G. RINGGER CONSULTING, INC. George J. Ringger, MAS, P.E. FAA-DER FAA-DAR Providing Engineering, Quality System, Training, and Airworthiness services to the aviation industry

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SERVICES PROVIDED TO THE AVIATION COMMUNITY

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ADDITIONAL IN-HOUSE CLASSES AVAILABLE FOR YOUR COMPANY...

- □ Maintenance Human Factors for Repair Stations
- □ Human Factors Training for Aviation Distributors
- Distributor Quality Systems Program Development and Training
- □ New FAR Part 145 Manual requirements
- Documentation & Acceptable Traceability
- □ Your Receiving Inspection Program & Acceptable Documentation
- □ Introduction to the FAR's
- □ Internal Auditing: *Back to the Basics!*
- Supply Chain Auditing
- □ Supplier Performance: *"Are you getting the most from your supply-Chain?"*
- □ Jump-start your training program. "Are your employees competent?"
- Corrective and Preventive Action: "A simple Approach to Positive Results"
- □ Root Cause Analysis: "Conducting the Investigation the Right way!"
- □ FAA Suspected Unapproved Parts: "Staying out of the Lion's Den!"
- □ Accident and Incident Related Aircraft Parts: "Know what you're buying!"
- AS9000 & ISO 9001 Process Management: "An Executive Overview."
- □ ISO 9001 to AS9120 Transition: "The New Direction!"

Supplier Performance – Best Practices for Supplier Control

So, how should I manage my Suppliers?

Why is Supplier Control so Important?

- More and more companies outsource manufacturing to strategic sub-tier partners
- Supply chains have become very long.
- Many products are manufactured in other countries
- Many manufacturers have (1) streamlined their supply chain and (2) implemented lean inventory techniques; making them prone to stock shortages
- Supplier product quality and OTD are critical
- Manufacturers must maintain their approved suppliers' status to comply with regulatory (FAA, EASA, NASA, DOD, etc.) and customer requirements.

Suppliers operate their businesses using Processes / Procedures / Standards



We manage our suppliers in the following areas:



We manage Supplier Quality using:



- Audits & Inspections
- Corrective actions
- Incentives
 - (Pricing / Charge-backs)
- Partnerships
- Metrics

We manage our suppliers performance using:

• Supplier selection criteria via:

- audits,
- corrective actions,
- Product conformance via:
 - inspections,
 - Metrics

Supplier /Product Performance Management

We manage our supplier Risk by:

- Identifying Risk
- Assessing Risk
 - Likelihood & consequence
- Mitigating Risk
- Accepting Residual Risk



A few examples of Supplier Risk

- Early/late shipments or delivery to the wrong location
- Non-conforming/wrong products or quantities
- Supplier processes deficiencies
- Supplier country political stability and undesirable events

– (e.g. volcanoes, storms, floods, earthquakes)

- Contract, legal, and regulatory non-compliance
- Information system failures and compromises

Best Practices from Industry

Industry studies identify 6 Best Practices used in supplier management

Ref: http://www.metricstream.com/insights insights_supplier_quality_management.htm

Best Practice #1: Measuring & tracking cost of poor supplier quality

- Most organizations do not track and measure the cost of poor supplier quality (COPSQ) attributed to their suppliers.
- Some companies only track supplier COPSQ by measuring scrap and increase in MRB inventory.
- Materials costs only account for < 50% COPSQ

Managing supplier performance improves profits (Total cost – Not Price!)

"Total cost, <u>not price</u>, is the more important measure when selecting a supplier. Total cost includes the cost of incoming inspection, the cost of managing defective product (e.g., the cost of rework, reinspection, or scrap), and the cost of material of unknown variability entering the buyer's processes and products (e.g., the cost of delays.)"

