

IBM Maximo

Maximo Assist

Bring your technician
productivity and engagement
to the next level



What is Different Now?

Equipment is Becoming Smarter, More Sophisticated and More Connected



More Digitized Information
About Equipment is Available
through IoT, Digital Twin, etc.



Operational and
Maintenance Data exists
across multiple systems



Cloud Computing & Big Data
Allow Massive Amounts of
Information to be Aggregated

Changing workforce requires next-generational technology



Aging Workforce and Loss
of Tribal Knowledge



Smaller labor pool, digital
native audience expects
consumer-grade tech



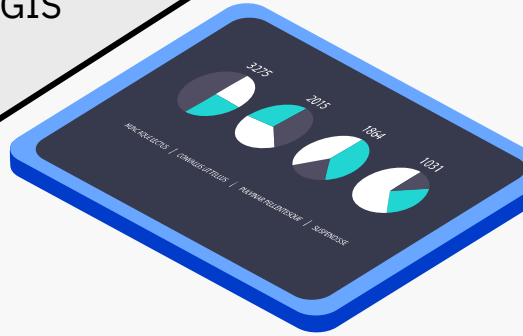
AI Technology is accessible
to the technicians to help
increase productivity

Continuum of technician tooling

IoT devices
(e.g.: wearables, beacons)
AI assistance
Conversational UI
Augmented reality

Tablets
Smartphone
GPS and GIS

Pen and Paper



Most customers are still:

- Pen and paper world
- High mean time to repair
- No standardized repair processes
- Unnecessary repair and parts replacement

IBM Maximo Assist leverages next-gen technologies to help technicians perform their job more **effectively, accurately and safely**

20%-40%

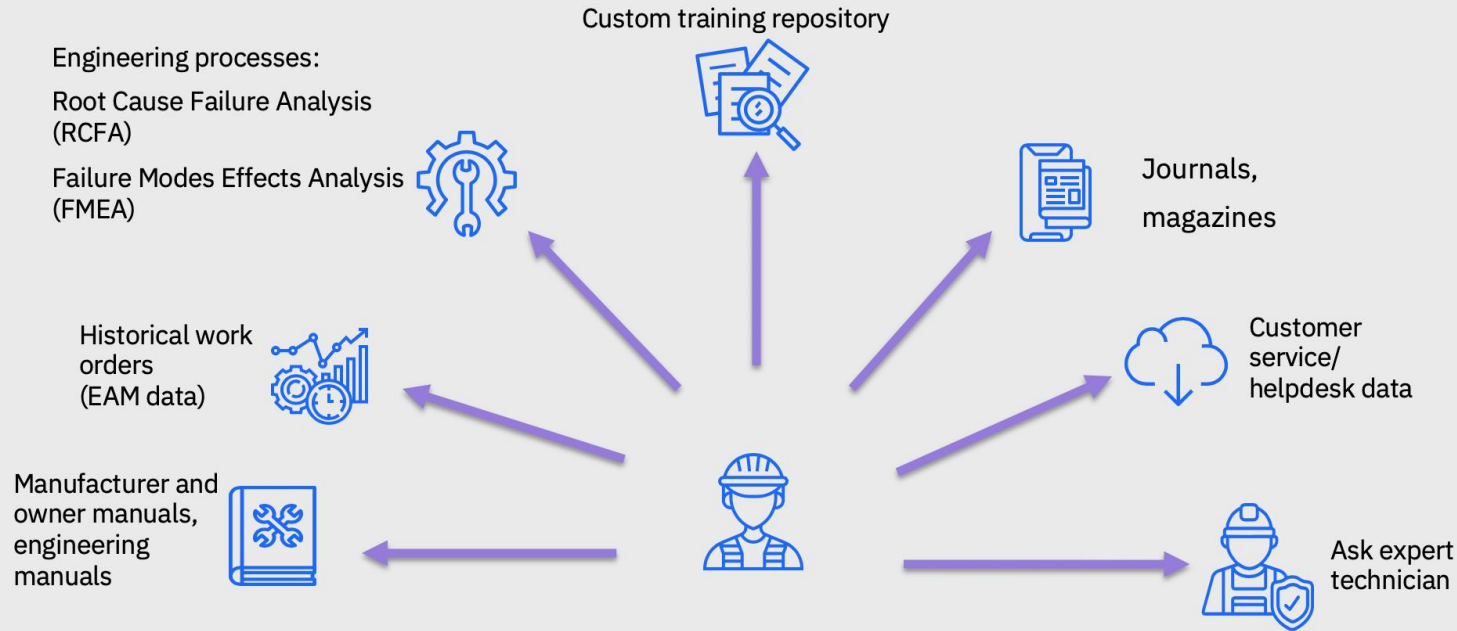
Increased
Productivity and First
Time Fix

