

# Chapter 6 - Data Visualization

## Overview

Workday offers visualizations of custom report data by using analytic indicators and charts. The system's chart features provide powerful visual representations of data to use for analytics. Custom matrix reports, paired with chart outputs, allow the customer to take advantage of their data, derive meaning and insights, visualize, interact, and make smart decisions.

## Objectives

By the end of this chapter, you will be able to:

- Add analytic indicators to visually categorize and represent the data.
- Explain the different charting options.
- Add a column chart to a matrix report to analyze the data.

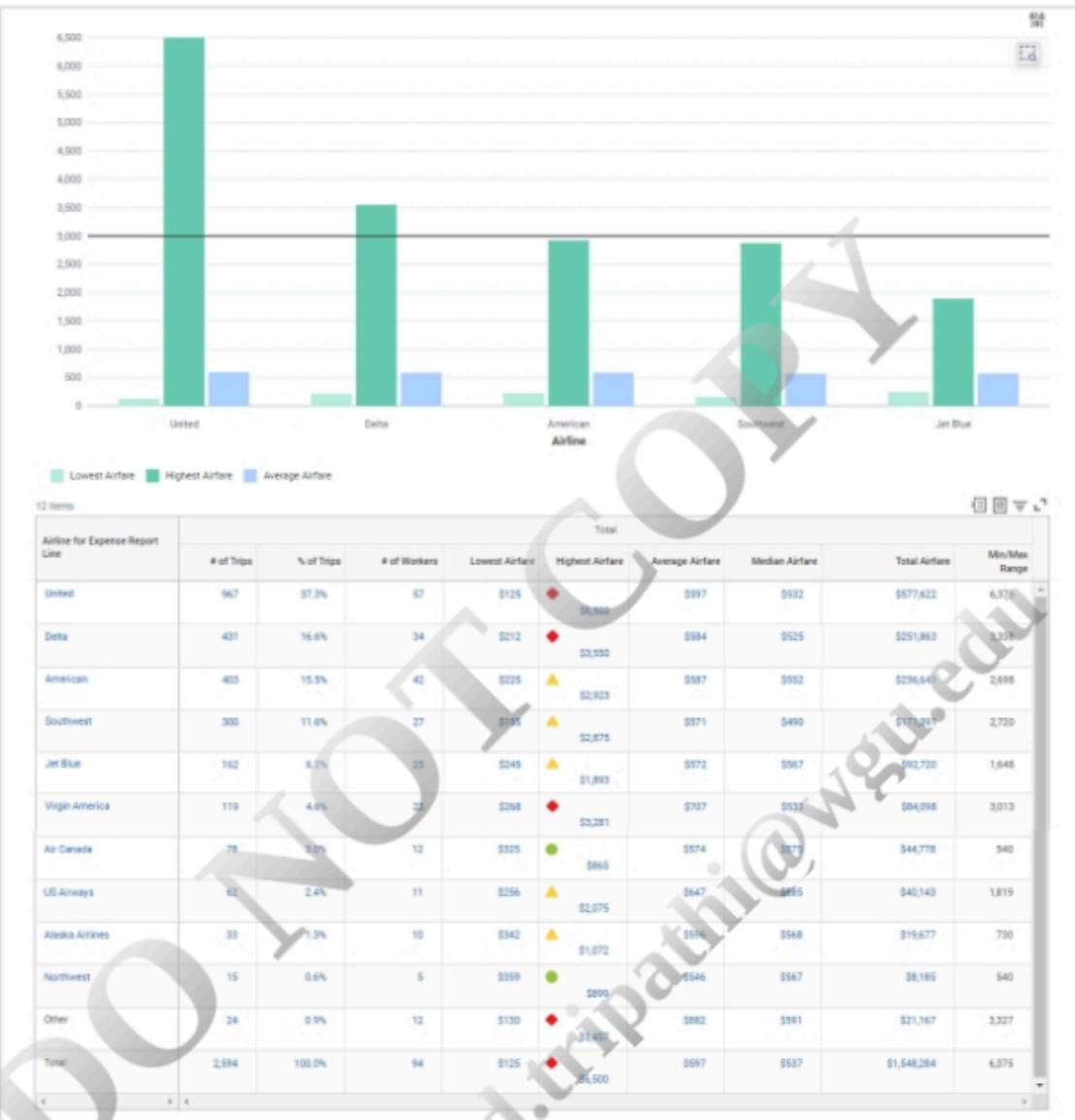
## Scenario



Teresa needs a report that analyzes the cost of airfare expenses by airline for a company.

