Blackbaud CRM + Microsoft Power BI

BEST PRACTICES IN MERGING CAPABILITIES OF MICROSOFT POWER BI WITH BLACKBAUD CRM

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blackbaud®
DEVELOPERS' CONFERENCE
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Hello! I'm
Rebecca Sundquist

Pronouns: She/Her/Hers

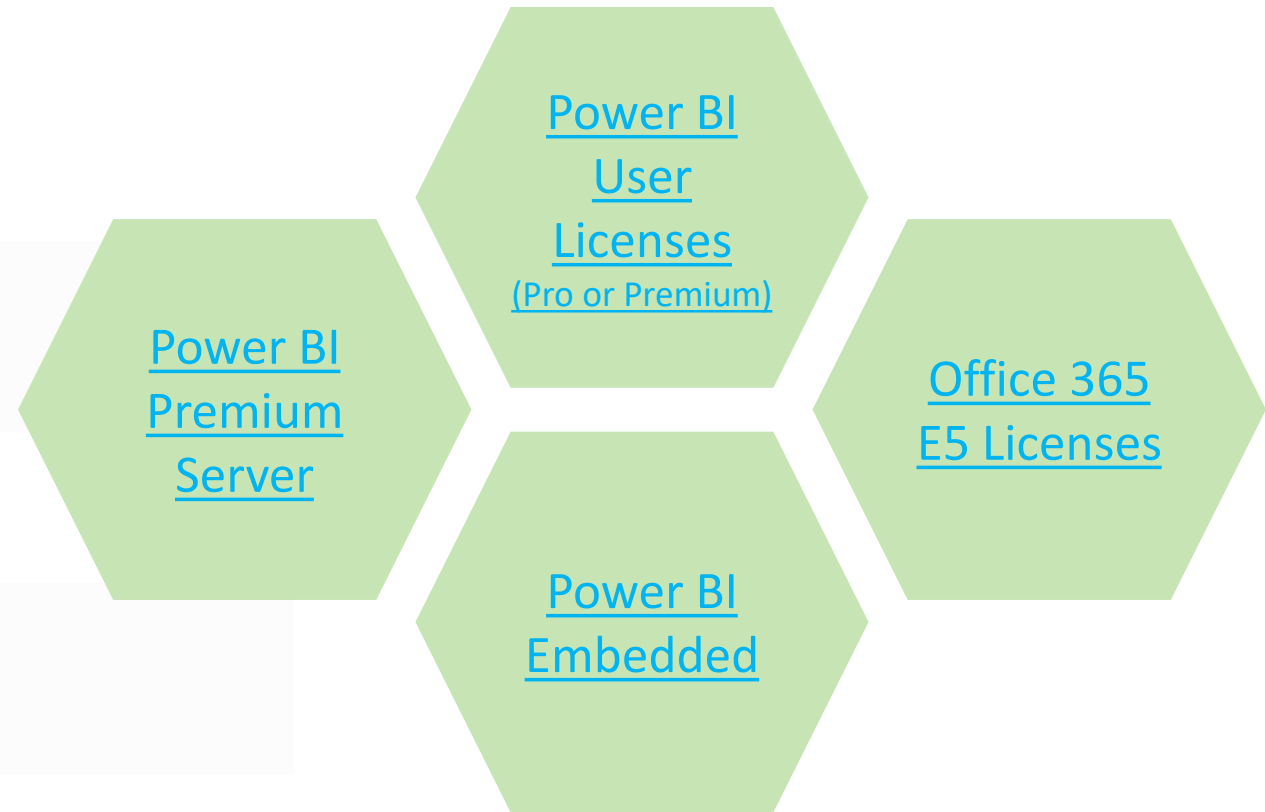HOMETOWN: KANSAS CITY, MISSOURI

AT BLACKBAUD: 17 YEARS

Passionate about literacy, I volunteer as a reading mentor in my neighborhood school. I am also passionate about data literacy, consulting with clients to turn data into information.

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This session is for BBCRM organizations who are

Current Power BI Users

Interested in Power BI

Power BI User Licenses (Pro or Premium)

Power BI Premium Server

Power BI Embedded

Office 365 E5 Licenses

Agenda

Demo	Demonstrate embedded Power BI report in Blackbaud CRM
Connect	Connect Power BI to BBCRM Data Sources
Create	Create Power BI Dataset and Report
Embed	Embed Power BI Reports into BBCRM Pages
Maintain	Maintain Power BI Reports on Power BI Service with a Data Gateway

Demo: Prospect Pipeline

Prospects, Plans, and Opportunities cross-filterable and with drill-through to record detail
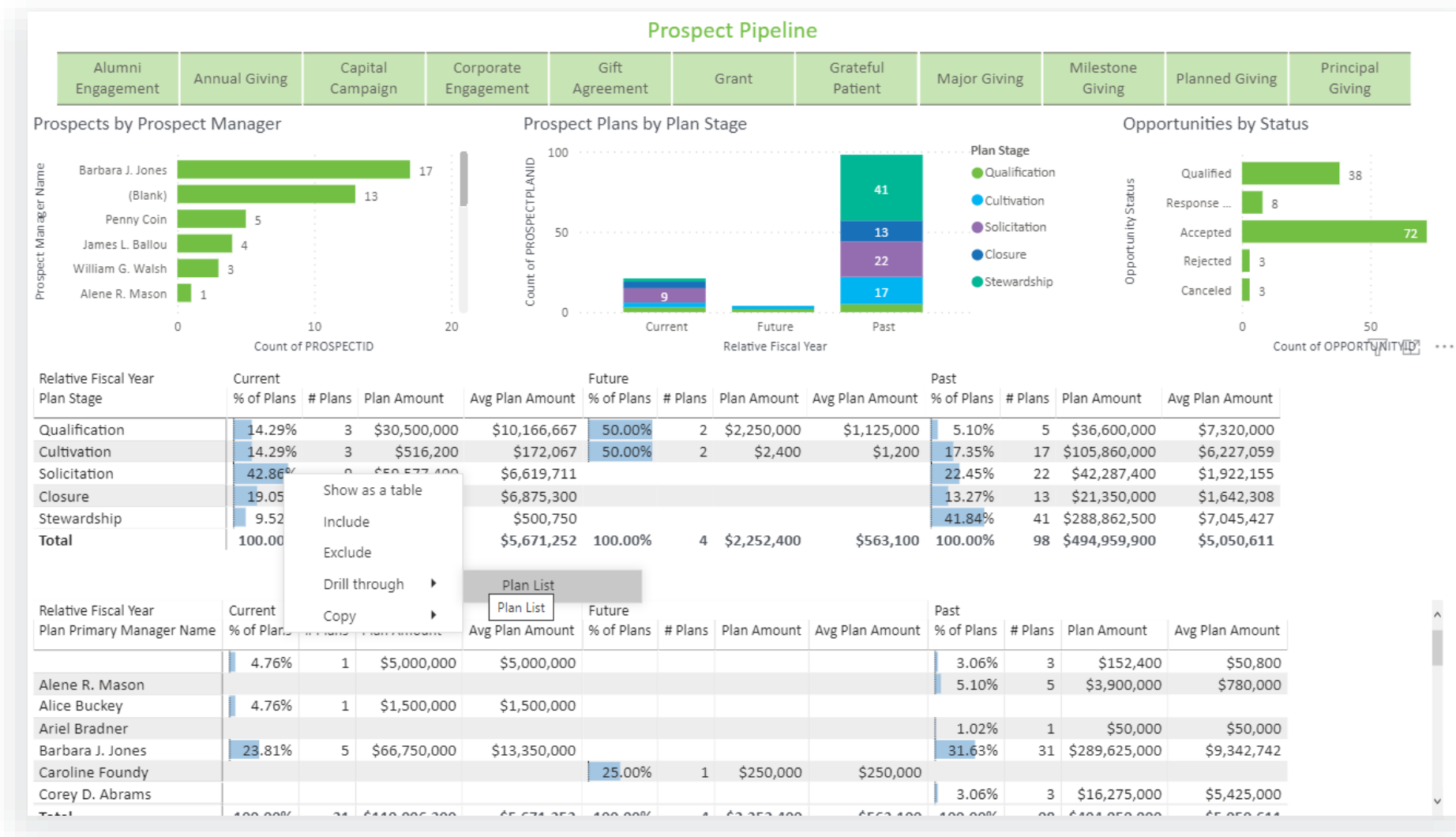
Connect to BBCRM

