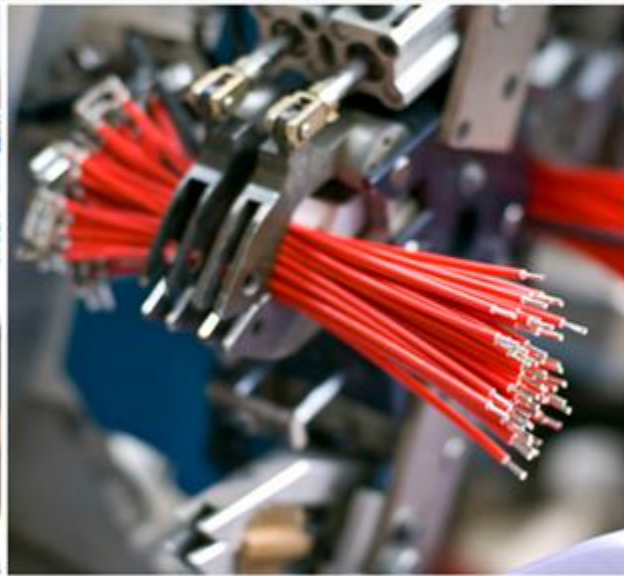


MMOG/LE Best Practices

Terry Onica, QAD
Director, Automotive
October 2013



Agenda

- MMOG/LE Overview
- Best Practices
- QAD Support
- MMOG/LE version 4

QAD Background

- Member & author since MMOG/LE v2
- Co-leader in work group efforts
- Training provider on behalf of AIAG/Odette
 - North America, Eastern Europe and Asia/Pacific
- Speaker at worldwide MMOG/LE events
- ERP solutions provider
- MMOG/LE Q-Scan support globally
 - QAD and non QAD software

QAD's Role in MMOG/LE

Global MMOG/LE Supplier Seminars



MMOG/LE Overview

What is MMOG/LE?

- **M**aterials
- **M**anagement
- **O**perations
- **G**uideline
- **L**ogistic
- **E**valuation

What is MMOG/LE?

- Developed by AIAG/ Odette with OEMs and Suppliers
- Assessment tool to select & evaluate suppliers
- Provides site score (e.g., A, B or C)

MMOG/LE = Delivery
ISO/TS-16949 = Quality

Focuses on Supply Chain Management

- Organizations are better able to manage:
 - Customer volume fluctuations
 - Capacity constraints
 - Contingency planning
 - Sub supplier capability
 - Resource allocation
 - Employee skills
 - ...and more

What is MMOG/LE?

- Excel spreadsheet with:
 - Six chapters
 - 206 criteria
 - Answer responses: Yes, No, N/A
 - Criteria weighting:

F3

F2

F1

F3



Supplier delivery performance metrics (e.g. on-time delivery, receipt discrepancies, ASN accuracy) shall be defined and measured.

A B C Classification Definition

Classification
A Best practice
B Unstable or inconsistent processes
C Deficient in key critical areas

MMOG/LE Chapters

CHAPTER 1 - STRATEGY AND IMPROVEMENT

- 1.1 Vision & Strategy
- 1.2 Objectives
- 1.3 Measurement, Analysis, and Action Plans
- 1.4 Continual Improvement
- 1.5 Supply Chain Development

CHAPTER 2 - WORK ORGANIZATION

- 2.1 Organizational Processes
- 2.2 Organizational Procedures
- 2.3 Resource Planning
- 2.4 Work Environment & Human Resources

CHAPTER 3 – CAPACITY & PRODUCTION PLANNING

- 3.1 Product Realization
- 3.2 Capacity Planning
- 3.3 Production Planning
- 3.4 Systems Integration

CHAPTER 4 – CUSTOMER INTERFACE

- 4.1 Communication
- 4.2 Packaging & Labeling
- 4.3 Shipping
- 4.4 Transportation
- 4.5 Customer Satisfaction & Feedback