Teresa wants to add visualizations to the Airfare Analysis report so that the data is easier to understand and analyze. Items to include:

- A status indicator for highest airfare that indicates a good, warning, or bad status.
- A clustered column chart displaying the five airlines with the highest number of trips.
- Columns for lowest airfare, highest airfare, and average airfare.
- A target line indicating a target maximum of \$3,000.



## Analytic Indicators

Analytic indicators provide visual identifiers in Workday that:

- Categorize and represent data.
- Indicate status.
- Display ratings.

- Monitor thresholds.
- Illustrate progress.
- Highlight data exceptions.

You can configure analytic indicators on a given field for a business object. The indicators are then available for use in any report that displays the field in the report output. Alternatively, you can create report-specific analytic indicators that are only available on that report. This option is useful when the analytic indicator applies to a report-specific field such as a matrix summarization, or a report-specific calculated field.

## Types of Analytic Indicators

Several visualization types are available:

Visualization Type	
<b>Flags</b> allow the user to configure the meaning of each flag color in the custom report.	 Red flag  Orange flag  Yellow flag  Green flag  Blue flag  Purple flag
<b>Trend arrows</b> visually highlight data that exceeds or falls below specified limits.	 Trend down - Gray  Trend down – Red (Unfavorable)  Trend down – Green (Favorable)  Steady state – Gray  Trend up - Gray  Trend up – Red (Unfavorable)  Trend up – Green (Favorable)

	<ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #f0f0f0; border: 1px solid #ccc; margin-right: 5px;"></span> 0% (zero percent) to 24% complete</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #e0e0e0; border: 1px solid #ccc; margin-right: 5px;"></span> 25% to 49% complete</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #d0d0d0; border: 1px solid #ccc; margin-right: 5px;"></span> 50% to 74% complete</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #c0c0c0; border: 1px solid #ccc; margin-right: 5px;"></span> 75% to 99% complete</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #b0b0b0; border: 1px solid #ccc; margin-right: 5px;"></span> 100% complete</li> </ul>			
<b>Progress Bar</b>				
<b>Checkmark or X represents true/false values.</b>	<ul style="list-style-type: none"> <li><span style="color: green;">✓</span> Green checkmark</li> <li><span style="color: red;">✗</span> Red X</li> </ul>			
<b>Status</b> demonstrated as green, yellow, or red; or use a star-rating based on five stars.	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="text-align: center; vertical-align: middle;"> <span style="color: green; font-size: 2em;">●</span>  <span style="color: yellow; font-size: 2em;">▲</span>  <span style="color: red; font-size: 2em;">◆</span> </td> <td style="text-align: center; vertical-align: middle;">         Green circle          Yellow triangle          Red diamond       </td> <td style="text-align: center; vertical-align: middle;">  No stars   One star   Two stars   Three stars   Four stars   Five stars       </td> </tr> </table>	<span style="color: green; font-size: 2em;">●</span> <span style="color: yellow; font-size: 2em;">▲</span> <span style="color: red; font-size: 2em;">◆</span>	Green circle Yellow triangle Red diamond	No stars One star Two stars Three stars Four stars Five stars
<span style="color: green; font-size: 2em;">●</span> <span style="color: yellow; font-size: 2em;">▲</span> <span style="color: red; font-size: 2em;">◆</span>	Green circle Yellow triangle Red diamond	No stars One star Two stars Three stars Four stars Five stars		
<b>nBox</b>	<ul style="list-style-type: none"> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #e0e0e0; border: 1px solid #ccc; margin-right: 5px;"></span> nBox 3x3, Row 1 Column 1</li> <li><span style="display: inline-block; width: 15px; height: 15px; background-color: #b0b0b0; border: 1px solid #ccc; margin-right: 5px;"></span> nBox 3x3, Row 3, Column 3</li> </ul>			

## Creating Analytic Indicators

You can use any of these tasks to create system-wide analytic indicators:

- The [Create Analytic Indicator](#) task to create the indicator.
- The [View Analytic Indicator](#) task to view the configuration of the indicator and where the

indicator appears in the tenant.

