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What we would like to talk about…

Introduction
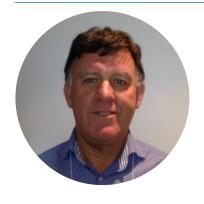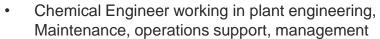
Rizing EAM

Who we are…

John Dwyer
Solution Architect
Melbourne, AU

- Chemical Engineer working in plant engineering, Maintenance, operations support, management
- Implemented end-to-end large-scale SAP solutions (EAM/PM, PS, PPM, LAM, CU, Mobility, GEF, and GIS integration)
- Industry exposure and experience across Utilities, Transport, Rail, Telco, Chemicals, Facilities Management, Fleet Management, and Defense

john.dwyer@rizing.com
https://www.linkedin.com/in/john-dwyer-65a5286/

Dr.-Ing. Achim Krüger
President EMEA
Bonn, DE

- Aerospace Engineer with a background as a General Staff Officer with German Air Force
- Worked in several position within SAP around consulting, industry, development, and solution management, also as Global Head of LoB EAM
- Industry exposure and experience across Defense, Utilities & Energy, Transportation, Discrete Manufacturing, Chemicals as well as IO/OT, Spatial Asset Management, Mobile

achim.krueger@rizing.com
https://www.linkedin.com/in/achimkrueger/

Rizing, a Wipro company
SAP and Enterprise Asset Management capabilities

RIZING
a wipro company

Asset Management Consulting
- Health Checks
- ISO 55000 Standard
- Business Case, Roadmap, and Value Realization
- Business Process and Change Management

SAP Enterprise Asset Management
- PM, PPM, PS, EHS, Real Estate Implementation Projects
- Supply Chain and Spare Parts Management
- GIS-based solutions and LRS
- Mobile LiDAR
- Analytics & Reporting

Industry Coverage
- Energy and Utilities
- Transportation
- Chemicals
- Oil & Gas
- Mill Products and Mining
- Discrete Manufacturing
- Consumer Products & Life Sciences

Innovation Services
- Intelligent Asset Management
- Big Data Analytics and Machine Learning
- GIS and ERP integration
- IT/OT convergence
- User Experience and Mobility

SAP® Recognized Expertise
Asset Management

Rizing Accelerators

Industry Studios
Standard SAP EAM Templates

Rizing Standard Products

Carbon
Interface Primavera P6 – SAP

Cobalt
CAPEX Planning & Execution

Hydrogen
UX and Mobility

Mercury
Integration GIS / Esri and SAP

OmniSpatial
GIS based data collection tool

STO360
Shutdown Management (by Wipro)

Rizing's Asset Management Framework Balancing Performance, Cost, and Risk

The Asset Lifecycle **with respective processes**

Investment to Commission

mdo prospecta

RIZING
Omni Spatial   Mercury

| Asset Investment Planning | Asset Planning & Design | Asset Project Delivery | Asset Commissioning |

RIZING Cobalt

Work Management

opentext™

Manage Asset Information (Digital Twin) → Asset Visualizations & Spatial → Criticality Analysis & Maintenance Strategy

Equipment Acquisition

Operate & Maintain

Wipro **STO**360   RIZING Carbon   ISO   RIZING Hydrogen

Shutdown, Turnaround & Outage (STO) / Refurbishment

| IT / OT Connectivity | Asset Performance Management | Asset Risk & Health Prediction | Analytics & Actionable Insights | Work Management | | | | Results Processing & Close |

Demand/Supply Planning → Work Planning → Schedule & Dispatch → Execution & Mobility

Aslnt

Decommissioning

Work Management

Investment to Commission Restart

SAP EAM
Our view on the combined solution portfolio

SAP Asset Strategy and Performance Management*

SAP Predictive Asset Insights*
SAP Manufacturing Integration and Intelligence (MII)
SAP Enterprise Product Development (EPD)

Rizing **Omni**Spatial
SAP Business Network Asset Collaboration**
SAP Master Data Governance (MDG-EAM)
SAP Asset Information Workbench
mdo prospecta   Master Data Online
SAP Endorsed App Premium Certified   Available on SAP Store

SAP Fiori
SAP Service and Asset Manager
Rizing Hydrogen   Available on SAP Store

Asset Network & Collaboration
Mobile Applications
Asset Performance Management

Asset Strategy & Performance

Asset Health Prediction & Optimization

SAP BTP

Planning & Orchestration

Environment, Health & Safety

SAP S/4HANA or ERP

Scheduling & Dispatching

Execution & Reporting

Maintenance & Service Operations
User Experience
Asset Network & Collaboration

SAP Portfolio and Project Management
SAP Commercial Project Management
Rizing **Cobalt** (CAPEX planning/execution)
SAP Project System (PS)
SAP Compatible Units (CU)
Rizing **Carbon** (Integration with P6)
SAP Integrated Business Planning (IBP)
Wipro **STO**360 (shutdown management)
SAP Endorsed App Premium Certified   Available on SAP Store

SAP Environment, Health, and Safety
SAP Work Clearance Management
SAP Management of Change

SAP Plant Maintenance (PM)
SAP Materials Management (MM)
SAP Linear Asset Management (LAM)
SAP Geographical Enablement Framework
SAP Analytics Cloud
Rizing Mercury (Integration with GIS)   Available on SAP Store

SAP Field Service Management
SAP S/4HANA Asset Management for resource scheduling (RSH)

*   SAP ASPM and SAP PAI (formerly PdMS & PEI) now merged into the new SAP APM
**   fka SAP Asset Intelligence Network (AIN)

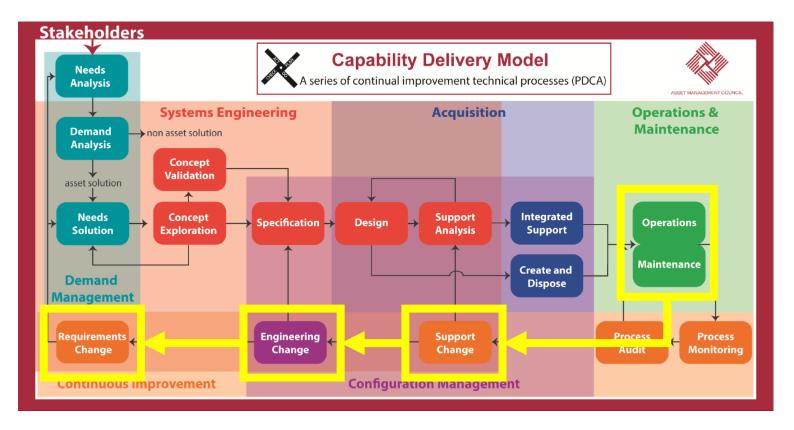# Innovation in SAP EAM – how do I get there?

