

Next-Gen AI Enabling Situational Awareness in Maximo

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This session will share advancements by the IBM AI Research and Maximo Design teams in applying generative Next-Gen AI leveraging the reasoning and acting abilities of Large Language Models to the Maximo suite to provide a situationally aware conversation agent for Maximo asset and workflow data.

Topics

- Adopting AI in Operations.
- Conversational AI designs.
- Siwarex, situational awareness in Maximo.
- Be a part of the team.

Unleashing new ways of working

Conversational AI infuses a generative AI prompts experience, with situational awareness, providing insights and automation, into asset management workflows.

Conversational AI provides new intuitive, natural language interactions, offering users deep insights to operational data.

Direct benefits

- Transform questions to insights and actions.
- Reduce knowledge silos & gaps due to an aging workforce.
- Enhance repair diagnosis and prognosis capabilities.
- Quickly identify most relevant repair procedure.
- Provide information summarization not available in Maximo today.

What are your most desirable benefits?

Business value

“My team of operators and technicians need to retrieve the correct information quickly and effectively from the vast sources of operational data, like asset status and health, past incidents, operator logs, maintenance and repairs, to get their work done without costly repair delays.”

Reliability Dir, Oil and Gas

What influences trust in AI conversations?

Generative and conversational AI give users information faster than ever before — but that convenience is only valuable when it's built on a foundation of trust to data and action.

Impacts on trust

- Relevance to business value
- Coverage of operational data
- Data privacy and Cybersecurity

Quality of responses

Changes to prompt wording can alter its response.

Transparency risks

Influences on, and consequences of, a prompt action.

Data privacy

Ensure the confidentiality of information used.

Data Storage

Storing of sensitive operational data.

Implementation cost

Deployment and administration of an AI capability.

Conversational Use-Cases

Provide a guided, interactive, and hands-on experience for new users during trial and onboarding.

Provide an answer to a question quicker than building a query, creating a work queue, implementing a script, or creating a report or just click-through screens.

Provide data insights to users that today can not be achieved in the Maximo UI.

