

Pioneering AI-based Plant Maintenance at NTT DATA

An NTT-IBM – SAP Approach

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Barcelona

2024

SAPinsider



In This Session

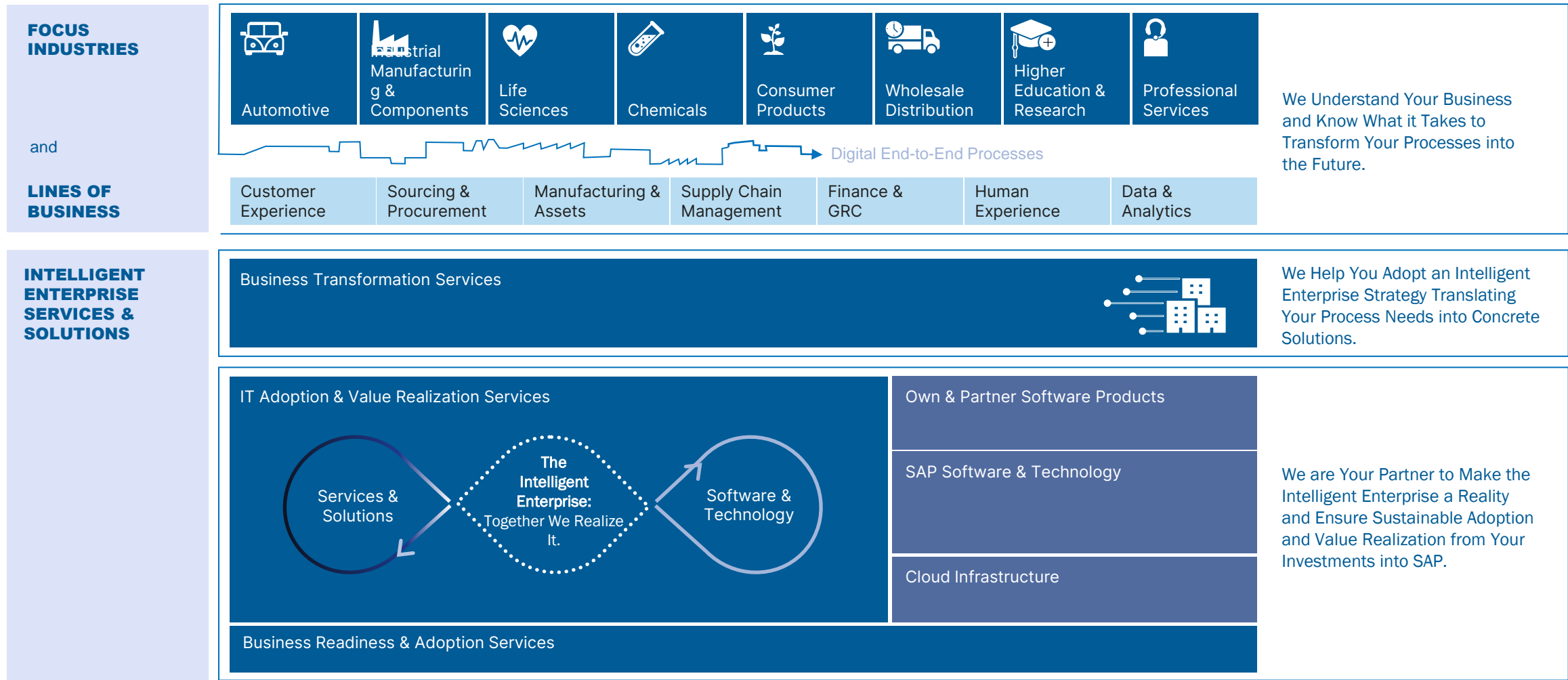
Let's inspire by AI solutions for SAP & Plant Maintenance, from using images for spare part searching to Predictive Maintenance-as-a-Service, based on IBM watsonx

What We'll Cover

- NTT – IBM - SAP – AI Story
- SAP usage of IBM AI + use cases
- NTT Preventive Maintenance
- IBM Procurement Demo
- AI – BTP Architecture Patterns
- How to work with NTT
- Wrap-Up



NTT DATA Business Solutions at a glance



IBM – SAP Partnership in AI

IBM Watson AI will be embedded in SAP Solutions (May 2023)

SAP to Embed IBM Watson Artificial Intelligence into SAP® Solutions

May 2, 2023



WALLDORF, Germany and ARMONK, N.Y. – May 2, 2023 – SAP SE (NYSE: [SAP](#)) and IBM (NYSE: [IBM](#)) today announced that IBM Watson® technology will be embedded into SAP® solutions to provide new AI-driven insights and automation to help accelerate innovation and create more efficient and effective user experiences across the SAP solution portfolio.

SAP will use IBM Watson capabilities to power its digital assistant in SAP Start, which provides a unified entry point for cloud solutions from SAP. With SAP Start, users can search for, launch and interactively engage with apps provided in cloud solutions from SAP and SAP S/4HANA® Cloud. New AI capabilities in SAP Start will be designed to help users boost productivity with both natural language capabilities and predictive insights using IBM Watson AI solutions built on IBM's trust and transparency and data privacy principles.

"This milestone collaboration with IBM aims to provide SAP customers a better user experience, faster decision-making and greater insights to help transform their business processes," said Christian Klein, CEO and Member of the Executive Board of SAP SE. "Working together to incorporate additional AI, machine learning and other intelligent technologies into SAP solutions can lead to better business outcomes for our joint customers. Today's news, along with the recent news of our expanded use of Red Hat Enterprise Linux is a prime example of how the rich, 50-year partnership between our companies continues to grow stronger and move the industry forward."

New digital assistant capabilities in SAP Start will be extended across SAP solutions to help answer diverse questions for managers and employees. By automating and speeding up common tasks, the capabilities are designed to help unlock employee productivity to focus on more strategic work. SAP Start will allow customers to benefit from intelligence at the point of decision-making with the ability to use AI and machine learning to extract information from a variety of data sources and answer user questions across lines of business. Today, [IBM technology](#) is currently available in the Tript mobile app from SAP Concur is helping nearly 13 million users easily access AI-derived weather insights to make more sustainable travel choices before and during their trips.

IBM delivers market-leading AI capabilities with Watson products deployed by more than 100 million users across 20 industries. In addition, SAP and IBM Consulting are currently supporting customers with 25 joint intelligent industry solutions that use IBM Watson capabilities underpinned by [SAP Business Technology Platform](#) (SAP BTP). These industry solutions help customers across industries such as retail, manufacturing and utilities accelerate their business transformation and use data to make more informed decisions.

