



Determining ABAP Utilization with SAP Solution Manager Usage Logging Data

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About the Speakers

Jeff Morin

- Solution Architect, Lockheed Martin
- 30+ years experience with Lockheed Martin focused on manufacturing and IT.
- Avid snow skier

Melissa Marren

- Solution Manager Program Manager, Lockheed Martin
- Over 20 years' experience with SAP. Last 13 years with Lockheed Martin, previously I worked almost 10 years focused on FI/CO, AA, HR and ABAP.
- Enjoy time with family and friends

Key Outcomes/Objectives

1. Understand the basics of usage logging.
2. Recognize the value of code utilization statistics.
3. Identify the major steps for code evaluation.

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54,000
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Facilities
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Operating in over
54
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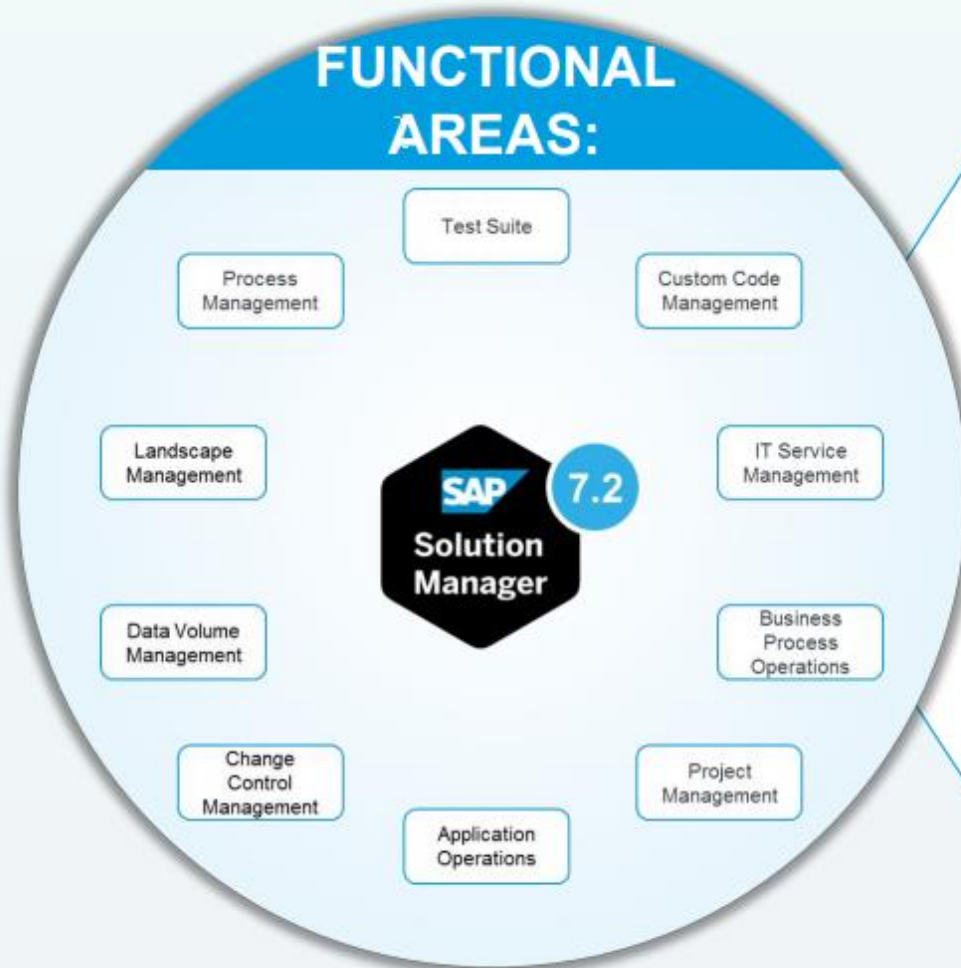


With **7,500+**
Employees

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- **Backlog:** \$130.5 Billion
- **Stock Ticker Symbol**
 - LMT, on the New York Stock Exchange.
 - Ranked 59th on the 2018 *Fortune 500* list industrial corporations

