



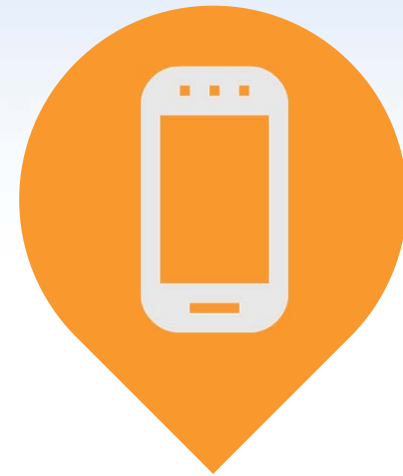
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Conformed Stored Procedures

October 15-18, 2013
Charlotte, NC

Speaker Name, Jose Chinchilla
Agile Bay, Inc.

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Agenda

- Conformed Measures & Dimensions Overview
- The Problem
- Proposal: Conformed Stored Procedures

Conformed

Definition

Conform

Definitions

- Comply with rules, standards, or laws.
- To bring into agreement, correspondence, or harmony.

Synonyms:

- Match
- Comply
- Obey



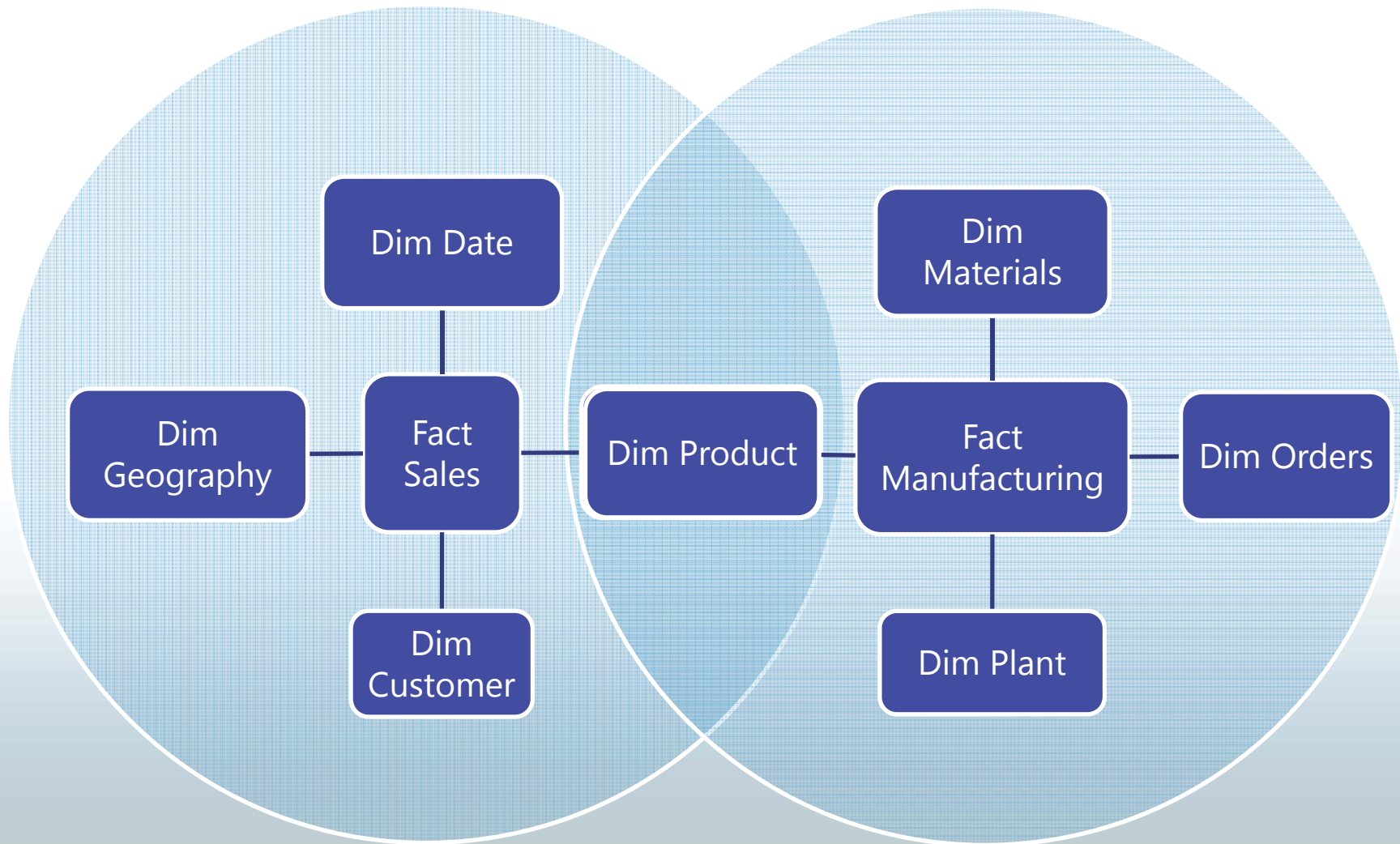
Conformed Dimensions



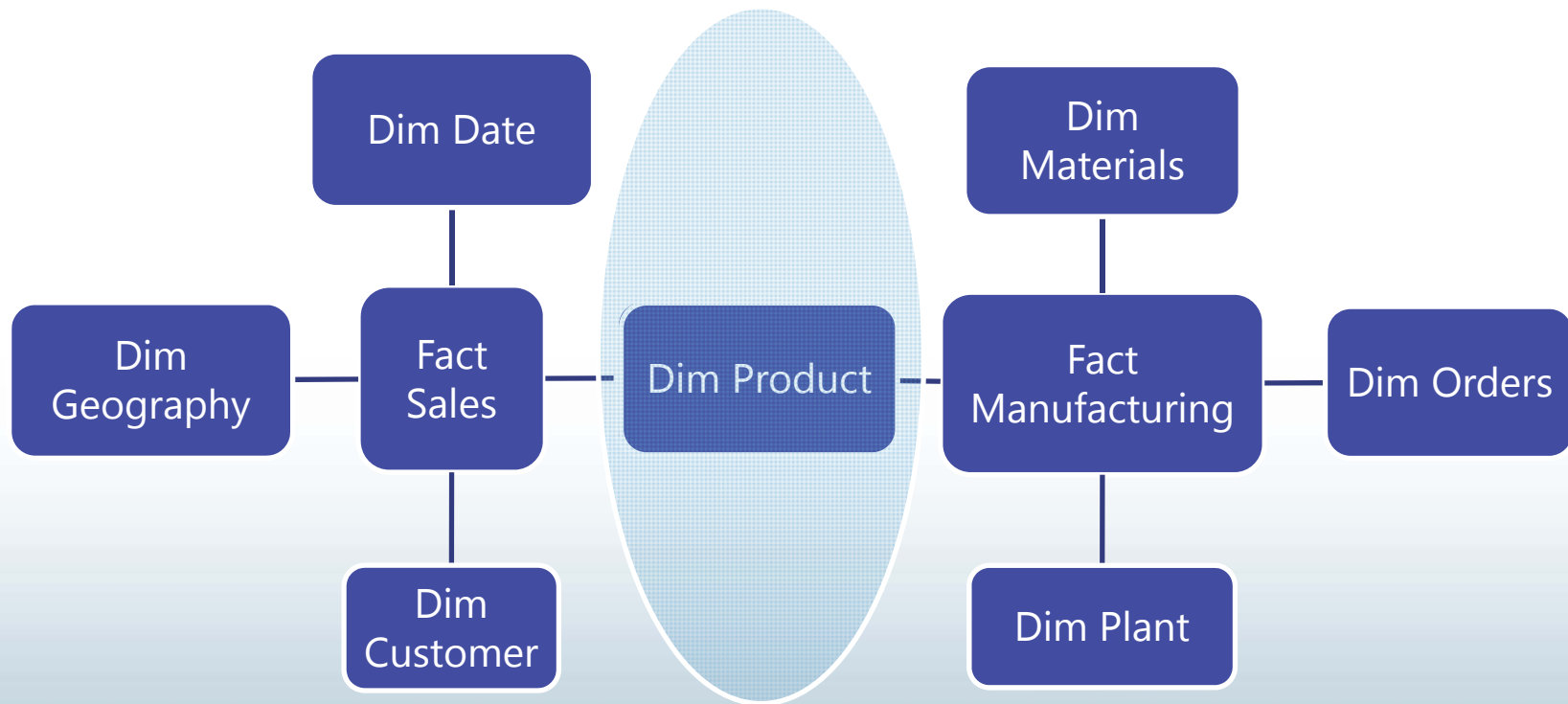
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Conformed Dimension: Product



