SAP Business Rule Technologies: When to Use What and How They Work Together

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THE BEST RUN **SAP**

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Agenda

Intelligent Enterprise

Decision Management Overview

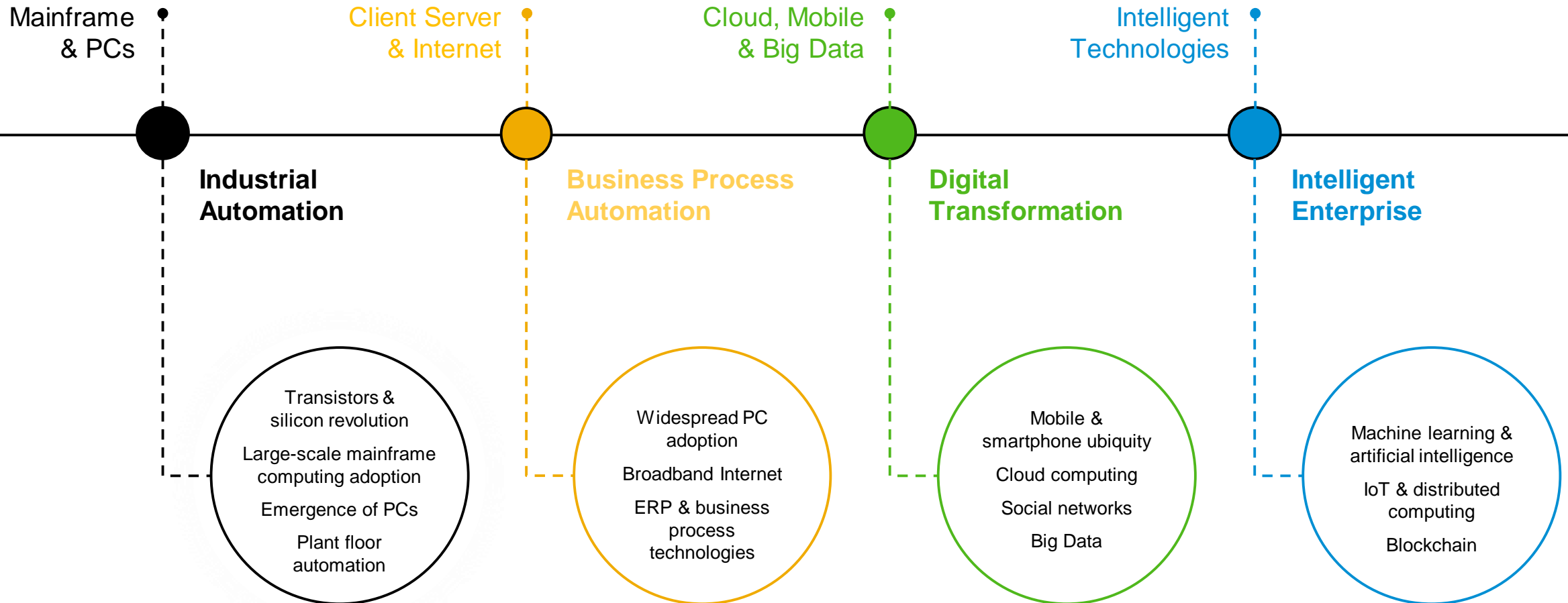SAP Cloud Platform Business Rules Introduction

