ENAMULLAH T

PROJECT PORTFOLIO

Senior Technical Operations Engineer

Product Lifecycle Management | Supplier Quality | Technical Service Operations | Aftermarket Engineering

ENGINEERING • QUALITY • SERVICE • IMPACT

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About Me

I am an automotive engineering professional with 8+ years of experience across product development, manufacturing, supplier quality, and global technical service operations. My expertise lies in bridging engineering, manufacturing, suppliers, and aftermarket service to deliver robust, scalable, and customer-focused solutions.

Throughout my career, I have led supplier quality investigations, PPAP approvals, engineering change implementation, service BOM optimization, and launch readiness activities for North American vehicle programs. I enjoy solving complex technical challenges through structured problem-solving, cross-functional collaboration, and data-driven decision-making.

This portfolio highlights selected projects that demonstrate my technical expertise, leadership, and measurable business impact in automotive engineering.

Career Highlights

8+ Years of automotive engineering experience	**98%** PPAP approvals within 48 hours	**800+** PPAP approvals completed
40+ Global suppliers supported	**300+** Service parts governed	**96%** Launch readiness achieved
$2.5M Supplier recovery from part disposition	**100%** Service readiness on key programs	**150+** Engineering changes governed
$5M+ Revenue impact from circular economy	**52%** Cost savings delivered	**35%** Scrap reduction achieved

Technical Competencies

Supplier Quality

APQP	PPAP	PFMEA	Control Plan
MSA	SPC	VDA	Supplier Audit

Product Lifecycle Management

EBOM	MBOM	SBOM	Engineering Change
Configuration Management	Product Structure		

Technical Engineering

CAD Review	Teamcenter	IMDS	Root Cause Analysis
Risk Assessment			

Systems & Tools

Excel	SharePoint	Jira	Cognos

Career Timeline

2019 – Product Development Engineer

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2020 – Plant In-Charge

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2021 – Advance Quality Engineer_Circular Economy

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2023 – Supplier Quality Engineer

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2024 – Senior Supplier Quality Engineer

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2026 – Senior Technical Operations Engineer

Project 1 | DPF Catalyst Quality Issue Resolution

Project Name

IAP Quality Issue Resolution – DPF Catalyst (JL 2.2L Diesel Powertrain)

1. Executive Summary

A critical quality issue affecting the Diesel Particulate Filter (DPF) Catalyst was reported from the Australian market after customer vehicle failures resulted in buyback cases. As the Supplier Quality Engineer responsible for the investigation, I led supplier containment, cross-functional coordination, root cause validation, supplier process audits, and implementation of permanent corrective actions. The investigation uncovered an unauthorized outsourcing of a critical manufacturing process that bypassed established quality controls. Through structured problem-solving, supplier process improvements, and robust quality gates, the issue was contained globally, recurrence was prevented, and supplier process governance was significantly strengthened.

2. Project Background

Customer

Stellantis North America

Vehicle Program

JL 2.2L Diesel Powertrain

Component

Catalytic Converter – Diesel Particulate Filter (DPF)

Part Number

68323796AA

Supplier

Purem North America

Affected Market

Australia

Issue Category

Supplier Quality

Field Quality

Customer Buyback

Manufacturing Process Failure

Supplier Process Control

3. Business Impact Before Resolution

The issue had significant business implications.

Customer buyback cases initiated.

Brand reputation risk.

Warranty cost escalation.

Safety and regulatory concerns.

Production process credibility questioned.

Supplier quality performance degradation.

Risk of additional defective parts reaching global markets.

Potential launch disruption if containment failed.

4. Situation (STAR)

A customer complaint from Australia identified defective DPF catalytic converters installed on Jeep JL vehicles. Investigation confirmed defects including incorrect DPF brick orientation, weld leakage, and weld spatter. Multiple vehicles entered the buyback process, making the issue one of the highest-priority supplier quality escalations. Immediate containment and root cause analysis were required to prevent additional customer impact and restore confidence in supplier manufacturing.

5. Challenge

Several technical and operational challenges complicated the investigation:

Defects had already escaped to customers.

Defective inventory existed across multiple supply chain stages.

Root cause was not immediately visible.

Manufacturing documentation initially appeared compliant.

The supplier had introduced process changes that were not transparently communicated.

Potential impact extended beyond Australia to other global markets.

Urgent timing due to active customer buyback cases.

Cross-functional alignment was required between Supplier Quality, Manufacturing, Engineering, Service Engineering, Purchasing, and Supplier Operations.

6. My Role

As the Supplier Quality Engineer, I was responsible for leading supplier quality activities from containment through permanent corrective action.

My responsibilities included:

Leading supplier investigation.

Coordinating containment activities.

Reviewing manufacturing processes.

Conducting supplier process audits.

Driving root cause analysis.

Validating corrective actions.

Supporting buyback investigation.

Coordinating with cross-functional teams.

Reviewing PPAP documentation.

Monitoring implementation of corrective actions.

