





Project Graduation

DEPI_1_BNS1_DAT1_G1d



MEMBER OF GROUP





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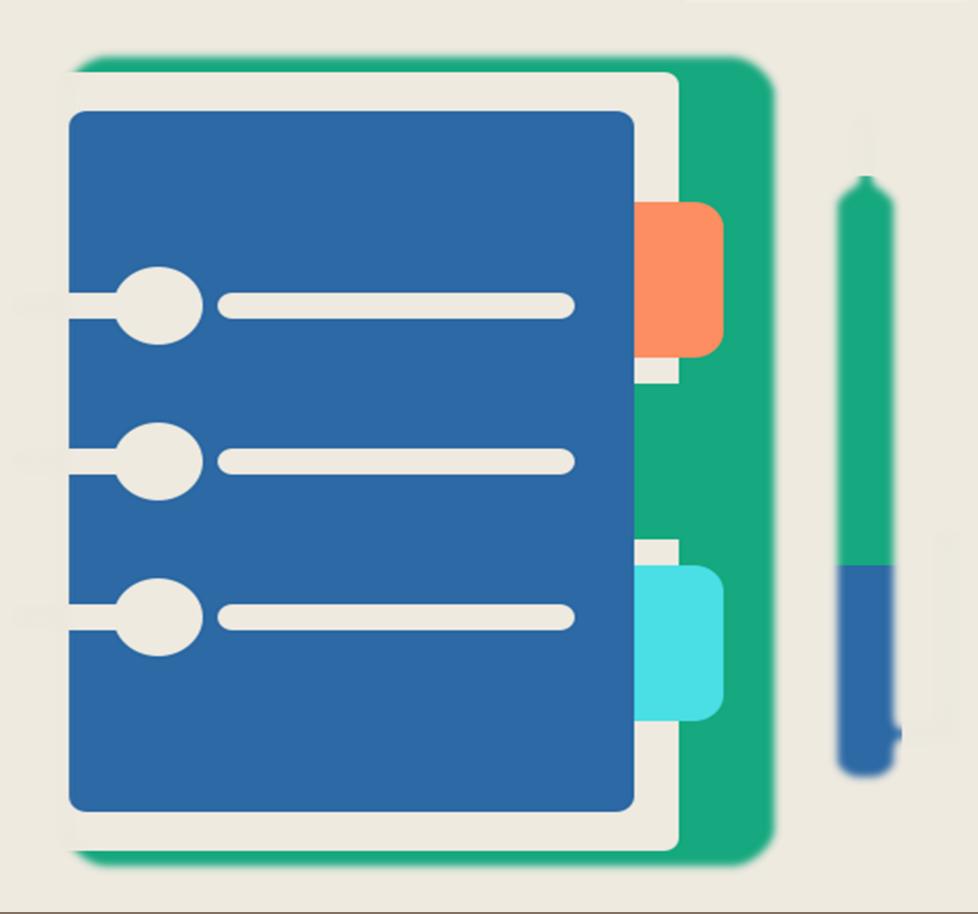
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Agenda:



- 1. Introduction
- 2. AdventureWorks Dataset Overview
- 3.Data Exploration with SQL
- 4. Data Cleaning
- **5.Production Schema Focus**
- 6.Data Analysis & Insights
- 7. Dashboard Overview
- 8. Recommendations
- 9.Conclusion
- 10.Q&A





1. Intorduction:



- The key objectives: were to analyze production performance, identify potential
 inefficiencies, understand order processing, and track product purchasing. The aim was to
 develop actionable insights to enhance production planning and operational efficiency.
- Tools Used: The primary tools used were SQL for extracting and manipulating data, and
 Power BI for visualizing results and building the final dashboard.
- Overview of Key Findings: Some of the key findings that will be covered include delays in production, inefficiencies in component usage, and potential areas for improving work order processing.



2. AdventureWorks Dataset Overview:



AdventureWorks is a comprehensive database designed for a fictional company that manufactures and sells bicycles and other related products. The dataset contains various schemas, each representing different aspects of the business, such as sales, production, and purchasing. In this project, the focus was on the Production of Product and purchasing Schemas, which holds critical information about product manufacturing, including components, shipping, work orders, and routing sequences.



3. 1. Data Exploration with SQL:



- This query is designed to extract and analyze data from the production workflow, specifically focusing on work orders within a defined time frame. It pulls key details such as Product Name, Location, Order Quantity, and Resource Hours to gain insights into the production timeline. By comparing scheduled start and end dates with actual start and end dates, the query highlights delays in production processes, represented by Latency Days and Latency Hours.
- Purpose of this query: To evaluate how efficient the production was by identifying discrepancies between scheduled and actual timelines. It also includes scrap information to monitor how much product was discarded due to production issues. This analysis helps identify bottlenecks in the process, inefficiencies, and possible causes of delays, providing valuable insights for optimizing production workflows.

```
w.ProductID,
p.Name,
W.LocationID,
L.Name AS LocationName.
W.WorkOrderID.
wo.OrderQty,
pc.Name As ProductCategory
psc.Name As ProductSubCategory,
w.ActualResourceHrs,
W.ScheduledStartDate,
YEAR(W.ScheduledStartDate) AS ScheduledStartYear
MONTH(W.ScheduledStartDate) AS ScheduledStartMonth,
DAY(W.ScheduledStartDate) AS ScheduledStartDay,
W.ActualStartDate.
YEAR(W.ActualStartDate) AS ActualStartYear,
MONTH(W.ActualStartDate) AS ActualStartMonth,
DAY(W.ActualStartDate) AS ActualStartDay,
W.ScheduledEndDate,
YEAR(W.ScheduledEndDate) AS ScheduledEndYear
MONTH(W.ScheduledEndDate) AS ScheduledEndMonth,
DAY(W.ScheduledEndDate) AS ScheduledEndDay,
W.ActualEndDate
YEAR(W.ActualEndDate) AS ActualEndYear,
MONTH(W.ActualEndDate) AS ActualEndMonth
DAY(W.ActualEndDate) AS ActualEndDay
DATEDIFF(DAY, W.ScheduledStartDate, W.ActualStartDate) AS LatencyStartDays,
DATEDIFF(DAY, W.ScheduledEndDate, W.ActualEndDate) AS LatencyEndDays,
DATEDIFF(DAY, W.ScheduledEndDate, W.ActualEndDate) - DATEDIFF(DAY, W.ScheduledStartDate, W.ActualStartDate) AS latencydates,
(DATEDIFF(DAY, W.ScheduledEndDate, W.ActualEndDate) - DATEDIFF(DAY, W.ScheduledStartDate, W.ActualStartDate)) * w.ActualResourceHrs AS latencyHours,
SR.Name AS scrappedName,
wo.ScrappedQty
Production.WorkOrderRouting AS W
Production.Product AS P ON W.ProductID = P.ProductID
Production.Location AS L ON W.LocationID = L.LocationID
Production.WorkOrder AS WO ON WO.WorkOrderID = w.WorkOrderID
Production.ScrapReason AS SR ON SR.ScrapReasonID = WO.ScrapReasonID
Production.ProductSubcategory AS psc ON p.ProductSubcategoryID = psc.ProductSubcategoryID
Production.ProductCategory AS pc ON psc.ProductCategoryID = pc.ProductCategoryID
W.ScheduledStartDate IS NOT NULL
AND W.ActualEndDate IS NOT NULL
تعديد الغترة الزمنية التي تريد حسرما بين التواريخ --
استبدل بالتاريخ المناسب -- 'AND W.ScheduledStartDate > '2011-01-01' -- المناسب
AND W.ActualEndDate < '2014-12-31';
                                         استبدل بالتاريخ المناسب --
```



3. 2. Data Exploration with SQL:

W.ScheduledStartDate IS NOT NULL AND W.ActualEndDate IS NOT NULL

AND W.ActualEndDate < '2014-12-31'

تحديد الفترة الزهنية التي تريد حصرها بين التواريخ --

استبدل بالتاريخ المناسب -- '2011-01-01' -- AND W.ScheduledStartDate

استبدل بالتاريخ المناسب --



 This query is aimed at assessing the efficiency of the production process by analyzing the differences between scheduled and actual timelines for work orders. It retrieves details about products, locations, and work orders, and focuses on the actual resource hours used during production. By calculating the latency in both the start and end dates, the query identifies delays in the process.

Purpose of this query: To track production delays and calculate their impact in terms of both time and resources. The latency days are calculated as the difference between scheduled and actual start and end dates. The latency hours metric multiplies the delay by the number of resource hours involved, giving a more comprehensive picture of the overall delay in production.

```
ĖSELECT
    w.ProductID.
    p.Name,
    W.LocationID.
    L.Name AS LocationName,
    W.WorkOrderID
    w.ActualResourceHrs
    W.ScheduledStartDate,
    YEAR(W.ScheduledStartDate) AS ScheduledStartYear,
    MONTH(W.ScheduledStartDate) AS ScheduledStartMonth,
    DAY(W.ScheduledStartDate) AS ScheduledStartDay,
    W.ActualStartDate.
    YEAR(W.ActualStartDate) AS ActualStartYear,
    MONTH(W.ActualStartDate) AS ActualStartMonth,
    DAY(W.ActualStartDate) AS ActualStartDay,
    ScheduledEndDate,
    YEAR(W.ScheduledEndDate) AS ScheduledEndYear,
    MONTH(W.ScheduledEndDate) AS ScheduledEndMonth,
    DAY(W.ScheduledEndDate) AS ScheduledEndDay,
    W.ActualEndDate,
    YEAR(W.ActualEndDate) AS ActualEndYear,
    MONTH(W.ActualEndDate) AS ActualEndMonth,
    DAY(W.ActualEndDate) AS ActualEndDay,
    DATEDIFF(DAY, W.ScheduledStartDate, W.ActualStartDate) AS LatencyStartDays,
    DATEDIFF(Day, W.ScheduledEndDate, W.ActualEndDate) AS LatencyEndDays,
    DATEDIFF(Day, W.ScheduledEndDate, W.ActualEndDate)-DATEDIFF(DAY, W.ScheduledStartDate, W.ActualStartDate) as latencydates,
    (DATEDIFF(day, W.ScheduledEndDate, W.ActualEndDate)-DATEDIFF(day, W.ScheduledStartDate, W.ActualStartDate))*w.ActualResourceHrs as latencyHours
    Production.WorkOrderRouting as W
    Production.Product as P ON W.ProductID = P.ProductID
    production.Location as L ON W.LocationID = L.LocationID
```



3. 3. Data Exploration with SQL:



- This query is used to extract detailed information about products in the AdventureWorks database, including their categories, subcategories, and pricing details. The focus is on gaining an understanding of the product catalog, which can be useful for various types of analysis, such as inventory management, sales trends, and product performance.
- This query is valuable for generating insights into the product structure within the company and understanding how different product categories and subcategories are related. It helps management teams to:
 - Organize products by categories for better inventory tracking.
 - Monitor product pricing strategies.
 - Analyze the ratio of finished goods versus inprogress goods.

```
SELECT
     p.ProductID,
     p.Name AS ProductName,
     psc.Name AS SubCategoryName,
     pc.Name AS ProductCategory,
     p.ProductLine,
     p.ProductNumber,
     p.Class,
     p.StandardCost,
     p.ListPrice,
     p.MakeFlag,
     p.FinishedGoodsFlag
 FROM
     Production.Product AS p
 LEFT JOIN
     Production.ProductSubcategory AS psc ON p.ProductSubcategoryID = psc.ProductSubcategoryID
 LEFT JOIN
     Production.ProductCategory AS pc ON psc.ProductCategoryID = pc.ProductCategoryID;
```



3. 4. Data Exploration with SQL:



 This SQL query retrieves comprehensive information regarding products from the database.
 The main objective is to extract details about each product, including its category and subcategory, which can aid in product analysis and inventory management.

