

CONFIDENTIAL — REFERENCE SCENARIO

# Operational Risk Diagnostic

Hartline Manufacturing Co. — Dayton, Ohio

Assessment Period: March 2026 | Engagement Type: Fixed-Fee, 10 Business Days

Prepared by:

**Noctua Logic, LLC**

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*This document is a demonstration scenario created for reference purposes. Hartline Manufacturing Co. is a fictional organization. All findings, scores, and recommendations are illustrative of the Noctua Logic Operational Risk Diagnostic methodology.*

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# What we found at Hartline Manufacturing

Hartline Manufacturing Co. is a \$85M precision metal components manufacturer with 340 employees operating out of Dayton, Ohio. Leadership has directed the organization to evaluate and adopt AI capabilities in response to a competitor announcement. This diagnostic was conducted to assess whether the current operating environment can safely and reliably support that initiative.

The assessment identified meaningful operational risk across four domains: infrastructure stability, observability and monitoring, AI integration readiness, and governance. In each area, the current environment has gaps that — if left unaddressed — will predictably produce failures, increased operational cost, and reduced confidence in AI-enabled systems under production conditions.

Infrastructure Stability	42 / 100	HIGH
Observability & Monitoring	31 / 100	HIGH
AI Integration Readiness	28 / 100	HIGH
Governance & Policy	35 / 100	HIGH
<b>Overall Operational Readiness</b>	<b>34 / 100</b>	<b>HIGH</b>

The overall readiness score of 34/100 indicates that Hartline's current environment is not prepared to support AI adoption at the pace leadership has indicated. Proceeding without remediation carries meaningful risk of operational disruption, security exposure, and failed AI initiatives that will be difficult and expensive to recover from.

# Infrastructure Stability

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**Score: 42 / 100 — Risk Level: HIGH**

Hartline's infrastructure reflects years of organic growth without a structured modernization plan. On-premise systems running ERP and production management software are operating on hardware that is past recommended lifecycle. Azure adoption is partial and inconsistent — some workloads have been migrated, others remain on-premise with no clear migration path. The result is a hybrid environment that is difficult to support, poorly documented, and fragile under load.

**Critical finding:** Core ERP system running on hardware that is 7+ years old with no redundancy. A single hardware failure would halt production operations.

**Critical finding:** No documented disaster recovery plan. Recovery time objectives have never been defined or tested.

**Significant finding:** Azure environment configured without a landing zone or governance baseline. Resources are deployed inconsistently across subscriptions.

**Significant finding:** Network segmentation between OT and IT environments is informal. Manufacturing floor systems have broader access than is appropriate.

**Moderate finding:** Patch management is manual and inconsistent. Several systems are running software versions with known vulnerabilities.

## Recommended actions

- Define and document recovery time objectives for all critical systems
- Establish Azure landing zone with consistent governance baseline before additional cloud migration
- Implement formal network segmentation between OT and IT environments
- Develop and execute a structured patch management process

# Observability & Monitoring

Score: 31 / 100 — Risk Level: HIGH

Hartline has minimal visibility into the health and behavior of its current systems. Monitoring is largely reactive — issues are typically identified by end users before IT is aware. There is no centralized logging, no defined alerting thresholds, and no telemetry strategy. In this state, adding AI-enabled systems would create operational blind spots that are nearly impossible to manage safely.

**Critical finding:** No centralized logging platform. Logs are siloed per system with no aggregation, correlation, or retention policy.

**Critical finding:** No alerting thresholds defined for any core system. IT learns of outages from user reports, not monitoring tools.

**Critical finding:** No telemetry coverage for Azure workloads. Cloud resources are running without operational visibility.

**Significant finding:** No defined SLOs or reliability targets for any business-critical system.

**Significant finding:** Incident response relies on tribal knowledge. No documented runbooks or escalation paths.

## Recommended actions

- Implement centralized logging with defined retention and access policies
- Define SLOs for all business-critical systems and configure alerting accordingly
- Deploy Azure Monitor and establish telemetry baseline for all cloud workloads
- Document incident response runbooks for the five most common failure scenarios

# AI Integration Readiness

Score: 28 / 100 — Risk Level: HIGH

Hartline has expressed intent to adopt AI for production scheduling optimization and material waste reduction — the same use cases their competitor has publicized. The current environment is not prepared to support either use case safely. Data quality, access controls, integration architecture, and operational ownership are all undefined. Proceeding with AI implementation in the current state would produce unreliable outputs and expose the organization to operational and security risk that leadership has not yet quantified.

**Critical finding:** Production data required for AI use cases is siloed across ERP, MES, and spreadsheets with no unified data model or quality controls.

**Critical finding:** No data classification policy. AI systems would have no guardrails around what data they can access or process.

**Significant finding:** No defined ownership for AI outputs. If the model produces a bad scheduling recommendation, there is no process for catching or correcting it.

**Significant finding:** No vendor evaluation framework. Tool selection appears to be driven by marketing exposure rather than operational fit.

**Moderate finding:** IT team has no AI implementation experience. External support will be required for any meaningful deployment.

## Recommended actions

- Establish a unified data model and data quality baseline before any AI initiative begins
- Define and implement a data classification policy covering all data sources AI systems will touch
- Assign clear ownership for AI outputs and define the human review process
- Develop a structured vendor evaluation framework tied to operational requirements

# Governance & Policy

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**Score: 35 / 100 — Risk Level: HIGH**

Hartline has no formal AI governance framework and limited IT governance overall. Policies that exist are outdated and inconsistently enforced. There is no defined process for approving new technology initiatives, no risk ownership structure, and no framework for evaluating or managing the risks introduced by AI-enabled systems. Leadership is making AI adoption decisions without the governance foundation required to do so safely.

**Critical finding:** No AI governance policy exists. There are no defined rules for how AI systems are evaluated, approved, deployed, or monitored.

**Critical finding:** Risk ownership is undefined. No individual or function has been assigned accountability for AI-related operational or security risk.

**Significant finding:** Existing IT policies have not been reviewed in 3+ years and do not address cloud or AI environments.

**Significant finding:** No change management process for technology initiatives. Changes are made without formal review or rollback planning.

**Moderate finding:** Leadership has not been briefed on the specific operational and regulatory risks associated with AI adoption in a manufacturing environment.

## Recommended actions

- Develop and adopt a formal AI governance policy before any production deployment
- Assign clear risk ownership for AI initiatives at the leadership level
- Review and update IT policies to address cloud and AI environments
- Establish a change management process with formal review and rollback requirements

## RISK SUMMARY

# Operational Risk Heatmap

The table below summarizes the 18 findings from this diagnostic by domain, severity, and recommended priority.

Aging ERP hardware with no redundancy	Infrastructure	Critical	Immediate
No disaster recovery plan	Infrastructure	Critical	Immediate
No centralized logging	Observability	Critical	Immediate
No alerting thresholds defined	Observability	Critical	Immediate
No Azure telemetry coverage	Observability	Critical	Immediate
Siloed production data, no unified model	AI Readiness	Critical	Immediate
No data classification policy	AI Readiness	Critical	Immediate
No AI governance policy	Governance	Critical	Immediate
No risk ownership assigned	Governance	Critical	Immediate
Azure without governance baseline	Infrastructure	Significant	30 days
OT/IT network segmentation gaps	Infrastructure	Significant	30 days
No SLOs or reliability targets	Observability	Significant	30 days
No incident response runbooks	Observability	Significant	30 days
No AI output ownership defined	AI Readiness	Significant	30 days
No vendor evaluation framework	AI Readiness	Significant	30 days
Outdated IT policies	Governance	Significant	30 days
No change management process	Governance	Significant	60 days
Inconsistent patch management	Infrastructure	Moderate	60 days

# What leadership needs to know

## The core message

Hartline Manufacturing has a genuine opportunity to use AI to improve production efficiency and reduce material waste. That opportunity is real. The competitive pressure is real. The leadership directive is appropriate.

What is also real is that the current operating environment is not ready to support it safely.

## The risk in plain language

- Moving forward without remediation will produce AI failures that are difficult to diagnose and expensive to fix
- Security gaps in the current environment will become larger attack surfaces once AI systems are connected
- Without observability, leadership will not know something has gone wrong until it affects operations
- Without governance, there is no clear accountability when AI-enabled decisions produce bad outcomes

## The recommended path

Hartline does not need to abandon its AI ambitions. It needs to sequence them correctly. A structured 90-day remediation effort focused on the nine critical findings identified in this diagnostic would position the organization to begin AI implementation with confidence — and with the operational foundation required to make it hold up under production conditions.

### Recommended next steps

01	Address nine critical findings — infrastructure, observability, AI readiness, and governance	0–30 days
02	AI Architecture & Security Validation engagement to design the target-state architecture	30–60 days

<b>03</b>	Begin structured AI implementation with proper controls, monitoring, and governance in place	60–90 days
<b>04</b>	Establish ongoing advisory cadence to maintain operational trust as AI capabilities expand	Ongoing

# Secure AI adoption for real operating environments

Noctua Logic, LLC is a boutique architecture and advisory firm helping mid-market organizations assess, validate, design, implement, and strengthen AI-enabled systems across cloud and enterprise environments. We work where architecture, security, observability, governance, and operational resilience matter under real conditions.

Operational Risk Diagnostic	Entry offer — \$7,500 fixed fee, 10 business days
AI Architecture & Security Validation	Strategic flagship engagement
AI Architecture & Readiness	Advisory / Hybrid
AI Security & Risk	Advisory / Hybrid
Observability & Self-Healing Systems	Advisory / Implementation
Advisory & Governance	Advisory
AI Implementation & Engineering	Implementation
Ongoing Advisory Retainers	Recurring

## Start with an introductory conversation

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Reducing Operational Risk Before Scaling AI

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