

DeltaMaster clicks!

07/2008

Greetings, fellow data analysts!

A few of our readers disapproved of our criticism of percentages in the June issue of *clicks!*: If you remember, we said that comparing them is, well, “cheesy” in certain cases. We thought, therefore, that we should put things into perspective - which is the purpose of percentages in the first place - and do something to restore their image. Although it should be viewed critically when the absolute reference values are different, unknown or not given, relative size can help explain the significance of individual objects as a whole.

For example, which percentage of total revenues can we trace to an individual customer or product? Using *DeltaMaster*, we can quickly get the answers to this and other questions using a variety of different features. We will introduce and explain these in detail in this edition of *clicks!*

Best regards,

Your Bissantz & Company team



DeltaMaster Matinee July 17, 2008, Munich

Martin Michael, IT director for Allianz Handwerker Services, explains how his company uses *DeltaMaster* for service analysis and control.
www.bissantz.com/matinee

Controlling Innovation Berlin September 6, 2008

Dr. Marc Rössel will present industrial reporting with *DeltaMaster* at the 8th annual ICV conference.

BI Forum: “Perspectives of Management Information” September 17, 2008. Frankfurt

Join us for this informative, one-day forum hosted in cooperation with our partner DATA MART Consulting. Novartis, Bayer HealthCare and Vaillant will present their exiting, real-world solutions that combine *DeltaMaster* with Oracle OLAP, Microsoft Analysis Services and SAP BW.
www.bissantz.com/bi-forum

DeltaMaster@Work July 24, 2008, Nuremberg

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The uncultured use of traffic lights, dashboards and gauges in modern business culture

In his latest dossier on industrial reporting, Dr. Nicolas Bissantz offers better alternatives to anorexic reports, visual pathos and assorted graphical garbage. We would be more than delighted to give you a personal copy... perhaps at our next Industrial Reporting seminar with Rolf Hichert on October 1, 2008 in Nuremberg? www.bissantz.com/ir

Tip of the month *Calculating and reporting percentages*

If you want to know which percentage a certain customer contributes to total revenues, the math is relatively simple. To get the desired percentage, you simply divide the customer's revenues by the total revenues. You only need to ensure that the divisor is not zero, because dividing a number by zero is undefined and, therefore, forbidden. In many reports, you probably even display percentages next to the absolute values so that you can quickly assess the amounts in question and their relevance to the sum as a whole.

In *DeltaMaster*, you can observe percentages in many different ways:

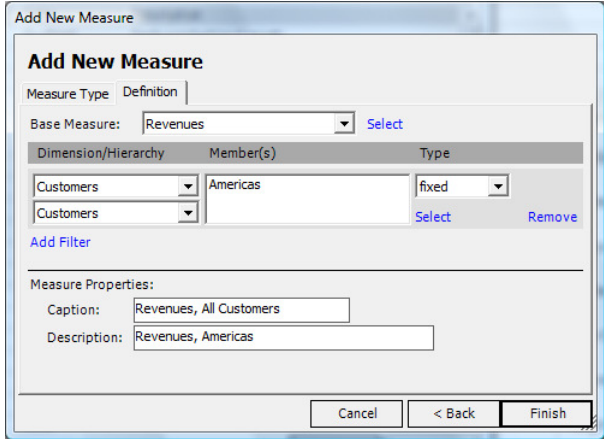
- § Through measures
- § Using calculated members
- § In *Rankings* (i.e. as a byproduct)
- § As a formula in a Flexreport
- § In a Flexreport using pivot table presentation options

The following sections will explain these different options to help you understand which approach is best suited for which task. For example, we often pose the question which percentage a certain customer or customer group contributes to total revenues. Of course, however, you can also use this same approach to examine other additive measures and dimensions.

Measures for sums and percentages: filters and quotients

One possibility is to define the division (i.e. individual revenues by total revenues) in a measure. As a first step, you will need to determine the total revenues for all customers.

To do this, you simply *Add a new measure* (*Model* menu or the *Measure browser* in the *I want to...* menu) of type *Filter*. In the Customer dimension, you then fix "Revenues" on the top member, which is "Americas" in our "Chair" reference model as shown in the screenshot on your right. (In this case we need a fixed filter. To review the differences among *variable*, *identical* and *fixed* filters, please see *DeltaMaster clicks!* 3/2008.) The defined measure delivers the sum of the revenues for all customers regardless of which customers are listed in the *My view* window or are displayed in a pivot table. All remaining selections, e.g. restrictions in other dimensions such as a certain product group or time frame, will remain relevant.



