Chapter– 12

SUPPLY CHAIN PRODUCTIVITY

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Objective: Providing an easy or very less hectic process to display shift details and attendance status of FTCs with help of a web-application.

CONTEXT

This is a very hectic or time consuming process to display or make FTCs know about their shift details and attendance status as well, when we have a manpower of more than 1300 people. Also to keep in mind about the following factors:- Availability,Attrition,Absconding the web-application to display all these details provides a better solution to these problems.

Why Application?

To provide a better visibility directly to the FTCs results increase in the required Availability,less Absconding rate and also make concerned person in operation free from this important process which now can be handled through application. This provides a time saving environment and 24*7 visibility of the shift details and attendance details status as well. Moreover, e.g. If an employee came after traveling 40km while still in the wrong shift would not suffer after deployment of this web-application.

Current Process

Right now we are following the traditional process which consumes a lot of time and a concerned person from the department which can be released after implementation of the proposed solution.

Proposed Solution

Creating a web-application which is accessible by anyone at any time after authentication can be a better idea. We have created a web-application which has a login page, right after authentication it is redirected to a profile page, which displays profile information along with the options to check shift details and attendance status.

Data Requirement

The data which is to be display on the application is downloaded from Casper AMS. It consists of two reports: - 1.Attendance Detailed report and 2.Attendance summary report.

Product Requirement

Need a platform to deploy this web-application along with a cloud database. **(Microsoft Azure subscription).**

Expected Impact

At a place like this the most important thing is manpower handling and proper resource utilization. In terms of Manpower handling there are many factors like:-

- Availability
- Absconding
- Attrition

All these factors will be positively affected by this application.

TSA VISUALIZATION

Objective: Productivity improvement by 30% from Feb baseline number, i.e.

Palletization IPP- 90

Problem Description

- Quality of staging was not as per the expected requirements. Totes belonging to the same cutoff were placed distantly.
- Pick Path for Palletization increased and IPP was impacted.
- Productivity of palletization was affected being one of the main KRA to avoid breaches.
- Minimum ground visibility was available in regards to Rack Utilization & Cut-off + XD-wise Distribution.

● Lack of Monitoring of the ground processes was also an unresolved issue.

Proposed Solution

Devised a **TSA Utilization & Visual Tool** that consists of-

1. Real time tracking of shelf utilization
2. 1H/2H Distribution of all the 16 cutoffs with CUTOFF-MIXING STATUS
3. XD-wise distribution of totes

Flowchart

Developed dashboards using 2 Data Points: i) all_tote_multicity ii) TL_data
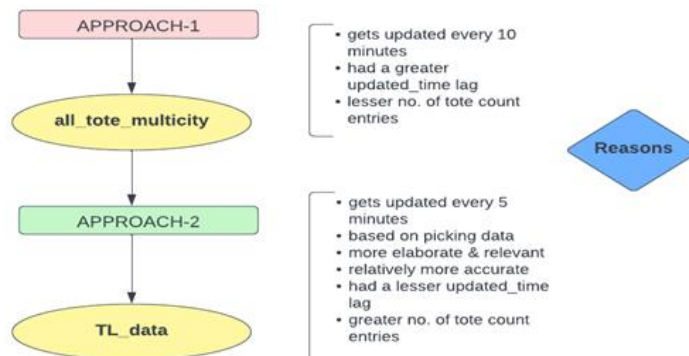
NOTE: Source of both data points: GROCERY LIVE*

Summary

• Process adherence & quality of STAGING increased through hourly monitoring.

• Average IPP Boost of Palletization from **91 to 114**.

• MP Reduction by **5** & Annual Savings of **Rs. 8,37,000.**

• TSA Placement can be micro-monitored at any minute of the day in terms of utilization & real time placement.

• Future planning of TSA for efficient utilization could be done for managing a higher number of orders smoothly within the fixed area.

Impacted Metrics

• Productivity

• Quality

• Effort Reduction

• Material Handling

• 5S

• Delivery

- Cost

STAGING PRODUCTIVITY & PENDENCY

Objective

Productivity improvement by 30% from Feb baseline number, i.e. *Staging IPP- 135*

Description

Productivity

- To monitor daily Productive Hours & IPP of each employed casper.
- This data to be used for coaching the MP as per their D(-1) performance.
- RCA needs to be presented for critically lower productivity.

