

**Goal : To transform dimensional model into business intelligence for Demand Reshaping in SCM**

# Project Detail

No	Topic	Clarification
1	Data Sources	The synthetic data is simulated from 5 different departments which are Sales, Logistics, Finance, Inventory and Procurement.
2	BI Tool	This assignment will utilize Tableau tool as indicated in the last time.
3	Mockup	There are 5 reports and 1 unified dashboard in this assignment.
4	Audiences	Special case team for this abrupt sales & Marketing activities consists of SCM Manager, Category Leader, Sales and Marketing Leader.
5	Visualization Methods	The Tableau visualization is applicable in laptop, desktop, iPad and mobile device. Thus, It could be carried to conduct presentation anywhere and the leaders would be able to adjust marketing plans any time to support an unexpected circumstance.
6	Fact Table	Example: Surplus products in Illinois is 8,000 pieces.
7	Dimension	Example: Surplus in Illinois “by” year 2021 and “by” consumer segment is 1,000 pieces.
8	KPI	The created dashboard could establish at least 3 key information and 5 KPIs.
9	Dimensional Model	The KPIs would be slightly different from the initial dimensional model due to some unavailable source data in this Tableau demonstration.

# Reports and a dashboard

**Step-1:** import data from collaborative departments – from ETL process or databases

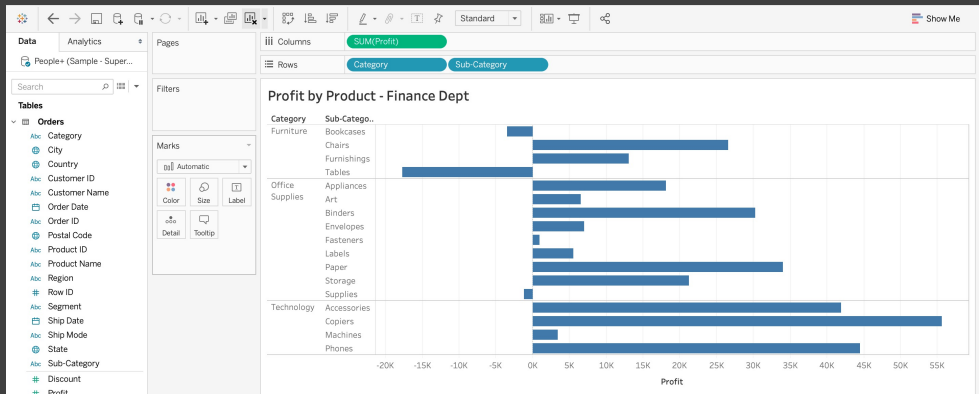
**Step-2:** create relationships using region key

The screenshot displays the Microsoft Excel interface with a data model diagram and a PivotTable. The data model diagram at the top shows two tables, 'Orders' and 'People', connected by a relationship line. Below the diagram, an 'Edit Relationship' dialog box is open, showing the relationship between 'Orders' and 'People' based on the 'Region' field. The dialog box includes a search bar, a list of fields, and a 'Performance Options' section. The PivotTable on the right is titled 'Profit by Product - Finance Dept' and has a blank grid with 'Drop field here' prompts. The PivotTable's 'Columns' and 'Rows' sections are empty, and the 'Marks' section is set to 'Automatic'. The 'Filters' section is also empty. The 'Data' tab is selected in the top ribbon, and the 'Tables' list on the left shows the 'Orders' table selected.

