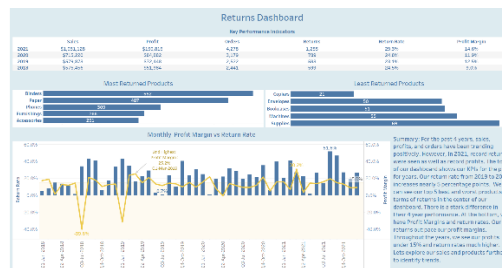


# Super Store Return Analysis

Sprint 5 Project Story Telling Write Up  
[NATHAN BROWN](#)

[Link to Tableau Public](#)

## Executive Summary: Macro View of KPIs



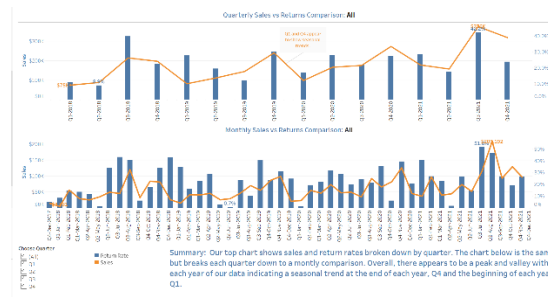
Our analysis begins by attempting to answer one question. “What is causing returns?” To answer this question, we will explore time and sales to find seasonal trends. Next, we will take an in depth look into our products in terms of returns, profits, and sales. Finally, we will explore geographic centers of returns and wrap up with a view of our shipping methods.

Before we being our analysis, lets take a macro view of our performance. Our KPI metrics indicate record profits for 2021. While our sales dollars have nearly doubled since 2018, so have our returns numbers. Our number of returns increased nearly 5% since 2018. It's reasonable to assume that as sales increase, so do returns. However, such a stark increase is wreaking havoc on our profitability and could lead to loss of customers and sales if this continues. Looking at our profit margins and return rates proves this visually. We can see our profit margins, referenced in gold, hover around 15% over the past 4 years. Despite our various peaks, and record profit margin in 2021 at 30.2%, our return rates are consistently double.

Additionally, comparing the return rates year over year may lead us to believe that our returns are on par with sales; however, looking at our number of returns in conjunction with the return rate reinforces our need for further analysis. Number of returns from 2019 to 2020 increased by 35%. Number of returns from 2020 to 2021 increased by 59%.

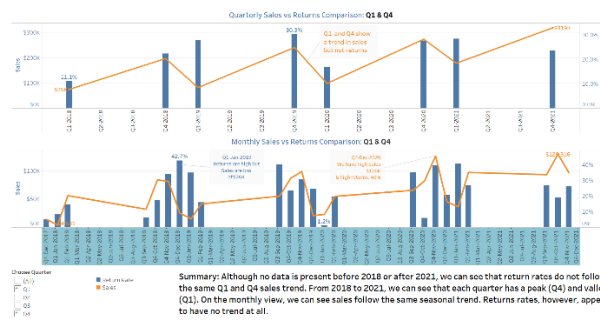
Displayed in the center, we have our most and least returned products. Products and sales are a great place to start identifying trends in returns. Let's now take a closer look to identify seasonal trends.

## Is there a Seasonal Trend to our returns?



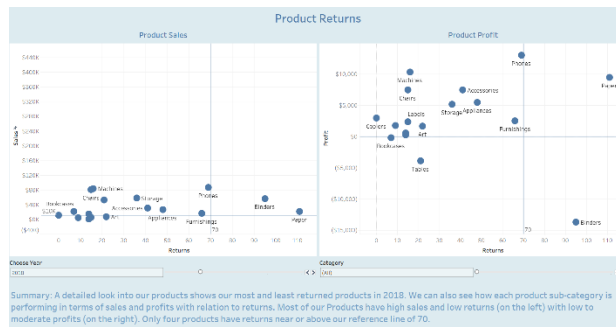
In order to identify seasonal trends, we need to look at sales over time. Here we have two combination bar and line charts. Sales are represented by the orange line and return rates by the blue bars on both charts. Our top chart shows sales and return rates broken down by quarters over a four-year period. The chart below is the same but each quarter is broken down to a monthly comparison. This will help to identify seasonal trends. We can filter each chart by quarters for easy viewing. Right away, we can see there are peaks and valleys in each quarter indicating a seasonal trend between Q4 and Q1.

