

SUPPLIER MANAGEMENT PHILOSOPHIES & TOOLS

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4/20/2018

BACKGROUND

- Industry quality standards now require increased focus on supplier management and development.
- OEM expect Tier 1 suppliers to manage sub tiers as closely as the OEM manage the Tier 1.
- I will share my insights and tools for management and development of suppliers to fulfill customer requirements.

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SUPPLIER QUALITY

- Supply
 - to make available for use
 - to satisfy the needs or wishes of
 - to furnish with a vital element
- Quality Assurance
 - a program for the systematic monitoring and evaluation of the various aspects of a project, service, or facility to ensure that standards of quality are being met

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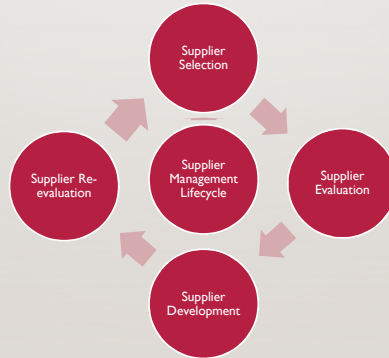
WHY SUPPLIER QUALITY?

- Increased emphasis by OEM Customer Specific Requirements
 - No longer ok to blame the supplier
 - OEM expect active supplier development throughout the supply chain
- ISO 9001:2015 and associated industry standards.
 - IATF 16949
 - AS9100
 - Others?

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SUPPLIER QUALITY MANAGEMENT LIFECYCLE



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SUPPLIER SELECTION—IATF 16949 8.4.1.2

- an assessment of the selected supplier's risk to product conformity and uninterrupted supply of
- the organization's product to their customers;
- b) relevant quality and delivery performance;
- c) an evaluation of the supplier's quality management system;
- d) multidisciplinary decision making; and
- e) an assessment of software development capabilities, if applicable.

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SUPPLIER SELECTION

1. Identify all possible sources
2. Evaluate Reputations
3. Prepare bid list
4. Request bids
5. Evaluate pre-award data.
6. Select supplier
7. Update approved supplier list
8. Prepare contract.
9. Accept contract.

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SUPPLIER ASSESSMENT

- Should be done as early in the process as possible.
- Should be cross functional
 - Quality
 - Purchasing
 - Engineering
 - MP&L
 - Manufacturing SMEs

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SUPPLIER ASSESSMENT CONSIDERATIONS

- Engineering & Technology
 - Software systems/electronic interchange capability.
 - Product design, validation and verification.
 - Change management process
 - Error proofing
 - Pass Through Characteristic Management
 - Necessary technology & equipment for program.
 - Risk level if technology new
 - Prototype capability

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SUPPLIER ENGINEERING ASSESSMENT EXAMPLE

Appendix E-Risk Assessment		Ref. CQI-19 Version 1	
Item No.	Questions	Yes / No	Comments
Engineering Function			
1	Does the supplier currently supply to the automotive industry?		
2	Does the supplier have experience with this commodity? If so, list how long in comments.		
3	Is the supplier experienced with the material grade/type?		
4	Does the supplier have acceptable design capability for the given component?		
5	Does the supplier have a system for managing any safety/regulatory components?		
6	Are the supplier's drawing and engineering software systems compatible with customer requirements?		
7	Is the supplier capable of exchanging engineering data electronically?		
8	Is the product design validated and ready for the product realization phase?		
9	Does the supplier have an effective change management process with all appropriate functions represented?		
10	Are there any part timing issues, e.g. late releases or late design changes?		
11	Are there any open concerns from the technical review, e.g. items not closed out?		
12	Would the supplier have any IMDS requirements and if so, is the supplier familiar with IMDS requirements?		
13	Does the supplier use error-proofing for Special Characteristics?		