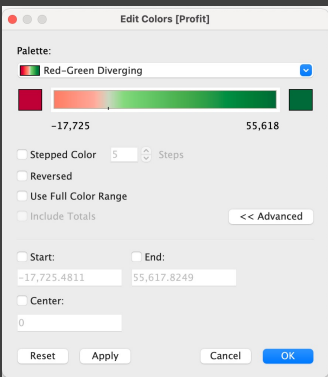
**Step-3:** build worksheet per KPI

# Report and a dashboard

Step-4: build worksheet for profit by product – utilizing data from finance dept



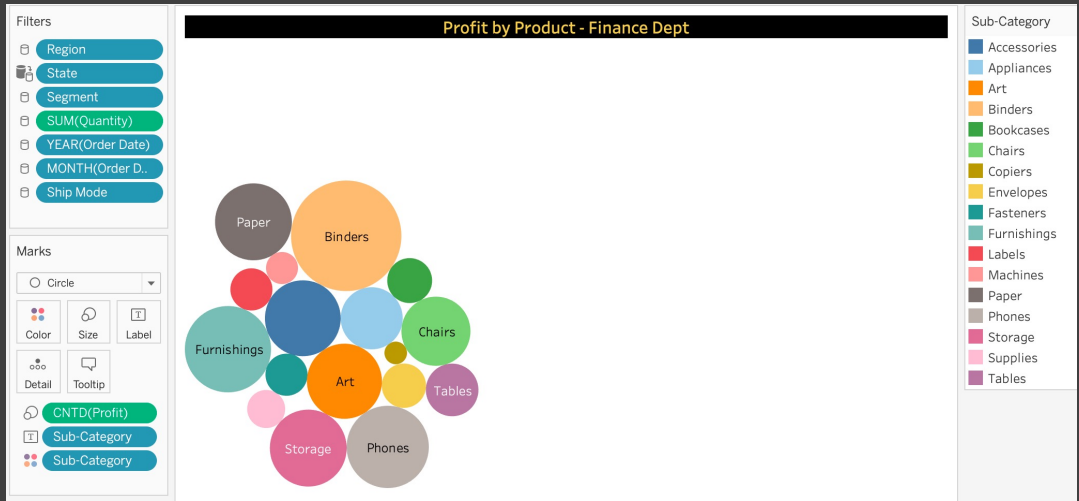
Color Edit



Format

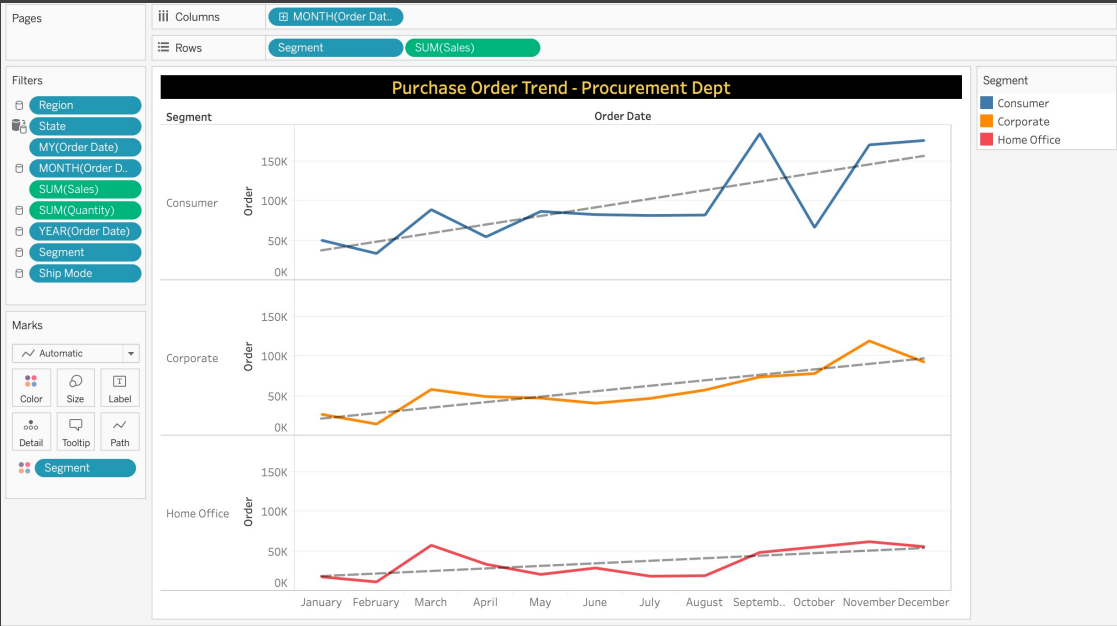
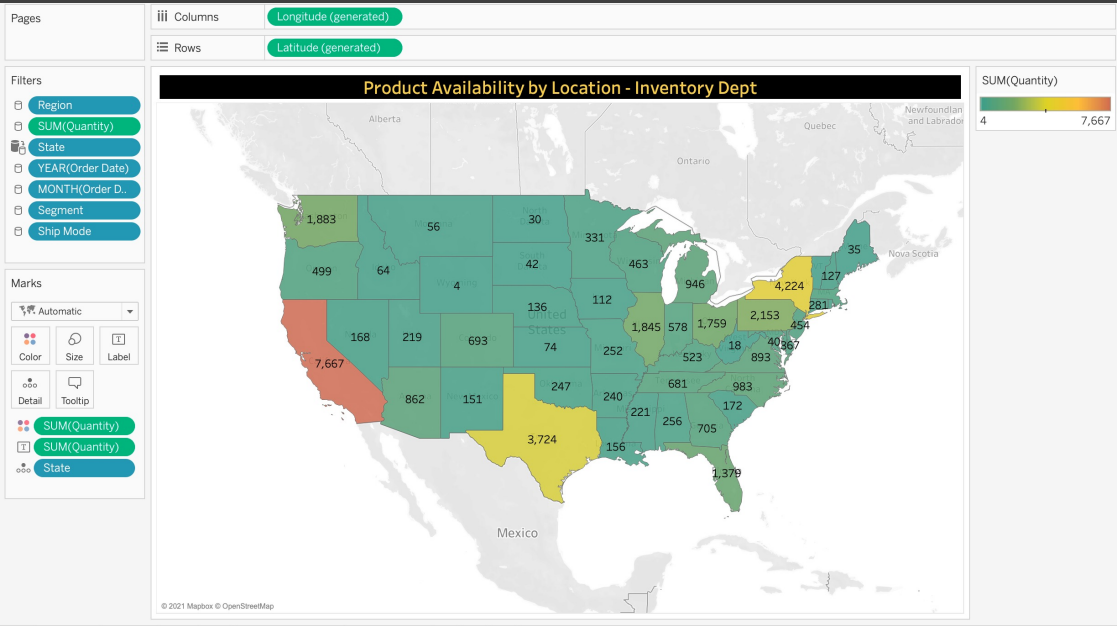


