How to use SAP Business Technology Platform to extend SAP solutions and to create innovative applications
Today's Speakers

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SAP Services
The context

Change Fast

More agile
More intelligently
More efficiently

Resilience to the new normal

Make the right decision

Execute the transformation
The value

Most innovative projects
Most complex challenges
Most creative solutions

SAP Customers
SAP Services
SAP Partners

Duty
Privilege

Real-life experiences
Difficulties
Solutions
Methods
Accelerators
Tools

Witness and share

Make SAP innovation easy to consume
Let’s Build the Intelligent Enterprise Together – March, April, May

**Business Technology Platform**

- An ocean of corporate data: diving in to discover hidden worlds. Data management and priorities in the Intelligent Enterprise. January 12th
- SAP Analytics Cloud. The innovation of the Analytics App. January 26th
- How to use the SAP Cloud Platform to extend SAP solutions and to create innovative applications. March 23rd

**SAP S/4HANA**

- S/4 innovation cannot wait – the system conversion. February 9th
- Three reasons why SAP S/4HANA Private Cloud Edition is an unmissable opportunity. April 20th

**Customer Experience**

- The right Customer Experience platform for your business. April 6th
- How to leverage the Analytics embedded in SAP Customer Experience Solutions. February 23rd
- CX, commerce, performance: do not let your customers wait! May 4th

**Industry 4.0**

- Secrets From The Field: benefits and ingredients for Asset Management, Predictive Maintenance and Productive Quality Control. March 9th
- Demand Driven MRP: a key ingredient for an intelligent and resilient Supply Chain. May 18th
Let's Build the Intelligent Enterprise Together – Q1: Adoption Success

- Discover SAP Learning Hub
  - January 25th

- Discover SAP Enable Now
  - January 27th

- Overview of SAP Commerce Business User
  - January 28th

- Overview of SAP Commerce Business User
  - February 3rd

- Overview of Training for SAP S/4HANA Logistics
  - February 4th

- Overview of Training for SAP S/4HANA Logistics
  - February 4th

- SAP Business Objects Web Intelligence: Overview of BOW320 ILT
  - February 16th

- Overview of Training for SAP S/4HANA Logistics
  - February 4th

- Overview of Training for SAP S/4HANA Logistics
  - February 4th

- Overview of SAP Marketing Cloud: Overview of C4H260 ILT
  - February 23rd

- Discover SAP Enable Now
  - February 24th

- Overview of SAP SuccessFactors Education Offerings – Start your Learning Journey
  - March 4th

- Overview of SAP Marketing Cloud Key Features & Extensibility ILT
  - March 16th

- Overview of SAP Marketing Cloud
  - March 23rd
“To win in the next-normal environment, companies will need to achieve step-change in resilience without unsustainable increases in their costs. The acceleration of end-to-end operations digitalization will be critical in resolving the long-standing trade-off between efficiency and resilience.”

Intelligent Enterprise
Framework
SAP Business Technology Platform
as Platform for the Intelligent Enterprise

DATABASE AND DATA MANAGEMENT
Capture, manage, and govern your data to drive better business outcomes

ANALYTICS
Analyze all your data to accelerate insights and transform the data you have into the answers you need

APPLICATION DEVELOPMENT AND INTEGRATION
Integrate and extend applications – build new ways to access and interact with your data

INTELLIGENT TECHNOLOGIES
Data is the fuel propelling intelligent technologies forward – optimizing processes, and igniting innovation
SAP Business Technology Platform for Application Development and Integration
SAP Business Technology Platform
with a focus on SAP Extension Suite
Adaptable and efficient extensibility capabilities are essential
SAP Extension Suite

- **Spend money to save money**
  Increase efficiency of existing business processes and models.
  - Easy migration with low TCD
  - Lower TCO than before
  - At least same reliability

- **Spend money to make money**
  Innovate to increase productivity and revenue with new and differentiating business processes and models.
  - Agility & flexibility to innovate fast
  - Profitability of business case
  - Sufficient reliability & scalability

- **Covered scope**
  Required by customer, covered by SAP standard
- **Uncovered scope**
  Required by customer. Not yet covered by SAP standard but might be in future
- **Required scope**
  Required by customer
- **Differentiating scope**
  Competitive advantage for customer. Customer never want this to be part of SAP standard

Delivered scope
SAP standard software

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Different business scenarios for extensions
SAP Extension Suite

- **Extension**
  - **UI**
    - **Extend user experience** of existing processes and provide controlled access for additional user groups.
  - **Process**
    - **Extend business process** with additional steps for business process optimization or innovation.
  - **Data**
    - **Extend data insight** by consolidating and combining data in one central place.
  - **Ecosystem**
    - **Extend ecosystem** by creating and operating a SaaS application and selling it to multiple customers.
Extensibility options for SAP S/4HANA

**SAP Extension Suite**

- Adopt new user interface
- Expose data
- Create custom analytics
- Create forms / email templates
- Add database fields / objects
- Add application logic

