

# Application of A Systematic Layout Planning and Computer Simulation to the Facilities Layout Problem-A Case Study of Company A

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## ABSTRACT

The A company is in the business of recycling scrap metal, mainly for the purpose of restoring secondary raw materials. This industry is mostly comprised of small and medium-sized enterprises, many of which are family-run. During the initial construction phase, the facilities were set up based on the owner's intuition or experience, without the concept of facility planning. The most direct factor in reducing production costs and enhancing competitiveness for the enterprise is how to make the best use of limited space.

This study focuses on the improvement of facility layout for the A company. Using the Systematic Layout Planning (SLP) method and computer simulation software Flexsim under existing conditions, three improvement plans were developed based on five performance indicators: equipment utilization rate, equipment single-machine output, production output of each process, workstation dwell time, and personnel transportation distance. The benefit analysis was conducted using Flexsim for each facility layout improvement plan, and the best production performance plan was determined, which showed an average increase of 6.73% in equipment utilization rate, an average increase of 28.18 kilograms per hour in equipment single-machine output, an average reduction of 4.77 seconds in workstation dwell time, an average increase of 44% in monthly production output, and an average decrease of 9.83 meters in personnel transportation distance compared to before the improvement.

The research results not only provide reference for the A company but also benefit

similar industries for academic research reference.

Keyword: Facility layout 、 Systematic Layout Planning(SLP) 、 System Simulation 、  
Flexsim