Finalized Individual Report



# Report and a dashboard

Step-5: iterate step-4 for different reports and various KPIs

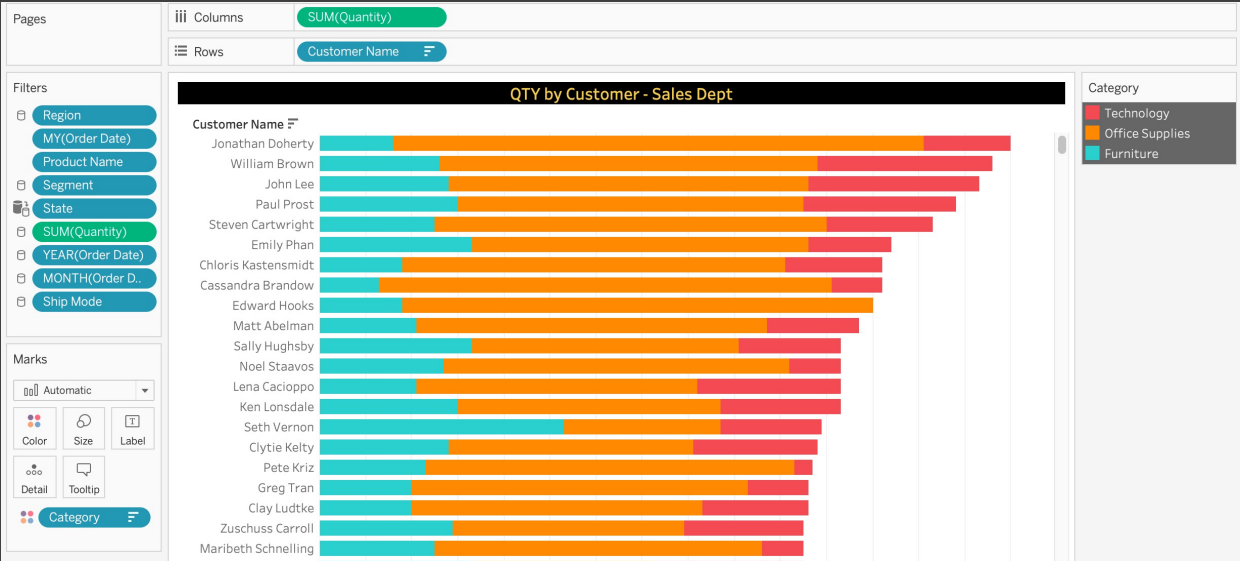
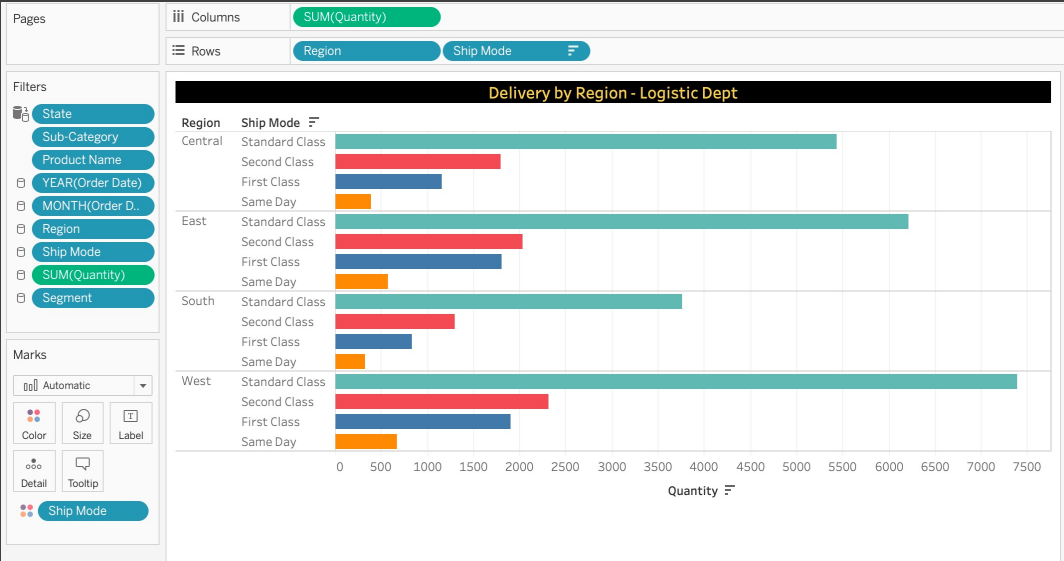


