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## Penn State Smeal CMTOC: Forty-Sixth Meeting

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### "Partnering with the Extended Enterprise"

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SCORE (Supplier Cost Reduction Effort) is DaimlerChrysler's partner-based cost reduction program. SCORE is a philosophy of working together with suppliers to develop mutually beneficial improvements. DaimlerChrysler and suppliers work together to develop solutions at suppliers' facilities. DaimlerChrysler employees work on-site in the plants of the suppliers and evaluate value-added and non-value-added activities to remove wastes and reduce set-up times. One of the main objectives is to improve the profit margins by taking the waste out of operations, then sharing the savings, not just simply demanding price reductions from suppliers. DaimlerChrysler's current standard target is to reduce all supplier prices by five percent.

The final customer's wants, needs, and desires are critical factors in the success of the SCORE project. Customer requirements must be exceeded or another company will capture their business. Every link in the supply-chain is critical to supporting the final customer. The SCORE program has a team philosophy that brings all the suppliers together to make improvements from raw materials to the final customer. All inputs and actions in manufacturing a product must be addressed for potential improvements. All tiers of suppliers can work together to make improvements and help each other. Blending supplier tiers together and combining functions reduce overall costs.

Continuous improvement activities at Chrysler began in 1994 with the Jump Start program, and were based on the SCORE system. The Jump Start program consisted of Chrysler improvement teams that visited supplier plants and focused on one area to improve. Team members completed an on-site, 3-1/2 day workshop once a month for three months. After three months, continuing support was established through developing a set of training materials referred to as the Chrysler Lean Operating System Enterprise (CLOSE). The program has proven that the harder a team pushes and looks for improvements, the greater the results.

Continuous improvement initiatives are established with specific operating conditions. DaimlerChrysler requires that management at supplier plants must be willing commit to a no lay-off policy, and reassign all workers displaced from process improvements. DaimlerChrysler will not go into a supplier facility to provide continuous improvement activities unless the supplier agrees to this policy. Displaced workers are temporarily reassigned to perform other functions within the plant until the sales force can generate additional orders and workers can return to normal production jobs. All continuous improvement team members are considered equal. As a show of their commitment to suppliers, team members perform the actual work along side the employees of suppliers. The teams provide open and honest sharing of information, and follow through with check-ups and continued help. As a result of the continuous improvement efforts, suppliers increase profits, increase business with other customers, and better position themselves for future downturns in business.

Continuous improvement activities depend on multiple factors to improve overall operations and profits. With market driven pricing, companies must turn to reducing internal costs to increase profits. Improvement initiatives should focus on reviewing internal value-added and non-value-added activities to develop methods of cutting out costs. Team members must determine those elements that go directly into the product that the customer both wants and values enough to pay the price. The objective is to build the product correctly the first time through reducing wastes, taking out non-value activities and unnecessary inspections, and fool-proofing the process as much

as possible. Additional factors should include reducing costly inventories and excess motion. Employee tasks should be made as simple and easy as possible. Improved employee work conditions also results in project buy-in. Along with efficiency improvements, consistency in manufacturing the product is very important. Team members should also address transportation processing wastes that are caused by plant layouts and excess material handling. Finally, preventive maintenance and employee training must be improved. Investments in employees result in reduced turnover with the better employees staying longer.

Project philosophy and tools are an important part of the continuous improvement activity. The culture of the company must be developed to accept continuous improvement ideals. Historic supervisory roles must be transformed from a person who has always directed people to a person acting more like a coach. JIT manufacturing should be initiated. Production should minimize batches and ultimately target one piece flow- through manufacturing. Production quantities over time intervals should be smoothed to minimize large fluctuations. Machines and fixturing should be designed to reduce output of bad parts and foolproof operations as much as possible. In addition, operations should be standardized to minimize variation in products. Variation makes it difficult to determine the root cause of problems. Finally, WIP should be condensed so that both the number of pieces and the physical space is minimized. Continuous improvement workshops can be set-up to focus on a variety of targets including quality, capacity constraints, set-ups/change-overs, house keeping, standardizing operations, and process or product flow.

Continuous improvement activities evolved from the Jump Start program to long-term partnering with suppliers. The long-term methods involve a one to two year process working full time with suppliers, then shifting to part-time support on a long-term basis. The long-term commitment involves making improvements throughout the entire plant. DaimlerChrysler helps suppliers become self-sufficient through training the trainer. An employee at the supplier is selected to learn continuous improvement methods and continue activities after the DaimlerChrysler improvement team has left. The supplier selects a key individual and DaimlerChrysler trains that person in the methods and tools for continuous improvement leadership.

DaimlerChrysler is now in the process of creating a new program called Customer-Based Value Management (CBVM). The objective of this program is to review potential products prior to design and manufacturing, and determine the optimal product features and production methods. A cross-functional team starts the design phase by first determining what the customer wants in a product. The team also designs the manufacturing process in advance, taking out the waste before the process even begins. After the product enters manufacturing both the product and process are then reviewed again for additional improvements. The experience and knowledge gained are rolled into the next product design.

The CBVM process has benefits at multiple levels. The program drives a lean up-front design, and eliminates wastes before they even start. Project ownership and follow-through takes team members from the initial design release through multiple redesigns after the original product begins production. The additional knowledge of materials and process that suppliers bring to DaimlerChrysler helps to co-develop and design better products. Multiple parts have the potential to be simplified into single parts providing additional cost savings.

DaimlerChrysler's next step in working with suppliers involves the another program currently under development called DaimlerChrysler Extended Enterprise Learning Center. The objective of this program will be to focus on supplier issues and promote continuous improvement. The program will coordinate all internal DaimlerChrysler groups working with suppliers and standardize interactions creating a single point of contact for suppliers. The program will promote networking, sharing best practices and experiences, and discussion of issues. A training facility will be provided enabling employees from multiple companies to work together in a neutral environment. In addition, DaimlerChrysler will learn how they can change their processes to help the supply base provide better products.

The DaimlerChrysler assembly plant in Windsor, Ontario builds 350,000 to 400,000 minivans per year. Material is received using JIT methods that are based on information sent to suppliers. Several problems at the facility included material inventories that occupy a large amount of plant floor space, and a sequencing area that is rapidly expanding to accommodate increases in model

mixes. The Windsor facility had multiple suppliers and transportation carriers delivering the same components. A project was initiated that pulled all internal resources together to address these inventory and sourcing issues.

The Windsor plant was receiving a single category of components from two different suppliers that ship from four different locations. The improvement project focused on consolidating suppliers and shipping carriers to a single point. The team selected one location at a single supplier and had both suppliers first ship components to that single location, then from that location ship to the Windsor facility. The supplier at the single location became the only first-tier supplier for those components, and the other company then became a second-tier supplier. This enabled DaimlerChrysler to better control and sequence the shipments into the Windsor facility. Improvements at the Windsor facility also included combining two separate components into a single modular assembly. These projects at the Windsor facility reduced factory floor space by 5000 square feet and removed six people from the process. The six people were then reassigned to different areas. The supplier consolidation reduced the number of category components from 45 to 35, and the one-piece flow product reduced material handling.

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