SVKM's NMIMS

Mukesh Patel School of Technology Management & Engineering

AN CASE STUDY Report ON

Business Visualization

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Table

Project Title	1. Data Exploration and dashboard designed using SAS Visual Analytics for Insight Toy Company. 2. Data Exploration and dashboard designed using SAS Visual Analytics for MegaCorp Manufacturer Company.
Datasets	1. Insight Toy Company 2. MegaCorp

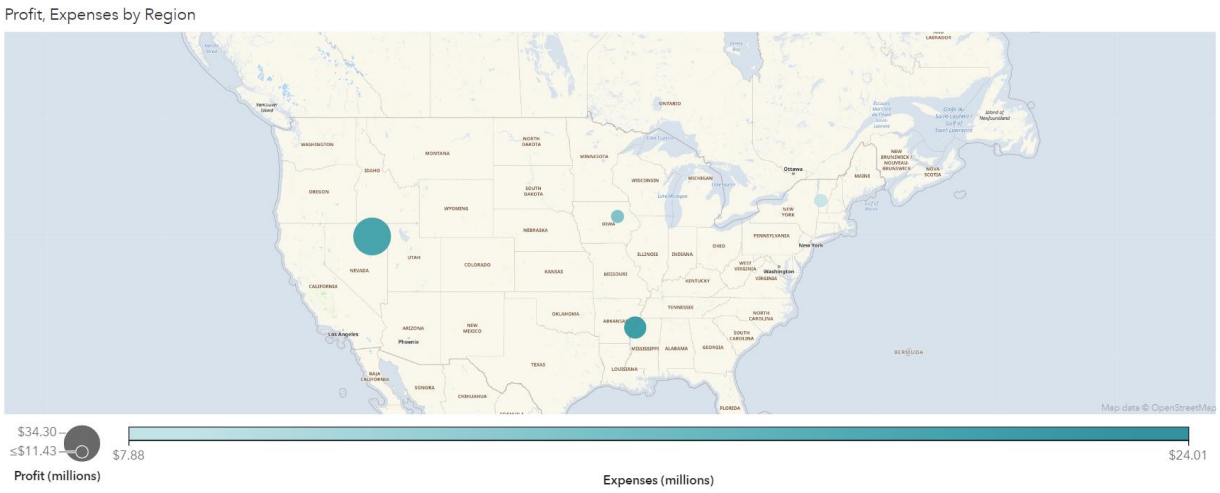
For MegaCorp Dataset:

Business Scenario – 1

Profit vs Expenses throughout the US.

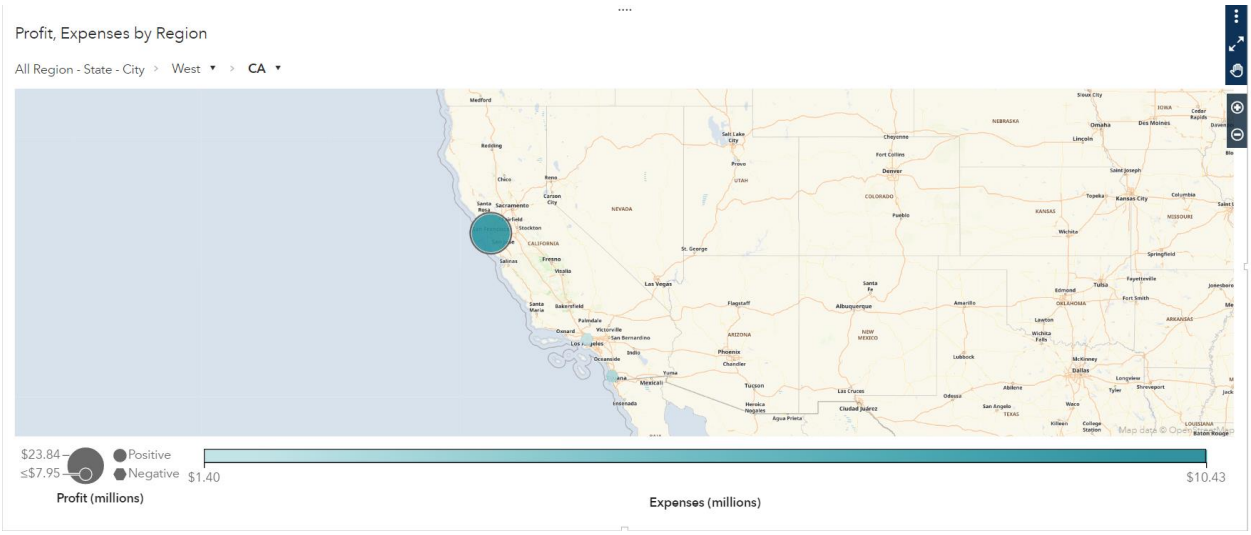
The company plans to increase their manufacturing in the US. By doing so, it will produce more products than it used to do earlier. For this to happen, the company wants to know which area produces the highest profit, and also lowest expenses, for their products so that they can target such areas.