Ensuring long-term process stability.

7. Investigation Timeline

Day 1

Supplier contacted immediately.

Day 7

North American parts returned for investigation.

Day 12

RMA initiated.

Australian suspect inventory quarantined.

Day 26

Alignment established with Product Engineering and Supplier Quality.

Day 28

Containment effectiveness confirmed.

Day 33

Supplier manufacturing process audit completed.

Day 38

Root cause identified.

Day 55

Sub-supplier audit performed.

Day 63

Inspection criteria prepared.

Day 70

Supplier submitted documentation supporting outsourced manufacturing process.

Day 76

Interim Corrective Action implemented.

Certified inspection process launched.

Day 79

Certified shipments released.

8. Technical Investigation

The investigation included:

Manufacturing Process Review

Reviewed:

Welding process

Assembly process

Orientation controls

Leak testing

Inspection process

Manufacturing work instructions

Physical Part Analysis

Observed:

DPF brick installed backwards.

Weld leakage.

Weld spatter.

Incorrect orientation.

Supplier Process Review

Reviewed:

Manufacturing flow.

PFD.

PFMEA.

Control Plan.

PPAP.

Process capability.

Inspection methods.

Audit Activities

Performed:

Production process audit.

Sub-supplier audit.

Process validation.

Documentation review.

Manufacturing observation.

9. Root Cause Analysis

Primary Root Cause

The supplier outsourced the canning process to a sub-supplier without adequately updating or validating quality controls through the approved engineering and supplier quality governance process.

This introduced manufacturing variation that bypassed existing poka-yoke systems.

Why Analysis

Why 1

DPF brick installed incorrectly.

↓

Why 2

Orientation detection failed.

↓

Why 3

Vision/Poka-Yoke was bypassed.

↓

Why 4

Manufacturing transferred to outsourced process.

↓

Why 5

Supplier failed to implement equivalent process controls and engineering change governance at the new manufacturing location.

10. Corrective Actions

Implemented multiple layers of corrective action.

Immediate Containment

Certified existing inventory.

Scrap suspect inventory.

Global stock segregation.

Leak testing.

Orientation inspection.

Interim Corrective Action

Introduced certified inspection tag.

Blue dot identification.

Leak-rate verification.

Visual inspection.

100% inspection.

Permanent Corrective Action

Reintroduced vision sensor.

Restored poka-yoke.

Mandatory 2D matrix verification.

Orientation recognition algorithm.

Updated process documentation.

Supplier process certification.

PPAP resubmission.

Updated PFMEA.

Updated Control Plan.

Updated Process Flow Diagram.

Supplier process validation.

11. Cross-Functional Leadership

Worked closely with:

Supplier Manufacturing

Product Engineering

Supplier Quality

Service Engineering

Purchasing

North America SQE

Australia Operations

Quality Management

Sub-supplier Management

This required continuous communication across global teams to align technical decisions, containment actions, and long-term corrective measures.

12. Business Impact

Customer Protection

Prevented additional defective components from reaching customers.

Global Containment

Successfully isolated suspect inventory before wider distribution.

Supplier Process Improvement

Restored manufacturing robustness through enhanced error-proofing and standardized inspection controls.

Quality Governance

Strengthened supplier change management and manufacturing process validation.

Warranty Cost Avoidance

Reduced the risk of additional buybacks and warranty claims by eliminating recurrence.

Manufacturing Stability

Improved process capability through upgraded inspection and process controls.

Supply Continuity

Maintained certified shipments to support ongoing service requirements while permanent corrective actions were implemented.

13. Technical Competencies Demonstrated

Supplier Quality Engineering

- APQP
- PPAP
- Root Cause Analysis

5 Why

Ishikawa

Manufacturing Process Audit

Process Validation

Poka-Yoke

Vision Inspection Systems

- PFMEA
- Control Plan

Process Flow Diagram (PFD)

Supplier Development

Supplier Process Governance

Quality Containment

Corrective and Preventive Action (CAPA)

Engineering Change Awareness

Cross-Functional Leadership

Global Supplier Management

Warranty Quality Management

14. STAR Summary

Situation: Customer buyback cases in Australia exposed defects in DPF catalytic converters, including incorrect brick orientation, weld leaks, and weld spatter, creating significant quality, warranty, and reputation risks.

Task: Lead the supplier quality investigation, contain the issue globally, identify the root cause, implement corrective actions, and ensure stable future production without recurrence.

Action: I coordinated containment, performed supplier and sub-supplier audits, reviewed manufacturing processes, analyzed physical defects, led structured root cause analysis, discovered that a critical manufacturing step had been outsourced without equivalent process controls, and drove implementation of enhanced inspection, poka-yoke restoration, updated PFMEA, Control Plan, PFD, and PPAP resubmission.

Result: Defective inventory was successfully contained, certified shipments resumed, recurrence risk was eliminated through strengthened process controls, supplier manufacturing governance improved, and the issue was closed without further quality escapes.