CONNECT POWER BI DESKTOP TO BBCRM DATA SOURCE

Connect Power BI Desktop to Blackbaud CRM

On-premise and Hosted environments have connection options

Mashup CRM data source(s) with your own source(s)

On-premise SQL Server / Read-only access (Azure)

Connecting to your on-premise SQL Server or Azure hosted read-only access is the **recommended connection** due to easy maintenance across reports and most thorough access to objects in OLTP and BBDW databases. Requires data gateway.

OData

Built-in feature allows access to ad-hoc query results. Requires data gateway when using Basic authentication.

Data list end point

Built-in feature allows access to ad-hoc query results with parameterization and provides data type definitions to Power Query. Does not refresh on Power BI Service when SSO is enabled.
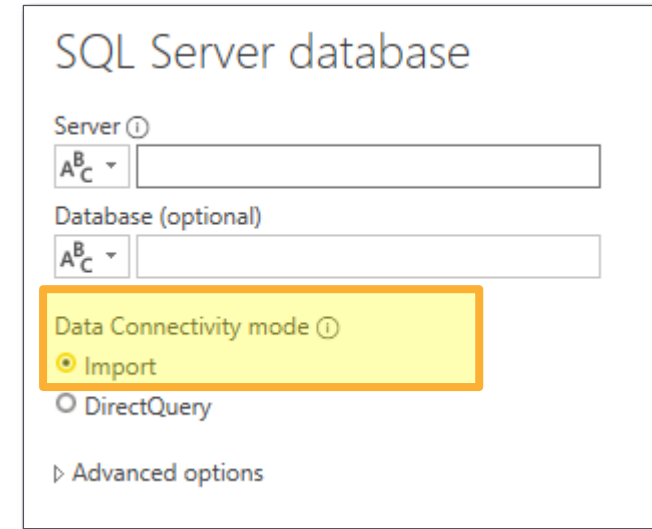
Replicated data store / Scheduled backups

This offering requires offline maintenance of SQL Server backup restorations. Then connect Power BI to your on-premise backup server via data gateway.

Import into Power BI Desktop

Use the Import connectivity mode to take advantage of Power BI's advanced features.

Note that refreshes on Power BI Service of imported SQL Server datasets (such as an on-prem SQL database or the read-only access connection) must route through a data gateway, where credentials for the CRM connection are stored centrally.

Import vs Direct Query

Trick: Connecting to Query Views

Challenge:

You will often want to use query views that are already optimized for ad-hoc query. Power BI displays top 10,000 objects from SQL Server database in Navigator window. "V_Query…" views do not show up within the top 10,000.

Solution:

