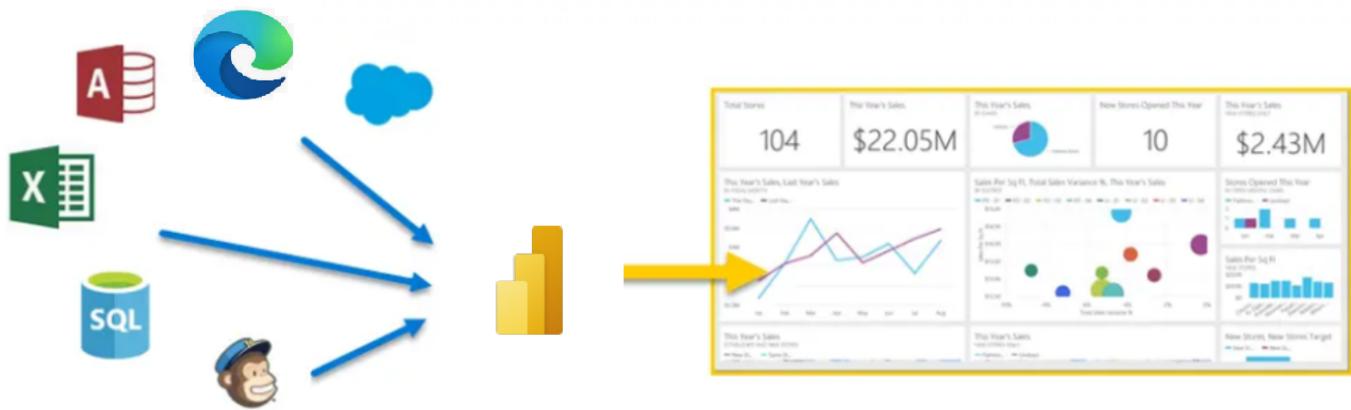


Introduction

6 minutes

Microsoft Power BI is a collection of software services, apps, and connectors that work together to turn your unrelated sources of data into coherent, visually immersive, and interactive insights. Whether your data is a simple Microsoft Excel workbook, or a collection of cloud-based and on-premises hybrid data warehouses, **Power BI** lets you easily connect to your data sources, visualize (or discover) what's important, and share that with anyone or everyone you want.

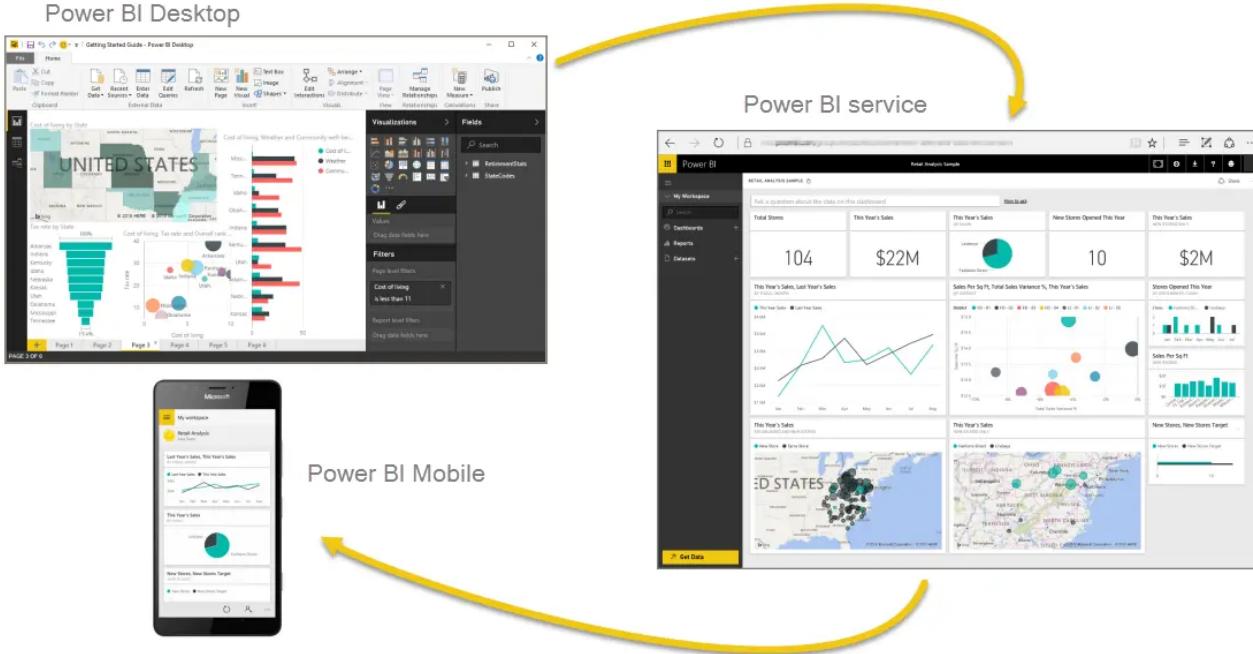


Power BI can be simple and fast, capable of creating quick insights from an Excel workbook or a local database. But **Power BI** is also robust and enterprise-grade, ready not only for extensive modeling and real-time analytics, but also for custom development. Therefore, it can be your personal report and visualization tool, but can also serve as the analytics and decision engine behind group projects, divisions, or entire corporations.

If you're a **beginner** with Power BI, this module will get you going. If you're a **Power BI veteran**, this module will tie concepts together and fill in the gaps.

The parts of Power BI

Power BI consists of a Microsoft Windows desktop application called **Power BI Desktop**, an online SaaS (*Software as a Service*) service called the **Power BI service**, and mobile Power BI apps that are available on any device, with native mobile BI apps for Windows, iOS, and Android.



These three elements—**Desktop**, the **service**, and **Mobile** apps—are designed to let people create, share, and consume business insights in the way that serves them, or their role, most effectively.

How Power BI matches your role

How you use Power BI might depend on your role on a project or a team. And other people, in other roles, might use Power BI differently, which is just fine.

