

Volvo Group Trucks Operations Americas Teamed Up With Supplier Mahle Behr To Optimize Their Extended Value Chain Value Stream

MEP Supply Chain OPTIMIZATION

Reducing risk. Increasing visibility. Building stronger manufacturers.

About the collaboration:

As part of the national **Manufacturing Extension Partnership (MEP)** network, **GENEDGE**, in partnership with **Volvo Group Trucks Operations (GTOA)**, embarked upon a research-based supply and value chain project, resulting in increased competitiveness for the leading heavy truck manufacturer's U.S.- based operations. Volvo Group North America headquarters is located in Greensboro, NC, and has trucks assembly operations for Volvo and Mack brands in Dublin, VA and Macungie, PA, respectively.

In late April 2012, the initial engagement with Volvo was launched to review and refresh the Volvo GTOA supply chain strategy. Volvo brought in a group of 35 professionals (operations and purchasing management) from the U.S. to engage in a two-day workshop. The session started with a review of the group's perspective on supply chain maturity. While nearly all of the participants assumed that Volvo had a Supply Chain Strategy, no one could produce it as one did not exist – a large gap in the maturity of any top tier organization. The balance of the workshop focused on understanding constraints, establishing a vision, articulating seven bold steps to achieve the vision, and finally the game plans with dedicated teams required to support the bold steps to be undertaken.



The Volvo Supply Chain Strategy Session

Volvo then determined an organizational re-alignment was necessary to position the company for improving the value chain performance of Volvo operations and their global suppliers. The amount of time it took for this effort was about 6 months to organize, to sell internally, and to gain approval.

Volvo GTOA hosted its initial Supply Chain Optimization (SCO) workshop, where Volvo GTOA senior management presented a new collaborative approach to Value Chain improvement. The SCO workshop was held for select Tier 1 supplier representatives of Volvo GTOA Group Trucks. The goal was to improve the supply chain results and performance by developing a collaborative plan. This plan had to be synchronized with the supply chain in Volvo

GTOA strategic supply chain plan, the Volvo GTOA / Tier 1 Value Stream of interest, and it must include appropriate implementation/execution action plans. One of the Tier 1 suppliers invited to continue in the initiative was **Mahle Behr**.

The overarching goal was to optimize the competitiveness of Volvo GTOA's supply chain network through joint efforts to improve OEM and Mahle Behr supply chain efficiency and effectiveness for the mutual benefit of all parties involved.

The team utilized principles developed through the **MEP Supply Chain Optimization** (www.mepsupplychain.org) program, a strategic approach to solving the challenges of U.S. manufacturers by promoting a better flow of product from suppliers to customers resulting in reduced costs, improved quality and shortened lead times.

The development:

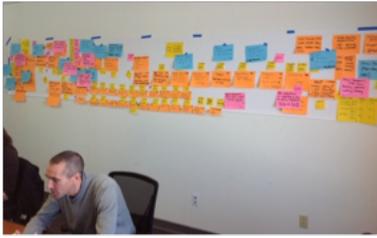
The collaboration between Volvo GTOA and Tier 1 supplier Mahle Behr was structured through a four-phased initiative.

Phase 1A - Value Stream Analysis for Volvo Group Trucks Operations Americas

The objective of Phase 1A was to improve the effectiveness and efficiency of the extended value chain value stream for a selected commodity and Tier 1 supplier using a Lean based approach. This project developed a value stream current state, future state, and a plan of action analysis for the Volvo GTOA. The analysis included customer orders, engineering, above the shop floor processes, inbound materials, warehousing, operational processing, logistics, final inspection, and delivery of trucks to the customer destination.

Phase 1B - Value Chain Value Stream Analysis with Mahle Behr

Pre-work was conducted to frame the activity using a single-page project charter. Stakeholders from each company were identified and a formal communication plan established. The analysis was inclusive of all Volvo GTOA and Tier 1 - Mahle Behr operations. A Value Stream event was held where the Volvo current and future state value stream maps were shared with the Mahle Behr team. Then, a Mahle Behr current and future state value stream was created for Volvo parts, to support Volvo - Mahle Behr future state objectives. Finally, a PERT analysis of the Tier 2 and lower suppliers was created based on lead-time and on-time variation data, to identify constraints in the supply chain network. GENEDGE facilitated the event and completed all process calculations including value analysis, process cycle efficiency, and identification of bottlenecks and constraints.



The SCORE Workshop

The final deliverables resulted in a specific set of:

- Current and Future State Value Chain Value Stream Maps - Just Do Its - Kaizen Events - More involved projects
- Starter set of potential Compliant, Critical Chain, and/or Bottleneck Suppliers
- Implementation of follow on work was assigned to Volvo GTOA and Tier 1 – Mahle Behr leads

Phase 2 - Critical Chain Supplier Network Workshop

The objective of Phase 2 was the execution of an executive engagement / workshop for supplier representatives of Mahle Behr identified as a result of the Phase 1 effort. The purpose was to educate select Mahle Behr suppliers critical to achieving the Volvo GTOA – Mahle Behr future state goals from Phase 1B. The goal was to solicit their assistance in supporting the future state by undertaking value stream improvements at their facilities. This workshop was successful in gaining the support of several Mahle Behr suppliers to begin synchronizing their operations with Mahle Behr – and ultimately Volvo GTOA.

Phase 3 - Building Internal Self Sufficiency at Volvo GTOA

In this phase, GENEDGE consultants worked with Volvo GTOA Logistics team members to finalize the approach and delivery of the Value Chain – Value Stream workshop with suppliers to be named the “SCORE” workshop. After several supplier events, Volvo internalized delivery themselves. These workshops have proven to be very successful and are continually being delivered to their suppliers in North America.

Phase 4 - Supplier Synchronization Education Workshop – S4Lean™



The success of the Mahle Behr supplier event led to Volvo requesting assistance from GENEDGE to develop a supplier education workshop. The result was the development of the **S4Lean™** workshop as a product co-owned by Volvo and GENEDGE.

The workshop provides advanced education and hands-on training in the application of Lean principles to a three-tier supply chain, including offshore. A three round simulation begins with a traditional, MRP based planning environment. The second round features a pull based supply chain, while the participants develop their own unique solution in the third round. Participants are challenged to meet both Mack and Volvo plant requirements for I-Shift™ automated manual transmission delivery. Metrics include delivery, quality on time, and a full profit and loss statement. The supplier network is penalized if excessive inventory or late deliveries occur.



The S4Lean™ Workshop



S4Lean™ is a collaborative development of GENEDGE and Volvo Group Trucks Operations.