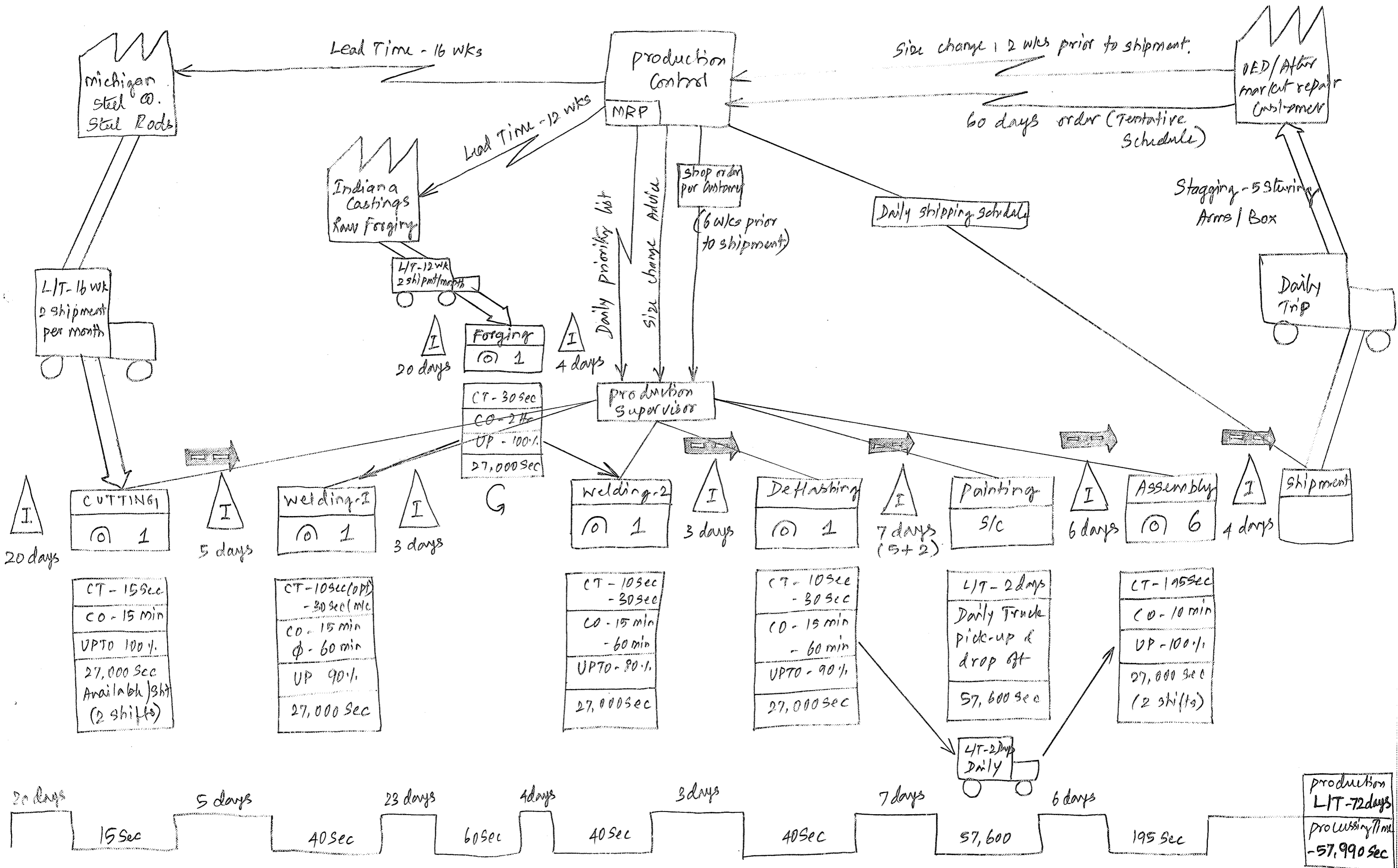
