Customer Satisfaction WBR Documentation

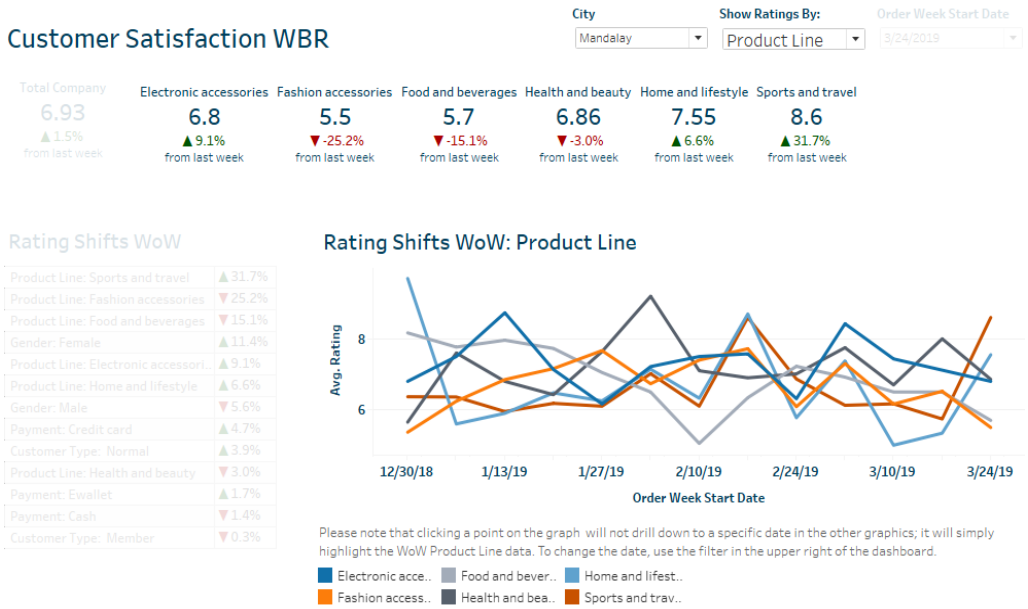
After basic exploratory analysis of the provided data, I decided to build out a Customer Satisfaction WBR, using the field [Rating]. I built out a high-level dashboard that can be used as a jumping-off point for deeper analyses and to identify weekly data trends.

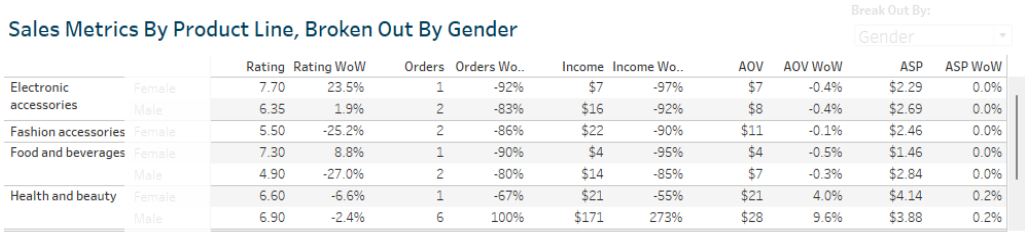
I've documented my work in 3 sections:

1. Filter Interactions, which can be used by end-users or by technical users to determine the relationships between filters and sheets on the dashboard
2. User Walkthroughs, which is split into two personas and shows how a branch manager and a buyer might use this dashboard
3. Dataset Definitions, which defines the datasets and their relationships, documents parameters, and includes definitions and calculations for every field included in this workbook.

Filter Interactions

The **City** filter and the dynamic parameter filter **Show Ratings By:** affect the following sheets on the dashboard:

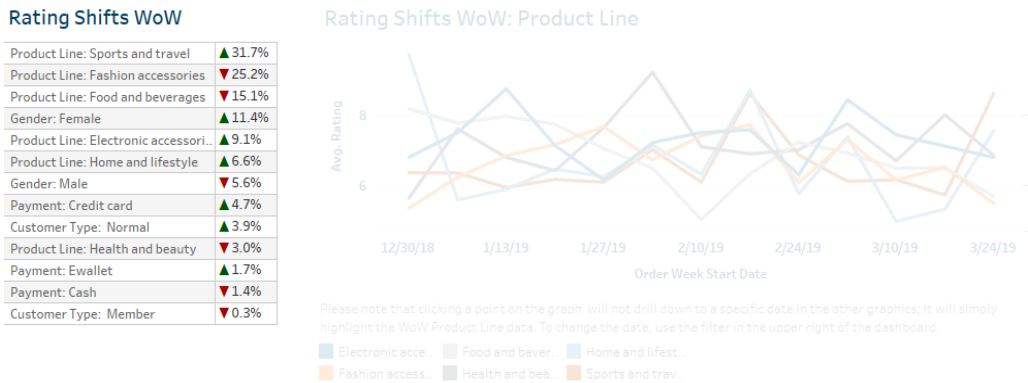


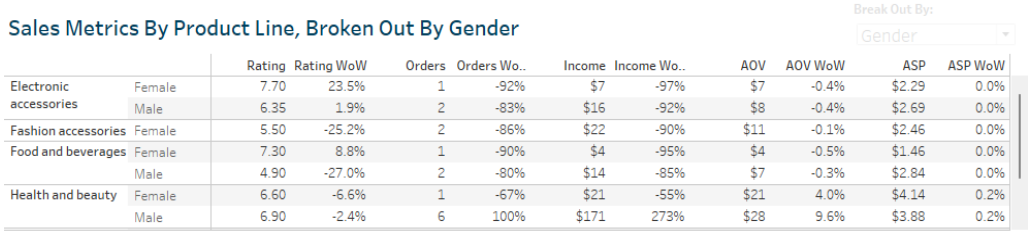


		Rating	Rating WoW	Orders	Orders Wo..	Income	Income Wo..	AOV	AOV WoW	ASP	ASP WoW
Electronic accessories	Female	7.70	23.5%	1	-92%	$7	-97%	$7	-0.4%	$2.29	0.0%
	Male	6.35	1.9%	2	-83%	$16	-92%	$8	-0.4%	$2.69	0.0%
Fashion accessories	Female	5.50	-25.2%	2	-86%	$22	-90%	$11	-0.1%	$2.46	0.0%
Food and beverages	Female	7.30	8.8%	1	-90%	$4	-95%	$4	-0.5%	$1.46	0.0%
	Male	4.90	-27.0%	2	-80%	$14	-85%	$7	-0.3%	$2.84	0.0%
Health and beauty	Female	6.60	-6.6%	1	-67%	$21	-55%	$21	4.0%	$4.14	0.2%
	Male	6.90	-2.4%	6	100%	$171	273%	$28	9.6%	$3.88	0.2%

AOV = Average Order Value (Income/Orders); ASP = Average Sale Price (Income/Units)

The **Order Week Start Date** filter affects the following sheets on the dashboard:

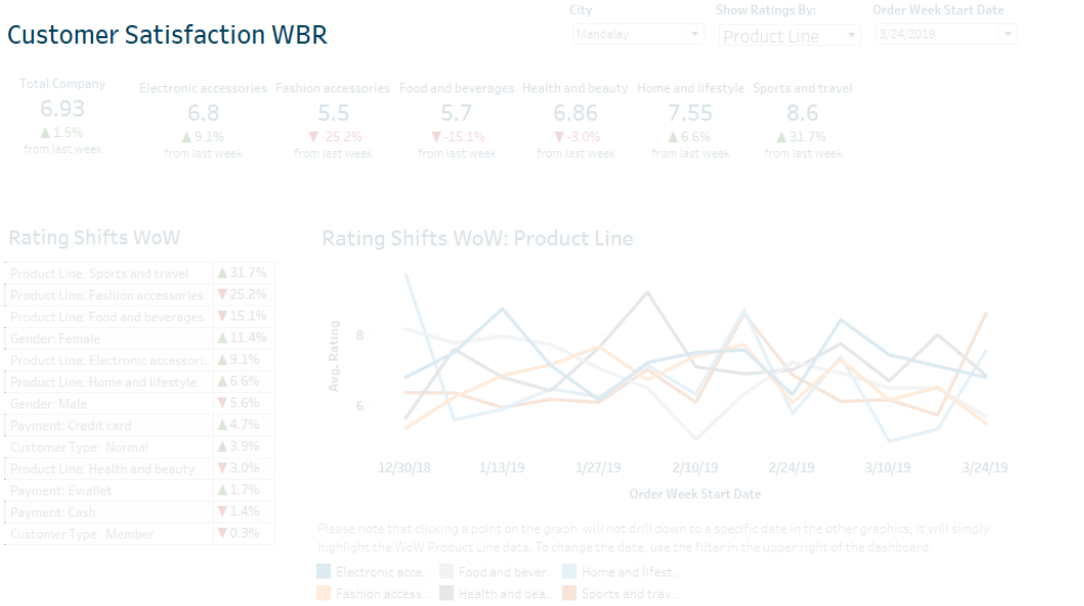




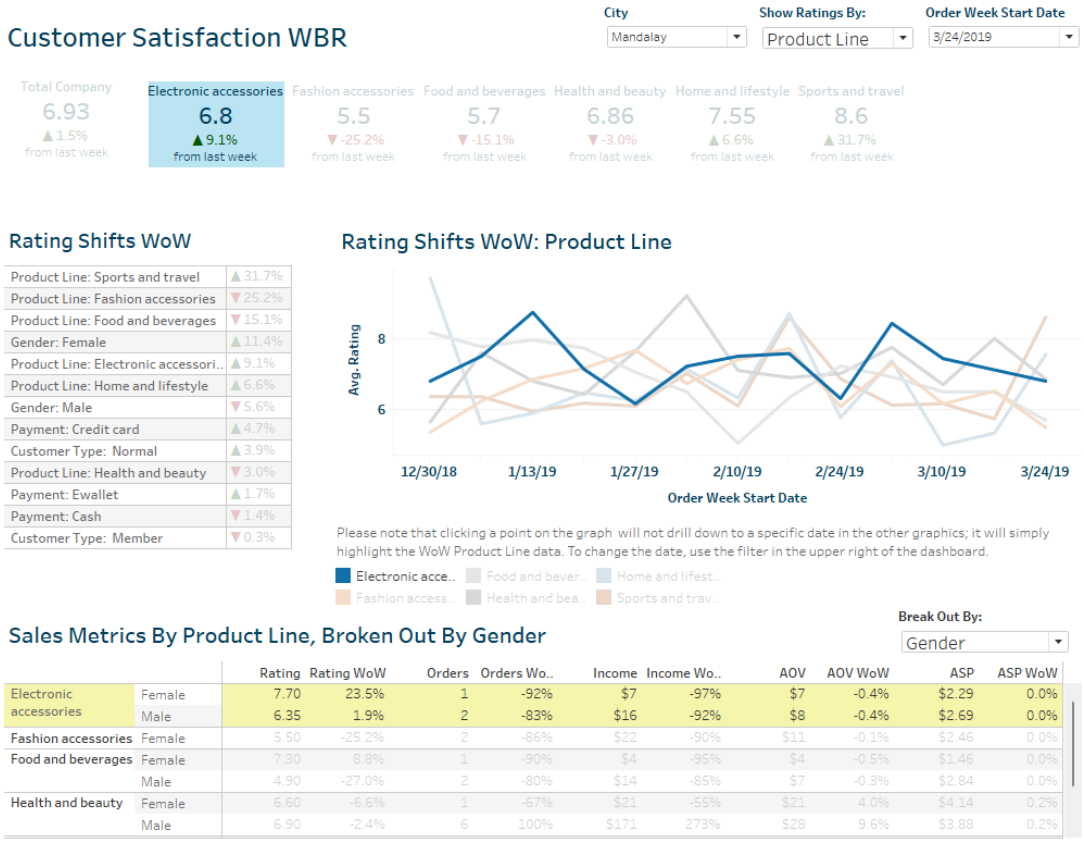
		Rating	Rating WoW	Orders	Orders Wo..	Income	Income Wo..	AOV	AOV WoW	ASP	ASP WoW
Electronic accessories	Female	7.70	23.5%	1	-92%	$7	-97%	$7	-0.4%	$2.29	0.0%
	Male	6.35	1.9%	2	-83%	$16	-92%	$8	-0.4%	$2.69	0.0%
Fashion accessories	Female	5.50	-25.2%	2	-86%	$22	-90%	$11	-0.1%	$2.46	0.0%
Food and beverages	Female	7.30	8.8%	1	-90%	$4	-95%	$4	-0.5%	$1.46	0.0%
	Male	4.90	-27.0%	2	-80%	$14	-85%	$7	-0.3%	$2.84	0.0%
Health and beauty	Female	6.60	-6.6%	1	-67%	$21	-55%	$21	4.0%	$4.14	0.2%
	Male	6.90	-2.4%	6	100%	$171	273%	$28	9.6%	$3.88	0.2%

AOV = Average Order Value (Income/Orders); ASP = Average Sale Price (Income/Units)

The dynamic parameter filter **Break Out By:** affects only the second column in the Sales Metrics sheet:



Selecting any of the values populated by the dynamic parameter filter Show Ratings By: will highlight values on all sheets except Rating Shifts WoW and the Total Company tile:



User Walkthroughs

This dashboard is general enough that it could be used by multiple personas at the company. I've created walkthroughs for two of those personas: a branch manager and a product buyer.

Persona 1: Branch Manager, Mandalay

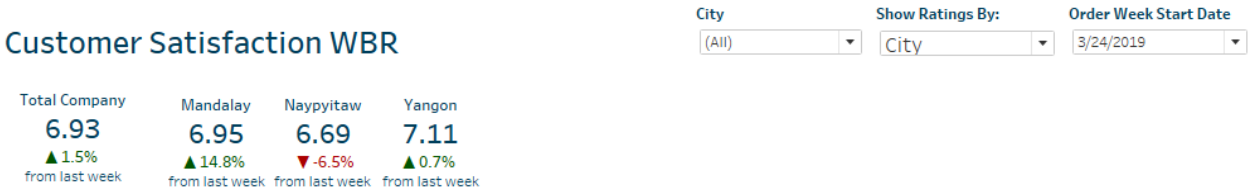
Use Case

As the manager of the Mandalay branch, I need to monitor weekly customer satisfaction trends to ensure that I am delivering the best experience to my customers. I want to be able to compare my branch to the other branches as well as to the total company. I also want to be able to drill down to specific customer behavior and order attributes within my store.