- The [Edit Analytic Indicator](#) task to modify a global analytic indicator.

You also have the option to create system-wide analytic indicators from the Options column of a report definition.

Report-specific	Tenant-wide
Apply to a specific case in a report.	Configured on a field.
Only available on the report.	Available on any report containing the field.
Create an Analytic Indicator for Report in the Options column of a field in the report definition.	Create Analytic Indicator task.

To create report-specific analytic indicators:

- Go to the Options column of a field in the report definition.
- Select **Create > Create Analytic Indicator for Report**.

To modify a report-specific analytic indicator:

- Locate the business object in the report definition.
- Select the **Related Actions** icon, and select **Edit**.

The Custom Report Administration security domain secures the tasks to create and modify analytic indicators. Any report writer can apply an existing analytic indicator to their custom report if granted access to the report field.

When creating analytic indicators, keep in mind that:

- The analytic indicator rule can only use simple conditional rules. To deploy more complex conditional rules, you would need to use calculated fields.
- You can only specify one analytic indicator for a column on a report.
- You can define analytic indicator for advanced reports, for total lines on aggregated fields.
- Only a matrix report displays analytic indicators on summarizations and in detail data.
- The system evaluates the conditions in the order listed. The order may be important in achieving the desired results since the system does not allow users to create complex

rules.

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## Activity 6.1 - Create an Analytic Indicator

**Business Case:** Teresa wants a status indicator for the Highest Airfare field in which a red indicator displays if the amount is over \$3,000, yellow if it's between \$1,000 and \$3,000, and green if it's less than \$1,000.

### Task #1: Create Analytic Indicators

1. Sign in (or Start Proxy) as Teresa Serrano (*tserrano*).
2. Edit the **WICT Airfare Analysis** report.
3. Scroll down to the Define the Field(s) to Summarize grid.
4. On the Highest Airfare summarization row, in the Options column, select **Create > Create Analytic Indicator for Report**.
5. In the Display Option Name field, enter *WICT Highest Airfare Indicator*.
6. For the Visualization Type, select **Status - Green/Yellow/Red**.
7. On the Display Conditions grid, **add** three rows.
8. The system evaluates the conditions in the order listed. In order for the red diamond to display, you must list that condition before the yellow triangle. Enter the following information:

Control Field	*Condition	Condition Value	*Visualization	Help Text
Extended Amount in Company Base Currency	greater than	3000	Red diamond	This amount exceeds the target.
Extended Amount in Company Base Currency	greater than or equal to	1000	Yellow triangle	
Extended Amount in Company Base Currency	greater than or equal to	0	Green circle	

9. Select **OK** to save the analytic indicator.
10. Select **OK** and **Run**.
11. In the Company field, select **Global Modern Services, Inc. (USA)**.
12. Select **OK** to review the results.
  - A. Notice the analytic indicators in the Highest Airfare column.
  - B. Hover over a red diamond. Notice the help text that appears.

**Activity Complete**

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## Charts

With one set of data, you can create a wide variety of charts. Workday makes it easy to experiment with different variables and chart types to tell a story and deliver charts to report users.

The chart options available depend on the configuration of the report definition. Workday makes charts available for advanced, matrix, trending, and composite report types. Also, the system displays charts alongside a table or on their own. A variety of chart options are available when you specify a chart as the output type.