Pendency

- To monitor & publish **REAL-TIME** Staging Pendency.
- To calculate the TSA utilization % X-D wise.

Proposed Solution

- Devised a **Productivity Dashboard[6] for Staging** consisting-
    i) IPP Tracker
    ii) Productive Hours Tracker
- Started Publishing **REAL TIME Staging Dashboard[7]** consisting-
    i) Staging Pendency
    ii) TSA % utilization
- Designed a Staging Manual for easier operational process knowledge.

Approach

IPP Trend: Before & After Implementation
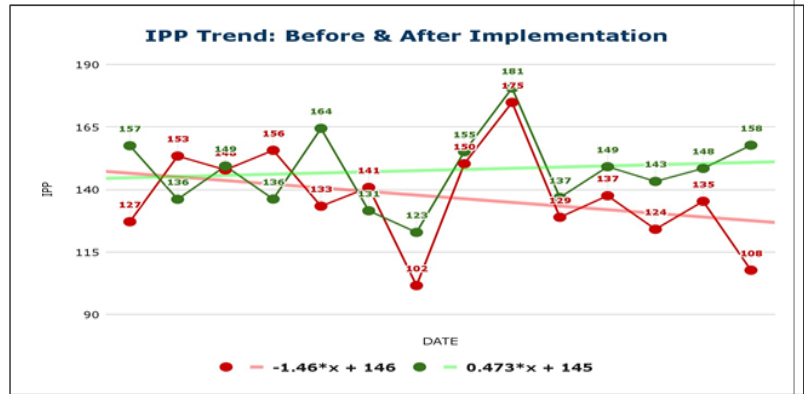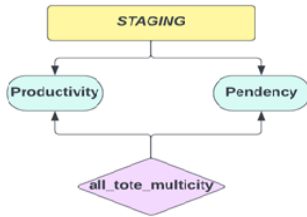
Summary

- Average IPP of Staging boosted from 137 to 148.
- MP Reduction by 1 & Annual Financial Savings of Rs. 1,67,400.
- Productive Hours of MP are monitored daily to push their effective hours of work and not only the Qty.

Impacted Metrics

- Productivity
- Quality
- Effort Reduction
- Material Handling
- 5S
- Delivery
- Cost

GUNNY BAG/ CARTON OPENING

Objective: Productivity improvement by 30% from Feb baseline number, i.e. *Picking IPP-120*
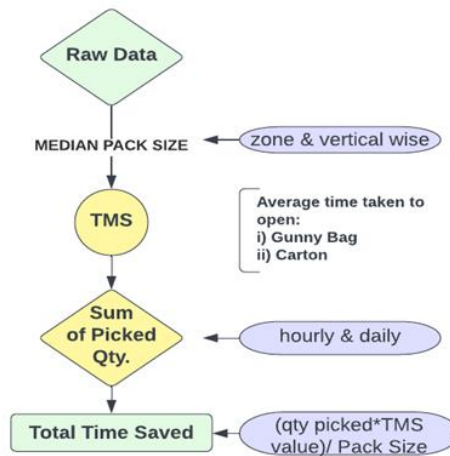
Problem Statement

- Picker IPP was impacted due to uncut gunny bags & cartons at the mapped locations.
- Despite the fact that a fixed number of MP (subject to **availability***) was deployed in every shift.

Proposed Solution

- Established a **charter**[8] on the basis of Reservation, ATP & Location Sequencing.
- Devised **P0 & P1 lists** to follow in case if ONLY 1 MP is aligned.

Flowchart


Impact

A. GUNNY BAG + Carton Opening IPP

- After a week of trial, Gunny Bag & Box opening IPP trend[9] was analyzed.

data set	duration	effective hours
02/26- 03/11	**7:00- 16:00**	**7.5**
Date	*Opening IPP*	*Day*
02/26	55	-2
02/27	92	-1
02/28	**91**	**0**
03/02	107	1

03/03	134	2
03/04	203	3
03/05	163	4
03/06	178	5
03/07	140	6
03/08	150	7
03/09	142	8
03/10	176	9
03/11	208	10
Average Opening IPP	**160**	

IPP of Opening (BEFORE):**79** IPP of Opening (AFTER): 160

- On 03/04, the IPP of opening increased to **203** due to regular invigilation.

- In the absence of frequent monitoring, their performance began to decline on Day-5, showing Behavioral Pattern among the MP.