Solution:



For this scenario, we can use the Geomap. In this map, we have added a hierarchy of Region-State-City in the Category and Profit in Size. Also, to get the expenses, we have added it in the color section.

As we can see in the map, South region has the highest expenses (as the color is darker), but has low profit (as the size of the bubble is small). Hence it shouldn't be considered. Similarly, the Profit generated from East and North is less. Hence, those two regions shouldn't be considered as well. West has low expense and high profit. Therefore, the company should expand in the West.



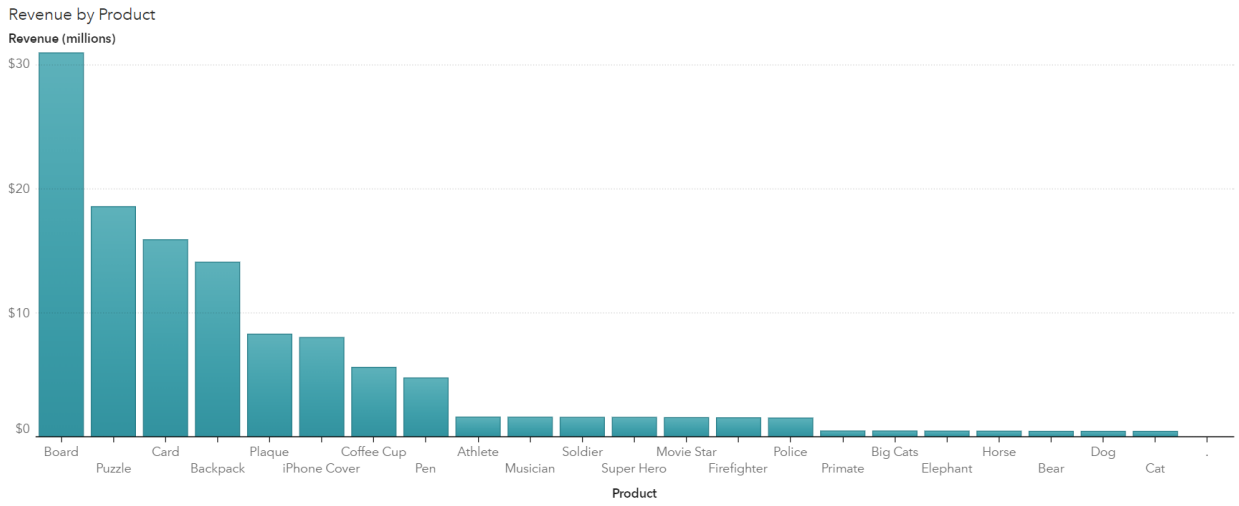
If we go lower down the hierarchy, San Francisco in California State is the best city to expand manufacturing, as it has high profit and low expense, and also, other cities are in loss.
Therefore, San Francisco should be considered by the company to expand the manufacturing units.

Business Scenario – 2

Product Development.

The company wants to know the names of the products that are helping them to earn the highest revenue so that the company will be able to give the stakeholder a clear idea about which product they should invest more in its development for the success of the company.

Solution:



This can be visualized using a bar graph that has Product in the Category and Revenue in Measure. The above graph shows us that the Board Games produce the highest revenue. Hence, the investment should go in the production and development of Board Games.

Business Scenario – 3

Profit or Loss.

The company wants to know all the information regarding the Product like Product ID, Product Line, Expenses and Revenue. This will help the stakeholders to take a decision about on which product is profitable in the market as the given point for the betterment of the company.

