Leveraging Risk Management Throughout the Automotive Supply Chain

by Terry Onica, Director, Automotive
CONTENTS

Managing Risk 3
Automotive Supply Chain Risks 3
Tier-Two–Tier-N Supply Chain Risk 4
MMOG/LE Assessments and the Supply Chain 4
Risk Management in MMOG/LE 5
Risk Assessment Process 5
Reviewing Sub Suppliers and Gauging Risk Appetite 5
Contingency Plans 6
Risk Management Resources 6
MANAGING RISK

A wide range of business-critical risks face today’s automotive supplier. Typical risks include material shortages, catastrophic property losses from unforeseen events, supply chain interruptions, IT failures and more. For tier-one suppliers, the lack of transparency and control among sub suppliers adds to their risk equations. Now and into the future, smart planning is imperative.

Some automotive OEMs already require suppliers to create risk management procedures, contingency plans and strategies. Standards and guidelines likewise have added requirements: Materials Management Operations Guideline, Logistic Evaluation (MMOGL/E) addresses risk management and IATF 16949 includes risk-based thinking. While risk-based thinking and risk management may sound different, the process to address both follows a common approach.

This paper addresses the resources and tactics to put into place for an effective risk management strategy.

AUTOMOTIVE SUPPLY CHAIN RISKS

The automotive supply chain grows more complex each year, with regional events having an impact on global production. From 2014’s Kunshan, China, auto parts factory explosion to 2018’s catastrophic rains, flooding and landslides in Japan to several years of severe Midwest U.S. snowstorms, natural and manmade disasters pose a serious threat to automotive production around the globe.

On a personal level, we protect our homes and families by assessing the risk of fire or flood and then making decisions about insurance, smoke detectors, emergency contact numbers, and ensuring everyone knows how to escape. In business, organizations must do the same thing by assessing supply chain risks and creating associated contingency plans for events that have a high impact and probability of occurrence, which will potentially affect the OEM part quality or delivery.

From unknown and uncontrollable disasters to the more predictable and controllable interruptions, automotive manufacturers could face a range of potential disruptions as described by a study by Ford/MIT, shown in Figure 1.

<table>
<thead>
<tr>
<th>SUPPLY CHAIN RISK SOURCES</th>
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<tbody>
<tr>
<td><strong>Unknown</strong></td>
</tr>
<tr>
<td>Natural disasters</td>
</tr>
<tr>
<td>Geopolitical risks</td>
</tr>
<tr>
<td>Epidemics</td>
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<tr>
<td>Terrorist attacks</td>
</tr>
<tr>
<td>Labor disruptions</td>
</tr>
<tr>
<td>Raw material prices</td>
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<tr>
<td>Currency volatility</td>
</tr>
<tr>
<td>Material shortages</td>
</tr>
<tr>
<td>Shipping disruptions</td>
</tr>
<tr>
<td>Financial health of suppliers</td>
</tr>
<tr>
<td>Supplier performance</td>
</tr>
<tr>
<td>Quality issues</td>
</tr>
<tr>
<td><strong>Controllable</strong></td>
</tr>
<tr>
<td>Known</td>
</tr>
<tr>
<td><strong>Uncontrollable</strong></td>
</tr>
</tbody>
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Credit: Ford-MIT Alliance, David Simchi-Levi “Managing Supply Chain Risk”

Figure 1, Supply Chain Risk Sources
LEVERAGING RISK MANAGEMENT THROUGHOUT THE AUTOMOTIVE SUPPLY CHAIN

TIER-TWO–TIER-N SUPPLY CHAIN RISK
The risk that causes most OEM executives to lose sleep is the lack of visibility beyond tier-one suppliers. This is a key area that many OEMs want tier-one suppliers to focus on during risk assessment.

Several of the risks noted above revolve around sub supplier risk management. It is critical for suppliers to understand their level of exposure to risk in the organization’s supply base and to prepare for it. This should include mapping the location of all suppliers, and assessing financial and operational viability (e.g., quality and delivery).

The ability to track all supplier locations is critical in the event of a disruption, such as a typhoon, snowstorm, or hurricane. It is important to know the location of the organization’s sub suppliers so that the organization can assess the safety of all suppliers and identify any risk.

MMOG/LE requires that all information gathered from supplier mapping, performance score cards and assessments are regularly reviewed to assess risk and take corrective action, if necessary. In addition, MMOG/LE requires sub suppliers to do a risk assessment and develop necessary action or contingency plans.

Many automated solutions are available today to help organizations be proactive and reduce risk in the area of operational visibility for both quality and delivery, such as portals that track corrective actions, forecast and scheduling information, and supplier performance. These portals allow organizations to be collaborative and proactive in reducing risk by avoiding line stoppages, material shortages and shipping disruptions.

MMOG/LE ASSESSMENTS AND THE SUPPLY CHAIN
Materials Management Operations Guideline, Logistic Evaluation (MMOG/LE) is a guideline for assessing, improving and benchmarking materials management and logistics operations of suppliers. This assessment tool, created by the Automotive Industry Action Group (AIAG) and Odette in conjunction with OEMs, suppliers, software vendors and consultants, helps manufacturers uncover critical areas where automation and systems can significantly increase plant efficiency, reduce supply chain risk and streamline processes. It serves as an assessment of delivery, just as IATF 16949 relates to quality. Once suppliers complete the assessment, it scores them against best practices, with the goal of helping suppliers achieve Level A, world-class supplier status.

