6 - Sharing Dashboards and Reports Within an Organization

Often the goal in creating a dashboard or a report is to share it with others and help them gain insights into the information shared. Microsoft gives you a few ways to do this:

- **Put it somewhere on the network or send it by email:** This is the traditional way of sharing data with others, but it has some flaws that are especially pronounced when using Power BI. Power BI can work with substantial amounts of data; it can create files that are quite large, and opening such a file over a network or emailing it can be difficult. Another downside is that not everyone is able to open a Power BI file because it requires access to Power BI Desktop on the local machine. When sharing reports and dashboards with business users, you should not expect them to have to install Power BI Desktop. Finally, the biggest drawback is that there is no real way of securing the data; you can secure a file, but you cannot use features like row-level security to tighten access to data. (For more on row-level security, see **http://ppivot.us/rlsfsd32**.)
- **Share it to Power BI:** Power BI (**http://www.powerbi.com**) offers a full analytical platform designed for analytics and collaboration without requiring the resources needed to install and maintain it on a local machine or network. Microsoft provides, manages, and maintains the Power BI service, which ensures that the functionality you need is up and running when you need it. Microsoft also continuously adds functionality to the service, without requiring the user to update software locally. We will look at using the Power BI service in detail in this chapter.
- **Share it to Power BI Report Server:** Power BI Report Server allows users to share Power BI Desktop files to an on-premises server. Power BI and Power BI Report Server both support Power BI Desktop files, but there are many differences. For example, Power BI Report Server doesn't support dashboards or apps, and whereas Report Server uses folders to store and secure files, Power BI uses workspaces. For more on Power BI Report Server, see **http://ppivot.us/pbirs2d2**.

Getting a Company Started with Power BI

Contoso Communications has decided to use PowerBI.com as its business intelligence platform because it will give the company access to the latest and greatest features. It will also save resources and money because Contoso won't have to maintain its own servers and do its own maintenance and patching.

Jim plans to use the report he created earlier as a pilot project for Contoso on PowerBI.com, so he signs up for a preview of the service at **http://www.powerbi.com**.

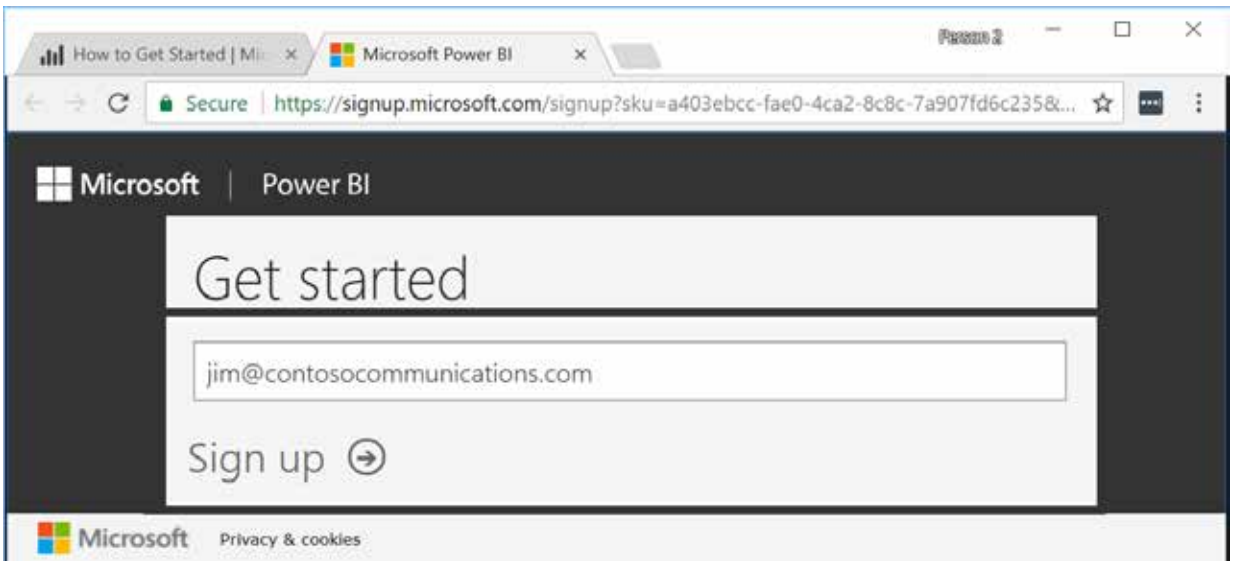

Figure 6.1: Signing up for Power BI.

After Jim signs up, he can log in to Power BI immediately, using his own username and password, because the organization already uses Office 365 for its email.

Power BI Tip: Integration with Other Products

Microsoft Power BI is natively integrated with many other Microsoft products behind the scenes. This means if your organization already uses products like Office 365, Dynamics, or Azure, it can leverage the setup done for those solutions in the areas of security and authentication. For example, it means the company's users can log in with the same usernames and passwords they use for their PCs.

If your company doesn't have Office 365 or any other integration, don't worry: You can just enter a password and get going! If your company later begins to use other Microsoft products, your IT administrator can then consolidate the usernames and passwords by doing an admin takeover, if needed (**http://ppivot.us/rlsfsd34**).

After logging in to Power BI, Jim is invited to add some data to it.

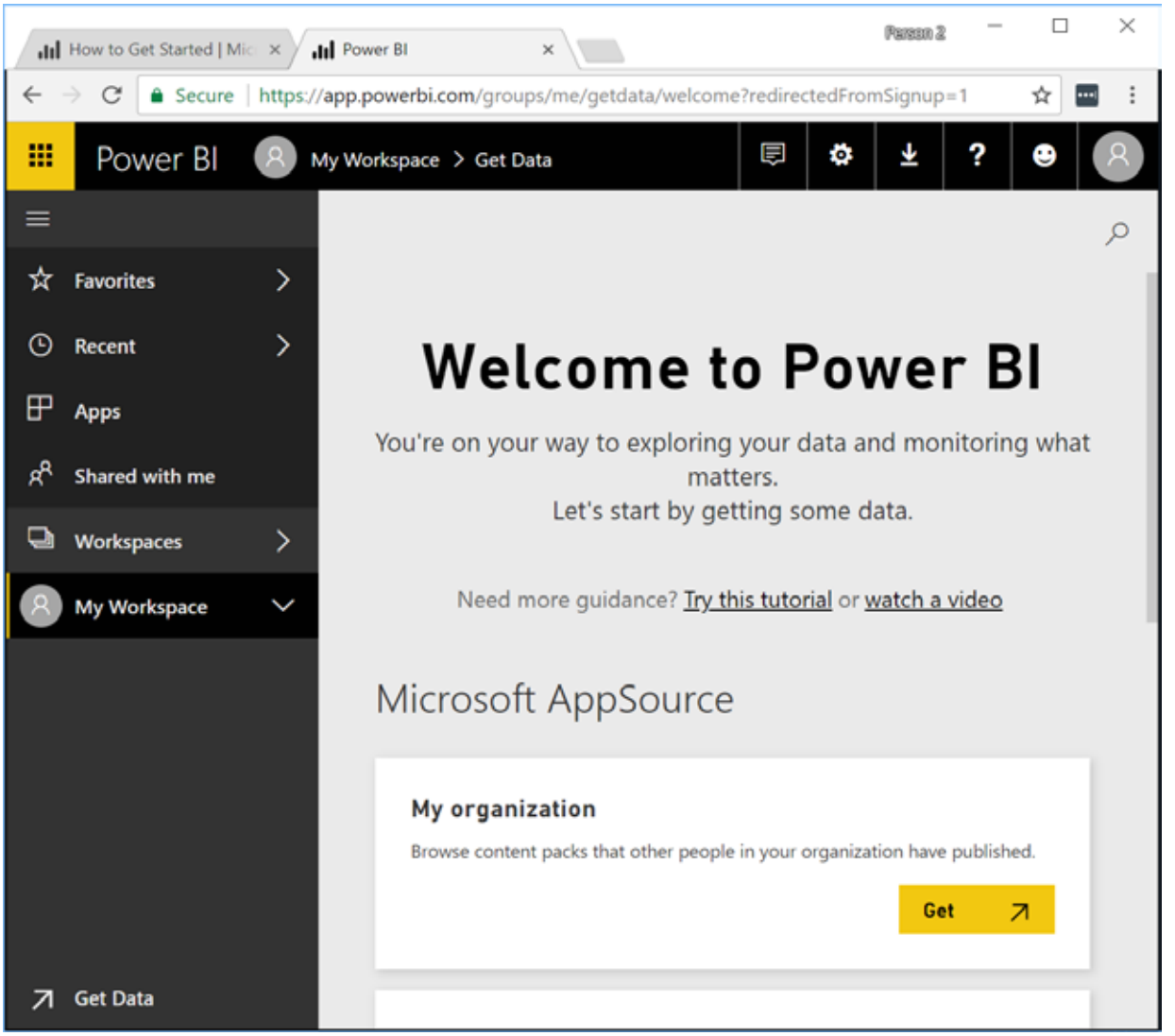

Figure 6.2: Power BI start screen.

Jim wants to share the report he created previously, so he uploads it to Power BI.

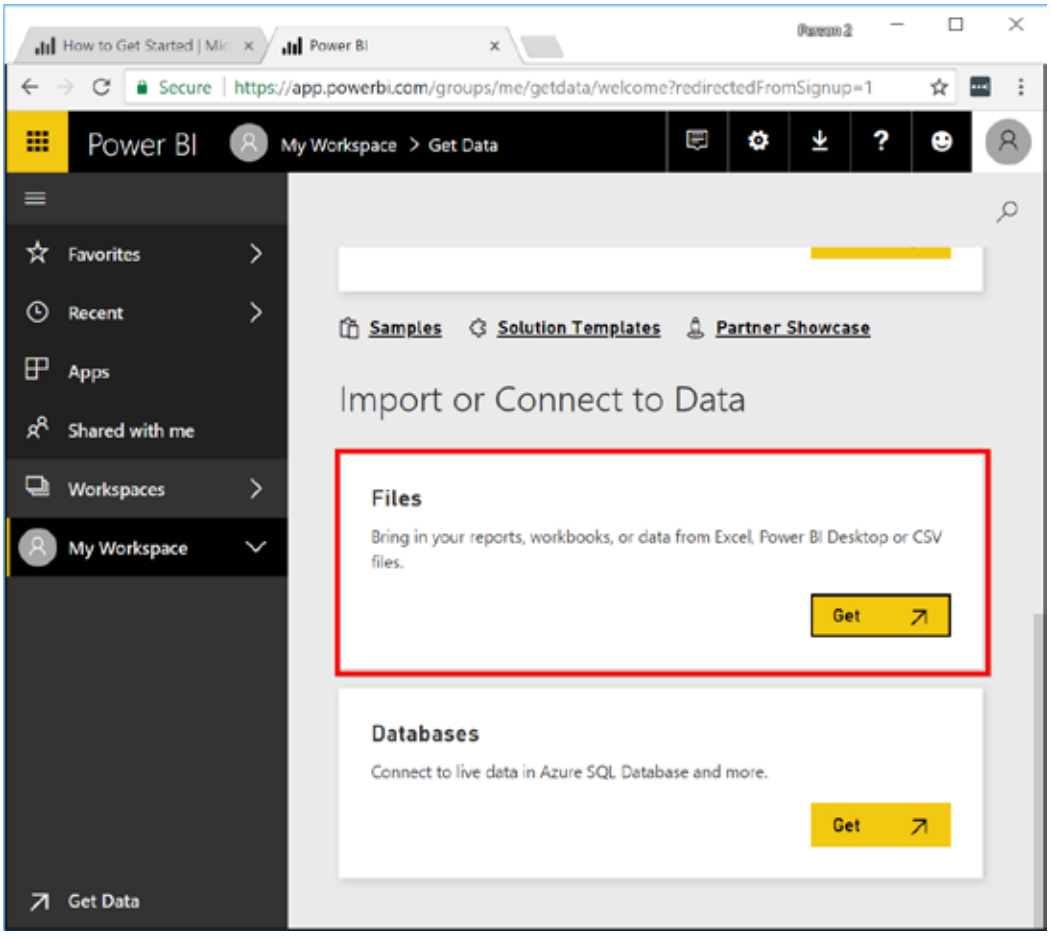

Figure 6.3: Uploading a file.

After clicking the Get button, Jim selects his Contoso sales Power BI Desktop file to upload.