Solution:

Product ID	Product	Product Line	Expenses	Revenue
525985085340	Super Hero	Action Figure	$1,964,223.57	$1,610,986.76
528111286345	Soldier	Action Figure	$1,991,253.37	$1,612,797.68
793493485031	Puzzle	Game	$6,519,027.64	$18,580,499.68
2131546667	Primate	Stuffed Animal	$202,826.07	$516,501.65
514958895611	Police	Action Figure	$1,946,688.99	$1,558,465.03
97005131334	Plaque	Promotional	$3,118,535.70	$8,313,313.79
92365129921	Pen	Promotional	$525,584.65	$4,787,051.67
527326669931	Musician	Action Figure	$2,019,899.67	$1,624,364.21
518435017620	Movie Star	Action Figure	$1,994,760.54	$1,591,427.15
97422989788	iPhone Cover	Promotional	$993,327.60	$8,042,547.04
2141916096	Horse	Stuffed Animal	$191,367.53	$502,502.84
516689436320	Firefighter	Action Figure	$1,963,913.37	$1,577,722.67
2217380420	Elephant	Stuffed Animal	$201,751.07	$506,949.78
2222353950	Dog	Stuffed Animal	$194,733.32	$487,610.18
95374453603	Coffee Cup	Promotional	$886,018.69	$5,640,877.06
2221094872	Cat	Stuffed Animal	$192,042.66	$486,551.75
818916620520	Card	Game	$4,718,172.11	$15,917,306.73
805576002866	Board	Game	$9,564,421.08	$30,962,531.35
2301573637	Big Cats	Stuffed Animal	$188,376.20	$516,409.72
2362228013	Bear	Stuffed Animal	$196,880.07	$488,107.68
95471772837	Backpack	Promotional	$6,087,225.75	$14,110,142.46
529204095429	Athlete	Action Figure	$3,013,730.24	$1,630,280.97

For this, I have used a List Table that displays Product ID, Product, Product Line, Expenses and Revenue in the Columns section. I have applied a display rule that turns the value of Revenue:

- "red" if the Expenses value is more than Revenue, hence denoting a loss.
- "green" if the Expenses value is less than Revenue, hence denoting a profit.
- "yellow" if Expenses value is equal to Revenue, denoting neither a profit or a loss.

Business Scenario – 4

Price targets.

As a lot of unwanted expenses are happening in the company so the stakeholders ordered the CEO of the company to put forward the stats related to Product Price so that they can know the actual and the target price of the product and see how the Product's Actual Price is varying with the Product's Target Price.

Solution:

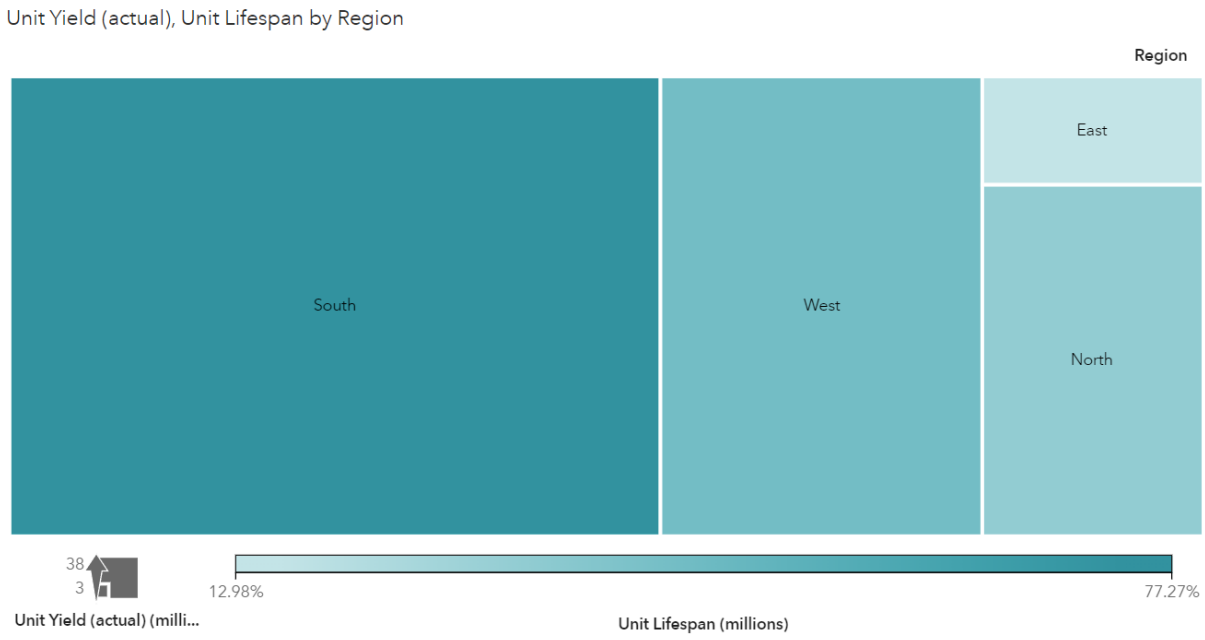
This scenario can be solved using dual axis Bar-Line chart. It has Product in its Category, Product Price (target) in Measure (bar) and Product Price (actual) in Measure (line).
As seen in graph, there is not much difference between the actual price of the Product and the target price of the Product. In fact, the actual prices are lower than Target prices in every case which is a good sign of improvement as every customer wants the price to be as low as possible.
Hence, there is a good development in this section of the company, and the CEO has nothing to worry about.

