

The Hitchhiker's Guide to the SAP AI Galaxy

Anurag Barua
Digital Transformation Leader
SAP America

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SAPinsider

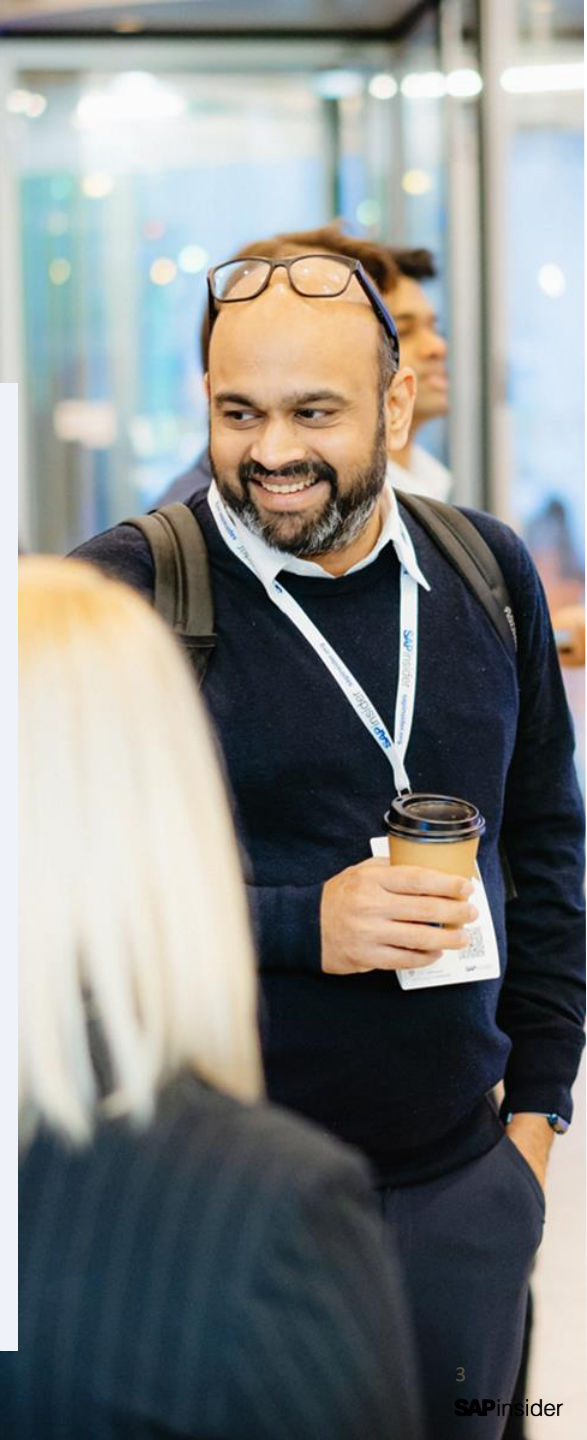


In This Session

- You will:
 - Get familiar with the key AI terms & phrases
 - Obtain an understanding of SAP's overall AI framework
 - Understand how SAP's embeds intelligence into its various applications
 - Become familiar with selected AI apps in SAP's portfolio

What We'll Cover

- Key AI terms & phrases
- SAP's approach to AI
- How SAP embeds and enables AI in S/4HANA & other applications
- A few popular SAP AI apps
- Wrap-up

