

# Analytics with Excel Pivot Table and ARQUERY

Data analytics gives you a powerful advantage in the business industry. Companies use expensive and complex Business Intelligence tools to analyze their data. Microsoft Excel Pivot Table is a flexible alternative for BI analysts and a key application within enterprise that is familiar to all.

Excel Pivot Table is a full BI client application capable to analyze multidimensional data, create reports and pivot charts. It helps users visualize and understand better their data. Excel can bring data in real time, and users can interrogate and analyze “the same version of the truth” (users see the same data, and receive changes made to the analyzed data in real time the).

Using Excel PivotTables and ARQUERY you can make the most of your company’s data warehouse. We support Oracle and EDB databases for our Server. Using these tools, you can discover the insights hidden in your data, or make simple reports.

The following section shows you how to use Excel Pivot Table and ARQUERY to build powerful BI reports and charts.

## Creating a simple report starting from an empty Pivot Table

The Figure 1 shows an empty Pivot Table. The pivot Table Field List (on right side) contains measures and dimensions. If the measures are hidden you can click “+” from “Values” to see them, and scroll down to see the dimensions and the hierarchies.

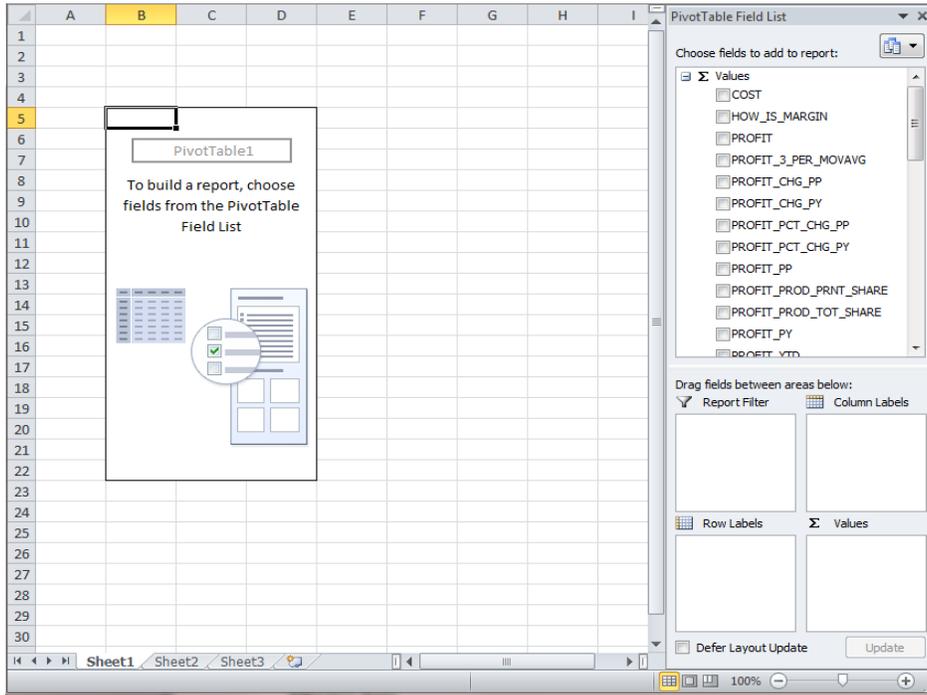


Fig. 1

The next step is to create a simple report, one measure and one dimension. (e. g. a report that shows the profit for all products, at their first level). Select the Products dimension by drag and drop the dimension to "Row labels" (or "Column labels") and select the "Profit" measure from Values.