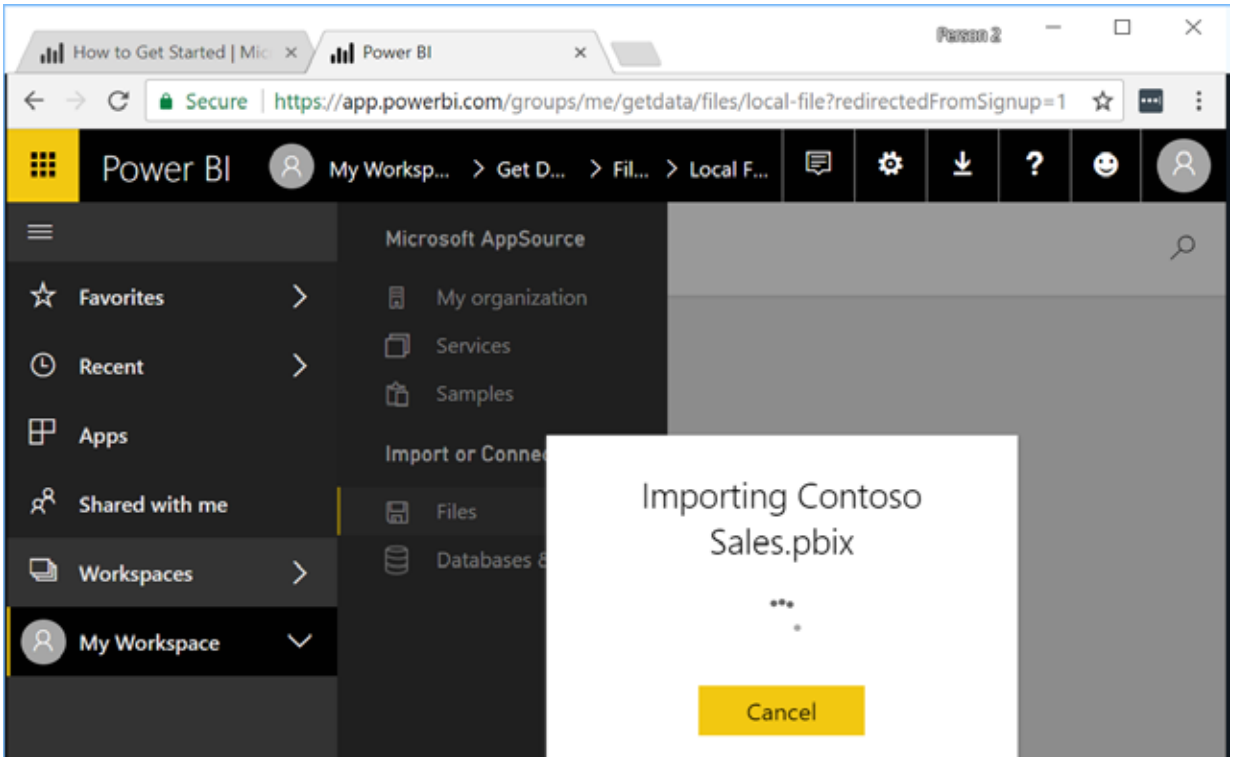

Figure 6.4: Uploading the Power BI Desktop file.

Power BI Tip: Publishing Reports

There are a few ways to publish reports to Power BI: You can either upload the files in Power BI directly, as shown here, or you can click the Publish button in Power BI Desktop. When you are signed in with your Power BI account in Power BI Desktop, clicking Publish is probably the easiest way to upload data to Power BI.

After the upload has succeeded, Jim sees a thumbnail for his file in Power BI.

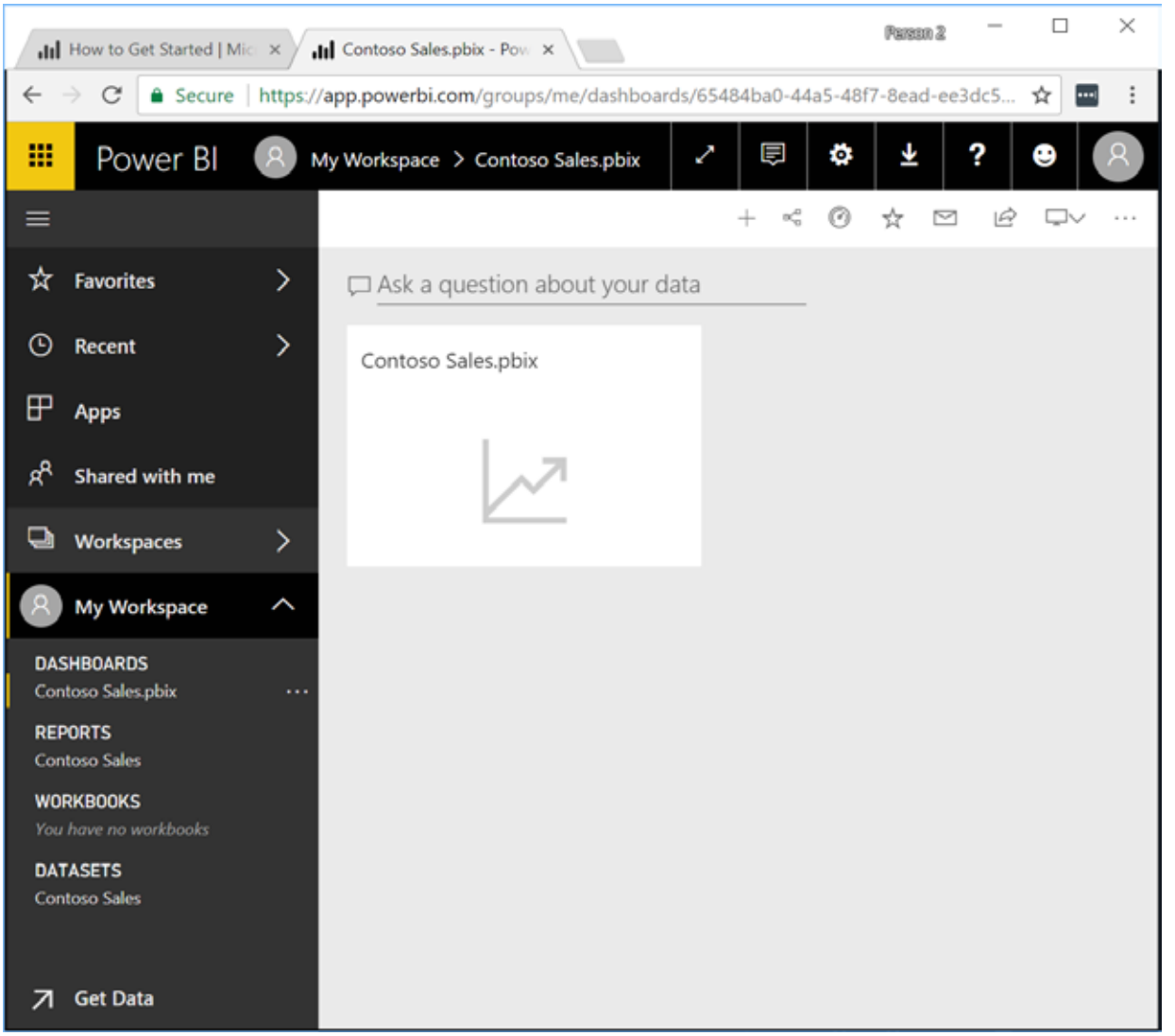

Figure 6.5: The file has been uploaded.

Power BI Tip: The Power BI Dashboard

In Power BI, a dashboard is a single canvas that allows data from different detailed reports to be presented in a single place. A Power BI dashboard is populated with "tiles," which are read-only snapshots of visualizations from any report in the workspace.

As you have seen, with reports you can interact with visuals to filter other visuals on the page. Dashboards are static, however, and you cannot interact with them because their data typically comes from disparate data sources and cannot be related in a meaningful way. If something in a dashboard triggers a user's interest, the user can click the appropriate tile to go to a more detailed report on the subject—and the user may be able to interact with the report. For more information on tiles and dashboards, see **http://ppivot.us/jsd5sf3s**.

After Jim uploads a new report, Power BI creates a new dashboard with a single tile. When Jim clicks on the tile, he sees his report, which is now hosted on the Power BI service.

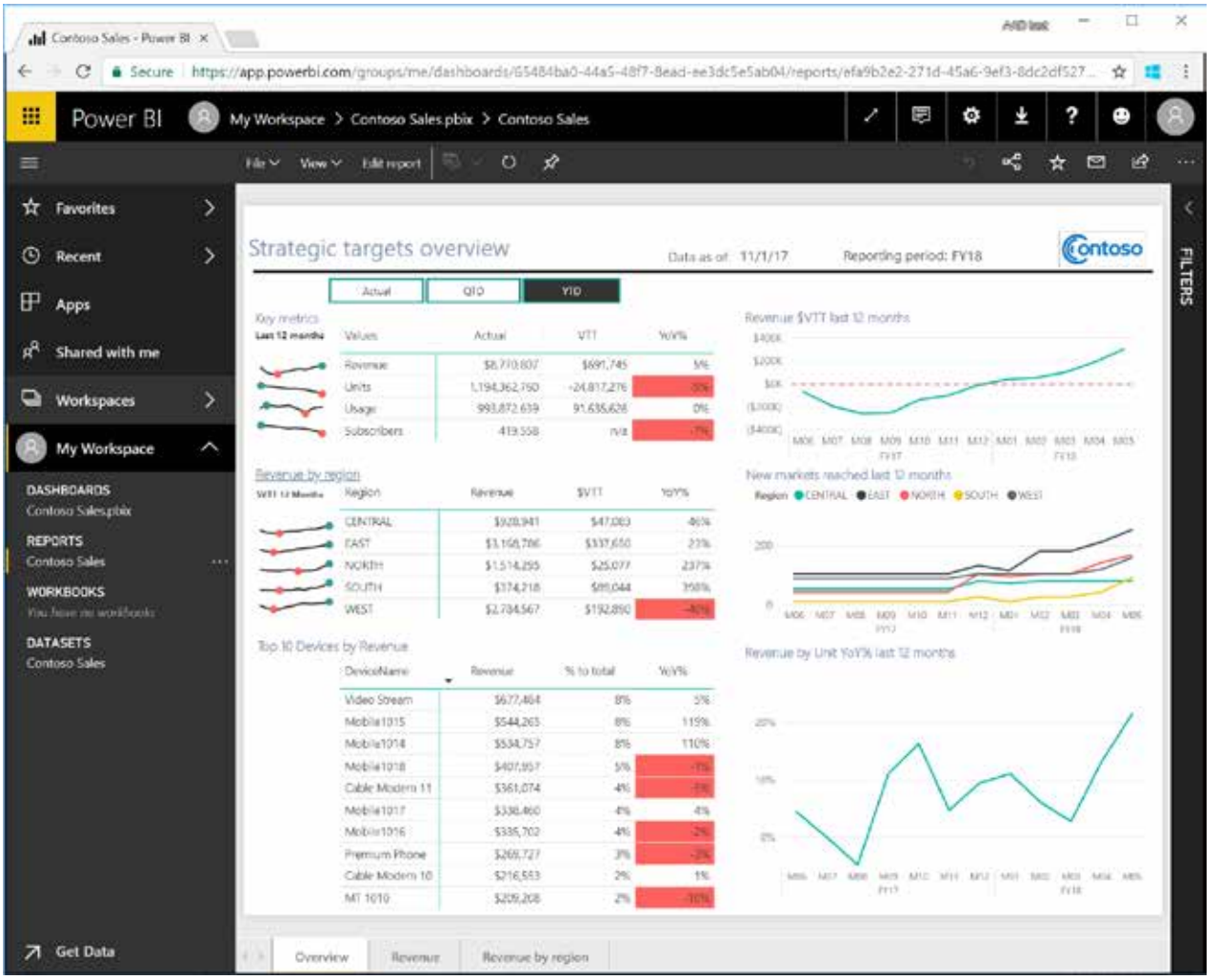

Figure 6.6: Jim's report is now hosted in the Power BI service.

The report looks and feels exactly the same as in Power BI Desktop, but it now appears in a browser window.

Now that Jim has browser access to his report, he starts designing the dashboard by pinning visualizations to it. Tiles will provide snapshots of the current selections. Jim wants to put the key year-to-date metrics as well as the current month metrics on the dashboard. He starts by selecting the YTD slicer and pinning it to the dashboard.

Figure 6.7: Pinning the slicer visual to the dashboard.

Power BI asks him which dashboard to pin to, and Jim selects Existing Dashboard to pin to the current dashboard.

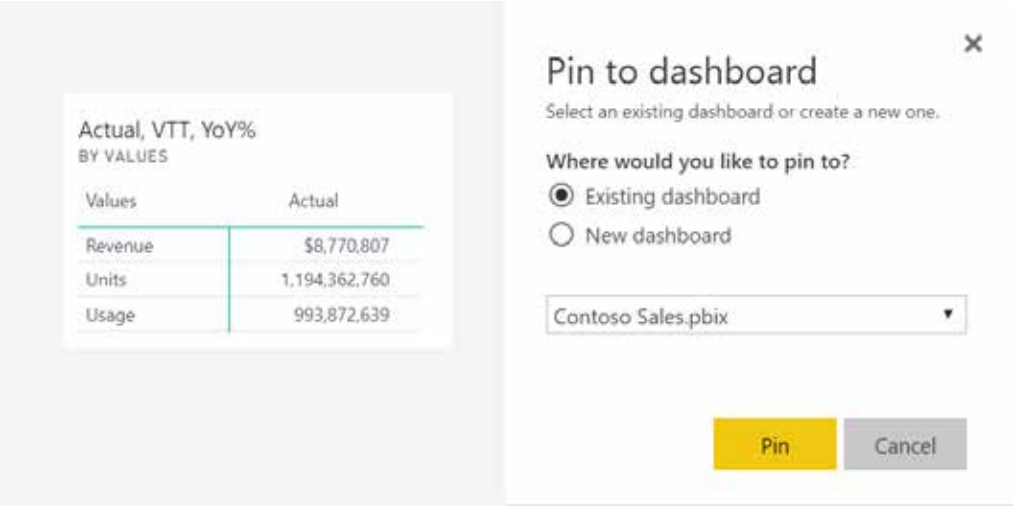

Figure 6.8: Dashboard selection.

Jim selects the Actual slicer and then pins the same visual again. This results in a second visual being added to the dashboard. Jim's two pinned visuals provide two snapshots of different states of the same visual.

