



# **ASCM CASE COMPETITION**

In collaboration with

**Deloitte.**

**TEAM ID - 2160284**

# Executive Summary

## Industry Issue

Unplanned downtime is an issue the entire industry is struggling with and our client Juice Perfect is no exception. According to a major analyst firm\* 82% of manufacturing companies have experienced unplanned downtime over past three years and moreover, that unplanned downtime could cost the company as much as \$260,000 an hour. Luckily, proactive measures and technology intervention can reduce downtime significantly below thresholds

## Innovation

The underlying reasons for these issues can be attributed to the lack of investment in technology driven management systems. An integrated interface that can automate and streamline procurement, tracking, and scheduling of incoming units, while simultaneously keeping track of performance and maintenance of various production lines can boost productivity, profitability, and efficiency of the company manifold.

## Efficiency

The overall performance of a particular factory depends heavily on the underlying layout and process flows. The positioning and allocation of various production units are dependent on the nuances of the sector and the company under consideration, thus a customized layout optimizing given infrastructure and leveraging on the understanding of the company is imperative. It can help optimize the sharing of resources and maximizing inter-division collaboration. .

# Assumptions

1

Performance in OEE of a factory was measured using the formula :  
$$\text{Total Annual Run Time} / \text{Total Annual Run Time} + \text{Annual Unplanned Downtime}$$

2

Quality of juices and smoothies are the same across all the factory plants

3

Distances between warehouse and production line in the given factory is not negligible

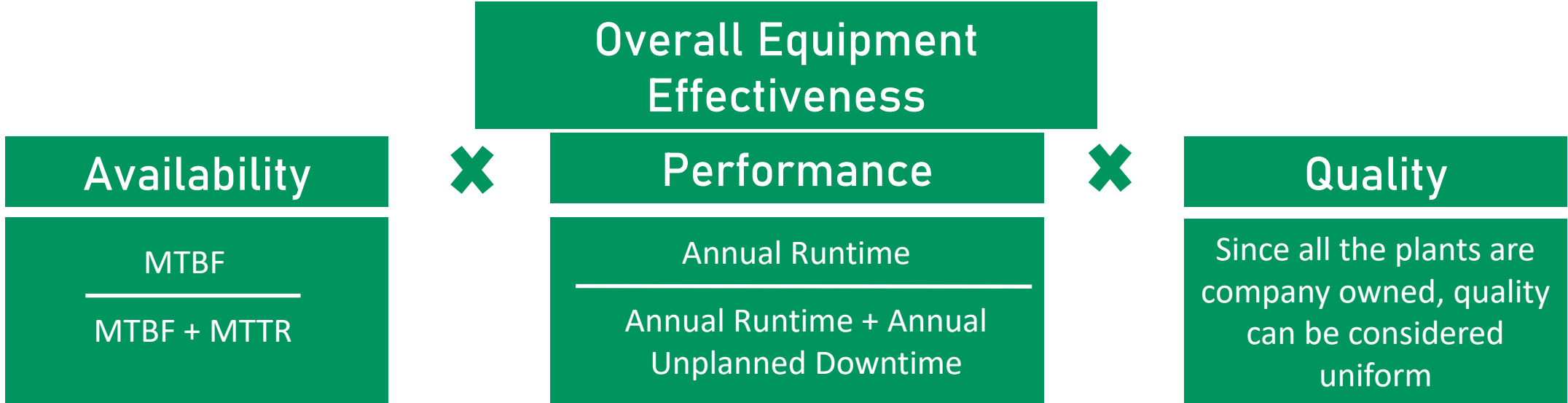
4

Juice-Perfect is not using any ERP ( Enterprise Resource Planning ) system

5

Asset maintenance is handled completely by in-house crew

# Identifying the Worst Performing Plant



Plant/Metrics	Availability	Performance	OEE
Illinois	0.96	0.95	0.91
North Carolina	0.95	0.94	0.90
Texas	0.94	0.94	0.89
California	0.93	0.93	0.87
Georgia	0.94	0.90	0.85
<b>Florida</b>	<b>0.84</b>	<b>0.86</b>	<b>0.73</b>

