

RISK ASSESSMENT IN AUTOMOTIVE SUPPLY CHAIN

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Abstract— Globalisation of market makes Automobile companies to become most cost effective and to be more dynamic. The supply chain plays a major role in these at all levels including In-house manufacturing, inventory, supplier production and sub-supplier production etc. Any disturbance in the link may increase the production cost else the production stoppage result in major loss. This paper seeks to understand business requirements for supply chain risk management to mitigate the above issue

Index Terms— Supply chain management, Performance, Risk, Supply Chain, Supply Chain Risk Management, Supply Chain Resilience.

I. INTRODUCTION

Supply chain is the most Dynamic environment in Indian Automobile Industry. Currently with more no of models and lesser life of the models need the entire supply chain to be protective and the recovery time of any disturbance is very limited. Also the customer expects the prior approval for any changes in the process / methods need the assessment of the Risk throughout the entire supply network.

II. SUPPLY CHAIN

1) Review Stage

As noted by HOUSSAINE OUABOUCH (2015) “Supply chains are integrating a more and more tightly connected global economy where traditional management practices are challenged by external disturbance and turbulent changes”

In general, most of the Automobile tier-1 suppliers having the Process of assessment of the New Supplies; but may not review the risk for additional products / services from the same suppliers at the later point in time.

Most of time, the New Development will initiated with the existing vendors, unless the development needs the major Innovation / Technology.

The Assessment of the suppliers will help the organizations to identify the potential suppliers for the development and to identify the potential Risk supplier who may create the disturbance in the supplier chain later point.

III. RISK ASSESSMENT

1) Assessment Process

The Assessment process should be simple and streamlined enough so that it does become non value added one.

The supply chain Risk can be broadly classified as

- 1) Un Controllable
- 2) Influenceable
- 3) Controllable.

2) Risk Assessment Category

The Risk has been categorical as

- 1) Financial
- 2) Operational risk.

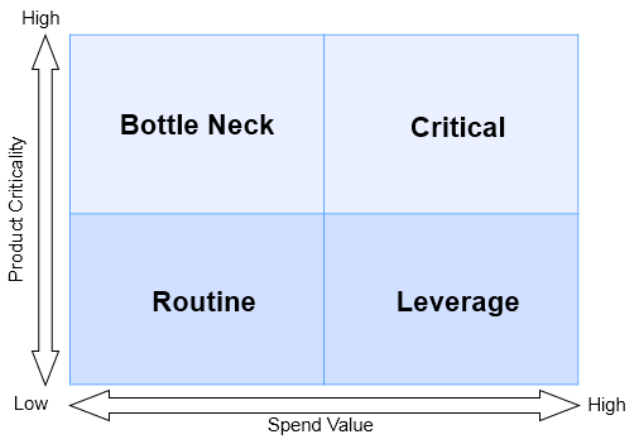
The financial risk can be assessed based on

- 1) Sales / B.V
- 2) Working capital management
- 3) Debt equity ratio of supplier

The operational risk can be asses to base on

- 1) Development lead time
- 2) Quality performance
- 3) Delivery performance

The supplier base analysis has been fixed as



And follow are the approach for each category

Category	Approach	Management
Bottle Neck	Secure supply	Strategic
Critical	Check & Search	Strategic
Routine	Organize & Let go	Tactical
Leverage	Play by Market	Tactical

3) Key Focus Area

The main focus of the suppliers should be in Bottle neck & Critical category.

The following point should be considered for the Bottle neck suppliers.

- 1) Audit report
- 2) Sub contract to be utilized
- 3) Vendor management policy
- 4) Past and Current ref
- 5) Country risk Assessment
- 6) Management turnover
- 7) Product / Plant grosses
- 8) Working capital management

In addition to above the following also to consider for critical suppliers.

- 1) Physical security policy
- 2) Asset management policy
- 3) Access control
- 4) Information security policy
- 5) Incident management program

IV. CONCLUSION

Customer demands and the expectations has increased over a period of time especially in the field of automobile technology. They demand high technology products with lower cost.

Procurement and supply chain professionals are facing higher expectations from management to drive down the cost, apart from the direct part cost they mainly focus on the indirect costs such as safe launch cost, cost of line stoppage and the cost of poor quality.

In order to avoid such indirect costs they must focus on the right supplier, which will be aided by the periodic risk assessment of the suppliers by then they can avoid / predict the risks and may act upon..

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REFERENCES

- [1] Chopra, Sunil, and ManMohan S. Sodhi, "Managing Risk to Avoid Supply-Chain Breakdown," MITSloan Management Review, Vol 46, No. 1, Fall 2004, pp. 53-61. As of August 6, 2011: <http://sloanreview.mit.edu/the-magazine/2004-fall/46109/managing-risk-to-avoid-supplychain-breakdown/>.
- [2] Christopher, Martin, "Understanding Supply Chain Risk: A Self-Assessment Workbook," Cranfield University, School of Management, Department for Transport, 2003. As of August10,2011:https://dspace.lib.cranfield.ac.uk/bitstream/1826/4373/1/Understanding_supply_chain_risk.pdf.
- [3] Favre, Donovan, and John McCreery, "Coming to Grips with Supplier Risk," Supply Chain Management Review, September 1, 2008.
- [4] Finch, Peter, "Supply Chain Risk Management," Supply Chain Management: An International Journal, Vol. 9, No. 2, 2004, pp. 183-196.
- [5] Giunipero, Larry C., and Reham Aly Eltantawy, "Securing the Upstream Supply Chain: A Risk Management Approach," International Journal of Physical Distribution & Logistics Management, Vol. 34, No. 9, 2004, pp. 698-713.
- [6] Lhoussaine ouabouch, "Supply chain Risk management and supply chain resilience analysis", Indian Institute of Material Management, July 2015
- [7] Mark, and Heather Keltz, "Managing Risk in the Supply Chain – A Quantitative Study," AMR Research, 2007.
- [8] Ritchie, Bob, and Clare Brindley, "Supply Chain Risk Management and Performance: A Guiding Framework for Future Development," International Journal of Operations and Production Management, Vol. 27, No. 3, 2007, pp. 303-322.
- [9] Shoumen Datta , et al, "Forecasting and Risk Analysis in Supply Chain Management GARCH Proof of Concept", MIT ESD Working Paper Series.

[10] Uta Jüttner, Cranfield University, "Supply chain risk management", IJLM, pp.120-139.