

Evidence Before Acceptance

Traceability is not a document. It is a controlled chain of evidence.

THE DIGITAL THREAD

Requirements, design artifacts, configuration items, interfaces, verification, test evidence, and validation must remain connected across organizational boundaries.

AI WITH DISCIPLINE

AI can expose possible impact. Engineering, quality, configuration control, and program leadership still own the decision.

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ASPICE Traceability: Configuration Management Across the Supply Chain

Stronger configuration management for safer, smarter automotive development



Keeping Automotive SPICE traceability under control becomes harder as development crosses R&D groups, subsystem boundaries, supplier tiers, software releases, and vehicle integration. The challenge is not merely creating links. The challenge is knowing that the links still describe the configuration that will actually be built, tested, released, and supported.

Configuration Management Makes Traceability Real

Traceability without configuration management can provide a false sense of control. Requirements, drawings, BOMs, software and calibration IDs, interface-control documents, supplier process revisions, test scripts, fixtures, and analysis versions need controlled baselines.

A change at a Tier-2 supplier can propagate through a Tier-1 subsystem and alter assumptions at the vehicle level even when the part number appears unchanged.

Change Control Must Ask the Difficult Questions

- What requirements and interfaces are affected?
- Which suppliers and configuration items are connected?
- What verification or validation evidence is now stale?
- What happens to FMEAs, safety or cybersecurity analyses, control plans, PPAP, schedule, cost, and release readiness?

AI as a Process Tool, Not an Approval Authority

AI can compare revisions, inspect trace relationships, flag missing or stale links, surface supplier and subsystem dependencies, and identify evidence that may need to be repeated. It can support consequence analysis before a change is accepted.

*AI helps expose the full impact.
Engineering decides the right path.*

Supplier Capability

A supplier certificate tells you something. It does not tell you everything you need to know.

LOOK FOR EVIDENCE

The useful question is not simply, "Do you have a process?" It is, "Show me that the process works."

QUALIFICATION

A mature assessment identifies evidence gaps, critical risks, corrective actions, supplier-development opportunities, escalation needs, and reassessment frequency.

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Beyond the Supplier Audit: Assess Capability, Risk, and Readiness

Enterprise supplier assessment should test sustainable capability, not just checklist compliance



Supplier qualification is most useful when it tests whether an organization can consistently deliver the required product, manage change, sustain production, respond to risk, and improve over time. That requires more than a checklist or a single quality-system audit.

Assess the Enterprise, Not One Function

The Enterprise Supplier Capability & Qualification Framework extends assessment beyond quality into governance, systems engineering, product development, manufacturing, supply chain, functional safety, cybersecurity, digitalization and AI governance, financial stability, resilience, sustainability, supplier management, and strategic partnership capability.

Evidence, Not Assertions

Look for documented controls, ownership, performance measures, objective evidence, management review, risk treatment, corrective action, and effectiveness verification.

Technical Evidence Matters

- Requirements traceability and interface control
- Verification and validation evidence
- Configuration baselines and engineering change records
- PFMEA and Control Plans
- MSA and capability data
- Production-readiness evidence and supplier genealogy

Qualification Should Drive Decisions

A structured maturity approach helps sourcing and technical teams distinguish a supplier that is merely compliant from one that is capable, resilient, and ready for the specific work being awarded.

When a supplier owns a subsystem that must integrate with hardware, software, calibration, manufacturing processes, and other suppliers, local capability is not enough. The supplier must participate in the larger technical system.

The right supplier does more than meet requirements. They help you achieve them.

Common Language, Better Debate

A common lexicon is more than a glossary. It gives technical teams a shared framework for discussing processes, artifacts, evidence, and expected outcomes.

SHARED LANGUAGE

When the words are the same but the mental models are different, teams can leave a meeting believing they agree when they do not.

CREATIVITY

Standard terminology should create a stable platform for collaboration, not constrain thought.

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Podcast Note: Common Lexicon, Creativity, and Better Technical Work

Shared language does not mean shared thinking

I recently discussed two ideas that may sound as if they pull in opposite directions: the value of a common lexicon and the need for creativity. In practice, they reinforce one another.

Terms such as verification, validation, qualification, failure, test coverage, and acceptance criteria can carry different meanings across disciplines. A common lexicon helps engineers, testers, project managers, suppliers, and customers recognize when they are discussing the same thing - and when they are not.

