

Work Content Measurement and Process Improvement in a BOPP Film Manufacturing Plant Using PMTS Techniques

About the Client

- Client is a leading supplier of specialty packaging including sustainable ultrahigh barrier solutions, and value-added products for Labels, Coating and Thermal lamination films for the Indian and overseas markets.
- The client manufactures a vast range of BOPP films. The films have gained global recognition and acceptance across a wide field of applications: graphic art, labelling, flexible packaging for processed foods, confectionery, non-food fast moving consumer goods (FMCG) and industrial goods. Is a leading solution provider across the globe for brands and converters commitment towards sustainability

Aims/Objectives

- Work content measurement using PMTS techniques.
- Work Distribution for manpower utilization.
- Identifying improvements in process.
- Material flow design and layout modification.

Key Points

- Productivity improvement by 45%.
- Manpower reduction by 31%.
- Increased manpower utilization to 73%.

Client's Challenge

- Reduction in manpower.
- Dashboards for production planning as per demand.
- Material flow and layout.
- Low manpower utilization.

PMI's Approach

The study was organized in a 3-stage process:

1. Data Collection - Video shooting of all activities on the line.
2. Estimation & Data Analysis – MODAPTS estimation, work distribution, dashboard preparation, synchronous material flow design and layout modifications.
3. Results and Conclusion – Dashboards for future planning, fatigue reduction, improved productivity, improved manpower utilization, identification of NVA work content.

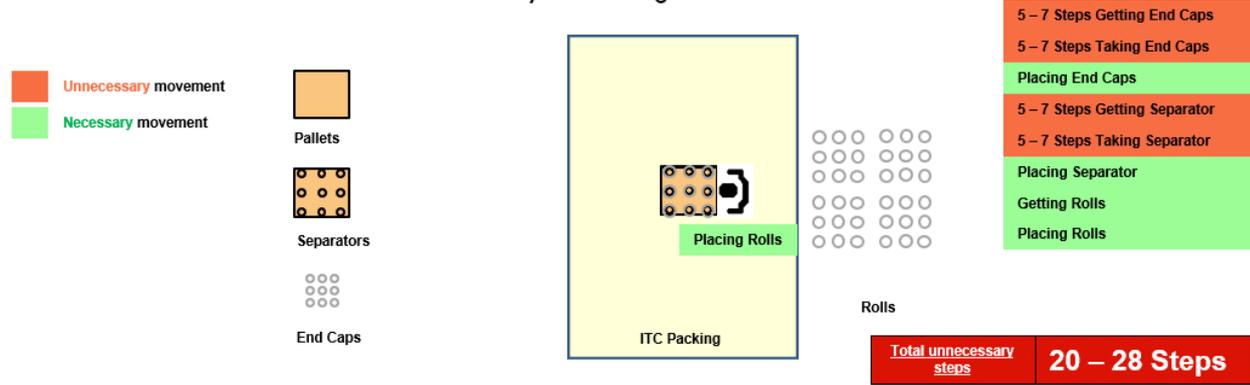
Data Analysis-

Total working time / shift		480				
Effective working time / shift		450				
Line	Packing Type	Present Output / Day	Present Output / Shift (A)	Work Content / Roll (Min) (B)	Total Work Content (Min) (C = A * B)	Manpower Required / Shift (C / 450)
Line 1-2	Type "A"	600	200	5.2	1042	3.0
	Type "B"	150	50	12.4	619	2.0
	Type "Modified"	150	50	5.4	268	1.0
	Type "ITC"	600	200	1.5	308	1.0
Line 3-4	Type "B"	220	74	13.7	1015	3.0
	Type "Modified"	150	50	6.8	340	1.0

Synchronous material flow and layout modification -

Existing Scenario -

□ Present Breakdown of activities in Layer making



Unnecessary steps involved in 1 pallet preparation

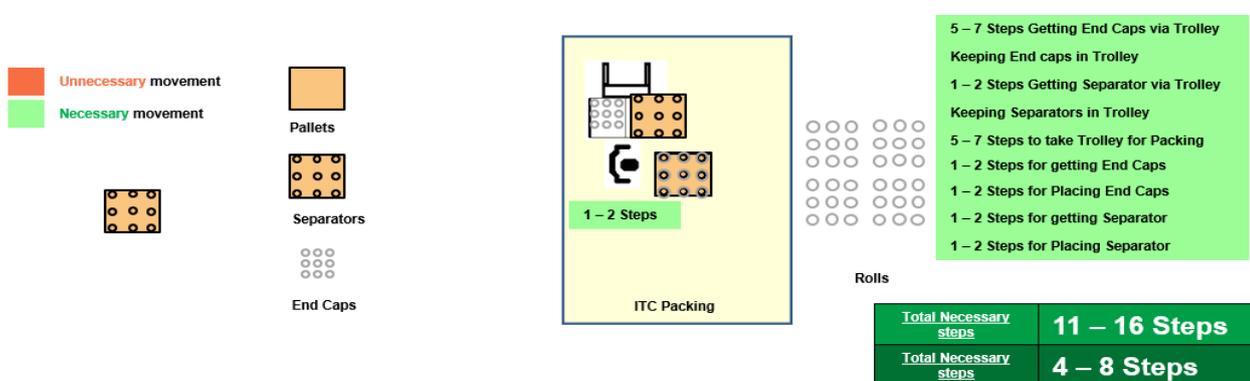
Total Unnecessary steps in building 1 layer	20 - 28 steps
Number of layers	7 - 9 Layers
Avg. no. of unnecessary steps in preparing 1 pallet	192

Avg: 24 steps

Avg: 8 Layers in 1 pallet preparation

Proposed Scenario -

□ Recommended set of activities in Layer making



After Implementing Trolley	
Necessary steps involved in 1 pallet preparation	
Total Necessary steps in getting material via trolley for 1 pallet preparation	11 - 16 steps
Total Unnecessary steps in building 1 layer	4 - 8 steps
Number of layers	7 - 9 Layers
Avg. no. of Necessary steps in preparing 1 pallet	61
Total Reduction of steps	68.23%

Avg: 13 steps

Avg: 6 steps

Avg: 8 Layers in 1 pallet preparation

Results & Conclusion

After doing analysis and evaluation following results were obtained –

1. Improved productivity by 45%.
2. Manpower reduction by 31%.
3. Manpower utilization rose from average of 49% to an average of 73%.
4. Dashboards for future planning as per demand & as per working lines.

Line	Description	Existing Manpower	Existing Manpower Utilization	Proposed Manpower	Proposed Manpower Utilization	Manpower Reduction	Productivity Improvement
Line 1-2	Type "A"	4	58%	3	77%	25%	33%
	Type "B"	2	69%	2	69%	0%	0%
	Type "ITC"	1	69%	1	69%	0%	0%
	Type "MODIFIED"	2	30%	1	59%	50%	100%
	Total	9	55%	7	71%	22%	29%
Line 3-4	Type "B"	5	41%	3	75%	40%	67%
	Type "MODIFIED"	2	38%	1	75%	50%	100%
	Total	7	40%	4	75%	43%	75%
Over All Productivity Improvement	Line 1,2,3 & 4	16	49%	11	73%	31%	45%

Contact Details

Name of Organisation	Production Modeling India, Nagpur
Contact Name	Pavan Nikhare
Email Address	pnikhare@pmcorp.com
Website	www.pmicorp.in