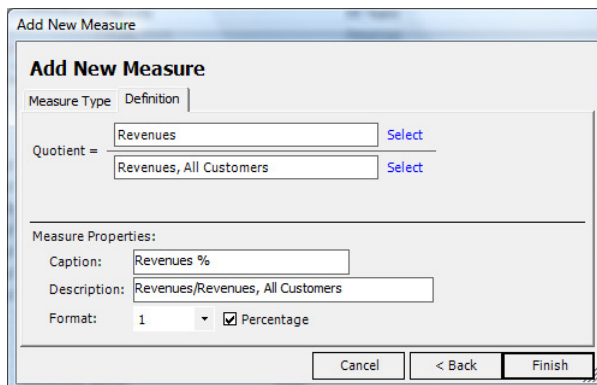
Dimension/Hierarchy	Member(s)	Type
Customers	Americas	fixed
Customers		Select Remove

Measure Properties:

Caption: Revenues, All Customers

Description: Revenues, Americas

In the next step you will need to add another new measure. This time, however, it will be a *Quotient measure* to calculate the share you have in mind. To ensure that you can't divide a number by zero, *DeltaMaster* will automatically add an "If()" statement to the MDX definition generated in the background.



Using this method, you can clearly present revenues and the revenue percentage in a pivot table as seen in the screenshot on your right. In a real report, of course, you would not display the third column showing total sales. This was just included to illustrate the effect of the fixed filter.

	Measures ...		
Customers	Revenues	Revenues %	Revenues, All Customers
Americas	637.318.409	100,0%	637.318.409
United Nations Organisation	441.602.348	69,3%	637.318.409
MCI	76.117.624	11,9%	637.318.409
Delson	12.305.867	1,9%	637.318.409
Allberg Sys	11.059.486	1,7%	637.318.409
Room and Light	9.793.914	1,5%	637.318.409
Robertson Dispatchers	6.891.604	1,1%	637.318.409

Instead of using two measures, you could also create the same calculation using MDX in a user-defined measure. In this case, you wouldn't need to use the total revenue sum as an interim measure.

This approach quickly leads you to the desired effect. Plus, you can reuse the new measure for other analyses, for example, a time-series analysis of the revenue percentage.

Calculated members

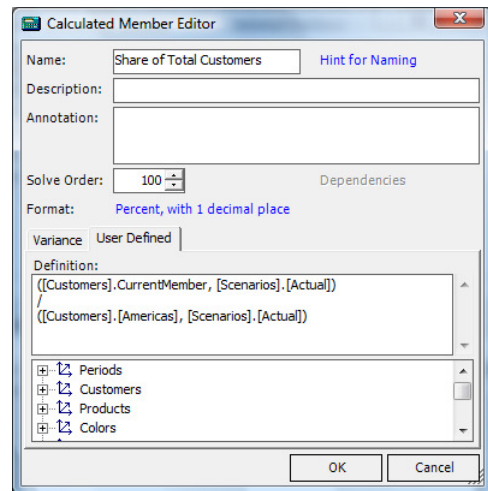
The previous example explained how you can create a percentage in reference to a certain measure. If you want to simultaneously compare the percentage of several members such as revenues, sales, material costs and production costs, you could add additional specialized measures. A faster, more effective alternative, however, would be to calculate the percentage as a calculated member. *DeltaMaster* will then be able to perform this calculation with any desired measure and, therefore, determine the percentage of the sum without having to define each one from scratch. This approach is similar to creating a budget-actual comparison – which must certainly also be valid for all measures.

Ideally, you should start by creating a help dimension called "Percentage presentation" or something similar in your OLAP database. *DeltaMaster* then stores the calculated members in this axis. Alternatively, you can also use an existing dimension such as "Presentation" or "Value types". Using the dimension browser, you can then add a *user-defined* calculated member using the following MDX expression:

```

([Customers].CurrentMember, [Scenarios].[Actual]) /
([Customers].[Americas], [Scenarios].[Actual])
    
```

This takes the values for the current selection in the customer dimension (“[Customers].CurrentMember”) for all of the relevant measures and divides them by the values for the top element (“[Customers].[Americas]”). The operands are listed as a tuple in combination with a reference member. In the MDX example on your right, however, we have “misused” the member (“[Scenarios].[Actual]”) that we also use for budget-actual variances. As a result, we cannot combine percentage views with budget-actual variances. For this reason, if you frequently work with percentage calculations, you should create a separate dimension for these members in the data model.



