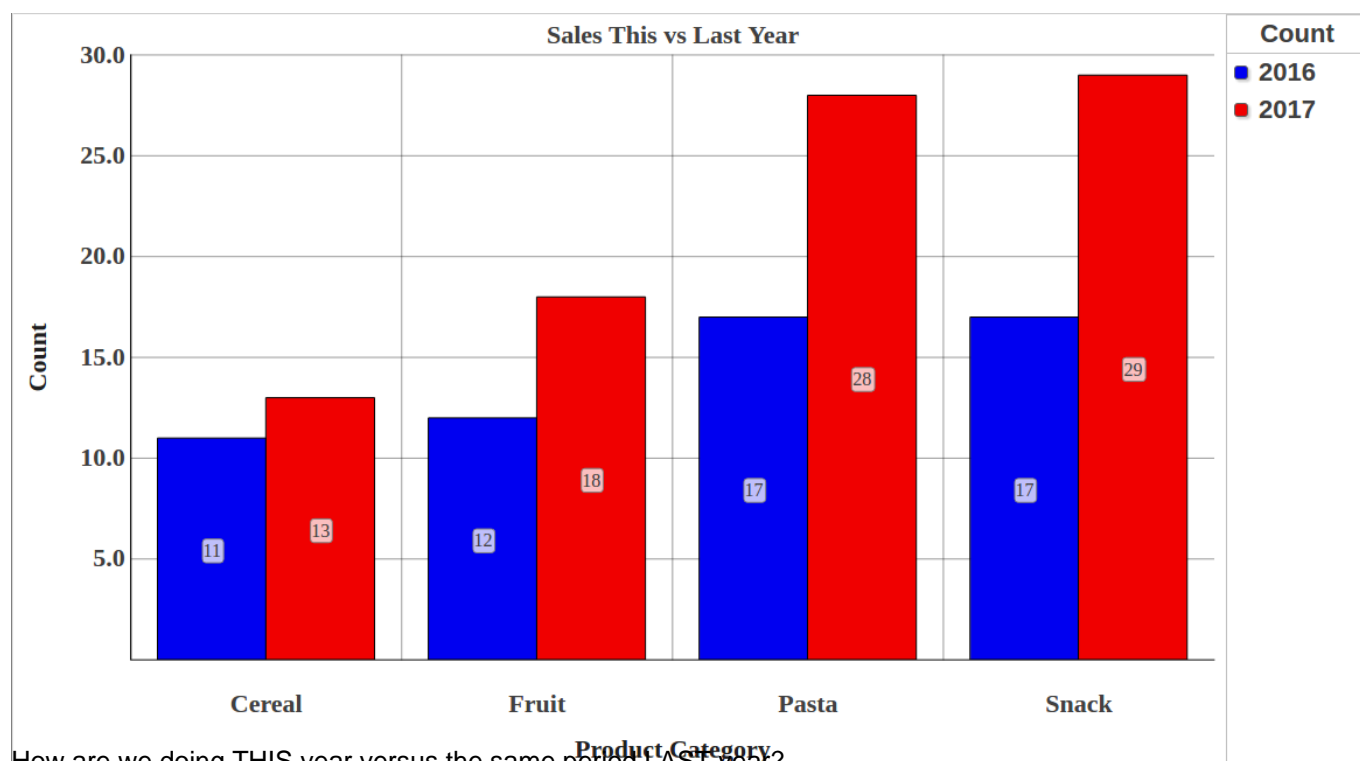


## Article

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## DeepSee - Period to date vs same period last year



How are we doing THIS year versus the same period LAST year?

This is a common need in Business Intelligence. In fact, many design specifications for reports make use of a comparison between a selected period (year, quarter, etc) up to a certain date (for example November 15th, 2016) and a summary of the same information for the previous year (i.e. up to November 15th, 2015).

This post shows how to implement this in DeepSee.

The following is an example using the HoleFoods cube. The table shows sell counts for each Product Category in rows. The first column shows the sell counts in 2016 up to the date of today. The second column shows the sell counts in 2015 up to exactly one year ago.

In this example the period of interest is year, corresponding to the "YearSold" level in HoleFoods but we will implement a dynamical period that can be set to quarter, month, etc.