 The primary goal of this query is to provide a structured overview of products, categorizing them into subcategories and categories. This information is crucial for various analyses, such as inventory management, sales performance evaluation, and strategic planning. By understanding the relationships and classifications of products, businesses can make informed decisions regarding stock levels, marketing strategies, and product development.

```
pod.PurchaseOrderID,
    p.BusinessEntityID,
    p.FirstName + ' ' + p.LastName AS EmployeeName,
    v.BusinessEntityID AS VendorBusinessEntityID,
    v.Name AS VendorName,
    sm.Name AS ShipMethodName,
    poh.OrderDate,
    YEAR(poh.OrderDate) AS OrderYear,
    MONTH(poh.OrderDate) AS OrderMonth,
    DAY(poh.OrderDate) AS OrderDay,
    poh.ShipDate,
    YEAR(poh.ShipDate) AS ShipYear,
    MONTH(poh.ShipDate) AS ShipMonth,
    DAY(poh.ShipDate) AS ShipDay,
    pod.DueDate,
    YEAR(pod.DueDate) AS DueYear,
   MONTH(pod.DueDate) AS DueMonth,
   DAY(pod.DueDate) AS DueDay,
    DATEDIFF(DAY, poh.ShipDate, pod.DueDate) AS shipped_dates,
    poh.SubTotal,
    poh.TaxAmt,
    poh.Freight,
    poh.TotalDue
    Purchasing.PurchaseOrderDetail AS pod
    Purchasing.PurchaseOrderHeader AS poh ON pod.PurchaseOrderID = poh.PurchaseOrderID
JOIN
    Person.Person AS p ON poh.EmployeeID = p.BusinessEntityID
JOIN
    Purchasing.Vendor AS v ON poh.VendorID = v.BusinessEntityID
JOIN
    HumanResources.Employee AS e ON p.BusinessEntityID = e.BusinessEntityID
    Purchasing.ShipMethod AS sm ON poh.ShipMethodID = sm.ShipMethodID
GROUP BY
    pod.PurchaseOrderID,
    p.BusinessEntityID,
    p.FirstName,
    p.LastName,
    e.JobTitle,
    v.BusinessEntityID,
    v.Name.
    sm.Name,
    poh.OrderDate,
    poh.ShipDate,
    pod.DueDate,
    poh.SubTotal,
    poh.TaxAmt,
    poh.Freight,
    poh.TotalDue
```



3. 5. Data Exploration with SQL:



- The main goal of this query is to provide a detailed breakdown of each purchase order, focusing on the quantities of items received, rejected, and stocked, along with their corresponding financial values. This information is valuable for inventory management, financial analysis, and understanding the efficiency of the purchasing process.
 - By assessing the quantities and statuses of ordered products, businesses can identify potential issues in the supply chain, make informed decisions on stock management, and evaluate vendor performance. This data ultimately aids in optimizing procurement strategies and improving overall operational efficiency.

```
≐SELECT
     pod.PurchaseOrderID,
     pod.ProductID,
     pod.UnitPrice,
     pod.OrderQty,
     pod.LineTotal,
     pod.ReceivedOty,
     CASE
         WHEN pod.ReceivedQty > 0 THEN pod.ReceivedQty * pod.UnitPrice
         ELSE 0
     END AS ReceivedTotal,
     CASE
         WHEN pod.ReceivedQty > 0 THEN (pod.OrderQty - pod.ReceivedQty) * pod.UnitPrice
         ELSE 0
     END AS DifflineRec.
     pod.RejectedQty,
     CASE
         WHEN pod.RejectedQty > 0 THEN pod.RejectedQty * pod.UnitPrice
         ELSE 0
     END AS RejectedTotal,
     pod.StockedQty,
         WHEN pod.StockedQty > 0 THEN pod.StockedQty * pod.UnitPrice
         ELSE 0
     END AS StockedTotal,
     CASE
         WHEN pod.StockedQty > 0 and pod.StockedQty != (pod.ReceivedQty-pod.RejectedQty) THEN (pod.ReceivedQty - pod.StockedQty) * pod.UnitPrice
         ELSE 0
     END AS DifflineStock.
     p.BusinessEntityID,
     p.FirstName + ' ' + p.LastName AS EmployeeName,
     v.BusinessEntitvID.
     v.Name.
     e.JobTitle
     Purchasing.PurchaseOrderDetail AS pod
     Purchasing.PurchaseOrderHeader AS poh ON pod.PurchaseOrderID = poh.PurchaseOrderID
     Person.Person AS p ON poh.EmployeeID = p.BusinessEntityID
     Purchasing.Vendor AS v ON poh.VendorID = v.BusinessEntityID
```

HumanResources.Employee AS e ON p.BusinessEntityID = e.BusinessEntityID;



3. 6. Data Exploration with SQL:



- The goal of this query is to provide a breakdown of the components used in product assemblies, including their names and whether they are made in-house or outsourced.
 - The query also links each component to its corresponding product assembly (if applicable).
 This information is valuable for understanding the composition of products, analyzing the supply chain, and managing inventory.
- By identifying both components and assemblies, the company can make informed decisions about production, sourcing, and cost management.

```
SELECT
     BOM.ComponentID,
     P. Name AS ComponentName,
     P.MakeFlag,
     BOM.ProductAssemblyID,
     PL.Name AS ProductAssemblyName
 FROM
     Production BillOfMaterials AS BOM
 JOIN
     Production.Product AS P ON P.ProductID = BOM.ComponentID
 LEFT OUTER JOIN
     Production.Product AS PL ON PL.ProductID = BOM.ProductAssemblyID;
```



3. 7. Data Exploration with Excel:



• The yellow-highlighted lines removed from the shipping query represent raw data. These lines contained direct data values that were irregular and duplicates, which were not needed for the final analysis, so they were excluded from the documentation to maintain accuracy and consistency.

