A Literature Review On Emerging Issues In Global Supply Chain Management

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The Supply Chains today are going global like the raw materials are purchased from one country, manufactured in other country and then selling the products in other nations across the world.
In this paper, the authors review the emerging trends and issues in Global supply chain and how these issues affecting the performance of supply chains.

The recent research articles were systematically analyzed.

This review identifies various theoretical and methodological characteristics of the way in which challenges of global business are proposed in the supply chain context.
• GSC is:
  – One of the very dominant issues
  – Very complex and defusing field
  – Due to its practical importance and robustness it is growing astonishingly.
  – It is a substantial source of competitive advantage in the global marketplace.
  – An opportunity as well as issue
Current challenges in GSCM

- Increase Uncertainty and Volatility
- Shift Toward Multilocal Operations
- Increased complexity
- Extended Lead time
- Unnecessary costs
- Risk management
- Improved responsiveness
- Integrated and empowered supply chain
- Sustainable supply chains
- Resiliency in supply chain

Current Challenges in Global Supply Chain
Current challenges in GSCM (Cont.)

- Increasing uncertainty and volatility in supply chain

Fig: Major reason for Uncertain and Volatile Global Supply Chain
Increased complexity

- Complexity of the supply chains are expected to grow in coming years.
- Increased supply chain globalization and complexity need to be managed effectively.
- Companies are expecting increased complexity in the number and location of customers and product variants and a decrease in the number of manufacturing locations and in the number of suppliers.
- Regionally configured supply chains will be the key to success.
Extended lead times

The company’s lead time is either positively or negatively affected by the extended shipping times and the overseas employee’s productivity.

Increased import ratios for US manufacturing companies were reflected in additional costs of raw materials inventories (Han et al., 2008).
Current challenges in GSCM (Cont.)

Unnecessary costs

- Inefficient Stocking Practices
- Inefficient Transportation
- Poor Infrastructure
- Poor Monitoring of currency exchange rate

Fig: Reasons of bearings unnecessary Costs
Moreover, the exchange rates must also be considered.

The exchange rates put significant effect on the investment decision (Mohamed and Youssef, 2004).

Fig: Euro/Dollar exchange rate fluctuation from 1999-2012. Source: (ECB, Oct 2012)
Current challenges in GSCM (Cont.)

- Risk management

![Classification of supply chain risk](Christopher, 2005)

Fig: classification of supply chain risk (Christopher, 2005)
Current challenges in GSCM (Cont.)

Fig: Operational and Non-Operational Risk

Operational Risk

- Disruptions in supply
- Mismatch between supply chain and demand
- Poor or incompatible quality

Non-Operational Risk

- Legal issues
- Political issues
- Cultural issues
- Linguistic issues
Improved responsiveness

Responsiveness can be defined as the ability to adjust plant’s output in order to satisfy short-term demand changes (Holweg, 2005; Reichhart and Holweg, 2007).

Responsive companies are those which excel both in flexibility performance and delivery.

Responsive company can be easily respond to immediate demand changes from the customers.

A key competitive factor due to explosion of product varieties and the increased volatility of the global marketplace.
Integrated and empowered supply chain organizations

- It is essential that all the supply chain organizations must be considered as a single integrated organization.
- For being effective, all the functions of supply chain must support the substantial improvements.
- Make decisions that optimize the total supply chain can be successfully fulfilled by empowering the supply chain managers to make decisions.

- But unfortunately many organizations are still lacking in integrating their supply chains.
Sustainability


Fig: key sustainability issues in Global supply chain
Resiliency in supply chain

Resiliency in supply chains is considered as a way to reduce the severity and likelihood of supply chain disruptions (Falasca et al. 2008, Boin et al. 2010).

Many researchers just focus on qualitative work; there is very less studies available which attempt to work on quantitative framework for assessing supply chain resilience (Carvalho 2011).

**still there is a lot of work needed on this supply chain resiliency issue**
A Shift Toward Multilocal Operations

For balancing the trade-off in designs of supply and demand for local responsiveness and global economies of scale leading organizations are in favor of multilocal design, supply and support.