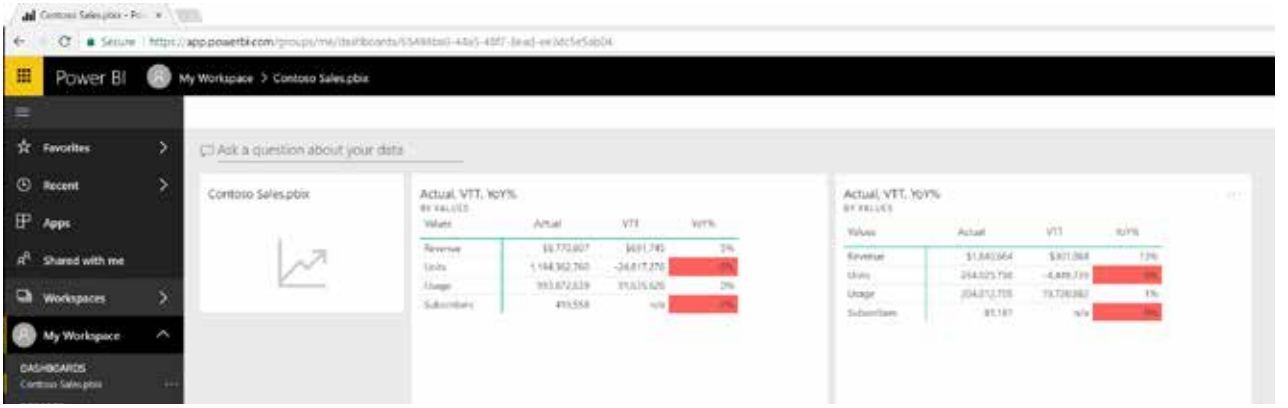

Figure 6.9: The first visuals on the dashboard.

> By pinning a tile, you save the current state of the visual to the dashboard. This gives you the opportunity to save any permutation you want. When the data gets updated, the visual will also receive the new data, as described later in this chapter.

Now that the first visuals are on the dashboard, Jim can delete the automatically created tile by clicking the three dots in the corner of the tile and selecting Delete Tile.

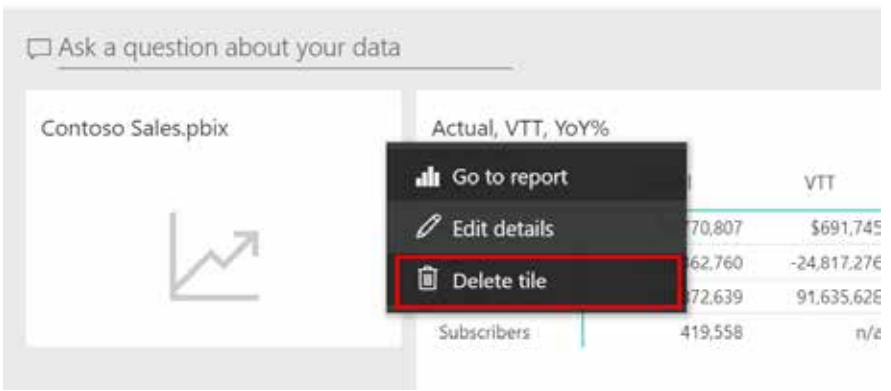

Figure 6.10: Deleting a tile.

Next, Jim wants to reduce the whitespace on the other tiles, but he soon figures out he can only resize the tiles to certain predetermined sizes. This means his tile cannot be resized much smaller than it currently is and retain its title.

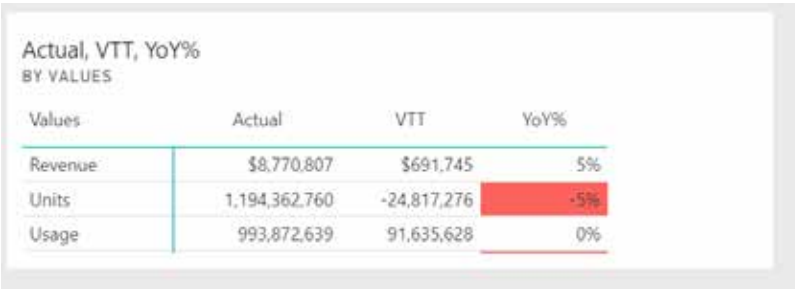

Figure 6.11: The information from the table does not all fit the tile.

Jim decides to add the title to the visual itself to save some space. He goes back to the report and clicks Edit Report. He then sees the whole report in the browser, where he can edit as he likes. In this case, he selects the metrics visual.

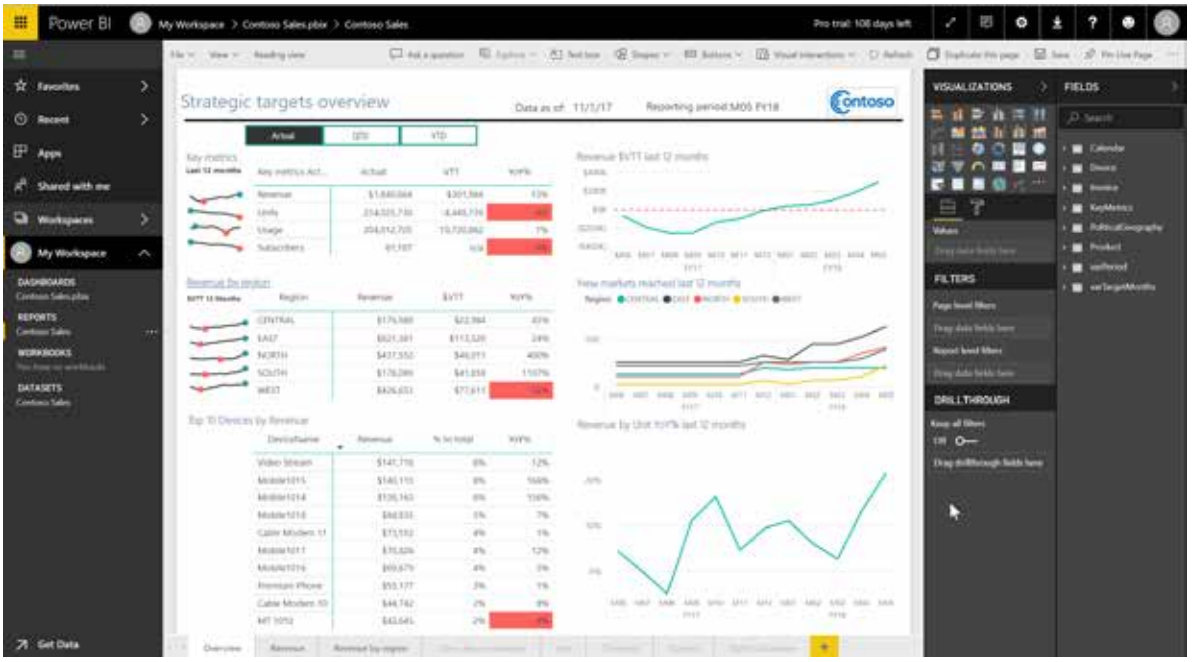

Figure 6.12: Editing the report in the browser.

Power BI Tip: Editing in the Browser

The Power BI service allows users to edit and create new reports in the browser the same way as in Power BI Desktop. Of course, the big benefit here is that users don't need to have Power BI Desktop installed on their machines. The Power BI service offers the same visuals and features for building the report, but there are some differences as well. The most important difference is that you cannot change the model in the browser, so you cannot add new measures or import new tables.

In general, I recommend not changing a report in the browser because from the moment you do, the Power BI Desktop file and PowerBI.com report will start to differ, which could lead to merging issues at a later stage. In this example, Jim is making some small changes that he is not saving, and this shouldn't be problematic. However, when creating new reports, you should start with a new report in the Power BI service (and leave the old reports untouched); this way, your reports never get overwritten. Finally, if you do make changes, there is always the option of downloading the PBIX file again; it will include any changes you made in the Power BI service. You can find this option under File, Download Report when editing a report.

In the editor that opens in the browser, Jim selects the measure on Rows and renames it Key Metrics Actual while selecting the Actual slicer. He then pins it to the dashboard. He does the same when selecting YTD, adding the second view over the same data. Back on the dashboard, he removes the old tiles. The new tiles almost fit, so Jim removes the display title and subtitle when editing the tile to make them fit.

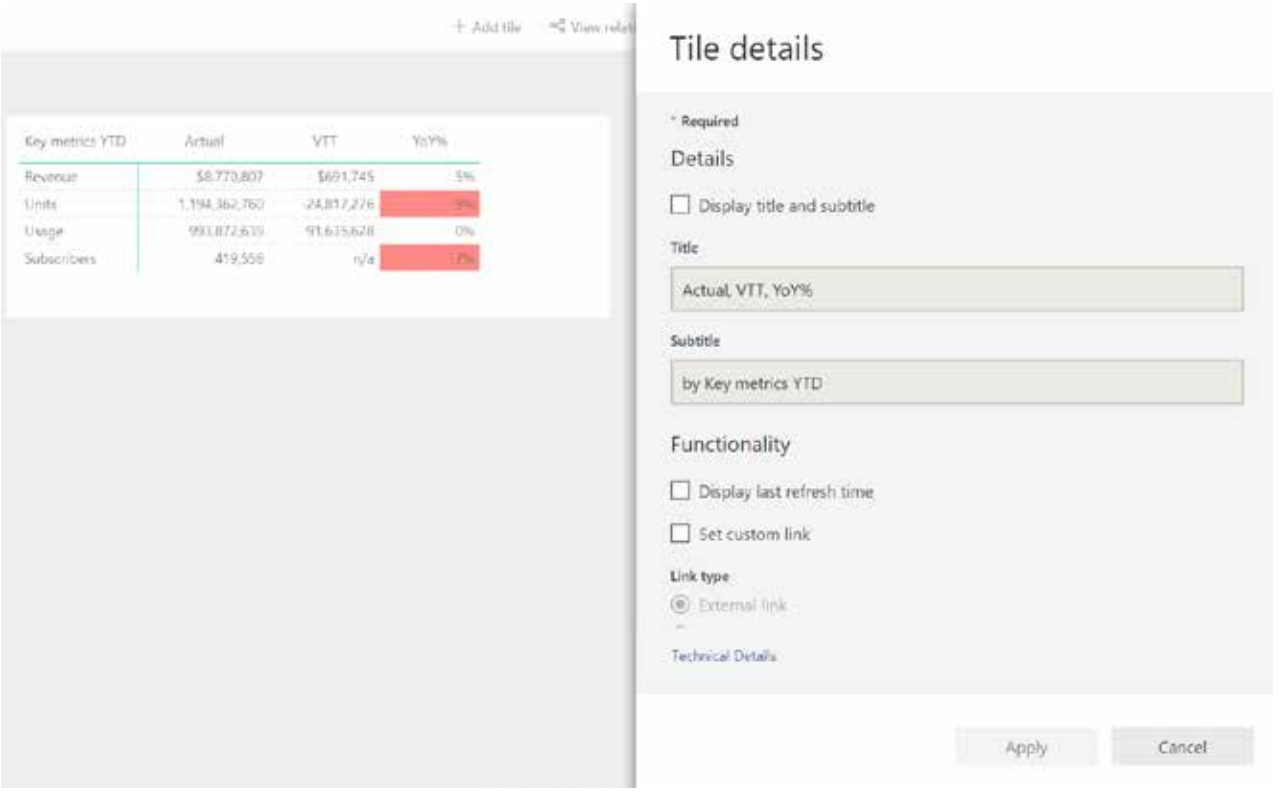

Figure 6.13: Removing the dashboard titles to make the tiles fit.

Now both tiles fit perfectly.

Figure 6.14: After the titles are removed, the tiles fit perfectly.

Jim adds to the dashboard several more visuals from the different report pages, making sure all the important topics are captured. He also ensures that all visuals look the same by aligning the titles.

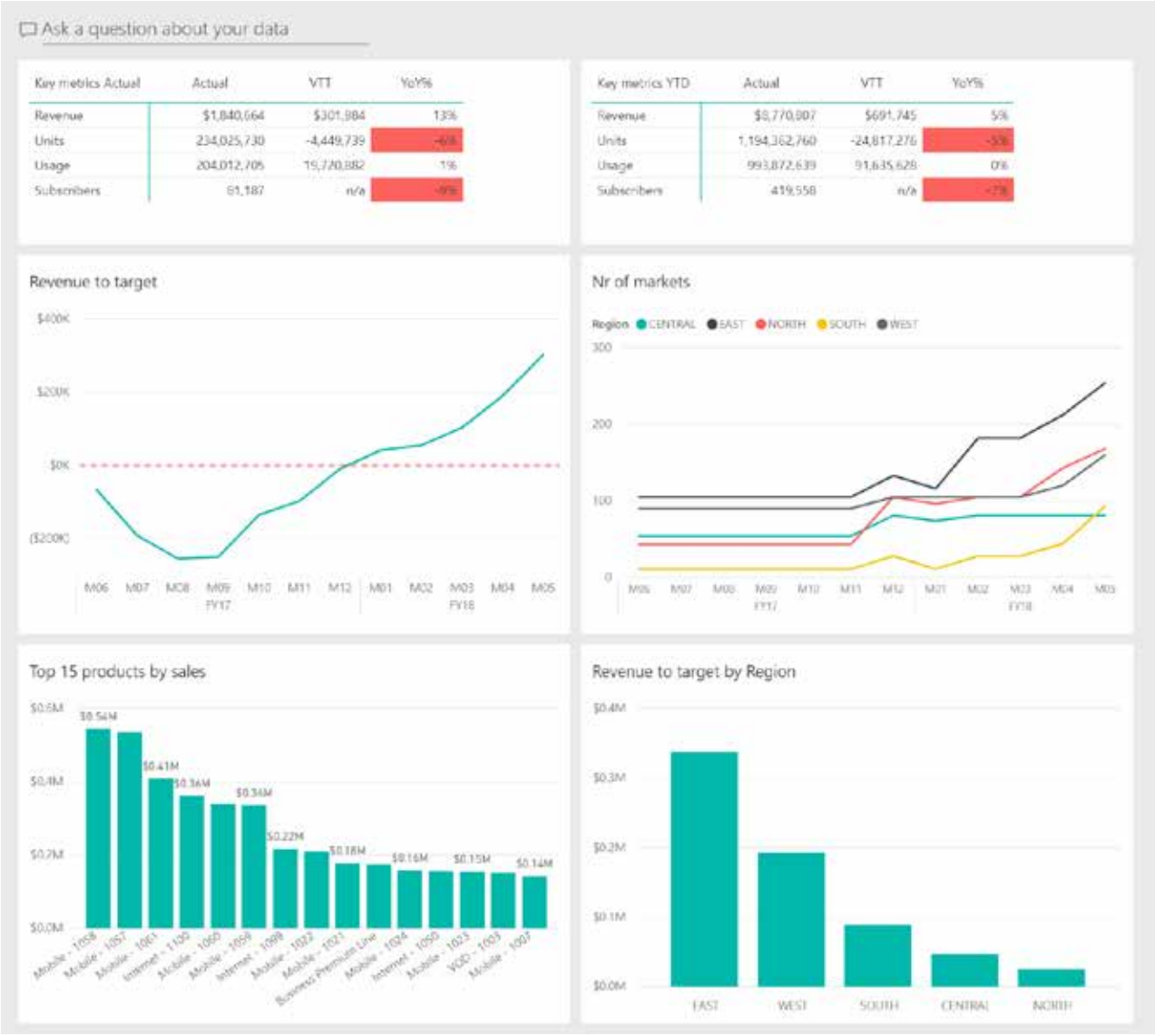

Figure 6.15: Adding all the visuals to the dashboard.