1998 3985 257 Eric Kurjian Buyer 1500 Morgan Bike & CRQ - TRUCK GRO 8/3/2014 8/17/2014 5 418.95 33.516 10.4738 4.3987 3988 251 Mikael Sandberg Buyer 1572 Mational Bike AlXRQ - TRUCK GRO 8/3/2014 8/17/2014 5 525.7665 42.0813 11.5448 13.885 13.516 10.4738 4.3988 3987 251 Mikael Sandberg Buyer 1562 Morstan Bike H. OVERNIGHT J-FAS 8/3/2014 8/17/2014 5 451.79 36.9432 11.5448 13.8851 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 5 12.0472 12.0472 12.0472 12.0472 12.0472 12.0472 12.0472 12.0472 12.0472 12.0472 12.0472 12.0472 12.0472 12.0472 12.0472 12.0472 12.0472 12.0472 12.0472 12.0472 12.0472 12.0472 12.0472 12.0472 12.0472 12.0472 12.0472 12.0472 12.0472 12.0472 12.0472 12.0472 12.0472	Pu	ırchaseOrderlD → BusinessE	intityID - EmployeeName -	JobTitle - V	endorBusinessEntityID -	VendorNam	e ShipMethodNar	me V Orde	erDate - S	ShipDate	DueDate -	shipped dates	SubTotal	TaxAmt	Freight	Tota
3986 261 Reinouf Hillmann Purchasing 1566 Mountain Work OVERRIOHT J-FAS* 83/2014 81/12/2014 81/12/2014 5 525.7665 42.0613 13.1442 3989 3988 253 Linda Meisner Buyer 1562 Norstan Bike H; OVERRIOHT J-FAS* 83/2014 81/12/2014 81/12/2014 5 461.79 35.9432 11.5448 3989 3889 253 Linda Meisner Buyer 1562 Norstan Bike H; OVERRIOHT J-FAS* 83/2014 81/12/2014 81/12/2014 5 461.887 38.551 12.0472 5 3991 3990 256 Frank Pellow Buyer 1562 Norstan Bike H; OVERRIOHT J-FAS* 83/2014 81/12/2014 81/12/2014 5 37.0755 2.956 0.9269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269 3269												5				
3988 3987 251 Mikael Sandberg Buyer 1572 National Bike AyRRO - TRUCK GRO 8/12/014 8/17/2014 5 461.79 36.9432 11.6448 3989 252 Arvind Rao Buyer 1662 Norstan Bike H. OVERNIGHT JFAS* 8/12/014 8/17/2014 5 37.0755 2.966 0.9259 1999 255 Arvind Rao Buyer 1662 Norstan Bike T.ZY - EXPRESS 8/12/014 8/17/2014 5 2758 0.75 17.0755 2.966 0.9259 1999 255 Frank Pellow Buyer 1682 Premier Sci. In OVERNIGHT JFAS* 8/12/014 8/17/2014 5 2758 0.75 17.0755 2.966 0.9259 1999 259 Ben Miller Buyer 1686 Pro Sport Indus (OVERNIGHT JFAS* 8/12/014 8/17/2014 5 2758 0.75 17.0755 2.966 0.9259 1999 259 250 Annette Hill Purchasing 1684 Professional Art CARGO TRANSPOF 8/12/014 8/17/2014 5 475.6815 38.0545 11.892 1999 3993 258 Erin Hagens Buyer 1534 Ready Rend Card Card Card Card Card Card Card Car						_						5				
3989 252 Annid Rao Buyer 1652 Nortan Bike Hi OVERNIGHT J-RAS 8/3/2014 8/17/2014 5 481.887 38.551 12.0472 5 3999 252 Annid Rao Buyer 1652 Nortan Bike TZY - EXPERSS 8/3/2014 8/17/2014 5 2/556 075 17/24 645 53.9519 2.0969 3991 259 Ben Miller Buyer 1682 Premier Sport, I OVERNIGHT J-RAS 8/3/2014 8/17/2014 5 2/556 075 17/24 645 53.9519 2.00 3991 259 Ben Miller Buyer 1688 Pro Sport Indus OVERNIGHT J-RAS 8/3/2014 8/17/2014 5 2/556 075 17/24 645 53.9519 2.00 3991 259 Ben Miller Buyer 1588 Pro Sport Indus OVERNIGHT J-RAS 8/3/2014 8/17/2014 5 4/56815 38.0545 11.892 2.00 3993 258 Erin Hagens Buyer 1534 Reday Rentals CARGO TRANSPOR 8/3/2014 8/17/2014 5 4/56815 38.0545 11.892 2.00 3995 255 Eric Kurjan Buyer 1588 Signature Cycle CARGO TRANSPOR 8/3/2014 8/17/2014 5 4/57/2014 5 2/79.153 2.23322 6/788 8/3997 3996 257 Eric Kurjan Buyer 1588 Signature Cycle CARGO TRANSPOR 8/3/2014 8/17/2014 5 4/57/2014 5 2/79.153 31.17/24 9/3997 3996 257 Eric Kurjan Buyer 1588 Signature Cycle CARGO TRANSPOR 8/3/2014 8/17/2014 5 4/57/2014 5 399.553 31.17/24 9/3999 3999 251 Milkael Sandberg Buyer 1532 Sport Fan Co. CARGO TRANSPOR 8/3/2014 8/17/2014 5 4/57/2014 5 399.553 31.17/24 9/3999 3999 255 Gordon Hee Buyer 1508 Sport Fan Co. CARGO TRANSPOR 8/3/2014 8/17/2014 5 6/2092.8 4957.421 1552.32 88 1000 3999 255 Gordon Hee Buyer 1508 Sport Fan Co. CARGO TRANSPOR 8/3/2014 8/17/2014 5 5/594.25 47/5.86 14A/503 5 44/500 4000 252 Arvind Rao Buyer 1590 SUPERALS IXRO - TRUNCK GRO 8/3/2014 8/17/2014 5 5/594.25 47/5.86 14A/503 5 44/500 4000 252 Arvind Rao Buyer 1590 SUPERALS IXRO - TRUNCK GRO 8/3/2014 8/17/2014 5 5/594.25 47/5.86 14A/500 5 44/500 5 44/500 5 44/500 5 44/500 5 44/500 5 44/500 5 44/500 5 44/500 5 44/500 5 44/500 5 44/500 5 44/500 5 44/500 5 44/500 5 44/500 5 44/500 5 44/500 5 44/500 5 44/500 5 44/500 5 44/500 5 44/500 5 44/500 5 44/500 5 44/500 5 44/500 5 44/500 5 44/500 5 44/500 5 44/500 5 44/500 5 44/500 5 44/500 5 44/500 5 44/500 5 44/500 5 44/500 5 44/500 5 44/500 5 44/500 5 44/500 5 44/500 5 44/500 5 44/500 5 44/500 5 44/500 5 44/500 5 44/500 5												5				
1989 252 Avrind Rao Buyer 1662 Northern Bike TZV - EXPRESS 8/32/014 8/12/2014 8/17/2014 5 2/15/86 0.9269 0.9369 0.9391 256 Frank Pellow 1662 Premier Sport, In/OVERNIGHT J-FAS 8/32/014 8/12/2014 8/17/2014 5 2/15/86 53.9519 2.9391 256 Ban Miller Buyer 1686 Profsport Indus (OVERNIGHT J-FAS 8/32/014 8/12/2014 8/17/2014 5 4/15/86 53.9519 2.9392 260 Annette Hill Purchasing 1684 Professional Ath CARGO TRANSPOR 8/32/014 8/12/2014 8/17/2014 5 4/16/37 33.8396 102.618 4.9393 2.88 Erin Hagens Buyer 1534 Ready Rentals CARGO TRANSPOR 8/32/014 8/12/2014 8/17/2014 5 4/16/37 33.3396 102.618 4.9395 3.9394 2.54 Fukiko Ogisu Buyer 1548 Signature Cycle CARGO TRANSPOR 8/32/014 8/12/2014 8/17/2014 5 4/16/37 32.33296 101.178 4.93997 3.9396 2.57 Eric Kurjan Buyer 1588 Signature Cycle CARGO TRANSPOR 8/32/014 8/12/2014 8/17/2014 5 4/16/37 32.33296 101.178 4.93997 3.9396 2.51 Mikael Sandberg Buyer 1602 Sport Fan Co. CARGO TRANSPOR 8/32/014 8/12/2014 8/17/2014 5 6/2028 4.967/424 5 9.7314 4.93999 3.9398 2.53 Linda Melsner Buyer 1602 Sport Fan Co. CARGO TRANSPOR 8/32/014 8/12/2014 8/17/2014 5 6/2028 4.967/424 5.5232 8.957/424 4.9000 3.999 2.55 Gordon Hee Buyer 1576 Superfran Co. CARGO TRANSPOR 8/32/014 8/12/2014 8/17/2014 5 5048.25 4.956.26 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.25 4.956.2				_								5				
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3995 3996 257 Eric Kurjan Buyer 1514 Reliance Fitnes' CARGO TRANSPOF 8/3/2014 8/12/2014 8/17/2014 5 279.153 22.3322 6.9788 13995 3995 257 Eric Kurjan Buyer 1588 Signature Cycle CARGO TRANSPOF 8/3/2014 8/12/2014 8/17/2014 5 40471.2 3237.696 1011.78 44 3999 3997 251 Mikael Sandberg Buyer 1632 Sport Fan Co. CARGO TRANSPOF 8/3/2014 8/12/2014 8/17/2014 5 62092.8 4967.424 152.23 68 3999 3998 253 Linda Melisner Buyer 1632 Sport Fan Co. CARGO TRANSPOF 8/3/2014 8/12/2014 8/17/2014 5 62092.8 4967.424 152.23 68 3999 3998 253 Linda Melisner Buyer 1632 Sport Fan Co. CARGO TRANSPOF 8/3/2014 8/12/2014 8/17/2014 5 5948.25 4758 4000 3999 255 Gordon Hee Buyer 1576 Superior Bleycle CARGO TRANSPOF 8/3/2014 8/12/2014 8/17/2014 5 5948.25 4758 4001 4001 250 Annette Hill Purchasing 1520 G & K Bicycle COVERSEAS - DELU) 2/11/2014 3/8/2014 8/17/2014 5 555 42 13.125 4002 4001 260 Annette Hill Purchasing 1520 G & K Bicycle COVERSEAS - DELU) 2/11/2014 3/8/2014 3/13/2014 5 4578.315 366.2552 91.5663 50 4004 4001 260 Annette Hill Purchasing 1520 G & K Bicycle COVERSEAS - DELU) 2/11/2014 3/8/2014 3/13/2014 5 4578.315 366.2552 91.5663 50 4004 4001 260 Annette Hill Purchasing 1520 G & K Bicycle COVERSEAS - DELU) 2/11/2014 3/8/2014 13/2/2014 9/13/2014 16 4578.315 366.2552 91.5663 50 4005 4002 252 Arvind Rao Buyer 1574 Jeffs Sporting COVERSEAS - DELU) 3/11/2014 5/12/2014 198 4578.315 366.2552 91.5663 50 4005 4003 252 Arvind Rao Buyer 1636 Integrated Sport OVERSEAS - DELU) 5/14/2014 6/8/2014 6/8/2014 5 27453.6 296.288 549.072 3/14/2014 4006 252 Arvind Rao Buyer 1636 Integrated Sport OVERSEAS - DELU) 5/14/2014 6/8/2014 6/8/2014 5 27453.6 296.288 549.072 3/14/2014 4006 256 Frank Pellow Buyer 1636 Integrated Sport OVERSEAS - DELU) 5/14/2014 6/8/2014 5/2014 5/2014 5 27453.6 296.288 549.072 3/14/2014 4006 256 Frank Pellow Buyer 1518 International Tric OVERSEAS - DELU) 1/18/2014 3/26/2014 5/14/2014 5/2014 5/2014 5/2014 5/2014 5/2014 5/2014 5/2014 5/2014 5/2014 5/2014 5/2014 5/2014 5/2014 5/2014 5/2014 5/2014 5/2014 5/2014 5/2014 5/2014 5/2014 5/2014 5/201	3993		260 Annette Hill			•				8/12/2014	8/17/2014	5	41048.7	3283.896		
3995 3996 261 Reinout Hillmann Purchasing 1622 Speed Corporat OVERNIGHT J-FAST 8/3/2014 8/12/2014 8/17/2014 5 389.655 31.1724 9.7414 4.3999 3997 251 Mikael Sandberg Buyer 1632 Sport Fan Co. CARGO TRANSPOF 8/3/2014 8/12/2014 8/17/2014 5 62092.8 4967.424 1552.32 68/3999 3998 253 Linda Meisner Buyer 1608 Sport Fan Co. CARGO TRANSPOF 8/3/2014 8/12/2014 8/17/2014 5 62092.8 4967.424 1552.32 68/3999 255 Gordon Hee Buyer 1508 Sport Fan Co. CARGO TRANSPOF 8/3/2014 8/12/2014 8/17/2014 5 5948.25 475.86 148.703 65 4000 3999 255 Gordon Hee Buyer 1576 Superior Buyer 1590 SUPERSALES IXRQ - TRUCK GRO 8/3/2014 8/12/2014 8/17/2014 5 91117.95 7289.436 2277.949 10 4001 4000 252 Arvind Rao Buyer 1590 SUPERSALES IXRQ - TRUCK GRO 8/3/2014 8/12/2014 8/17/2014 5 91117.95 7289.436 2277.949 10 4001 260 Annette Hill Purchasing 1520 G & K Bicycle C OVERSEAS - DELUJ 2/11/2014 3/8/2014 3/3/3/2014 5 4578.315 366.2652 91.5663 50 4004 4001 250 Annette Hill Purchasing 1520 G & K Bicycle C OVERSEAS - DELUJ 2/11/2014 3/8/2014 1/3/8/2014 1/4 4578.315 366.2652 91.5663 50 4004 4001 250 Annette Hill Purchasing 1520 G & K Bicycle C OVERSEAS - DELUJ 2/11/2014 3/8/2014 9/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2	3994	3993	258 Erin Hagens	Buyer	1534	Ready Rent	als CARGO TRANS	SPOF 8	8/3/2014	8/12/2014	8/17/2014	5	416.745	33.3396	10.4186	46
3997 3996 261 Reinout Hillmann Purchasing 1622 Speed Corporat OVERNIGHT J-FASS 8/3/2014 8/17/2014 5 389.655 31.1724 9.7414 4 9.3998 3997 251 Milkael Sandberg Buyer 1632 Sport Fan Co. CARGO TRANSPOF 8/3/2014 8/17/2014 5 62092.8 4967.424 1552.3 6 6 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9 9	3995	3994	254 Fukiko Ogisu	Buyer	1614	Reliance Fit	nes CARGO TRANS	SPOF 8	8/3/2014	8/12/2014	8/17/2014	5	279.153	22.3322	6.9788	3
3999 399 251 Linda Meisner Buyer 1632 Sport Fan Co. CARGO TRANSPOF 8/3/2014 8/12/2014 8/17/2014 5 62092.8 4967.424 1552.32 68 2099 399 255 Gordon Hee Buyer 1608 Sport Playgrour CARGO TRANSPOF 8/3/2014 8/12/2014 8/17/2014 5 5948.25 475.86 148.7063 65 4000 3999 255 Gordon Hee Buyer 1576 Superior Bicycle CARGO TRANSPOF 8/3/2014 8/12/2014 8/17/2014 5 19117.95 7289.436 2277.999 10 4001 4000 252 Arvind Rao Buyer 1590 SUPERSALES IXRO - TRUCK GRO 8/3/2014 8/12/2014 8/17/2014 5 19117.95 7289.436 2277.999 10 4001 260 Annette Hill Purchasing 1520 G & K Bicycle C OVERSEAS - DELU) 2/11/2014 3/8/2014 8/17/2014 5 4578.315 366.2652 91.5663 50 4003 4001 260 Annette Hill Purchasing 1520 G & K Bicycle C OVERSEAS - DELU) 2/11/2014 3/8/2014 7/2/2014 116 4578.315 366.2652 91.5663 50 4004 4001 260 Annette Hill Purchasing 1520 G & K Bicycle C OVERSEAS - DELU) 2/11/2014 3/8/2014 7/2/2014 116 4578.315 366.2652 91.5663 50 4004 4001 260 Annette Hill Purchasing 1520 G & K Bicycle C OVERSEAS - DELU) 2/11/2014 3/8/2014 7/2/2014 116 4578.315 366.2652 91.5663 50 4004 4001 260 Annette Hill Purchasing 1520 G & K Bicycle C OVERSEAS - DELU) 2/11/2014 3/8/2014 7/2/2014 116 4578.315 366.2652 91.5663 50 4004 4001 260 Annette Hill Purchasing 1520 G & K Bicycle C OVERSEAS - DELU) 2/11/2014 3/8/2014 7/2/2014 150 20 81.6 205 91.5663 50 4004 4003 252 Arvind Rao Buyer 1636 Integrated Sport OVERSEAS - DELU) 5/14/2014 6/8/2014 5 12/3/2013 -187 27453.6 2196.288 549.072 3/4007 4003 252 Arvind Rao Buyer 1636 Integrated Sport OVERSEAS - DELU) 5/14/2014 6/8/2014 5 27453.6 2196.288 549.072 3/4009 4005 252 Arvind Rao Buyer 1636 Integrated Sport OVERSEAS - DELU) 1/2/2014 2/2/2014 2/2/2014 5 7453.6 2196.288 549.072 3/4009 4005 252 Arvind Rao Buyer 1636 Integrated Sport OVERSEAS - DELU) 1/2/2014 2/2/2014 2/2/2014 5 7453.6 2196.288 549.072 3/4009 4005 252 Arvind Rao Buyer 1636 Integrated Sport OVERSEAS - DELU) 1/2/2014 2/2/2014 5 7453.6 296.288 549.072 3/4009 4005 256 Frank Pellow Buyer 1518 International Tre OVERSEAS - DELU) 1/2/2014 2/2/2014 5 5 504 432.1 6 11080.4 4	3996	3995	257 Eric Kurjan	Buyer	1588	Signature C	ycle CARGO TRANS	SPOF 8	8/3/2014	8/12/2014	8/17/2014	5	40471.2	3237.696	1011.78	447
3999 3998 253 Linda Meisner Buyer 1608 Sport Playgrour CARGO TRANSPOF 8/3/2014 8/17/2014 5 5948.25 475.86 148.7063 65 4000 3999 255 Gordon Hee Buyer 1576 Superior Bicycle CARGO TRANSPOF 8/3/2014 8/17/2014 5 91117-95 7289.436 2277.949 14001 4000 252 Arvind Rao Buyer 1599 SUPERSALES IXRO - TRUCK GROI 8/3/2014 8/17/2014 5 517.95 289.436 2277.949 14002 4001 260 Annette Hill Purchasing 1520 G & K Bicycle C OVERSEAS - DELU) 2/11/2014 3/8/2014 3/13/2014 5 4578.315 366.2652 91.5663 50 4003 4001 260 Annette Hill Purchasing 1520 G & K Bicycle C OVERSEAS - DELU) 2/11/2014 3/8/2014 7/2/2014 116 4578.315 366.2652 91.5663 50 4004 4001 260 Annette Hill Purchasing 1520 G & K Bicycle C OVERSEAS - DELU) 2/11/2014 3/8/2014 7/2/2014 116 4578.315 366.2652 91.5663 50 4005 4001 260 Annette Hill Purchasing 1520 G & K Bicycle C OVERSEAS - DELU) 2/11/2014 3/8/2014 7/2/2014 116 4578.315 366.2652 91.5663 50 4005 4001 260 Annette Hill Purchasing 1520 G & K Bicycle C OVERSEAS - DELU) 3/8/2014 7/2/2014 116 4578.315 366.2652 91.5663 50 4005 4001 260 Annette Hill Purchasing 1520 G & K Bicycle C OVERSEAS - DELU) 3/8/2014 7/2/2014 116 4578.315 366.2652 91.5663 50 4005 4002 252 Arvind Rao Buyer 1574 Jeff's Sporting C OVERSEAS - DELU) 3/2/2014 10/2/2/2014 5 1020 81.6 20.4 4006 4003 252 Arvind Rao Buyer 1636 Integrated Sport OVERSEAS - DELU) 5/14/2014 6/8/2014 1/3/2013 -187 27453.6 2196.288 549.072 3/4008 4004 252 Arvind Rao Buyer 1636 Integrated Sport OVERSEAS - DELU) 1/2/2/2014 1/2/2/2014 5 7425 594 148.5 4009 4005 252 Arvind Rao Buyer 1636 Integrated Sport OVERSEAS - DELU) 1/2/2/2014 1/2/2/2014 1/2/2/2014 1/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2/2	3997	3996	261 Reinout Hillmann	Purchasing	1622	Speed Corp	orat OVERNIGHT J-	FAST 8	8/3/2014	8/12/2014	8/17/2014	5	389.655	31.1724	9.7414	43
4000 3999 255 Gordon Hee Buyer 1576 Superior Bicycle CARGO TRANSPOF 8/3/2014 8/12/2014 17/2014 5 91117.95 7289.436 2277.949 104001 4000 252 Arvind Rao Buyer 1590 SUPERSALES XRQ - TRUCK GRO 8/3/2014 8/12/2014 3/13/2014 5 525 42 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125 13.125	3998	3997	251 Mikael Sandberg	Buyer	1632	Sport Fan C	o. CARGO TRANS	SPOF 8	8/3/2014	8/12/2014	8/17/2014	5	62092.8	4967.424	1552.32	686
4001 4000 252 Arvind Rao Buyer 1590 SUPERSALÉS XRQ - TRUCK GRO 8/3/2014 8/12/2014 5 525 42 13.125 4002 4001 260 Annette Hill Purchasing 1520 G & K Bicycle C OVERSEAS - DELU) 2/11/2014 3/8/2014 7/2014 116 4578.315 366.2652 91.5663 50 4004 4001 260 Annette Hill Purchasing 1520 G & K Bicycle C OVERSEAS - DELU) 2/11/2014 3/8/2014 7/2/2014 116 4578.315 366.2652 91.5663 50 4004 4001 260 Annette Hill Purchasing 1520 G & K Bicycle C OVERSEAS - DELU) 2/11/2014 3/8/2014 7/2/2014 116 4578.315 366.2652 91.5663 50 4004 4001 260 Annette Hill Purchasing 1520 G & K Bicycle C OVERSEAS - DELU) 2/11/2014 3/8/2014 7/2/2014 116 4578.315 366.2652 91.5663 50 4005 4002 252 Arvind Rao Buyer 1574 Jeff's Sporting C OVERSEAS - DELU) 3/12/2014 1/9/22/2014 198 4578.315 366.2652 91.5663 50 4005 4002 252 Arvind Rao Buyer 1636 Integrated Sport OVERSEAS - DELU) 5/14/2014 6/8/2014 12/3/2013 -187 24753.6 2196.288 549.072 3/4007 4003 252 Arvind Rao Buyer 1636 Integrated Sport OVERSEAS - DELU) 5/14/2014 6/8/2014 12/3/2013 -187 24753.6 2196.288 549.072 3/4008 4004 252 Arvind Rao Buyer 1636 Integrated Sport OVERSEAS - DELU) 1/13/2013 11/28/2013 5 46383 3710.64 927.66 4009 4005 252 Arvind Rao Buyer 1636 Integrated Sport OVERSEAS - DELU) 1/13/2013 11/28/2013 5 46383 3710.64 927.66 4009 4005 252 Arvind Rao Buyer 1636 Integrated Sport OVERSEAS - DELU) 1/13/2014 1/12/2014 1/11/2014 -32 21882.5 1750.6 437.65 24 4011 4006 256 Frank Pellow Buyer 1518 International Tra OVERSEAS - DELU) 1/18/2014 2/12/2014 1/11/2014 -32 21882.5 1750.6 437.65 24 4011 4007 251 Mikael Sandberg Buyer 1594 Fitness Associa OVERSEAS - DELU) 3/1/2014 3/26/2014 5 14/2014 5 54020 44321.6 11080.4 4014 4008 258 Erin Hagens Buyer 1594 Fitness Associa OVERSEAS - DELU) 3/1/2014 3/26/2014 5/14/2014 5 396729 31738.32 7934.58 44015 4009 261 Reinout Hillmann Purchasing 1546 Green Lake Bik OVERSEAS - DELU) 1/19/2013 12/4/2013 12/9/2013 5 37760 3020.8 755.2 4017 4017 4011 254 Fukiko Ogisu Buyer 1546 Green Lake Bik OVERSEAS - DELU) 1/19/2013 12/4/2014 7/24/2014 6/355.4 1089.8 5 540017 4011 4011 4	3999	3998	253 Linda Meisner	Buyer	1608	Sport Playgi	rour CARGO TRANS	SPOF 8	8/3/2014	8/12/2014	8/17/2014	5	5948.25	475.86	148.7063	657
4002 4001 260 Annette Hill Purchasing 1520 G & K Bicycle C OVERSEAS - DELU) 2/11/2014 3/8/2014 3/13/2014 5 4578.315 366.2652 91.5663 504003 4001 260 Annette Hill Purchasing 1520 G & K Bicycle C OVERSEAS - DELU) 2/11/2014 3/8/2014 7/2/2014 116 4578.315 366.2652 91.5663 504004 4001 260 Annette Hill Purchasing 1520 G & K Bicycle C OVERSEAS - DELU) 2/11/2014 3/8/2014 7/2/2014 198 4578.315 366.2652 91.5663 504005 4002 252 Arvind Rao Buyer 1574 Jeffs Sporting C OVERSEAS - DELU) 3/12/2014 10/17/2014 198 4578.315 366.2652 91.5663 504005 4002 252 Arvind Rao Buyer 15636 Integrated Sport OVERSEAS - DELU) 3/12/2014 10/17/2014 10/22/2014 5 1020 81.6 20.4 4006 4003 252 Arvind Rao Buyer 1636 Integrated Sport OVERSEAS - DELU) 5/14/2014 6/8/2014 12/3/2013 -187 27453.6 2196.288 549.072 3/4007 4003 252 Arvind Rao Buyer 1636 Integrated Sport OVERSEAS - DELU) 5/14/2014 6/8/2014 12/3/2013 5 46333 3710.64 92/4008 4004 256 Arvind Rao Buyer 1636 Integrated Sport OVERSEAS - DELU) 1/27/2014 12/2/2014 5 7425 594 148.5 4010 4006 256 Frank Pellow Buyer 1518 International Tre OVERSEAS - DELU) 1/18/2014 2/12/2014 1/11/2014 -32 21882.5 1750.6 437.65 2/4011 4006 256 Frank Pellow Buyer 1518 International Tre OVERSEAS - DELU) 1/18/2014 2/12/2014 1/11/2014 5 21882.5 1750.6 437.65 2/4011 4006 256 Frank Pellow Buyer 1518 International Tre OVERSEAS - DELU) 1/18/2014 2/12/2014 1/11/2014 5 21882.5 1750.6 437.65 2/4011 4006 256 Frank Pellow Buyer 1594 Fitness Associa OVERSEAS - DELU) 1/18/2014 2/12/2014 5 21882.5 1750.6 437.65 2/4014 4008 258 Erin Hagens Buyer 1594 Fitness Associa OVERSEAS - DELU) 3/1/2014 3/26/2014 5/14/2014 5 396729 31738.32 7934.58 4/4015 4009 261 Mikael Sandberg Buyer 1594 Fitness Associa OVERSEAS - DELU) 3/1/2014 5/22/2014 5 396729 31738.32 7934.58 4/4015 4009 261 Mikael Sandberg Buyer 1594 Fitness Associa OVERSEAS - DELU) 3/1/2014 5/21/2014 5 396729 31738.32 7934.58 4/4015 4009 261 Reinout Hillman Purchasing 1546 Green Lake Biki OVERSEAS - DELU) 1/19/2013 12/4/2013 15/4/2013 5 37760 3020.8 755.2 4/4017 4011 254 Fukiko Ogisu Buyer	4000	3999	255 Gordon Hee	Buyer	1576	Superior Bio	ycle CARGO TRANS	SPOF 8	8/3/2014	8/12/2014	8/17/2014	5	91117.95	7289.436	2277.949	100
4001 4001 260 Annette Hill Purchasing 1520 G & K Blcycle C OVERSEAS - DELU) 2/11/2014 3/8/2014 7/2/2014 116 4578.315 366.2652 91.5663 50 4004 4001 260 Annette Hill Purchasing 1520 G & K Blcycle C OVERSEAS - DELU) 2/11/2014 3/8/2014 9/22/2014 198 4578.315 366.2652 91.5663 50 4004 4002 252 Arvind Rao Buyer 1634 Jeffs Sporting C OVERSEAS - DELU) 9/22/2014 10/17/2014 10/22/2014 5 1020 81.6 20.4 4006 4003 252 Arvind Rao Buyer 1636 Integrated Sport OVERSEAS - DELU) 5/14/2014 6/8/2014 12/3/2013 -187 27453.6 2196.288 549.072 3 4007 4003 252 Arvind Rao Buyer 1636 Integrated Sport OVERSEAS - DELU) 5/14/2014 6/8/2014 12/3/2013 5 46383 3710.64 927.66 4008 4004 252 Arvind Rao Buyer 1636 Integrated Sport OVERSEAS - DELU) 5/14/2014 6/8/2014 12/3/2013 5 46383 3710.64 927.66 4009 4005 252 Arvind Rao Buyer 1636 Integrated Sport OVERSEAS - DELU) 11/3/2013 11/28/2013 12/3/2013 5 46383 3710.64 927.66 4009 4005 252 Arvind Rao Buyer 1636 Integrated Sport OVERSEAS - DELU) 1/27/2014 12/21/2014 12/21/2014 5 7425 594 148.5 4010 4006 256 Frank Pellow Buyer 1518 International Tre OVERSEAS - DELU) 1/18/2014 2/12/2014 1/11/2014 -32 21882.5 1750.6 437.65 24 4011 4006 256 Frank Pellow Buyer 1518 International Tre OVERSEAS - DELU) 1/18/2014 2/12/2014 1/11/2014 5 21882.5 1750.6 437.65 24 4011 4006 256 Frank Pellow Buyer 1518 International Tre OVERSEAS - DELU) 1/18/2014 2/12/2014 2/12/2014 5 2/12/2014 5 54020 44321.6 11080.4 4011 4006 256 Frank Pellow Buyer 1594 Fitness Associa OVERSEAS - DELU) 3/1/2014 3/26/2014 5/14/2014 5 54020 44321.6 11080.4 4014 4008 258 Erin Hagens Buyer 1594 Fitness Associa OVERSEAS - DELU) 3/1/2014 3/26/2014 5/14/2014 5 396729 31738.32 7934.58 4015 4009 251 Mikael Sandberg Buyer 1676 Team Athletic C OVERSEAS - DELU) 1/19/2014 5/14/2014 5 396729 31738.32 7934.58 4015 4009 251 Reinout Hillmann Purchasing 1546 Green Lake Bik OVERSEAS - DELU) 1/19/2014 7/19/2014 7/2014 7/2014 7/2014 7/2014 7/2014 7/2014 7/2014 7/2014 7/2014 7/2014 7/2014 7/2014 7/2014 7/2014 7/2014 7/2014 7/2014 7/2014 7/2014 7/2014 7/2014 7/2014 7/2014 7/20	4001	4000	252 Arvind Rao	Buyer	1590	SUPERSAL	ES XRQ - TRUCK	GRO 8	8/3/2014	8/12/2014	8/17/2014	5	525	42	13.125	5
4004 4001 260 Annette Hill Purchasing 1520 G & K Bicycle C OVERSEAS - DELU) 2/11/2014 3/8/2014 9/22/2014 198 4578.315 366.2652 91.5663 50/4005 4002 252 Arvind Rao Buyer 1574 Jeffs Sporting C OVERSEAS - DELU) 9/22/2014 10/17/2014 10/22/2014 5 1020 81.6 20.4 4006 4003 252 Arvind Rao Buyer 1636 Integrated Sport OVERSEAS - DELU) 5/14/2014 6/8/2014 12/3/2013 -187 27453.6 2196.288 549.072 3/4007 4003 252 Arvind Rao Buyer 1636 Integrated Sport OVERSEAS - DELU) 5/14/2014 6/8/2014 12/3/2013 5 27453.6 2196.288 549.072 3/4008 4004 252 Arvind Rao Buyer 1636 Integrated Sport OVERSEAS - DELU) 11/3/2013 11/28/2013 12/3/2013 5 46383 3710.64 927.66 4009 4005 252 Arvind Rao Buyer 1636 Integrated Sport OVERSEAS - DELU) 1/27/2014 2/21/2014 2/26/2014 5 7425 594 148.5 4010 4006 256 Frank Pellow Buyer 1518 International Trx OVERSEAS - DELU) 1/27/2014 2/26/2014 5 7425 594 148.5 4011 4006 256 Frank Pellow Buyer 1518 International Trx OVERSEAS - DELU) 1/18/2014 2/12/2014 2/17/2014 5 21882.5 1750.6 437.65 2/4012 4007 251 Mikael Sandberg Buyer 1594 Fitness Associa OVERSEAS - DELU) 3/1/2014 3/26/2014 3/31/2014 5 54020 44321.6 11080.4 4014 4008 258 Erin Hagens Buyer 1594 Fitness Associa OVERSEAS - DELU) 3/1/2014 5/17/2014 5 396729 31738.32 7934.58 4/4015 4009 261 Reinout Hillmann Purchasing 1546 Green Lake Biki OVERSEAS - DELU) 1/19/2013 12/9/2013 5 14915 1193.2 298.3 4017 4011 254 Fukiko Ogisu Buyer 1546 Green Lake Biki OVERSEAS - DELU) 6/24/2014 7/19/2014 6/14/2014 6/14/2014 6/14/2014 6/14/2014 6/14/2013 5 396729 31738.32 7934.58 4/4015 4009 261 Reinout Hillmann Purchasing 1546 Green Lake Biki OVERSEAS - DELU) 1/19/2013 12/9/2013 5 37760 3020.8 755.2 4017 4011 254 Fukiko Ogisu Buyer 1546 Green Lake Biki OVERSEAS - DELU) 6/24/2014 7/19/2014 7/24/2014	4002	4001	260 Annette Hill	Purchasing	1520	G & K Bicyc	le COVERSEAS - D	ELU) 2/	/11/2014	3/8/2014	3/13/2014	5	4578.315	366.2652	91.5663	503
4005 4002 252 Arvind Rao Buyer 1574 Jeff's Sporting COVERSEAS - DELU) 9/22/2014 10/17/2014 10/22/2014 5 1020 81.6 20.4 4006 4003 252 Arvind Rao Buyer 1636 Integrated Sport OVERSEAS - DELU) 5/14/2014 6/8/2014 12/3/2013 -187 27453.6 2196.288 549.072 3 4007 4003 252 Arvind Rao Buyer 1636 Integrated Sport OVERSEAS - DELU) 5/14/2014 6/8/2014 6/13/2014 5 27453.6 2196.288 549.072 3 4008 4004 252 Arvind Rao Buyer 1636 Integrated Sport OVERSEAS - DELU) 11/3/2013 11/28/2013 12/3/2013 5 46383 3710.64 927.66 94009 4005 252 Arvind Rao Buyer 1636 Integrated Sport OVERSEAS - DELU) 11/27/2014 2/21/2014 2/26/2014 5 7425 594 4010 4006 256 Frank Pellow Buyer 1518 International Tre OVERSEAS - DELU) 1/18/2014 2/12/2014 1/11/2014 -32 21882.5 1750.6 437.65 2 4012 4007 251 Mikael Sandberg Buyer 1594 Fitness Associa OVERSEAS - DELU) 3/1/2014 3/26/2014 3/31/2014 5 554020 44321.6 11080.4 40014 4008 258 Erin Hagens Buyer 1594 Fitness Associa OVERSEAS - DELU) 3/1/2014 3/26/2014 5/14/2014 49 554020 44321.6 11080.4 40014 4008 258 Erin Hagens Buyer 1594 Fitness Associa OVERSEAS - DELU) 3/1/2014 5/17/2014 5/17/2014 5 396729 31733.2 7934.56 4015 4009 261 Reinout Hillmann Purchasing 1546 Green Lake Biki OVERSEAS - DELU) 1/19/2013 12/4/2013 12/9/2013 5 37760 3020.8 755.2 4017 4011 254 Fukiko Ogisu Buyer 1546 Green Lake Biki OVERSEAS - DELU) 1/19/2014 7/24/2014 7/19/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014 7/24/2014	4003	4001	260 Annette Hill	Purchasing	1520	G & K Bicyc	le COVERSEAS - D	ELU) 2/	/11/2014	3/8/2014	7/2/2014	116	4578.315	366.2652	91.5663	503
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4. Data cleaning by SQL:



• Removing The goal here is to ensure that data maintains accuracy and consistency. By removing entries that don't align with expected shipping time, It useful to improving the reliability of dataset for further analysis. that don't align with expected shipping time.

```
select * from Purchasing.PurchaseOrderDetail As pod
join Purchasing.PurchaseOrderHeader As poh on poh.PurchaseOrderID= pod.PurchaseOrderID
where DATEDIFF(DAY,poh.ShipDate,pod.DueDate) !=5
Delete
FROM Purchasing.PurchaseOrderDetail
WHERE PurchaseOrderID = 4007 AND DueDate = '2014-05-14'
```

```
108 % 
Messages

(6 rows affected)

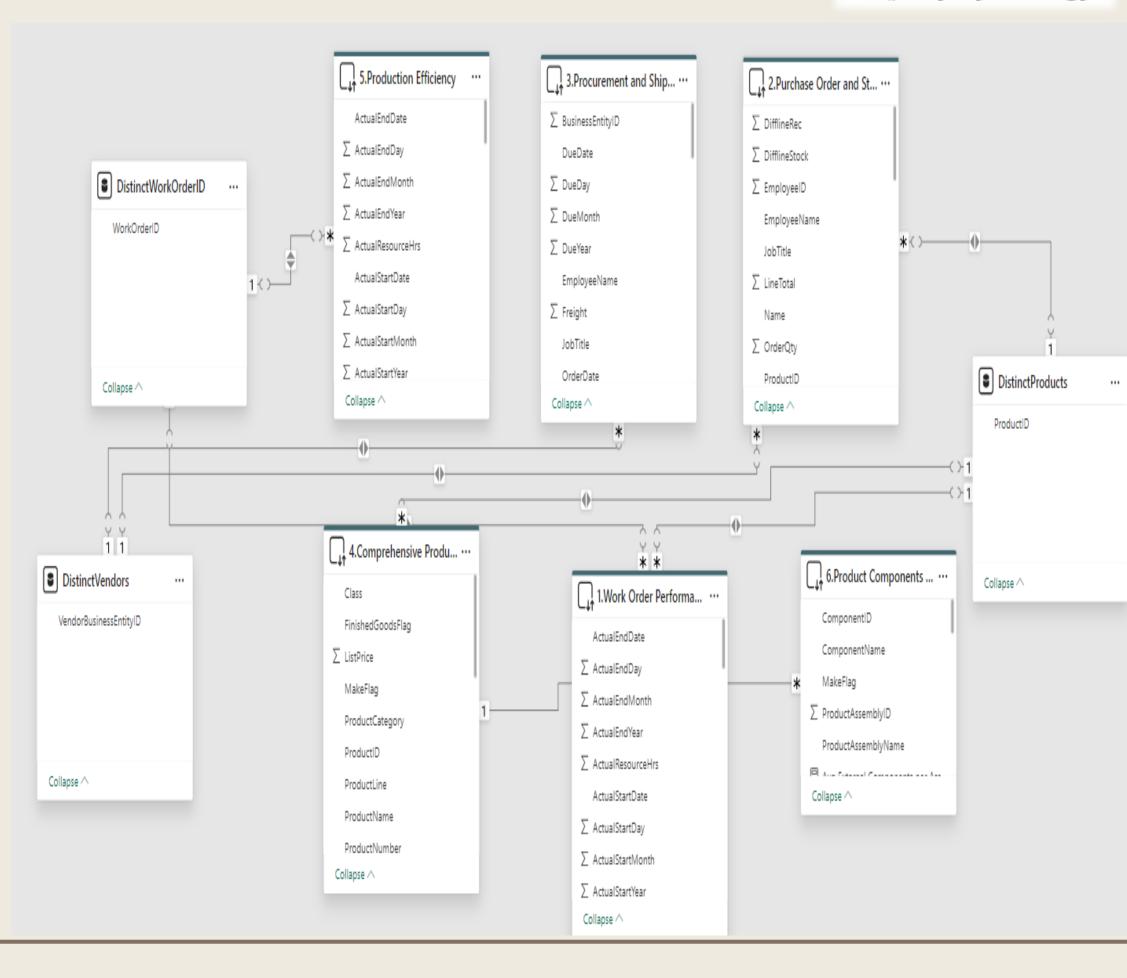
Completion time: 2024-10-13T18:24:52.0151663+03:00
```



