Supply Chain Mapping: Where to Start? End?

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Value Chain Approach

• Supply Chain Risk Management
• Continuity of Operations
• Provision of Goods and Services

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Supply Chain Mapping

What are you trying to manage?

- Value Chain Approach
  - Supply chain risk management
  - Continuity of operations
  - Provision of goods and services

- Logistical Chain Approach
  - Cargo and data flow
  - Logistical security
  - C-TPAT
What is a Supply Chain?

• Supply Chain:
  • A two-way relationship of organizations, people, activities, logistics, information, technology, and resources engaged in activities and creating value from point of origin to point of consumption, including transforming materials/components to products and services for end users.

• Supply Chain Management:
  • Management of a network of interconnected organizations and their activities related to the provision of goods and services from point of origin to point of consumption.
Value Drivers: Value Chain and Managing Risk

- Understand what is of value to the organization.
  - Most businesses make most their profits off a few activities.
- Identifying the value chain.
- Identify the risks in the value chain.
- Asset characterization, threat/opportunity analysis, vulnerability/capability analysis, and criticality/consequence analysis should all be conducted within the context of the value chain and achieving the organization’s objectives.
- Not all risk has negative outcomes, also identify opportunities.
Value Chain Considerations

• Stakeholders
• Perceptions of risk
• Percent revenue generation of products and services
• Criticality to key products and services
• Downtimes
• Scale by profit contributions
• Reputation and brand
Organizational and Supply Chain Context of Managing Risk

• Value generators
• Context of the organization
• Culture
• Supply and value chain value and risks
• Needs and requirements
• Defining risk criteria
• Defining scope of risk and management
Supply Chain Operations Reference
SCOR Model

Your Organization

Tier 1

Tier 2

Tier 1

Tier 2
ISO 31000:2009 - Risk Management

The External Context
The Internal Context
The Risk Management
Develop Criteria and Define the Structure

What Can Happen, When, Where, How & Why
Asset identification, Valuation and Characterization
Threat/Opportunity, Vulnerability/Capability, & Criticality/Impact Analysis
Supply and Value Chain Risk Analysis

Identify Existing Controls
Determine Likelihood
Determine Consequences
Determine Level of Risk

Compare the Criteria – Set the Priorities
Consider Tolerance and Acceptability

Identify and Assess Options
Prepare and Implement Treatment Options
Analyze & Evaluate Residual Risk
Supply chain risks fall into two categories:

- **External context**, which are out of our direct control but must be factored into business planning
- **Internal context**, which are within our direct control and must be factored into operations

Different aspects of some risks may fall into both categories
Notional Supply-Chain Process Flows

**Upstream inputs**
- Raw materials
- Parts
- Sub-assemblies
- Assemblies
- Packaging

**Distribution system**
- Trucks/roads
- Trains/rail
- Ships/ports
- Aircraft/airports
- Warehouses

**Production & Support**
- Management
- Workforce
- Utilities

**Distribution system**
- Trucks/roads
- Trains/rail
- Ships/ports
- Aircraft/airports
- Warehouses

**Downstream outputs**
- Assemblies
- Final product

**Suppliers**

**Production or assembly**

**Customers**

**Infrastructure**
- Information Technology
- Buildings
- Equipment
- Process
- Packaging
- Utility

**Utilities**
- Raw:
  - Water
  - Electricity
  - Gas or fuel oil
  - Air
- Converted:
  - Steam
  - Refrigeration
  - Compressed air
  - HVAC

**Process functions**
- Production planning
- Process control
- Operations
- Accounting
- Change Management

**People**
- Salaried
- Hourly
- Temporary
- Contractors

**Inventory**

**Wastewater**
- Air emissions
- Solid waste
- Hazardous waste
Supply Chain Process Approach

1. Establish Program and Apply Resources
2. Define the Supply Chain and Objectives
3. Identify Supply Chain Risks
4. Quantify and Prioritize Risks - Goals
5. Execute Risk Treatment Programs
6. Monitor Supply Chain Environment for Risks

- Reassessment of supply chain
- Reassessment of management actions
- Continuous Risk Monitoring
- Reassessment of risk program
- Reassessment of risk sources
- Reassessment of risk exposure
Supply Chain Risk Management: A Compilation of Best Practices

- Developed in collaboration with the Supply Chain Risk Leadership Council.
- Provides a framework for collecting, developing, understanding, and implementing current best practices for supply chain risk management (SCRM).
- Practitioner’s guide to SCRM within the organization and its end-to-end supply chain.
- Provides guidelines and tools to assess and address supply-chain risks.
Customs Trade Partnership Against Terrorism (C-TPAT) and Supply Chain Mapping

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CBP – C-TPAT – 5 Step Risk Assessment

1. Mapping Cargo/Data Flow and Control and Identifying Business Partners
2. Conducting a Threat Assessment
3. Conducting a Vulnerability Assessment in accordance with the C-TPAT Minimum Security Criteria.
4. Preparing a Written Action Plan to Address Vulnerabilities.
5. Documenting the Procedure for How Risk Assessments are Conducted, to Include Reviewing and Revising the Procedure Periodically.
C-TPAT – CBP – 5 Step Risk Assessment

1. **Mapping Cargo/Data Flow and Control and Identify Business Partners** (whether directly or indirectly contracted) and how cargo moves throughout the supply chain to include modes of transportation (air, sea, rail, or truck) and nodes (country of origin, transit points).