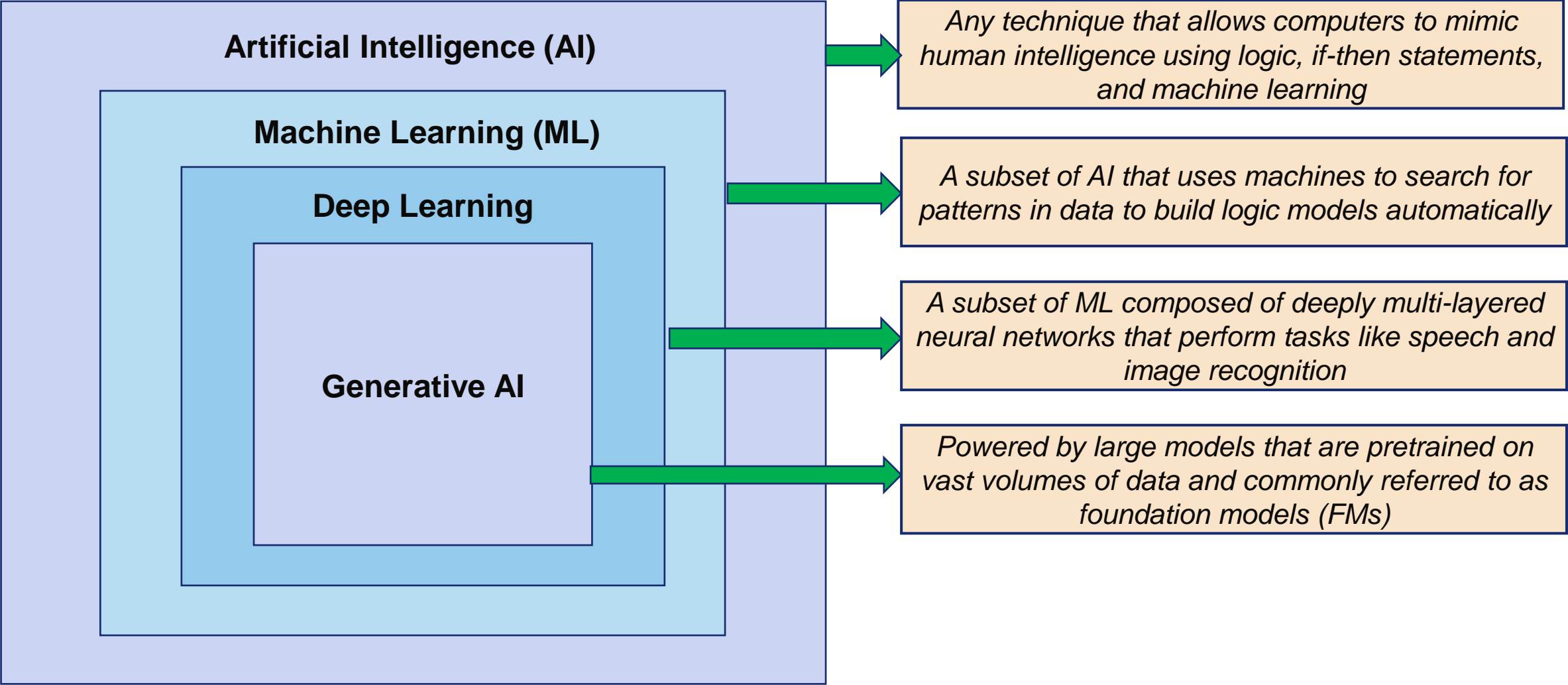


Topic 1

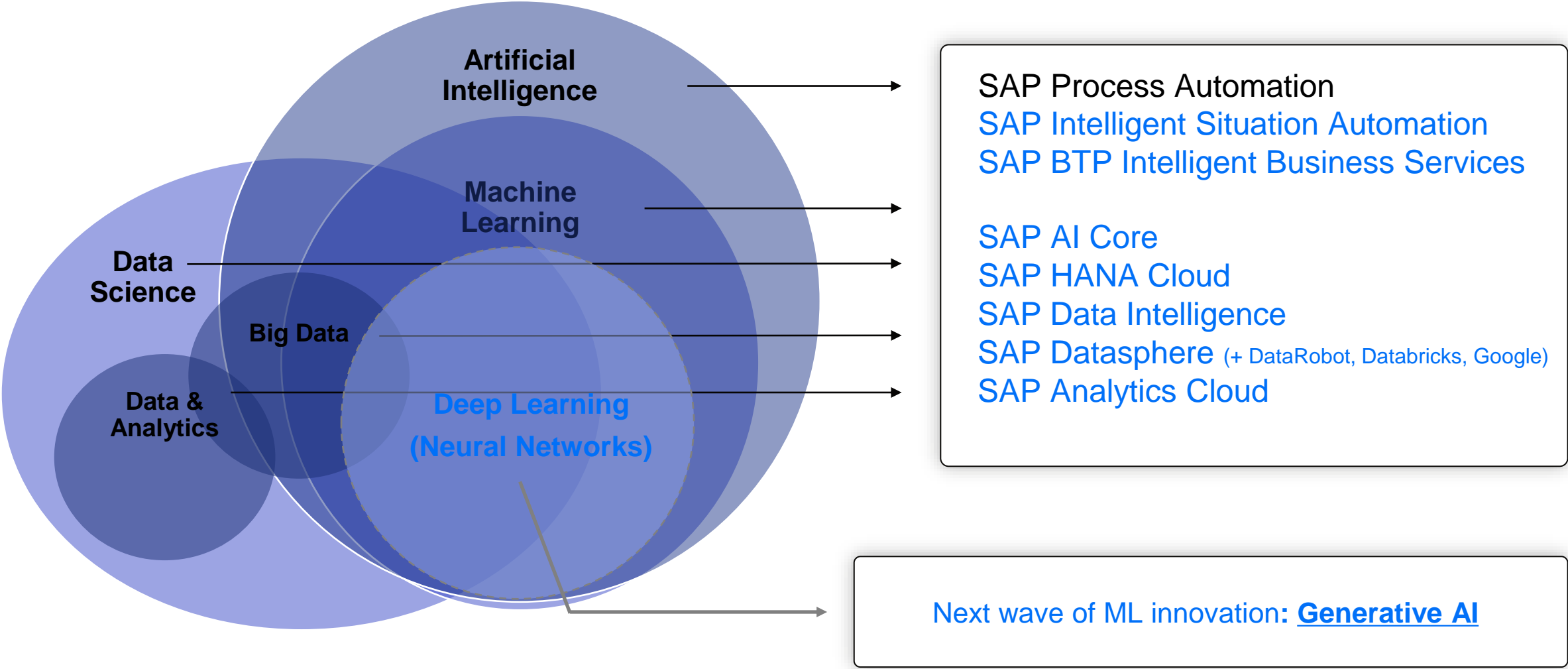
Key AI terms & phrases



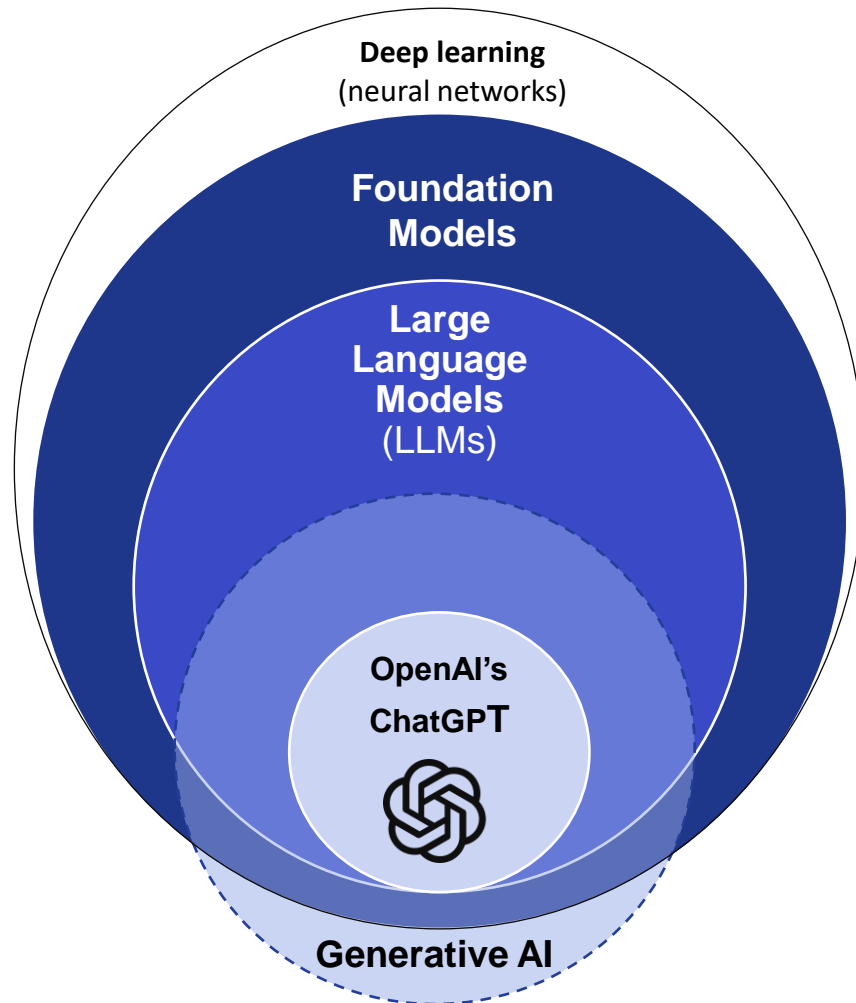
AI building blocks



Mapping AI to SAP applications



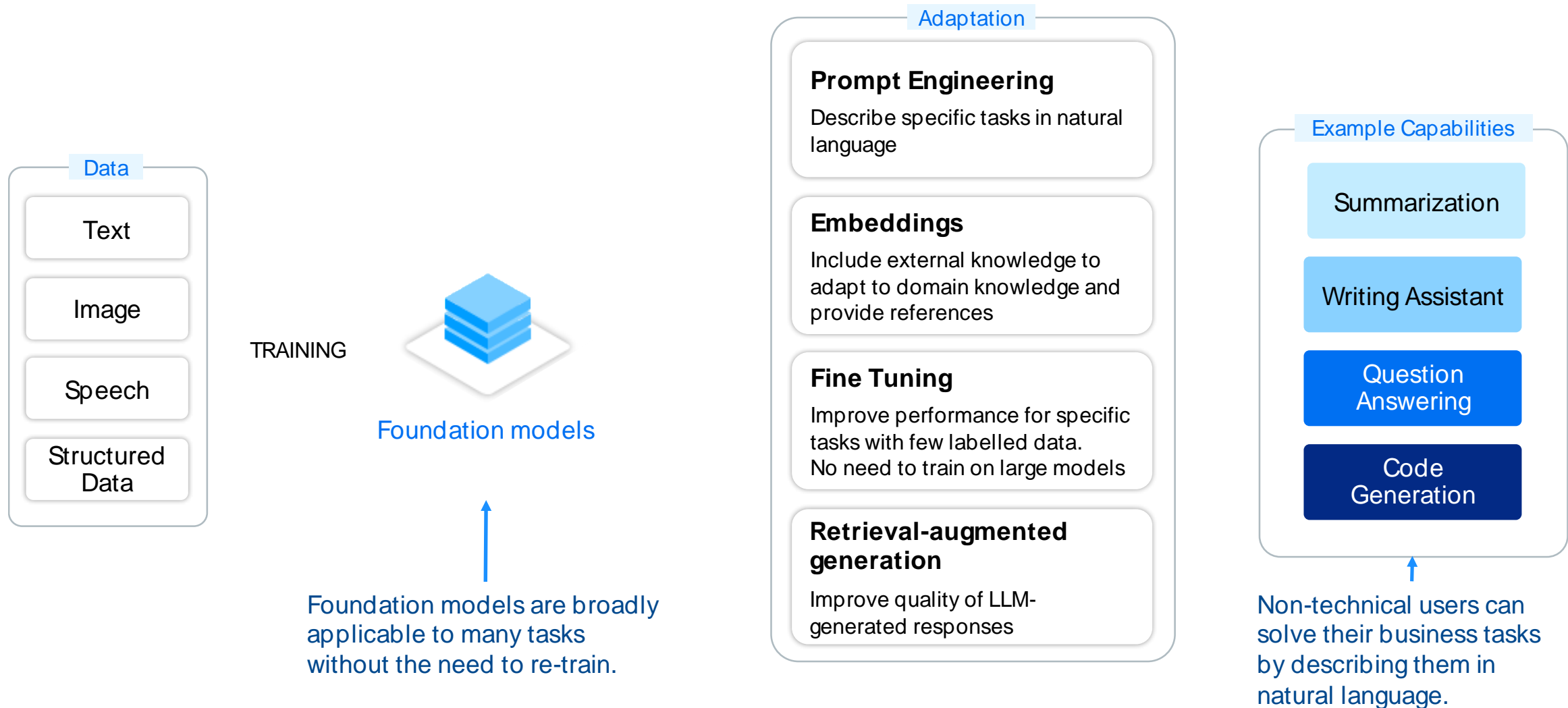
Deep learning & Gen-AI: An overview



- **Foundation models** are deep learning models (i.e. neural networks) trained on large volumes of unlabeled data (text, code, image, sound, video...)

- **Large language models** are a subcategory of foundation models for text (including XML, Code, etc.).

- **ChatGPT** is a specific chat assistant based on GPT-3.5 and GPT-4 large language models (LLM) created by the vendor OpenAI.