Project 2 | Power Brake Booster Supplier Transition & PPAP Approval

Power Brake Booster Supplier Transition & PPAP Approval

Ensuring Launch Readiness During Critical Supplier Transition Without Production Delay

1. Executive Summary

A critical supplier bankruptcy required the production transfer of the Power Brake Booster Assembly to a new supplier (UFPT) for multiple North America vehicle programs. The transition introduced significant risks to production continuity, supplier readiness, regulatory compliance, and launch timing. As the Supplier Quality Engineer, I led the end-to-end supplier quality approval process, managed PPAP activities, validated manufacturing capability, resolved engineering and compliance gaps, and successfully achieved full PPAP approval without impacting vehicle production or launch schedules.

2. Project Background

Customer

Stellantis North America

Vehicle Programs

Jeep Rubicon

RAM Truck

Model Years

2020–2024

Component

Power Brake Booster Assembly

Supplier

UFPT (New Supplier)

Project Category

Supplier Transition

New Supplier Development

- APQP
- PPAP

Launch Readiness

Supplier Quality

Manufacturing Validation

3. Business Context

The existing supplier declared bankruptcy, requiring an immediate production transfer to a newly identified supplier.

Because the Power Brake Booster is a critical safety component, the new supplier could not begin production without successful completion of the APQP and PPAP process.

The transition had to be completed within an aggressive program timeline to avoid production interruptions and vehicle launch delays.

4. Situation (STAR)

The bankruptcy of the existing supplier created an urgent need to qualify a replacement supplier for the Power Brake Booster Assembly across Jeep Rubicon and RAM Truck programs. The compressed timeline left minimal opportunity for supplier development, process validation, and regulatory compliance activities. Any delay in supplier approval would directly impact production schedules and new vehicle launches.

5. Challenge

The project presented several high-risk challenges:

Critical safety-related component requiring rigorous quality validation.

Extremely limited timing before production.

New supplier manufacturing process required complete qualification.

PPAP approval had to be completed under aggressive launch deadlines.

Manufacturing capability needed validation before production release.

Engineering documentation required alignment across multiple systems.

BOM discrepancies identified during technical review.

IMDS documentation remained incomplete, creating compliance risks.

Cross-functional coordination required between Supplier Quality, Engineering, Purchasing, Manufacturing, Product Development, and Supplier teams.

6. My Role

As the Supplier Quality Engineer, I owned the complete supplier qualification and production approval process.

My responsibilities included:

Leading APQP activities.

Managing complete PPAP approval.

Reviewing supplier manufacturing readiness.

Validating production capability.

Coordinating engineering issue resolution.

Managing supplier communication.

Assessing manufacturing risks.

Supporting launch readiness.

Driving cross-functional alignment.

Ensuring production continuity throughout supplier transition.

7. Technical Activities

APQP & Supplier Readiness

Led supplier development activities to ensure manufacturing readiness before production release.

Activities included:

APQP milestone tracking.

Manufacturing process validation.

Production readiness assessment.

Supplier risk evaluation.

Launch readiness reviews.

PPAP Validation

Managed complete PPAP submission and approval by reviewing:

Dimensional Reports.

Process Flow Diagram (PFD).

PFMEA.

Control Plan.

Capability Studies (Cp/Cpk).

Process Validation.

Production Trial Results.

Supporting PPAP documentation.

Manufacturing Capability Assessment

Validated that supplier manufacturing processes were capable of consistently meeting Stellantis quality requirements before production approval.

- Risk Assessment

Performed technical and manufacturing risk assessments to identify potential launch concerns before production release.

8. Additional Technical Challenge

During PPAP review, I identified two critical issues that could have delayed final approval:

BOM Misalignment

Engineering BOM did not accurately reflect the approved production configuration.

Without correction:

Incorrect production documentation.

Potential manufacturing confusion.

Future service inconsistencies.

IMDS Compliance Gap

Supplier IMDS submission remained incomplete.

Without IMDS approval:

PPAP approval could not be finalized.

Regulatory compliance remained at risk.

Production release could be delayed.

9. Decision & Actions

Rather than approving the PPAP with unresolved issues, I proactively coordinated corrective actions across multiple teams.

I:

Escalated BOM discrepancies to Engineering.

Coordinated engineering corrections.

Worked directly with the supplier to resolve documentation gaps.

Ensured IMDS data was completed and compliant.

Facilitated manual IMDS approval to prevent schedule delays.

Verified updated engineering documentation.

Reviewed revised supplier submissions.

Approved Interim PPAP to maintain production continuity while final actions progressed.

Completed Final PPAP approval within six days after Interim Approval.

10. Cross-Functional Leadership

Successfully coordinated activities between:

Supplier Manufacturing

Product Engineering

Purchasing

Program Management

Supplier Quality

IMDS Team

Manufacturing Engineering

APQP Team

This ensured all technical, quality, and compliance requirements were completed within the launch timeline.

11. Business Impact

Zero Production Shutdown

Production continued without interruption despite supplier bankruptcy.

