



How to Speed up Your Application Development with Fiori Elements

Marian Zeis, Independent SAP Developer

SAPinsider
2023

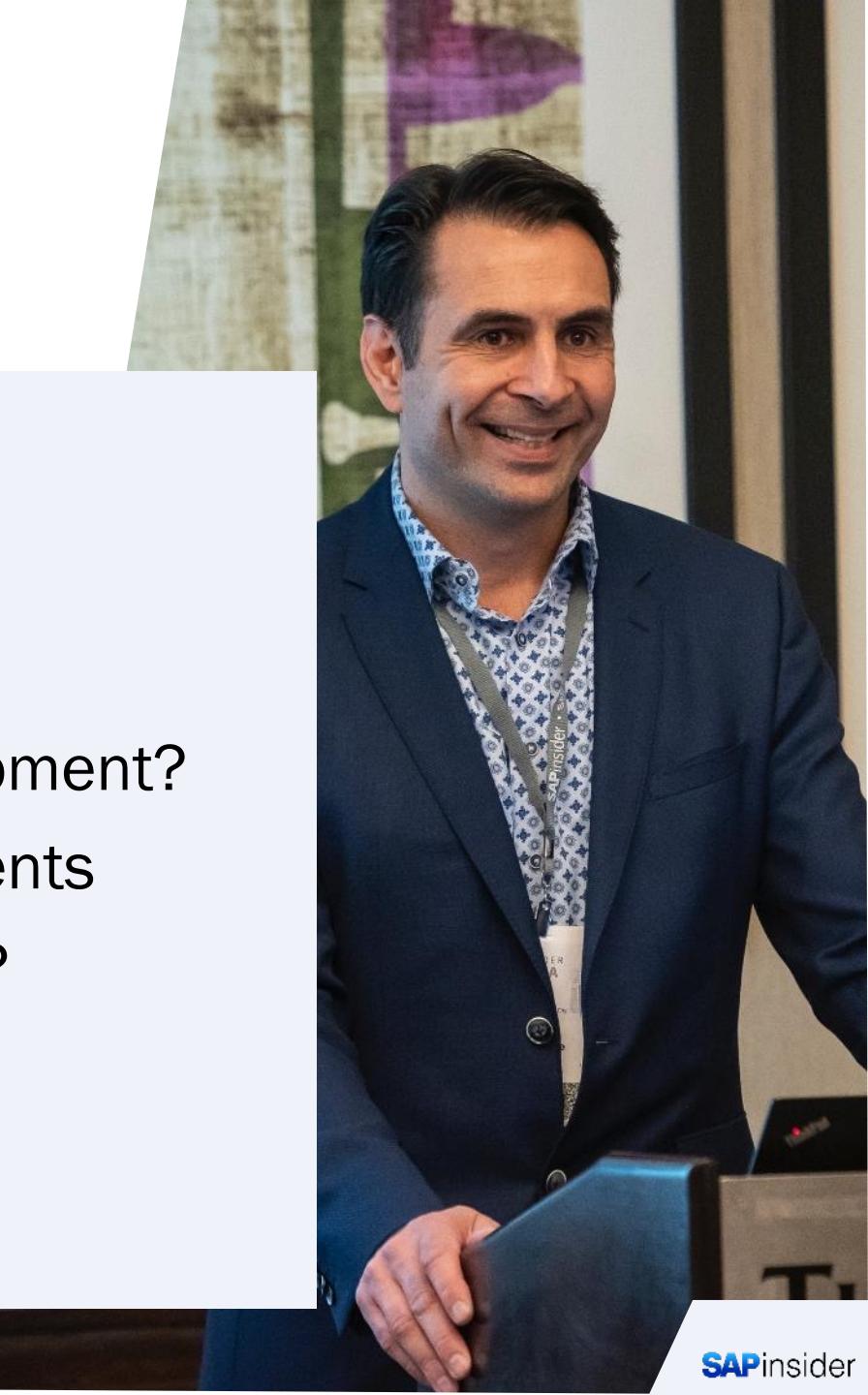


In This Session

What to know about Fiori Elements

Agenda

1. What is Fiori Elements
2. Why use Fiori Elements
3. What has improved recently?
4. How does it improve your development?
5. What to consider with Fiori Elements
6. How to use newest Technologies?
7. How to adopt Fiori Elements with RAP/CAP?
8. Wrap up



What is Fiori Elements?

SAP Fiori Elements is a framework for efficiently creating **consistent**, **scalable**, and **maintainable** user interfaces for SAP applications, focusing on **standardized design patterns** and **ease of use**.

- 1. Consistent:** Fiori Elements ensure consistency in user experience across different applications by adhering to the SAP Fiori design guidelines.
- 2. Scalable:** An application built with Fiori Elements can easily scale to handle more data or users, as the underlying framework is optimized for performance and resource management.
- 3. Maintainable:** Maintenance is simplified with Fiori Elements, as standard components and patterns are used, making it easier to update and manage applications over time.
- 4. Standardized design patterns:** Fiori Elements uses standardized design patterns like Master-Detail and List Report, making it easier for users familiar with SAP systems to navigate and use new applications.
- 5. Ease of use:** Developers find Fiori Elements easy to use due to its declarative programming model, allowing them to define UIs with minimal coding.

What is Fiori Elements?

OData annotations define attributes and relationships

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



Business data

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?

The screenshot shows an SAP Fiori Object Page for a 'Robot Arm Series 9' (PO-48865). The page includes sections for General Information, Order Details, Configuration Details, Assembly Options, and Work Items with Errors. The 'Assembly Options' section is highlighted with a yellow box labeled 'SAPUI5 View'. The page also features consumption hints such as 'Delivery' (green), 'To Be Selected' (red), and '379.99 USD' (blue).

“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”

What is Fiori Elements?

Ensures consistent layout and navigation

The collage consists of six screenshots of SAP Fiori applications:

- List Page:** Shows a table of Sales Orders (18) with columns for Sales Order Number and Product Code.
- Report Page:** Displays a detailed view of a Sales Order for "Robot Arm Series 9" with sections for General Information, Order Details, Assembly Options (7), and Contact Information.
- Object Page:** Shows a Sales Order Analysis page with a bar chart titled "Sales Orders by Company" and a table of Sales Orders (123).
- Overview Page:** Provides an overview of Procurement Overview with sections for General Information, Assembly Options (7), and Contact Information.
- Analytical List Page:** Features a Project Financial Analysis chart showing revenue by customer and month, along with a table of Sales Orders (18).
- Flexible Column Layout:** Illustrates a Sales Order page with a flexible column layout, showing sections for General Information, Configuration Details, Order Details, and Assembly Options (7).

Efficient development using templates, designed based on enterprise user needs

© 2022 SAP SE or an SAP affiliate company. All rights reserved. | Public

This is the current state of SAP at any time. 28

What is Fiori Elements?