Key Capabilities

Recipes
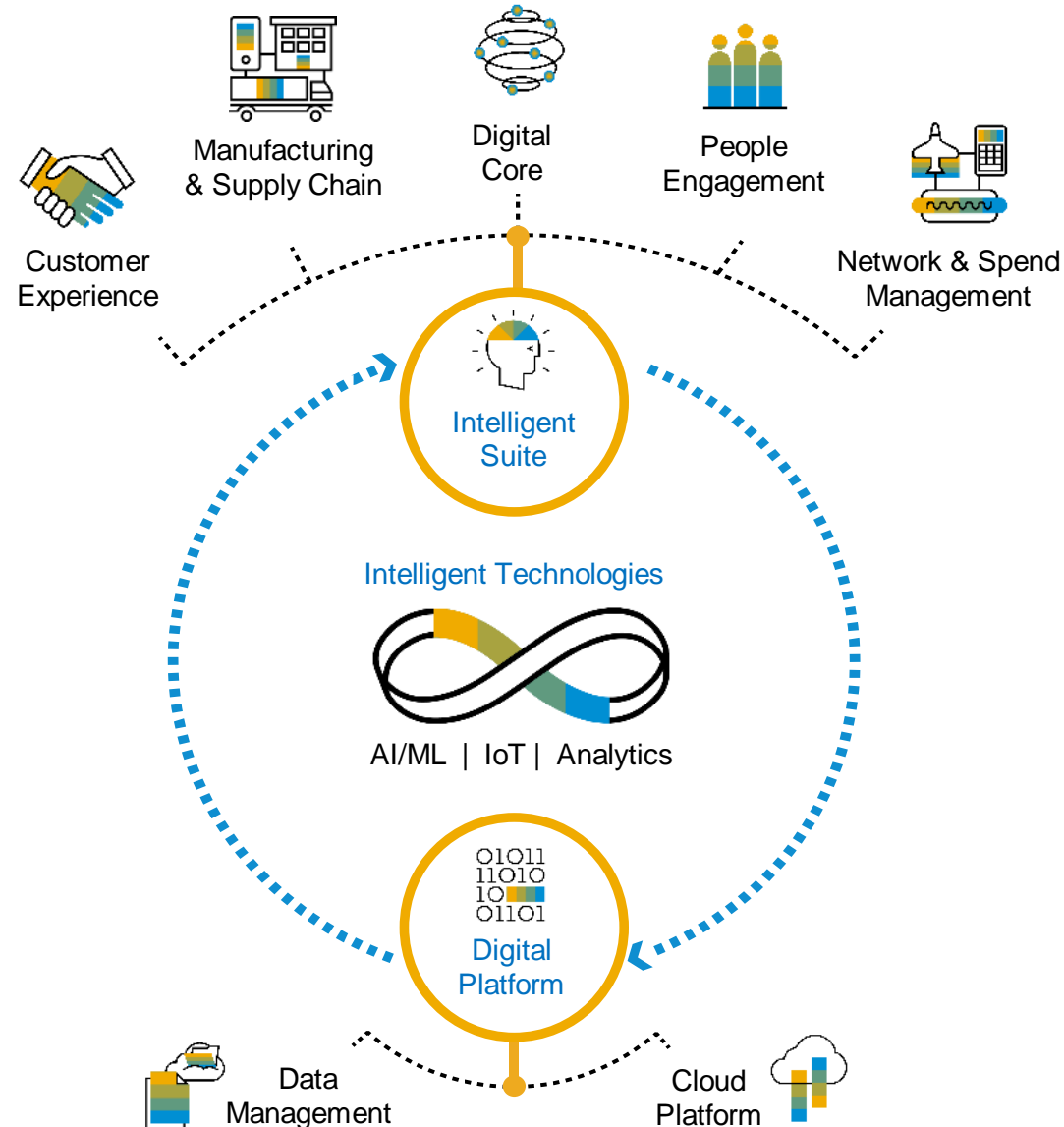
Summary

Intelligent Enterprise

The digital era is evolving into the intelligence era

Mainframe & PCs

Client Server & Internet

Cloud, Mobile & Big Data

Intelligent Technologies

Industrial Automation

Business Process Automation

Digital Transformation

Intelligent Enterprise

Transistors & silicon revolution

Large-scale mainframe computing adoption

Emergence of PCs

Plant floor automation

Widespread PC adoption

Broadband Internet

ERP & business process technologies

Mobile & smartphone ubiquity

Cloud computing

Social networks

Big Data

Machine learning & artificial intelligence

IoT & distributed computing

Blockchain

Deliver the Intelligent Enterprise

THE INTELLIGENT ENTERPRISE features

3 KEY COMPONENTS:

Manufacturing & Supply Chain

Digital Core

People Engagement

Customer Experience

Network & Spend Management

Intelligent Suite

Intelligent Technologies

AI/ML | IoT | Analytics

Digital Platform

Data Management

Cloud Platform

1 Intelligent Suite

2 Digital Platform

3 Intelligent Technologies

Integration & Orchestration services in SAP Cloud Platform
Supported customers scenarios

Developers
Develops integrations, APIs, Workflows or Apps

Business Users
Works with tasks, digital process and apps

Citizen Integrators/ Developers
Develops integrations and apps using APIs with low-code productivity tools

Digital Processes and Apps

Real-time Omni-Channel Access

IOT and Device Integration

Intelligent Process Visibility

A2A/B2B Integration

APIs / Pre-Packaged Content as Accelerators
from SAP and partners to accelerate integration and innovation on the platform

Micro services

API Management

Internet Of Things

Workflow

Business Rules

Cloud Integration

Process Visibility*

Cloud Platform

Integration

Orchestration

*planned

Decision Management
Overview

Decisions are needed in every business

Banking
Relationship based pricing, credit decisioning, scorecards
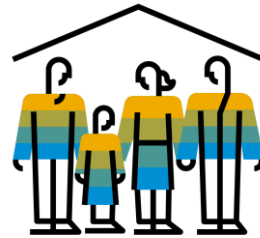
Public Sector
Tax calculations, customs duties, land regulations, license fee calculations

Logistics and Shipping
Parts management, duties calculations, pricing calculations
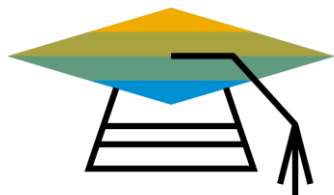
Education
Fee calculations, course selections

Insurance
New products, claims settlement, agent commissions

Healthcare
Patient monitoring, fraud detection, claims

Across different business landscapes, leaders are asking challenging questions

How to control fraud?
Change the routing to focus on new fraud

How to better understand and deliver competitive change?
Change the discount to remain competitive

