MMOG/LE

Materials Management Operations Guideline/Logistics Evaluation

July 2009





Agenda



- Why MMOG/LE?
- What is MMOG/LE?
- Completing the Self-Assessment
- Who is Requiring MMOG/LE?
- MMOG/LE Key Criteria
- AIAG/Odette MMOG/LE Benefits Survey
- Customer Success Stories
- Supporting Training and Documents Available







Why MMOG/LE?





Improving Supply Chain Delivery Performance

- Gain control of processes
 - Reduce line stoppages, inventory carrying costs, premium freight, rework, lead times
- Gain control of supply chain
 - Increase inventory visibility
 - Reduce supply chain risk
- Support continuous improvement
- Increase customer satisfaction
- Increase competitiveness





MMOG/LE Outside the Automotive Industry

- Other non-automotive industries
 - Hospitals
 - Construction
 - Aerospace
 - Chemical
 - Electronics
 - Industrial
 - Retail
- Universities







What is MMOG/LE?





Principles of Global MMOG/LE

- Recommended standard for materials and logistics
- Self-assessment tool for identifying gaps in processes
- Based on agreed business processes
 - By OEMs and suppliers
 - Ford, Chrysler, PSA, Renault, Volvo Car, Volvo Truck, Bosch, Johnson Controls, etc.
- Based on extensive, best practices
 - 6 chapters
 - 206 criteria
- Determine current level of plant performance





Scoring Summary (ABC Classification)

Supplier is considered to be at or near "world class" standards (90% or higher).
Class standards (30 /6 of flighter).

Supplier is deficient in two or more aspects of a given category or multiple categories (75% < 90%). An action plan should be put in place and the corrective action should not require a significant amount of time to implement.

C Level Supplier is deficient in one or more critical or high impact aspects (75% or less). Action plans required to ensure deficiencies do not result in serious or prolonged issues to the customer.



MMOG/LE Self Evaluation Categories

- Strategy and Improvement
- Work Organization
- Production and Capacity Planning
- Customer Interface
- Production and Product Control
- Supplier Interface





MMOG/LE Translations

Available in 13 languages including:

English French German

Spanish Portuguese Chinese

Romanian Czech Russian

Turkish Japanese Slovene

Korean





What Does this Mean for Suppliers?

- Attend AIAG/Odette MMOG/LE standard training
 - Understanding and building a team to complete assessment
- 2. Complete self-assessment
 - Complete internal team review
 - Develop gap analysis and action plan for customer, internal, and sub suppliers
- 3. Implement Action Plan
 - Internal processes and systems
 - Sub suppliers (e.g, Tier 2)
- 4. Customer certifies self-assessment score







Completing the Self-Assessment





Download the Self Assessment

1.4.2	There shall be a process to identify and take corrective actions on deficiencies and/or unstable processes found during internal assessments.				
Why?	For organizations to remain competitive and reduce cost be identified.				
Criteria:	Minimum requirement (Additional areas to be cover requirements).				
F3	Bottle neck processes.				

1.4.2	Il doit exister un processus permettant de définir et de mettre en place des actions correctives pour les process défaillants identifiés lors d'audits internes.
Pourquoi ?	Afin que l'entreprise reste compétitive et réduise ses coûts process à améliorer. LES CRITERES DECRITS CLAPRES REPRESENTENT L
Criteria:	LES CRITERES DECRITS CI-APRES REPRESENTENT L Des process complémentaires peuvent être mis en place pour repondre a des besoins clients spécifiques.
F3	Goulots d'étranglement.

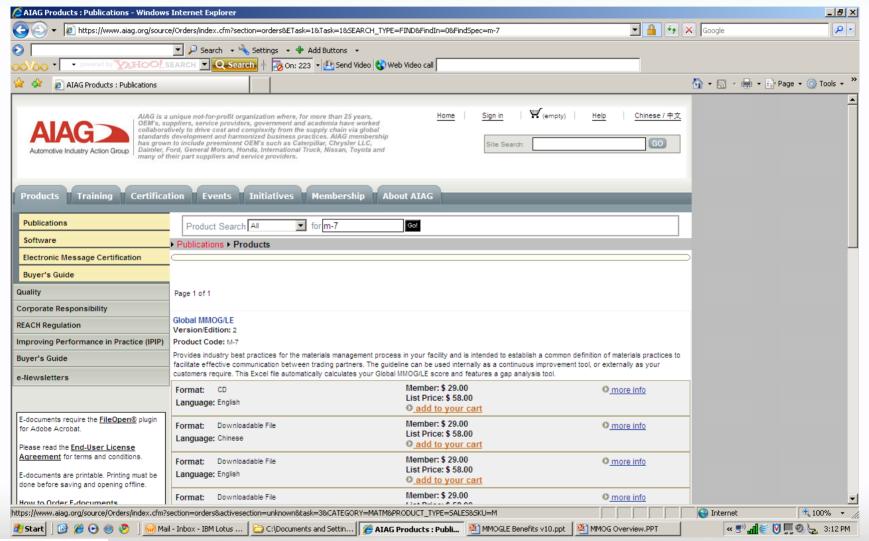
1.4.2		必须有一个过程以对那些在内部评审期間所发现的不足和 / 或不稳定过程,进行识别并采取9 正措施。			
为什么?		为了使组织保持竞争性并降低成本,需要识别要改进的特定区	CHINESE		
准则:		最低要求(要包含特定顾客所要求的其他领域)。			
F3	х	瓶颈的过程。			