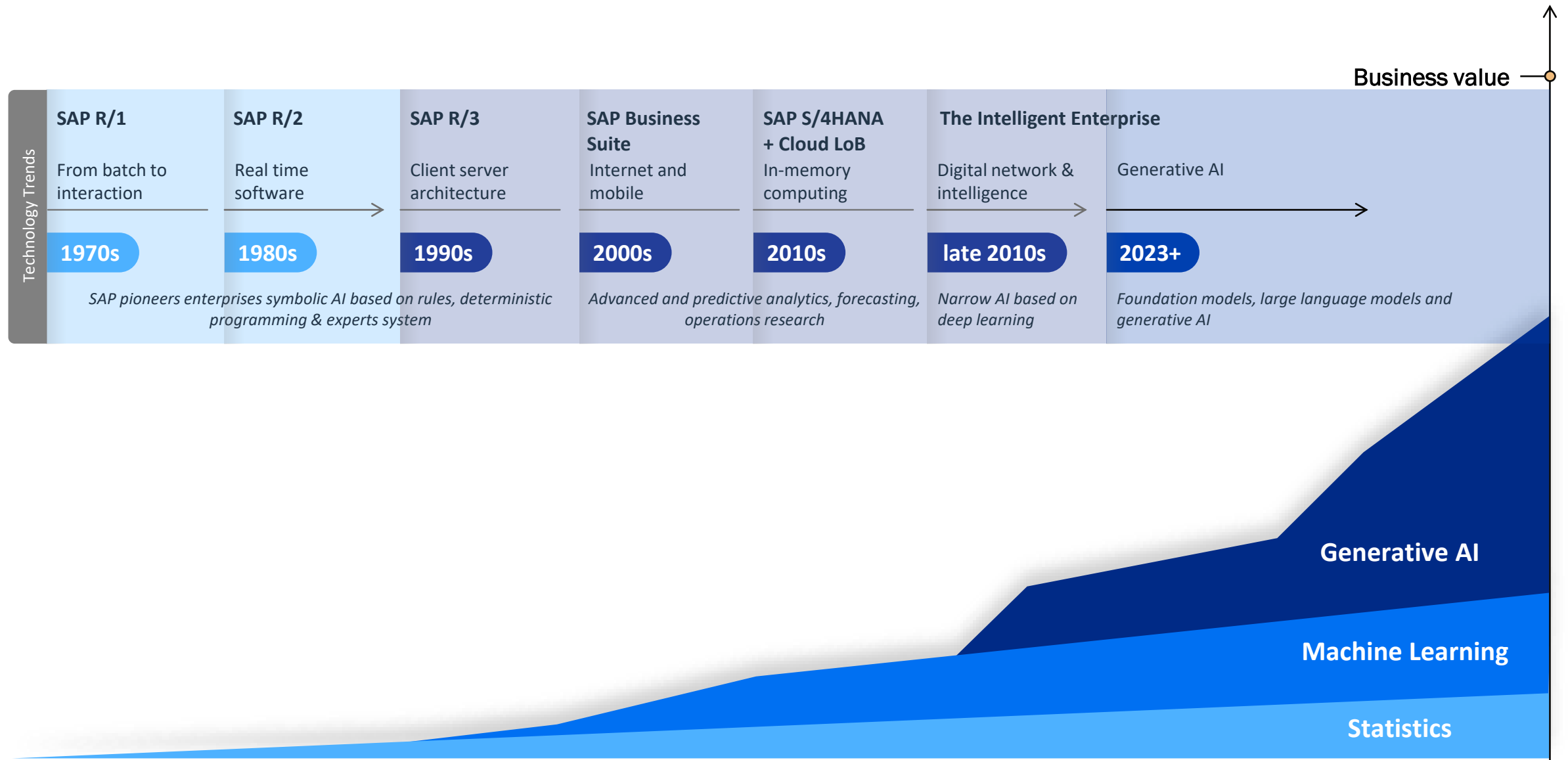


Topic 2

SAP's approach to AI



How SAP delivers business value: an evolution



What does 'relevance' mean?



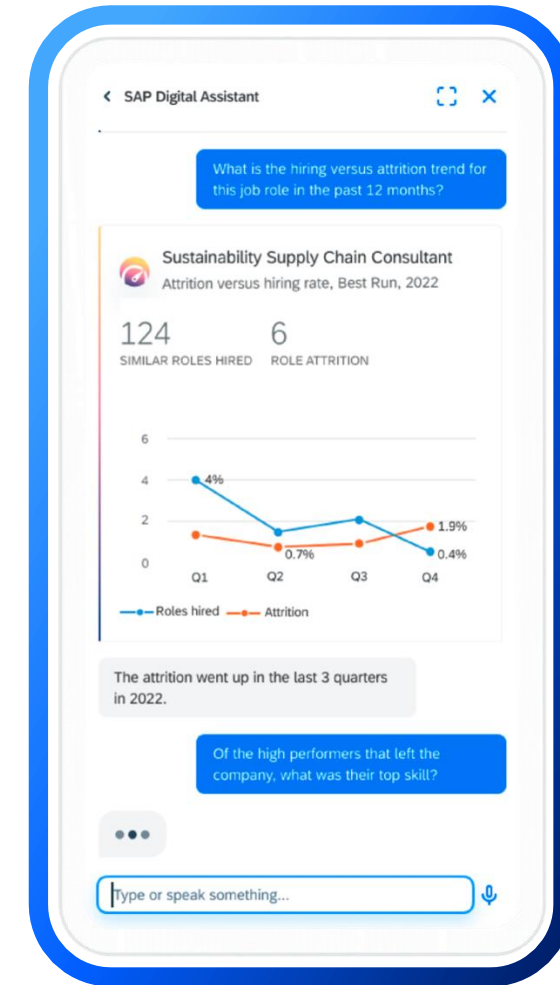
RELEVANT

Empower every employee to interact with SAP application in the most natural way possible

Benefit from AI embedded in your applications that improves and optimize your desired business outcomes

AI trained from real data that learns and adapts from your utilization

Accelerate your cloud journey with automated code generation and migration tools



SAP's AI approach & principles

Relevant

Reliable

Responsible

AI-powered insights and assistance

Embedded AI capabilities

Cloud ERP
(S/4HANA Cloud)

Human capital
management

Spend
management &
business network

Customer
relationship
management

Business
Technology
Platform (BTP)

AI foundation

on Business Technology Platform

AI ecosystem partnerships and investments



ANTHROPIC



cohere

databricks

DataRobot

Google Cloud

Hugging Face

IBM

Microsoft

What does 'relevance' mean?



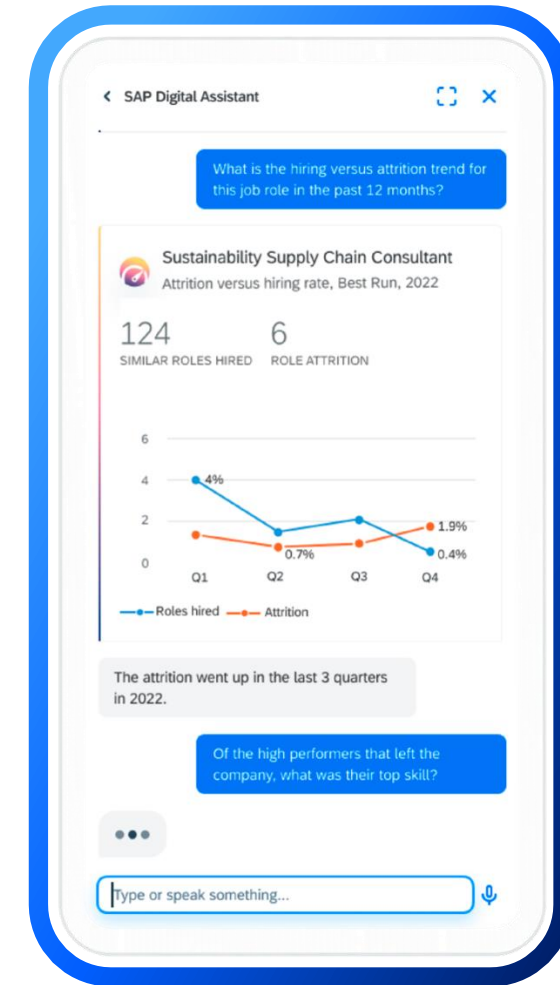
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What does 'reliable' mean?