50%- 75%

Reduced Training Costs

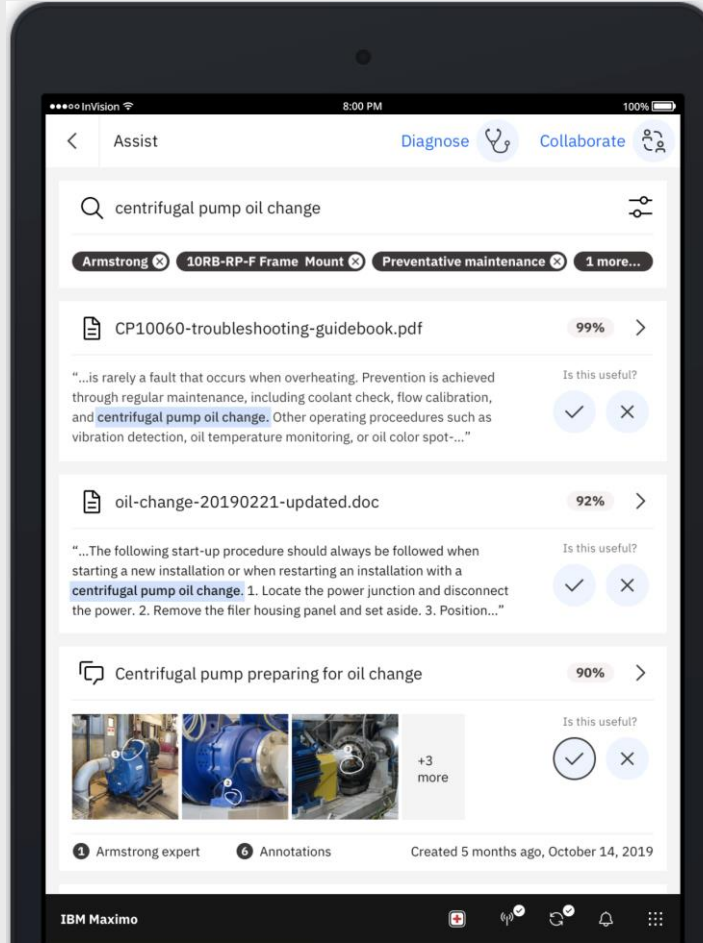
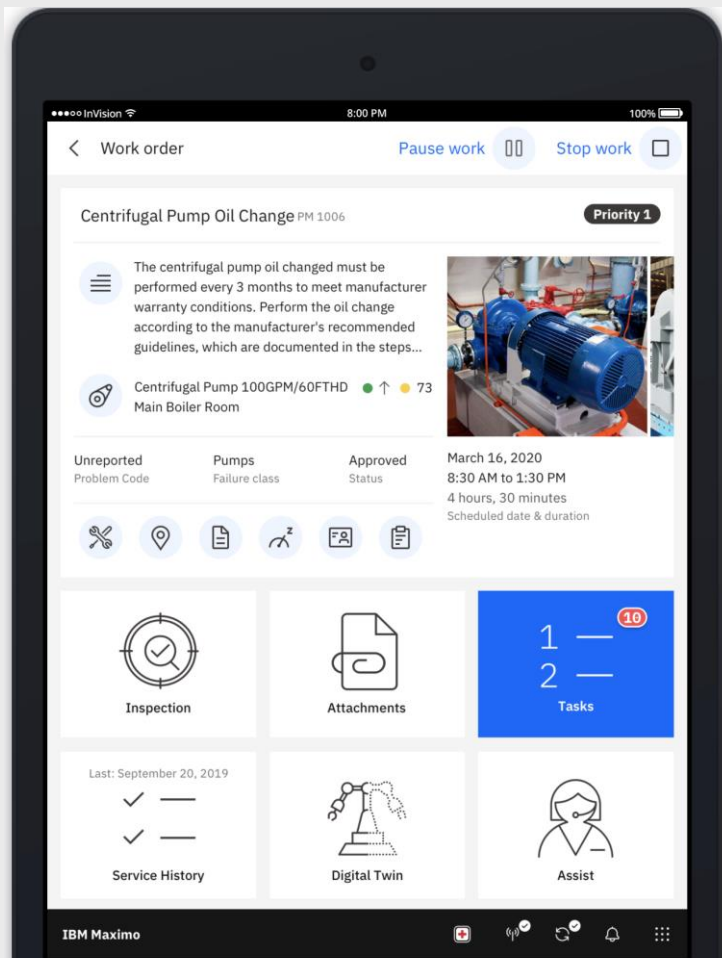


