Building Dynamics CRM 2015 Dashboards with Power BI

Building Dynamics CRM 2015 Dashboards with Power BI is a hands-on guide to building and configuring powerful Dynamics CRM dashboards. This book will provide you with the skills you need to learn how to build and present Dynamics CRM 2015 sales dashboards using Power BI. It follows a step-by-step process to build an interactive dashboard by organizing and consolidating datasets, improving the look and feel of graphs, charts, and maps, and enhancing data clarity with filters and slicers.

By sequentially working through the steps in each chapter, you will learn how to use the Power BI Q&A functionality to query data in the dashboard, extend the dashboards to the mobile apps for the iPad and Surface, and leverage the pre-built workbook template provided by Microsoft for Dynamics CRM 2015 sales, service, and marketing dashboards.

Building Dynamics CRM 2015 Dashboards with Power BI is your one stop solution for building interactive, analytical Dynamics CRM 2015 dashboards.

Who this book is written for
This book is intended for all Dynamics CRM 2015 users—administrators, managers, business analysts, or report writers who are new to creating dashboards using Power BI and Dynamics CRM. It would be helpful to have a basic knowledge of the Dynamics CRM 2015 platform, but no prior experience is required.

What you will learn from this book
- Organize and consolidate Dynamics CRM 2015 datasets
- Add summaries and visualizations using charts and maps
- Enhance data clarity with filters, slicers, and timelines
- Improve analysis by joining other data sources
- Deploy and present the dashboard to Power BI for the Office 365 site
- Use the advanced Q&A functionality with Power BI to query data in the dashboard graphs and charts
- Connect the dashboards to Dynamics CRM 2015
- Extend functionality with the Power BI mobile apps
In this package, you will find:

- The author biography
- A preview chapter from the book, Chapter 1 'Getting Dynamics CRM 2015 Data into Power BI'
- A synopsis of the book’s content
- More information on Building Dynamics CRM 2015 Dashboards with Power BI
Steve Ivie is a Microsoft business solutions advisor and author. He is also the founder of DynShare (www.dynshare.com), a learning and discovery site focused on business productivity, social collaboration, integrated solutions, and business analytics with Dynamics CRM and Office 365.

For 15 years, Steve has been working on business technologies for industries such as finance, biopharmaceutical, healthcare, professional services, manufacturing, sports, and entertainment. He is one of the few people who have a principle-level consulting record and holds professional certifications in Dynamics CRM, Dynamics GP, SharePoint, and business intelligence. Steve is an active speaker of CRMUG and a facilitator at Microsoft Customer Immersion Experience (CIE).

As a solution architect at Tribridge, he is responsible for building and presenting customized business solutions with Microsoft Dynamics CRM and Office 365, in addition to integrating Power BI and marketing Dynamics GP, Dynamics AX, and related ISV products.
Welcome to building dashboards with Microsoft Dynamics 2015 and Power BI. Sales teams today want information that is faster and easy to access. This is where Power BI comes in. The main goal is to give users an easy way to create their own dashboards to present information in a timely and simple-to-understand format. In this book, using Power BI, we will cover the process of building and accessing refreshable dashboards with information from Dynamics CRM and Dynamics GP.

Throughout this book, we will build, deploy, and share a dashboard that looks similar to the following screenshot:
What this book covers

Chapter 1, Getting Dynamics CRM 2015 Data into Power BI, talks about how to create a Power BI site and how to connect to a Dynamics CRM 2015 organization. This chapter takes a look at the different options on how to access Dynamics CRM 2015 data from Power BI.

Chapter 2, Organizing and Consolidating Dynamics CRM 2015 Datasets, provides information on the Mapping Dynamics CRM 2015 dataset relationships. It also shows you how to configure pivot table summaries and clean up data by formatting columns and data types.

Chapter 3, Building Summaries and Custom Calculations, discusses how to begin a sales productivity report and dashboard page. It also provides information on pipeline and sales summary information, apart from sales summary pivots and groupings with custom calculations.

