

Development Trends in the SAP World

Thomas Jung, SAP
December 6, 2022

Public

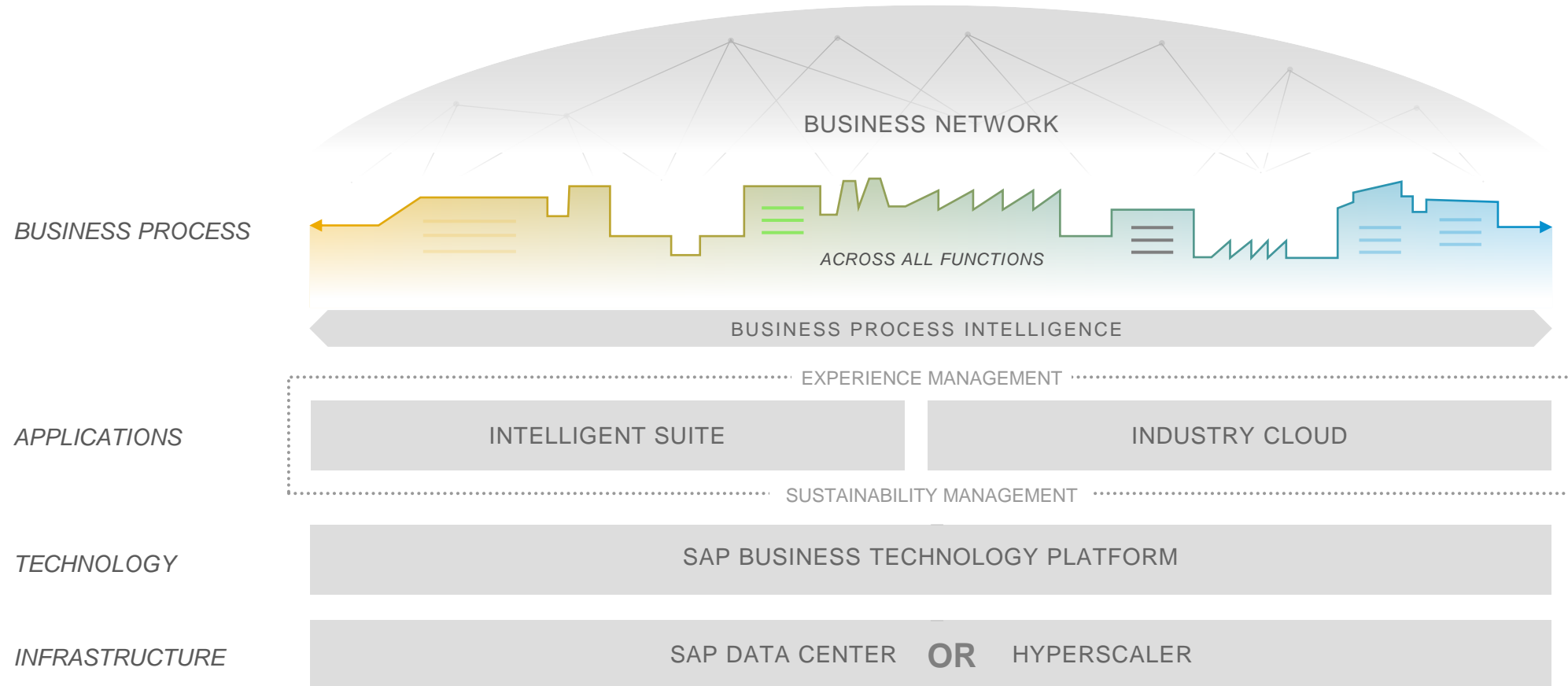
How it Feels With Everyone Else's Usage the Cloud



How it Feels With Your Own Experience Moving to the Cloud

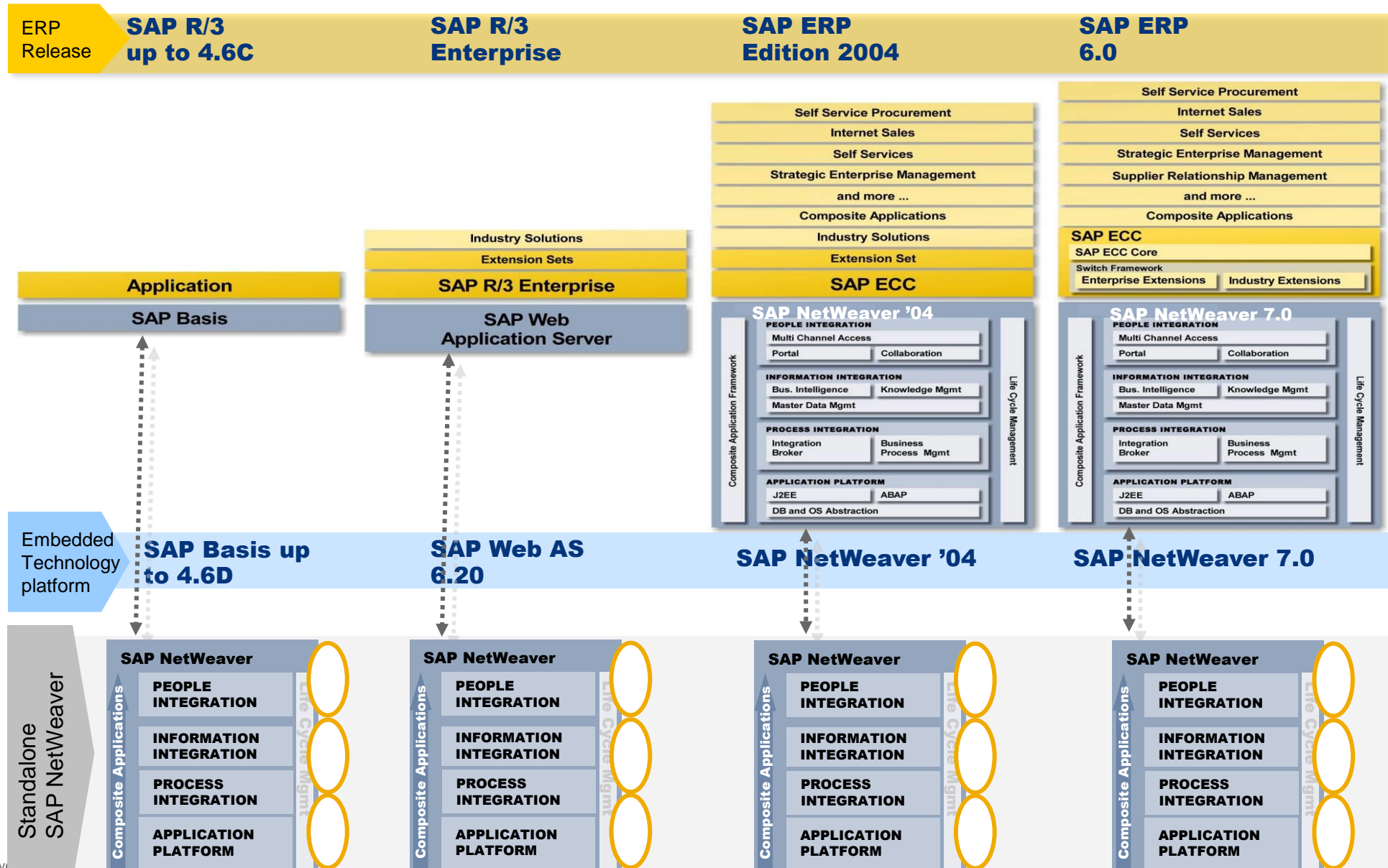


INTELLIGENT ENTERPRISE

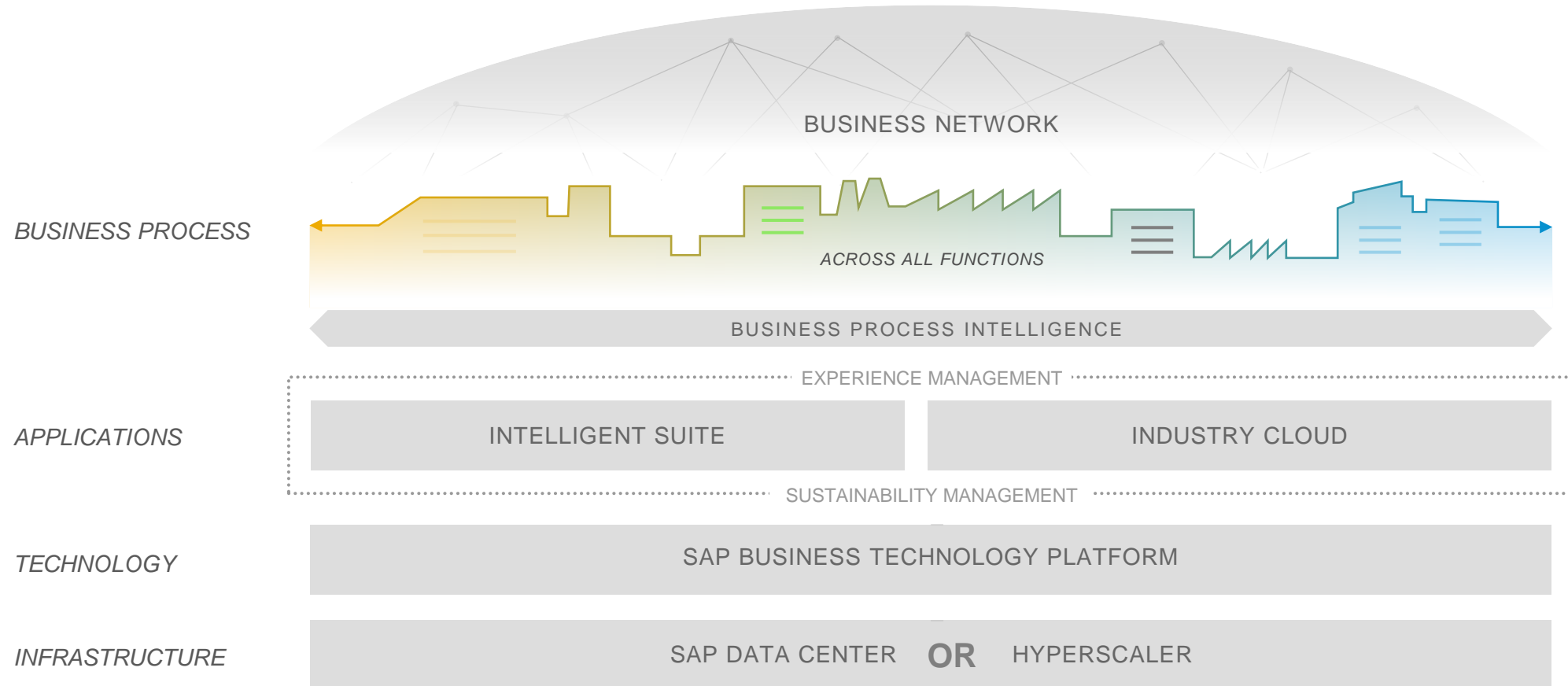


The Evolution of the SAP ERP Architecture:

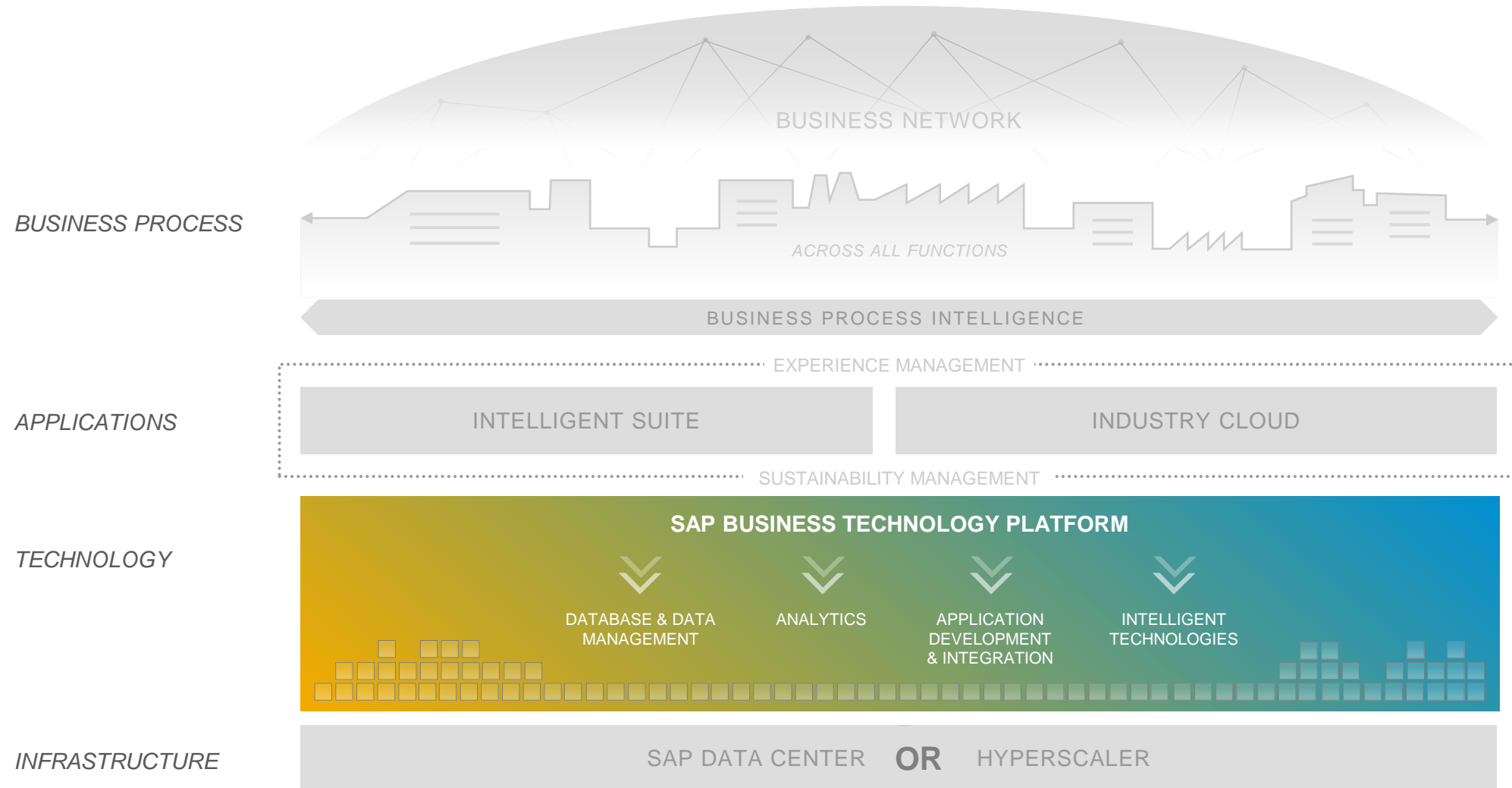
Powered by SAP NetWeaver — Embedded and Standalone Connections