The MMOG/LE Full assessment consists of an Excel spreadsheet, containing six chapters and 187 criteria. OEMs or customers ask sub suppliers to go through all 187 criteria and indicate if they meet each one. Many OEMs and tier-one suppliers typically require the submission of an MMOG/LE assessment for all production suppliers. In the case of the OEMs, they also require it for aftersales/aftermarket suppliers. Following the initial assessment, OEMs generally require it on an annual basis. OEMs or customers may typically review MMOG/LE assessments with their suppliers in the cases of new business, new product launches or poor delivery performance.

The MMOG/LE Basic assessment has 102 criteria. The Basic assessment was developed so that the lower tier suppliers can complete assessments and have a meaningful roadmap of continuous improvement opportunities and therefore help reduce risk among the lower tiers in the supply chain. With the introduction of the Basic assessment, the industry is seeing an increase in the adoption of MMOG/LE with tier-one suppliers for this purpose.
RISK MANAGEMENT IN MMOG/LE

MMOG/LE requires the organization to have processes in place for managing risk, including associated actions or contingency plans, but also requires the organization to require its suppliers to do the same in order to achieve the status of world-class supplier. Figure 2 summarizes the requirements for Risk Assessment and Contingency Planning in MMOG/LE.

<table>
<thead>
<tr>
<th>MMOG/LE SUBCHAPTER</th>
<th>CRITERIA</th>
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| 2.5.1 Risk Assessment Process | • Define  
  • Prioritize  
  • Documented cybersecurity policy  
  • Proactively manage and reduce risk |
| 2.5.2 Contingency Plans | • Documented  
  • Reviewed, tested, validated, and trained  
  • Lessons learned, documented  
  • Communicated to sub suppliers |
| 6.2.1 Supply Chain Management Agreement | • Require sub suppliers to develop contingency plans  
  • Require sub suppliers to have a risk assessment process |

Figure 2, Risk Assessment Requirements

RISK ASSESSMENT PROCESS

The first section on risk management in MMOG/LE looks at the risk assessment process and how the organization defines it.

The organization needs a process that outlines how the organization assesses and addresses risk within the supply chain. The plan should identify areas within the supply chain that could affect the ability to meet the customer’s requirements in the event of a deviation from the normal business processes. Examples include items such as EDI or systems failure, insufficient packaging, key equipment failure, sub supplier material shortages, and utility outages, to name a few.

Supply chain risk should include all departments within the organization, as each department has the ability to potentially impact or disrupt customer delivery. As an example, is the IT department involved in assessing potential EDI or planning system outages or cybersecurity policies?

Any number of events could potentially affect the organization. However, the organization should focus on prioritizing those risks that both have high impact on the customer’s business and a high likelihood of happening. As an example, if the facility is located in Detroit, Michigan in the U.S., there is a high probability and high impact of a snowstorm that could disrupt product transportation. However, the same facility has a low probability of a major earthquake causing disruption.

The organization needs to include in its process how it will proactively reduce risk with contingency planning. For example, if the organization has a financially troubled supplier, is the organization taking steps to actively replace the supplier, further develop the supplier or alert the OEM in cases where the supplier provides a unique capability.

REVIEWING SUB SUPPLIERS AND GAUGING RISK APPETITE

Most OEMs require their suppliers to complete MMOG/LE on an annual basis. It serves as a good reminder for organizations to review risk at least once a year. Reviewing all risk on an annual basis is required because something that may not be a risk one year may quickly become a risk the next year. Or, it might become an item an
organization should review further. For example, when the global economy crashed several years ago, many sub-tier suppliers went bankrupt. Some organizations in the automotive industry were caught off-guard. Today, more organizations are looking at the financial viability of all sub suppliers each year, reviewing risk management plans and noting any lessons learned.

Risk appetite is another consideration. It is defined as “the amount and type of risk that an organization is willing to take in order to meet strategic objectives.” An example in the automotive industry is sourcing to a low-cost supplier versus looking at the broader consideration of total cost of ownership. It is important that organizations align the metrics of the purchasing department with those of the supply chain department when trying to reduce risk.

CONTINGENCY PLANS

MMOG/LE looks at the process for developing a robust set of actions or contingency plans. MMOG/LE is very prescriptive in what should be included in an organization’s contingency plans:

- Key internal/external contacts
- Containment actions
- Recovery steps to return to a normal operation
- Identification of key personnel responsible for execution
- Frequency of review, test, validation and training
- Training matrix
- Lessons learned and corrective actions (including retraining), if necessary

Organizations might also want to be sure to consider whether or not the plan is applicable to all shifts, to make the plan accessible both on- and off-site, and to confirm that the primary contact has spending limit authorization to purchase what is needed to resolve the outage.

Lastly, MMOG/LE states that it is important that the organization provide its suppliers with any customer-directed contingency plans. As an example, how will the supplier react if a sub supplier does not have the appropriate customer-owned packaging at the time of shipment?

RISK MANAGEMENT RESOURCES

QAD holds a leadership position in global automotive markets for parts manufacturers. QAD offers tools to help reduce risk and provides MMOG/LE support, consultation, and resources to help suppliers implement the required business systems and prepare for internal reviews and customer MMOG/LE audits. QAD provides effective support to customers around the world. Whether in mature or emerging markets, organizations leverage QAD’s products and services to achieve preferred supplier status, reduce risk and improve performance as an Adaptive Manufacturing Enterprise.

To find out more about QAD tools to support automotive organizations, visit: www.qad.com/industries/automotive or contact: mmogle@qad.com