Conformed Dimension: Product



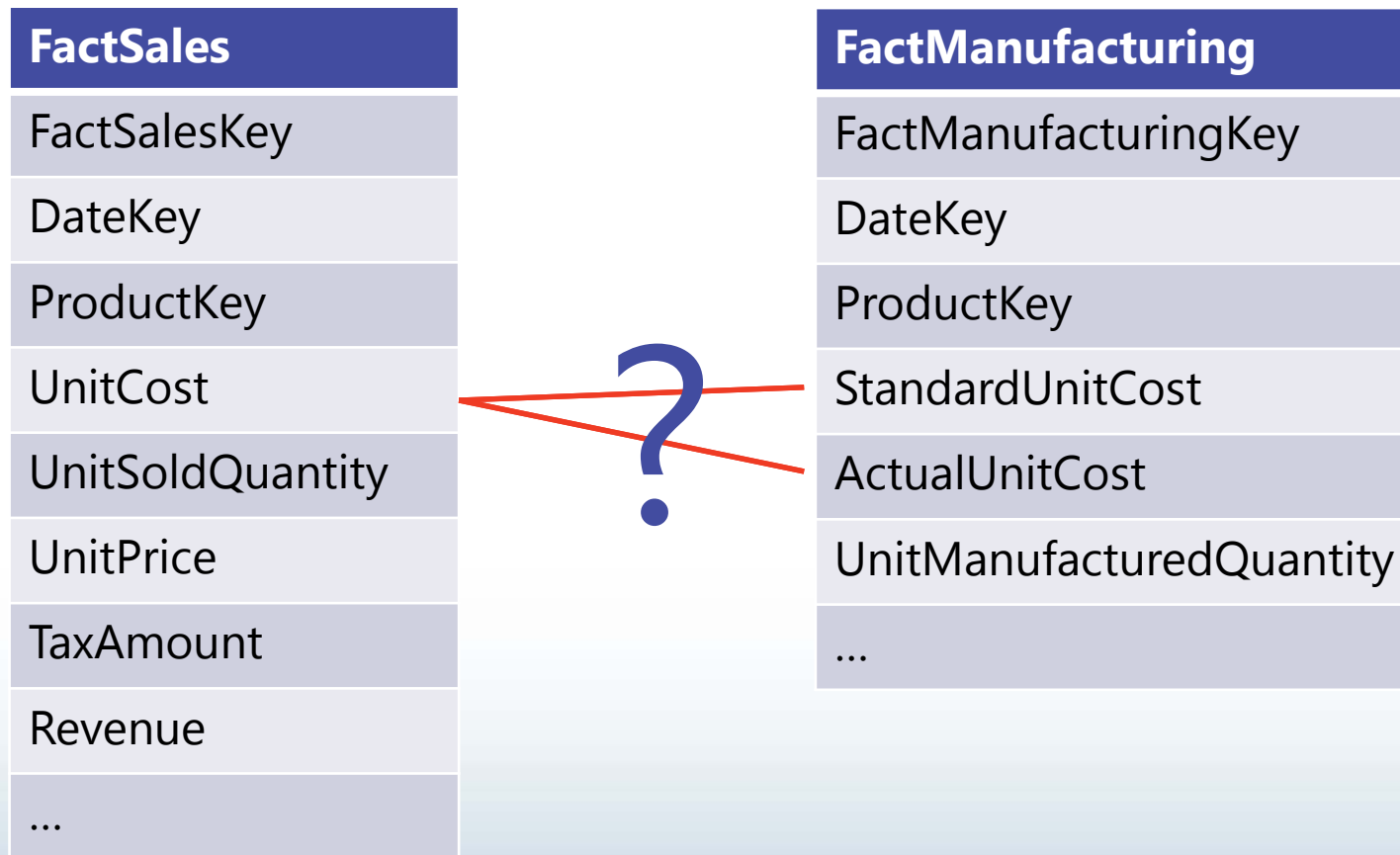
Conformed Measures



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Example #1 of Non-Conformed Measures



Example #1 of Conformed Measures

| FactSales | FactManufacturing |
|------------------|--------------------------|
| FactSalesKey | FactManufacturingKey |
| DateKey | DateKey |
| ProductKey | ProductKey |
| StandardUnitCost | StandardUnitCost |
| UnitSoldQuantity | ActualUnitCost |
| UnitPrice | UnitManufacturedQuantity |
| TaxAmount | ... |
| ... | |

Not just about naming conventions!