1) Report for Surplus Availability in various locations

2) Report for Purchase Order Trend and forecast

# Reports and a dashboard

## Step-6: continue creating different reports



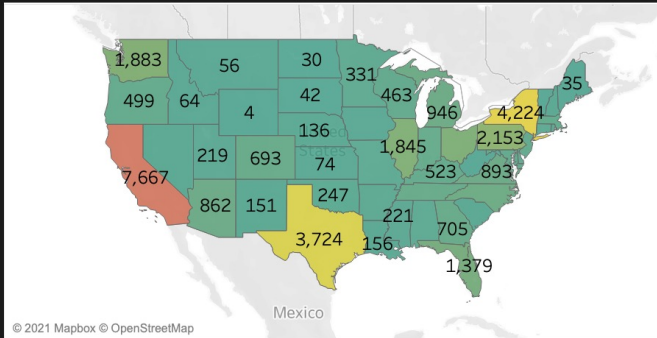
3) Report for Delivery Method Preference by region

4) Report for quantity consumed by customer

# Dashboard

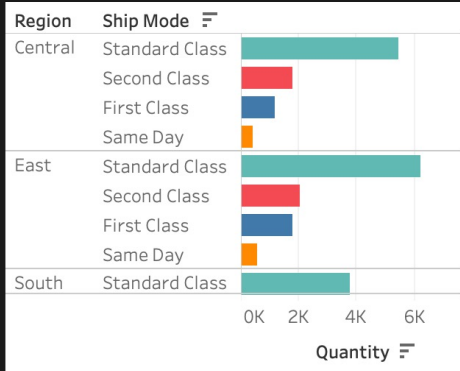
## Demand & Supply Management for Marketing Strategies

