



Manufacturing / Packaging Case Study

Business Problem:

Reduce material / labor cost while improving the quality

VERTICAL:  Manufacturing

MARKET:  Packaging

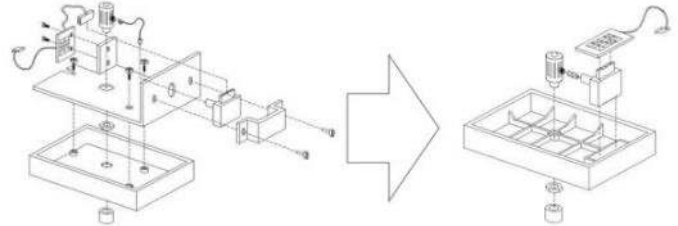
NLP SERVICES:  Lean Transformation

CLIENT

Our client is a leading e-commerce equipment and paper packaging company facing challenges in their assembly process. They experienced significant variation (up to 300%) in the time it took to complete different assembly lines, as documented in their labor routers.

This inconsistency made it difficult to achieve repeatable

sub-assembly builds. Furthermore, the design stage lacked a focus on “design for assembly” principles, which can significantly impact downstream manufacturing efficiency. The client’s primary goals were to double their overall production capacity, from 500 to 1,000 units per year. To achieve this ambitious target, they required a streamlined and repeatable assembly process.



APPROACH

To address the client’s challenges, we implemented a multi-faceted approach that combined Value Analysis/Value Engineering (VAVE) principles with Kaizen methodologies. A core element of this approach was the development of a product prioritization matrix. This matrix allowed us to clearly define success metrics, including a reduction in defects per unit, a decrease in material and labor costs, and an improvement in first-pass yield (meaning fewer units requiring rework).

Next, we focused on empowering the client’s team. We assembled a cross-functional team of ten engineers, with expertise in systems, mechanical,

electrical, manufacturing, and purchasing disciplines. This diverse group underwent intensive training in several key areas. The training covered DPU paretos (identifying the most impactful defects per unit), functional analysis (understanding the core purpose of each component), design for manufacturing and assembly (streamlining the production process), Voice of the Customer (VOC) analysis (incorporating customer needs), and ideation techniques for creative problem-solving. By equipping the team with these valuable skillsets, we created a foundation for collaborative innovation and process improvement.

RESULTS

- **Annual Material & Labor Savings of \$1.6 Million** (Not including the additional efficiency cost of reduced ordering, transportation, receiving, inspection and picking fewer parts)
- **A 40% reduction in the cost of goods in the bill of materials for the product equipment.**

Reduce/Improve Description	Base line	Improve-ment	Goal	Delta	Actual Savings Identified Per Unit
Material	\$8575	20%	\$6860	\$1,715	\$4,039
Labor Hours	37 Hrs	20%	29.6 Hrs	7.4 Hr	
First Pass Yield	0 %		95%	95%	Exceeded goal by \$2,324 / unit!
Defects / Unit @ final	60 +	83%	< 10 / unit	50 DPU	