

POWER BI

- Business Intelligence (BI) Concepts
- Microsoft Power BI (MSPBI) introduction
- Project Introduction and Getting Started
- Connect to various Data Sources
- Power Query for Data Transformation
- Data Modelling In Power BI
- Reports in Power BI
- Reports & Visualization types in Power BI
- Dashboards in Power BI
- Data refresh in Power BI

CONTENTS



BUSINESS INTELLIGENCE (BI) CONCEPTS

Business Intelligence (BI) Concepts



Introduction to Business Intelligence



The importance of Business Intelligence



The relation between Business Intelligence and Data Warehouse



Tools and Technologies in Business Intelligence area

INTRODUCTION TO BUSINESS INTELLIGENCE

Business Intelligence (BI) is a process of analysing data through technology and presenting it to the end user(s) which help them to make an informed decision. With the use of historical and current data, a BI tool serves predictive view.

Usually a BI tool can perform tasks like data connection, data mining, data transformation, data modelling through building relationships, complex calculations, report building, dashboard creation, online analytical processing and predictive analysis.

RELATION BETWEEN BUSINESS INTELLIGENCE AND DATA WAREHOUSE

To understand the relationship between BI and Data warehouse, let's first understand what is Data warehouse?



It consists of a huge storage of data gathered from single or many sources to aid the process of making an informed decision at any level of an enterprise.



A typical data warehouse follows an ETL (Extract, Transform, Load) process.

DATA WAREHOUSE

ETL

Extract : The first step in using Data Warehousing is to extract data from single or multiple sources to load in its environment.

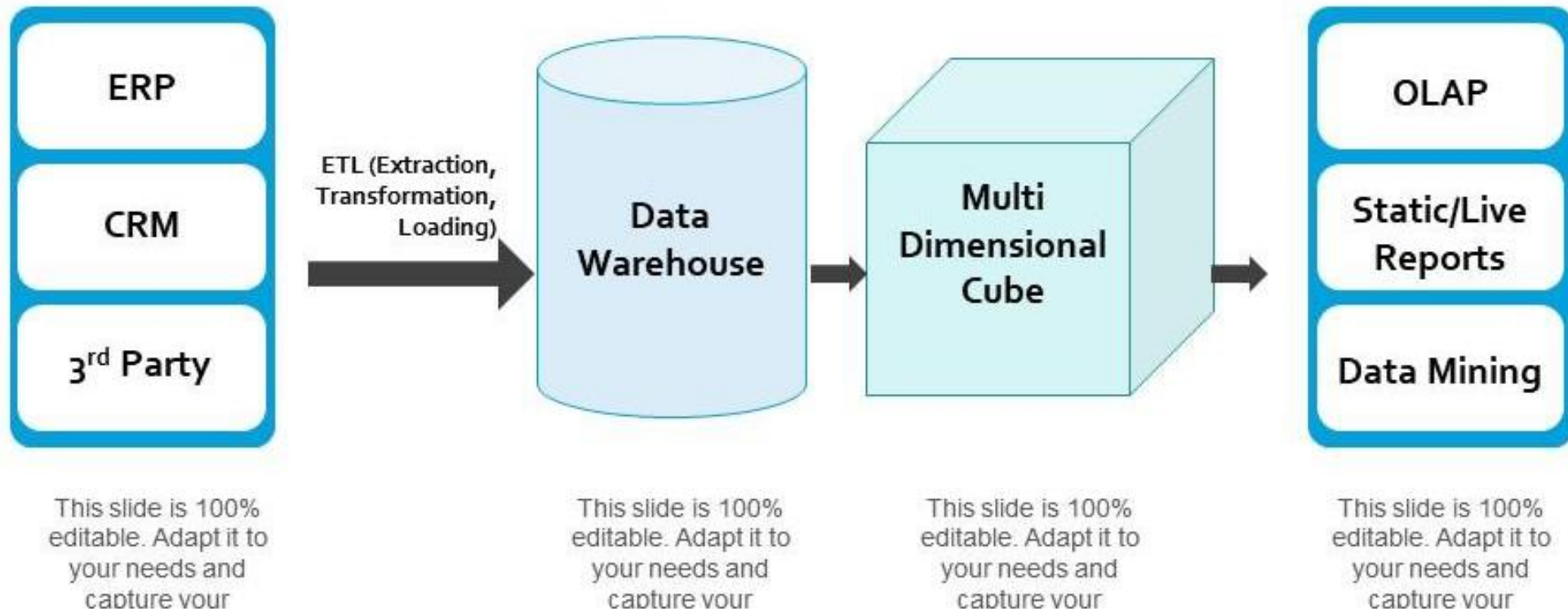
Transform: The Data which has been extracted, may not come in the desired format or size etc, so there may be the need to transform the incoming data to meet business requirements and objects.