Finally, Jim wants to show a visual that displays the revenue over time. He doesn't have such a visual in the report, but he can ask Power BI a question about the data by typing text in the Q&A bar.

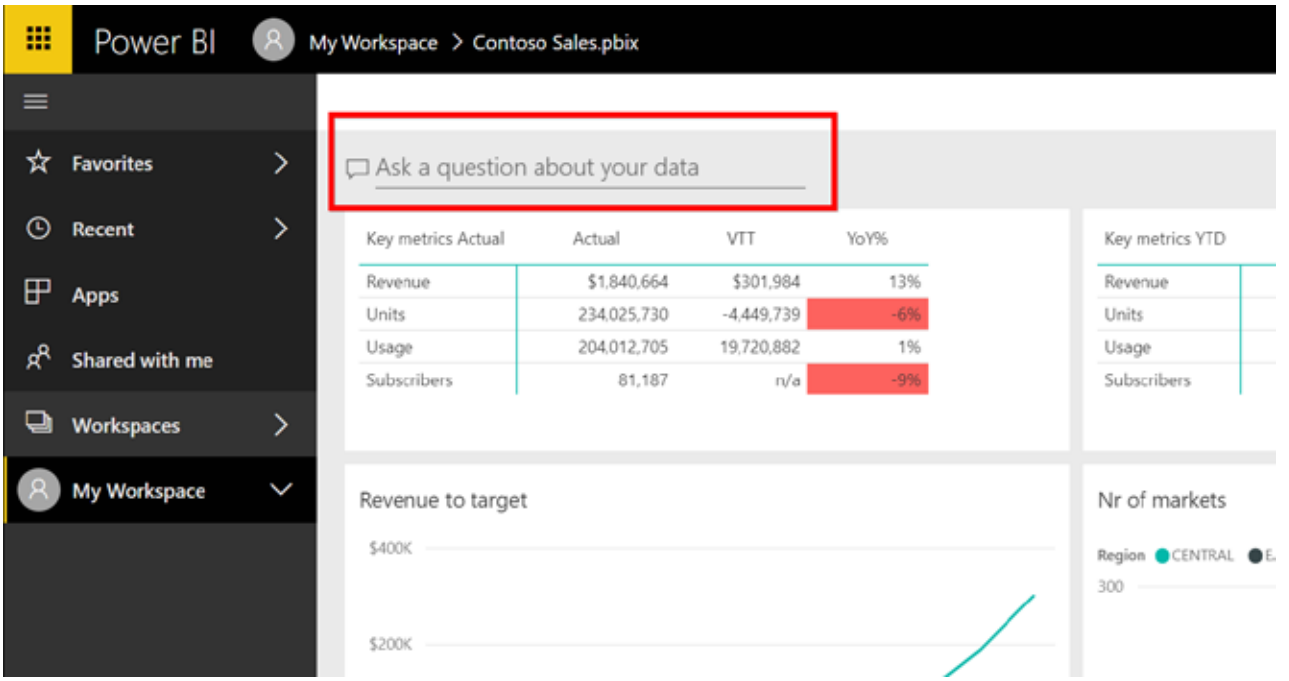

Figure 6.16: Asking a question.

Jim enters "sum of revenue over time." Power BI automatically detects that the model contains many dates, and it allows Jim to choose which date he wants. He picks the Date column from the Calendar table.

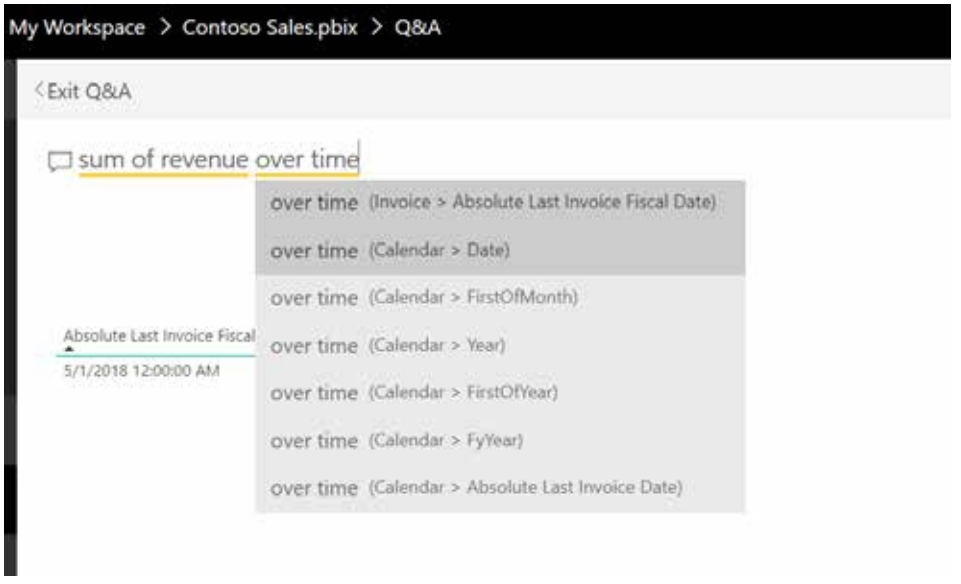

Figure 6.17: Selecting the appropriate column.

Power BI gives Jim a chart of the sum of revenue over all the time for which there is data available.

Figure 6.18: A visualization that answers Jim's query.

Power BI Tip: Power BI Q&A

With Power BI Q&A, you can simply ask questions (which don't actually need to be formulated as questions, as you can see in this example) about your data without having to drag and drop any data. The Q&A engine inside Power BI is able to understand your questions and apply them to the model you created. Depending on the results, it will decide which visual would provide the best format for presenting the information. You can use the Q&A engine in the browser or by double-clicking on the canvas in Power BI Desktop.

For more information, see this great help topic: **http://ppivot.us/hsaf3afs**.

Jim can now pin any visual in Power BI to his dashboard. He chooses one and cleans up the title by removing the subtitle and changing the title to Revenue over Time.

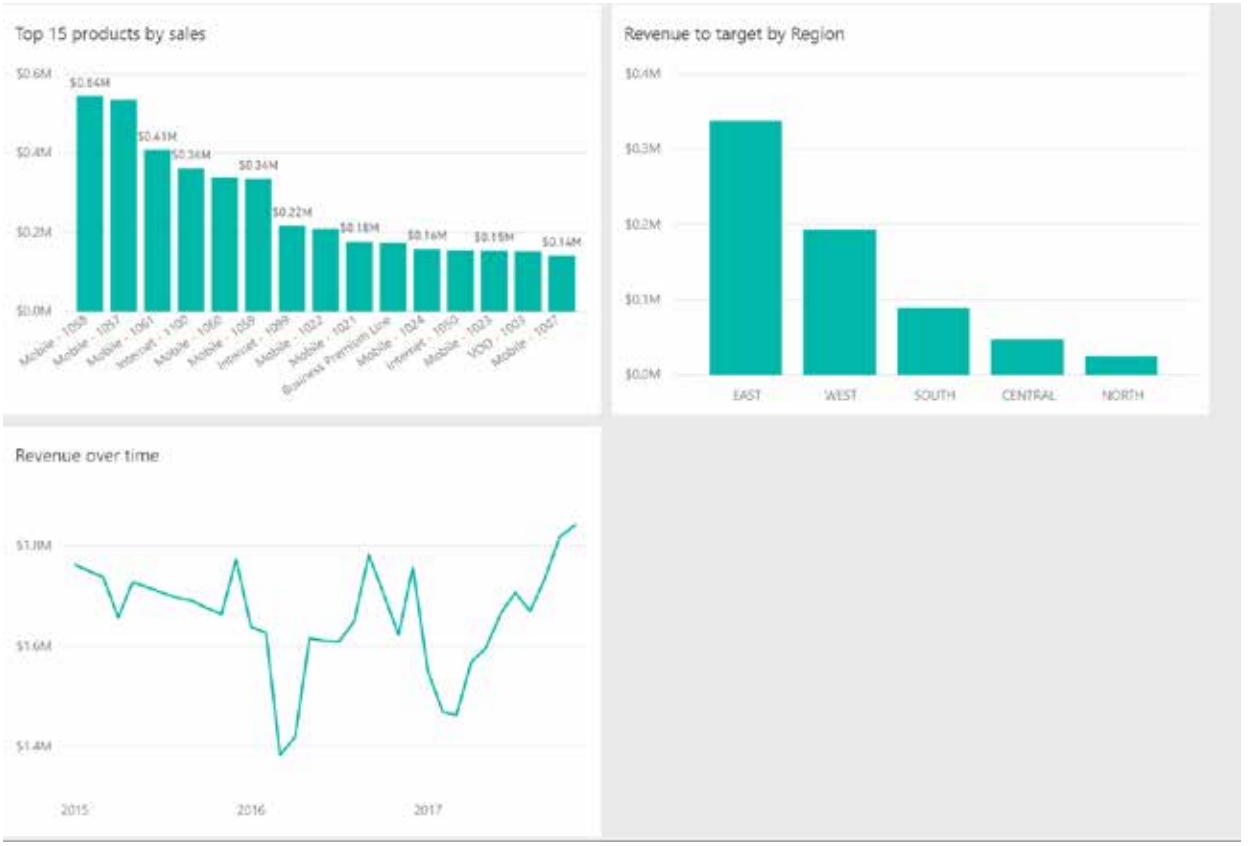

Figure 6.19: The new visual is pinned to the dashboard.

Finally, Jim clicks on the three dots in the upper-right corner and selects Settings so he can rename the dashboard Contoso Sales.

Jim has made sure his dashboard is ready for its first trial run. He wants to share the work with his immediate colleagues and manager in order to get feedback on the data shown and the visualizations before he deploys it to the upper management team.

As Jim presents the results in a team meeting, his manager and coworkers give very positive feedback. In fact, Jim's manager likes the results so much that he assigns Tracy, a colleague, to help Jim continue to deliver the dashboard and reports to the rest of the sales organization and management as soon as possible. What a big vote of confidence for Jim's work!

Now that Jim is no longer working on the dashboard alone, he needs a way to collaborate. He knows just how to do this: Power BI allows users to create workspaces that allow collaboration. Right now, the report and dashboard are hosted in Jim's My Workspace, where he can share the data with others but not collaborate. He needs to move it to a workspace where the team can work on the dashboards and reports in collaboration. To create a workspace, he selects Workspaces and clicks Create App Workspace.

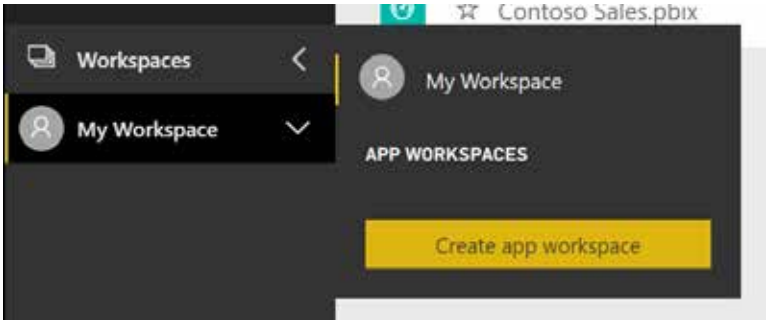

Figure 6.20: Creating a workspace.

In the box that appears, Jim enters details about the workspace the team will use.

