

AI for LDC Operations: InnPower's Experience, Lessons and Risk Mitigation

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What AI Means to InnPower

What is AI?

- Simulation of human intelligence by machines – includes learning, simulated reasoning, and decision-making.

AI in Utilities

- Used for asset health scoring, outage prediction, grid optimization, customer service, workflow automation etc.

Works Well with Unstructured Data

- Can analyze inspection images, sensor data, handwritten notes, and work orders to find patterns.

Dependent on Data, Not Independent Thought

- AI doesn't "think" for itself – it processes and learns from the data it's given.

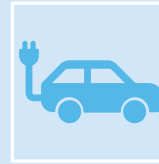
AI Complements Human Expertise

- Enhances decision-making by identifying trends and insights too complex or large for humans to manually process.

Why We Started



Rising operational pressures from a growing service area (new subdivisions, businesses, and industries)



Increasing complexity of the distribution grid, adding distributed energy resources (DERs), electric vehicle loading, and climate impacts



Need for scalable, data-informed decisions to maximize resources and control future maintenance and renewal costs



Strong appetite from employees – enhance employee experience, make jobs easier and leverage more skill and creative work instead of redundant work

Governance and Policy

Element	Description
Oversight Structure	Cross-functional AI Oversight Committee includes IT, Executives, and Department Managers.
Policy Development	Formal policy established to guide when and where AI can be deployed. Continually reviewed due to rapidly evolving landscape.
Roles & Responsibilities	Defined owners for AI review, approval, monitoring, and escalation of issues.
Governance Approach	Differentiation between Open AI (public, general models) and Closed AI (internal, purpose-built models).
Review Cycle	Full governance review scheduled every 6 months, including updates to reflect new risks or opportunities.
Approval Status	Policy formally approved with full support and buy-in from the Board of Directors and employees.



Privacy

Start Slow, Scale Smart

- Take a phased approach to AI adoption with controlled pilots and clear success metrics.

Avoid Ingesting Customer or Private Information

- Exclude personal identifiers (e.g., names, account numbers, addresses) unless necessary and anonymize data where possible.

Minimize Direct Platform Integration

- Limit API or real-time connections between internal systems and external AI platforms to reduce exposure.

Use Secure, Segregated Datasets

- Train and test AI models using isolated data environments, especially for sensitive utility operations.

Conduct Privacy Impact Assessments

- Review all AI use cases for potential privacy risks and regulatory compliance.

Restrict Access & Maintain Audit Trails

- Ensure only authorized personnel access AI outputs, and maintain detailed logs of data usage and decision support history.

Safeguards – Measures to Mitigate Risk



Validation procedures to match AI's output against historical or predicted data



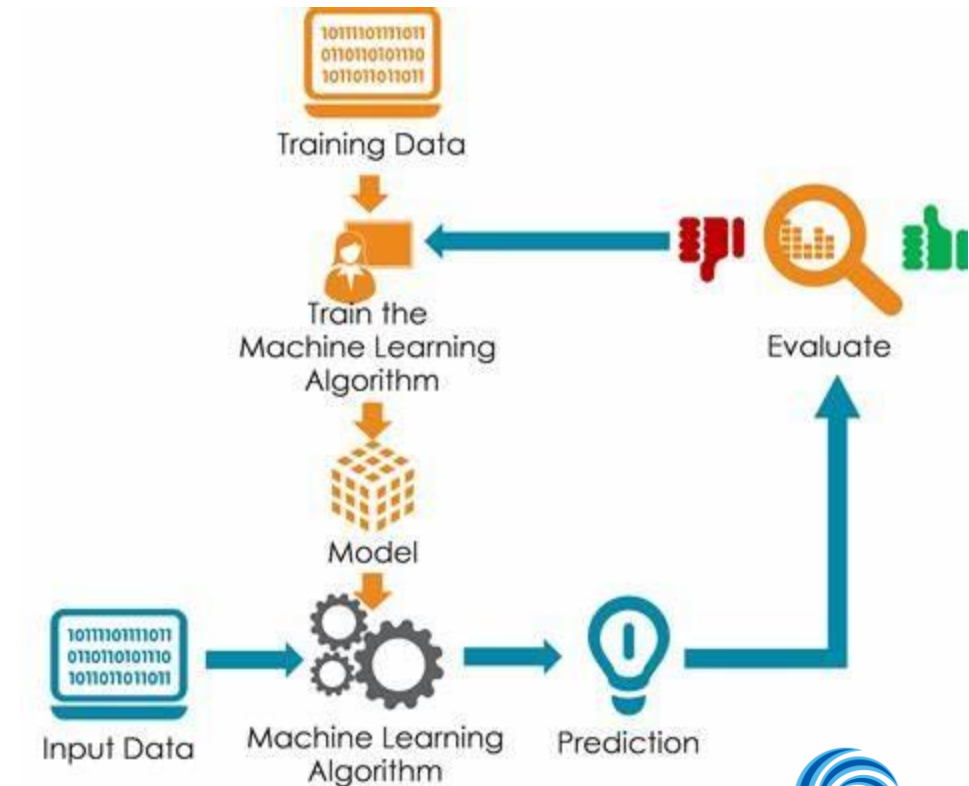
Access controls to restrict who can view or approve recommendations