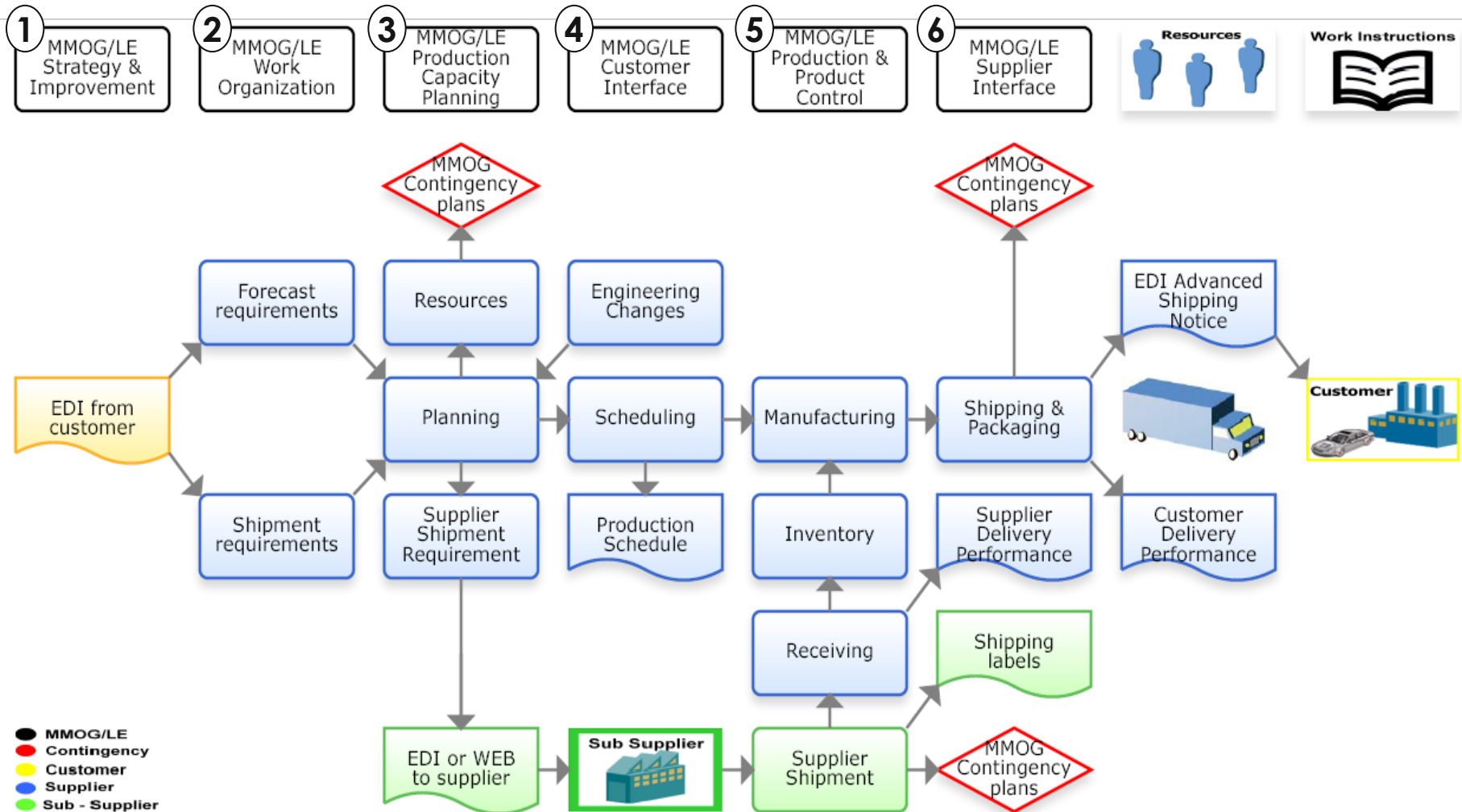
CHAPTER 5 – PRODUCTION & PRODUCT CONTROL

- 5.1 Material Identification
- 5.2 Inventory
- 5.3 Engineering Change Control
- 5.4 Traceability

CHAPTER 6 – SUPPLIER INTERFACE

- 6.1 Supplier Selection
- 6.2 Materials Planning & Logistics Agreement
- 6.3 Communication
- 6.4 Packaging & Labeling
- 6.5 Transportation
- 6.6 Material Receipt
- 6.7 Supplier Assessment

MMOG/LE Processes



MMOG/LE Customer Usage with Suppliers

OEMs Using	Tier 1 Using	Tier 1 Using (cont)
Chrysler	Autoliv	Pierburg
CNH – Latin America	Benteler	Selzer Automotive
FAW-VW	Beru	SNOP
Ford	Bosch	Valeo
GM	Brose	WABCO
Iveco	Continental	ZF
Jaguar/Land Rover	Faurecia	
PSA	Gates	Under Review
Renault	Johnson Controls	BMW
Tofas Fiat (Turkey)	Lear	Daimler
Volvo Car	Magna Powertrain	Honda NA
Volvo Truck	MGI Coutier	VW

How do OEMs Select Suppliers for an Audit?