Load: Once the data is being transformed, its ready to be loaded in targeted tables.

RELATION BETWEEN BUSINESS INTELLIGENCE AND DATAWAREHOUSE (CONT.)

A Business Intelligence tool takes data from a Data warehouse to generate reports and help the end user to make informed decision. By this, we can call Data warehouse as a part of a complete Business Intelligence process.





Big picture of Business Intelligence flow

BI TOOLS

Microsoft
Power BI

Tableau

Sisense

Looker

datapine

Zoho Analytics

Yellowfin

Answer Dock

Hotjar

ReportPlus

QlikView

SAP
BusinessObjects

Lumira

SAP Crystal
Reports

SAP Business

Intelligence

Vista

Clootrack

Figure 1. Magic Quadrant for Analytics and Business Intelligence Platforms



Source: Gartner (February 2018)

MICROSOFT POWER BI (MSPBI) INTRODUCTION

Microsoft Power BI (MSPBI) introduction

Power BI introduction and overview



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graph TD; A[Power BI introduction and overview] --> B[Power BI Architecture]; B --> C[Introduction and Power BI in Excel]; C --> D[Connecting with Data]; D --> E[Why Choose Power BI over Excel];
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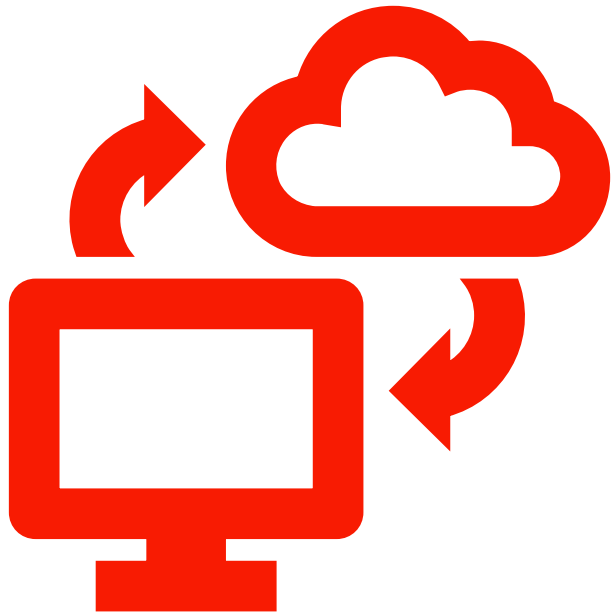
Power BI Architecture

Introduction and Power BI in Excel

Connecting with Data

Why Choose Power BI over Excel

POWER BI INTRODUCTION AND OVERVIEW



- Power BI is a collection of software/tools that works in synchronisation to turn unrelated sources of data into meaningful and interactive insights. Power BI support 100's of data sources including the most common one's like Excel spreadsheets, Text/CSV, SQL, Oracle etc.

