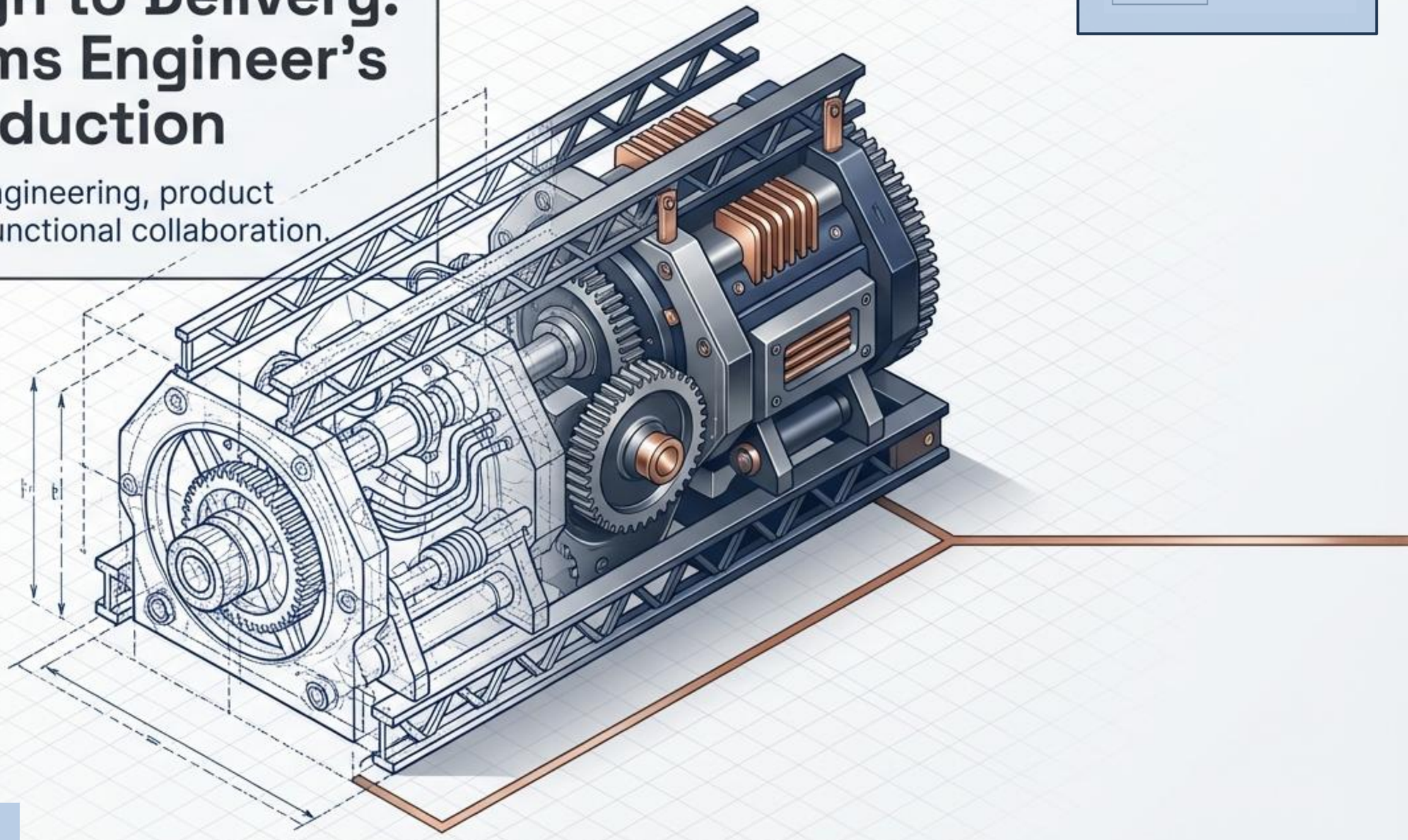
From Design to Delivery: The Systems Engineer's Role in Production

Driving concurrent engineering, product delivery, and cross-functional collaboration.