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SUPPLIER ASSESSMENT CONSIDERATIONS

- Manufacturing
 - Safety practices: Metrics, PPE.
 - Experience with similar product
 - Traceability process
 - Preventive and Predictive Maintenance.
 - Experience with tolerance range required.
 - Inspection areas well lit with visual aids
 - Production floor layout / 5S
 - Standard work employed

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SUPPLIER MANUFACTURING ASSESSMENT EXAMPLE

Manufacturing Systems			
1	Has Organization previously done business with this supplier or manufacturing facility?		
2	Does the supplier have experience manufacturing this or similar product?		
3	Is the supplier's manufacturing site in the same region as Organization ?		
4	Can the supplier use existing production equipment for the program?		
5	Does the supplier have experience/capability with similar parts?		
6	Are specialized tooling (special to the current processes at the supplier) or fixtures required for this program?		
7	Does the supplier have in-house tooling/pattern-making capability?		
8	Does the part require special handling or shipping care?		
9	Does the supplier have a traceability process for parts currently produced by the supplier?		
10	Does the supplier have a well defined and implemented process for preventive maintenance?		

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SUPPLIER ASSESSMENT CONSIDERATIONS

- Quality Systems
 - Understanding of process validation.
 - PPM
 - Corrective Action
 - Sub-tier supplier management
 - QMS registration status.
 - Performance metrics
 - Pass Through Characteristic control.
 - Calibration system and resources
 - Special processes

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SUPPLIER QUALITY SYSTEM ASSESSMENT EXAMPLE

Quality System			
1	Does the supplier's recent customer PPM performance meet Organization PPM requirement? If available, note previous year's average in Comments.		
2	Does the supplier track internal PPM? If so, list the average for the past year.		
3	Does the supplier have an effective corrective action process?		
4	Does the supplier have an effective product and process continual improvement process?		
5	Does the supplier have an effective system for managing its sub-suppliers?		
6	Are predictive tools used for predictive maintenance?		
7	Does the supplier have an in-house gage calibration capability?		
8	Is the supplier third-party certified? If so, list any major non-conformances in their most recent third-party surveillance audit in Comments?		
9	Does the supplier have regular management review meetings?		
10	Does the supplier have clearly defined and appropriate metrics for monitoring performance?		

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SUPPLIER ASSESSMENT CONSIDERATIONS

- Purchasing / Commercial
 - Agreement to comply with Terms & Conditions
 - Program Management
 - Inventory Control.
 - Unionization status
 - Facility information (size, utilization, expansion).
 - Contingency planning
 - Capacity planning

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SUPPLIER PURCHASING/COMMERCIAL EXAMPLE

Commercial			
1	Does the supplier have a well-defined program management in place?		
2	Does the supplier have adequate management resources, e.g. engineers, staff, educational qualifications?		
3	Does the supplier have an inventory control system that ensures adequate supply and FIFO of current product?		
4	Is the Supplier's financial rating (Dunn & Bradstreet in the US or it's equivalent in the given country) acceptable?		
5	Did or will the supplier accept Orngaization quality requirements?		
6	Did or will the supplier accept Orngaization PO terms and conditions?		
7	Did the supplier take any exceptions during team feasibility assessment?		

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SUPPLIER ASSESSMENT CONSIDERATIONS

- MP&L
 - Electronic data interchange
 - Understanding of customer and OEM release / ordering system.
 - Ability to communicate shipment, inventory electronically.
 - FIFO system.
 - OTD Performance
 - Modes of transportation used
 - Safety stock

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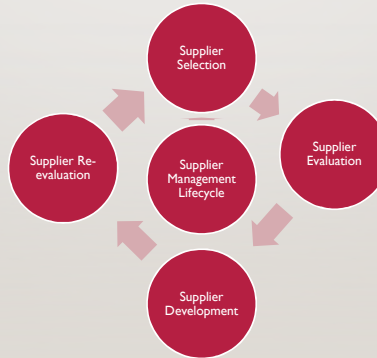
SUPPLIER MP&L ASSESSMENT EXAMPLE

Logistics			
1	What are the different modes of transportation used to ship product? List current modes used e.g. truck, rail, boat.		
2	Is the supplier capable of electronic data transfer (EDI)?		
3	What are the average days of finished product inventory on hand?		
4	Does the facility use a pull system inventory management with FIFO?		
5	Does the supplier have internal packaging design capabilities?		