- Used for developing suppliers for
 - Award of new business
 - Launch readiness
 - Performance issues
 - Continuous improvement
 - Growing suppliers
 - Emerging market suppliers
- Compare MMOG/LE against performance data
 - Determine if there is a potential risk
- Potential impacts on customer business
 - Not achieving a Level A
 - Not submitting an MMOG/LE assessment

Proactive risk identification and mitigation

How Do the OEMs Conduct a MMOG/LE Review?

- Desk and/or on-site review
- Validation of key supplier processes
- Physical document review
- Review of your gap analysis and closure plans
- Post review and follow-up to confirm all gaps have been closed

MMOG/LE Best Practices

Best Practices for Implementing

- Obtain executive sponsorship
- Minimize spreadsheet usage
- Involve the right people to answer MMOG/LE
- Provide detailed work instructions
- Thoroughly document assessment comments
- Ensure employees are properly trained
- Attend customer and AIAG training

Is MMOG/LE Being Driven by Management?

- Driven by operations
- Executive management teams
- Corporate delivery champion (CDC)
- Championed by materials management

Who is Leading the Assessment?



Quality



**Materials
Manager**

Quality can Help to Support MMOG/LE

Areas

- Document Control
- Training Management
- Supplier Management
- CAPA / NCR
- APQP / PPAP
- Audits / LPA
- Calibration

Integrate

- Provides support for ~50% of MMOG/LE criteria
- Simplifies process and procedure reuse
- Removes “silos” between quality and supply chain
- No need for a separate system

Is the Right Person Answering the Question?

- Process owners, including management
- All facilities and shifts
- Areas with vital involvement in the assessment process include:
 - Top management
 - Supply chain
 - Corporate delivery champion
 - Purchasing
 - Production
 - Finance
 - Program manager
 - Human resources
 - Quality
 - IT
 - Logistics
 - Sales
 - Engineering

Are You Relying on Spreadsheets?

- Planning
- Scheduling
- Sub-suppliers



When are spreadsheets acceptable?

- Spreadsheets are OK for “analysis” of data
 - OK - e.g., Truck windows and returnable containers
 - Not OK – e.g., MRP, capacity planning, supplier scheduling, inventory management, scrap reporting
- Why spreadsheets are not best practice
 - Difficult to share information across departments
 - Complex spreadsheet (e.g., macros, linked data) are dependent upon a few people to maintain
 - Spreadsheets do not validate data

Do You have Detailed Work Instructions?

Work Aid

Quality Order Maintenance

Purpose:

Quality Order Maintenance is used to create quality orders for conducting stand alone inspections of incoming material or material already in inventory. A quality order authorizes a test or inspection and specifies which item to test and how many items, as well as where, when and how to conduct the test.

After testing, enter results in Quality Order Results Entry.

When the material arrives at the receiving location, use the quality order to transfer a sample quantity to the inspection location. After inspection, the accepted material is transferred to inventory, whilst rejected material is issued from the inspection location and expensed.

Responsibility:

Quality Department personnel are responsible for completing Quality Order Maintenance.

Screen Navigation:

From the Main Menu

NetUI:

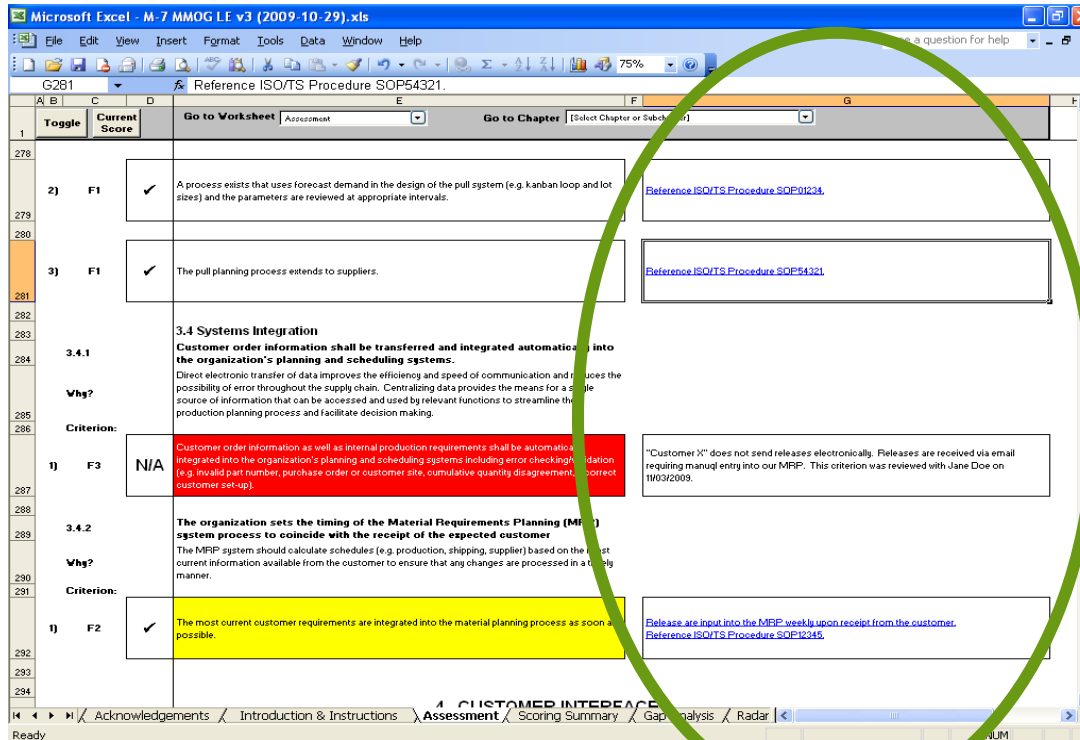
- Manufacturing
 - Quality Management
 - Quality Order Maintenance

Process Map:

- Easy On-Boarding: Life Sciences
 - Inspection

- Used for training & back-ups
- Instructions should Include:
 - Purpose/scope
 - Person(s) responsible
 - Explanation of acronyms
 - MMOG/LE criteria
 - Step by step instructions
 - Obtaining user logins
 - Customer specifics
 - Errors & contingencies
 - Metrics
- Document version control

Do You have Assessment Comments?



Microsoft Excel - M-7 MMOG LE v3 (2009-10-29).xls

Reference ISO/TS Procedure SOP54321.

Toggle	Current Score	Go to Worksheet	Go to Chapter
2)	F1	✓	A process exists that uses forecast demand in the design of the pull system (e.g. kanban loop and lot sizes) and the parameters are reviewed at appropriate intervals. Reference ISO/TS Procedure SOP01234
3)	F1	✓	The pull planning process extends to suppliers. Reference ISO/TS Procedure SOP54321
3.4.1			3.4 Systems Integration Customer order information shall be transferred and integrated automatically into the organization's planning and scheduling systems. Direct electronic transfer of data improves the efficiency and speed of communication and reduces the possibility of error throughout the supply chain. Centralizing data provides the means for a single source of information that can be accessed and used by relevant functions to streamline the production planning process and facilitate decision making.
Why?			
Criterion:			
1)	F3	N/A	Customer order information as well as internal production requirements shall be automatically integrated into the organization's planning and scheduling systems including error checking (e.g. invalid part number, purchase order or customer site, cumulative quantity disagreement, incorrect customer set-up). "Customer X" does not send releases electronically. Releases are received via email requiring manual entry into our MRP. This criterion was reviewed with Jane Doe on 11/03/2009.
3.4.2			The organization sets the timing of the Material Requirements Planning (MRP) system process to coincide with the receipt of the expected customer The MRP system should calculate schedules (e.g. production, shipping, supplier) based on the most current information available from the customer to ensure that any changes are processed in a timely manner.
Why?			
Criterion:			
1)	F2	✓	The most current customer requirements are integrated into the material planning process as soon as possible. Release are input into the MRP weekly upon receipt from the customer. Reference ISO/TS Procedure SOP12345

4 CUSTOMER INTERFACE

Acknowledgements Introduction & Instructions Assessment Scoring Summary Gap Analysis Radar

- Record evidence
 - Work instructions
 - Customer specifics
 - Notes
 - Non applicable
- Annual review
- Competition
- QAD Answer Sheet

Have You Documented Customer Specifics?