For example, you might view reports and dashboards in the **Power BI service**, and that might be all you do with Power BI. But your number-crunching, business-report-creating coworker might make extensive use of **Power BI Desktop** (and publish Power BI Desktop reports to the Power BI service, which you then use to view them). And another coworker, in sales, might mainly use her Power BI phone app to monitor progress on her sales quotas and drill into new sales lead details.

You also might use each element of **Power BI** at different times, depending on what you're trying to achieve, or what your role is for a given project or effort.

Perhaps you view inventory and manufacturing progress in a real-time dashboard in the service, and also use **Power BI Desktop** to create reports for your own team about customer engagement statistics. How you use Power BI can depend on which feature or service of Power BI is the best tool for your situation. But each part of Power BI is available to you, which is why it's so flexible and compelling.

We discuss these three elements—**Desktop**, the **service**, and **Mobile** apps—in more detail later. In upcoming units and modules, we'll also create reports in Power BI Desktop, share them in the service, and eventually drill into them on our mobile device.

Download Power BI Desktop

You can download Power BI Desktop from the web or as an app from the Microsoft Store on the Windows tab.

Download Strategy	Link	Notes
Windows Store App	Windows Store	Will automatically stay updated
Download from web	Download .msi	Must manually update periodically

Sign in to Power BI service

Before you can sign in to Power BI, you'll need an account. To get a free trial, go to [app.powerbi.com](#) and sign up with your email address.

For detailed steps on setting up an account, see [Sign in to Power BI service](#)

The flow of work in Power BI

A common flow of work in Power BI begins in **Power BI Desktop**, where a report is created. That report is then published to the **Power BI service** and finally shared, so that users of **Power BI Mobile** apps can consume the information.

It doesn't always happen that way, and that's okay. But we'll use that flow to help you learn the different parts of Power BI and how they complement each other.

Okay, now that we have an overview of this module, what Power BI is, and its three main elements, let's take a look at what it's like to use **Power BI**.

Next unit: Use Power BI

[Continue >](#)



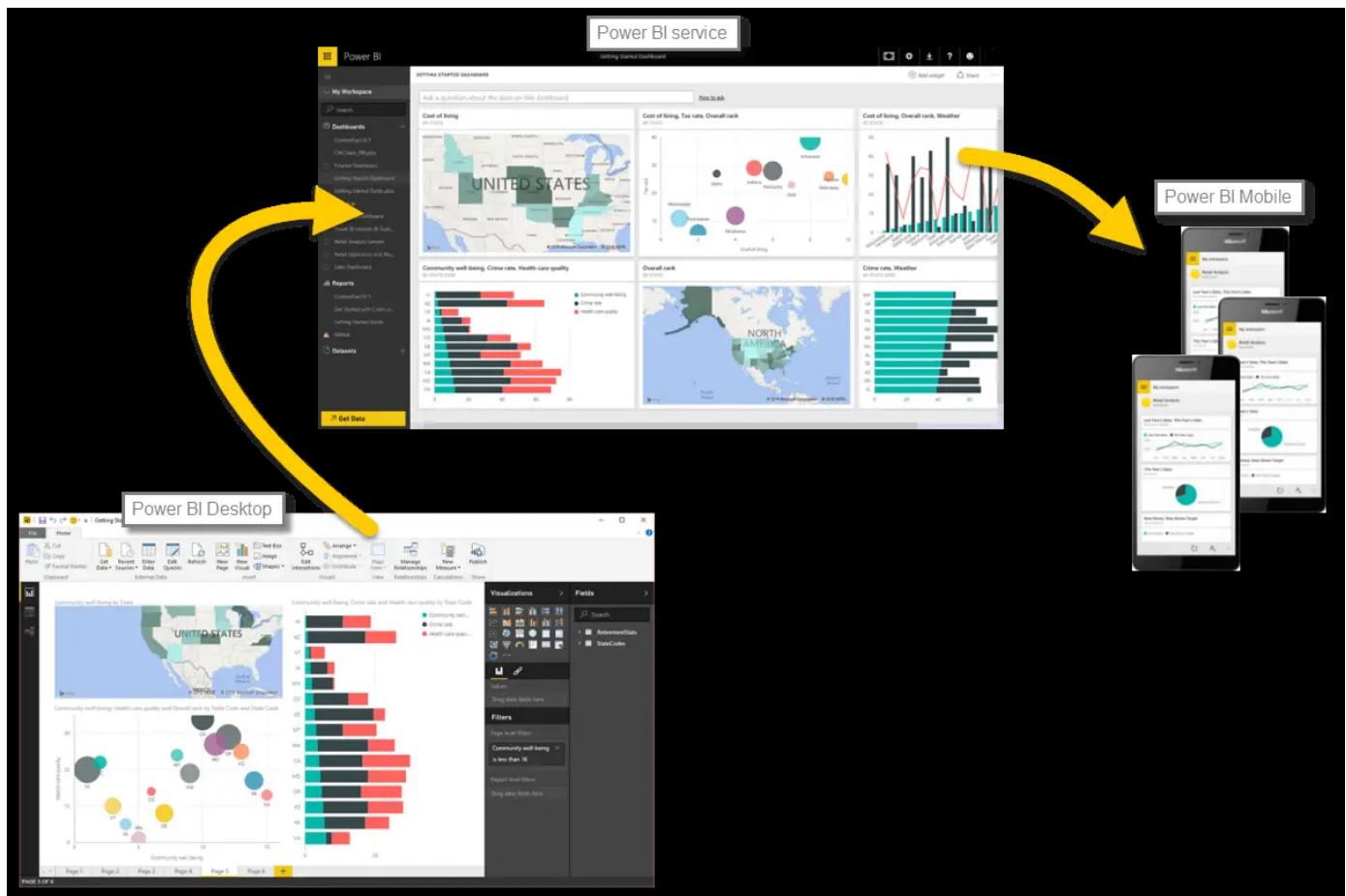
Use Power BI

2 minutes

Now that we've introduced the basics of Microsoft Power BI, let's jump into some hands-on experiences and a guided tour.