DAY WISE GUNNY BAG & CARTON IPP TREND
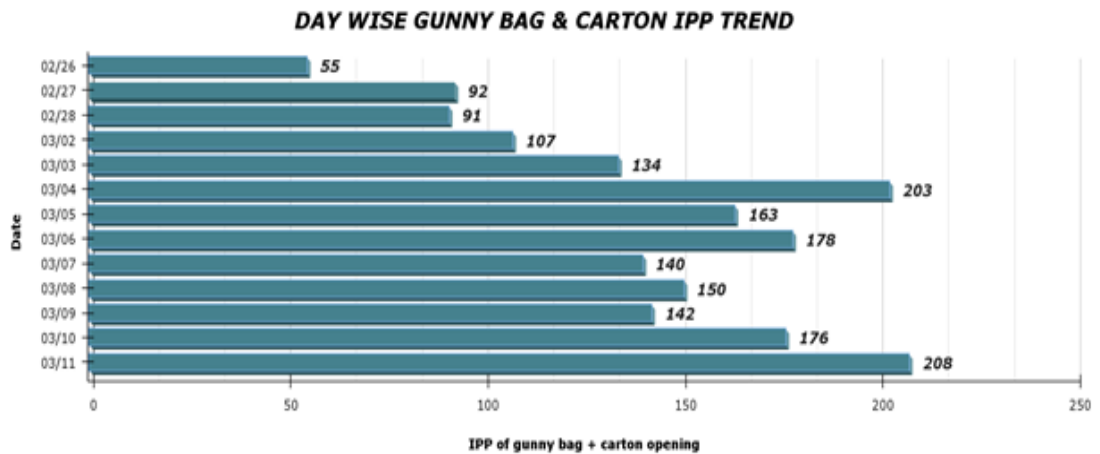
Trend: Based on the form[10] responses

B. Picking IPP

- Data Analysis

TIME SAVED/ ZONE at GUNNY BAG-PA Locations

DATE	Bulk Zone - Food	Bulk Zone - NonFood	Food	NonFood	TOTAL (min)	TOTAL (hour)
20220301	348.8	65.7	330.9	37.2	782.6	13.0
20220302	301.1	206.2	288.2	43.2	838.8	14.0
20220303	367.3	159.6	273.3	36.7	836.9	13.9
20220304	362.2	119.0	215.4	43.0	739.5	12.3
20220305	394.2	118.0	249.6	33.8	795.5	13.3
20220306	384.9	73.8	281.7	25.0	765.5	12.8
					Average:	13.2

TIME SAVED/ ZONE at BOX-PA Locations

DATE	Bulk Zone - Food	Bulk Zone - NonFood	Food	NonFood	TOTAL (min)	TOTAL (hour)
20220301	7.3	2.9	213.6	29.3	253.1	4.2
20220302	6.7	5.5	316.9	40.0	369.1	6.2
20220303	6.0	4.5	240.7	39.3	290.5	4.8
20220304	13.9	4.5	226.9	41.2	286.4	4.8
20220305	11.3	7.3	272.2	42.8	333.6	5.6
20220306	3.6	6.1	241.0	36.5	287.2	4.8
					Average:	5.1