Empower technicians to work autonomously by enabling them to obtain **AI guidance or remote expert assistance** whenever they need it



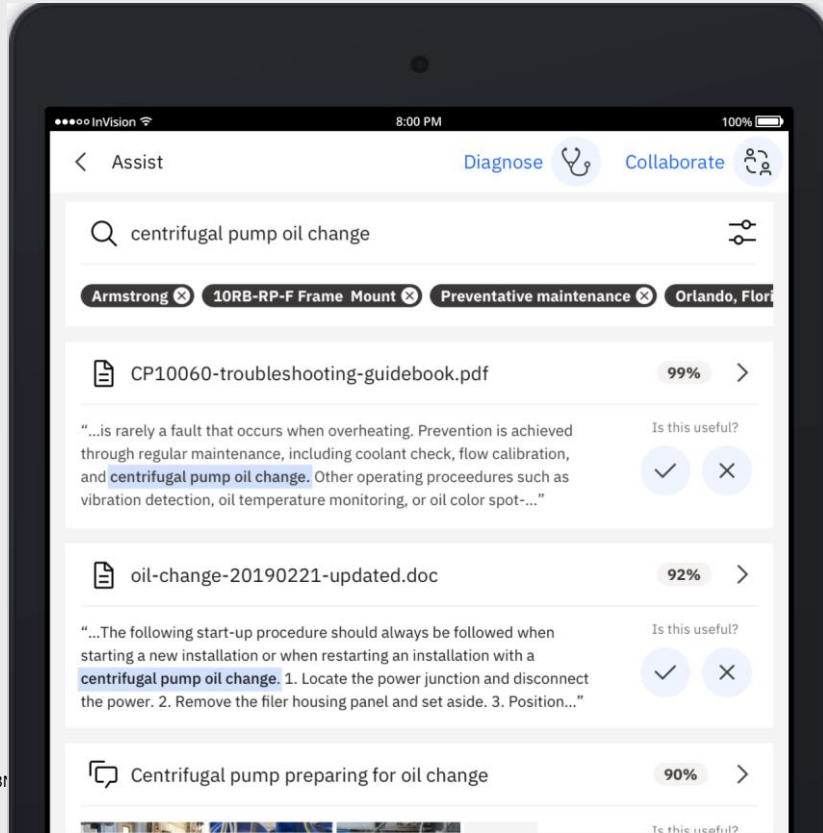
Benefits: Reduce mean time to repair, boost first time fix rates, improve technician productivity