### Product Availability by Location - Inventory Dept

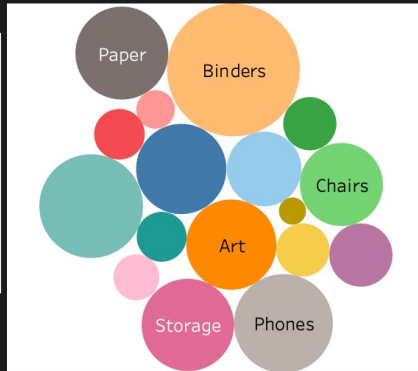


Quantity 4 7,667

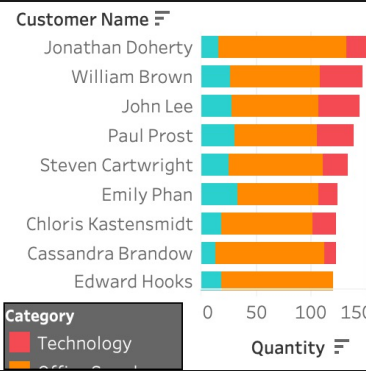
### Delivery by Region - Logistic Dept



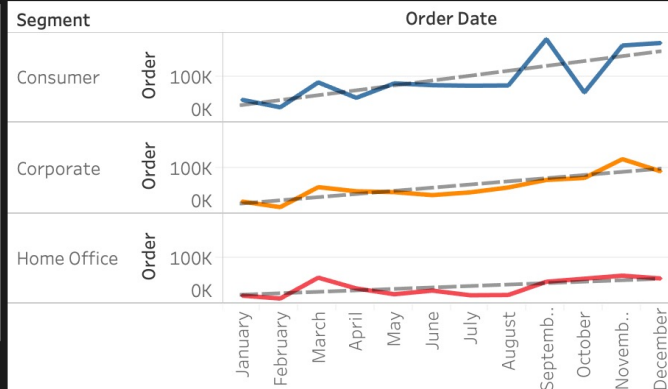
### Profit by Product - Finance Dept



### QTY by Customer - Sales Dept



### Purchase Order Trend - Procurement Dept



Region  
☒ (All)  
☒ Central  
☒ East  
☒ South  
☒ West

State  
(All)

Year of Order Date  
(All)

Month of Order Date  
(All)

Quantity  
4 7,667

Segment  
☒ (All)  
☒ Consumer  
☒ Corporate  
☒ Home Office

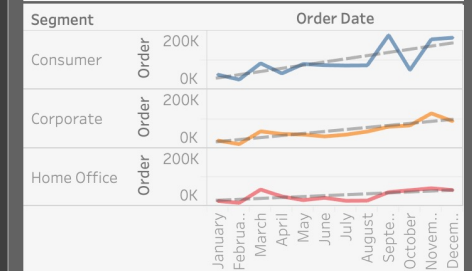
Ship Mode  
☒ (All)  
☒ First Class  
☒ Same Day  
☒ Second Class  
☒ Standard Class

Unified View on Laptop/Desktop, iPad

## Demand & Supply Management for Marketing ..

Month of Order Date  
(All)

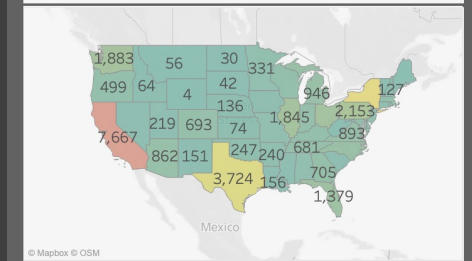
### Purchase Order Trend - Procurement Dept



Region  
(All)

Quantity  
4 7,667

### Product Availability by Location - Inventory Dept



View on Mobile devices

# Key information and KPIs from the dashboard

No	Key Information	Details
1	Surplus Qty	This excess products could be called by region, time and segment as well as seeing order trend to enable abrupt marketing campaigns.
2	Profitable products	The business user can utilize this report to bundle high-ordered and lower-ordered products for re-attracting customers with special bundled promotions.
3	Purchase Order Trend	The trend by month, quarter and year could be a great indicator to predict and offset the excess products in each region.