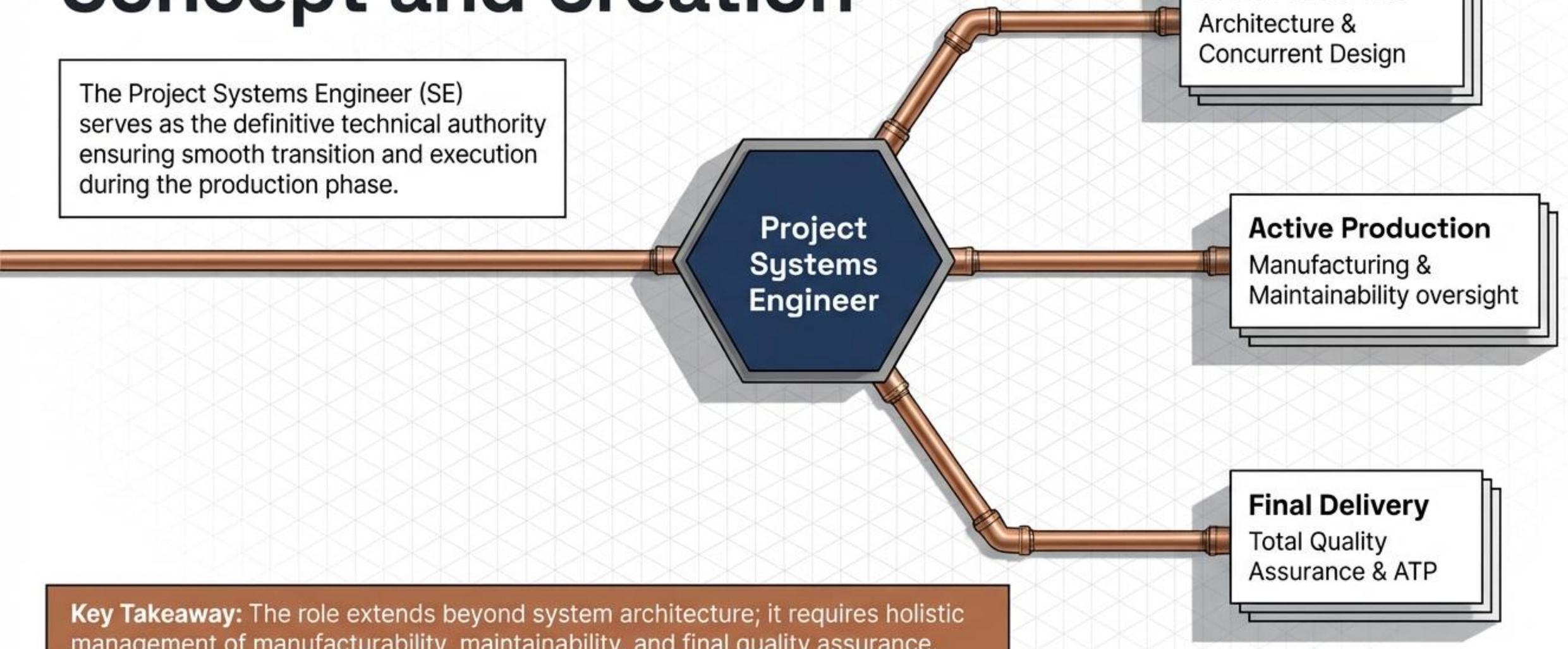


Noti Haim

קניין של חיים נוטי – הנדסת מערכת וניהול פרויקטים

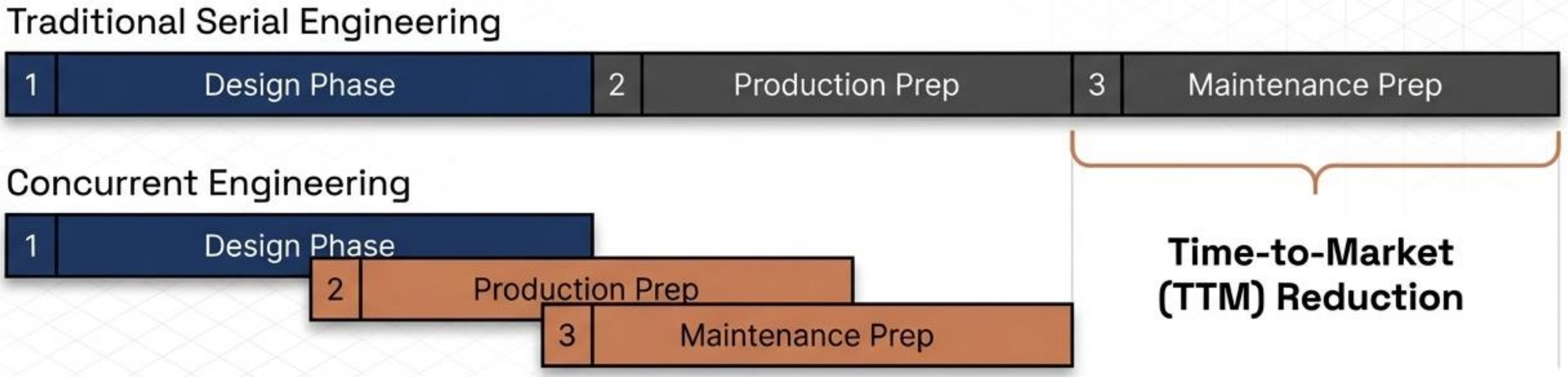
Bridging the Gap Between Concept and Creation

The Project Systems Engineer (SE) serves as the definitive technical authority ensuring smooth transition and execution during the production phase.



Key Takeaway: The role extends beyond system architecture; it requires holistic management of manufacturability, maintainability, and final quality assurance.