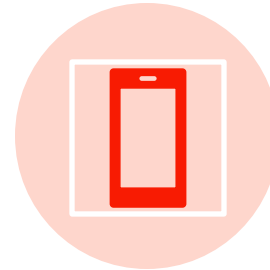
PARTS OF POWER BI



**POWER BI
DESKTOP**



**POWER BI
SERVICE**

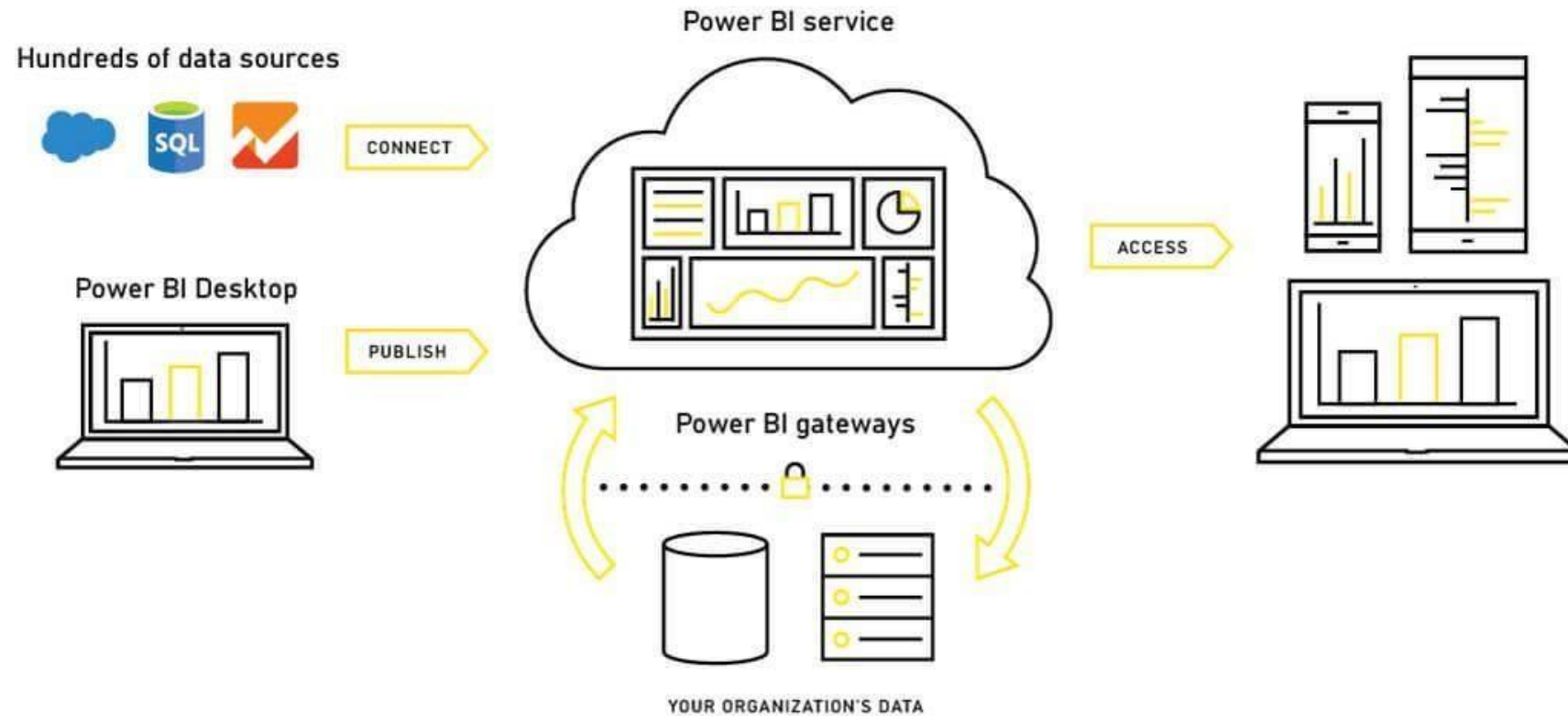


**POWER BI
MOBILE APPS**



**POWER BI
REPORT SERVER**

- It starts with connecting to data then transforming it, building relationships and finally creating reports and publishing it to Power BI service. Later it can be shared so that end users in the Power BI service and mobile devices can view and interact with the report.



POWER BI ARCHITECTURE

INTRODUCTION TO POWER BI DESKTOP

Power BI Flow

- It starts with connecting to data then transforming it, building relationships and finally creating reports and publishing it to Power BI service. Later it can be shared so that end users in the Power BI service and mobile devices can view and interact with the report.

