



**P**OWER  
**P**LATFOM  
**F**INANCE

# POWER PLATFOM FINANCE SCHOOL

COURSE  
PROGRAMME

# Exercise No. 1

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## Exercise Title

Produce User Stories and Complete a scoping template (Finance Use Case)

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## Exercise Description

This exercise will take a set of requirements for Financial Statement reporting in Power BI (provided in interview format as a transcript/audio file for download) and ask individuals to come up with a set of user stories and complete a scoping template/metrics tracker, as well as a Bus Matrix/Starnet for designing the data model.

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## Problem Statement/Use Case being addressed

Too often, people start a Power BI Project with putting the data straight into a report and producing visuals; starting instead from understanding what your end users want will ultimately result in significantly better designed and utilised solutions.

Before you can shape and transform data using the Query editor, you need to know which end tables you'll have and what the relationships will be between them - also known as the data model in Power BI. This exercise will allow you to conceptually design a data model that will be the blueprint for your data shaping/transformation work.

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# Exercise No. 2

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## Exercise Title

Connecting to Financial data

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## Exercise Description

In this exercise you connect to a folder of files and will automatically combine the data into a single (fact) table, removing any header rows as required. You will then bring in additional data from CSV/Excel files (including all the reference/dimension data) and will use a custom function to loop through a series of web pages (e.g. connecting to XE.com to get historical exchange rates).

We will use Column from Examples/a custom column to automatically extract the date from the file name (in order to restrict the date range of files that are brought in) and look at good practice for connecting to various data sources.

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## Problem Statement/Use Case being addressed

Especially at the beginning of a project, and in large organisations, it is often quite hard to create connections directly to enterprises databases/systems which hold your Finance data. This may be due to various constraints including technology maturity, governance policies and internal controls. So a starting point instead might be regular (daily/weekly/monthly) extracts from a system which are in a standardised format (E.g. CSV). Without the use of the 'Power tools' in Excel, this consolidation is a manual exercise or one automated using VBA (which comes with its own set of challenges around transparency and maintenance). This exercise will demonstrate how to achieve this using Power BI in a way that is automated, transparent and maintainable. We will also look at combining this with external data - e.g. exchange rate data from XE.com - and reference data (e.g. Chart of Accounts, Proforma Data) from Excel Files.

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# Exercise No. 3

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## Exercise Title

Creating a star schema from the data

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## Exercise Description

In this exercise you will review a typical Financial Reporting data model structure:

- General Ledger (Actuals)
- Budget data
- Journals
- Chart of Accounts/Account Hierarchy (Where Accounts map to GL code ranges)
- Financial Statement Proformas
- Accounts Payable/Receivable
- Calendar Table

You will then look at how to reshape data in the query editor to get to the required structure, creating the required fact and dimension tables.

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## Problem Statement/Use Case being addressed

The structure of the data that comes from financial systems is often not in a format optimised for BI reporting and needs to be reshaped. This is particularly the case where you are bringing data in from different sources (e.g. actual and budget data often comes from a separate source and is often at a different level of granularity) - part of the exercise you will need to carry out in the query editor is to combine numeric data, either bringing it to the same grain or keeping them at a separate granularity linked with common dimensions.

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# Exercise No. 4

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## Exercise Title

Modelling Financial Data

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## Exercise Description

Here you will look at the various tables in a financial reporting model (e.g. Business Units/Organisations, Accounts, Scenarios, Calendar) and create the various relationships required between the tables.

There are also some particular modelling patterns which will be useful when working with finance data, including dealing with hierarchies (e.g. using PATH), working with multiple dates, and working with account hierarchy mappings using a bridge table (Many: Many) or TREATAS. We will also look at fiscal calendars and chart of account structures.

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## Problem Statement/Use Case being addressed

Getting the data model right is key for financial reporting using Power BI as this defines the type of analysis that you can perform as well as the performance of the resulting reports. We need to have particular structures and relationships in order to have properly formatted financial statements and there are data modelling patterns which are useful for financial reports (e.g. snapshot tables for Balance Sheets).

