

Manufacturing Cost reduced 25% with enhanced productivity and flexibility by facilities redesign

Spiralling demand of **consumer durables** in last few years has intensified the competition in India. To compete successfully, most players have introduced multiple models; but large product variety has led to increased complexity of operations. A leading manufacturer in North India chose to address these complexities by adding more assembly lines and having process oriented work stations for common operations. As a result, **in 2009**, the company had four underutilised assembly lines and a hybrid between Product & Process layout of facilities. The production shop became highly congested, leaving hardly any space for storing work-in-process. Restricted and criss-cross movement of materials and men lowered labour productivity & caused delays in delivery. To address the operational problems, the company sought help from Actuate Business Consulting.

Consultants analysed criticality & commonality of operations and manufacturing processes. Design of components was reviewed & altered to reduce multiplicity. With primary focus on decongesting the production shop, while meeting projected production requirements of various models, the consultants worked out a solution that brought **a paradigm shift in manufacturing**.

Four dedicated assembly lines, one each for a group of few models, were dismantled.

Two flexible multi-model assembly lines were created- a high speed line for fast moving large volume models & a slower line for small volume models. To minimise set up changes and to make changeover between models fast & easy, **some fixtures and few extra machines were added** in the assembly line. By including all operations in the assembly lines, process based layout was completely eliminated. **Few components were redesigned** to make them common for various models and some **non critical operations were outsourced**.

With the proposed changes accepted & implemented, **plant productivity increased by more than 25%**. Machines made redundant by reorganising facilities were used in other shops, thus with lower net capital invested for this shop, **depreciation charges got reduced**. Freeing up of space in the shop floor helped smooth flow of parts through multiple stage operations which resulted in **lower work in process with reduced materials handling** because of unidirectional fixed path movement of parts.

With increased productivity, greater flexibility to handle larger product variety and with potential to increase the output, per unit cost of manufacturing came down by 20-25%