WHY CHOOSE POWER BI OVER EXCEL

Store and analyse huge amount of data smoothly:

With powerful compression algorithms to import and cache the data within the .PBIX file, it can easily handle huge data bases. On the other hand Excel struggles even in opening an file having few hundred thousands of rows.

Find Data insights and show trends in minutes:

With build-in time intelligence functions, it becomes very easy to dig into vast amount of data and draw trend (unlike Excel).

User Friendly Report Interface:

Its just about drag and drop of the fields when it comes create impressive visualizations. Even a complex report with diverse

visualizations:

visualizations won't take more then 10 to 20 mins to create. If you think that pre- enabled visualizations are not enough then you can import a custom visualization anytime in just few clicks from the library of 100's of custom visuals.

WHY CHOOSE POWER BI OVER EXCEL (CONT)

Publishing and Sharing the Report:

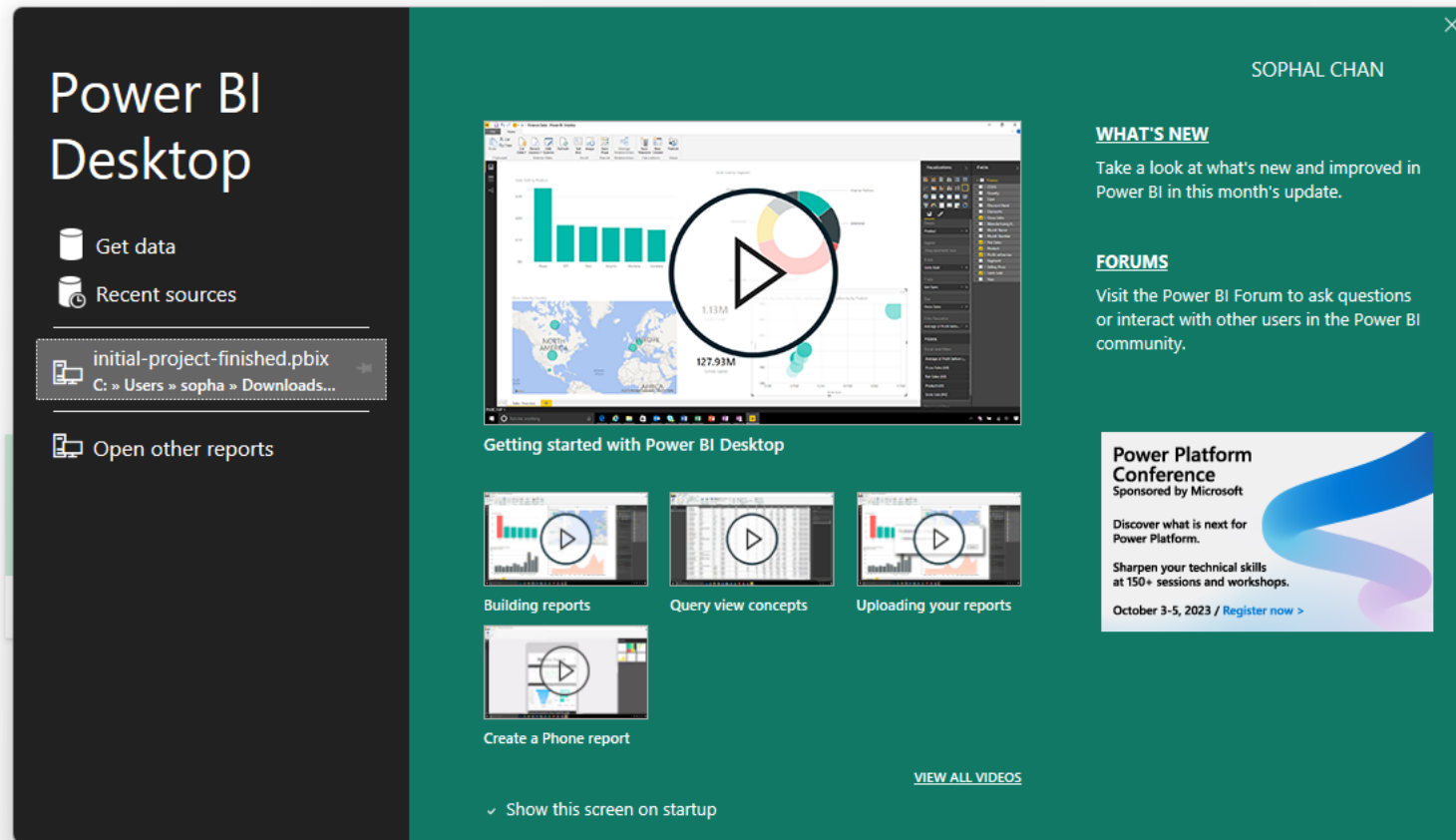
Just by hitting the publish button, one can publish the report on Power BI service and whosoever has an access to it can view the updated report or dashboard always. On the other hand in Excel, one need to send emails or putting in the share drive or share point and telling them that we have updated the file.