Rizing EAM

11:40

Where are you with your ERP?

Heavily Modified Custom Processes

Treat your existing system as legacy?

Migrate the existing, then standardize? Get closer to standard first?

Close to Standard Industry Processes

Decouple Customizing from Data Transition

Select what you need
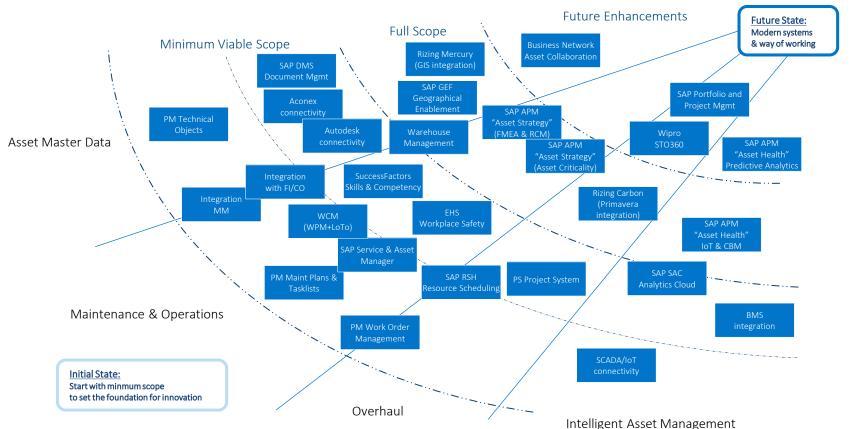
AM Council Capability Delivery Model
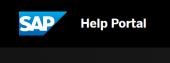
Example for an Implementation Roadmap

RIZING
a wipro company

Future Enhancements

Full Scope

Future State:
Modern systems
& way of working

Minimum Viable Scope

Business Network
Asset Collaboration

Rizing Mercury
(GIS integration)

SAP DMS
Document Mgmt

SAP GEF
Geographical
Enablement

SAP Portfolio and
Project Mgmt

Aconex
connectivity

Asset Master Data

PM Technical
Objects

Autodesk
connectivity

Warehouse
Management

SAP APM
"Asset Strategy"
(FMEA & RCM)

Wipro
STO360

SAP APM
"Asset Health"
Predictive Analytics

SAP APM
"Asset Strategy"
(Asset Criticality)

Integration
with FI/CO

SuccessFactors
Skills & Competency

Integration
MM

Rizing Carbon
(Primavera
integration)

WCM
(WPM+LoTo)

EHS
Workplace Safety

SAP APM
"Asset Health"
IoT & CBM

SAP Service & Asset
Manager

PM Maint Plans &
Tasklists

SAP RSH
Resource Scheduling

PS Project System

SAP SAC
Analytics Cloud

Maintenance & Operations

PM Work Order
Management

BMS
integration

SCADA/IoT
connectivity

Initial State:
Start with minmum scope
to set the foundation for innovation

Overhaul

Intelligent Asset Management

Improved State

Change phase

Current State

Exciting new features in S/4HANA

Rizing EAM

Maintenance Process Phases

If you create maintenance requests and maintenance orders of a specific type, these maintenance requests and orders are processed according to phases. Maintenance orders then run through several approval, planning, preparation and execution steps until they are finally completed. The phases are divided up in subphases which - similar to an overall status - document the progress in the maintenance process. The phase model includes the following nine phases:

- Initiation
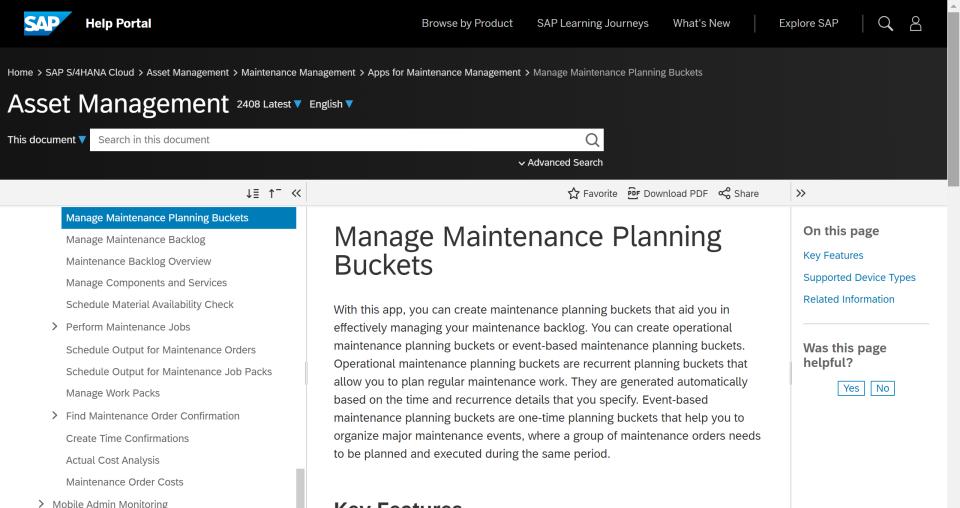
- Screening

- Planning

- Approval

- Preparation

- Scheduling

- Execution

- Post Execution

- Completion

Asset Management

2408 Latest ▼ English ▼

Manage Maintenance Planning Buckets

Manage Maintenance Planning Buckets
Manage Maintenance Backlog
Maintenance Backlog Overview
Manage Components and Services
Schedule Material Availability Check
Perform Maintenance Jobs
Schedule Output for Maintenance Orders
Schedule Output for Maintenance Job Packs
Manage Work Packs
Find Maintenance Order Confirmation
Create Time Confirmations
Actual Cost Analysis
Maintenance Order Costs
Mobile Admin Monitoring
Resource Scheduling

Manage Maintenance Planning Buckets

With this app, you can create maintenance planning buckets that aid you in effectively managing your maintenance backlog. You can create operational maintenance planning buckets or event-based maintenance planning buckets. Operational maintenance planning buckets are recurrent planning buckets that allow you to plan regular maintenance work. They are generated automatically based on the time and recurrence details that you specify. Event-based maintenance planning buckets are one-time planning buckets that help you to organize major maintenance events, where a group of maintenance orders needs to be planned and executed during the same period.