Thomas J. Cartin & Donald J. Jacoby, *A Review of Managing for Quality and a Primer for the Certified Quality Manager' Exam* (Milwaukee: ASQ Quality Press, 1997), pp 18, 20

Costs (15 to 25% of Sales)

Traditional Costs:

- Material costs
- Waste
- Customer returns
- Inspection costs
- Testing Costs Rejects
- QC Dept. expenses

Additional costs:

- Pricing or billing errors
- Re-inspection costs
- Inventory segregation costs
- Lack of planning
- Additional Purchases
- Excessive overtime
- Premium freight costs
- Excess inventory
- Loss of market share
- Expediting costs
- Complaint handling
- Late paperwork
- Excessive systems costs
- Delayed receivables
- Credit/debit memo costs
- MRB costs
- SCAR tracking costs

Let's compare two companies...

	COMPANY #1	COMPANY #2
SALES	\$1,000,000	\$1,000,000
MATERIAL	\$700,000	\$700,000
OVERHEAD	\$200,000	\$200,000
COSTS		
COPSQ	\$50,000	\$15,000
TOTAL COST=	\$950,000	\$915,000
PROFIT=	\$50,000	\$85,000

3% - 4% COST REDUCTION = +70% PROFIT!!!

Reference source: Certified Quality Manager's Handbook, Table 4.1, ASQ Press, 1999

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Best Practice #2: Cost recovery

Total COPQ = your COPQ + inherited supplier's COPQ

Companies need to <u>proactively</u> work with your suppliers to improve product quality, so that they can reduce your own COPQ.

Suggestion: Implement incentives (pricing or a cost-recovery system, where suppliers either make more or are charged back for providing poor quality of components.

Introduces business discipline & accountability into the supply chain.

Reality: < 50% of companies pursue incentive programs with suppliers.

Majority of these companies only recover material costs from their suppliers.

Best Practice #3: Supplier Audits

- Supplier Audits are one of the best ways to ensure suppliers follow the processes & procedures you agreed to during the selection processes.
- Supplier audits identify non-conformances in manufacturing, shipment, engineering change, invoicing and quality processes.
- Supplier and YOU jointly identify corrective actions within an agreed-upon timeframe.
- Future audits ensure corrective actions have been successfully implemented.
- > 50% of manufacturers <u>do not</u> follow audit best practices.
- By auditing suppliers, YOU ensure the audit process is <u>effective</u> and efficient.

Best Practice #4: Supplier Scorecard

Supplier Scorecards are one of the <u>best</u> techniques in using facts (not opinions, bias or emotion) to:

- Rank a supplier's relative performance within your supply base;
- Tracks improvement in supplier's quality, over time;
- Provides accurate data for future business negotiations.

Following are key operational metrics leading manufacturers track in their supplier scorecard:

- # of Corrective Actions in Last Quarter
- Average Response and Resolution time for Corrective actions
- # RMAs Processed per month
- MRB Inventory Levels
- # of in-house Rework Hours due to Supplier Components
- % of Actual COPSQ Recovered from Suppliers
- # of Customer Complaints or Warranty Reserves needed
- Relative ranking of supplier
- Performance against benchmark
- Supplier Non-conforming Product Quality

Let's look at the use of scorecards

An effective Supplier management tool

A recent industry study...

- Conducted by Wells Fargo Services Company and presented at the 89th Annual International Supply Management Conference
- This study included companies from a variety of industries, including aerospace, agriculture, electronics, financial, household manufacturing, semiconductor, telecommunications, and utilities.

Ref: Valerie J. Stueland, A.P.P. – Supplier Manager Wells Fargo Services Company

Study focused on 4 scorecard areas

- 1. Factors and Criteria;
- 2. Weighting;
- 3. Rating Scale;
- 4. Ease of Use & Effectiveness
 - in providing data for decision making.

1. Factors and Criteria

In all cases both quality & delivery were <u>always</u> present.

In majority of the cases cost & service were present.

- Service factors included:
 - service levels,
 - support,
 - responsiveness.

2. Weighting

- Majority of supplier evaluations include weighting.
- Scales include % per criteria & # values.
- Weighting is based on the number of categories under each factor criteria.
 - e.g. 5 measures related to quality vs only 2 related to delivery.
 - infers quality is weighted more than delivery.