AI assistance at any point during work order execution

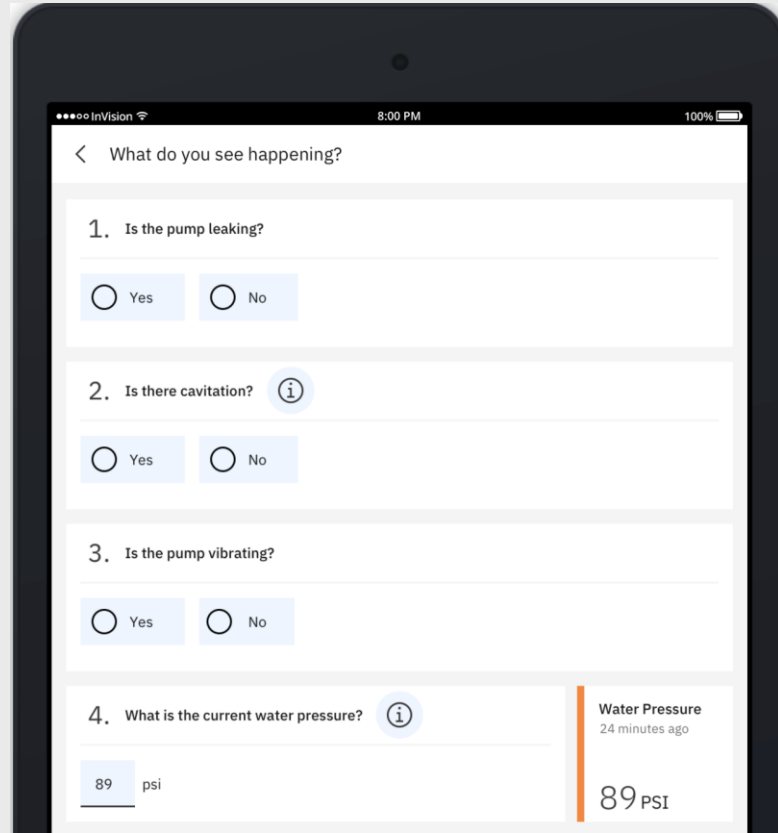


AI assistance via two key modes

Natural language query



Problem diagnosis and troubleshooting



AI-Powered Guided Troubleshooting



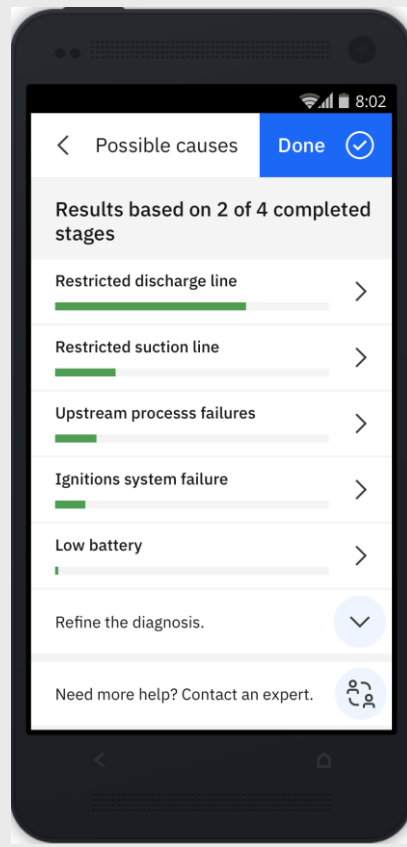
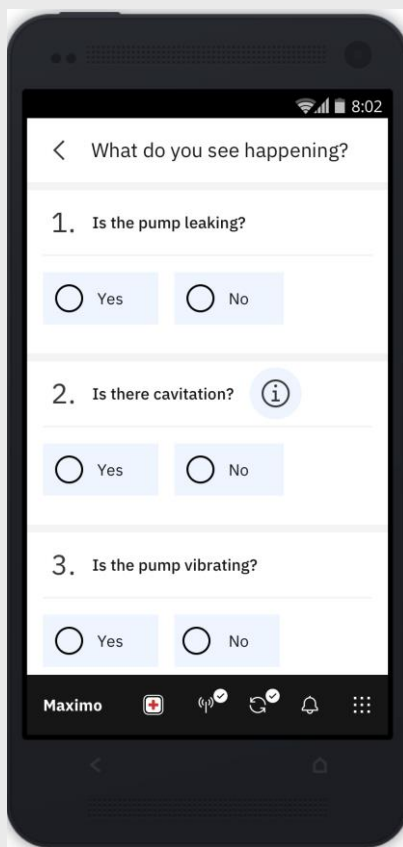
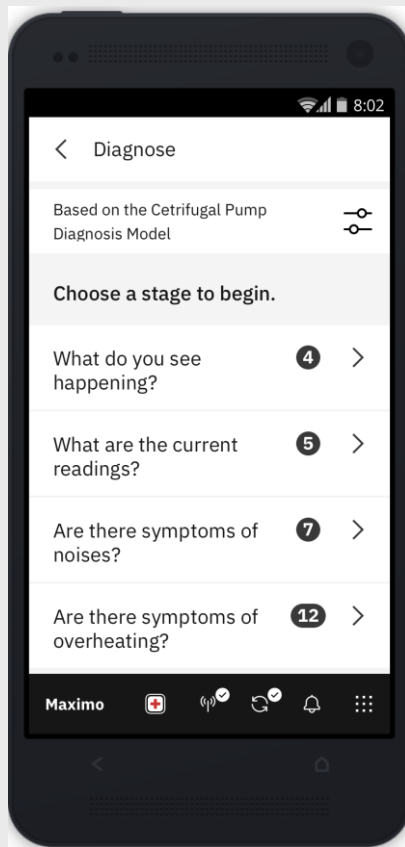
Help every technician **troubleshoot and solve problems** like your best technician