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ODETTE

F3 ボトルネック・プロセ

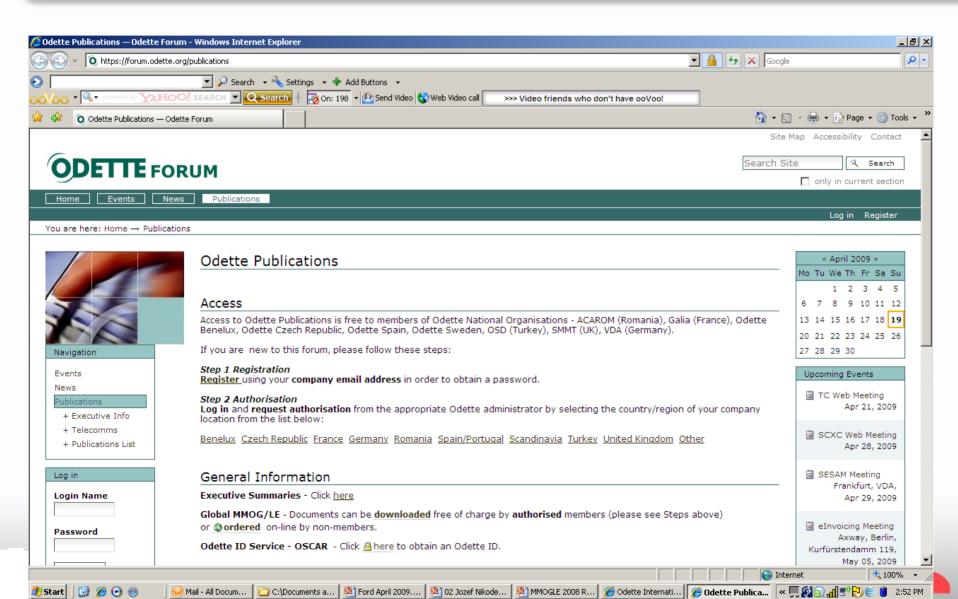
www.aiag.org







www.odette.org



Complete the Form Each Question is Yes ("X") or No (Blank)

1.2 Objectives

1.2.1

Objectives relative to the Materials Planning and Logistics function are defined, communicated and understood within the organization.

Why?

Objectives allow departments and employees to focus on areas of importance to achieve customer satisfaction and the organization's Materials Planning and Logistics strategy.

Criteria

F2

All objectives are measurable and consistent with the organization's Materials Planning and Logistics strategy.

EQOS - Inventory accuracy is measured by the cycle count program, supplier delivery performance, customer delivery performance.

F2

X

Objectives are accepted by all relevant functions and are clearly cascaded throughout the organization.

EQOS reviewed by operations and at staff meetings and posted monthly for all employees to review.

F2

Objectives are reviewed with senior management at planned intervals.



Populates the gap analysis tab





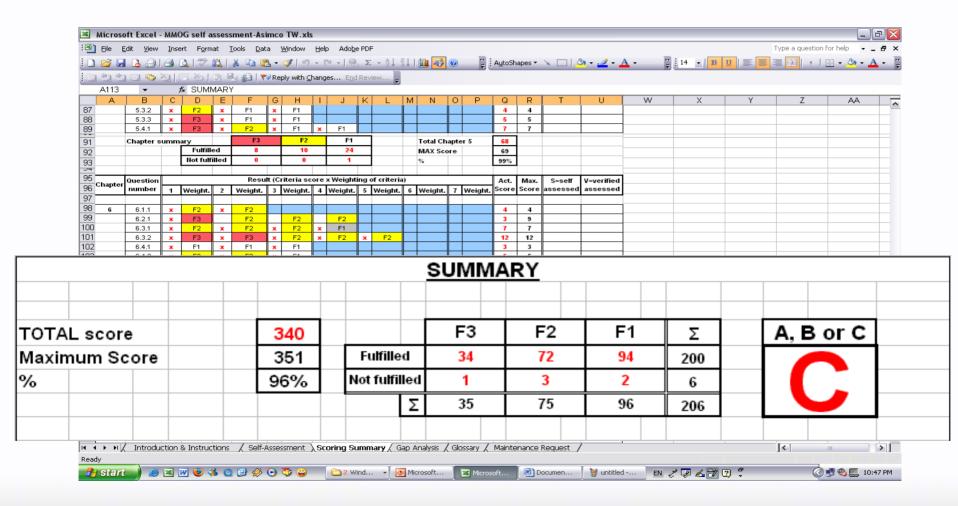
Each Criteria is Weighted

- F3 A <u>fundamental</u> requirement of the organization's operations. If unmet, there is a high risk of interruption to the organization's and/or customer's operations and the likelihood of additional costs being incurred. There are 35 F3 criteria which represents approximately 30% of the total available score.
- F2 A process that has <u>significant</u> importance to the efficiency and effectiveness of the organization's operations. If unmet, the organization's performance and customer satisfaction may be seriously affected. There are 75 F2 criteria which represents approximately 43% of the total available score.
- F1 A process that demonstrates ongoing control of operational processes contributing to the organization's overall competitiveness. If unmet, the organization's long-term sustainability and competitiveness may be negatively impacted. There are 96 F1 criteria which represents approximately 27% of the total available score.