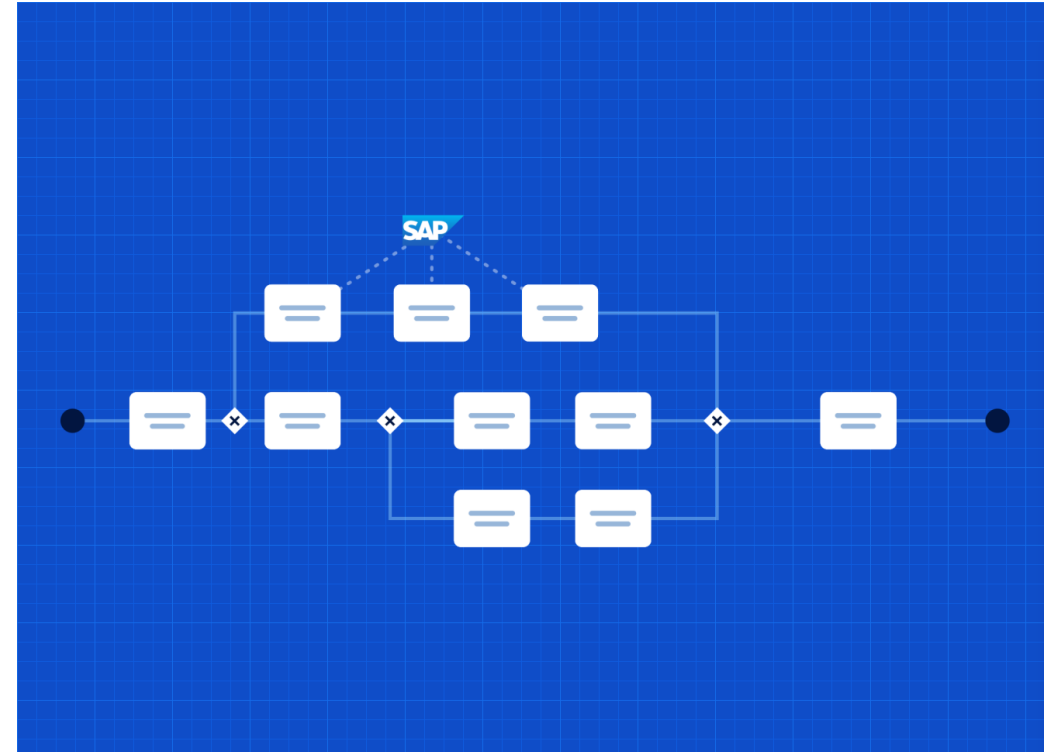


RELIABLE

Grounded in the truth of customer business context and SAP's business and process data

Data protection and privacy standards that you can trust to run your business on

World-class authorization concepts protect employees and business partners from unwanted consequences



What does 'responsible' mean?



RESPONSIBLE

Guiding principles and policies that steer the development and avoid biases

AI designed for people to get their most valuable work done while keeping humans in the loop

Governance model with external AI ethics advisors and cross-functional operationalization

The AI Ethics Policy.

The AI Ethics Policy clarifies how SAP's Guiding Principles for Artificial Intelligence relate to AI use cases. The policy applies to SAP and all its employees worldwide. It defines intent, expectations and obligations for employees involved in development, deployment and sale of AI systems.

The Pillars of the Policy.



Today, more than 24,000 customers are using SAP Business AI across multiple scenarios, and SAP is further committing to AI as a pillar for future innovation

24,000+
customers

>\$1B investment via venture capital

\$6.1B in annual total R&D investment

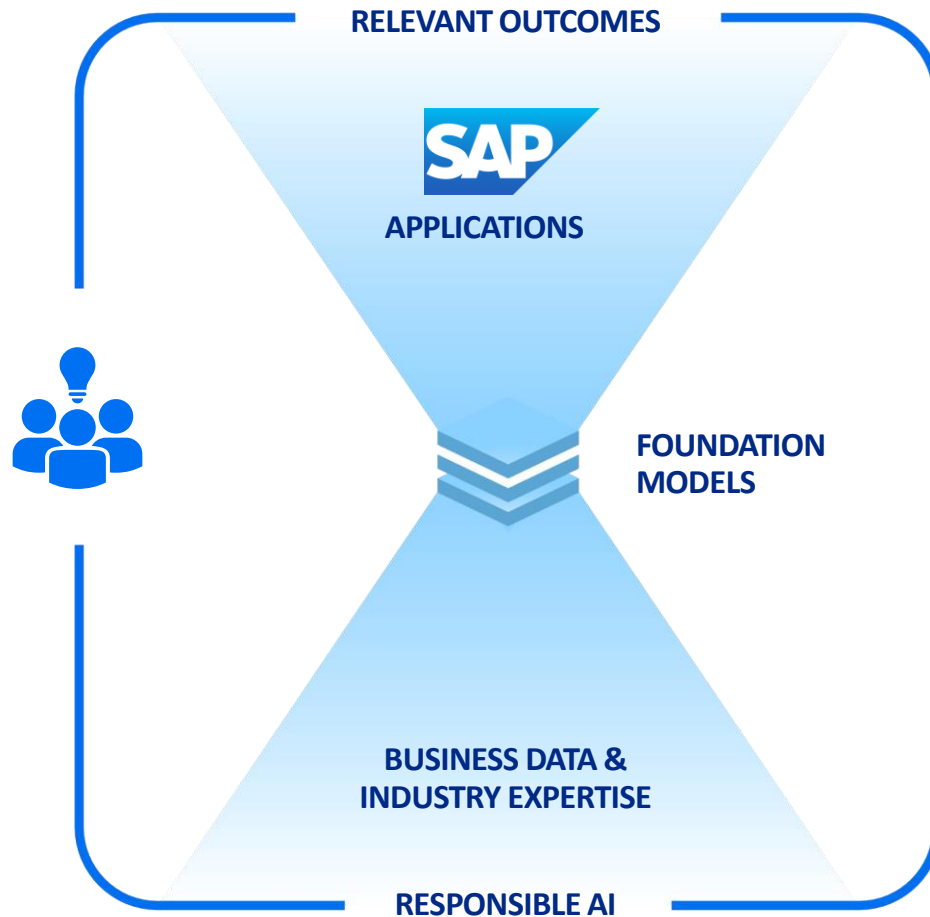
3 direct investments in Generative AI leaders



ANTHROPIC



SAP's approach to generative AI



SAP combines the power of **generative AI with the context of business data and business processes** and applies fine-tuning and prompt engineering at scale. This allows SAP to turn otherwise generic results into ones that are tailored to your business. These results are built into the SAP applications that business users use every day.

SAP **keeps humans in the loop responsibly** to review and approve generated information.

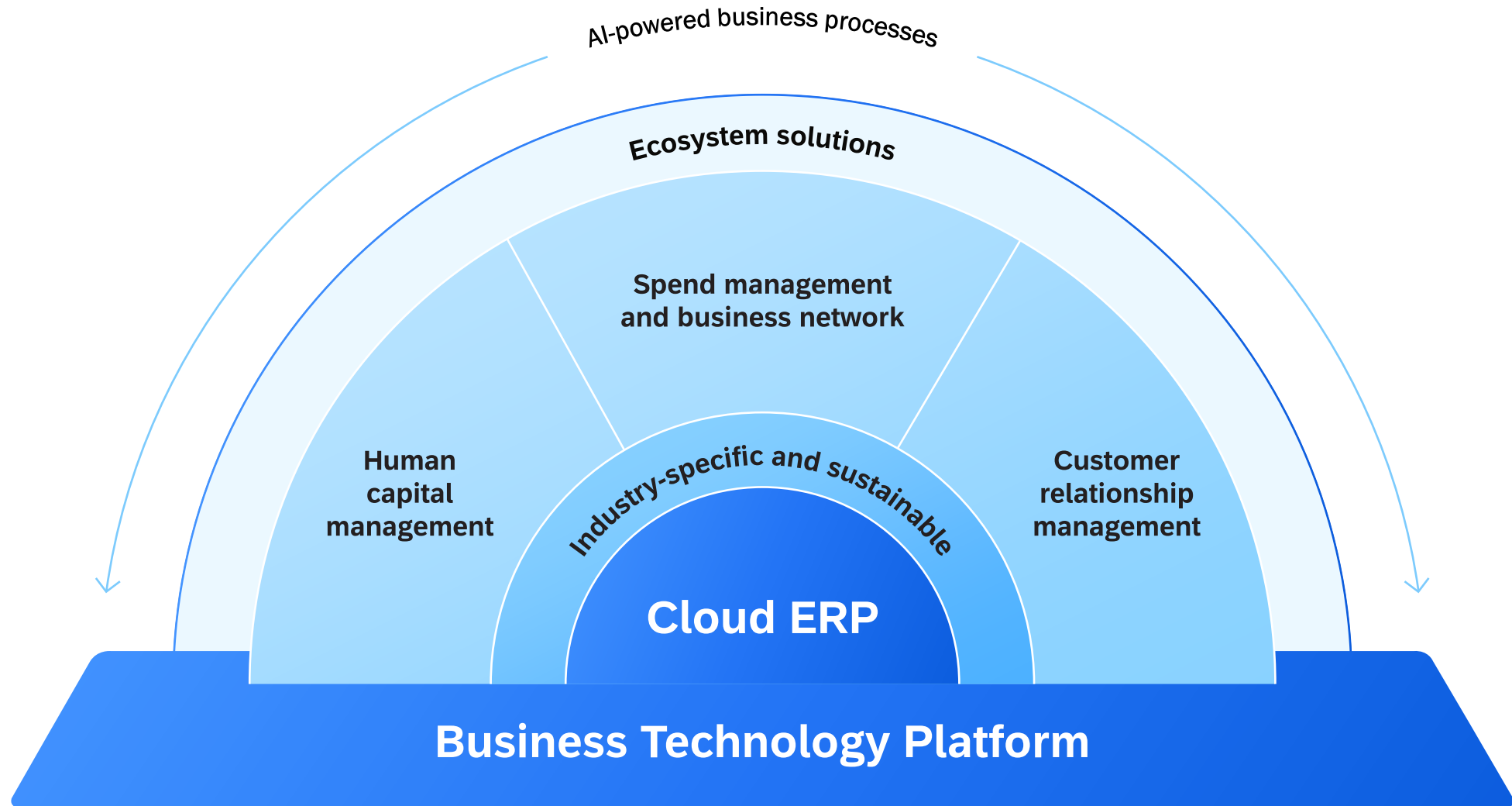
SAP's use of **generative AI follows the same principles of business AI** and the same rigorous development and responsible AI review processes.