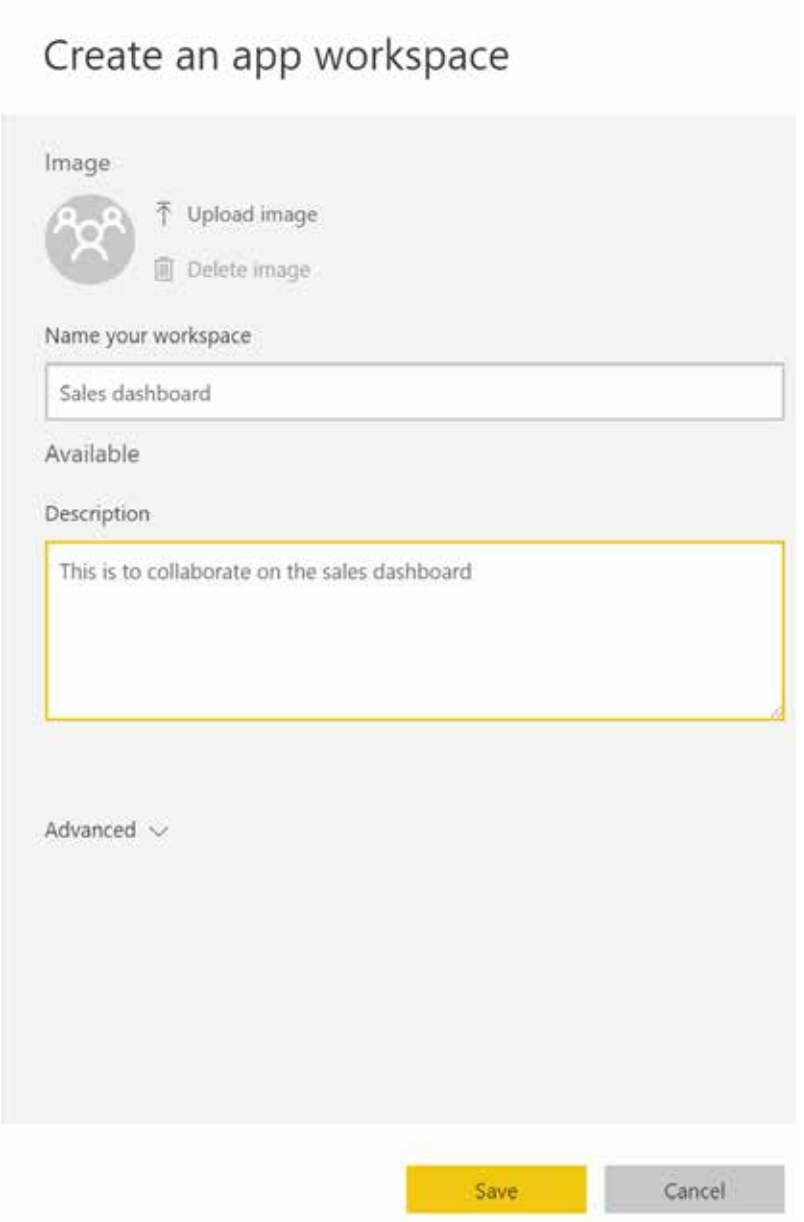

Figure 6.21: Entering workspace details.

Power BI Tip: Workspaces Preview

At the time of this writing, Power BI is changing how workspaces work. The current workspaces in Power BI are based on Office 365 groups, but this will soon change to remove the connection with Office 365. In this book I use the workspaces preview feature that is not connected to Office as that will be the new default going forward. Because it's a preview feature at this time, the layout and names that are used in this book might have changed by the time you read this. For more information, see **http://ppivot.us/wsv2pbi**.

Jim is again greeted by an empty workspace. He uploads the PBIX file again and populates the dashboard in the new workspace.

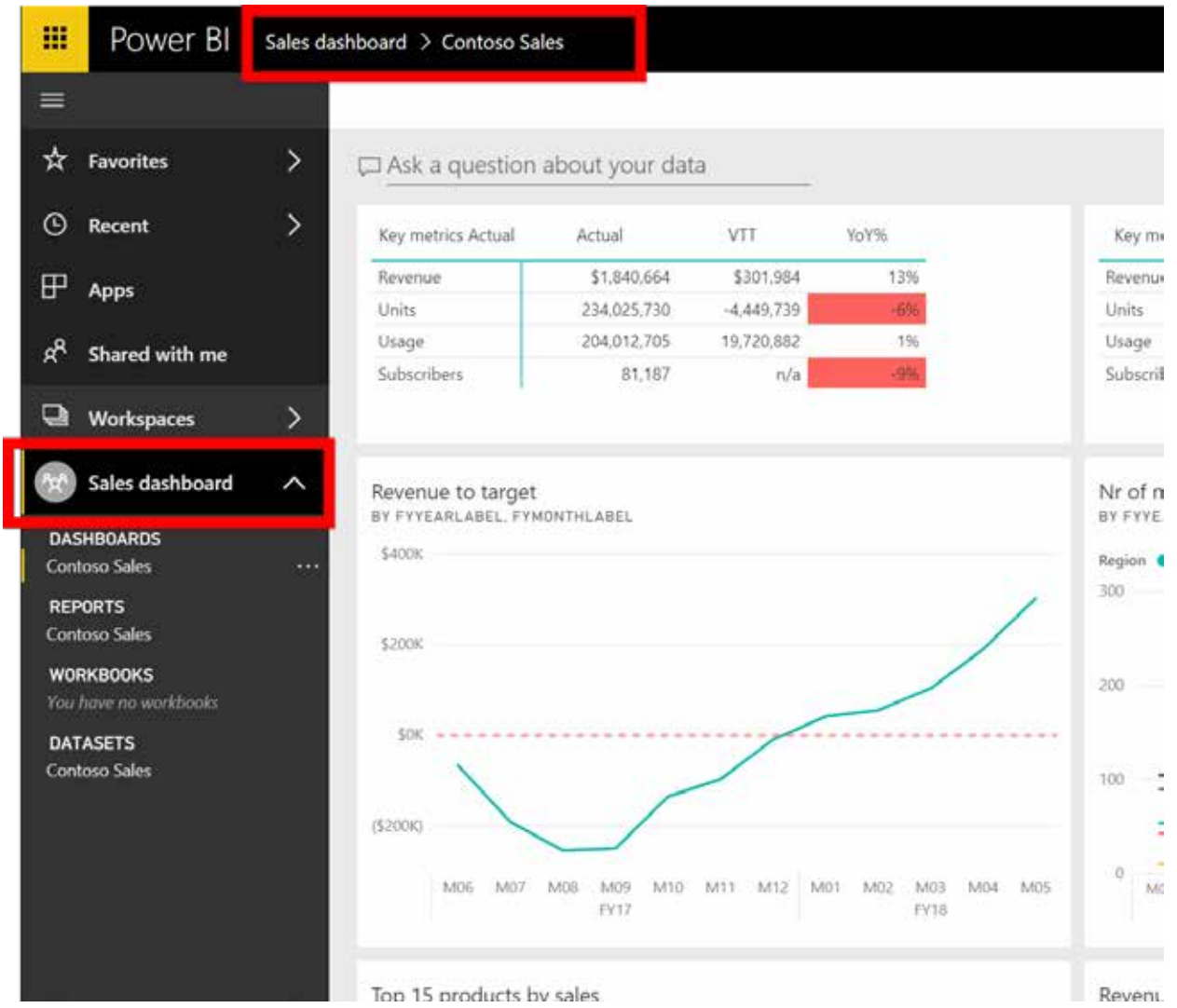

Figure 6.22: Re-creating the dashboard in the workspace.

Now Jim can invite Tracy to work on the dashboard and reports with him. He goes back to the dashboard and clicks Access in the bar at the top.

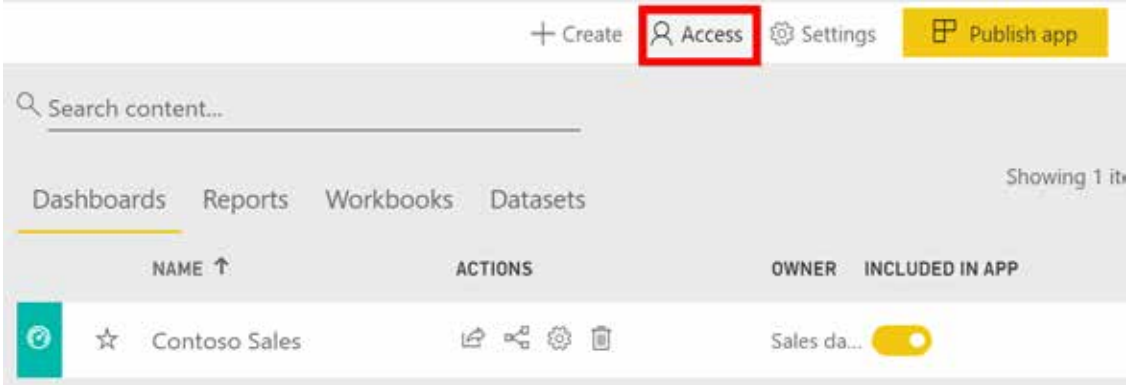

Figure 6.23: Changing access setting for the workspace.

Jim invites Tracy to the workspace by adding her to the workspace as a member.

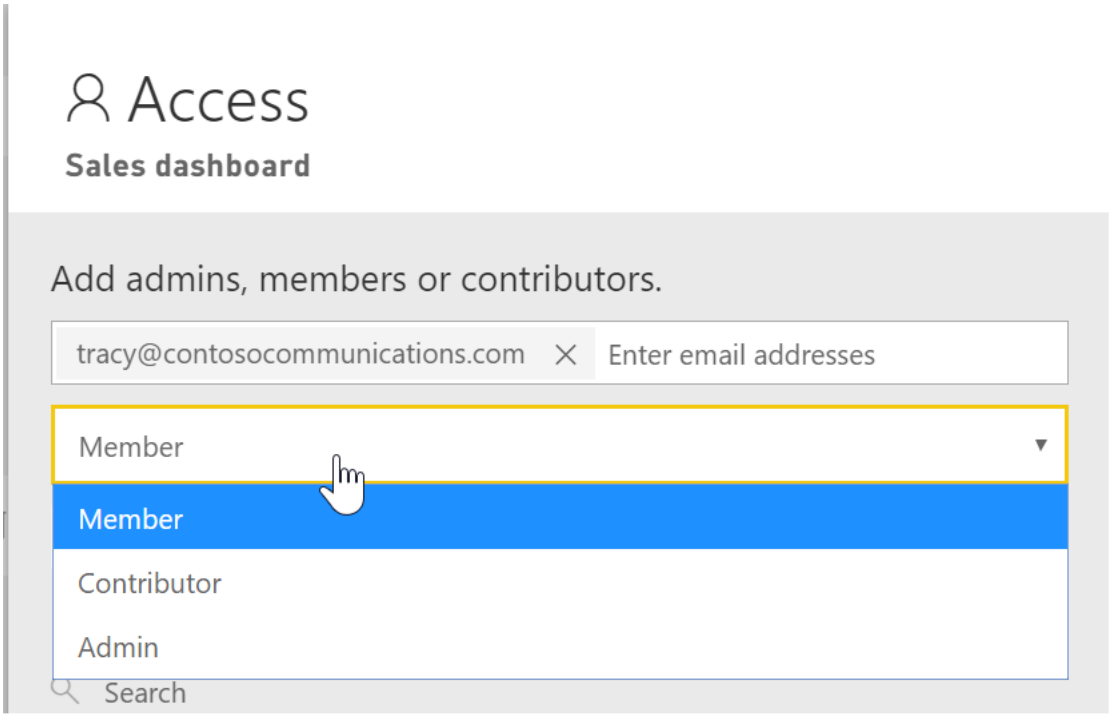

Figure 6.24: Adding Tracy to the workspace as a member.

Now that Jim has added Tracy to the workspace as a member, they can collaborate with each other on the dashboard and reports.

Power BI Tip: Workspace Access

There are a few things to know when giving users access to a workspace.

First, to be able to collaborate in Power BI, you need to have a Pro license, so as soon as Tracy gets the invitation, she will be prompted that she needs a Pro license to be able to work with Jim. Initially she can take advantage of a 60-day trial before committing to a full license. For more on Pro licenses, see **http://ppivot.us/prosd3s**.

Second, there are four different roles to choose from:

- **Admin:** Admins users have full access to the workspace and can even delete it or assign more admins.
- **Member:** Members are users who can update reports and dashboards, and they can share and publish apps, but they cannot make any changes to the workspace.
- **Contributor:** These users can only update the content in the workspace but cannot share or give access to others.
- **Viewer:** These users have read-only access to content in the workspace.

For more on workspace roles, see **http://ppivot.us/gd3eada**.

One of the first things Tracy does after being added to the workspace is to create a report on HR activities, which is another important area of investment for the company.

> The HR data in this example comes from the HR sample provided with Power BI.

Tracy's goal is to create a new dashboard that combines data from both the HR and sales reports for the company's upper management, so they can see all the important information at a glance. Now Jim and Tracy have two reports in their workspace, each for a different subject area.

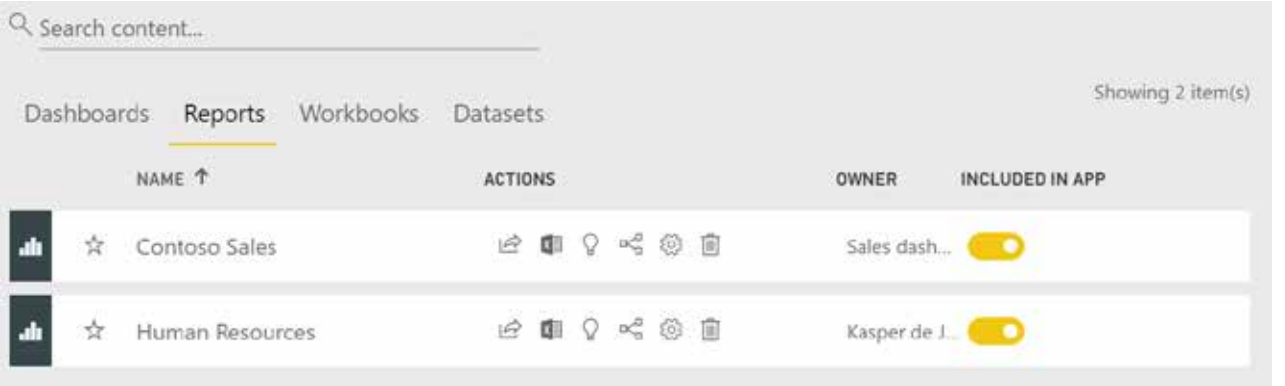

Figure 6.25: Multiple reports in the workspace.

Jim and Tracy both want to pick a few important metrics (visuals) from each of the reports and pin them to a new dashboard called Rhythm of the Business. Jim wants to keep some of the customization he added to the dashboard he created earlier, so he pins directly from that dashboard to create a new dashboard. Now Jim and Tracy can add to this dashboard tiles with information from both reports. Users of the dashboard will then be able to click on a tile to open the desired report to get more information.

