



Deltek

Deltek Costpoint
Business
Intelligence 8.0
AI-Assisted BI

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Contents

Overview.....	1
Definition of Terms.....	1
Smart AI Architecture.....	2
Data Module.....	2
Data Set.....	2
Copy a Data Set	3
AI Assistant.....	4
AI Assistant Commands.....	4
Explorations.....	6
Relationship Diagram.....	6
Visualizations in Exploration.....	7
Comparisons.....	9
Stories.....	10
Smart AI for Resource Management.....	12
Resource Management Running on Data Set.....	12
Using AI Assistant for Resource Management.....	12
Resource Management Dashboard.....	15
Explorations in Resource Management.....	17

Overview

Costpoint Business Intelligence leverages the power of AI-assisted BI in Cognos Analytics 11.1.x. The AI capabilities are derived from IBM Watson AI capabilities.

To minimize the gap in understanding and utilizing this feature, Costpoint BI introduces Smart AI, which is pre-built BI content that helps you take advantage of the AI technology and apply it to key business issues that affect Government Contractors.

Smart AI focuses on a single subject area where advanced data analysis can be easily obtained with the use of the built-in **AI Assistant** and other AI-related features.

With a Smart AI, you can:

- Directly enter key business questions through the AI Assistant of which the data model supports
- Create a dashboard that reinforces the answers to those questions with recommendations on the most effective visualization to use in presenting data
- Create sample stories through the AI Assistant.
- Launch explorations with insights
- Utilize a data model that the AI Assistant and explorations can easily make use of

As the initial offering in Costpoint BI, Smart AI for Resource Management is available in this release.

Definition of Terms

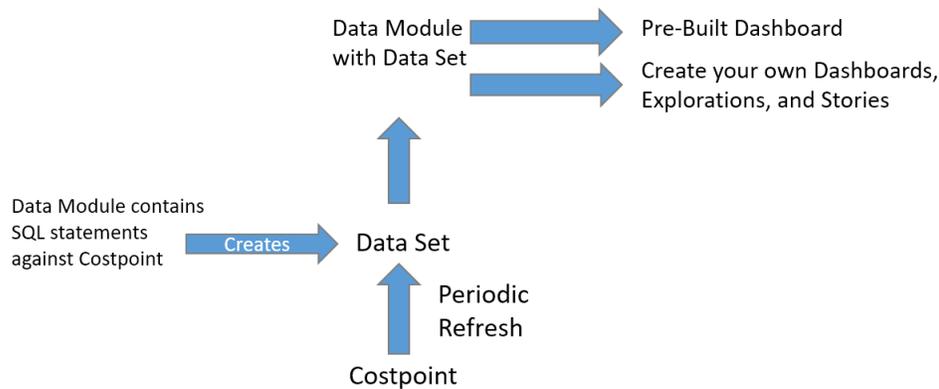
Glossary of terms.

Term	Definition
Artificial Intelligence	A computer system that can perform human tasks. Business Intelligence is a technology that collects and organizes data and provides tools for analyzing that data.
Business Intelligence	Comprises of the strategies and technologies used by enterprises for the data analysis of business information.
AI-Assisted BI	AI enables BI tools to produce clear, useful insights from the data they analyze. In Costpoint BI, it helps BI by providing Smart Dashboards, AI driven exploration, machine learning and Natural Language Processing.
Smart AI from Deltek	Deltek provides pre-built BI content that can be used with the AI features. Each Smart AI offering will focus on a specific business issue/problem. In the first Smart AI offering in Costpoint 8.0, Deltek focused on Resource Management.

Smart AI Architecture

The Smart AI architecture includes data modules, data sets, pre-built dashboards, and other relevant content.

Smart AI Architecture



Data Module

Data modules commonly contain metadata for database based on a certain category and are available in the **Team content** folder. Aside from database data, there can be multiple input sources for a single data module such as MS Excel uploads, data sets, or other data modules.

Use data modules when you create reports, dashboards, stories, explorations, data sets and other data modules. Smart AI uses data modules for data analysis. In this release, a data module for Resource Management is provided.

Data Set

A data set is a customized collection of items that can come from packages or data modules.

You can leverage data sets when you have data that are frequently used in reports or dashboards. Using data sets also improve performance when generating reports and dashboards, since data comes from in-memory processing and not directly from the database. You can set schedules as to when to refresh the data in your data sets that aligns with your report generation activities.

You cannot create reports directly from data sets, but you can create a data module from a data set. And then, use that data module as source for your report.

Copy a Data Set

Take advantage of pre-built data sets so you can start your analysis right away. Such data sets have been designed to provide a good set of data items that you can explore. As first step, copy the data set into your company content folder.