Submit Scoring Summary







Submit Gap Analysis including Action Plan List of All Unfulfilled Criteria (Blank)

Element	Criteria	Question	Criteria	Desired State	Current State	Gap	Action Required
Lielliell	Cinceria	# +	Weight -	Desired state	Current state	Vap ▼	Acdon Required
1.3 Measurement, Analysis and Action Plans	1.3.1	4)	F1	Graphical analysis tools, (e.g., Pareto graphs) displaying historical and trend data are used to track critical areas over time.	,-	·	
1.4 Continuous Improvement	1.4.1	1)	F1	A defined process supported by management for continuous improvement is used within the entire organization and with all supply chain partners.			
2.3 Resource Planning	2.3.2	2)	F3	Personnel shall be trained in contingency procedures.			
4.1 Communication	4.1.1	1)	F2	There are agreed contingency plans established between both parties to maintain permanent communication during bottle-neck situations.			
4.1 Communication	4.1.1	2)	F2	The customers' goals regarding Materials Planning and Logistics performance are clearly defined (e.g., Customer delivery instructions/schedules), visualized and followed-up by the organization.			
6.5 Transportation	6.5.1	3)	F2	The organization has the ability to track and trace in-bound material from time of supplier shipment through to receipt of material. (e.g.: when shipments are delayed)			

Who is requiring MMOG/LE?





OEM	EMEA	North America	South America	Asia/ Pacific	Frequency of Submission	Comments
CHRYSLER	Europe	Yes	TBD	Yes	Annually	Chrysler's requirement for 2008 is that suppliers must complete the MMOG/LE document and have it available upon request.
Ford	Yes	Yes	Yes	Yes	Annually. This is a requirement for Q1.	Currently, all regions using MMOG for Q1 require Level A; exception for Europe: for current Q1 suppliers Level B is accepted for 2008 certification update period (May 1st - July 31st), changed to be communicated 2nd half of 2008.
PSA PEUGEOT CITROËN	Western Europe and Central and Eastern Europe only		Yes		New vehicle project	Strong involvement of the plant management is required in order to make sure that progress is in place.
RENAULT	Yes	Yes	Yes	Yes	Required all suppliers	
Volvo Car	Yes	Yes	Yes	Yes	Annually. This is a requirement for Q1	
Volvo Group	Europe, a few suppliers in the Middle East	Yes	Yes, Brazil	India, China	Annually self-audit submission and follow-up to be implemented	

OEM	Supplier Audit Policy
CHRYSLER	Supplier evaluations are completed by Chrysler personnel using the Supply Process Sign Off (SPSO) for new suppliers, new supplier locations, and problem suppliers. The SPSO encompasses elements inclusive of the MMOG self-assessment. Additional audits will be conducted on suppliers that have a significant variance in the self-assessment ranking and their actual Chrysler Supply performance rating.
Ford	Potential suppliers, new suppliers, and problem suppliers. All suppliers will eventually get an audit. Major and problem suppliers will be prioritized.
PSA PEUGEOT CITROËN	Suppliers are consulted on the Global MMOG/LE in the Project Phase. Annual audits are not required annually, only during the project phase. In the Trial phase, evaluations are carried out if there are problems with the supplier.
RENAULT	New and problem suppliers.
Volvo Car	An attempt is made to visit all new suppliers and big volume suppliers. For potential suppliers self-assessment is the first step.
Volvo Group	Potential suppliers, new suppliers, and low performing suppliers.

OEM Focus During MMOG/LE Audits

- Strategy and Improvement
 - Management commitment
- Capacity and Production Planning
- Supplier Interface (Tier 2)
 - Performance measurement
 - Sub-tier supplier communication
 - Sub-tier suppliers in emerging markets
- Improvement Plan
- Self-Assessment Quality