Key Features

On this page

Key Features

Supported Device Types

Related Information

Was this page helpful?

Yes   No

16

Home / Services /

SAP Build Work Zone, standard edition

Simplify access to applications by creating business sites.

Free Tier
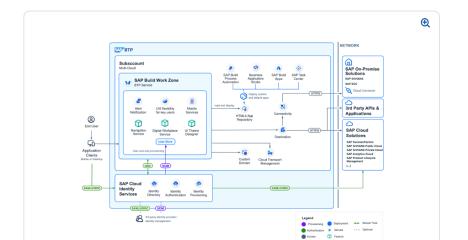
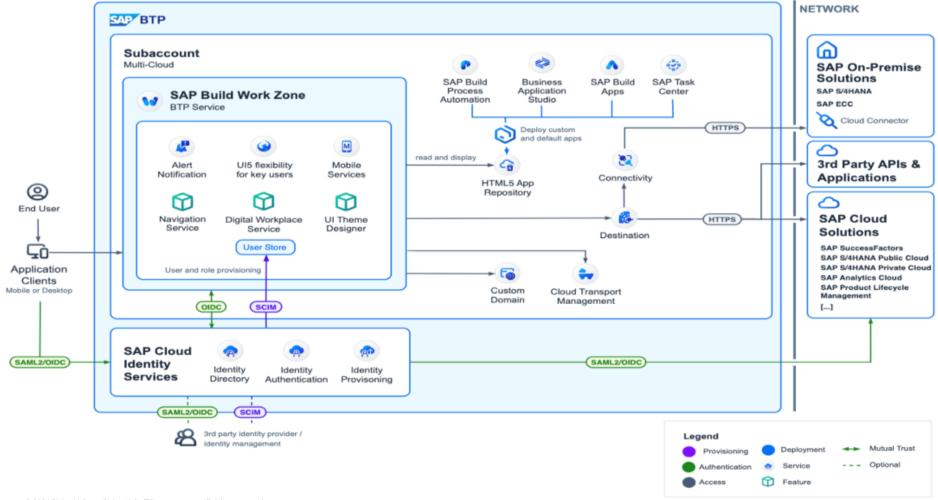**Overview** | Pricing | Related Missions | Reference Architectures | Roadmap | Customer Stories
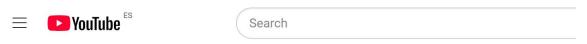
Features

SAP Build Work Zone, standard edition enables organizations to establish a unified 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 BTP

Subaccount
Multi-Cloud

SAP Build Work Zone
BTP Service

Alert Notification

UI5 flexibility for key users

Mobile Services

Navigation Service

Digital Workplace Service

UI Theme Designer

User Store

User and role provisioning

SAP Build Process Automation

Business Application Studio

SAP Build Apps

SAP Task Center

Deploy custom and default apps

read and display

HTML5 App Repository

Connectivity

Destination

Custom Domain

Cloud Transport Management

End User

Application Clients
Mobile or Desktop

OIDC

SCIM

SAP Cloud Identity Services

Identity Directory

Identity Authentication

Identity Provisoning

SAML2/OIDC

SAML2/OIDC

SCIM

SAML2/OIDC

3rd party identity provider / identity management

NETWORK

SAP On-Premise Solutions

SAP S/4HANA

SAP ECC

Cloud Connector

3rd Party APIs & Applications

SAP Cloud Solutions

SAP SuccessFactors
SAP S/4HANA Public Cloud
SAP S/4HANA Private Cloud
SAP Analytics Cloud
SAP Product Lifecycle Management
[...]

HTTPS

HTTPS

Legend

Provisioning

Authentication

Access

Deployment

Service

Feature

Mutual Trust

Optional

A day in the life of maintenance

Day in the Life Reactive Maintenance

https://youtu.be/Iyby3k5Dki0

Fit-to-standard, clean-core, and how to enhance

Rizing EAM

What is a Clean-Core Approach?
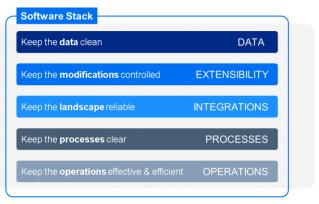
Clean means up-to-date, transparent, unmodified, consistent, efficient and cloud compliant

+

The core describes the **main aspects of an ERP** system, namely extensibility, processes, data, integration and operation. Capabilities of the core depend on the implemented software-stack.

Keep the **coding** clean

Software Stack

Keep the **data** clean	DATA
Keep the **modifications** controlled	EXTENSIBILITY
Keep the **landscape** reliable	INTEGRATIONS
Keep the **processes** clear	PROCESSES
Keep the **operations** effective & efficient	OPERATIONS
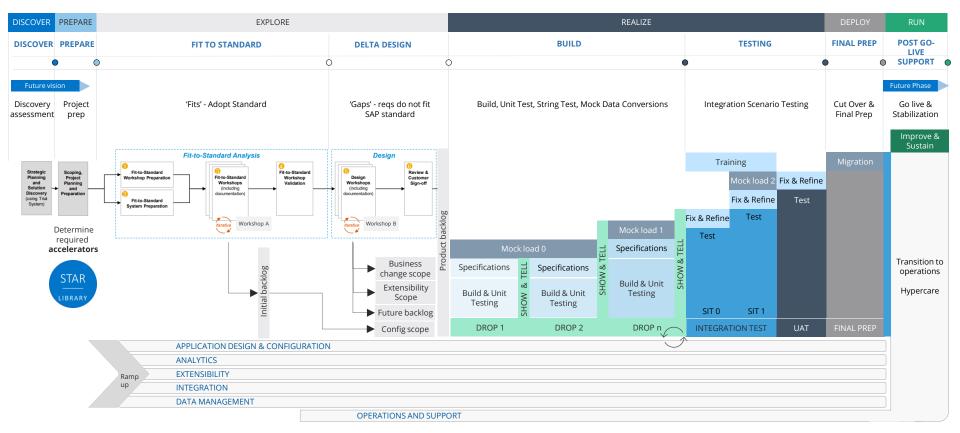
https://learning.sap.com/learning-journeys/applying-the-rise-with-sap-methodology/exploring-the-clean-core-approach_e096a3e4-3a8c-4a62-9e10-49a478f54cc3