Business Scenario – 5

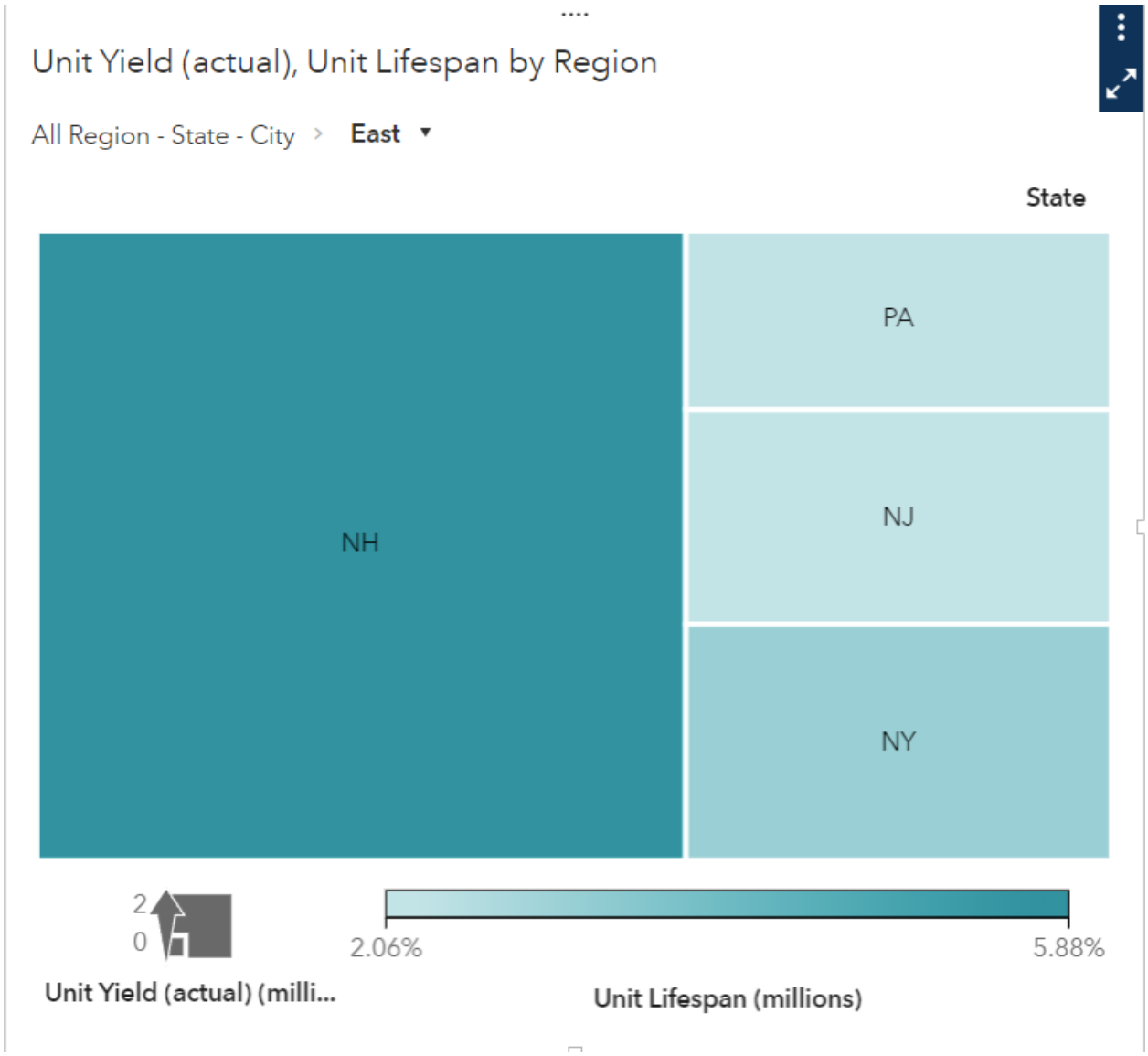
Units Production.