- **Financial Savings**

  Potent time saved of pickers= 18.27 hours

  Manpower Reduction by= 3

  Cost Reduction by= 1350/day

  Annual Savings= Rs. 5,02,200

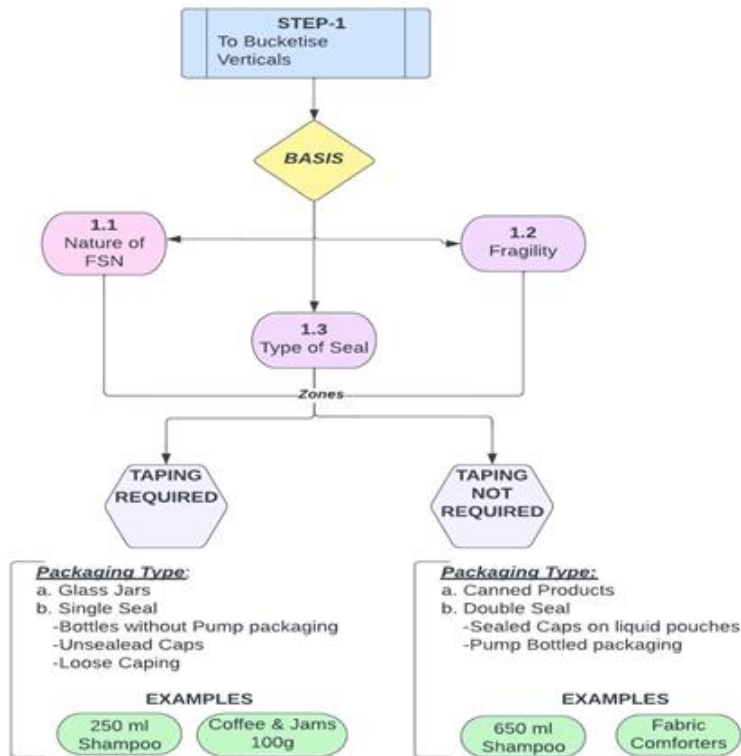- **Order Processing**
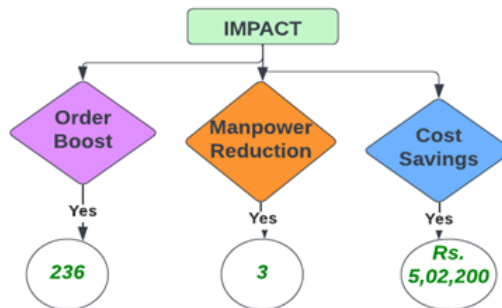
TAPING NOT REQUIRED

Objective: Productivity improvement by 30% from Feb baseline number, i.e. *QC IPP- 60*

Description

To standardize the process of *TAPING at QC* in order to improve the productivity of the QC flow.

Flowchart

Preface-SOP

    i)   **Taping to be done** for the items that lies to any of the listed categories:

- Fragile- Glass Jars
- Single sealed caps
- No Pump Packaging:

   In case of Shampoos, Shower Gels, Face Washes etc.

- Less Effective/ Breakable sealing

    ii)   **Taping to be exempted** for the FSNs lying in the listed categories:

- Canned Products[11]
- Double sealed caping
- Pump Bottled Packaging
- Effective/ Unbreakable Sealing

    iii) List of Taping Required & Taping NOT Required FSNs attached below.

NOTE:

- The above data has been developed after analyzing that any of the following FSN has not contributed to the PRTO for the last 1 month.

- Find the data attached below.

iv) The list is iterative and situational to the PRTO trend.[12]

   IF any of the listed FSN is found to be a PRTO contributor, it will no longer be exempted from taping.

v) **IF** any amendments are to be made, the consideration that the FSN to be added should not have contributed to any PRTO percentage for at least the previous one month is an essential.

[11] Taping Required & NOT Required FSN's

[12] PRTO data

On-the-Floor Actions

- Through visual inspection & PRTO validation, a list of TAPING REQUIRED & TAPING NOT REQUIRED FSNs were compiled.

- Thereafter, **155** FSNs from taping were exempted and **4 hours** of productive time was saved upon TMS.

- For the team visibility, lists at every QC Table were pasted & posters were made by picking a sample product from each listed category.

- Collaborated with the team for daily hurdles and implementation.

- Took feedback from the ground and further the lists were iterated.
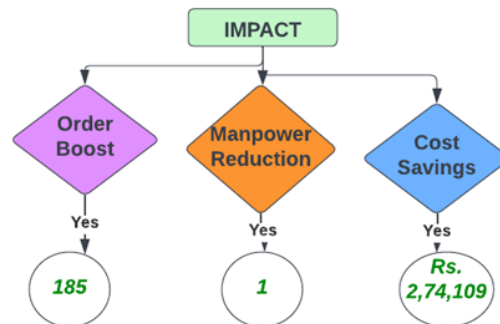
➢ **Audio-Visual-Click Here**

Summary

- TOTAL PRODUCTIVE TIME SAVED: 4 hours
- Additional Orders that can be processed: 185 (5% Boost)
- Annual Financial Savings: Rs. 2,74,110

Impacted Metrics

- Productivity
- Quality
- Effort Reduction
- Material Handling
- Cost
- 5 S

QC FORECAST (ONGOING)

Objective

Productivity improvement by 30% from Feb baseline number, i.e. QC IPP- 60

Description

For forecasting future load at QC and pre-planning the MP required in order to process the load smoothly without any pendency.