Out-of-the-box Features

The diagram illustrates the Fiori Elements interface across four main pages, each demonstrating various out-of-the-box features:

- Overview page:** Shows a dashboard with multiple cards displaying real-time data and performance metrics.
- List report page:** Displays a table of sales orders with columns for Sales Order, Sold-to Party, Customer Reference, Requested Delivery Date, Overall Status, Net Value, and Document Date. It includes filtering, sorting, and actions like "Create" and "Billing Block".
- Object details:** Provides detailed information for a specific sales order (374900). It shows partners, status, and financial details (Net Sales Volume YTD: 45,972,341,00 USD, Net Value: 700,17 USD). It also includes tabs for General Information, Items, Prices, Billing Plan, Texts, Status and Blocks, Process Flow, and Output Items.
- Object page:** Offers a comprehensive view of the sales order (374900) with sections for Order Data, Advanced Data, Terms and Conditions, Pricing and Billing, Organizational Data, and Administrative Data. It includes fields for Sold-to Party, Document Date, Customer Reference, Order Reason, Shipping Conditions, and various payment and delivery terms.

Annotations on the right side of the diagram map specific features to the pages:

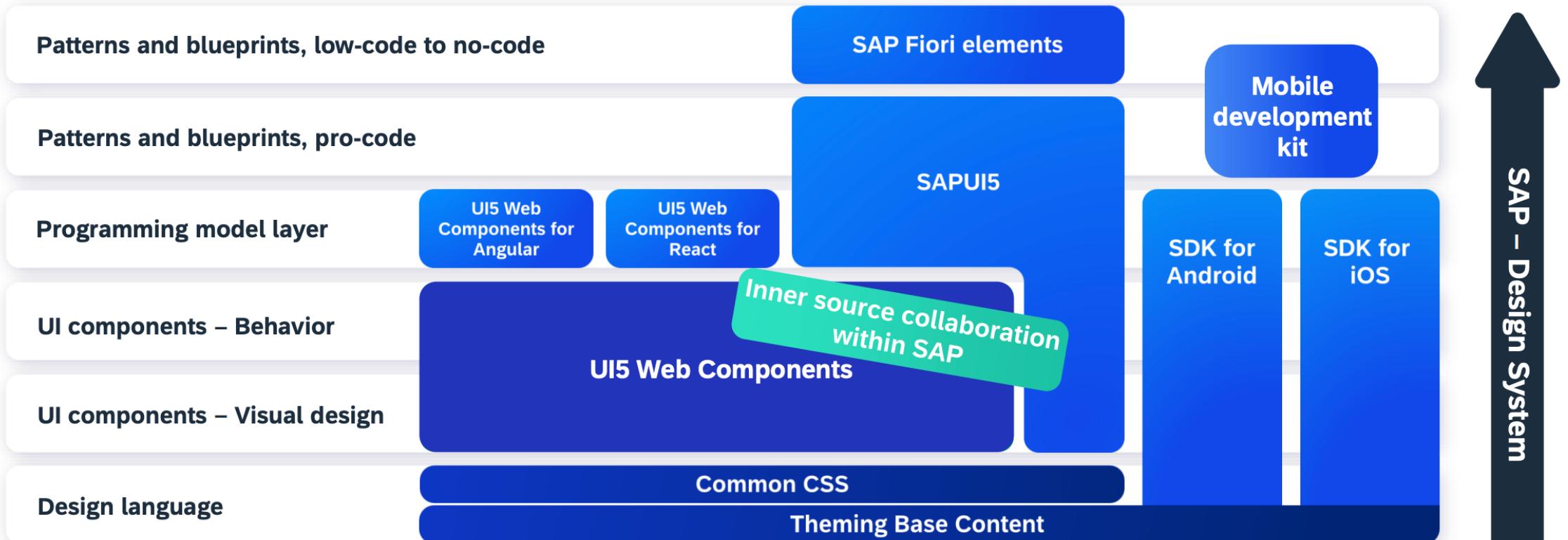
- Variant management:** Points to the Overview page.
- Search:** Points to the List report page.
- Data lists:** Points to the List report page.
- Filtering:** Points to the List report page.
- Sorting:** Points to the List report page.
- Actions:** Points to the List report page.
- Personalization:** Points to the Object page.
- Export to Microsoft Excel:** Points to the Object page.
- Editing (including draft management):** Points to the Object page.
- Navigation:** Points to the Object page.

Object details

Object page

What is Fiori Elements?

SAP UI Technologies



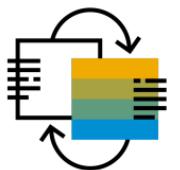
- Application development
- Framework development

Why use Fiori Elements?



Developer Productivity

- Focus on **business logic** and back-end services
- Write **less UI code**
- **Reduce** development and maintenance **costs**



UX Consistency

- Comply with the **latest SAP Fiori design** specification
- Deliver a **centrally managed** user experience
- Include **uniform** fonts, colors, layout, navigation, actions, search, filtering, and more

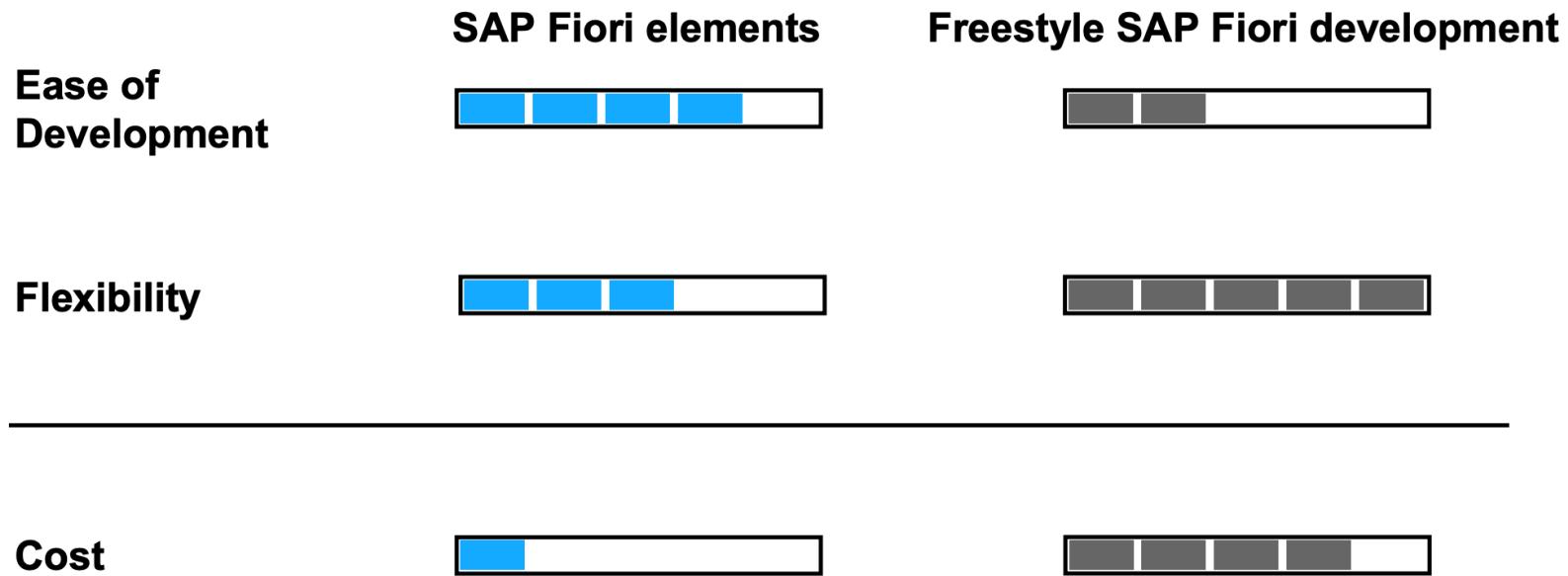


Enterprise Readiness

- Deliver **high quality** SAPUI5 applications to end-users
- Ensure **stable, optimized** UI code out of the box
- Include **standard enterprise features** (accessibility, mobile, translation support, ...)