Chapter 4, Improving the Look and Feel by Adding Charts, Tables, and Maps, explains how to add different visualization options to sales productivity reports and dashboards in the Power BI Designer, including tables, charts, and maps.

Chapter 5, Enhance Data Clarity Using Filters and Slicers, enables you to add interactivity, filters, and slicers to sales productivity reports and dashboards in the Power BI Designer.

Chapter 6, Adding ERP Data, offers guidelines on how to map the Dynamics CRM 2015 dataset to the external ERP data source, how to configure the sales order invoice and the payment dataset and combine it with CRM sales data in one report.

Chapter 7, Deploy and Present Reports to the Power BI Site, tells you how to publish sales productivity reports and dashboards to a secure Power BI site while configuring user access and data refresh intervals.

Chapter 8, Using Power BI Q&A to Get Results, helps users understand the Q&A functionality in Power BI and how to use it in your sales productivity dashboard.

Chapter 9, Extending the Sales Productivity Dashboard within Dynamics CRM 2015, teaches you how to embed the sales productivity Power BI Dashboard in Dynamics CRM 2015.

Chapter 10, Extend Your Dashboards to Mobile Apps, explains how to extend the sales productivity dashboard to Power BI web apps, including Microsoft Surface and Apple iPhone.
Chapter 11, **Starting with the Built-in Dashboard Templates**, tells you how to use the prebuilt Dynamics CRM 2015 Sale template and future Marketing and Service templates, which will be introduced soon by Microsoft.
Microsoft Dynamics CRM 2015 is a powerful sales automation and relationship management tool with fantastic built-in reporting features. However, when it comes to analyzing data, there is now a more powerful option available with Microsoft Power BI. In this book, we will explore the functionality of using Microsoft Power BI integrated with Microsoft Dynamics CRM 2015. We will show you how to build an interactive sales dashboard, which can be used by everyone (from a salesperson to the CEO).

We will build an interactive sales productivity dashboard that will answer the common salesperson's question: "How is my team doing?" We will build this dashboard with native Microsoft Power BI functionality, including charts, graphs, maps, summaries, and tiles that will be viewable in Microsoft Dynamics CRM 2015 and mobile apps.

This chapter will take you through the following topics:

- How to set up and configure Microsoft Power BI for Office 365
- Connect and access Microsoft Dynamics CRM 2015 datasets
- Explore methods to connect to Dynamics CRM data with Power BI
Getting Dynamics CRM 2015 Data into Power BI

Preparation
To build the sales productivity dashboard, we must first have the data and tool sets in place in Microsoft Dynamics CRM 2015 and Microsoft Power BI.

Toward the end of this chapter, you should be able to set up and use the following environments to get data for your sales productivity dashboard:

• Microsoft Office 365
• Microsoft Dynamics CRM 2015 Online
• Microsoft Power BI for Office 365

After we connect Power BI with Microsoft Dynamics CRM, we will look at the options to load and query the Dynamics CRM sales data using the Power BI Designer.

Setting up Office 365
Before we start building dashboards with Microsoft Power BI, we have a little setup work to do in Microsoft Office 365, Microsoft Power BI sites, and Microsoft Dynamics CRM Online. The good thing is they live inside the Microsoft Office 365 platform. To use these applications, we first need to set up a Microsoft Office 365 instance and user account. Once we establish the Microsoft Office 365 instance, we can access application subscriptions and manage users who use the Microsoft Office 365 Admin Portal.

Here is how it’s done:

1. Navigate to Microsoft Office 365 website using the following link:

2. Go to Plans and Pricing and select the plan type that fits your business. There are a few different plans that can be used with Dynamics CRM Online and Power BI, but in this book, we will use the Office 365 Enterprise E3 30-day free trial.