- Where do you find customer specifics?
 - Terms and Conditions
 - Logistics agreements
 - Supplier manuals and portals

Example General Motors

1. GM MMOG/LE Assessment Requirements	7. Global Logistics and Container Management Requirements <ul style="list-style-type: none">▪ Landstar Supply Chain Solutions▪ GM Debit Memo and Dispute Process▪ Container Logistics Information Planning System (CLIPS)▪ Global Container Asset Management System (GCAMS)
2. GM Supplier Performance Metrics (SPM)	
3. Electronic Data Interchange (EDI) Requirements for production and aftersales	
4. GM EDI (DELJIT/DELFOR) Releases & M-Schedules	8. Global Quality Tracking System(GQTS), including Global Supply Chain Ratings <ul style="list-style-type: none">▪ Creativity Bid List (CTBL) requirements for MMOG/LE and Service▪ Problem Report and Resolution (PRR)
5. GM Capacity Management Requirements <ul style="list-style-type: none">▪ Global Materials Capacity Controls (GMCC)	9. Customer Care and Aftersales (CCA) Supply Chain Requirements

How do you obtain OEM Customer Specifics?

- Attend AIAG MMOG/LE Level 1
- Visit OEM Web Sites
- Attend OEM Training

Why OEMs Find Suppliers are a Level “C”

- People
 - Management is not engaged
 - New personnel (e.g. materials manager, customer service)
- Answering the Assessment
 - Customer specific requirements not addressed or known
 - The right people are not answering the assessment
 - Not allowing the proper time to complete the assessment
 - Not realizing how much time it takes to correct issues
- Documentation
 - Lack of work instructions

Why OEMs Find Suppliers are a Level “C”

- Planning System
 - Incorrect use of spreadsheets
 - Old ERP versions
 - Lack of training
- Business Changes
 - Growing suppliers
- Sub Supplier Management
 - Too few performance metrics
 - No evaluation process
 - No sub supplier EDI/Web capability

Case Studies

Case Study Participants

- Case studies
 - 14+ Tier 1 and 2 suppliers
 - Located around the world
 - Feedback from supplier executive management
- OEMs
 - Feedback from suppliers