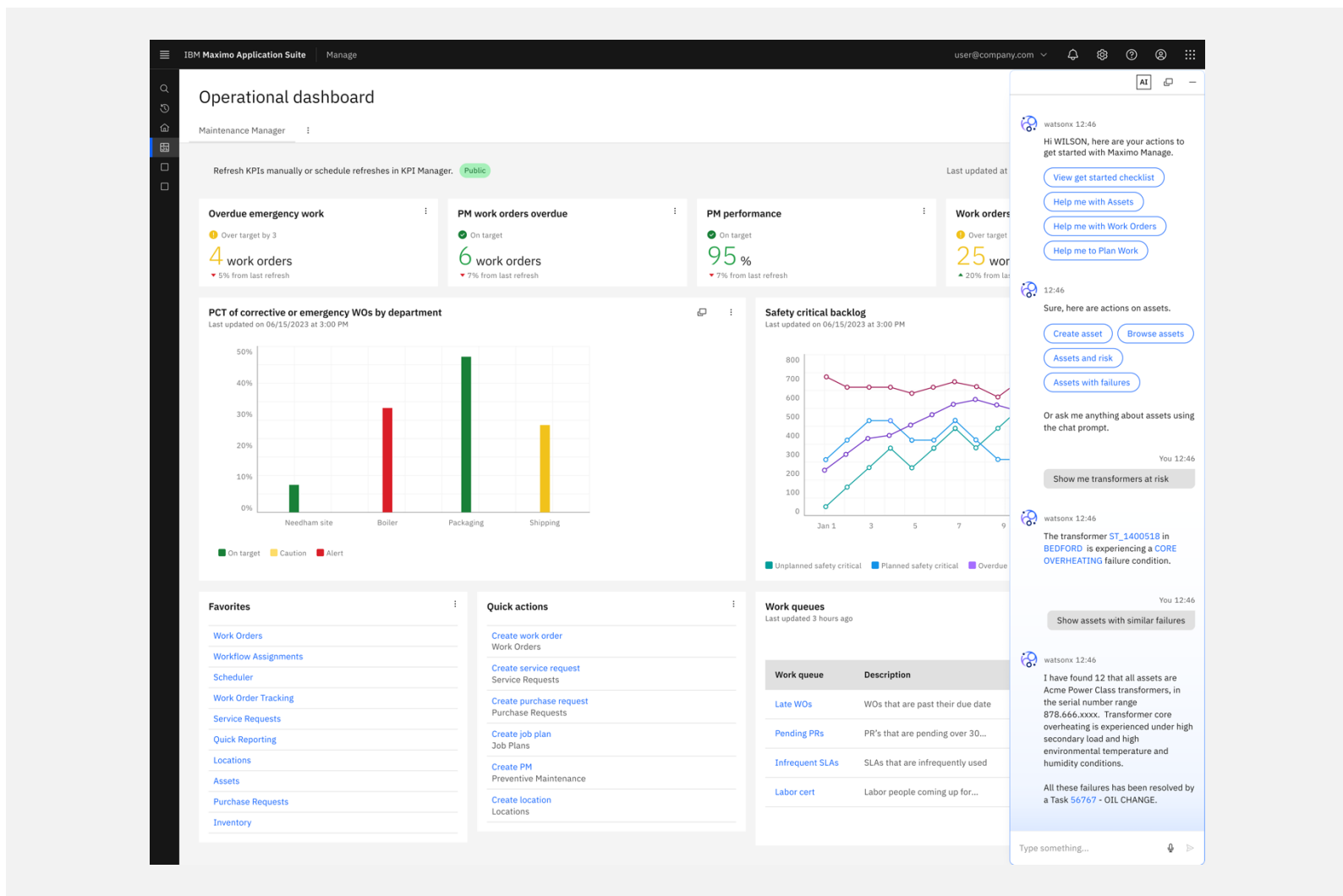
Types of use-cases

- Assistance in workflows
- Ad-hoc questions and answers
- Automation with actions
- Instrumentation using prompts