1. Select any table from the SQL Server data source in the Navigator window.

2. Open **Power Query** by clicking the "Transform Data" icon on the "Queries" menu bar.

3. Select the query you need to update from the "Queries" list. Update the name of the query under "Properties."

4. Under "Applied Steps," click on the "Navigation" step.

5. Alter the "Item" value in the M Query.
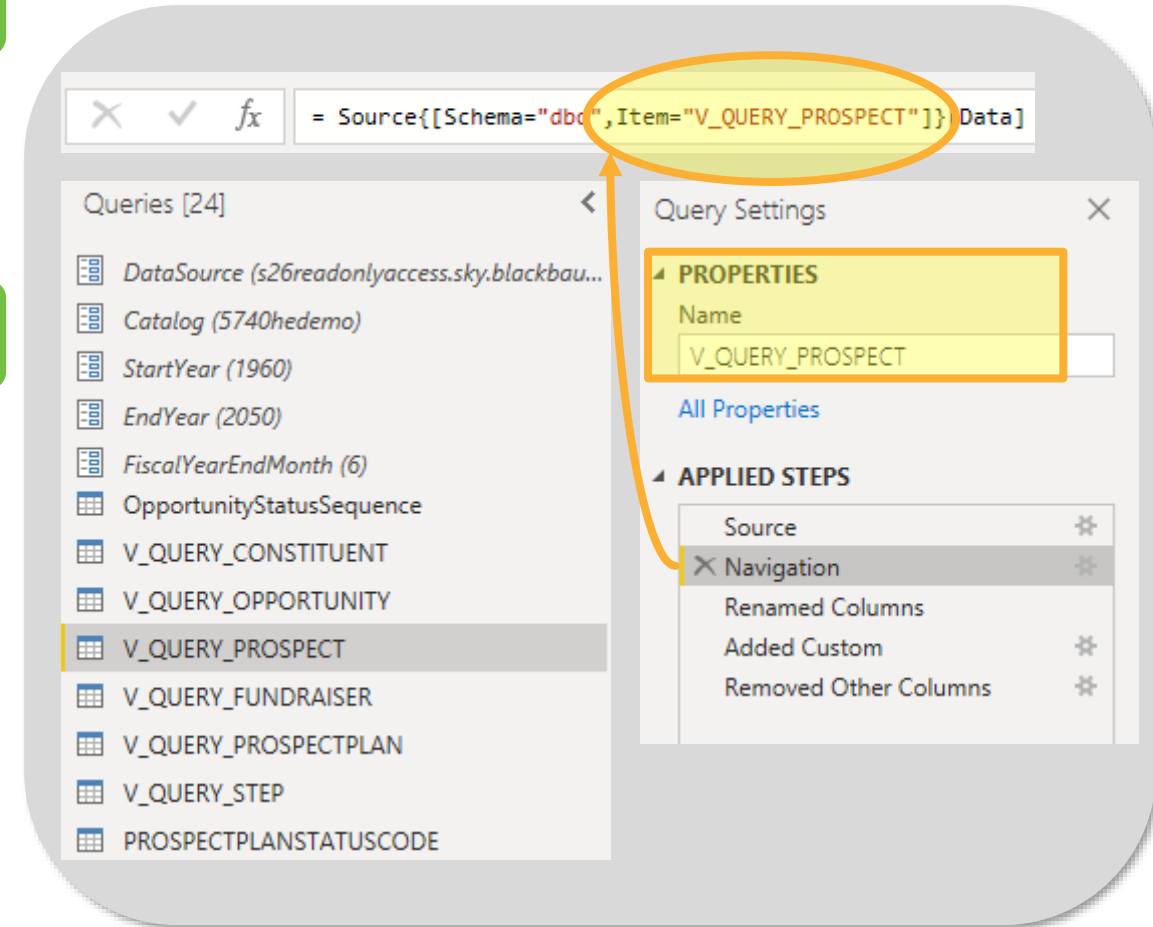
Create Dataset and Report

CREATE DATASET IN POWER BI DESKTOP AND PREPARE A REPORT TO PUBLISH

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Create Power BI Model

Power BI's Model is a Tabular Relationship – not "flattening" data via joins

Example: Connect Prospect Plans and Plan Steps without duplicating Prospect Plan records.
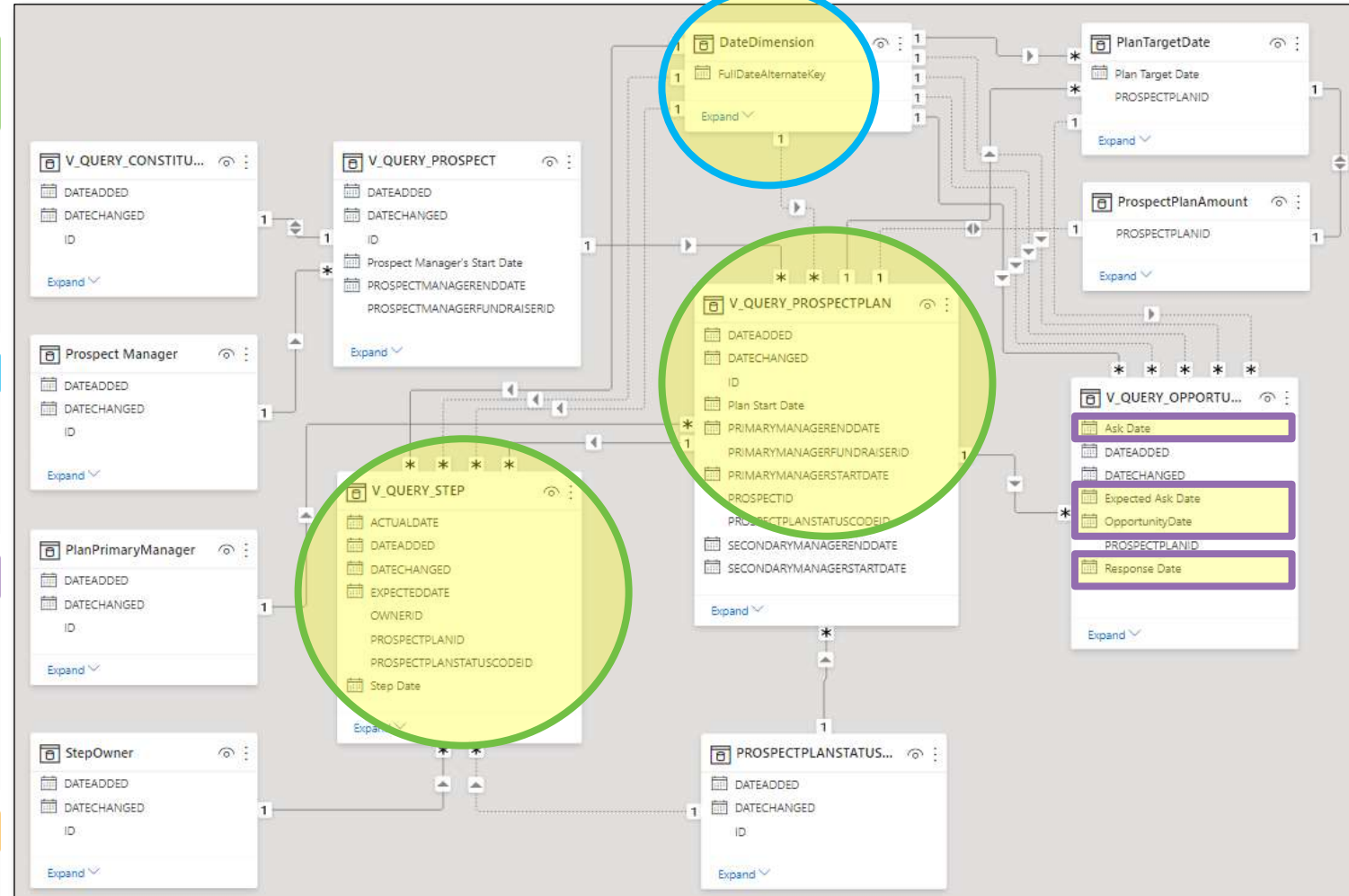
Create custom dimensions

Example: Custom fiscal periods in custom DateDimension

Role-playing dimensions

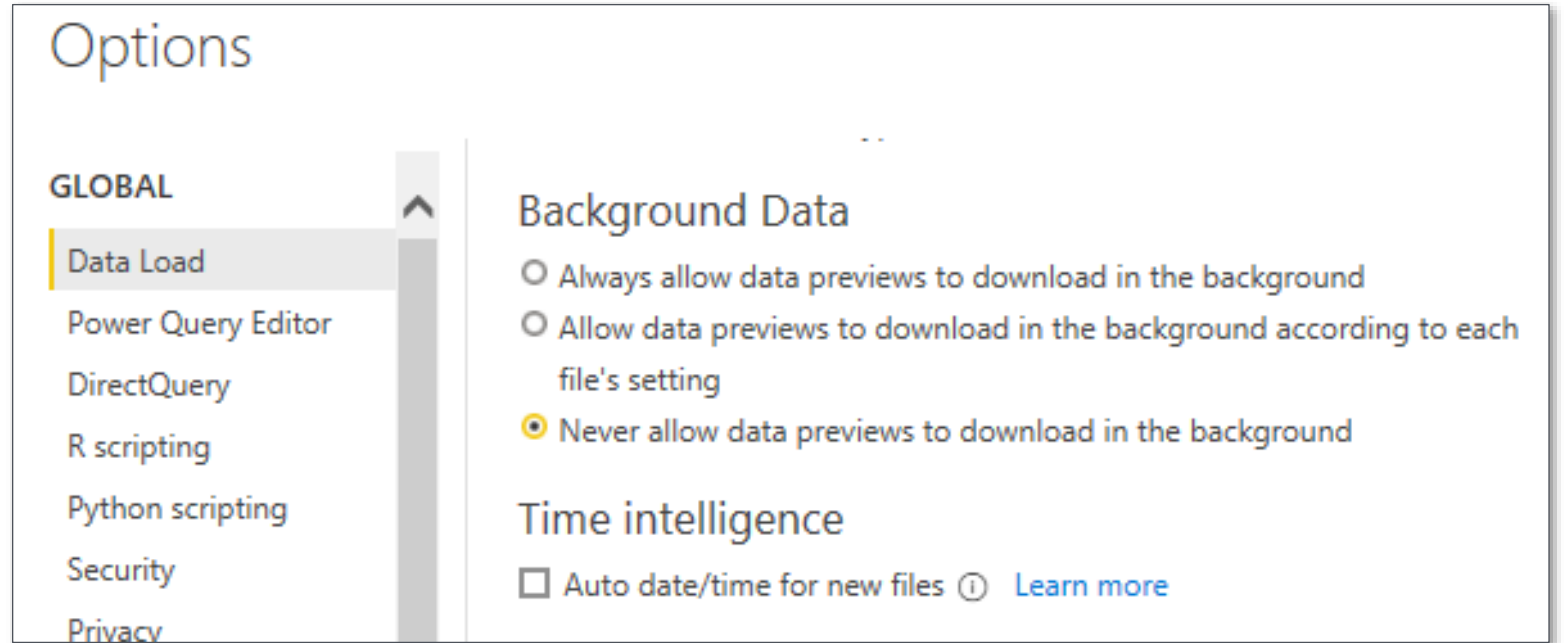*Example:* Ask Amount summed by Ask Date, while Accepted Amount summed by Date Received