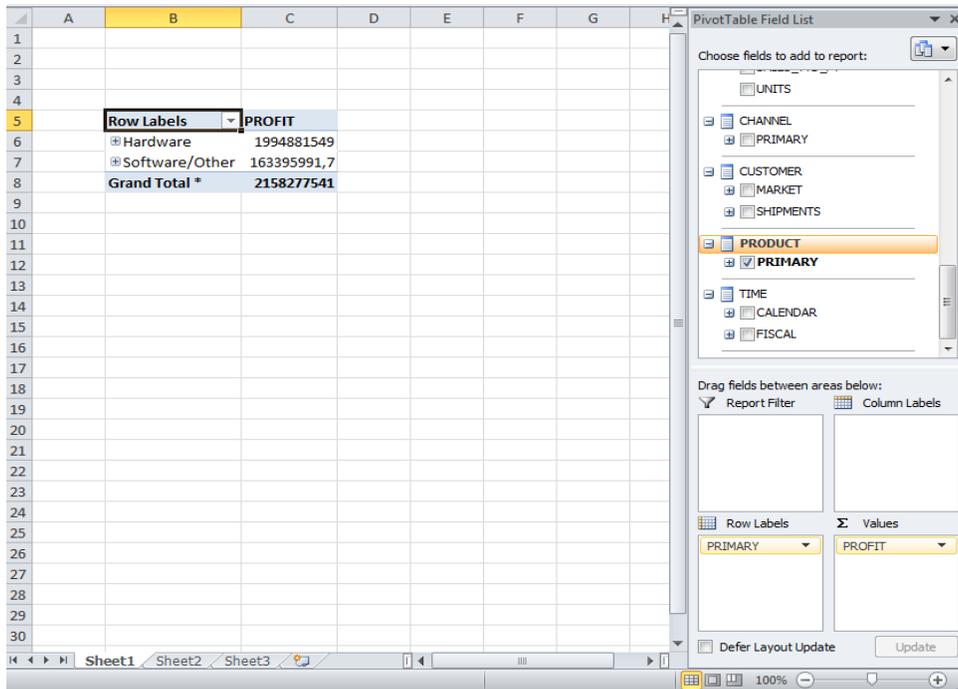


Fig 2.

## Creating Pivot Charts

For better representation and understanding of the data, a pivot chart is added to the report defined in the previous section. A pivot chart is a chart that changes in real time, using the data from the pivot table area.