QAD Customer MMOG/LE Results

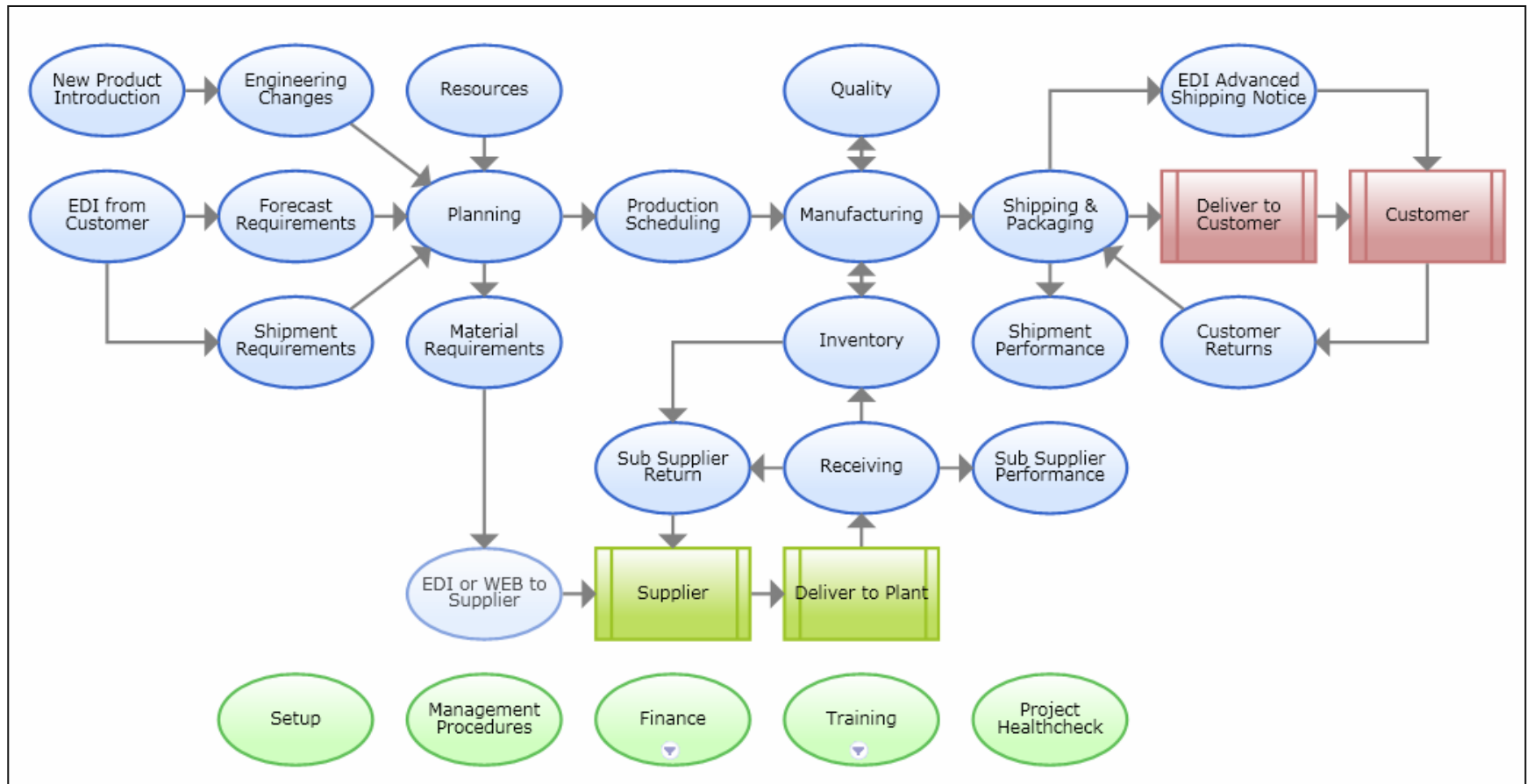
- Increased customer satisfaction
 - *“Validated “Level A” by customer”*
 - *“Improved performance ratings”*
- Improved inventory management
 - *“Reduced inventory by 17-50%”*
 - *“Increased available floor space”*
 - *“Better visibility into scrap enabled us to reduce it”*
 - *“We were able to grow our business without growing inventory”*
- Better leverage planning systems
 - *“We eliminated our reliance on spreadsheets”*
 - *“Capacity planning was improved”*

