

Practical usage of Power Query in daily work

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When it comes to performing accounting or any other duties where data processing takes a long time or where you regularly need to perform some repetitive or similar activities and processes, it's great to keep easy-to-use tools handy. As we are putting together courses at PwC's Digital Academy, we would like to tell you about a tool that will make your daily tasks much easier to do. Power Query is a data preparation and transformation tool available in Microsoft Power BI and, starting from the 2016 version, in Microsoft Excel and other programs. This tool allows users to obtain data from a variety of external data sources and from files stored on computer. It allows you to group and transform data and perform other activities. This article offers a few practical examples to raise awareness of how this functionality can be used and what benefits it offers.

Why use Power Query

This tool makes it easy for you to process and transform data and use grouped data for analysis. The original data in the source remains unchanged. All you need to do is create steps for processing a particular data source only once, and those steps will be saved. Next time you work with data for, say, the following month, all you need to do is press "Refresh" and all the steps completed before will be replicated, so you no longer have to do the data processing.

The tool has an easy user interface and you can see what data processing steps for a data source have been completed. To perform data transformation steps, you do not require any programming knowledge, as data transformation activities can be selected from the toolbar.

While Excel has a limit of about 1 million rows, Power Query can use data sources exceeding 2 and more million rows. This does not mean you can visualise in a table all the rows in detail without preliminary data processing, but you can group data with Power Query and show the end result in Excel tables.

The location of Power Query in Excel

The Excel toolbar features Power Query in the "Get & Transform Data" section of the "Data" group. After selecting "Get Data", you can select "Launch Power Query Editor". If you choose to load data, say, "From Text/CSV", the same section also offers the "Transform Data" menu, which will open Power Query for you.

Examples of practical usage

1. Data processing, grouping and showing the result in a table

This example uses data (20,000 rows) of which the top four rows are deleted, and the date is formatted as Text, so this should first be transformed in order to group by date and have an empty row after each data row:

Row ID	Order ID	Order Date	Ship Date	Ship Mode	Customer ID	Customer Name	Segment
1	CA-2016-152156	08/11/2016	11/11/2016	Second Class	CG-12520	Claire Guterl	Consumer
2	CA-2016-152156	08/11/2016	11/11/2016	Second Class	CG-12520	Claire Guterl	Consumer
3	CA-2016-138688	12/06/2016	16/06/2016	Second Class	DV-13045	Darrin Van Housen	Corporate
4	US-2015-108966	11/10/2015	18/10/2015	Standard Class	SO-20335	Sean O'Donnell	Consumer
5	US-2015-108966	11/10/2015	18/10/2015	Standard Class	SO-20335	Sean O'Donnell	Consumer

To create a template for processing this data with Power Query, in a new Excel file you select this file as a data source then perform the required steps to achieve the result you want:

The screenshot shows the Power Query Editor interface. The main area displays a table with columns: Order Year, Segment, Average Quantity, and Profit. The 'APPLIED STEPS' list on the right is highlighted with a red box and includes the following steps:

- Source
- Navigation
- Changed Type
- Removed Top Rows
- Promoted Headers
- Changed Type1
- Filtered Rows
- Extracted Year
- Renamed Columns
- Grouped Rows
- Sorted Rows
- Rounded Off
- X Rounded Off

The right-hand side shows what transformation steps have been applied to the original data, for example:

- Removed Top Rows - the first rows have been removed from the data source
- Changed Type - the text format has been changed to date
- Filtered Rows - only non-empty rows have been selected
- Extracted Year - only the year shows from the date field

- Grouped Rows - the data has been grouped by year/segment/average/profit

As a result, the Excel table shows the final data grouped:

	A	B	C	D
1	Order Year ▾	Segment ▾	Average Quantity ▾	Profit ▾
2	2014	Corporate	3.82	13513
3	2014	Consumer	3.79	24320
4	2014	Home Office	3.84	11711
5	2015	Home Office	3.79	12470
6	2015	Corporate	3.79	20688
7	2015	Consumer	3.8	28460
8	2016	Corporate	3.92	30995
9	2016	Home Office	3.9	15029
10	2016	Consumer	3.7	35771
11	2017	Consumer	3.77	45568
12	2017	Home Office	3.67	21089
13	2017	Corporate	3.83	26782

Next time you receive this data, all you need to do is press “Refresh” and all the steps set up by Power Query will be replicated automatically.

2. Foreign exchange rates in an Excel table from an external data source

Another example of using Power Query involves connecting to an external source and loading from it, say, exchange rates for a certain period into an Excel file. The Power Query functionality also allows you to create a template where you state the period for which data need refreshing. In this example, changing the date in cells B1 and B2 and refreshing the table data with “Refresh” will refresh the exchange rates for the chosen period:

Conclusions

This article describes just a small part of the functionality. It's worth noting that this allows you to prepare templates for various reports, compare data between systems and do other tasks. This tool allows you to replace a series of standard operations that you normally perform yourself when creating formulas, copying data or doing other activities.

If you are interested in using this or similar tools in your situation, you are welcome to send in your examples. We are about to ask every interested person to take part in PwC's Digital Academy soon, where we will be presenting solutions to your situations.