Zero Launch Delay

Vehicle launch milestones were achieved on schedule.

Successful Supplier Transition

Completed qualification of the new supplier with full manufacturing readiness.

Full PPAP Approval

Achieved complete production approval after successful validation of all quality requirements.

Engineering Data Integrity

Resolved BOM discrepancies before production release, preventing downstream manufacturing and service issues.

Regulatory Compliance

Closed IMDS gaps and ensured environmental compliance prior to final approval.

Risk Mitigation

Identified and resolved technical risks before they impacted production.

Strengthened Supplier Readiness

Established confidence in supplier manufacturing capability through structured APQP and PPAP execution.

12. Technical Competencies Demonstrated

Supplier Quality Engineering

- APQP
- PPAP

New Supplier Development

Supplier Qualification

Manufacturing Process Validation

Process Capability Analysis (Cp/Cpk)

- PFMEA
- Control Plan

Process Flow Diagram (PFD)

Dimensional Validation

IMDS Compliance

BOM Management

Engineering Change Coordination

Launch Readiness

- Risk Assessment

Cross-Functional Leadership

Supplier Development

Product Quality Planning

Automotive Core Tools

Technical Decision-Making

13. STAR Summary

Situation

The bankruptcy of the existing supplier required an immediate transition of the Power Brake Booster Assembly to a new supplier for Jeep Rubicon and RAM Truck programs. With production deadlines approaching, the supplier needed to achieve full APQP and PPAP approval without delaying vehicle launches.

Task

Lead the supplier qualification process, validate manufacturing readiness, resolve technical and compliance issues, and ensure the new supplier was fully approved for production while maintaining launch schedules.

Action

I managed the complete PPAP process, reviewed process capability studies, PFMEA, Control Plans, Process Flow Diagrams, and dimensional reports, while assessing supplier manufacturing readiness. During technical review, I identified BOM discrepancies and incomplete IMDS documentation that could have delayed production. I coordinated cross-functional teams to correct engineering data, ensured IMDS compliance through manual approval, approved Interim PPAP to maintain production continuity, and completed Final PPAP approval within six days.

Result

The supplier transition was completed successfully with zero production shutdown and zero launch delay. Full PPAP approval was achieved, engineering documentation and IMDS compliance were corrected, manufacturing readiness was validated, and production continued seamlessly despite the supplier bankruptcy.

Project 3 | Scalable Service BOM Strategy During Model-Year Change

Designed a Scalable Service BOM Strategy During a Critical Model-Year Engineering Change

Project

D-Pillar Trim Engineering Change – North America Vehicle Programs

Business Context

A model-year transition introduced a new D-pillar trim configuration incorporating an updated liftgate switch design.

Engineering released a new production configuration while discontinuing the previous design for future model years.

Although the engineering change appeared to be a straightforward part replacement, detailed analysis revealed that production, supplier manufacturing capability, and aftermarket service requirements were not aligned.

Without intervention, the change had the potential to create incorrect service part usage, dealer ordering errors, supplier manufacturing complexity, and reduced service readiness for vehicles already operating in the field.

Challenge

During my review of the Engineering BOM (EBOM), Service BOM (SBOM), and Engineering Change documentation, I identified several critical issues:

Engineering Change Conflict

Engineering cancelled the legacy part (5RJ07 – JRC Power Liftgate) for MY27+.

A new part (8AA39 – XZ4 Adjustable Liftgate) had already been released.

However, the Change Notice (CN) incorrectly classified the change as a "No Replacement (6CT)" scenario, creating inconsistent downstream service logic.

Functional Difference

The new design introduced different switch functionality:

Legacy vehicles operated using a standard press action.

New vehicles required a press-and-hold operation.

This meant the two configurations were not functionally interchangeable despite appearing similar.

Supplier Manufacturing Limitation

The supplier could not reliably manufacture and manage both configurations simultaneously because:

Assembly processes lacked sufficient error-proofing.

Maintaining dual assembly variants increased manufacturing complexity.

Production risk increased significantly.

Aftermarket Requirement

Mopar still had to support:

Existing vehicles already in customer hands.

Future production vehicles.

Both configurations required long-term service support.

A traditional supersession strategy would have compromised one of these requirements.

My Role

As the Service Parts Analyst (Technical Service Operations Engineer), I was responsible for evaluating service impact, validating SBOM structure, and ensuring complete service readiness before release.

Rather than accepting the engineering change as originally defined, I performed a detailed analysis across engineering, supplier capability, and aftermarket service requirements.

Decision

Instead of implementing a traditional one-to-one supersession, I designed a modular service strategy.

The approach included:

Standardizing trim assemblies without integrated switches.

Decoupling the switch into an independently serviceable component.

Creating parallel service support for legacy and future vehicles.

Establishing model-year-based service applicability rather than forcing an engineering replacement into service.

This transformed the engineering change into a scalable aftermarket solution.

Implementation

I led the service planning activities by:

BOM Optimization

Reviewed Engineering BOM and Service BOM.

