

Chapter 1: Introduction to Power BI

Objective:

This chapter

- Introduces you to Power BI.
- Installation of Power BI
- Check list for perfect installation.

About Power BI

Power BI is a Data Visualization and Business Intelligence tool that converts data from different data sources to interactive dashboards and BI reports. Power BI suite provides multiple software, connector, and services - Power BI desktop, Power BI service based on SaaS, and mobile Power BI apps available for different platforms. These set of services are used by business users to consume data and build BI reports.

Power BI desktop app is used to create reports, while Power BI Services (Software as a Service - SaaS) is used to publish the reports, and Power BI mobile app is used to view the reports and dashboards.

Power BI is simple and fast enough to connect to an Excel workbook or a local database. It can also be robust and enterprise-grade, ready for extensive modelling and real time analytics. This means it can be used in a variety of environments from a personal report and visualisation tool to the analytics and decision engine behind group projects, divisions, or entire corporations.

As Power BI is a Microsoft product and has built in connections to Excel, there are many functions that will be familiar to an Excel user.

The parts of Power BI

Power BI constitutes of a Microsoft Windows desktop application called Power BI Desktop, an online SaaS (Software as a Service) called Power BI Service and a mobile Power BI apps that can be accessed from Windows phones and tablets, and available on Apple iOS and Google Android devices.

These three elements— **Desktop**, the **Service**, and **Mobile** apps - are the backbone of the Power BI system and lets users create, share, and consume the actionable insights in the most effective way.

Use of Power BI and Roles

The use of Power BI could depend on the role that you are in. For example: if you are the stakeholder of a project, then you might want to use Power BI **Service** or the Mobile App to have a glance at how the business is performing.

But on the other hand, if you are a developer, you would be using Power BI **Desktop** extensively to publish Power BI desktop reports to the Power BI.

In the upcoming modules we would be discussing about these three components - **Desktop**, **Service** and **Mobile** apps - in more detail.

Power BI flow

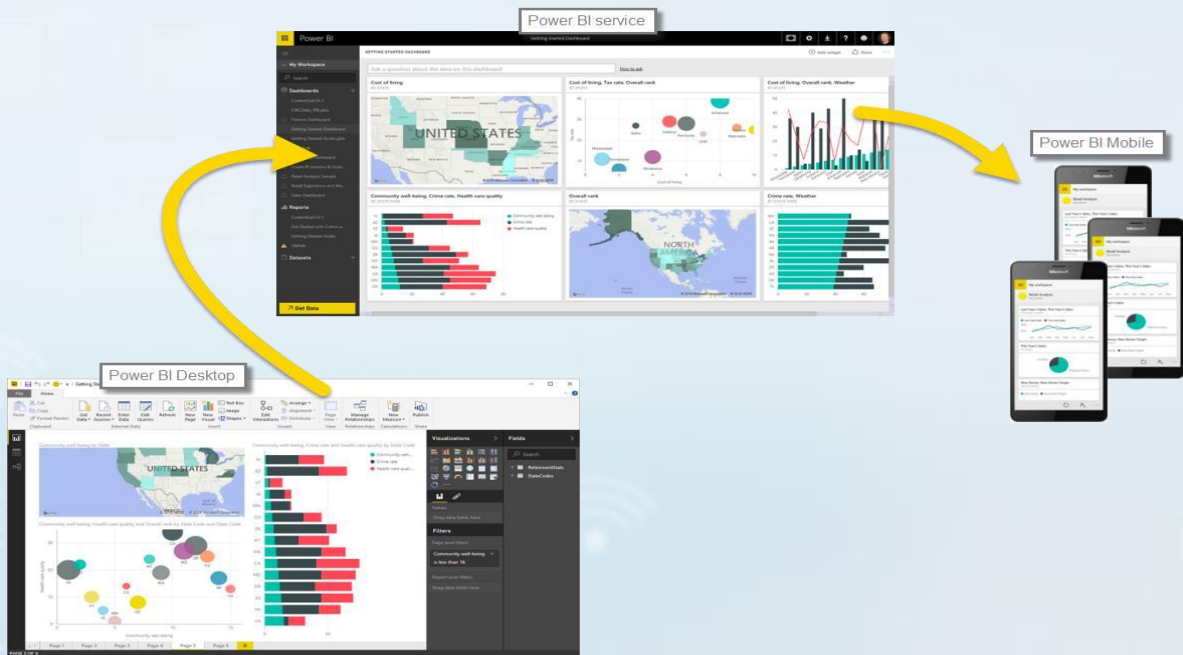
Generally, the flow starts at the Power BI Desktop, where a report is created. This created report can be published to the Power BI Service and finally shared so that the users can use it from the Mobile apps.