More Articles

Cadence Leverages IBM Cloud HPC to Accelerate Electronic Chip and System Design Software Development

IBM Tech Now: IBM Security QRadar Suite, IBM Storage Updates and Projects & Cost Estimation

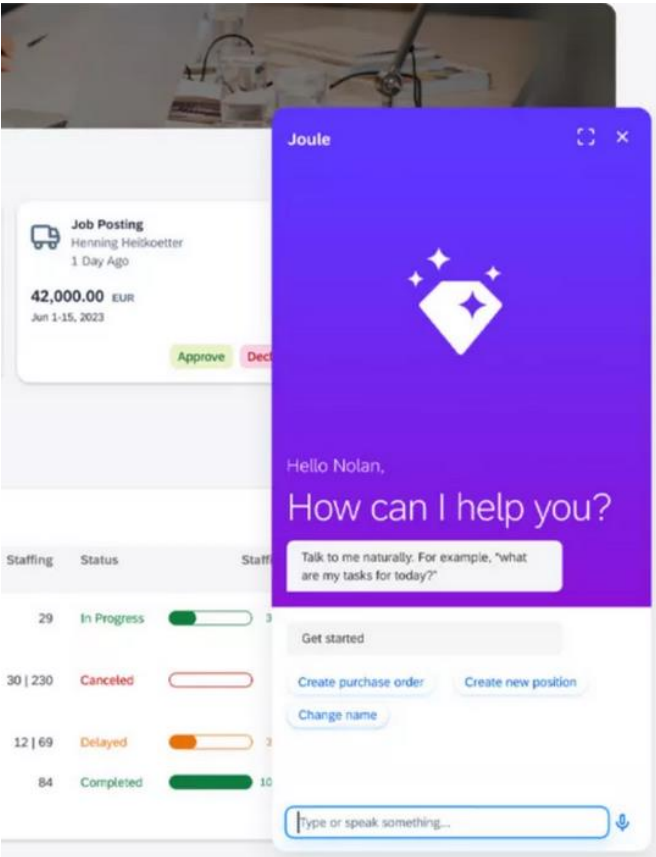
What policymakers need to know about foundation models

[Subscribe to email](#)

Additional Assets



SAP Joule – SAP Assistant Framework



Labs preview

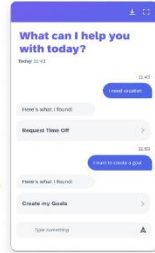
Joule (Edition 2023)

THE companion of the Intelligent Enterprise

Joule UX

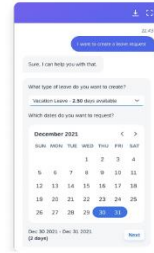
- Natively integrated
- Out-of-the-box capabilities
- Consistent CUX across the suite

Navigational Pattern



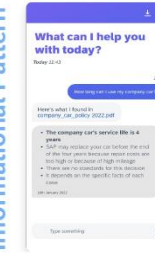
Help users navigate to the functionality they look for