Topic 3

How SAP embeds and enables AI
in S/4HANA & other applications



AI as part of SAP's cloud portfolio



Let's use Gen AI (ChatGPT) to learn about SAP's AI approach

You

Summarize SAP's Artificial Intelligence capabilities

ChatGPT

ChatGPT

SAP, a leading enterprise software company, has integrated artificial intelligence (AI) capabilities into its offerings to enhance various business processes. Key aspects of SAP's AI capabilities include:

1.Intelligent Automation: SAP leverages AI to automate repetitive tasks and streamline business processes. This includes robotic process automation (RPA) for tasks such as data entry and validation.

2.Machine Learning (ML): SAP incorporates machine learning algorithms to enable predictive analytics, anomaly detection, and data-driven decision-making. ML is used across various modules, such as finance, supply chain, and customer relationship management.

3.Natural Language Processing (NLP): SAP integrates NLP to enable communication between users and its applications. This facilitates voice commands, text analysis, and sentiment analysis, improving user experience and insights generation.

4.Chatbots and Virtual Assistants: SAP employs AI-driven chatbots and virtual assistants to enhance customer support, automate inquiries, and assist users in navigating through applications or obtaining information.

5.Advanced Analytics: SAP provides advanced analytics capabilities powered by AI, allowing organizations to gain deeper insights from their data. This includes features like predictive analytics, prescriptive analytics, and data visualization.

6.Intelligent ERP (Enterprise Resource Planning): SAP's ERP solutions incorporate AI to enhance functionalities such as demand forecasting, inventory management, and financial planning, making business processes more efficient and responsive.

7.Qualtrics Experience Management: SAP acquired Qualtrics, a platform for experience management, and integrates AI to analyze customer feedback, employee sentiments, and other experience-related data for better decision-making.

8.SAP Leonardo: SAP Leonardo is an umbrella brand that encompasses various technologies, including AI, IoT (Internet of Things), and blockchain, to help organizations in their digital transformation journey.

9.SAP HANA: SAP's in-memory database platform, HANA, supports real-time data processing and analytics, and it is often used in conjunction with AI to enable faster and more informed decision-making.

Overall, SAP's AI capabilities aim to empower businesses by improving efficiency, providing actionable insights, and enabling intelligent automation across a wide range of enterprise functions.

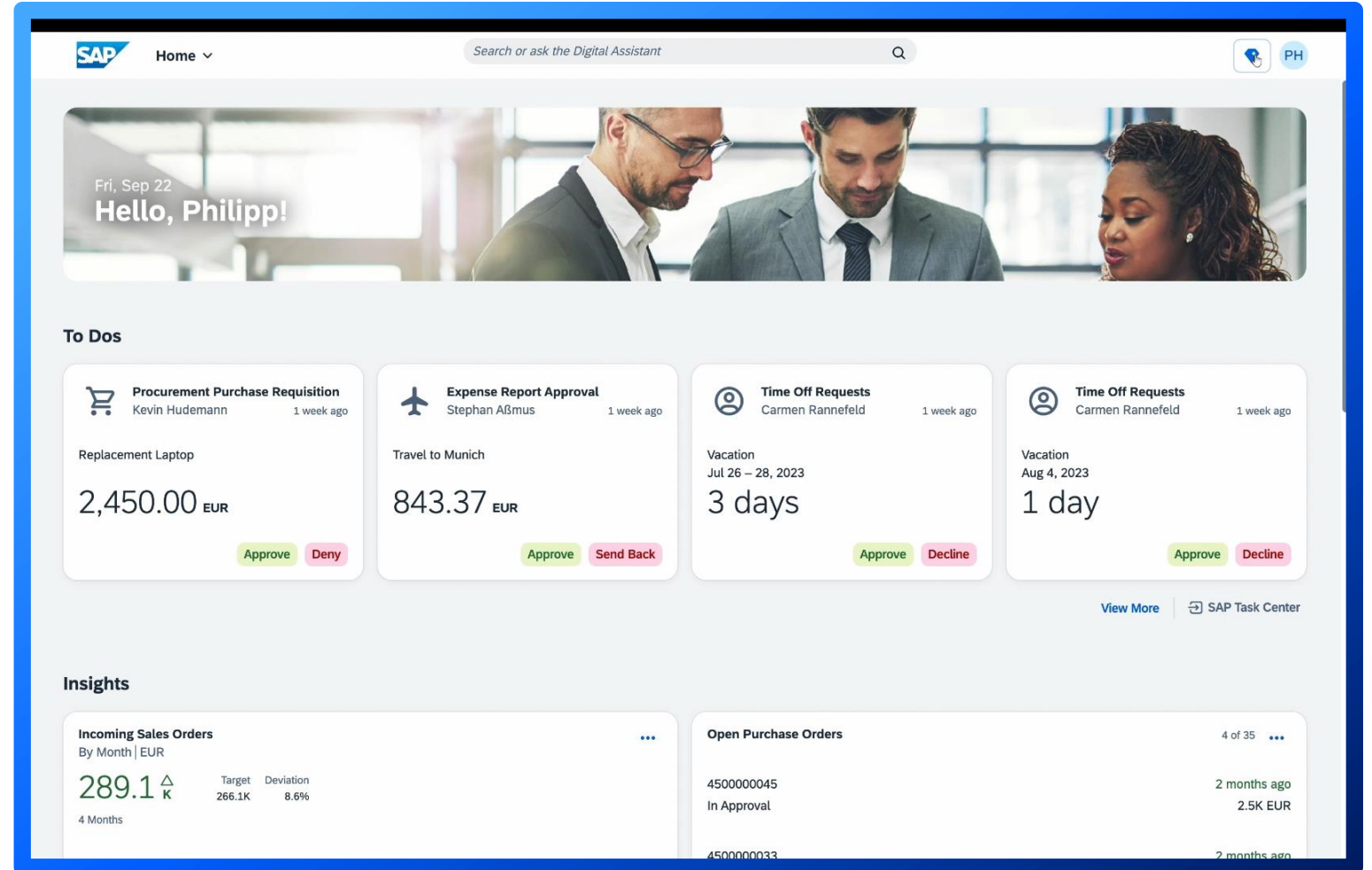
Joule – SAP's AI copilot

Work faster with an AI copilot that truly understands your business

Benefit from smarter insights and quick answers on demand

Achieve better outcomes when creating content, code, and more

Maintain full control over decision-making and your data privacy



Joule

Note: Planned availability in SAP business applications at different times, starting with SuccessFactors and SAP Start in Q4 2023.