Time Period Comparisons built-in

Example: Compare to same period prior year.

Tip: Turn off Time Intelligence

Turn off Time intelligence under Global and Current File "Data Load" menu.

Options

GLOBAL

Data Load

Power Query Editor

DirectQuery

R scripting

Python scripting

Security

Privacy

Background Data

○ Always allow data previews to download in the background

○ Allow data previews to download in the background according to each file's setting

◉ Never allow data previews to download in the background

Time intelligence

☐ Auto date/time for new files ⓘ Learn more

Power BI Auto Date Time

Trick: Year-to-Date comparison Year over Year

4/23/2021
ThroughDate

∧ Year-to-Date comparisons are based on a "Through Date" calculated from most recent date any CRM user added or updated a Plan Step.

Use this date to calculate the column "IsYTD" on the date dimension.

Fiscal Year ⌄

FY 2020 ⌄

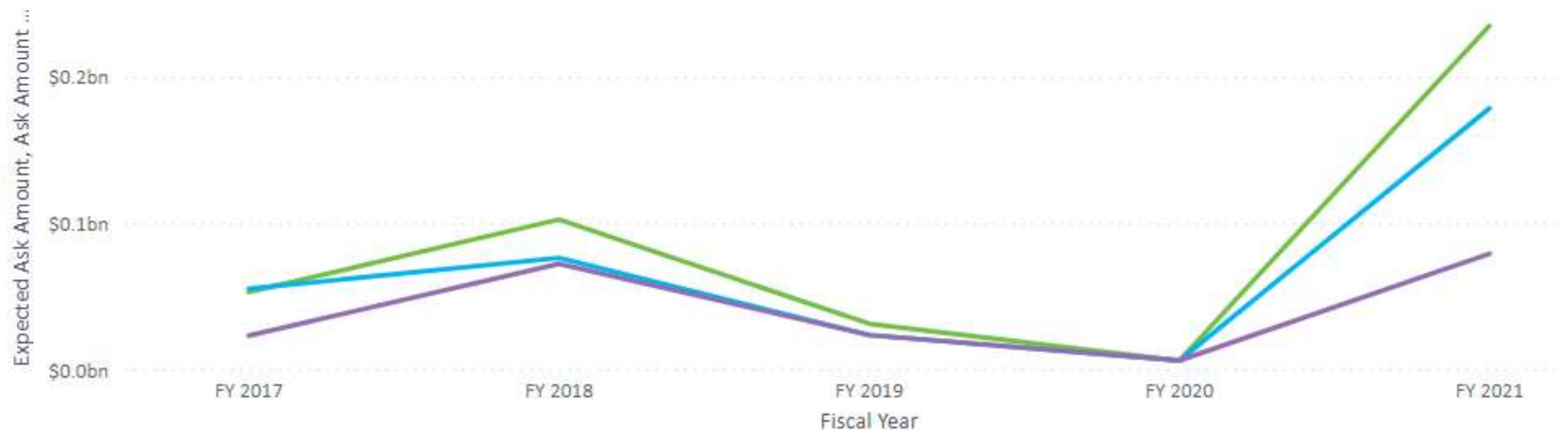∨ SAMEPERIODLASTYEAR() allows for comparison to prior year

Expected Ask Amount YTD

$31.2M

$6.03M

$0M $62.4M

Ask Amount YTD

$23.48M

$6.02M

$0M $46.95M

Accepted Amount YTD

$23.45M

$6.02M

$0M $46.9M

Apply the date dimension's calculated column "IsYTD" as a page filter to view the year-to-date trend across years.

>

> Roll-playing dimensions allow one date dimension to filter three metrics, each on a different date field:
Expected Ask Date, **Ask Date**, **Response Date**