How Project Methodology can go for Standard

Optimized with SAP Best Practices – Accelerated with Rizing Experience

How Best Practice can help with Standard
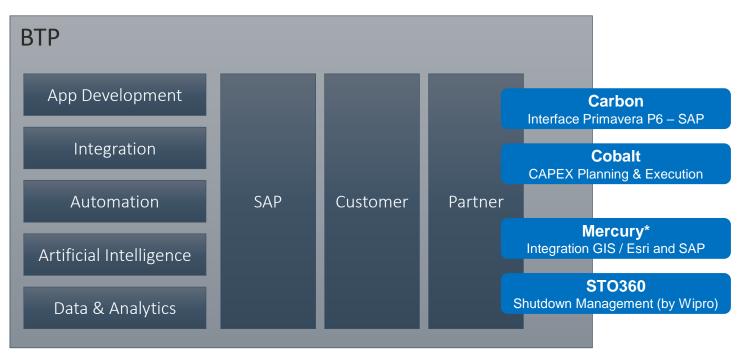
Rizing Industry Studio for Utilities: Selected Scenarios

Emergency car-pole	Vegetation management: encroachment	SAP operational dashboard	Data conflation & reconciliation + feature extraction	Gas leak survey	Pole test & treat w/enhanced SAM UX (forms)
Gas dig-in	Gas meter replacement + appliance red-tagging	Electric service and meter replacement	Construction and construction crew management	Compatible units & estimating	Storm outage & damage assessment
Material traceability	Field data collection + red-lining	Vegetation management: trees as individual records	Vegetation management: trees as linear increments / bays	Aerial / ground data collection and reality capture + LiDAR	Incident management
Portfolio management	Contractor management	Fleet management	Work & resource capacity planning	Lock out/tag out + work clearance management	Oil filled equipment testing and reporting

How to enhance? Extensibility Concepts

S/4HANA

Key User Extensibility (UI, CDS, BADIs)

Developer Extensibility (custom ABAP)

Clean Core

BTP

App Development

Integration

Automation

Artificial Intelligence

Data & Analytics

SAP

Customer

Partner

Carbon
Interface Primavera P6 – SAP

Cobalt
CAPEX Planning & Execution

Mercury*
Integration GIS / Esri and SAP

STO360
Shutdown Management (by Wipro)

Side-by-side Extensions

*planned for BTP deployment
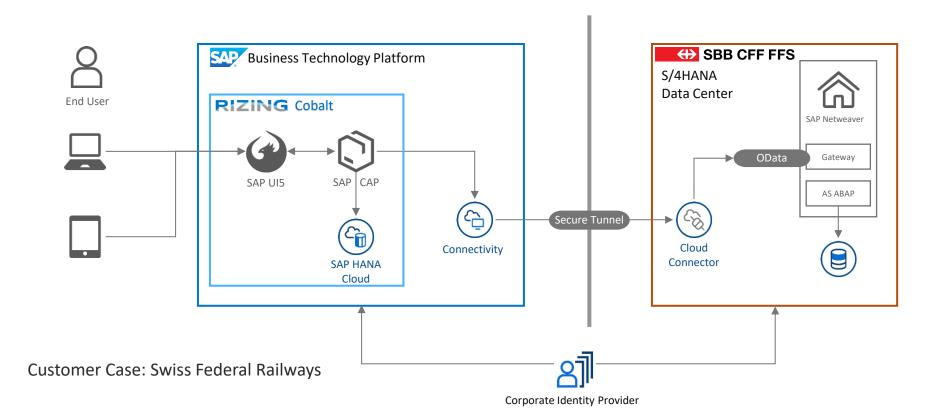
Interaction between SAP S/4HANA and SAP BTP

SAP Business Technology Platform

RIZING Cobalt

SAP UI5

SAP CAP

SAP HANA
Cloud

Connectivity

End User

Secure Tunnel

SBB CFF FFS

S/4HANA
Data Center

SAP Netweaver

OData

Gateway

AS ABAP

Cloud
Connector

Customer Case: Swiss Federal Railways

Corporate Identity Provider
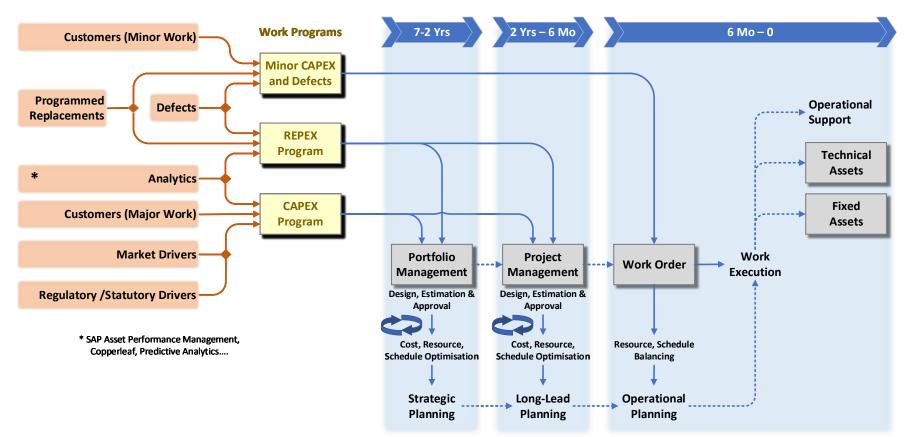
Asset planning, estimation, and deployment

Rizing EAM

Asset Investment Planning Vision

SAP S/4HANA Transformation.
Our Chance for Change.

