



## **Powerpivot - Business Intelligence For All**

What are PowerPivot and Tabular  
Models?

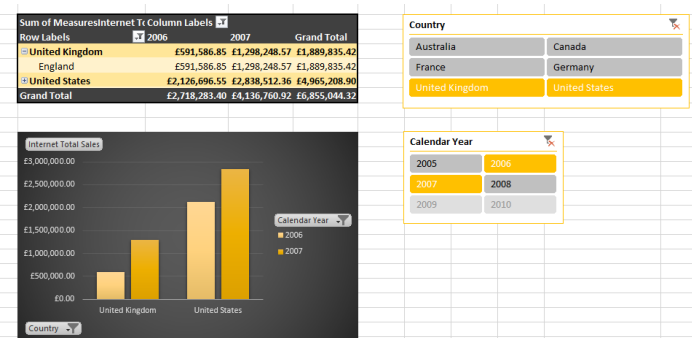
**PTR Associates Limited**  
**[www.ptr.co.uk](http://www.ptr.co.uk)**

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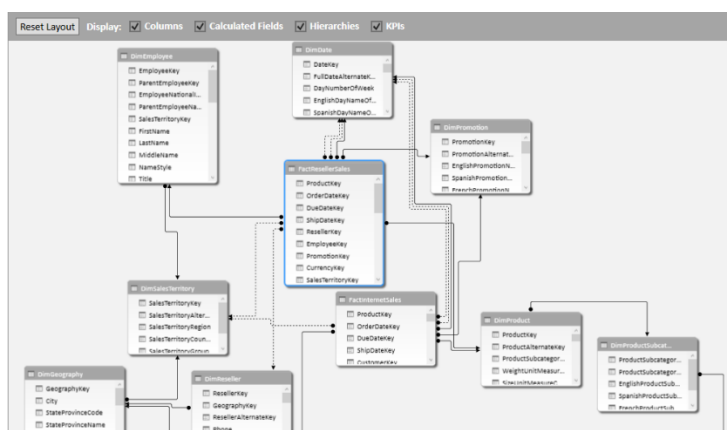
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## PowerPivot - Business Intelligence For All

PowerPivot was introduced as an add-in for Microsoft Excel 2010 and has been fully integrated in Microsoft Office Excel 2013 Professional Plus Edition to provide a scalable BI toolset, comprising of a PowerPivot Model and Pivot Tables and Charts.



Data can be imported into the PowerPivot Model from a wide variety of **independent data sources** including relational databases, multidimensional cubes, text files, Excel workbooks, Reporting Services reports, and many more. As long as there is something in common between the datasets they can be linked through **relationships** in PowerPivot avoiding the need for complex VLOOKUP and HLOOKUP expressions.



## Business measures

**Business measures** can be built into a PowerPivot dataset for simple measures such as Total revenue, Total number of Orders, but also for more complex measures such as Previous Month's Revenue, Rolling Averages, Revenue aggregated to a specific level such as product category. The DAX language provides a rich library of functions to achieve this.

Total Sales Amount:=SUM(FactInternetSales[SalesAmount])

Grand Total Internet

Sales:=CALCULATE(SUM(FactInternetSales[SalesAmount]),ALL(FactInternetSales))

Previous Year Sales Amount:=CALCULATE([Sum of SalesAmount  
2],SAMEPERIODLASTYEAR(DimDate[FullDateAlternateKey]))

Row Labels	Average Sales Amount	Total Sales Amount	Previous Year Sales Amount	Year 2008 Sales
2005	£3,224.46	£3,266,373.66	£3,266,373.66	
2006	£2,439.43	£6,530,343.53	£3,266,373.66	
2007	£1,639.07	£9,359,102.62	£6,530,343.53	
2008	£1,578.35	£9,162,324.85	£9,359,102.62	£9,162,324.85
2009			£9,162,324.85	
<b>Grand Total</b>	<b>£1,862.42</b>	<b>£28,318,144.65</b>	<b>£28,318,144.65</b>	<b>£9,162,324.85</b>

EnglishProductCategoryName
Accessories
Bikes
Clothing
Components

## Hierarchies

**Hierarchies** can be built into the PowerPivot dataset to allow for easy drill down business analysis in Pivot Tables.

Row Labels	Average Sales Amount	Total Sales Amount
Clothing	£37.33	£339,772.61
Caps	£8.99	£19,688.10
AWC Logo Cap	£8.99	£19,688.10
Gloves	£24.49	£35,020.70
Jerseys	£51.91	£172,950.68
Shorts	£69.99	£71,319.81
Socks	£8.99	£5,106.32
Vests	£63.50	£35,687.00
<b>Grand Total</b>	<b>£37.33</b>	<b>£339,772.61</b>