2. Weighting (continued)

For scorecards using a weighting scale, total percentages for each category is shown: Quality 25% Delivery 24% Total Cost 22% Service 19% Design control 4% R&D 4% Diversity 2%

3. Rating Scale

Scorecards use the Likert-type scale; – Typically 1 (negative) to 5 (positive)

Some scorecards used a Likert-type scale using mathematical computations for their ratings.

No scorecard provided a completely objective rating scale.

Majority of scorecards used <u>both</u> subjective & objective aspects.

4. Ease of Use and Effectiveness in providing data for decision making.

The following analysis assumed all relevant data needed to fill out the scorecard was available.

The actual process of assembling the data was difficult.

- Is data gathering process manual or electronic?
- Is the data supplied by the supplier accurate?

Ease of Use and Effectiveness

The study calculated the time to fill in one page of an evaluation would take about 5 minutes.

Therefore, an average 12-page scorecard would take approx 1 hour.

of Criteria on scorecards studied :7 min to 16 max.

The Study found...

~ 70% of the scorecards could be completed within approximately 1 hour.

~ 30% of the scorecards would have taken
 > 1 hour to complete.

The Study also found...

Scorecard instructions impact the ease of use and effectiveness.

- 1/2 of scorecards provided instructions that would allow a new user to pick up the scorecard and evaluate any supplier.
- ~ 1/2 of scorecards provided instructions that were either very complex, or did not provide any type of instructions whatsoever.

Scorecards vs Trending

- IDs <u>isolated</u> performance:
 - Good vs Bad
 - Short-term
- Reactive
- Punitive
- Encourages "quickfixes"

- Tracks <u>direction</u> of performance:
 - Getting better or worse
 - Long-term
 - Proactive
 - Partnership
 - Encourages long-term continual improvement

Trend Analysis...

• Helps cut through the data:

- Rolling averages
- Run charts
- Control charts

Better? The same? Worse?

Real data from a real company...

								<u>3 month</u>	Rolling Av	<u>/g</u>	
<u>Month</u>	<u>QTY</u>	<u>REJ</u>	<u>TAT</u>	<u>WY</u>	<u>%REJ</u>	<u>%TAT</u>	<u>%WY</u>	<u>%REJ</u>	<u>%TAT</u>	<u>%WY</u>	
Jan	116	3	0	3	2.6%	0.0%	2.6%				
Feb	68	2	2	0	2.9%	2.9%	0.0%				
Mar	31	0	5	1	0.0%	0.0%	3.2%	2.3%	3.3%	1.9%	
Apr	21	8	4	0	38.1%	19.0%	0.0%	8.3%	9.2%	0.8%	
Мау	89	13	5	4	14.6%	5.6%	4.5%	14.9%	9.9%	3.5%	
Jun	8	1	0	0	12.5%	0.0%	0.0%	18.6%	7.6%	3.4%	
Jul	5	0	0	1	0.0%	0.0%	20.0%	13.7%	4.9%	4.9%	
Aug	15	13	4	0	86.7%	26.7%	0.0%	50.0%	14.3%	3.6%	
Sep	7	1	0	0	14.3%	0.0%	0.0%	51.9%	14.8%	3.7%	
Oct	78	2	0	2	2.6%	0.0%	2.6%	16.0%	4.0%	2.0%	
Nov	23	3	1	0	13.0%	4.3%	0.0%	5.6%	0.9%	1.9%	
Dec	8	0	1	6	0.0%	0.0%	75.0%	4.6%	1.8%	7.3%	
Totals:	469	46	22	17	9.8%	4.7%	3.6%	9.8%	4.8%	4.6%	

Better?

Worse?

The same?

VENDOR 'A' 3 MONTH ROLLING PERFORMANCE



Benchmark the Industry

✓ Boeing
✓ Rockwell Collins
✓ Lockheed
✓ Northrop Grumman
✓ Many others, as well

Each have their own excellent supplier programs. These Scorecards combine Likert KPIs with trending!