### Chart Options

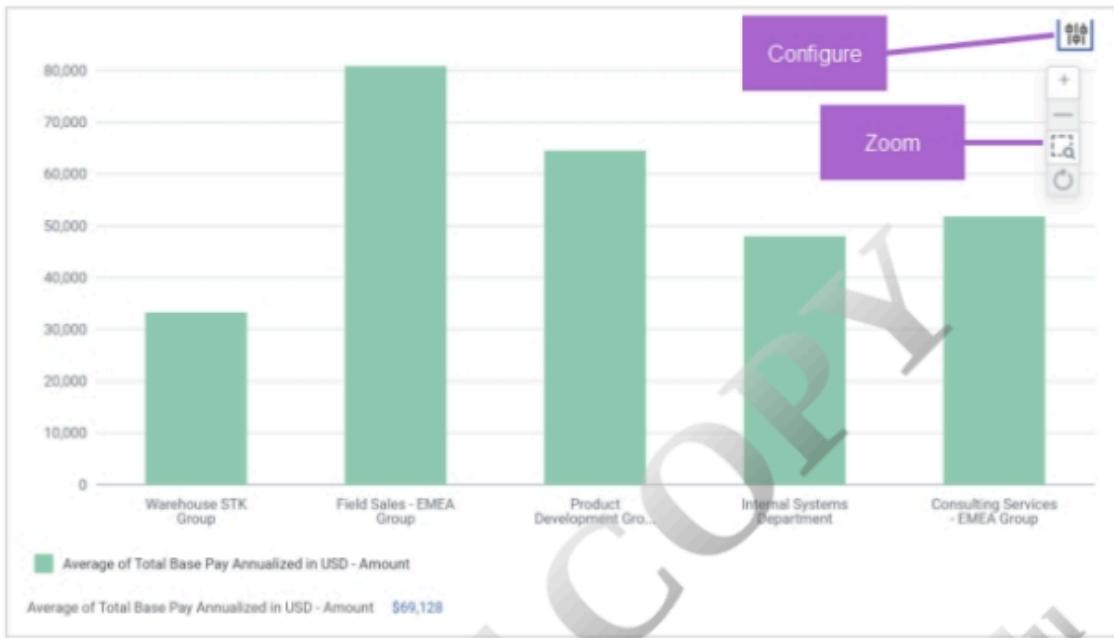
The chart options available depend on the configuration of the report definition and the chart type you specify.

Typically, the system requires a vertical or horizontal axis definition, as well as a legend. For matrix reports, indicate which metrics from the Define Field(s) to Summarize section to include in the chart.

### Interacting with Charts

Report types that support charting allow you to dynamically interact with report output after executing the report. You can select the configure icon to configure and view various chart options, even if you did not configure chart options in the report definition.

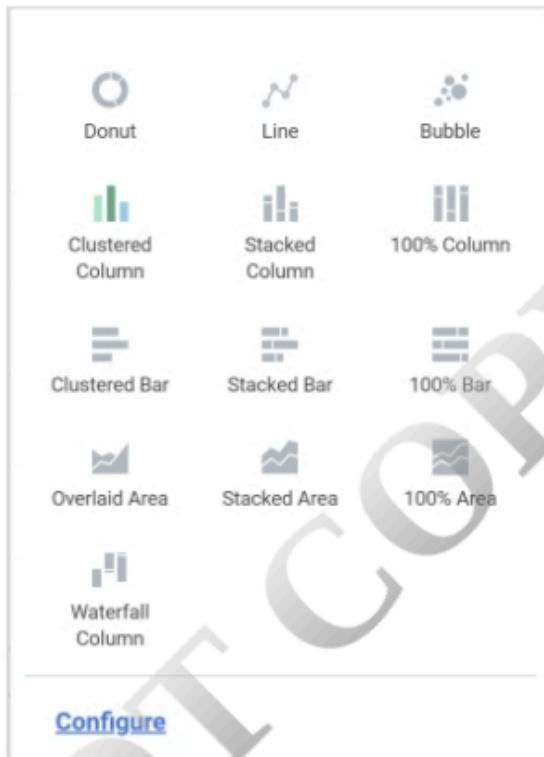
Chart legends are automatically interactive, so users can focus on a specific metric or dimension. Users can also zoom in and pan their view of a report output.



The Configuration Panel allows you to make modifications in the chart view. Adjust variables such as the horizontal axis, legend, and metrics. These options are useful when the report has multiple metrics that interact in different ways.

Access the Configuration Panel using the following steps:

1. Select the **Configure** icon at the top right.
2. Choose a different chart type if needed.



**Note:** The Waterfall Column chart option is only available on Matrix and Trending reports.

3. Select **Configure**.
4. Interact with Variables to view data from different perspectives.
5. Select **Advanced** to further interact with the report output.

## Charting Options

The advanced chart features offered by Workday provide more analytical tools to help you gather meaning from your data:

- Top n Values
- Target Line

- Vertical and Horizontal Axis Scale
- Advanced

## Top n Values

Top n Values dynamically filter the values displayed on the horizontal axis. Doing so the chart output includes only the top number of values sorted by the Top n Field. You can also choose to sum the remaining values.

Top n tool is available for both the report owner when configuring the report definition and anyone viewing the report output. The report owner can configure a baseline Top N value in the report definition under Chart Options > Top n Values.