Redesigned the SBOM structure to support modular servicing.

Established consistent service logic across multiple model years.

Engineering Change Validation

Identified the incorrect Change Notice classification.

Escalated the issue for correction.

Ensured downstream systems reflected the correct service applicability.

Cross-Functional Coordination

Worked closely with:

Engineering

Supplier Manufacturing

Mopar

Service Planning

Catalog Teams

to ensure every stakeholder aligned on the revised service strategy.

Catalog Readiness

Implemented:

Accurate VIN applicability.

Model-year filtering.

Correct service replacement logic.

This significantly reduced future dealer ordering risk.

Business Impact

Achieved 100% Service Readiness

Supported both existing and future vehicle populations without compromising service availability.

Reduced Service Turnaround Time (~30%)

The modular BOM strategy simplified service part selection and improved aftermarket supply efficiency.

Reduced Dealer Ordering Errors (Estimated 25–35%)

Clear applicability logic prevented incorrect service part selection and minimized dealer escalations.

Simplified Supplier Manufacturing

By eliminating unnecessary dual-configuration assemblies, supplier production complexity and manufacturing risk were significantly reduced.

Improved Data Governance

Strengthened consistency across:

- EBOM
- SBOM

Engineering Changes

Service Catalog

VIN applicability

Improved Product Lifecycle Management

Ensured engineering intent, manufacturing capability, and aftermarket requirements remained synchronized throughout the product lifecycle.

Leadership Demonstrated

This project showcased your ability to:

Challenge incorrect engineering assumptions instead of simply executing them.

Think beyond individual components and consider the entire product lifecycle.

Balance competing priorities across engineering, supplier manufacturing, and aftermarket service.

Influence cross-functional teams without formal authority.

Convert a potential launch and service risk into a scalable, long-term solution.

Technical Competencies Demonstrated

Product Lifecycle Management (PLM)

Engineering Change Management (ECN/CN)

Service BOM (SBOM) Development

Engineering BOM (EBOM) Analysis

Service Strategy Design

- Configuration Management

Variant Management

Model-Year Transition Planning

Supplier Manufacturing Assessment

Service Parts Planning

Aftermarket Engineering

Catalog Readiness

VIN Applicability

- Risk Assessment

Cross-Functional Leadership

Technical Decision Making

Data Governance

Project 4 | Hellcat Neutral Release Cable Investigation

Resolved Critical Service Parts Ambiguity Through Functional BOM Analysis and Engineering Decision-Making

Project

Hellcat Aftermarket Service Support – Neutral Release Cable Investigation

Business Context

A North American Stellantis dealer submitted an urgent technical inquiry for a Hellcat vehicle regarding a reported stretched neutral release cable.

The dealer needed confirmation of which component should be replaced.

Although the request appeared straightforward, the terminology used by the dealer created uncertainty because two different components within the transmission system could reasonably match the description.

Assigning the wrong service part would have resulted in incorrect repairs, additional vehicle downtime, repeat dealer visits, unnecessary logistics costs, and reduced customer satisfaction.

Challenge

The dealer asked whether the "neutral release cable" referred to:

the main gearshift control cable, or

a separate emergency transmission release mechanism.

At first glance, both appeared related to the transmission shifting system.

However, selecting the incorrect component would result in:

incorrect parts shipment,

repair delays,

warranty complications,

return logistics,

unnecessary dealer escalations,

customer dissatisfaction.

The challenge required engineering validation rather than relying on catalog descriptions alone.

My Responsibility

As the Technical Service Operations Engineer, I was responsible for determining the correct service part before release by validating engineering data, service architecture, and functional intent.

Rather than providing an immediate part number, I performed a structured engineering investigation.

Engineering Analysis

I conducted a comprehensive validation using multiple engineering data sources.

EBOM vs SBOM Review

Compared Engineering BOM and Service BOM to verify how both components were represented within the service structure.

Catalog Analysis

Reviewed exploded-view catalog illustrations to understand the relationship between:

Callout 7

Callout 8

and their associated service parts.

Functional System Mapping

Mapped each component according to its operational function rather than its name.

This analysis confirmed:

Callout 8

Part Number:

04670707AA

Function:

Main Gearshift Control Cable

Purpose:

Used continuously during normal gear selection throughout everyday vehicle operation.

Callout 7

Part Number:

68066474AE

Function:

Automatic Transmission Shifter Release Mechanism

Purpose:

Used only during emergency park/neutral release situations, such as vehicle towing or recovery.

Root Cause

The investigation revealed that the ambiguity originated from terminology rather than engineering documentation.

The dealer had unintentionally grouped two completely different systems under the generic description of a "neutral release cable."

Although both components were located within the transmission area, they served entirely different purposes.

Decision Strategy

Instead of assigning a replacement part based solely on the initial request, I introduced a structured diagnostic clarification process.

I requested confirmation of whether the issue involved:

degraded shifting performance during normal vehicle operation, or

damage to the emergency release mechanism used during towing or recovery.