Note: In future releases, other data sets will be available in addition to the Deltek Resource Management. The [How to Copy Deltek Resource Management from Team Content to Company Content](#) section shows the general steps in copying a data set.

How to Copy Deltek Resource Management from Team Content to Company Content

Copy Deltek Resource Management from **Team content** to **Company content** to begin the data exploration.

To copy Deltek Resource Management from Team content to Company content:

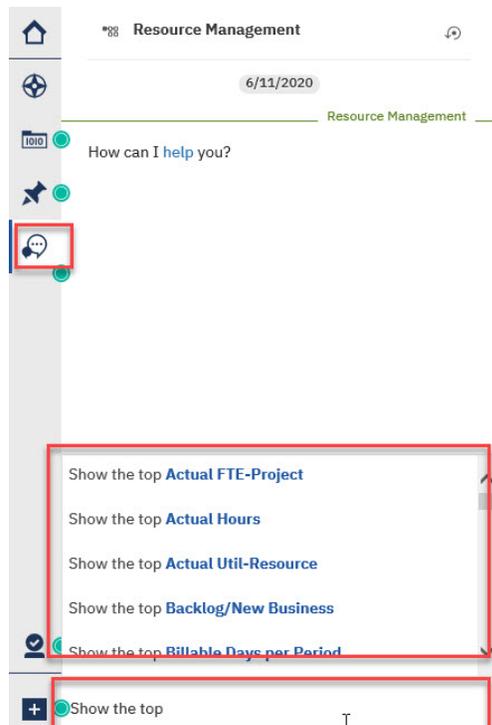
1. In Costpoint BI, go to the location of the Deltek data set. For example, **Team content » Samples - Costpoint BI » Smart AI**.
2. Right-click or click the adjacent ellipsis (...) on the data set and click **Copy**.
3. On the **Copy or move:** dialog box, select a destination within **Company content** that you like to copy the selected data set.
4. Click **Copy to**.
A confirmation message will appear when the data set has been successfully copied.
Logout of Costpoint.
5. Log on as a Costpoint BI Administrator and as a user with full access to the Planning database.
6. Go to **Company content » Smart AI » Data sets » Resource Management Dataset**. Click the adjacent ellipsis (...), and then click **Refresh**.

Note: You can also go to the **Properties** of the data set and refresh the schedule based on your desired frequency.

AI Assistant

Use the **AI Assistant** when analyzing Smart AI content. This feature understands the natural human language and translates it to Costpoint BI so that you can make use of recommended visualizations to add to dashboards and explorations.

For example, when you create an exploration through the **Smart AI for Resource Management**, you can enter **Show the top** in the **AI Assistant** field provided. And then, the **AI Assistant** will display a list of suggested phrases based on your entry. Select one that fits your data analysis.



Regardless of your experience in creating reports, the **AI Assistant** is a great tool for everyone to get significant Smart AI content in creating reports and dashboards. The drag-and-drop capability in adding the charts from the AI Assistant also makes it easier for you in designing and creating reports and dashboards. It takes less time to adapt to Costpoint BI's Smart AI without compromising the value of information that it produces.

To know more, see the [Assistant on the IBM website](#).

AI Assistant Commands

Use the AI Assistant when you create an exploration in your data set or data module.

A typical AI Assistant command starts with **show**. You can also enter the following commands.

Commands	Description
show source <source name>	This command will let you explore data for the source name that you specified. For example, show source Resource Mgmt with dataset
show <measure> by <category or attribute> for <time>	For example, show Forecast Hours by Fiscal Year Period for fiscal year 2019.
show <aggregate commands>	For example, show total , or show average , or show minimum , or show maximum .
what's my <measure> in <time>	For example: what's my average Actual Hours in 2019.
show <filters>	<p>By geographical strings such as country or state - For example, show count resource name where labor location includes VA and CA</p> <p>By temporal strings such as month or year - For example, show average actual hours for 2019 and 2020</p> <p>By a combination of filters and aggregations - For example, Show resource name where actual util-resource is <.75</p>
create dashboard or create simple dashboard	This will create a dashboard from scratch using the selected data source.
show data	This command will show all the available data sources you have access to such as packages, data modules, data sets, and uploaded MS Excel spreadsheets.

Explorations

Explorations is a workspace where you can examine and analyze data with the help of Cognos Analytics' artificial intelligence feature. Explorations is embedded into Cognos Analytics 11.1.x and beyond. You can leverage Explorations by uploading data sets or make use of existing data modules and explore them using this tool. It will then give you insights that are not normally provided when you manually create dashboards or reports.