Anyone authorized to run the report can then interact with these settings by expanding the advanced section from the Configuration Panel. A new pane displays, providing the option to modify the Top n Values as well as modify other advanced configuration options.

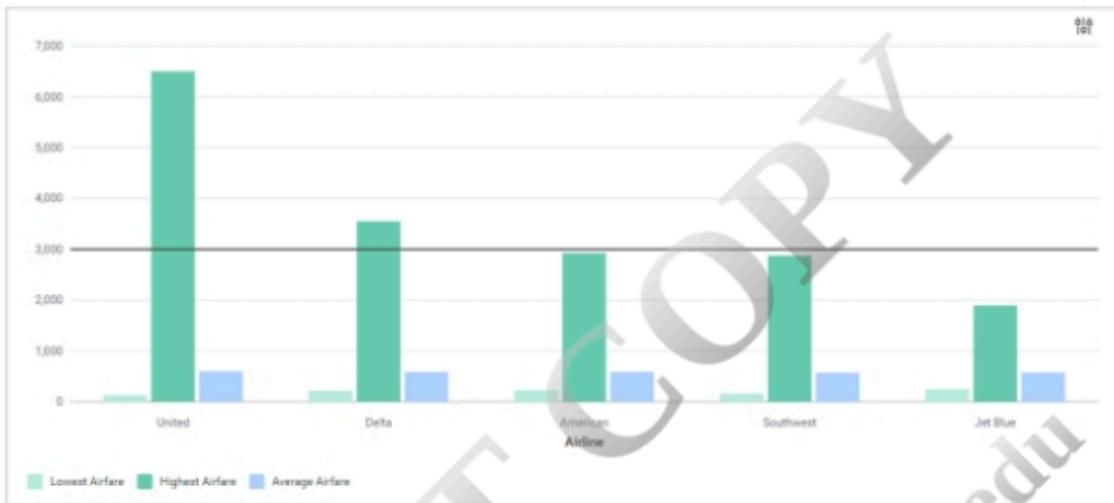


**Example:** Consider the compensation chart in the image below. Use the Top n setting to dynamically filter the Supervisory Organizations with the highest compensation values. In the image on the top right, the system analyzes the top 10 values and not summarizing the remaining values. In the second image using the configuration options, the system further refines values to the top 5.



## Target Lines

Target Lines compare values in the output with a target value to visually highlight deviations from the target. You can use target lines with bar and column charts (in particular, clustered, or stacked).



You can create target lines as the report owner but not as the report user at runtime. There are two types of target lines:

- Single Target Line: Use when target value is same for each value on the horizontal axis.
- Multiple Target Lines: Use when targets are different for each value on the axis.

To set up a single target line:

1. Access the Output tab of the report definition.
2. Select Chart Options.
3. Select Target Line.
4. Select Display one target line for all groups and enter value.
5. Provide a Target Line Label if necessary.

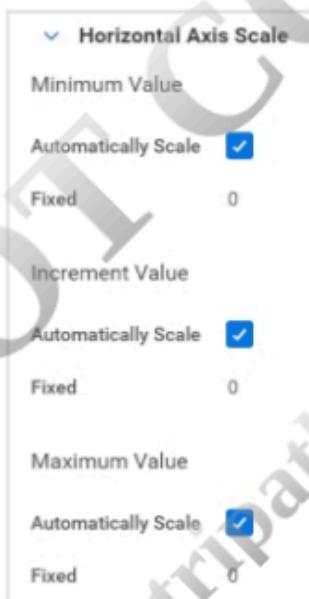
Multiple target lines are available for matrix, trending, and advanced report types. This feature displays a unique target line for each group displayed in a column or bar chart. Identify the specific measure or metric to use as a target value when creating the report definition.

To set up multiple target lines:

1. In the Define the Field(s) Summarize section of the Matrix tab, include at least one numeric or currency field to summarize, and one numeric or currency field to use as a target line.
2. Specify **Use as Target Line** in the options column to use the summarization as the target.
3. Select the **Output** tab and select Chart Options.
4. Select **Target Line**.
5. Select **Display multiple target lines** for each group.

## Vertical & Horizontal Axis Scale

The Axis Scale sections allow you to control the scaling of the vertical and horizontal axis when the axis value is numeric. Set a fixed length for the minimum, maximum, and increment values. Advanced reports do not support axis scale controls (except for scatter charts).