QAD Customer MMOG/LE Results

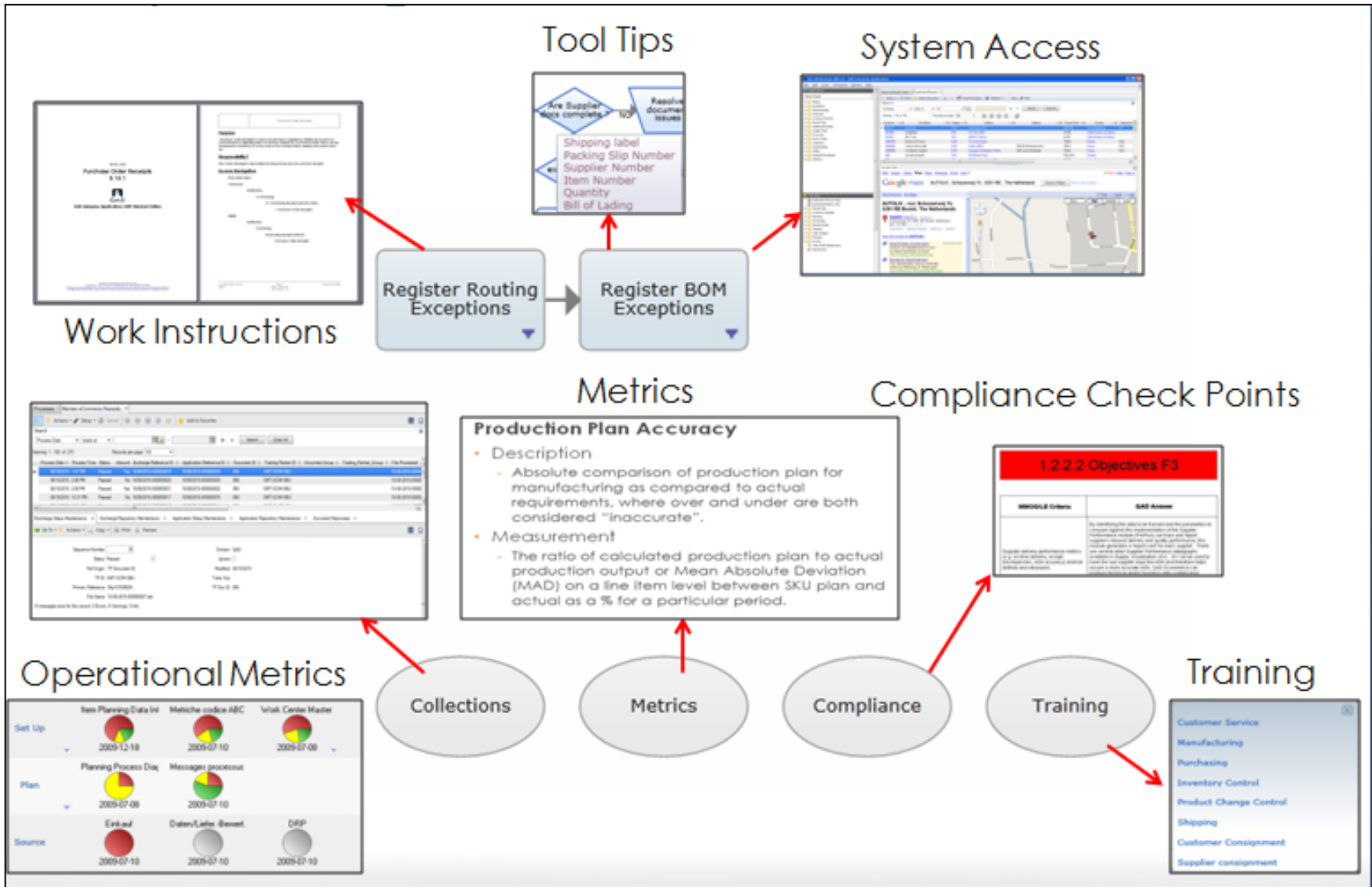
- Improved Sub Supplier Performance
 - *“Reduced premium freight by 18%”*
 - *“Our suppliers are better at meeting our expectations”*
 - *“We share our customer forecast faster with our suppliers”*
- Increased revenue
 - *“We doubled sales in 3 years without increasing staff”*
 - *“Grew business without growing inventory”*
 - *“We booked business that will double our revenue”*
 - *“Time gained from improvements allows us to focus on new business”*
- Better informed and trained employees
 - *Documented processes that anyone can follow*
 - *Employees are empowered and better informed*

QAD MMOG/LE Support

QAD Automotive Process Maps



QAD Automotive Process Maps



QAD Automotive Process Maps

- Based on MMOG/LE, include
 - 130 Process Maps
 - 700 Work Instructions
 - 115 Training Courses
 - 206 MMOG/LE Compliance Points

QAD MMOG/LE Answer Sheet Update

Element	Criteria	Question #	Current State	Gap	Action Plan/Q-Scan
1.2 Objectives	1.2.2	4)	Lead times for all supply chain processes within the organization's responsibility (e.g. procurement, manufacturing, transport, schedule preparation) are defined and measured.	Lead time is the recognition of elapsed time (in days) that an activity takes. It is important to not overestimate lead times with additional time as all lead times increase inventory. Recognizing true lead times allows QAD EA to accurately reflect elapsed times for individual activities in planning. Supplier Schedule Maintenance (menu 5.5.1.13 for transit time), Item Planning Maintenance (menu 1.4.7 (part master) and 1.4.17 (by site) for purchase lead time, inspection lead time, safety time and manufacturing lead time, Source Network Maintenance (menu DRP 12.1.13). Cumulative lead time roll up (13.12.14).	QS-P-Plan, QS-G-KPI

Criteria

Answer

Q-Scan

Note: Recently added: Q-Scans and Cebos

MMOG/LE version 4

NEW: MMOG/LE Version 4

- Work group is engaged in completing v4
 - VDA (Germany) has joined the MMOG/LE global team
- Version 4 will include two assessments
 - OEMs to require current full assessment for Tier 1 suppliers
 - Second assessment targeted for sub suppliers (Tier 2-N)
- Assessment & Gap analysis tabs will be on one tab
- Target completion date January 2014
 - AIAG/Odette will announce when v4 is available
 - Check OEM bulletins for adoption of v4

Thank you!

Terry Onica

tjo@qad.com