E. g. Simple pivot chart, the profit for all products at their first level

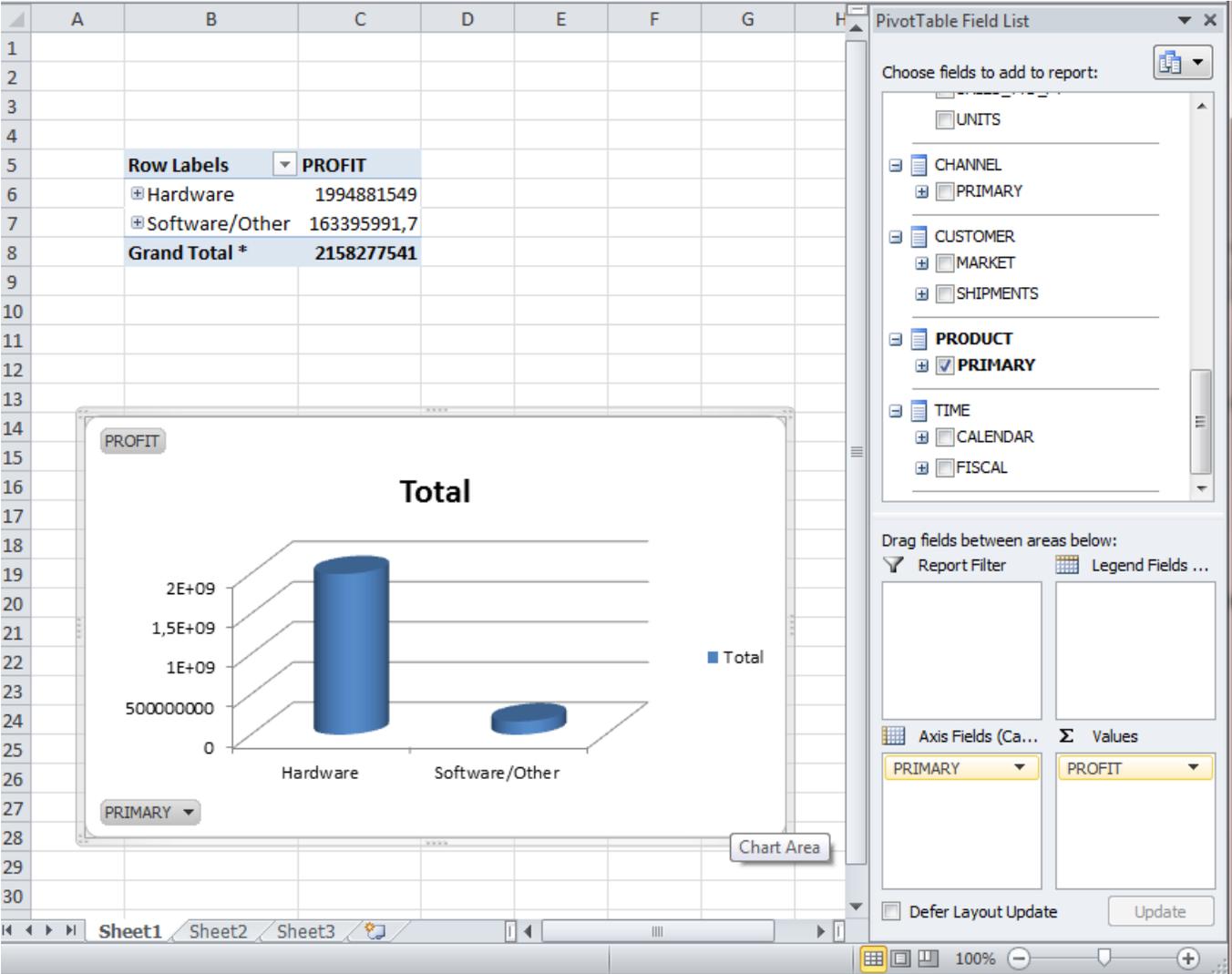


Fig. 3

If you drilldown to the next level (you want to see the profit for Hardware, and Software/Other products on a lower level) the chart will also show that change.