## Advanced Chart Options

The Advanced section of Chart Options provides additional controls for charts:

Chart Options	Additional Options
<b>Axis titles</b>	Define chart and axis titles

<b>Total and Legends</b>	Suppress total and legends
<b>Donut Charts</b>	<ul style="list-style-type: none"> <li>• Show percentages</li> <li>• Show field values</li> </ul>
<b>Line Charts</b>	<ul style="list-style-type: none"> <li>• Smooth line</li> <li>• Display markers</li> </ul>

The options available depend on the chart type specified. For example, "smooth line" is only available when using a line chart.

## Activity 6.2 - Add a Column Chart

**Business Case:** Teresa wants to add a clustered column chart to the WICT Airfare Analysis report that displays the five airlines with the highest number of trips. She needs columns for lowest airfare, highest airfare, and average airfare. She also wants a target line indicating a target maximum of \$3,000.

### Task #1: Add a Chart

1. Sign in (or Start Proxy) as Teresa Serrano (*tserrano*).
2. Edit the **WICT Airfare Analysis** report.
3. Select the **Output** tab.
4. In the Output Type field, select **Chart and Table**.
5. Expand the **Chart Options** section.
6. Confirm that the Chart Type is **Column - Clustered**.
7. Select **OK** and **Run**.
8. In the Company field, select **Global Modern Services, Inc. (USA)**.
9. Select **OK**.
  - A. Notice the metrics in the chart legend are the same as the summarization fields.
  - B. Notice the total metrics listed under the chart legend. These values match the values in the Total row of the report grid.

### Task #2: Modify the Chart

1. **Edit** the report definition.
2. Select the **Output** tab.
3. Expand the **Chart Options** section.
4. In the Metrics to Include field, remove all metrics except for **Metric 4** (Lowest Airfare), **Metric 5** (Highest Airfare), and **Metric 6** (Average Airfare).



**Note:** These metrics correspond to the order of fields in the summarization grid in the Matrix tab.

5. Expand the **Top n Values** section and confirm that the Top n Field is **Metric 1 (# of Trips)**.
6. In the Top n Values field, enter **5**.
7. Clear the **Sum Remaining Values** checkbox. This will suppress the aggregate 'other' category from appearing.
8. Select **OK** to save the revised report definition.
9. Select **Run** to view the report definition.
10. In the Company field, select **Global Modern Services, Inc. (USA)**.
11. Select **OK**.
  1. Notice the chart displays the top five airlines.
  2. Notice the chart only includes Metric 4 (Lowest Airfare), Metric 5 (Highest Airfare), and Metric 6 (Average Airfare).

### Task #3: Add a Target Line and Configure Advanced Options

1. **Edit** the report definition.
2. Select the **Output** tab.
3. Expand the **Chart Options** section. Then expand the **Target Line** section.
4. In the Target Line Type field, select **Display one target line for all groups**.
5. Set the value to **3000**.
6. In the Target Line Label field, enter *Target Maximum Value*.
7. Expand the **Advanced** section.
8. In the Horizontal Axis Title field, enter *Airline*.
9. In the Options field, select **Do Not Display Chart Totals**.
10. Select **OK** to save the revised report definition.
11. Select **Run** to view the report output.
12. In the Company field, select **Global Modern Services, Inc. (USA)**.
13. Select **OK**. The target line value corresponds with the red diamond analytic indicator visual.

### Activity Complete

## Chapter Summary

- Use analytic indicators to visually categorize and represent data in your report output.
- The chart options available for a report depend on the configuration of the report definition and the chart type specified.
- Use charts to:
  - Compare sets of data.
  - Compare data over time.
  - Examine the parts of a whole.
  - Compare data to a target.
  - Compare the relationship between values.

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## Chapter 6 Knowledge Check

1. How are report specific analytic indicators created in a Matrix report?
  - a. Define the Field(s) to Summarize grid in the Options column.
  - b. The Create Analytic Indicator task.
  - c. Row Grouping grid in the Options column.
  - d. Column Grouping grid in the Options column.
2. Which advanced charting option dynamically filters values displayed on the horizontal axis?
  - a. Horizontal Axis Scale
  - b. Top N Values
  - c. Target Lines
  - d. Primary Axis

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