Example

Key Performance Indicators (KPIs) and their grouping

			[Supplie	er X] ·							
[Enter Supplier N	Name]			Reporting Period						I Quality Rating	99.10%
LM Supp Num	123456			OPM Start Date					I	Delivery Rating	97.30%
	1234307691011				1		1				495
	Oub-Tier	Control	Manufacturing	Performance	Internal (Quality	Deliv	cı y			
Score	Average Quality Rating	Average Delivery Rating	Kits Late to Floor (# days)	On Time back from processor	DPMO at 1st sub assembly	Fist Pass Yield	Discrepancies at ATP	On-time to internal schedule	Score	Comments	
10	100.00	100.00	0.00	100.00	200	100.00	10.00	100.00	10	KPI 1 Comment	
9		08 86	1 /3	01 42	252	07 17	15.00	00.57	9	Category 1 Comment	
0 7	96.00	97.71	2.80 4.29	91.43	504 656	94.29	20.00	96.57	0 7		
6	92.00	95.43	5.71	82.86	809	88.57	30.00	97.14	6		
5	90.00	94.29	7.14	78.57	961	85.71	35.00	96.43	5		
4	88.00	93.14	8.57	74.29	1113	82.86	40.00	95.71	4		
3	86.00	92.00	10.00	70.00	1265	80.00	45.00	95.00	3		
2	84.00	90.86	11.43	65.71	1417	77.14	50.00	94.29	2		
1	82.00	89.71	12.86	61.43 57.14	1569	74.29	55.00 60.00	93.57	1		
Performance	91.00	89.00	9.00	96.00	500.00	70.00	30.00	93.00	Perform	ance in Reporting Peri	iod
	-		0.00	00.00	000.00	10.00	00.00	00.00			lou
Score	5	1	3 9				6	0	Score		
Weight	5	5	10		15 20				Weight		100.00
Value	25	5	30	225	120	120 0		90 (
Category	Sub-Tier	Control	Manufacturing	g Performance	Internal Quality		Delivery			Overall OPM	
Stretch Goal		100	-	350		350		200		1000	
Baseline		30		105		105		60		300	
Actual		30		255		120		90		495	
	T. O. ()						I 				
Sub-Tier Control		Internal Schedule		Internal Quality		Delivery			Overall OPM		
		05 Mar 06 Apr 06 Jun 08	3405	Meros Apros Mayos An	06 34:06		y04 Jun04 Jul08	2008 Fa		22/0	