ASUG

Lockheed Enterprise Solution Manager - What We Support



Enterprise Solution Manager at a Glance

- Solution Manager 7.2, SPS7 (SPS8; ST-OST 3 – June '19)
 - 4Tier – Sand, Dev, QA and Prod
 - 5 Full Time Employees
- 120+ Production systems connected (460+ total systems)
- 900+ agents
- Support 4 main Business Area plus Enterprise Operations
 - Approximately 16 Business/Projects across the 5 Areas
- 30+ ChaRM Landscapes across Businesses
- Technical monitoring for all Production systems
 - Interface to Service Now to create tickets for system availability
- System Recommendations for all Production systems
- 550+ CBTA test scripts
- 500+ Documented business processes
- Focused Insight: 15 Tactical Dashboards for 64 Production Systems with 6 KPIs
- ITSM Service Request by 2 Projects within Enterprise Operations
- S/4 Readiness checks done by all Business Areas
- LMDB Reporting available for all systems; enhancements added for better reporting
- DVM used by all Business Areas
- CCM configured for all ERP systems
- UPL/SCMON active for all Production Systems
- 40 Configuration Validation scripts used to confirm compliance across the SAP Projects
- SCOUT – automate distribution of customizing across heterogenous landscape

Agenda

- Introduction and Background
- Basics of Evaluation Process
 - Collections and Comparison Overview
- Details of Collections and Comparisons:
 - Repository collections
 - Usage data collections
 - Comparison processes
- Sample Visualizations

Introduction and Background

Background / Purpose

- Lockheed Martin leadership has historically been interested in understanding the amount of custom code in our SAP environments
- Recently have been interested in how much of this code is actually used
- SAP's usage logging processes (UPL or SCMON) is the obvious starting point for this request.

Introduction to UPL

- Usage and Procedure Logging (UPL) is an ABAP functionality that allows the logging of all ABAP unit executions (programs, function modules, classes, methods, and routines).
- UPL capabilities are performance streamlined logging processes that facilitate the direct collection of ABAP usage statistics as they occur (real time).

Introduction to SCMON

- ABAP Call Monitor (SCMON) is the successor to UPL and it provides all of the same functionality with the addition of ABAP call stack details. This new addition also enhances the usage statistic by recording down to the corresponding root (from which the ABAP unit was called).

Limitations to UPL/SCMON

- Only available as of conditions in SAP note 1828848
- No performance/runtime/processing time statistics
- No user related information
- No functionality for logging usage of DDIC items
- No transaction code logging
- No “separate” logging of ABAP includes

How UPL/SCMON Works

- The recording mechanisms for UPL/SCMON are embedded in the SAP Netweaver Basis layer.
 - Once activated, the data is saved on the individual systems for a customizable “small” limit of days (with SCMON, this is also customizable by the amount of data).
 - Collection of data will cycle through the same data persistence area based on the specified limit of days (or data).
- If integrated with Solution Manager, the collected usage data on the individual systems is extracted, collected, and managed in the Solution Manager’s BW database. This is where the “long term” collection of usage data is kept.

Overview of Evaluation Process

Collection of ABAP Code Units Overview

1. In the individual system(s), execute transaction **CCAPPS** and choose the “Code Metric” button.
2. Accept defaults, changing only the “Packages” criteria for desired SAP and/or custom objects.
3. Save the resulting output to an Excel spreadsheet.
This will be used later in the process during the actual comparisons.
4. This generates the list of existing ABAP code units

Collection of Usage Data Overview

1. Activate UPL/SCMON on individual systems
2. Integrate individual systems with Solution Manager and configure usage logging scenarios to extract and collect UPL/SCMON data into BW.
3. Use BW query to get usage data by individual systems exporting to Excel spreadsheets.