Product Category	Count	
	2016	2015
Candy	12	17
Cereal	15	16
Dairy	3	1
Fruit	14	9
Pasta	29	32
Seafood	9	7
Snack	88	78
Vegetable	47	40

This implementation is not trivial but it can be achieved on a “ normal ” non-KPI pivot

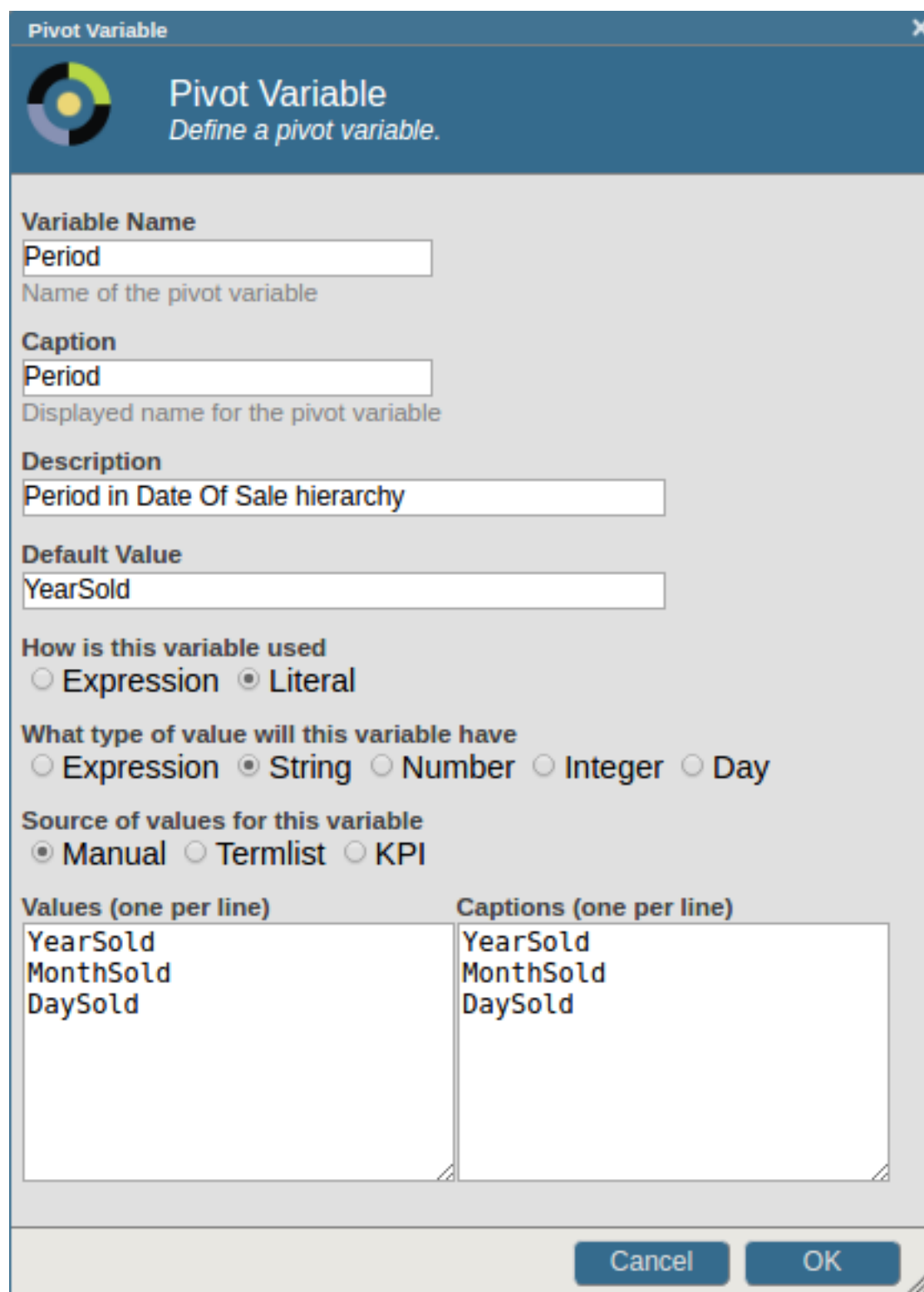
### Prerequisites

For this implementation you will need a standard calendar, that is a calendar based on Months and not on custom periods.