This is the most common approach for sharing reports. There are other approaches, but we will stick to this flow for this entire tutorial to help learn the different aspects of Power BI.

Flow of Power BI

The Common flow of activity in Power BI 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.



Depending on the user role, the user might spend most of the time in one of the three components than the other.

Features of Power BI

- Power BI is faster and performs better when there is a smaller volume of data.
- Power BI provides an interface based on Microsoft Office 365 that is user-friendly, intuitive, and easy to understand.
- Using Power BI, you can work with several data sources, such as Excel, Text/CSV, JSON, SQL Server databases, IBM DB2, MySQL, etc.
- Power BI can connect with the R programming language, and it also supports various Data Analysis Expression (DAX) functions and measures.
- Power BI has functional integration with the Microsoft Azure cloud platform. It helps to analyze insights and patterns in datasets.
- Easy to setup: With Microsoft Power BI, you can get started in seconds. Signing up for the online service is FREE and you can take advantage of the simple, out of the box dashboards for common services like Salesforce, Google Analytics and Dynamics to start getting insights from your data in no time. You don't need to fill in your credit card details as the only requirement for this service is a work or school email address.

- Access your data wherever it is: With Power BI, it doesn't matter where your data is stored. Whether the data is stored in Excel spreadsheets, available online or resident in an on-premise database management system, you can still get a holistic view of the key metrics for your business from all the different sources.
- Real Time reports: Microsoft Power BI offers interactive dashboards that display the changes to your data as they occur in real time. This means that you can notice trends, solve problems and seize opportunities as they occur. There are no more unnecessary delays with Power BI.
- Ask questions and get answers: This is by far, one of my favourite features of Power BI. You can ask questions based on the data in your report and Power BI will provide you with the answers. It works similarly to a Google search. When you begin typing your questions, Power BI will give you suggestions on all possible questions that are like the one you are typing and that can be answered with the information contained in your report. Imagine asking a question like "What was last year's profit by product?" and getting the correct information provided to you visually. Power BI supports asking questions in a natural language, which in my opinion, is an awesome feature. Please note that at the time of writing this book, the only supported language for asking questions in Power BI is English.
- Get everyone on the same page: Power BI provides organizations with a single view of the truth. This means that all stakeholders will have the current status of the business at every point in time. Power BI Groups allow you to collaborate with the key stakeholders of your business in order to make quick and confident decisions.
- Make data-driven decisions from anywhere: Power BI gives you the ability to stay on top of your data, wherever you are. With touch-enabled native apps for Windows, iOS and Android, you can access all your data wherever you go. Gone are the days when business decisions were made only in the office. Welcome to the Power BI age.
- Curated content just for your organization: With Power BI, you can create and publish content packs to your team or your entire organization. The content packs can include dashboards, reports and datasets that provide every user with a personalized view of the business metrics that matter most to them.
- Integrate your application or service with Power BI: Organizations can use the open, standards-based REST API to integrate their applications or services with Power BI, thus leveraging its rich and interactive reporting capabilities. This integration helps you deliver your solutions faster, while focusing on your core value.
- Share insights on your website or blog: With 'Power BI publish to web', organizations can create stunning visualizations and embed them on their websites within minutes. If your organization intends to share information like its annual reports in a visually engaging way on its website, from where your customers, partners and shareholders can access it, using Power BI is a great way to achieve that.

Who should use Power BI?

- Every organization should use Power BI. Here's why. Any organization that wants to succeed should stay in the know of important metrics and trends going on within and outside their organization. They need key insights into their performance, profitability as well as their ranking or position among their competitors. They need to be able to spot trends as they happen, react to scenarios that require immediate attention, as well as seize new opportunities as they occur.
- A great way to do all of this is to get valuable insights through interactive reports and dashboards. There are a number of applications out there that are available for organizations to achieve these goals but unfortunately, they are plagued with problems of their own. A lot of them are inefficient, slow and difficult to use.
- Imagine having to make a decision on something and waiting for two days to get the report you need to make that decision. By the time the report gets to you, the data it contains is already two days old. If you happen to be out of the office at the time the report is generated, you are unable to view it on any of the mobile devices in your possession and would have to make a trip back to the office to work with it. Apart from the information presented in the report, you are unable to ask other relevant questions based on the data in the report without calling on your team, probably because the report is not interactive. You don't need all that hassle just to get the insights you require. Today's business decision makers require fast access to correct data from whatever location they are, and in a secure manner. This is what Microsoft Power BI offers in a nutshell.