The company wants to know the Actual Units Yield and the Lifespan of those Units according to region so that they can expand their manufacturing accordingly. If the Lifespan is higher and the Yield is also higher, there won't be any point expanding there. Hence, the company wants the area that has low yield and low lifespan of the units.

Solution:



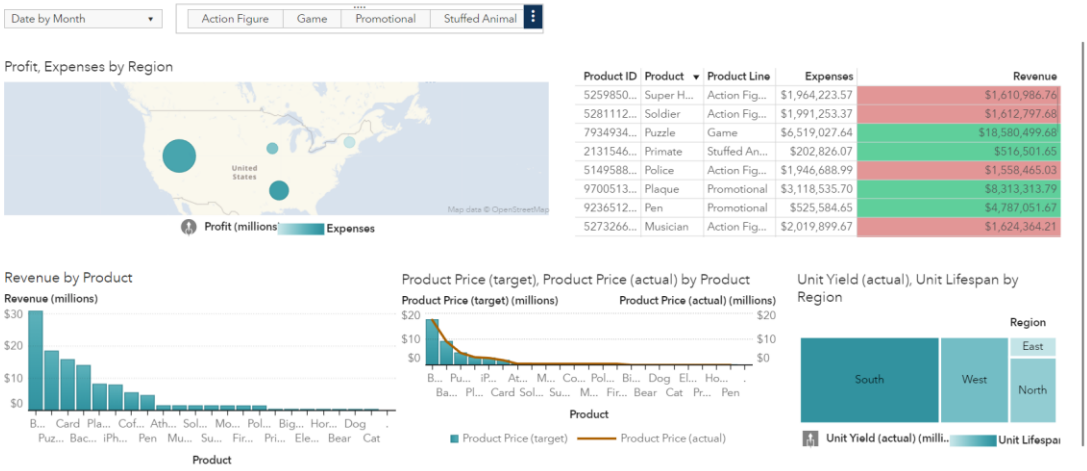
For this scenario, Treemap is used where Tiles represent a hierarchy of Region-State-City, the Size represents the unit Yield (actual) and the color represents Unit Lifespan.
From the graph, we can observe that East area has the lowest yield (smallest size) and lowest lifespan of the units yield (lightest tile). Hence, the company should focus on expanding their manufacturing in the East area.



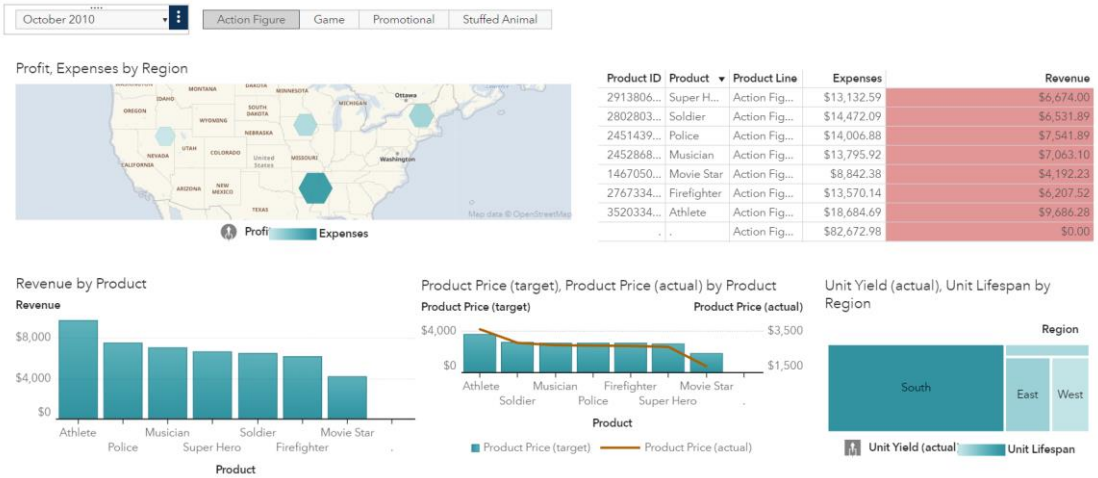
Moreover, in the East, it should expand in the Philadelphia City in the Pennsylvania State as it has the lowest yield and lifespan in the Eastern Area as we can see in the graph above when we move down the hierarchy.

Dashboard

As we have seen in the scenarios above, the company wants to expand its manufacturing in the US, but it can only afford to do so in selective areas. Hence, the company has requested a Dashboard that can provide an overall view of what was discussed earlier in the Business scenarios. It also wants a way to analyze each scenario using different Months and different Product Lines.
Hence, we have created a Dashboard using Precision Container and added all the five graphs in it by moving them from their individual pages to the container.
They have been linked to each through Actions. In Page Control, Date by Month is added in Drop-Down List and Product Line is added in the Button Bar, so that they can make analysis using the filters they asked for.



