Project Title: Process Capability and Launch Readiness Copilot
Course: EPD 522
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Purpose

Engineers at North River Diagnostics regularly review process data to decide whether a manufacturing process is ready to support a new product launch or an increase in production volume. Today, these reviews involve manually pulling data, running statistical checks, and writing summaries for leadership. This takes time, does not scale well, and can result in different interpretations of the same data. This project explores whether an Agentic AI system can support these reviews by making them faster and more consistent, while keeping engineers responsible for final decisions.

Pilot Proposal

The proposed pilot is a decision support tool that follows the same steps engineers already use when evaluating process readiness. The system ingests process data, checks whether the process behavior is stable, calculates standard capability metrics using validated tools, and combines the results into a clear written summary. The output is intended to be reviewed by an engineer before it is shared with management. The pilot scope is intentionally limited. It focuses on one product family, one critical process characteristic, and two example datasets that represent stable and unstable process behavior. The system will not approve launches, take corrective actions, or connect to production systems. This allows the pilot to be evaluated safely and realistically.

Risk Mitigation

A core principle of this project is human oversight. All numerical calculations are performed using deterministic tools, and the AI is limited to explaining results and organizing them into a readable format. When instability or data issues are detected, the system clearly states that capability conclusions may not be valid. Engineers are expected to review all outputs before any decisions are made.

Expected Value & Next Steps

If successful, this pilot could reduce the time engineers spend creating capability review reports and improve consistency across teams. Leadership would receive clearer summaries, and engineers could spend more time addressing real process issues. Phase 1 concludes with review and approval of the proposed pilot. Phase 2 will focus on building and testing the workflow and evaluating whether this approach should be expanded.

Closing

This project treats Agentic AI as a practical assistant that helps engineers communicate technical results more clearly, without removing human judgment or accountability.