Designing a Conversation Experience

The Maximo Conversational AI should be designed as

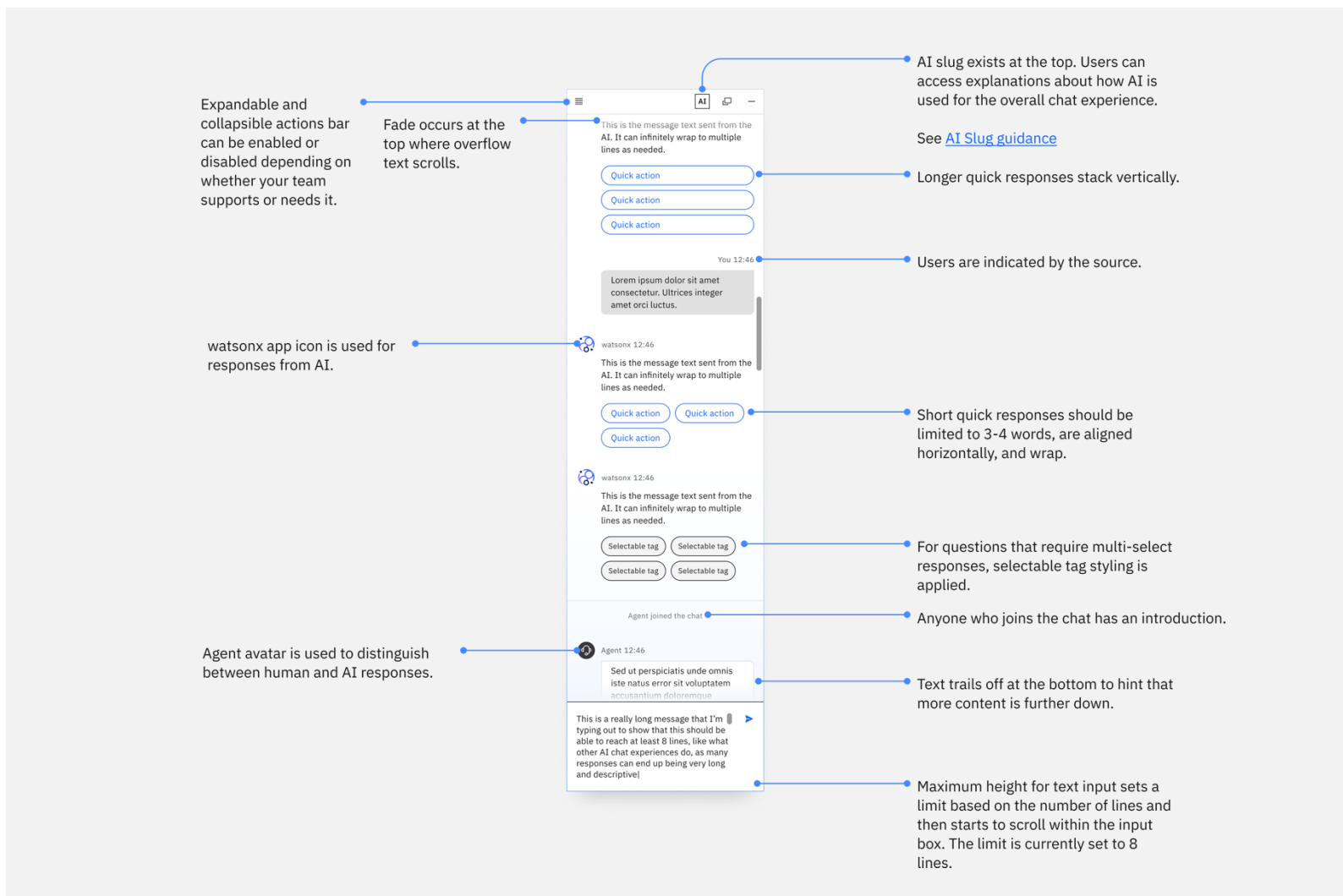
- Integrated
- Responsive
- Contextual
- Summarizing
- Refining
- Guiding