Year-to-Date Trend

● Expected Ask Amount ● Ask Amount ● Accepted Amount

$0.2bn

$0.1bn

$0.0bn

FY 2017   FY 2018   FY 2019   FY 2020   FY 2021

Fiscal Year

Trick: Apply Artificial Intelligence

Key Influencers view is pre-built in Power BI, ready to analyze your CRM data source.
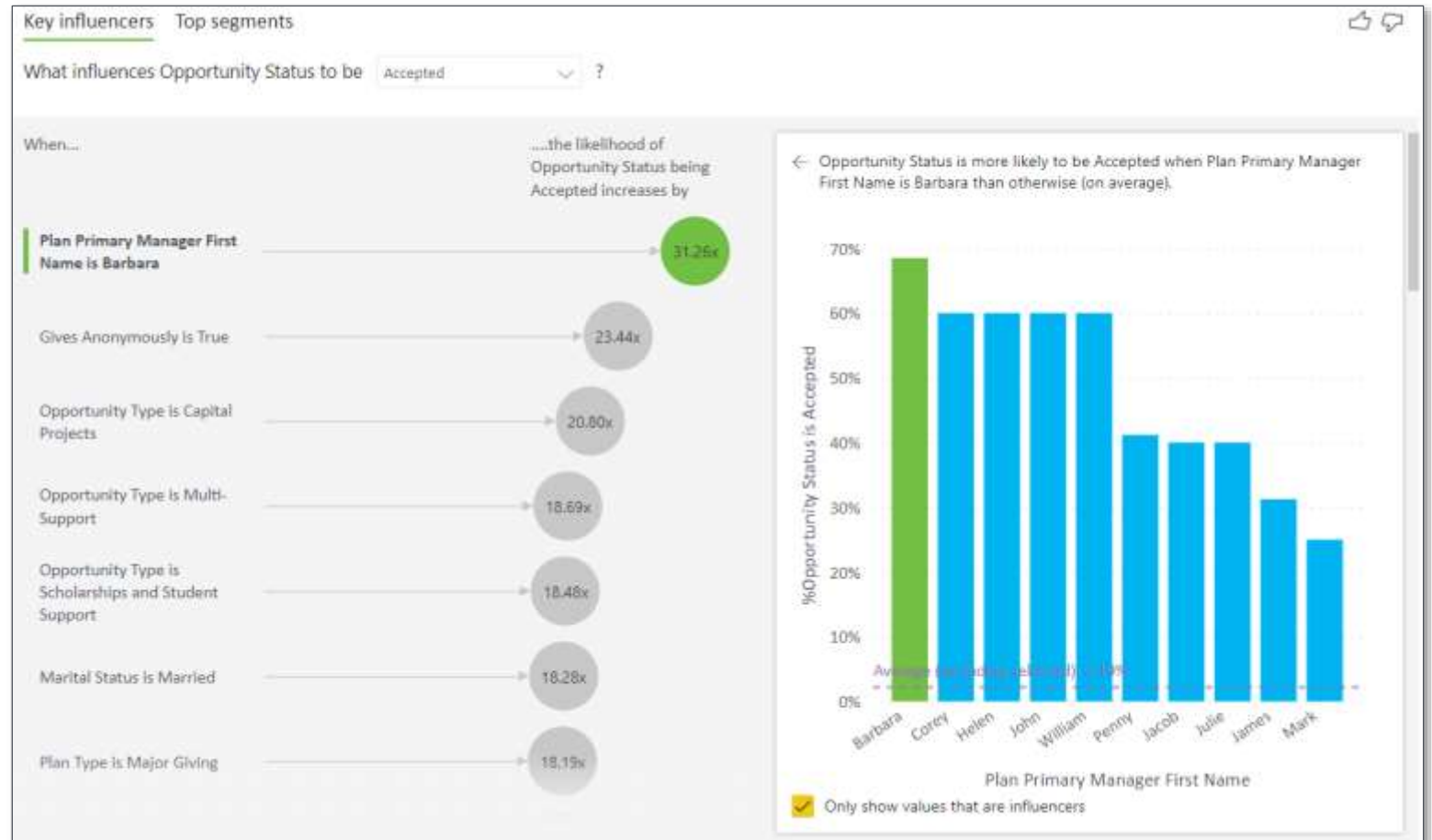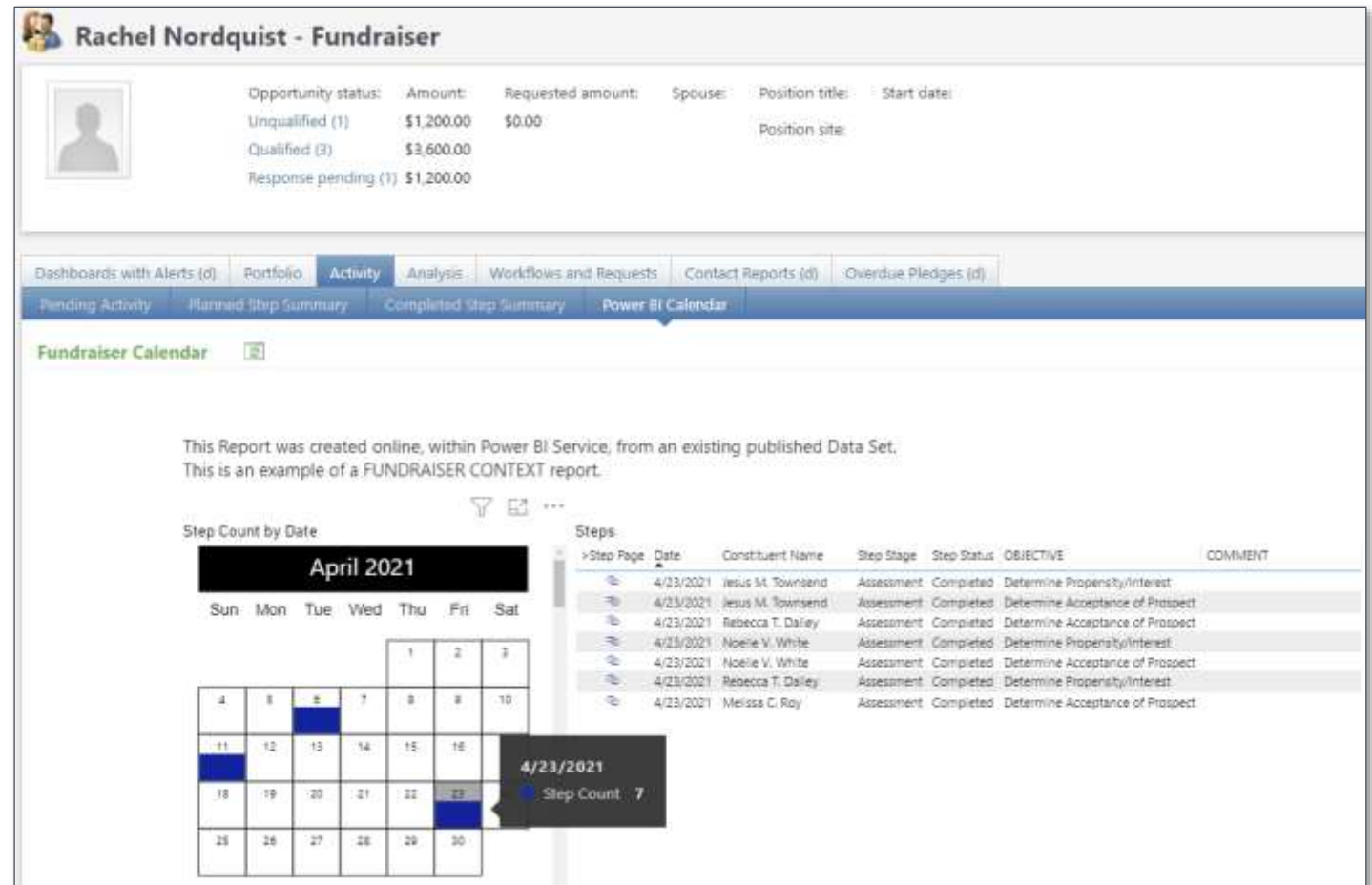
Embed in BBCRM