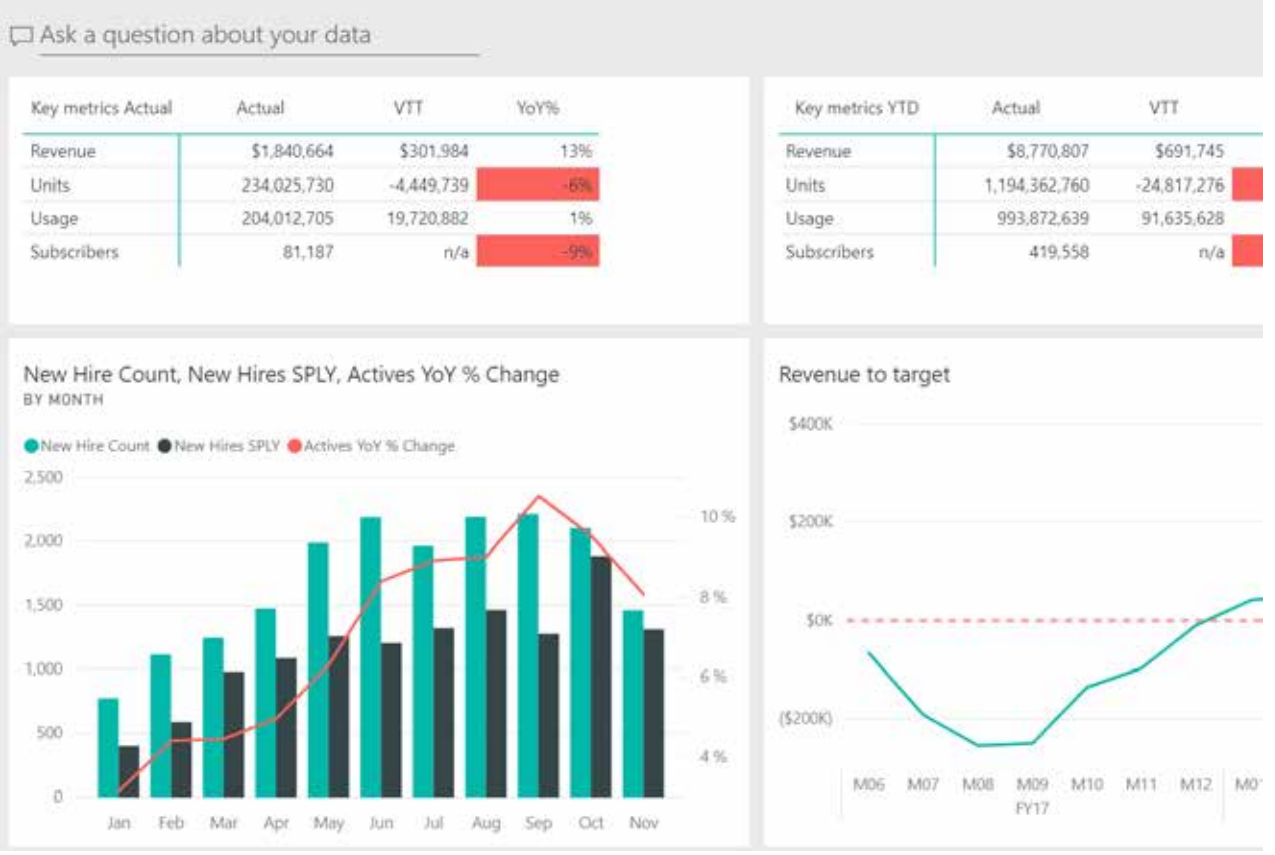

Figure 6.26: A new dashboard with information from different reports.

Jim wants to make sure he keeps his dashboards and reports up-to-date. New data is added every day, and the data in the model needs to get updated. This doesn't happen automatically as the data is imported into the Power BI model, but to update the data, Jim can schedule a refresh to occur periodically.

Power BI Tip: How Does Data Refresh Work?

Power BI can connect to any data source that it has access to; it can be a data source that is connected to the Internet (a cloud data source) such as a SQL Azure database or Dynamics CRM, or it can be a data source that resides on the organization's network. This chapter shows how to connect to a data source that is directly connected to the Internet. (To see how to connect to a data source on a corporate network, see **http://ppivot.us/kd3as4s**.)

After Power BI is able to connect to a data source, you can configure the refresh schedule. At each of the scheduled times, Power BI will fetch from the data source the latest data and show it in the reports and dashboards. For more on data refresh, see **http://ppivot.us/vad4ed2**.

To configure this, Jim goes to the Datasets area of the workspace and selects Settings for Contoso Sales.

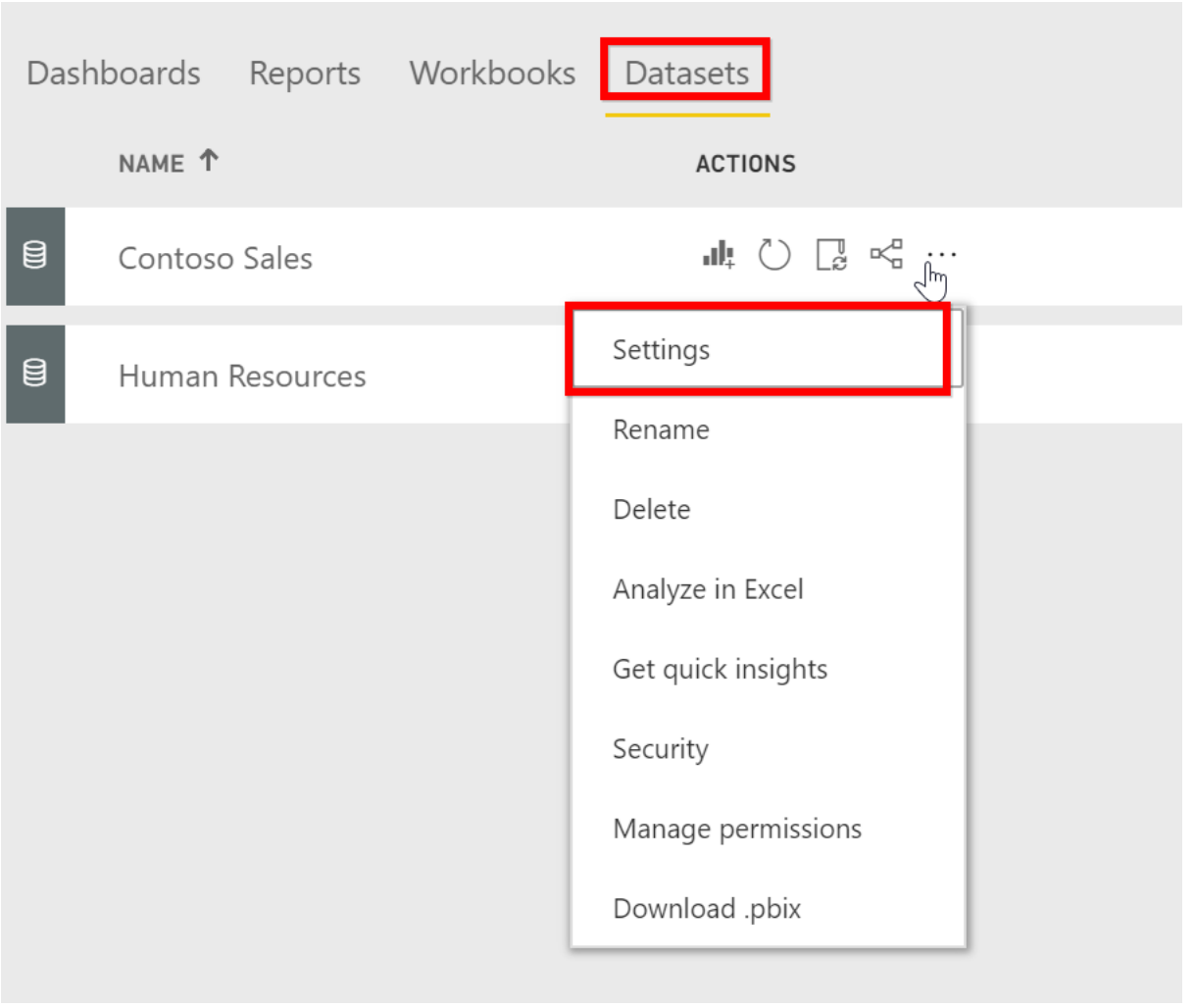

Figure 6.27: Selecting the dataset settings.

Power BI shows a warning that the dataset credentials are not set, and the data cannot be refreshed until this has been fixed.

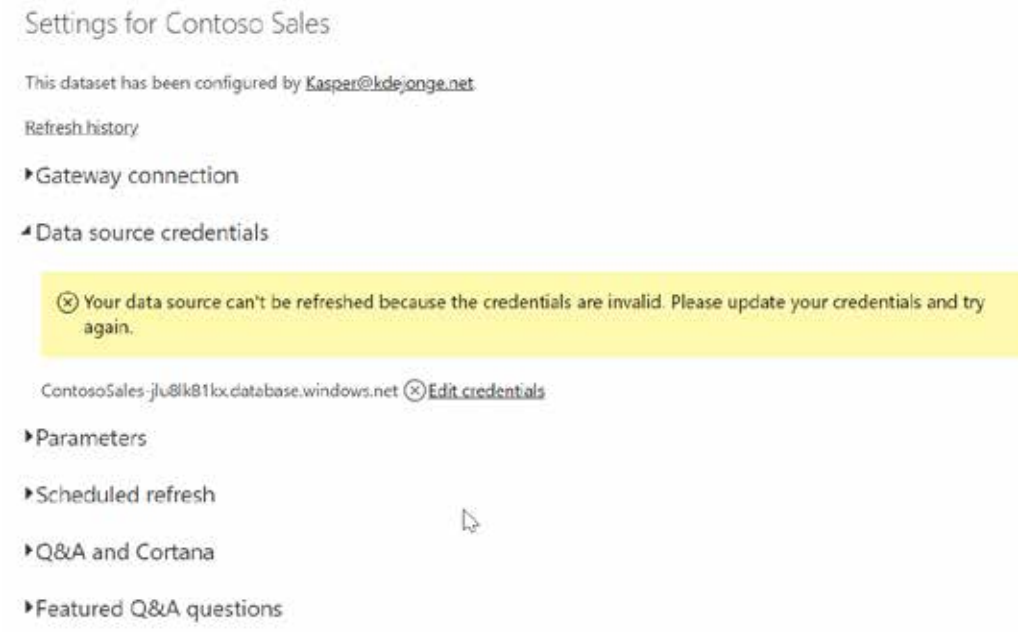

Figure 6.28: Data refresh warning.

Jim fixes the problem by clicking Edit Credentials and providing his username and password. He can then configure the schedule. Jim decides that once a day at 6 a.m. is frequently enough to refresh the data as he expects the users to look at the dashboard in the morning.

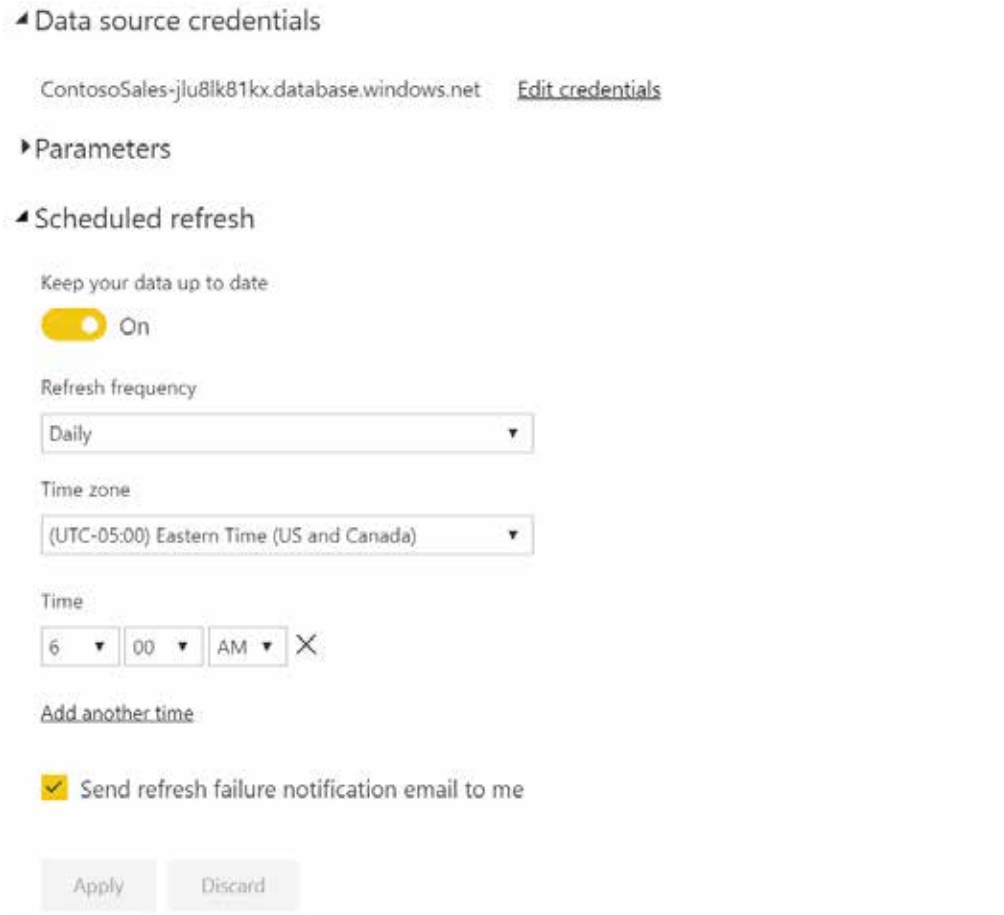

Figure 6.29: Configuring the refresh schedule.

He does the same for the HR system, and now his dashboards and reports will be updated every day at 6 a.m.