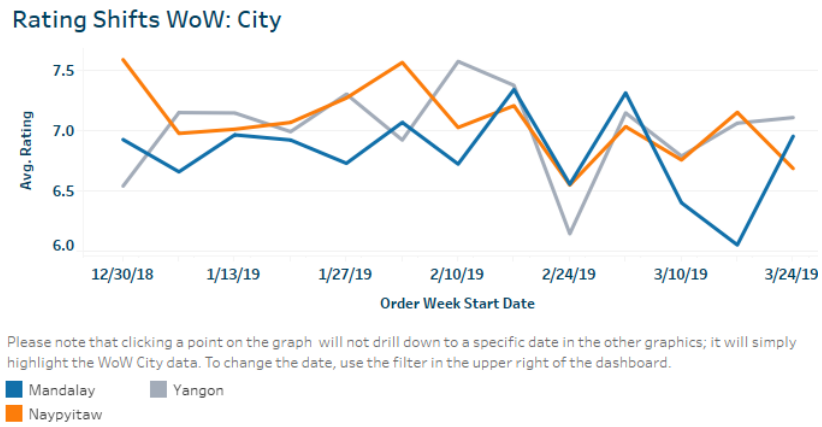
Walkthrough

First Filter Set: All Cities, Show Ratings By City, Default Order Week Start Date.

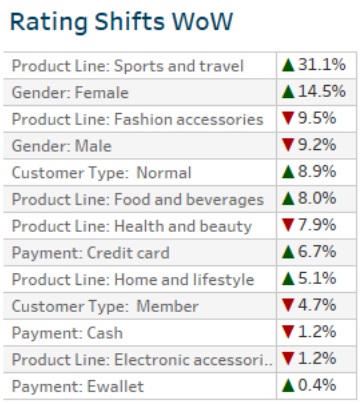
On opening the dashboard, I can see the most recent week's customer satisfaction ratings, split out by city:



I can see that my branch has had a large improvement from last week and is trending above the company average. By checking the WoW graph, I can see how my branch has been performing when compared to the other two branches:



I can also see the biggest contributors to the WoW rating shift, both positive and negative, for the entire company:



I now know how my branch is comparing to the other branches and to the total company, both this week and this year, and the biggest contributors to rating shifts across the total company.

Second Filter Set: Mandalay Only, Show Ratings By Product Line, Default Order Week Start Date.

Since the biggest contributor at the company level was a Product Line, I'm going to narrow the filters down to only my branch and see how the various Product Lines performed WoW in Mandalay:

At a glance, I can see how the customer satisfaction ratings for each Product Line at my branch shifted since last week.

I can also see that, in contrast to the total company, the three biggest contributors to WoW rating changes in my branch were all Product Lines: Sports and Travel with a large increase, and Fashion Accessories and Food and Beverages with large decreases:

Rating Shifts WoW

Product Line: Sports and travel	▲31.7%
Product Line: Fashion accessories	▼25.2%
Product Line: Food and beverages	▼15.1%
Gender: Female	▲11.4%
Product Line: Electronic accessori..	▲9.1%
Product Line: Home and lifestyle	▲6.6%
Gender: Male	▼5.6%
Payment: Credit card	▲4.7%
Customer Type: Normal	▲3.9%
Product Line: Health and beauty	▼3.0%
Payment: Ewallet	▲1.7%
Payment: Cash	▼1.4%
Customer Type: Member	▼0.3%

In the Sales Metrics table at the bottom of the dashboard, I can look at important sales metrics WoW for each of these Product Lines. I can see not only Rating, but also Transaction count, Total Income, and Income per Transaction. This allows me to quickly assess outliers or important trends. In addition, I can use the column sort to prioritize by sales metrics – a 3% rating decrease in a Product Line that brought in $192 from 7 customers is more impactful than a 25% rating decrease in a Product Line that brought in only $22 from 2 customers:

Sales Metrics By Product Line, Broken Out By Total

Break Out By: Total

	Rating	Rating WoW	Orders	Orders WoW	Income	Income WoW	AOV	AOV WoW	ASP	ASP WoW
Electronic accessories	6.80	9.1%	3	-75%	$23	-89%	$8	-0.4%	$2.56	0.0%
Fashion accessories	5.50	-25.2%	2	-86%	$22	-90%	$11	-0.1%	$2.46	0.0%
Food and beverages	5.70	-15.1%	3	-70%	$19	-80%	$6	-0.3%	$2.32	0.0%
Health and beauty	6.86	-3.0%	7	133%	$192	318%	$27	8.8%	$3.91	0.2%
Home and lifestyle	7.55	6.6%	2	-89%	$36	-87%	$18	0.0%	$2.37	0.0%
Sports and travel	8.60	31.7%	4	-71%	$45	-84%	$11	-0.2%	$3.25	0.0%