Joule in action

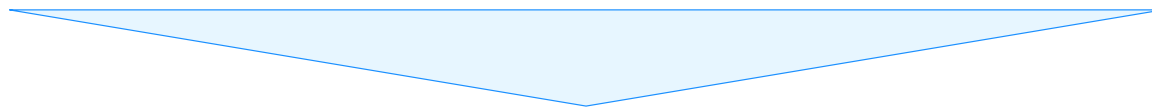


Summarization

Writing Assistant

Question
Answering

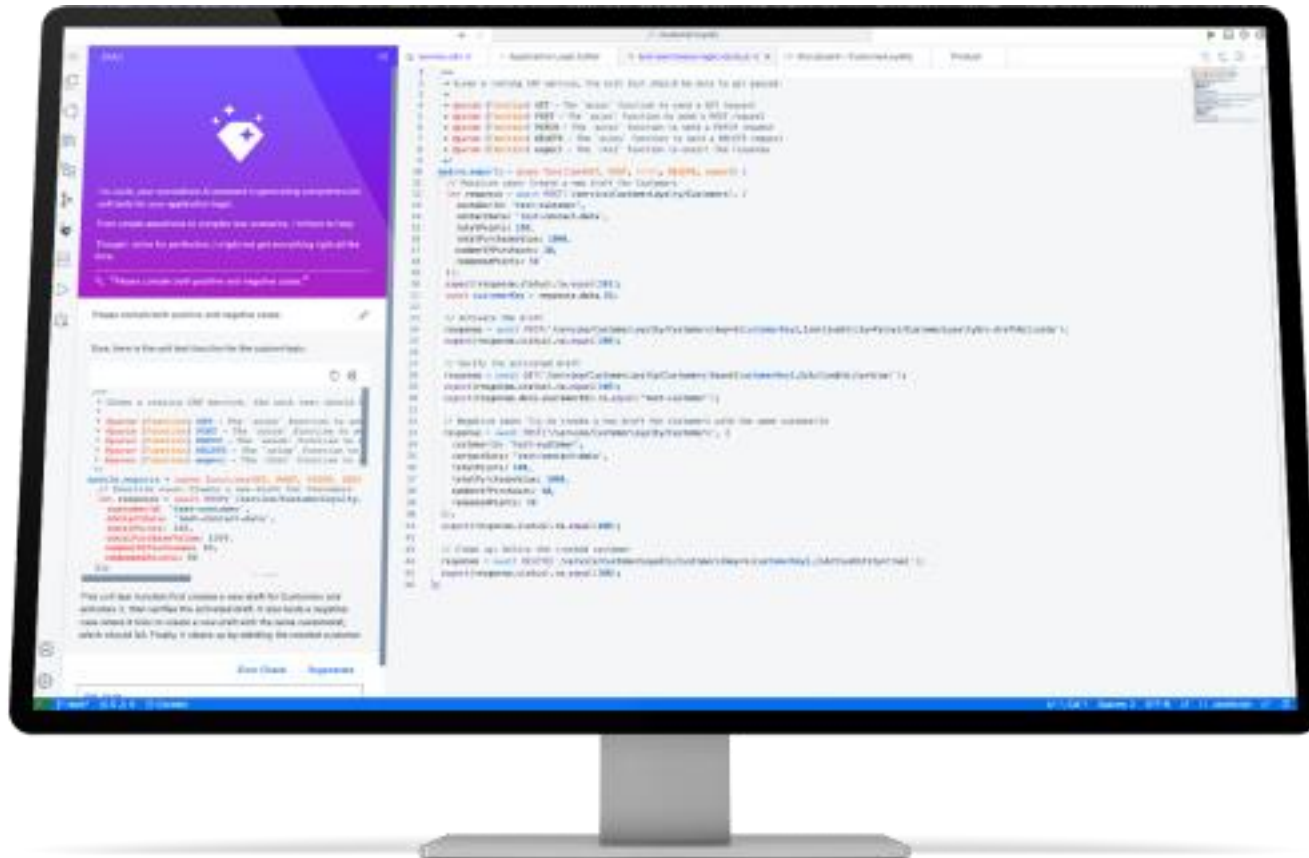
Code
Generation



Benefits :

Generative AI-code development with Joule copilot

- Use AI to generate code and app logic aligned with SAP-centric programming models from natural language descriptions
- Create data models and sample data conforming to apps with Joule copilot
- Produce rapid unit tests with AI for existing code to increase quality and precision



[Demo](#)

Topic 4

A few popular SAP AI apps

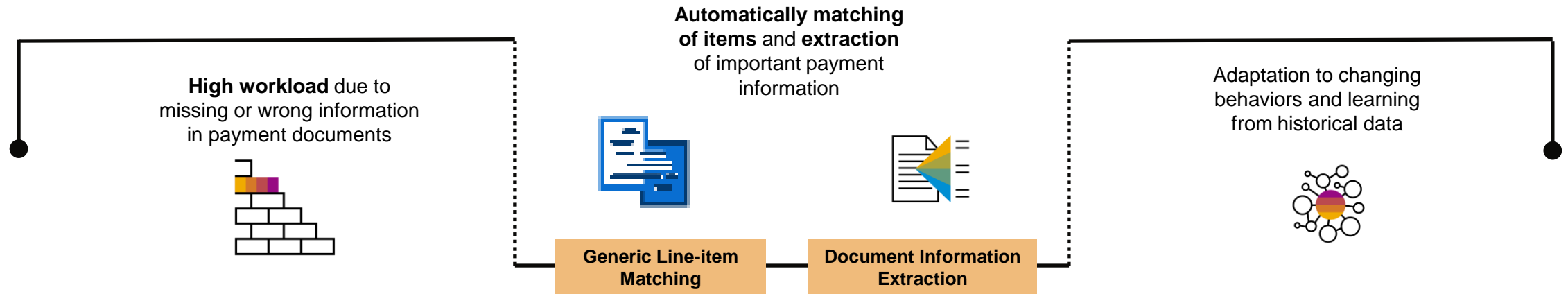


Catalog of AI-powered business scenarios

Finance	Supply Chain	Customer Experience	Procurement	Human Resources	IT and Cross-Function
<ul style="list-style-type: none">▪ Tax Compliance▪ Cash Application▪ Intelligent accrual▪ Travel expense auditing▪ Travel expense verification▪ Invoice processing▪ Business Integrity screening▪ Goods and invoice receipt matching▪ Mobile expense entry	<ul style="list-style-type: none">▪ Stock in transit▪ Visual Inspection▪ Demand forecasting & sensing▪ Project-cost prediction▪ Predicted delivery processing▪ Demand-driven replenishment▪ Forward scheduling▪ Field service scheduling▪ Asset prediction & optimization▪ Slow-moving materials prediction	<ul style="list-style-type: none">▪ Predicted delivery processing▪ Discount recommendations▪ Intelligent sales execution▪ Relationship intelligence▪ Sales route optimization▪ Sales order automation▪ Opportunity scoring▪ Customer insights▪ Guided selling▪ Lead scoring▪ Product recommendations	<ul style="list-style-type: none">▪ Guided buying▪ Sourcing item and supply prediction▪ Material group recommendations▪ Invoice object recommendations▪ Job matching for contingent workforce▪ Resume ranking for contingent workforce▪ O'Net labelling	<ul style="list-style-type: none">▪ Skill and career path recommendations▪ Learning recommendations▪ Job analyzer	<ul style="list-style-type: none">▪ Joule▪ Process automation▪ Business rule mining▪ Intrusion detection
Learn more about SAP Business AI					

Embedded AI use case: Cash application

Demo



Business Challenge

- Assignment of open items to payments in contract accounting is usually realized based on a rule-based approach
- Due to wrong or missing information, not all transactions can be cleared automatically and clarification cases remain for manual postprocessing
- High document volumes with incomplete information in payment documents can cause immense manual effort and costs



Solution

Generic Line-item Matching

- Automatically matches incoming payments with defined selection type and correct selection value
- Uncleared payments are passed to SAP Cloud platform-based machine engine and proposed matches are either automatically cleared or suggested for review by the A/R accountant

Document Information Extraction

- Payment Advice Extraction

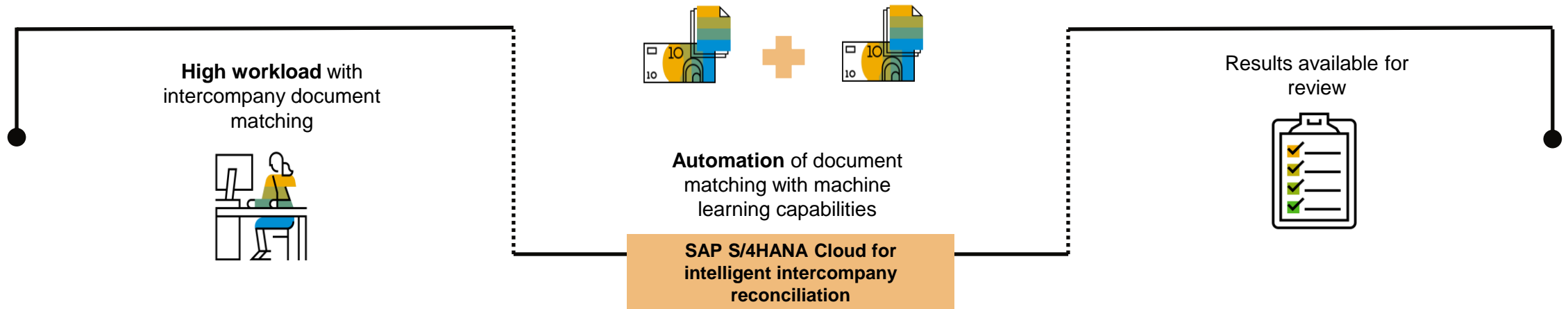


Benefits and Value

- Automation of the payment process and increased efficiency
- Elimination of tedious manual work to focus on strategic tasks and service quality
- Seamlessly integrated with SAP S/4HANA

Embedded AI use case: intercompany reconciliation

Demo



Business Challenge

- Intercompany financial documents matching is a cumbersome, labor-intensive activity
- high volume of payables and receivables items
- complex task of deciphering posting differences caused by business processes
- Many customers cannot manage this work efficiently, which leads to delays of closing activities and erroneous intercompany reconciliation data in consolidations