Proposed Solution

Devised a Forecasting Tool that can be used for:

i) Forecasting Total Load Distribution

ii) Pre-Planning Hourly-Zonal Load Distribution & MP Deployment
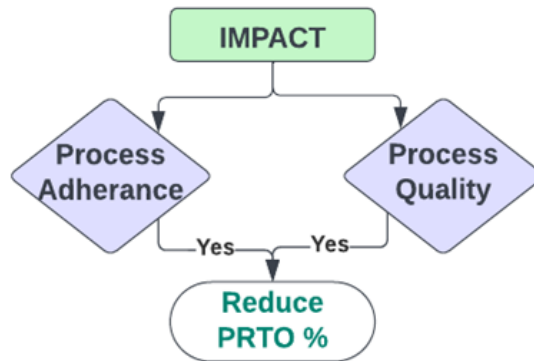
Impact

ONGOING

Summary

- Smart QC adherence will increase.
- Optimum Utilization of QC MP & Cross Utilization would increase.
- Quality of QC will be improved. As a result, PRTO % will be reduced.

Impacted Metrics

- Productivity
- Quality
- Effort Reduction
- Delivery
- Cost

PICKING SIMULATION (ONGOING)

Objective

Learning Curve: *30 days* → (80% productivity on 10th day, 100% on 20th day)

Description

To give newly employed pickers real-time picking experience to shorten their learning curve by **20%**

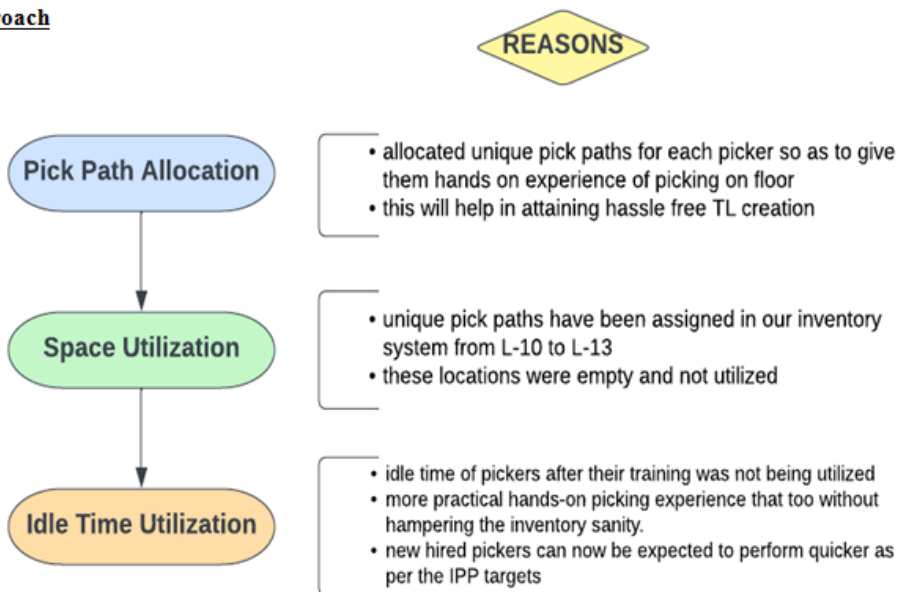expectedly** by idle time utilization of pickers during OJT.

Observations

- When a new picker is employed, an OJT charter of **two days** is prepared for them which covers a 16 hours of training period lacking practical learning experience.
- Because of lack of hands-on experience, the pickers were unable to achieve the targeted IPP.
- Factors like IPP shortfall, increased learning time, less efficiency among pickers were encountered.

- At the time they were actually deployed on the floor as pickers, some MP had to guide the new joiners, which was another factor contributing to lower IPP of the cumulative structure.

- There was no structured way to assess the new employed pickers because of that we were not able to analyze if they are best suited for picking or not.

- Lack of ideal time utilization

- There was no real time picking experience on the training ground for the newly appointed pickers.

On-The-Floor Actions

<u>**Approach**</u>

REASONS

Pick Path Allocation
- allocated unique pick paths for each picker so as to give them hands on experience of picking on floor
- this will help in attaining hassle free TL creation

Space Utilization
- unique pick paths have been assigned in our inventory system from L-10 to L-13
- these locations were empty and not utilized

Idle Time Utilization
- idle time of pickers after their training was not being utilized
- more practical hands-on picking experience that too without hampering the inventory sanity.
- new hired pickers can now be expected to perform quicker as per the IPP targets

1. FORM CREATION

   - To monitor and to access the pickers activity, forms were created.

