

# Industrial Insights Accelerator - Retail Domain



Lot of time required to perform data analysis & build the predictive data models

Delays in time to market

Collaborating and sharing the reports with-in teams

Siloed Reporting Infrastructure  
(Excel, SSRS, Power BI, etc.,)

No Standardized Reports / KPIs

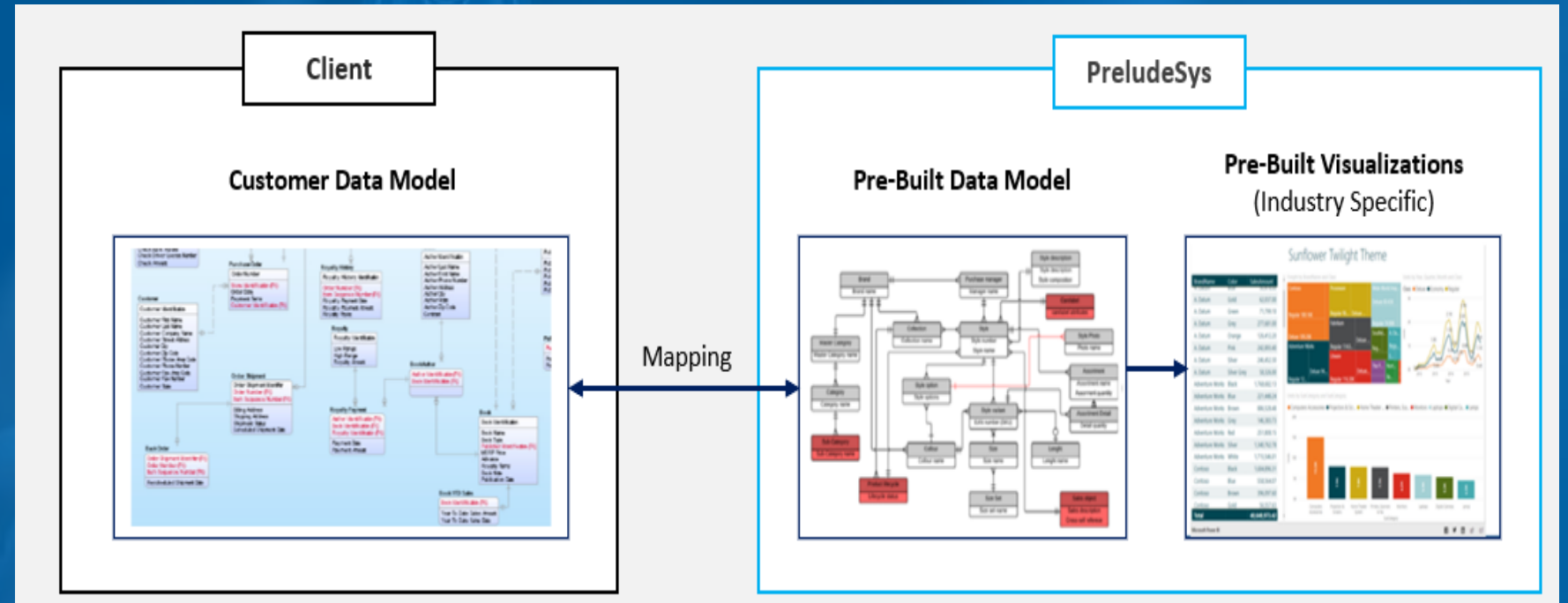
Real-time data synchronization

Manual report execution, which might lead to some data errors.

# Business Pain Points / Challenges



# Industrial Insights Accelerator



## Highlights:

- ✓ Pre-Built Data Model & Visualizations were developed in reference to extensive research and analysis through retail experts.
- ✓ Quick to plug-in the Customer Data Model with Pre-Built Data Model through mapping key dimensions and measures (metrics) using Power BI Dataflows.
- ✓ Equipped to enhance data model to address customer specific reporting demands.
- ✓ Inbuilt Predictive analytics with proven data science model & algorithms like ARIMA / SARIMA, Linear Regression

- ✓ Centralized with standard reporting structure for all the retail sub-functions (Sales, Products, Shipping, Returns, Inventory, Forecast, Customer 360° view), with a functional coverage of **45-60%\***
- ✓ Quick to switch from Excel usage to Power BI
- ✓ Swift approach to go-to-market, for new Power BI Users
- ✓ Extensive Collaborating and sharing features of Power BI
- ✓ Highly improved performance (in comparison with Excel & SSRS)
- ✓ Predictive visualizations with python based proven analytical data model
- ✓ Near Real-time data synchronization