If the company wants the details of Action Figure in Product Line in the month of October 2010 in Date by month, they will get a Dashboard like this:



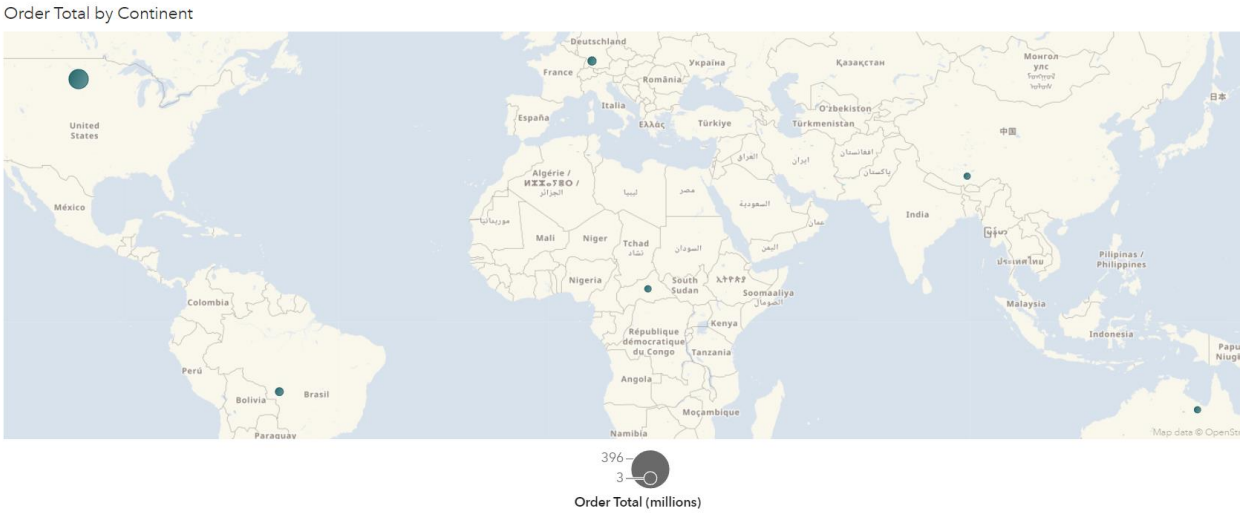
For Insight Toy Company Dataset:

Business Scenario – 1

Maximum Demand

The company wants to expand their customer base. Hence, they want to know the maximum Total Orders by a Continent as it can help the different managers of the company to get an idea about the demand of the product in different continents so they can make marketing and sales plans accordingly to sell their product more in continents whose Total Orders are not that good.

Solution:



For this scenario, I have chosen a Geomap that has Continent-Country-State-City Hierarchy in its Category and Order Total in its Size.

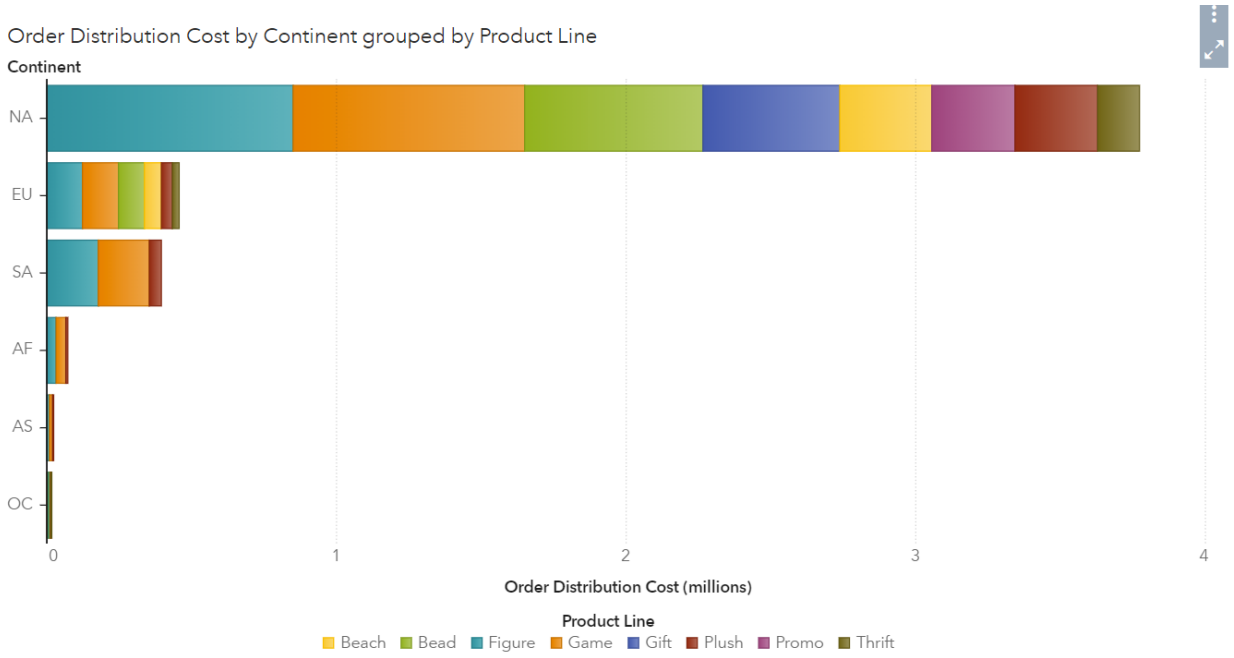
As we can see in the map, the US has the highest demand for the products of the company. Other countries have comparatively lesser demand for the products as the USA.
Asia and Oceania have the lowest demand of Order Total. Hence my advice would be to focus on expanding in those regions to expand their customer base.