How to adapt to changes in consumer behavior?
Change to keep selecting the right deal terms

How to react faster to markets trends?
Change the assessment to manage risk

How to effectively manage regulation changes?
Change to keep eligibility decisions compliant

How to implement policies changes with minimal disruptions?
Change validation to track new data requirements

Source: Inspired by James Taylor of Decision Management Solutions

SAP Cloud Platform Business Rules
Introduction

SAP Cloud Platform Business Rules

Platform reuse service that encapsulates high change decision logic from application logic

Digitize and automate decision making with business rules

Enable **centralized decision management** across the Intelligent Enterprise Suite

Enterprise Business Rules – our vision

SAP® Cloud Platform

Integration I Analytics I Machine Learning I Security I Business Services and more

API Business Hub

Business Rules Content

SAP Cloud Platform Business Rules

- ❑ Rule authoring & governance
- ❑ Decision Mining & simulation *
- ❑ Tools & embedded UI controls
- ❑ Repository & lifecycle management
- ❑ Runtime & compilers

SAP Enterprise Rule Model

SAP Business Applications

SAP® S/4HANA

On-premise and cloud

SAP C/4HANA

C4C

Marketing Cloud

SAP IoT 4.0 Gateway | Edge

SAP SuccessFactors
SAP Fieldglass
SAP Health
SAP Hybris
… other solutions

SaaS | Business Services

- ❑ SAP Industry Cloud
- ❑ SAP S/4HANA Extension
- ❑ SAP Leonardo
- ❑ Partner Services

SAP HANA Data Management (on-premise & DBaaS) | SAP Vora

Legends

- Local runtime repository
- Local rule runtimes
- Central design-time & runtime repository
- Cloud rule runtimes
- * Advanced Capabilities planned in future roadmap

Simplify management of decision logic across SAP Solutions

Capabilities

Agility

Encapsulate business logic from application logic and make business changes without the need to redevelop the application.

Reuse

Consistent and flexible decision management with *reuse* of business rules across different business processes

Transparency

Reduce manual intervention and dependency on the IT expert to apply changes to business logic across applications

Outcomes
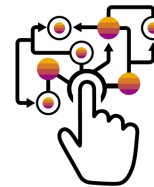
Automate decision logic with web-based tool and common lifecycle management approach with central repository and governance
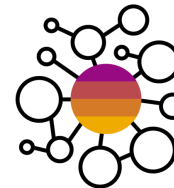
Enterprise rule model and central decision management to manage rules centrally across different platforms generating low operation and maintenance cost
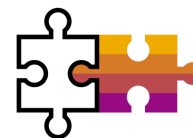
Open APIs to integrate and extend business logic with processes across various SAP and non-SAP applications

SAP Cloud Platform Business Rules
Key Capabilities

Enabling decision management across Intelligent Enterprise
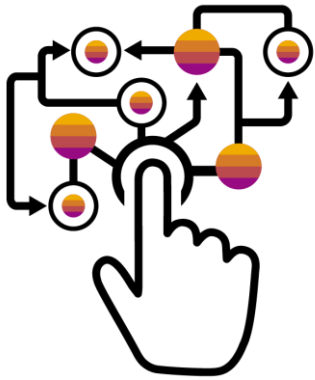
Empower users to automate and manage decision logic independently from application development
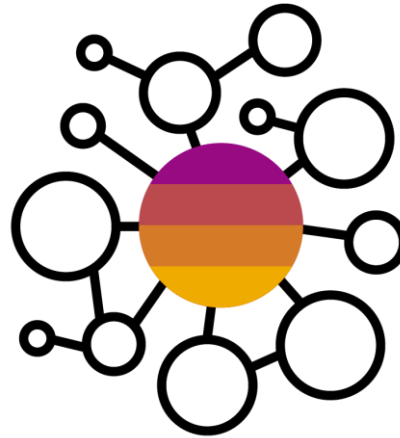
Centrally build and manage decision logic across different solutions and landscapes
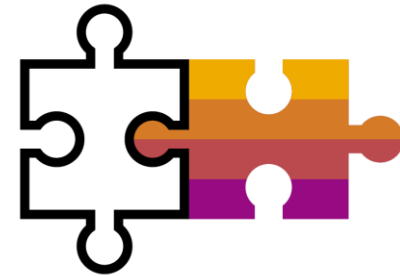
Rapidly build and extend decision logic for SAP and non-SAP applications with managed APIs

Enabling decision management across Intelligent Enterprise

Business Rules

Empower users to manage decision logic independently from application development

- Model business rules and formulas in tabular spreadsheet-like decision tables
- Provide an easy-to-use web-based business rules editor for managing business rule changes
- Embed UI5 controls for decision tables into configuration apps for business users
- Implement policy changes in applications without requiring application development

Centrally build and manage decision logic across different solutions and landscapes