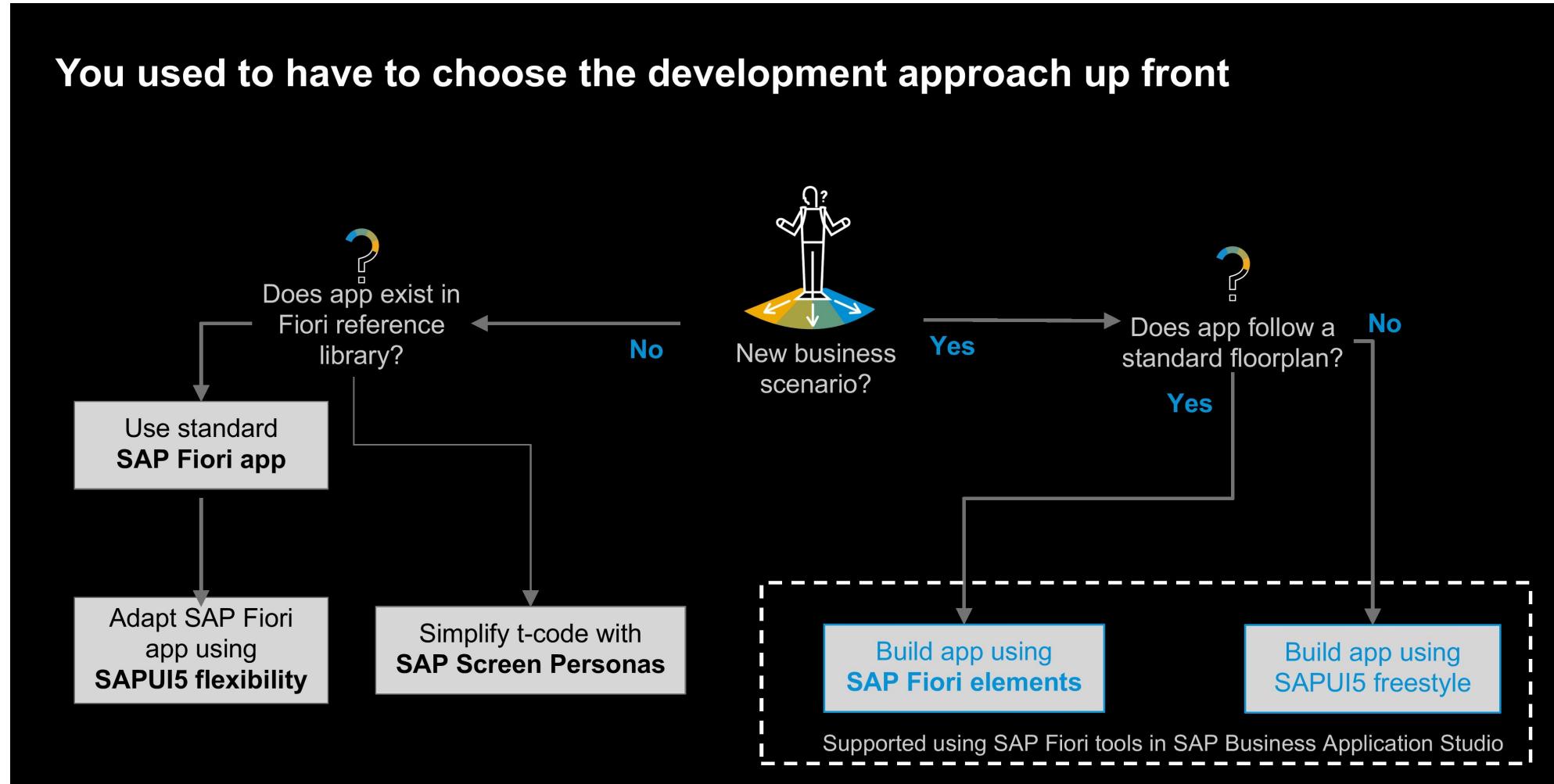
What has improved recently?

Flexible Programming Model



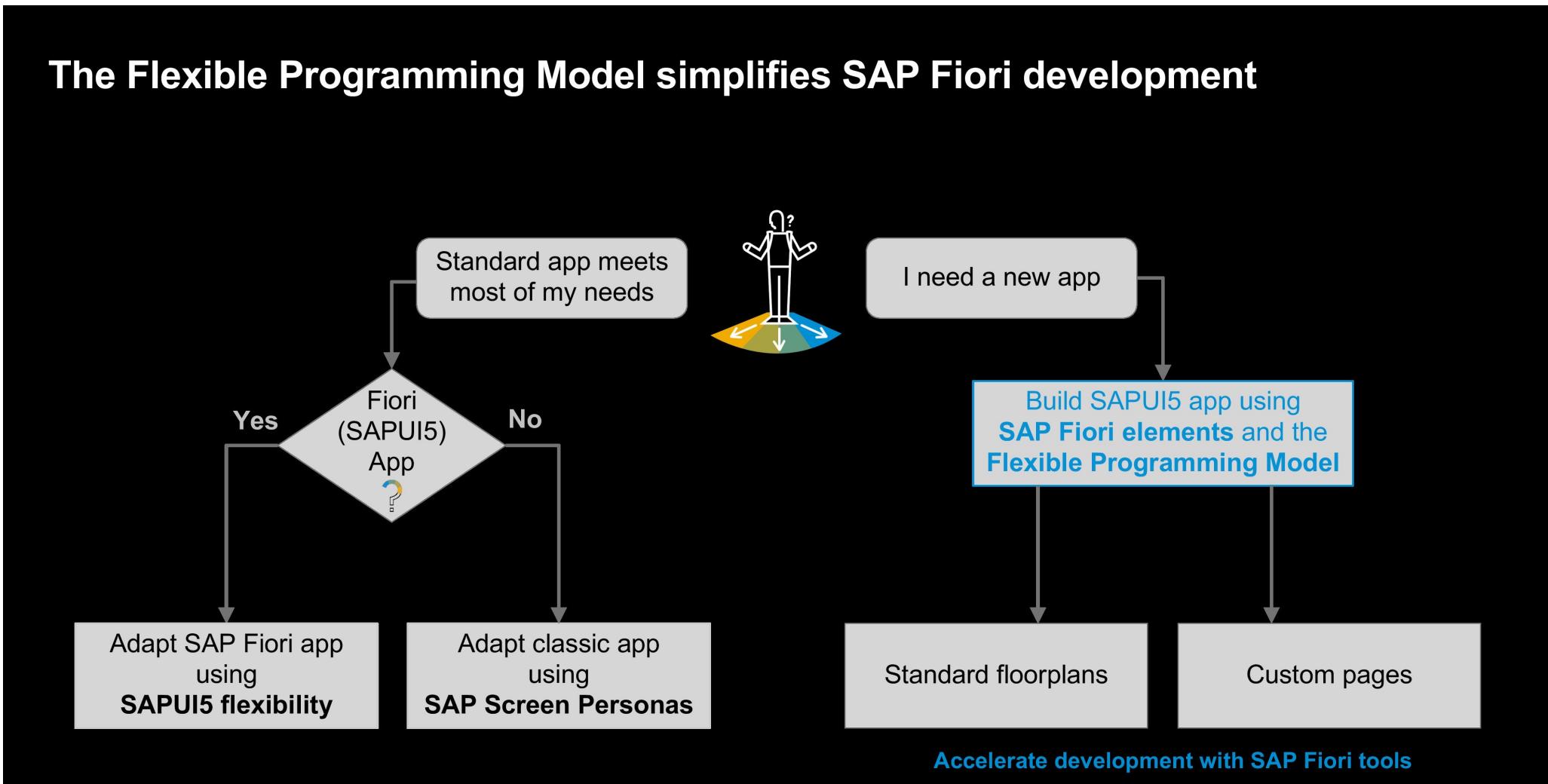
What has improved recently?

