

Trico case study essay



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Presented in the case description there are following key issues that Trico Australia was facing in 1985:- High inventory costs along the supply chain- High volume, large batches (average 8 weeks) and long lead times due to slow set up time for 200-tonne press- Variable ordering patterns of the car companies due to lack of proper forecasting methods: push system prevailed- Quality problems: high defective parts which were returned- Lack of expertise to move into the competitive but more profitable non-OEM market- Lack of communication between departments due to which production lead times and costs were often blown out- Increase in competitions in the industry: result of changes in Australian government policies- Flawed policy of the parent company (Trico, US) for example not allowing Trico Australia export parts to Southeast Asia Due to the above issues, Trico Australia's business was declining. The company faced two options at the time of the case (1985): it could invest in new technology such as FMS and implement JIT manufacturing model to reverse its current slide, or it could close down its operations in Australia overall. This case study intends to look into the above issues in more detail and answer the major question: if shut down is not an option, how could the company improve and become more competitive? Since the given information is very limited, this report will be more focused on analysis rather than mathematic calculations in approaching related topics.

Trico Manufacturing System Core Problem Reflected by the Major Issues

1. Trico Australia's wiper production process is shown in the chart below: Although without specific detail, the case mentioned that the 200-tonne press has a very slow set up time which increases the long lead time for the wiper production process.

The slow set up time of 200 ton press leads to accumulation of work-in-process (WIP) inventory. 2. Order processing information flow: current production philosophy is High Volume and Large Batch sizes (8 weeks on average). The order information flow is shown below: Orders from the car companies are monthly; the large batch size production model resulted in large buffer stocks both at Trico and car companies.

Trico has to stock large amount of raw materials, also make some sub-assemblies in advance. It is also the reason that Trico lacks the capacity for the non-OEM sector. 3. Demand forecasting: there is no firm long term forecast. Using Ford as an example, it makes orders from Trico once a month for each model and variant; with the change in rate of car sales in Australia, Ford's monthly order quantities vary significantly. Often parts required by Ford are at few day lead time due to errors in ordering and quality problems during assembly, which resulted in inventory obligation on Ford for 2 months and Trico for 1 month.

This situation shows that management information required to monitor the performance of supply chain activities was not defined at Trico. A variety of just-in-time techniques need to be implemented to results in all areas of its manufacturing operations (linkage, blade and arm are the main components of a windscreen wiper system). The first target is reducing the set-up time on the 200-tonne press. This can be achieved through first training and then involving the employees in the press shop area in various activities including standardization of tools and the introduction of trolleys to hold these tools at the press, and various material handling and die exchange mechanisms.

Second, a kanban system of production control was implemented. Various types of containers for holding components should be introduced with a designated quantity to be placed in each container. This is meant to reduce work in progress from three months to one month of supply. Reorganization of the assembly line used for producing linkages can improve handling and reduce the space required for production. This might enable a second linkage assembly line to be installed down the road. Reorganization of an upstream sub-assembly area can enable individual units to be transferred to the main assembly area rather than in batches, further reducing work in progress.

Components previously located in a store should be relocated onto the shop floor adjacent to the assembly line, further reducing material handling. At each operation, the critical features of shortage of materials and quality issue need to be identified. The above changes to the linkage assembly line and the 200-tonne press are aiming at the improvement in inventory turnovers, therefore reducing inventory carrying costs. Material Handling Material Handling is concerned with the efficient flow of materials within a facility structure. Planning also involves ensuring that the parts are available in the right quantity when needed at the production stations. For Trico, the introduction of JIT means that material handling needs to be efficient as delay in materials delivery within the facility will result in production delay due to the low inventory stock level at each station.

Thus, Trico should spend a significant part of its restructuring process in the layout of the linkage assembly, arms manufacture and press shops stations. Tools also need to be standardized to improve material delivery and feed

while raw materials are specified to improve ease of handling. Inventory Management If demand forecast is not accurate, inventory is needed to achieve a balance between the supply and demand, and to buffer uncertainties arising between different elements along the supply chain. Economies of scale can also be achieved by manufacturing units through long production runs with high inventory level. As such, inventory management is necessary to optimize the inventory level to meet the expectations above and reduce the risk of obsolescence.

At Trico, the change in purchasing habits of the major car companies and introduction of JIT manufacturing means that Trico does not need to keep high level of inventories and instead should focus on efficiency in the manufacturing process as explained in Material Handling. Other Improvements Proposed for Trico To reverse Trico's slide, systemic changes including employee involvement and process and product improvements should be introduced. These improvements will continue over several years in time to achieve substantial improvements in all areas through the reduction of lead times, workplace reorganization and process improvements. I'm hoping these improvements can increase production volumes overall by a substantial amount. Information Systems To create an efficient logistics network, an integrated information systems needs to be in place to effectively provide timely and accurate information.

No information available in case to comment on this for Trico, but it is important to remember internal communication between Trico's product design team and purchasing, manufacturing depends on an efficient information system. Transportation Transportation is responsible for

materials/goods delivery along the supply chain from raw materials storage right up to the end-user market. In designing the solution, we need to consider the modes of transportation available and the associated costs structure. Depending on the geographic location of the country the supply chain is operating in and the type of materials/product involved, different modes of transport will be chosen. Trico as an Australian subsidiary of a US company, it was primarily responsible for producing and supplying the domestic market; export was only 5% of sales in 1984.

The product wiper blade was also small and can be transported in large volume using standard mode of transportation. As such, there was no need for air/sea freights domestically as the more cost-effective and efficient solution of land-based transports is available. However, the goal of increasing export to reach regional market means the air/sea-freights are necessary for overseas shipment in future. Communication

Improvement Improved communication and co-operation between product design and manufacturing can also provides major benefits in relation to new product design and introduction lead times. At Trico, if new product design involves considerable communication with shop floor employees, it would result in new products being introduced quickly and achieving the budgeted assembly rates which previously was not the case on many occasions.

The communication improvement should be concentrated on the major production areas: the press shop and the linkage assembly area. A positive result will provide Trico Australia the motivation to extend the new manufacturing ideas to the other parts of the organization. Increase non-OEM Capacity and Focus The case shows in 1984 Trico's only 5 per cent of

output was exported, with 70 per cent going to original equipment manufacturers (Ford Australia, General Motors Holden, Toyota, Mitsubishi and Nissan) and 24 per cent going to the replacement market. It cannot afford innovation cost due to the fact that it was not able to think beyond large volumes production model and its product design specs were mainly given by car company clients' engineers.

Naturally, the result is it has no product innovation for the replacement market for OEM.