- Reduce code and management effort for developers by externalizing business policy
- SAP Enterprise Rules Model to standardize modelling notations
- Central rule authoring and governance with web-based tool and common repository
- Direct deployment to different systems and platforms like SAP HANA, SAP S/4HANA

Rapidly build and extend decision logic for SAP and non-SAP applications with managed APIs

- Build, manage and invoke business rules from code by using APIs
- Create rules to control process extensions for S/4HANA Cloud
- Model rules to control custom workflows for SAP Cloud applications such as SAP Hybris Cloud for Customer, SAP SuccessFactors, Concur, or SAP Ariba
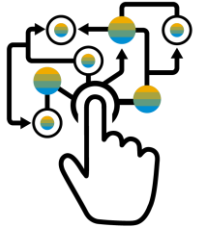
Empower users to manage decision logic independently from application development

- Model business rules and formulas in tabular spreadsheet-like decision tables and text rule

- Provide an easy-to-use Web-based business rules editor for managing business rule changes

- Embed UI5 controls for decision tables into configuration apps for business users

- Implement policy changes in applications without requiring application development

SAP | SAP Cloud Platform Business Rules

Manage Projects

Projects

	Project Name	Description	Status	Created On
☐	OfferManagement	Rules that determine offers in telecommunication industry based on the contract and tariff plans of the customers master data stored in backend SAP HANA on-premise system	Active	8 Oct 2018
☐	SFLIGHTS	S4HANA scenario to provide discounts in booking while the flight	Inactive	30 Sep 2018
☐	MaternityLeave	Business Rules to configure country specific requirements as part of maternity leave	Active	20 Sep 2018
☐	BonusPlanExtensibility	S4HANA Custom Business Object Bonus Plan calculations	Active	20 Sep 2018
		Business rules to determine equipment for the		

Manage Projects / BonusPlanExtensibility /   Edit   Validate

ELIGIBLE_BONUS_PERCENTAGE

Details   **Decision Table**

Decision Table

If			Then
VALIDITY_START_DATE of the BO...	VALIDITY_END_DATE of the BON...	LOW_BONUS_ASSIGN_FACTOR ...	PERCENTAGE_VALUE
'01/01/2018'	'01/12/2018'	1 to 10	'15'
'01/01/2018'	'01/12/2018'	11 to 14	'20'
'01/01/2018'	'01/12/2018'	15 to 17	'9'
'01/01/2019'	'01/12/2019'	1 to 100	'18'

Centrally build and manage decision logic across different solutions and landscapes

- SAP Enterprise Rules Model to standardize modelling notations based on DMN 1.1
- Central rule authoring and governance capabilities with web-based tool and common repository
- Direct deployment to different platforms like SAP HANA and S/4HANA
- Enable effective use of data assets to achieve desired outcome with less risk
- Flexible and consistent decision automation and management for different platforms