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# Exercise No. 5

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## Exercise Title

Building Financial Statements in Power BI

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## Exercise Description

In this exercise you will use the data model created above to build out financial statements (IS, BS, CFS) as a table/matrix visual in Power BI. This will include using the reporting lines table, and SWITCH/Calculation groups for sub-totals/custom calculations.

This exercise will cover the DAX and matrix formatting options required to show formatted Financial Statements along with a drill-through into Journals to see the underlying journal entries/perform an analysis of these against a given account.

Taking this to a more advanced level includes hiding levels of the hierarchy for which there is no data (ragged hierarchies) and linking Financial Statements together (e.g. the Cashflow has lines from the Balance Sheet and Income Statement)''

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## Problem Statement/Use Case being addressed

By default just building a matrix visual with accounts on rows and values will not give the required format of financial statements - for example sub-totals for the Income Statement and cross-financial statement references for Balance Sheet/Cash Flow Statement will be missing. There is a temptation to just present these in Excel so that you can get the proper layout/formatting, though it is also possible to achieve this in Power BI!

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# Exercise No. 6

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## Exercise Title

Calculating Financial Metrics in Power BI

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## Exercise Description

The focus of this worked example is calculating financial metrics (Margins, KPIs etc) using DAX in Power BI. This will start with building base measures and then using CALCULATE to change filter context. It will also look at how to create time intelligence based measures (MTD/QTD/YTD) using switch/disconnected table or Calculation Groups.

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## Problem Statement/Use Case being addressed

Whilst simple figures which relate to GL Accounts (E.g. Revenue) are simple to calculate in Excel on a row-by-row basis, performing ratios and more complex calculations (e.g. Gross Profit Margin %, AR/AP Turnover, Return on Assets) - and viewing these by different slices (e.g. time period, customer) - is much harder. This is where the real power comes from doing calculations in DAX measures instead.

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# Exercise No. 7

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## Exercise Title

Variance and Trend Analysis

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## Exercise Description

This exercise is focused on variance and trend analysis in Power BI - e.g. how to show budget vs actual variances and changes over time. It will look at the use of waterfall, bar/line and KPI charts in order to effectively communicate variances, including use of conditional formatting to highlight specific variances.

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## Problem Statement/Use Case being addressed

Performing analysis of variances - e.g. comparing current to prior year or actuals to budget - is key for evaluating financial performance with appropriate context. Performing this variance analysis and drawing attention to favourable/ unfavourable variances is a core element of presenting financial information for decision making.

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# Exercise No. 8

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## Exercise Title

Telling a flexible narrative/data story to understand what is driving the numbers

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## Exercise Description

This will look at visual design and tips/tricks to highlight how to communicate and tell a story with financial data. It will look at practical examples of financial reports to understand how to draw attention to what is important using pre-attentive attributes.

It will also look at specific design features in Power BI such as bookmarks, report tool-tips and slicer/filter panes in order to create an app-like experience.

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## Problem Statement/Use Case being addressed

With the process of collecting, shaping and modelling the financial data each period now automated, you can focus on how to communicate the financial results to the desired audience. Rather than presenting tables of numbers, with Power BI you can quickly and easily create visualisations and interactive experiences such as drill-through and action-orientated buttons in order to create customised applications that allow executive audiences to make data driven decisions.

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# Exercise No. 9

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## Exercise Title

Financial Modelling

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## Exercise Description

Financial Modelling is typically an exercise carried out in Excel and so we will start with looking at the various approaches for this, with how the outputs of a financial model can be visualised in Power BI. We will then go on to look at ways of performing the modelling itself within Power BI including:

- What-if parameters to flex certain elements in the financial statements and see the impact across them
  - Sensitivity Analysis: Defining variables and possible ranges for these, and calculating profits/revenues under different scenarios (including Monte Carlo analysis to consider a large number of random parameter values in the range)
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## Problem Statement/Use Case being addressed

Financial modelling has also traditionally been the domain of Excel given the requirement to have flexibility in calculations, to define custom inputs/parameters and with the complexity of interdependencies in a 3-way financial statement model. Whilst Power BI doesn't afford the same level of flexibility out of the box, there are features you can utilise to build similar models that have the added benefits of allowing for better "slice and dice" analysis of complex calculations and for being more re-usable and structured/governed compared to Excel workbooks. Even more complex areas such as risk modelling or monte carlo simulations are possible in Power BI with the ability to create standardised code libraries that can be applied consistently across your reports.