## Seasonal Trends Sales analysis for Q1 & Q4



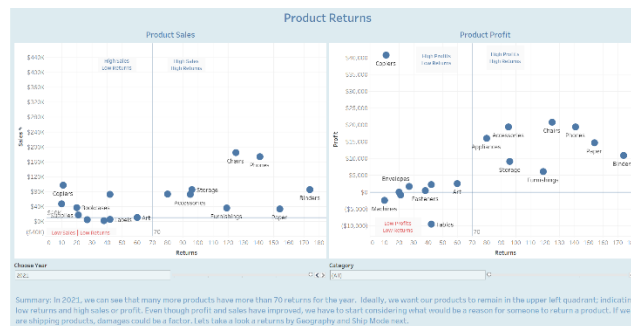
Using the filter to view just Q1 and Q4, we can take a closer look and the quarterly and monthly view to verify our hypothesis. At the quarter level, from 2018 to 2021 we can see that our sales peak in the 4<sup>th</sup> quarter and fall in the first quarter. Although there is no data present before 2018 or after 2021, we can see that return rates do not follow same trend as sales. Return rates appear to have no trend at all.

## Product Returns 2018: Low returns and Strong Sales



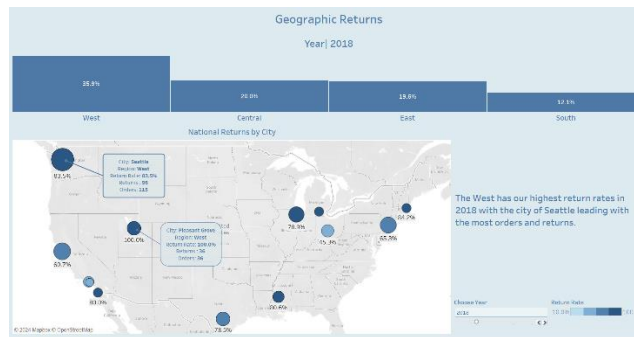
Now, let's examine our products a little further. Here we have sales (on the left) and profits (on the right) both set over returns. Here we want to identify if there is a linear relationship for products regarding returns and financial measures. Each chart is set to filter by year as well as product category. Starting in 2018, we can also see how each product sub-category is performing in terms of sales and profits with relation to returns. Most of our Products have high sales and low returns (on the left) with low to moderate profits (on the right). Only four products have returns near or above our reference line of 70.

## Products Returns 2021: Performance Decreased



In 2021, we can see that many more products have more than 70 returns for the year. That's a lot. Ideally, we want our products to remain in the upper left quadrant; indicating low returns and high sales or profit. Overall, there is no linear relationship between Returns and Sales or profits. Even as you filter through the years, you can see that our data points remain scattered indicating a non-linear relationship. Even though profit and sales have improved, we have to start considering what would be a reason for someone to return a product. If we are shipping products, damages could be a factor. Let's take a look at returns by Geography and Ship Mode next.

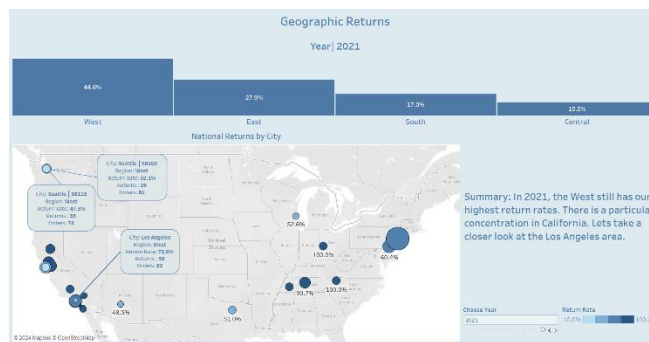
## Geographic Returns: 2018



At the top of our dashboard, return rates for each region are displayed. Returns by Zip Code (postal code) are displayed on our maps because a city can have multiple codes. This allows for a more detailed view of shipping in each city. Each map can be filtered by ship mode and years to demonstrate the impact shipping has on returns. The size of each bubble corresponds to the number of returns experienced in each zip code. The color of each bubble corresponds to the return rate of each zip code.