Transactional Pattern



Assist users in efficient completion of tasks they need to do

Informational Pattern

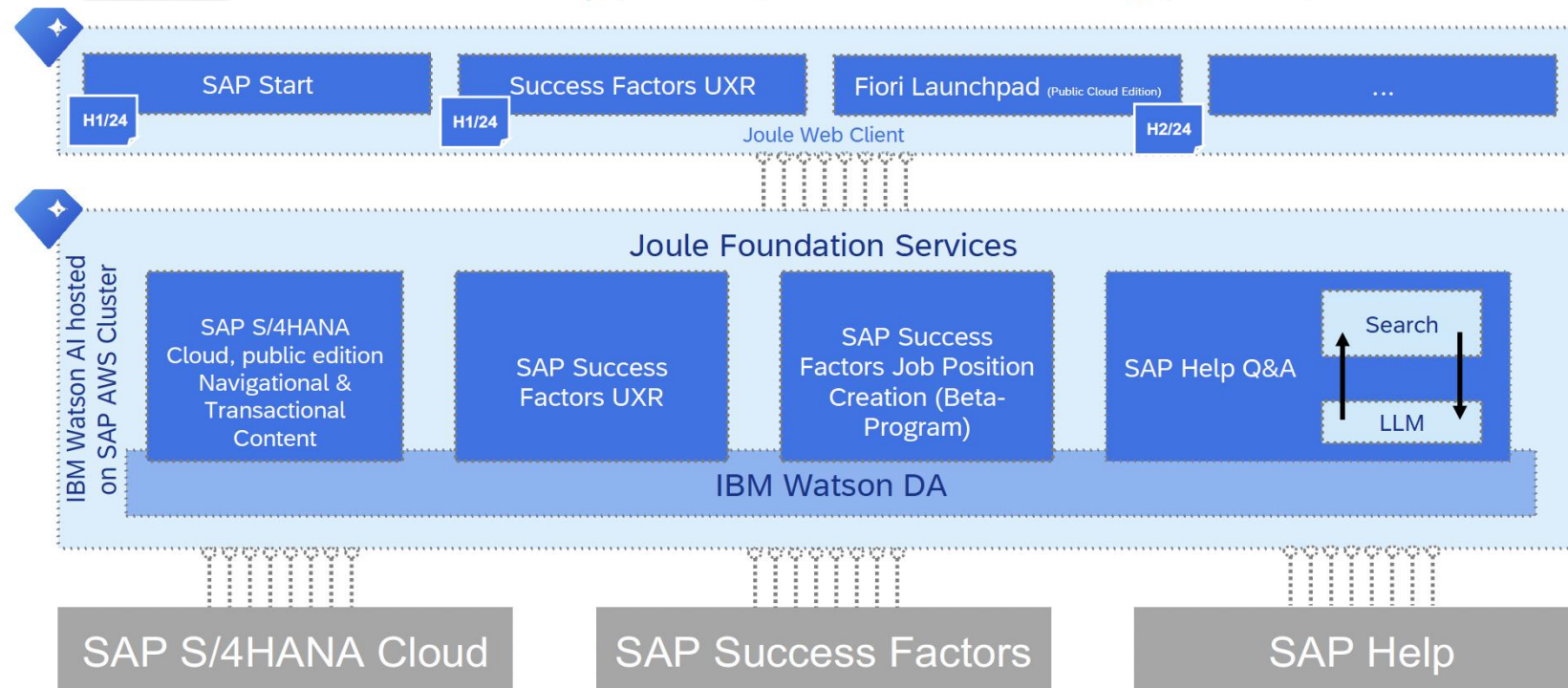


Help users retrieve the information they need

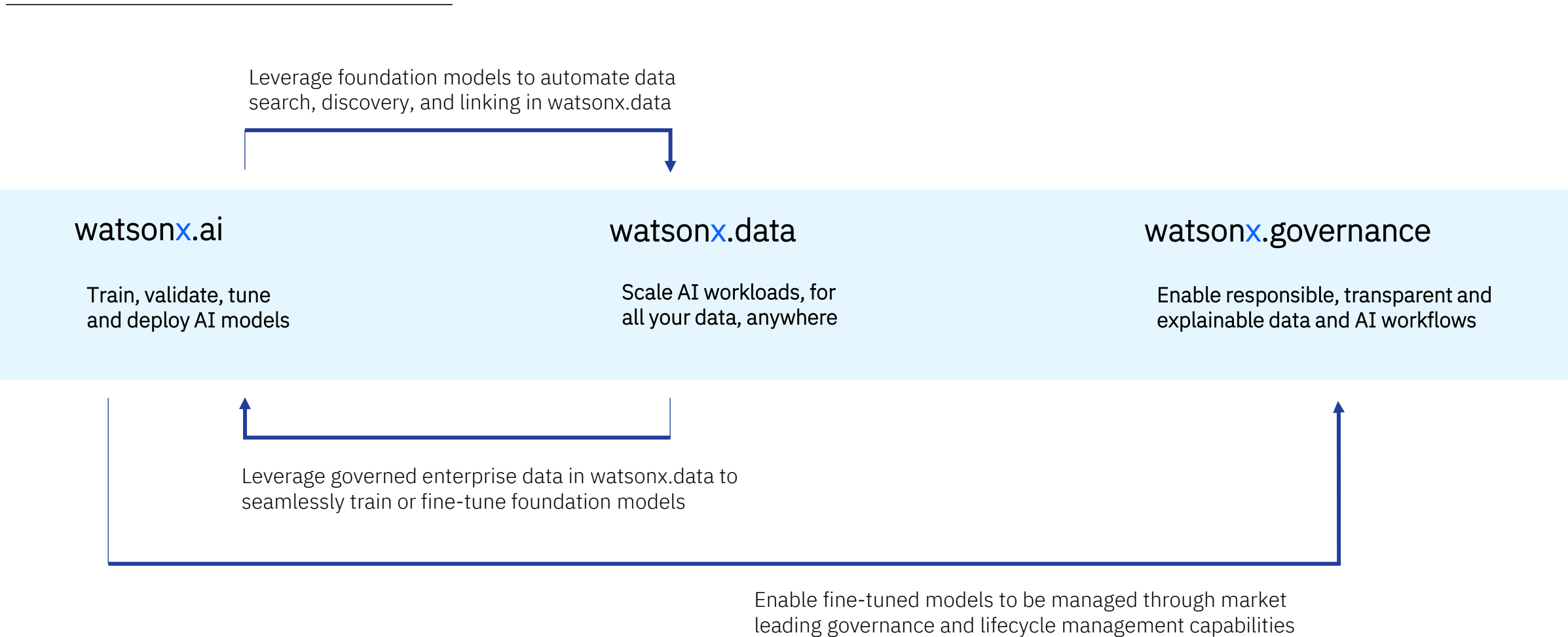
Joule Business Capabilities

- Transactional & navigational Business Capabilities executed on IBM Watson DA
- Informational Capabilities on SAP Help executed as conversational search

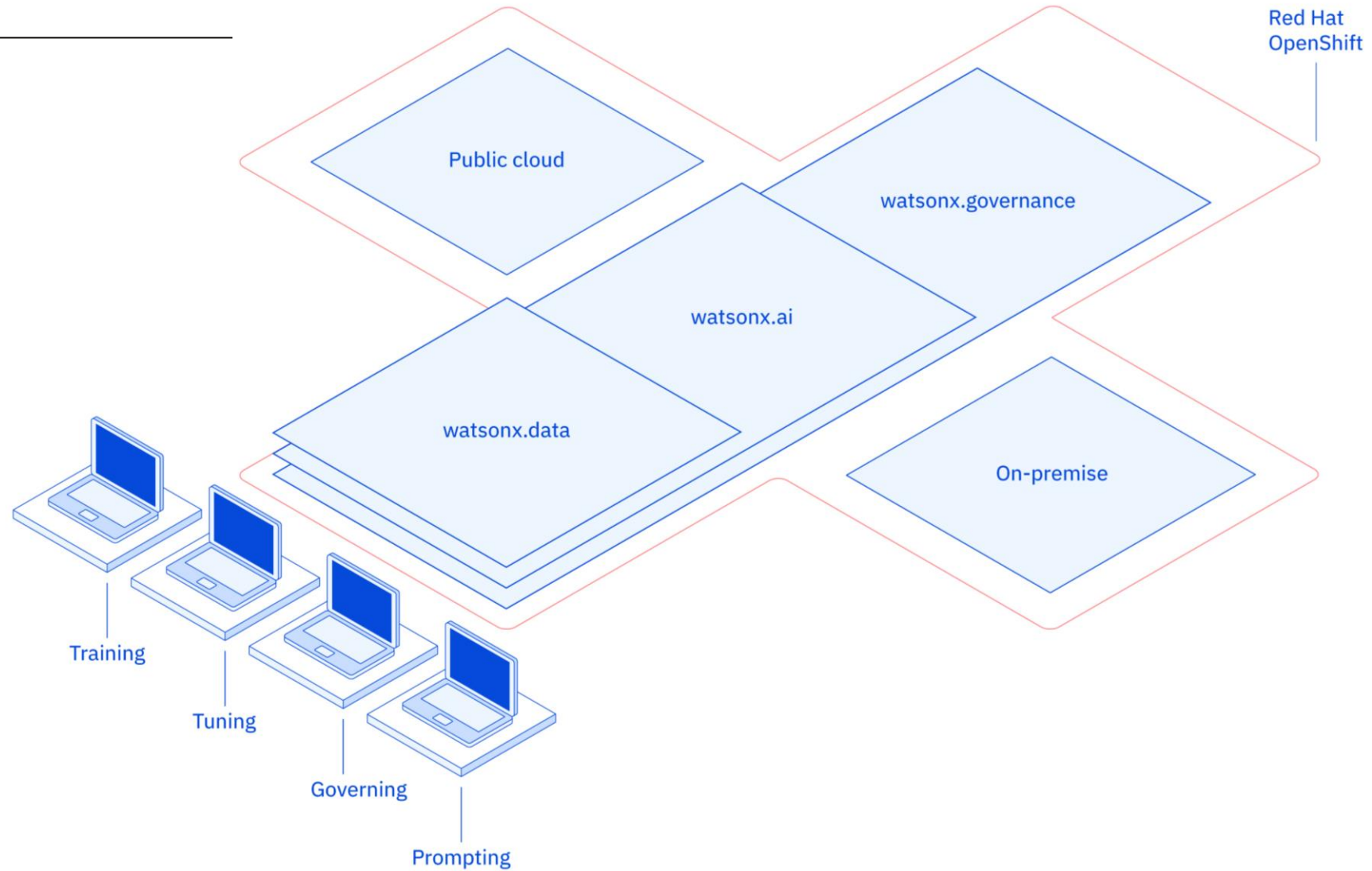
LOB Software (Backend)



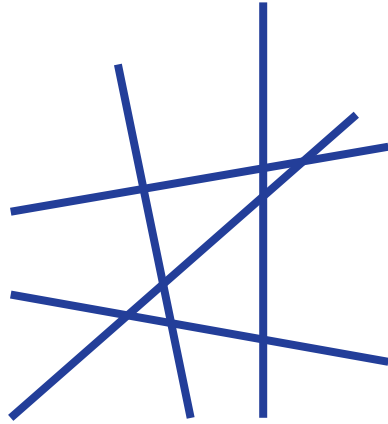
watsonx allows business to put AI to work and to scale the impact of AI with trusted data