Intuitive, guided process to ensure technicians can fix even **high-complexity equipment problems**

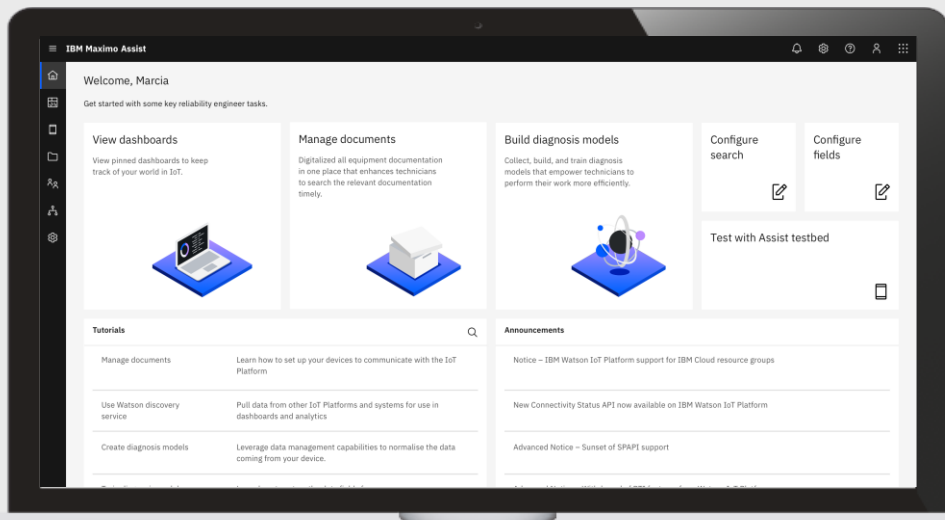


Execute the repair with **no unnecessary parts or additional dispatches**

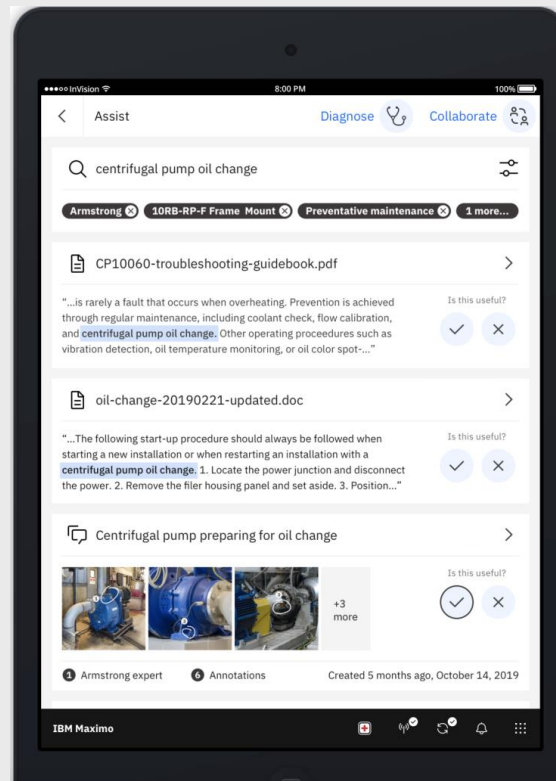


No Data Science Skills Needed and Reimagined Mobile UX

Assist Studio



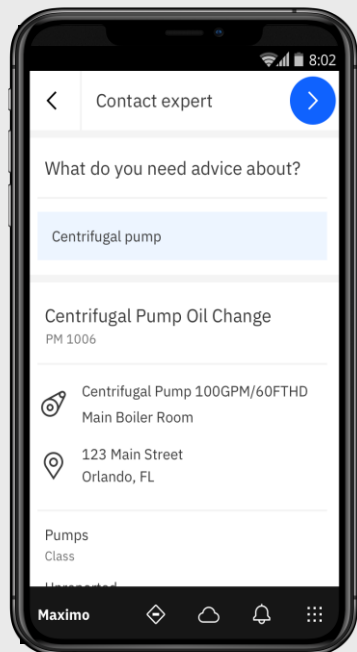
Assist Mobile Application