Designing the Interface Experience

The Maximo conversational AI is based on the IBM AI standards.

- Carbon for AI
- AI Chat Component
- watsonx Assistant
- watsonx Orchestration



Conversational AI Designs

The screenshot shows the IBM Maximo Application Suite interface. On the left is a form for creating or editing an asset, with fields for Asset, Site (BEDFORD), Status (NOT READY), Type, Asset Template, Linear?, Parent, Location, Bin, Rotating Item, Condition Code, Meter Group, Usage, Service Address, and City. A red box highlights an 'Invalid Binding' error. On the right is a conversational AI chat window with a blue header. The chat contains several messages from 'watsonx 12:46' and 'You 12:46'. The AI messages provide instructions and offer buttons for actions like 'View get started checklist', 'Help me with Assets', 'Create asset', 'Browse assets', 'Create assets in bulk', 'Open asset editor', 'Open Meters', 'Open Specifications', and 'Open Work'. The chat also displays a CSV template file 'Assets.csv' and a list of 12 new assets created from a file.

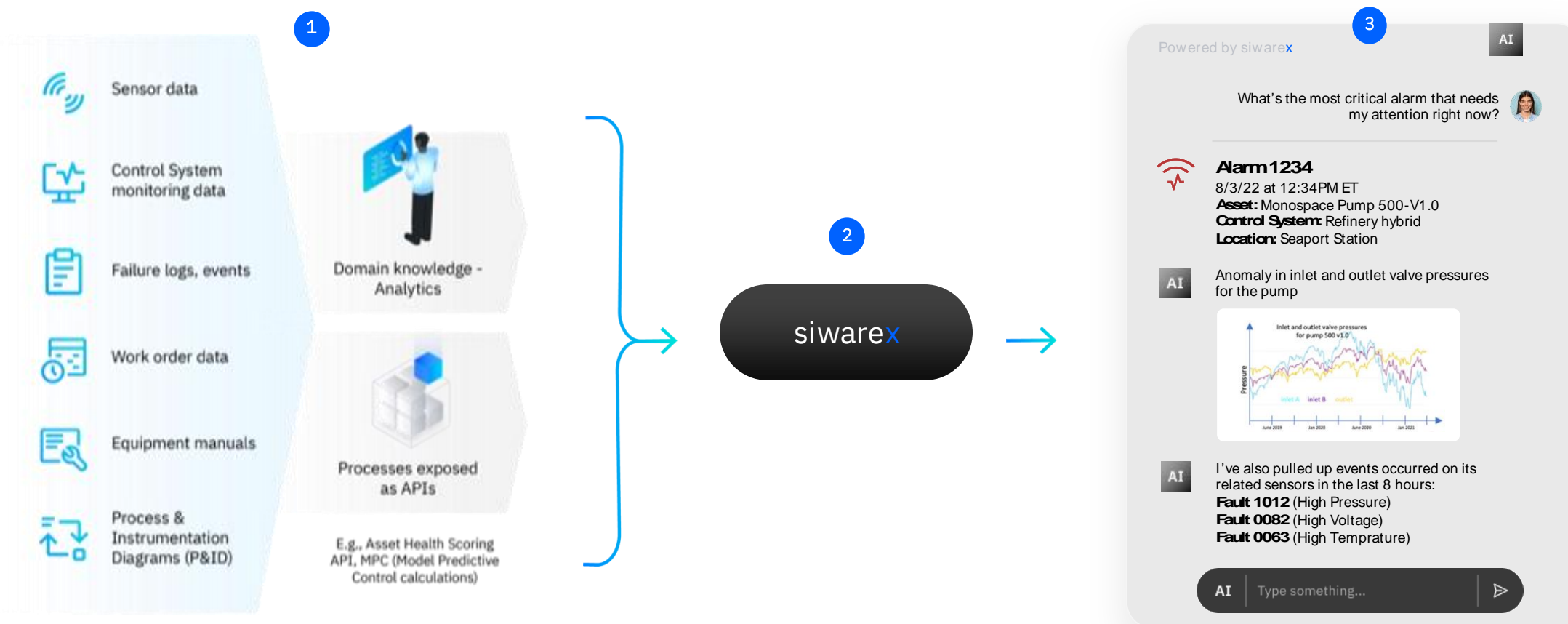
This screenshot shows a conversational AI chat window. The AI message says: "Sure, here are actions on assets." and offers buttons: "Learn how to get started", "Create asset", "Browse assets", "Create assets in bulk", "Help me with Assets", "Help me with Work Orders", and "Help me to Plan Work". The user responds: "This is a CSV template for specifying you new assets to be imported." and uploads a file named "Assets.csv". The AI confirms: "Your file has been uploaded." and offers a button: "transformers.csv". The user then says: "I found 12 new assets in file. Choose the import action if you want to complete the bulk creation." and the AI offers a button: "Bulk create assets".

This screenshot shows a conversational AI chat window. The AI message says: "Hi WILSON, here are your actions to get started with Maximo Manage." and offers buttons: "View get started checklist", "Help me with Assets", "Help me with Work Orders", and "Help me to Plan Work". The user asks: "Or ask me anything using the chat prompt." and the AI offers a button: "Show me all transformers at risk". The user then asks: "The transformer ST_1400518 in BEDFORD is experiencing a CORE OVERHEATING failure condition." and the AI offers a button: "View assets with similar failures". The user asks: "I have found 12 that all assets are Acme Power Class transformers, in the serial number range 878.666.xxxx. Transformer core overheating is experienced under high secondary load and high environmental temperature and humidity conditions." and the AI offers a button: "Show these assets in a list view".

This screenshot shows a conversational AI chat window. The AI message says: "The transformer ST_1400518 in LITTLETON is experiencing a CORE OVERHEATING failure condition." and offers buttons: "Start diagnostics" and "Create a PM work order". The user asks: "Let's get to work." and the AI offers a button: "Start diagnostics". The user asks: "In BEDFORD, the Acme Power Transformer ST_1400518 has measured core overheating due to high average output voltage 5 times over the last day. Last PM was 2 months ago and next PM is planned in 2 weeks. Immediate inspection and maintenance are required to diagnose and address the root cause of these issues and prevent disruptions to operations." and the AI offers buttons: "View maintenance history" and "View assets with similar failures". The user asks: "Prescribed tasks are OIL TEST, INSULATION RESISTANCE, INCITING CURRENT." and the AI offers a button: "Show the secondary side of the transformer.". The user asks: "Here is a graph of the secondary side of the transformer." and the AI displays a line graph showing a fluctuating signal over time.