Flexible Programming Model



What has improved recently?

Flexible Programming Model



What has improved recently?

Flexible Programming Model

The screenshot shows the SAP Travel application interface. At the top, there's a header with the SAP logo, a search bar, and a DU button. Below the header, the title "Business Trip" and ID "4122" are displayed. A toolbar with buttons for Edit, Delete, Accept Travel, Reject Travel, Deduct Discount, and a refresh icon follows. The main content area has two tabs: "Travel" (selected) and "Travel Itinerary". Under "Travel", details like Travel ID (4122), Agency ID (Cap Travels Ltd. (070038)), End Date (Oct 7, 2021), and Total Price (7,037.00 USD) are shown. Under "Travel Itinerary", a message says "All bookings for travel 4122 got confirmed by the agency." A map shows a flight path from San Francisco (SFO) to New York (JFK) and then to Frankfurt am Main (FRA). To the right, a table titled "Bookings (2)" lists two entries:

No.	Booking Date	Customer ID	Flight Number	Flight Date
1	Sep 28, 2021	Neubasler (000083)	0018	Oct 7, 2021
2	Sep 28, 2021	Wohl (000138)	0018	Oct 7, 2021

A yellow box highlights this table with the text "Table building block". At the bottom left, the text "Custom control" is overlaid on the map area.

What has improved recently?

Fiori Elements Extensions

The screenshot shows a Fiori application interface for managing incidents. On the left, there's a standard search bar and a chart titled 'Incidents Per Category' showing counts for hardware, security, software, and telephony. Below is a table of incidents with columns for Identifier, Priority, and a newly added 'MPT Days Spent' column, which is highlighted with a yellow border.

Custom Field: A callout highlights the 'MPT Days Spent' section in the incident details view, which includes a bar chart comparing maximum processing time spent (81.0) against the limit (90.0).

Custom Section: A callout highlights the 'Maximum Processing Time' section in the incident process flow view, which displays a timeline from January to March 2021 with various process steps.

Custom Column: A callout highlights the 'MPT Days Spent' column in the incident table, which provides a visual summary of processing time for each incident.

What has improved recently?

Flexible Programming Model

Flexible programming model blends SAP Fiori elements and freestyle SAPUI5

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

SAP Fiori elements

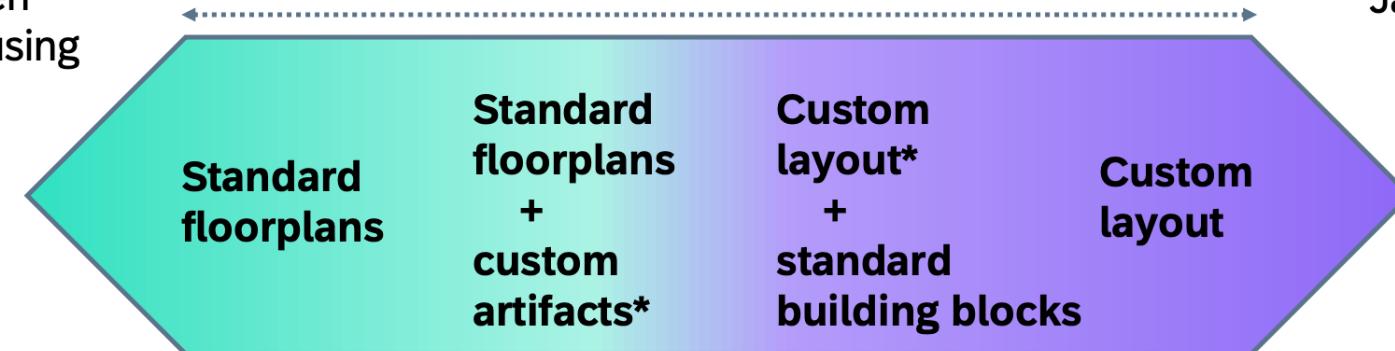
Metadata-driven development using annotations

Flexible programming model

SAPUI5 freestyle

JavaScript framework and UI library

Support for Typescript



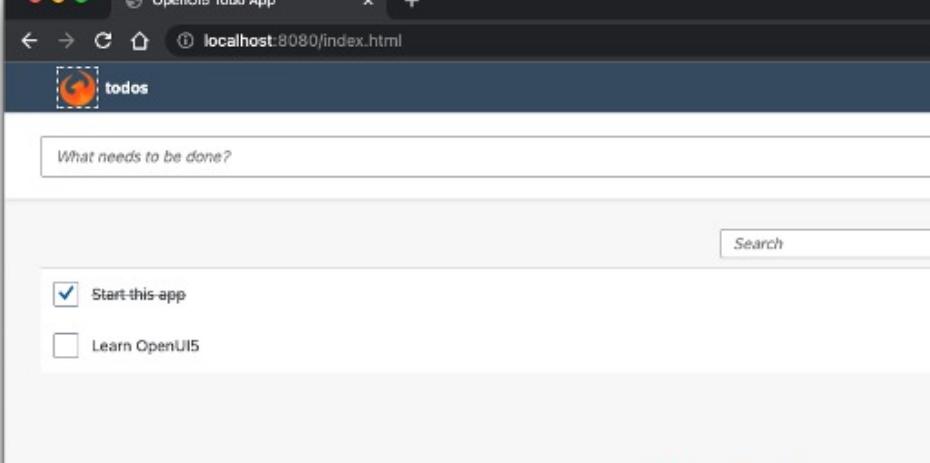
Efficiency

Flexibility

*Leveraging standard building blocks and SAPUI5 controls and custom code

What has improved recently?

Fiori Elements Extensions



Standard ▾

Editing Status: All Created By: Go Adapt Filters (1)

Search

Open Documentation More Info about UI5 Spreadsheet Upload

Orders (5)

OrderNo	Customer	Currency	Date
2	jane.doe@test.com		
200	jane.doe2@test.com		
201	jane.doe4@test.com		
202	jane.doe4@test.com		
1	john.doe@test.com		

Spreadsheet Upload

2 records are ready for upload

ListReportOrdersNoErros.xlsx

PDF Viewer

Durchsuchen ...

Open PDF in dialog

URL: <https://sapui5.hana.ondemand.com/sdk/test-resources/sap/m/demokit/sample/PDFViewerEmbedded/sample.pdf>

Run Simple

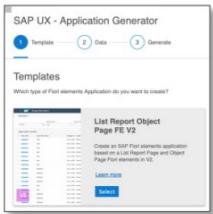
As the market leader in enterprise application software, SAP is at the center of today's business and technology.

What has improved recently?