C-TPAT Companies look for Other C-TPAT Companies

• Remember – C-TPAT companies look for other C-TPAT companies to do business with because they know by their designation that the company meets the security protocols and standards that they are required to meet. This makes their validation and re-validation much easier.
Where Does it Start?

- It starts at the beginning.
  - Raw materials
  - Services
  - Parts
  - Assemblies
  - Packaging going directly to the organizations or via its suppliers
- “But we don’t take control at the beginning, we take control at for example FCA (International Commercial Terms (Incoterms))
Incoterms

• “The Incoterms rules or International Commercial Terms are a series of pre-defined commercial terms published by the International Chamber of Commerce (ICC). They are widely used in International commercial transactions or procurement processes.”

• “Incoterms are primarily directed towards cost, ownership and insurance purposes…”

• EXW – Ex Works: EXW means that a seller has the goods ready for collection at his premises (works, factory, warehouse, plant) on the date agreed upon.

• FCA – Free Carrier: The seller hands over the goods, cleared for export, into the disposal of the first carrier (named by the buyer) at the named place.

• CPT – Carriage Paid To: Risk transfers to buyer upon handing goods over to the first carrier.

• DAT – Delivered At Terminal : Assumes all risks up to the point that the goods are unloaded at the terminal.

• DAP – Delivered At Place: Assumes all risks prior to the point that the goods are ready for unloading by the buyer.

• FAS – Free Alongside Ship : The seller must place the goods alongside the ship at the named port. The seller must clear the goods for export.

• FOB – Free on Board: The seller must load the goods on board the vessel nominated by the buyer. Cost and risk are divided when the goods are actually on board of the vessel (this rule is new!). The seller must clear the goods for export.

• CFR – Cost and Freight: Risk is transferred to the buyer once the goods are loaded on the vessel (this rule is new!).
Mapping - Where do you Start?

• “Partners should be aware that Incoterms have little to do with security assessments for terrorism and criminal activity. Incoterms are primarily directed towards cost, ownership, and insurance purposes. A terrorist willing to explode a device within a U.S. harbor, or a human trafficker impersonating a legitimate shipment through identity theft, cares not for legitimate ownership and insurance claims. The C-TPAT Partners responsible for the importation and exportation of goods across U.S. borders, no matter where the actual transfer of ownership occurs, are ultimately responsible for the security of that shipment, regardless of the Incoterms.”

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Consequences!!!

• THIS IS THE QUESTION YOU MUST ASK:

• “What are the CONSEQUENCES to my company if a supplier or business partner fails? (fire or insider threat, terrorist attack OR cyber attack)?”

• Could be:

• **Loss of product** = $$$$$

• **Loss of time** = $$$$$

• **Loss of reputation** – “Brand” = $$$$$$$
Example 1

- Company A has a supplier that does NO international shipping.
- They supply printed fabric to the manufacturing plant only.
- This fabric supplies the ENTIRE line.
- Found through the carrier.
- “Our terms with this supplier are FCA forwarder’s dock.” FCA – Free Carrier (named place of delivery) “risk passes when the goods are handed over to the first carrier”
- “That is fine…..BUT WHAT ARE THE CONSEQUENCES TO YOUR COMPANY IF THIS SUPPLIER GOES DOWN?”
Example 2

- Drug Traffickers employed hackers to break into the computer system in the Port of Antwerp to modify container information. (movement/release) (2011-2013)
- Hacking group sent malicious email to the terminal. Emails were opened and they got access. It was discovered.
- Broke into the facility and installed key-logging devices directly onto the computers.
- Went on for 2 years.
- Finally caught when containers went missing and an innocent truck driver was shot at.
- Police raided 20 homes, seized firearms, body armor, $14,644,370.00 in cash with 15 arrests.
Due Diligence

- Identifying the business partners
- Gather Information
- Review Information
- Make changes as necessary updating information such as threat and consequences.
- Follow-up.
Example 3

• Not only do you map but continue to follow up, and modify:
  • Company B, is a large U.S. company that has ONE supplier of a product that is sold as the product itself and also is an essential ingredient which is included in many of their other products.
  • This supplier is located in France.
  • This supplier sends their product to a local distributor prior to export so they have “no direct” international export.
  • According to the company they do not see why they should have to include this company in their supply chain on-site audit for this year.
Where Does it End?

• It ends at the downstream outputs at the END.
  • Assemblies
  • Final Product
  • Ultimate Consignee (Customer)
Summary

• A chain is only as strong as it’s weakest link!
  • Identify ALL your business partners.
  • Assess yearly.
  • Review assessment closely
  • Verify Information.
  • Follow-up as necessary.
  • Repeat!
Questions???

Thank you!