Augmented-Reality Enabled Remote Expert Collaboration

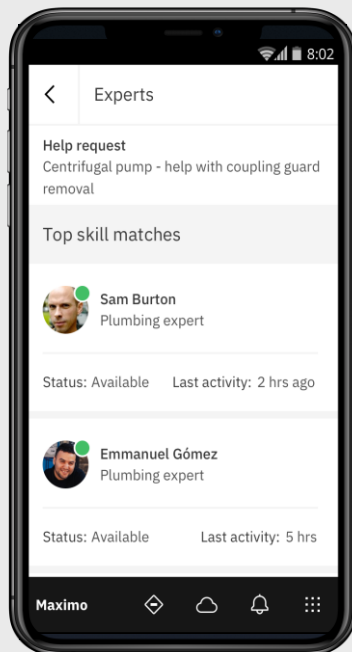
1. Seek advice

Seek advice and contact expert with work order details in context



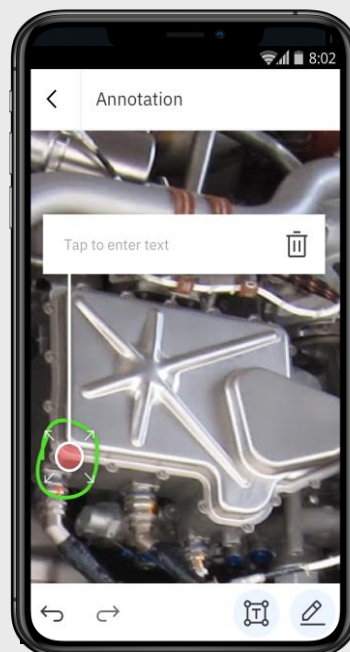
2. Collaborate

Collaborate with an expert based on areas of expertise



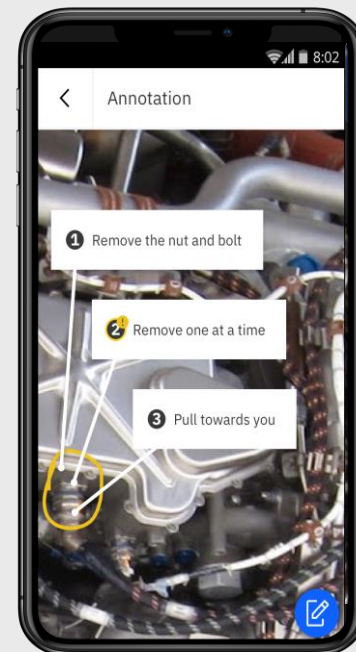
3. Guide

Annotate, diagnose and get guidance via Augmented Reality