3. Once in the Microsoft Office 365 account setup window, enter your company information and create an account. The account provision process will kick off, and you will be logged in to your Microsoft Office 365 Admin Portal shortly after it is provisioned:
Adding Dynamics CRM 2015 Online

Now that we have an active Microsoft Office 365 account, we need to add a Dynamics CRM Online subscription.

Dynamics CRM On-Premise deployments will integrate with Power BI using an Internet-facing deployment (IFD) configuration, but in this book, we will use the online version of Dynamics CRM.

To add Dynamics CRM Online to the Office 365 instance, perform the following steps:

1. Navigate to Purchase Services in Admin Portal and locate the Microsoft Dynamics CRM subscription offering.
2. In this book, we will use the Microsoft Dynamics CRM Online Professional 30-day trial.
Giving user access

Before users can connect to a Dynamics CRM Online instance, a license needs to be assigned to a user account. After you assign this license to the user account, you must also assign a security role so that the user can access your Dynamics CRM Organization. Here is how it's done:

1. From the Office 365 Admin Portal, select the Dynamics CRM pane from the list of apps:

   ![CRM](image1)

2. Once in Dynamics CRM, select **Setting | Security | Users** and then navigate to **Users**, who need a role assigned:

   ![Users](image2)

   Add new users. Edit information about users and deactivate user records. Manage the teams, roles, and licenses assigned to users.

3. Navigate to the user submenu and select **MANAGE ROLES**:

   ![Manage Roles](image3)

   Once the user role is assigned, you should now see the data in Dynamics CRM:

   ![Sales Activity Dashboard](image4)

   Data as seen in the Sales Activity Dashboard
Importing the sample data

In this book, we will build datasets for a sales productivity dashboard using data from Dynamics CRM the Lead, Account, Opportunity entities. To add the sample data, download the .csv files and import them into Dynamics CRM Online with the native import tool.

Here is how you import the sample data:

1. Download the sample .csv file from ContactLead.csv, Accounts.csv, and Opportunities.csv.

   You can download the sample files from your account at http://www.packtpub.com for all the Packt Publishing books you have purchased. If you purchased this book elsewhere, you can visit http://www.packtpub.com/support and register to have the files e-mailed directly to you.

2. In Dynamics CRM, open the import tool located under any list view:

   ![IMPORT DATA]

3. Upload the sample .csv files and begin the import:

   ![Upload Data File]

4. Verify mapping and initiate the import data.

Finding the OData connection

Dynamics CRM is a web-based application built on a set of web services. For this book, we will focus on the Organizational Data Service, using the Protocol OData (REST) protocol to connect Power BI to Dynamics CRM.
Here is how we locate the OData URL in Dynamics CRM to use with Power BI later:

1. In Dynamics CRM, select **Setting | Customizations** in the top navigation bar to access the **Customizations** area.

2. Once in the **Customizations** area, select **Developer Resources** and navigate to **Organizational Data Service** located at the bottom of the browser window:

   ![Developer Resources]

   View information or download files that help you develop applications and extensions for Microsoft Dynamics CRM.

3. In **Developer Resources**, scroll down to the bottom of the window and copy the **OData (REST)** URL link. This URL will be used later when you configure the Power BI connection:

   ![Microsoft Dynamics CRM]( presumably a screenshot of the Developer Resources section with links to various endpoints and information)
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Setting up Power BI for the Office 365 site

The new Power BI for Office 365 now includes a secure website portal used to store dashboards, reports, and datasets. In Chapter 7, Deploy and Present Reports to the Power BI Site, we will show you the features and functionalities of this portal and how to configure and share the site with other users that are both internal and external, but before we do this, we need to set up and configure a new Power BI site.

Here is how it is done:

1. Navigate to Microsoft Power BI for the Office 365 website using the following link:
   http://www.powerbi.com

2. Once in the website, enter the e-mail address that was used when you set up the Office 365 account and then submit a request to Power BI for the Office 365 free trial. Shortly after requesting the trial, you will receive an e-mail with a link to access your Power BI site.