Tools support

Application Generator

Creates the project environment for development



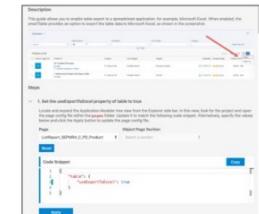
Page Map & Editor

Allows editing of the structure of the app: pages, properties, and navigation



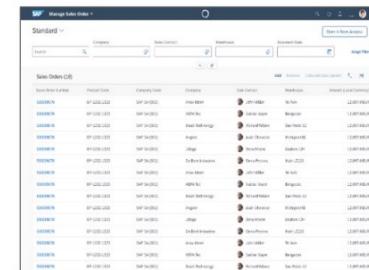
Guided Development

Provides step-by-step development instructions and generates code snippets in-line



Application Preview

Provides preview of web app in the browser either with mock data or live data

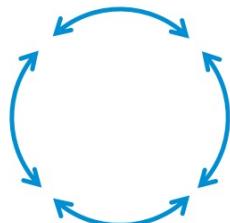


Service Modeler

Visualizes service entities, relations, properties, and annotations



**Available in
SAP Business
Application Studio
and
Visual Studio Code**



Code Completion

Delivers a language server protocol for annotations with micro-snippets and diagnostics



Why Fiori Elements?

Flexibility with Key User Adaption

The screenshot shows a browser window for the SAP Fiori Apps Reference Library. The title bar says "SAP Fiori Apps Reference Library" and "Manage Bank Accounts". The address bar shows a "Not secure" warning and the URL "vhcals4hcs.dummy.nodomain:44301/sap/bc/ui5_ui5/ui2/ushell/sh...". The main content area is titled "Manage Bank Accounts" with tabs for "UI Adaptation" (selected), "Navigation", "Import and Export Bank Accounts", "Manage Bank Account Hierarchies", "Create Document", and "Find Document". A dropdown menu under "Standard" is set to "Filtered By (1): Company Code". Below this, a table lists bank accounts. The first row has columns: Account Description, Account Currency, Account Number, Account Status, Account Type, Bank Key, Bank Country, and IBAN. The second row shows data for "Bank 1 Giro": USD, 33333, 02 (Active), 09 (Checking Account), 011000390 (Bank 1 - SAMPLE BANK), US (USA). A tooltip on the "Create" button shows options: Rename, Remove, Cut, and Paste. At the bottom, it says "Company Code: 1710 (Company Code 1710)" and "SWIFT/BIC: BOFAUS3M".

Account Description	Account Currency	Account Number	Account Status	Account Type	Bank Key	Bank Country	IBAN
Bank 1 Giro	USD	33333	02 (Active)	09 (Checking Account)	011000390 (Bank 1 - SAMPLE BANK)	US (USA)	

What has improved recently?

Learning

LEARNING JOURNEY

Acquiring Core ABAP Skills

24 Units | 40 hrs | Free until certification

Improve your ABAP Programming Skills on SAP BTP



Overview

This learning journey will introduce you to the basic programming on SAP Business Technology Platform.

Learning objectives

After completing this learning journey, developers will have gained an overview of the basic properties of the ABAP programming language. You will discover how to apply the fundamental programming techniques on SAP BTP environment, and will be able to develop a simple ABAP RESTful Application Programming Model.

Your current experience in this topic

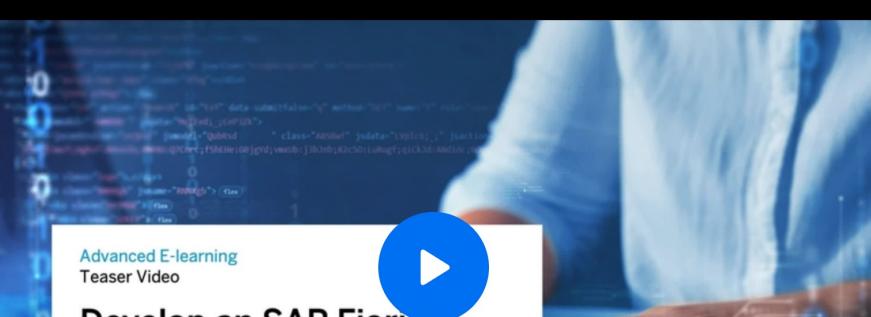
Beginner | Intermediate

Prerequisites

- Elementary knowledge in any modern programming language such as Java, C#, or Python
- Understanding of SAP Business Technology Platform ([Discovering SAP Business Technology Platform](#))

Developing an SAP Fiori Elements App Based on a CAP OData V4 Service

14 Units | 14 hrs | FREE



Advanced E-learning
Teaser Video



Developer on SAP Fiori

Source: [Screenshot left](#) / [Screenshot right](#)

What has improved recently?

Documentation

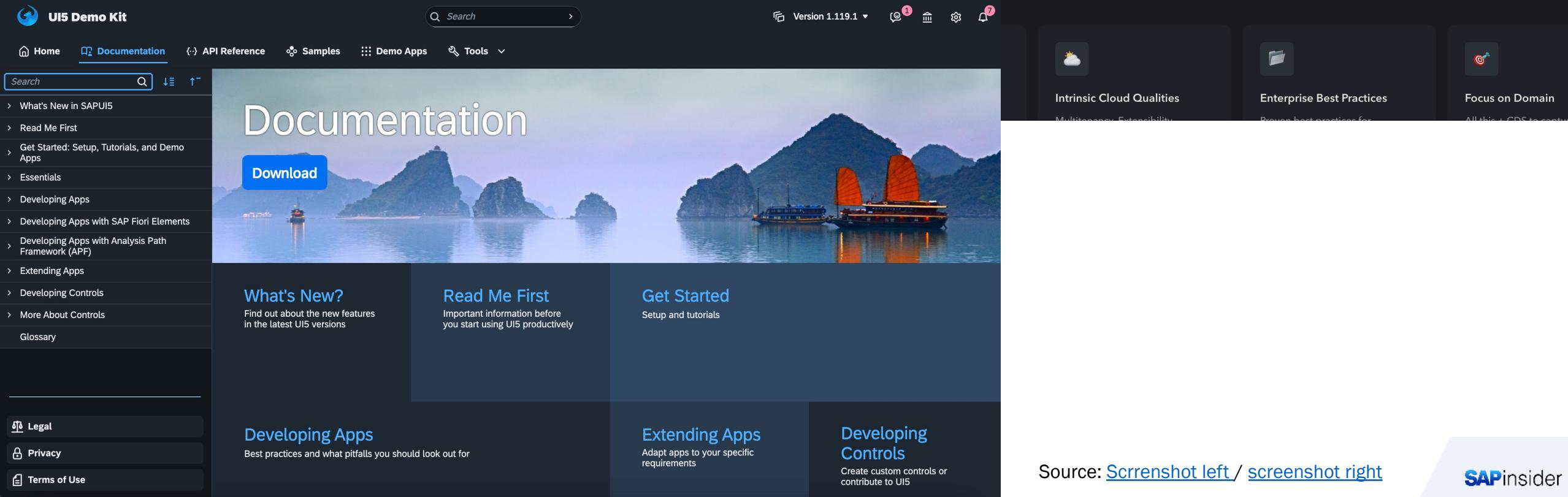


Welcome to CAP

The Cloud Application Programming Model

Building Cloud-native Applications with Maximized Productivity at Minimized Costs, based on Proven Best Practices Served Out of the Box.