There are different components in Explorations that makes this workspace a handy feature:

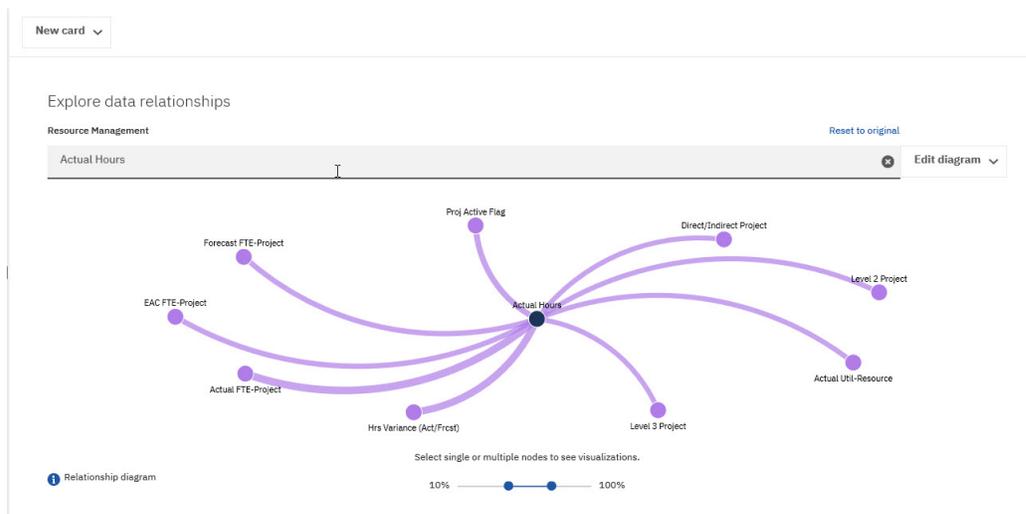
- **Relationship Diagram:** As default, a relationship diagram displays when you create a new exploration and specify a data source. The diagram shows a representative sample of your data including interesting items that you can use in your analysis. You will notice that there are lines in the diagram that suggests the relationships of the concepts or fields in your data with various thickness that are dependent on the strength of the relationships of such concepts.
- **Visualizations:** These are automatically generated insights based on the selected fields in your relationship diagram. The system suggests a description of the visualization and recommends charts to complement such descriptions. These visualizations is represented by "cards" that you can easily use and drag on your charts.
- **Comparison:** You can compare two visualizations or cards for a more comprehensive analysis of your data.

For more details, see [Explorations on the IBM website](#).

Relationship Diagram

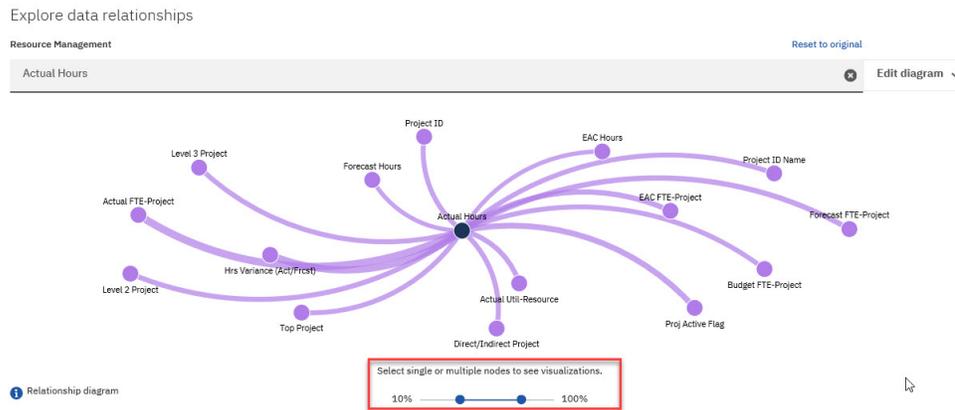
When you create an exploration, a relationship diagram displays after you choose a field from your data source.

The relationship diagram displays a statistical evaluation of items in relation to the selected field. In this case, the **Actual Hours** for resource management in Costpoint was chosen.



As default, there are 10 nodes that are displayed on the diagram. You can change the number of nodes when you indicate the percentage on the slider.

Here is the relationship diagram with 35% - 80% selected on the slider.



The thickness of the lines on the relationship diagram indicates the strength of the relationship to the selected field.

Visualizations in Exploration

To further enhance your analysis, you can use the recommended visualization in Costpoint BI.