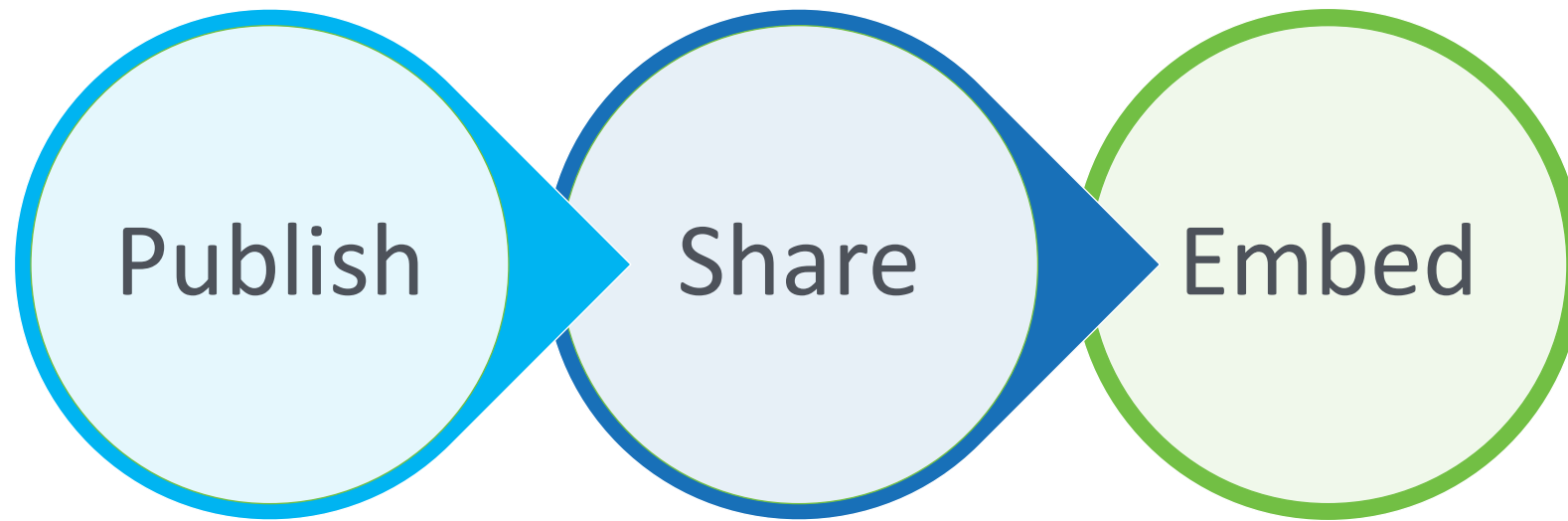EMBED POWER BI REPORT IN BLACKBAUD CRM

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Trick: Apply Page Context for Personalization

Interactive visualizations for your fundraisers

Steps to Embed

Publish → Share → Embed

Publish

Power BI datasets are created and maintained in Power BI Desktop. User may create a report in this .pbix file too.

- When a .pbix file is published to the Power BI Service, the dataset and report are *both* added to the Power BI Service content.

- The dataset can be shared with other users to allow report creation online (in browser) from the published dataset. This ensures that all report developers are sharing the same data model for each functional area.
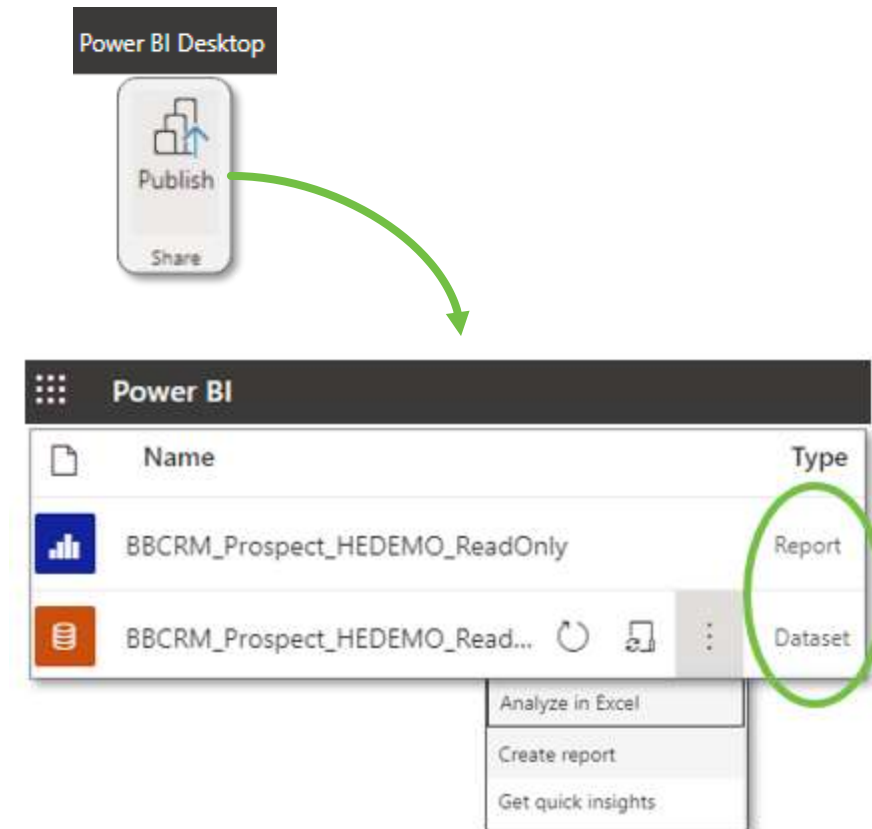
Tip: Build additional reports from central dataset

Now that you have a robust data model built in Power BI Desktop and published to Power BI Service, build additional reports refencing the published dataset.

Gateway   **Dataset**   **Reports**
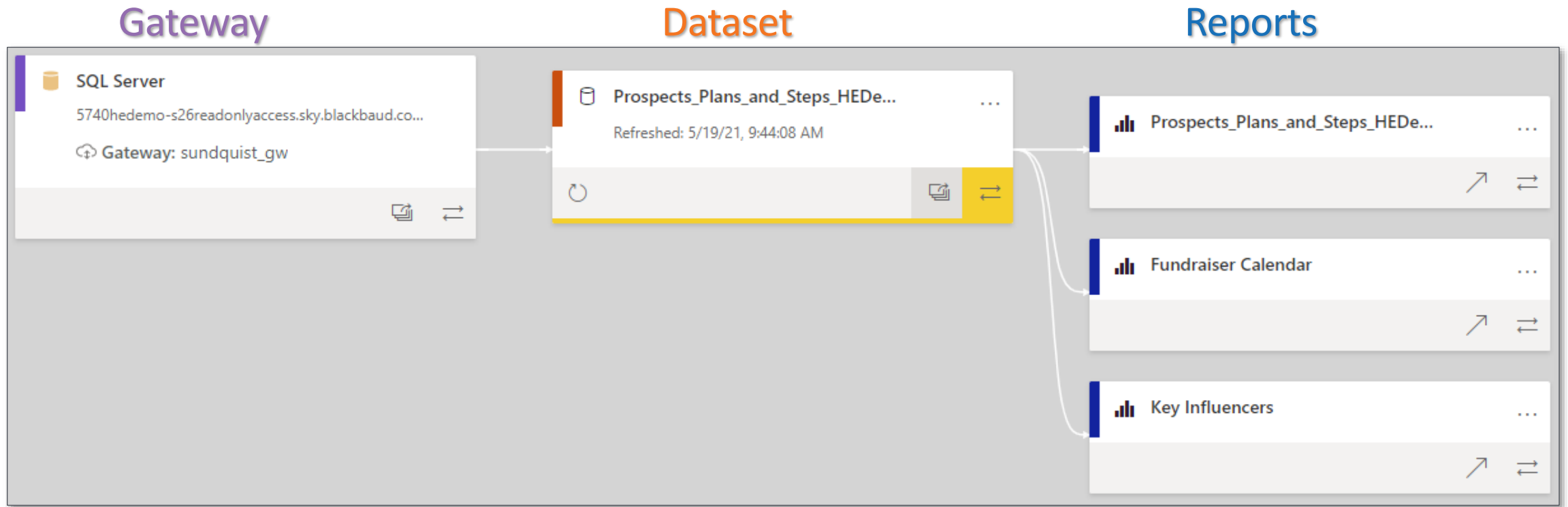
Share

Licensing

Blackbaud does not provide Power BI licenses or hosting. Microsoft requires viewers to have Power BI Pro or Premium user licenses, unless the report is hosted under Premium Capacity or an Embedded license.