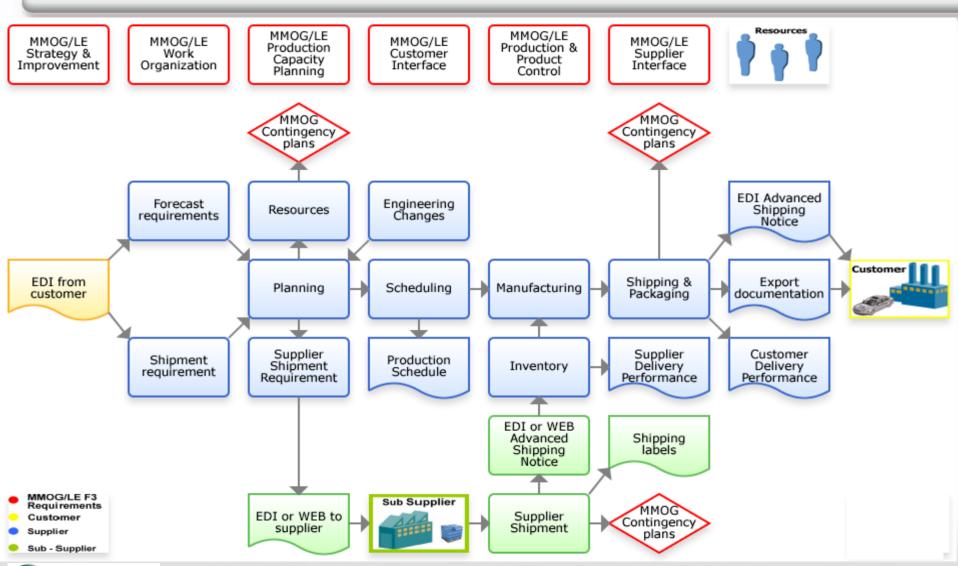


Key MMOG/LE Criteria



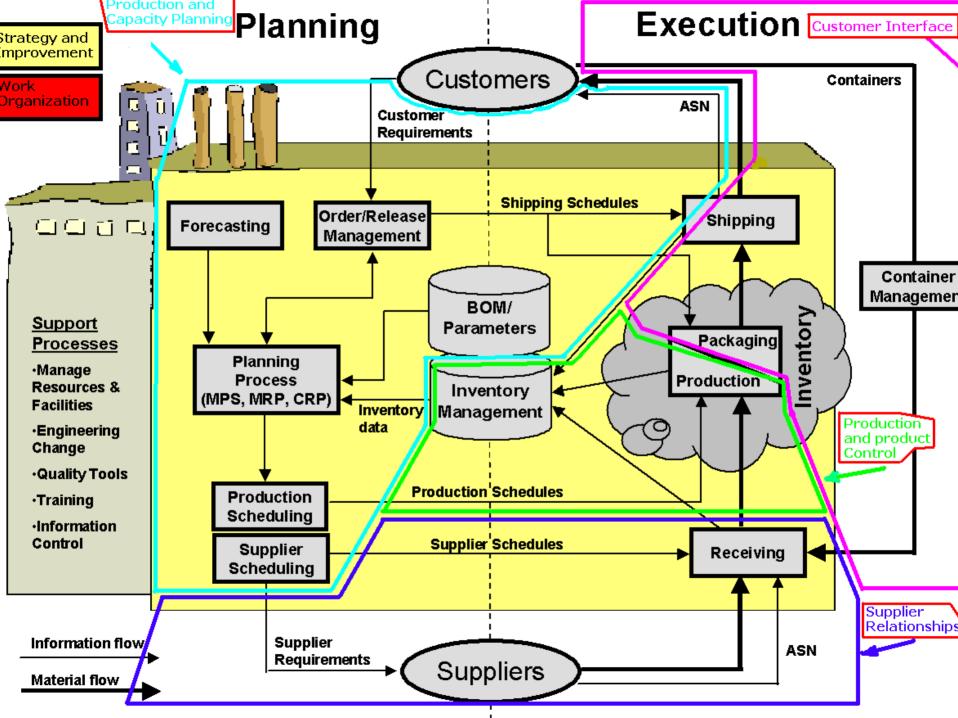


MMOG/LE Processes









MMOG/LE Evaluation Categories

1. Strategy and Improvement

Covers vision, strategy, objectives, KPIs, analysis, action plans, corrective and preventive actions, continuous improvement, supply chain development

2. Work Organization

Covers organizational processes and procedures, contingency plans, work environment, employee certification and training, roles and responsibilities

3. Production and Capacity Planning

Covers product realization, capacity planning, raw material, WIP, obsolesce, spare parts, production planning, and MRP (planning system)



MMOG/LE Evaluation Categories

4. Customer Interface

Customer contact lists, EDI (forecast, schedules), packaging and labeling, returnable containers, shipping (ASNs), bar code labels, equipment calibration, transportation, and customer satisfaction and feedback

5. Production and Product Control

Material identification, inventory tracking and accuracy, material flow optimization, phasing out inventory, inventory buffers, defective material handling, engineering change control, and traceability

6. Supplier Interface

Sub supplier selection and evaluation, materials and logistics agreements, supplier contacts, communication, contingency planning sub tier electronic communications (releases, schedules, ASNs), packaging and labeling, transportation, and material receipt







MMOG/LE Results Identified by OEMS





Renault, Revoz Experience



MMOG/LE mandatory in project phase

New Twingo, Service Rate comparison, July 2007:

- New suppliers using Global MMOG/LE
 - Service Rate = 91 %
- 'Old' suppliers
 - Service Rate = 80 %





Ford and MMOG/LE Delivery Rating Improvements



- 1641 suppliers in North America completed MMOG/LE
- As of December 31st, 2007:
 - 90% of suppliers reporting MMOG/LE Level "A"
 - 90% of suppliers have a delivery rating > 80
 - 15% delivery improvement in the past 10 years





Ford and MMOG/LE Benefits

- Improved Ford Delivery Ratings
 - ASN data accurate and timely
 - Up-to-schedule shipments
 - Correct packaging and labeling
 - Premium instances reduced
- Improved communication with the Ford customer locations
- Fewer Ford plant shut downs due to materials management issues

All of which lead to increased customer satisfaction!





Ford and MMOG/LE Benefits

Feedback and observations from supplier onsite audits

- Cost reductions; specifically inventory carrying cost of raw material, WIP, and finished goods
- Optimization of inventory safety stock levels
- Improvement in floor space utilization
- Adherence to FIFO practices
- Accurate labeling of material
- Efficiencies in shipping and receiving areas with established window times
- Accurate part tracking
- Correct shipment being loaded on the truck
- Better understanding of material management system
- Visual organization Plan For Every Part





Ford and MMOG/LE China Tier 1 Supplier's Opinions



- Reduction in raw material, work-in-process and finished inventory
- More efficient process from receiving raw material to shipping inventory
- Visible signs on shop floor identifying manufacturing operations
- Use of metrics to capture failure in process
- Importance of appropriate packaging
- More organized warehouse: FIFO process used more effectively
- More control and accountability in the material ordering process
- More warehouse space
- Ease of production planning and scheduling process
- Ability to compare material received versus material shipped
- Ability to see ASN's from tier 1's and pay tier 1's electronically
- Improved communications within the supply chain
- Less errors in delivery rating