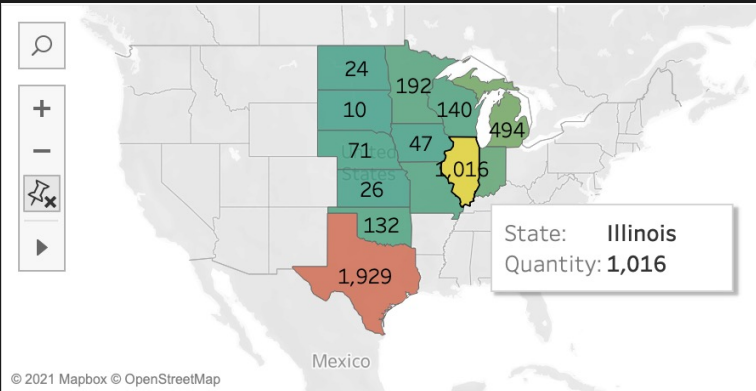
No	KPI	Formula	Details
1	Average transaction value	$\frac{\text{Total sales from transactions}}{\text{Total distinct count of transactions}}$	Find out how much on average customers spend each time they make a purchase.
2	Year Over Year Growth	$\frac{(\text{current period revenue} - \text{prior period revenue}) \times 100}{\text{prior period revenue}}$	Track how the business doing so teams can react accordingly.
3	Product Turn	$\frac{\text{Cost of goods sold}}{\text{Average Inventory}}$	Show risk of carrying slow or dead surplus.
4	Portion of Demand Variability	The mean of all demand levels for an item during over a period of time.	How much variability there is in customer demand that generate surplus increment.
5	Profit by bundled products	$\frac{(\text{Actual cost sold} - \text{Bundled cost sold}) \times 100}{\text{Actual cost sold}}$	Show profit made in new marketing promotions.



# Interactive Dashboard

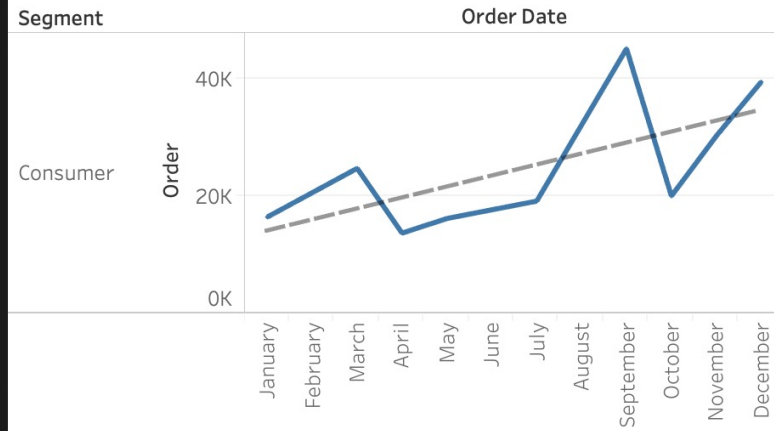
## Demand & Supply Management for Marketing Strategies

### Product Availability by Location - Inventory Dept



Quantity 10 1,929

### Purchase Order Trend - Procurement Dept



Region

- ☐ (All)
- ☒ Central
- ☐ East
- ☐ South
- ☐ West

State

(All)

Year of Order Date

(All)

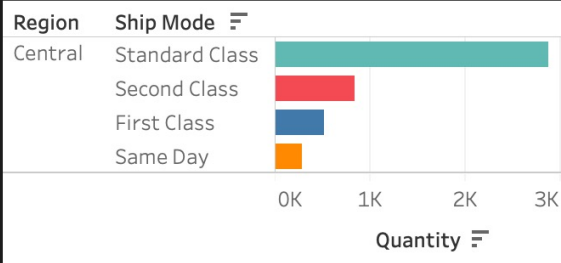
Month of Order Date

(All)

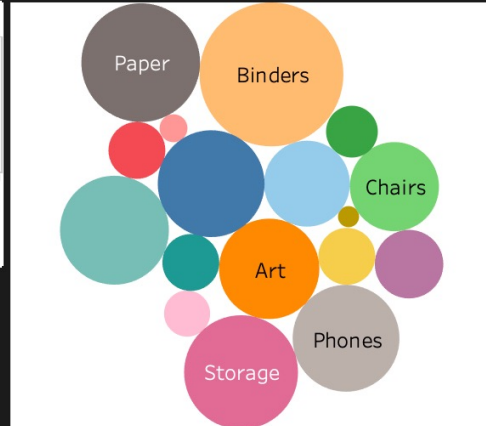
Quantity

4 7,667

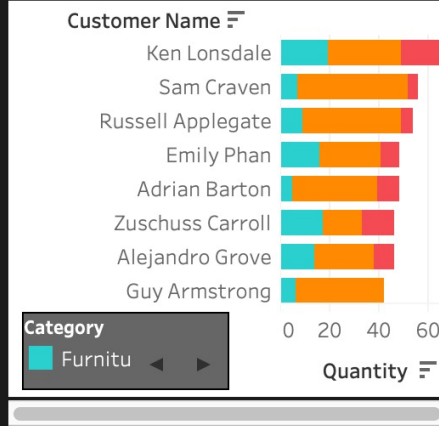
### Delivery by Region - Logistic Dept



### Profit by Product - Finance Dept



### QTY by Customer - Sales Dept



Segment

- ☐ (All)
- ☒ Consumer
- ☐ Corporate
- ☐ Home Office

Ship Mode

- ☒ (All)
- ☒ First Class
- ☒ Same Day
- ☒ Second Class
- ☒ Standard Class

## Usage Sample

This visualization shows surplus information that are available in the central region.