Since pivot tables use this method to calculate percentages, you can analyze the measures without taking any further actions; the calculation is based on the measures. Only the relation to the dimension must be defined so that *DeltaMaster* can recognize *where* it should calculate the percentage.

Revenues	Scenarios	Share of Total Customers
Customers	ACT	
Americas		100,0%
Good Furniture		1.556.538 0,2%
Kitchen Planners		888.943 0,1%
Mobilia		63.501 0,0%
O Design		402.970 0,1%
Montone		1.391.852 0,2%
Room and Light		9.793.914 1,5%

To be 100% correct, you should also protect the MDX expression from an unintentional division by zero. The expression would then be:

$$\text{IIf}([Customers].[Americas], [Scenarios].[Actual]) = 0, \text{Null}, ([Customers].CurrentMember, [Scenarios].[Actual]) / ([Customers].[Americas], [Scenarios].[Actual])$$

An interesting alternative would be to calculate the percentage of the next highest member, for example, to show the relevance that a single customer has in its region or the percentage that the region has in the entire market. To do this, you only need to make a slight change in the expression:

$$([Customers].CurrentMember, [Scenarios].[Actual]) / ([Customers].CurrentMember.Parent, [Scenarios].[Actual])$$

Now, take a look at the report on your right. Central North comprises 42.8 % of the Central region which, in turn, makes up 5.9 % of the total revenues on the US market.

Revenues	Scenarios	Share of Parent
Customers	ACT	
Americas		100,0%
United States		637.318.409 100,0%
Central		37.556.419 5,9%
Central North		16.092.792 42,8%
Central South		21.463.627 57,2%
Mountain		25.381.561 4,0%
Eastern		561.494.803 88,1%
Pacific		12.885.626 2,0%

Since the top member has no parent by nature, you have to treat it differently in the named expression. In that case, it would be better to write:

$$([Customers].CurrentMember, [Scenarios].[Actual]) / \text{IIf}([Customers].CurrentMember.Level.Ordinal > 0, ([Customers].CurrentMember.Parent, [Scenarios].[Actual]), ([Customers].CurrentMember, [Scenarios].[Actual]))$$

As you can see, you can (and should!) also include a zero check to this expression.

In general, if you want to use percentages in reports and analyses, calculated members give you the broadest range of flexibility.

Percentage columns in rankings

In some cases, however, it makes more sense to use a *Ranking*. Here, the results generally include a percentage column. Since *DeltaMaster* automatically calculates the percentage, you don't have to do anything else. This alternative is especially useful when the sum does not have to be displayed or is shown somewhere else, for example, in a combination cockpit.

My Analysis for View (262): 2007; Total Customers: Americas; Total Products: All Products; Scenario:...			
Analysis Set	Calculate	View	Drill-in
Base Methods	Top	Customer	Revenues
Ranking	1.	United Nations Organisation	70,8% 94.261.167
Cross Table Analysis	2.	MCI	12,0% 16.041.005
Concentration Analysis	3.	Delson	1,8% 2.440.735
Time Series Analysis	4.	Allberg Sys	1,7% 2.325.140
Trumpet	5.	Room and Light	1,3% 1.758.613
Portfolio Analysis	6.	SuperOffice	0,9% 1.236.773

Calculation as a formula in a Flexreport

Using the formulas in a Flexreport, you can calculate percentages just as you would in a spreadsheet. Before you start, you may wish to display the *Cell coordinates* (context menu, *I want to... menu*) so that you can recognize the address of the cells that should be used more easily. Now you can edit the *Cell properties* (context menu) for the cells in which the percentage value should be displayed. On the *Content* tab, now select the *Formula* option; on the *Formula* tab, type the division expression.