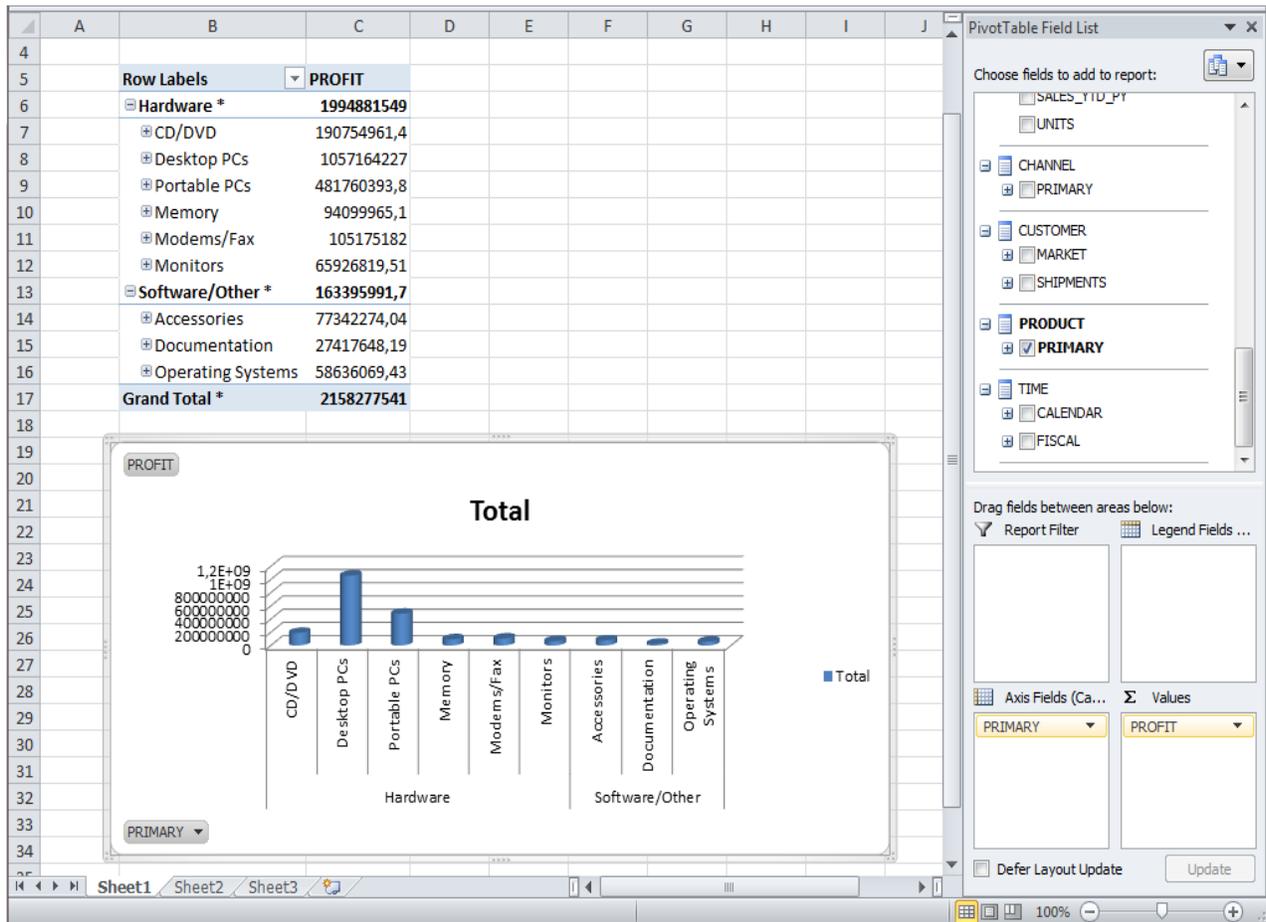


Fig. 4

## Standard BI analysis operation (drilling, sorting, swapping axes and multiple dimensions on one ax)

A standard operation for a BI analyst is drilling down on a dimension to see more details for the members in that dimension. Drilling helps the user access more (drill down) or less (drill up) information.

E. g. To view the “Profit” from the first quarter of 1998 for Hardware products click on the “+” icon to the left of the column 1998.