**SAP S/4HANA**

In-app extensibility

**SAP Integration Suite**

- Secured connectivity
  - User Interface
  - Rules / Workflow
  - Process / Events
  - Data Replication

**SAP Extension Suite**

Side-by-side extensibility

- Refresh & mobilize user experience
- Cloud native for B2C & B2B
- Process innovation
- Data marts & analytics
- Data science & intelligence
- IoT & big data

E2E Security / E2E Lifecycle Management
Pillars
SAP Extension Suite

Digital experience

Digital process automation

Development efficiency

Multicloud foundation

SAP

Third party

Best-run practices and guidelines

Enterprise-grade intelligent technologies

Ready-to-use business services and applications

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Pillars
SAP Extension Suite

**DIGITAL EXPERIENCE**
Connect people, data, and process with engaging experiences

**DIGITAL PROCESS AUTOMATION**
Automate, enhance, and adapt business processes beyond standard solutions

**DEVELOPMENT EFFICIENCY**
Empower everyone to rapidly build and enhance apps, process and experiences with clicks or code
Digital Experience
Connect people, data, and processes with engaging experiences

- Provide **consistent, contextual, and personalized** access to the information you need, when you need it, wherever you need it.
- Empower business users with a **simplified digital workplace experience** to foster increased engagement, and a better overall experience for your people, customers and partners.
- Jumpstart experience development with **prebuilt templates, conversational bots, and connected services** for SAP solutions.

Improve people **engagement, resource efficiency, and employee productivity**
Digital Experience
Services

**SAP Mobile Services**
Quickly develop, configure, and run enterprise-grade mobile apps that provide access to enterprise data with services, such as app lifecycle management, synchronization, push notifications, security, monitoring, and usage reporting.

**SAP Work Zone**
Create an outstanding user experience for business application users that intelligently surfaces application content, contextual recommendations, and collaborative processes to drive employee engagement, focus, and productivity.

**SAP Launchpad**
Establish a central point of access to SAP (e.g. SAP S/4HANA), custom-built, and third-party applications and extensions, both on the cloud and on-premise.

**SAP Conversational AI**
Transform customer and employee experiences by building enterprise-grade chatbots in a heartbeat. Leverage an end-to-end bot building platform as well as a digital assistant made for the enterprise.
Digital Process Automation

Automate, enhance, and adapt business processes beyond standard solutions

- Tailor digital workflows to your business needs and leverage AI-enabled bots to automate repetitive and manual tasks
- Use predefined, live process content packages for greater flexibility and customization of your business processes supported by SAP software
- Proactively manage process performance and exceptions with real-time dashboards, and identify improvements with process mining

Increase process efficiency, flexibility, and quality
Digital Process Automation

Services

SAP Workflow Management
Digitize workflows, manage decisions, gain end-to-end process visibility, and configure processes in a low-code approach.

SAP Intelligent RPA
Automate high-volume, standardized, and repetitive manual tasks by creating, scheduling, managing, and monitoring intelligent bots.

SAP Live Process Content
Offers discovery of pre-defined content, real-time authoring and launch (publish to production) of non-complex business processes without coding.
Development Efficiency
Rapidly build and enhance enterprise applications, processes, and innovations using clicks or code

- Out-of-the-box tooling for simplified development that works with your choice of approach and runtime
- Ready-to-use services and preconfigured templates for faster development and time to value
- Easily manage your application lifecycle by decoupling application extensions from the core

Improve productivity, accelerate time-to-value, and streamline development
Development Efficiency
Services

**SAP Business Application Studio**
A modular-driven environment, tailored for efficient development of business applications.

**Low-Code Tools**
RAD by Mendix supports various developer types and expertise, from no code business developers, to full IT professionals.

**Program Models/Runtimes**
Integrated framework of tools, languages, and libraries for building extension applications in a full-stack development approach. Deploy extensions in the runtime of your choice.

**DevOps**
Offers a rich set of services supporting the development and operations of cloud-native and hybrid solutions.

**Enterprise Messaging**
Enables applications to communicate asynchronously through messages and events to seamlessly extend digital core with responsive applications.

See all Development Efficiency services in the Discovery Center
Extensions step by step
SAP Extension Suite

Provides an integrated toolkit for extending and enhancing standard SAP solutions efficiently and economically.

Connect on-premise and cloud systems to SAP BTP to extend standard SAP solutions.

Create endpoint extension applications based on your existing skillset.

Add channels Web, mobile, conversational, others.