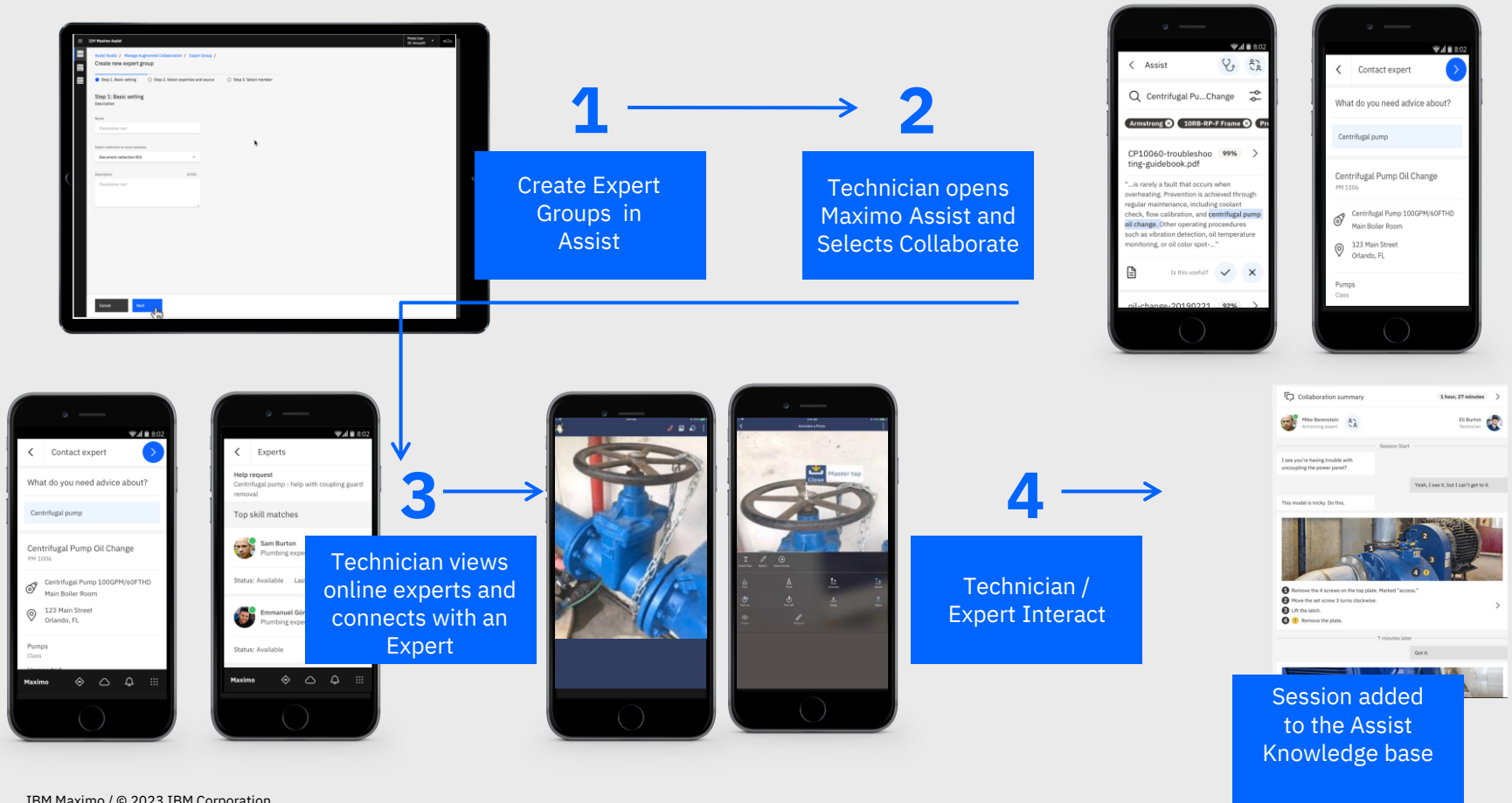


4. Fix & learn

Fix and learn while saving sessions for reference and training



End to End Remote Collaboration Workflow



Empower your experts and scale tribal knowledge seamlessly



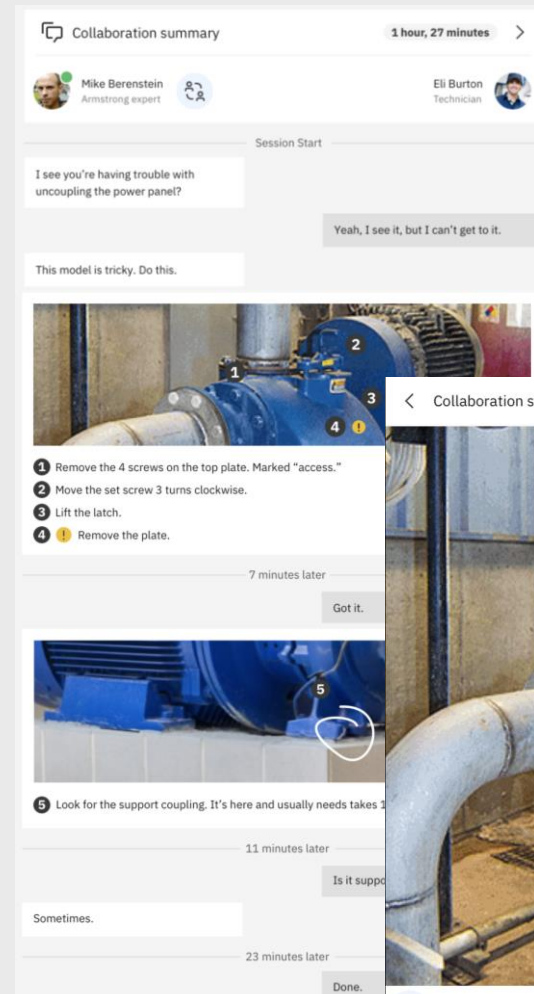
Session history **attached to the Maximo work order** for future reference and added to AI knowledge base