Siwarex – Situational Awareness using GenAI

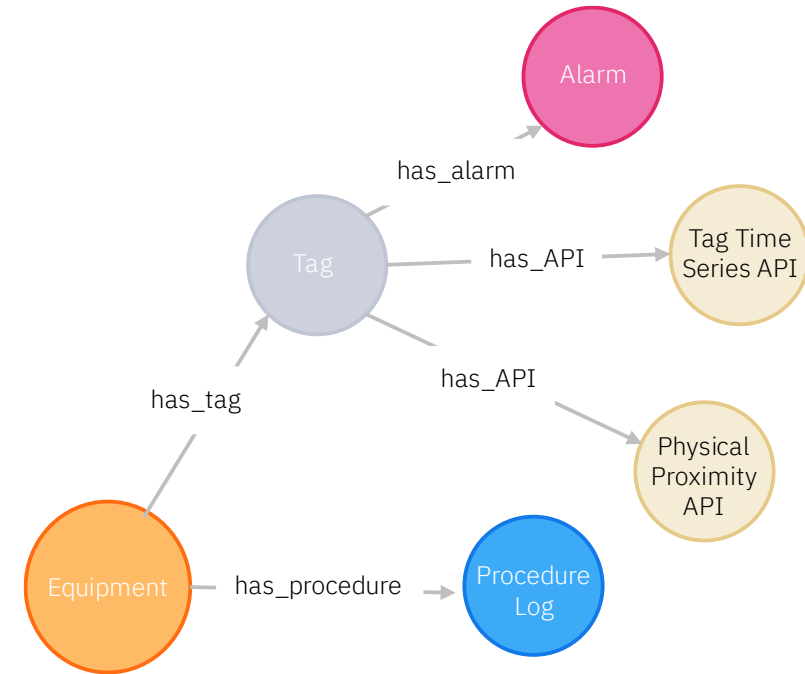
Objective: Enable out-of-the-box conversational assistant for a domain



Siwarex – Input is the Maximo schema

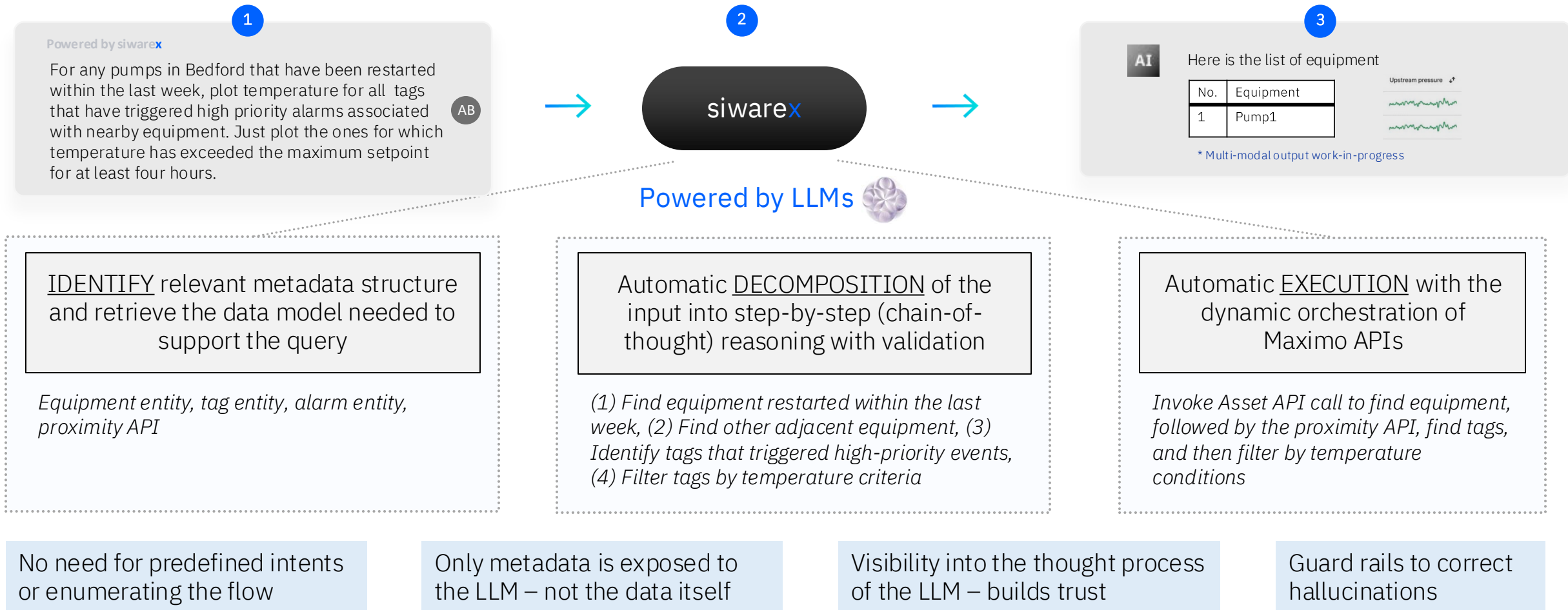
Represent the domain metadata (data, knowledge, analytics, etc.) in a knowledge graph. This representation can be input using an authoring UI or discovered.