Worst  
 Performing  
 Unit

# Managing Supply Chain Operations

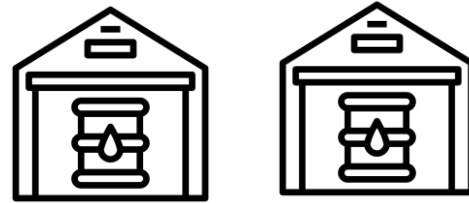
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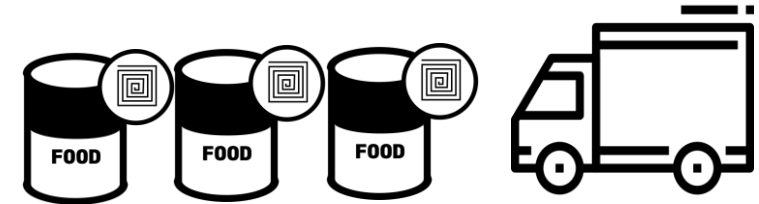
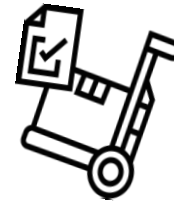
**30 %**

Misplaced In Warehouse

Dynamic Space Allocation



RFID based live tracking



**22 %**

Not received in Yard

Yard Management System

Dynamic Space  
Allocation

- Flexible allotment based on predicted demands and availability for optimal utilization of space and time

Real Time  
Tracking

- Boosts efficiency by automating processes involving human intervention and streamlining those that still do

Perishable Inventory  
Management

- Dynamic allotment allows customized inventory control for specific perishable raw materials