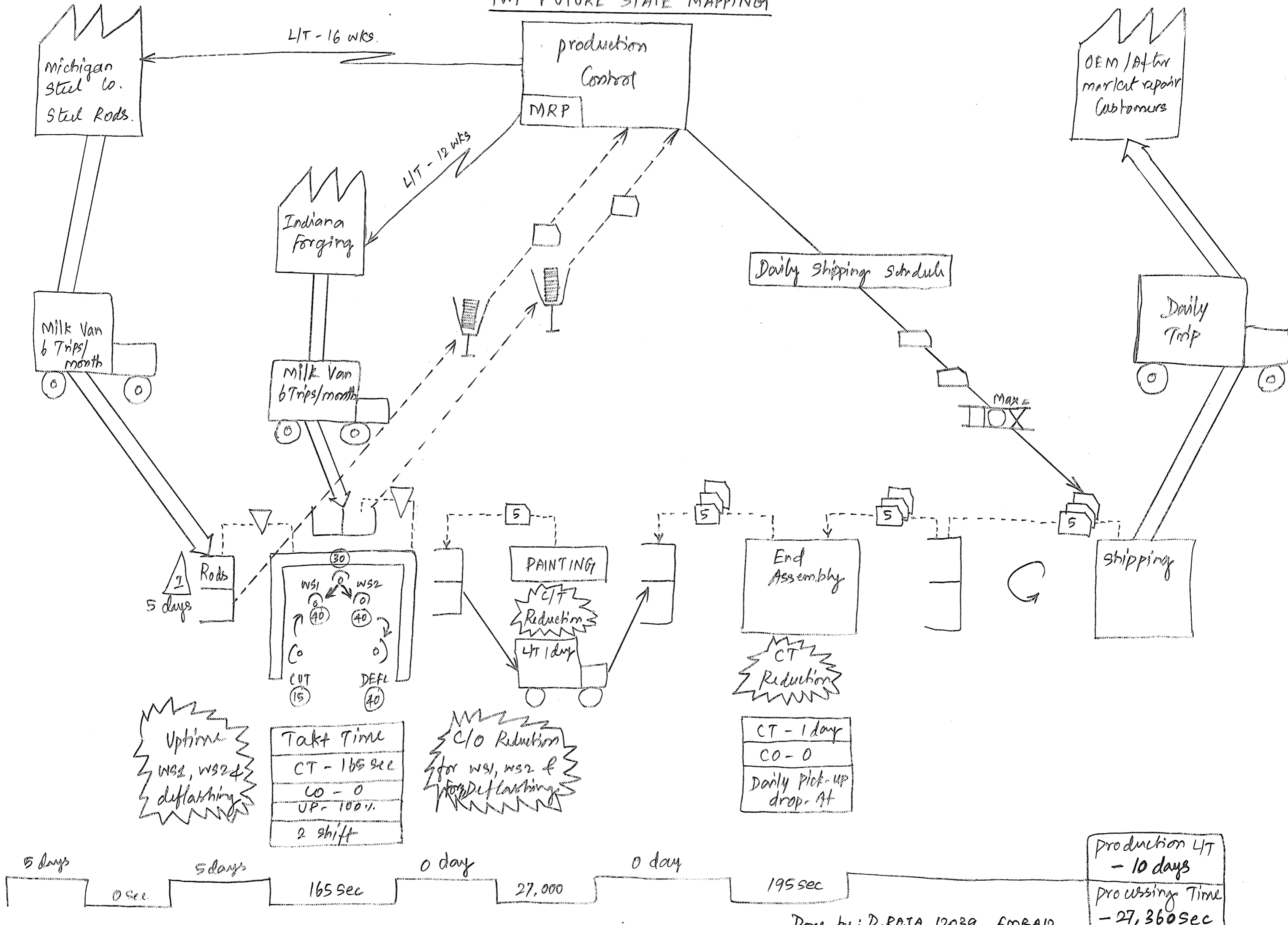