Now that Tracy and Jim have created the new dashboard, they present it to their team again and then make some minor changes based on the feedback. Now it is time to deploy the dashboard to some test users in their organization. They want to allow the users to view reports but don't want to collaborate with these users. To distribute these dashboards and reports to such users, Power BI provides apps.

Power BI Tip: Power BI Apps

Power BI apps allow a content creator to bundle related dashboards and reports together from a single workspace into a single app. The app can then be distributed to users in the organization in two ways:

- **Published to the app store:** An app can be published to the app store for everyone or for a set of users. A user who has access can select Get Data, find the app in the store, and make it available within Power BI.
- **Pushed directly to users:** An app can be pushed to the users directly, in which case they will be able to find it within Power BI immediately.

Remember that when you want to collaborate with other users of Power BI, they also need a Pro license. However, to be able to consume apps, there are two different options:

- **Power BI Pro license:** The user can have a Pro license. The organization might buy licenses for all consumers of the app. Often this happens when the company buys an Office 365 E5 package that also includes Power BI Pro licenses.
- **Power BI Premium:** A more common option is that a workspace can be hosted on a Premium version of Power BI. This means the organization pays for the capacity needed to run the reports and dashboards as opposed to purchasing individual licenses. This allows every user in the organization who has a free version of Power BI to consume the content. The drawback, of course, is that someone in the organization must manage the capacity. This option is most commonly used in scenarios where the users of the app look at the content only occasionally. For more on Power BI Premium, see **http://ppivot.us/pdghs3s**.

In some cases, you might want to share reports and apps with users who are not part of your organization. Power BI provides B2B (business-to-business) sharing to allow you to share an app with users outside your organization. This is great when you want to share information with partners or customers directly. Of course, it might also be dangerous if you have highly confidential information. Fortunately, the Power BI admin can determine who can use B2B sharing. For more information on B2B sharing, see **http://ppivot.us/xdfe4ss**.

For more on distributing and managing apps, see **http://ppivot.us/hsdf4sgf**.

Jim goes back to his workspace to create the app by clicking Publish App.

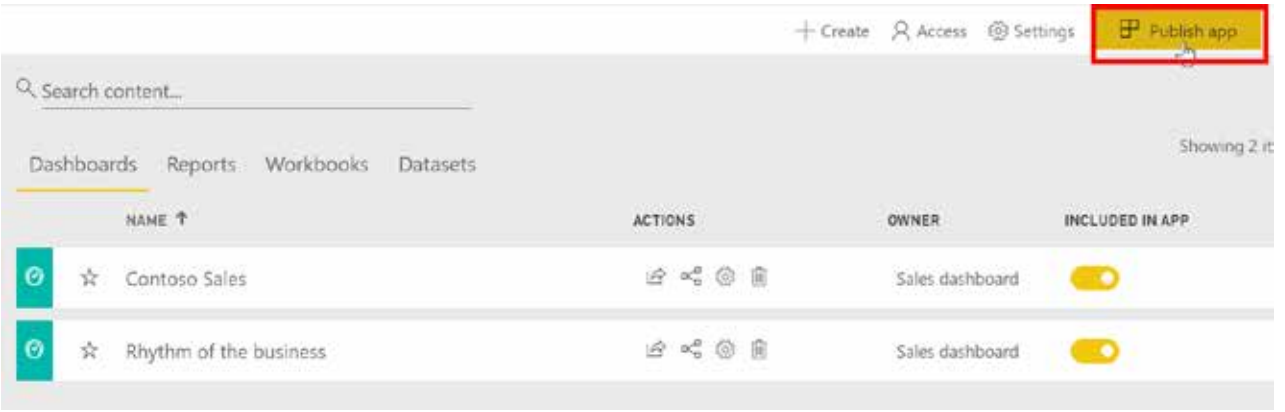

Figure 6.30: Publishing the app.

In the first box that appears, he can add a description to tell consumers of the app what it is about and who they can contact with any questions. Jim notices that the name of the app is the same as the name of the workspace, Sales Dashboard, even though it has grown to something more. He therefore cancels the app creation and goes back to rename the workspace Rhythm of the Business. Then he again clicks Publish App to create the app and enters the important details. Now the app has the correct name—the same name as the workspace.

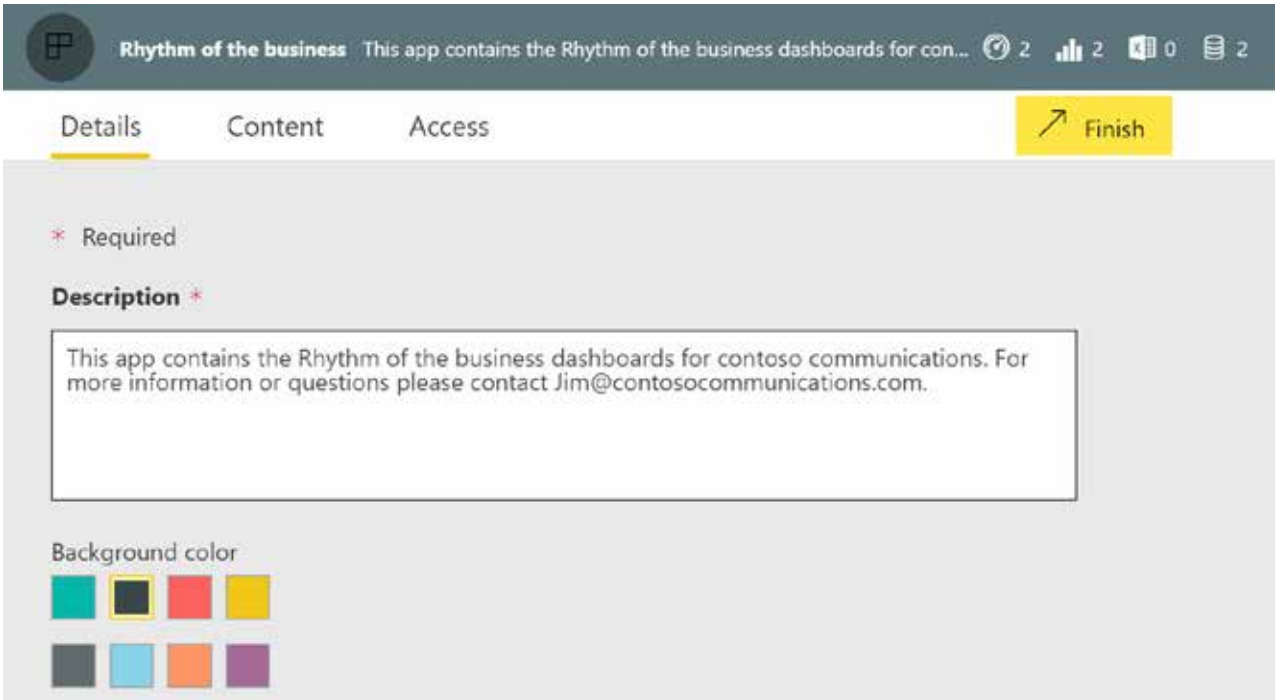

Figure 6.31: Setting the app details.

Next, in the Content area, Jim selects the app landing page. He wants to make sure consumers start with the Rhythm of the Business dashboard, so he selects it as the default.

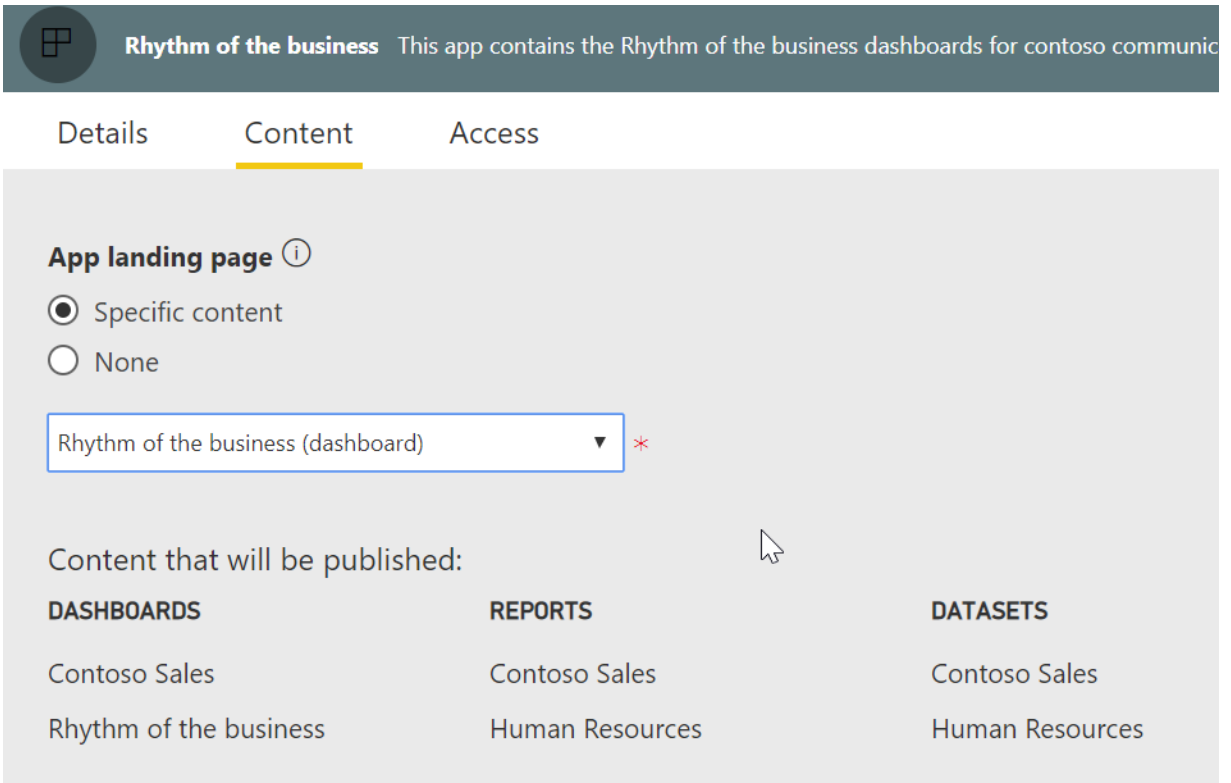

Figure 6.32: Selecting the landing page.

In the Access area, Jim sets the target audience for the app under Apply To. He wants the users to get the app installed automatically among their Power BI apps, so he selects Enabled.

Power BI Tip: The Power BI Admin Portal

By default, you cannot choose to install an app automatically because the Install App Automatically checkbox in the Access area is grayed out. Power BI has this feature turned off in the admin portal. You have to work with your Power BI admin to turn this on—either for the entire organization or for just a few content authors.

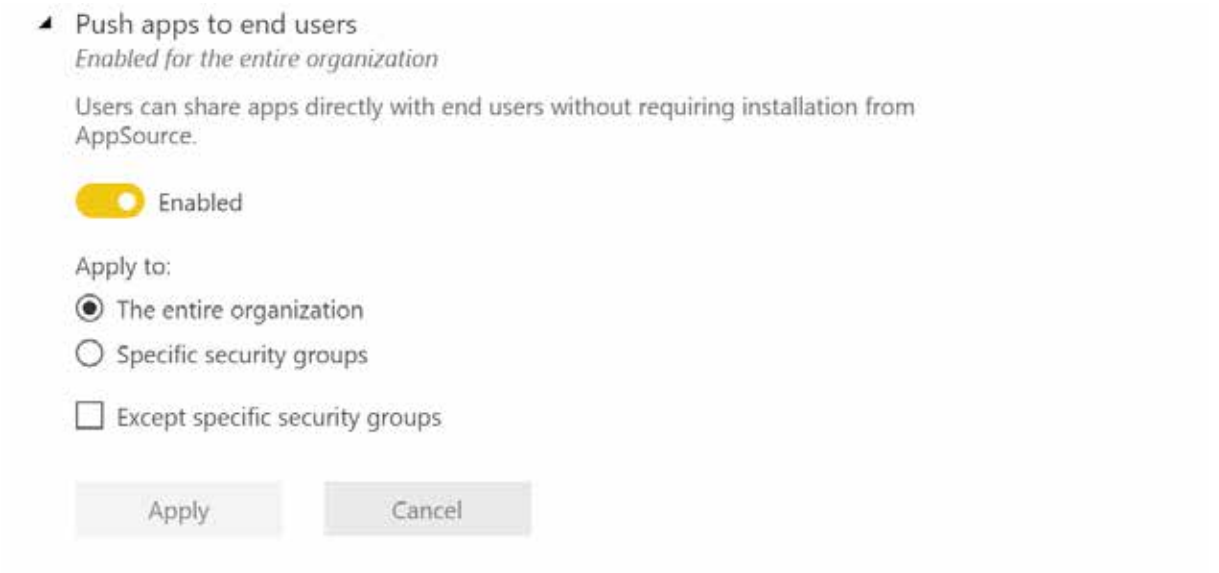

Figure 6.33: Turning on the Install App Automatically feature by selecting Enabled under Push App to End Users in the admin portal.

For more details on the Power BI admin portal, see **http://ppivot.us/her3df3**.

It might be that your organization does not yet have a Power BI admin, and you or someone in your IT organization must tell Power BI who is the admin. This is called *admin takeover*, and it is described at **http://ppivot.us/4fsdad3**.

In this case, Jim is still testing the app, so he only selects Tracy and Ben from his team to get access to the app. He also has the app pushed directly to himself.