The Problem

Many Definitions, Business Rules &
Perspectives

What about Revenue?

| FactSales |
|------------------|
| FactSalesKey |
| DateKey |
| ProductKey |
| UnitCost |
| UnitSoldQuantity |
| UnitPrice |
| TaxAmount |
| Revenue |
| ... |

| FactSalesForecast |
|----------------------|
| FactSalesForecastKey |
| DateKey |
| ProductKey |
| Revenue |
| ... |



- Sales Revenue
- Total Revenue
- Revenue Before Costs
- Revenue After Costs
- Revenue Before Tax
- Revenue After Tax

Multiple Definitions of Revenue

Revenue/Sales/Profit:

- $\text{Quantity} * \text{UnitPrice}$
- $\text{Quantity} * (\text{UnitPrice} - \text{DiscountAmnt})$
- $\text{Quantity} * (\text{UnitPrice} - \text{StandardCost})$
- $\text{Quantity} * (\text{UnitPrice} - \text{ActualCost})$
- $\text{Quantity} * (\text{UnitPrice} - \text{AverageCost})$

- $\text{Quantity} * (\text{UnitPrice} - \text{TotalCost})$
- $\text{Quantity} * \text{UnitPrice} + \text{Quantity} * \text{UnitPrice} * \text{TaxRate}$
- $\text{Quantity} * \text{UnitPrice} + \text{Quantity} * \text{UnitPrice} * \text{TaxRate} + \text{ShippingAmnt}$

Multiple Rules

Revenue/Sales/Profit:

- Quantity*(

```
CASE WHEN ProductCostType = 'Average'  
      THEN AverageCost  
      ELSE ActualCost  
      END  
    )
```

Multiple Perspectives

- Revenue Before Taxes
- Revenue After Taxes
- Sales Revenue
- Tax Revenue
- Shipping Revenue
- Gross Revenue
- Operating Revenue
- Marginal Revenue
- Accrued Revenue
- Unearned Revenue
- Adjusted Revenue
- Net Revenue

BYOR:
Bring Your Own
Revenue

Source Query #1

```
SELECT customerid                as CustomerID,  
       productid                 as ProductID,  
       orderdate                 as OrderDate,  
       Sum(orderqty)             as OrderQty,  
       Sum(taxamt)               as TaxAmt,  
       Sum(orderqty*unitprice)   as Revenue,  
       Sum(standardcost*orderqty) as Cost  
FROM   SalesOrderDetail sod  
       INNER JOIN SalesOrderHeader soh  
             ON soh.salesorderid = sod.salesorderid  
       INNER JOIN Product p  
             ON sod.productid = p.productid  
GROUP BY soh.customerid,  
         sod.productid,  
         soh.orderdate
```

Source Query #2

```
SELECT customerid                as CustomerID,  
       productid                 as ProductID,  
       orderdate                 as OrderDate,  
       Sum(orderqty)             as OrderQty,  
       Sum(taxamnt)              as TaxAmt,  
       Sum(orderqty*(unitprice+taxamnt)) as Revenue,  
       Sum(actualcost*orderqty)   as Cost  
  
FROM   SalesOrderDetail sod  
       INNER JOIN SalesOrderHeader soh  
             ON soh.salesorderid = sod.salesorderid  
       INNER JOIN Product p  
             ON sod.productid = p.productid  
  
GROUP BY soh.customerid,  
         sod.productid,  
         soh.orderdate
```

How can we eliminate these issues?