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SUPPLIER QUALITY MANAGEMENT LIFECYCLE



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SUPPLIER EVALUATION

- Performance monitoring/scorecards.
- QMS system maturity / development

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BALANCED SCORECARD

- Quality
- Delivery
- Cost
- Responsiveness
- Innovation
- Risk

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QUALITY SCORING

- PPM
- Number of SCARs
- Response time / resolution time.
- Past due.

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DELIVERY SCORING

- OTD %
- Number of late deliveries
- Number of early deliveries
- Line Items not shipped on time %
- Actual vs. quoted lead time.

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SUPPLIER COST SCORING

- Percent Total Cost Reduction
- Total Cost Reduction
- Cost Reduction ideas presented.

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RESPONSIVENESS SCORING

- Overall communication
- Emergency requests
- Emergency orders

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RISK SCORING

- Line stops
- Premium freight
- Root cause and N/C incidents.
- Capacity
- Technology change
- Financial stability
- Socio-political events

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INNOVATION SCORING

- Technology and process improvements.
- Best practice sharing

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SUPPLIER SCORECARD EXAMPLE-BASIC

«Supplier_Name»

«Contact_Name»
 «Supplier_Name»
 «Email»
 «Address1»
 «Address3»
 «State», «Country»

REF: Supplier Report Card for «Contact_Name»

Dear «Contact_Name»,

Report card system based on: On Time Delivery (OTD), First Time Through (FTT) performance # of instances of Premium Freight and number of Supplier Corrective Action Requests (SCAR) issued.

OTD is calculated

FTT is calculated by ...

Instances of Premium Freight is the number of instances ...

SCAR is ...

For the month of the following data is recorded for «Supplier_Name»:

Year	OTD	FTT	# Instances of Premium Freight	Number of SCAR issued
«Supplier_Name»	«OTD»	«FTT»	«Premium Freight»	«SCAR»

Should «Supplier_Name» have any questions regarding these data please contact me directly.

Sincerely,

Issuing Authority

cc:

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SUPPLIER DEVELOPMENT AREAS

- Quality Management System development.
- Technical capability development.
- Corrective Action / RCA Development
- Customer specific requirements

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SUPPLIER QUALITY MANAGEMENT SYSTEM DEVELOPMENT

- Per 8.4.2 IATF 16949
- Suppliers must develop, implement and improve a quality management system. The objective is for suppliers to become certified to IATF 16949 in the following progression.
 - Certification to ISO 9001 through third party audit. Third party certification is to be issued by a body bearing the accreditation mark of a recognized IAF MLA (International Accreditation Forum Multilateral Recognition Arrangement) member and where the accreditation body's main scope includes management system certification to ISO/IEC 17021. If authorized by OEM Customer, the minimum acceptable level of QMS development may be compliance to ISO 9001 through second-party audits.
 - Certification to ISO 9001 with compliance to other customer defined QMS requirements (such as Minimum Automotive Quality Management System Requirements for Sub-Tier Suppliers [MAQMSR] or equivalent) through second-party audits;
 - Certification to ISO9001 with compliance to IATF 16949 through second-party audits;
 - Certification to IATF 16949 through third-party audits (valid third-party certification of the supplier to IATF 16949 by an IATF-recognized certification body).

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SUPPLIER QUALITY SYSTEM DEVELOPMENT

- Why is this important to customers?

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TECHNICAL CAPABILITY DEVELOPMENT

- Supplier is critical to customer launch of new program.
- Supplier performance is affecting organization and/or customer.
- Supplier needed for a technology that doesn't make business sense for the organization to have.