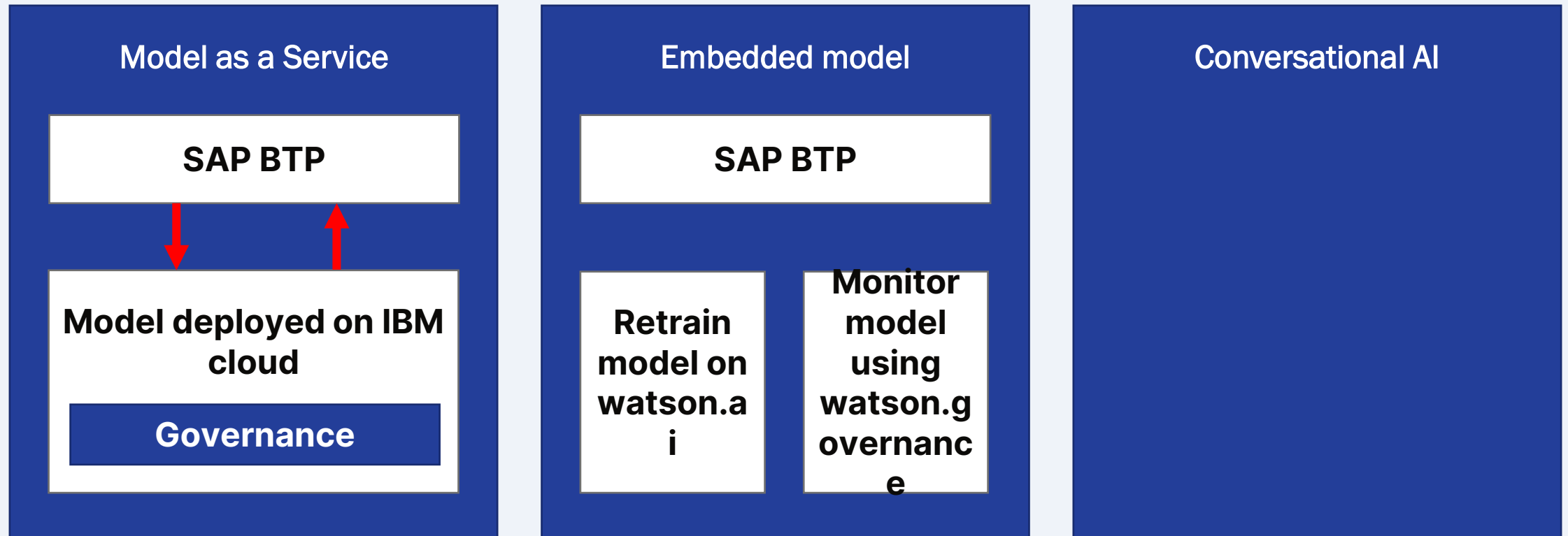
Watsonx runs at many platforms



ERP from spaghetti to clean core

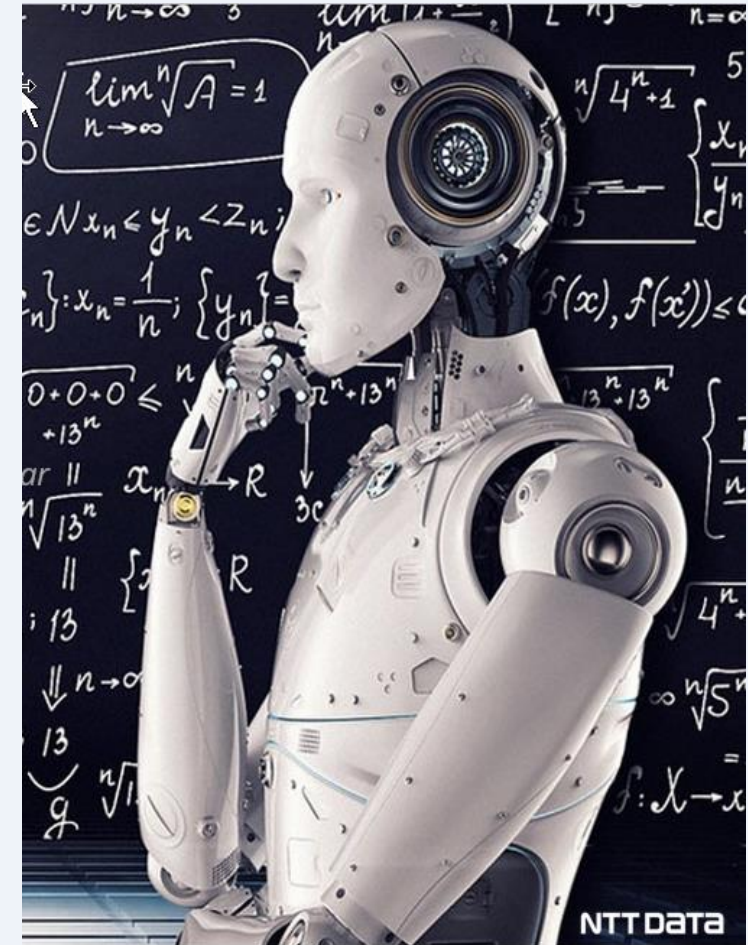


Reference architectures



What our customers request from us

- Faster decision making
- Automation
- Better forecasting
- Scalability
- Increased efficiency
- New creativity & innovation
- Eliminate human errors
- Help humans perform better
- Reduce costs



Monday 21/07/16

UVC G4 Pro 2


Pallets:5
Boxes:2

All pallets:14
All boxes:40

Tracking pallets



Animal well fare



```
" Press ? for help
.. (up a dir)
</digitalfarm/
├── ml/
│   ├── machine.py
│   ├── streamhandler.py
│   ├── __init__.py
│   ├── __main__.py
│   ├── model.py*
│   └── py.typed*
```

```
40 console.print(f'Pig Weight: [yellow] {data["pig"]} [yellow]')
ml/machine.py pyt 90% ln:40/44=35

Pig Weight: Purple

Measurement Metrics
width (cm) 62
height (cm) 40
predict (kg) 27

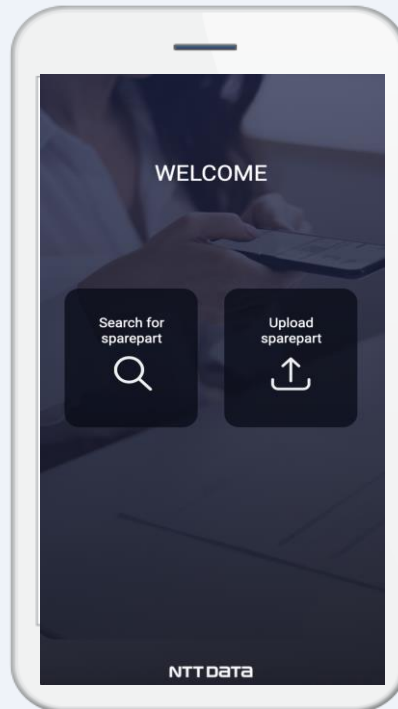
Pig Weight: White Yellow

Measurement Metrics
width (cm) 64
height (cm) 44
predict (kg) 29.8

pwd ml master 3.8.12 351ms zsh 100% 11:24:46
```