Capture your tribal knowledge and make it searchable next time a similar incident occurs



Enhance experience for new technicians by giving them tools to **do the right fix the first time**



How does it work?



Refine & Train model

Triggers

**IBM
maximo**

Work
History

Work assigned
to technician

Responses /
Recommendations

Questions

Maximo Assist



Get Recommendations

Examples:

- Assist provides most probable resolutions based on work order assigned
- Craftsperson can document other physical observations to have Assist refresh resolutions
- Troubleshooting guide
- Etc...

Ask questions

Examples:

- How do I check the motor starter overloads on Refiner Pump 1271?
- Cooling Water Pump VFD 57445 is displaying Failure Code FC002
- RTD #3 on Crusher Conveyor Motor #2 is reading 140 degrees C. What could be the problem? (Diagnosis)
- How do I change the bearings on High Pressure Compressor #8?
- Etc...

What kind of documentation does Maximo Assist ingest?



Manufacturer's manual
Owner's manual
Engineering manual with technical drawings



Engineering knowledge base:
Root-Cause Failure Analyses (RCFA)
Failure Modes & Effects Analyses (FMEA)



Technical Help Desk
Knowledge Base
User experience (used to train Watson)



Maintenance Repair Standards (e.g.
Maintenance steps, typical failure repair
steps, etc.)
Regulatory Standards documents
Maintenance Tool Specifications and
Standards of Use documentation



Journals
Magazines

What additional structured data sources can you query?



Work history

- Specific to the asset
- Specific to like assets at other locations
- Failure history of equipment
- Operator / Maintenance logs
- Metering Information



Incoming Maximo Work Order data

- Work Order #
- Equipment #
- Failure description
- Location
- Initiator / Contact Point
- Commentary / Logs
- Parts / Material / Tools
- Others



Metadata associated to

Equipment being serviced

- Equipment service history
- Failure modes
- Location
- Others...



IoT Sensor Data

(access to equipment sensor data)



Analytics output

(e.g. data lake or equivalent)

Australia's largest independent oil and gas company

Aging Workforce, 80% of time spent researching problem



Absorbed over 600,000 pages of documentation regarding drilling equipment



Time spent on researching reduced by 75% which equates to \$10 Million AUD worth of time savings



Client has successfully created a bridge for knowledge transfer from past to present



Reduce repeat and escalated visits, decrease mean time to action



Assist is being used for [mining haul trucks](#) by Komatsu and Caterpillar (>1000 trucks) for the PoC



Assist is being used to assist with [troubleshooting equipment issues](#), diagnosing equipment symptoms



Assist used as virtual assistant [to respond to actions related to the servicing of haul trucks](#) including both planned and unplanned maintenance to reduce time to action



Use peer assistance to help every technician perform like your best technician

Used AR peer collaboration and assistance for regular preventative maintenance, and **unscheduled maintenance activities**

Marked improvement in the **time to action for junior technicians**. In some cases junior technicians had the **same wrench time as experienced technicians**

Peer collaboration and Augmented Reality can help **reduce repair times by up to 50%**



Maximo Assist Benefits



Improve technician productivity



Boost first time fix rates



Reduce troubleshooting time



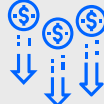
Reduce Training costs



Reduce Repair Costs



Maximize equipment uptime



Reduced overall maintenance costs



25%

Increase in First Time Fix



\$11.2M

Annual savings in cost avoidance from incorrect procedures and repeat failures



\$10M

Annual savings from reduced mean time to action

Moving Forward: Proven results in days or weeks, not years.

 Exec. Briefing	 Establish Mobile Strategy	 Production Proof of Concept	 Maximo Assist Deployment
2 Hours	2-3 Days	8-12 Weeks	3+ Months