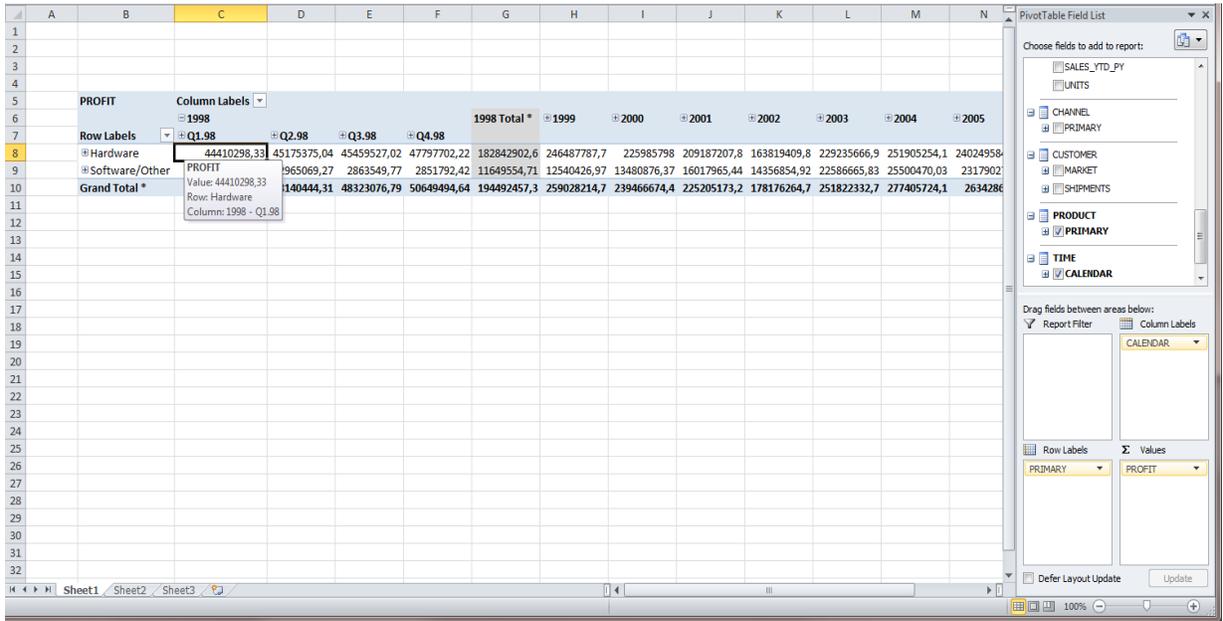


Fig. 5

This in depth analyze helps the BI user to understand better the profit trend in 1998.

There are times when you need more data to understand better what happened to the business. Combining dimensions data gives you a better understanding on the business. A single axis can have more than one dimension. E.g. *A BI user needs to select a channel to allocate more money for advertising for Hardware products. In the previous report select "Channel" dimension for the rows. The BI user sees what channel is the most profitable (Direct Sales, Internet Sales or Sales from catalog) and what channel needs to improve. The money for advertising will be invested in the channel with the smallest profits.*

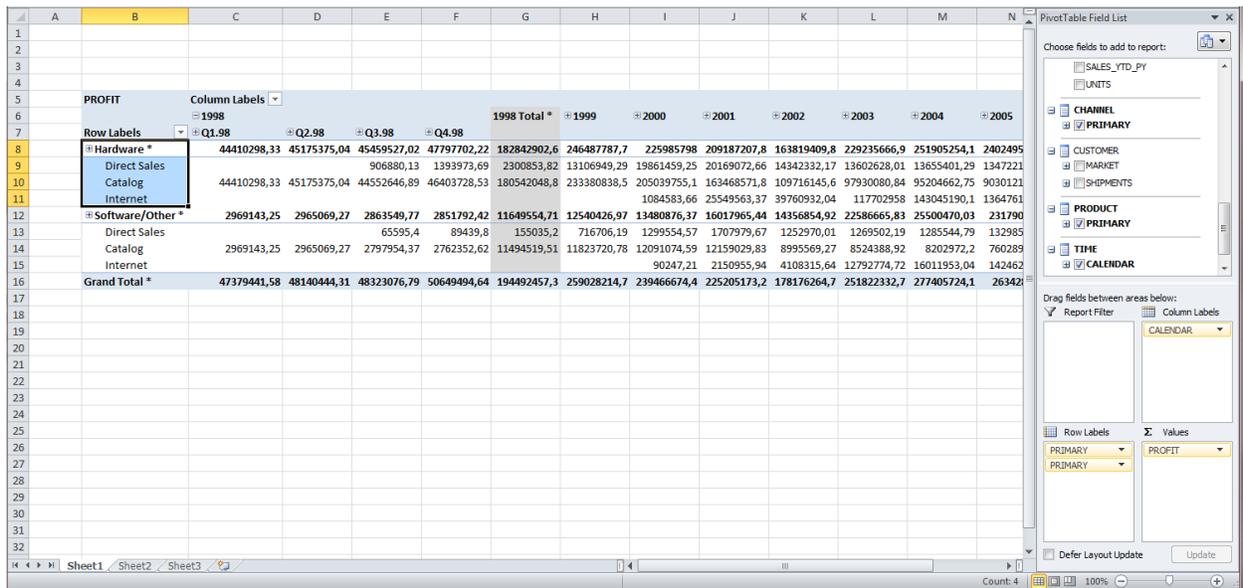


Fig. 6

Sorting is a frequent operation used in BI applications. Sorting dimension members in Excel is simple, just right-click on a dimension level and see the SORT menu.