AI Spare Part Identification

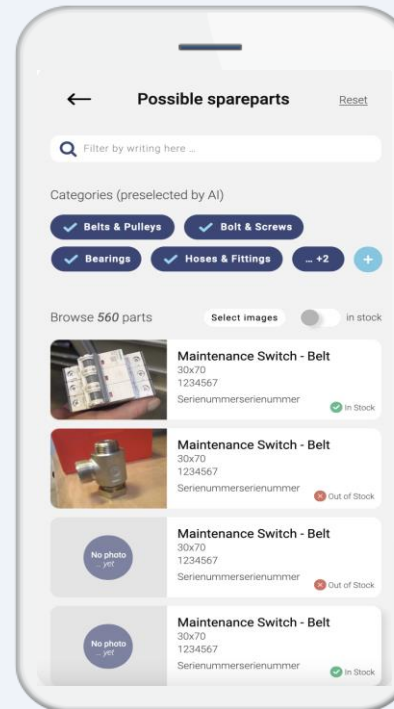
**Take a picture
of the spare
part**



*Picture is sent to
cloud*



**See results & choose
you spare part**

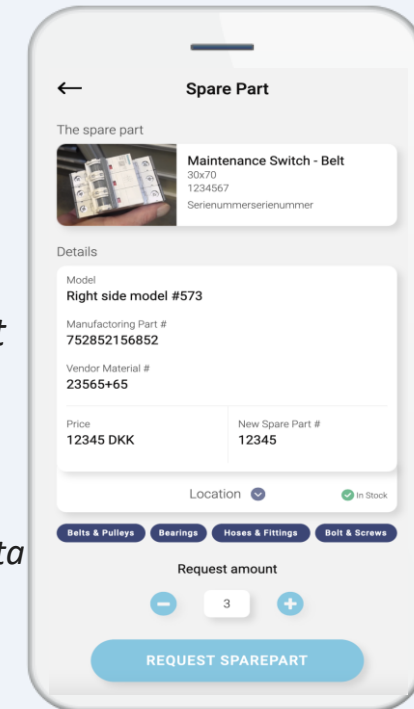


Select spare part



*Search based
on master data*

**Located spare
part!**



Other case examples; Mass hire & pricing app

New Hire Employees

1 General

42 Upload Data

42 Review

3. Review

Legal entity: Legal Entity name

Mapping template: Mapping_template

Conversion template: Conversion_template

Upload Data: uploadData.csv

Portlets

Save

Save as

Upload

Email Info

27 %11 #

National ID Card

10 %5 #

Personal Info

0 %0 #

Pay Component Recruiting

38 %21 #

Job Info

5 %2 #

Phone Info

0 %0 #

Address Info

50 %5 #

Work Permit Info

0 %0 #

Pricing App

Business Partner

Business Partner ID: 2045816

Postal Code: 2450-DK

Industry Key: U&I/Telecom

Proposals

Proposals for approval

Closed Proposals

Search

+ New Proposal

| Proposal ID | Proposal name | Proposal status | Subtotal |
|--------------------------------------|---------------|-----------------|----------|
| a831f280-fc19-495e-aebf-f343bc2f9a65 | Test proposal | Draft | 0.00 |

Proposal:Test proposal

ID:a831f280-fc19-495e-aebf-f343bc2f9a65

Send for Approval

Delete

Company Name: (Denmark) ApS

Customer Group: U&I/Telecom

Industry Key: U&I/Telecom

Total:386.75
Status:Draft

PROPOSAL MATERIALS

Search

+ Add Material

| Materiale ID | Materiale name | Discount Group | Z/vip 2 | Discount | Target price | Target % | Amount | Sales price pr unit | Total sales price | Gross margin % | Target margin % | New target price | Target discount % |
|--------------|----------------|----------------|---------|----------|--------------|----------|--------|---------------------|-------------------|----------------|-----------------|------------------|-------------------|
| 12004 | | 255232 | 45.00 | 10.00 | 3.00 | 24.43 | 10 | 3.97 | 30.00 | 547.32 | | | |
| 12004 | | 255229 | 45.00 | 10.00 | 13.87 | 46.00 | 25 | 25.69 | 346.75 | 444.14 | | | |
| 12004 | | 255233 | 45.00 | 10.00 | 0.50 | 75.00 | 20 | 2.01 | 10.00 | 115.77 | 90.00 | 0.44 | 78.11 |

Pricing App

Business Partner

Business Partner ID:

Postal Code:

Industry Key:

Proposals

Proposals for approval

Closed Proposals

| Proposal ID | Proposal name | Proposal status | Subtotal |
|--------------------------------------|---------------|-----------------|----------|
| 16fe0fd5-856f-4b2d-8cd0-58e399e5f864 | New test | In Approval | 644.44 |
| 76c26582-d316-49f7-bf82-9566a4d810f3 | Testing issue | In Approval | 1,546.74 |
| a831f280-fc19-495e-aebf-f343bc2f9a65 | Test proposal | In Approval | 386.75 |

Client Patterns where SAP and IBM AI create an improvement

Process support and improvements

Smart Procurement Advisor

Decision support

Smart Replenishment Advisor

Work with assets to improve manufacturing

Preventive Maintenance

Ad hoc reporting

Watsonx and SAP BW / S/4HANA

Support SAP S/4HANA migration projects (IBM Consulting).

[Ansible Lightspeed Demo](#)