Defining Roles: Power BI gives us an option to define roles to make sure people from different departments or locations can see only their respective data (Which can't be done in Excel).

Power BI Desktop Interface

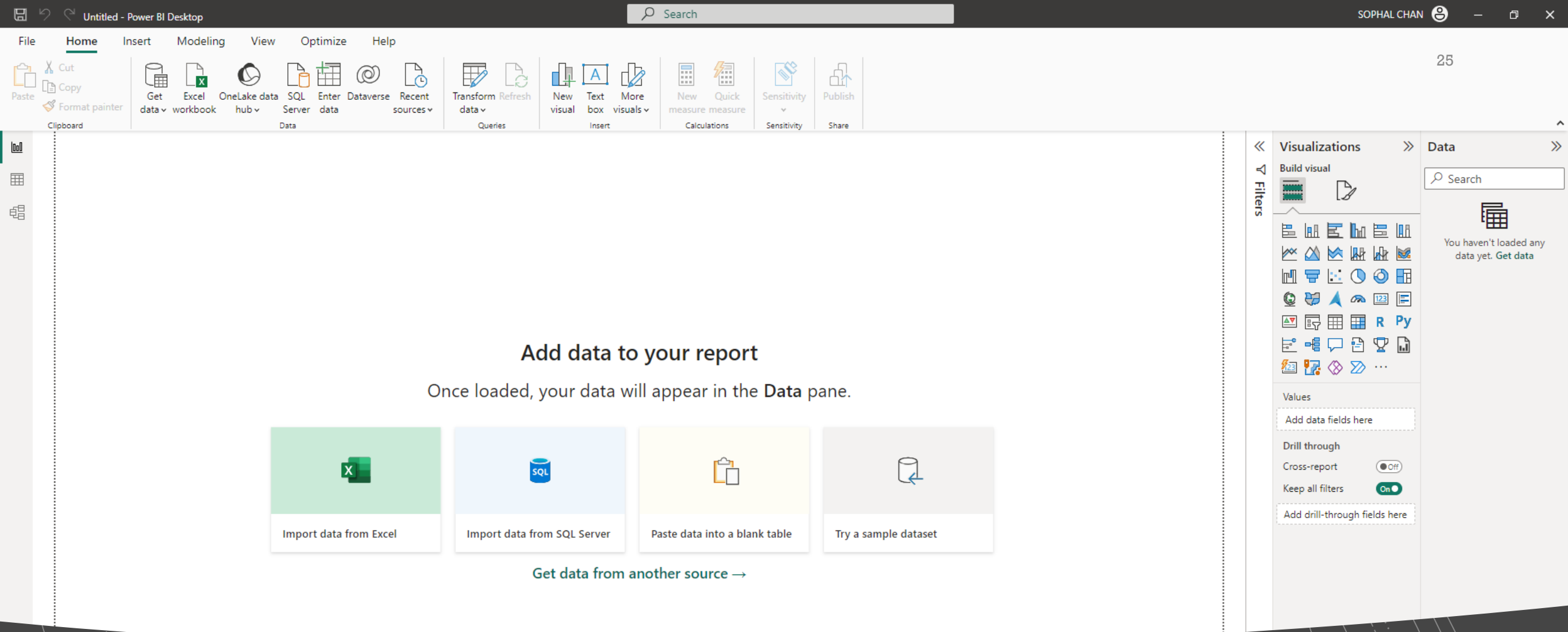
Power BI Desktop Interface





PBI DESKTOP - FIRST SCREEN

- Above is the first screen you will get, once you open PBI desktop. You will be prompted to sign-in but sign-in is required only when it comes to publish the report to PowerBI.com, rest the whole model can be created without sign-in.
 - Note: Sign-in can be done only using an official email ID. i.e. it can not accept personal email ids like gmail, yahoo etc.
- POWER BI by CHAN Sophal