Average of three to six months data equals baseline performance

Entre Suppler Name) Beyoning Period OPM Start Date Delivery Delivery from the original period Delivery from the original period Delivery Suppler Name Average Quality Average Delivery Rating Average Period Average Delivery Average Rating Kits Late to Floor (# days) On Time back from processor DPMO at 1st sub assembly Fist Pass Vield Discrepancies at ATP On-time to internal schedule Score Comments 10 100.00 100.00 0.00 100.00				[Supplie	r X] ·							
Su Tier Control Manufacturing Performance Internal Quality Delivery Average Quality Rating Average Pelivery Rating Kits Late to Floor (# days) On Time back from processor DPMO at 1st sub assembly Fist Pass sub assembly Discrepancies at ATP On-time to internal at ATP Score Schedule Comments 10 100.00 0.00 0.00 100.00 100.00 10 Score	[Enter Supplier N LM Supp Num DUNS Num	lame] 12345t 123456 391011			Reporting Period OPM Start Date						L Quality Rating L Delivery Rating Overall OPM	99.10% 97.30% 495
Average Quality Rating Average Pelivery Rating Kits Late to Floor (# days) On Time back from processor DPMO at 1st sub assembly Fist Pass Field Discrepancies at ATP On-time to internal Schedule Score Comments 10 100.00 00.00 0.00 100.00 200 100.00		Su -Tier	r Control	Manufacturing	Performance	Internal C	Quality	Deliv	ery			
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9 98.00 98.86 1.43 9571 352 97.14 15.00 99.29 9 Category 1 Comment 7 94.00 96.57 4.29 87.14 656 91.43 25.00 97.86 7 6 92.00 95.43 5.71 82.86 80.90 88.57 30.00 97.14 6	10	100.00	100.00	0.00	100.00	200	100.00	10.00	100.00	10	KPI 1 Comment	
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6 92.00 95.43 5.71 62.86 809 88.57 30.00 97.14 6 4 98.00 12.44 96.7 74.30 141.3 92.86 40.00 96.74 4 4 3 98.00 92.44 96.7 74.30 141.3 92.86 40.00 96.74 4 4 3 98.00 92.00 10.00 70.00 1285 80.00 95.00 93.57 1 4 1 82.00 88.57 14.29 57.14 1721 71.45 66.00 93.57 1 4 0 80.00 88.57 14.29 57.14 1721 71.45 66.00 93.57 1 4 Performance 91.00 89.00 9.00 96.00 500.00 70.00 30.00 93.57 1 1 Veight 5 5 10 25 15 20 15 5 Weight 1 Stretch Goal 30 25 30 225 120 0 90 <td>7</td> <td>94.00</td> <td>96.57</td> <td>4.29</td> <td>87.14</td> <td>656</td> <td>91.43</td> <td>25.00</td> <td>97.86</td> <td>7</td> <td></td> <td></td>	7	94.00	96.57	4.29	87.14	656	91.43	25.00	97.86	7		
5 90.00 94.29 7.14 78.57 961 85.71 35.00 96.43 5 4 3 88.00 92.00 10.00 70.00 1285 80.00 95.00 3 5 1 2 91.66 90.66 11.16 60.71 11.17 77.14 76.62 2 2 5 1 5 2 1 5 2 1 5 5 5 2 1 5 5 2 1 5 5 2 1 5 5 2 1 5 5 2 1 1 5 5 2 1 5 5 2 1 1 5 5 2 1	6	92.00	95.43	5.71	82.86	809	88.57	30.00	97.14	6		
4 88.00 20.04 24.27 24.20 1113 89.26 40.00 06.21 4 4 3 86.00 92.00 10.00 70.00 1265 80.00 45.00 95.00 3 2 1 4	5	90.00	94.29	7.14	78.57	961	85.71	35.00	96.43	5		
3 86.00 92.00 10.00 70.00 1265 80.00 45.00 95.00 3 2 0.00 11.00 0.001 11.11 71.11 0.000 91.00 2 1 1 82.00 89.71 12.86 61.43 1569 74.29 55.00 93.57 1 1 0 80.00 88.57 14.29 57.14 1721 71.43 60.00 92.86 0 1 Performance 91.00 89.00 90.00 96.00 500.00 70.00 30.00 92.86 0 1 Score 5 1 3 9 8 0 6 0 Score Veight 5 5 10 25 15 20 15 Weight 1 Value 25 5 30 225 120 0 90 0 Value Category Sub-Tier Control Manufacturing Performance Internal Quality Delivery Overall OPM 300 Actual 30	4	88.00	02.14	<u> 9 57</u>	74.20	1112	82.86	40.00	05 71	4		
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Stretch Goal 100 350 350 200 1000 Baseline 30 105 105 60 300 Actual 30 255 120 90 495	Category	Sub-Tier	r Control	Manufacturing	Performance	mance Internal Quality		Delivery			Overall OPM	
Baseline 30 105 105 60 300 Actual 30 255 120 90 495	Stretch Goal		100		350		350		200	1	1000	
Actual Observe Observe Overall OPM Sub-Tier Control Internal Schedule Internal Quality Delivery Overall OPM	Baseline		30		105		105		60		300	
Sub-Tier Control Internal Schedule Internal Quality Delivery Overall OPM	Actual		20		255		100		00		405	
Sub-Tier Control Internal Schedule Internal Quality Image: Control Internal Schedule Internal Quality	Actual				200		120		90		495	
	Sub-Tier Control			Internal Schedule		Internal Quality		Delivery			Overall OPM	