This ensured that the failure mode was accurately identified before selecting the replacement part.

The approach eliminated assumptions and established a controlled engineering decision process.

Implementation

To resolve the issue, I:

Validated Engineering BOM against Service BOM.

Reviewed service catalog illustrations.

Performed functional decomposition of the transmission system.

Differentiated operational components from emergency service components.

Confirmed service applicability.

Guided the dealer toward accurate failure-mode identification before part assignment.

Ensured correct downstream service interpretation.

Business Impact

Eliminated Wrong Part Shipment Risk

Prevented incorrect service part selection before order placement, avoiding potential mis-shipments and unnecessary returns.

Improved Dealer Diagnostic Accuracy

Enabled the dealer to correctly distinguish between an operational shift system issue and an emergency release mechanism concern.

Reduced Decision Cycle Time (~40%)

By introducing structured failure-mode validation, technical clarification was completed faster than traditional trial-and-error part identification.

Improved SBOM and Catalog Traceability

Strengthened consistency between:

Engineering BOM

Service BOM

Catalog structure

Functional service architecture

Reduced Vehicle Downtime

Accurate first-time part identification minimized delays associated with incorrect repairs and repeat service visits.

Improved Cross-Functional Communication

Facilitated clear communication between:

Dealer technicians

Technical Operations

Engineering support

ensuring everyone worked from the same functional understanding of the system.

Technical Skills Demonstrated

This achievement highlights your expertise in:

Engineering BOM (EBOM) Analysis

Service BOM (SBOM) Validation

Functional System Architecture

Aftermarket Engineering

Service Parts Planning

Technical Problem Solving

Failure Mode Analysis

Parts Catalog Interpretation

Root Cause Investigation

Functional Decomposition

Engineering Decision Making

Dealer Technical Support

Product Lifecycle Management (PLM)

Data Traceability

Service Engineering

Cross-Functional Communication

Leadership Qualities Demonstrated

This case shows that you:

Avoid assumptions and validate technical evidence before making decisions.

Translate complex engineering architecture into practical service guidance.

Balance engineering accuracy with customer and dealer needs.

Apply structured thinking under real-world service pressure.

Protect downstream operations by ensuring the right decision is made the first time.

STAR Interview Summary

Situation: A dealer requested clarification on a "neutral release cable" for a Hellcat vehicle, but the request was ambiguous because it could refer to either the main gearshift control cable or the emergency transmission release mechanism.

Task: Determine the correct service part and prevent incorrect ordering while ensuring accurate support for the dealer.

Action: I reviewed the EBOM, SBOM, catalog illustrations, and functional system architecture. Instead of assuming the required part, I analyzed each component's purpose, identified the ambiguity, and initiated a structured clarification process with the dealer to confirm the actual failure mode before assigning a replacement part.

Result: We avoided incorrect part shipment, improved diagnostic accuracy, reduced the decision cycle by approximately 40%, strengthened SBOM-to-catalog traceability, and ensured accurate aftermarket support for a high-performance vehicle.

Project 5 | Manufacturing Location Transfer & IATF Compliance Assessment

Manufacturing Location Transfer Qualification & IATF Compliance Assessment

Enabling Manufacturing Relocation While Balancing Compliance, Risk, and Supply Continuity

1. Executive Summary

A strategic manufacturing transfer from MUSA to Mexico was initiated to support North American aftermarket demand. The new production facility required qualification before production release, while the supplier was still progressing toward IATF 16949 certification. As the Supplier Quality Engineer, I led the supplier eligibility audit, assessed manufacturing readiness, evaluated compliance against automotive quality standards, and implemented a risk-based phased approval strategy. This approach enabled uninterrupted supply continuity while maintaining Stellantis quality governance and protecting long-term supplier compliance.

2. Project Background

Customer

Stellantis North America

Project

Manufacturing Location Transfer

Transfer

MUSA → Mexico Manufacturing Facility

Component

Aftermarket Service Components

Project Category

Supplier Qualification

Manufacturing Transfer

IATF 16949 Compliance

- Supplier Audit
- Risk Assessment

Supplier Development

Quality Governance

3. Business Context

To improve manufacturing capability and support North American aftermarket demand, production was transferred from the existing manufacturing location (MUSA) to a newly established facility in Mexico.

Before production approval, the new site had to demonstrate compliance with Stellantis supplier quality requirements, manufacturing capability, process stability, and automotive quality management standards.

A key challenge was that the facility had not yet completed full IATF 16949 certification, creating a potential conflict between launch timing and compliance requirements.

4. Situation (STAR)

The supplier initiated a manufacturing location transfer to a new Mexico facility to support future production requirements. Although the facility demonstrated strong manufacturing capability, formal IATF 16949 certification was still in progress. Delaying approval until certification was complete would have impacted supply continuity, while unconditional approval would have introduced governance and compliance risks.