Business Users would be able to filter segments for specific products and tasks.

Example: The Sales & Marketing team could see the overview dashboard to generate the customized marketing promotions for releasing excess surplus in Illinois with respect to previous profit and PO trend to re-attract potential customer in the right-bottom report.

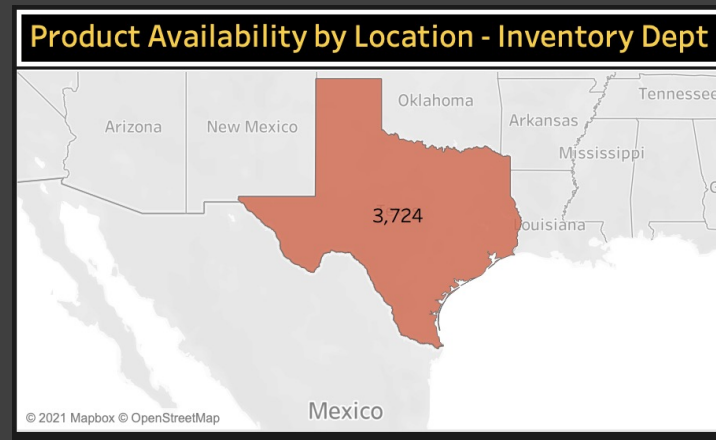
# Fact and Dimension Tables

## Dimension Table

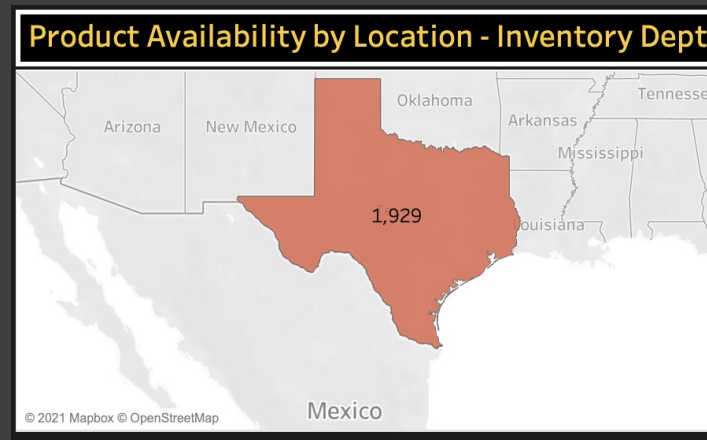
From the interactive dashboard, it could be seen that dimensions are used to slice and dice the data such as filtering and grouping the data. Dimension tables could help a sales & promotion team by looking at data with “By” attribute. A primary key column, also known as Dimension ID, exists in a dimension table. Each dimension row is identified by this column. Using this key, the dimension table is linked to a fact table.

## Fact Table

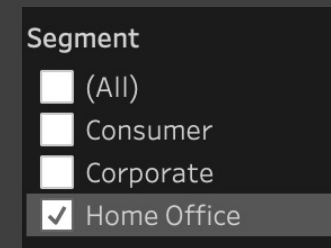
The measurable attribute of the data is contained in the Fact Table. It includes quantitative data that Dimension tables can evaluate. The foreign keys of the linked Dimension tables are stored in Fact tables.