Business Scenario – 2

Distribution Cost of Product Lines.

The company wants to know Orders Distribution Cost in different continents so that they can get a clear idea about where they should focus on with respect to the supply chain.

Solution:



For this scenario, I have chosen the bar graph where the Category is Continent and the measure is Order Distribution Cost. I have Grouped it by Product Line to get a clear idea of what product line is performing good in which continents.

Higher the performance of the Product Line, higher would be the order distribution cost. From this graph, we can see that Africa, Asia and Oceania have a very less Order Distribution Cost, as there are less orders (as we saw in scenario - 1).

North America, Europe and South America have a higher Order Distribution Cost as the orders are higher. Hence the company should try and reduce the distribution cost in these areas as if the cost goes down, the prices of the product go down too, causing more customers to join in.

Business Scenario – 3

Are the Targets met?

Now that the company knows how products lines are doing in different continents, they want more information about the Sales of products lines. Are the product line sales actually meeting the target or not?

Solution:

For this scenario, I have used the Gauge to display each Product line individually. It has Sales Rep (Actual) in measure, Sales Rep (Target) in Target and it is grouped by Product Line to get individual information of various product lines.

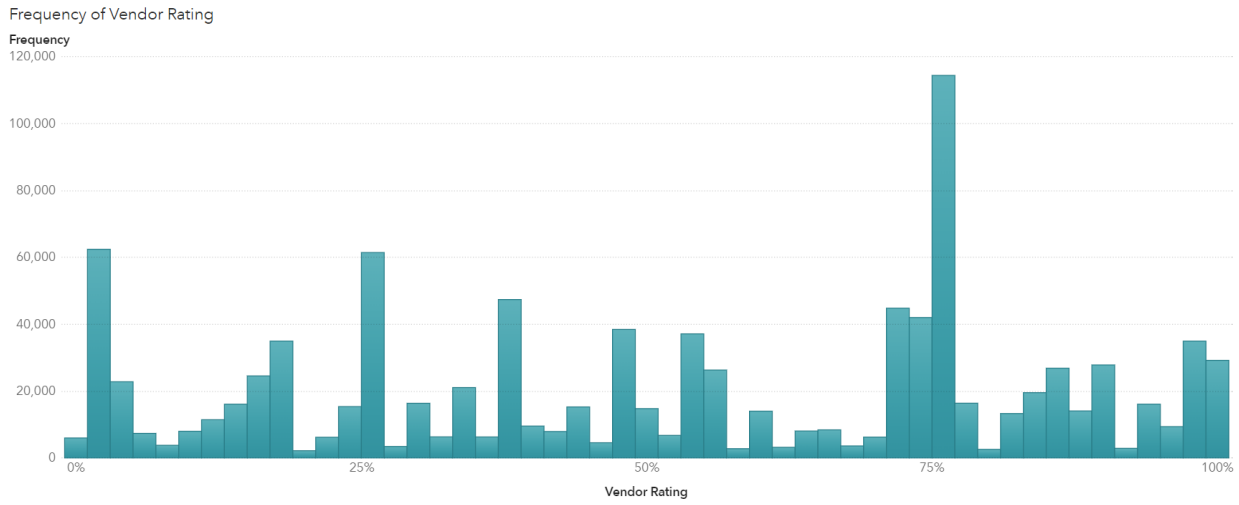
The Gauge suggests that even though the Sales numbers are high for each product line, none of the products are reaching their Sales Rep Targets. The company has to work on promoting and marketing their products more, or should choose some realistic targets in the future.

