

Process design

[Science](#), [Physics](#)



Riordan is a leading future 1000 manufacturing company that is an industrial leader in the field of plastic injection molding (Riordan, 2004). Riordan Manufacturing China plant acts as a decentralized unit of Riordan Manufacturing (Riordan, 2004). I have created a proposal package that will address the new process design that focuses on all phases of manufacturing the electric fans from determining the number of parts and components to the materials needed in production. It will include a new process design for manufacturing Riordan electric fans. The proposal will incorporate an analysis of the current production process.

This analysis of the process design will provide information to remove bottlenecks. The production forecast will encompass the implementation plan of lean production, which will include a Gantt chart. Finally, a cover letter that details the coordination of aggregate operations planning and TQM processes. Material Requirement Planning (MRP) The Riordan Manufacturing China plant has applied the material requirement planning, which encompasses controls systems from the order entry through scheduling and inventory control. The MRP system is used to schedule materials, parts, and components for raw material that should be ordered or produced.

The MRP provides the China plant with information about what is needed to complete a specific number of units during a specific period. The present process of the Riordan Manufacturing electric fans is located primarily at the China plant. Riordan Manufacturing purchases the polymer plastics from local distributors. The China plant uses the material requirement planning to determine the quality and timing of the assembly units. The raw materials

are first received at the receiving department. These materials are drawn upon for production in the molding process to produce fan blades and housing.

These finished goods are stored in a finished good stockroom. Individual buyers and contracted third parties pull inventory from the finished good stockroom. Trimming from the molding department are used to make other products. Inventory, which has been sold, and ready to be shipped are transferred to the package department. Finally, the shipping department packages the electric fans for distribution. Riordan Manufacturing needs to consider the supply and demand during the electric fan production process. Currently, Riordan is only experiences a 93% customer satisfaction in delivery of the electric fans in a timely manner. New Process Design

The current bases for Riordan Manufacturing China plant operation is the quality and quantity of electric fans produced. The inventory based on forecasted production is stored in the finished good stockroom. The forecasted inventory has not been an accurate measure of the stock that Riordan should have on hand to meet the customers demand more than 93% of the time. The new process recommends that Riordan seek out additional manufacturers of electric motors in addition to its current supplier to increase the likelihood of possessing adequate inventory in stock. This new process will increase the efficiency of their scheduling and delivery.

The stock on hand will be slightly increased but a reduction in polymer plastics would help offset the cost of increased inventory. The China plant can reduce the polymer plastic because the buyer can obtain it from a local

buyer. Supply Chain According to Chase (2005), “ Supply chain is applied to the total system approach to managing the entire flow of information, materials, and services from raw suppliers through warehouses to end users” (Chase et al. , 2005, p. 406). Riordan China plant should reconfigure their supply chain process to be more competitive and marketable.

By reconfiguring how they are linked to their suppliers could provide Riordan with the competitive advantages, which have been shown to be the characteristic of successful companies. Like many other companies, Riordan can achieve significant competitive advantage by the way they configure and manage their supply chain operation (Chase et al, 2005). Riordan should consider outsourcing as a one means of improving the supply chain.

Outsourcing is an approach to push the responsibility and decision making to other companies, which are a part of several components of the supply chain.

Company’s find that outsourcing can provide some relief to a company whom is experiencing a shortage of resources. Outsourcing could allow the company to focus on the core process of the business while providing the flexibility needed during varying demands. Supply chains management concentrate on inventory processes to complete the orders that are requested (Chase, 2005). The movement toward a just-in-time inventory system (JIT) could provide Riordan with continuous improvement in efficiencies to its fan production process. Riordan will take the stance of eliminating all cost that does not add value to the product.

The China plant will be able to have their parts arrive at each workstation at the optimal time to complete the process in a more efficient manner. Riordan will establish areas in their production that are linked, which will provide a beneficial balance of flow of material throughout the production process.

Production Forecast The production forecast for the China plant accounts for both the electric motors and plastic polymers, which are essential components of the electric fans. The inventory for the electric fan is projected by taking the average sales over the last three years, which is used to project the fourth year.

Riordan Manufacturing assumes history will repeat itself within manageable units (Riordan, 2006). Riordan Manufacturing has not forecasted their scheduling, production, and delivery effectively. Riordan should consider the implementation of lean production to establish an optimal price while reducing cost and waste. Implementing a lean production process is ideal for the China plant because the concept states that nothing produced until needed. Developing closer relationships with the suppliers could result in a reduction in the delivery time.

The implementation of lean production is considered a good strategy to respond to the market needs. **Implementation Plan** Riordan will need to begin by developing a production plan that specifies what the customers' demands are. The forecast of future demands will need to be established. The implementation of the just in time lean production system will be the bases for the forecast. Production planning includes decisions that will affect

production and inventory. Riordan current labor force could be affected with implementation of the new process design.

Riordan plan implementation will begin with the formation of the project teams. The team will be establishing the tasks and duties. The teams will choose which tactic, tools, and software that could be utilized such just-in-time inventory and MRP software packages. The final task will be troubleshooting and quality control. Riordan will need to identify any problem or bottlenecks in the process that need to be addressed or redesigned to establish the more optimal outcomes. The new process will allow Riordan to achieve its goal of at least 99% customer satisfaction from the current 93% customer satisfaction.