Supply Chain Project

Target

1- Total Orders And Units

1-Total Orders=5000 Order

```
 (Select Count(Order_number) As'Total_Orders'
from [dbo].[details])
```

2-Total Units=647692 Unit

```
(Select Sum([Units_Shipped]+[Damaged_Units]) As
'Total_Units'
from[dbo].[details])
```

2-Lead Time Metrics:

- Average raw material lead time, manufacturing time, and delivery time are calculated to understand process efficiency.

Average raw material lead time= 4 Days For Each Product

```
(Select Avg([Raw_Material_Lead_Time_days]) As
'Raw_Material_Lead_Time(d)'
from[dbo].[details])
```

Average Manufacturing Time= 5 Days For Each Product

```
(Select Avg([Manufacturing_Time_days]) As
'Manufacturing_Time(d)'
from [dbo].[details])
```

Average Delivery Time= 2 Days For Each Product

```
(Select Avg([Delivery_Time_days]) As 'Delivery_Time(d)'
from[dbo].[details])
```

raw material lead time =(Select Sum([Raw_Material_Lead_Time_days]) As 'Raw_Material_Lead_Time(d)'
from[dbo].[details])

manufacturing time=(Select Sum([Manufacturing_Time_days]) As 'Manufacturing_Time(d)'
from [dbo].[details]

delivery time=(Select sum([Delivery_Time_days]) As 'Delivery_Time(d)'
from[dbo].[details])

These Metrics Leads Us To Calculate:

Supply Chain Cycle Time=

+Order Processing time +Procurement time +Transportation time

+Warehousing Time+ Delivery Time

***So according to our Data,* Supply Chain Cycle Time For Each Order**

= raw material lead time+ manufacturing time+ delivery time

=

```
Select
[Order_Number],[Raw_Material_Lead_Time_days],[Manufactu
ring_Time_days],
[Delivery_Time_days],
([Raw_Material_Lead_Time_days]+[Manufacturing_Time_days
]+
[Delivery_Time_days])
As 'Supply _chain_Cycle_time(d)'
from[dbo].[details]
```

Supply Chain Cycle Time For the Whole Orders=

```
Select =(sum([Raw_Material_Lead_Time_days]+
[Manufacturing_Time_days]+
[Delivery_Time_days])
As 'sum_Supply _chain_Cycle_time(d)'
from[dbo].[details])
```

Average Supply Chain Time=5+4+2=11days

3-Freight and Delivery Performance:

1 - Average freight cost per order= 100.14$

```
(Select format(Avg(freight_cost),'c')
As 'Avg_freight_cost'
From [dbo].[order statues])
```

4-On-Time Delivery Rate is calculated as the ratio of on-time orders to total orders

2- On Time Ratio= 0.8034= 80.34%

```
SELECT
    CAST(SUM(CASE WHEN [Order_Status] =
'On Time' THEN 1 ELSE 0 END) AS float) /
COUNT([Order_Number]) AS OnTimeRatio
FROM
    [dbo].[order statues];
```

3- Late Order Ratio=0.1966= 19.66%

```
SELECT
    CAST(SUM(CASE WHEN [Order_Status] = 'On
Time' THEN 1 ELSE 0 END) AS float) /
COUNT([Order_Number])*100 AS OnTimeRatio
FROM [dbo].[order statues];
```

The Earliest And the Latest Order Date:

```
(Select min(order_date) As 'the_Earlist_order_date'
from[dbo].[order statues])

(Select max(order_date) As 'the_Latest_order_date'
from[dbo].[order statues])
```

The total Units Per Order:

```
(Select
d.[Order_Number],s.[Order_Date],d.[Units_Shipped]
from [dbo].[details] d join [dbo].[order statues] s
on d.[Order_Number]= s.[Order_Number])
```

The Max Damaged Units:

```
(SELECT TOP 1 [Damaged_Units], [Order_Number],
[Supplier_id]
FROM [dbo].[details]
ORDER BY [Damaged_Units] DESC)
```

The Number of Orders For Each Suppliers:

```
(Select [Supplier_id],Count([Order_Number]) As
'Total_Orders',Sum([Returns]) As 'Total Returns Order'
from [dbo].[details]
Group by [Supplier_id])
```

The Total Shipped Units Per Year:

```
(Select sum([Units_Shipped])As
'Units_shipped',YEAR(s.order_date) As 'Years'
from[dbo].[details]d join [dbo].[order statues]s
on d.[Order_Number]=s.[Order_Number]
group by YEAR(s.order_date)
Order By sum([Units_Shipped]) Desc)
```

Analyze

Problems in this Project We Have to Solve

1- Increasing Damaged Units

2- Increasing Supply Chain Cycle

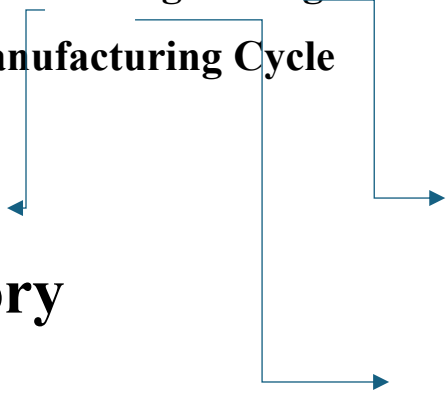
3- Increasing Return Orders

4- Increasing Late Orders

Insights (Solutions)