Concurrent Engineering: Moving Production Planning ‘Left’



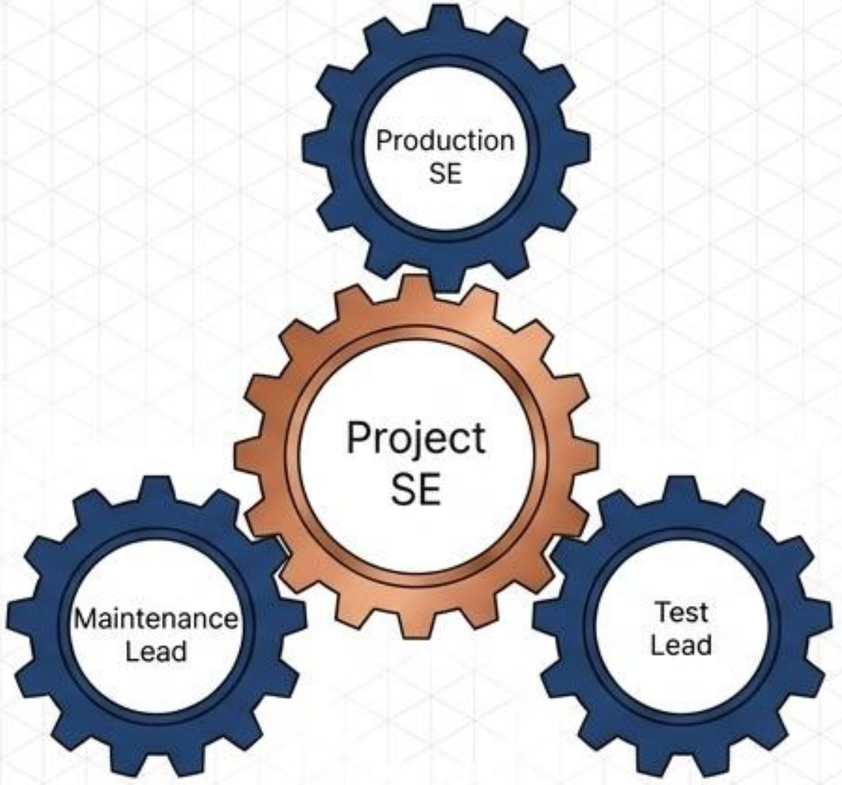
The Concept

Integrating testability, manufacturability, and maintainability directly into system requirements—beyond just the customer's baseline requirements.

The Trade-off

Significantly accelerates TTM, but introduces calculated risk. The SE must actively manage the potential for rework caused by unforeseen early-stage design changes.