Authentication

Power BI Service requires each user to be logged into their Microsoft account, as the sharing of Power BI Content is managed by Microsoft.

Exception: Power BI Embedded license provides access to viewers with no Microsoft login.

Recommendation: Publish to Microsoft Workspaces where access is managed at the workspace level, not per artifact.

Embed

In Power BI Service, grab the Embed code from the report's File Menu

File > Embed Report > Website or Portal

Use the embed link (URL) to embed in a custom component in CRM. <recommended

Or use the HTML to configure an iframe display.
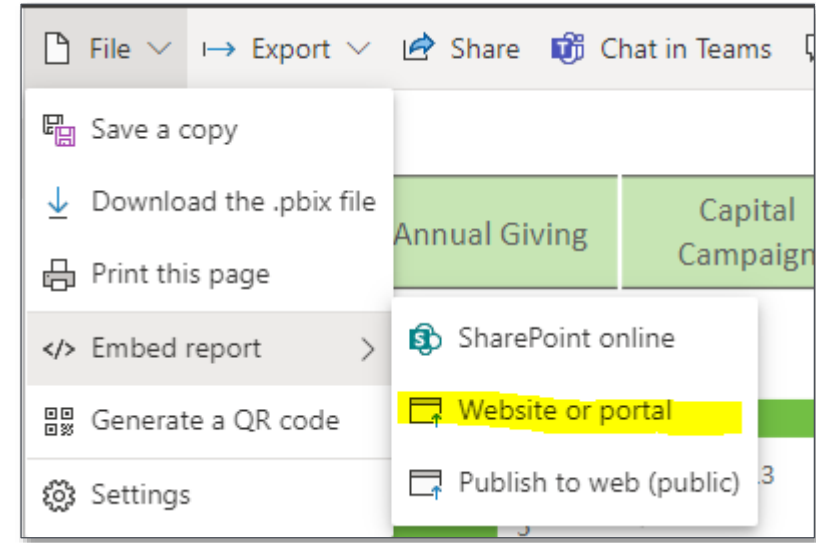
Embed

BBCRM Custom Component URLSection

Create a section with

SectionType =

"Custom Component"

CustomComponent =

Blackbaud.AppFx.Platform.UrlSectionClient.dll,Blackbaud.AppFx.Platform.UrlSectionClient.UrlSection

Embed
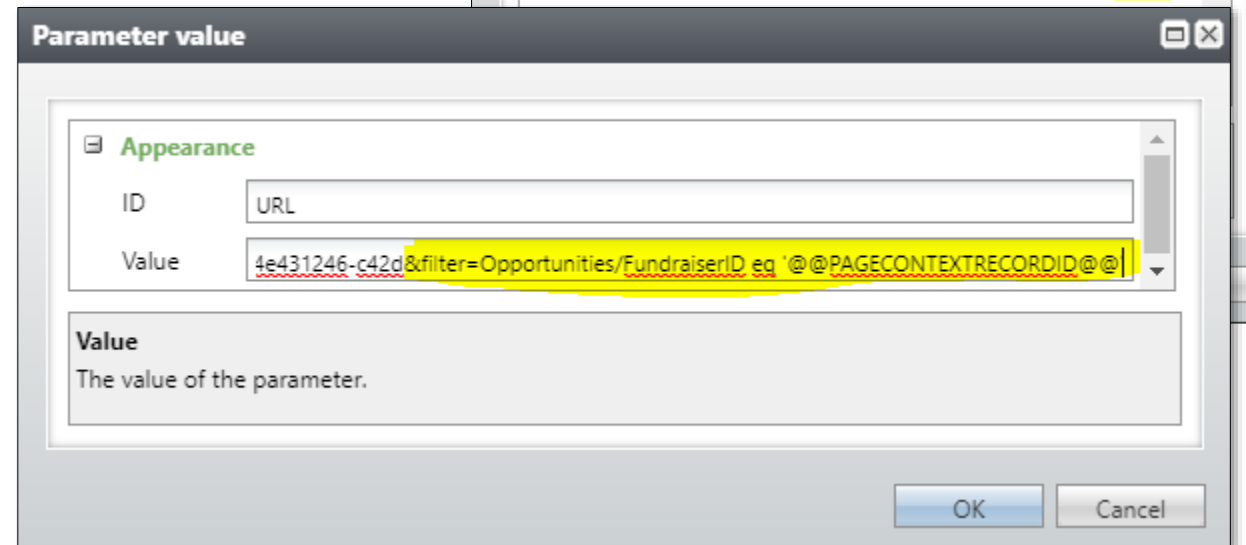
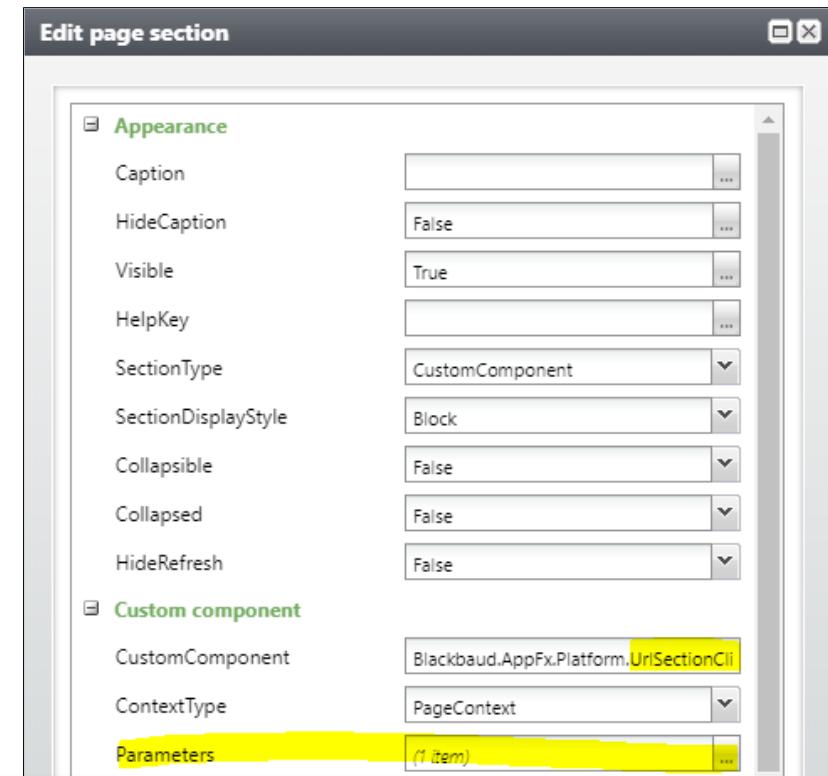Pass context from the BBCRM page to the Power BI report

Use the Parameters within the CustomComponent to reference the Power BI embed code (URL)

Append filters to the embed code (URL) to pass context. For Power BI the format is:

&filter=**TableName/FieldName** eq '@@PAGECONTEXTRECORDID@@'

TableName/FieldName is the Power BI Query table and field

Power BI embed URL structure

Maintain Report

PUBLISH TO POWER BI SERVICE AND MAINTAIN DATA
SOURCE CONNECTION THROUGH DATA GATEWAY

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What is a Data Gateway?