About CAP Get Started See Samples See Release Notes



Documentation

Download

What's New? Find out about the new features in the latest UI5 versions

Read Me First Important information before you start using UI5 productively

Get Started Setup and tutorials

Developing Apps Best practices and what pitfalls you should look out for

Extending Apps Adapt apps to your specific requirements

Developing Controls Create custom controls or contribute to UI5

Intrinsic Cloud Qualities Multitenancy, Extensibility

Enterprise Best Practices Proven best practices for

Focus on Domain All this + CDS to capture

Legal

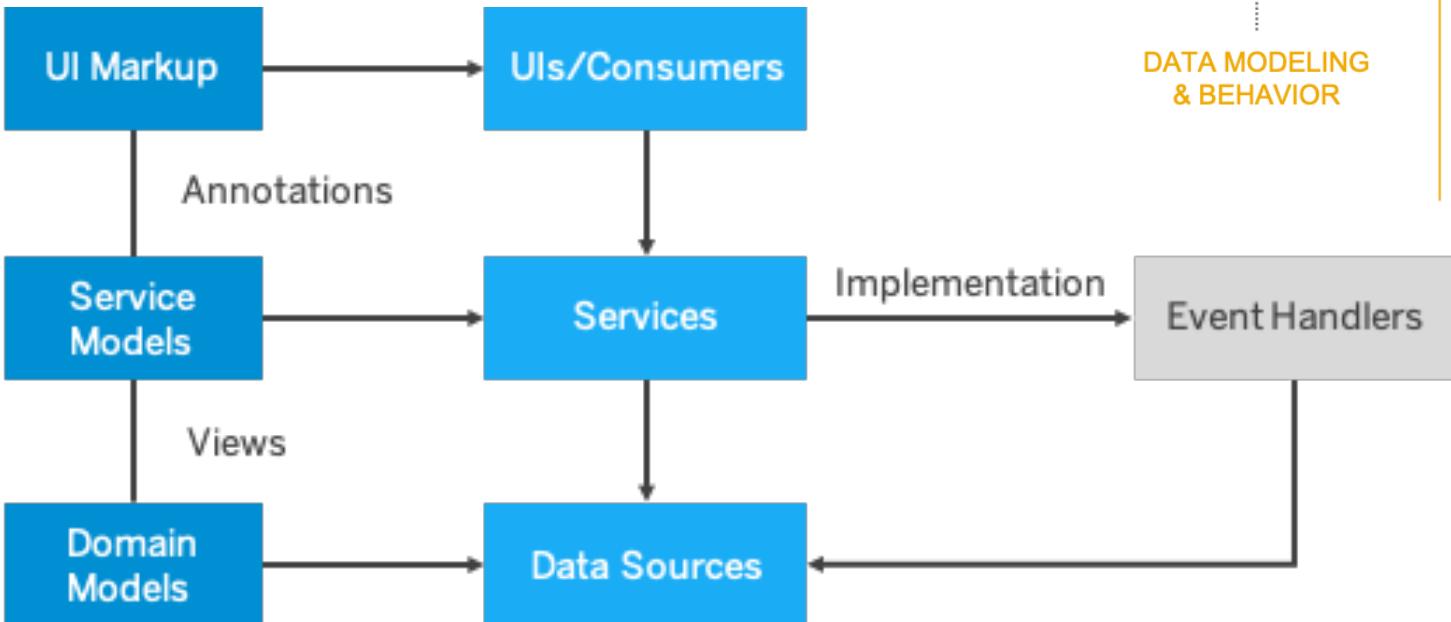
Privacy

Terms of Use

Source: [Screenshot left](#) / [Screenshot right](#)

What has improved recently?

Framework Support – CAP/RAP



SERVICE CONSUMPTION



BUSINESS SERVICES PROVISIONING



DATA MODELING & BEHAVIOR

SAP FIORI UI
Consume OData UI services

WEB API
Consume OData Web APIs

SERVICE BINDING – Bind to protocol version and scenario

SERVICE DEFINITION – Define scope to be exposed

BUSINESS OBJECT PROJECTION

- CDS: Projection views
- BDEF: Behavior projection
- ABAP: Behavior implementation

BUSINESS OBJECTS

- CDS: Data modeling
- BDEF: Behavior definition
- ABAP: Behavior implementation

QUERIES

- CDS: Data modeling

Source: [Screenshot left](#) / [Screenshot right](#)

Legend

- CDS Models
- Generic Runtimes
- Custom Code

What has improved recently?

Framework Support – CAP/RAP

```
using IncidentService as service from '../../../../srv/incidentservice';

annotate service.SafetyIncidents with @UI : {
    SelectionFields : [
        category_code,
        priority_code,
        incidentStatus_code
    ],
    LineItem       : [
        { $Type : 'UI.DataField',
          Value : title,
          Label : 'Incident Title',
        },
        {
            $Type : 'UI.DataField',
            Value : txt1
        }, ],
};
```

The screenshot shows a code editor with a tooltip for the variable 'category_code'. The tooltip lists several properties: category_code, closeIncident, createdAt, createdBy, description, and incidentFlow.

```
*[HBP] ZXMASTERSEARCH X
1 @Metadata.layer: #CUSTOMER
2
3 @UI: {
4     presentationVariant: [{ sortOrder: [{ by: 'id', direction: #DESC }] }]
5 }
6 annotate view zmastersearch with
7 {
8     @UI: {
9         lineItem: [ { position: 10, importance: #HIGH } ],
10        selectionField: [ { position: 10 } ]
11     }
12     @EndUserText: { label: 'Typ',
13                    quickInfo: 'Kunde, ABO oder EBE' }
14     type;
15     @UI: {
16         lineItem: [ { position: 20, importance: #HIGH } ],
17        selectionField: [ { position: 20 } ]
18     }
19     @EndUserText: { label: 'ID',
20                    quickInfo: 'ID' }
21     id;
22     @UI: {
23         lineItem: [ { position: 30, importance: #HIGH } ],
24        selectionField: [ { position: 30 } ]
25     }
26     @EndUserText: { label: 'Name 1 / Bestellnummer' }
27     txt1;
28     @UI: {
29         lineItem: [ { position: 40, importance: #HIGH } ],
30        selectionField: [ { position: 40 } ]
31     }
32     @EndUserText: { label: 'Name 2' }
33     txt2;
34     @UI: {
35         lineItem: [ { position: 50, importance: #MEDIUM } ],
36        selectionField: [ { position: 50 } ]
37     }
38     @EndUserText: { label: 'Referenzkunde' }
39     ref_cust;
40 }
```

How does it improve your development?

- Quick establishment of application development foundations
- Accelerates the creation of Proof of Concept (PoC)
- Backend modifications are immediately mirrored in the frontend, enabling backend developers to create Fiori apps
- Streamlines the overall development process, reducing time-to-market

What to consider with Fiori Elements

- Improved performance and features in Fiori Elements with newer SAPUI5 versions
- Enhanced compatibility and functionality when used with RAP or CAP
- Fiori Programming Model only for Odata V4
- RAP/CAP and Annotations in Fiori Elements require a significant learning investment due to their complexity.