**18 %**

Delay in Staging

Raw Material

1

Asset Management

2

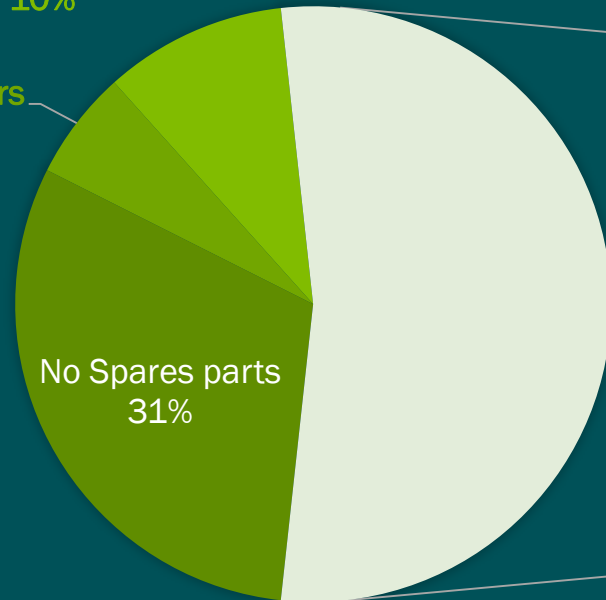
Factory Efficiency

3

## Reasons for Maintenance Delay

Delays in bringing  
the line down  
10%

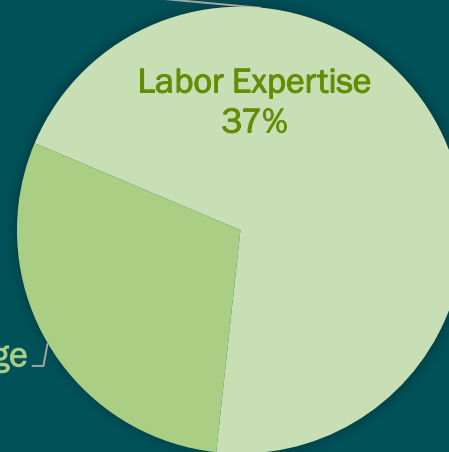
Others  
6%



Labor  
53%

Labor Shortage  
(Absence)  
16%

Labor Expertise  
37%



## Key Issues

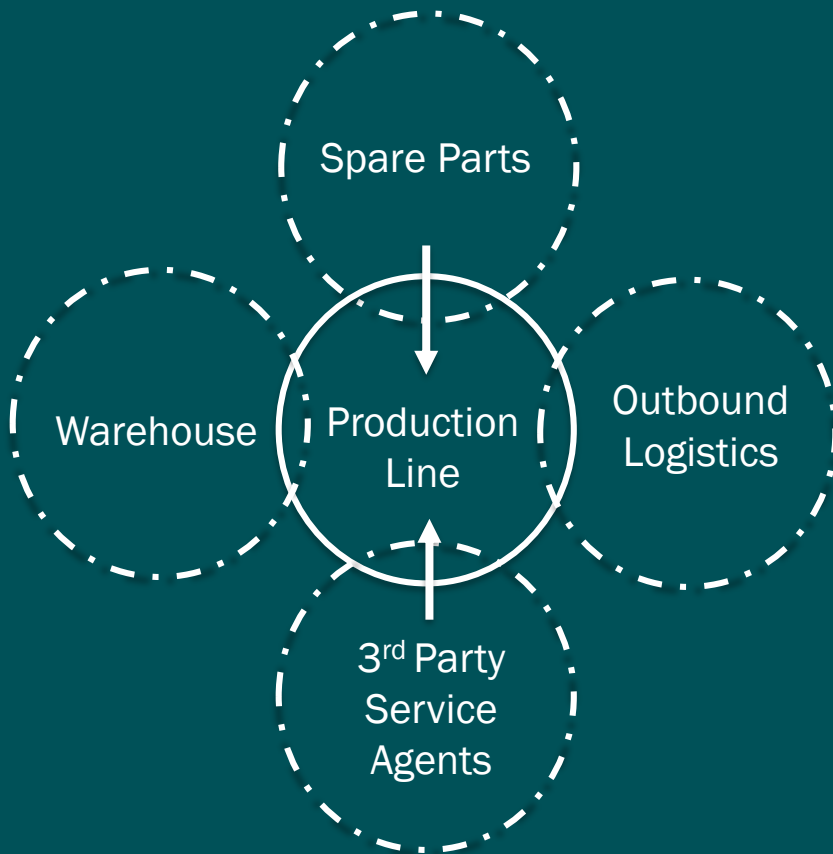
- Substandard in-house labor expertise
- Inefficient spare parts management
- Lack of predictive capabilities for maintenance

# Managing Supply Chain Operations

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## Enterprise Asset Management



Application based interface allows

- timely order of spare parts from third party
- on-demand availability of qualified professionals for maintenance
- Seamless coordination between key stakeholders



Raw Material

1

Asset Management

2

Factory Efficiency

3

# Managing Supply Chain Operations

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## Surveillance Dashboard

### Maintenance Work Orders

Filter:

Work Type

Location

Priority

Compare:

YTD vs Last YTD

Work Orders:

110 vs 183

↑66.36%



Delayed Start %

↓6.67%

37.27% vs 30.60%

Delayed Completion %

↑0.62%

38.18% vs 38.80%

Man Hours

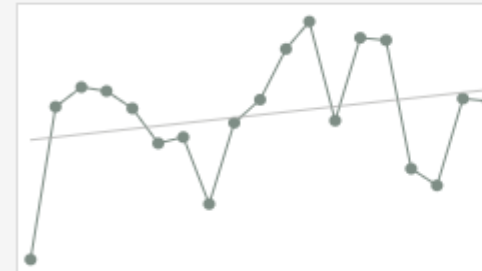
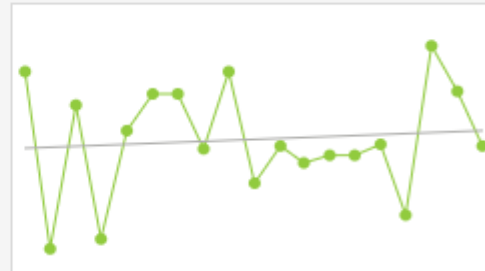
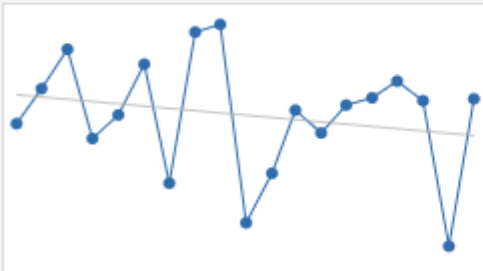
↑74.78%