The activities and analyses that you'll learn with Power BI generally follow a common flow. The **common flow of activity** looks like this:

1. Bring data into Power BI Desktop, and create a report.
2. Publish to the Power BI service, where you can create new visualizations or build dashboards.
3. Share dashboards with others, especially people who are on the go.
4. View and interact with shared dashboards and reports in Power BI Mobile apps.



As mentioned earlier, you might spend all your time in the **Power BI service**, viewing visuals and reports that have been created by others. And that's fine. Someone else on your team might

spend their time in **Power BI Desktop**, which is fine too. To help you understand the full continuum of Power BI and what it can do, we'll show you all of it. Then you can decide how to use it to your best advantage.

So, let's jump in and step through the experience. Your first order of business is to learn the basic building blocks of Power BI, which will provide a solid basis for turning data into cool reports and visuals.

Next unit: Building blocks of Power BI

[Continue >](#)

100 XP



Building blocks of Power BI

12 minutes

In Microsoft Power BI, there are basic building blocks that make up the reports and dashboards consumed by end users. Think of it similarly to the basic construction materials that can be used to build homes or other structures.

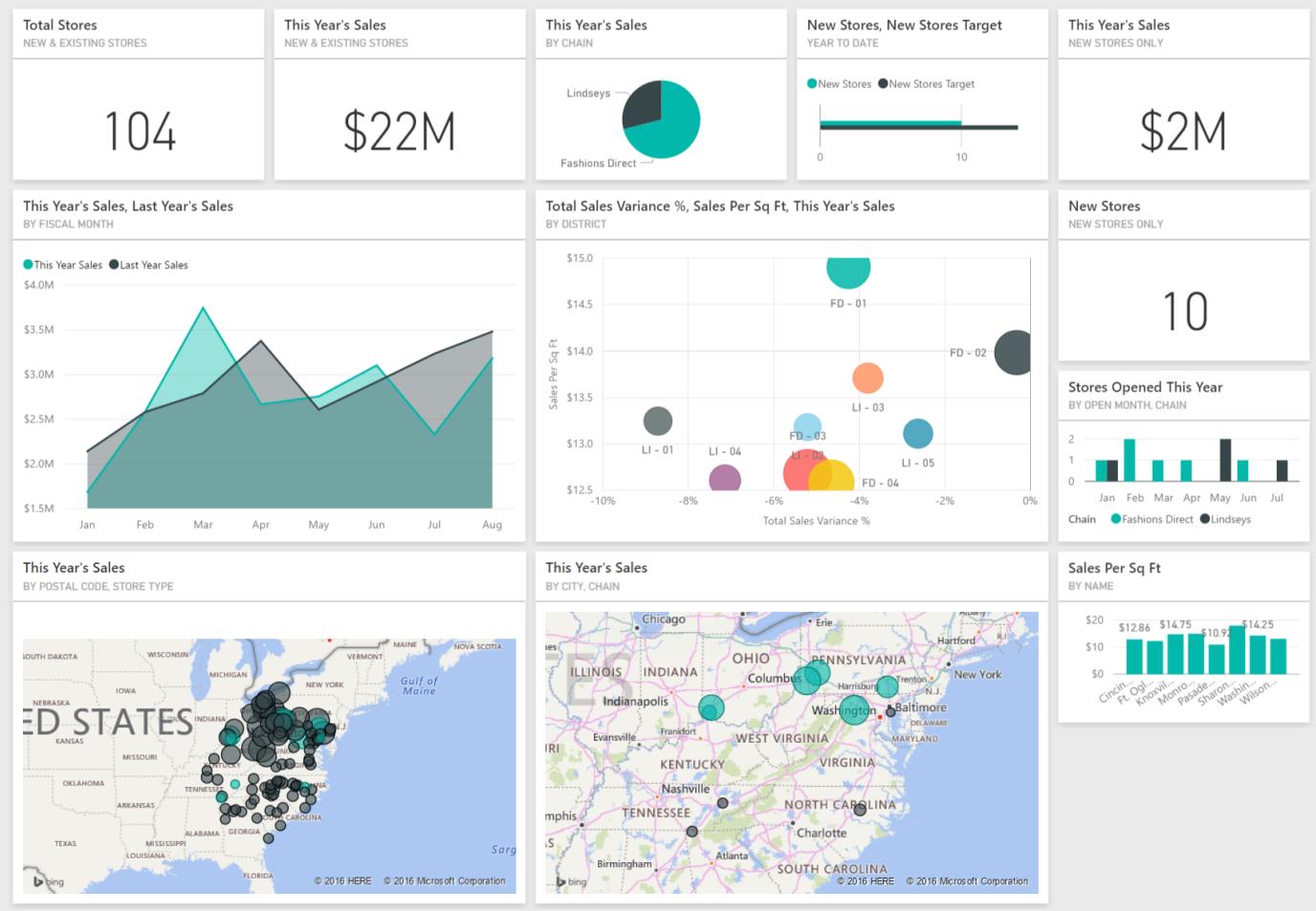
Here are the basic building blocks in Power BI:

- Reports consist of **visualizations** and **datasets** created with Power BI Desktop application.
- Dashboards consist of **tiles** from report visualizations created in the online Power BI service.

Visualizations

A **visualization** (or **visual**) is a visual representation of data, like a chart, a color-coded map, or other interesting things you can create to represent your data visually. Power BI has all sorts of visualization types, and more are coming all the time. The following image shows a collection of different visualizations that were created in Power BI.

Ask a question about your data



Visualizations can be simple, like a single number that represents something significant. Visuals can also be complex, like a gradient-colored map that shows voter sentiment about a certain social issue or concern. The goal of a visual is to present data in a way that provides context and insights, both of which would probably be difficult to discern from a raw table of numbers or text.

Datasets

A **dataset** is a collection of data that Power BI uses to create its visualizations.