Suppliers Logistics KPIs (2004-2008)

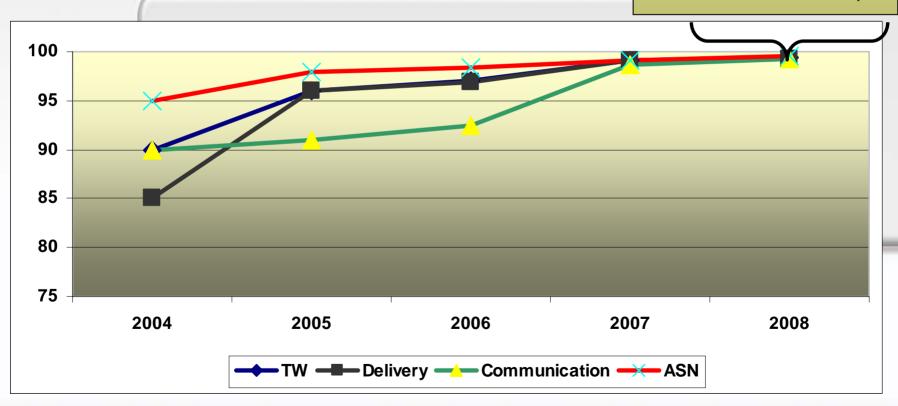


2008 Performances;

Time Window: 99,4 **Delivery:** 99,2 99,3

Communication:

ASN: 99,5



Chrysler and MMOG/LE Delivery Score Improvements

- 600+ suppliers completed MMOG/LE in 2006/2007
- 54% improved in Chrysler delivery rating
- Average improvement in Chrysler rating = 30%
- 36% improved MMOG/LE score
- 85% are at "A" Level







Chrysler and MMOG/LE MMOG Benefits

For Chrysler

- Improved Delivery Ratings in multiple categories:
 - Shipment data is improved
 - Maintained deliveries to schedule
 - Reduction in expedited freight
- Improved plant up-time
- Improved communication with plants
- Provides measurable, objective data for supplier improvement

For Suppliers

- Supports LEAN principles
- Reduction in material, inventory, safety stock
- Improved communications with customers
- Reduced downtime incidents
- Improved quality and efficiency of window time conformance
- Provides measurable, objective data for supplier improvement







Volvo Group and MMOG/LE Benefits



- All new suppliers are requested to submit the document
- A Requirement for existing major and poor performing suppliers
- A Criteria of Volvo Group Key Elements Procedures, Logistics
- > 850 assessments received, > 230 verified with Volvo internal personnel (most often on location)
- Linked to supplier relationship development process
- Example N-America: Self-assessed 44% of suppliers on A-level

After verification 37% of suppliers on A-level

- <u>Example S-America</u>: Adherence to supply instructions (Mar to Aug)
 - Total local suppliers average 89.0% correct day/quantity
 - Total self-assessed suppliers 86.7%
 - All verified level A-suppliers 96.7%
 - All verified level C-suppliers 85.8%



AIAG

OEM Observed Improvements

- Supplier readiness and launch results
 - Delivery ratings reach 100%
 - ASNs are accurate and timely
 - Up-to-schedule shipments
 - Correct packaging and labeling
 - Premium instances minimized or reduced
- Supplier communications with customer improved
- Plant down time is minimized
- Better sourcing decisions for new and additional business
- Overall increased customer satisfaction





MMOG/LE Benefits and Success Stories from Suppliers





MMOG/LE Benefits



Location: Wixom, Michigan, United States

Company Description: Leading European automotive group focused on vehicle body structural assemblies, closure systems and comfort products for automotive OEMs and Tier I suppliers.

Challenges: Pass MMOG/LE audit and maintain Ford Q1 status or lose new business opportunities

Results:

Maintained Ford Q1 status and MP&L endorsement

Reduced inventory 26%

Reduced Stock to Sales ratio from 3.8% to 2.8%

Improved customer, supplier and intra-enterprise communication

Significantly improved supplier management, met supplier EDI requirements

Reduced scrap

Implementation from kickoff to live was four months





MMOG/LE Benefits



Location: Fuzhou, China

Company Description: Manufacturer of pistons and other aluminum-cast parts for cars, motorcycles, air compressors and diesel and outboard engines.

Challenges:

Needed to obtain Ford Q1

Solution: QAD Enterprise Applications

Results:

Awarded Ford Q1 status and became a Ford Tier 1 direct supplier Achieved MMOG/LE Level A Reduced inventory by 50 percent Increased Ford SIM rating for quality and delivery by 20 percent Improved Ford delivery rating from an average of 91 to 100 Attracted new customers based on new capabilities





GATES – London Operations

- Products
 manufactured
 include pulleys,
 dampers and idlers.
- Approx \$55 million in sales (medium size)
- Supplies to both OEMs and major Tier 1's
 - Ford, General Motors, Nissan, Automotive Component Holdings (Visteon)







GATES and MMOG/LE Benefits

CUSTOMER DELIVERY PERFORMANCE

- On time shipping performance to customers in 2007 was 99%
- Delivery ratings to customers providing feedback is 100

SUPPLIER PERFORMANCE

- On time delivery from suppliers is 100% on date required
- 97% of material requirements are communicated electronically to suppliers
- 95% of incoming material shipments are transmitted via ASNs





GATES and MMOG/LE Benefits

PHYSICAL INVENTORY

- As accuracy improved, reduced from 12 to 1 a year
 - Estimated cost for a physical inventory is \$15-20K (overtime wages, equipment rental, inventory tags, etc.)