1-Solution (For Reducing Damaged Units)

through the Manufacturing Cycle



1-In Factory

3-In Warehouse

2-In the Shipping

1-Solution

1- Using Modern Machines and doing periodic repairs in machines

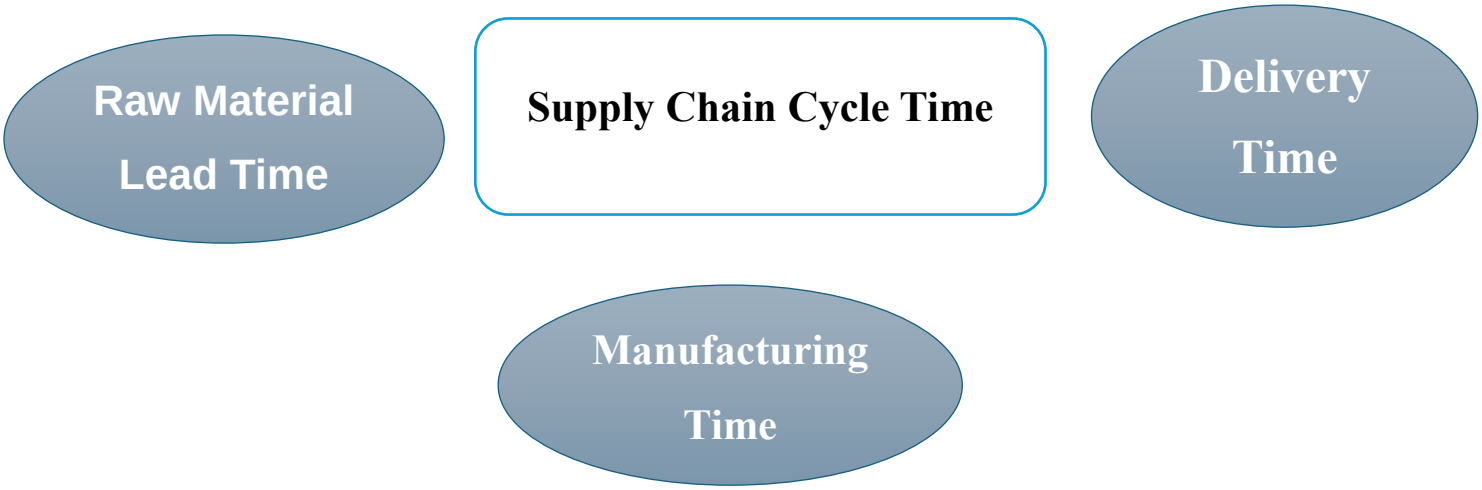
And also doing a continuous training to the labors.

2-Solution

Providing A suitable storage spaces.

3- Solution

providing a good packaging specially for Fragile products to satisfy the consumer.



1- Solution For Raw Material Lead Time:

Make a contract with many importers and Mention in these contract to receive the raw Material in specific time to Avoid the delay.

And Increase the wages of labors to use raw material wisely.

2- Solution For Manufacturing Time:

1- Using a modern machines to increase the productivity and doing a periodic repairs in machines
2- Increasing number of labors
3- Providing an overtime and night shift work

3- solution for Delivery Time:

Delivery and distribution is your second last chance to make a good impression on buyers. Rapid delivery, on-time delivery, and safe delivery are all important in this process because delivery times over 30 days, on the wrong day, with cracked products are the best way to make a bad impression.

Order tracking, using dedicated tracking and tracing software, is the best way to ensure the right orders, in the correct quantities, reach the right people. The software can red flag anomalies so you can take corrective action before products are packed and leave the warehouse.

Good logistics and transportation management requires accurate schedule coordination between warehousing and transport, as well as the most

efficient mode of transport, the safest and quickest routes to take, and contingency plans if it all goes belly up.

Returns

- Occasionally, products are returned either because they are faulty, don't meet specs, or are the wrong items entirely. This is a learning experience because returns can identify an inherent defect in all products of that line or point to delivery services that aren't quite as careful with fragile items as you would like.

You can then address the defect (and recall all faulty products) and cancel your contract with the delivery company. If you don't address the problem, you'll continue to improperly allocate resources, increase wastage and bleed money – not to mention frustrate customers and do serious damage to your business's reputation.

Prompt and efficient handling of returns (or reverse logistics) makes a good impression on buyers and, despite the incident, improves customer satisfaction and loyalty. The process might even encourage innovation and provide a competitive advantage as new and improved methods are used to ensure the problem never recurs.

1- Make a contact with the customer who Return the product and inquire the reason of the return if there is any problem with the product quality

2-Take a Feedback about the product and this attempts helps the company to find the perfect product to satisfy the consumer.