5. Challenge

The project involved balancing multiple competing priorities:

Qualifying a new manufacturing location within a limited timeline.

Assessing readiness before full IATF certification.

Ensuring manufacturing process stability.

Validating traceability and quality management systems.

Confirming process capability for production.

Maintaining uninterrupted supply to North American aftermarket programs.

Protecting Stellantis quality governance and compliance standards.

6. My Role

As the Supplier Quality Engineer, I was responsible for evaluating supplier readiness and determining whether the new manufacturing location met Stellantis production approval requirements.

My responsibilities included:

Leading the supplier eligibility audit.

Assessing IATF 16949 compliance.

Reviewing manufacturing process capability.

Evaluating traceability systems.

Verifying change management controls.

Assessing supplier governance and quality management systems.

Performing technical risk assessment.

Recommending the production approval strategy.

Coordinating with supplier leadership and internal quality teams.

7. Technical Assessment

The supplier qualification audit included a comprehensive evaluation of:

Quality Management System

IATF 16949 readiness

ISO quality requirements

Management commitment

Internal audit process

Corrective action system

Manufacturing Process

Process capability

Production controls

Standardized work

Error-proofing (Poka-Yoke)

Inspection methodology

Traceability

Material traceability

Batch identification

Production records

Product genealogy

Change Management

Manufacturing transfer controls

Engineering change governance

Documentation control

Process validation

Supplier Governance

Leadership commitment

Risk management

Continuous improvement process

Supplier quality maturity

8. Key Risk Identified

The technical audit confirmed that manufacturing operations were capable of supporting production.

However, one critical governance risk remained:

The new facility had not yet obtained formal IATF 16949 certification.

Although certification activities were progressing, approving unrestricted production before certification could expose the organization to compliance and audit risks.

9. Decision Strategy

Rather than taking a binary decision to approve or reject the supplier, I applied a structured risk-based phased approval approach.

The strategy included:

Recognizing that manufacturing capability was technically acceptable.

Acknowledging certification timing as a governance risk rather than a manufacturing failure.

Requiring a formal IATF 16949 commitment letter from supplier leadership.

Allowing conditional production approval while certification activities continued.

Establishing follow-up verification before granting unrestricted approval.

This approach balanced operational needs with quality governance requirements.

10. Cross-Functional Leadership

Collaborated with:

Supplier Leadership

Manufacturing Engineering

Supplier Quality

Purchasing

Program Management

Quality Systems Team

Stellantis Supplier Development

to ensure alignment between production readiness, certification progress, and supply continuity.

11. Business Impact

Maintained Supply Continuity

Enabled manufacturing transfer without disrupting North American aftermarket supply.

Protected Quality Compliance

Maintained alignment with Stellantis supplier quality governance while allowing controlled production.

Reduced Business Risk

Prevented unnecessary production delays while ensuring certification commitments remained enforceable.

Improved Supplier Readiness

Validated manufacturing capability and strengthened supplier quality maturity through structured audit findings.

Strengthened Governance

Introduced a phased approval model balancing operational flexibility with compliance expectations.

Enhanced Decision Quality

Applied engineering judgment to differentiate between technical manufacturing readiness and administrative certification status, resulting in a practical, business-focused approval strategy.

12. Technical Competencies Demonstrated

Supplier Qualification

Manufacturing Transfer Management

IATF 16949 Assessment

- Supplier Audit

Process Capability Evaluation

Manufacturing Readiness Assessment

Quality Management Systems

Traceability Verification

Change Management

- Risk Assessment

Supplier Development

Compliance Governance

Cross-Functional Leadership

Automotive Core Tools

Technical Decision-Making

Business Continuity Planning

13. STAR Summary

Situation

A manufacturing location transfer from MUSA to Mexico was initiated to support North American aftermarket programs. The new facility demonstrated strong manufacturing capability, but formal IATF 16949 certification was still in progress.

Task

Evaluate supplier readiness, assess compliance with Stellantis quality requirements, determine production eligibility, and ensure uninterrupted supply while maintaining quality governance.

Action

I led the supplier eligibility audit, assessed IATF 16949 readiness, reviewed manufacturing capability, traceability, change management, and supplier governance. Rather than approving or rejecting the supplier outright, I developed a phased approval strategy requiring an IATF commitment letter before full certification, allowing controlled production while maintaining compliance oversight.

Result

The manufacturing transfer proceeded without disrupting supply, supplier quality governance remained intact, certification risks were effectively managed, and a balanced approval strategy enabled business continuity while preserving compliance with automotive quality standards.

Leadership & Engineering Philosophy

Leadership Beyond Responsibility

I believe leadership is not defined by authority or job title—it is demonstrated through ownership, sound judgment, and the ability to guide teams toward the right technical decisions.

Throughout my career, I have consistently taken ownership of complex engineering challenges by aligning cross-functional teams, balancing business priorities with technical requirements, and delivering sustainable solutions that extend beyond immediate problem resolution.