Activating the Production Team at Kickoff



Involve the Production SE, Maintenance, and Test leads from Day 1.

Integrate early conceptual models and maintenance concepts into primary design reviews.

Clearly define responsibilities for the handover phase between R&D and Operations.

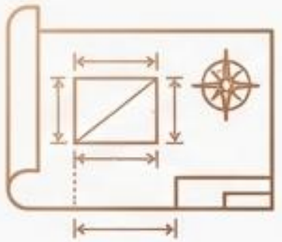
Strategic Reality Check

Activating these roles early often encounters staffing limits. However, establishing this integration is essential for seamless transition and first-unit success.

Engineering the Test Strategy

System Requirements

(Customer + Internal)



VMP / V&V Documentation

(Validation & Verification)

Production Test Equipment

(Testers, Built-In Tests)

SE Responsibiliies & Process Detail

The production test equipment does not exist in a vacuum. It is born directly from the project's test engineering process and VMP/V&V documents. The SE collaborates tightly with Test Engineering to define and develop physical production testers, establish calibration standards, dictate test times, and ensure robust fault-isolation capabilities.

The Line Book: Balancing Balancing Technology and Economics

Authored by the Production SE; reviewed and guided by the Project SE alongside Test, Maintenance, and Safety engineers.

Cost minimization, ROI, speed.

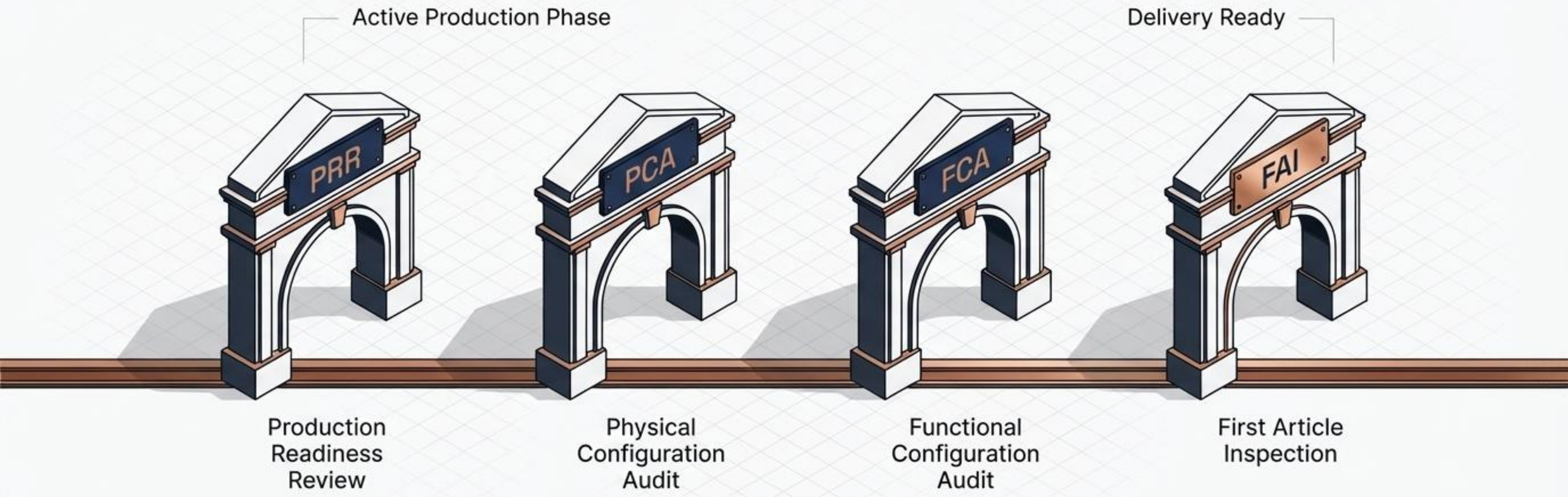
Fault isolation depth, quality standards, safety.

Copper Baseline

The Optimization Mandate

The Line Book requires critical business decisions. The SE must weigh the technical benefits against economic realities—determining when to use manual vs. automated testing, or component-level vs. system-level verification, to minimize production costs and maximize project profit.