Conformed Dimensions

+

Conformed Measures

=

Conformed Stored Procedures

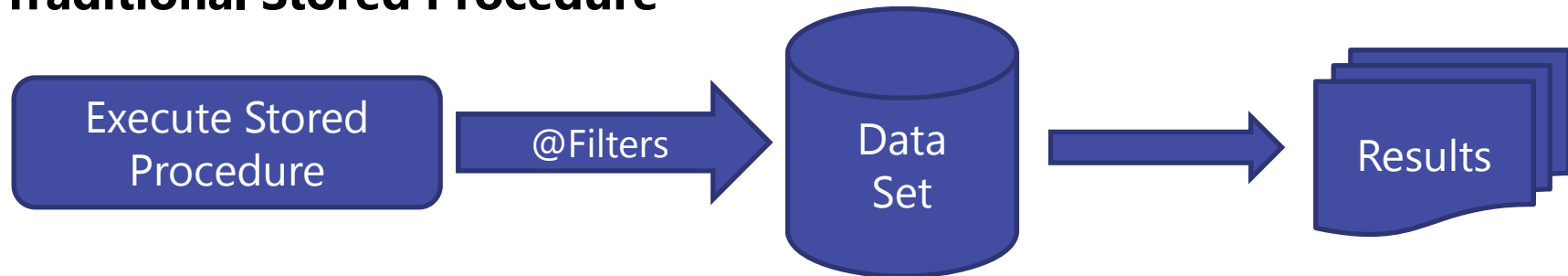
Conformed Stored Procedures

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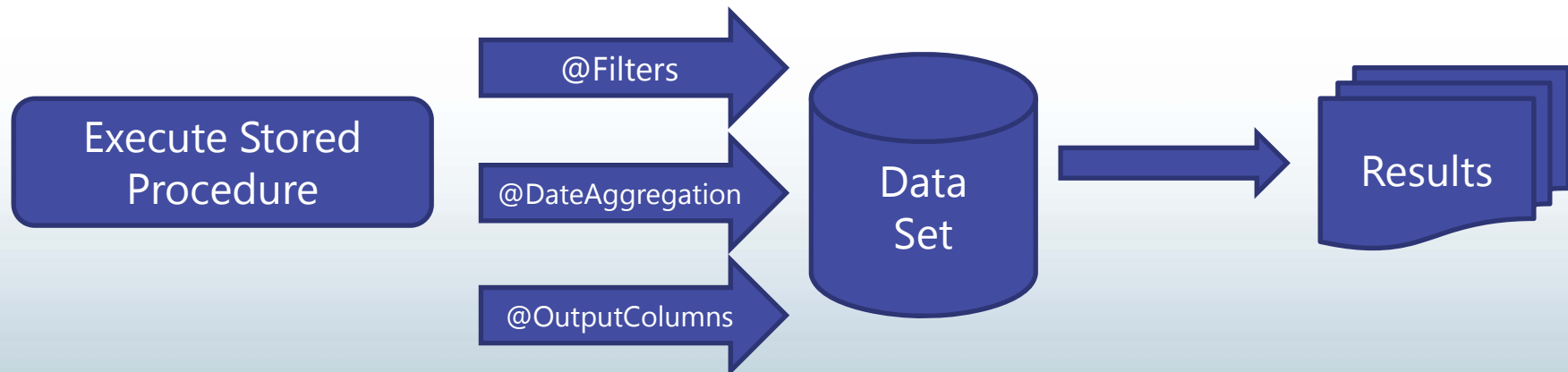


Conformed Stored Procedure

Traditional Stored Procedure



Conformed Stored Procedure



Conformed Stored Procedure: Example

```
EXECUTE [dbo].[uspGetRevenueandCost]  
@Param1 = Value  
@Param2 = Value  
...  
@Col_Column1 = True  
@Col_Column1 = True  
@Col_Column2 = False  
...
```



| FactSales |
|-----------|
| |
| |
| |

```
EXECUTE [dbo].[uspGetRevenueandCost]  
@Param1 = Value  
@Param2 = Value  
...  
@Col_Column1 = False  
@Col_Column1 = True  
@Col_Column2 = True  
...
```



| FactSalesForecast |
|-------------------|
| |
| |
| |

Conformed Stored Procedures

Three types of Parameters:

1. Data set filters
 - Where clause
2. Date Aggregation Type
 - Day, Week, Month, Quarter, Year, YTD, MTD, AllTime, etc.
3. Dimensionality & Measures (Output Columns)
 - Bit flags
 - Group by columns
 - Output columns

Conformed Stored Procedures

1) Parameters: Data Set Filters

```
EXECUTE @RC = [dbo].[uspGetRevenueandCost]
    @FromDate      = '1/1/2008'
    ,@ToDate       = '6/30/2008'
    ,@CalendarType = 'Fiscal'
```

....