Furthermore, companies are moving from a centralized model, towards a regionalized approach, where the capabilities are architected globally but placed locally.
## Global supply chain challenges and Emerged Problems

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<th>Challenges</th>
<th>Problems</th>
<th>Related Literature</th>
<th>Future suggestion</th>
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<tbody>
<tr>
<td>Supply chain volatility</td>
<td>• Current supply chains are built upon an assumption of stability</td>
<td>• E. Simangunsong (2012), reviewed and identifies a comprehensive list of 14 sources of uncertainty and classifies 10 approaches to reduce uncertainty.</td>
<td>Analytical model for resilient global supply chains are required in order to identify the impact of risks especially low probability and High impact risks.</td>
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<td>Supply Chain complexity</td>
<td>• Effectively manage product variants.</td>
<td>• Ila Manuj, et al (2011), developed a comprehensive model of supply chain decision-making complexity.</td>
<td>In order to reduce complexity there is need to design regionally configured supply chains models that may take advantage of both local and global supply chains.</td>
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<td>• Efficiently select facility location at global scale</td>
<td>• Bozarth et al. (2009), gives analysis on dynamic complexity; downstream, manufacturing, and upstream complexity</td>
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<td>Extended Lead time</td>
<td>• counteracting the lead time effect</td>
<td>• C.A. Garcia, et al. (2012), developed algorithm that identifies the complete set of lead times of the supply chain.</td>
<td>The models yet provide lead time calculations none of the model to date provide how to reduce lead time effect in global supply chain.</td>
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<td>• Aggelogiannaki, et al (2007), is proposed to identify the lead time online in a unique echelon (SISO system).</td>
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Global supply chain challenges and Emerged Problems (cont.)

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<td>Unnecessary costs</td>
<td>• Design of inefficient transportation system</td>
<td>• Annelie et al (2012), provide model for measuring SCC.</td>
<td>• None of the study is conducted to analyze the effect of exchange rates on GSC strategies.</td>
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<td></td>
<td>• Redundant stocking practices</td>
<td>• Rocio E. and Valerie (2008), proposed model that facilitates both location and transportation decisions</td>
<td>• Designing the efficient global transportation is still gap in literature.</td>
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<td>• Poor monitoring of exchange rates</td>
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<td>Integrated and Empowered Supply Chain</td>
<td>• Analytical model is required to analyze the effect of integration in Global Supply chain.</td>
<td>• Pamela Danese et al. (2013), conducted the empirical study to analyze the effect of Integration on responsiveness.</td>
<td>This model has some limitation like only on tier supplier is considered, whereas considering other tier may effect the results. Still there is need to develop generalize analytical model to measure the effect of Globally integrated supply chain.</td>
</tr>
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<td>Sustainable supply chain</td>
<td>• Designing sustainable supply chain considering improvements in economic, social and environmental area.</td>
<td>• Gülçin Büyüközkan, Çiğdem Berkol (2011), Designed a sustainable supply chain using an integrated analytic network process and goal programming approach in quality function deployment</td>
<td>In this model only cost is considered as resource limitation. The model further can be improved by considering more resource limitation.</td>
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<td>Resilient Supply Chain</td>
<td>• An Analytical framework is required that solves the requirements when a disruption event strikes a stable network.</td>
<td>• Arijit Bhattacharya, et al. (2012), gives the resilient shock absorber (RSA) model.</td>
<td>The model required to improve further by considering asymmetric information.</td>
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<td>• Candace Y. Yi et al (2011), conducted an exploratory multi-case study to examine the different flexibility strategies adopted by supply chain participants as a result of different environmental uncertainties.</td>
<td>The study cannot be generalized as all the participants are from same country and same industry type. Therefore for making generalize conclusion vast industrial setting should be made.</td>
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A review of Top organizations with best global supply chain

P&G
- Integrated global supply chain
- Integrated product design and supply Chain

Dell
- Make to order supply chain
- Fit for purpose supply chain
- Focusing on total supply chain cost management

McDonald’s
- Integrated product design and supply Chain
- Customization

Amazon
- using Cloud computing in supply chain
- Robust demand management

Apple
- Integrated and Empowered supply Chain
- End-to-End approach for managing supply chain

Fig: Top Global Supply chain organizations and their supply chain strategies (Source: Gartner Inc., 2012 report)
Conclusion and Suggestions

Accurate supply chain planning and improved customer access
- Improvements in partnering concepts,
- More focus on optimization of End-to-End supply collaboration,
- Reduction in supply chain response time and
- Deliberate focus on real time supply and demand planning.

Increase supply chain resiliency
- Product and process complexity management,
- Improved upstream and downstream supply chain flexibility,
- Adjustments in global network design and
- Late stage customizations must be viewed more deliberately.
Conclusion and Suggestions (Cont.)

- Focusing on risk optimization of supply and demand,
- Supplier risk management,
- Optimization of working capital and asset and
- Optimization of key partner’s supply chain risks
- Supply chain organizations must be empowered and integrated.

Implementation of end-to-end supply chain risk management

Total supply chain cost engineering

- There is a need of regionally configured and optimized supply chains with optimization of total supply chain cost and process and low-cost country utilization.
- Non-core functions should be outsourced
References


References


References

36. Stephen Brammer, Dr. Stefan Hoejmose, Dr. Andrew Millington and NBS. Network for business sustainability executive report, “Managing sustainable global supply chains.”