Solution

SAP S/4HANA Cloud for intelligent intercompany reconciliation

It helps customers automate intercompany documents matching with machine learning:

Unmatched documents (after rules-based approach) are matched via machine learning service on SAP Business Technology Platform (BTP)

- Results are available for review by accountant

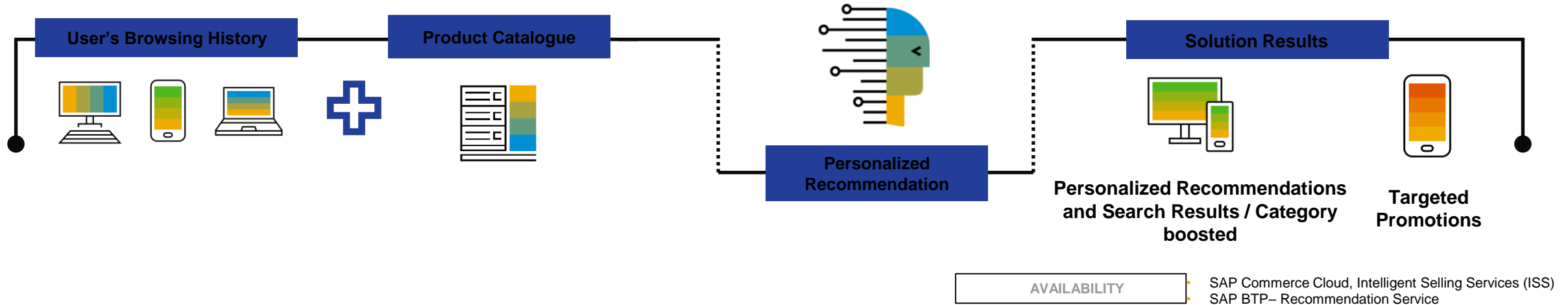


Benefits

- Reduce cost of finance operations by automating labor-intensive matching work
- Speed-up the month end closing process
- Increase matching accuracy with advanced machine learning technology
- Improve transparency for intercompany relationships
- Avoid compliance risk: many countries have enforced strict rules governing intercompany bookings and elimination

Embedded AI use case: hyper-personalization with Commerce Cloud

Demo



Business Challenge

- Low sales figures from poor recommendations & strategy on e-commerce websites or procurement platforms
- Unable to seamlessly promote targeted products to meet KPI & other business goals



Solution

Personalized Recommendation

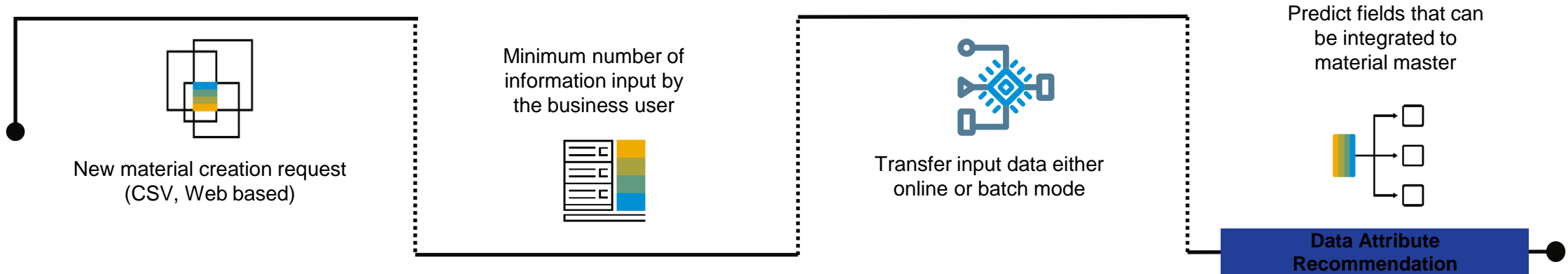
- Personalized recommendations increase item visibility
- Attribute boosting features enable merchants and administrators to push targeted promotions



Benefits and Value

- Drive conversion by getting users to the right product so they are prepared to convert
- Drive promotions and surface compelling products to users to drive traffic to product pages
- Make it easy for users to discover related products and avoid browse abandon
- Increase chance of sale with user spending more time on product pages

AI use case: Automatic Prediction of Missing Master Data Fields for New Product Introduction



Business Challenge

- Constant new product release to the market
- Lack of holistic view of the master data needed by different business functions
- Inconsistent representation of master data across the entire organization



Solution

- **Data Attribute Recommendation**
- Provides master data field prediction to the business user
- Retractable Machine learning models that can be retrained at frequent intervals
- Can be used for business partner maintenance, work center and asset maintenance, custom field value prediction



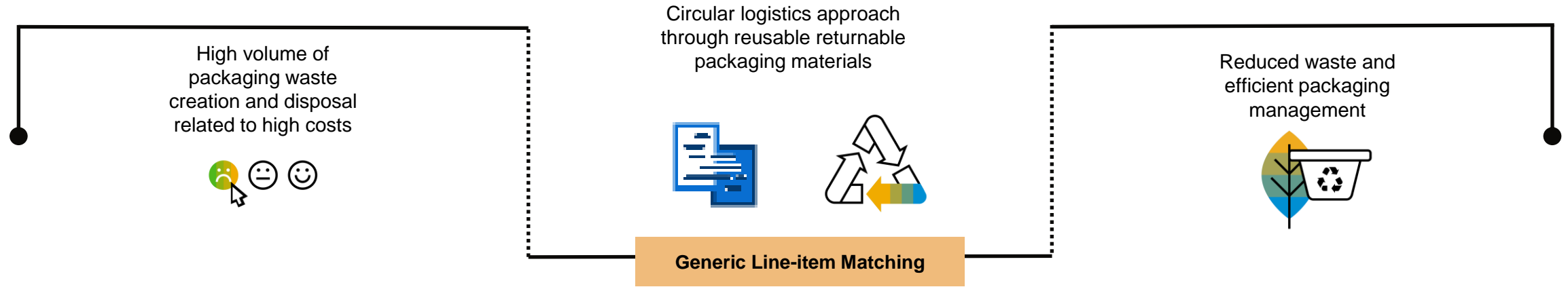
Benefits and Value

- Reducing the manual maintenance and verification
- One voice of master data across the organization
- Improve quality of master data to facilitate more efficient planning and execution

**~20% effort
reduction**

*for new material
creation*

Embedded AI use case: returnable package management



Business Challenge

- Large amounts of packaging materials that are used throughout the supply chain
- Waste amounts lead to high costs for the company
- High emergence of waste which needs to be disposed and is damaging to the environment



Solution

Returnable Packaging Management through Generic Line-item Matching

- Enables circular logistic flows by managing reusable returnable packaging materials in a supply chain
- Moving products safely and efficiently throughout the supply chain
- Provides packaging manager with necessary information and assign exchange partner details
- Monitoring various aspects of returnable packaging process and material



Benefits and Value

- Reduced costs for waste management
- Improved supply chain management through safe and efficient packaging management
- Easy tracking of returnable packaging materials
- Reduced waste creation and disposal

Embedded AI use case: sales order automation



Business Challenge

- Processing sales order sent in various formats (email, word, pdf)
- High workloads of incoming client's orders
- Low automation level



Solution

- **Document Information Extraction**
Automatically extracts structured information from purchase orders

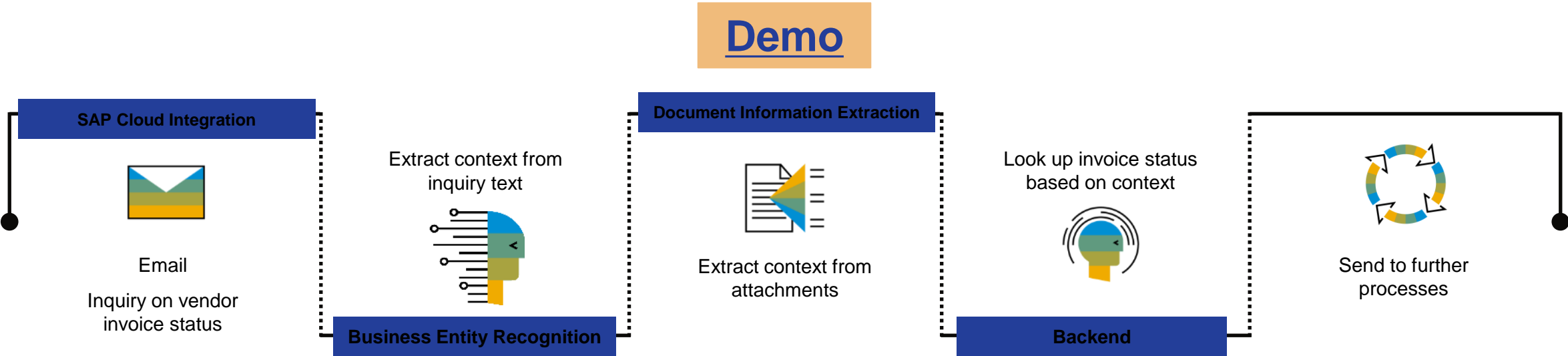


Benefits and Value

- Minimized repetitive tasks
- Speeding up the processing
- Improve accuracy
- Automated order creation in SAP S/4HANA or SAP S/4HANA Cloud

*Same use case as Sales Order Completion with Data Attribute Recommendation but different steps involved. Document Information Extraction extracts the sales order, Data Attribute Recommendation helps to complete the creation.