Production Support Gateways



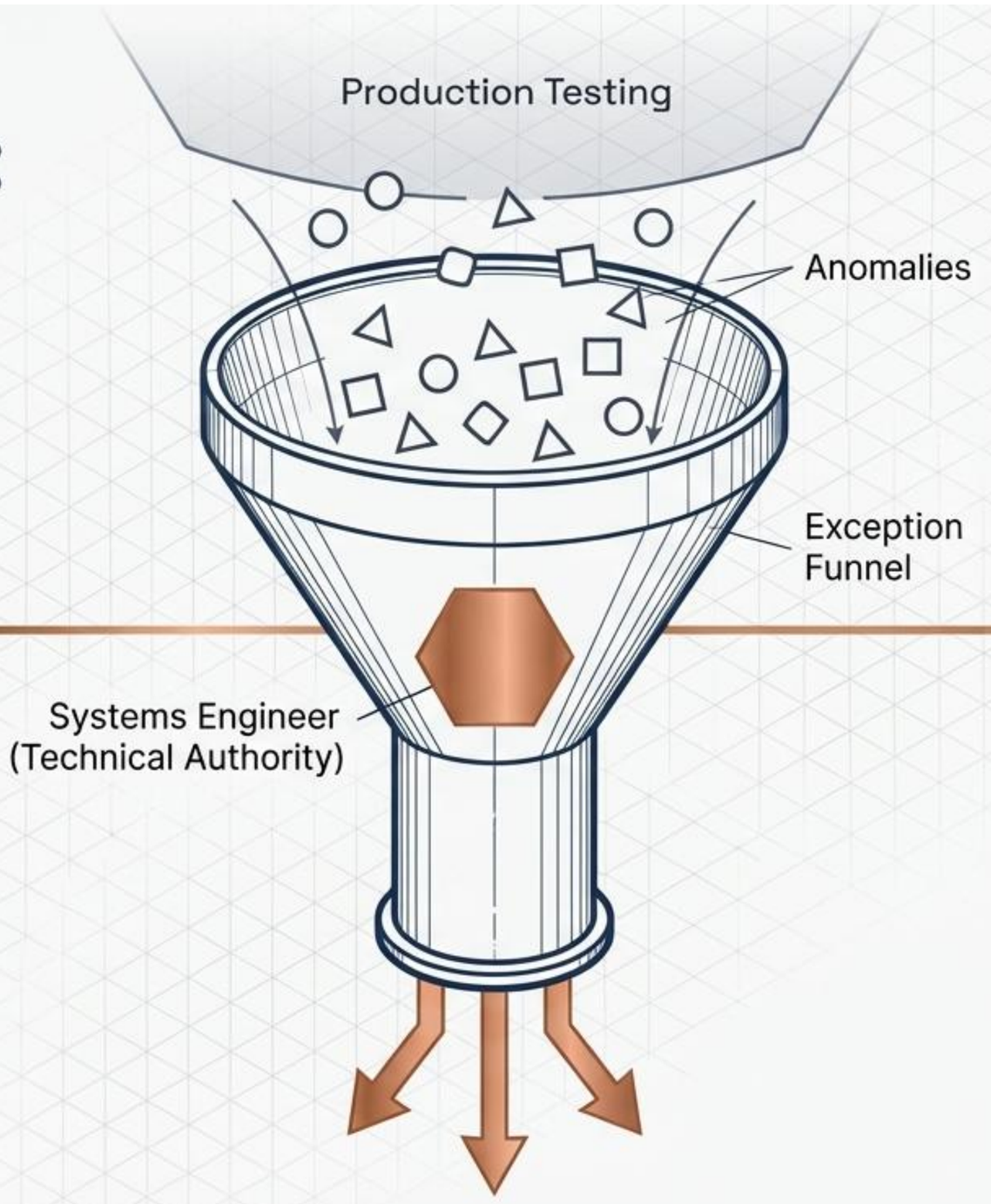
Exception Management: The Material Review Board (MRB)

The Reality

Gaps discovered during production testing should be fixed before delivery. However, urgent circumstances frequently require delivery before gaps are closed.