3. Once you receive the e-mail, click on the link to the Power BI site and sign in with your specifically created Office 365 user e-mail account.

Sales Productivity Dashboard as seen in Power BI
Installing the Power BI Designer

Power BI along with PowerQuery, PowerMap, and PowerView—used to be only included as a Microsoft Excel 2013 add-in. Although these add-ins are still available, there is now a new tool dedicated to Power BI report and dashboard authoring called Power BI Designer.

The Power BI Designer offers a lot of the same functionalities as its predecessor in Excel add-in, but without the Excel requirements. The benefit of using the Power BI Designer is that it is a standalone program that can provide self-service data connectivity, transformation, modeling, visualizations, and collaboration. The Power BI Designer is a standalone 64-bit application that can be deployed together with a 32-bit version of Office, using the same functionality that was used to create interactive charts, maps, graphs, and data transformations without the requirement of Microsoft Excel 2013.

Here is how you install it:

1. In the Power BI site, navigate to the down arrow icon located in the top-right corner of the navigation area:

![Download options](#)

   - Power BI for iOS
   - Power BI Designer Preview
   - Analysis Services Connector Preview

2. Download Power BI Designer Preview.
3. Then, install the PBIDesigner_x64.msi file.

![Power BI Installation Wizard](image)

4. Open **Power BI Designer** from the desktop icon:

![Power BI Desktop Icon](image)

Now that you have **Power BI Designer** installed and open, you can begin leveraging the tool for dashboard, report creation, and data transformation. Power BI Designer help videos are available at startup or by navigating to **File -> Getting Started** in the main menu.

The Power BI Designer toolset is based on two views:

- **Query**: This connects, shapes, and combines data to data models
• **Report**: This builds reports from the queried information to shareable reports

Once you build your dashboards and reports with **Power BI Designer**, you will want to save your work. Using **Power BI Designer**, you can now save it as a Power BI Designer file. Later in *Chapter 7, Deploy and Present Reports to the Power BI Site*, you will learn how to save the designer file and upload it to the Power BI site.

### Reviewing authentication methods

Now that the Power BI Designer is installed, we are ready to connect to the Dynamics CRM data and start building our sales productivity dashboards and reports, but before we do this, we need to understand the various OData (REST) authentication methods provided by Power BI.

Each method is briefly explained here:

- **Anonymous**: This authentication allows any user to access any public content without providing a username and password challenge to the client browser.
- **Windows**: This authentication occurs when your user runs on a corporate network that uses Microsoft Active Directory service domain identities or other Windows accounts to identify users.
• **Basic**: This access authentication is a method for an HTTP user agent to provide a username and password when making a request.

• **The Web API**: This authentication takes place in the host. For web hosting, the host is IIS, which uses HTTP modules for authentication.

• **The marketplace key**: This authentication is based on the subscription-based account key secured through SSL.

• **The Organizational account**: This authentication is based on the users of Dynamics CRM Online, cloud applications, or users who run modern LOB applications on-premises that may leverage a web service such as Azure behind the scenes.

### Connecting to Dynamics CRM

You just learned how to set up and configure Power BI sites and the Power BI Designer. Now you will learn how to connect the Power BI Designer to the Dynamics CRM Online instance and put data entities into Power BI.

For our sales productivity dashboard, we will use the following Dynamics CRM entities:

- Users
- Leads
- Accounts
- Opportunities

### Checking requirements

Before we connect to Dynamic CRM with the Power BI Designer, let's quickly review the general requirements:

1. A user must specify a valid OData URL for a Dynamics CRM Online instance. The connector will not work with an on-premise CRM version.

2. Enable the OData endpoint in the site settings with Dynamics CRM. Then, select **Settings** | **Customizations** | **Developer Resources**. The OData URL is listed under **Service Endpoints**.