You can have a simple dataset that's based on a single table from a Microsoft Excel workbook, similar to what's shown in the following image.

	B	C	D	E	F	G	H
1	Year	Month	Month Name	Calendar Month	Births	Births Per Day	Births (Normalized)
2119	2004	1	January	1/1/2004	2,937	94.7	2842
2120	2004	2	February	2/1/2004	2,824	97.4	2921
2121	2004	3	March	3/1/2004	3,128	100.9	3027
2122	2004	4	April	4/1/2004	2,896	96.5	2896
2123	2004	5	May	5/1/2004	3,008	97.0	2911
2124	2004	6	June	6/1/2004	3,047	101.6	3047
2125	2004	7	July	7/1/2004	2,981	96.2	2885
2126	2004	8	August	8/1/2004	3,079	99.3	2980
2127	2004	9	September	9/1/2004	3,219	107.3	3219
2128	2004	10	October	10/1/2004	3,547	114.4	3433
2129	2004	11	November	11/1/2004	3,365	112.2	3365
2130	2004	12	December	12/1/2004	3,143	101.4	3042
2131	2005	1	January	1/1/2005	2,921	94.2	2827
2132	2005	2	February	2/1/2005	2,699	96.4	2892
2133	2005	3	March	3/1/2005	3,024	97.5	2926
2134	2005	4	April	4/1/2005	3,037	101.2	3037
2135	2005	5	May	5/1/2005	3,231	104.2	3127
2136	2005	6	June	6/1/2005	3,163	105.4	3163
2137	2005	7	July	7/1/2005	3,119	100.6	3018
2138	2005	8	August	8/1/2005	3,156	101.8	3054
2139	2005	9	September	9/1/2005	3,439	114.6	3439

Datasets can also be a combination of many different sources, which you can filter and combine to provide a unique collection of data (a dataset) for use in Power BI.

For example, you can create a dataset from three database fields, one website table, an Excel table, and online results of an email marketing campaign. That unique combination is still considered a single **dataset**, even though it was pulled together from many different sources.

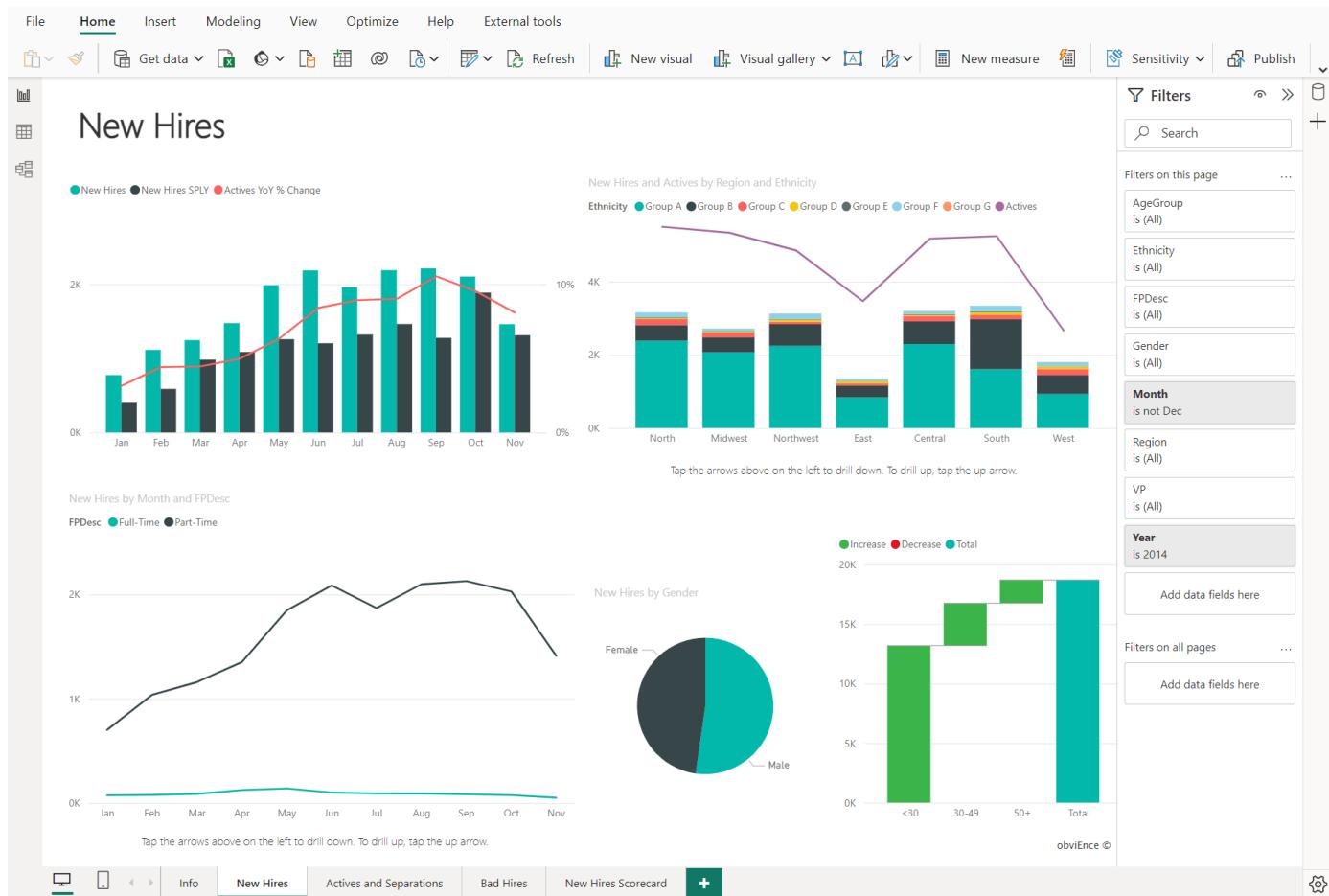
Filtering data before bringing it into Power BI lets you focus on the data that matters to you. For example, you can filter your contact database so that only customers who received emails from the marketing campaign are included in the dataset. You can then create visuals based on that subset (the filtered collection) of customers who were included in the campaign. Filtering helps you focus your data—and your efforts.