A week level in the same hierarchy as day and month will lead to unexpected results. If a week period is needed the week level should be placed in a different hierarchy than the rest of the levels.

### Define the Period as a pivot variable

In Analyzer Define a Period pivot variable as in the following picture:



**Pivot Variable**  
Define a pivot variable.

**Variable Name**  
Period  
Name of the pivot variable

**Caption**  
Period  
Displayed name for the pivot variable

**Description**  
Period in Date Of Sale hierarchy

**Default Value**  
YearSold

**How is this variable used**  
☐ Expression ☒ Literal

**What type of value will this variable have**  
☐ Expression ☒ String ☐ Number ☐ Integer ☐ Day

**Source of values for this variable**  
☒ Manual ☐ Termlist ☐ KPI

Values (one per line)	Captions (one per line)
YearSold	YearSold
MonthSold	MonthSold
DaySold	DaySold

Cancel OK

## Define PTD and LYPTD

Define two [Calculated Measures](#) to compute period to date (PTD) and the same period in the last year (LYPTD):

- PTD (Period To Date) with Expression:

```
%OR(PERIODSTODATE([DateOfSale].[Actual].[$variable.Period], [DateOfSale].[Actual].[DaySold].&[NOW]))
```

[PERIODSTODATE](#) is an MDX function returning the set of child or descendent members of the given level, up to

and including the given member. In the example above PERIODSTODATE returns a set of dates in the period specified by the pivot variable Period up to the date of today. [%OR](#) is used to return a single value for the set of all dates.

**Calculated Member**  
Add or edit a calculated member.

**Member type**  
☐ Measure ☒ Dimension

**Shared Storage**  
☐  
Make this calculated member available to all pivots based on this cube.

**Dimension**  
DateOfSale  
Dimension for the calculated member

**Member name**  
PTD  
Name of the calculated member

**Dimension level**  
DaySold  
Choose a dimension level if you want to select existing members to populate the MDX expression

**Existing members**  
Select any combination of existing dimension members to populate the MDX expression

**Expression**  
%OR(PERIODSTODATE([DateOfSale].[Actual].  
[\$variable.Period],[DateOfSale].[Actual].[DaySold].&  
[NOW]))  
MDX expression for the calculated member

**Format**  
For example, #,###.##

**Solve Order**  
0  
Optional

Cancel OK

- LYPTD (Last Year Period To Date) with Expression:

%OR(PERIODSTODATE([DateOfSale].[Actual].[\$variable.Period],

```
PARALLELPERIOD([DateOfSale].[Actual].[YearSold], 1, [DateOfSale].[Actual].[DaySold].&[NOW]))))
```

[PARALLELPERIOD](#) is used to calculate the date of today but one year in the past. This date is used in [PERIODSTODATE](#) as it was done in PTD to return a set of dates in Period but one year in the past. %OR combines all elements of this set of dates in one single value. Notice that \$variable.Period is how you can reference the value of the Period pivot variable.

**Calculated Member**  
Add or edit a calculated member.

**Member type**  
☐ Measure ☒ Dimension

**Shared Storage**  
☐  
Make this calculated member available to all pivots based on this cube.

**Dimension**  
DateOfSale  
Dimension for the calculated member

**Member name**  
LYPTD  
Name of the calculated member

**Dimension level**  
DaySold  
Choose a dimension level if you want to select existing members to populate the MDX expression

**Existing members**  
Select any combination of existing dimension members to populate the MDX expression

**Expression**  
%OR(PERIODSTODATE([DateOfSale].[Actual].  
[\$variable.Period], PARALLELPERIOD([DateOfSale].[Actual].  
[YearSold],1,[DateOfSale].[Actual].[DaySold].&[NOW]))  
MDX expression for the calculated member

**Format**  
For example, #,###.#

**Solve Order**  
0  
Optional

Cancel OK


A simpler solution to calculate the date of today but one year in the past is to use the following syntax together with the [NOW](#) member:

[DateOfSale].[Actual].[DaySold].&[NOW-1y]

The expression becomes:

%OR(PERIODSTODATE([DateOfSale].[Actual].[\$variable.Period], [DateOfSale].[Actual].[DaySold].&[NOW-1y]))

Calculated Member



**Calculated Member**  
Add or edit a calculated member.

**Member type**

☐ Measure ☒ Dimension

**Shared Storage**

☐

Make this calculated member available to all pivots based on this cube.