Approval gates to allow engineers to review and approve recommendations manually



Continuous oversight reports — variance reports to highlight abnormalities



Workflows – Integrating Into Eng/Ops



SenPilot AI Project Recommendations

Review and Approval by Engineer

Project initiation in Quadra

Post-project data feedback loop

Data Positioning – Why Your Data Matters

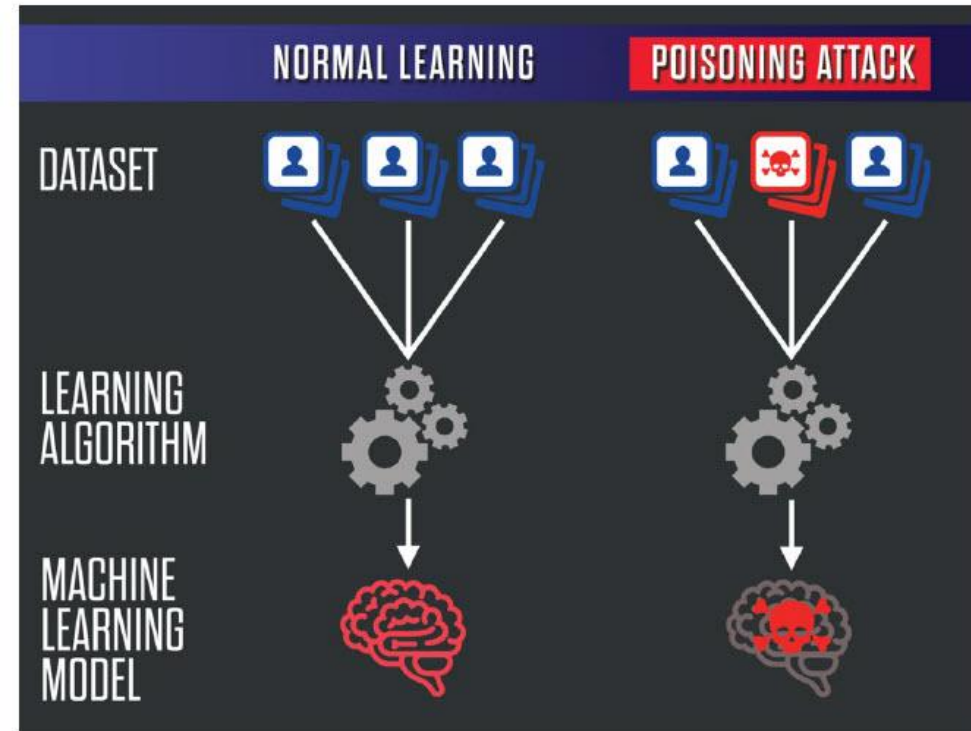


Data Poisoning – Rising Risk

Data Poisoning: when faulty or manipulated data feeds into the algorithm, causing unreliable or incorrect recommendations

Could come from sensor faults, bad maintenance reports, or even cyber attacks

If undetected, this could undermine decisions and diminish confidence in the tool





Change Course – Lessons Learned

Validation Checks

We implemented additional validation checks to flag anomalies in data

Documentation

Established procedures to revert to manual judgment if algorithm signals were unreliable


Training

Continuous training for engineers to interpret AI output and spot abnormalities

Support Tool


Culture of collaboration and vigilance — not blind reliance as AI is not a silver bullet

Big Wins To Date

 **Quantitative Benefits** - Improved efficiencies, reduced costs, and minimized outages through predictive models.

 **Qualitative Benefits** - Builds team trust, allows teams to make faster and smarter decisions.

 **Asset Prioritization** - Helps asset teams focus on the right renewal/maintenance tasks at the right time.


 **Operations Team Confidence** - Empowered by data-driven recommendations to take quicker, more informed actions.


 **Internal AI Server (Cyber)** - Detects anomalies & patterns securely, without external exposure.

Future Potential


 **Climate Resiliency** - Models climate impacts and helps harden infrastructure.

 **Outage Prediction** - Forecasts outage risks and guides proactive action.

 **Grid Expansion Planning** - Supports long-term infrastructure development decisions.

 **Image Recognition** - Automates inspection workflows, e.g., pole condition or vegetation encroachment.

 **Contractor Quality Control** - AI verifies contractor compliance and workmanship.

 **Customer Service Excellence** – Enhanced CSR support and scripting for real-time customer data analysis.



Thank You

Please remember, the AI journey is going to be different for every company and every department. Take the comfortable amount of time and steps to ensure you are prepared for the journey.