You can create a Power BI report from almost any data, thanks to the many available **data connectors**, such as Excel, a Microsoft SQL Server database, Azure, Oracle, Facebook, Salesforce, and MailChimp.

After you have a dataset, you can begin creating visualizations that show different portions of it in different ways, and gain insights based on what you see. That's where reports come in.

Reports

In Power BI, a **report** is a collection of visualizations on one or more pages. As with other reports you've seen or created, Power BI reports combine related data. The following image shows a report in Power BI Desktop—in this case, it's the second page in a five-page report.



Reports let you create many visualizations, on multiple pages if necessary, and let you arrange those visualizations in whatever way best tells your story.

You might have a report about quarterly sales, product growth in a particular segment, or migration patterns of polar bears. Whatever your subject, reports let you gather and organize your visualizations onto one page (or more).

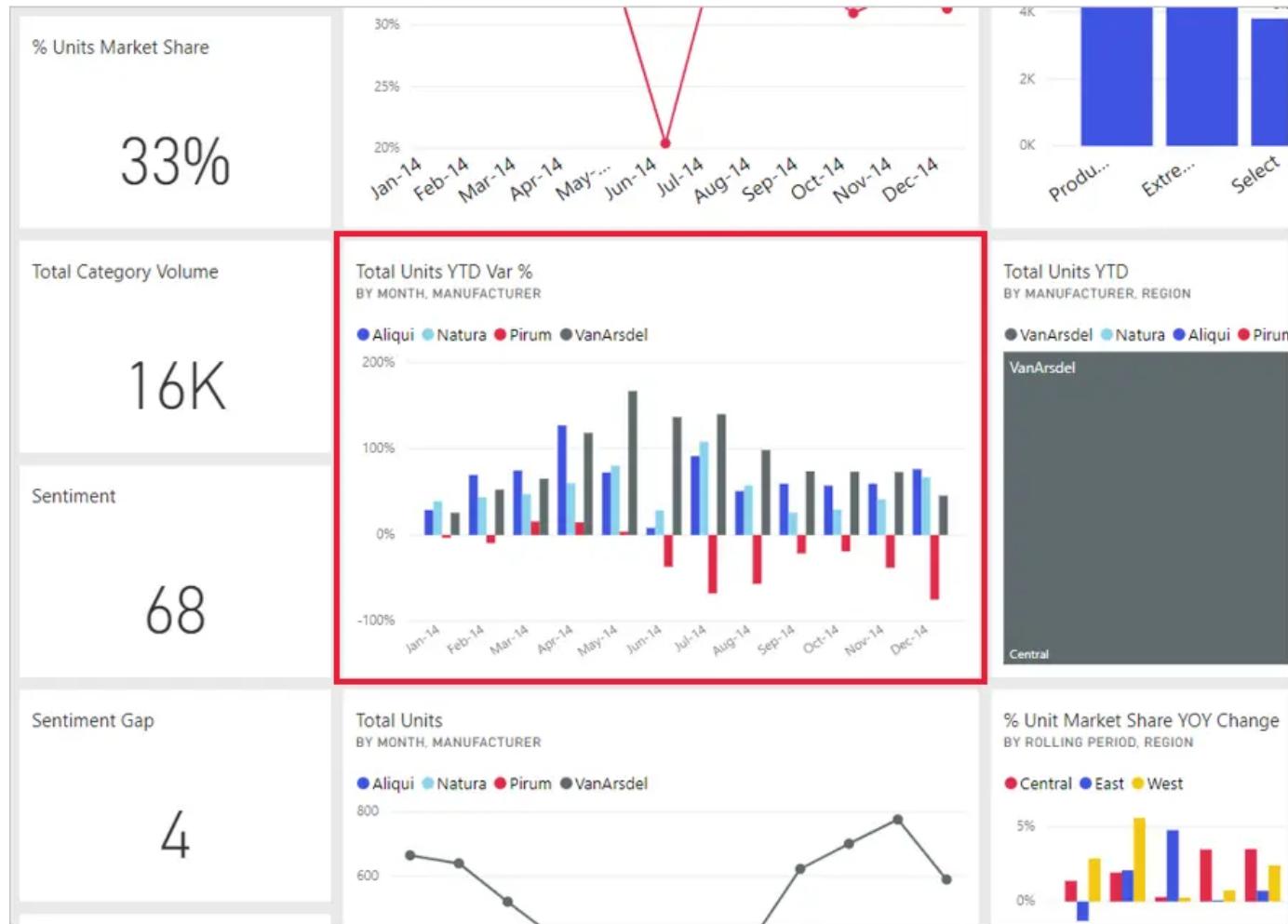
Dashboards

When you're ready to share a report, or a collection of visualizations, you can create a Power BI **dashboard**. Much like the dashboard in a car, a dashboard is a selected group of visuals that provide quick and important insight into the data or story you're trying to present.

Dashboards are limited to a single page, and allow users to follow a visual to the underlying report. Users interact with dashboards through the Power BI service or on a mobile device.

Tiles

In Power BI, a **tile** is a single visualization on a dashboard. It's the rectangular box that holds an individual visual. In the following image, you see one tile, which is also surrounded by other tiles.



When you're *creating* a dashboard in Power BI, you can move or arrange tiles however you want. You can make them bigger, change their height or width, and snuggle them up to other tiles.

When you're *viewing*, or *consuming*, a dashboard or report—which means you're not the creator or owner, but the report or dashboard has been shared with you—you can interact with it, but you can't change the size of the tiles or their arrangement.

All together now

Let's review the building blocks of Power BI:

- Power BI Desktop lets you build datasets and use visuals to make reports.
- The online Power BI service brings together reports, dashboards, and tools for easy distribution and management of your Power BI content.

Understanding the Power BI basics empowers you to create datasets and design reports. Your reports don't have to be complex to be interesting and informative. Power BI offers easy ways to design reports from a single Excel sheet.