Power BI Tools

We defined Power BI as a suite of Business Analytics tools that enable us analyse our data and share the insights we derive. In this section, we are going to take a look at the different tools that make up our solution.

- **Power BI Desktop:** Power BI Desktop is an elegant end-to-end solution for building analytics. It has all the capabilities to quickly connect, shape, visualize, and share data insights through Power BI. This desktop application is easy to use and designed to save valuable time and effort by simplifying the process of getting your data ready for analysis. Power BI Desktop puts visual analytics at your fingertips with intuitive report authoring. You can drag-and drop content to place them exactly where you want them on the flexible and fluid canvas. It enables you to quickly discover patterns as you explore a single unified view of linked and interactive visualizations.
- **Power BI Service:** This is a cloud-based service that you subscribe to. It enables you create and publish your Power BI reports. You can share the reports from this service with other people who can either view them within the service or in the mobile app.

- **Power BI Mobile:** With apps that are available, and can be downloaded from the Windows store, App store, and Google Play, Power BI gives you the ability to stay connected to your data from anywhere and at any time. Having a 360-degree view of your data on the go is sure to keep you ahead of trends as you stay focused on what matters most to you. You can view your personalized dashboards and reports from anywhere, as well as easily interact with your data using a touch- optimized experience. Data-driven alerts help you stay up to date with important insights and act on them without delay. You can also share live reports and dashboards with your team and trusted partners to keep everyone on the same page.
- **Power BI Gateway:** This is installed on premises to enable data refresh on published reports in the Power BI service. It is available in two editions – Personal and Enterprise, for use in home and Enterprise scenarios respectively. So, let's say you have used data contained in both your SQL Server and Oracle databases to create a beautiful report containing all those important metrics your CEO will like to see, and have published that report to the Power BI service to make it available online. How do you keep the data in the report current so that your CEO can always have the correct information regardless of the time he views the report? That's where the Power BI Gateway comes in. It connects to your on-premises data sources and refreshes the online data to make sure that it is always current. You can schedule this refresh to a time that is suitable for you, for example, hourly, daily or weekly.

How to use Power BI

Power BI Desktop is where analysts and other users can create data connections, data models and reports. The Power BI service is where those reports can be shared, so other users can view and interact with them.

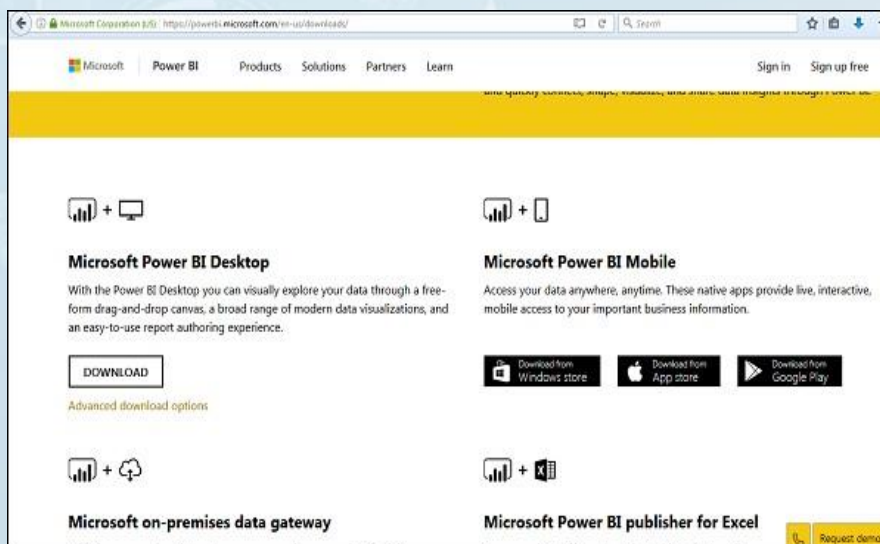
To build a Power BI report, take the following steps:

- Connect the data sources.
- Query the data to create reports based on user needs.
- Publish the report to the Power BI service.
- Share the report, so cloud and mobile users can see and interact with it.
- Add permissions to give colleagues the ability to edit reports or create dashboards or limit their ability to edit.

Power BI Desktop

Power BI Desktop is a free application you install on your local computer that lets you connect to, transform, and visualize your data. With Power BI Desktop, you can connect to multiple different sources of data, and combine them (often called modelling) into a data model. This data model lets you build visuals, and collections of visuals you can share as reports, with other people inside your organization.