Deploy & operate in your organization.
Cloud Application Programming Model
SAP Extension Suite

SAP® S/4HANA

SAP ECC

SAP Customer Experience

SAP® S/4HANA Cloud

SAP Ariba

SAP SuccessFactors

SAP Concur

SAP Fieldglass

SAP Business One

3rd Party Solutions

CONNECT

Connectivity (incl. Cloud Connector)

SAP Integration Suite

Smart Data Integration

SAP Landscape Transformation

Replication Server

API Business Hub

SAP Graph

Enterprise Messaging

BUILD ENDPOINT

Workflow Management
Workflow Business Rules
iRPA, …

Cloud Application Programming Model (CAP)
Business Application Studio

ABAP Restful Programming Model (RAP)

WEB
SAP UI5
Fiori Elements

Conversational AI

Mobile
Mobile Development Kit
SAP SDK for iOS
SAP SDK for Android
SAP Mobile Cards

Deploy & Operate

Targets
Central Entry Point
Standalone

Runtimes
ABAP Runtime
Cloud Foundry Runtime
Kyma Runtime
Serverless Runtime

DevOps
Monitoring, Alerting, Scaling
CI/CD Services
Transport Management Service
Translation Service

Main Tools
Business Application Studio / ABAP Development Tools for Eclipse / Cockpit

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SAP Cloud Application Programming Model
SAP Extension Suite Programming Models

- **Opinionated**, yet open framework of tools, languages, and libraries to efficiently build

- Guide for developers along a ‘golden path’ of proven best practices, while minimizing boilerplate so they can **focus on their domain** problems at hand

- Mix of broadly adopted **open-source and SAP** tools and technologies
SAP Cloud Application Programming Model
SAP Extension Suite Programming Models

- **Core Data Services** (CDS) is a data modeling infrastructure
- You can use CDS to define data models and service definitions
SAP Cloud Application Programming Model
SAP Extension Suite Programming Models

- Choose between **Java** and **Node.js**
- Provide and consume services
- Easy access to libraries provided by SAP
- High-level integration to low-level platform
SAP Cloud Application Programming Model
SAP Extension Suite Programming Models

Get 1st-class support for…

- **SAP Business Application Studio** with tailored tools
- **SAP Fiori Elements**
- **SAP HANA**
SAP ABAP Restful Programming Model
SAP Extension Suite Programming Models

The ABAP RESTful PROGRAMMING MODEL consists of …

CONCEPTS
TOOLS
FRAMEWORKS
LANGUAGES
BEST PRACTISES

… for the efficient development of ENTERPRISE-GRADE APPLICATIONS

Service development
SAP Fiori UI services
Web APIs

Universally usable programming model
Greenfield developments
Brownfield developments

Available on-premise and in the cloud
SAP S/4HANA
SAP BTP, ABAP environment
SAP ABAP Restful Programming Model
SAP Extension Suite Programming Models

**ABAP Development Tools in Eclipse** for all development tasks
- Easy developer onboarding
- End-to-end development flow

**Languages: ABAP and CDS**
- Standard implementation tasks via typed APIs supporting static code checks, auto-completion, element info

**Powerful frameworks**
- Take over technical implementation tasks
- Business logic added in code exits on protocol-agnostic layers
### SAP ABAP Restful Programming Model

**SAP Extension Suite Programming Models**

- **Service consumption**
  - SAP FIORI UI: Consume OData UI services
  - Service binding – Bind to protocol version and scenario
  - Service definition – Define scope to be exposed

- **Business services provisioning**
  - Business object projection
    - CDS: Projection views
    - BDEF: Behavior projection
    - ABAP: Behavior implementation

- **Data modeling and behavior**
  - Business objects
    - CDS: Data modeling
    - BDEF: Behavior definition
    - ABAP: Behavior implementation
  - Queries
    - CDS: Data modeling

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Use Case
Machine monitoring Fiori-like app
Context
Machine Monitoring Fiori-like app
Demo
Machine Monitoring Fiori-like app
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### Demo

Machine Monitoring Fiori-like app

<table>
<thead>
<tr>
<th>Customer Name</th>
<th>Plant Name</th>
<th>Plant Health</th>
<th>Models Deployed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Customer 1001</td>
<td>Plant 002</td>
<td>69%</td>
<td>3</td>
</tr>
<tr>
<td>Customer 1001</td>
<td>Plant 003</td>
<td>2%</td>
<td>3</td>
</tr>
</tbody>
</table>
Demo
Machine Monitoring Fiori-like app
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Machine Monitoring Fiori-like app
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Machine Monitoring Fiori-like app
Demo
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![Machine Monitoring Fiori-like app](image-url)
Architecture
Machine Monitoring Fiori-like app
Architecture Variant
Machine Monitoring Fiori-like app
Offering value proposition
SAP Innovation Services

Your trusted partner for innovating to solve your most complex business challenges, blaze disruptive new trails, and bring your company’s vision to life.

Envision a Bold Future
with new and disruptive innovations that address your specific business needs

Bring Your Concepts to Life
with high-value solutions built by SAP experts

Thrive with Confidence
with assurance that your mission-critical solution is backed by the power of SAP

PROVEN TO MAKE INNOVATION REAL
- 2,200 development-related professionals
- 4,400 solutions built
- 1,650 satisfied customers
- Direct access to 38,000 R&D and services experts from SAP

- Business innovation experts
- Innovation managers
- Design-thinking coaches
- User experience designers
- Project and program managers
- Architects | Business & Technical
- Data scientists
- Developers
- Support specialists
Thank you.