Demonstration

Challenge

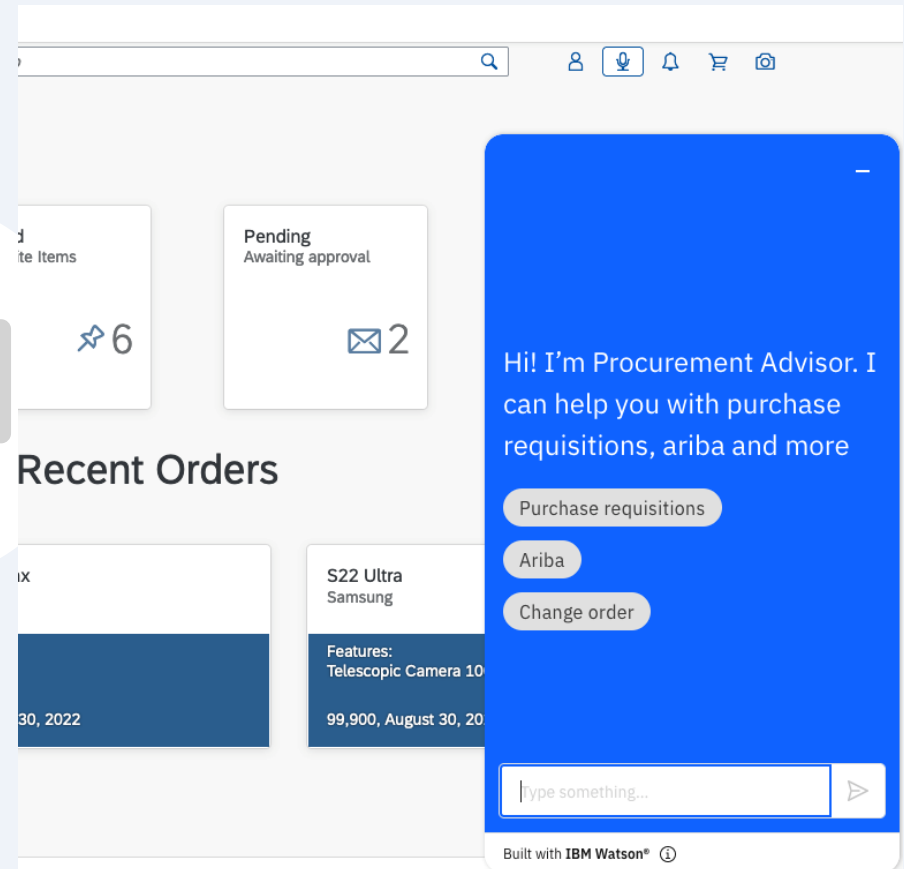
- Thousands of requestors only order occasionally – often leads to inaccurate data input
- SAP Ariba demands 32 parameters, 7 are essential

Goal

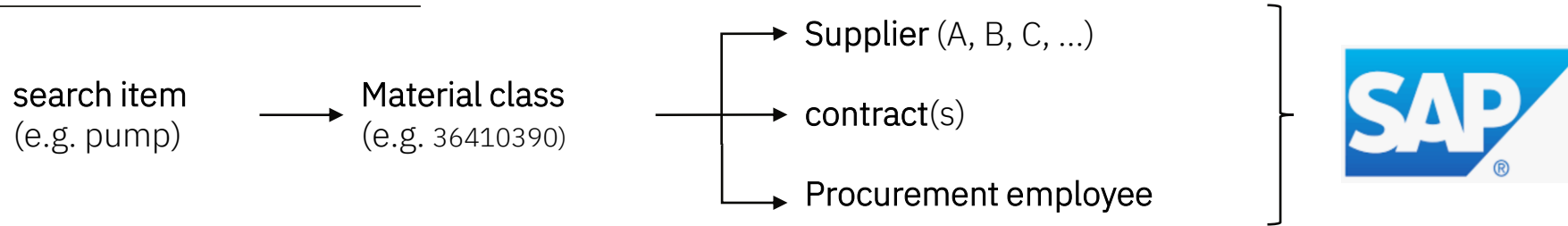
- A chatbot which leads requestors to existing frame contracts or to an individual order template
- Show linkage between requested good and eclass to identify existing contracts

Solution

- Watson Assistant chatbot as front end, SAP as back end, UiPath to create order with data from chatbot – which is complementary to SAP Start because it extends the chatbot with individual client databases.



IBM GenAI - Smart Procurement Advisor



Please describe in a few words what you would like to order?

pump for heavy liquids

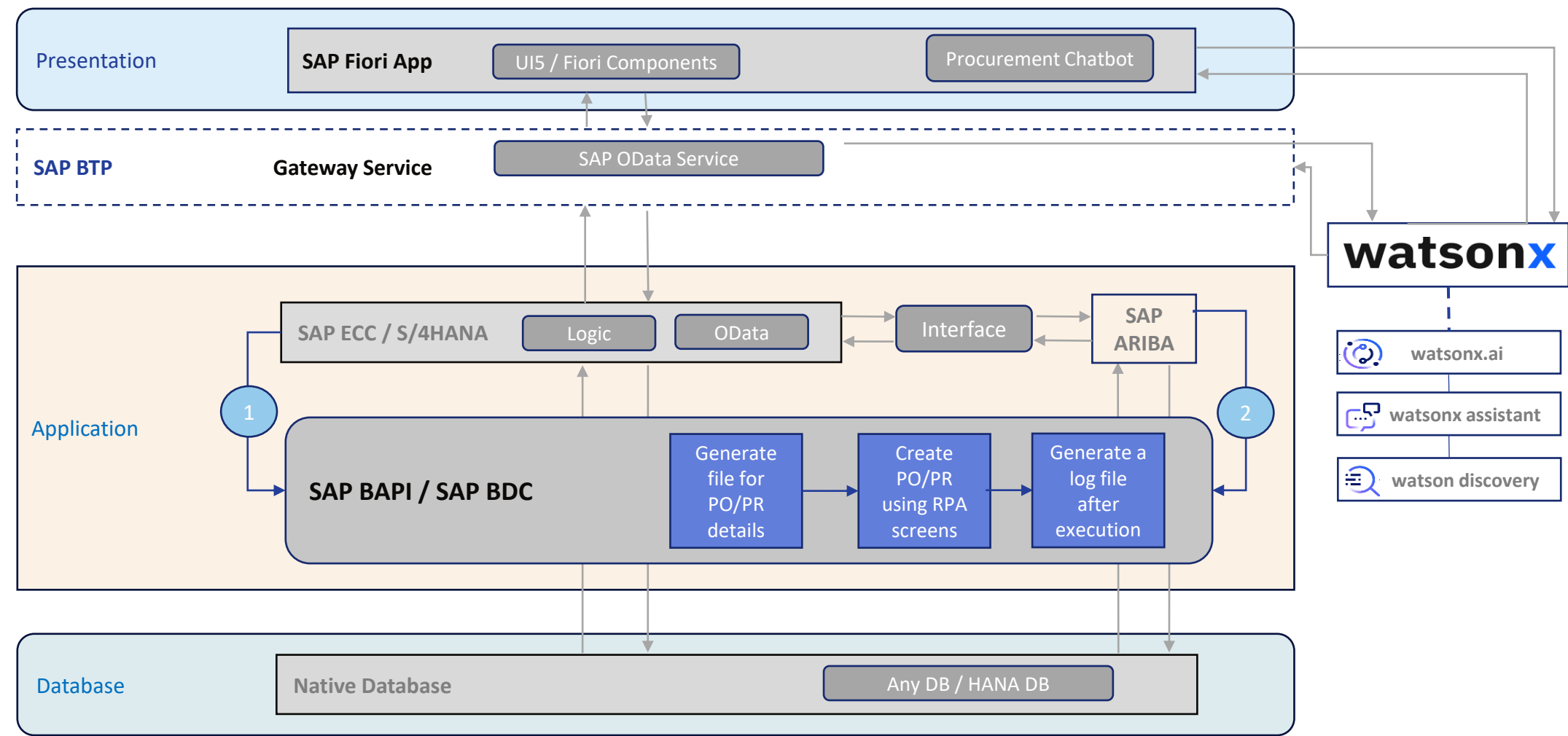
" I selected Eclass 36410390 - Positive displacement pump as the most appropriate".

