



Leveraging Risk Management Throughout the Automotive Supply Chain

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CONTENTS

Managing Risk 3

Automotive Supply Chain Risks 3

What Are Industry Requirements For Risk Management? 4

What Methods? 4

How To Leverage Technology For Risk Management 7

LEVERAGING RISK MANAGEMENT THROUGHOUT THE AUTOMOTIVE SUPPLY CHAIN

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 1 suppliers, the lack of transparency and control among sub-suppliers adds to their risk equations. Now and into the future, applying risk management methods for smart planning is imperative. This whitepaper addresses the resources and tactics to put into place for an effective supply chain 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 pandemics, critical part shortages, catastrophic rains, cyber attacks, flooding and landslides, 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 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 part quality and/or delivery.

From unknown and uncontrollable disasters to the more predictable and controllable interruptions, automotive manufacturers could face a range of potential supply chain disruptions with some common examples as shown in Figure 1.

Figure 1

Example Supply Chain Disruptions

- Natural Disasters
- Packaging
- ERP/MRP
- Logistics – domestic and international
- Inventory Loss
- Container Loss
- Equipment Failure
- Supply Chain Cyber Security Threats
- IT Issues
- Facilities/Utilities
- Customs
- Sub-Suppliers

Mapping your suppliers’ geographic locations to a minimum of Tier 2 with progression to Tier 3 and lower is an industry best practice.

LEVERAGING RISK MANAGEMENT THROUGHOUT THE AUTOMOTIVE SUPPLY CHAIN

It is critical for customers 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 ongoing assessment of financial and operational viability (e.g., quality and delivery).

The risk that causes most OEM and Tier 1 executives to lose sleep is the lack of visibility beyond Tier 1 suppliers. This is a key area that many OEMs want Tier 1 suppliers to focus on during risk assessment.

Likewise, automotive suppliers, especially lower tiers in the supply chain, need timely information regarding changes in OEM and Tier 1 operational and business disruptions that may impact their production schedules as well as their long-term business viability. Consider for example, when labor strikes occur at OEMs, how this type of disruption impacts suppliers at all levels of the supply chain, not only when an OEM shutdown occurs but also the ability of suppliers to restart their disrupted operations simultaneously according to their customers' demands.

As well, with so many new start-up OEMs entering the competitive EV market, bankruptcy at an OEM can create an unanticipated loss of business, significantly impacting a supplier's future revenue. Suppliers are also impacted financially as well as with maintaining their sub-suppliers when OEMs delay new vehicle launches due to other disruptions and/or the economic environment.

Along with operational risk factors, automotive manufacturers must also now consider additional risks related to fulfillment of Environmental, Social and Governance (ESG) requirements which have far-reaching implications on supply chain sustainability and stakeholder perceptions.

ESG-relevant risk factors may include topics such as critical raw materials sourcing from an environmental and fair labor practices standpoint (as has been recognized related to EV batteries) as well as personal data use and protection, especially of interest as vehicles become "data banks on wheels".

WHAT ARE INDUSTRY REQUIREMENTS FOR RISK MANAGEMENT?

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 (MMOG/LE) addresses risk management and IATF 16949 include risk-based thinking. While risk-based thinking and risk management may sound different, the process to address MMOG/LE and IATF 16949 follows a common approach which includes risk identification, controls to manage and determination of actions.

MMOG/LE has specific requirements for risk identification related to supply chain management and guidance for contingency planning.

Risk assessment is also an integral part of the IATF 16949 Automotive QMS requirements as well. Risk (and opportunities) are identified from an organizational standpoint as well as technical risk related to product design and manufacturing processes fulfilling customer requirements. Like, MMOG/LE, risk assessment is also a key consideration relative to supplier selection and ongoing supplier management as well as in planning and additionally, implementing product, process and even organizational changes. Methods used for evaluating and managing risks in IATF 16949 may include contingency plans, manufacturing feasibility, FMEA, (failure modes and effects analysis), as well as other approaches

LEVERAGING RISK MANAGEMENT THROUGHOUT THE AUTOMOTIVE SUPPLY CHAIN

specified by OEMs or determined by the organization.