INTELLIGENT ENTERPRISE

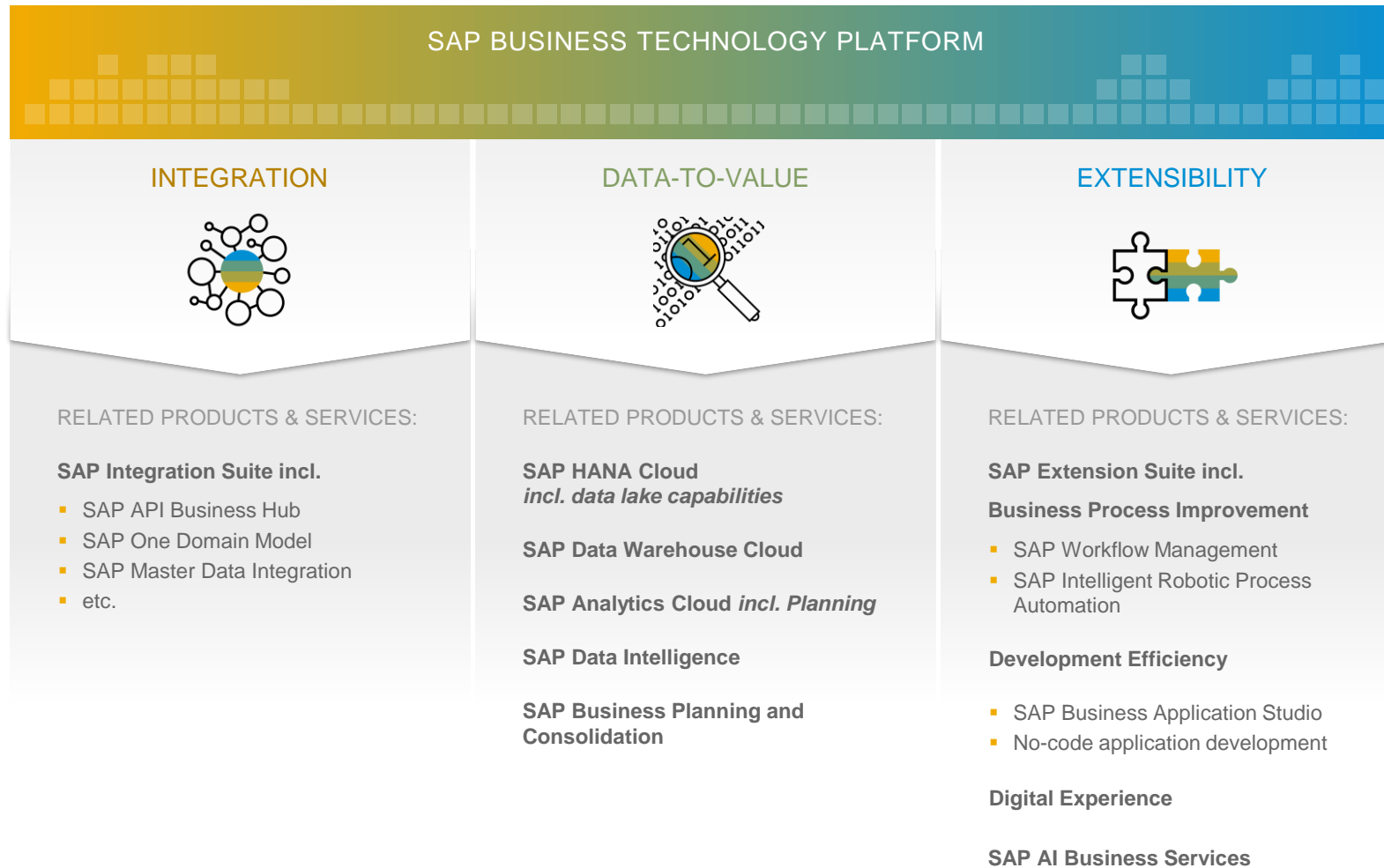


SAP Business Technology Platform

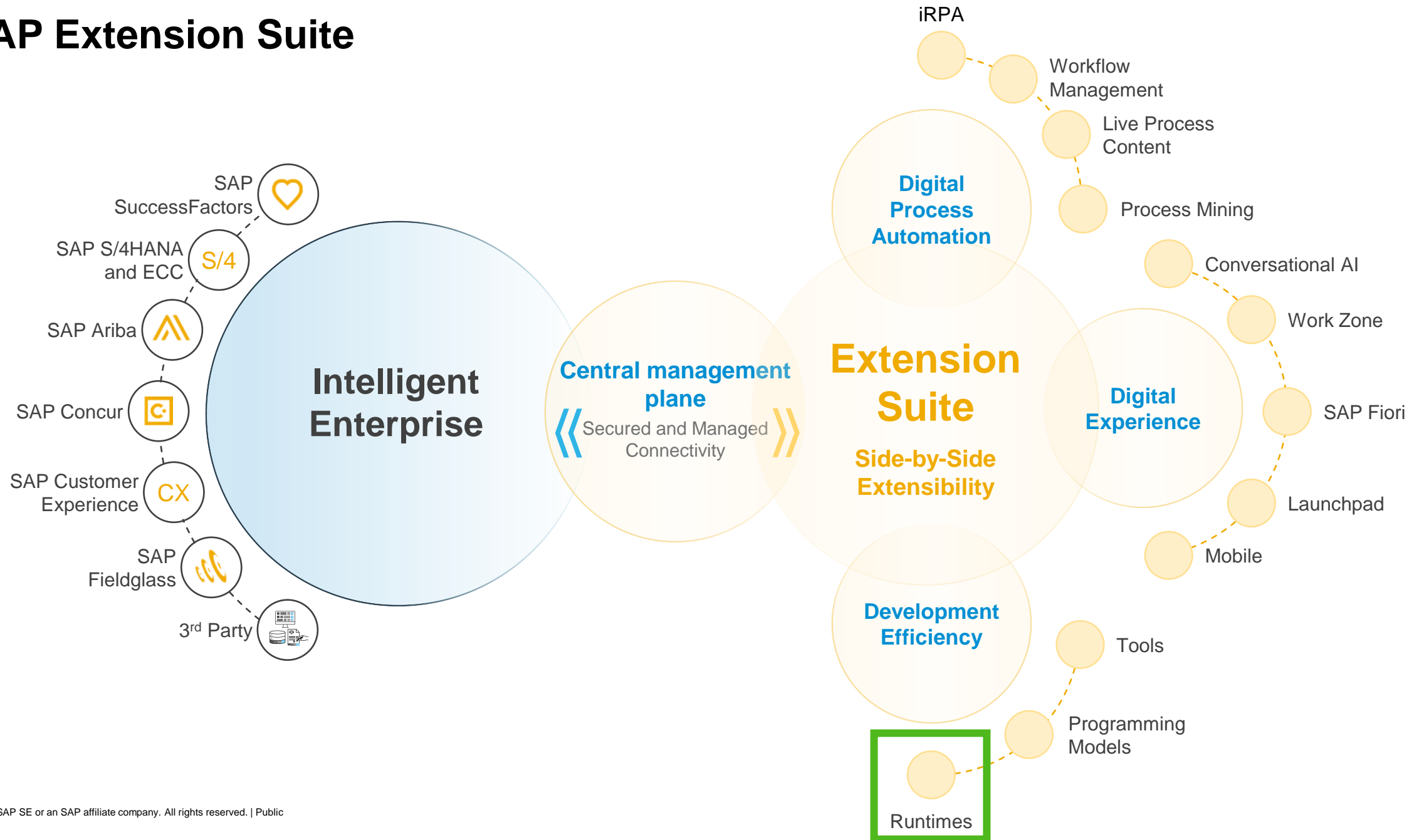


SAP Business Technology Platform: Scenarios

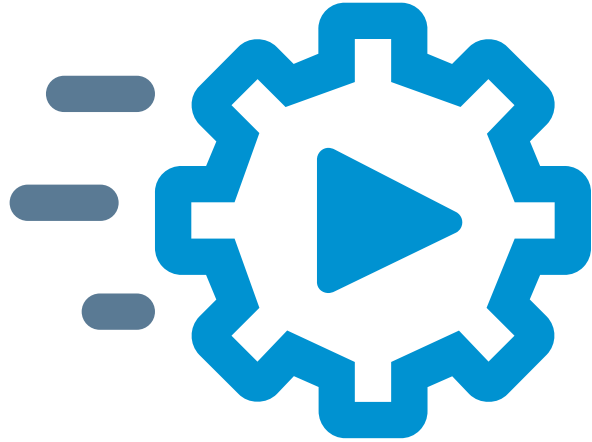
TECHNOLOGY



SAP Extension Suite



Runtime Choices



Cloud Foundry

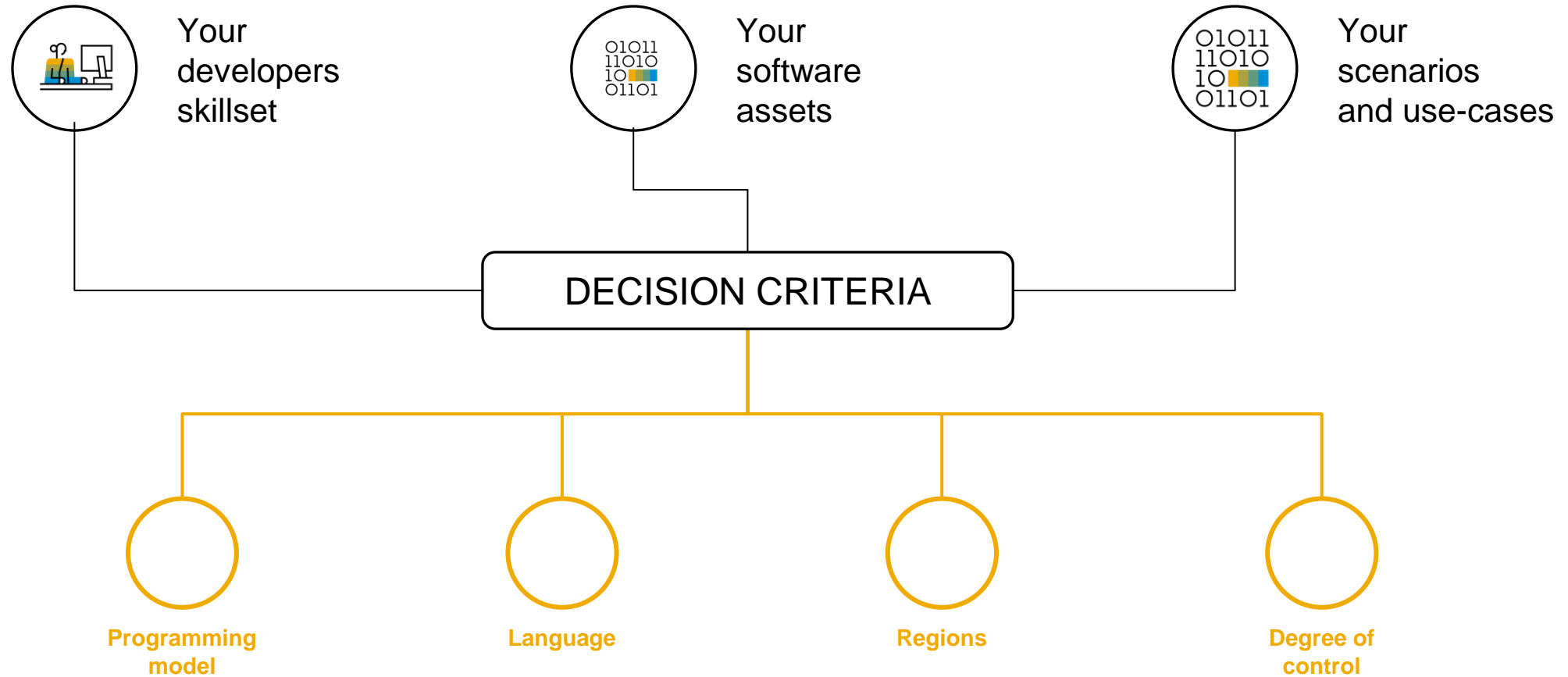


Kyma



ABAP

When to use what?



Deployment Options for your Applications



Cloud Foundry Runtime



Kyma Runtime (K8s)



ABAP Environment

Pros

- Platform-managed Load balancing, Routing, Health checks, Security Updates
- Free choice of programming models (CAP, Java, etc)
- Built on industry-standard, open-source technology components
- Multi-cloud deployments and no infrastructure vendor lock-in

- Free choice of programming languages and -models (containerized deployments)
- Combines microservices and serverless functions
- Brings built-in managed service mesh
- Built on industry-standards and open technology projects / components
- Out-of-the-box consumption of SAP and hyperscaler services

- Integrated development lifecycle
- Fast prototyping with ABAP RESTful programming model
- Reuse existing on-prem ABAP assets

Good for

- Enterprise-grade business applications and services
- Cloud-native web applications
- Small to medium extension build with CAP/Low-Code tooling

- Cloud-native development of apps and services
- Highly scalable, microservice-based apps
- CAP-based applications

- User centric process extensions
- Robust, transactional cloud apps
- Migrate and adapt add-ons to the cloud
- Enabling ABAP developers to go to the cloud

Skills

- Understanding of Core Data Services
- SAP Fiori/UI5 and SAP HANA
- Expertise in Java/Node.js or in any major programming language

- Kubernetes knowledge
- Docker
- Microservices
- NodeJS and Python for serverless functions
- Any major programming languages

- Ability to write modern ABAP code
- Core Data Services
- SAP Fiori and SAP HANA

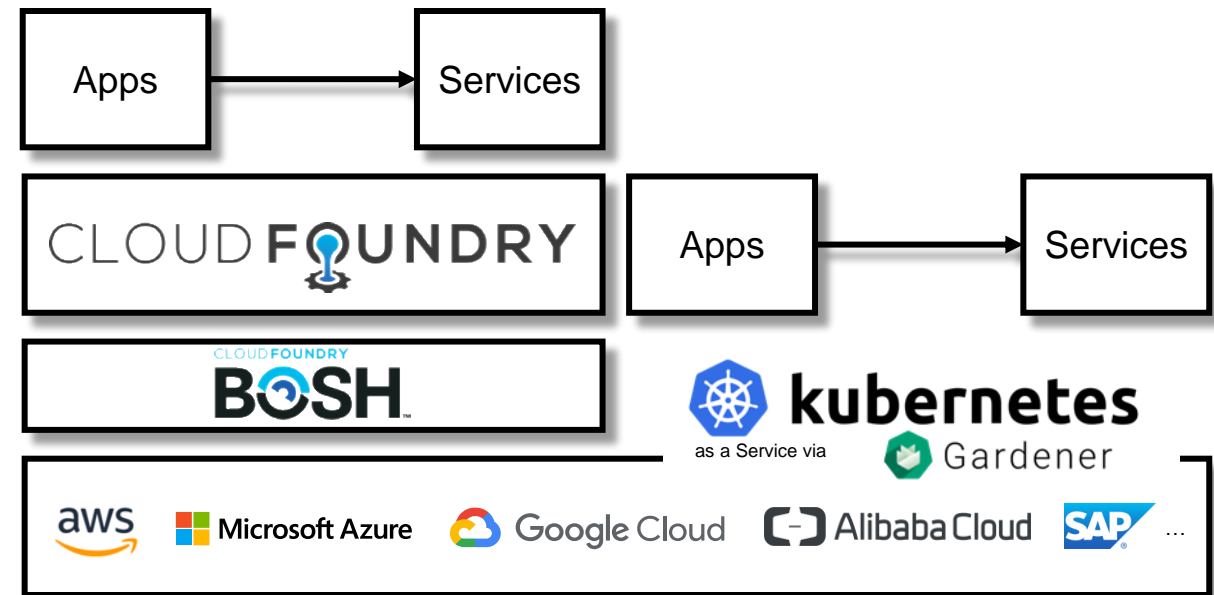
Cloud Foundry and Kubernetes side-by-side

Cloud Foundry: Opinionated PaaS

- `cf push` experience → [buildpacks](#) as enabler
- Patching underlying stack done by Cloud Foundry/platform provider
- Stateful backing services “assumed to exist”

Kubernetes: Generic Runtime

- Can run everything that Cloud Foundry can run
- Can run many workloads that CF cannot run
- Developers need to care how, spend the effort



Cloud Foundry and Kyma Runtime: The Choice is Yours

Cloud Foundry

*“Here is my source code
Run it on the cloud for me
I do not care how”*

Kubernetes

*“Here’s my code
I’ll tell you exactly how you should
run it on the cloud for me
And don’t you dare make any
assumptions on the deployment
without my written consent!”*

[“Cloud Foundry and Kubernetes – Where do they differ? How do they fit together?”](#) Sanjay Patil, Posted on October 19, 2018

Cloud Foundry and Kyma Runtime: The Choice is Yours

Simplicity

with in-built opinions to shield app developer from complexities of IaaS, etc.

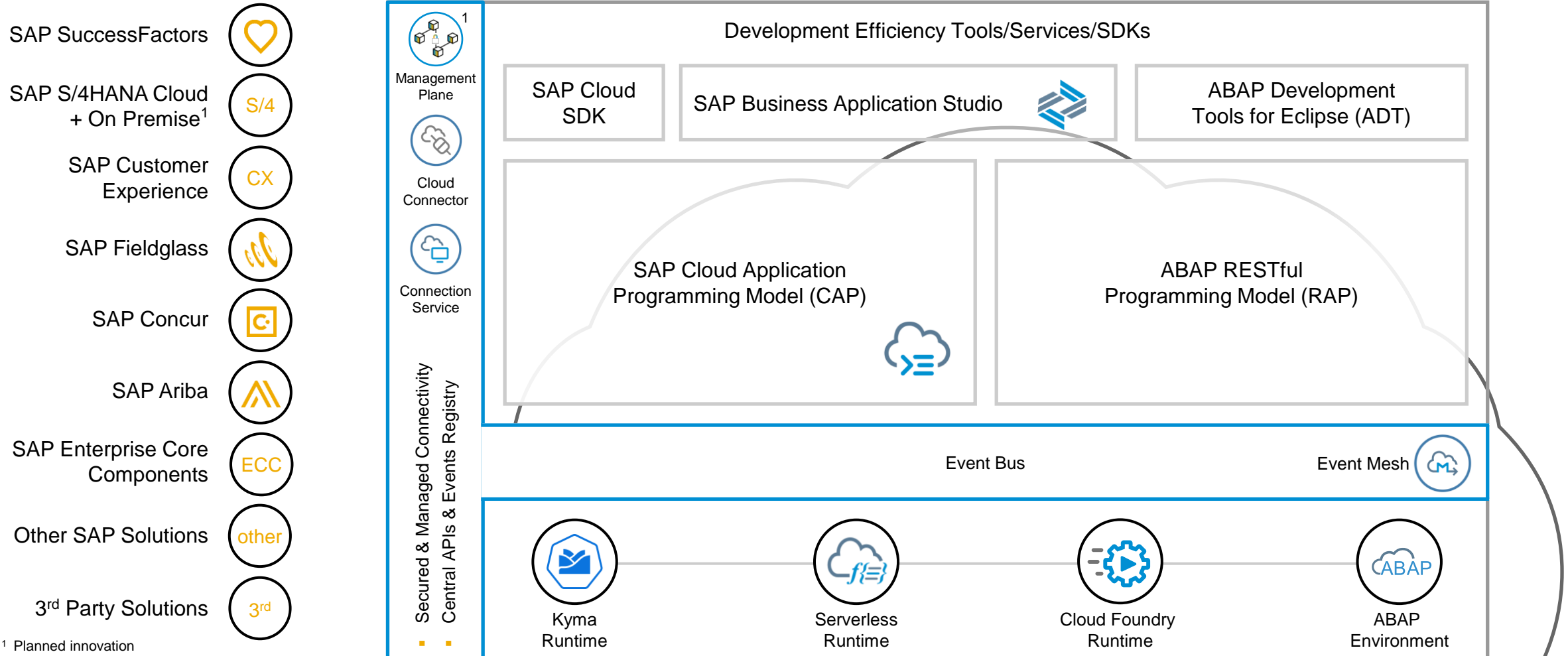
Vs.