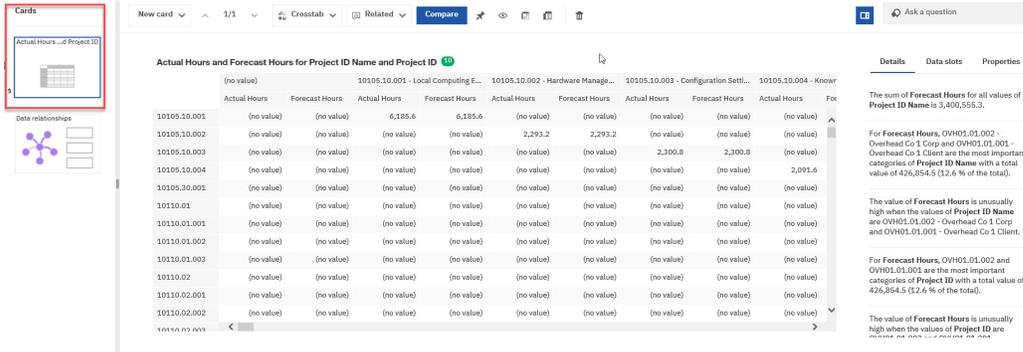
You can select fields from your relationship diagrams as starting points in your visualization.

For example, you can select **Actual Hours**, **Forecast Hours**, **Project ID**, and **Project ID Name** nodes in the relationship diagram.



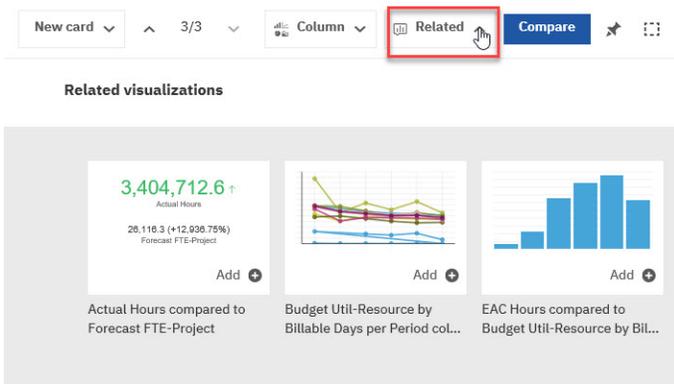
On the right-hand side of the screen, several recommended visualizations are displayed for you to choose from. When you select one of these, a **Card** on the left-hand side of the screen will be automatically created.

Explorations



Drag the card on the center of the screen to see the created visualization. On the right-hand side, you will see Costpoint BI's analysis based on your selected data which is presented in easy-to-understand concepts through natural language processing.

You can explore other visualizations through the **Related** drop-down.



For example, the **Actual Hours compared to Budget Util-Resource by Billable Days per Period** chart is selected.



An analysis based on the chart is also displayed on the right-hand side of the screen.

Comparisons

You can compare two visualizations with the **Compare** feature in Visualizations.

While an existing card or chart is on your Visualization screen, click **Compare**. The system will ask how you like to do the comparison which can either be by (1) creating a new chart with your current one or (2) duplicate the existing chart to start the comparison from.

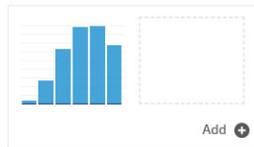


How do you want to compare?

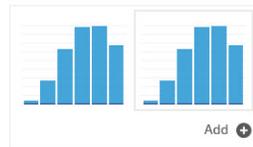
Select a card to create a comparison. The new compare card will be added to your card list.

Create comparison yourself

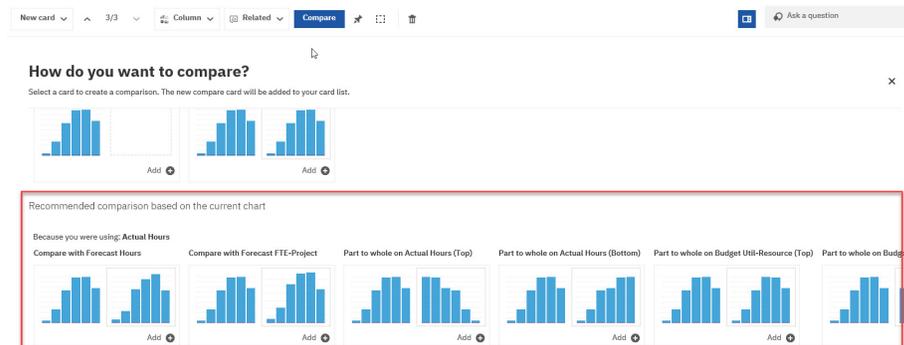
Create a new chart to compare with



Duplicate chart to start comparison from



Or another option for you to do the comparison is to select from the recommended comparisons by Costpoint BI based on your current chart.



