**B3 Program Data Re-Profiling Report: Purchase Orders**

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# Introduction

The purpose of this document is to report the findings of the data profiling activity performed on Purchase Orders data. This document provides detailed information along with statistics at the table level and column level thus helping us establish the SAP compatibility of Purchase Orders data.

This document is intended to project the data anomalies and issues that need to be addressed in order for clean and usable data to be pushed to SAP ECC.

# Executive Summary

## 3.1 Data Profiling Scope

Purchase Orders data mainly resides in PeopleSoft as of today and thus considered as the system of truth purchase orders Conversion. The following table lists the different data categories, the respective sources and scope of profiling

|  |  |  |  |
| --- | --- | --- | --- |
| **Data Category** | **Source System** | **Volume** | **Included in Profiling Scope** |
| Direct Purchase Orders | PeopleSoft | 17594 |  |
| Indirect Purchase Orders | PeopleSoft | 8458 |  |
| Others | Peoplesoft | 774 |  |

## Summary of findings

The activity of data profiling included the following steps in chronological order:

1. Identify the core set of legacy tables based on knowledge of legacy SME and IT contacts listed by Business Analysts
2. Mapping of the critical SAP columns to legacy columns, and vice versa with the help of functional team and business analysts
3. Conduct [*Data Insight Analysis*](#_Data_insight) based on legacy info., [*Entity Relationship Analysis*](#_Entity_Relationship_Analysis) based on legacy table relationships and provide Detailed Data Profiling findings that help determine the SAP compatibility of data

The findings can be categorized as Critical and Non-Critical and here’s how we define them:

1. **Critical**: Any error that
   1. Prevents data from being created in SAP during conversion,
   2. Affects the scope of the conversion
   3. Leads to duplication of data.

This type of error will adversely affect the business processes in SAP

1. **Non-Critical**: Any error that leads to incomplete information being passed to any entity in SAP. This type of error *may* adversely affect the business processes in SAP. This requires further analysis and may be qualified as critical based on the extent to which business is affected

There were **13** data profiling findings for Purchase Orders with 11 beingCritical errors

Please note that the numbers above signify count of errors and not count by Assets. The details and data dumps for the above is provided in [*Section 6: Detailed Data Profiling Findings*](#_Detailed_Data_Profiling)

# Data insight

This section of the document details the different dimensions of data we observed in the legacy systems. Any findings and data dump from this section will be listed in the Detailed Data Profiling Findings i.e. section 6. The Open POs selected for the analysis were restricted by PS\_PO\_LINE\_SHIP-USER\_SCHED\_CHAR1<>Y. However this field was found to contain some special and null characters as well.

## Direct PO’s

### 4.1.1 Business Unit Type Analysis

We found 2 different types of business units for direct PO’s in PeopleSoft, The below diagram and chart (Table 1) shows the different types of business units for direct PO’s and the corresponding record counts for open items. The diagram depicts a visual representation of the same.

|  |  |
| --- | --- |
| **Business Unit** | **Count** |
| 00001 | 10699 |
| 00050 | 2661 |

**Business Unit**

### 4.1.2 PO Status Analysis

We found 3 different types of statuses for direct PO’s in PeopleSoft, The below diagram and chart shows the different types of statuses for direct PO’s and the corresponding record counts. The diagram depicts a visual representation of the same.

|  |  |
| --- | --- |
| **PO Status** | **Count** |
| Approved | 159 |
| Complete | 92 |
| Dispatched | 15842 |
| Initial | 1 |
| Open | 19 |
| Pending Approval/Approved | 46 |
| Pending Cancel | 209 |
| Canceled | 1226 |

**PO Status**

### 4.1.3 Top 10 Vendors (# of Purchase orders)

Below is analysis for top 10 vendors with which Broadcom has max purchase orders.

|  |  |  |
| --- | --- | --- |
| **Vendors** | **Name** | **Purchase orders** |
| 109454 | ADVANCED SEMICONDUCTOR ENGINEERING, INC | 15701 |
| 109438 | UNITED TEST AND ASSEMBLY CENTER LTD | 12774 |
| 0000002208 | Synaptics Inc | 12601 |
| 109189 | Siliconware Precision Industries,Co. Ltd | 5849 |
| 0000005794 | KING YUAN ELECTRONICS CO LTD | 4710 |
| 109496 | AMKOR TECHNOLOGY, INC. | 4477 |
| 0000000176 | ASE Assembly & Test (Shanghai) Limited | 2820 |
| 109233 | STATS CHIPPAC LTD. | 2706 |
| 0000004642 | UNISEM (M) BERHAD | 2424 |
| 109150 | STATS CHIPPAC (BVI) LTD | 1884 |

### 4.1.4 Top 10 Vendors (by Quantity)

Below is analysis for top 10 vendors with which Broadcom purchase max. Quantity.

|  |  |  |
| --- | --- | --- |
| **Vendors** | **Name** | **Quantity** |
| 109454 | ADVANCED SEMICONDUCTOR ENGINEERING, INC | 768838273 |
| 109438 | UNITED TEST AND ASSEMBLY CENTER LTD | 550233675 |
| 2208 | Synaptics Inc | 363981487 |
| 109189 | Siliconware Precision Industries,Co. Ltd | 247226756 |
| 109150 | STATS CHIPPAC (BVI) LTD | 131951794 |
| 109233 | STATS CHIPPAC LTD. | 129742499 |
| 5013 | UTAC HONG KONG LIMITED | 107654402 |
| 4642 | UNISEM (M) BERHAD | 102337333 |
| 109496 | AMKOR TECHNOLOGY, INC. | 93268177 |
| 176 | ASE Assembly & Test (Shanghai) Limited | 71835470 |

### 4.1.5 Open PO’s per year

Below is analysis for Open PO’s per year

|  |  |
| --- | --- |
| **Year** | **Count** |
| 2013 | 6217 |
| 2012 | 1747 |
| 2011 and above | 9633 |

## Indirect PO’s

### 4.2.1 Business Unit Type Analysis

We found 68 different types of business units for Indirect PO’s in PeopleSoft, The below diagram and chart shows the different types of business units for Indirect PO’s and the corresponding record counts. The diagram depicts a visual representation of the same.

|  |  |
| --- | --- |
| **Business Unit** | **Count** |
| 00001 | 2611 |
| 00050 | 606 |
| 00036 | 411 |
| 00031 | 324 |
| 00087 | 138 |
| 00074 | 218 |
| 00063 | 279 |

### 4.2.2 PO Type Analysis

We found 9 different types of Indirect PO’s in PeopleSoft, The below diagram and chart (Table 1) shows the different types of Indirect PO’s and the corresponding record counts. The diagram depicts a visual representation of the same.

|  |  |
| --- | --- |
| **PO Type** | **Indirect** |
| BLNK | 1913 |
| CNSL | 745 |
| EDA | 48 |
| GEN | 5360 |
| LEAS | 171 |
| MA | 91 |
| MNTC | 32 |
| NONP | 86 |
| RENT | 12 |

**PO Types**

### 4.2.3 PO Status Analysis

We found 3 different types of statuses for Indirect PO’s in PeopleSoft, The below diagram and chart shows the different types of statuses for Indirect PO’s and the corresponding record counts. The diagram depicts a visual representation of the same.

|  |  |
| --- | --- |
| **PO Status** | **Count** |
| A | 308 |
| C | 282 |
| D | 6809 |
| O | 55 |
| PA | 127 |
| PX | 286 |
| X | 591 |

**PO Status**

### 4.2.4 Top 10 Vendors (# of Purchase orders)

Below is analysis for top 10 vendors with which Broadcom has max purchase orders.

|  |  |  |
| --- | --- | --- |
| **Vendors** | **Name** | **Purchase orders** |
| 109459 | TSMC NORTH AMERICA | 2125 |
| 106557 | EXPRESS MANUFACTURING | 832 |
| 109499 | UMC GROUP USA | 590 |
| 106161 | TSMC NORTH AMERICA | 571 |
| 104691 | SILICONWARE PRECISION INDUSTRIES CO LTD | 389 |
| 105287 | ASEK (CDA #12335-19821) | 379 |
| 109421 | SEMICONDUCTOR MANUFACTURING INT'L(BVI) | 377 |
| 104632 | EVANS ANALYTICAL GROUP LLC. | 337 |
| 105519 | AMKOR TECHNOLOGY, INC | 210 |
| 105651 | STATS CHIPPAC ( BVI ) LTD. | 194 |

### 4.2.5 Top 10 Vendors (by Quantity)

Below is analysis for top 10 vendors with which Broadcom purchase max. Quantity.

|  |  |  |
| --- | --- | --- |
| **Vendors** | **Name** | **Quantity** |
| 109499 | UMC GROUP USA | 84863326 |
| 109459 | TSMC NORTH AMERICA | 82256113 |
| 5805 | OBERTHUR TECHNOLOGIES OF AMERICA CORP | 41500000 |
| 6818 | STMICROELECTRONICS INC | 9136897 |
| 109421 | SEMICONDUCTOR MANUFACTURING INT'L(BVI) | 8494421 |
| 3342 | GOLD TECHNOLOGY SERVICES | 6213146 |
| 3342 | SEMICONDUCTOR COMPONENTS INDUSTRIES | 6213146 |
| 109266 | GLOBALFOUNDRIES SINGAPORE PTE LTD | 4711083 |
| 1197 | NANYA PCB CORPORATION | 2500000 |
| 5487 | KYOCERA AMERICA INC | 2300000 |

### 4.2.6 Open PO’s per year

Below is analysis for Open PO’s per year.

|  |  |
| --- | --- |
| **Year** | **Count** |
| 2011&older | 2713 |
| 2012 | 859 |
| 2013 | 4889 |

# Entity Relationship Analysis

This analysis helps us validate the various joins and counts from each join. This is helpful in determining the effect of various attributes on the volume of data to be converted.

The flow diagram provides us insight into the various tables that are involved, and the way each table is joined to another table. There are ten tables mentioned in the flow that are joined using inner and equijoins.

Equi Join

PS\_PO\_LINE\_SHIP

Equi Join

Purchase Orders

PS\_BRC\_PO\_HDR

Equi Join

Equi Join

PS\_PO\_LINE\_DISTRIB

PS\_PO\_LINE

PS\_PO\_HDR

# Detailed Data Profiling Findings

This analysis helps us to understand issues for each field in the table and provide recommendations and appropriate actions. The column level analysis also provides guidance to understand business rules, patterns associated with each attribute of Purchase Order Data.

The data profiling reports at column level will be reviewed by Business and IT SMEs which will help to understand the data standards, rules, cleansing and enrichment requirements in multiple cycles. These requirements will drive the data conversion strategy.

## 6.1 Direct Purchase Orders

The charts and the table below show the summary and details respectively for the errors at column level for Purchase Orders.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Issue#** | **Critical/Non-Critical** | **Description** | **#Failures** | **Field** | **Record Dump** |
| 1 | Critical | Invalid values in schedule line fields. Values contain spaces, ‘o’ and ‘N’  ‘ ‘ – 29031 PO  ‘o’ – 16 PO  ‘N’- 240 POs | 40289 space values,  18 ‘o’ values,  240 ‘N’ values | USER\_SCHED\_CHAR1 |  |
| 1 | Critical | Direct Purchase Orders records have inactive materials | |  |  | | --- | --- | | **SchFlag** | **Direct** | | space | 1829 | | N | 64 | | o | 11 | |  | **1904** | | INV\_ITEM\_ID |  |
| 2 | Critical | All Purchase Orders with Inactive Vendors  (considered for all schedule indicator <>Y) | |  |  | | --- | --- | | **SchFlag** | **Direct** | | space | 1802 | | N | 10 | | o | 602 | |  | **2414** | | VENDOR\_ID |  |
| 3 | Critical | Direct Purchase Orders older than 2012 | 177(user\_sched\_char1 =N) &  17451 ( user\_sched\_char1 <>N) | PO\_DT |  |
| 4 | Critical | Direct POs with junk characters in PO\_ID | 1 | PO\_ID | PO = ‘1%107 REV’ |
| 5 | Critical | Legacy PO -Length in PSFT(30) greater than SAP length(12) | 4702 | PO\_REF |  |
| 6 | Critical | Direct Purchase Orders has price less than 1$ | |  |  | | --- | --- | | **SchFlag** | **Direct** | | space | 19407 | | N | 165 | | o | 11 | |  | **19583** | | PRICE\_PO |  |

## 6.2 Indirect Purchase Orders

The charts and the table below show the summary and details respectively for the errors at column level for Purchase Orders.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Issue#** | **Critical/Non-Critical** | **Description** | **#Failures** | **Field** | **Record Dump** |
| 1 | Critical | In Direct Purchase Orders records have inactive materials | 2 | INV\_ITEM\_ID | |  | | --- | | 1000030870 | | 1000010378 | |
| 2 | Critical | All Purchase Orders with Inactive Vendors  (considered for all schedule indicator <>Y) | |  |  | | --- | --- | | **SchFlag** | **Direct** | | space | 1802 | | N | 10 | | o | 602 | |  | **2414** | | VENDOR\_ID |  |
| 2 | Critical | In Direct Purchase Orders has price less than 1$ | |  |  | | --- | --- | | **SchFlag** | **Indirect** | |  | 1347 | | N | 7 | | **Grand Total** | **1354** | | PRICE\_PO | See attachment in Direct PO filtered for In direct |
| 3 | Critical | Legacy PO -Length in PSFT(30) greater than SAP length(12) | 3177 | PO\_REF |  |
| 4 | Critical | In Direct Purchase Orders has very old records | 33 (user\_sched\_char1 =N) &  2684 (user\_sched\_char1 <>N) | PO\_DT |  |
| 5 | Critical | Indirect Purchase Orders records do not have value for DEPTID field and material number. | 2213 | DEPTID |  |
| 6 | Non-Critical | In Direct Purchase Orders have Item category which requires cross reference with SAP | 18683 | CATEGORY\_ID |  |

# Appendix

## 7.1 Data Profiling Requirements

## 7.1.1 Data Mapping Sheet

Attached is the data definition sheet for Purchase Orders. This was used as the reference for assessing the quality of data received from respective source systems.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| PS\_PO\_HDR | GL\_BUSINESS UNIT | CHAR | 5 | Mapping table | 1:1 | Mapping table of Business Unit to Company code will be provided |
| PS\_PO\_HDR | PO\_TYPE | CHAR | 4 | Mapping table |  | RENT, GEN, NONP, BLNK, CNSL, MNTC, MA, LEAS, EDA [ECPO for Indirect, ZCH1 for Chip Ops or ZSY1 for Sysops  Mapping details in FDS |
| PS\_PO\_HDR | ENTERED\_DT | DATE |  | Legacy | 1:1 |  |
| PS\_PO\_HDR | OPRID\_ENTERED\_BY | CHAR | 10 | Legacy | 1:1 | Should this be "Conversion" userid? |
| PS\_PO\_HDR | VENDOR\_ID | CHAR | 12 | Mapping table |  | Old Vendor\_Id/New Vendor ID from Vendor Conversion. Old Vendor ID will be in format of SetID (Chr5) and Vendor ID (Char10) Some Old vendors are Chr6. |
| PS\_PO\_HDR | PYMNT\_TERMS\_CD | CHAR | 5 | Mapping table |  |  |
| PS\_PO\_HDR | BUSINESS\_UNIT | CHAR | 5 | Mapping table |  | SETIDs X-ref table needed |
| PS\_PO\_HDR | BUYER\_ID | CHAR | 30 | Mapping table |  | sysops - one group per buyer - but may be aligned by commodity |
| PS\_PO\_HDR | CURRENCY\_CD | CHAR | 3 | Mapping table |  | PSFT has 3 chr country code |
| PS\_PO\_HDR | CURRENCY\_CD | CHAR | 3 | Mapping table |  | PSFT has 3 chr country code |
| PS\_PO\_HDR | PO\_DT | DATE |  | Date |  |  |
| PS\_PO\_HDR | PO\_REF | CHAR | 30 | Truncate at 12 chr |  | Truncate |
| PS\_PO\_LINE\_SHIP | FREIGHT\_TERMS | CHAR | 10 |  |  | Mappped to freight terms. Defualt from Vendor if not defined on PO |
| PS\_PO\_HDR | PO\_ID | CHAR | 10 | PSFT PO# |  | Old PO should be assigned to the PO Header Reference |

## 7.1.2 X-Reference Source data



**7.1.3** Data **Extracts used for Profiling**

The entire data of Purchase Orders is coming from **PeopleSoft**, below are the system details

|  |  |
| --- | --- |
| **Legacy Source Info** | PeopleSoft |
| **Source Data for Data Analysis** | Production Copy |
| **Coverage** | Complete Data as of 6-Jun-2013 |
| **Sensitive/Non-sensitive** | Non-Sensitive |