Empowerment

with greater control to shape deployments and utilize infrastructure, etc.

[“Cloud Foundry and Kubernetes – Where do they differ? How do they fit together?”](#) Sanjay Patil, Posted on October 19, 2018

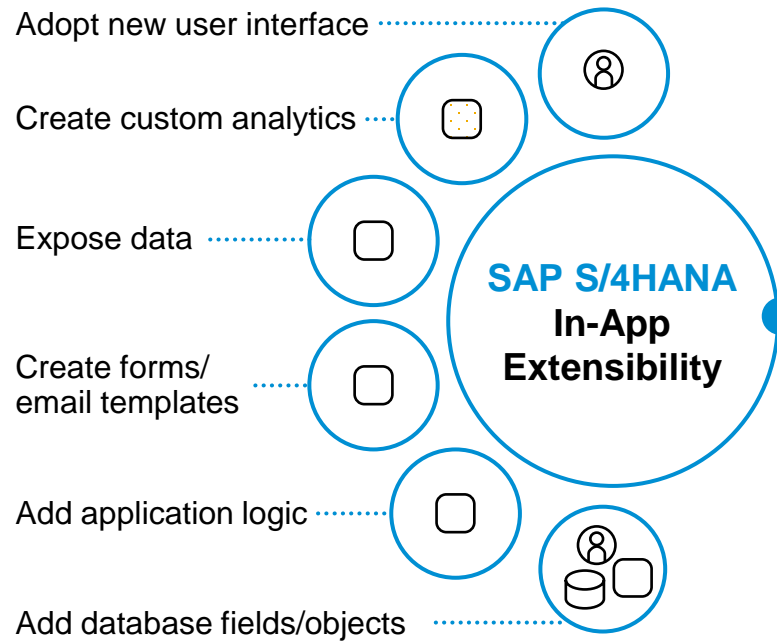
Building Extensions for the Intelligent Enterprise on SAP BTP



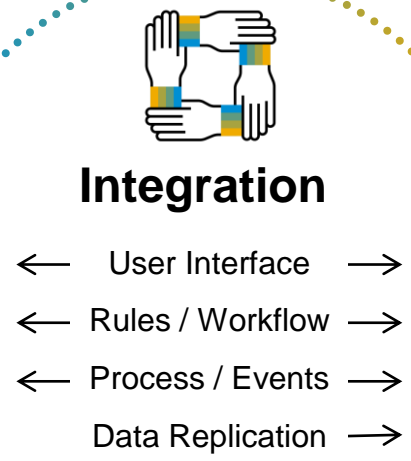
¹ Planned innovation

Extensibility with SAP S/4HANA

In-App Extensions

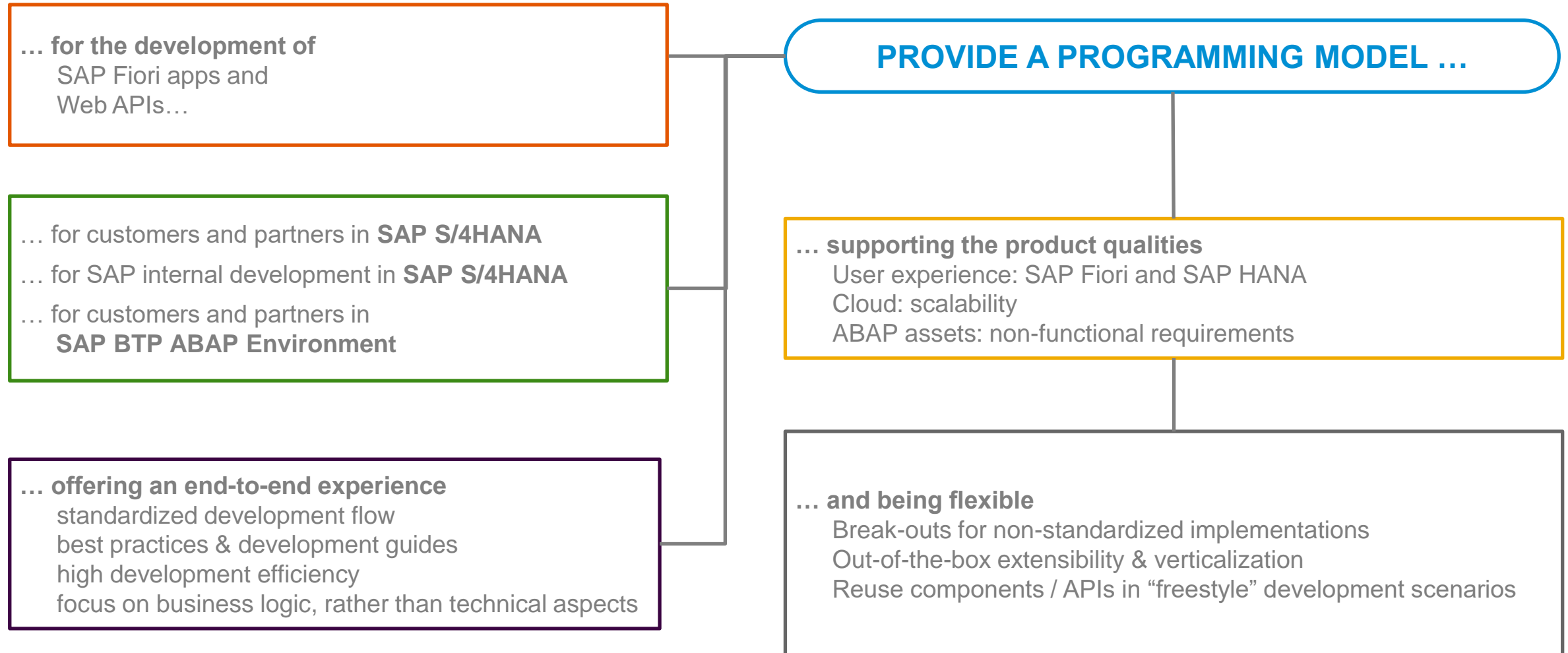


Cloud Extensions

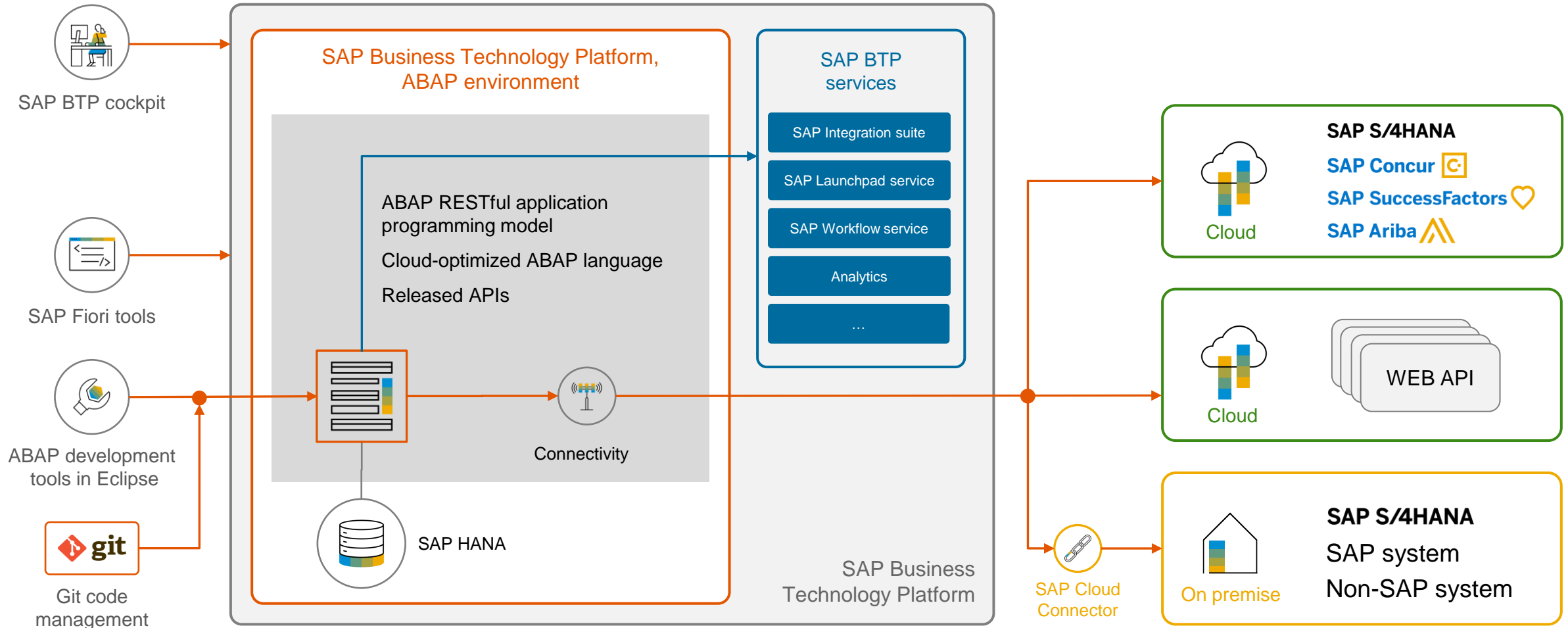


ABAP Details

ABAP RESTful Application Programming Model – The Mission

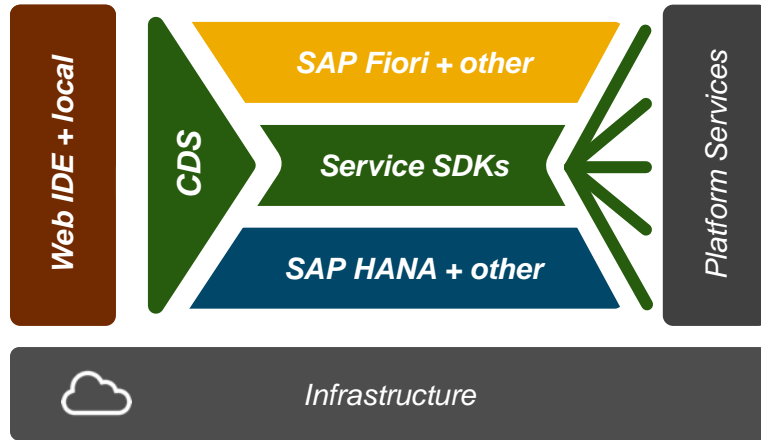


Vital parts of SAP Business Technology Platform (BTP), ABAP environment



CAP Details

Cloud Application Programming Model - Introduction



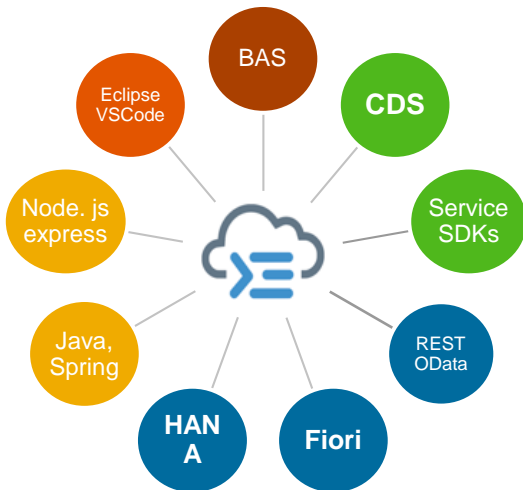
We complement *cloud-native technologies* with...