The suppliers for Positive displacement pumps are KSB, Pfeiffer, and GEA.

Watson Discovery search all eclass docs containing pump information

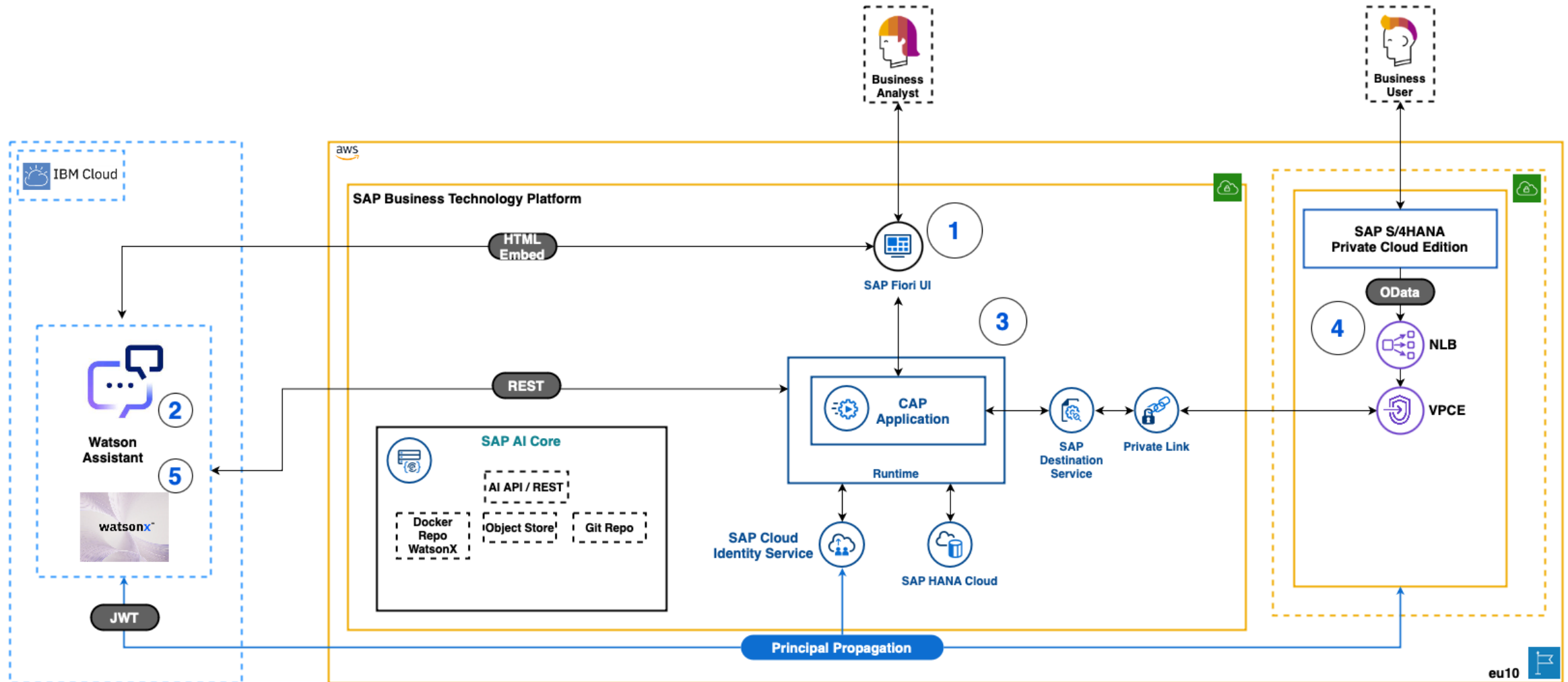
Building a prompt with item description, material class number request and all selected docs
(RAG prompt – Retrieval Augmented Generation) -> call **watsonx.ai** with **prompt**

Architecture – Smart Procurement

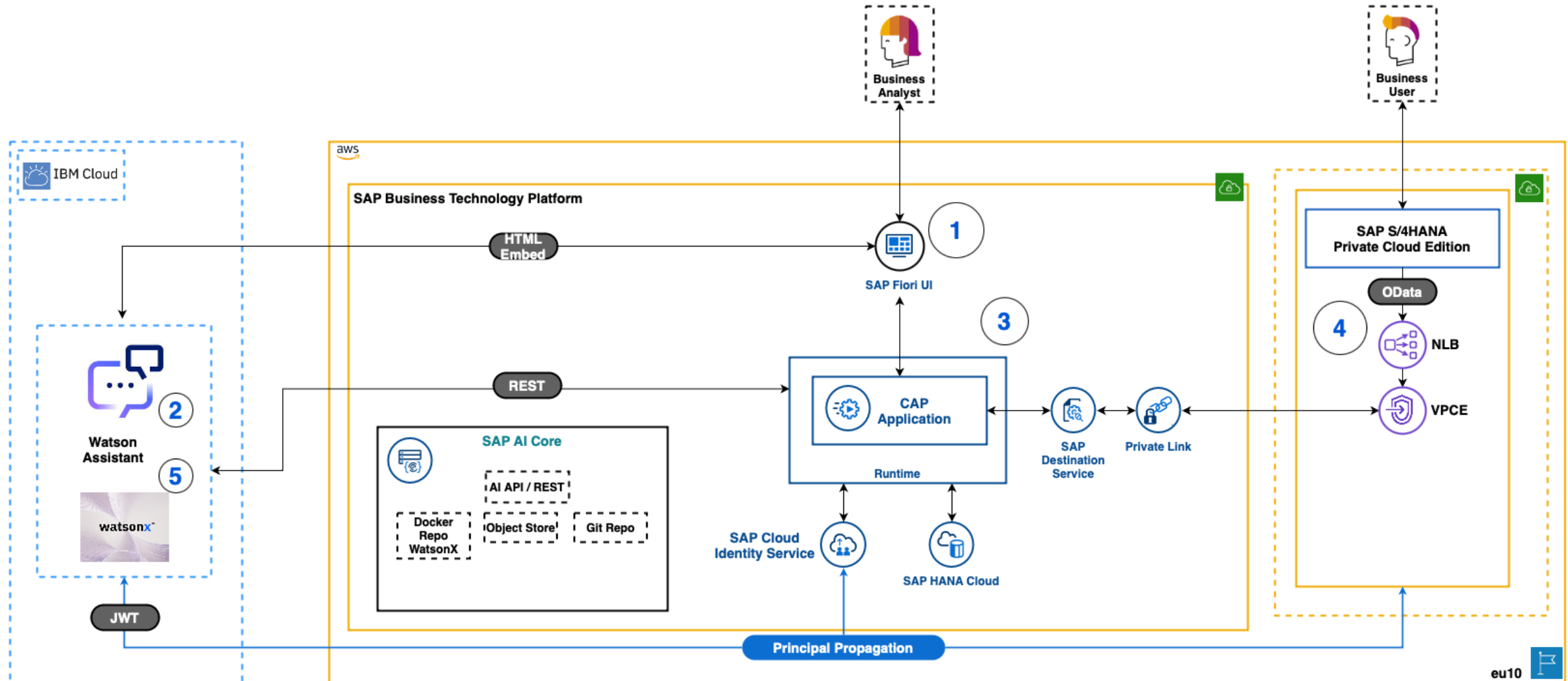


* No.1 is for customers who are using SAP ECC/S4 HANA for procurement process
* No.2 is for customers who are using SAP ARIBA and / or SAP ECC/S4 HANA