Power BI is also scalable, allowing you to create datasets from various data sources, even incorporating custom code. The dataset can then be used to design interactive reports and dashboards that emphasize crucial data for informed business decisions.

No matter how you use Power BI, it all starts with datasets and visuals. These are the foundation for your reports that share insights and dashboards that present the most important data upfront.

Next unit: Tour and use the Power BI service

[Continue >](#)

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Tour and use the Power BI service

12 minutes

The common flow of work in Microsoft Power BI is to create a report in Power BI Desktop, publish it to the Power BI service, and then distribute to consumers to view through the service or mobile app.

Power BI service allows you to create **apps** for easy distribution and clutter-free consumption. An **app** is a way to group related reports and dashboards and distribute to the appropriate audience(s).

We go into more detail about apps (and the service) in upcoming modules, but let's walk through the experience to understand how apps benefit your organization.

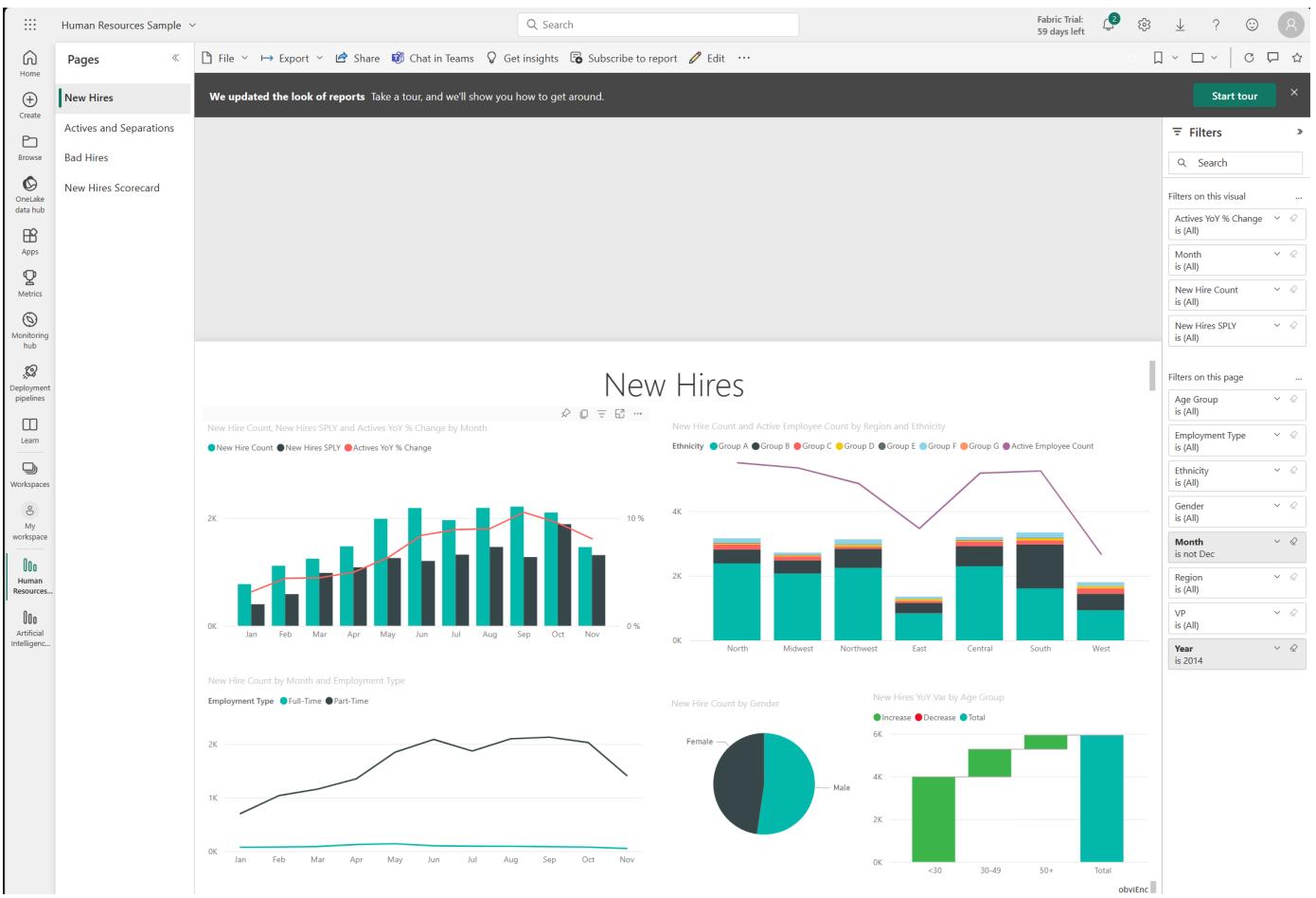
Explore built-in sample reports

Easily explore built-in samples to get familiar using the Power BI service. Built-in samples are each a bundle of one or more dashboards, datasets, and reports that you can use with the Power BI service.

From the [Power BI service](#), open the *Learning center* from the left navigation pane. Pick one of the available built-in samples, which opens in Reading mode. Power BI then imports the sample and adds a new report and dataset to your *My workspace*.

The screenshot shows the Microsoft Power BI Learning center. At the top left is the Microsoft logo and the text "Power BI Learn". To the right is a search bar with a magnifying glass icon and a user profile icon. On the far right are three dots and a gear icon. A vertical navigation pane on the left contains icons for Home, Plus, Folder, List, People, Grid, and a red-bordered icon for "New". The main content area has a title "Learning center" and a subtitle "Your hub for all Power BI training". It features three cards: "Learn how to use Power BI" (with a "Start learning" button), "Dig into the documentation" (with a "Read docs" button), and "Join the Power BI community" (with a "Join in" button). Below this is a section titled "Sample reports" with three examples: "Retail Analysis Sample", "Sales and Marketing Sample", and "Supplier Quality Analysis Sample", each showing a preview of its contents.