The SE's Role

When the MRB convenes, the SE acts as the definitive Technical Authority. They provide the critical analysis of both the technical risks and the managerial implications of the discovered gaps.



The MRB Decision Matrix: Three Paths Forward

MRB Convened

Path A: Do Not Deliver

The product cannot be supplied with these specific gaps.

Path B: Fix First

Gaps must be completely repaired prior to customer delivery.

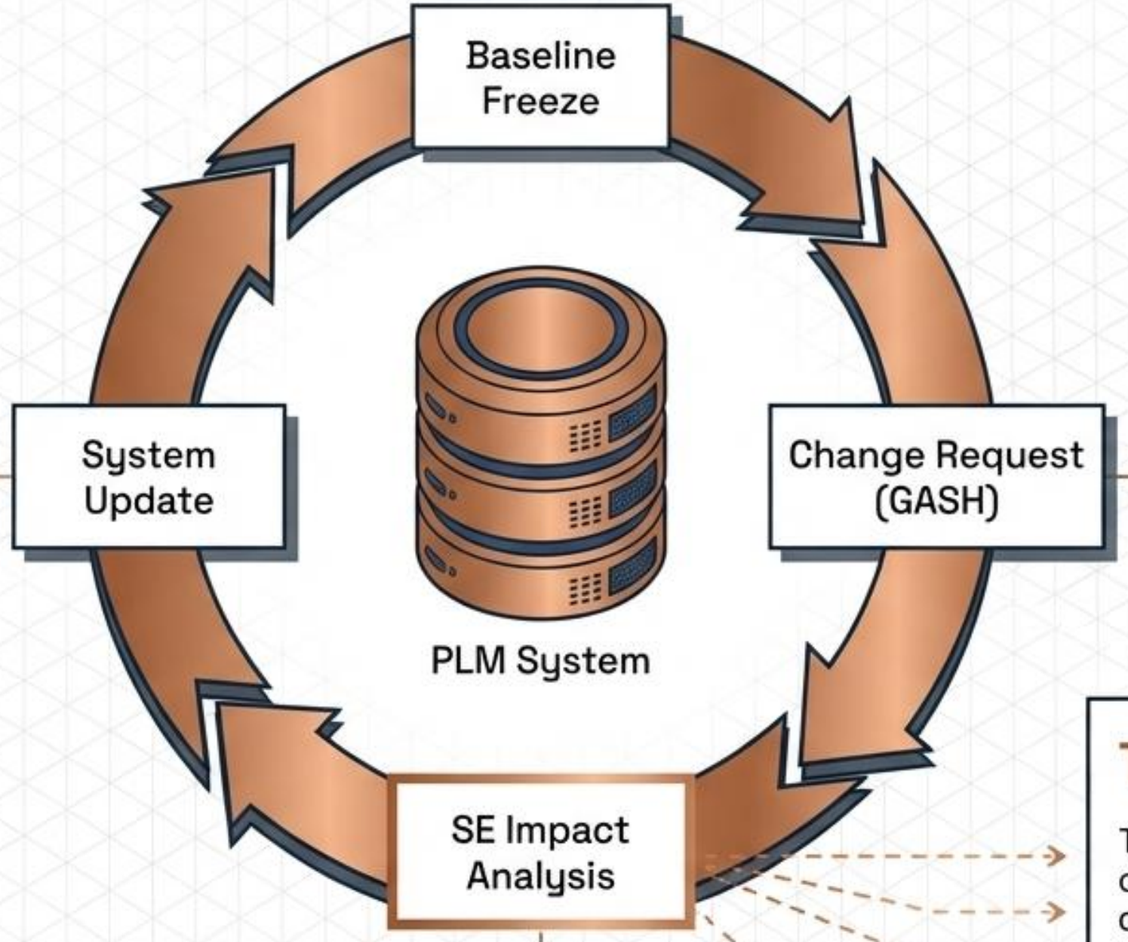
Path C: Deliver & Manage

Supply the product with known gaps, fully coordinated with the customer. Requires a strict, defined timeline and action plan for later resolution.

Strategic Metric: The volume of MRB-approved deliveries serves as a primary quality metric tracked by the Project, Administration, and leadership.