Stories

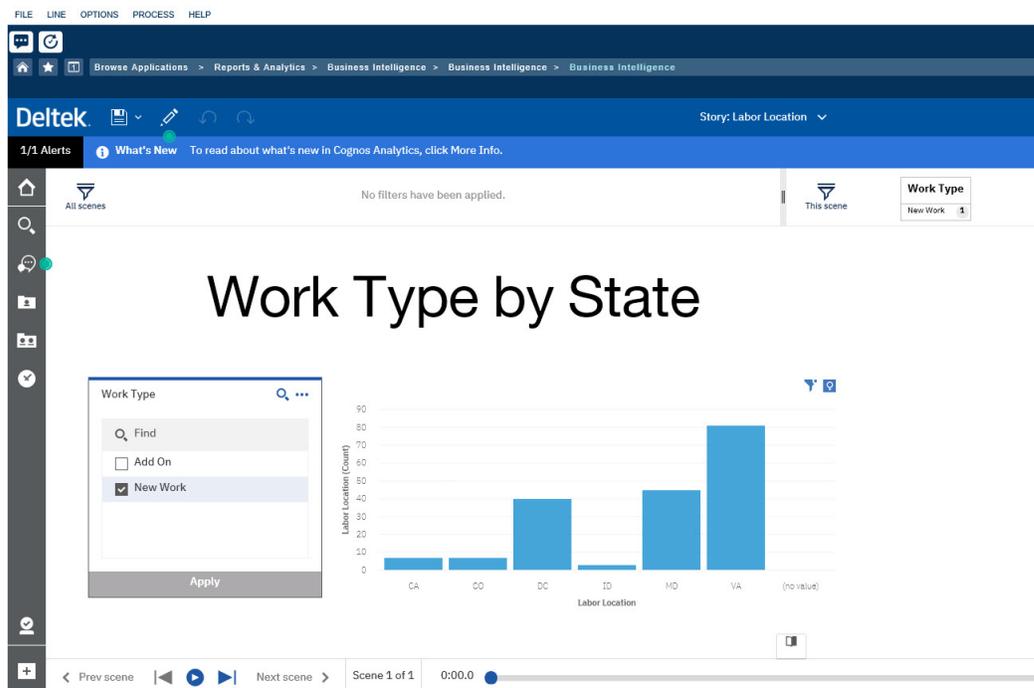
You can create a story to show analysis of your data. A story is a visual presentation of data from your dashboards or explorations which can be interactive for users.

Similar to animated presentations, you can adjust the different elements in a story such as the graphics, charts, add insights, that will make the data analysis easier to understand and have more impact to your users.

The process in creating a story may differ from each individual, but there are major components that you can consider in making one. Here are common elements in creating a story:

- **Create an outline through scenes:** A scene is similar to a slide in a generic presentation. Some of the common scenes are introduction, body, and conclusion that most stories have.
- **Enhance your scenes:** On each scene, add more graphical details such as data insights, shapes, charts, and other elements that can help convey the information in your story.
- **Adjust the timeline:** Similar to conventional video editing tools, you can adjust the timing of when the different widgets on each scene display. In this way, you can intensify the impact of an element during the presentation.
- **Add animations:** To further enhance the visual effect of the widgets, you can add animation.

Here is a sample interactive story. You can select a **Work Type** and the chart will display the associated count by **Labor Location**.



For more details about stories, see [Dashboards and Stories on the IBM Knowledge Center website](#).

Smart AI for Resource Management

Resource Management is the initial offering of Costpoint BI in its Smart AI series.

The data for budget, forecast, and actual labor for the Resource Management module will come from Costpoint Planning with the overall goal to help you:

- understand your future resource needs
- analyze historical utilization
- optimize future utilization
- incorporate non-backlog (new business) projects with opportunity-type data

These factors can assist you to optimize planning of resources in your projects. For instance, you can identify the number of employees in a project so you can have a plan in place to fill that need. Or you want to determine the number of hours that subcontractors are scheduled for a project. You can also recognize projects in the next couple of months that do not have anyone assigned to them.

These are just examples that the Resource Management can help you in planning for your projects.

Resource Management Running on Data Set

The Resource Management dashboard and data sets require files in **Smart AI** in **Team content**.

These files are in **Team content » Samples - Costpoint BI » Smart AI**:

- **Resource Mgmt » Resource Mgmt with dataset**
- **Resource Mgmt » Resource Mgmt Dashboard**
- **Datasets » Resource Mgmt Dataset**

Follow the instructions in [How to Copy Deltek Resource Management from Team Content to Company Content](#) on page 3 to start using the Deltek Resource Management data set.