- a **CDS-based Services** framework...
- w/ intrinsic **enterprise & cloud** qualities

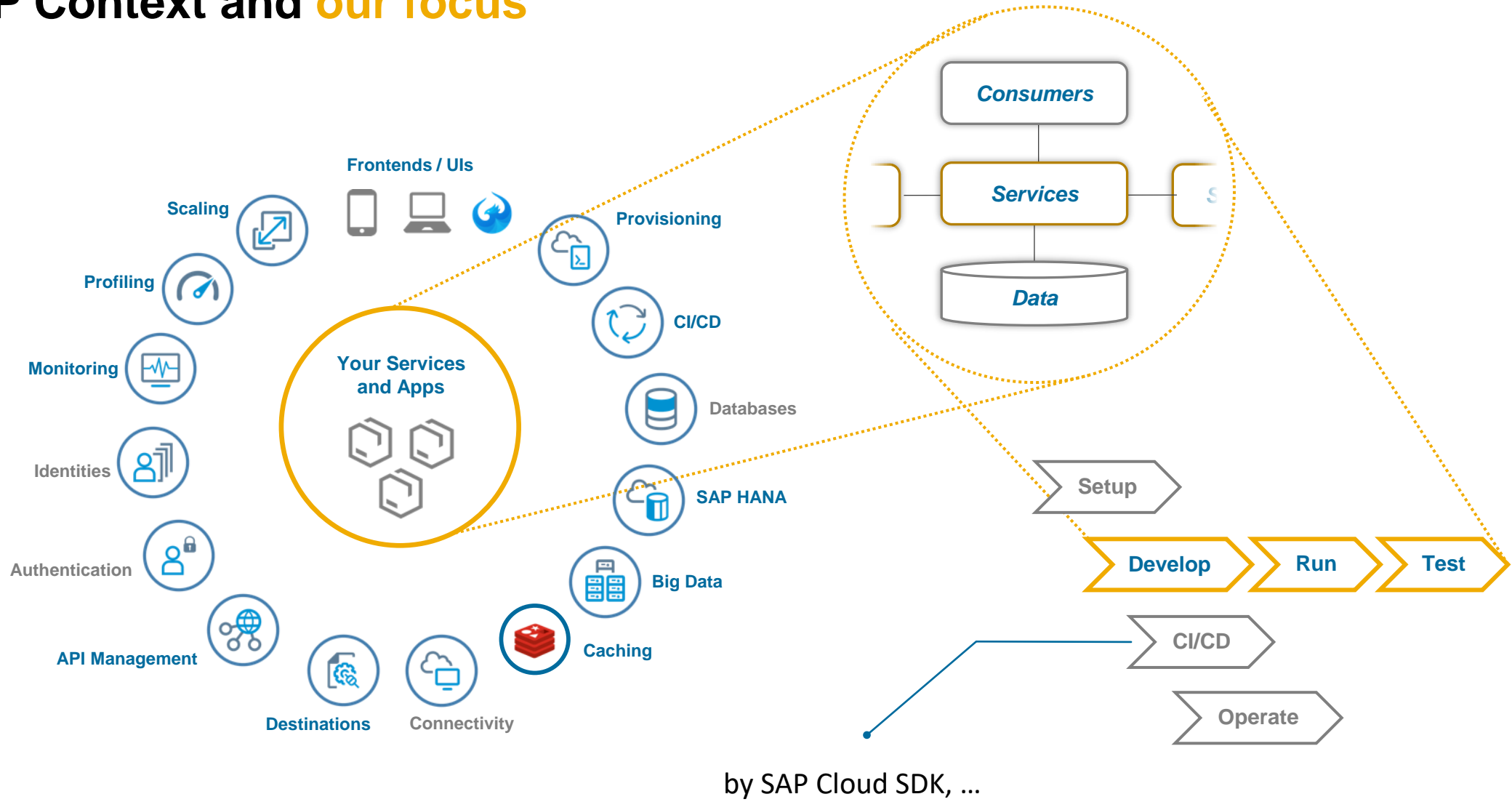
w/ *1st-class support* by and for...

- **SAP Business Application Studio**
 - **SAP Fiori**
 - **SAP HANA**
 - **S/4 Extension** scenarios, ...
- } *without lock-in!*

- **Guidance and best practices** leveraging proven SAP technologies + Open-Source software
- A *consistent* end-to-end **programming model** for *enterprise* services & applications



CAP Context and our focus



Low-/No- Code

Critical Digitalization Challenges

Organizations Fail to Innovate at the Speed the Business Demands



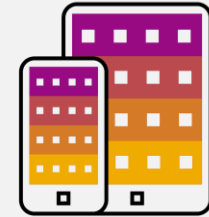
Rapidly evolving customer requirements accelerating demand for cloud solutions

“The pandemic is accelerating cloud demand, with 59% of enterprises expecting cloud use to exceed plans due to COVID-19.”¹



Limited development resources, inhibiting digitalization

“Lack of skills was cited as the number-one challenge in a recent Gartner Research Circle survey, and CIOs identified the ‘lack of skills and resources’ as the biggest barrier to success.”²



Complex IT landscapes, with a growing number of applications maintained by companies

Large companies maintain 129 different applications on average, with the total number increasing by 68% since 2015.³

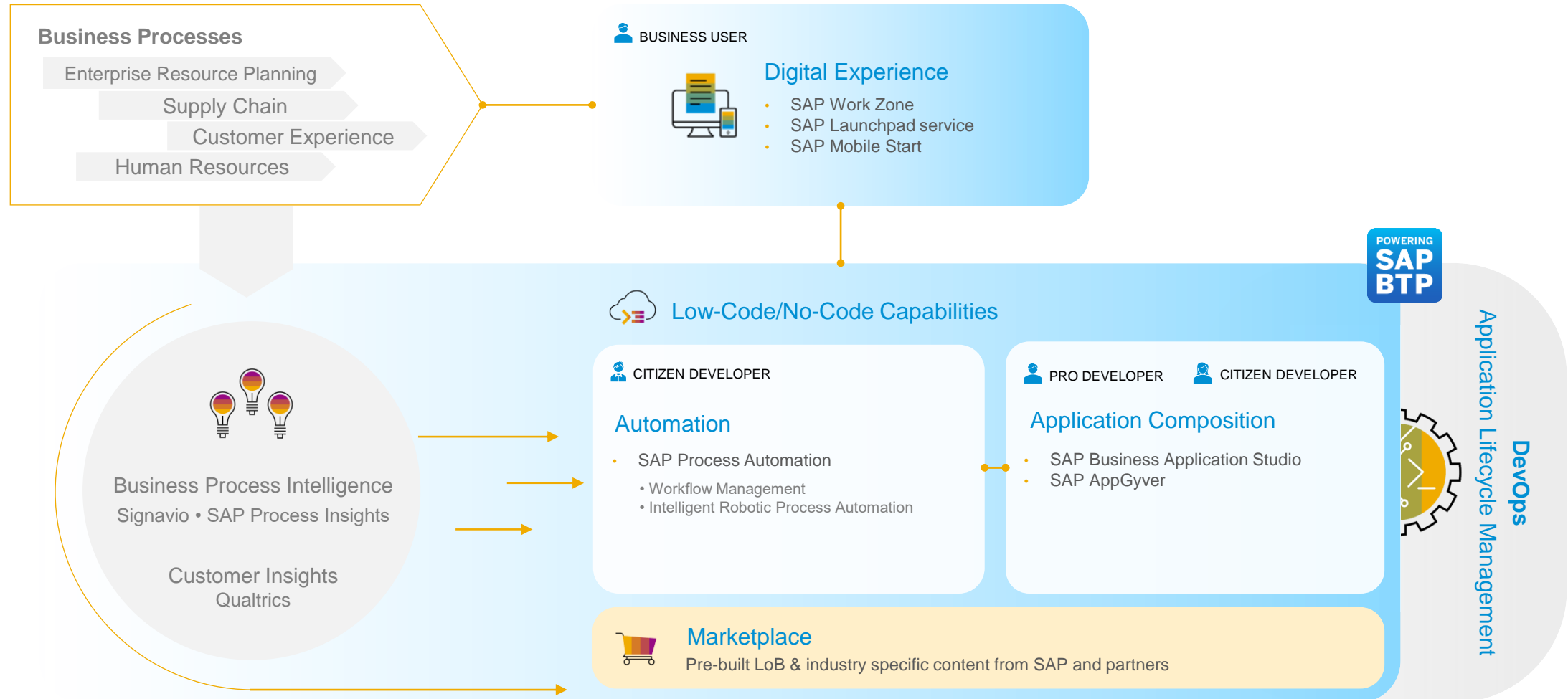
1. “Maximizing the Impact of Technology Investments in the New Normal,” CIO Insider, Deloitte, 03 February, 2021, Khalid Kark, Jagjeet, Gill, and Tim Smith.

2. “Forecast Analysis: Low-Code Development Technologies,” 22 January 2021, Fabrizio Biscotti, Paul Vincent, Jason Wong, Laurie Wurster. GARTNER is the trademark and service mark of Gartner Inc., and/or its affiliates and has been used herein with permission. All rights reserved.

3. “Employees Are Accessing More and More Business Apps, Study Finds,” The Wall Street Journal, 07 February, 2019, Angus Loten.

Accelerated Time to Value with Low-Code/No-Code

Unified Offering Across App Development, Process Automation & Digital Experience



How Can You Meet the Growing Application Need?