Supply Chain Management

People Management

Transport Management

Sourcing and Procurement

Digital Core

SAP Cloud Platform Business Rules

deploy

deploy

deploy

SAP HANA

SAP S/4HANA

SAP C/4HANA
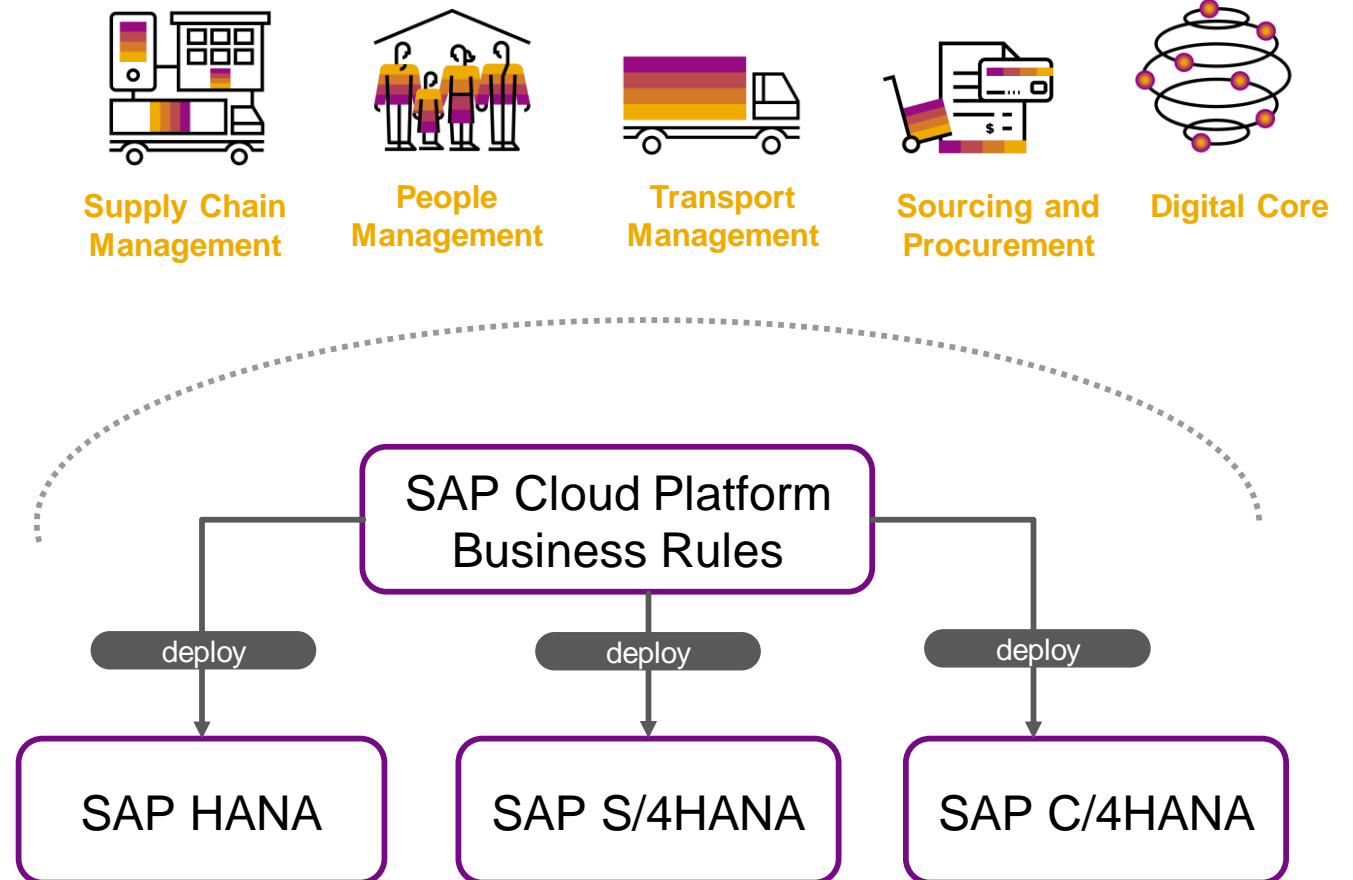
Ease developers use and management of rules with managed APIs

- Build and manage decision tables from code by using APIs
- Invoke the rules engine via APIs published in SAP API Business Hub
- Reduce code and management effort for developers by externalizing business policy
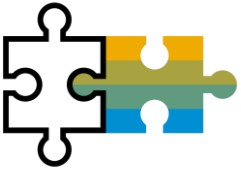
Rapidly build decision logic for SAP and non-SAP applications

Create business rules to encapsulate decision logic of extension applications of
SAP S/4HANA Cloud, SAP SuccessFactors, etc.

SAP® S/4HANA Cloud

SAP® S/4HANA

Model business rules to control custom workflows for SAP Cloud applications such as

- SAP C/4HANA Cloud for Customer
- SAP SuccessFactors
- SAP Concur
- SAP Ariba

SAP® C/4HANA

SAP Ariba

SAP Concur

SAP Health

SAP SuccessFactors

SAP Cloud Platform Business Rules
Recipes

Business Rules Usage Patterns
Recipes

Extension Applications
that require business logic to vary and remain outside the application lifecycle
- A cloud native application built side by side to an SAP Solution e.g. SAP S/4HANA
- Invokes the Rule Service via API

Human Centric or System Centric Processes
that require decision logic to be isolated from the process flow logic
- A cloud **Workflow** or **Integration** flow process that extends or integrates an SAP Solution
- Workflow or Integration Flow Service Task invokes the Rule Service via API

Core Business Processes for **In App Extensions**
that require rule based field calculations & derivations and controlled environment
- SAP back office core processes e.g. Availability to Promise, Financial Reporting in S/4HANA
- SAP front office customer facing processes like Marketing Campaign Score Recommendation in C/4HANA

Analytical Decisions
that require executions on mass data typically stored in Agile Data Mart
- Agile data marts refers to repository of data gathered from operational data originating from transactional systems and other sources.
- Business rules are push down to HANA to leverage faster execution of analytical rules on mass data

Recipe 1: Extension Applications that require flexible business logic

Extension Layers

- User Interface
- Business Logic
- Persistency
- Connectivity

Custom Applications (Pass and SaaS)

OData

SAP Cloud Platform Business Rules

Author

Deploy

Manage

Business rules used in:
- ❖ Customer specific extension applications
- ❖ Partner built SaaS applications

Business Rules is used to extend backend business logic that varies often for functional reasons