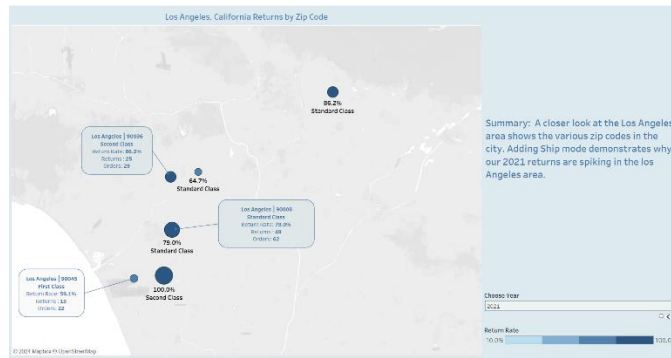
In 2018, the west region had the highest return rates with Seattle leading. Its important to note, number of orders and returns has a direct impact on return rate. For example, Pleasant Grove, Utah shows 100% return rate but has far fewer orders and returns than Seattle.

## Geographic Returns: 2021



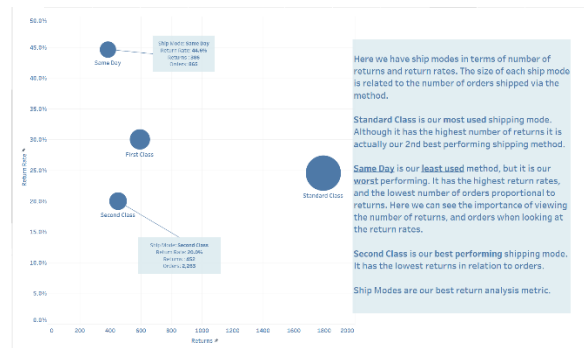
The west still has our highest return rates. Seattle has now split into multiple zip codes. There may be a trend in shipping regarding returns. There is a very high concentration of zip codes in California.

## Geography Dashboard California Ship Mode



Here we wanted to take a deeper look and find a root cause to returns. A closer look at the Los Angeles, California area in 2021 shows various zip codes with returns related to ship mode.

## Ship Mode Return Rates



Here we have ship modes in terms of number of returns and return rates. The size of each ship mode is related to the number of orders shipped via the method.

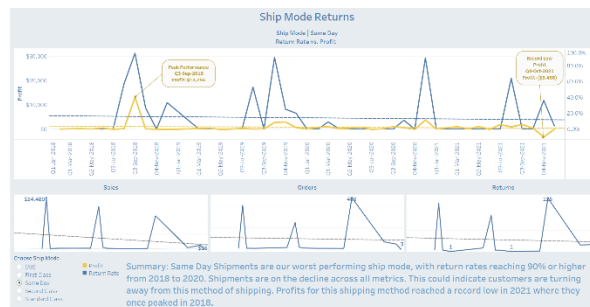
**Standard Class** is our **most used** shipping mode. Although it has the highest number of returns it is actually our 2nd best performing shipping method.

**Same Day** is our **least used** method, but it is our **worst** performing. It has the highest return rates, and the lowest number of orders proportional to returns. Here we can see the importance of viewing the number of returns, and orders when looking at the return rates.

**Second Class** is our **best performing** shipping mode. It has the lowest returns in relation to orders.

Ship Modes are our best return analysis metric.

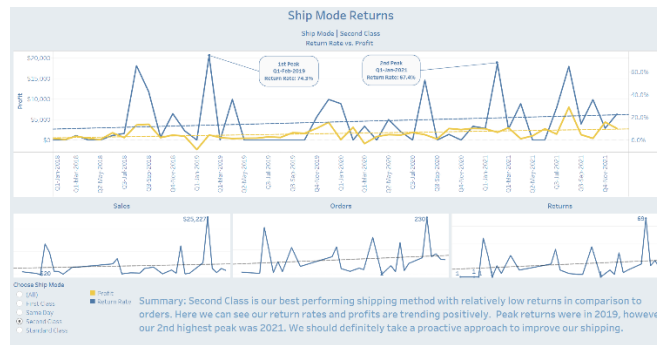
## Ship Mode Dashboard: Same Day, Worst Performing



This dashboard demonstrates KPI metrics for ship modes. We have return rates and profits at the top. At the bottom we have sales, orders, and returns.

Same Day Shipments is our worst performing ship mode, with return rates reaching 90% or higher from 2018 to 2020. Shipments are on the decline across all metrics. This could indicate customers are turning away from this method of shipping. Profits for this shipping method reached a record low in 2021 where they once peaked in 2018.

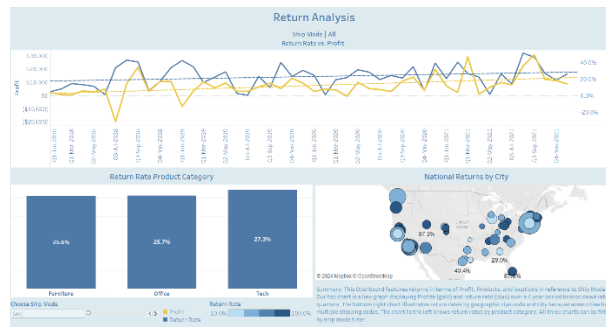
## Ship Mode Dashboard: Second Class, best Performing



Second Class is our best performing shipping method with relatively low returns in comparison to orders. Here we can see our return rates and profits are trending positively. Peak returns were in 2019; however, our 2nd highest peak was 2021. We should definitely take a proactive approach to improve our shipping.



## Conclusion: Ship Mode Returns Dashboard

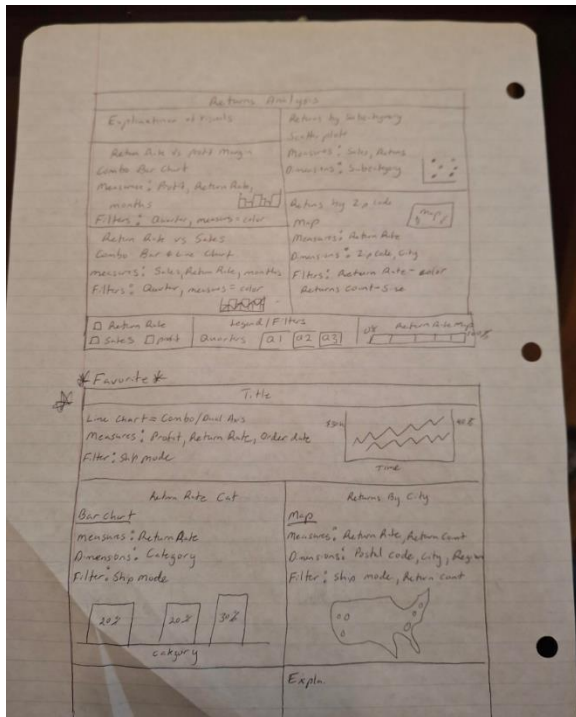


Similar to our last dashboard, we have return rates and profit displayed at the top. In the Center left, we show return rates by product category. On the center right, we show geographic return rates. Each chart can be filtered by ship mode in the lower left corner.

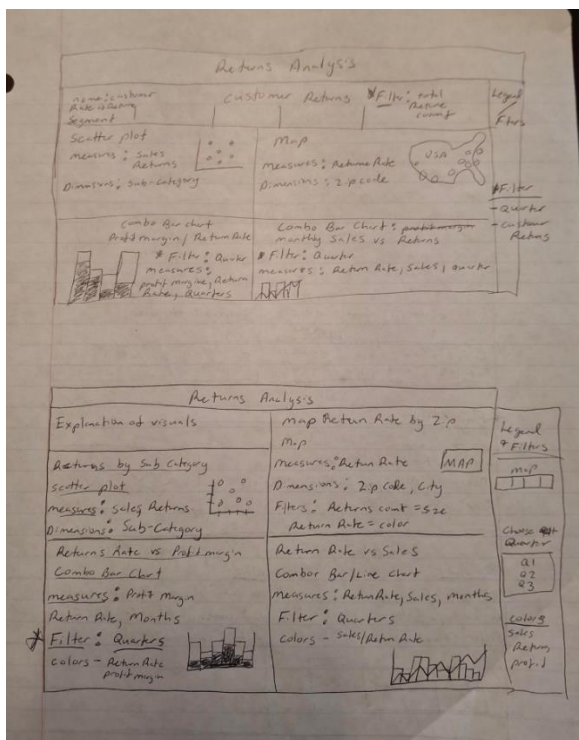
## Recommendations & Limitations

- 1) Customer Return Policy: We have not knowledge regarding the company customer return policy. Most return policies have set number of days that a customer abide by in order to receive credit or exchange.
- 2) Carrier Shipping Data: This analysis does not contain specific carrier shipping data. We assume shipping is performed via a third party (UPS, FedEx, USPS, etc.). Without this information, we are limited on methods to improve shipping.
- 3) Superstore should start collecting data on Reason for Returns. This would allow for further investigation into trends in product quality, shipping damages, and product description discrepancies, etc.
- 4) We should begin capturing data regarding reason for return to investigate if material is being damaged and returned because of the shipment mode. Our analysis has a general assumption that products are being damaged via shipping and thus returned. Products could also be misdelivered or lost in-transit, thus generating a return.
- 5) We should invest in improving our in-house packaging methods to mitigate damages if necessary.
- 6) We should invest in alternate third-party shipping parties to improve shipping quality if necessary.

## Dashboard Mock Ups



Bottom one marked favorite, used



## Captions Only Story

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Story Layout

New story point

Blank Duplicate

- GEO Return Reion KPI
- Geo Return Rate National
- Geo Return Rate California
- Geo Returns Dashboard
- Geo Returns California
- Returns By Quarter (Seasonal Trends)
- Returns By Month (Seasonal Trends)
- Returns By Profit Month (Seasonal ...
- Seasonal Sales
- Sales Return Rate
- Ship Mode Return Rate and Profit
- Ship Mode Returns over Time
- Ship Mode Orders Over Time
- Ship Mode Sales Over Time
- Ship Mode Dashboard
- Returns KPI
- Overall Returns Dashboard

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Size

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### Return Analysis Story

Executive Summary: Macro View of KPIs	Is there a seasonal trend to our returns?	Seasonal Trends Sales analysis for Q1 & Q4	Product Returns 2018: Low returns and Strong Sales	Products Returns 2021: Performance decreased	Geography Returns 2018	Geography Returns 2021	Geography Dashboard California: Ship Mode	Ship Mode Return Rates	Ship Mode Dashboard Same Day: Worst Performing	Ship Mode Dashboard Second Class Best Performing	Conclusion: Ship Mode Returns Dashboard
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Data Source | Ship Mode Returns over Time | Ship Mode Orders Over Time | Ship Mode Sales Over Time | Ship Mode Dashboard | Returns KPI | Overall Returns Dashboard | Container Presentation | Container Presentation (2) | Captions Story | Returns Story | Show Me

## Container only Presentation

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Dashboard Layout

Device Preview

Size

Automatic

Sheets

- Returns by Sub-Category and Sales
- Returns by Sub-Category and Profit
- Worst Returns Filter
- Worst Returns No Filter
- Least Returns Filter
- Least Returns No Filter
- Return Rate by Category
- Horiz. Return Rate By Customer (2)
- Ship Mode Returns
- GEO Return Reion KPI
- Geo Return Rate National
- Geo Return Rate California
- Returns By Quarter (Seasonal Trends)
- Returns By Month (Seasonal Trends)
- Returns By Profit Month (Seasonal ...
- Ship Mode Return Rate and Profit

Objects

- Horizontal Container
- Vertical Container
- A Text
- Extension
- Pulse Metric

Tied Floating

Show dashboard title

Drop sheets here

Data Source | Return Rate and Profit | Ship Mode Returns over Time | Ship Mode Orders Over Time | Ship Mode Sales Over Time | Ship Mode Dashboard | Returns KPI | Overall Returns Dashboard | Container Presentation | Container Presentation (2) | Captions Story | Show Me