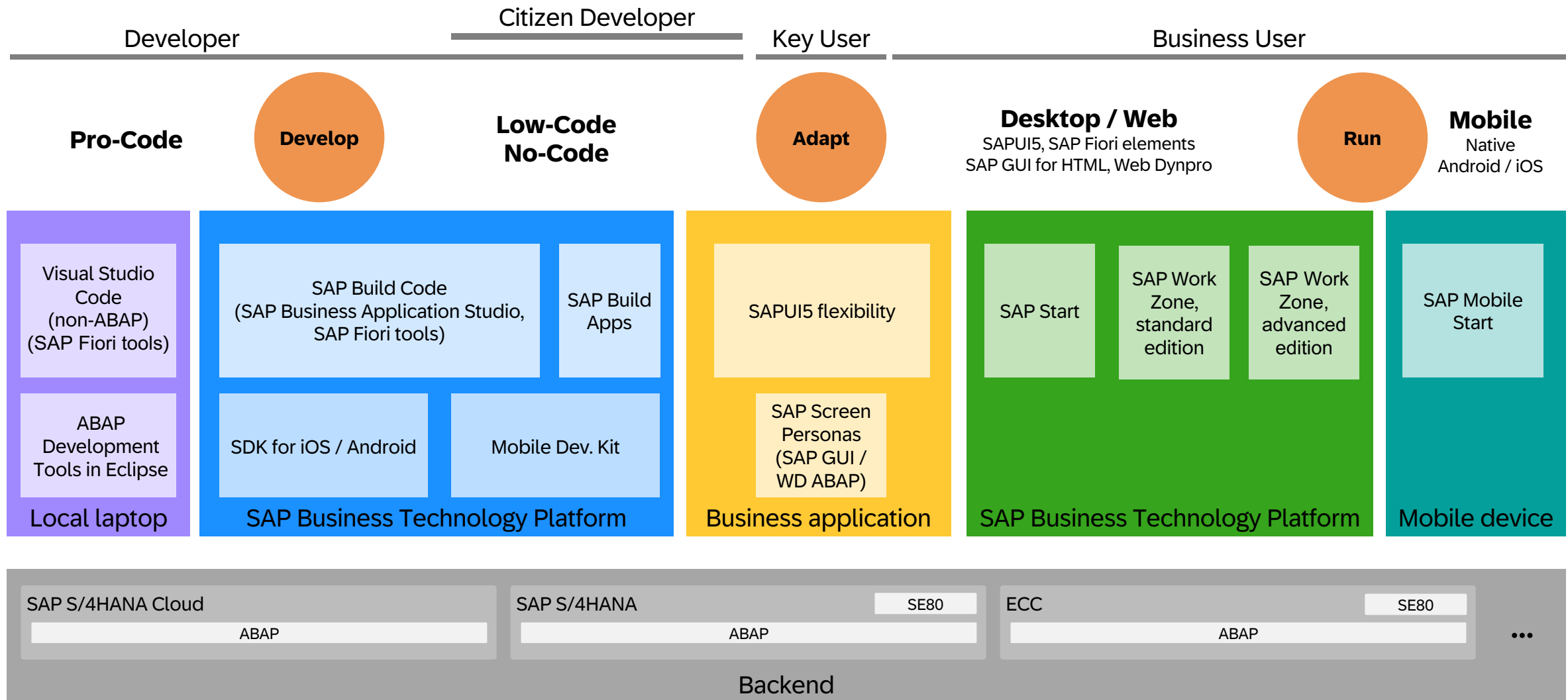**Pro-Code** | **Develop** | **Low-Code No-Code** | **Adapt** | **Desktop / Web** SAPUI5, SAP Fiori elements SAP GUI for HTML, Web Dynpro | **Run** | **Mobile** Native Android / iOS

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Local laptop	SAP Business Technology Platform		Business application	SAP Business Technology Platform			Mobile device

SAP S/4HANA Cloud		SAP S/4HANA	SE80	ECC	SE80	
ABAP		ABAP		ABAP		...

Backend

Thank you.
... and don't panic!

Contact information:

Oliver Graeff
Director – Product Management, SAP

E-mail: oliver.graeff@sap.com
LinkedIn: olivergraeff

Questions?

Recording + Slides soon available here