«Harmonization & Standardization»

«Use advanced technologies»
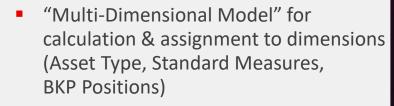
«Reduce custom development»

«Improve E2E user experience»

Challenging Baseline
Our Goals & Requirements

- "Multi-Dimensional Model" for calculation & assignment to dimensions (Asset Type, Standard Measures, BKP Positions)
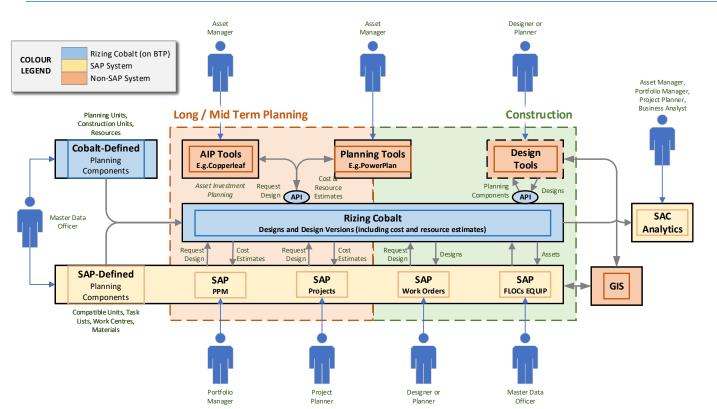
- Twist and turn the data dimensions

- Integration with SAP EPPM

- Maintained as extension to SAP Standard

Rizing Cobalt – Product Overview
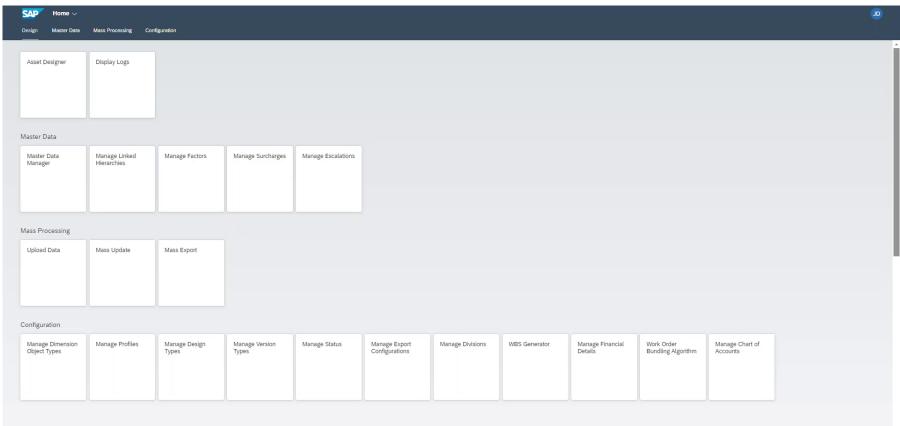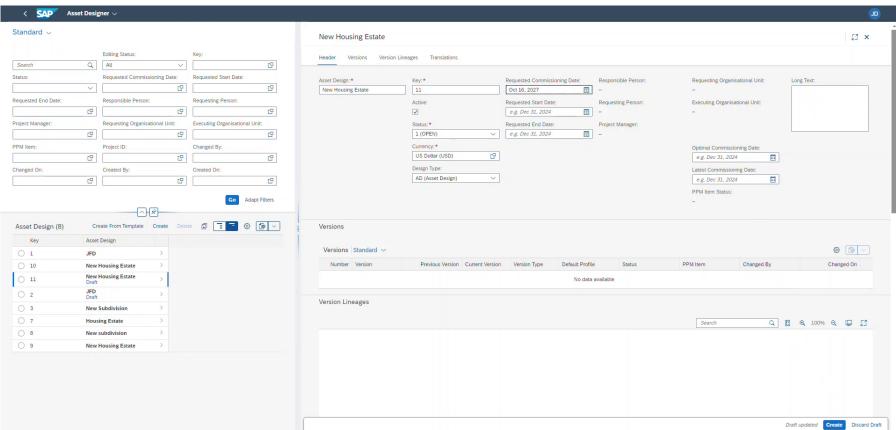
- Common Design Screen UI for all users.
- Wide range of standard and Cobalt planning objects.
- Integrated to SAP objects and third-party tools.
- Designs – Versions – Cost Estimates – Planning.
- Supports large or small designs, single-stage or multi-stage, single or multiple Work Orders.
- Cloud product on SAP BTP.