Scale Development by Empowering More Employees to Build Software

Professional developer

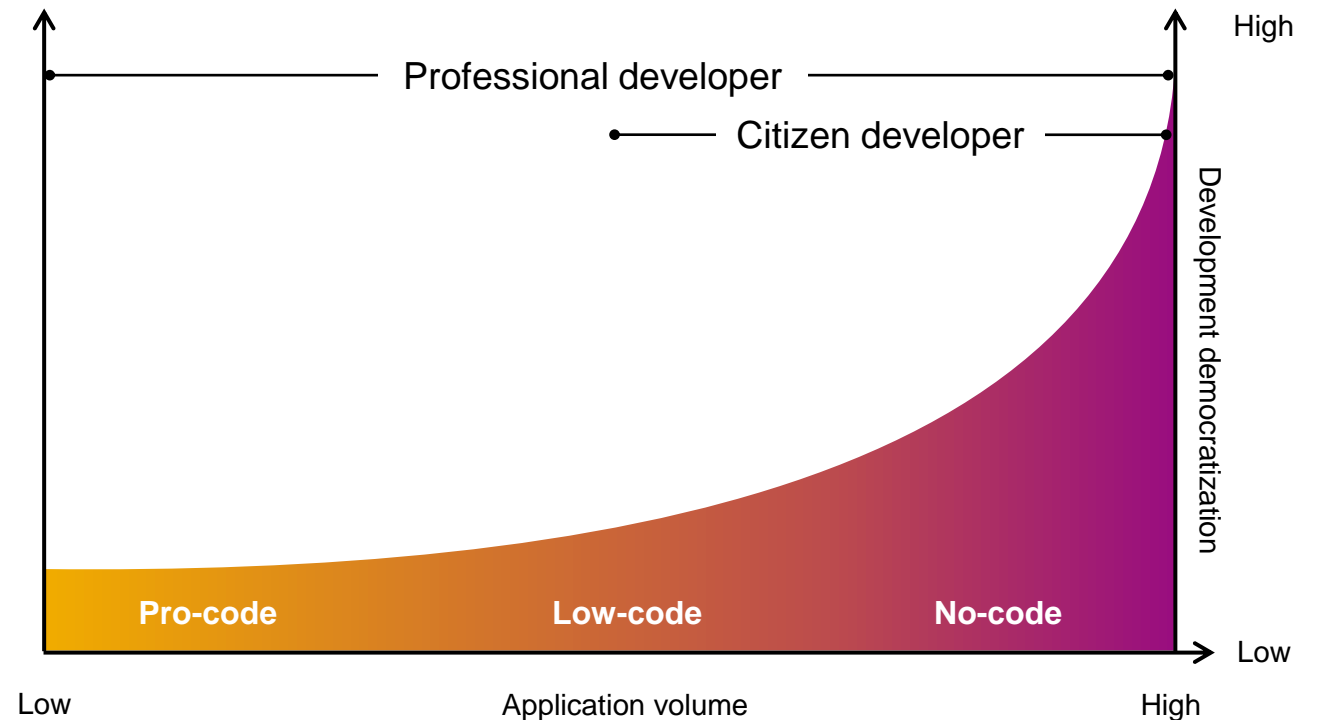


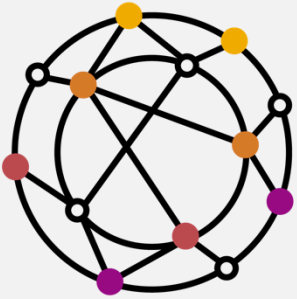
- Uses tools of choice to create cloud native applications and reusable services
- Designs, develops, deploys, tests, and hands over to production
- Understands the concept of a development lifecycle, testing, and versioning
- Ensures governance and security

Citizen developer

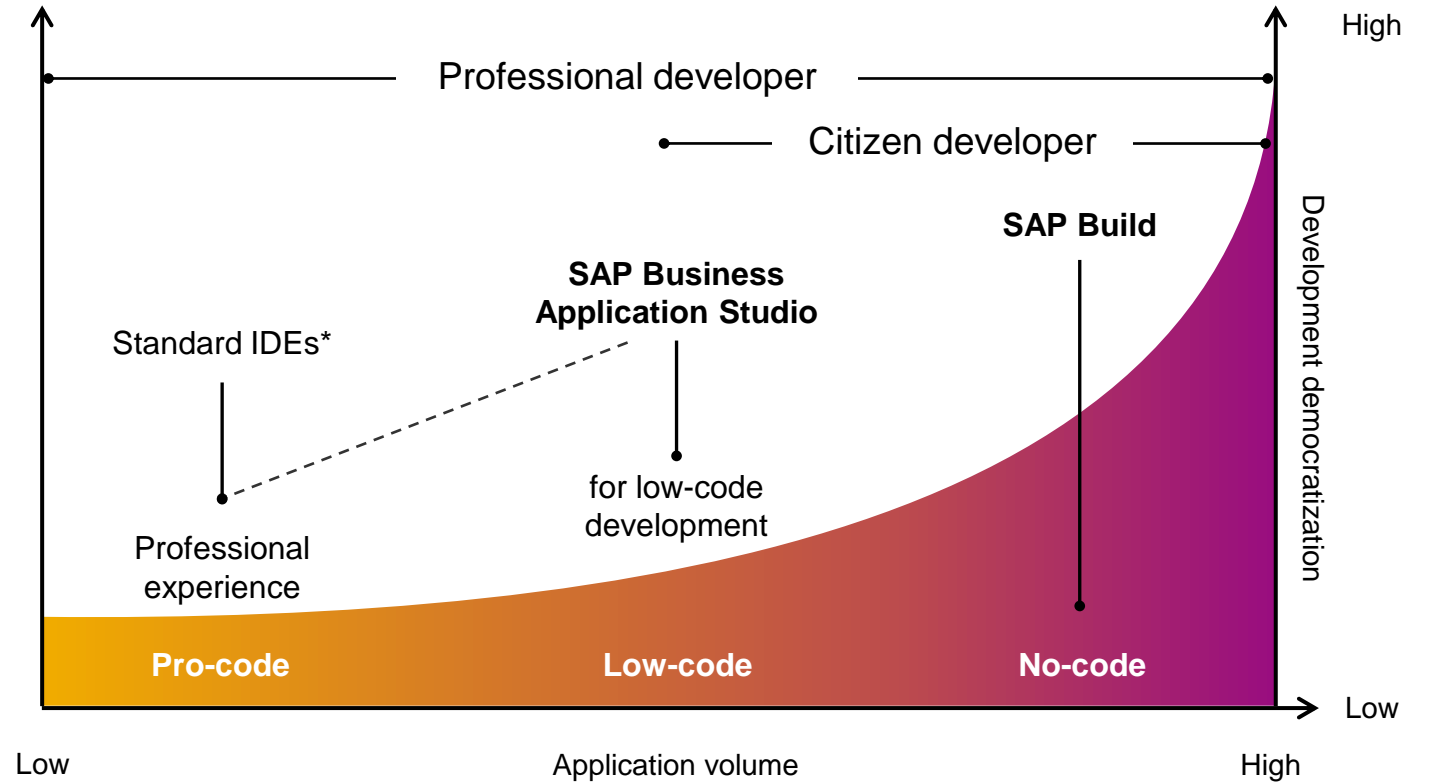


- Creates and publishes low-code/no-code apps and customizations with close links to business contexts
- Is unaware of testing, go-live, versioning, and termination but learns through citizen development education
- Ensures governance and security through IT-sanctioned tools and platform-supported processes





Create a **unified developer experience** that allows every developer to build apps fast, no matter the skill level



*i.e. VS Code + extensions

Application Development: SAP Build Apps

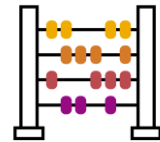
Build Quality Apps Without Compromise



The world's first professional no-code platform, enabling you to build apps for all form factors, including mobile, desktop, browser, TV and others



Drag-and-drop the user interface design



Use over 400 built-in formula functions



Create any logic visually



Bring your own data with pre-defined integrations



Deploy apps to various platforms

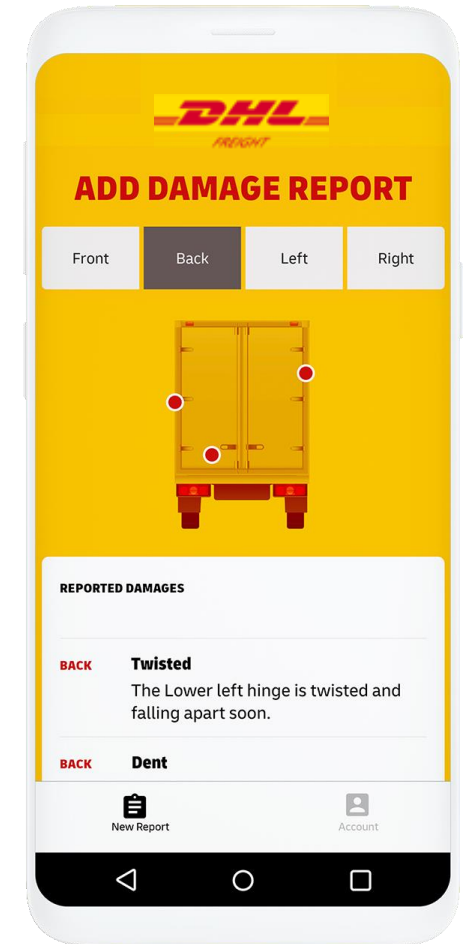
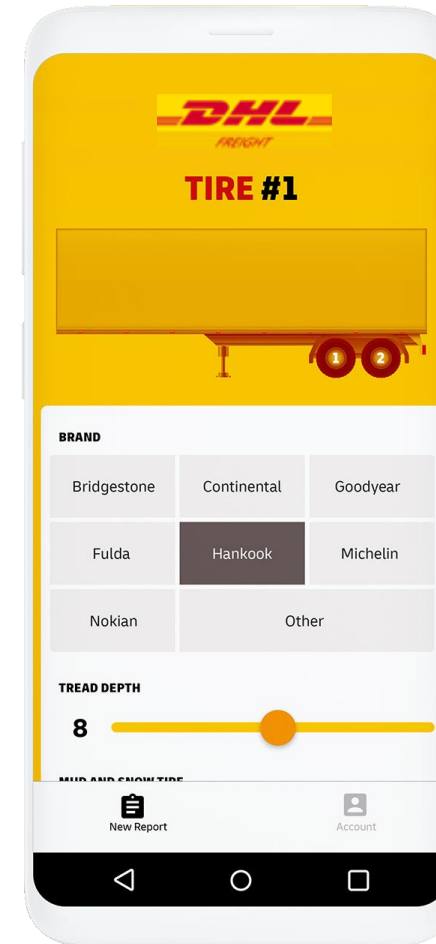
Customer Success: DHL Freight

Scaling European Fleet Management with One Application

Using SAP Build Apps, international logistics firm DHL Freight created an application to better manage damage reports for its trailer fleet across Europe. Created by a small team, the app increased the reliability of reporting while making inspections more convenient for employees in the field.

App features

- Integration with the company's trailer fleet data
- Role- and region-based user authentication
- Localization to multiple languages
- Native iOS and Android apps and a Web-based administrative interface



SAP Business Application Studio: The low-code approach

Scale your Development and Build Smarter Enterprise Apps.



- Low-code development environment, **tailored for efficient development** of business applications for the Intelligent Enterprise
- **Tight integration** with SAP services, technologies, and systems



- **Modern and intuitive** web user interface
- **Simplified, faster setup** of the development environment

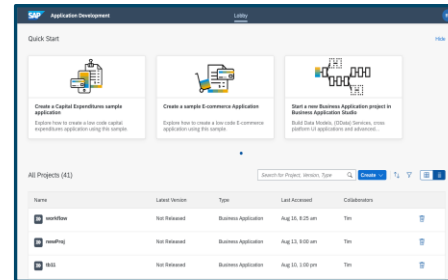


- **Accelerated time-to-market** with high-productivity development tools

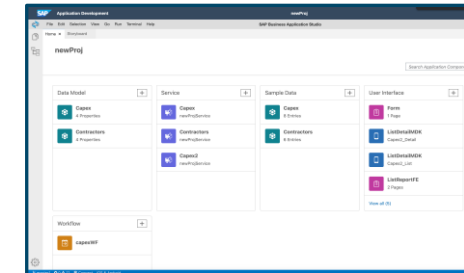
Key capabilities of SAP Business Application Studio

Use a Modern, Integrated Development Environment for Today's Developers.