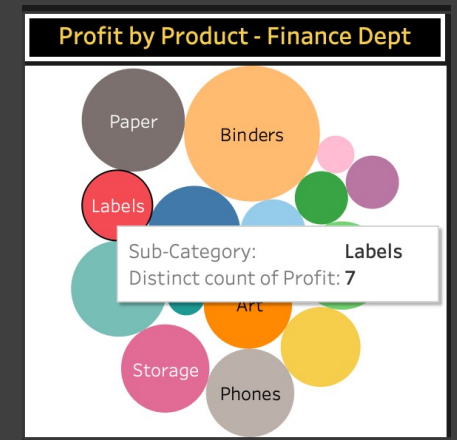
Fact table: Surplus Qty in Texas = 3,724 Ea



Dimension: Surplus Qty by home office segment



Dimension: Surplus Qty by segment by profit products



# Real Solution from my dashboard

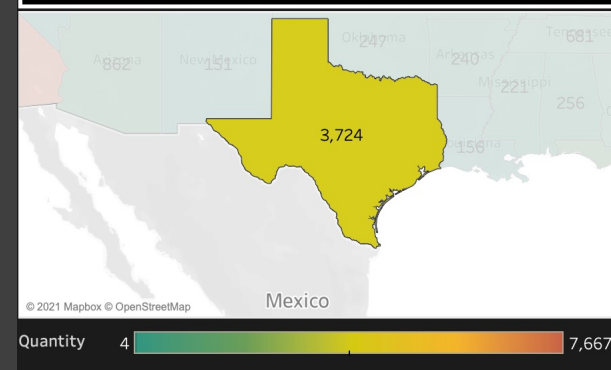
**Problem Statement (HWI):** There are many surplus in each region due to the unexpected situation.

**Proposed Solution (HWI):** To perform demand reshaping for re-attracting customers in each region.

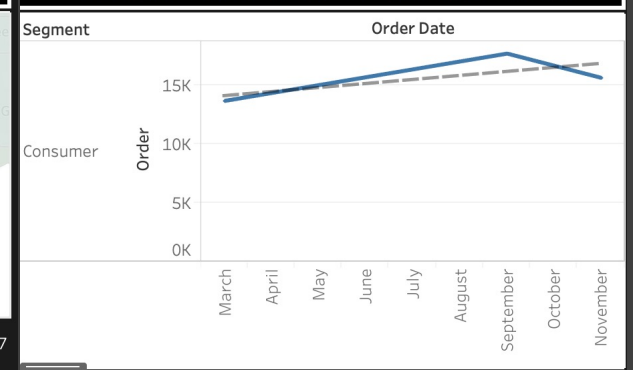
**Responsible Group:** Sales & Marketing Team - SCM Manager + Category Leader + Sales and Marketing Leader.

**Analysis:** If team want to see why there are many surplus products in Texas where has 3,724 Pcs. Using Time dimension, team can see the decreased purchase order "By" year/month. To elevate the PO trend, the teams must create marketing campaigns such as the bundled package consisting of high-low profitable products + preferred delivery method + personalized marketing via email to high-spent customers using their purchased history as shown.

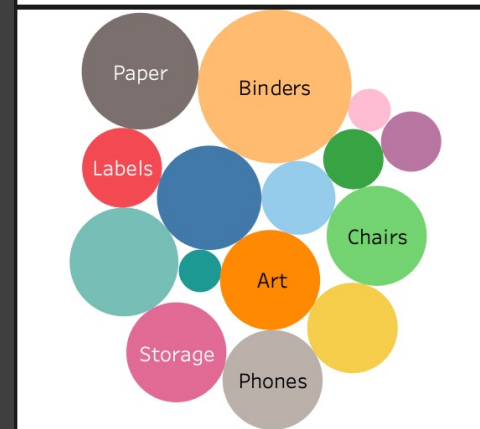
Product Availability by Location - Inventory Dept



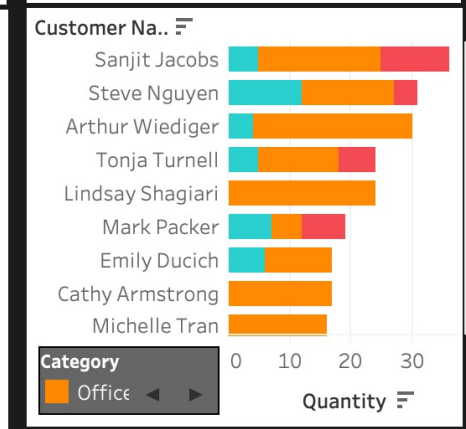
Purchase Order Trend - Procurement Dept



Profit by Product - Finance Dept



QTY by Customer - Sales Dept



Hot Deal: Bundled Binder + 2 lower profit products emailed to Sanjit Jacobs

**THANK YOU !**