The screenshot on your right uses relative and absolute referencing. Due to the parentheses, *DeltaMaster* will interpret the first part (" $=R(0)C(-1)/R2C2$ ") relatively. This expression references the cells that are in the same row and to the left-hand side of the current column. (" $R(0)$ " equals a row with a gap of 0 while " $C(-1)$ " equals a column with a gap of -1). Since the second part of the expression (" $R2C2$ ") does not contain parentheses, *DeltaMaster* reads these as absolute coordinates. If you define the cell content this way, you only need to enter the formula in a single cell of a column. Afterwards, you can copy the formula in the remaining cells of the percentage column. Simply highlight the cell, hit *Ctrl + C*, highlight the remaining cells, and then hit *Ctrl + V*. Since the sum cells contain absolute references, these remain constant after you copy and paste them. The single values, however, will be taken from the cells containing relative references on the left.

My Cockpit for View (262): Revenue Shares (Flexreport) *		
	1	2
	Revenues	Share
2	Americas	133.185.131
3	Good Furniture	321.867 0,2%
4	Kitchen Planners	178.904
5	Mobilia	15.058
6	O Design	107.504
7	Montone	232.818
8	Room and Light	1.758.613
9	Redman Center	154.292
10	RestorDesign	86.200

Cell Properties

Content | Format | Condition

Content

$=R(0)C(-1)/R2C2$

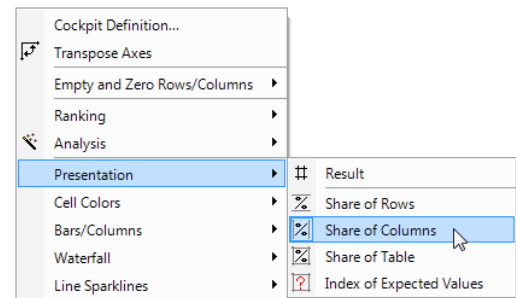
Cell References

Relative references:
Specify row or column d
R = row, C = column.
- Positive distance: refe

The easiest way to avoid zeros in the divisor is to use conditional formatting. When the value of a sum cell is zero, the content of the respective cell should be empty text.

Flexreport with cell references to a pivot table showing percentages

As of *DeltaMaster* 5.3.5, you now have an additional way to create percentage columns (or rows) in Flexreports (see *DeltaMaster deltas! 5.3.5, feature #8* for more information). When you activate the *Presentation* option in a pivot table, you can either display the actual values (i.e. the *Result* of the database query) or their percentage share of the table's rows, columns or total sum. If you save a pivot table containing a *Presentation* with percentages and then later reference these cells in a Flexreport, *DeltaMaster* will also include the *Presentation* in the Flexreport.



Please note that *DeltaMaster* draws on all values of the rows, column or table to calculate percentages – and even aggregates such as the subtotal or the total sum. Since the members that you want to examine should all be on the same level, please ensure that there are not subtotals or other aggregates. Although the results would be correct, at a first glance they could be irritating. You can do this quickly by performing a *Drill across* in the context menu of the row and column headlines. Alternatively, you can enter the desired level using the *Level selection* feature located in the *Axis definition*.

The screenshot on your right shows two pivot tables which are now on the “Customer region” level. One contains absolute values (standard view) while the other contains percentage values due to a change in the *Presentation* options. In the second table we also displayed 100-percent bars which visualize the relationship as well (see *DeltaMaster deltas! 5.3.1, feature #25*).

	Measures ...	Measures ...
Customers ...	Revenues	Revenues
Central	7.124.569	5,3%
Mountain	5.168.345	3,9%
Eastern	118.602.245	89,1%
Pacific	2.289.971	1,7%

You can now combine both of these cockpits into a Flexreport. Simply start with the percentage presentation and then change it into a *Flexreport with cell references* (*Change* menu in the *My cockpit* window). *DeltaMaster* will then transfer the percentage values and the bars into the report. The absolute values, however, are still missing. To integrate these, simply *Add [additional] columns* and then *Add references* to the result cockpit. Both of these options are located in the context menu of the Flexreports. After a few format changes, your report looks similar to the one above in which the absolute values and percentages stand next to each other.

My Cockpit for View (262): Revenues and Shares		
Revenues		
Central	7.124.569	5,3%
Mountain	5.168.345	3,9%
Eastern	118.602.245	89,1%
Pacific	2.289.971	1,7%
133.185.131		

Questions? Comments?

Just contact your Bissantz team for more information!