Assignment

1. Theories of techniques
2. Theory of constraint

The five steps of Theory of Constraint (TOC) include identification of constraints, exploitation, synchronization, evaluation and repetition of the process. The company can apply the process of determining future threats and take anticipatory measures for removing constraints. The primary step involves identification of constraints leading to the next stage of improving them by utilizing available resources. Constraints are synchronized by aligning activities with the needs of the constraints. The stage of evaluation involves forecast of future actions that assist in the elimination of constraints. TOC offers many benefits to the organization including improvement in the process of product development, enhanced productivity and quality. It allows the company to attain organizational goals that increase the probability of high profitability. Lead times are reduced at inventory level that makes the process more efficient. Improvements in quality will lead to customer satisfaction and drive more future demand (Okutmuş, KahvecibJe and Kartašova).

1. Total quality management

Total Quality Management (TQM) is a practical approach adopted by organizations for attaining managerial efficiency. The principles and tools of TQM can be used for improving the quality of products. The principles of TQM stresses on the production of high-quality work, customer satisfaction, continuous improvement and mutual respect in the workplace. By applying TQM, the company will focus on fulfilling customers needs that will allow building positive organization-customer relationship. Nissan Motor Company can build a better customer base by producing high-quality products. The approach emphasizes strategic management and quality practices that lead to on-time performance. Nissan can build an interactive culture by following principles of TQM that suggests giving respect to the employees. This practice is useful for promoting an innovative culture. TQM emphasizes continuous improvement that will allow Nissan to determine its efficient and lean processes. By hiring qualified staff and providing adequate training will ensure increased productivity (Li, Anderson and Harrison).

1. Data analysis
2. Cause-and-effect

Product development

Planning, creating virtual prototype, designing, testing, evaluation, regulations

Product technology

Scheduling with the manufacturer, managing stock inventory, production constraints

Production

Manufacturing, assembling, inspecting

Distribution

Contracting, orders, demand

The cause-and-effect diagram shows that the process starts with product development that will affect supply chain partners. Creation of virtual product and testing will demand involving supply chain and third-party into the process. This demands to maintain continuous communications with these parties. In each country, the company has to follow regulations of manufacturing that will also affect the supply chain. Stock inventory, production constraints and scheduling with the manufacturer can create troubles for the supply chain partners if they are not updated at a continuous pace. Supplier involvement has positive impacts on production process but with the advancement of technology these parties switch to modern methods of communications skipping landlines or direct communications. Addressing quality at the individual level of production such as manufacturing or procurement of raw materials is difficult.

B. Time-function map

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Clients  | Order product |  |  |  |  |  | Receive product |
| Sales  | Order process  |  |  |  |  |  |  |
| Cost of production |  | Wait  |   |  |  |  |  |
| Plant  |  |  | Print  |  | Extrude  |  |  |
| Warehouse  |  |  |  |  |  | Wait  |  |
| Transport  |  |  |  |  |  |  | Move  |

 1 month 2 month 1 month 2 moth three month

The time-function map is useful for the operational manager because it provides a flow diagram of all activities. It highlights the time and functions involved in selling the individual product to the customer. Total time taken in delivering the car will be three months that starts from the placement of order. The manager will get a clear idea of how much time the product will take at the plant, warehouse and transport.

C. Favorable location

The total costs of locating a new manufacturing plant in Mexico is 365 while in Columbia is 345. It is more favorable for Nissan to start a business in Mexico irrespective of high rental and labor costs are significantly high in Mexico. Labor productivity is high in Mexico that means more efficiency will be attained. Nissan will face strict regulations in Columbia but low taxes.

Work Cited

Okutmuş, Ercüment, Ata KahvecibJe and Katerina Kartašova. "Using the theory of constraints for reaching optimal product mix: An application in the furniture sector." Intellectual Economics 9.2 (2015): 138-149.

Li, Jin‐Hai, Alistair R. Anderson and Richard T. Harrison. "Total quality management principles and practices in China ." International Journal of Quality & Reliability Management 20.9 (2003): 1026-1050.