Using AI Assistant for Resource Management

Use the AI Assistant to make it easier to analyze and display data via the Resource Management data module. You can enter questions in natural language which can be easily understood and all types of BI users can take advantage of.

Resource Management Model Structure

The model structure includes Category, Attribute, Relative Time, Measure, and Fiscal Calendar elements.

- **Categories** are primary data elements in the model.
- **Attributes** are sub-groupings that relate to a specific category.

- **Relative Time** are pre-aggregated time periods that are associated with the current period settings in Costpoint BI Settings.
- **Measures** are amounts or calculations such as hours or utilization percentages.
- **Fiscal calendar** is used when you view data for a specific period or year.

It helps to see the structure of the model to assist in formulating questions for the AI Assistant.

When you use AI Assistant, a typical question format is:

Show (measure) by (Category or Attribute) for (Fiscal Calendar)

For example, **Show Forecast Hours by Manager for Fiscal Year Period for fiscal year 2019**

Category	Attribute	Relative Time	Measure	Fiscal Calendar
Projects	Project ID Name	Next 12 Months	Actual Hours	Fiscal Year Period
	Project ID	Prior 12 Months	Budget Hours	
	Proj Active Flag	Next 6 Months	EAC Hours	Fiscal Period Month
	Company	Prior 6 Months	Forecast Hours	Fiscal Year
	Project Manager	Remainder of the Year	Actual Util-Resource	Fiscal Year Quarter
	Direct/Indirect Project	Prior Month	Actual FTE-Project	Fiscal Quarter
	Project Type	Prior Quarter	Budget Util-Resource	Fiscal Period
	Project Classification	Prior Year	Budget FTE-Project	Billable Days per Period
	Backlog/New Business	Current Month	EAC Util-Resource	
	Work Type	Current Quarter	EAC FTE-Project	
	Project Start Date	Current Year	Hrs Variance (Act/Frcst)	
	Project End Date	Prior MTD	FTE Variance (Act/Frcst)	
	Project Levels	Top Project	Prior QTD	Util Variance (Act/Frcst)
Revenue Level Project		Prior YTD		
Level 2-10 Project		MTD	Forecast Util-Resource	
Project UDEF	Project UDEF 1-10	QTD	Forecast FTE-Project	
		YTD		
Owning Org	Top Org Level 2-6 Org Owning Org	Same Month Last Quarter		
		Same Month Last Year		
		Same Quarter Last Year		
Customer	Customers Name Customer Type	Same MTD Last Quarter		
		Same MTD Last Year		
Resources	Resource Name Resource ID	Same QTD Last Year		

Category	Attribute	Relative Time	Measure	Fiscal Calendar
	Resource Type Empl Active Flag Home Org Default GLC Default PLC Job Title Manager Labor Location Labor Group			

Sample Questions for AI Assistant for Resource Management

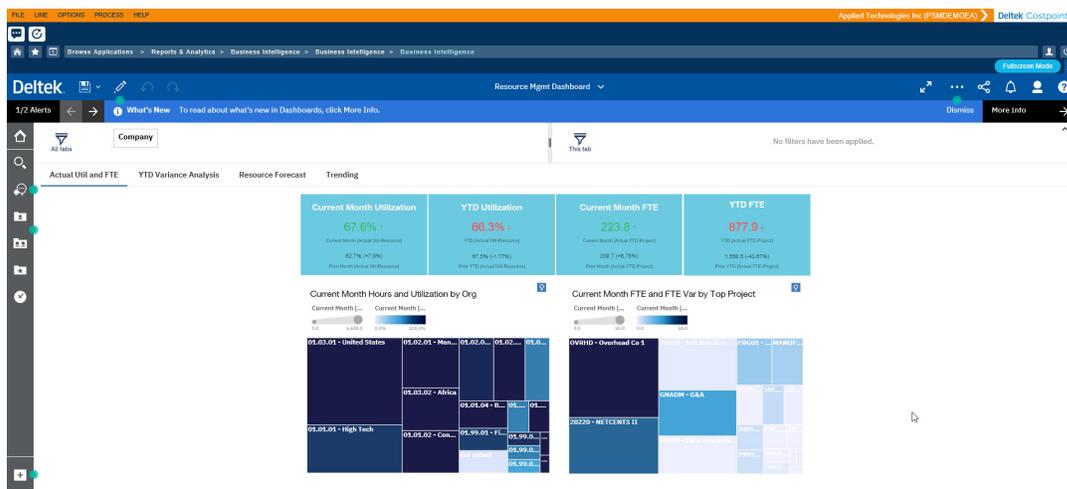
Try these sample questions or expand them when you explore data in Resource Management.