Business Scenario – 4

Vendor – Customer Relationship.

The company wants to know how well are the vendors doing with respect to their relationship with the customer. The company values Customer Satisfaction a lot, and hence would like to know how well are the vendors rated and how frequently they get a high rating.

Solution:



For this scenario, I have chosen a Histogram having Vendor Rating in its Measure and Frequency in its Frequency column.

As you can see, the maximum frequency of Rating is around 75-77% to the Vendors. Not many Customers have given ratings to the vendors between 77-100%, but at the same time, not many have given them below 70%.

I think a 75-77% is the most frequency of the Ratings gotten by the vendors. This is a good – not ideal – case for the vendors which shows that the Vendor – Customer relationship is good, but can be made perfect if the company works on the people skills of the vendors more.

Business Scenario – 5

Highest Order Sales Cost of Product Line.

Now that the company has the Order Distribution Cost of each Product Line in different continents, they want the Order Sales Cost of each Product Line. They don't want the name of each Product Line, just the Product line that has the highest Order Sales Cost.

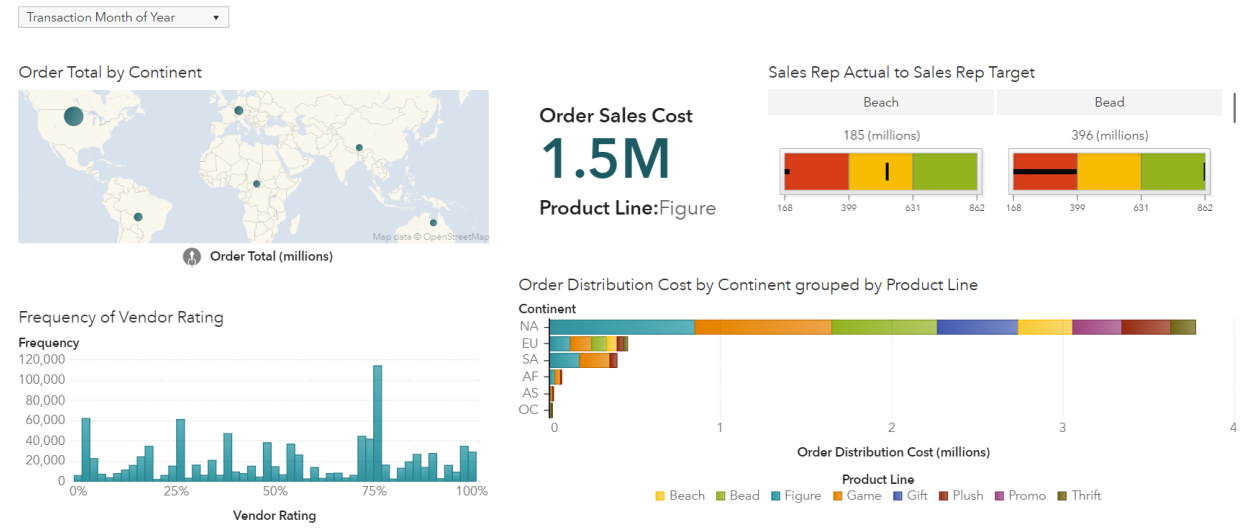
Solution:

For this Scenario, since the company wanted just the highest Order Sales Cost, I have chosen the Key Value to show it. It has Product Line in Category and Order Sales Cost in the measure. I have also applied Ranks on the Product Line where it shows the Top Count of 1 by Order Sales Cost. This will give the Product Line with Highest Order Sales Cost.

In this Key Value, we see that the Product Line: Figure to have the highest Order Sales Cost of 1.5M.

Dashboard

As we have seen in the scenarios above, the company is strictly checking the Orders and Sales of each Product Lines. Hence, they have requested a cumulative Dashboard that can provide all the information that is relevant to the above scenarios.
They have gotten an overall information of the Orders and Sales of the company's Product Lines; they want a Monthly information of it as well. Hence, I have created a Dashboard doing all that is required to the company.



If the company wants the analysis of Orders and Sales of the month June, he will get a Dashboard like this: