



# Procurement and Spend Dimension and Fact Job Aid

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# Procurement and Spend Dimension and Fact Job Aid

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## Introduction

The purpose of this job aid is to provide an explanation of dimensional data modeling and of using dimensions and facts to build analyses within the Procurement and Spend Subject Areas.

## Dimensional Data Model

The dimensional model is comprised of a fact table and many dimensional tables and used for calculating summarized data. Since Business Intelligence reports used in measuring the facts (aggregates) across various dimensions, dimensional data modeling is the preferred modeling technique in a BI environment.

**STARS - OBI** data model based on Dimensional Modeling. The underlying database tables separated as Fact Tables and Dimension Tables. The dimension tables joined to fact tables with specific keys. This data model usually called Star Schema.

The star schema separates business process data into facts, which hold the measurable, quantitative data about the business, and dimensions which are descriptive attributes related to fact data.

Examples of fact data include PO Amount, REQ Amount, and PO Quantity, etc.

Related dimension attribute examples include Purchase Details, Vendor Details, department, fund, SID, time etc.

### **Fact Tables:**

Fact tables record measurements or metrics for a specific event. Fact tables consist of numeric values and foreign keys to dimensional data where descriptive information is kept. Fact tables are designed to a low level of uniform detail (referred to as "granularity" or "grain"), meaning facts can record events at a very atomic level. This can result in the accumulation of a large number of records in a fact table over time. Fact tables are assigned a surrogate key in ensuring each row uniquely identified.

### **Dimension Tables:**

Dimension tables have a relatively small number of records compared to fact tables, but each record may have a very large number of attributes to describe the fact data. Dimensions can define a wide variety of characteristics, but some of the most common attributes defined by dimension tables include

- Time
- Department

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- Business Unit

Dimension tables are assigned a surrogate primary key, usually a single-column integer data type, mapped to the combination of dimension attributes that form the natural key.

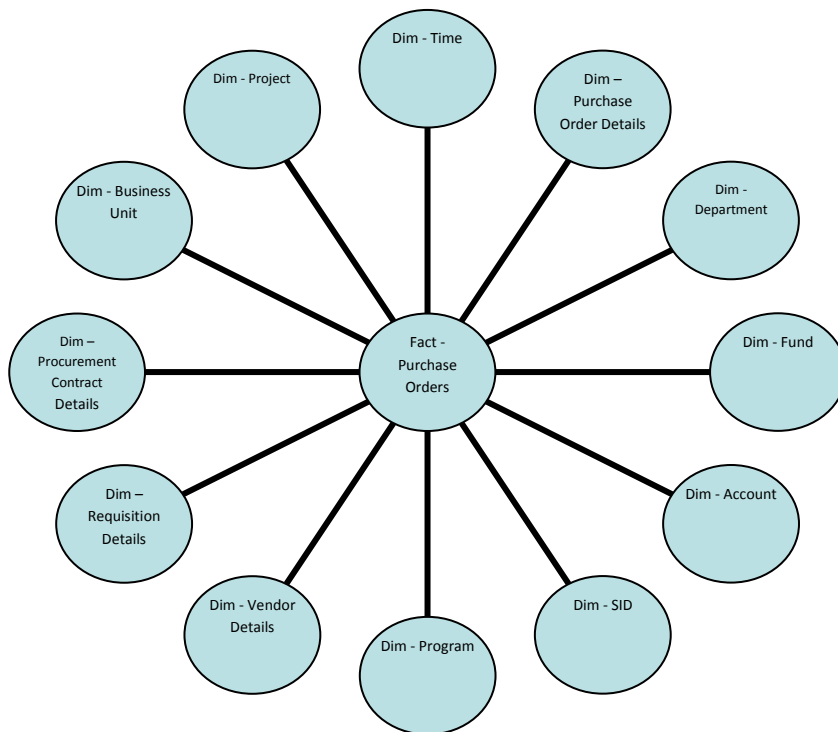
## Star Schema:

Star schemas are optimized for querying large data sets and are used in data warehouses and data marts to support OLAP cubes, business intelligence analytic applications, and ad hoc queries.

Within the data warehouse or data mart, a dimension table is associated with a fact table by using a foreign key relationship. The dimension table has a single primary key that uniquely identifies each member record (row). The fact table contains the primary key of each associated dimension table as a foreign key. Combined, these foreign keys form a multi-part composite primary key that uniquely identifies each member record in the fact table.

The Fact Table name in **STARS - OBI** Subject Areas is usually preceded with the name **FACT**. This is done to distinguish the Fact tables from the Dimension Tables.

In the example provided below, the underlying Dimension Tables in this Subject Area are joined to the Fact table to form the star schema.

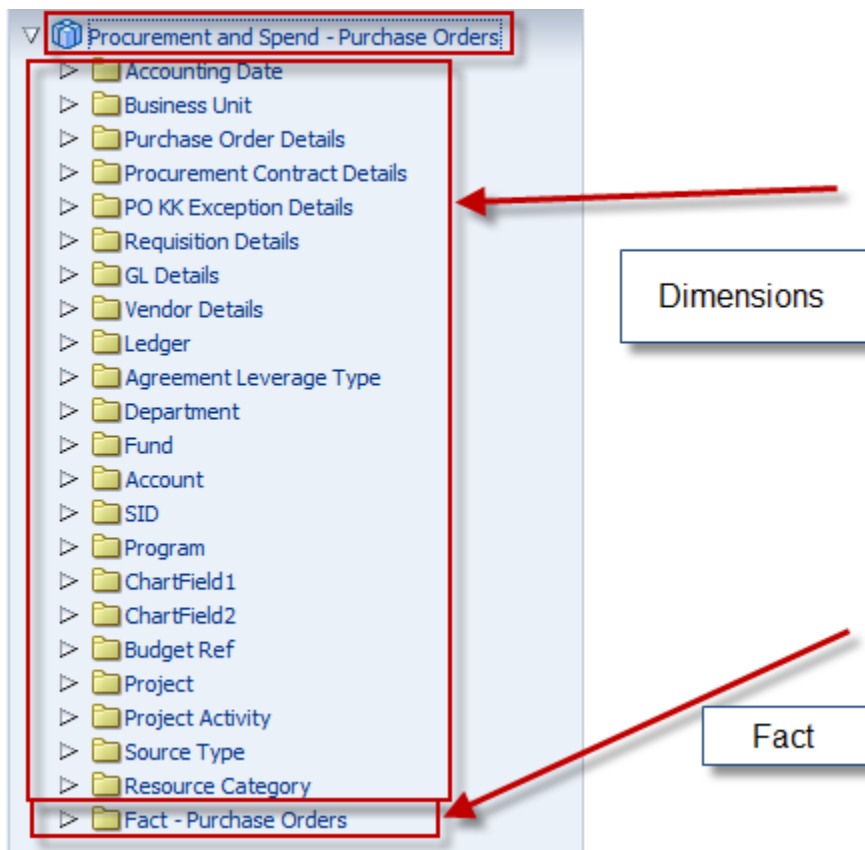


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## Subject Area:

A subject area contains folders; attribute columns (Dimensions) and measure columns (Facts) that represent information about the areas of an organization's business or about groups of users within an organization. Subject areas usually have names that correspond to the types of information that they contain, such as Procurement and Spend – Purchase Orders, Procurement and Spend – Purchase Requisitions, Procurement, and Spend – Purchase Receipts.

There are common **Dimensions Tables** across Financial Subject Areas such as Time, Ledger and Chartfields. These common Dimensions are followed by Subject Area Specific Dimensions such as Purchase Order Details, Requisition Details, Procurement Contract Details and GL Details. There are **FACT Tables** across specific Subject Areas.





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## Procurement Subject Areas

### Procurement and Spend Subject Areas

The Procurement and Spend is the area where we keep track of organizational Purchase Order Details, Purchase Receipts that happen in a life of Procurement Cycle. It is used to create PO's by Business Unit, Vendor and Status reports. The Procurement and Spend Subject Areas are the master subject areas that have the information posted to them from different sources like Requisitions, Purchase Orders, and Receipts, etc.

There are three subject Areas in STARS that represent the Procurement and Spend module in CORE-CT.

- [Procurement and Spend – Purchase Orders](#) Subject Area
- [Procurement and Spend – Purchase Requisitions](#) Subject Area
- [Procurement and Spend – Purchase Receipts](#) Subject Area

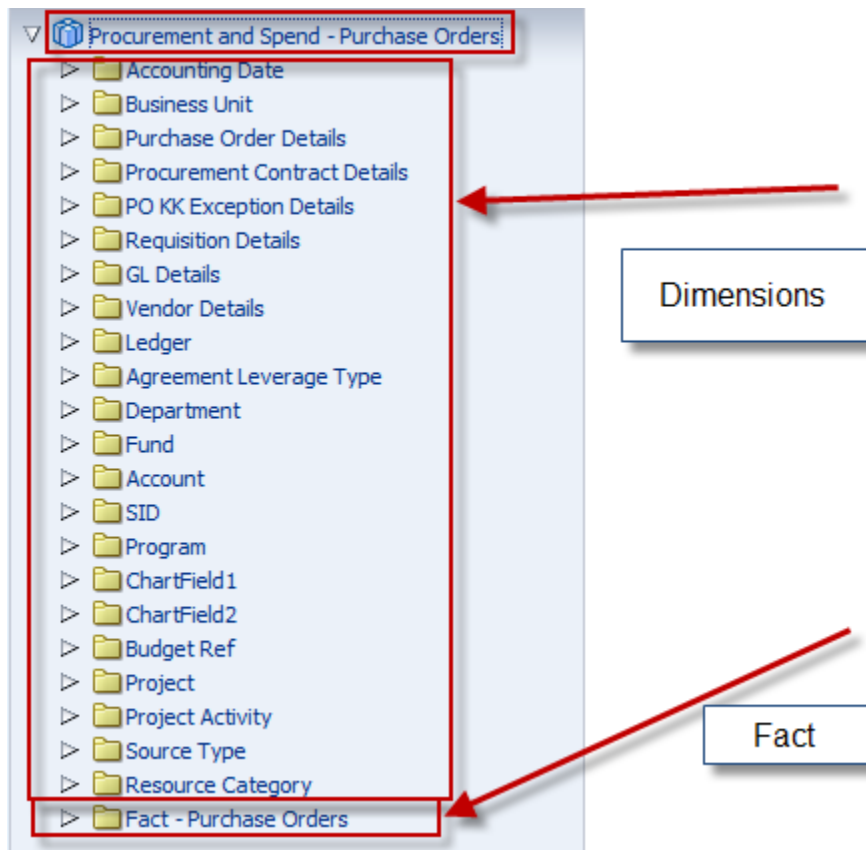
**Procurement and Spend – Purchase Orders:** This is a detailed subject area that combines the information from Purchase Orders, Purchase Order Costs, and Purchase Schedules. You have the ability to report on expenditures by PO, Contract Details, and Purchase orders by Vendors, Vendor Details, Business Unit, Item, item categories and associated hierarchies at the purchase order line level.

**Procurement and Spend – Purchase Requisitions:** This is a detailed subject area that includes all requisition metrics. You have the ability to report on expenditures by Requisition, Contract Details, Vendors, Vendor Details, Business Unit, Item, item categories and associated hierarchies at purchase requisition line level.

**Procurement and Spend – Purchase Receipts:** This is a detailed subject area that includes all receipt detail metrics. You have the ability to report on expenditures, purchase receipts by Vendors, location, products, and item categories and associated hierarchies at purchase receipt line level. You can also report Receipt to PO metrics to determine receipt quantity, receipt amount by early receipts, on-time receipts, and late receipts based on receipt due date.

## Procurement and Spend Dimension and Fact Job Aid

Using Dimensions and Facts to create an analysis:



These objects in the left pane are based on database tables in the backend, and the data model behind these subject area tables is dimensional modeling.

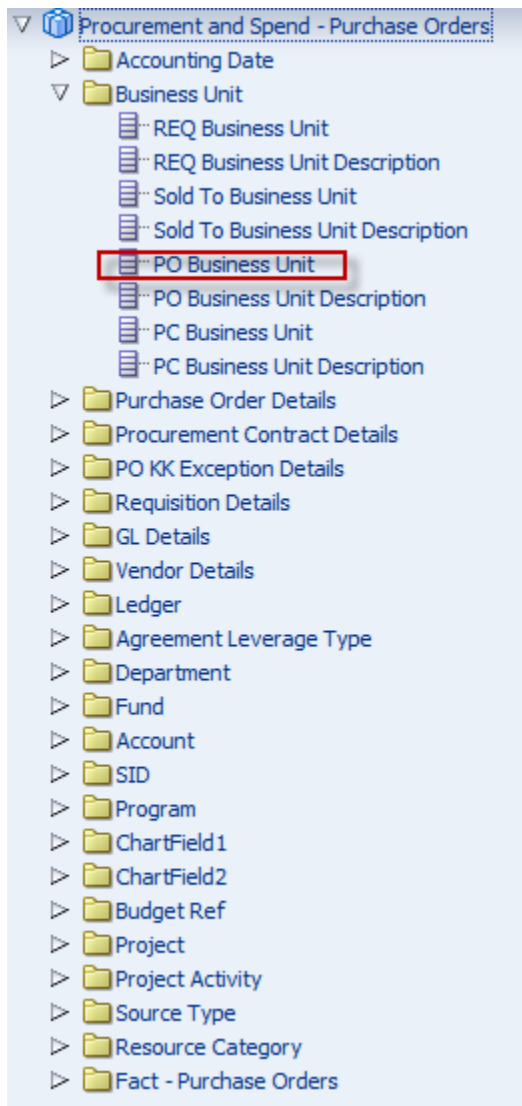
The tables listed from Time, Purchase Details and Business Unit are a few of the **Dimension Tables** in this subject area.

There is one Fact table for this Subject Area, and it is called **Facts – Purchase Orders**. The Fact Table name in STARS subject areas is usually preceded with the name **FACT**. This is done to distinguish the Fact tables from the Dimension Tables.



# Procurement and Spend Dimension and Fact Job Aid

Here is an example of a **Financials – Purchase Orders** Subject Area analysis:

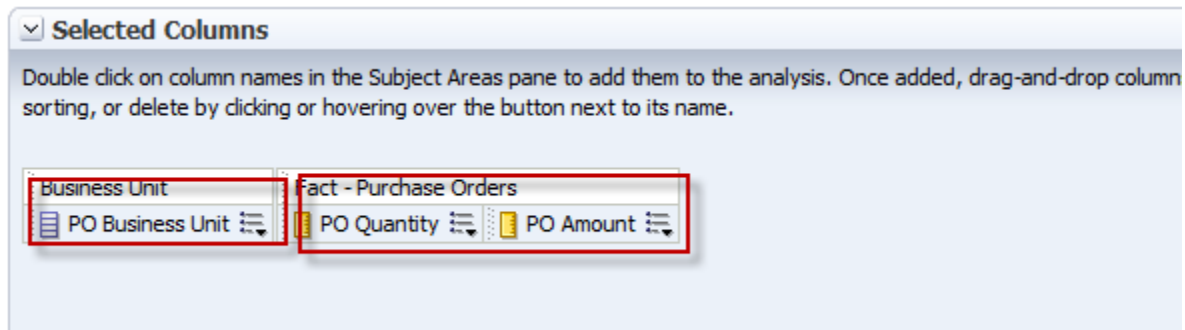


# Procurement and Spend Dimension and Fact Job Aid

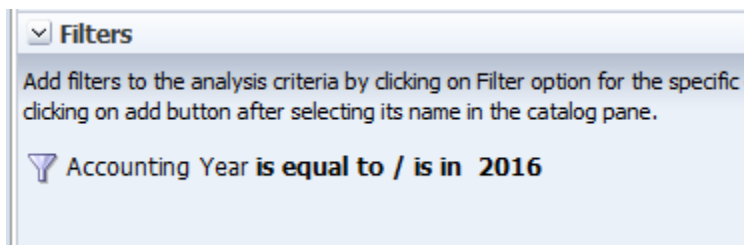


## Criteria Tab

### Selected Columns



### Selected Filters







## Procurement and Spend Dimension and Fact Job Aid

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### Results Tab

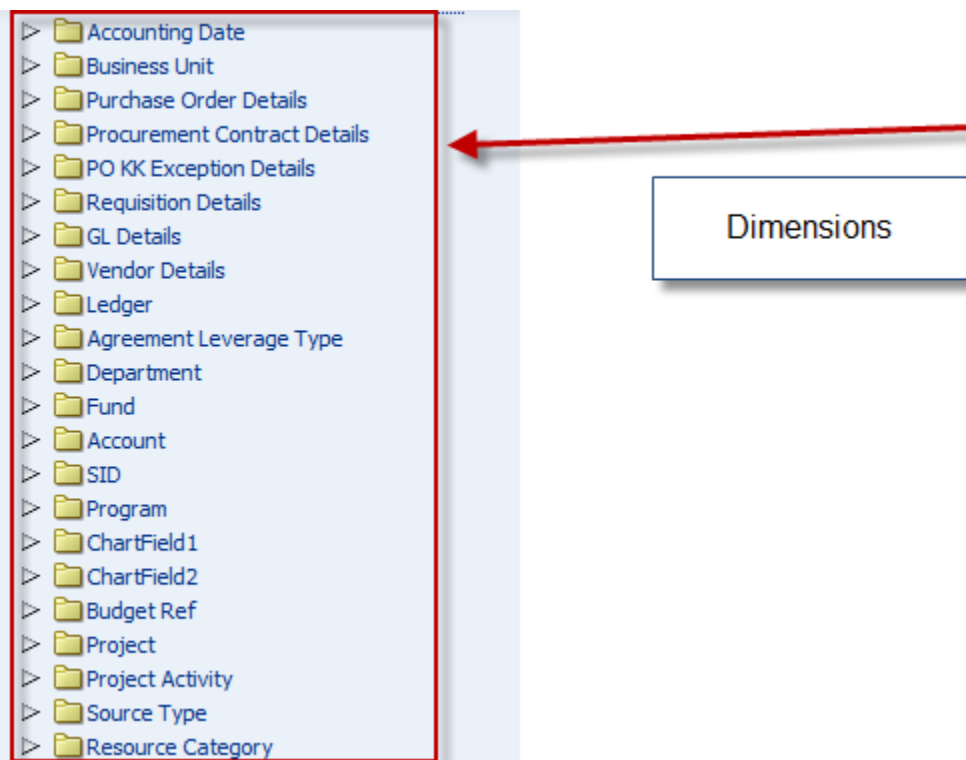
PO Business Unit	PO Quantity	PO Amount
AESM1	404.05	2,656,374.06
APAM1	2,147.00	221,137.54
APTM1	338,589.50	8,439,586.94
BORAA	22,063.24	4,976,711.84
BORM1	8.00	5,606,384.54
CMEM1	158,143.10	695,401.64
CSLM1	2,252.94	7,489,421.94
DAGM1	90,188.65	2,185,517.24
DASIT	413.96	2,866,715.54
DASM1	472,278.30	304,210,138.24
DASS1	3,134.30	20,111,087.64
DCFM1	37,995.92	58,205,436.54
DCFR0	2,193.04	1,359,117.14
DCFR2	14,530.28	2,913,707.04
DCFR6	10,631.85	1,341,209.14
DCJM1	127,292.08	2,525,839.24
DCPM1	5,171.69	958,141.54
DDSM1	537,642.38	194,737,384.84
DEPM1	353,890.33	192,691,324.14
DHEM1	712.76	4,439,800.94

# Procurement and Spend Dimension and Fact Job Aid

## Procurement and Spend – Purchase Orders Subject Area:

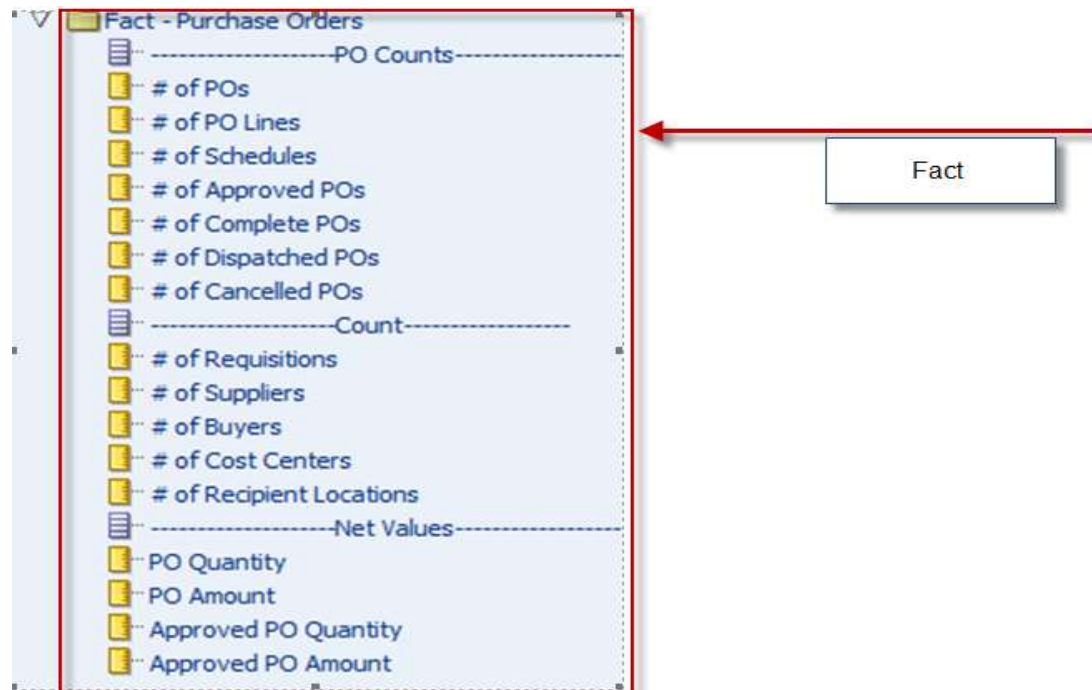
The Procurement and Spend – Purchase Orders is a detailed subject area that combines the information from Purchase Orders, Purchase Order Costs, and Purchase Schedules. You have the ability to report on expenditures by PO, Contract Details, and Purchase orders by Vendors, Vendor Details, Business Unit, Item, item categories and associated hierarchies at the purchase order line level.

### Purchase Orders Subject Area Dimensions



## Procurement and Spend Dimension and Fact Job Aid

### Purchase Orders Subject Area Fact



#### Fact - Measure Definitions:

**PO Amount** :: Merchandise Amount from PS\_PO\_Line\_distrib table, Depending on the dimension user selects, the amount varies as PO Amount, PO Line Amount and PO Distribution Amount.

**PO Quantity**: QTY\_PO (PO Quantity) from PS\_PO\_Line\_distrib table, Depending on the dimension user selects, the amount varies as PO Quantity, PO Line Quantity and PO Distribution Quantity.

**Approved PO Amount**: Its Merchandise Amount from PS\_PO\_Line\_distrib with PO\_STATUS = 'A'.

**Approved PO Quantity**: Its QTY\_PO from PS\_PO\_Line\_distrib with PO\_STATUS = 'A'.

**# of PO's** : Count of distinct PO ID

**# of PO Lines**: Count of distinct PO Lines

**# of Schedules**: Count of distinct PO Schedule Numbers

**# of Approved PO's**: Count of distinct PO ID with PO\_STATUS = 'A'

**# of Complete PO's**: Count of distinct PO ID with PO\_STATUS = 'C'

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**# of Dispatched PO's:** Count of distinct PO ID with PO\_STATUS = 'D'

**# of Cancelled PO's:** Count of distinct PO ID with PO\_STATUS = 'X'

**# of Requisitions:** Count of distinct Requisitions

**# of Suppliers:** Count of distinct Supplier ID.

**# of Buyers:** Count of Distinct Buyer ID.

**# of Cost Center:** Count of Distinct Cost Centers

**# of Recipient Locations:** Count of Distinct Recipient Locations.

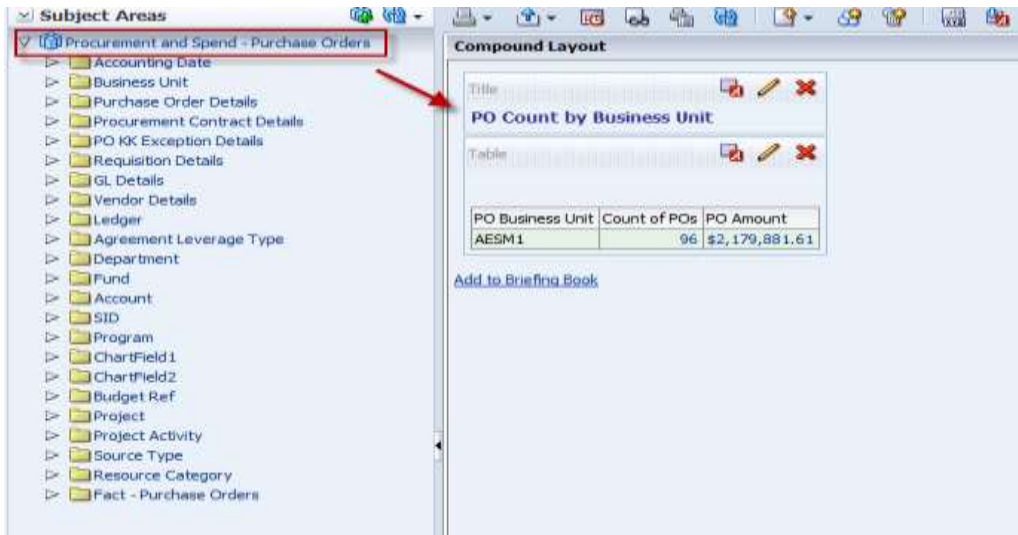
When building reports based on Purchase Detail metrics Unit such as; PO Amount, and PO Quantity by PO Business Unit, use the Procurement and Spend – Purchase Orders Subject area.

**Example:**

### Compound Layout View:

Compound Layout view allows us to assemble different views for display on a dashboard.

In this example, we combined Title and Table view.



The screenshot shows a software interface with a 'Subject Areas' tree on the left and a 'Compound Layout' view on the right. The 'Subject Areas' tree includes 'Procurement and Spend - Purchase Orders' (highlighted with a red box and a red arrow), 'Accounting Date', 'Business Unit', 'Purchase Order Details', 'Procurement Contract Details', 'PO KK Exception Details', 'Requisition Details', 'GL Details', 'Vendor Details', 'Ledger', 'Agreement Leverage Type', 'Department', 'Fund', 'Account', 'SID', 'Program', 'ChartField1', 'ChartField2', 'Budget Ref', 'Project', 'Project Activity', 'Source Type', 'Resource Category', and 'Fact - Purchase Orders'. The 'Compound Layout' view shows a 'Title' view and a 'Table' view. The table view displays the following data:

PO Business Unit	Count of POs	PO Amount
AESM1	96	\$2,179,881.61

Below the table, there is a link that says 'Add to Briefing Book'.



# Procurement and Spend Dimension and Fact Job Aid

## Dashboard View:

**Purchasing**

**Purchasing Overview** | Purchase Orders | PO Distribution | Funds Available | Spending

**Business Unit:** AESM1 | **Accounting Year:** 2017 | **Accounting Quarter:** (All Column Values) | **Accounting Date:** Between

**Fund:** --Select Value-- | **SID:** (All Column Values) | **Dept ID:** (All Column Values) | **Account:** (All Column Values)

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**PO Count by Business Unit**

PO Business Unit	Count of POs	PO Amount
AESM1	24	\$973,245.75

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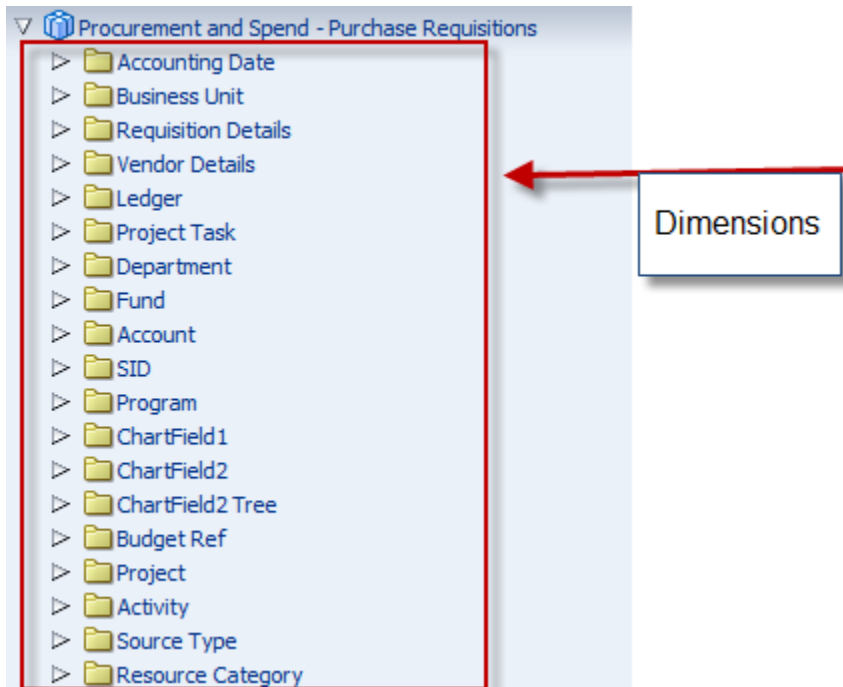
# Procurement and Spend Dimension and Fact Job Aid

## Procurement and Spend – Purchase Requisitions Subject Area:

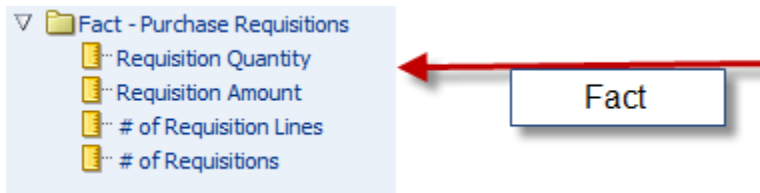
This is a detailed subject area that includes all requisition metrics. You have the ability to report on expenditures by Requisition, Contract Details, Vendors, Vendor Details, Business Unit, Item, item categories and associated hierarchies at purchase requisition line level.

When developing reports based on Requisition metrics by REQ Business Unit based reports, use **Procurement and Spend – Purchase Requisitions** Subject Area.

Purchase Requisitions Dimensions:



Purchase Requisitions Fact:



# Procurement and Spend Dimension and Fact Job Aid

## Fact – Measure Definitions:

**Requisition Amount:** Merchandise Amount from PS\_REQ\_Line\_ship table, Depending on the dimension user selects, the amount varies as Req Amount, Req Line Amount and Req Line Ship Amount. if no dimension selected, it gives the Req line Ship Amount.

**Requisition Quantity:** QTY\_REQ from PS\_REQ\_Line\_ship table, Depending on the dimension user selects, the amount varies as Req Quantity, Req Line Quantity and Req Line Ship Quantity. if no dimension selected, it gives the Req line Ship Quantity.

**# of Requisitions:** Count of distinct Requisitions.

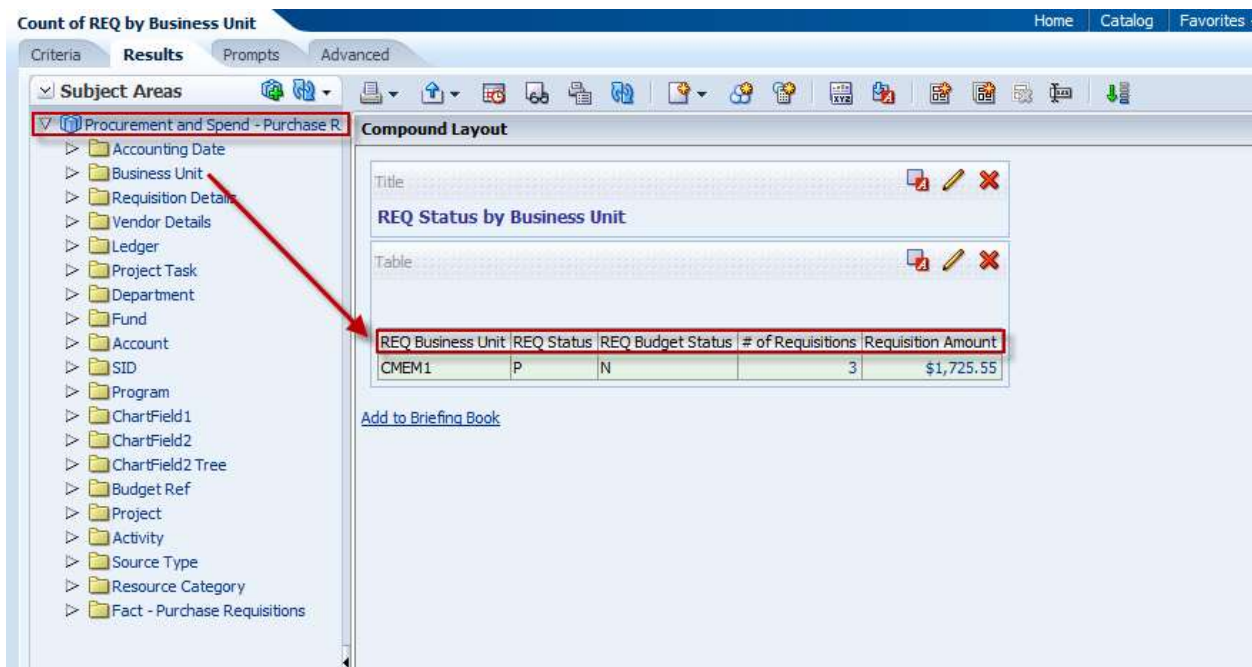
**# of Requisition Lines:** Count of distinct requisition lines.

Example:

## Compound Layout View:

Compound Layout view allows us to assemble different views for display on a dashboard.

In this example, we combined Title and Table view.



The screenshot displays a software interface for a dashboard. On the left, a tree view under 'Subject Areas' shows 'Procurement and Spend - Purchase R' selected. A red arrow points from this selection to a table in the 'Compound Layout' view on the right. The table has the following data:

REQ Business Unit	REQ Status	REQ Budget Status	# of Requisitions	Requisition Amount
CMEM1	P	N	3	\$1,725.55



# Procurement and Spend Dimension and Fact Job Aid

## Dashboard View:

**Requisitions**

**Requisition Overview** | ePro Requisitions | ePro Requisitions Distribution | Core-10 Type

**Business Unit**: CMEM1  
**Accounting Year**: 2017  
**Accounting Quarter**: (All Column Values)  
**Accounting Date**: Between [ ] - [ ]

**Fund**: (All Column Values)  
**SID**: (All Column Values)  
**Dept ID**: (All Column Values)  
**Account**: (All Column Values)

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**REQ Status by Business Unit**

REQ Business Unit	REQ Status	REQ Budget Status	# of Requisitions	Requisition Amount
CMEM1	P	N	3	\$1,725.55

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## Procurement and Spend Dimension and Fact Job Aid

### Procurement and Spend – Purchase Receipts Subject Area:

This is a detailed subject area that includes all receipt detail metrics. You have the ability to report on expenditures, purchase receipts by Vendors, location, products, and item categories and associated hierarchies at purchase receipt line level. You can also report Receipt to PO metrics to determine receipt quantity, receipt amount by early receipts, on-time receipts, and late receipts based on receipt due to date.

When developing reports based on Receipt related metrics, use Purchase Receipts Subject Area.

#### Purchase Receipts - Dimensions



#### Purchase Receipts – Facts:



**Receipt Amount:** Merchandise Amount from PS\_Recv\_Ln\_ship table, Depending on the dimension user selects, the amount varies as Receipt Amount, Receipt Line Amount and Receipt Line Ship Amount. if no dimension selected, it gives the Receipt line Ship Amount.

**Receipt Quantity:** QTY\_SH\_RECV from PS\_Recv\_Ln\_ship table, Depending on the dimension user selects, the amount varies as Receipt Quantity, Receipt Line Quantity and Receipt Line Ship Quantity. if no dimension selected, it gives the Receipt line Ship Quantity.

**PO Received Price:** MERCH\_AMT\_PO\_BSE from PS\_Recv\_Ln\_ship table. It gives the user PO Amount for that receipt.

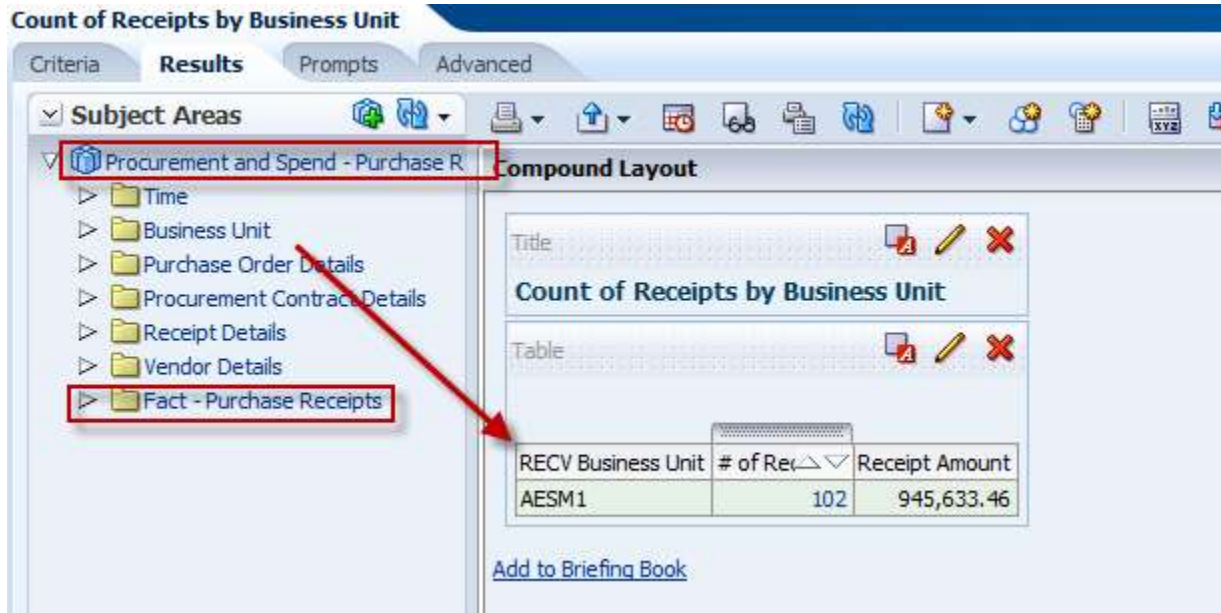
# Procurement and Spend Dimension and Fact Job Aid

Example:

## Compound Layout:

Compound Layout view allows us to assemble different views for display on a dashboard.

In this example, we combined Title and Table view.



**Count of Receipts by Business Unit**

Criteria Results Prompts Advanced

Subject Areas

- Procurement and Spend - Purchase R
  - Time
  - Business Unit
  - Purchase Order Details
  - Procurement Contract Details
  - Receipt Details
  - Vendor Details
  - Fact - Purchase Receipts

Compound Layout

Title


**Count of Receipts by Business Unit**

Table

RECV Business Unit	# of Receipts	Receipt Amount
AESM1	102	945,633.46

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## Dashboard View:



**Purchase Receipts**

Overview Receipt Details

RECV Business Unit: STATE/AESM1

Fiscal Year: 2016

**Count of Receipts by Business Unit**

RECV Business Unit	# of Receipts	Receipt Amount
AESM1	102	945,633.46

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