POWER BI DESKTOP INTERFACE

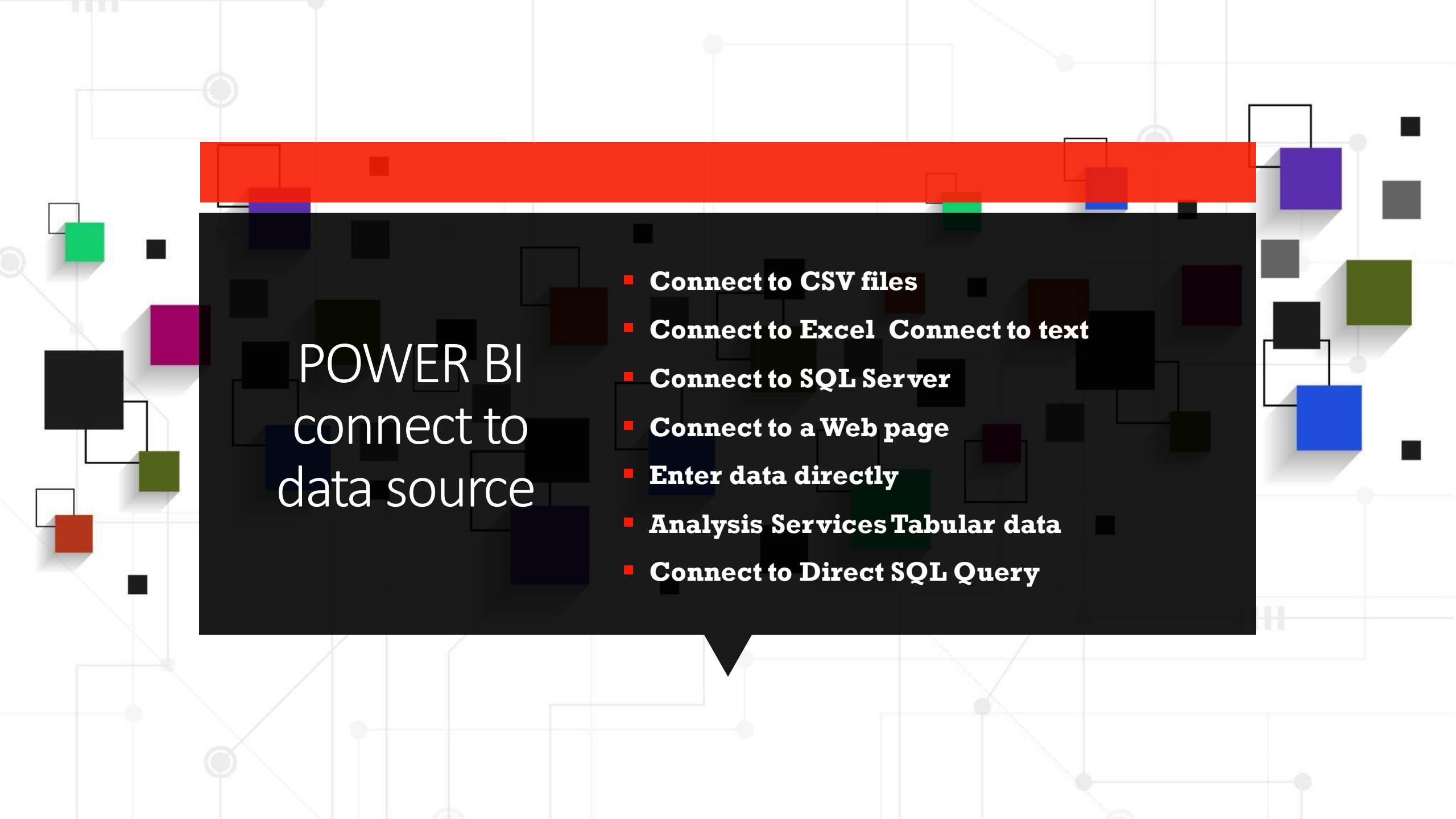
POWER BI DESKTOP INTERFACE (CONT.)