Demo of Rizing Cobalt – Screenshots

Demo of Rizing Cobalt – Screenshots

Demo of Rizing Cobalt – Screenshots

Demo of Rizing Cobalt – Screenshots

Demo of Rizing Cobalt – Screenshots

Demo of Rizing Cobalt – Screenshots
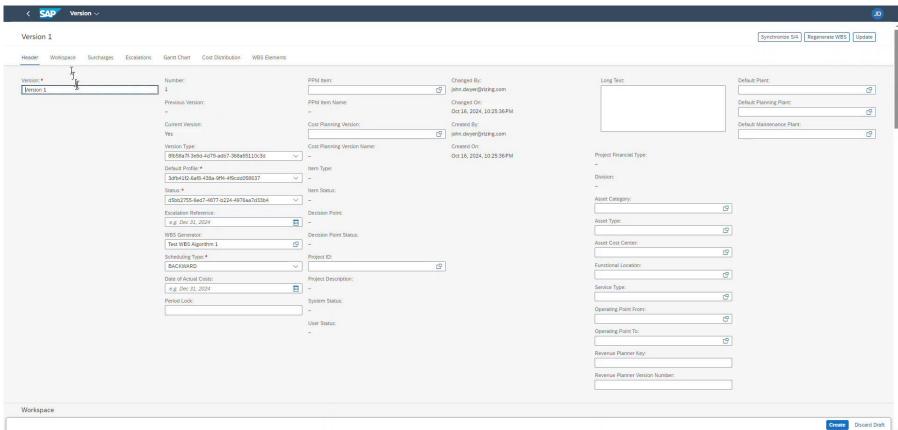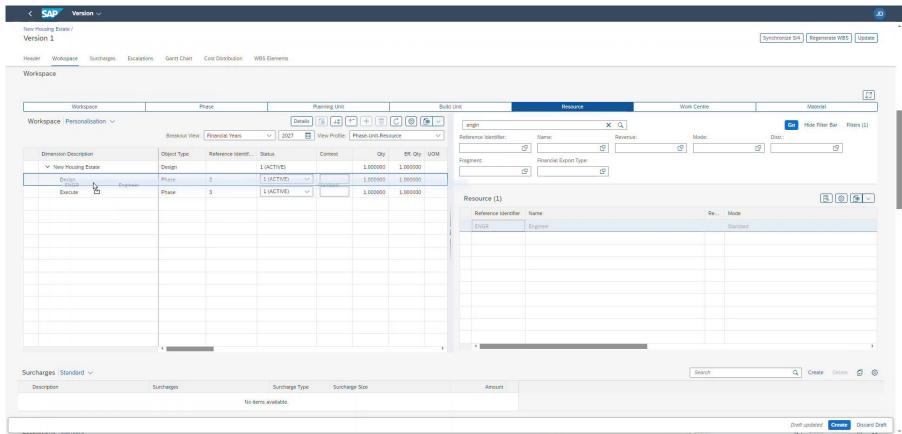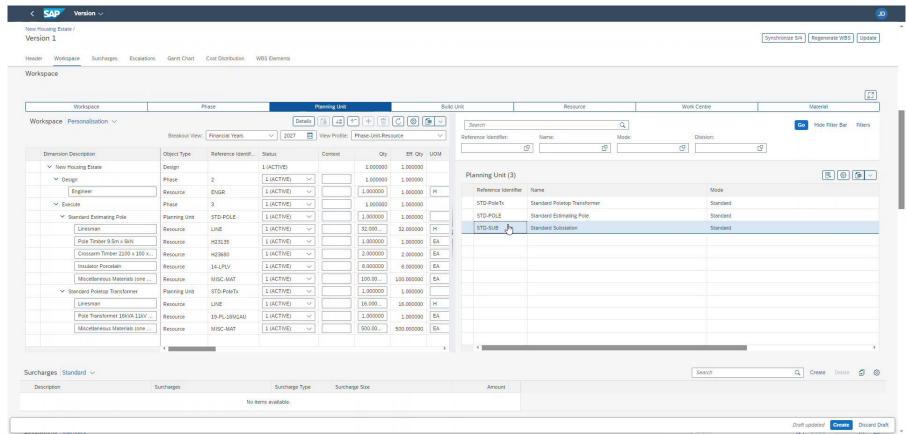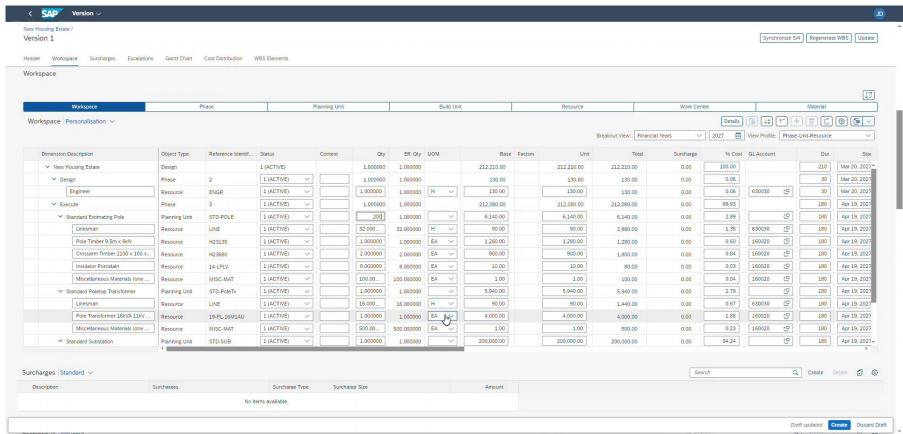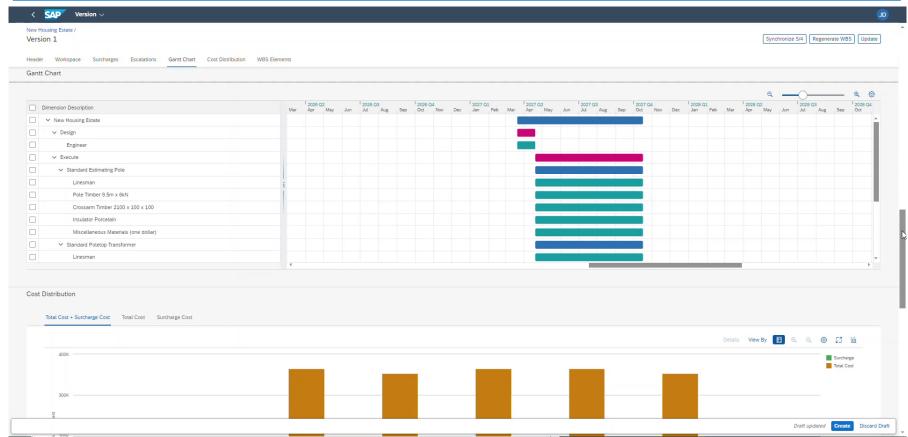
Demo of Rizing Cobalt – Screenshots
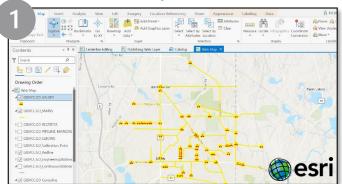
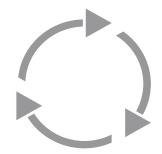# Integration with other tools, ensuring the Digital Twin

Rizing EAM

GIS Spatial Functionality Unlocked

GIS Map of Assets

GEF View of Assets

Geometry from GIS allows for geo-enabled assets and work orders in SAP

Spatial Analysis of Work Orders
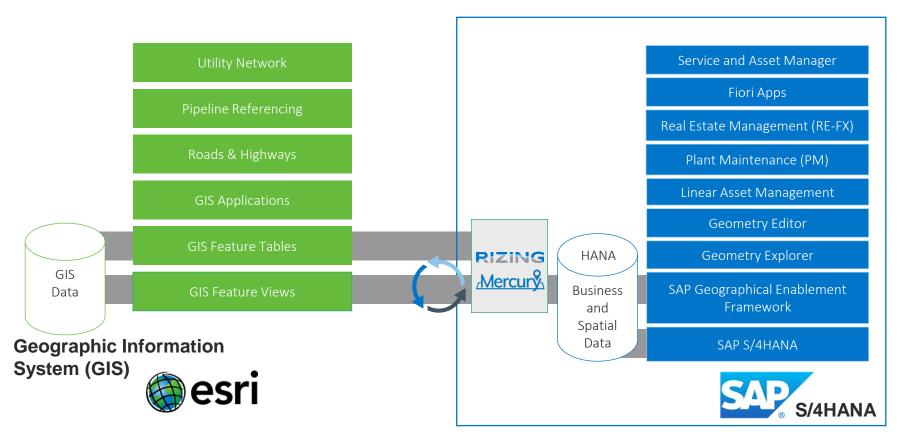
Geo-Enabled SAP Work Orders