Weight

Weighting the KPIs

				[Supplie	r X] ·							
[Enter Supplier N LM Supp Num DUNS Num	1 ne 1 34 1 34] 456 4567891011			Reporting Period OPM Start Date						I Quality Rating I Delivery Rating Overall OPM	99.10% 97.30% 495
		Sub-Tier	Control	Manufacturing	J Performance	Internal (Quality	Deliv	ery			
Score		verage Quality Pating	Average Delivery Rating	Kits Late to Floor (# days)	On Time back from processor	DPMO at 1st sub assembly	Fist Pass Yield	Discrepancies at ATP	On-time to internal schedule	Score	Comments	
10		00.00	100.00	0.00	100.00	200	100.00	10.00	100.00	10	KPI 1 Comment	
9		8.00	98.86	1.43	95.71	352	97.14	15.00	99.29	9	Category 1 Comment	
8		6.00	97.71	2.86	91.43	504	94.29	20.00	98.57	8		
7		.00	96.57	4.29	87.14	656	91.43	25.00	97.86	7		
6		9.00	95.43	5.71	82.86	809	88.57	30.00	97.14	6		
5		9 00	94.29	7.14	78.57	961	85.71	35.00	96.43	5		
4		8000	93.14	8.57	74.29	1113	82.86	40.00	95.71	4		
3		86 10	92.00	11.42	<u>70.00</u>	1205	77.14	45.00	95.00	3		
<u> </u>		82 0	90.00	12.86	61.43	1417	77.14	55.00	94.29	2 1		
0		80	99.57	14.20	57.14	1709	74.29	60.00	02.86	0		
Porformanco		01.	80.00	0.00	06.00	500.00	70.00	20.00	03.00	Porform	anco in Poporting Pori	ind
		51.0	09.00	3.00	30.00	300.00	70.00	30.00	90.00		ance in Reporting Fen	
Score		5	1	3 9		8 0		6	0	Score		
Weight		5	5	10 25		15 20		15 5		Weight		100.00
Value	_	25	5	30	225	0 120 0		<u>) 90 (</u>		Value		
Category		Sub-Tier	Control	Manufacturing	Performance	Internal C	Quality	Deliv	ery		Overall OPM	
Stretch Goal			100		350		350		200		1000	
Baseline			30		105		105	105 60			300	
Actual			20		100		100		00		405	
Actual					200		120		90		495	
Sub-Tier Control		Internal Schedule		Internal Quality Delivery		Delivery			Overall OPM			
		05 Mar-06 Apr-06 May-06 Jun-06	Jaros Feb-06	Mat-06 Apr-06 May-06 Jun	06 Jul-06	Jan 06 Fab 06 Mar 00 Apr 00 Ma	8044 90-m4 80-y	Jan 06 Feb-	4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4	100 K.		