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- Report Name: We can rename the report while saving the same for the first time.
- Views:
 - Report View – Under this we can use different visualizations to build report.
 - Data View – Once data is being loaded to PBI Desktop, the same can be seen here in the form of tables and fields. Here we can create calculated columns and measures.
 - Relationship View – This view is useful to build relationship to create data model.
- Page Name: We can have multiple pages into a single report. Each page contributes a part of a report.
- Its just like “Sheet” tabs in MS Excel.
- Add New Page: By clicking the plus sign, we can add new page in the report.
- Tabs:
 - Home: This is a general purpose tab and used for connecting new data, editing queries etc.
 - View: One can set the view and even design the phone layout too.
 - Modelling: Creating new tables, parameters etc. can be done here

POWER BI DESKTOP INTERFACE (CONT.)

- **Publish Report:** This helps in publishing the reported created in Power BI desktop to Power BI Service.
- **Sign-In:** To publish the report or importing new visualizations, one has to sign into Power BI service.
- **Visualization Pane:** Here we can choose among many visualizations like charts, slicers, maps etc.
- **Filters Pane:** PBI Desktop provides three levels of filters i.e. Visual, Page & Report level filter.
- **Drill-Through Filter:** Helps in accessing the detailed report of an item.
- **Drop Fields pane:** As every visualization needs one or multiple fields to show data into it. This pane facilitate to drop the desired fields from the fields pane.
- **Format Pane:** Every visualization has different formatting options, this pane helps in formatting the selected visualization.
- **Fields Pane/Data Pane:** Show all the connected data tables and fields.
- **Feature Update Notification:** This will show a notification for any new update released from Microsoft PBI team.



POWER BI connect to data source

- **Connect to CSV files**
- **Connect to Excel Connect to text**
- **Connect to SQL Server**
- **Connect to a Web page**
- **Enter data directly**
- **Analysis Services Tabular data**
- **Connect to Direct SQL Query**

CONNECT TO A WEB PAGE

- Home Tab -> Get Data -> Web data -> Type the URL -> Connect
- <https://www.adb.org/search0/country/cambodia?keywords=>

Power Query for Data Transformation

**Using SQL Different
versions of Power
Query Power Query
Introduction**

**Query Editor
Transformation GUI
Row Transformations
Column
Transformations Data
Type**

Adding Column

**Text Transformations
Number Column
Calculations Date and
Time Calculations**

**Data types, Lists,
Records, and tables in
M M built-in functions**

**Writing Custom
Functions**

POWER QUERY



Power Query act as an “ETL” tool for Power BI i.e. it **Extracts** data from one or multiple sources, **Transform** that data and finally **Load** it into Power BI environment.



It also facilitates an “Applied Steps” feature, where whatever we do, will get recorded as steps and upon updating the source data, all those steps will get applied to them automatically and this way the creator of the report needs not to repeat the steps.

Data Modelling in power BI

- **Data Model Lookup Tables**
- **Primary & Foreign Key Creating Table Relationships Snowflake Schemas**
- **Editing Relationships Relationship Cardinality Filter**
- **Introduction to DAX Calculated Columns Measures**
- **Implicit & Explicit Measures**
- **Calculated Tables**
- **Row Context vs Set Context**
- **Advanced calculations using Calculate functions Time Intelligence Functions**



Thank You

A large, 3D graphic of the words "Thank You" in a playful, blocky font. The letters are yellow with blue outlines and are arranged in two rows: "Thank" on top and "You" below it. The graphic is set against a light red oval background. Several colorful stars (green, yellow, purple) are scattered around the text. A thick, black, curved swoosh is positioned at the bottom left of the oval. The entire graphic is centered on a white background with faint, curved lines.