After you've chosen a sample report, you can see the direct report sharing experience for consumers. Take note of the Power BI service navigation pane and header, as shown in the following screenshot. You can see the report navigation and the filter pane, both of which are collapsible.



Explore template apps

Now that you understand how a report can be shared through Power BI service, let's look at the app experience. To replicate the experience, we're using the GitHub template app.

Power BI apps

Install apps that provide actionable insights and drive business results

All apps Organizational apps **Template apps**

Filter by All Sort by: Popularity

Browse available apps from AppSource

Save time by connecting your own data to a prebuilt report that you can personalize and share.

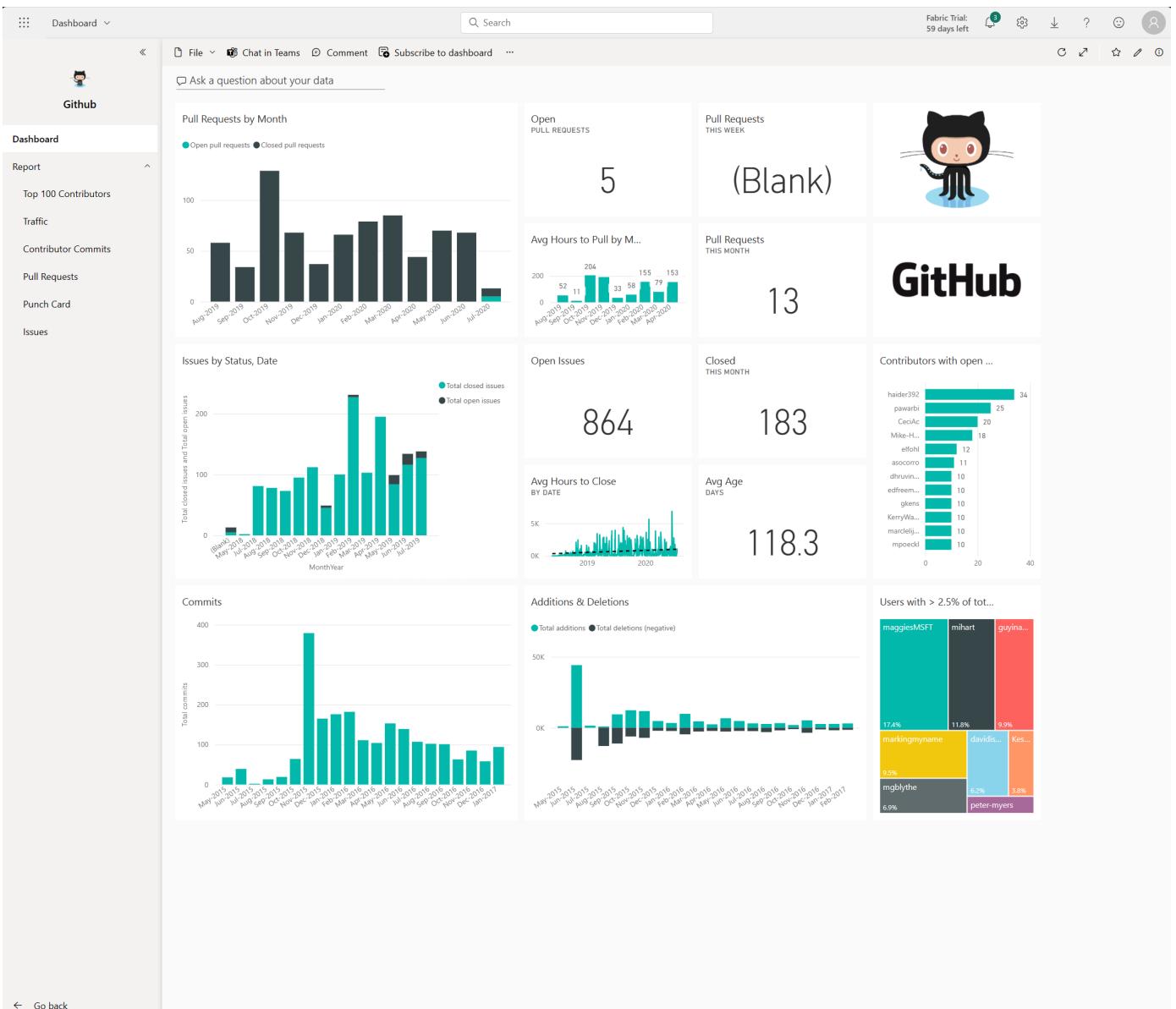
The screenshot shows the 'Template apps' section of the Power BI service. At the top, there are navigation links for 'All apps', 'Organizational apps', and 'Template apps'. A search bar contains the text 'microsoft'. Below the search bar, there's a filter dropdown set to 'All' and a sorting option 'Sort by: Popularity'. A large callout text 'Browse available apps from AppSource' is present, along with a note about saving time by connecting personal data to prebuilt reports. On the right, there's a decorative graphic of a laptop displaying a dashboard, connected via dashed lines to icons representing data, charts, and connectivity. Below this, ten app cards are displayed in two rows of five. Each card includes the app icon, name, developer, and rating. The apps shown are: Microsoft Sample - Retail Analysis, Microsoft 365 Usage, Github Repository, Sales Analytics for Dynamics 365, LinkedIn Sales Navigator, US Capital, Microsoft Sample - Retail Analysis, Microsoft 365 Usage, Microsoft Dynamics 365 Sales Analytics, and LinkedIn Sales Navigator.