Determine the value for each KPI

			[Supplie	er X							
[Enter Supplier N LM Supp Num DUNS Num	Name] 123456 1234567891011			Reporting Period OPM Start Date						I Quality Rating I Delivery Rating Overall OPM	99.10% 97.30% 495
	Sub-Tier	Control	Manufacturing	g Performance	Internal C	Quality	Delive	ery			
Score	Average Quality Rating	Average Delivery Rating	Kits Late to Floor (# days)	On Time back from processor	DPMO at 1st sub assembly	Fist Pass Yield	Discrepancies at ATP	On-time to internal schedule	<u>S</u> core	Comments	
10	100.00	100.00	0.00			les e el les			10	KPI 1 Comment	
9	98.00	98.86	1.43	KPI value:	Determ	ined by	/ muitipiyi	ng the	9	Category 1 Comment	
8	96.00	97.71	2.86		h (h 17			0	8		
6	94.00	90.57	4.29	KPI Score	by the K		gnt input.		6		
5	90.00	94 29	7 14	O = 1 =1 =			U		5		
4	88.00	93.14	8.57	Calculation	1:5X5=	= 25			4		
3	86.00	92.00	10.00						3		
2	84.00	90.86	11.43						2		
1	82.00	89.71	12.86						1		
0	80.00	88.57	14.29		1721	71.43	60.00	92.86	0		
Performance	91.00	89.00	9.00		500.00	70.00	30.00	93.00	Perform	ance in Reporting Peri	iod
Score	5	1		9	8	0	6	0	Score		
Weight	5	5	10	25	15	20	15	5	Weight		100.00
Value	25	5	30	225	120	0	90	0	Value		
Category	Sub-Tier	Control	Manufacturing Performance		Internal Quality		Delivery			Overall OPM	
Stretch Goal		100		350		350		200		1000	
Baseline		30		105		105		60		300	
Actual		30		255		120		90		495	
/ lotual				200		120				100	
Sub-Tier Control		Internal Schedule		nternal Quality		Delivery			Overall OPM		
Jan 66 Feb 00 Mar 06 Apr 06 May 06 Jan 06 Feb 00		-56 Mar 06 Apr 06 Jun 06	Jur 06	Marcia Aprola Mayola Jun	06 Jul-06		96 Juli (9 Juli)	20-08 Feb	40, 20	.306	

Bar Chart for KIP Group

			[Supplier X] ·								
[Enter Supplier N LM Supp Num DUNS Num	Name] 123456 12345678910	Metric Group	Bar Cha	rts:							99.10% 97.30% 495
Score	Sub-T Average Quality Rating	This bar chai netric group	rt plots 4	months	of actua	l values	s for the S	Supplie	r Per	formance	
9 8 7 6 5 4 3 2 1 0 Performance	98.00 96.00 94.00 92.00 90.00 88.00 86.00 84.00 82.00 80.00 91.00	98.60 97.71 96.57 95.43 94.29 93.14 92.00 90.86 89.71 88.5 89.		70.00 65.71 61.43 57.14 96.00	352 504 656 809 961 1113 1265 1417 1569 1721 500.00	97.14 94.29 91.43 88.57 85.71 82.86 80.00 77.14 74.29 71.43 70.00	15.00 20.00 25.00 30.00 35.00 40.00 45.00 50.00 55.00 60.00 30.00	99.29 98.57 97.86 97.14 96.43 95.71 95.00 94.29 93.57 92.86 93.00	9 8 7 6 5 4 3 2 1 0 Performar	Category 1 Comment	
Score	5		3	9	8	0	6	(Score		
Weight	5		10	25	15	20	15	5	Weight		100.00
Value Category Stretch Goal Baseline Actual	Sub-T	100 30 30	30 hufacturing Perfo	225 ormance 350 105 255	120 Internal Qu	0 Jality 350 105 120	90 Delive	ry 200 60		Overall OPM 1000 300 495	
Sub-Tier C Atrol		Internal S	5 chedule	Jan 06 Feb-06 Mer	ernal Quality		Delivery			Overall OPM	2408

Best Practice #5: Closed Loop Corrective Action

- Systematic reductions in COPSQ can be attained by ensuring a closed loop corrective action process is functioning.
- It is critical to deploy a closed-loop, integrated QMS, rather than a set of loosely connected responses from one or or a few suppliers.

Best Practice #6: Engaging Suppliers in quality systems Key engagements include:

- Supplier not having to deploy a mandated QMS within their organization just-for-you.
- Supplier should be able to proactively feed performance data to you.
- Receiving real-time supplier performance data should allow you to monitor supplier performance in real-time.

Summary

- Reviewed the importance of controlling supplier performance
- Identified how Suppliers operate their businesses using:
 - Processes / Procedures / Standards
 - ✓ Identified how companies control suppliers through:
 - Quality Management / Supplier /Product Performance Management / Risk Management

 Walked through the Best Practices used by industry for controlling supplier performance.

Thanks for attending!

and remember...

"To stop learning.... is to stop living." © 2007 George J. Ringger

Questions?



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