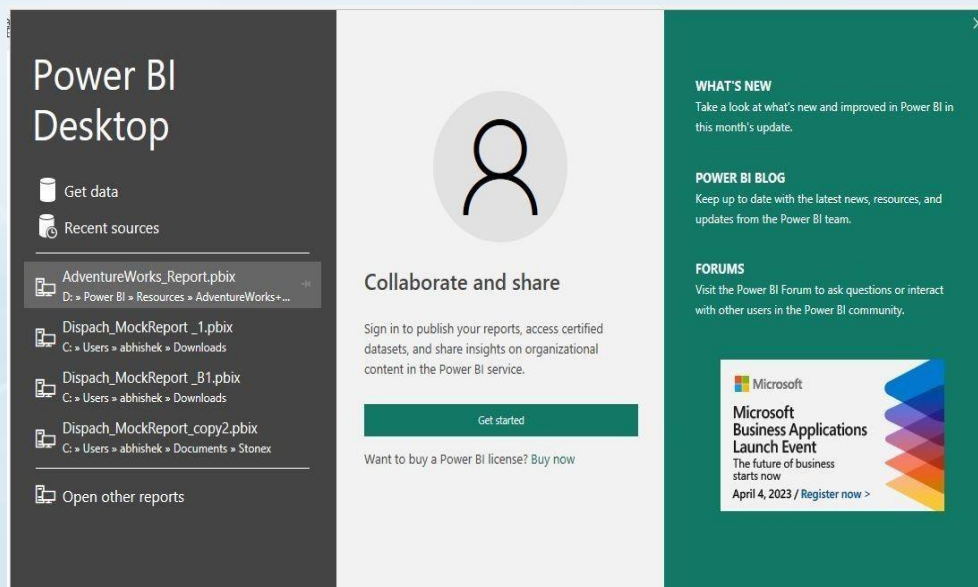
Most users who work on business intelligence projects use Power BI Desktop to create reports, and then use the Power BI service to share their reports with others.



Power BI Installation

- Power BI Desktop is available in both 32-bit and 64-bit versions.
- Go to <https://powerbi.microsoft.com/en-au/desktop/> and click on “**download free**” to download Power BI desktop.

- Once the download is complete and you run the file, you will see a screen like this below:



- You do not need to sign in or register for a Power BI pro account to use Power BI Desktop, you can simply close the window. Sign-in is only required to access the sharing and collaboration tools available through Power BI Service.
- Go to https://community.powerbi.com/t5/Galleries/ct-p/PBI_Comm_Galleries to view the gallery provided by Power BI forum. You can connect to the Power BI community through this, learn more from tutorials and demos, see what's being talked about, view dashboards prepared by other users and much more.

Microsoft Power BI updates over time

- Power BI was originally called Project Crescent and was initially available in July 2011, bundled with SQL Server, codename Denali. It was then renamed Power BI and unveiled in September 2013 as Power BI for Office 365 - now Microsoft 365.
- Initially based off Excel features like Power Query, Power Pivot and Power View, Microsoft added features over time, including enterprise-level data connectivity and security options. Power BI was released as a stand-alone product in July 2015.
- Today, Microsoft regularly updates the Power BI application with new features and improvements. To get updates, users can download the latest edition from the Power BI site or Windows 10 users can get Power BI Desktop from the Windows Store.

Checklist for smooth Power BI installation

- ✓ Windows 8.1 or Windows Server 2012 R2 or later.
- ✓ .NET 4.6.2 or later.
- ✓ Microsoft Edge browser (Internet Explorer is no longer supported)
- ✓ Memory (RAM): At least 2 GB available, 4 GB or more recommended.
- ✓ Display: At least 1440x900 or 1600x900 (16:9) required. Lower resolutions such as 1024x768 or 1280x800 aren't supported because some controls (such as closing the startup screens) display beyond those resolutions.
- ✓ Windows display settings: If you set your display to change the size of text, apps, and other items to more than 100%, you won't see some dialogs that you must interact with to continue using Power BI Desktop. If you encounter this issue, check your display settings in Windows by going to Settings > System > Display, and use the slider to return display settings to 100%.
- ✓ CPU: 1 gigahertz (GHz) 64-bit (x64) processor or better recommended.

WebView2: If WebView2 wasn't automatically installed with Power BI Desktop or if it was uninstalled, download, and run the installer for WebView2.