Shared Language Does Not Mean Shared Thinking

When the team does not have to spend energy decoding what each person means, more energy is available for examining assumptions, generating alternatives, challenging a design, and combining ideas across disciplines. Creativity benefits from enough structure to make new ideas understandable to other people.

A Common Starting Point

This is one reason I have used common training and certification material when forming technical teams. The objective was never to make everyone think alike. It was to give the group shared process concepts, recognizable artifacts, and a vocabulary that made disagreement more precise and useful.

Creativity Needs a Way Back Into the System

A creative insight has little organizational value if it cannot be communicated, evaluated, tested, and retained. A shared lexicon helps convert individual insight into team learning.

Configuration management, requirements traceability, test evidence, after-action reviews, and lessons learned then provide mechanisms for carrying that learning into the next decision and the next product.

***Common language creates the platform.
Diverse experience and disciplined
challenge create the learning.***

Coming Soon

Battery failures are rarely prevented by one test, one control, or one discipline. Prevention depends on an end-to-end chain of evidence.

SYSTEMS VIEW

A defect, mechanical damage, software or calibration problem, cooling restriction, sensing error, supplier change, or uncontrolled deviation can originate at one level and appear later as a vehicle-level performance or safety problem.

WEBSITE

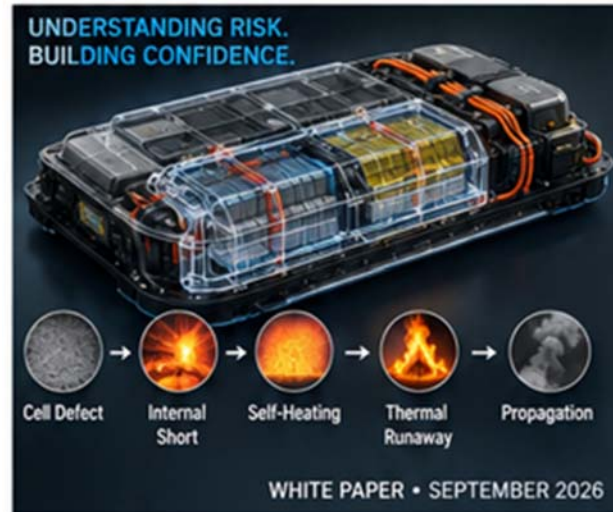
Coming soon on
ValueTransform.com

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Coming Soon: Preventing Automotive Battery Failures

An engineering, manufacturing, and validation framework for reducing launch, field, and safety risk



Preventing Automotive Battery Failures is a public technical white paper for OEMs, commercial-vehicle manufacturers, battery suppliers, and product-development teams. It connects measurable requirements, system boundaries and interfaces, engineering and manufacturing margin, verification and validation, and release evidence.

From Development Through Field Learning

- APQP and PPAP
- DFMEA and PFMEA
- MSA, SPC, and Control Plans
- Configuration and change control
- Production genealogy
- Field learning, FRACAS, and CAPA
- Measures of effectiveness and performance
- Leading and lagging indicators

Why the Systems View Matters

The paper follows failure-prevention connections from requirements and design through manufacturing, validation, launch, and field response. It also addresses temporary deviations, charging and EVSE interfaces, post-test inspection, regulatory applicability, and release criteria.

The goal is not to add process for its own sake. It is to make the evidence behind a release decision visible, traceable, configuration-specific, and strong enough to support the decision being made.

Technical depth. Practical insight. Real-world relevance.

Design. Build. Learn. Improve.

Value Transformation LLC works at the intersections where product-development problems tend to hide: requirements and execution, engineering and manufacturing, suppliers and integration, testing and release, and field learning and corrective action.

CORE CAPABILITIES

Product and project management • Product development and systems engineering • Testing, verification, and validation • APQP, PPAP, and quality improvement • Supplier and multi-vendor coordination • Training, coaching, and facilitation

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Practical Product Development Intelligence for the Lessons Learned the Expensive Way

Books, Training, and Consulting for Real-World Results

Selected books and reference works supporting product development, project management, embedded systems, configuration management, quality, risk, and automotive engineering.



About Value Transformation LLC

Value Transformation LLC helps organizations improve how they conceive, develop, test, launch, manufacture, and support products. We connect product and project management, systems engineering, supplier coordination, configuration management, quality, and testing so strategy becomes evidence-based execution.

From Concept to Production

Practical experience for complex products, regulated environments, multiple suppliers, and real-world delivery constraints.

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