The tables that are being accessed for this purpose are:-

PS\_PO\_LINE\_SHIP, PS\_BRC\_PO\_HDR, PS\_PO\_LINE, PS\_PO\_HDR, PS\_PO\_LINE\_DISTRIB

## 7.2 Key Asset Master Fields in SAP ECC

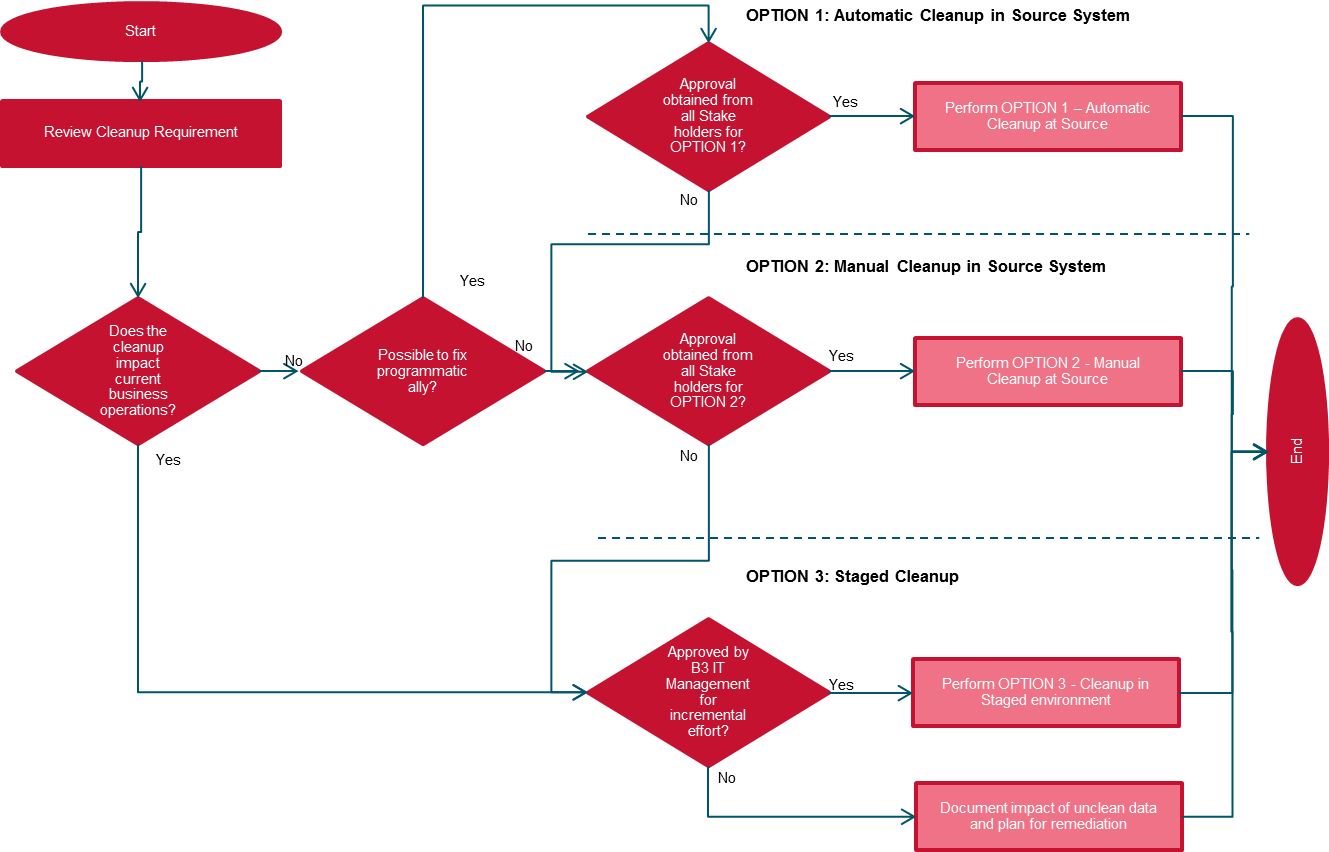
This information is captured in the Profiling Mapping sheet in section 7.1.

## 7.3 Types of data cleansing

The following options will be used for the purposes of data cleanup in the B3 program:

* OPTION 1: Automated Cleanup in legacy production system
* OPTION 2: Manual Cleanup in legacy production system
* OPTION 3: Staged Cleanup (outside legacy production system)

The figure below shows the selection criteria that will be followed for selecting the cleanup option.



**Data Cleanup Options Selection Criteria**

Any deviation to the selection criteria (above figure) will require B3 IT Management approval.

For further details please refer to *Section* *8.3:* *Data Cleanup Options* in the Data Cleansing Approach document.