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CORRECTIVE ACTION / ROOT CAUSE ANALYSIS

- 8D problem solving
- RCA
 - Fishbone
 - Is / Is Not
 - 3x5Why
- CA closure—system changes to prevent recurrence.

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SUPPLIER MANAGEMENT

- Supplier Orientation
- Action Plans and Open Issues
- Qualification Status
- Communication cadence

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OPEN ISSUES-EXAMPLE

Your
Company
Logo

Supplier logo

Open Items: 2
Closed Items: 1

Revised:
By:

Item #	Program	Action Item	Assigned To	Date			Comments	Priority	Follow up during next plant visit
				Assigne	Target Closure	Closed			
1	All	Supplier Assessment.	Quality Mgr	01/01/17	02/01/17	01/31/17			
2	ABC	PPAP	Quality Eng	01/10/17	03/10/17				
3	XYZ	SCAR 1803	Quality Mgr	04/10/17	04/25/17		Initial response due by 4/11/18		
4									

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SUPPLIER ORIENTATION

- Identification of key resources and points of contact at supplier and customer.
- Understanding of key work processes and requirements
- Communication strategy to identify/clarify expectations and discrepancies.
- Identification of supplier training or development needs
- Reporting methods-status tracking.
- Any issues related to quality, schedule and deliverables.

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CUSTOMER SPECIFIC REQUIREMENTS

- What do your customers require of your supply chain.
 - Direct ship suppliers.
 - Special process providers
 - CQI
 - NADCAP

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SUPPLIER COMMUNICATION

- Site visits / face to face.
 - Still the best way when possible
- Conference calls via WebEx
 - Most efficient
 - Can share information real time.

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SUPPLIER SITE VISITS

- Audits
 - Site Assessment/Follow-up
 - QMS development
- Corrective action verification
- Joint customer-supplier visits.

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SUPPLIER COMMUNICATION WEB BASED CONFERENCE CALLS

- Very cost effective
- Easily arranged and scheduled.
- No limit to amount of people that can participate
- Easier access to SME and other key personnel.

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SUPPLIER PROGRAM MANAGEMENT

- Depending on resources, interlinked web based apps or MS Project Gantt charts.
- Excel sheet
 - Issue number.
 - Program/Part reference.
 - Issue/problem/action item. (Insert generic example).
 - Responsible person.
 - Dates: Assigned, Target Closure, Actual Closed.
 - Comments/status

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DIRECTED BUY

- Clarify expectations between Customer, Tier 1 and Sub-Supplier
- IATF 16949 & AS9100 require Tier one to manage Sub-tier within their system for all elements of 8.4
- RACI/RASI chart is useful for these situations.
 - R=Responsible
 - A=Accountable
 - C=Consulted or S = Support
 - I=Informed (insert generic example)

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RACI EXAMPLE

Task	R	A	S	I
Supplier Assessment	SQ	CQD/CSCM	ENG/PUR	MFG
Supplier PPAP	SUP	SQ	ENG	PUR/MFG
Pricing	SUP/PUR	CSCM	MFG	SAL
End customer Schedules	MFG	SAL	PUR	SQ
Warranty	SUP/SQ	CQD	ENG	PUR/SAL
R = Responsible for deliverable		SQ = Supplier Quality		
A = Approves		CQD = Corporate Quality Director		
S = Supports completion		CSCM = Corporate Supply Chain Mgr		
I = Informed		ENG = Engineering		
		PUR = Purchasing		
		MFG = Manufacturing		
		SUP = Supplier		
		SAL = Sales/Marketing		

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TAKE-AWAYS

- Supplier Assessment
- Supplier Scorecards
- Open Issues Logs
- RACI Chart

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REFERENCES

- Meriam Webster Dictionary www.merriam-webster.com
- ASQ CSQP Primer
- The Certified Supplier Quality Professional Handbook (ASQ Customer-Supplier Division)
- AIAG CQI-19