   - Now the performance of pickers can be assessed and monitored on the basis of these form responses.

   - New hired pickers can be checked if they're suitable for picking or not.

   - Sample of Picking Form- Copy of Simulation Form

Steps to be followed by the new hires during filling form
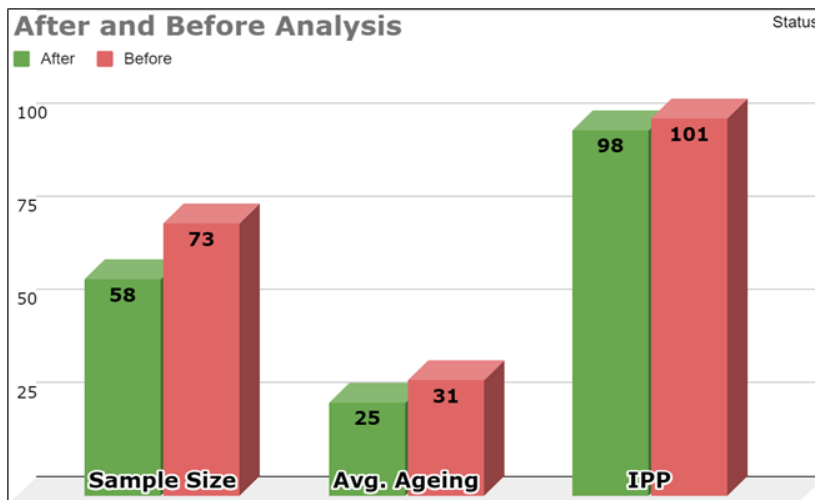
Overall Project Layout
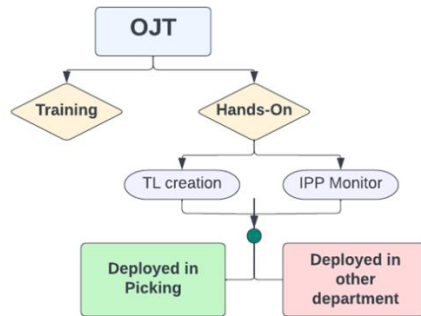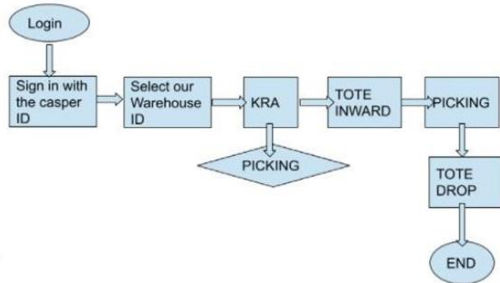
Impact[16]

- **Productivity**

Status	Sample Size	Avg. Aging	Avg. IPP
Before	73	31	101
After	58	24	98

Status	Sample Size	Avg. Aging	Avg. IPP
Before	41	29	98
After	41	29	102

[16] Copy of Picker Roster Adherance and IPP trend

➢ Sample of Picking Dashboard- Minatutre Training Warehouse Project

● **Financial Savings**

SUMMARY	
Previous Experience Curve to 100 IPP (days)	31
After deployment Curve to 100 IPP (days)	25
Net Reduction in Learning Curve	**6 days**
Per day salary of an associate	Rs. 450
Cost Saved/Picker	**Rs. 2700**
Average no. of Pickers/Month	103
Expected Cost saved/month	**Rs. 2,78,100**
Annual Cost saving	**Rs. 33,37,200**

Summary

● To achieve an equivalent throughput (IPP: 100), new hires trained with Picking Simulation took 6 days less as compared to old active caspers.

● Annual Financial Savings of Rs. 33,37,200
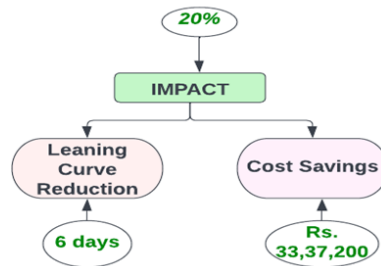
PROJECTS TIMELINE

Project Title	Timeline
EMA(Employee Management Application)	**September**
TSA Visualization	**February**
Staging Productivity & Pendency	**March**
Gunny Bag & Carton Opening	**March**
Taping NOT Required	**April**
QC Forecast	**April**
Learning Curve Reduction	**June**
Grocery LBH Recapture	**June**