Conformed Stored Procedures

2) Parameters: Date Aggregation Type

```
EXECUTE @RC = [dbo].[uspGetRevenueandCost]  
...  
    ,@DateAggregation = 'Month'
```

Conformed Stored Procedures

3) Parameters: Dimensionality & Measures (Output Columns)

```
EXECUTE [dbo].[uspGetRevenueandCost]
```

```
...
```

```
,@col_CustomerID           = 0  
,@col_ProductID           = 0  
,@col_SalesPersonID       = 0  
,@col_SalesUnitQuantity   = 0  
,@col_SalesTaxAmount       = 0  
,@col_SalesRevenue_BeforeTax = 0  
,@col_SalesRevenue_AfterTax = 0  
,@col_StandardCost        = 1  
,@col_NetRevenue_StdCost   = 1
```

Conformed Stored Procedures

```
EXECUTE [dbo].[uspGetRevenueandCost]
  @FromDate           = '1/1/2008'
  ,@ToDate            = '6/30/2008'
  ,@CalendarType      = 'Fiscal'
  ,@DateAggregation   = 'Month'
  ,@col_CustomerID    = 0
  ,@col_ProductID     = 0
  ,@col_SalesPersonID = 0
  ,@col_SalesUnitQuantity = 0
  ,@col_SalesTaxAmount = 0
  ,@col_SalesRevenue_BeforeTax = 0
  ,@col_SalesRevenue_AfterTax = 0
  ,@col_StandardCost  = 1
  ,@col_NetRevenue_StdCost = 1
```

Filters

Date Aggregation

Output Columns

Conformed Stored Procedures: Example #1

```
EXECUTE [dbo].[uspGetRevenueandCost]
  @FromDate           = '1/1/2008'
  ,@ToDate            = '6/30/2008'
  ,@CalendarType      = 'Fiscal'
  ,@DateAggregation  = 'Month'
  ,@col_CustomerID    = 0
  ,@col_ProductID     = 0
  ,@col_SalesPersonID = 0
  ,@col_SalesUnitQuantity = 0
  ,@col_SalesTaxAmount = 0
  ,@col_SalesRevenue_BeforeTax = 0
  ,@col_SalesRevenue_AfterTax = 0
  ,@col_StandardCost  = 1
  ,@col_NetRevenue_StdCost = 1
```

6 months

Fiscal Calendar

By Month

Two measures

Example #1 Result

| | SalesOrderMonth | StandardCost | NetRevenue_StdCost |
|---|-----------------|--------------|--------------------|
| 1 | 200801 | 2448777.6453 | 562072.9832 |
| 2 | 200802 | 3550743.5079 | 619782.3202 |
| 3 | 200803 | 3601439.8156 | 622430.0961 |
| 4 | 200804 | 3152330.4689 | 675636.9495 |
| 5 | 200805 | 4440219.2205 | 767933.3863 |
| 6 | 200806 | 4573366.3372 | 804413.0454 |

Conformed Stored Procedures: Example #2

- Columns to be returned (bit flags)

```
EXECUTE [dbo].[uspGetRevenueCost]
```

```
@FromDate = '1/1/2008'
```

```
,@ToDate = '1/10/2008'
```

```
,@CalendarType = Calendar'
```

```
,@DateAggregation = 'Day'
```

```
,@col_CustomerID = 0
```

```
,@col_ProductID = 0
```

```
,@col_SalesPersonID = 0
```

```
,@col_SalesUnitQuantity = 1
```

```
,@col_SalesTaxAmount = 1
```

```
,@col_SalesRevenue_BeforeTax = 1
```

```
,@col_SalesRevenue_AfterTax = 1
```

```
,@col_StandardCost = 0
```

```
,@col_NetRevenue_StdCost = 0
```