In addition to this view, I can choose a further dimension to dig deeper into the data. Since I know from the Rating Shifts chart that the 4th biggest shift WoW came from female shoppers, I can break out Product Line sales data by Gender:

Sales Metrics By Product Line, Broken Out By Gender

Break Out By: Gender

		Rating	Rating WoW	Orders	Orders Wo..	Income	Income Wo..	AOV	AOV WoW	ASP	ASP WoW
Electronic accessories	Female	7.70	23.5%	1	-92%	$7	-97%	$7	-0.4%	$2.29	0.0%
	Male	6.35	1.9%	2	-83%	$16	-92%	$8	-0.4%	$2.69	0.0%
Fashion accessories	Female	5.50	-25.2%	2	-86%	$22	-90%	$11	-0.1%	$2.46	0.0%
Food and beverages	Female	7.30	8.8%	1	-90%	$4	-95%	$4	-0.5%	$1.46	0.0%
	Male	4.90	-27.0%	2	-80%	$14	-85%	$7	-0.3%	$2.84	0.0%
Health and beauty	Female	6.60	-6.6%	1	-67%	$21	-55%	$21	4.0%	$4.14	0.2%
	Male	6.90	-2.4%	6	100%	$171	273%	$28	9.6%	$3.88	0.2%

This gives me further insight not only into where the Rating shifts came from but also into more general demographic information. For example, 6 out of the 7 Health and Beauty customers at my branch this past week were male. Perhaps we could create a marketing campaign or discounts either to continue to encourage male customers to purchase from that category or to try to attract more female customers.

In addition to Product Line and Gender, I can also break out data by Customer Type (are members or non-members rating us better?) and Payment Type (maybe we had an issue with our card reader, and all our bad ratings are coming from credit card users). All these metrics can be combined in any order, and I can add back in the other branches and compare between them if needed.

Finally, if I notice strange or potentially interesting behavior in past weeks on the graph, I can change the Order Week Start Date filter and look at all metrics from that week, compared to the week before.

