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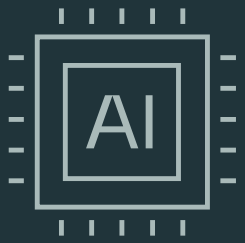
Power grid asset maintenance with Agentic AI



Utilities

Business challenge and opportunity

Electricity is an essential service that human lives and economies depend on. To maintain power grids in good working order, field technicians need real-time access to reliable information to locate grid assets and diagnose issues rapidly, before they cause widespread outages.

Utilities companies rely on Geographic Information Systems (GIS) to capture, manage and map assets to their exact physical location, yet the technology often contains inconsistent data. From the outset, as-installed generators, transmitters, pipes, cables and substations may not precisely align with the as-planned schematics. And over years of service, planned works or extreme weather events increase the likelihood of assets being relocated or even misplaced. Technicians may not have time to make a clear note of changes they uncover in the field, potentially leaving the next team member unable to find a grid asset.

Where technicians do record new asset positions or status¬—typically by submitting handwritten notes or photos—manual review and approval workflows can significantly delay updates to the GIS and other stores of information on assets. The ultimate result: delays in Mean Time To Repair (MTTR) and a less resilient electricity infrastructure.

With the right governance and security controls in place, agentic AI can help utilities companies eliminate guesswork for field technicians and deliver new insights to increase efficiency and maintain reliable electricity for customers.

Technical challenges

Utilities companies universally want to provide grid-asset information faster and more accurately but applying agentic AI can be technically challenging. Some barriers include:

1. **Siloed systems, data and teams restrict the orchestration of AI agents.**
2. **Lack of IT staff education leads to preference for rule-bound models over autonomous agents, reducing opportunities for innovative use cases.**
3. **Absence of internal expertise around AI prolongs transformation, leaving projects languishing at the proof-of-concept (PoC) stage.**
4. **Government regulation and internal governance demand auditable, human-in-the-loop workflows, yet IT teams lack the experience to know how and where to automate guardrails.**

Our solution

Using the Kyndryl Agentic AI Framework, Kyndryl helps leaders in the utilities industry:

- **Define success criteria for Agentic AI** to help support measurable ROI and move beyond PoCs.
- **Integrate disparate data sources** and bring together interdisciplinary teams to help agentic workflows reflect the needs of all stakeholders.
- **Cut manual approval backlog** with agents that rapidly ingest, analyze and interpret text and visual asset position information submitted by field technicians. Agents then provide summaries with a confidence score to human decision-makers for final validation.
- **Create a topological view of as-installed assets** to support field technicians in finding and evaluating assets quickly and reliably.
- **Enable proactive maintenance** by providing more accurate, rich data to schedulers through AI Agents, maintaining a dependable grid.
- **Prevent agentic drift and support regulatory compliance** through policy-as-code frameworks and clear guardrails around what each agent is designed to achieve.

Benefits you could achieve

Make grid asset maintenance a strategic lever for service excellence and compliance. Kyndryl's solution has the potential to deliver:

- **Resilient energy grid:** Reliable GIS data enables streamlined and proactive maintenance workflows, cutting MTTR, mitigating outage risk, and supporting customer satisfaction.
- **Standardized reporting:** Field engineers spend less time reporting repetitive information, and agentic data ingestion reduces human error, driving greater standardization.
- **Scalability with stable costs:** With AI Agents taking on the bulk of repetitive manual workflows, utilities companies can scale to meet fast-paced demand without allocating more resources.

One Kyndryl utility customer[1] already using our solution has:

- Significantly reduced GIS amendment backlog
- Standardized and enriched data for better insight into asset health
- Optimized its field technicians' schedules

Why Kyndryl?

With decades of mission-critical operations experience, we bring deep expertise in designing, building, and managing AI across complex IT estates.

The Kyndryl Agentic AI Framework brings together the right governance and security controls and human oversight to enable businesses to move beyond isolated pilots to integrated, intelligent systems. It combines secure, scalable agent orchestration with real-time observability and governance, powered by Kyndryl Bridge.

Through Kyndryl Consult, we align AI strategy with business outcomes. Kyndryl Vital provides proven user-centered design and rapid prototyping. And our trusted delivery experts support frictionless integration and help with reskilling and upskilling to build the foundation for success at scale.

We apply a forward engineering approach—using insights from existing systems to design and deploy future-ready AI agents and architectures that are adaptive, resilient, and scalable. Our method is grounded in open ecosystems, data sovereignty, and transparent decision-making.

And with a carefully selected alliance ecosystems—across cloud, data, and AI—we bring the right partners and technologies together to design fit for purpose solutions and orchestrate AI at scale without disrupting the business.

With Kyndryl, AI becomes a core capability—not just a tool—driving productivity, innovation, and growth.

Accelerate your journey to AI-native

Our AI Benchmark Assessment provides a maturity snapshot and personalized roadmap for accelerating the value of AI in your organization.

Take the assessment →

What's your enterprise vision for AI? Let's co-create it together.

Talk to an expert →

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