Recipe 2: Isolate Decision Logic from Process Logic
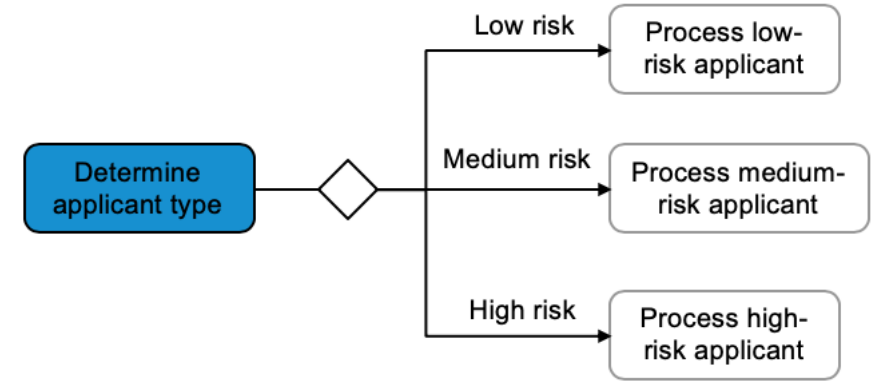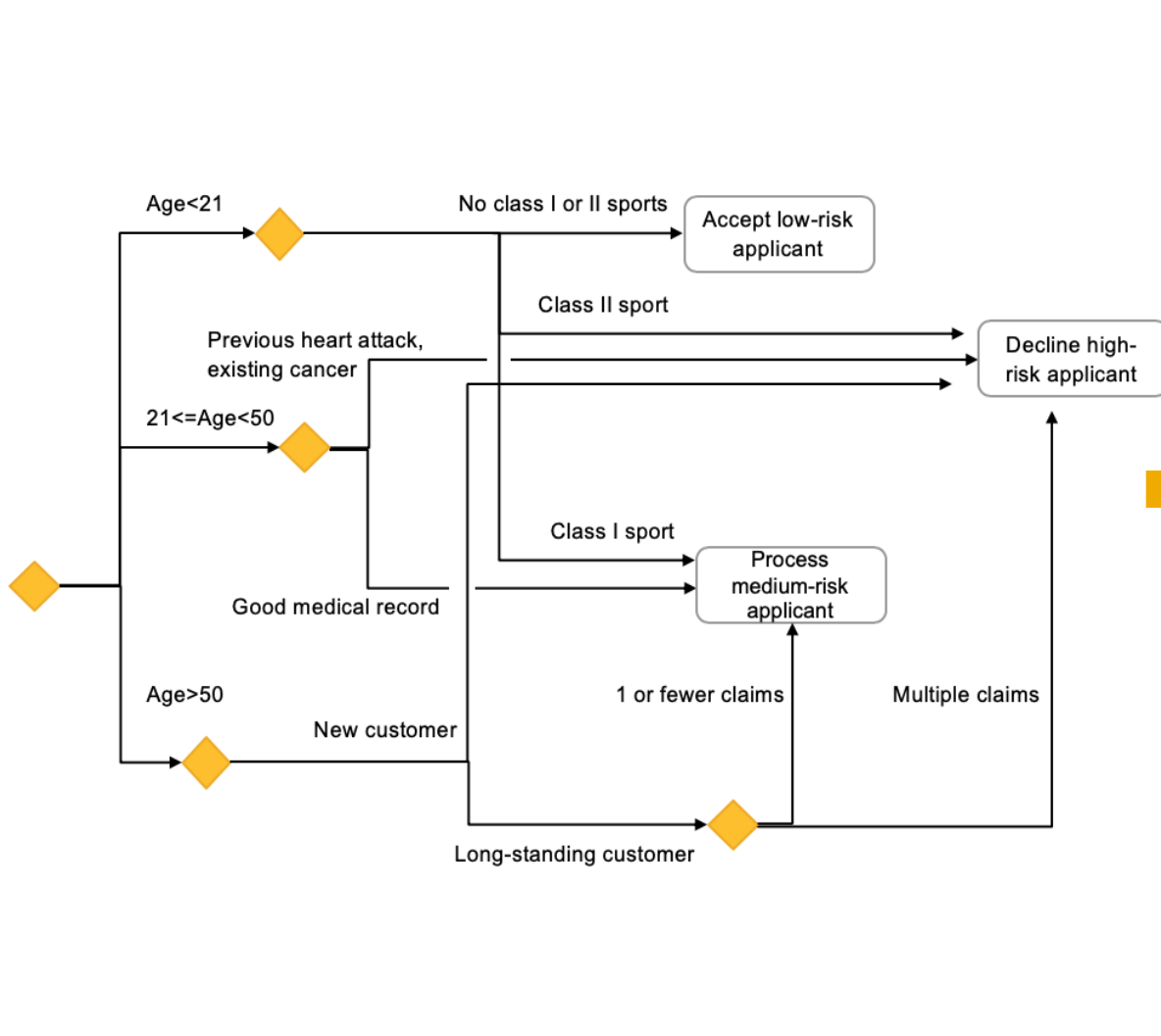
Separate decision, simpler process

	Age	Class I sports	Class II sports	Heart Attack	Cancer	New Customer	# Claims	Action
Decision Table Rule	<21	N	N					**Low Risk**
	<21		Y					**High Risk**
	<21	Y	N					**Medium Risk**
	21 - 50			Y				**High Risk**
	21 - 50				Y			**High Risk**
	21 - 50			N	N			**Medium Risk**
	>50					Y		**High Risk**
	>50					N	<2	**Medium Risk**
	>50					N	>1	**High Risk**