Persona 2: Buyer, Sports and Travel

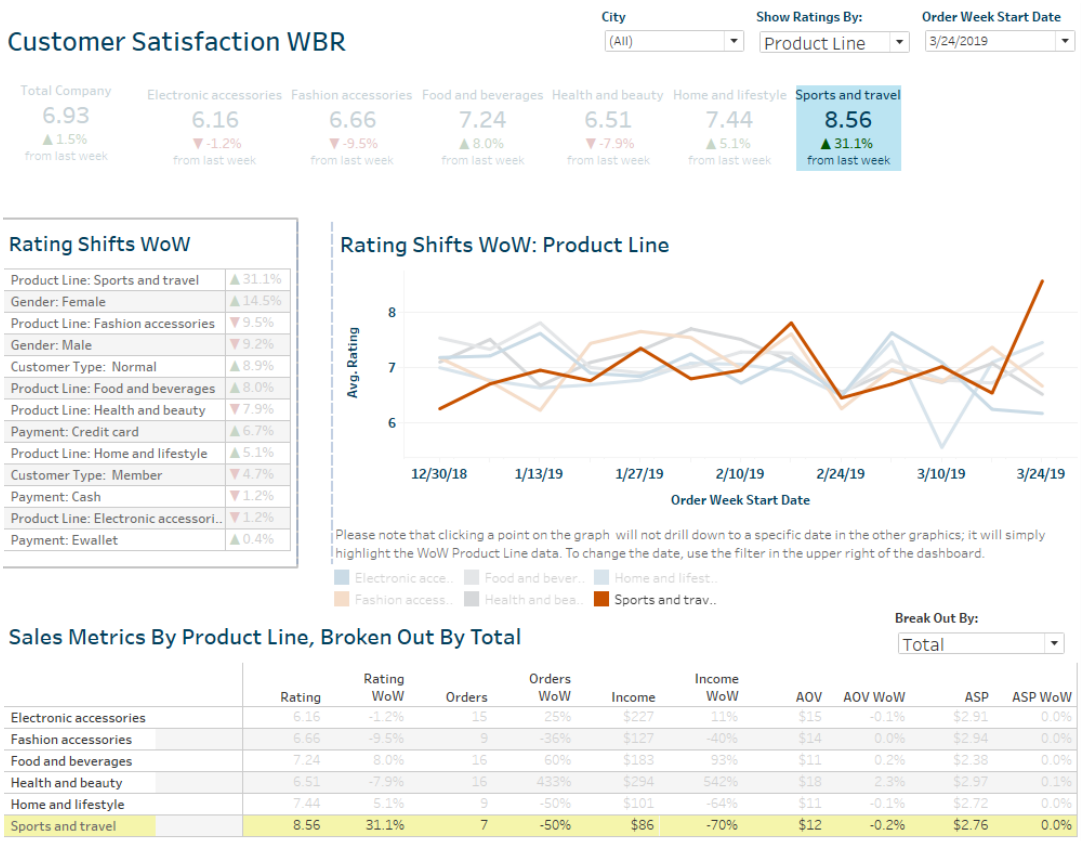
Use Case

As a buyer on the Sports and Travel team, I need to monitor weekly customer satisfaction trends to ensure that I am delivering the best experience to my customers. I want to be able to compare my Product Line to the others and to the total company. I also want to be able to see how Sports and Travel are being rated at different branches and across different customer demographics.

Walkthrough

Filter Set: All Cities, Show Ratings By Product Line, Default Order Week Start Date.

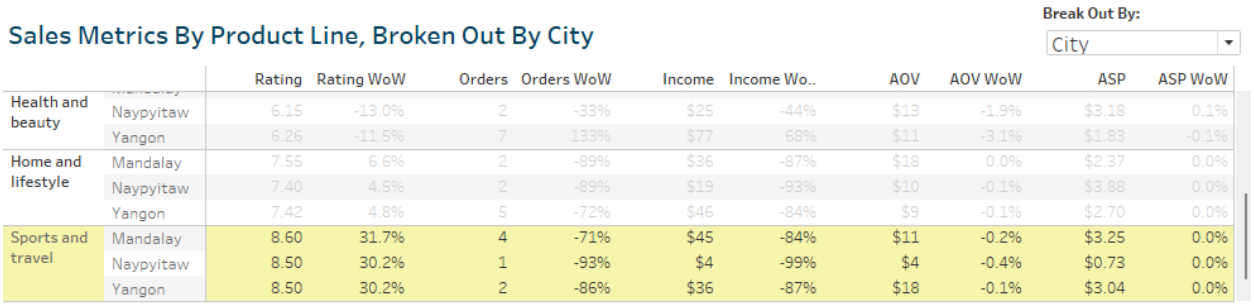
On opening the dashboard, I first click on the Sports and Travel tile at the top of the screen to highlight only the data that is relevant to my Product Line:



I can see that Sports and Travel has the highest Rating by far from this past week, above the company average and up over 30% WoW. Looking at the WoW graph, I can see that Sports and Travel had the lowest Rating at the beginning of the year but has otherwise been on-par with the other Product Lines.

When I look at the Sales Metrics table, I can see that Orders across the total company were down WoW, as was Income. AOV and ASP both remained steady WoW, so this rating spike wasn't caused by cheaper items or customers buying a different number of items.

I can add in a City breakout to make see if this shift was consistent across branches:



Sales Metrics By Product Line, Broken Out By City

Break Out By: City

		Rating	Rating WoW	Orders	Orders WoW	Income	Income Wo..	AOV	AOV WoW	ASP	ASP WoW
Health and beauty	Naypyitaw	6.15	-13.0%	2	-33%	$25	-44%	$13	-1.9%	$3.18	0.1%
	Yangon	6.26	-11.5%	7	133%	$77	68%	$11	-3.1%	$1.83	-0.1%
Home and lifestyle	Mandalay	7.55	6.6%	2	-89%	$36	-87%	$18	0.0%	$2.37	0.0%
	Naypyitaw	7.40	4.5%	2	-89%	$19	-93%	$10	-0.1%	$3.88	0.0%
	Yangon	7.42	4.8%	5	-72%	$46	-84%	$9	-0.1%	$2.70	0.0%
Sports and travel	Mandalay	8.60	31.7%	4	-71%	$45	-84%	$11	-0.2%	$3.25	0.0%
	Naypyitaw	8.50	30.2%	1	-93%	$4	-99%	$4	-0.4%	$0.73	0.0%
	Yangon	8.50	30.2%	2	-86%	$36	-87%	$18	-0.1%	$3.04	0.0%

Since it was, I can switch between the other breakout dimensions to see which demographic caused this shift. If it hadn't been, I could filter down to a single city and take a closer look at the data that way.

Just like the Branch Manager, if I notice strange or potentially interesting behavior in past weeks on the graph, I can change the Order Week Start Date filter and look at all metrics from that week, compared to the week before.

Dataset Definitions

supermarket_sales_sample_dataset

Main dataset. Contains sales information at the Transaction ID level. Used in all sheets except Contribution Table. Joined to comp_dataset_wow on Week Start Date Comp.