- Show Next 6 Months [Forecast Hours] by top project
- Show Forecast Hours by Fiscal Year Period for fiscal year 2019
- Show Next 6 Months [Forecast Util-Resource] by resource name where next 6 months [Forecast Utilization] is less than 0.7
- Show Next 6 Months [Forecast Hours] by resource type
- Show count resource name by labor location
- Show average total actual hours for fiscal year period for fiscal year 2018
- Show Actual to Forecast Variance Hours by Fiscal Year Period for 2019 by owning org
- Show revenue level project and Project Start Date and project end date by Project Manager
- Show top 5 top project and Actual FTE By Project and Fiscal Period Month
- Show Next 12 Months [Forecast Hours] and Backlog/New Business and Project UDEF 1
- Show Next 6 Months [Forecast FTE-Project] and Prior 6 Months [Actual FTE-Project] by Top Project
- Show EAC FTE-Project by fiscal year period in 2019 and 2020 by level 2 org
- Show Prior 12 Months [Util Variance (Act/Frcst)] and resource name by manager
- Show Prior 6 Months [FTE Variance (Act/Frcst)] and top project by Project Manager
- Show bottom 5 resource name and Prior Month [Hrs Variance (Act/Frcst)]
- Show Backlog/New Business Next 6 Months [Forecast Hours] by resource type
- Show Prior Month [Budget Hours] and prior month [actual hours] by level 3 org
- Show YTD [Actual Utili-Resource] and Prior YTD [Actual Util-Resource] by home org

- Show forecast hours and Backlog/New Business and work type by top project where probability is greater than .7 and less than 1
- Show Current Month [Actual Hours] by project classification by home org

Resource Management Dashboard

You can view and use a sample dashboard after you copy Resource Management in **Company content** and refresh the data.



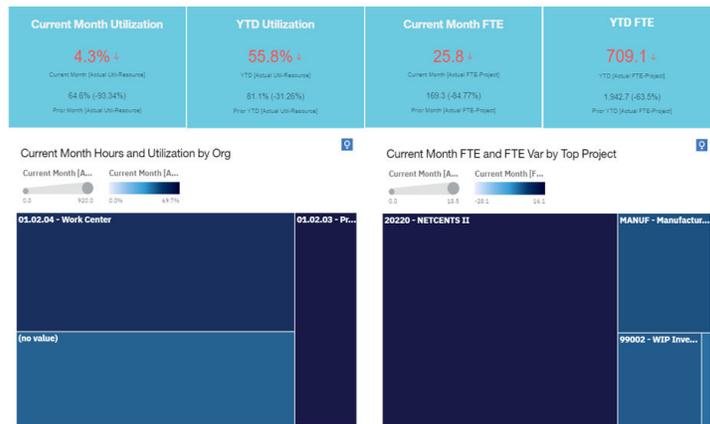
The **Resource Management Dashboard** uses data from Costpoint Planning for Projects and helps you understand the utilization of your resources. It tells you when there is not much work for your resources or too much work which can signify you to hire additional resource to meet your project obligations. The Resource Management Dashboard also provides insight on existing, backlog, and prospective projects or what are called new business projects in Planning.

The different dashboards on Resource Management are:

- Actual Util and FTE
- YTD Variance Analysis
- Resource Forecast
- Resource Trending

Actual Util and FTE

This dashboard uses relative time dimension to look at current period and year-to-date utilization.

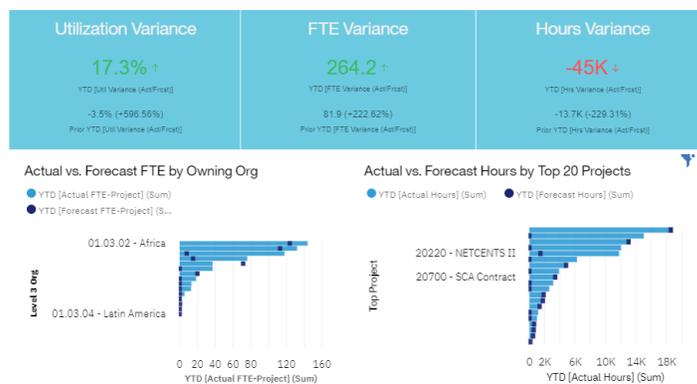


This dashboard gets year-to-date (YTD) utilization and full time equivalents (FTE) and compare them to prior periods. The magnitude of these utilizations and variances by organization and/or by projects are also displayed.