5. PROJECT Production, Purchasing Schema Focus:



This schema, built using Power BI, showcases the relationships between various tables essential for analyzing production efficiency in the AdventureWorks dataset. Key tables include Work Order Performance, **Product Components, and Procurement** and Shipping, all connected to analyze production timelines, component usage, and procurement efficiency. The relationships were designed to track the entire workflow, from procurement to production and stock management, ensuring comprehensive insights into the production process.





6.1. Data Analysis & Insights:



Q1: How does shipping performance vary by carrier?

Answer: The chart shows that different shipping companies
have varied performances in terms of the percentage of total
costs before and after shipping and tax. "OVERSEASDELUXE" and "CARGO TRANSPORT 5" account for 47.3% of
the cost before and after shipping and tax.



• Investigate the reasons behind the cost variations for each shipping provider and identify opportunities to streamline shipping for cost savings.

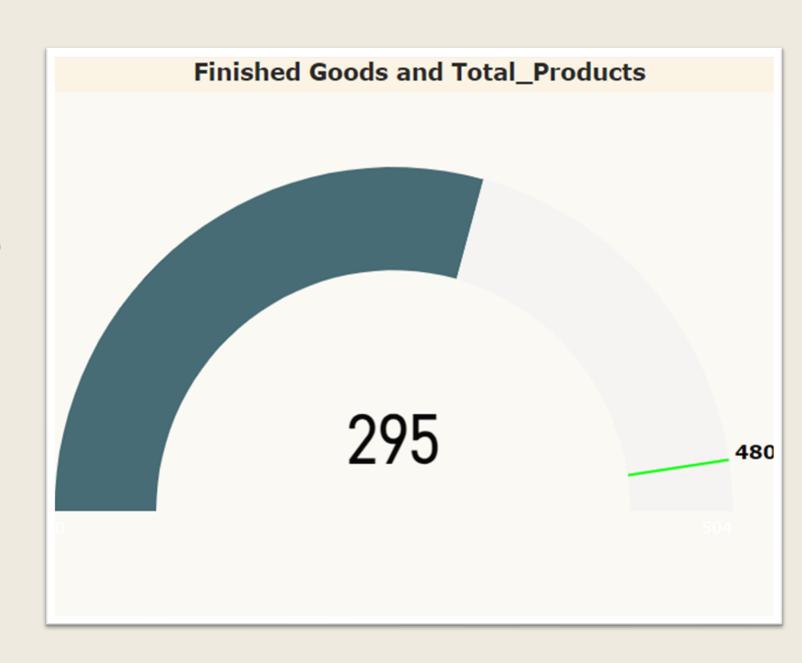


6.2. Data Analysis & Insights:



Q2: How many finished goods are there?

 Answer: There are 295 finished goods compared to a total of 480 products.



• Investigate the gap between finished goods and total products to identify any delays or bottlenecks in the final stages of production.

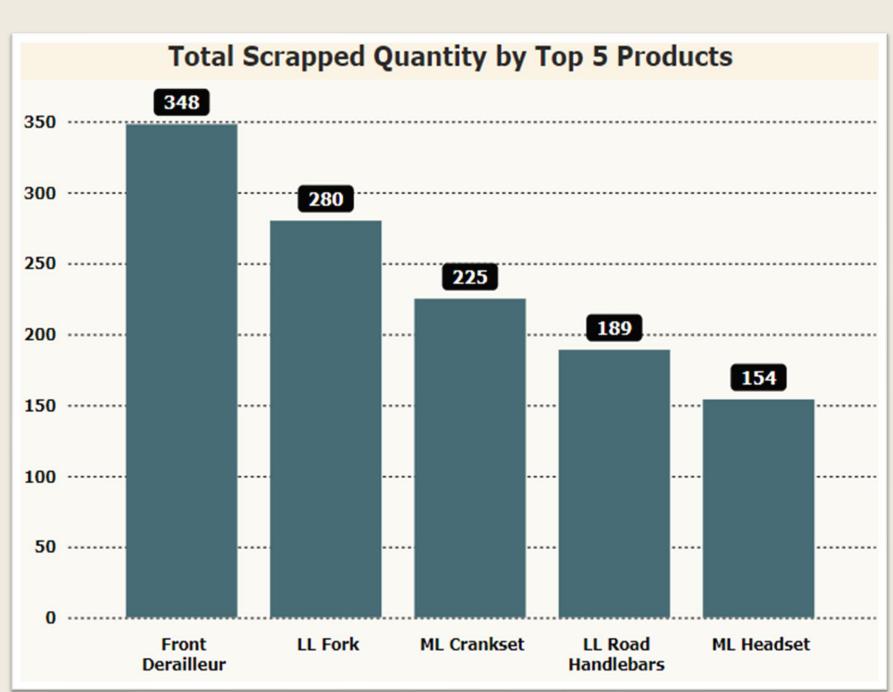


6.3. Data Analysis & Insights:



Q3: Which products have the highest scrapped quantities?

 Answer: The "Front Derailleur" and "LL Fork" products have the highest scrapped quantities, with 348 and 280 units, respectively.



 Conduct a root cause analysis on the top scrapped products to improve product quality and reduce waste.

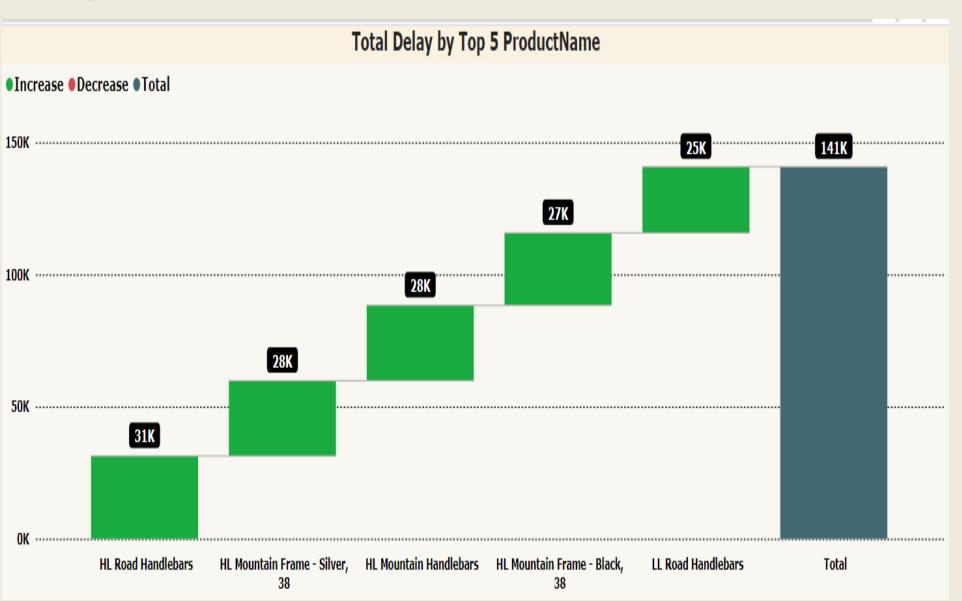


6.4. Data Analysis & Insights:



Q4: Which products contribute the most to shipping delays?

 Answer: "LL Road Handlebars" contribute the most to shipping delays with a total of 141K units delayed.



 Focus on improving the supply chain for this product, as reducing delays could significantly enhance overall delivery performance.

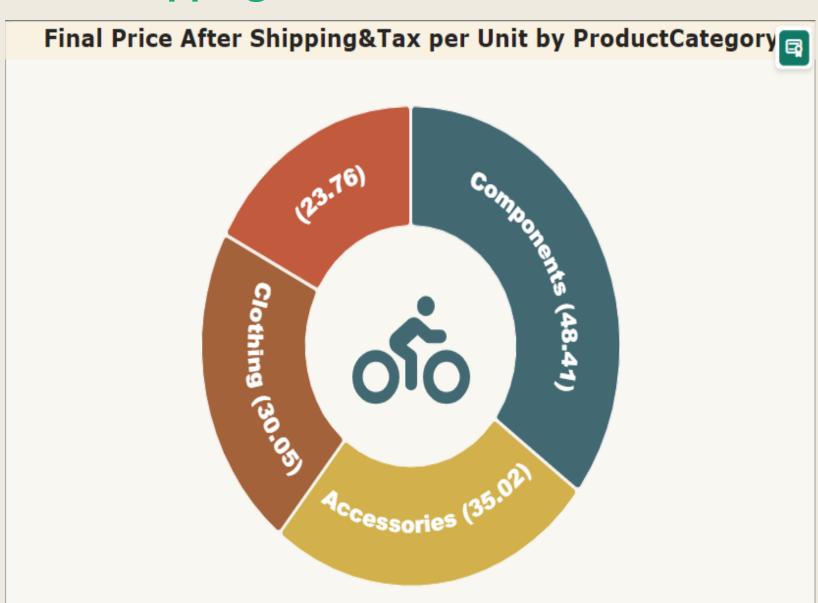


6.5. Data Analysis & Insights:



Q5: What is the final price per unit across product categories after shipping and tax?

 Answer: The final price distribution shows significant costs across "Bicycles," "Components," and "Accessories," with a majority attributed to "Bicycles."



• Review pricing strategies for product categories to ensure competitive pricing after factoring in shipping and taxes, especially for higher-cost items like bicycles.

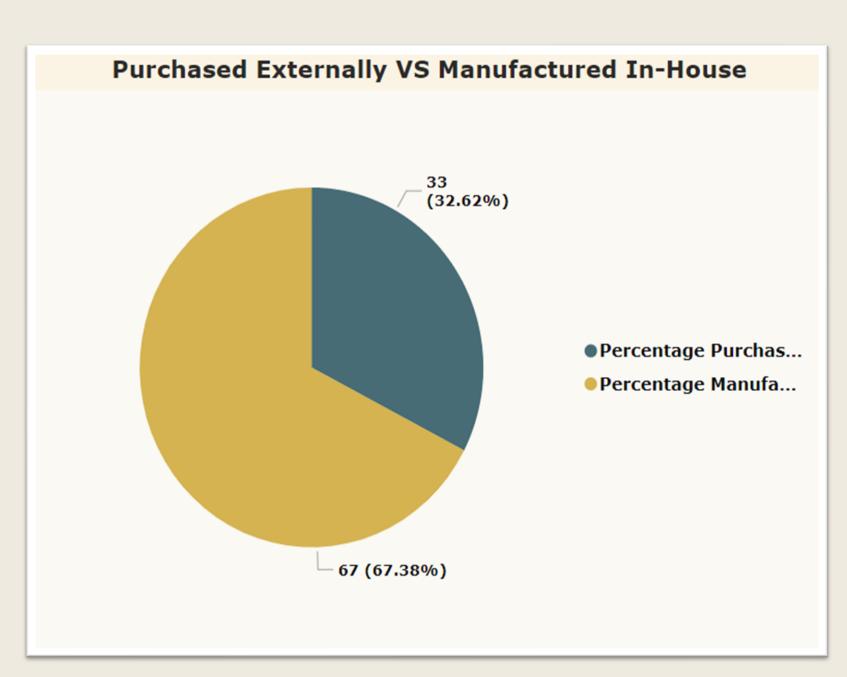


6.6. Data Analysis & Insights:



Q6: How is production divided between in-house manufacturing and external purchasing?

 Answer: Approximately 67% of products are purchased externally, while 33% are manufactured inhouse.



 Assess whether increasing in-house production could reduce costs and improve quality control.

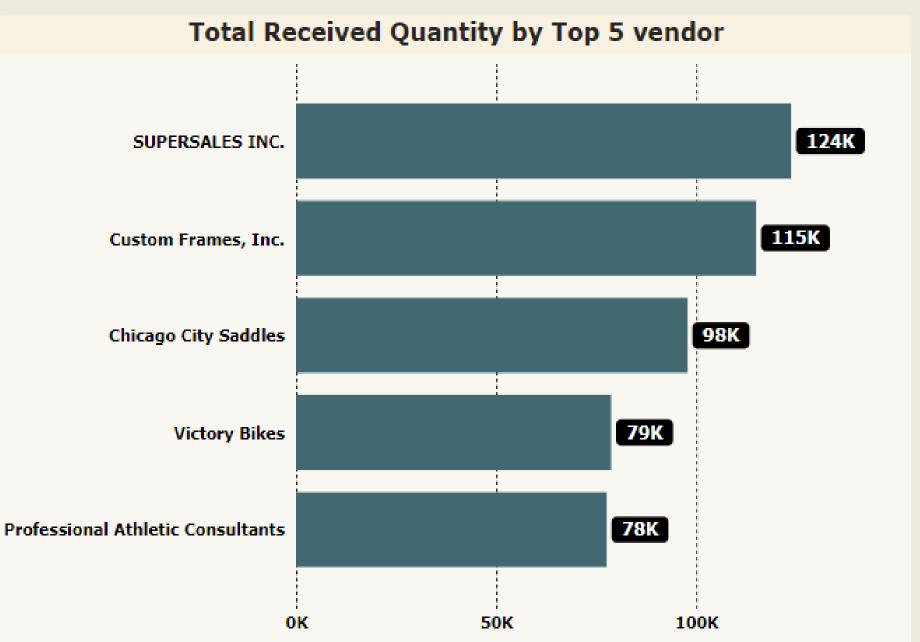


6.7. Data Analysis & Insights:



Q7: Which vendors supply the highest quantities?

 Answer: "SUPERSALES INC." supplies the most, with 124K units received, followed by "Custom Frames, Inc." with 115K units.



 Monitor the performance of these top vendors to ensure they continue to meet quantity and quality standards.

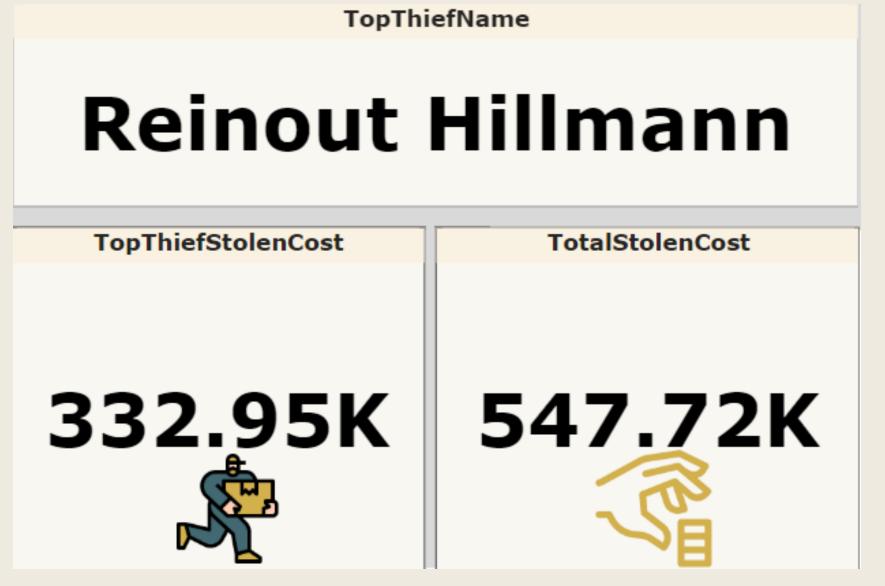


6.8. Data Analysis & Insights:



Q8: Who is responsible for the highest theft, and what is the total stolen cost?

 Answer: "Reinout Hillmann" is the top thief, with a stolen cost of 332.95K, contributing to a total stolen cost of 547.72K.



 Implement stronger theft prevention strategies to minimize losses, focusing on areas with the highest theft incidents.



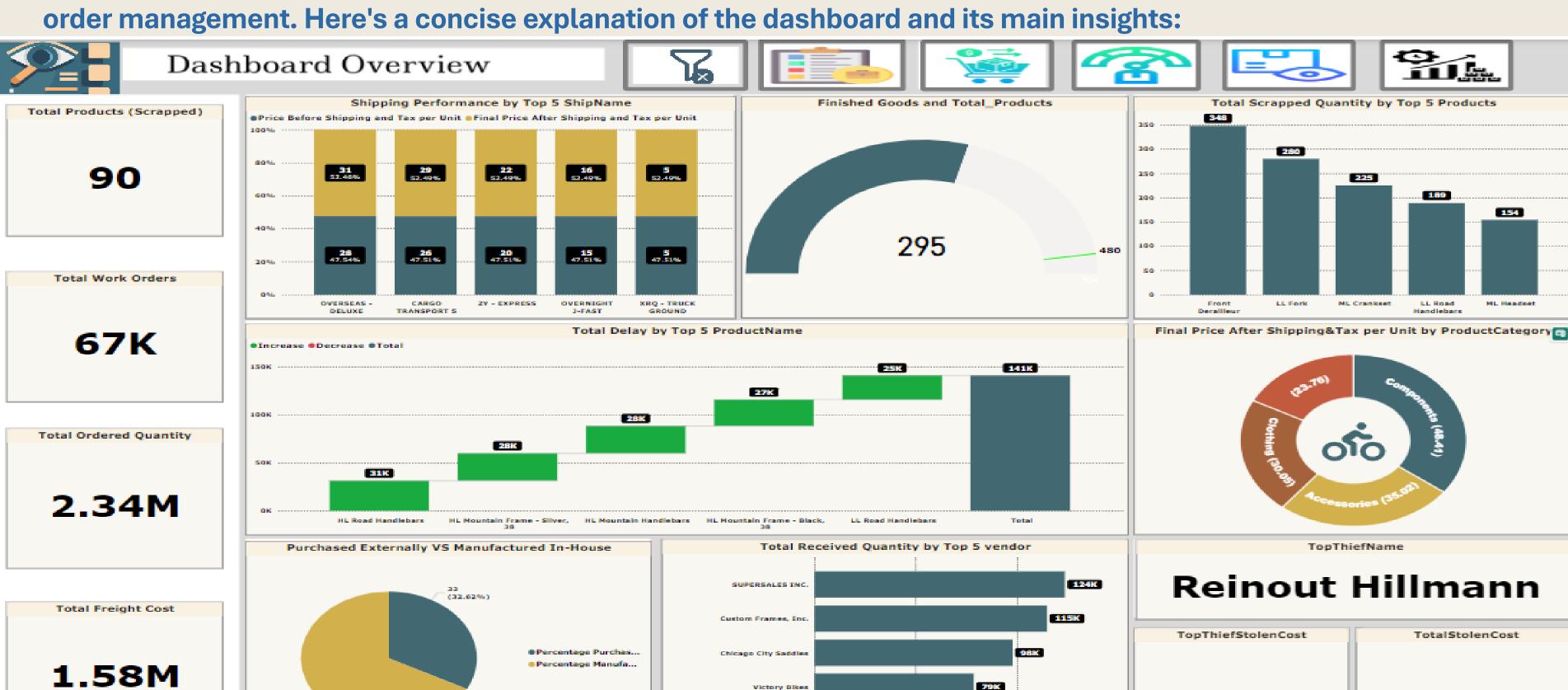
7. 1. Dashboard Overview:



547.72K

332.95K

In this dashboard, we are visualizing KPIs and insights related to production, procurement, shipping, and work order management. Here's a concise explanation of the dashboard and its main insights:



Professional Athletic Consultants

- 67 (67.30%)



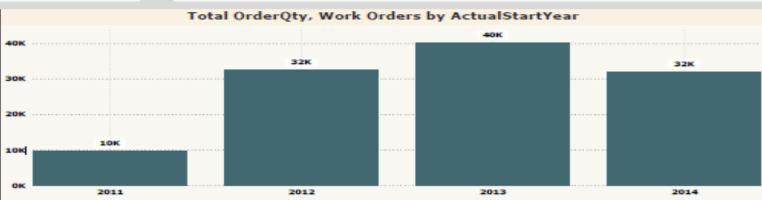
7.2. Work Order Performance:



• This dashboard focuses on Work Order Performance, showcasing critical metrics related to production efficiency, scrap rates, order quantities, and time management in various manufacturing processes.

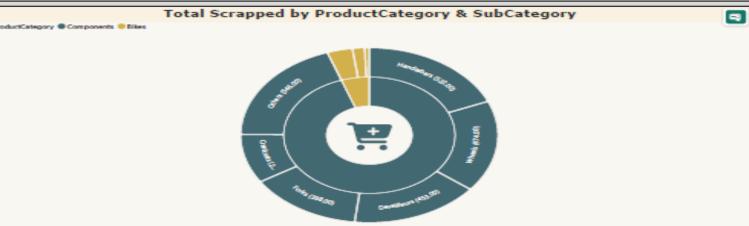
HL Mountain Frame - Silver, 38 Specialized Paint Thermoform temperature too high

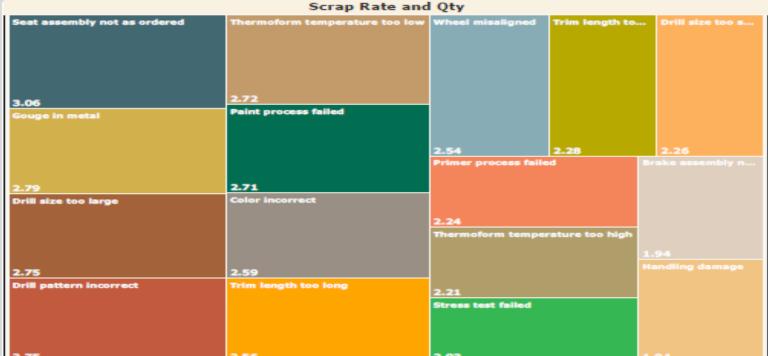
Work Order Performance Final Assembly Frame Forming Frame Welding ☐ Touring Bikes Difference by OrderQty, ScrappedQty 31K 40K 32K 32K 2014 Scrapped Quantity Total latencyHours & Work Orders by LocationName 2796 2320 **Total Actual Hours** 1.19K Quantity Difference Total Scra ProductCategory ProductSubCategory Scrap Rate (%) 2.45 Total Work Orders 351



2011 - 2014

ScheduledStartDate



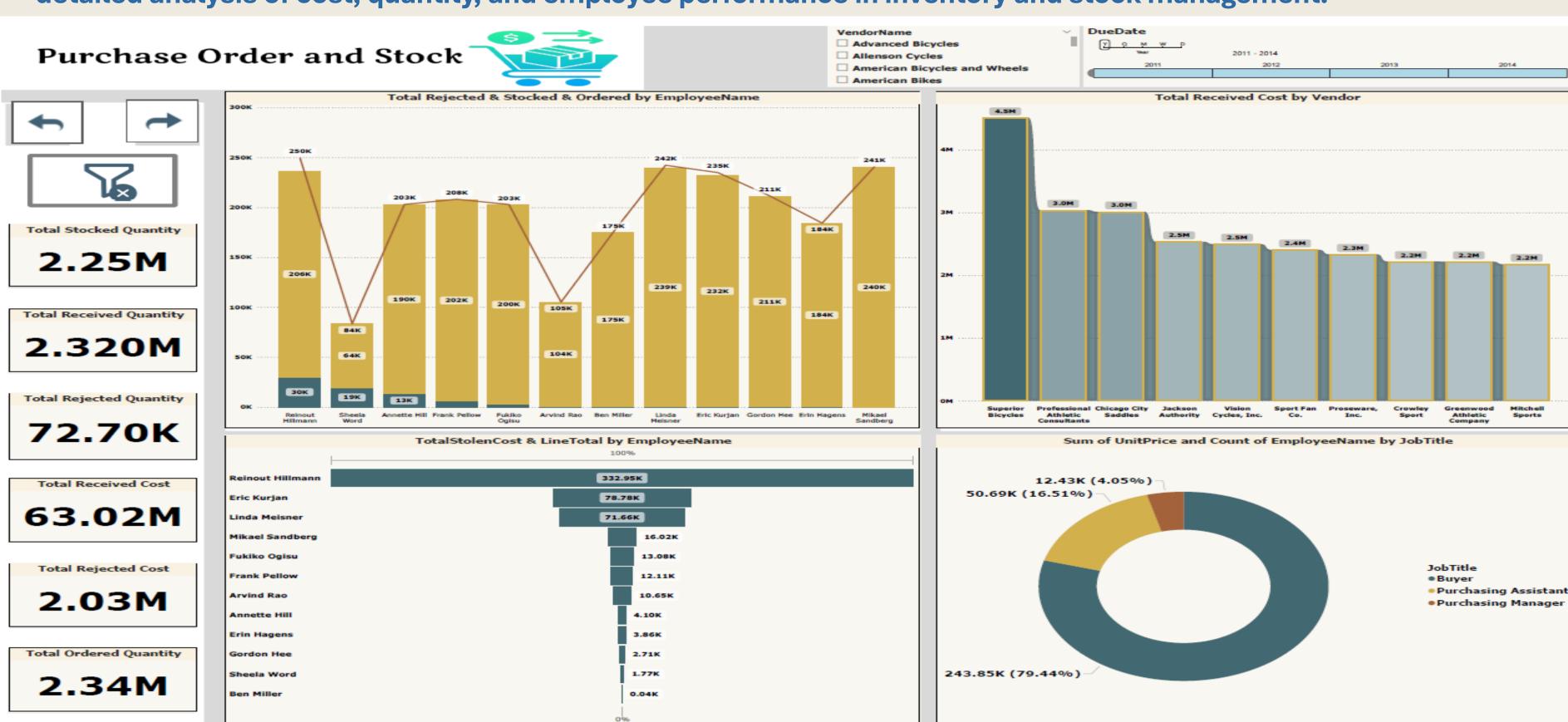




7.3. Purchase Order and Stock:



This dashboard is designed to provide a holistic view of the purchase order and inventory process, allowing for detailed analysis of cost, quantity, and employee performance in inventory and stock management.





7.4. Procurement and Shipping Performance:



• This dashboard offers an overview of shipping performance, highlighting costs, carrier efficiency, and delivery trends over time to support strategic decisions.

Shipping Performance



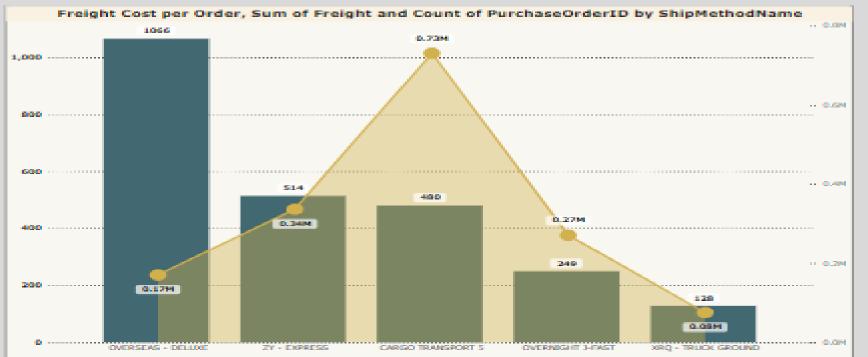


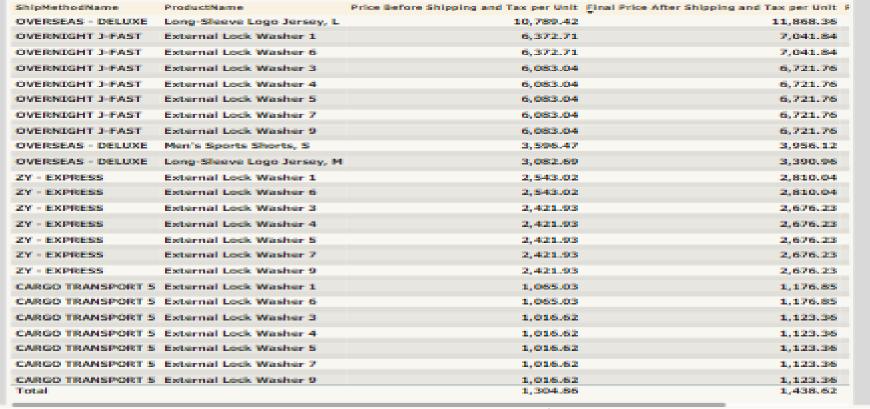




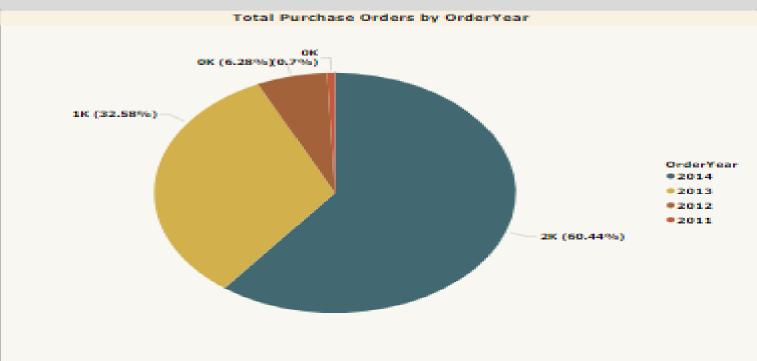
70.48M

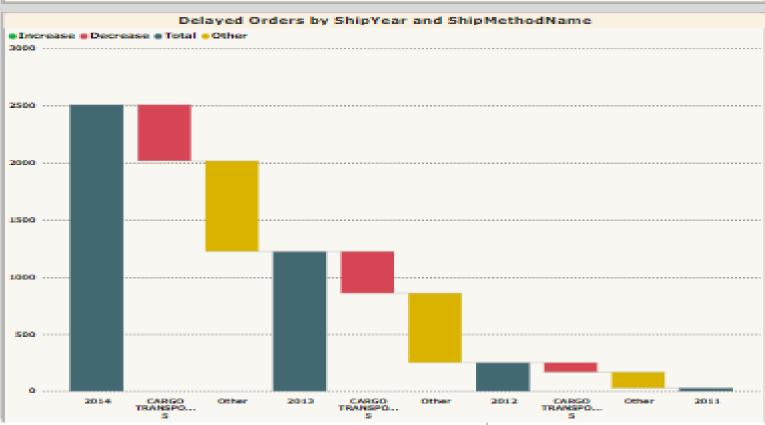
Total Due













7.5. Product Overview:

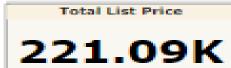


This dashboard provides an overview of product metrics, including the total number of products, costs, and distribution across categories,
 aiding in the analysis of product manufacturing and inventory management.

Product Overview

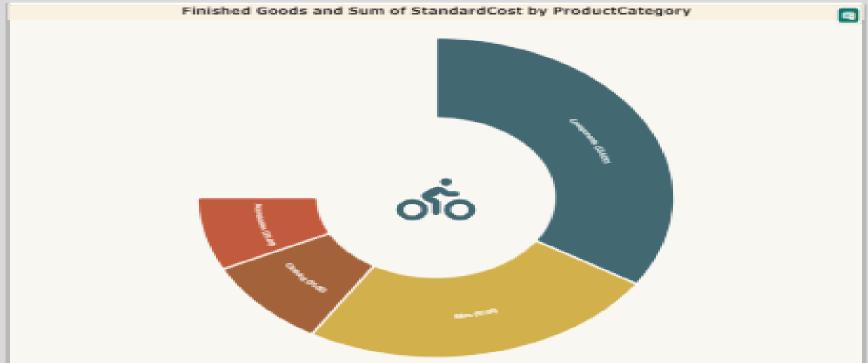






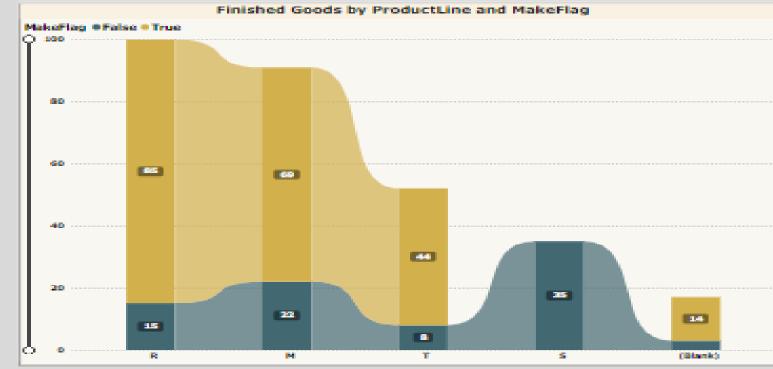
129.28K

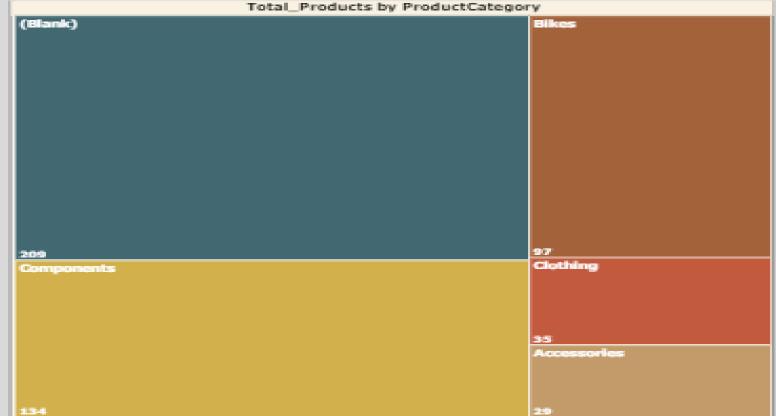
128.62K



ProductName	SubCategoryName	Sum of ListPrice	Sum of StandardCost	MakeFlag	Fin
Adjustable Race		0.00	0.00	Fallow	Failuse
All-Purpose Bike Stand	Blike Stands	159.00	59.47	Faller	Timese
AWC Logo Cap	Cape	9.99	6.92	Fallow	Timese
DG Ball Bearing		0.00	0.00	True	Failure
Bearing Ball		0.00	0.00	Fadion	Failure
Billion Wash - Dissolver	Cleaners	7.95	2.97	Fallon	Timuse
Dilacte		0.00	0.00	True	Foolbox
Cable Lock	Locks	25.00	10.31	Faller	Timuse
Chailm	Chains	20.24	8.99	Fallow	Timuse
Chain Stays		0.00	0.00	True	Failus
Challering		0.00	0.00	Follow	Finites
Chainring Bolts		0.00	0.00	False	Finites
Chainring Nut		0.00	0.00	Fallow	Failus
Classic Vest, L	Vests	63.50	23.75	Faller	Timuse
Classic Vest, M	Vests	63.50	23.75	Faller	Timuse
Classic West, S	Vests	63.50	23.75	Faller	Timuse
Jone-Shaped Race		0.00	0.00	False	Failus
Crown Race		0.00	0.00	False	Faile
Cup-Shaped Race		0.00	0.00	False	Failus
Decal 1		0.00	0.00	Fallow	Finites
Decal 2		0.00	0.00	Fallon	Failus
Down Tube		0.00	0.00	True	Failus
External Lock Washer 1		0.00	0.00	Fallow	Failus
External Lock Washer 2		0.00	0.00	Faller	Finites
External Lock Washer 3		0.00	0.00	False	Failus
External Lock Washer 4		0.00	0.00	False	Failer
External Lock Washer 5		0.00	0.00	False	Finite
External Lock Washer 6		0.00	0.00	False	Failus
External Lock Washer 7		0.00	0.00	False	Failer
External Lock Washer 6		0.00	0.00	False	Failer
External Lock Waither 9		0.00	0.50	Faller	Fairbox
Fender Set - Mountain	Fenders	21.98	9.22	Faller	Timue
lat Washer 1		0.00	0.00	False	Failer
lat Washer 2		9.00	0.00	False	Failer
lat Washer 3		0.00		False	Failus
lat Washer 4		0.00		False	Finites
lat Washer S		0.00		False	Failus
Total		221,087.79	130,335.89	P-I	Washington.









7.6. Production Efficiency:



This dashboard provides a comprehensive analysis of production performance, highlighting key metrics and visualizations that offer insights into resource utilization, start and end delays, and overall operational efficiency.

Production Efficiency







67K

Total Latency End Days

Total_Work Orders

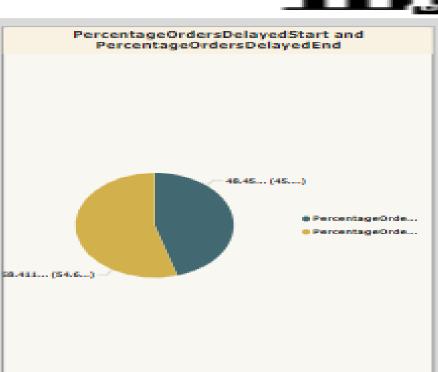
379K

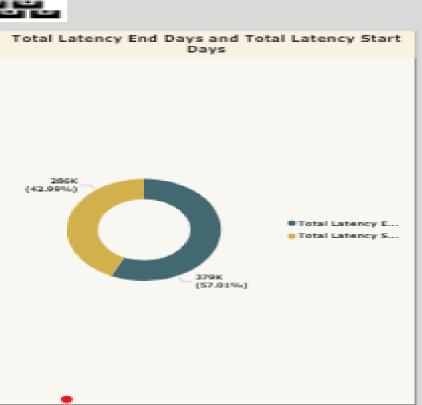
Total Latency Days

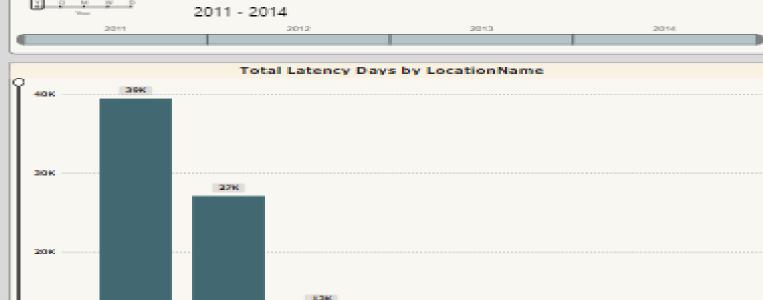
93K

OrdersStartedOnTime

7.95K







EfficiencyOfResourceUtilizationPerMonth and TargetEfficiency by ActualStartMonth

Name	Total Actual Delay	TotalLatencyHours	TotalLateOrders	TotalOnTime
HL Road Handlebars	13629	14342	1776	
HL Mountain Handlebars	12319	13632	1611	
HL Mountain Frame - Black, 38	11706	11927	1734	
HL Mountain Frame - Silver, 38	11556	15767	1912	
LL Road Handlebars	11001	10632	1401	
Front Denailleur	9754	9812	1246	
HL Fork	9754	9791	1244	
HL Road Seat Assembly	9086	8841	1149	
HL Mountain Seat Assembly	6212	9372	1039	
ML Road Handlebars	7641	9691	1035	
LL Fark	7402	7341	952	
LL Road Seat Assembly	7.334	6811	922	
ML Road Frame-W - Yellow, 39	6462	6530	994	
MIL Fork	5112	5751	690	
ML Road Seat Assembly	5094	5733	690	
Rear Derailleur	4677	4101	620	
HL Bottom Bracket	4799	4167	615	
HL Touring Handlebars	4797	4697	621	
HL Road Front Wheel	4543	3969	596	
HL Road Rear Wheel	4543	3949	578	
LL Mountain Handlebars	4329	5796	621	
ML Crankset	4019	3633	518	
ML Headast	4019	3769	527	
LL Bottom Bracket	3865	3465	503	
LL Touring Handlebare	3729	3593	498	
LL Road Front Wheel	3667	2919	461	
LL Road Rear Wheel	3667	3129	475	
HL Crankset	3176	2523	404	
HL Headset	3176	2523	404	
HL Touring Seat Assembly	3149	2324	390	
ML Bottom Bracket	3100	2797	400	
ML Mountain Front Wheel	3100	2742	397	
ML Mountain Rear Wheel	3100	2902	401	
LL Mountain Seat Assembly	2886	2989	366	
Mi. Mountain Frame-W - Silver, 39 Fotal	2838	2763	438	





Manufactured In-House

67

Total Product Assemblies

239

7.7. Product Components and Assembly:

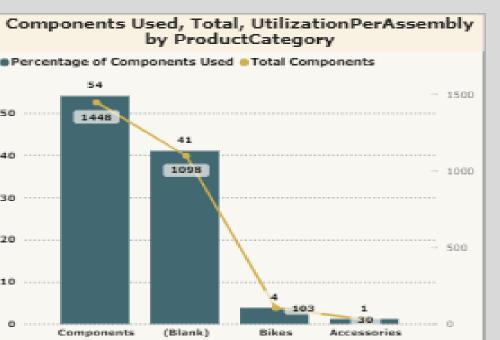


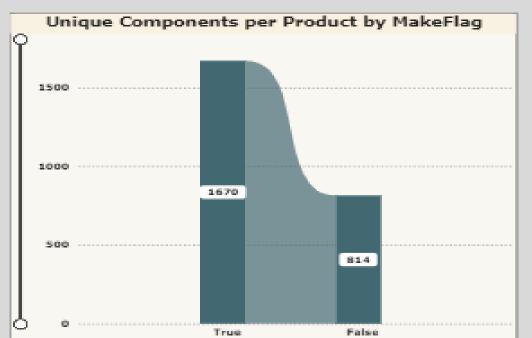
 This dashboard offers a detailed analysis of component and assembly data, highlighting key metrics such as total product assemblies, component utilization, and manufacturing distribution.

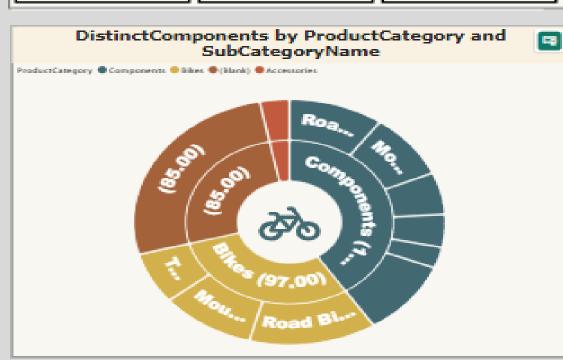
Component & Assembly



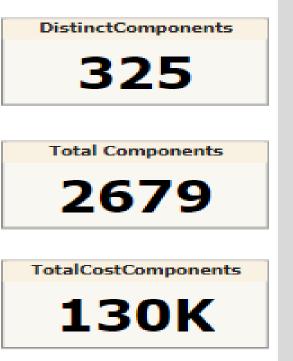






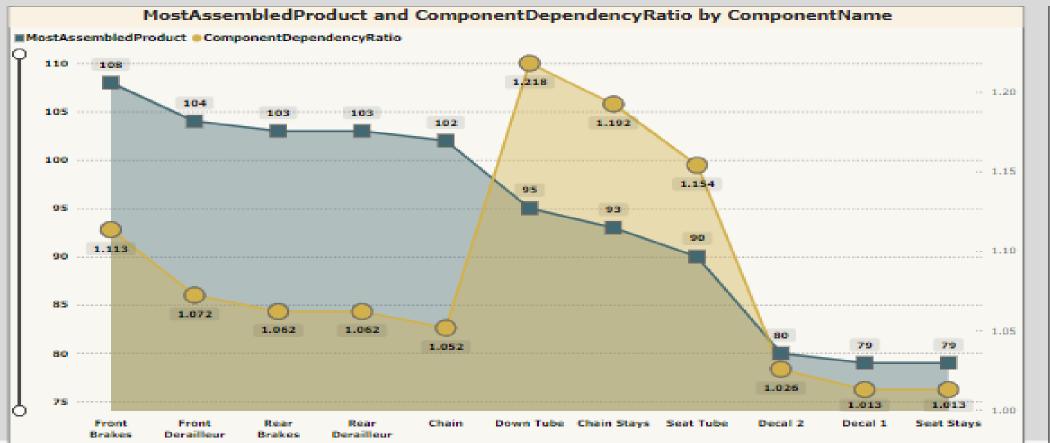


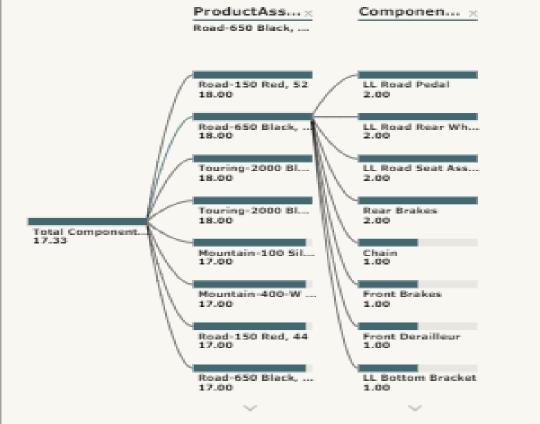
Class



ComponentUtilization

2.68K







8. Recommendations:



- Reduce Waste: Focus on products with high scrapping rates and investigate root causes.
- Optimize Shipping Costs: Consider revising contracts with "OVERSEAS DELUXE" or finding alternatives to cut shipping costs.
- Tackle Delays: Prioritize reducing delays in high-impact products like "HL Road Handlebars" through process improvement or better scheduling.
- Improve Security: Address theft by enforcing stricter controls and monitoring over the employees responsible for inventory.



9. Conclusion:



- Summary of Key Findings: The analysis identified significant inefficiencies in production, including delays and discrepancies in stock management. Addressing these issues can help the company reduce costs and improve production efficiency.
- Importance of the Analysis: This analysis provides actionable insights that can help the company streamline its production processes, reduce losses due to theft, and enhance overall efficiency.
- Next Steps: Based on these findings, the company can take steps to improve both production and inventory
 management, which will ultimately lead to better operational outcomes. Future analyses could focus on
 optimizing specific production stages or further investigating purchasing discrepancies.





10. Q&A:



THANK YOU!