Field	Definition	Calculation
Choose Dimension Calc	Allows for dynamic dimension selection for most of the dashboard (City, Customer type, Gender, Payment, Product line)	CASE [Parameters].[Choose Dimension] WHEN 'City' THEN [City] WHEN 'Customer Type' THEN [Customer type] WHEN 'Gender' THEN [Gender] WHEN 'Payment Type' THEN [Payment] WHEN 'Product Line' THEN [Product line] WHEN 'Total' THEN NULL END
Choose Second Dimension Calc	Allows for dynamic dimension selection for the nested field in the Sales Metrics table (City, Customer type, Gender, Payment, Product line)	CASE [Parameters].[Choose Second Dimension] WHEN 'City' THEN [City] WHEN 'Customer Type' THEN [Customer type] WHEN 'Gender' THEN [Gender] WHEN 'Payment Type' THEN [Payment] WHEN 'Product Line' THEN [Product line] WHEN 'Total' THEN NULL END
City	City where store is located (Mandalay, Naypyitaw, Yangon)	
Customer type	Customer type of customer who made the purchase (Member, Normal)	
Date	Date of transaction	
Gender	Gender of customer (Female, Male)	
Payment	Payment type for transaction (Cash, Credit card, Ewallet)	
Product line	Product line for the transaction (Electronic accessories, Fashion accessories, Food and beverages, Health and beauty, Home and lifestyle, Sports and travel)	
Week Start Date	Start week of transaction date	DATETRUNC('week',[Date])
Week Start Date Comp	Start week of transaction date (used to join to comp_dataset_wow dataset)	DATE(DATETRUNC('day',DATEADD('day',0,[Week Start Date])))
AOV	Average order value	SUM([Gross Income])/COUNT([Orders])

AOV Comp Field	WoW comp for AOV field	((SUM([Gross Income])/COUNT([Orders]))- (SUM([comp_dataset_wow].[Gross Income])/COUNT([comp_dataset_wow].[Invoice ID]))) /SUM([comp_dataset_wow].[Gross Income])/COUNT([comp_dataset_wow].[Invoice ID])
ASP	Average sale price	SUM([Gross Income])/SUM([Quantity])
ASP Comp Field	WoW comp for ASP field	((SUM([Gross Income])/SUM([Quantity]))- (SUM([comp_dataset_wow].[Gross Income])/SUM([comp_dataset_wow].[Quantity]))) /SUM([comp_dataset_wow].[Gross Income])/SUM([comp_dataset_wow].[Quantity])
Gross Income	Income after COGS are subtracted from transaction total	
Gross Income Comp Field	WoW comp for Gross Income field	(SUM([Gross Income])-SUM([comp_dataset_wow].[Gross Income]))/SUM([comp_dataset_wow].[Gross Income])
Orders (Count(Distinct))	Order count	
Orders Comp Field	WoW comp for Orders field	(COUNT([Orders])-COUNT([comp_dataset_wow].[Invoice ID]))/COUNT([comp_dataset_wow].[Invoice ID])
Rating	Customer satisfaction rating	
Rating Comp Field	WoW comp for Rating field	(AVG([Rating])- AVG([comp_dataset_wow].[Rating]))/AVG([comp_dataset_wow].[Rating])
Rating Comp Field (Negative Arrow)	Down arrow for visualizations, based on value of Rating field	IIF(AVG([Rating]) < AVG([comp_dataset_wow].[Rating]), '▼', NULL)
Rating Comp Field (Negative Change)	Negative WoW comp for Rating field (split out like this for color-coding in visualizations)	IIF(AVG([Rating]) < AVG([comp_dataset_wow].[Rating]), (avg([Rating])- avg([comp_dataset_wow].[Rating]))/avg([comp_dataset_wow].[Rating]) , NULL)
Rating Comp Field (No Change)	No change WoW comp for Rating field (split out like this for color-coding in visualizations)	IIF(AVG([Rating]) = AVG([comp_dataset_wow].[Rating]), (avg([Rating])- avg([comp_dataset_wow].[Rating]))/avg([comp_dataset_wow].[Rating]) , NULL)
Rating Comp Field (Positive Arrow)	Up arrow for visualizations, based on value of Rating field	IIF(AVG([Rating]) > AVG([comp_dataset_wow].[Rating]), '▲', NULL)
Rating Comp Field (Positive Change)	Positive WoW comp for Rating field (split out like this for color-coding in visualizations)	IIF(AVG([Rating]) > AVG([comp_dataset_wow].[Rating]), (avg([Rating])- avg([comp_dataset_wow].[Rating]))/avg([comp_dataset_wow].[Rating]) , NULL)

comp_dataset_wow

Comp dataset for supermarket_sales_sample_dataset. Contains a calculated field Week Start Date Comp that is one week less than the Week Start Date Comp field in the main dataset. Used in all sheets except Contribution Table. Joined to supermarket_sales_sample_dataset on Week Start Date Comp.