Note: The **Actual FTE-Project** measure is calculated by dividing the work hours in a period. All actual hours include both direct and indirect hours. All utilization are based on direct hours.

YTD Variance Analysis

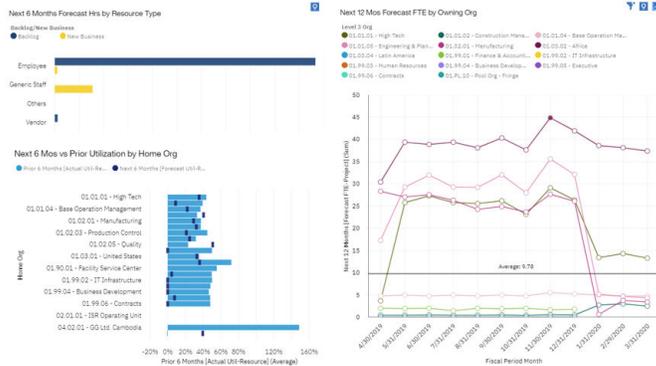
This dashboard shows the number resources that are performing compared to forecast.



The dashboard shows the variance in utilization in actual versus forecast.

Resource Forecast

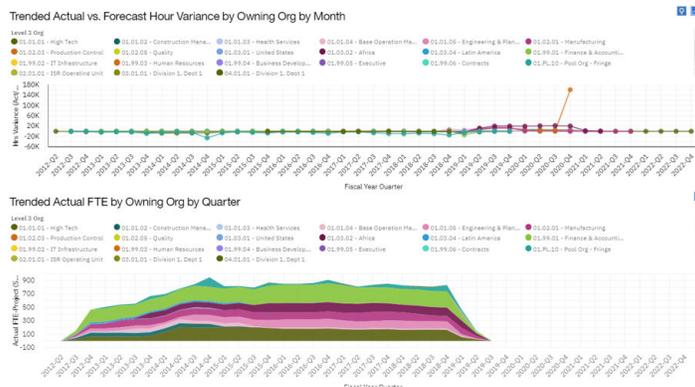
The Resource Forecast dashboard tells you the resources that you need in the future.



The Resource Forecast shows the next 6 to 12 months in terms of projects that you will be working on including the organization. This chart considers the current date parameter that is set so as to identify the current period to use as basis for the forecast.

Resource Trending

This dashboard shows the number of resources that were utilized over a time period by organization.



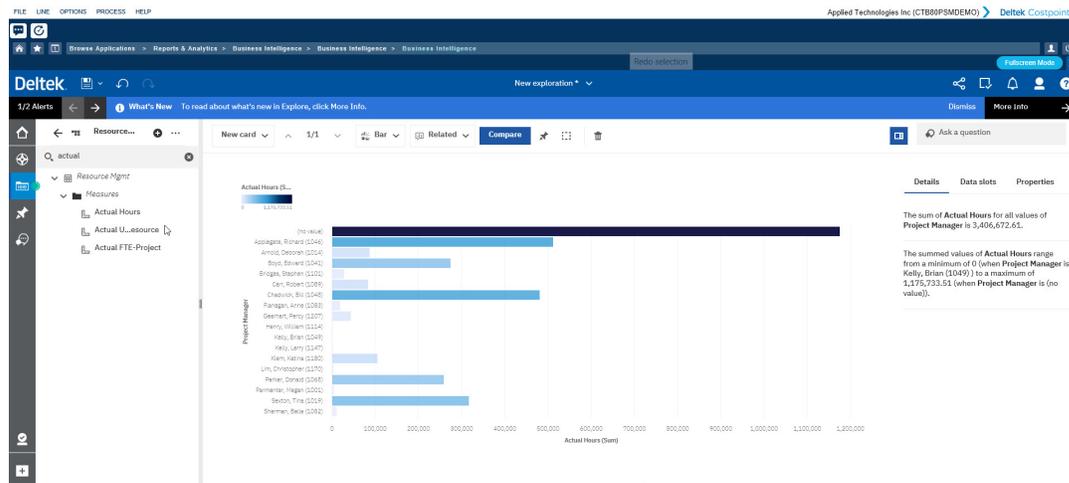
It shows the actual hour variance versus forecast by owning organization by month. It also shows the full time equivalents (FTE) by quarter to show you the charging for resources that has been done over time.

Explorations in Resource Management

You can use a combination of the fields in Resource Management to create an exploration.

Here is a sample exploration that uses **Actual Hours** by **Project Manager**.

Smart AI for Resource Management



On the right-hand side under **Details**, insights are displayed based on the exploration.

About Deltek

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