1.4K vs 2.5K

Man Hours Actual vs Estimate

↑2.47%

7.23% vs 9.70%



Raw Material

1

Asset Management

2

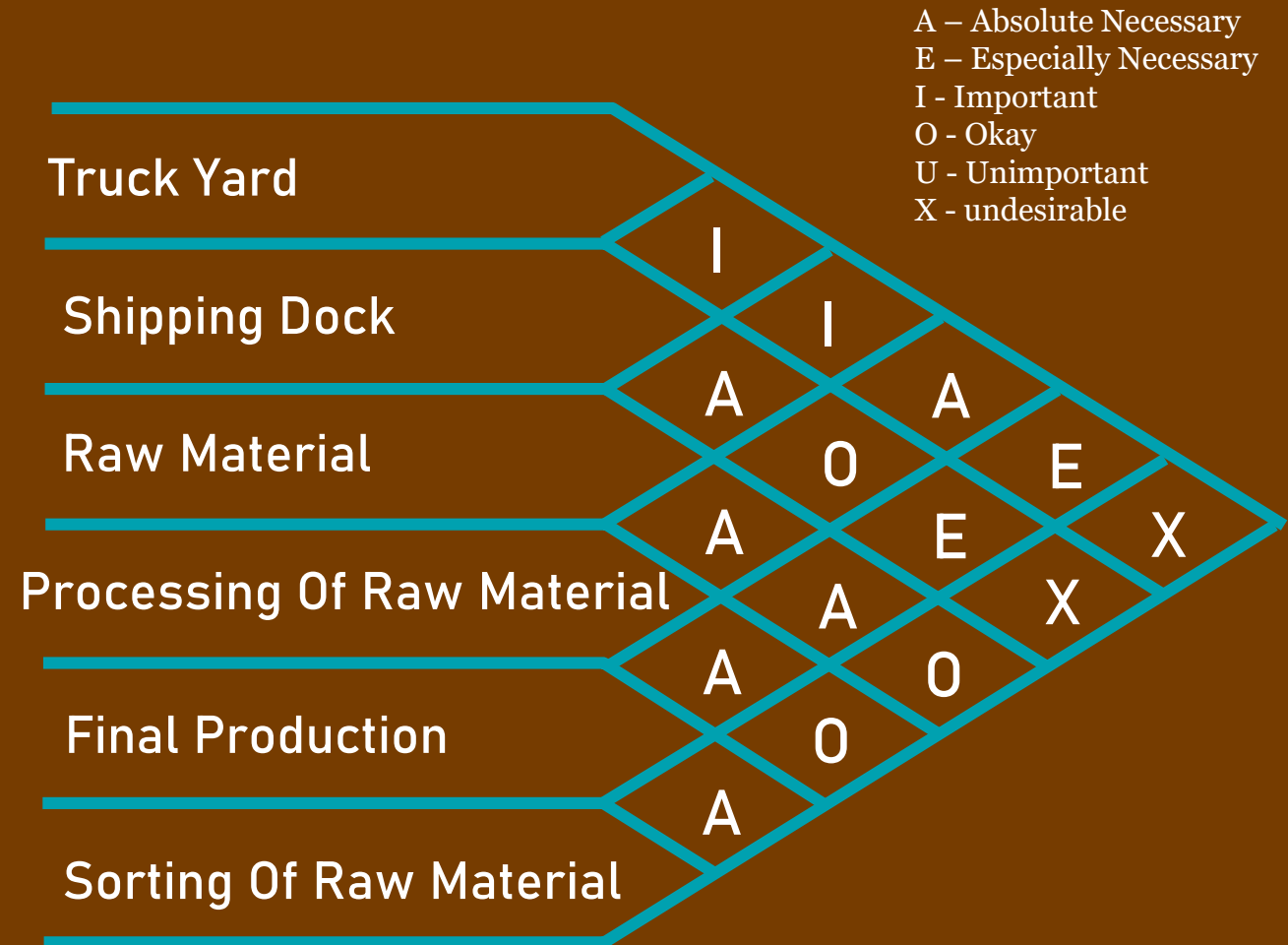
Factory Efficiency

3



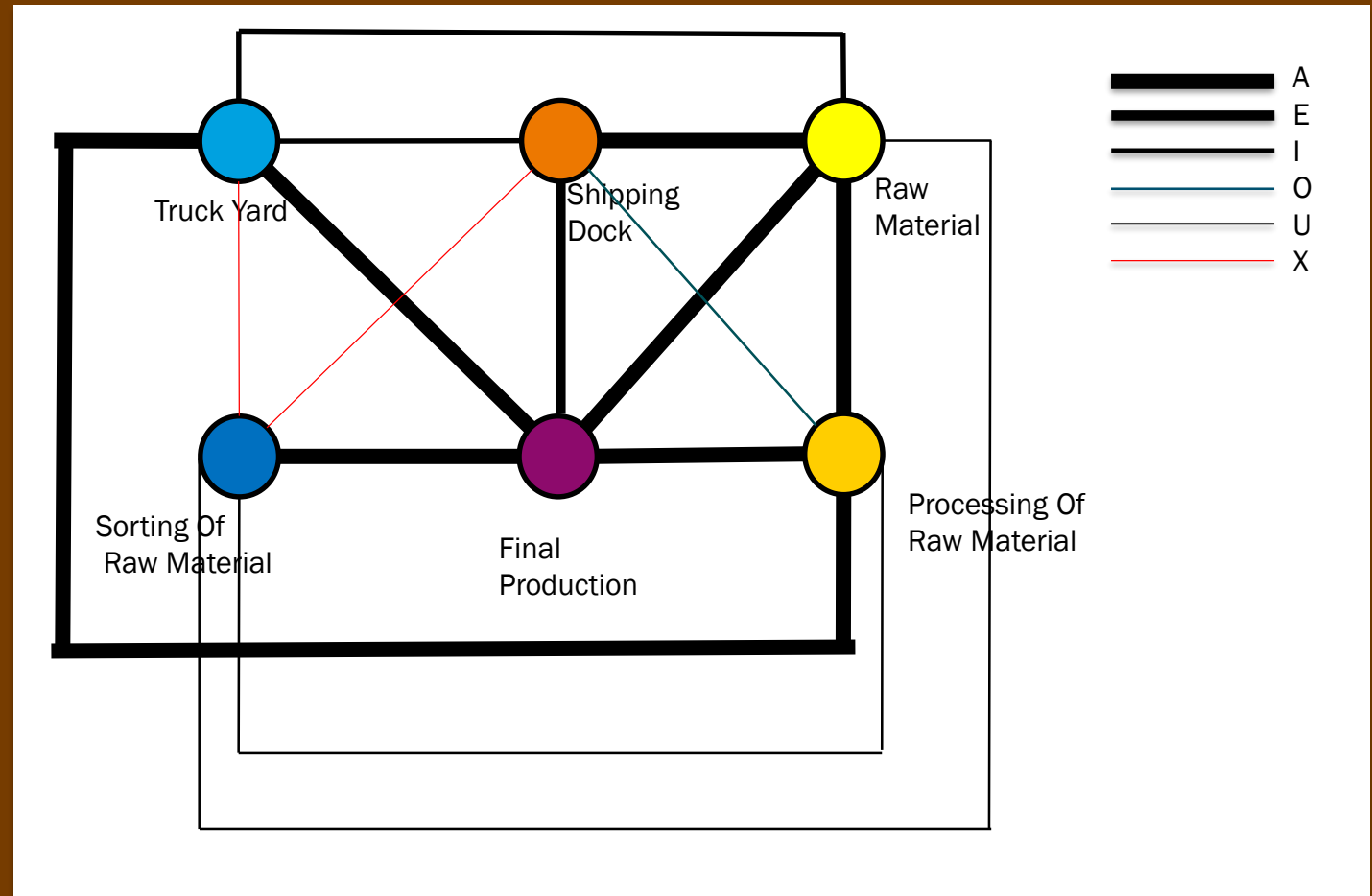
## Muther's Grid

- Improves efficiency of the working facility by increasing the mobility within different departments
- Sector specific preference information is coded into six categories depending upon the closeness rating for locating two departments adjacently
- Used to construct a customized relationship diagram that evaluates existing or proposed layouts



## Relationship Diagram

- The revised layout appears to satisfy the preferences expressed in Muther's grid.
- The heavy lines are short and within the perimeter of the grid. The lengthy lines are thin, and there are no zigzagged lines.



# Conclusions



- 1 Factory located in Florida is in worst performing state with OEE score of 73%
- 2 Raw material procurement processes were declining productivity with improper yard and warehouse management and lack of coordination between various cross functional groups as the major underlying issues.  
They can be rectified by using technology driven Yard Management system complete with RFID tracking facilities, dynamic space allocation system and efficient perishable inventory management.
- 3 Asset Management System was performing inefficiently because of lack of labor expertise of inhouse AMS team and improper spare parts management.  
A revamped AMS team focusing on data based asset tracking and enabled by an integrated enterprise asset management system to coordinate with third party labor management teams and spare part providers seamlessly will help in boosting productivity and increasing efficiency.