INVENTORY VALUE

- Reduction of approx. 50% since 2001
 - Since 2001 sales have increased by 20%

EXPEDITED SHIPMENTS

 Premium freight on inbound/outbound material has gone from \$180K in 2002 less than \$25k last year





Tier 1 Observed Improvements

- 25%-50% reduction in raw materials and finished goods
- Reduction in employee training time from 6 weeks to 1 week for new product launch site due to standardize process
- Monthly delivery rating scores going from 75 to 100
- Increased delivery performance with Tier 2
- Provides a common standard to benchmark poor performing supplier sites to high performing sites within the same supplier organization
- Better visibility into scrap issues and associated costs
- Increased data accuracy





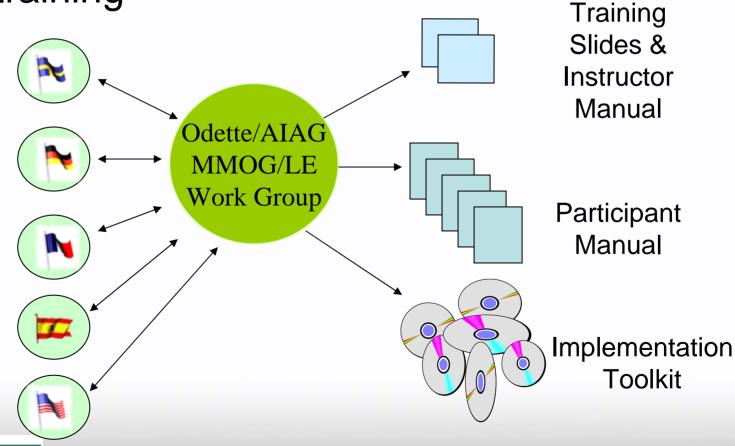
Supporting Training and Documents Available





Harmonized Global Training

1-Day standardized global AIAG/Odette training





MMOG/LE Course Objectives

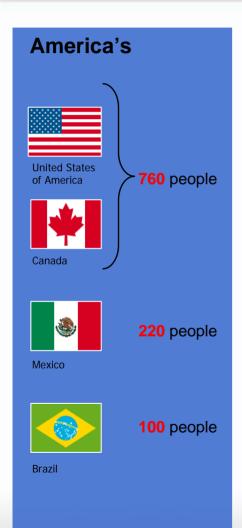
- Continuous Improvement Tool
- What is the MMOG/LE?
- Assessment
- Gap Analysis
- Implementation



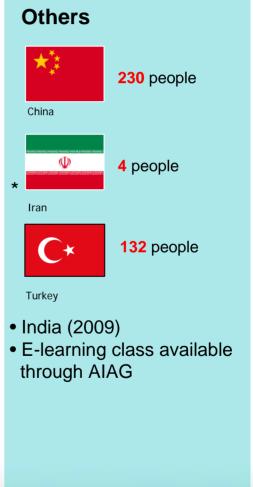




MMOG/LE Training and Seminars World Wide











AIAG e-Learning Available



New in 2008

- Available in English only
 - Investigating other translations
- Suppliers can avoid travel to take the class
- With e-learning, suppliers send multiple students





Related Guidelines and Best Practices

Available at www.aiag.org or www.odette.org

- Key Performance Indicators for Global Materials Management and Logistics (KPI4GMML)
- Global Materials Management and Logistics Agreement
- Joint Automotive Industry Forum China B2B Recommendation
- EDI/XML Project Planner
- Global Evaluation for Carriers and Logistics Service Providers





2008 Global MMOG/LE Seminars Over 1000+ Attendees







MMOG/LE Version 3



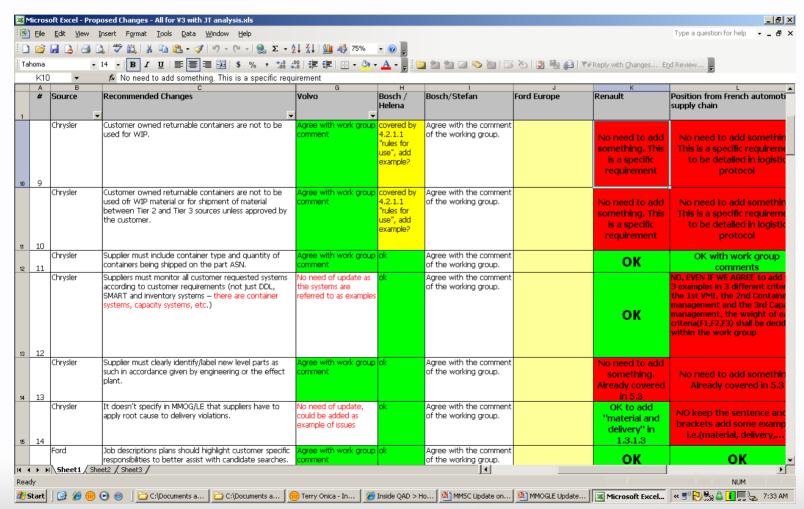


Global MMOG/LE Version 3 Team

Back: Gates, Odette Spain, SMMT (UK), AIAG,QAD, Bosch, Volvo Truck, VDA (Germany), Galia (France), and Chrysler. Front: Ford and Odette Spain