How to use the newest Technologies (UI5, RAP, CAP)



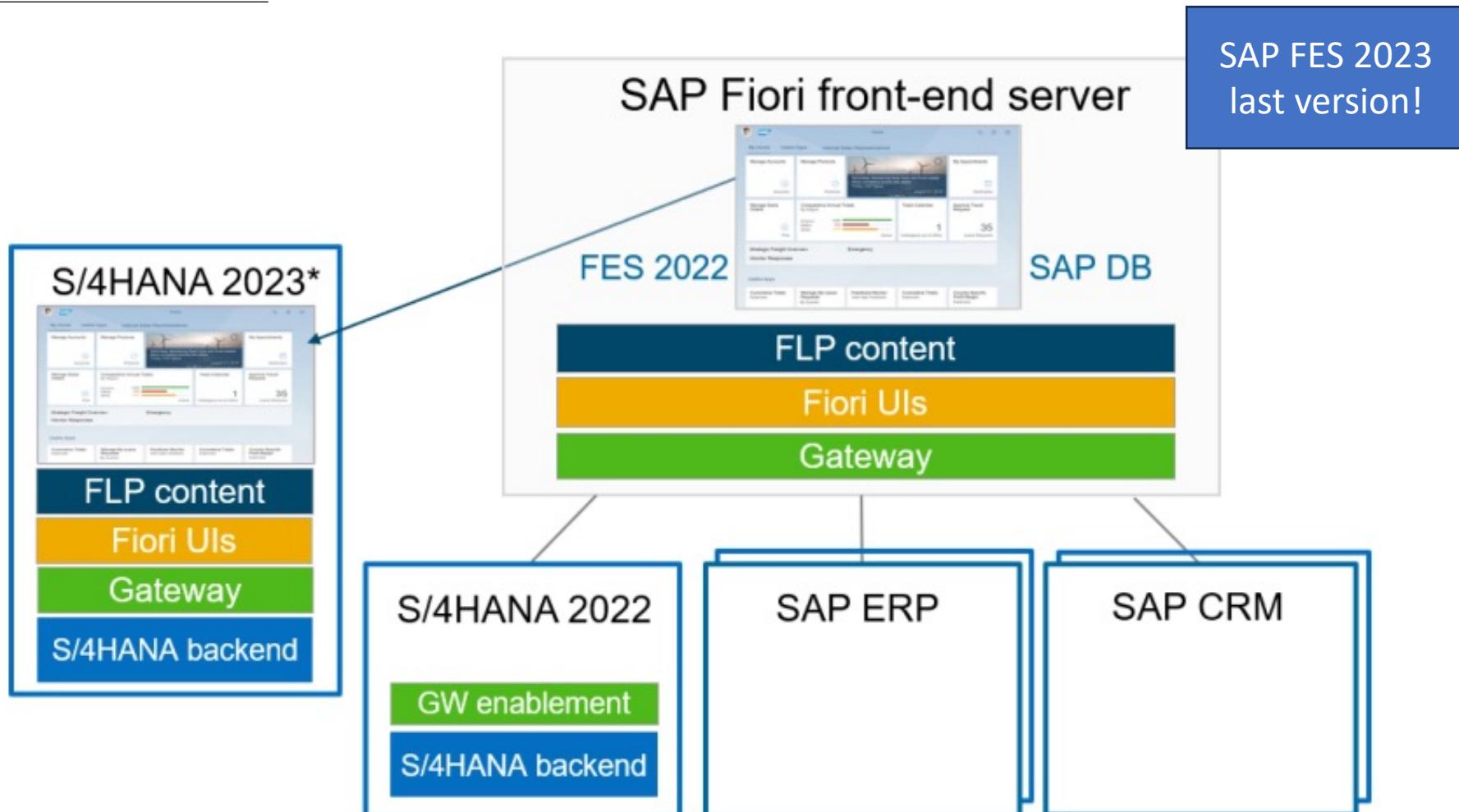
SAP Front End Server (FES)



Use BTP Build Workzone (former Central Launchpad)

How to use the newest Technologies (UI5, RAP, CAP)