EnglishProductCategoryName
Accessories
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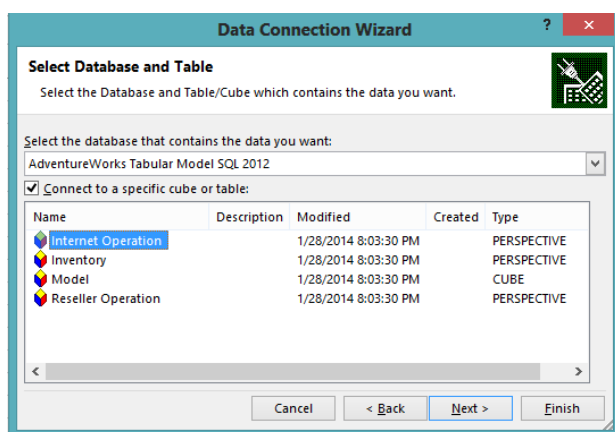
## KPIs

Key Performance Indicators (**KPIs**) can be built into the PowerPivot dataset to provide an easy way to measure performance against business goals.

Row Labels	Total Sales Amount	Goal (Previous Year)	Growth
2006	£6,530,343.53	£3,266,373.66	Green
2007	£9,791,060.30	£6,530,343.53	Green
2008	£9,770,899.74	£9,791,060.30	Yellow
<b>Grand Total</b>	<b>£26,092,303.56</b>	<b>£19,587,777.48</b>	Green

## Perspectives

**Perspectives** can be built into the PowerPivot Model to provide different views of the dataset.



## The PowerPivot Model

The **PowerPivot Model** can be stored in an Excel Workbook for a personal BI solution, or deployed centrally through SharePoint or Analysis Services Tabular Mode for a Team BI solution.

Microsoft SQL Server offers a Business Intelligence (BI) solution for all organisations: small business to multi-national corporate.

- PowerPivot for Excel
- PowerPivot for SharePoint
- Analysis Services Tabular
- Analysis Services Multidimensional

## PowerPivot for Excel offers a Personal BI solution

**PowerPivot for Excel offers a Personal BI solution**, enabling a business analyst to import data from multiple sources into a single PowerPivot data set, building relationships between the data sets with a simple to use environment, building business calculations into the data set and analysing the data set through familiar and powerful Pivot Tables and Charts. The PowerPivot Model is stored in the Excel Workbook.

## PowerPivot for SharePoint offers a Team BI solution

**PowerPivot for SharePoint offers a Team BI solution**, offering all that PowerPivot for Excel offers, but with the added benefit of being able to share a data set amongst a team of analysts, and schedule automatic updates of the data set. The PowerPivot Model is stored on a SharePoint Server, the Pivot tables and Charts are in the user's Excel Workbook.

## PowerPivot & Analysis Services Tabular is a Team BI

**PowerPivot & Analysis Services Tabular is a Team BI solution** a step up from SharePoint, with the added benefit of a dedicated and central analysis services platform to host and refresh the central dataset storing it in memory for fast and efficient retrieval into pivot tables and charts, and offering a security model restrict access through roles. The PowerPivot Model is stored on an Analysis Services instance.

## Analysis Services Multidimensional is a Corporate BI solution

**Analysis Services Multidimensional is a Corporate BI solution** offering full multidimensional functionality, performance and security. A far more complex solution to architect, but one that supports vast quantities of data with high performance. Multidimensional cubes are stored in a Database on the Analysis Services Server. Standard Excel Pivot Tables and Charts would be created against an Analysis Services external data source or a Cube Browser add-in for Excel can be used for browsing the cube. A Data mining add-in is also provided to work with the sophisticated data mining algorithms that Analysis Services Multidimensional offers for investigating business trends.

## PTR SQL Server BI Courses

PTR offer a full range of SQL Server BI Courses from using PowerPivot through to designing and building relational databases and multidimensional cubes.

- \* [Introduction to SQL Server Business Intelligence](#) course
- \* [\(SSRS\) SQL Server Reporting Services](#) course
- \* [\(SSAS\) SQL Server Analysis Services](#) course
- \* [Introduction to SQL Server MDX](#) course
- \* [\(SSAS\) SQL Server Analysis Services Tabular Mode](#) course
- \* [\(SSIS\) SQL Server Integration Services](#) Course
- \* [Excel PowerPivot](#) course

Contact us if you would like to learn more about the following:

BI Languages:

- **SQL** for retrieving data from relational databases into PowerPivot
- **MDX** for retrieving data from multidimensional cubes into PowerPivot
- **DAX** for building powerful expressions within PowerPivot

BI Platforms:

- **SQL Server Analysis Services (SSAS)** - Multidimensional and Tabular Mode
- **SQL Server Database Engine** - Design, create and maintain relational databases
- **SQL Server Reporting Services (SSRS)** - Build, share and deliver interactive and static reports
- **SQL Server Integration Services (SSIS)** - ETL tools for importing and exporting business data
- **SharePoint** - Share PowerPivot data sets

BI Tools:

- **Excel** - data analysis
- **PowerPivot** - centralised data, relationships, business measures, KPIs, pivot tables and pivot charts within Excel
- **PowerView** - reporting within Excel
- **ReportBuilder** - create, save and execute reports in multiple formats: HTML, PDF, Word, Excel, CSV, graphical