10 days

Calendar
Year

By Day

4 measures

Example #2 Result

| | SalesOrderDate | SalesUnitQuantity | SalesTaxAmountRevenue | SalesRevenue_BeforeTax | SalesRevenue_AfterTax |
|----|-------------------------|-------------------|-----------------------|------------------------|-----------------------|
| 1 | 2008-01-01 00:00:00.000 | 4741 | 118674.271 | 1696999.8785 | 1815674.1495 |
| 2 | 2008-01-02 00:00:00.000 | 138 | 2943.045 | 42043.50 | 44986.545 |
| 3 | 2008-01-03 00:00:00.000 | 142 | 3256.3356 | 46519.08 | 49775.4156 |
| 4 | 2008-01-04 00:00:00.000 | 140 | 2784.1611 | 39773.73 | 42557.8911 |
| 5 | 2008-01-05 00:00:00.000 | 152 | 2710.9159 | 38727.37 | 41438.2859 |
| 6 | 2008-01-06 00:00:00.000 | 151 | 2489.1727 | 35559.61 | 38048.7827 |
| 7 | 2008-01-07 00:00:00.000 | 158 | 3724.4851 | 53206.93 | 56931.4151 |
| 8 | 2008-01-08 00:00:00.000 | 176 | 3482.0527 | 49743.61 | 53225.6627 |
| 9 | 2008-01-09 00:00:00.000 | 122 | 2474.0765 | 35343.95 | 37818.0265 |
| 10 | 2008-01-10 00:00:00.000 | 192 | 3389.7038 | 48424.34 | 51814.0438 |

Conformed Stored Procedures: Example #3

```
EXECUTE [dbo].[uspGetRevenueCost]
```

```
  @FromDate = '1/1/2000'
```

11 years

```
,@ToDate = '12/31/2011'
```

```
,@CalendarType = 'Calendar'
```

Calendar Year

```
,@Month = NULL
```

```
,@Year = NULL
```

By Year

```
,@DateAggregation = 'Year'
```

```
,@col_CustomerID = 1
```

By Customer

```
,@col_ProductID = 0
```

```
,@col_SalesPersonID = 0
```

```
,@col_SalesUnitQuantity = 0
```

```
,@col_SalesTaxAmount = 0
```

```
,@col_SalesRevenue_BeforeTax = 1
```

1 measure

```
,@col_SalesRevenue_AfterTax = 0
```

```
,@col_StandardCost = 0
```

```
,@col_NetRevenue_StdCost = 0
```

Example #3 Result

| | SalesOrderYear | CustomerID | SalesRevenue_BeforeTax |
|------|----------------|------------|------------------------|
| 4... | 2006 | 30111 | 128926.0103 |
| 4... | 2006 | 30112 | 180574.254 |
| 4... | 2006 | 30113 | 75122.5976 |
| 4... | 2006 | 30114 | 2626.8599 |
| 4... | 2006 | 30115 | 3307.6587 |
| 4... | 2006 | 30117 | 297275.2626 |
| 4... | 2006 | 30118 | 70807.8489 |
| 4... | 2007 | 11000 | 4849.00 |
| 4... | 2007 | 11001 | 2419.93 |
| 4... | 2007 | 11002 | 4714.05 |
| 4... | 2007 | 11003 | 4739.30 |

Conformed Stored Procedure

```
CREATE PROCEDURE usp_GetRevenueandCost
(-- Filter Parameters
@FromDate          date,
@ToDate            date,
@CalendarType      varchar(25),
-- Date Aggregation
@DateAggregation   varchar(25),
-- Dimensionality & Measures to be returned
@col_CustomerID    bit,
@col_ProductID     bit,
@col_SalesPersonID bit,
@col_SalesUnitQuantity bit,
@col_SalesTaxAmount bit,
@col_SalesRevenue_BeforeTax bit,
@col_SalesRevenue_AfterTax bit,
@col_StandardCost bit,
@col_NetRevenue_StdCost bit
)
```

Conformed Stored Procedure

usp_GetRevenueandCost - Input Parameters Description

@FromDate & @ToDate:

Any valid date Example '1/1/2012' or '2012-01-01'

@CalendarType:

Calendar name

Example 'Calendar','Fiscal','Manufacturing'

@DateAggregation:

Aggregation level to be returned

Example 'Day','Month','Year'

Summary

Summary

Conformed Stored Procedures benefits

- Integration
 - Drill-across fact tables
- Consistency
 - Single-version
 - Same business rules
- Maintainability
 - Single object to maintain
- Reusability
 - Same object to call with different parameters
- Extensibility
 - Same core added functionality

Contact Info

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<http://amazon.com/author/josechinchilla>

Downloads

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Downloads

Slides, Demos & Scripts:

<http://bit.ly/18ckkiD>



usp_GetRevenuea
ndCost.sql

Q&A

Thank you

for attending this session and the
2013 PASS Summit in Charlotte, NC

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