\* Functional coverage range varies based on the domain areas

## Quick Wins - Industrial Insights Accelerator (IIA)



Sales



Products



Customer 360



Inventory



Shipping



Returns



Forecast

### US & Canada Sales Summary

Summary

Sales Performance

Store Performance

Forecast

Thursday, April 14, 2022

Latest Order Date

\$2,691.68M ▲

Revenue

\$2.97M

Net Profit

\$167K

Average Transaction Value

6/7/2018

4/21/2022

\$2,880.09M

Revenue & Tax

0.11%

Net Profit Margin

\$2.23

Average of Sales Values Per Transaction

Market

All

16106

Total No Of Orders

0.11%

Gross Margin

39%

Conversion Rate

Country

All

\$188.42M

Tax

\$95M

Discount

16

Units Per Transaction

City

All

\$2.97M

Total Profit

4%

Discount %

259K

Total Products Sold

# Retail Sales - Summary

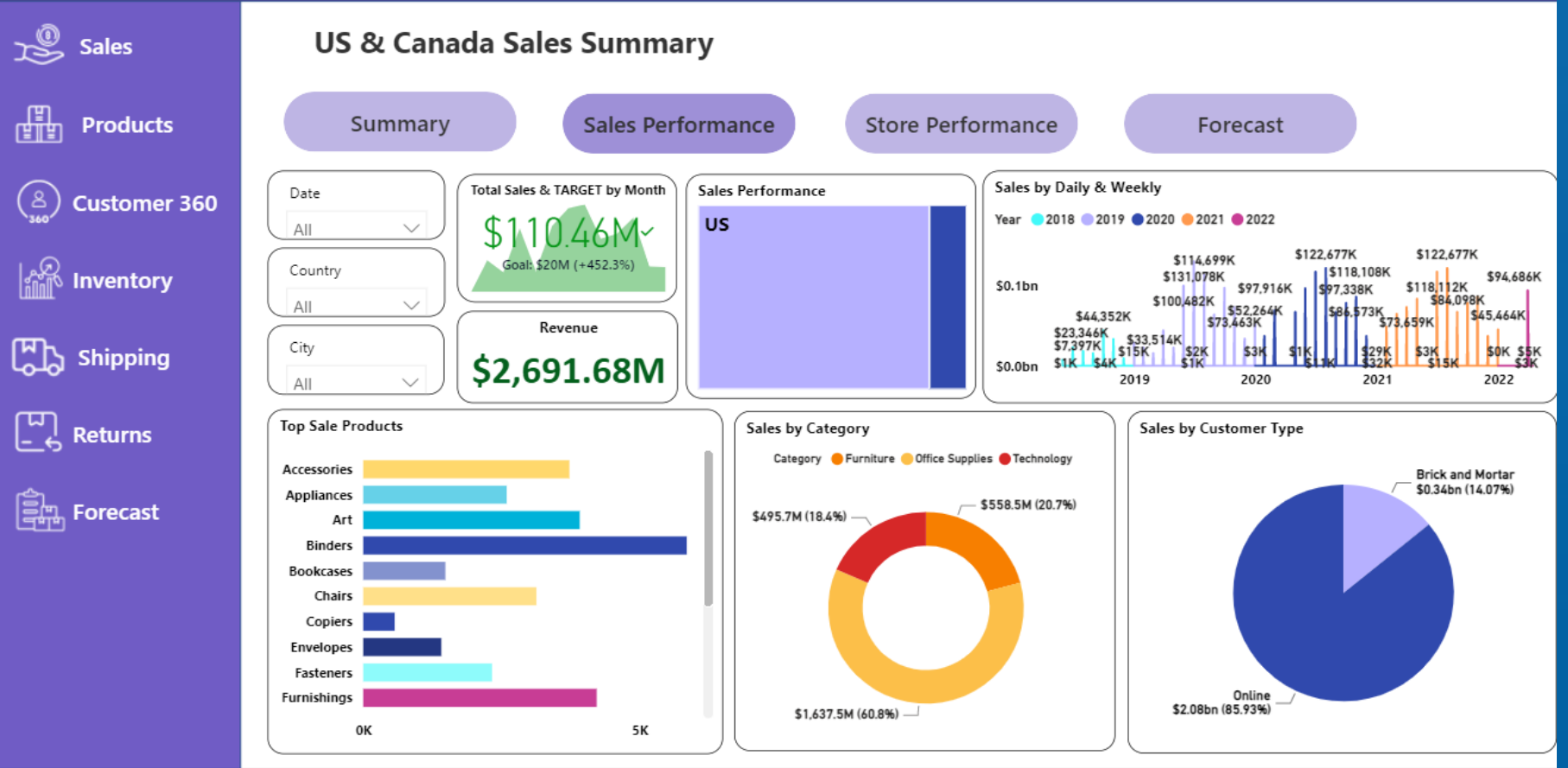
#### Key Insights:

- ✓ Basic Sales KPIs like Sales Revenue with trend direction, Total Profit, Total # of Orders, Discount % & Tax, and Total number of products sold.
- ✓ Insightful KPIs like Gross Margin, Conversion Rate, Average Transaction Value (ATV ) and Average Sales value per Transaction.
- ✓ Interactive filter selection at period, market, region level.

\* Data in reports is only for illustration purposes.



# Retail Sales - Performance



**Key Insights:**

- ✓ KPI showing Actual Sales Vs Target Sales by Month. Region wise Sales performance is also available.
- ✓ Top Sales by Products and Year wise Sales shown in Bar chart.
- ✓ Sales by Category and Customer Type are displayed in Donut and Pie chart respectively.
- ✓ Interactive filter selection at period, region level.

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Sales

Products

Customer 360

Inventory

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### US & Canada Sales Summary

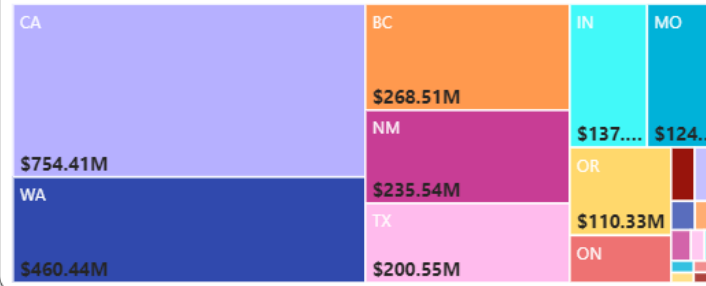
Summary

Sales Performance

Store Performance

Forecast

#### Top product sales by states



#### Sales by State



Between Thursday, May 31, 2018 and Thursday, April 14, 2022, 2021 had the largest increase in Total Sales (\$1,405.16) while 2018 had the largest decrease (\$1.00).

The most recent Total Sales anomaly was on Wednesday, March 30, 2022, when 2022 had a high of \$94,685,594.67.

Total Sales for 2022 started trending up on Saturday, March 26, 2022, rising by 236.82 % (\$7,196.30) in 7 days.

At \$754,405,797.57, CA had the highest Sales and was \$2,023.21 higher than WY, which had the lowest Sales at \$372,691.91.

CA accounted for 28.03% of Sales.

Across all 23 State, Sales ranged from \$372,691.91 to \$754,405,797.57.

#### Key Insights:

- ✓ Product Sales by States are shown in TreeMap visual.
- ✓ State wise Sales performance in Map for quick insights.
- ✓ Smart narration on Sales inference.

# Retail Sales - Store Performance

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Sales



Products



Customer 360



Inventory



Shipping



Returns



Forecast

## US & Canada Sales Summary

Summary

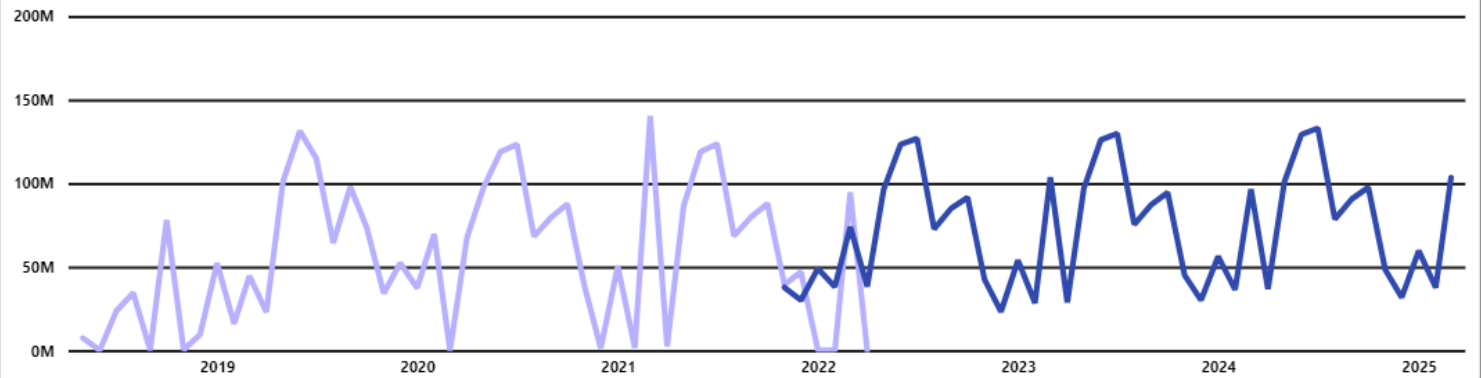
Sales Performance

Store Performance

Forecast

Sales and Forecast by Order Year

● Sales ● Forecast



Forecast trended up (174.27% increase) while Sales (99.69% decrease) trended down between Tuesday, May 1, 2018 and Saturday, March 1, 2025.

Forecast started trending up on Monday, November 1, 2021, rising by 125.16% (47,262,432.14) in 10 months.

Between Thursday, May 31, 2018 and Thursday, April 14, 2022, 2021 had the largest increase in Total Sales (140,516.35%) while 2018 had the largest decrease (99.79%).

The most recent Total Sales anomaly was on Wednesday, March 30, 2022, when 2022 had a high of \$94,685,594.67.

### Key Insights:

- ✓ Line chart showing the Actual Sales Vs Forecast Sales – by Year.
- ✓ More insights from the narration.

# Retail Sales - Forecast

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Sales

Products

Customer 360

Inventory

Shipping

Returns

Forecast

### US & Canada Products Summary

Summary

Products

Products Trend

Products Reordered

Basket analysis

5/24/2022 11:39:11 AM

Latest Refresh Date

Year

All

2167

Product Count

2,688.71M

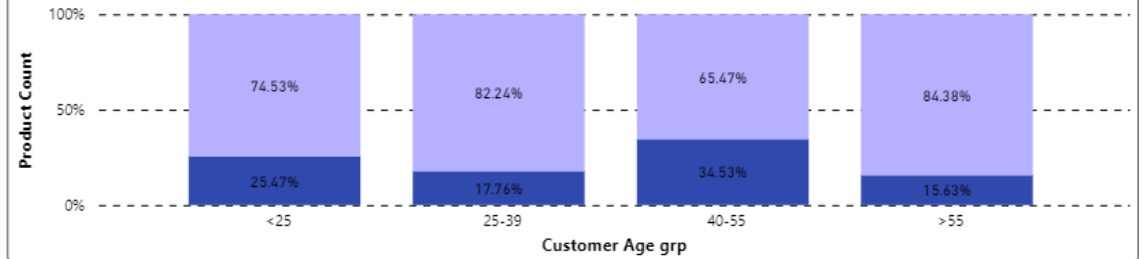
Manufacture Cost

101.39K

Coupon Count

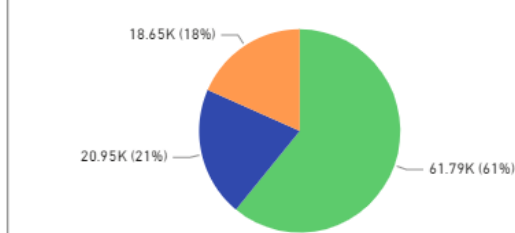
Product Count by Age and Region

Region CA US

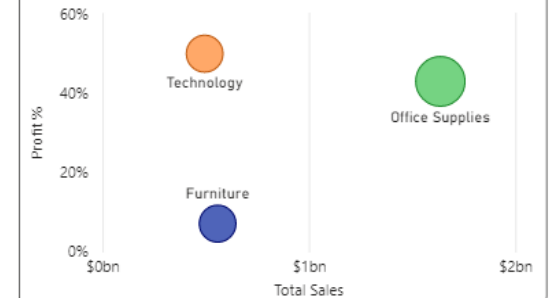


Coupon Count by Category

Category Office Supplies Furniture Technology



Total Sales, Profit and Order Count by Category



# Retail Products-Summary

#### Key Insights:

- ✓ KPIs like Total products, Manufacture Cost and total number of Coupons.
- ✓ Products bought by different Age group of people and in different region.
- ✓ Coupon count based on Product category is shown in Pie chart.
- ✓ The bubble chart shows the Total Sales, Profit and total number of orders based on Product Category.

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Sales



Products



Customer 360



Inventory



Shipping



Returns



Forecast

## US & Canada Products Summary

Summary

Products

Products Trend

Products Reordered

Basket analysis

Year

All

101.39K

Products

24K

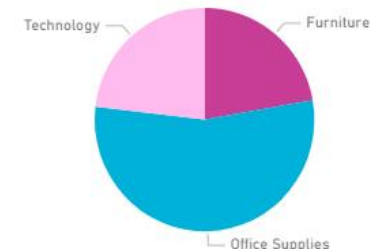
Reordered Products

### No of Products by State and Region

Region ● CA ● US



### Products Count by Category



Category	Sub Category	Product Name	Product ID	Avg Sale	Total Sales
Furniture	Chairs	Novimex Steel Folding Chair, Set of Two	FUR-CH-5409	8,104.12	\$81,041.19
Office Supplies	Binders	Acco Binder, Clear	OFF-BI-2895	8,595.81	\$94,553.95
Office Supplies	Binders	Acco Index Tab, Economy	OFF-BI-2919	9,175.55	\$82,579.91
Office Supplies	Storage	Fellowes Box, Wire Frame	OFF-ST-4253	9,365.45	\$84,289.08
Office Supplies	Storage	Eldon Box, Blue	OFF-ST-4028	9,379.61	\$103,175.75
Technology	Accessories	SanDisk Cruzer 8 GB USB Flash Drive	TEC-AC-5859	9,688.85	\$106,577.30
Office Supplies	Supplies	Kleencut Shears, Easy Grip	OFF-SU-4989	9,939.69	\$99,396.89
Office Supplies	Appliances	Hoover Microwave, Black	OFF-AP-4730	10,071.47	\$110,786.21
<b>Total</b>				<b>26,547.50</b>	<b>\$2,691,677,425.13</b>

### Key Insights:

- ✓ KPIs like total number of products and the number of re-ordered products.
- ✓ Products by State and Region in Map for quick insights. Products by Product Category in Pie chart.
- ✓ Detailed Product information in Tabular format.

# Retail-Products

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Sales



Products



Customer 360



Inventory



Shipping



Returns



Forecast

### US & Canada Products Summary

Summary

Products

Products Trend

Products Reordered

Basket analysis

Year

All

Month

All

Day

All

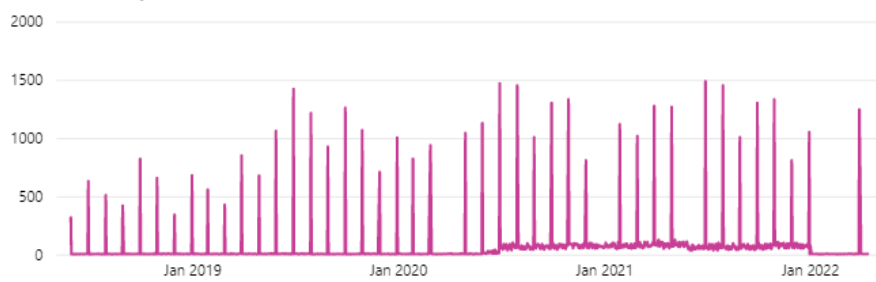
Category

All

Sub Category

All

Product Count by Year



Order Count by Sub Category



Sub Category	December 2021	January 2022	February 2022	March 2022	April 2022	May 2022	Total
Tables	-36.57%	-99.79%	-99.87%	141.40%	-82.88%	-100.00%	-43.83%
Supplies	-68.61%	-99.91%	-100.00%	172.25%	63.94%	-100.00%	-56.98%
Storage	-49.66%	-99.88%	-99.97%	116.61%	-89.33%	-100.00%	-49.75%
Phones	-38.56%	-99.95%	-99.91%	97.58%	-100.00%	-100.00%	-41.36%
Paper	-40.59%	-99.92%	-99.89%	99.38%	-49.19%	-100.00%	-45.30%
<b>Total</b>	<b>-41.08%</b>	<b>-99.90%</b>	<b>-99.90%</b>	<b>101.38%</b>	<b>-74.35%</b>	<b>-100.00%</b>	<b>-44.20%</b>

**Key Insights:**

- ✓ Number of Products by Year and Month.
- ✓ Order Count by various Sub-Categories shown in Tree Map chart.
- ✓ Last 6 months Product Sales in percentage shown in Tabular format.

# Retail – Product Trend

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Sales



Products



Customer 360



Inventory



Shipping



Returns



Forecast

## US & Canada Products Summary

Summary

Products

Products Trend

Products Reordered

Basket analysis

Year

All

Month

All

Day

All

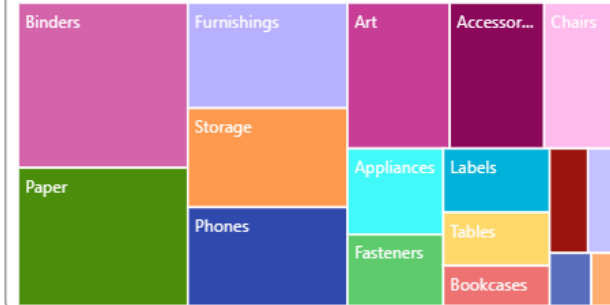
Category

All

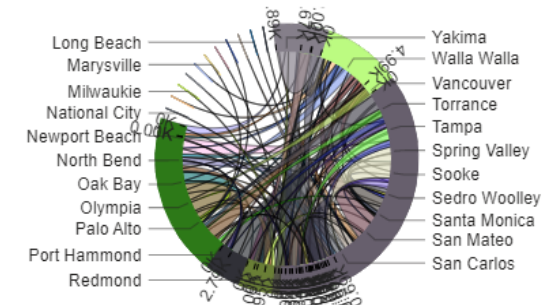
Sub Category

All

Reordered Product by Sub Category



Returned Orders by Hub point and City



Product Count trended down, resulting in a 30.59% decrease between 2018 and 2022.

Product Count started trending up on 2018, rising by 17.52% (323) in 3 years. Product Count jumped from 1844 to 2167 during its steepest incline between 2018 and 2021.

### Key Insights:

- ✓ Reordered products by Sub-Category in Tree Map chart.
- ✓ Returned orders by Hub point and City in Chord Chart.
- ✓ Detailed Insights on reordered and return products is available.

# Retail – Products Reordered



Sales



Products



Customer 360



Inventory



Shipping



Returns



Forecast

### US & Canada Products Summary

Summary

Products

Products Trend

Products Reordered

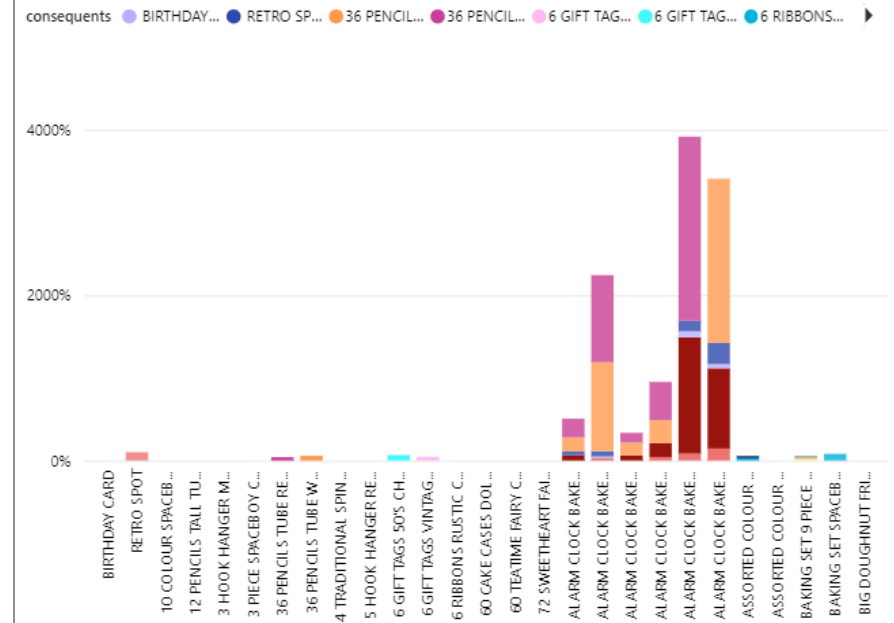
Basket analysis

Select The Product

All

Antecedents	Consequents
BIRTHDAY CARD	ELEPHANT
RETRO SPOT	BIRTHDAY CARD
10 COLOUR SPACEBOY PEN	PLASTERS IN TIN SPACEBOY
10 COLOUR SPACEBOY PEN	ROUND SNACK BOXES SET OI
10 COLOUR SPACEBOY PEN	SPACEBOY BIRTHDAY CARD
10 COLOUR SPACEBOY PEN	SPACEBOY LUNCH BOX
12 PENCILS TALL TUBE WOODLAND	ROUND SNACK BOXES SET OI
3 HOOK HANGER MAGIC GARDEN	ROUND SNACK BOXES SET OI
3 HOOK HANGER MAGIC GARDEN	ROUND SNACK BOXES SET OI
3 PIECE SPACEBOY COOKIE CUTTER SET	PLASTERS IN TIN CIRCUS PAR
3 PIECE SPACEBOY COOKIE CUTTER SET	PLASTERS IN TIN SPACEBOY
3 PIECE SPACEBOY COOKIE CUTTER SET	PLASTERS IN TIN WOODLANI
3 PIECE SPACEBOY COOKIE CUTTER SET	REGENCY CAKESTAND 3 TIER
3 PIECE SPACEBOY COOKIE CUTTER SET	ROUND SNACK BOXES SET OI
3 PIECE SPACEBOY COOKIE CUTTER SET	ROUND SNACK BOXES SET OI
3 PIECE SPACEBOY COOKIE CUTTER SET	SPACEBOY LUNCH BOX
36 PENCILS TUBE RED RETROSPOT	36 PENCILS TUBE WOODLANI
36 PENCILS TUBE RED RETROSPOT	ROUND SNACK BOXES SET OI
36 PENCILS TUBE RED RETROSPOT	ROUND SNACK BOXES SET OI
36 PENCILS TUBE WOODLAND	36 PENCILS TUBE RED RETRO
36 PENCILS TUBE WOODLAND	ROUND SNACK BOXES SET OI
4 TRADITIONAL SPINNING TOPS	MINI PAINT SET VINTAGE
4 TRADITIONAL SPINNING TOPS	PLASTERS IN TIN CIRCUS PAR

Confidence by Antecedents and Consequents



# Retail-Products Basket Analysis

#### Key Insights:

- ✓ Basket Analysis provides information on which products are bought together
- ✓ They are represented as Antecedents and Consequents. The chart shows the confidence level that the products(antecedents and consequents) are purchased together.

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Sales



Products



Customer 360



Inventory



Shipping



Returns



Forecast

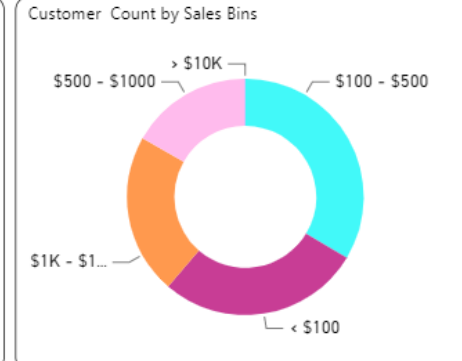
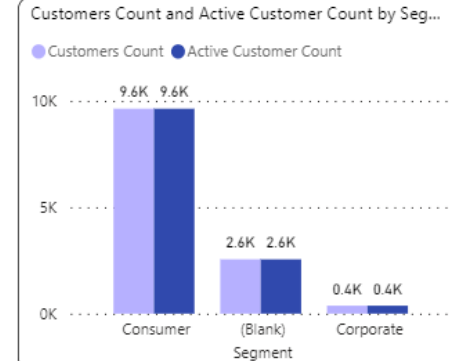
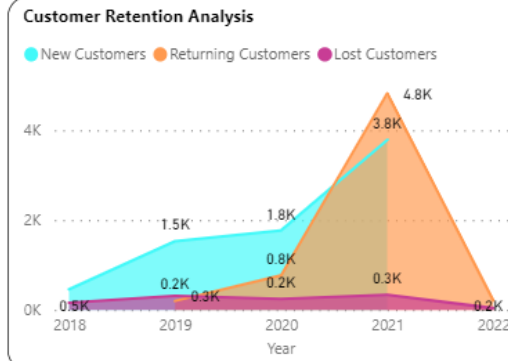
### US & Canada Customer 360 View

Summary

Customer Profiling (RFM Analysis)

Demographics

Market All	Year All	<b>88%</b> Customer Retention Rate	<b>\$2.24M</b> Customer lifetime Value	<b>12%</b> Churn Rate %	<b>\$154.56K</b> Avg Revenue per Customer
Category All	Sub Category All	<b>2937</b> Recurring Customers	<b>9895</b> Customers Count	<b>9895</b> Active Customer Count	<b>\$26.55K</b> Sale with Customer



# Retail- Customer 360 View Summary

**Key Insights:**

- ✓ Trending Customer KPIs like Customer Retention rate, Customer Lifetime Value, Churn rate and Average revenue per customer.
- ✓ KPIs like Recurring customer and Total customers, Active customers and Sale with Customer.
- ✓ Customer Retention Analysis based on the number of New, Recurring and Lost Customers over a period of time in Area chart.
- ✓ Customer count and average customer count by Segment.
- ✓ Ratio of Customers in different Sales bins represented in Pie chart.

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Sales

Products

Customer 360

Inventory

Shipping

Returns

Forecast

### US & Canada Customer 360 View

Summary

Customer Profiling (RFM Analysis)

Demographics

Search Customer:

All

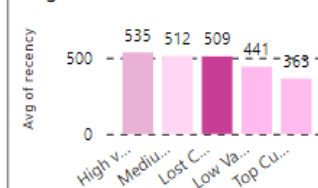
Customer seg...  
All

Year  
All

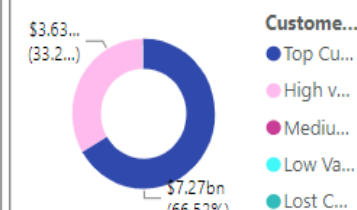
Country  
All

Customer Name	Recency	Frequency	Monetary	Sal...
A. Leonetti	\$4,785,663	101391	\$10,931,042,657.470001	
Aaron Adams	\$4,785,663	101391	\$10,931,042,657.470001	
Aaron Alexander	\$4,785,663	101391	\$10,931,042,657.470001	
Aaron Allen	\$4,785,663	101391	\$10,931,042,657.470001	
Aaron Baker	\$4,785,663	101391	\$10,931,042,657.470001	
Aaron Bryant	\$4,785,663	101391	\$10,931,042,657.470001	
Aaron Butler	\$4,785,663	101391	\$10,931,042,657.470001	
Aaron Campbell	\$4,785,663	101391	\$10,931,042,657.470001	
Aaron Carter	\$4,785,663	101391	\$10,931,042,657.470001	
Aaron Chen	\$4,785,663	101391	\$10,931,042,657.470001	
Aaron Coleman	\$4,785,663	101391	\$10,931,042,657.470001	
Aaron Collins	\$4,785,663	101391	\$10,931,042,657.470001	
Aaron Con	\$4,785,663	101391	\$10,931,042,657.470001	
Aaron Edwards	\$4,785,663	101391	\$10,931,042,657.470001	
Aaron Evans	\$4,785,663	101391	\$10,931,042,657.470001	
<b>Total</b>	<b>\$4,785,663</b>	<b>101391</b>	<b>\$10,931,042,657.470001</b>	<b>\$2,...</b>

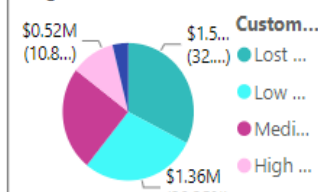
Avg of recency by Customer segment



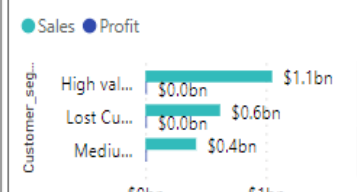
Monetary by Customer segment



Recency by Customer segment



Sales and Profit by Customer segment



**Key Insights:**

- ✓ Customer Segmentation using RFM score (Recency, Frequency & Monetary).

# Retail – Customer 360 Customer Profiling

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Sales

Products

Customer 360

Inventory

Shipping

Returns

Forecast

### US & Canada Customer 360 View

Summary

Customer Profiling (RFM Analysis)

Demographics

16K

Total No Of Orders

At \$1,785,669.06, <25 had the highest Profit and was 17,753.24% higher than >55, which had the lowest Profit at \$10,001.93.

Profit and total Sales are positively correlated with each other.

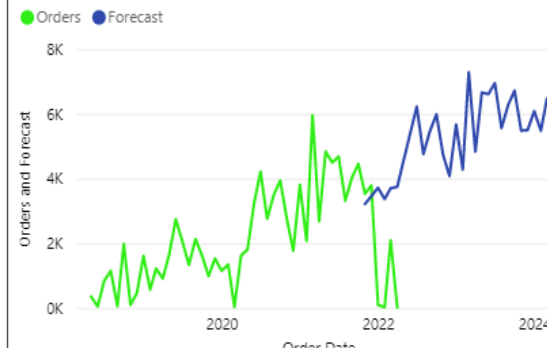
<25 accounted for 60.13% of Profit.

Sales and Profit diverged the most when the Age was <25, when Sales were

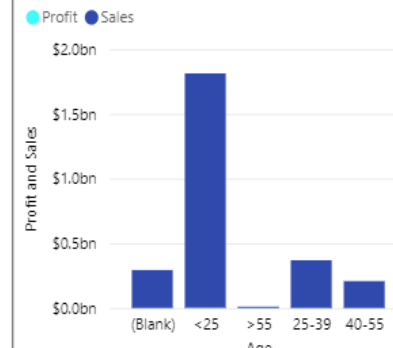
Category

All

Orders and Forecast by Order Year

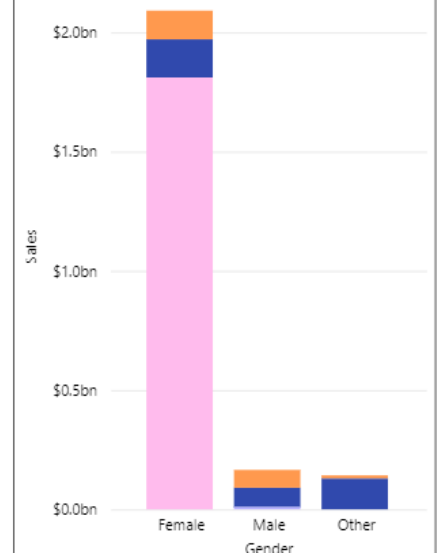


Profit and Sales by Age



Sales by Gender and Age

Age <25 >55 25-39 40-55



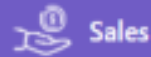
# Retail – Customer 360 Demographics

**Key Insights:**

- ✓ Insights on Sales by Customer Demographics like Age, gender.

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Sales



Products



Customer 360



Inventory



Shipping



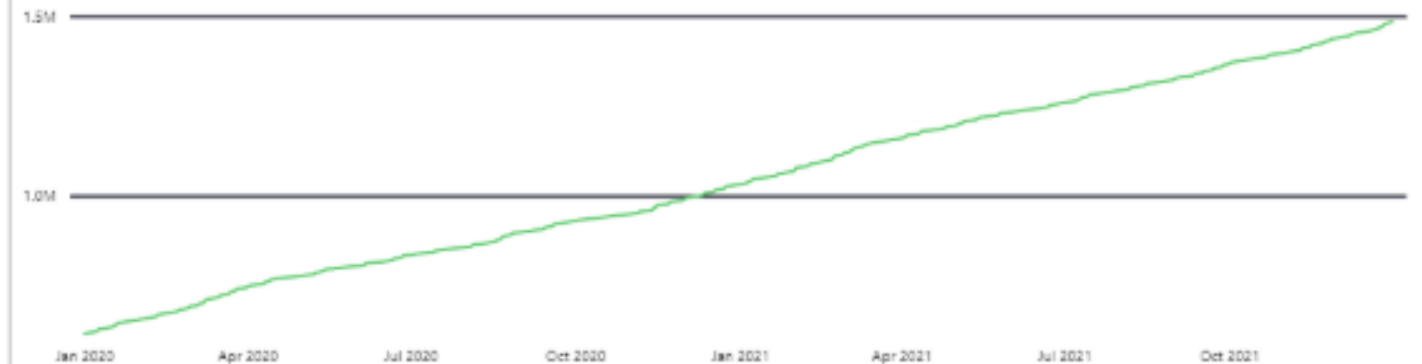
Returns



Forecast

## US & Canada Inventory

Inventory by Date



Category	Sub Category	Product ID	Product Name
Office Supplies	Binders	OFF-BI-6634	Zipper Ring Binder Pockets
Technology	Machines	TEC-MA-6633	Zebra ZM400 Thermal Label Printer
Office Supplies	Art	OFF-AR-6632	Zebra Zazzle Fluorescent Highlighters
Technology	Machines	TEC-MA-6631	Zebra GX420t Direct Thermal/Thermal Transfer Printer
Technology	Machines	TEC-MA-6630	Zebra GK420t Direct Thermal/Thermal Transfer Printer
Office Supplies	Binders	OFF-BI-6629	XtraLife ClearVue Slant-D Ring Binders by Cardinal
<b>Total</b>			

Inventory trended up, resulting in a 38.99% increase between January 2018 and December 2018.

Inventory started trending up on May 2018, rising by 20.42% (251514) in 7 months.

Inventory jumped from

# Retail – Inventory

### Key Insights:

- ✓ Inventory by date shows current state of stock at warehouse (includes return order products).
- ✓ Detailed Product list at warehouse

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Sales

Products

Customer 360

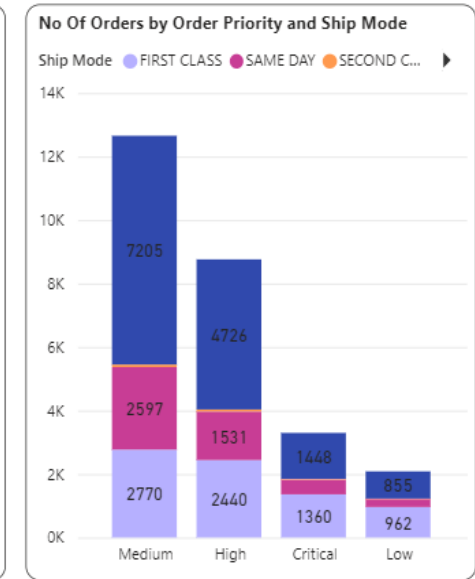
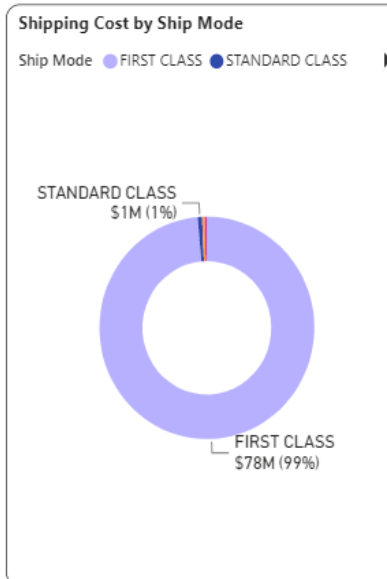
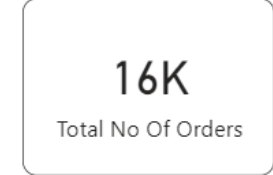
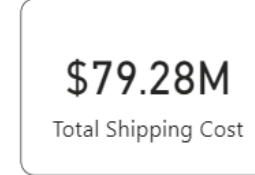
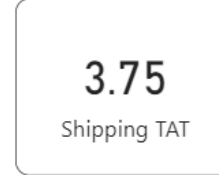
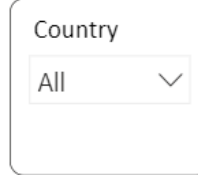
Inventory

Shipping

Returns

Forecast

### US & Canada Shipping Summary



# Retail – Shipping

#### Key Insights:

- ✓ KPIs like TAT, Shipping Cost & No. of Orders
- ✓ Cost incurred in shipping cost as per delivery class.
- ✓ Shipping preferences opted and its turn around time.

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Sales

Products

Customer 360

Inventory

Shipping

Returns

Forecast

### US & Canada Returns Summary

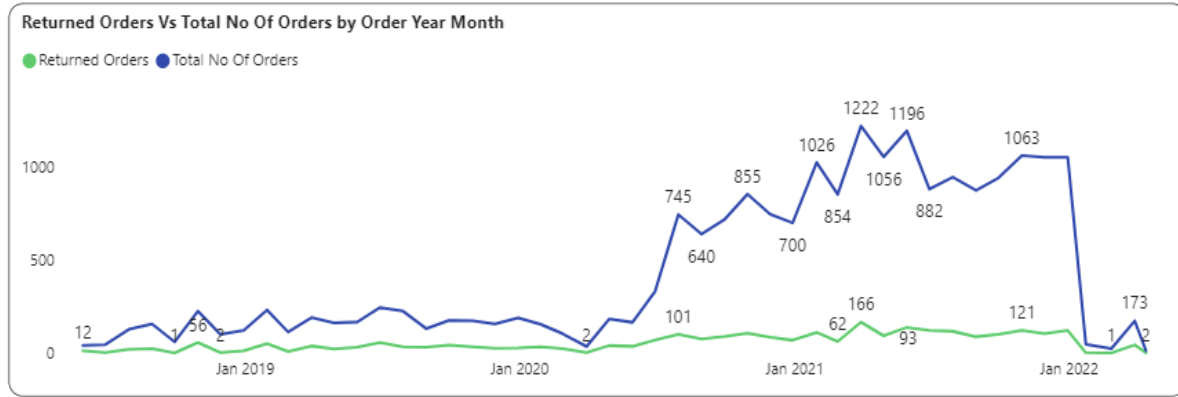
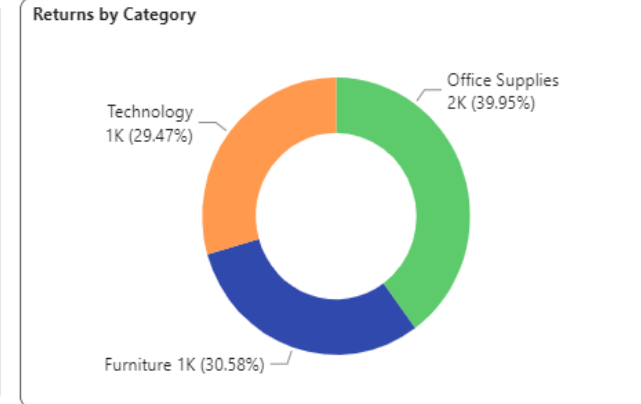
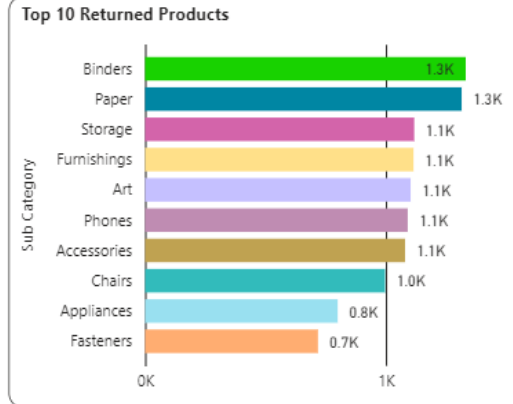
Order Year  
All

41.51K  
Total No of Returns

550  
Returned Products

3069  
Returned Quantity

\$80,135.03K  
Total Returned Sales



**Key Insights:**

- ✓ KPIs like returned # of products, Return sales & profit achieved through reordered (no defect product)
- ✓ Top 10 return goods displayed to take required actions with in-house suppliers.
- ✓ Return orders trend shown by month

# Retail – Returns

\* Data in reports is only for illustration purposes.

# Retail Profit Forecast



## Industrial Insights Accelerator - Retail Domain

 Sales

 Products

 Customer 360

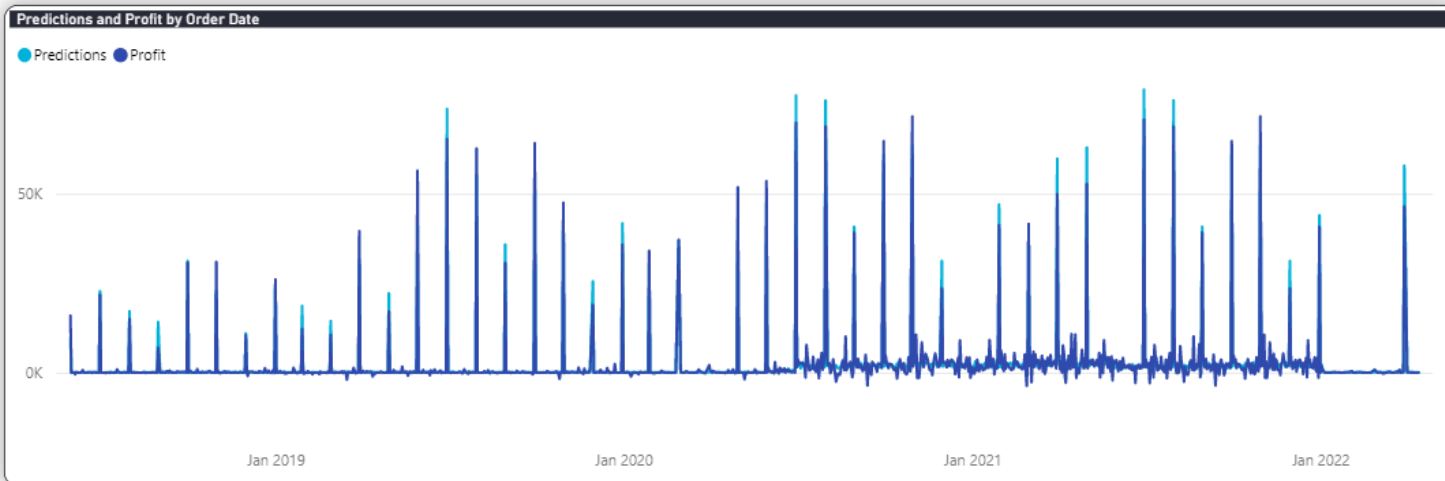
 Inventory

 Shipping

 Returns

 Forecast

### US & Canada Forecast



Profit (99.94% decrease) and Predictions (98.76% decrease) both trended down between Thursday, May 31, 2018 and Thursday, April 14, 2022.

#### Key Insights:

- ✓ Profit Prediction by Year and Month (with 79.01 % of model accuracy match & Mean Absolute Error MAE – ~30.)

\* Data in reports is only for illustration purposes.

**Thank you !**