If a knowledge graph already exists, that can be leveraged.

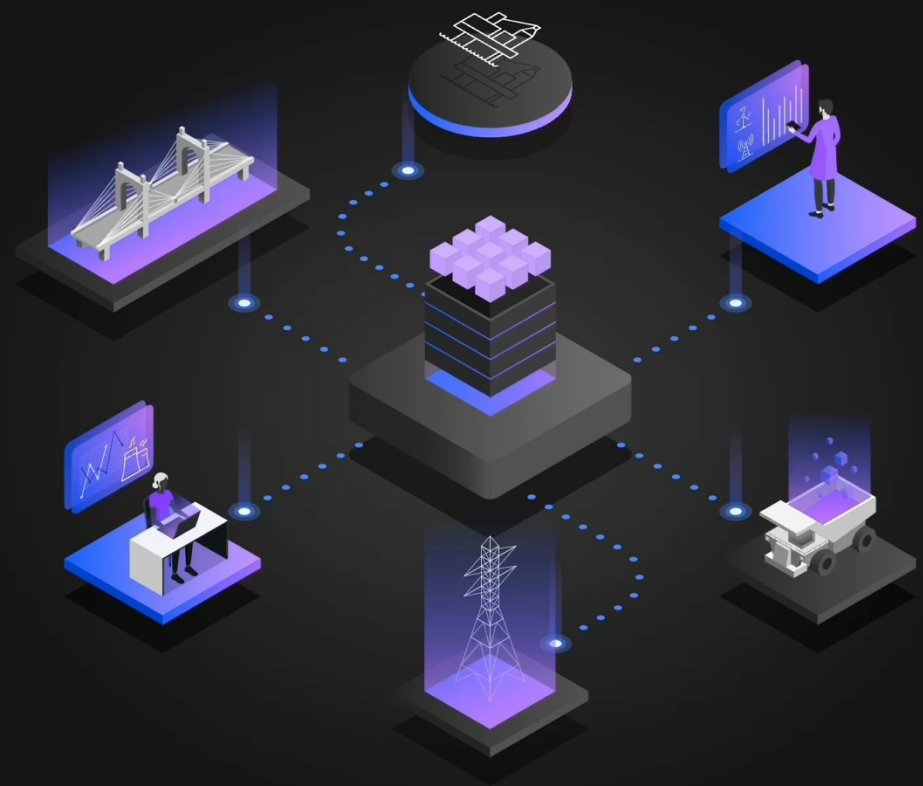


Example: Four entities in the system, and two APIs. Each node (entity or API) has information about persistence, that is, where is the information stored (details of data store, or API spec)

Siwarex – Processing a query



Demo



Log in to IBM Maximo Application Suite

Continue with local account

Username
maxadmin

Password
.....

Log in →

Remember username

[Forgot password?](#)

Alternate login options

[Log in with Default LDAP Configuration](#) →

Be a part of the team

We are ending this session with a collaborative exercise.

Three collaborative tasks at the boards:

1. Nominate your **high value prompts**.
2. Call out the **benefits and challenges** in adopting generative AI
3. Sign up for a **'meet and talk'** or become a sponsor

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