Product, Hardware members in their default order

PROFIT	Column Labels															
Row Labels	1998	1999	2000	2001	2002	2003	2004	2005	1998 Total *	1999	2000	2001	2002	2003	2004	2005
	Q1.98	Q2.98	Q3.98	Q4.98												
Hardware *	44410298,33	45175375,04	45459527,02	47797702,22	182842902,6	246487787,7	225985798	209187207,8	163819409,8	229235666,9	251905254,1	2402495				
CD/DVD						13345706,14	22334914,89	21177641,56	17905676,41	27203976,39	29468234,65	2864032				
Desktop PCs	23535331,98	24023164,16	22552400,61	21823776,87	91934673,62	113268465,2	97354346,96	90284795,46	77609111,75	134774854,8	155014024,4	1464938				
Portable PCs	16170859,26	16437926,06	16643846,75	19660683,71	68913315,78	82696609,91	73425342,08	65656250,92	43213417,98	38208778,34	37907607,4	3627672				
Memory	3097093,85	3119184,29	2955428,09	3061108,52	12232814,75	11563798,13	10157256,95	10769018,15	8512483,45	9939630,94	10218360,16	1058174				
Modems/Fax		1741724,21	1739974,82	3481699,03	17463408,96	15691089,29	14224839,12	10641746,03	11078282,99	10988192,16	1073860					
Monitors	1607013,24	1595100,53	1566127,36	1512158,3	6280399,43	8149799,38	7022847,84	7074662,58	5936974,15	8030143,47	8308835,36	751833				
Software/Other *	2969143,25	2965069,27	2863549,77	2851792,42	11649554,71	12540426,97	13480876,37	16017965,44	14356854,92	22586665,83	25500470,03	231790				
Grand Total *	47379441,58	48140444,31	48323076,79	50649494,64	194492457,3	259028214,7	239466674,4	225205173,2	178176264,7	251822332,7	277405724,1	26342				

Fig. 7

Product, Hardware members ordered in “Z to A order”

PROFIT	Column Labels															
Row Labels	1998	1999	2000	2001	2002	2003	2004	2005	1998 Total *	1999	2000	2001	2002	2003	2004	2005
	Q1.98	Q2.98	Q3.98	Q4.98												
Hardware *	44410298,33	45175375,04	45459527,02	47797702,22	182842902,6	246487787,7	225985798	209187207,8	163819409,8	229235666,9	251905254,1	2402495				
Portable PCs	16170859,26	16437926,06	16643846,75	19660683,71	68913315,78	82696609,91	73425342,08	65656250,92	43213417,98	38208778,34	37907607,4	3627672				
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Fig. 8

## **Data Filtering**

Data filtering helps you arrange information in a more useful and meaningful way. The following section describes how to use a filter.

To create a Filter for one dimension, drag a dimension to the Report Filter sub-menu of Pivot Table Field List. This will put a filter cell above your Pivot Table. This cell has a small icon in it. To select a member (a slicer) from the dimension, click the icon and define your slice of data (select one or more members from the list). The report will show the data for your slicer of the dimension, the subset of data defined by the filter.

## **Convert to Formulas**

A Pivot Table report has a predefined structure for the layout of the report. If the BI user needs a flexible layout for a Pivot Table report, the cells can be converted to worksheet formulas and then change the layout of these cells by taking full advantage of all of the features available in a worksheet. A pivot table converted to formula is transformed in a data source and a sum of spreadsheet function calls (CUBEVALUE and CUBEMEMBER). The table loses the Pivot Table Navigator but you get full flexibility in deciding the layout of the spreadsheet: You can add/modify/delete any number of CUBEVALUE/CUBEMEMBER calls in the spreadsheet.