**Dimension**

DateOfSale ▼

Dimension for the calculated member

**Member name**

LYPTD

Name of the calculated member

**Dimension level**

DaySold ▼

Choose a dimension level if you want to select existing members to populate the MDX expression

**Existing members**

Select any combination of existing dimension members to populate the MDX expression

**Expression**

AGGREGATE ( PERIODSTODATE ( [DateOfSale] . [Actual] .  
[\$variable.Period], [DateOfSale] . [Actual] . [DaySold] .&[NOW-  
1y] ) )

MDX expression for the calculated member

**Format**

For example, #,###.##

**Solve Order**

0 ▼

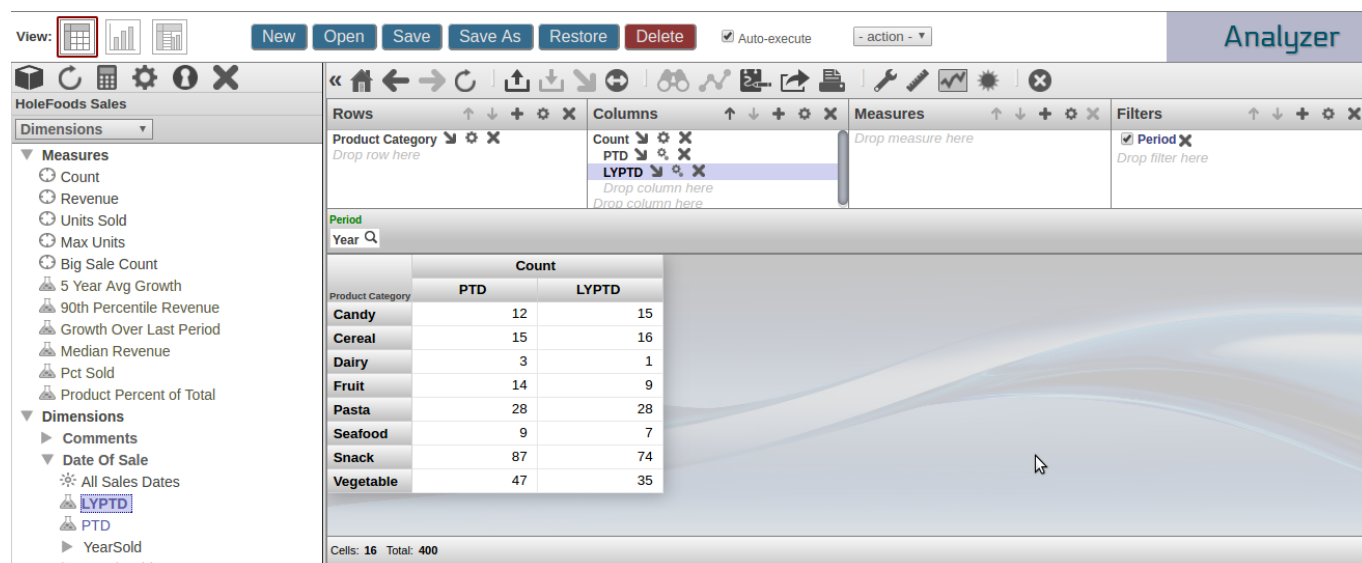
Optional

Cancel

OK

## Create the pivot

Place Product Category on Rows, Count on Measures, crossjoin PTD and LYPTD on Count. Drag the Period pivot variable to filters and select a period, for example YearSold. Finally, click on the gear icon next to PTD and LYPTD in Columns to change the captions. It is possible to use \$variable.Period in the caption string (not shown).