A Data Gateway supports the online refreshes of the imported datasets on Power BI.

A Data Gateway is required to connect Power BI Service to an on-premise SQL Server or any time it is necessary to store a centralized set of credentials for the scheduled refresh.

The user requesting data from CRM is the Power BI Service, not an individual viewing the report. A Data Gateway manages the CRM access credentials.

Installing Power BI Data Gateway

Download "standard mode" from Microsoft's page:
https://powerbi.microsoft.com/en-us/gateway/

Where to install:

- Client's Azure or on-prem location

- Read-only requires whitelisted IP for gateway

- Must be online/accessible during scheduled dataset refreshes

Configuring Power BI Data Gateway
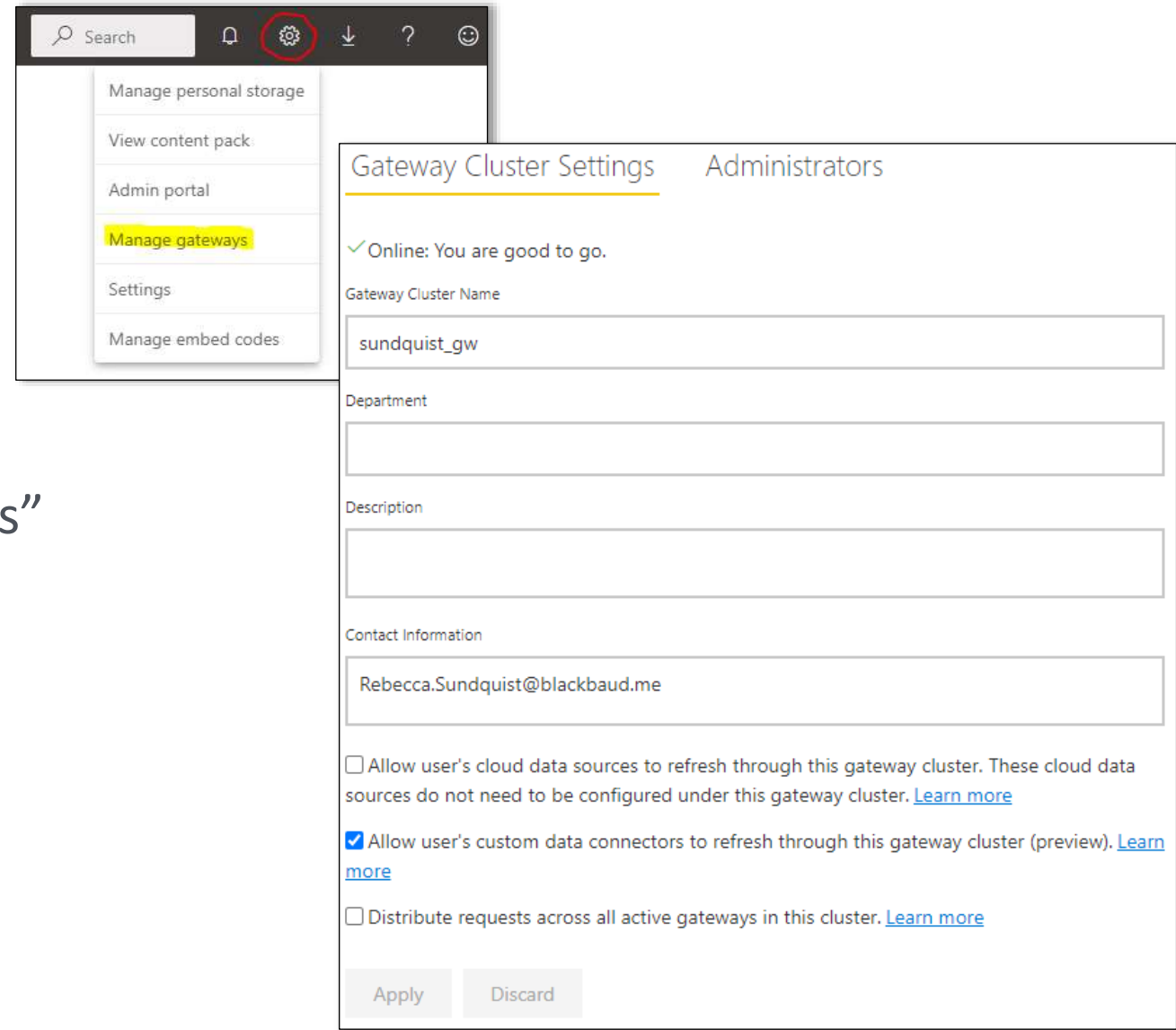
From the Settings wheel in the Power BI Service tool bar, select "Manage Gateways"

<u>Define</u>

1. Gateway Cluster Settings

2. Administrators

Add a data source to Power BI Data Gateway

Click "Add Data Source"

OR expand the gateway to view data sources already created

Define

1. Data Source Settings

Always "Skip Test Connection"

2. Users: define who can publish reports that use this data source

Gateway Connection for Report Dataset

Navigate to "Settings" for the dataset uploaded from .pbix

1. Turn on "Use a data gateway or Vnet"

2. Select the Gateway

3. Select the data source that you previously configured under the gateway in the "Maps to:" drop down.

"Settings" is also where you schedule the refresh

Settings for HEDemo_ReadOnly_OLTP_referencing_query_views

Last refresh succeeded: Mon Mar 29 2021 14:07:23 GMT-0500 (Central Daylight Time)
Next refresh: Mon Apr 05 2021 05:00:00 GMT-0500 (Central Daylight Time)
Refresh history

▲ Gateway connection

To use a data gateway, make sure the computer is online and the data source is added in Manage Gateways. If you're using an On-premises data gateway (standard mode), please select the corresponding data sources and then click apply.

Use a data gateway or VNet

(1) ◯ On

Gateway	Department	Contact information	Status	Actions
(2) ◉ ⬆ sundquist_gw		Rebecca.Sundquist@bl...	⊘ Running on chs6rebeccsun01	⚙ ▾

Data sources included in this dataset:

	Maps to:
⊘ SqlServer{"server":"s26readonlyaccess.sky.blackbaud.com,5010 1","database":"5740hedemo"}	HeDemo OLTP ▾ **(3)**

Apply   Discard

▸ Data source credentials

▸ Parameters

▸ Scheduled refresh

▸ Q&A

▸ Featured Q&A questions

▸ Endorsement

▸ Dataset Image

Only users defined with the data source can add the gateway's data source to a dataset.

Microsoft Learn: Power BI

Power BI Licenses Explained

Power BI Gateway

Blackbaud Infinity Technical Reference

Blackbaud Community Developer Discussions

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