Field	Definition	Calculation
Choose Dimension Calc	Allows for dynamic dimension selection for most of the dashboard (City, Customer type, Gender, Payment, Product line)	CASE [Parameters].[Choose Dimension] WHEN 'City' THEN [City] WHEN 'Customer Type' THEN [Customer type] WHEN 'Gender' THEN [Gender] WHEN 'Payment Type' THEN [Payment] WHEN 'Product Line' THEN [Product line] WHEN 'Total' THEN NULL END
City	City where store is located (Mandalay, Naypyitaw, Yangon)	
Customer type	Customer type of customer who made the purchase (Member, Normal)	
Date	Date of transaction	
Gender	Gender of customer (Female, Male)	
Invoice ID	ID of invoice	
Payment	Payment type for transaction (Cash, Credit card, Ewallet)	
Product line	Product line for the transaction (Electronic accessories, Fashion accessories, Food and beverages, Health and beauty, Home and lifestyle, Sports and travel)	
Week Start Date	Start week of transaction date	DATETRUNC('week',[Date])
Week Start Date Comp	Start week of transaction date -7 days (used to join to supermarket_sales_sample_dataset to allow WoW comps)	DATE(DATETRUNC('day',DATEADD('day',7,[Week Start Date])))
Gross Income	Income after COGS are subtracted from transaction total	
Quantity	Number of items in transaction	
Rating	Customer satisfaction rating	

pivoted_dataset

Pivoted dataset based on supermarket_sales_sample_dataset. Pivoted on the fields Product Line, Gender, Payment, and Customer Type to allow for ranking of the shifts in Rating WoW, agnostic of product/customer attribute. Used only in Contribution Table sheet. Joined to comp_pivoted_wow on Pivot Field Names, Pivot Field Values, and Week Start Date Comp.

Field	Definition	Calculation
City	City where store is located (Mandalay, Naypyitaw, Yangon)	
Date	Date of transaction	

Pivot Field Names	Names of pivoted fields (Customer Type, Gender, Payment, Product Line)	
Pivot Field Values	All values of the 4 pivoted fields.	
Week Start Date	Start week of transaction date	DATETRUNC('week',[Date])
Week Start Date Comp	Start week of transaction date (used to join to comp_pivoted_wow)	DATE(DATETRUNC('day',DATEADD('day',7,[Week Start Date])))
Rating	Customer satisfaction rating	
Rating Comp Field (ABS Change)	Absolute value of WoW Rating comp	ABS((AVG([Rating])-AVG([comp_pivoted_wow].[Rating]))/AVG([comp_pivoted_wow].[Rating]))
Rating Comp Field (Negative Arrow)	Down arrow for visualizations, based on value of Rating field	IIF(AVG([Rating]) < AVG([comp_dataset_wow].[Rating]), '▼', NULL)
Rating Comp Field (Positive Arrow)	Up arrow for visualizations, based on value of Rating field	IIF(AVG([Rating]) > AVG([comp_dataset_wow].[Rating]), '▲', NULL)
Rating Comp Field Sort (ABS)	Allows Rating Shifts WoW table to sort dynamically based on the absolute value of the Rating comp	[Parameters].[Sort By] * [Rating Comp Field (ABS Change)]

comp_pivoted_wow

Comp dataset for pivoted_dataset. Contains a calculated field Week Start Date Comp that is one week less than the Week Start Date Comp field in pivoted_dataset. Used only in Contribution Table sheet. Joined to pivoted_dataset on Pivot Field Names, Pivot Field Values, and Week Start Date Comp.

Field	**Definition**	**Calculation**
City	City where store is located (Mandalay, Naypyitaw, Yangon)	
Date	Date of transaction	
Pivot Field Names	Names of pivoted fields (Customer Type, Gender, Payment, Product Line)	
Pivot Field Values	All values of the 4 pivoted fields.	

Week Start Date	Start week of transaction date	DATETRUNC('week',[Date])
Week Start Date Comp	Start week of transaction date (used to join to comp_pivoted_wow)	DATE(DATETRUNC('day',DATEADD('day',7,[Week Start Date])))
Rating	Customer satisfaction rating	

Parameters

There are three parameters in this workbook: Choose Dimension, Choose Second Dimension, and Sort By.

Choose Dimension and Choose Second Dimension are identical; both allow the user to select which dimensions to display on the dashboard. The values for each parameter are City, Customer Type, Gender, Payment Type, Product Line, and Total.

Choose Dimension is labeled **Show Ratings By:** on the dashboard and controls all but one of the dynamic fields. Choose Second Dimension is labeled **Break Out By:** on the dashboard and controls only the second column in the Sales Metrics sheet (see the Filter Interactions section above).

The Sort By parameter contains two values, -1 and 1, and allows for dynamic sorting on the Contribution Table sheet. Its value is passed through to the calculated field **Rating Comp Field Sort (ABS)** as documented above, and that field is then hidden in the visualization. This functionality allows for dynamic sorting either ascending or descending; due to the low number of records included in this data, I set the sort to descending and didn't allow the user to change the sort.