Managing Evolution: Engineering Change Orders

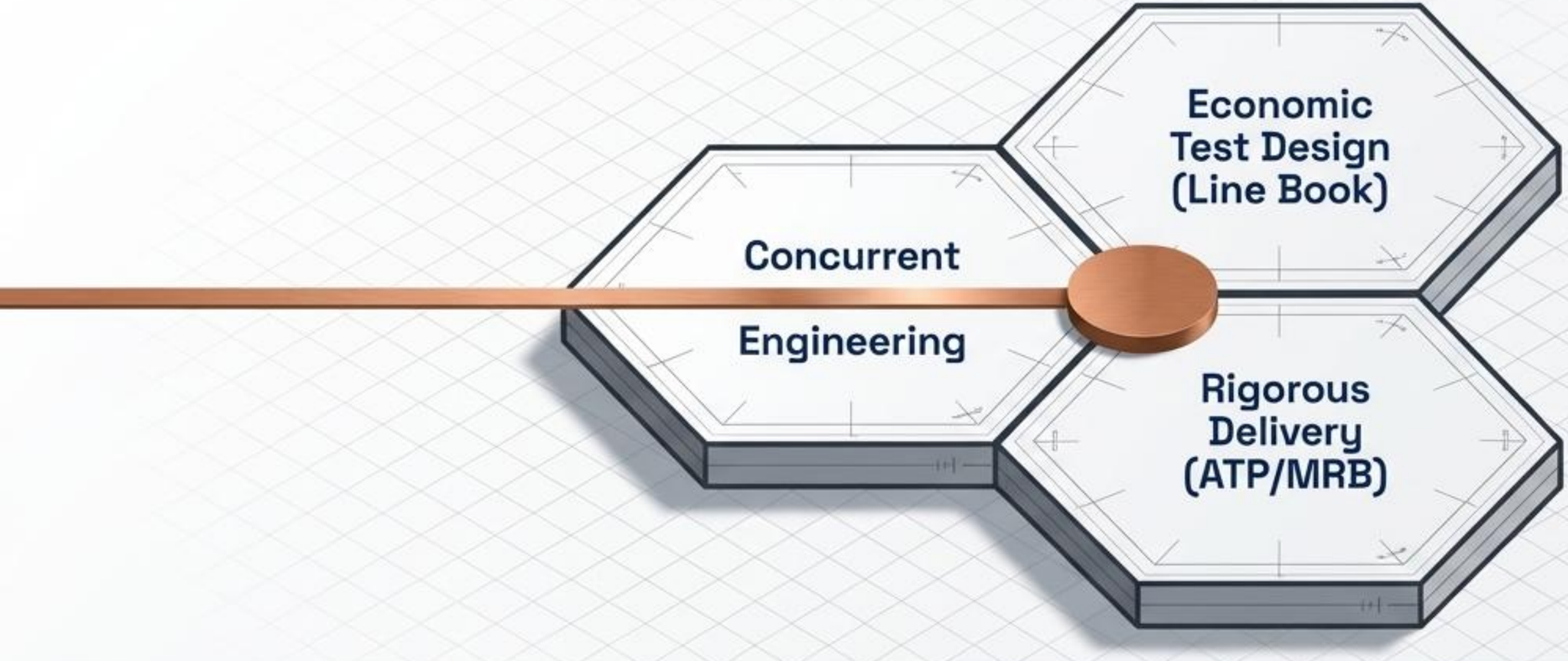
The Process: Managing critical product updates within the Operations IT/PLM systems after the initial baseline has been frozen.



The SE Safeguard

The SE is the central authority to approve changes. Crucially, they must verify cross-project ("horizontal") implications to ensure a change in one project does not break shared components in another, ensuring all changes are rigorously tested and documented.

The Blueprint Realized



Continuous Engineering Discipline

Production support is not a final handoff. By integrating production considerations at kickoff, carefully designing the test architecture for economic viability, and acting as the unyielding technical authority through delivery and exception management, the Systems Engineer ensures rapid Time-to-Market, uncompromising quality, and maximized project ROI.