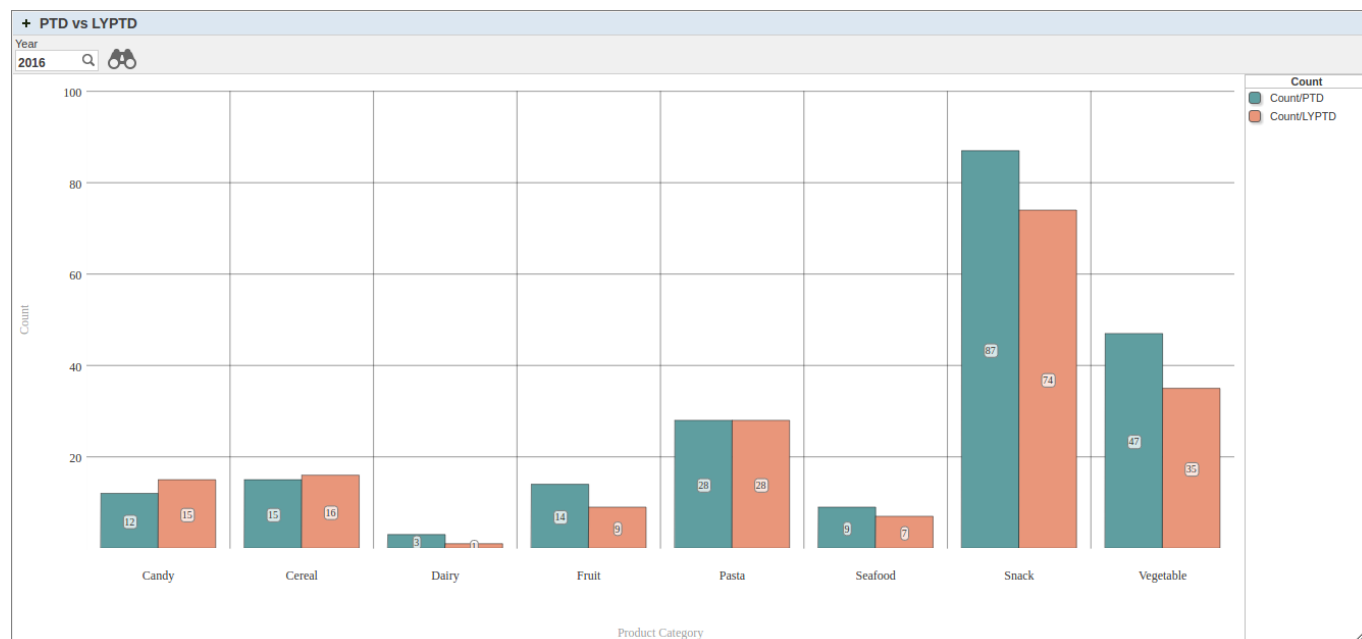


The MDX for this example is the following:

```
WITH MEMBER [DateOfSale].[PTD] AS '%OR(PERIODSTODATE([DateOfSale].[Actual].[$variable.Period], [DateOfSale].[Actual].[DaySold].&[NOW]))' MEMBER [DateOfSale].[LYPTD] AS '%OR(PERIODSTODATE([DateOfSale].[Actual].[$variable.Period], [DateOfSale].[Actual].[DaySold].&[NOW]))'
SELECT NON EMPTY NONEMPTYCROSSJOIN([Measures].[%COUNT], {%LABEL([DATEOFSALE].[PTD], "PTD", ""), %LABEL([DATEOFSALE].[LYPTD], "LYPTD", "")}) ON 0, NON EMPTY [Product].[P1].[Product Category].Members ON 1 FROM [HOLEFOODS]
```

## Embed the Pivot in a dashboard

Finally, create a dashboard and embed your pivot as a widget. Add an Apply Pivot Variable Control targeting Period on your widget to be able to change period. This is how the widgets appear as a Bar Chart:



## Exercises for the reader

- Extend this implementation to be able to select a dynamic date so that sales can be shown up to a user-selected date. Hint: create a Date pivot variable.
- Can you find an alternative to the method proposed in this post, for example using %MDX in calculated members? Post your answer in the comments.

[#Analytics](#) [#Dashboards](#) [#MDX](#) [#InterSystems](#) [IRIS BI \(DeepSee\)](#)

Source URL: <https://community.intersystems.com/post/deepsee-period-date-vs-same-period-last-year>