

# Capacity Planning in "Build to Order" Sunglass Manufacturing Industry



## Client's Challenge

- N number of variations in product as it is a Build to order (BTO)
- Immense variations in cycle-times due to change in property of lenses
- Manual/Auto Operations operated individually or in batches
- Wide variations in weekly demand throughout the year
- Reduce order lead-time to maintain reputation of on-time delivery
- Predict new shift pattern to meet future demand, if any

## PMI's Approach

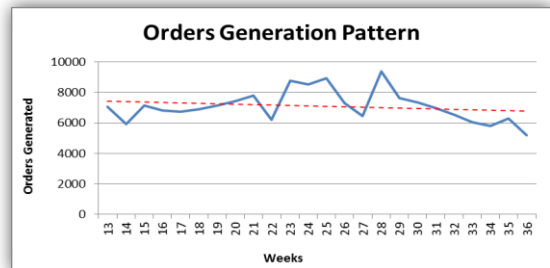
- Data analysis, 2D model building, verification & validation
- Analysed shift pattern and its effects on weekly throughput
- Used MODAPTS to reduce Process lead time in manual operations
- Integration of shipment schedule within the Model to study Order lead time

## Findings & Recommendations

- Study showed current shift pattern can not meet the future demand
- Devised a new shift pattern to meet future forecast for next 5 years
- Identified the maximum production limit beyond which capacity expansion is required

## Key Points

- Huge Variation in Product Mix - Build to Order
- Large seasonal variation in Demand
- Capacity Planning



Day	Busiest Month
Monday	4.70%
Tuesday	19.60%
Wednesday	19.70%
Thursday	17.70%
Friday	19.00%
Saturday	17.40%
Sunday	1.90%

Week's Capacity according to Run Configuration	Shift Configuration #	Color
14070	C1	
21105	C2	
22512	C3	
23919	C4	
25326	C5	
26733	C6	
28140	C7	
29547	C8	

Extra Capacity should be added to

Weeks	2014	2015	2016	2017	2018
1	17453	19198	21118	23230	25553
2	14720	16192	17811	19592	21551
3	17667	19434	21377	23515	25867
4	16901	18591	20451	22496	24745
5	16673	18340	20174	22191	24410
6	17090	18799	20679	22747	25022
7	17667	19434	21377	23515	25867
8	18390	20229	22251	24477	26924
9	19315	21247	23371	25709	28279
10	15369	16906	18597	20457	22502
11	21744	23918	26310	28941	31835
12	21127	23239	25563	28120	30931
13	22136	24349	26784	29463	32409
14	18092	19901	21891	24080	26488
15	16008	17609	19370	21307	23438
16	23261	25587	28146	30960	34056
17	18927	20820	22901	25192	27711
18	18212	20033	22036	24240	26664
19	17315	19047	20951	23046	25351
20	16233	17857	19642	21607	23767
21	14934	16427	18070	19877	21865
22	14386	15824	17407	19147	21062
23	15602	17162	18878	20766	22843
24	12821	14103	15514	17065	18771

\*Data shown here has been modified to protect client confidentiality