3. The user account that you use to access Dynamics CRM Online must be the same as the one you will use for Power BI.
Accessing data
Earlier, we downloaded and installed the Power BI Designer, which allows read-only access to the Dynamics CRM Online instance in order to make it easy for users to get the sales data they want.

To see how easy it is to access data:

1. Open **Power BI Designer** and select **Query** from the bottom-left corner of the **Power BI Designer** window.
2. In the top-left corner of the **Power BI Designer** window, select **Get Data**.
3. In the **Get Data** Window, select **All** | **Dynamics CRM Online** to access the **Dynamics CRM Online OData Feed** window:
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4. Once the **Microsoft Dynamics CRM Online** window opens, enter the Dynamics CRM Online **OData (REST)** URL previously captured during setup:

![Microsoft Dynamics CRM Online OData Feed](image)

The **Access Dynamics CRM Online OData Feed** window may or may not appear to log in to the Dynamics CRM Online instance. If the window does appear, use **Organizational account** to sign in. For this book, we will select the first URL to connect the OData feed. If the **Access Dynamics CRM Online Odata Feed** window does not appear, you are already connected and authenticated to the Dynamic CRM instance:
Loading data

Once you have successfully connected to your Dynamics CRM organization, the Query functionality of the Power BI Designer runs against the Dynamics CRM Online instance, and the navigator window returns a list of Dynamics CRM data entities to include in your dashboard.

By default, when you load the data to Power BI, all the items will be selected in the navigator window. To individually select multiple items, you will have to check the box to select multiple items.

Here's how you do it:

1. Navigate to the top-left corner of the navigator screen and locate the checkbox labeled Select Multiple items.
2. Once this checkbox is ticked, the subarea will include additional checkboxes to individually select the Dynamics CRM data entities.
3. Select the following items from the navigator window:
   - AccountSet
   - LeadSet
   - OpportunitySet
   - SystemUserSet
4. The right-hand side of the navigator window will show you a preview of the fields included and data currently in the dataset.
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5. Select **Show Selected** to see a queried list of just the dataset selected:

![Navigator](image)

**SystemUserSet**

<table>
<thead>
<tr>
<th>QueryId</th>
<th>CreatedBy</th>
<th>PreferredAddressCode</th>
<th>NickName</th>
<th>StageId</th>
<th>InMailFlag</th>
</tr>
</thead>
<tbody>
<tr>
<td>Record</td>
<td>Record</td>
<td>Record</td>
<td>null</td>
<td>null</td>
<td>null</td>
</tr>
</tbody>
</table>

The data in the preview has been truncated due to size limits. Reducing the number of columns or filtering may load more data.

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**Querying the data**

Our next step is to query the Dynamics CRM data that we will load to Power BI. We can do this by editing the query before we load the data or come back later and update the query. By querying only the data we need from Dynamics CRM before loading to Power BI, we can enhance the performance of our reports and dashboards.
Here is how it is done:

1. Select **Edit Query** from the bottom-right hand side of the window; a view of the entity data is presented in **Query view**:

   ![A view of the entity data](image)

2. To modify the query after you load the data, in the top ribbon select **View | Show | Query Settings** to access the **Query Settings** pane.

3. Select **Source** in the **Query Settings** window to update the query entity data:
4. In the left-hand side pane, queries are listed and available for selection, viewing, and shaping. In the main pane, data from the selected query is displayed and available for shaping.

Summary
In this chapter, we looked at how to set up our Office 365, Dynamics CRM, and Power BI environments. We deployed the Power BI Designer and connected Dynamics CRM to Power BI in order to retrieve the sales entity data for our sales productivity dashboard.

In the next chapter, we will begin optimizing and consolidating our Dynamic CRM sale datasets. You will start to put together the data that will go into the sales productivity dashboard.
Where to buy this book

You can buy Building Dynamics CRM 2015 Dashboards with Power BI from the Packt Publishing website.

Alternatively, you can buy the book from Amazon, BN.com, Computer Manuals and most internet book retailers.

Click here for ordering and shipping details.