TWI - CURRENT STATE MAPPING



TWI - FUTURE STATE MAPPING



TWI INDUSTRIES – VALUE STREAM MAPPING ASSIGNMENT

Findings from Current State Mapping

- TWI currently takes customer order 27 days to get through TWI's production processes, but actual it takes 72days because more hidden inventory found in the system.
- The customer is forced to place the order in advance (Tentative Schedule - 60days), due to long lead time in servicing the order. The customer not able to provide the exact dimension in 60 days, due to this we are forced to keep buffer stock (Steel rods & forging) to serve the customer specific requirement which are provided 2 wks prior to shipping.
- Suppliers like Michigan steel company taking lead time of 16 wks for steel rods and Indiana Castings takes 12 wks to supply the raw forging. This makes the TWI more complicated and they are insisting for 60 days schedule from the customer.
- We observe the major bottleneck to meeting customer requirement is the inventory build-up in each process. Although the total processing times 57,960sec, in this 57,600sec is spent in painting carried out by the third party.
- Therefore our aim is to reduce less than 14 days which will facilitate the customer to provide correct dimension of the material, which would there by reduce our raw material inventory

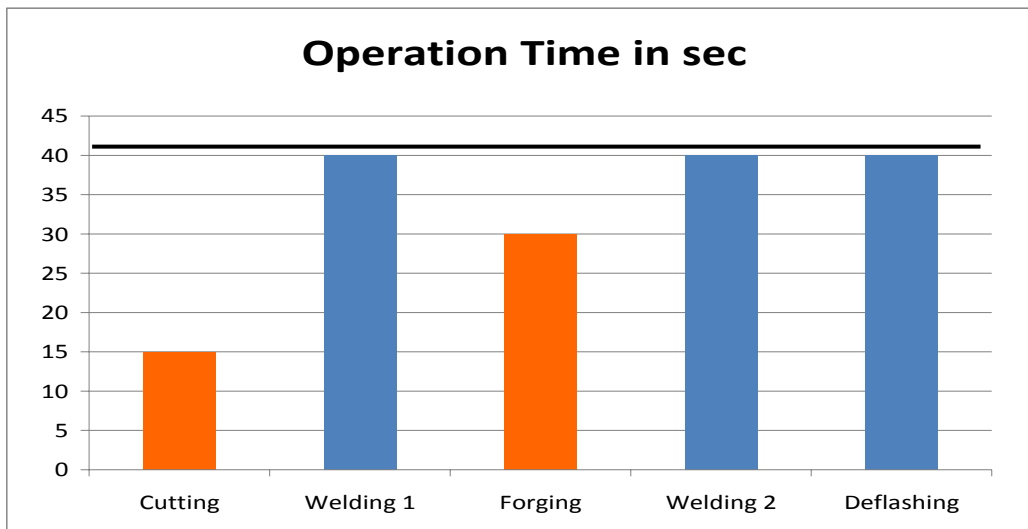
Improvements in Future State Mapping

- Welding station 1 & 2 has cycle time 40seconds (Including Operator and Machine), forging is the feeder for both the station and it takes 30seconds. There is a necessity to synchronise the forging process from 30 seconds to 20 seconds, so that it will feed both the weld station without any stoppage.
- Load levelling in forging from 30 to 20 sec to feed both WS1 & WS2 (Kaizen to be done)
- Kaizen burst is necessary in the assembly area to reduce the cycle time from 198sec.
- Manpower reduced from 5 to 4 in the assembly cell thro load levelling
- No. of trips increased from 2 to 6 trips per month for steel rods and raw forgings
- By stream lining and integrating the painting the sub-contracting operation, within our lean manufacturing system, using supermarket before and after the painting operation.

Inventory Turnover

VSM (In Days)	Rod	Rod Cutting	WS1	Forging	Machined Forge	WS2	Deflashing	Painting	End Assembly	Total Lead Time	Total Inventory Turnover
Before	20	5	3	20	4	3	7	6	4	72	3.33
After	5	0	0	5	0	0	0	0	0	10	24.0

Load Levelling



Before

165 seconds 5 operators - 33 seconds / operator

After

165 seconds 4 operators - 41.25 seconds / operator