89+ Requests for Version 3







Analysis of Recommendations

				_	
Legend:		1) General Agreement - no action required - item closed			33
		2) General Agre	ement - text change only - ta	isk to be assigned	33
		3) Gener	al Agreement - technical cha	nge to be assigned	8
Key Examples: Launch readiness document- 15		4) NO General Agreement - further discussion required		15	
consolidated requests? Light Version?					
				Total	89

Recommendation Analysis Team

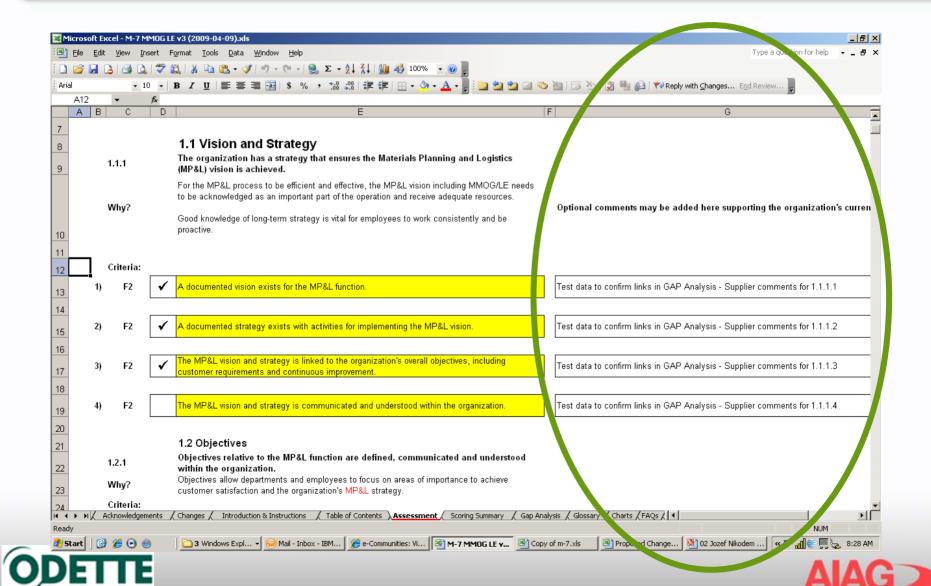
- Bosch, Germany and UK
- Ford North America
- Ford Europe
- Renault
- Gates Canada
- QAD

- Volvo Truck
- VDA (Germany)
- Odette Spain
- Galia (France)
- AIAG (North America)
- SMMT (UK)





Comments for all Criteria



Gap Analysis Includes Comments

Element	Criteria	Questio n #	Criteria Weight	Desired State	MMOG/LE Self- Assessment Comments
1.1 Vision and Strategy	<u>1.1.1</u>	1)	F2	A documented vision exists for the MP&L function.	Test data to confirm links in GAP Analysis - Supplier comments for 1.1.1.1
1.1 Vision and Strategy	<u>1.1.1</u>	2)	F2	A documented strategy exists with activities for implementing the MP&L vision.	Test data to confirm links in GAP Analysis - Supplier comments for 1.1.1.2
1.1 Vision and Strategy	<u>1.1.1</u>	3)	F2	The MP&L vision and strategy is linked to the organization's overall objectives, including customer requirements and continuous improvement.	Test data to confirm links in GAP Analysis - Supplier comments for 1.1.1.3
1.1 Vision and Strategy	1.1.1	4)	F2	The MP&L vision and strategy is communicated and understood within the organization.	Test data to confirm links in GAP Analysis - Supplier comments for 1.1.1.4

Radar Chart Views



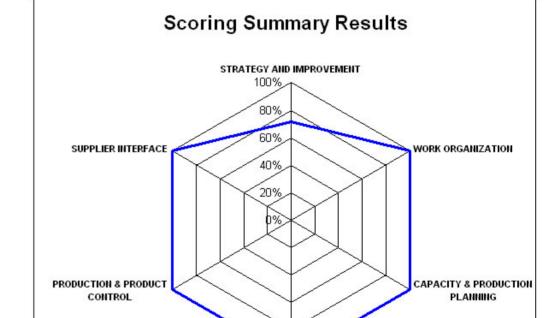
Global MMOG/LE

ODETTE AIAG

CHAPTER ONE	STRATEGY AND IMPROVEMENT	71%
CHAPTER TWO	WORK ORGANIZATION	100%
CHAPTER THREE	CAPACITY & PRODUCTION PLANNING	100%
CHAPTER FOUR	CUSTOMER INTERFACE	100%
CHAPTER FIVE	PRODUCTION & PRODUCT CONTROL	100%
CHAPTER SIX	SUPPLIER INTERFACE	100%

