Resilient SMEs: Business Continuity Plans for Better Global Supply Chains

Establishing Resilient Production Chains with BCPs: Insights from Automobile Industry

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5th August 2013
Global supply/production chain becomes a vulnerable link

- Enterprises operate the supply chain more efficient
  - Sophisticated supply chain practice ➔ vulnerability
  - Global sourcing ➔ link

- How to improve vulnerability of the enterprise’s SCM should be consider seriously in the BCPs
  - How to assess the vulnerability?
  - How to construct resilience?
  - How to construct a SC risk management strategy in BCPs?
How to assess the vulnerability?

- **Assessment**
  - What could be go wrong?
  - What is the probability of the happening?
  - What are the impact if it does happen?

- **The vulnerability framework**
  - Create an enterprise vulnerability map (The vulnerability to a specific risk)
  - Direct management attention and prioritize the planning

Sheffi and Rice (2005)
How to construct resilience?

- Resilience
  - The ability of a material to recover its original shape following a deformation in materials sciences
  - The ability of a company to bounce back from a large disruption
- Companies can develop resilience through
  - Increasing redundancy
  - Building flexibility
  - Changing the corporate culture

Sheffi (2005)
Increasing redundancy

• Just-in-Time ➔ Just-in-case
  • Extra inventory
  • Multiple sourcing
    • Even when the secondary supplier have higher cost
    • Maintain low capacity utilization

• Redundancy can provide some buffer to continue operating after a disruption, but it is temporary and very expensive.

Sheffi (2005)
Building flexibility

- Flexibility can both withstand significant disruption and better respond to demand fluctuations
- Adopt standardized processes
  - Interchangeable and generic parts, identical plant design and process, and the cross training employees
- Use concurrent instead of sequential process
  - Simultaneous in such key area as product develop and production/distribution
- Plan to postpone
  - Keeping product in semifinished form
- Align procurement strategy with supplier relationship
  - Maintain a deep relationship with relied key suppliers

Sheffi (2005)
Changing the corporate culture

- Resilience organization share several culture traits
  - Continuous communication among informed employee
    - Know the company’s status in time
  - Distributed power/Empowerment
    - Close to the action can take necessary measures and respond quickly
  - Passion for work

- Conditioning for disruption
  - “Disruption are really normal”

Sheffi (2005)
How to construct a SC risk management strategy in BCPs?

• Stress Testing
  • Identify key suppliers, customers, plant, distribution center, shipping lanes
  • Survey locations and amount of inventory
  • Probe each potential source of risk
  • What if/comprehensive scenario analysis

• Tailoring risk management approach
  • Risk are
    • Company specific
    • Interconnected
    • Trade-off with cost

Chopra and Sodhi (2004)
Examples of Toyota Way

• Toyota seek out local economies of scale by single-sourcing at the plant level, but the supplier should be compete across the entire Toyota network
  • ➔ Align procurement strategy with supplier relationship

• It lets Toyota shifts product if exchange rates change to allows each plant to serve the local market and at least one other market across the world
  • ➔ Adopt standardized processes to deal with

• Toyota can handle demand variation without having to hold inventory by running plants at 80% utilization
  • ➔ Maintain low capacity utilization

Sheffi and Rice (2005); Chopra and Sodhi (2004)
Examples of Toyota Way

• Toyota train team leaders who can work on any station of assembly lines
  - ➔ Adopt standardized processes
• Toyota assembly line workers can halt production by pushing a special alarm button
  - ➔ Distributed power/Empowerment

Sheffi and Rice (2005); Chopra and Sodhi (2004)
Toyota’s disaster response

• Toyota is revising its BCP as needed to strengthen measures to protect lives and maintain production in the event of a natural disaster.

• Lessons learned from the supply chain disruptions Toyota experienced due to the Great East Japan Earthquake and Thailand floods:
  - conducted a “visualization” analysis of the supply chain, including tertiary and 4th-tier suppliers.
  - launched measures such as decentralizing sources for at-risk parts and converting to generalized designs.

• Further strengthen the disaster countermeasures is proceeding from: strengthening everyday competitiveness and building a business structure able to withstand disasters.
The Great East Japan Earthquake: Toyota’s Production Recovery Efforts

- Recovering production is impossible without revitalizing communities.

- Production recovery-effort priorities:
  1) Human life;
  2) Quickly restoring stricken communities;
  3) Restoring production.

- Core measures for postquake production restoration
  1) Status assessment (mainly conducted by the Purchasing Group)
  2) Support for suppliers
  3) Look into finding substitutes
Status assessment

• Conducted an investigation of all primary suppliers, including the impact of issues at secondary and tertiary suppliers.
• Dispatched onsite investigation teams to confirm production items and inventory.
• Examined the impact on overseas production.
  → The purchasing units within the operations confirmed the availability of supplies via the primary suppliers.
Support for suppliers

• Provided support for the 200 supply bases visited by the onsite investigation teams.
  → Support for prompt restoration was provided under our policy of immediately doing what is truly necessary onsite.
Look into finding substitutes

• Look into finding substitute products, but only when restoring onsite production is problematic.
• Evaluate substitutes.
Outcomes of Toyota’s Production Recovery Efforts

• All Toyota companies, from suppliers through dealers and overseas operations, came together to provide support and to restore, applying genchi genbutsu (on-site verification) and the power of the workplace for swift decision-making, immediate action plus teamwork.

• This brought about a normalization of operations far in advance of predictions, with domestic production at almost normal levels by July 2011 and fully restored by September.
References

- Toyota Annual Report 2012
Thanks for your attention

Q&A