AI use case: vendor invoice inquiry automation



Business Challenge

- High workloads with vendor invoice inquiries
- Manual processing of inquiries with free texts and attachments might lead to errors and increases the processing time



Solution

- Business Entity Recognition**
Automatically identifies and extracts business entities from request contents
- Document Information Extraction**
Automatically extracts structured information from request attachments
- Prebuilt integration packages** for [Business Entity Recognition](#) and [Document Information Extraction](#)

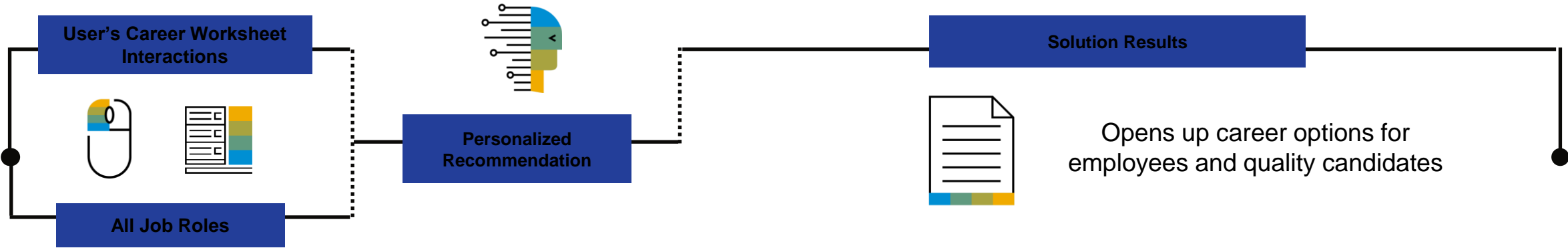


Benefits and Value

- Minimized repetitive tasks for service center agents
- Focused on value-creating tasks
- Provided faster and more accurate responses to the customer

Embedded AI use case: career path recommender

Demo



AVAILABILITY

SAP SFSF Career Explorer
SAP BTP – Personalized Recommendation Service



Business Challenge

- High attrition due to lack of career progression and cost companies resources to search and train new employees
- Searching for new employees and training them is costly for organisations



Solution

Personalized Recommendation

- Inspire and guide employees into other similar employees' actions



Benefits and Value

Individuals:

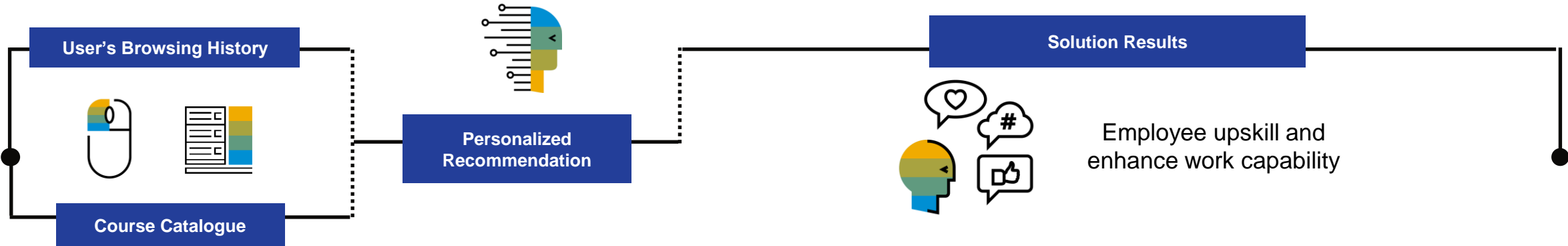
- Aid employees with career planning and increase employee retention

Company:

- Succession Planning to ensure business continuity

Embedded AI use case: learning recommendations

Demo



AVAILABILITY

SAP SFSF Learning Management System
SAP BTP – Personalized Recommendation Service



Business Challenge

- Employees struggle with finding relevant courses
- Overwhelming volume of information that makes it difficult to notice and keep track of useful information
 - Lack of effect tools that makes it difficult for the employees to find the most useful information



Solution

Personalized Recommendation

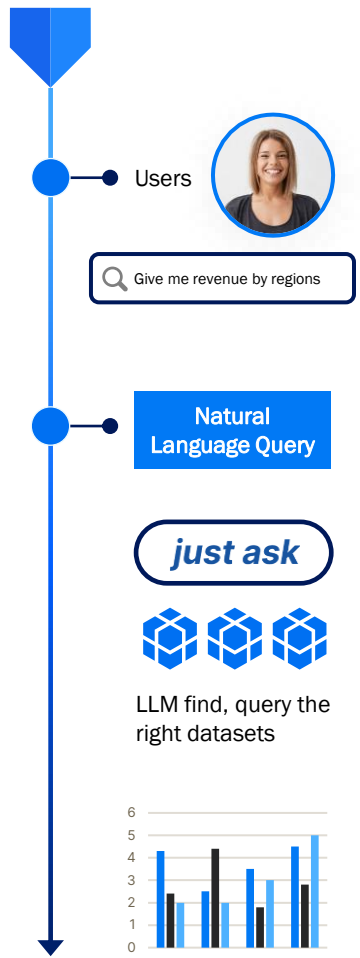
- Connects employees with personalized learning beyond traditional course catalogues to fit their learning goals and situation.



Benefits and Value

- Connect employees with personalised learning to fit their learning goals and situation, enabling them to upskill and have personal growth.
- Make better use of vast amounts of relevant and current learning content available
- Talent development to build a better workforce
- Help organizations create a culture of learning

AI capabilities example: Just Ask with SAP Analytics Cloud



Answers are instantly provided to the end users

Challenge

- **Missing Skills:** Finding answers in data requires a deep understanding of technological concepts such as data-warehousing
- **Cognitive Overload:** Modern tools are designed for analysis. Dashboards have tried to solve the cognitive load, but they are too rigid to go after general use
- **Data Fragmentation:** Data is fragmented in silos in a way that makes data discovery slow and nearly impossible for non-technical users to enrich the simplest of the answers

Solution

- **Just Ask:** Natural Language-driven access of your trusted insights with SAP Analytics Cloud enabling fact-based decision-making through natural language queries and conversational analytics.

Benefits

- **Faster Insights:** Fast natural language querying with all the value of business semantics
- **Trusted Retrieval:** Proprietary LLMs ensure a secure information retrieval preserving data policies
- **Business Agility:** Offers multi-cloud workflow compatibility and integrates external data sources

Average Business Value for Customers

Calculation Method / Assumption In Notes

20% Average time spent in information retrieval by knowledge workers.

That's 1 resource on a team of 5 persons.

Source: CB Insights knowledge worker's report

Where to Find More Information

- <https://www.sap.com/products/artificial-intelligence.html>
- SAP Business AI homepage
- <https://learning.sap.com/products/business-technology-platform/artificial-intelligence>
- Learn about Artificial Intelligence
- <https://pages.community.sap.com/topics/machine-learning>
- SAP Artificial Intelligence and Machine Learning community
- <https://pages.community.sap.com/topics/artificial-intelligence>
- SAP AI Services community
- <https://discovery-center.cloud.sap/serviceCatalog/sap-ai-launchpad?region=all>
- SAP AI Launchpad at the SAP Discovery Center
- <https://community.sap.com/t5/technology-blogs-by-sap/how-sap-s-generative-ai-architecture-redefines-business-applications/ba-p/13580679>
- Blog on Generative AI in SAP

Key Points to Take Home

- AI is a comprehensive field that includes many technologies
- Generative AI is a special form of AI based on large language models & has demonstrated both its prowess & potential
- SAP has been an early adopter of AI & has been embedding it into many of its applications for years including S/4HANA
- SAP's approach to AI is built on 3 pillars: relevance, reliability, & responsibility
- SAP is investing heavily into Generative AI & Joule is our Gen AI-based co-pilot
- SAP has a large portfolio of embedded AI apps as well as those you can subscribe to

Thank you! Any Questions?

Anurag Barua

<https://www.linkedin.com/in/anurag-barua-5351552/>

Please remember to
complete your session
evaluation.

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