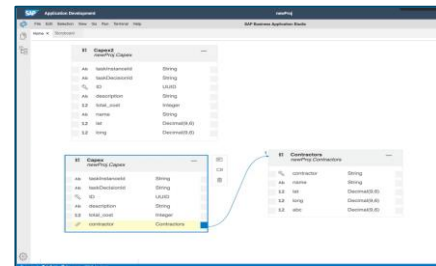
Single project studio for citizen developer projects



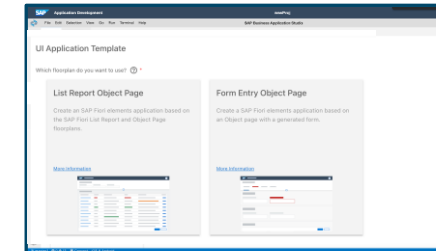
Simplified project artifact structure and dependencies



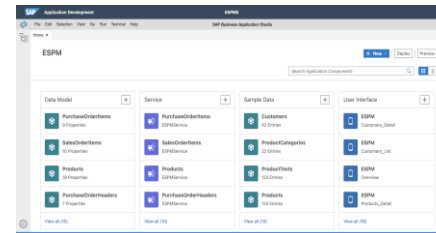
Visual data and service modeling



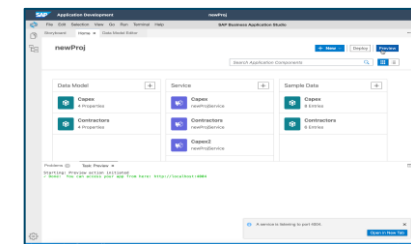
Low-code template-based and freestyle UI development



Service center

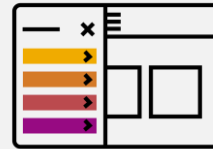


Single-click preview and deployment



Benefits of SAP Business Application Studio

Efficiently Develop Business Applications
for Your Intelligent Enterprise.



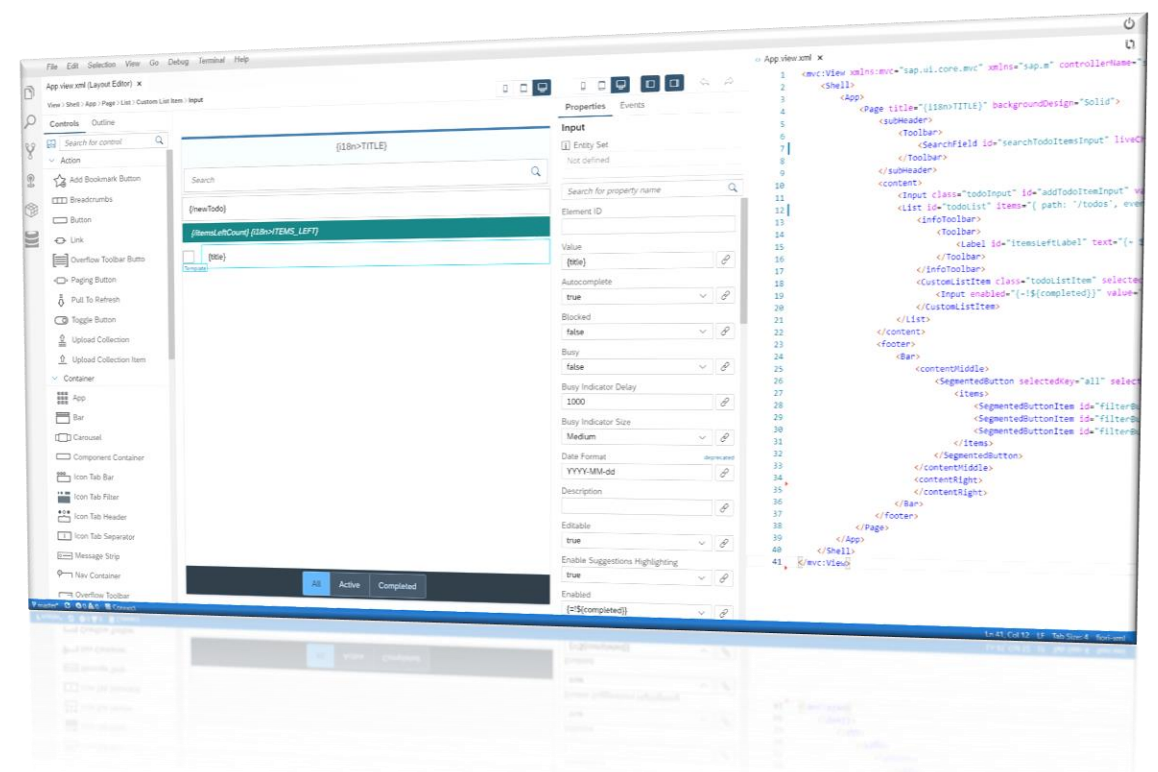
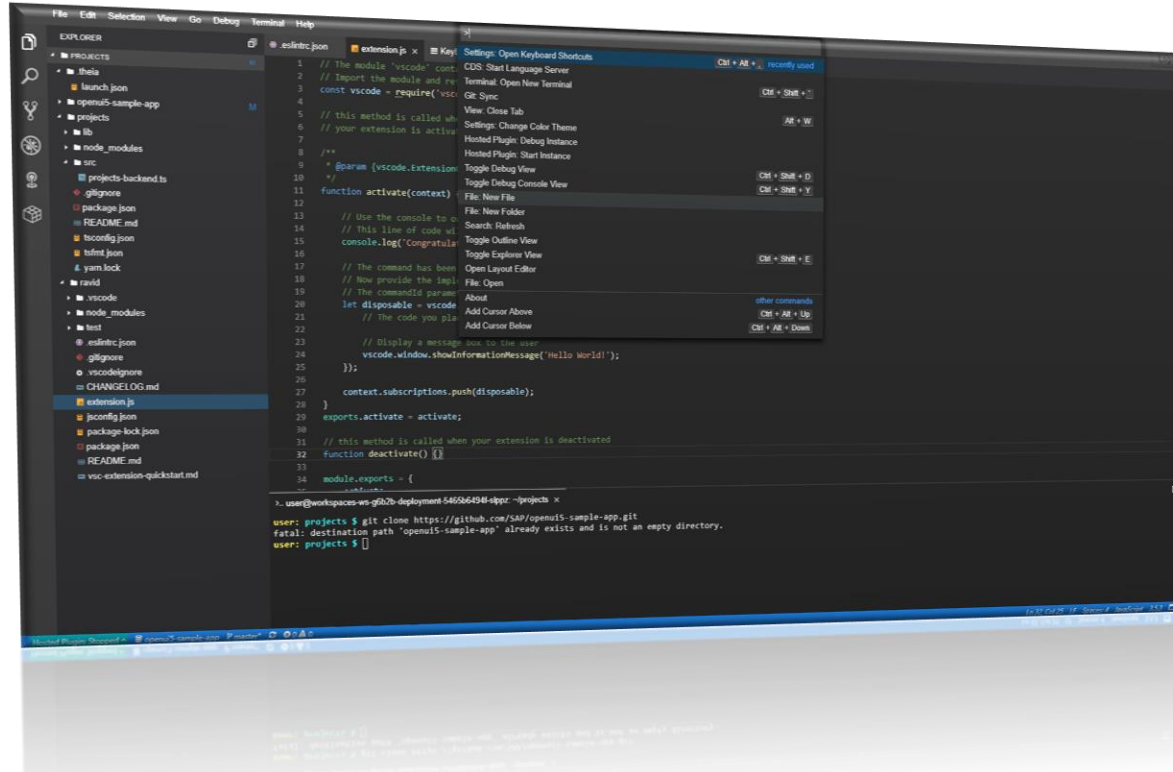
The new low-code capabilities of SAP Business Application Studio include:

- Deliver the applications the business needs when it needs them
- Improve productivity
- Increase the organization's developer (talent) pool
- Enable anytime, anywhere availability in the multi-cloud SAP environment
- Develop and extend SAP solutions
- Allow for collaboration between citizen developers and professional developers

SAP Business Application Studio on BTP* Multi-Cloud

General Availability on Azure, AWS, and Ali-Cloud

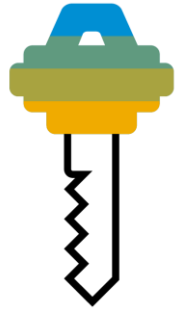
A **modern** development environment, **tailored** for efficient development of business applications for the **Intelligent Enterprise scenarios**



* SAP BTP: SAP Business Technology Platform

SAP Business Application Studio

Value Proposition



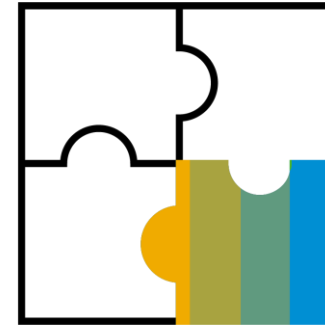
Turn-key Solution

Instantly spin-up pre-packaged environments with tools and runtimes, tailored for developing SAP business applications



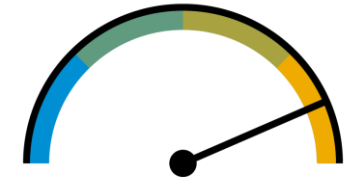
Simplified Development

Enjoy a seamless end-to-end development environment with a desktop like experience in the cloud - available anywhere, anytime



Integrate SAP Solutions

Build smarter, more intelligent applications integrating SAP services, technologies, and solutions to cater for your business needs



Ultimate Productivity

Accelerate app development using wizards, optimized code & graphical editors, local test run & debug, terminal (CLI) access, quick deployment, and more

SAP Business Application Studio is built on Open Source and leading industry standards