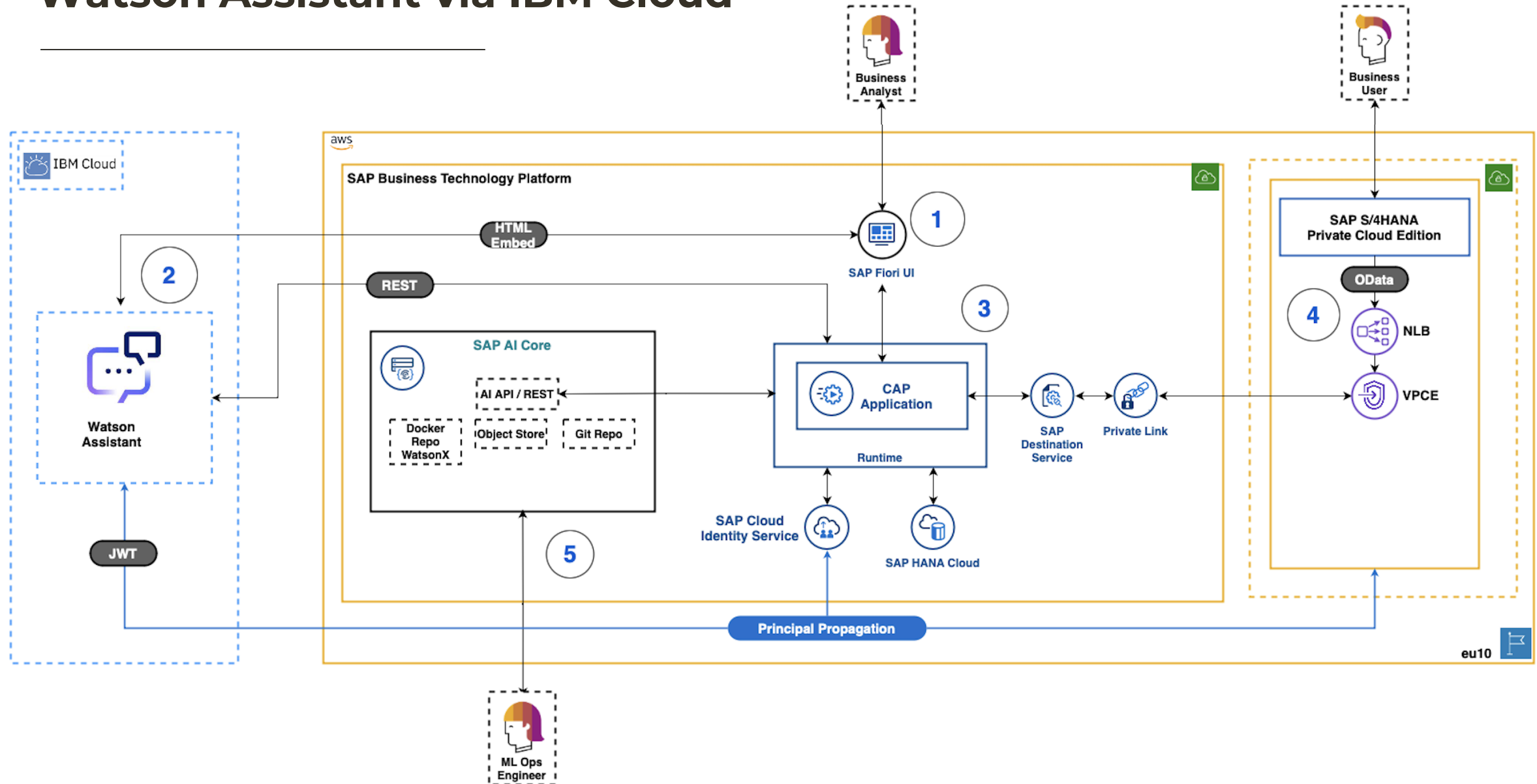
SAP Build Application with direct calls to IBM Cloud



SAP Build Application with indirect calls to IBM Cloud via SAP AI Core for model usage and and IBM



SAP Build Application with model stored in SAP AI Core and IBM Watson Assistant via IBM Cloud

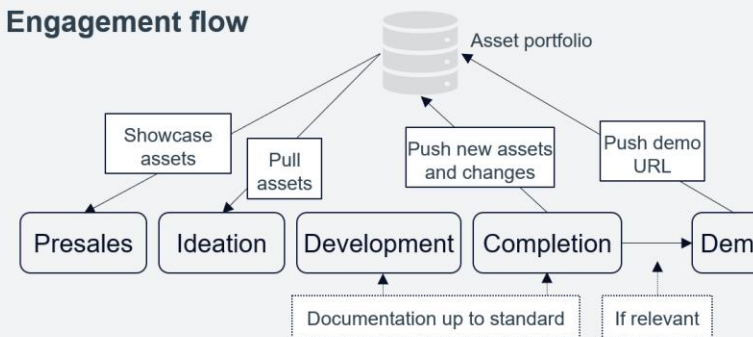


Reusable technical assets

Asset Management; Requirements, process and roadmap

- For this practice to become sustainable, it should have an *absolute minimal per-developer overhead*.
- The per-engagement tasks will be as follows
 1. Adhere to a standard for documentation, so that the asset can be picked up without consulting the developer.
 2. If changes are made to an existing asset, we make sure that the portfolio (and any associated demo) is updated.
 3. If potential new assets is created, we will make sure to add them to the asset portfolio.
 4. If deemed relevant, making sure that a demo is created for any new asset – by us or, e.g., Application Dev team. (on a cloud VM that can scale to 0)
- The responsibility for the tasks are given to the *engagement manager*, to be delegated only if necessary.

Engagement flow



Where to Find More Information

<https://www.ibm.com/watsonx>

Page describes main AI functions and the the details of building components

<https://cloud.ibm.com/catalog?category=ai>

IBM Cloud page with all IBM AI (and Partner) service ready to use

<https://nttdata-solutions.com/dk/services/transformation-lab/>

<https://nttdata-solutions.com/dk/services/innovation-technology-services/>

<http://help.sap.com>

- Follow Product Hierarchy > Supply Chain Management > SAP Extended Warehouse Management > SAP Extended Warehouse Management (SAP EWM)

Key Points to Take Home

- Preventive Maintenance powered by AI
- IBM AI products used with SAP and NTT
- BTP enhancements by IBM AI products
- Use-case based approach, incl structure and governance

Thank you! Any Questions?

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Please remember to
complete your session
evaluation.

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