App Name	Developer	Rating
Microsoft Sample - Retail Analysis	Microsoft	★★★★★ (15)
Microsoft 365 Usage	Microsoft Corporation	★★★★★ (139)
Github Repository	Microsoft	★★★★★ (29)
Sales Analytics for ...	Microsoft Dynamics 365	★★★★★ (6)
LinkedIn Sales Navig...	Microsoft	★★★★★ (29)
US Capital		
Microsoft Sample - Retail Analysis		
Microsoft 365 Usage		
Microsoft Dynamics 365 Sales Analytics		
LinkedIn Sales Navigator		

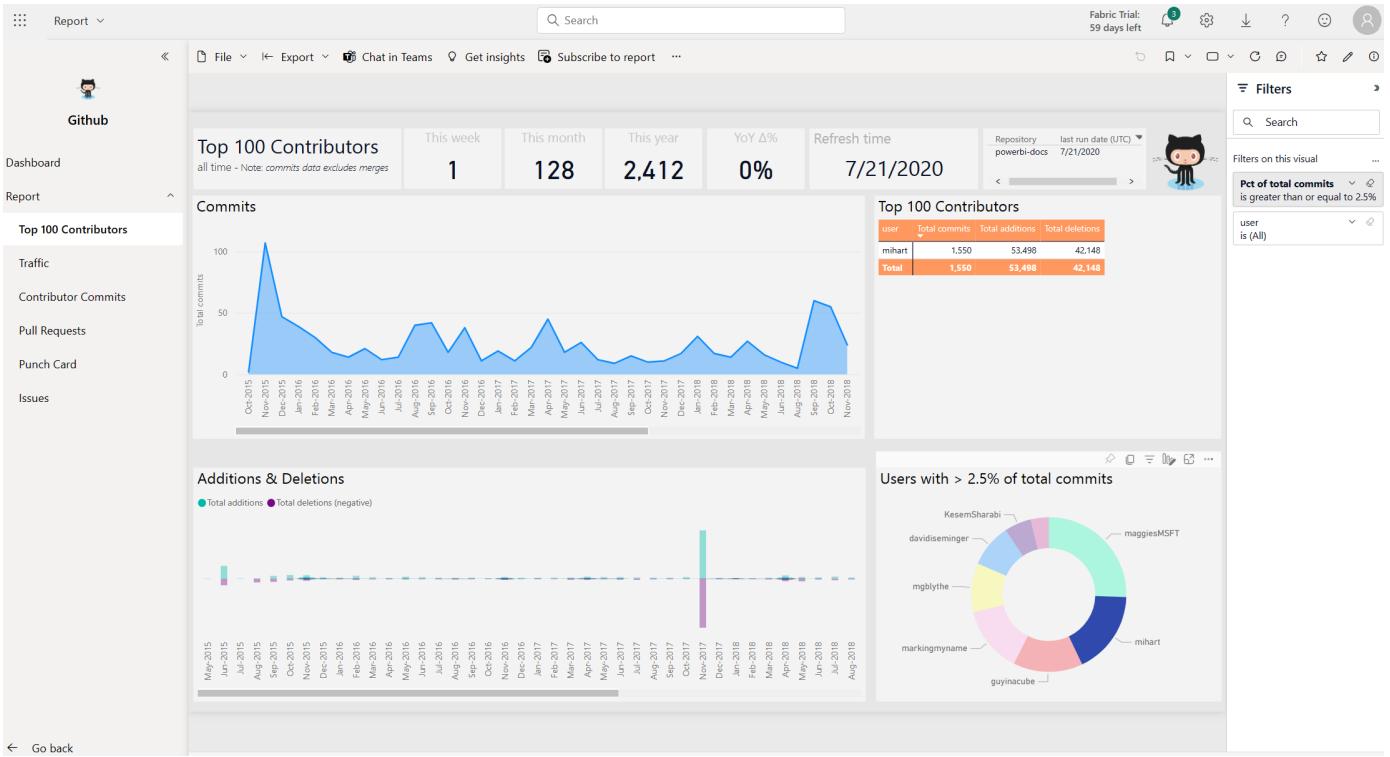
💡 Tip

To access template apps, select the Apps icon from the left navigation pane > Get apps > Template apps.

In the following screenshot, you can see that the Power BI service left navigation pane and header that were visible with the direct report are gone. Also note the dashboard and a multi-page report in the app navigation pane. The app provides a cleaner look with only the relevant content. It's also customizable with app color and thumbnail. Apps also allow you to configure multiple audiences if you need to limit access to certain pages in a report, for instance.



All of the visuals are interactive and interacting with one visual filters the others accordingly. For example, when you select on **mihart** in the donut chart on the **Top 100 Contributors** report, all other visuals only show related data for mihart.



Refresh data in the Power BI service

Likely, your data changes regularly, so Power BI accounts allows on-demand and scheduled dataset refreshes. From the app workspace, you manually refresh or schedule up to eight refreshes per day at minimum.

Tip

For more information about all refresh schedules, see the [Refresh data documentation](#).

The **Datasets** tab is selected on the **Settings** page that appears. In the right pane, select the arrow next to **Scheduled refresh** to expand that section. The **Settings** dialog box appears on the canvas, letting you set the update settings that meet your needs.

The screenshot shows the Power BI service interface. At the top, there are navigation links for 'Power BI' and 'Github'. A search bar is located in the top right corner. The main menu on the left includes 'Home', 'Favorites', 'Recent', 'Create', 'Datasets' (which is selected and highlighted in red), 'Apps', 'Shared with me', 'Deployment pipelines', and 'Learn'. Below this, under 'Workspaces', is a section for 'Github'. On the right, the 'Datasets' tab is active, showing a 'GitHub' dataset. The dataset settings are displayed, including 'Settings for GitHub', 'Gateway connection', 'Data source credentials' (with a link to 'Edit credentials'), 'Parameters', and 'Scheduled refresh' (which is turned 'On'). A red box highlights the 'Scheduled refresh' section. Other settings shown include 'Refresh frequency' (set to 'Daily'), 'Time zone' ('(UTC-06:00) Central Time (US and Ca)'), 'Time' ('Add another time'), and 'Send refresh failure notifications to' (with a checked checkbox for 'Dataset owner'). A red box also highlights the 'Send refresh failure notifications to' section. A cursor arrow is visible on the right side of the screen.

The Power BI service provides a simple and interactive user experience to take your data analytics to the next level.

Next unit: Knowledge check

[Continue >](#)