Recipe 3: Operational Decisions in Core Business Processes

SAP® S/4HANA
Core Business Processes

Procurement   Sales   Manufacturing & Supply Chain   Finance
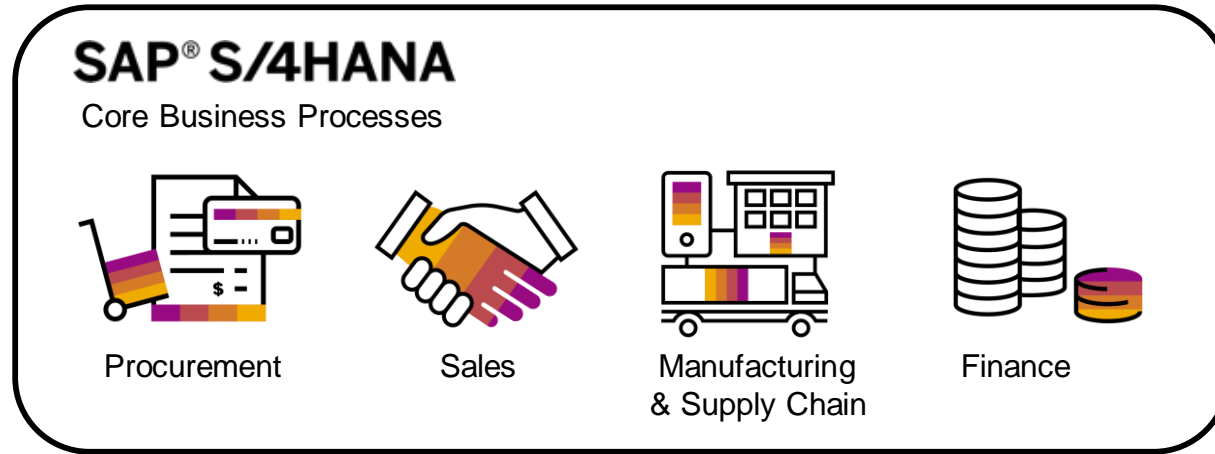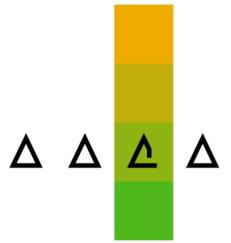
Operational Decision:
- ❖ daily repeatable business decisions
- ❖ done in high-volume
- ❖ rely on transactional data
- ❖ database lookup needed
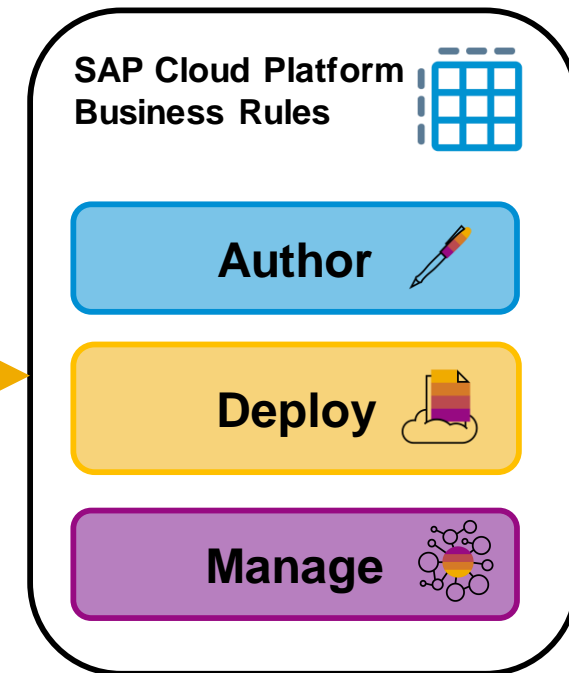
need decision logic
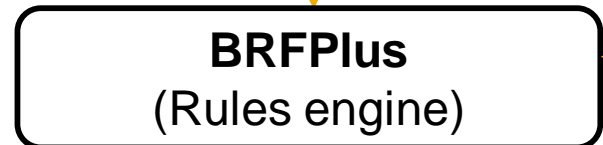
Example: Does the **new** account has invalid zip?

BRFPlus
(Rules engine)

need database lookup

Example: What **persisted** accounts have invalid zip?