94%

B

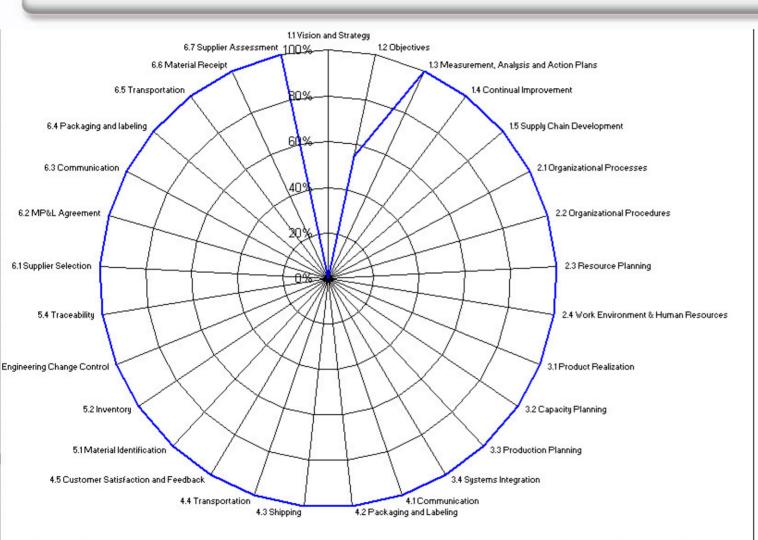


CUSTOMER INTERFACE





Radar Chart Views



ALL SUB-CHAPTERS	
1.1 Vision and Strategy	0;
1.2 Objectives	55:
1.3 Measurement, Analysis and Action Pla	1005
1.4 Continual Improvement	1005
1.5 Supply Chain Development	1005
2.1 Organizational Processes	1005
2.2 Organizational Procedures	1005
2.3 Resource Planning	1005
2.4 Work Environment & Human Resource	1005
3.1 Product Realization	1005
3.2 Capacity Planning	1005
3.3 Production Planning	1005
3.4 Systems Integration	1005
4.1 Communication	1005
4.2 Packaging and Labeling	1005
4.3 Shipping	1005
4.4 Transportation	1005
4.5 Customer Satisfaction and Feedback	1005
5.1 Material Identification	1005
5.2 Inventory	1005
5.3 Engineering Change Control	1005
5.4 Traceability	1005
6.1 Supplier Selection	1005
6.2 MP&L Agreement	1005
6.3 Communication	1005
6.4 Packaging and labeling	1005
6.5 Transportation	1005
6.6 Material Receipt	1005
6.7 Supplier Assessment	1005

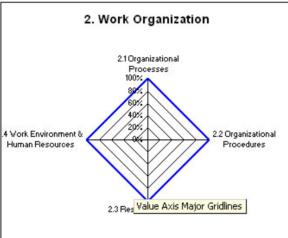
🕨 🖟 Introduction & Instructions 💹 Assessment 🛴 Scoring Summary 🦼 Gap Analysis 🛴 Radar Chart 🕽 Radar Charts - Subchapters 🔏 🛛 🔹





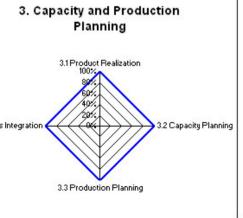
Radar Chart Views

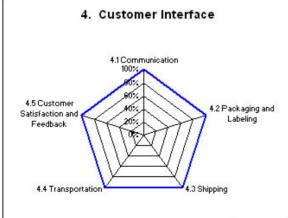




1. STRATEGY AND IMPROVEMENT	
1.1 Vision and Strategy	0%
1.2 Objectives	55%
1.3 Measurement, Analysis and Action Plans	100%
1.4 Continual Improvement	100%
1.5 Supply Chain Development	100%

2. VORK ORGANIZATION	
2.1 Organizational Processes	1005
2.2 Organizational Procedures	1005
2.3 Resource Planning	100 5
2.4 Work Environment & Human Resources	100 2





3.1 Product Realization	1005
3.2 Capacity Planning	F 1005
3.3 Production Planning	100 2
3.4 Systems Integration	100%

4.1 Communication	1005
4.2 Packaging and Labeling	100 2
4.3 Shipping	100 2
4.4 Transportation	100 5
4.5 Customer Satisfaction and Feedback	1005

Introduction & Instructions

Assessment

Scoring Summary

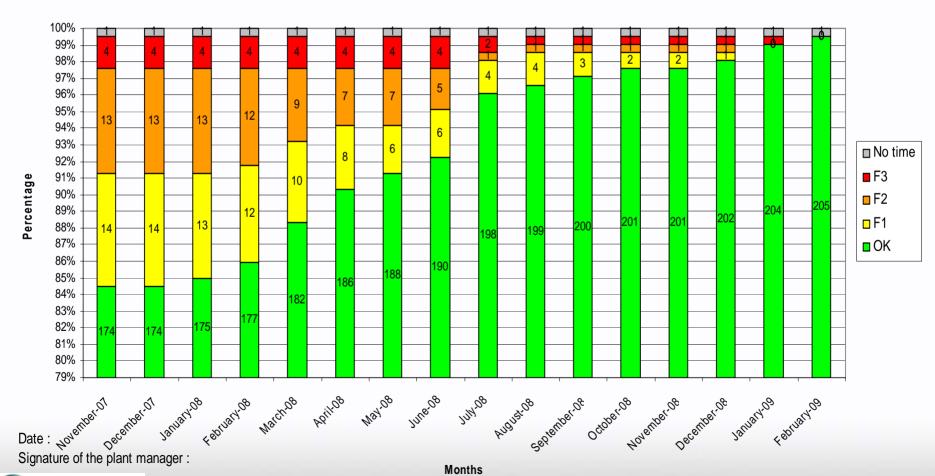
Gap Analysis / Radar Chart) Radar Charts - Subchapters /





New Chart: Progression Chart

Action plan Evolution





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Other Features