MMOG/LE and IATF 16949 require the organization to have processes in place for managing risk, including associated actions or contingency plans, but also requires the organization to do the same with sub-suppliers in order to achieve the status of world-class supplier. Figure 2 summarizes the requirements for Risk Assessment and Contingency Planning in MMOG/LE and IATF 16949.

Figure 2

MMOG/LE SUBCHAPTER	CRITERIA
1.7.1 Risk Assessment Process	<ul style="list-style-type: none">• Define• Prioritize• Documented cybersecurity policy• Proactively manage and reduce risk
1.7.2 Contingency Plans	<ul style="list-style-type: none">• Documented• Reviewed, tested, validated, and trained• Lessons learned, documented• Communicated to sub-suppliers
6.2.1 Supply Chain Management Agreement	<ul style="list-style-type: none">• Require sub-suppliers to develop contingency plans• Require sub-suppliers to have a risk assessment process

The first chapter in MMOG/LE looks at the risk assessment process and how the organization defines it. Automotive suppliers should address risk holistically, giving consideration to operational as well as supply chain risks.

Additionally, MMOG/LE establishes 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

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.

WHAT METHODS?

The organization needs a process that outlines how it assesses and addresses risk within the supply chain. This process 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, labor shortages, and utility outages, to name a few.

LEVERAGING RISK MANAGEMENT THROUGHOUT THE AUTOMOTIVE SUPPLY CHAIN

Supply chain risks should be identified with input from all departments/functions within the organization, as each department/function 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? Does the IT department analyze and identify tolerable downtimes for systems involved in the supply chain to ensure customer service levels are maintained to manage recovery time?

Not only internal risks are considered but also the organization's relationships with other interested parties up and down the supply chain. Optimally, the identification and assessment of organizational risks along with development of appropriate contingency plans should be a cross-functional activity involving all organizational departments/functions with consideration of both internal and external risks.

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.

Risk appetite is an important consideration when looking at supplier risk. Risk appetite 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 and quality department when trying to reduce risk.

The organization needs to include in its process how it will proactively reduce risk. For example, if the organization has a financially troubled supplier, is the organization taking steps to actively replace or further develop the supplier and alert the OEM in cases where the supplier provides a unique capability that is not easily re-sourced?

Contingency planning goes beyond simply identifying the risk and defining generic actions to address the risk. Effective contingency plans provide detailed instructions for how the organization can recognize a risk early, how to communicate about the risk, specific actions to be taken by assigned personnel as well as a recovery plan for resuming planned operations.

Contingency plans are required to be reviewed at least annually and updated based on lessons learned from actual risk events. Practicing the execution of contingency plans, through drills and other planned exercises is also essential to ensure the viability of these plans ahead of when these are needed. Communication and training about the organization's contingency plans and how to execute them is also required.

Organizations might also want 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 realized risk condition.

Lastly, organizations should provide its suppliers with any customer-directed contingency plans. As an example, how must the supplier react if they

LEVERAGING RISK MANAGEMENT THROUGHOUT THE AUTOMOTIVE SUPPLY CHAIN

do not have the appropriate customer-owned packaging at the time of shipment? What if the customer-assigned transportation carrier does not show up at the supplier?

Reviewing supplier risks on an annual basis is required because something that may not be a risk one year may quickly become a risk the next year. With continued rising costs, plant disruptions, labor shortages and the shift to electric vehicles many sub-tier suppliers may be at the threat of bankruptcy. Today, more organizations should be looking at the financial viability of all sub-suppliers more frequently.

HOW TO LEVERAGE TECHNOLOGY FOR RISK MANAGEMENT

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 [Supplier Relationship Management](#) tools that track [quality](#), delivery, corrective actions, [forecast and scheduling](#) information, and supplier performance. These tools allow organizations to be collaborative and proactive in reducing risk by avoiding line stoppages, material shortages and shipping disruptions.

QAD offers tools to help reduce risk and provides support, consultation, and resources to help suppliers implement the required business systems and prepare for internal reviews and customer audits. QAD provides effective support to customers around the world. 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

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