Database
(HANA DB)

SAP Cloud Platform Business Rules

Author 🖊

Deploy

Manage

Recipe 4: Analytical Rules for Agile Data Mart

Business Intelligence
Analytical & Reporting tools

Agile data marts is repository of data from operational data originating in transactional systems and other sources

SAP HANA
(Agile Data Mart)

Replication server

SAP system
(transactional)

non-SAP system
(OLTP-based)

Analytical rules run on historic operational data combined with current operational data

SAP Cloud Platform
Business Rules

deploy

Author

Deploy

Manage

Summary

Orchestration

Rapidly build and modify workflow applications while managing business logic
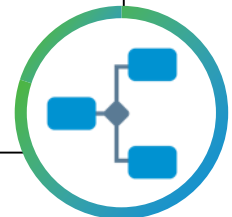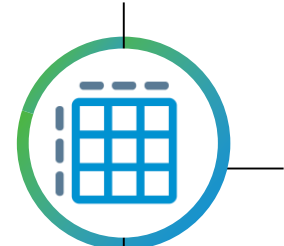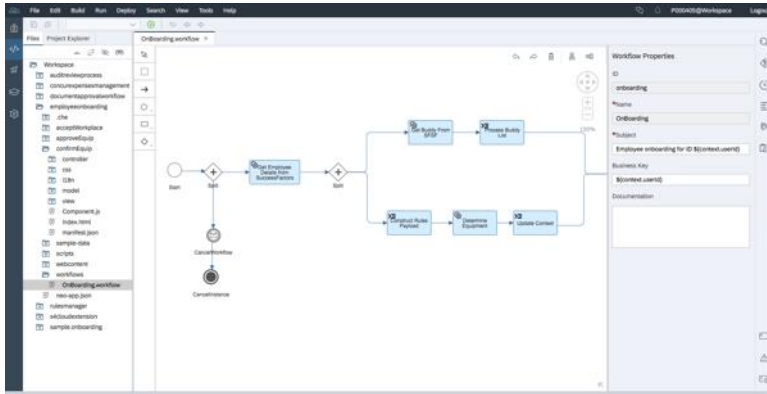
Quickly automate flexible decision with SAP Cloud Platform Business Rules

- Empower users to manage business logic independently from application development
- Create application specific business vocabulary independent of the runtime container
- Integrate Rules as a service into your applications using the REST API

Orchestrate and extend workflows with SAP Cloud Platform Workflow

- Rapidly build and modify workflow applications with web-based tooling
- Create and adapt value-adding processes in your company
- Increase efficiency and transparency
- Users can manage their workflow tasks using the My Inbox Fiori application
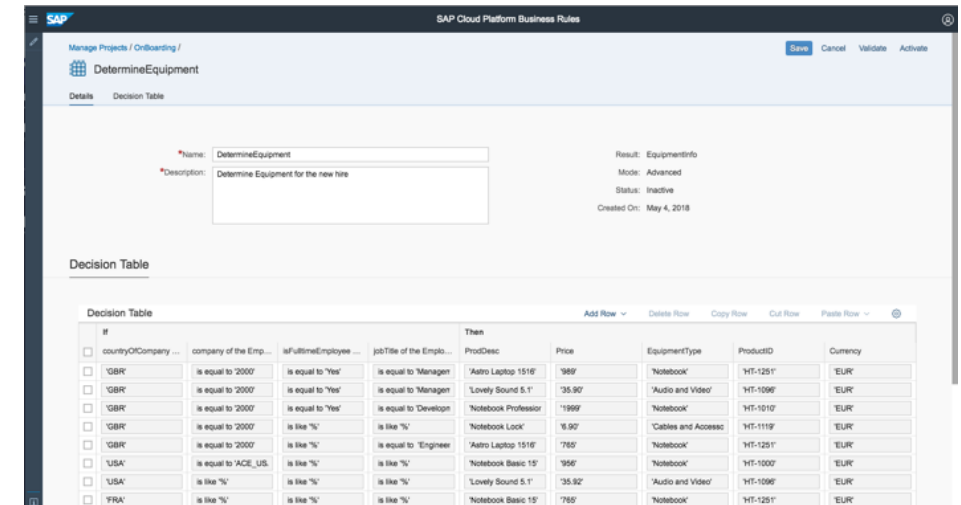
More Information

- SAP Cloud Platform Business Rules – Product Page
- Solution Brief
- SAP Help
- SAP Cloud Platform Business Rules API
- SAP Cloud Platform Business Rules Roadmap
- SAP Cloud Platform regions

- Product Overview on YouTube
- Product Expert Video on YouTube
- SAP Cloud Platform Podcast #Episode 47
- Webinar: What's new in SAP Cloud Platform Business
- RulesSAP Code Talk with DJ Adams
- Quick Demo by Midhun VP
- Authoring & Testing series by Antonio

- Blogs on SAP Community
- Follow us on Twitter (@sapcp #workflow)

- openSAP Course
- Video Tutorial
- Learning Journey
- Lecture: Business Rules Usage Patterns
- Lecture: BPM Services in the Cloud
- Discovery Center: Automate Service Order Creation

Blueprints:
- Automating Employee Onboarding Processes
- Automate the Business Partner Creation Process Using SAP Cloud Platform Workflow and Business Rules
- Automate the Document Review Process with SAP Cloud Platform Workflow and SAP Jam Collaboration

Sample Content:
- Shopping Cart Rules : consumption of rules in custom application
- Offer Management Rules : integration with SAP HANA
- Flight Booking Rules: integration with SAP S/4HANA
- Rules Manager App: how to embed business rules in custom app

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