Geometry from SAP Work Management allows for spatial analysis in GIS
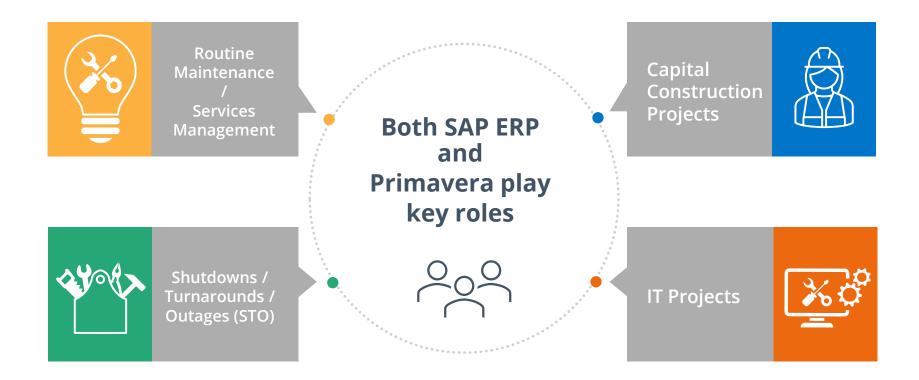
Rizing Mercury Architecture: syncing SAP and Esri

Different architecture possible, e.g. ArcGIS and S/4HANA on different databases or ECC with a separate HANA instance.
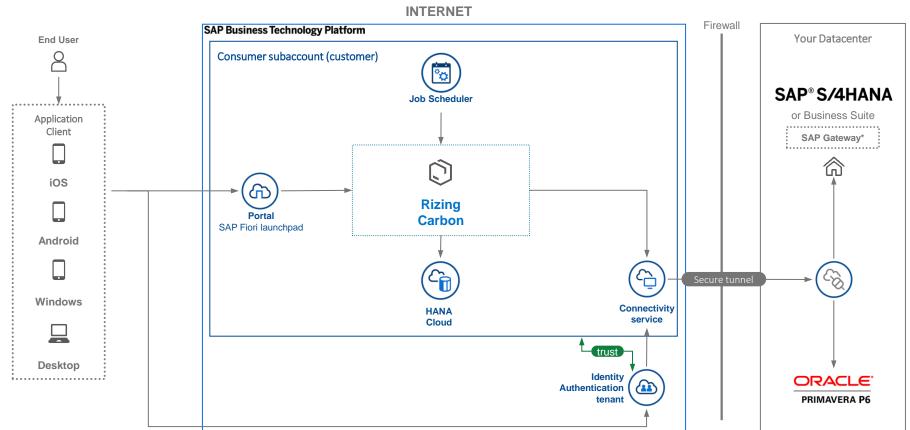
Rizing Carbon: Synchronizing SAP and P6

Routine Maintenance / Services Management

Capital Construction Projects

Both SAP ERP and Primavera play key roles

Shutdowns / Turnarounds / Outages (STO)

IT Projects

Rizing Carbon Architecture
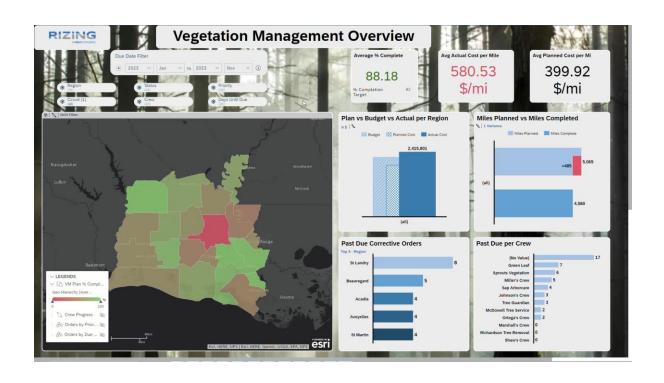
Reporting, analytics, and decision making

Rizing EAM

Bringing together S/4HANA and SAC

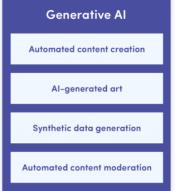# How can Artificial Intelligence help?

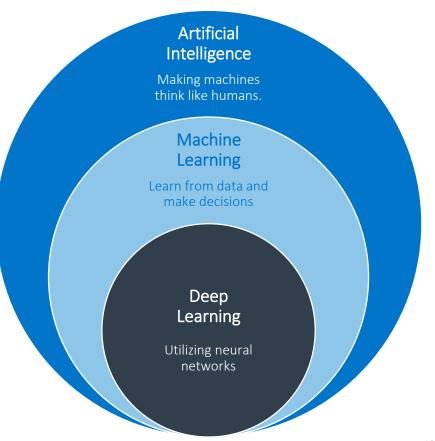Rizing EAM

What is Artificial Intelligence?

Artificial intelligence (AI), in its broadest sense, is intelligence exhibited by machines, particularly computer systems.

In summary, AI is the broader concept of creating intelligent machines, while ML, Deep Learning, Natural Language Processing (NLP), and Computer Vision are specific subfields within AI.

Traditional AI	Generative AI
Predictive analytics	Automated content creation
Fraud detection	AI-generated art
Personalized recommendations	Synthetic data generation
Business process automation	Automated content moderation

Artificial Intelligence
Making machines think like humans.