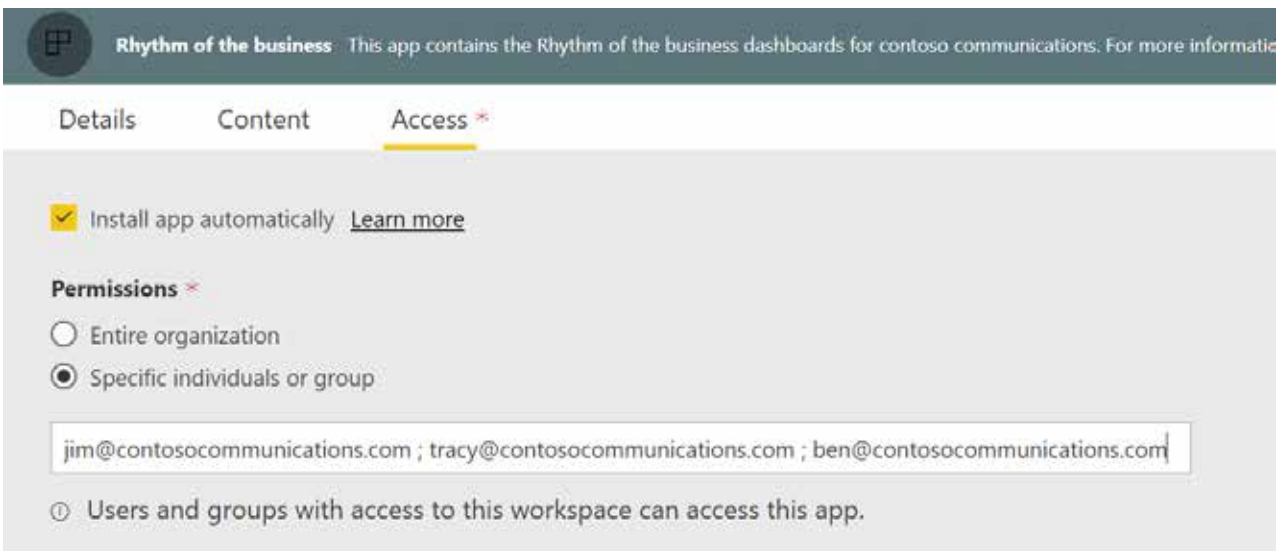

Figure 6.34: Adding users to the app.

When he is done making changes, Jim clicks Publish App again. Power BI tells Jim the app has been successfully published, and the users of the app can now find it in Power BI. The message also contains a link that Jim can include in an email for users to click on.

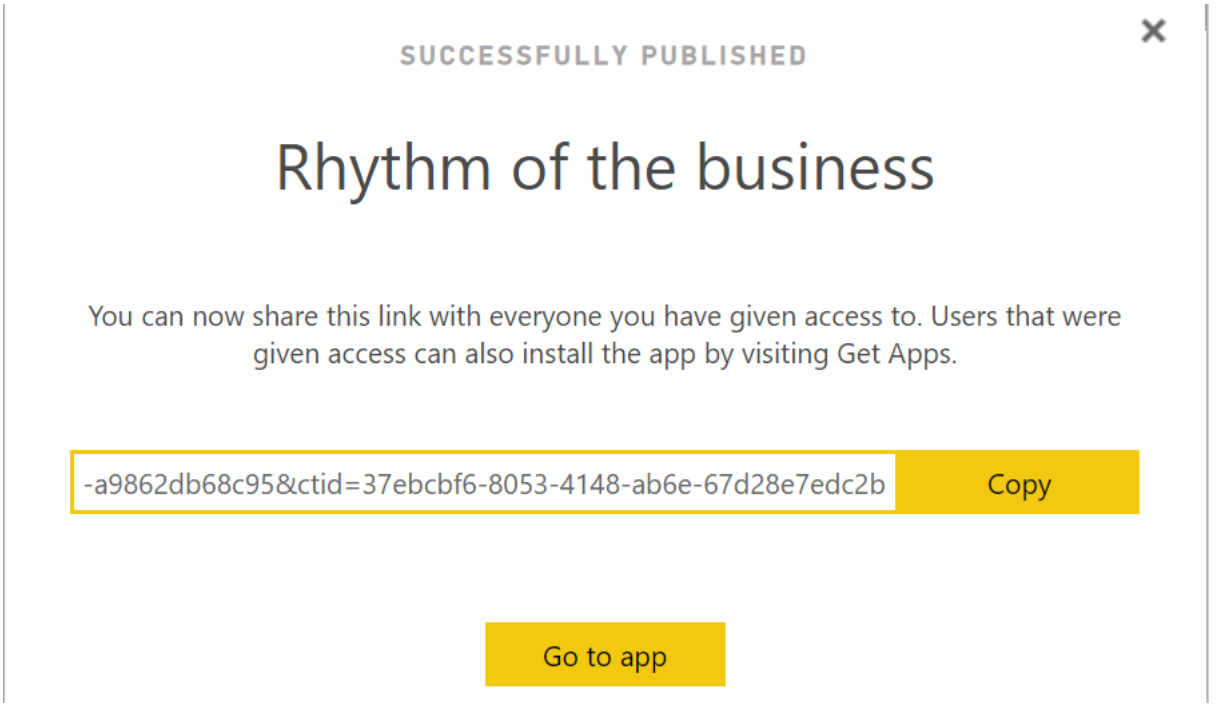

Figure 6.35: Successful app publication.

When a user who has access to the app clicks Get Data, he or she will be able to find the app under Apps for Power BI.

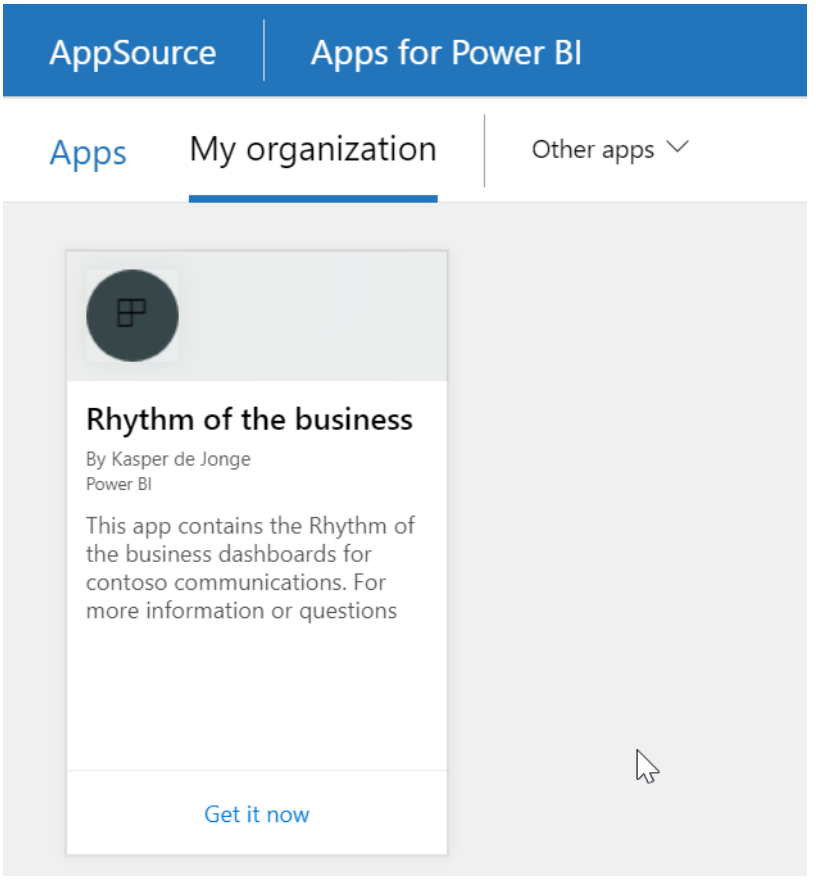

Figure 6.36: The app as part of the Power BI apps.

Because the app was also pushed directly to Jim, he can now see it directly under his personal apps.

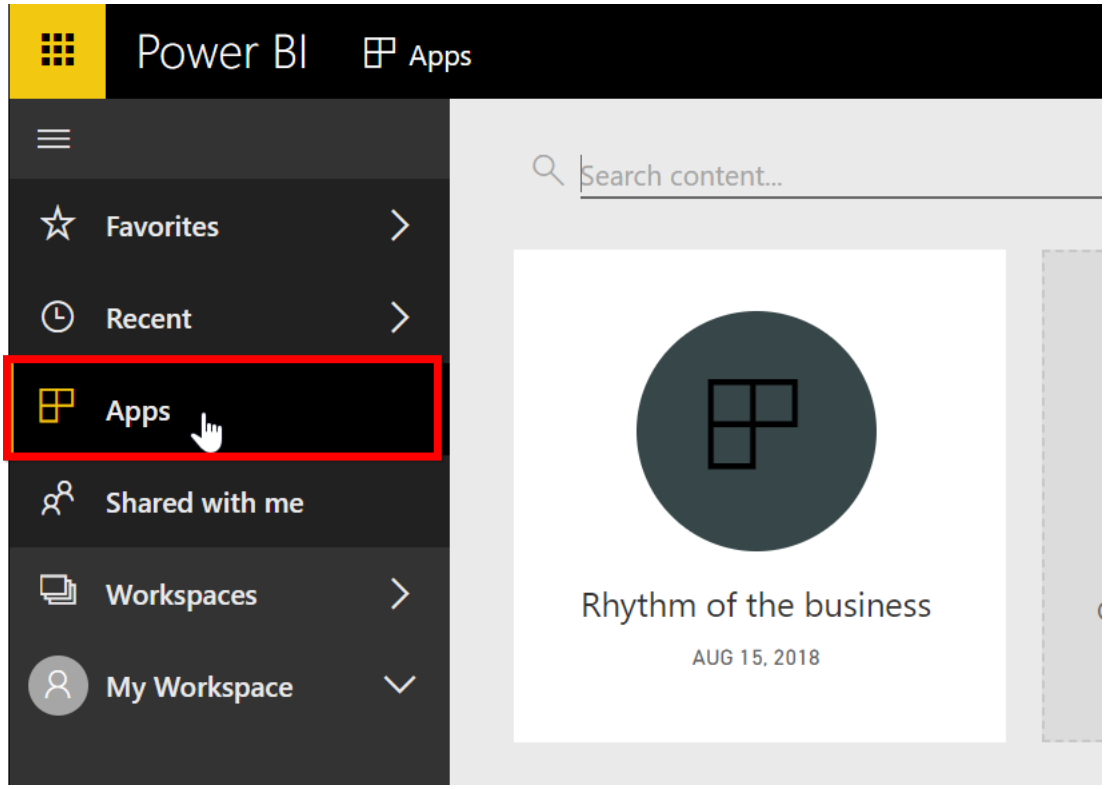

Figure 6.37: The app shows up in Jim's app list.

Jim can now click the app to open the Rhythm of the Business dashboard.

Power BI Tip: Updating Apps

When you use apps to deploy content to users in your organization, you are in control of when to update the content for those end users. After you make any changes to the dashboards or reports, you have to update the app manually. This ensures that you can send updates to your business users in a controlled manner and maybe bundle together a few changes on a certain day of the week. Remember that this data is being used to make executive decisions!

Finally, Jim returns to the Power BI home screen and notices that the app is shown there as well, so he knows his users will not have to look far to be able to see the app.

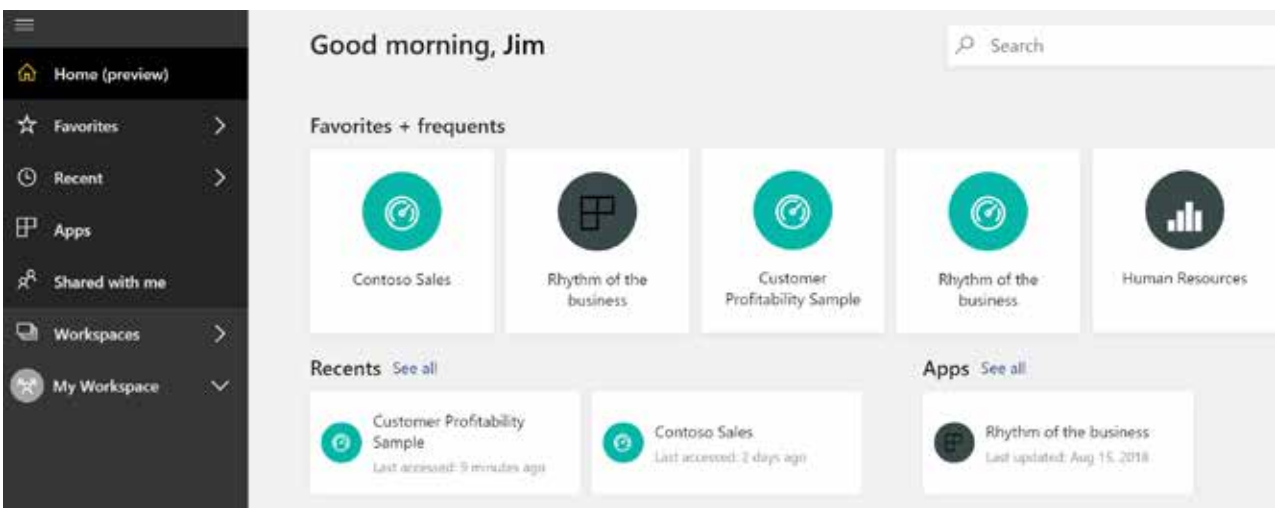

Figure 6.38: The app shows up in a user's home screen.

Power BI Tip: The Power BI Home Screen

The Power BI home screen is a central place in Power BI where you can find all the relevant content from recent and favorited dashboards, as well as available apps. You can pin multiple dashboards to the home screen to collect everything that is important to you. The home screen also recommends apps based on what your colleagues are looking at. Finally, it allows you to search across all the content you have access to.

For more on the home screen, see **http://ppivot.us/ho3s3s**.

After Jim has a final review meeting with his team and management, they declare that the reports and dashboards are ready to be shared with the relevant stakeholders. Jim shares the app with those stakeholders and then sends an email with instructions and a link to the app to help the recipients get started.

Index of Tips