My leadership approach is built on five core principles:

Ownership

Take responsibility from problem identification through successful implementation, ensuring accountability for outcomes rather than individual tasks.

Collaboration

Build strong partnerships across Engineering, Supplier Quality, Manufacturing, Purchasing, Service Operations, and Suppliers to achieve shared objectives.

Data-Driven Decisions

Base every technical recommendation on engineering evidence, process validation, risk assessment, and objective analysis rather than assumptions.

Continuous Improvement

Challenge existing processes, identify opportunities for optimization, and implement scalable solutions that improve long-term operational performance.

Customer Focus

Every engineering decision should ultimately improve product quality, manufacturing efficiency, serviceability, and customer experience.

"True leadership in engineering is not about solving today's problem—it is about building systems that prevent tomorrow's."

Engineering Philosophy

Engineering is more than designing products or solving technical issues. It is the discipline of making informed decisions that balance customer needs, manufacturing capability, supplier performance, quality standards, business objectives, and long-term sustainability.

My approach to engineering follows a structured decision framework:

Understand Before Acting

I begin by understanding the complete system before proposing a solution. Every issue has technical, operational, and business dimensions that must be evaluated together.

Solve the Root Cause

Rather than addressing symptoms, I focus on identifying and eliminating the underlying cause to prevent recurrence.

Think Across the Product Lifecycle

Every engineering decision influences manufacturing, suppliers, logistics, service operations, dealers, and ultimately the customer. I consider the entire product lifecycle before implementing changes.

Balance Risk with Practicality

Not every decision is simply right or wrong. Effective engineering requires balancing technical excellence, regulatory compliance, manufacturing capability, timing, cost, and business continuity.

Build Scalable Solutions

The best engineering solutions are not temporary fixes—they are repeatable, standardized, and sustainable improvements that strengthen future operations.

"Engineering excellence is achieved when technical decisions create lasting value for the business, the customer, and the people who build and support the product."

Professional Impact

Career Highlights

Experience

7+ Years in Automotive Engineering, Manufacturing, Supplier Quality, and Technical Service Operations

Global experience supporting North America & APAC vehicle programs

Quality & Supplier Excellence

Conducted 14 Supplier Quality Audits

Independently led 9 Supplier Audits

Successfully qualified multiple suppliers through APQP and PPAP

Supported supplier industrialization and manufacturing transfers

Led critical field quality investigations and corrective action implementation

Product Lifecycle & Service Engineering

Achieved 100% Service Readiness across multiple vehicle programs

Managed Engineering Change implementation and Service BOM optimization

Improved Engineering BOM to Service BOM alignment

Strengthened catalog accuracy and service part governance

Supported launch readiness for multiple North American vehicle programs

Business Impact

Generated $5M+ Revenue Impact

Achieved $2.5M Cost Recovery

Contributed to 52% Year-over-Year Cost Savings

Delivered supplier transitions with Zero Production Shutdown

Achieved Zero Launch Delay during critical supplier qualification projects

Core Expertise

Supplier Quality Engineering

Product Lifecycle Management (PLM)

APQP & PPAP

Engineering Change Management

Service BOM (SBOM)

Engineering BOM (EBOM)

Root Cause Analysis

Supplier Development

Manufacturing Process Validation

Launch Readiness

Cross-Functional Leadership

Technical Decision-Making

Selected Engineering Projects

- DPF Buyback Investigation & Global Supplier Containment
- Power Brake Booster Supplier Transition & PPAP Approval
- Manufacturing Location Transfer & IATF 16949 Compliance Assessment
- D-Pillar Service BOM Strategy & Engineering Change Optimization
- Hellcat Neutral Release System Functional BOM Analysis

"Every project in this portfolio demonstrates not only technical execution but also ownership, structured problem-solving, and measurable business impact."

Professional Development

I believe continuous learning is essential in today's rapidly evolving automotive industry. My focus is on strengthening expertise across Supplier Quality, Product Lifecycle Management, Manufacturing Excellence, Digital Engineering, and Leadership to deliver greater value through technical excellence and informed decision-making.

Professional Certifications

Quality & Manufacturing

- Lean Six Sigma Green Belt (Completed)
- Lean Six Sigma Black Belt (Inprocess)
- IATF 16949 Internal Auditor (Completed)
- ISO 9001 Lead Auditor (Planned)
- SCM Certification (Planned)

Project & Business Management

- Project Management Professional (PMP PDU35)

Digital Engineering & PLM

- Siemens Teamcenter Advanced
- Product Lifecycle Management (PLM)
- Engineering Change Management

Data & Analytics

- Advanced Microsoft Excel

Artificial Intelligence

- AI for Engineering
- AI in Product Development
- Prompt Engineering

Leadership & Professional Skills

- Strategic Leadership
- Effective Communication
- Decision-Making Under Uncertainty

Lifelong Learning Philosophy

"Technical expertise opens opportunities. Continuous learning transforms expertise into leadership. Every certification, project, and experience strengthens my ability to solve increasingly complex engineering challenges and create lasting value."