Can the workflow be optimized to achieve maximum throughput while maintaining resource efficiency ?

Design a factory layout to optimize the workflow and layout for a new pipe factory using Simulation Modeling

Industry:	Manufacturing
Location:	Gauteng, South Africa
Competency:	Facility Planning
	Process Design
	Simulation Modeling

Problem Statement:

A new pipe fabrication facility was planned to replace the current constrained and aging operation. An industrial engineering study was requested to design the facility layout for an optimized workflow that will ensure operational resource efficiency and maximize throughput for a variety of items manufactured. A deployment plan specifying the equipment/resources requirements for future demand needed to be established for sustainability. The architect and engineering team would use the recommended layout for the design of the facility.

Solution:

Ceenex developed a **dynamic simulation model** that modeled each workstation's equipment and resources for the various items manufactured. Overhead cranes were modeled to determine the number and class required. Various facility layouts were tested for equipment/resource utilization and throughput potential. A deployment plan was developed showing when and how equipment/resources should be introduced to meet future throughput targets.

Impact:

The simulation model assisted in determining a suitable facility layout with an optimum work flow and schedule for the current and future scenarios. Maximum throughput potential doubled from their current operation while equipment/resource allocation became more efficient. Improvements in ergonomics and work environment were achieved by advising on up to date equipment and manufacturing processes. The architect and engineering design team were able to implement the best facility layout for the design of the building.

Developing an optimized, future-proof factory layout