Machine Learning
Learn from data and make decisions

Deep Learning
Utilizing neural networks

Using AI to distinguish between nice and ugly

Principal Component Analysis of Switches

Anomaly Detection with Principal Component Analysis scores

PCA

K-Mediod cluster analysis to partition the population into classes of similar devices

Weibull Remaining Useful Life Estimation

$$f(x; \lambda, k) = \begin{cases} \frac{k}{\lambda} \left(\frac{x}{\lambda}\right)^{k-1} e^{-(x/\lambda)^k} & x \geq 0, \\ 0 & x < 0, \end{cases}$$

Battery behavioral groupings

Expert Rule Validation

Automatic Rule Extraction with Decision Trees

$$W(P, Q) = min\left\{\sum_{x \in M, y \in M} dist(x, y) \cdot T(x, y) \mid T: M \times M \to [0,1] \text{ with } \sum_{y \in M} T(x, y) = P(x), \sum_{x \in M} T(x, y) = Q(y)\right\}$$

Wasserstein Metric for battery performance analysis

$$W_p(\mu, \nu) := \left(\inf_{\gamma \in \Gamma(\mu, \nu)} \int_{M \times M} d(x, y)^p \, d\gamma(x, y)\right)^{1/p}$$

$$H(P, Q) = \sqrt{\frac{1}{2} \int \left(\sqrt{\frac{dP}{d\lambda}} - \sqrt{\frac{dQ}{d\lambda}}\right)^2 d\lambda}$$

What is the problem with individual predictions?

Trying to discover
failure early
and with confidence?

Paris' Law: crack growth vs. stress

Probability of Failure

Early failures

High confidence

Asset Lifetime

Focusing your maintenance efforts...

			Predicted			
			YES		NO	
Total		1000	70		930	
Actual	YES	10	True POSITIVE	5	False NEGATIVE	5
	NO	990	False POSITIVE	65	True NEGATIVE	925

In a practical example, using a good indicator, you might predict 5 out of 10 positive events correctly (from a total of 1,000), but same time generate **65 false positives**.
Hence,

accuracy is	93.0%	= (True POSITIVE + True NEGATIVE) / Total
but precision (**PPV**) is only	**7.1%**	= True POSITIVE / Predicted YES
while specificity is	93.4%	= True NEGATIVE / Actual NO
and negative predictive value (**NPV**) is	**99.5%**	= True NEGATIVE / Predicted NO
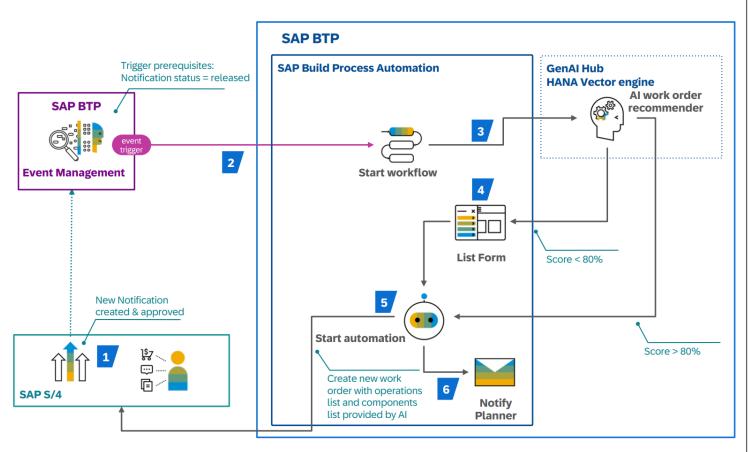
As-is maintenance policy	
Service interval for all assets	1 week
Standardized cost of one service	1
Penalty for a failure	20
As-is cost over 12 months	1,200

New policy with application of anomaly detection	
Service interval raised to	1.5 weeks
Cost per resulting emergency visit (Predicted YES)	2
Failures over the period down to	5
To-be cost over 12 months	837

GenAI assistance for Maintenance Planner

SAP BTP

SAP Build Process Automation

Trigger prerequisites:
Notification status = released

SAP BTP

Event Management

event trigger

2

Start workflow

3

GenAI Hub
HANA Vector engine

AI work order recommender

4

List Form

Score < 80%

Score > 80%

5

Start automation

Create new work order with operations list and components list provided by AI

New Notification created & approved

1

SAP S/4

6

Notify Planner

1
New notification
New notification created and in the ERP

2
Action trigger from process mining
Start automation for Work Order suggestion

3
Call Work Order recommender AI
Provides summarized order and list of operations & components, based on similarity

4
Selection form
List of operations and components sent to planner to choose the relevant for this order

5
SAP ERP automation
Work order automatically created in the ERP system

6
Notification Email
Notify the planner that new work order was created

Thinking about your own GenAI Model?

https://www.euronews.com/next/2024/05/04/meet-the-first-spanish-ai-model-earning-up-to-10000-per-month

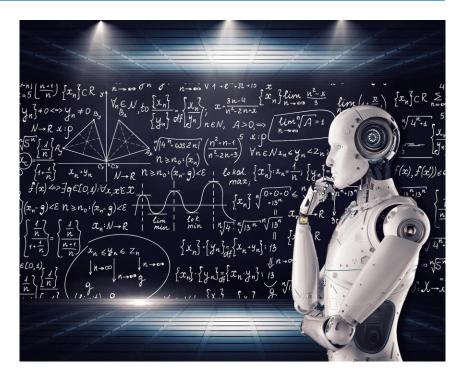# Building your own GenAI model?

Why going for an own model?

- Increased security

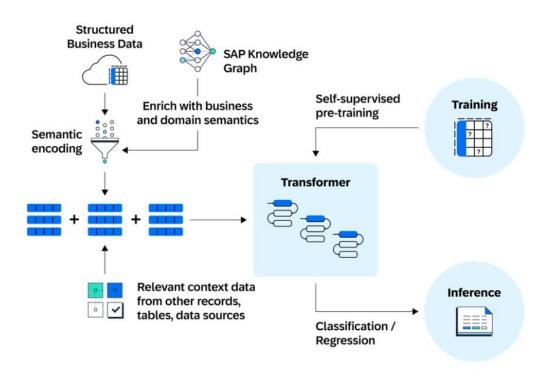- Specificity of responses

Options

- Training from scratch

- Fine-tuning an existing LLM

- Prompt-tune an existing LLM

https://hbr.org/2023/07/how-to-train-generative-ai-using-your-companys-data
https://www.reworked.co/information-management/how-to-train-ai-on-your-companys-data/

GenAI: SAP Foundation Model

Wrap-up and discussion

Rizing EAM

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