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# Exercise No. 10

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## Exercise Title

Commentary and adjustments

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## Exercise Description

This exercise will look at how to apply commentary and adjustments to data points including:

- Use of the smart narratives visual to display dynamic text
  - Bookmarks to have a presentation view of the reports
  - Comments in the Power BI Service/Teams (Pros and Cons)
  - Embedded PowerApps for commentary with comments stored centrally (e.g. SharePoint list, database)
  - A review of how this would apply for period-specific adjustments
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## Problem Statement/Use Case being addressed

The presentation of the data in financial reporting scenarios is often one of the most repetitive and time consuming each period, often performed by taking screen shots of charts/tables and putting them into PowerPoint slides along with commentary. There is a limited extent to which this can be automated given that the story and the areas of focus may well differ from period to period. However, by building dynamic commentary, and through use of bookmarks with carefully considered navigation paths, this can help to drive consistency in the reporting each period without the manual effort of copying and pasting into a standard template. There is also the consideration of how adjustments are dealt with

- in Power BI this can be driven from a separate data source (e.g. a SharePoint list); this is slightly more involved than hard-coding adjustments into an Excel formula though far less error-prone and much more transparent.

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# Exercise No. 11

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## Exercise Title

Sharing & Collaboration

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## Exercise Description

The focus of this session will be on how to utilise the Power BI service to share and collaborate on reports and data. It will look at the various approaches for sharing & collaboration (e.g. Ad-hoc sharing, workspaces, apps, Publish To Web) and discuss the pros and cons of each as we go through a worked example of trying these techniques.

This will cover Row Level Security (RLS) and Object Level Security (OLS) and how this would work in a finance scenario

Other methods for sharing the underlying data will also be considered, with the creation of a simple live connection to a Power BI data model as well as data-flows

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## Problem Statement/Use Case being addressed

One of the key challenges with financial reporting in Excel is the sharing and collaboration around the reports and the underlying data. You often have to produce different cuts of the reports/data for different audiences and distributing through sending out static workbooks results in “multiple versions of the truth”. This is one of the core benefits of utilising the Power BI service - you can have a single version of the report/data model with rules set up (according to individuals’ login) to define what data people see. You are much more in control of who has access to the reports and underlying data.

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# Exercise No. 12

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## Exercise Title

Forecasting and Discovering Insights

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## Exercise Description

This will initially look at the in-built AI visuals (Key Influencers, Decomposition tree) and end-user features to discover new insights (e.g. Q&A, Personalise Visuals, Explain the increase/decrease, anomaly detection) in order to drive deeper insight into the numbers.

We will then look at modelling forecasts using DAX/Calculated tables to create a simple forecast based on historical growth rates, and using the in-built forecasting feature for line charts.

Taking this further, we will look at the application of machine learning to this area - e.g. how you might be able to apply a python script (in the query editor or using Azure ML) to be able to create forecasts.

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## Problem Statement/Use Case being addressed

The reports that you put together will answer a specific set of questions and will tell a specific story though, particularly when you have a large/mixed audience, there may be other questions that they have of the data which you haven't covered. Power BI provides the functionality for end users to perform their own exploration of the data without having edit rights on the report and without the knowledge of how to write their own DAX measures. This is achieved through functionality such as Q&A, Explain the increase/decrease, anomaly detection, Personalise Visuals and end-user customisable visuals such as the decomposition tree.

In addition, in order to add real value as a finance function, you want your reporting to not just be a backward-looking view of what has happened, but to also provide predictive analysis of where the business is going. This can be as simple as understanding the expected position at the end of the period given the results so far/historical trends, or can be as complex as the requirement to run machine learning scripts in order to provide rigorous forecasts and advanced analytics

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