SAP Business Application Studio

Key Use Cases



Build web apps with
SAP Fiori and SAPUI5



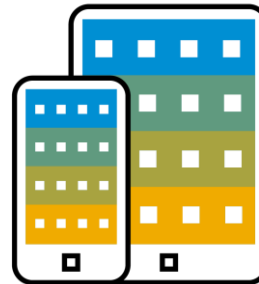
Extend SAP Solutions



Create serverless
extensions



Digital process automation using
SAP Workflow Management

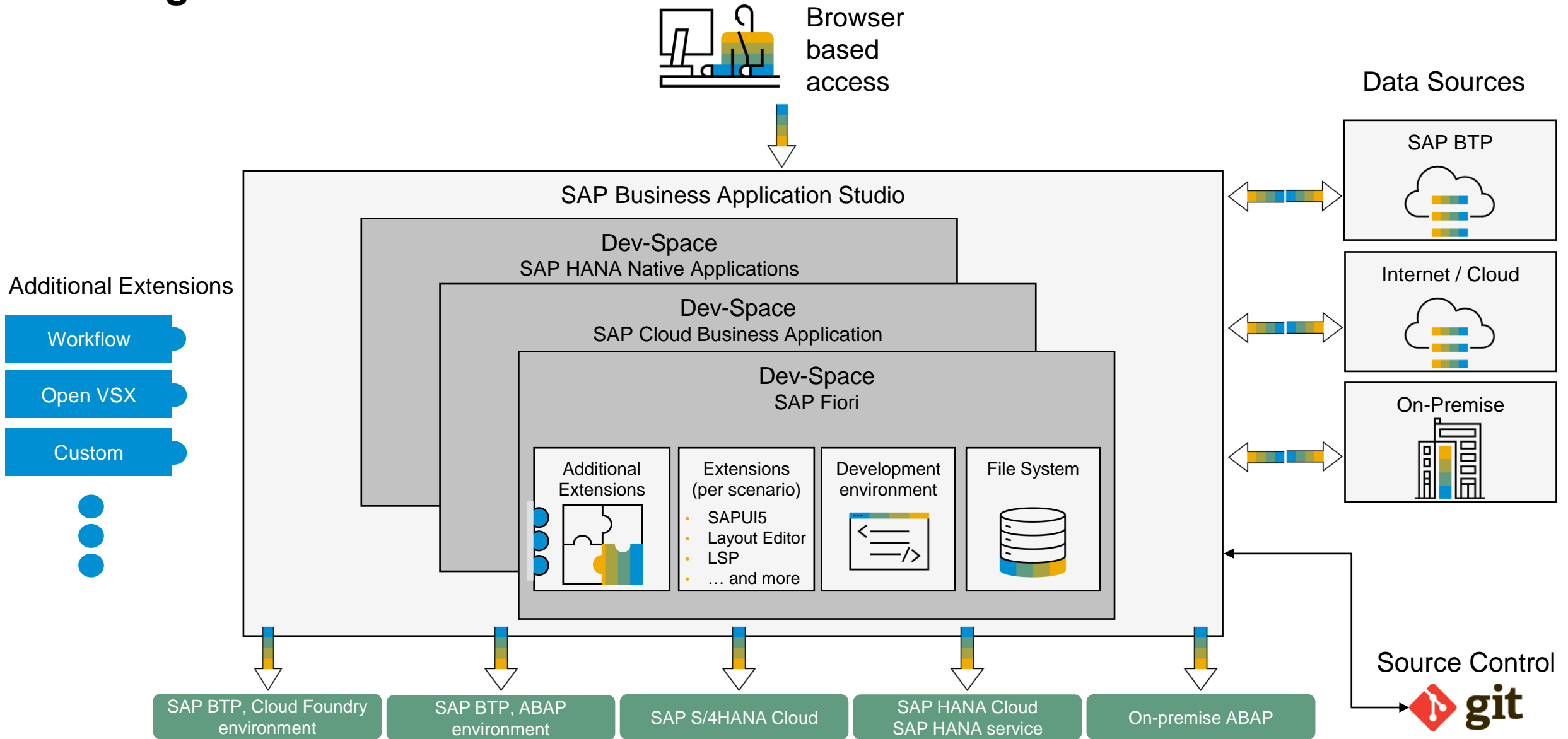


Mobilize your
Business

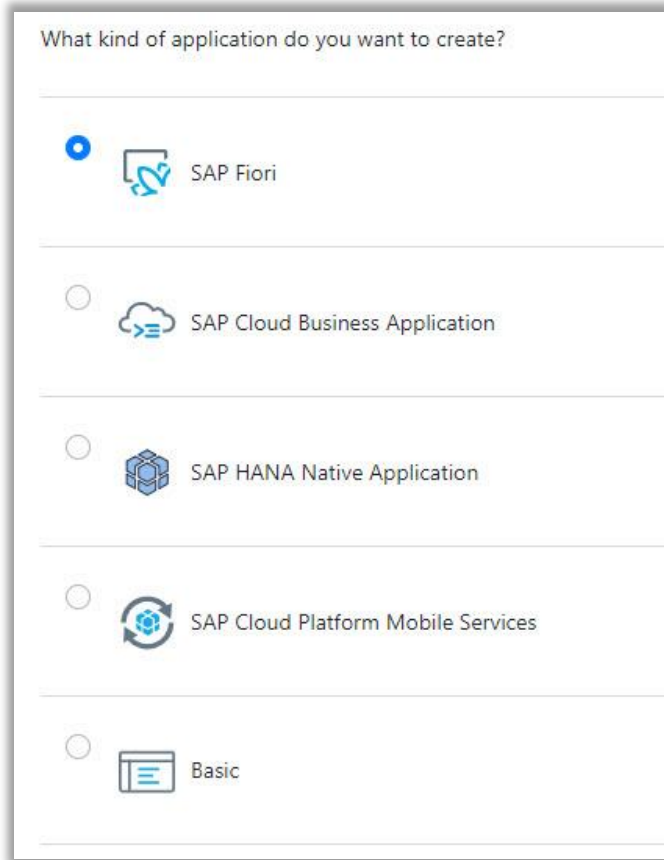


Develop SAP HANA
Native applications

The Big Picture

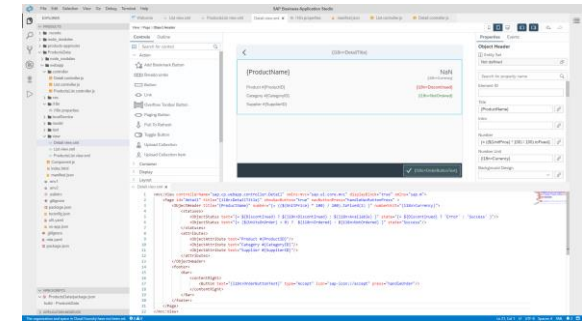


Modular, Tailored Dev Spaces



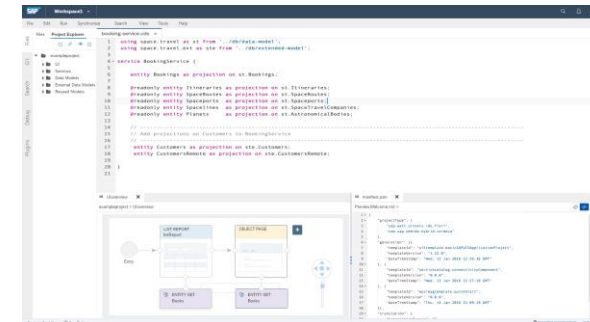
SAP Fiori Dev Space

- IDE with language services for SAPUI5, JS, XML
- Layout editor and SAP Fiori tools
- Rich set of templates: SAP Fiori elements & freestyle
- Local test: multiple SAPUI5 versions, unit and integration tests, mock
- Env: CLI tools, SAPUI5 build, deploy to ABAP Repository, CF, ...
- Service catalog



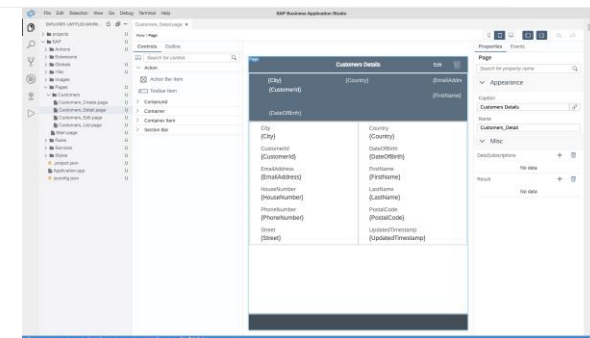
SAP Cloud Business Application Dev Space

- IDE with language services for Java, NodeJS, XML
- Layout editor and SAP Fiori tools *
- Rich set of templates: CAP, SAP Fiori elements* & freestyle
- Tools: CDS tools, MTA tools, Spring-Boot tools, SQL tools, REST client and SAP HANA tools*
- Local test: Run service, in-memory db, local SQLite db, REST client, mock, ...
- Env: CLI tools, builders,....
- Service and Events* catalog



Mobile Dev Space

- Basic IDE with auto-completion, validation, and more
- Templates for: Mobile Dev Kit, Mobile Cards, Mobile Backend Tool
- Local test: Mobile runtime
- Env: CLI tools, deploy to Mobile Services
- Service catalog



+ Create custom Dev Space templates for developers*

* Future Innovation

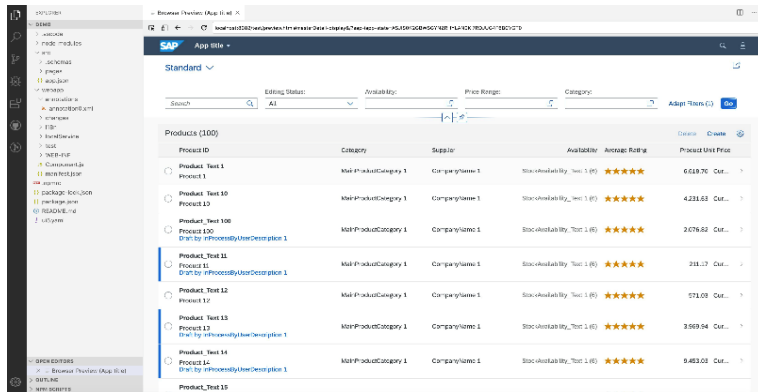
SAP Business Application Studio vs. SAP Web IDE

	SAP Business Application Studio	SAP Web IDE Full Stack
Available on	SAP BTP, Cloud Foundry environment	SAP BTP, Neo environment
Deployment target	SAP BTP, Cloud Foundry environment, on premise ABAP SAP BTP, ABAP environment*	SAP BTP, Cloud Foundry environment, on-premise ABAP, SAP BTP, Neo environment
Solution	Instantly spin-up pre-packaged isolated environments/Dev-spaces (“virtual machine on the cloud”) with tools and runtimes, tailored per business scenario which provide more control over the environment and code Configure and share Dev-spaces*	Generic workspace that contains many tools. Some tools are not necessarily required for the target business scenario
Experience	Embraces VS Code experience , will provide the ability to add custom extensions* Desktop like experience in the cloud including local test, run & debug, terminal (CLI) access, and superior code editors	SAP proprietary experience Browser based experience
Support for various personas	Better support for pro-code, cloud and full stack developers with superior for Java and node.js coding Additional personas can be supported with a suited experience per persona using dev-spaces concept.	<ul style="list-style-type: none"> • Cloud and full stack developers – partial • Web/mobile developers • Similar experience for all personas
Open Source & standards	Based on open source & leading industry standards Provides possibility to quickly integrate capabilities and technologies that exist in the market*	Uses open sources but majority is proprietary SAP proprietary framework with limited number of extensions

Visual Studio Code and SAP Business Application Studio

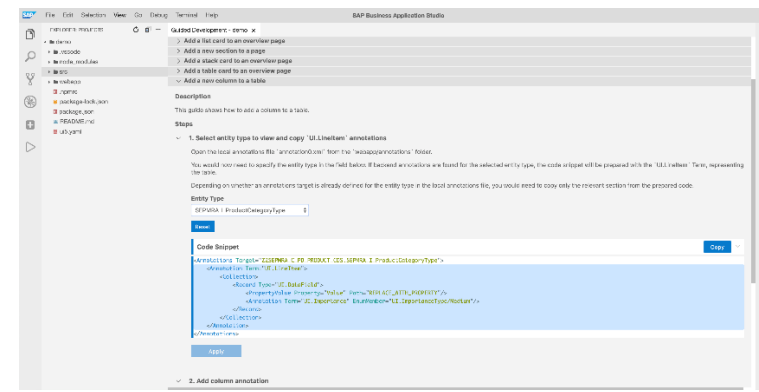
Visual Studio Code

- 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.
- 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 open source Theia marketplace](#)



Quotes

Partner feedback

- “Business Application Studio **is the one which will change the existing trend** I believe. It’s really a Superb Experience for a Developer”.
- “Business Application Studio gives me **all the tools in one place without overhead** of installation and maintenance.”
- “I use web ide for development as of today and using Business Application Studio was **fun** as it is more about command lines and it is **faster** than web ide. So, I liked the deployment part quicker than web ide and it would **help me a lot** in future.”
- “Overall **experience was very good**, since I am Fiori Application Developer and I use WEB IDE extensively, I liked Business application Studio **better** when compared to it.”



Pablo Marichal
@dotpablo



SAP Business Application Studio is the killer Web IDE for Eclipse, VS Studio et al. and faster than SAP Web IDE (obviously different domains, uses, etc)

Works great and super intuitive to developing apps with SAP CAP Programming Model

03/05/2020, 22:36

Customer feedback

- “Works way **faster** than the WEB IDE”
- “As a developer we’ve got **more control** now”
- “Testing is now much **easier**”
- “Nice, no longer the need for installing VS Code on local machines”
- “It is **like a local development** in the browser”

Thank you.

Contact information:

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