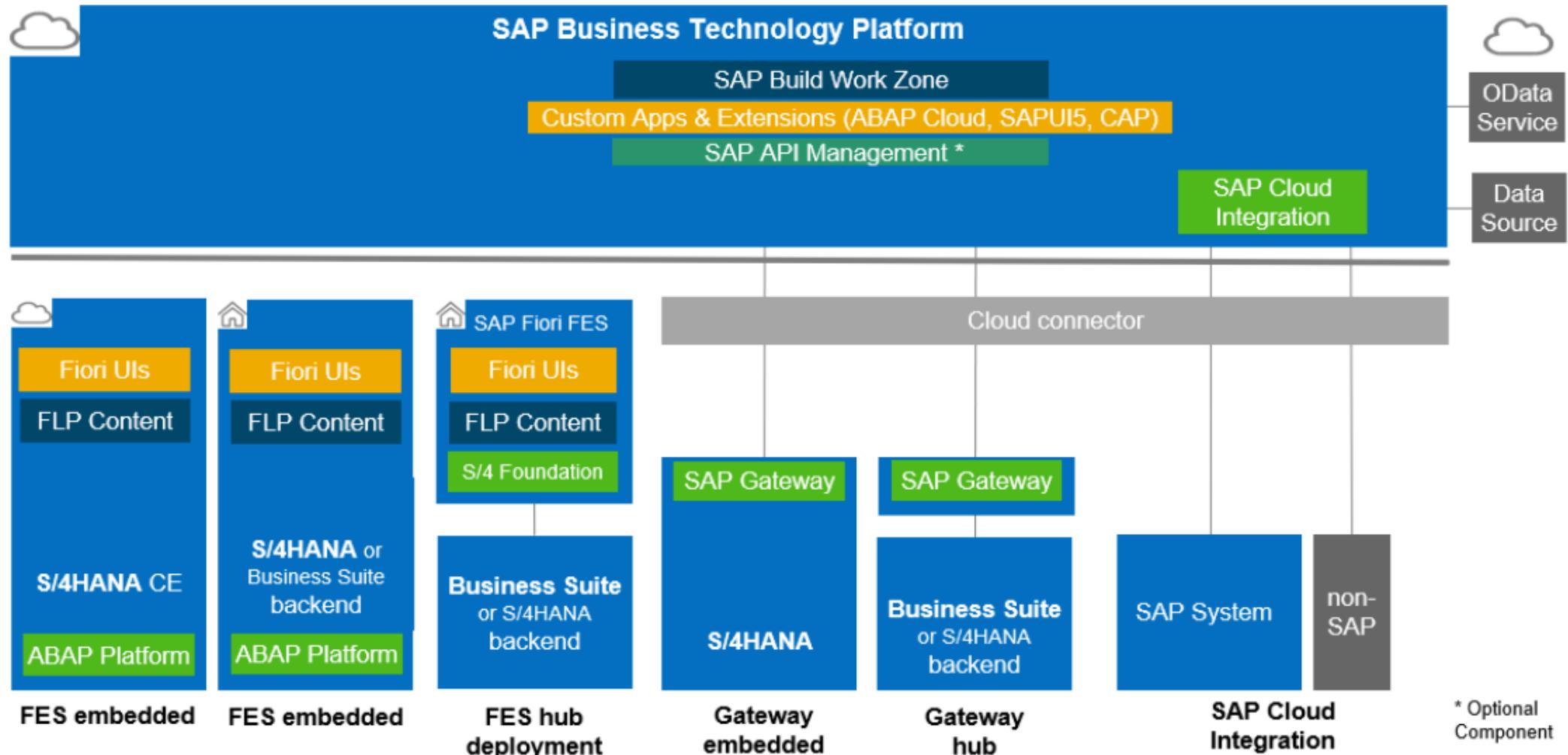
Deployment Options



* Additional SAP S/4HANA system with a different version, e.g. 2023

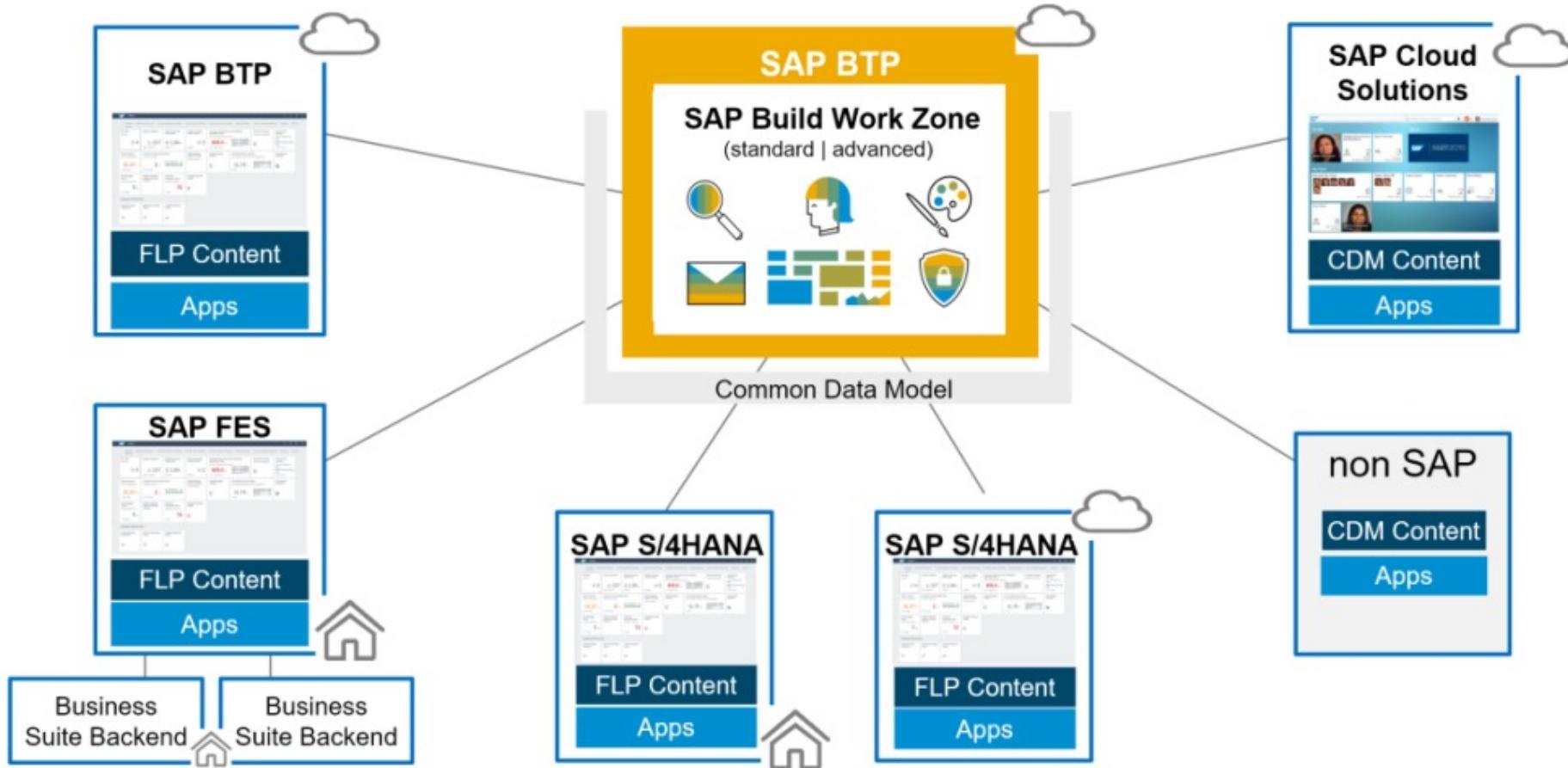
How to use the newest Technologies (UI5, RAP, CAP)

Deployment Options



How to use the newest Technologies (UI5, RAP, CAP)

Deployment Options



How to adopt Fiori Elements with RAP/CAP?

- Fiori Elements with RAP/CAP represent new frameworks.
- Requires a dedicated period for in-depth understanding and acclimatization.

Effective implementation requires strong management backing:

- Adopt a "Fiori Elements first" approach.
- Prioritize RAP (Restful Application Programming) development.
- Emphasize the use of SAP Fiori standard applications.
- Leverage Fiori Launchpad for integrating Classic Transactions when feasible.

- Skilled UI5 developers are in limited supply.
- ABAP developers can implement UI changes without requiring extensive frontend development knowledge.

Wrap up



Where to Find More Information

- <https://learning.sap.com/>
- Documentation
 - SAPUI5
 - <https://ui5.sap.com>
 - RAP
 - https://help.sap.com/docs/ABAP_PLATFORM_NEW/fc4c71aa50014fd1b43721701471913d/289477a81eec4d4e84c0302fb6835035.html
 - CAP
 - <https://cap.cloud.sap/docs/>
 - Fiori Tools
 - https://help.sap.com/docs/SAP_FIORI_tools?locale=en-US
 - Flexible Programming Model
 - <https://sapui5.hana.ondemand.com/test-resources/sap/fe/core/fpmExplorer/index.html>
 - SAP Build Work Zone, standard edition (aka. Central Fiori Launchpad)
 - <https://help.sap.com/docs/build-work-zone-standard-edition?locale=en-US>
 - SAP Fiori Fronted End Server Deployment Options (FES)
 - <https://blogs.sap.com/2020/04/01/sap-fiori-deployment-options-and-sap-fiori-front-end-server-strategy-update-2020/>
 - <https://www.sap.com/docs/download/2018/02/f0148939-f27c-0010-82c7-eda71af511fa.pdf>

Key Points to Take Home

- Give Fiori Elements (another) chance!
- Works best in combination with the newer SAPUI5 version and RAP/CAP
- Using the cloud when necessary
- Employees need continuing training
- If you don't upskill, your competitors will (comments)



Thank you! Questions?

E-Mail:

marian@marianzeis.de

Twitter: [mianbsp](#)

LinkedIn: [marianzeis](#)

GitHub: [mariandoo](#)

*An In-Depth Discussion about Fiori
Elements*

SAPInsider Café

14:30 – 15:15

Please remember to complete
your session evaluation.

SAPinsider



SAPinsider.org

PO Box 982
Hampstead, NH 03841
Copyright © 2023 Wellesley Information Services.
All rights reserved.

SAP and other SAP products and services mentioned herein as well as their respective logos are trademarks or registered trademarks of SAP SE (or an SAP affiliate company) in Germany and other countries. All other product and service names mentioned are the trademarks of their respective companies. Wellesley Information Services is neither owned nor controlled by SAP SE.

SAPinsider comprises the largest and fastest growing SAP membership group worldwide, with more than 750,000 global members.