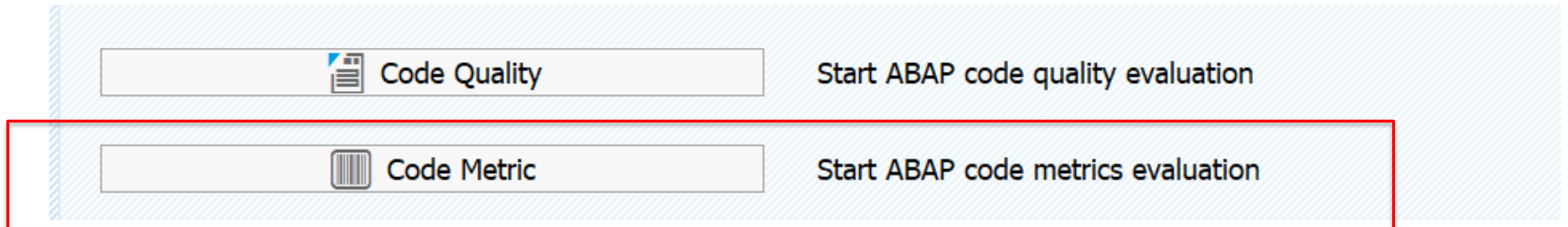
Comparison Overview

1. Use VLOOKUP functionality in Excel (or other means) to compare the usage data objects with the ABAP unit objects captured from the two collection points described earlier.
2. Mark the objects as USED (new column) where matches occur.
3. Compare total LoC (lines of code) counts to “Used” LoC counts.

Details of Collections and Comparisons

Collection of ABAP Code Units Detail

1. In individual system, execute transaction **CCAPPS** and choose the “Code Metric” button (towards button).



2. Accept defaults, changing only the “Packages” criteria for desired SAP and/or custom objects.

Collection of ABAP Code Units Detail *(cont.)*

3. Save the resulting output to an Excel spreadsheet. This will be used later in the process during the actual comparisons. The LoC column will be key (the calculated totals are highlighted at the bottom).

Num	gen	Package	Category	Modul Unit 1	sub type	Modul Unit 2	Author	Last Chang	ΣLoC	ΣNoS	ΣNoC	ΣNoP
1		/SDF/DB6_INFR_7X	CLAS	/SDF/CL_DB6_SQL_WL	METH	CREATE_WL_FROM_SYSTEM_4	SAP	SAP	284	162	48	26
1		/SDF/DB6_INFR_7X	CLAS	/SDF/CL_DB6_SQL_WL	METH	CREATE_WL_FROM_SYSTEM_3	SAP	SAP	414	270	41	15
1		/SDF/DB6_INFR_7X	CLAS	/SDF/CL_DB6_SQL_WL	METH	TEXT_WRAPPER	SAP	SAP	361	349	38	29
1		/SDF/ZQLM	PROG	/SDF/RZQLM_UPLOAD_DATA	METH	GET_ITAB_FROM_XML_FILE	SAP	SAP	12	9	1	0
									739,138	418,710	139,146	26,005

Collection of Usage Data Detail

1. In Solution Manager, configure usage logging globally (top section) and individual systems (bottom section) via ***SOLMAN_SETUP → Cross Scenario Configuration → Usage Logging***.

Navigation Menu:

- Basic Configuration
- Managed Systems Configuration
- Embedded Search
- Usage Logging**
- IT Infrastructure Management
- Requirements Management
- Project Management
- Process Management
- Custom Code Management
- Test Suite
- Change Control Management
- Application Operations
- Business Process Operations
- IT Service Management
- Engagement and Service Delivery
- Data Volume Management

Configure Usage Logging Table:

Status	Updates Needed	Activity	Type	Comment	Navigation	Execution Status	Documentation
■		Check Required SAP Notes	Mandatory	📄		Execute	Display
■		Activate BW Content for Usage Logging	Mandatory	📄		Execute	Display
■		Check Usage Logging Background Jobs	Mandatory	📄		Execute	Display
■		Check Data Consistency	Mandatory	📄		Execute	Display

Configure Usage Logging Section:

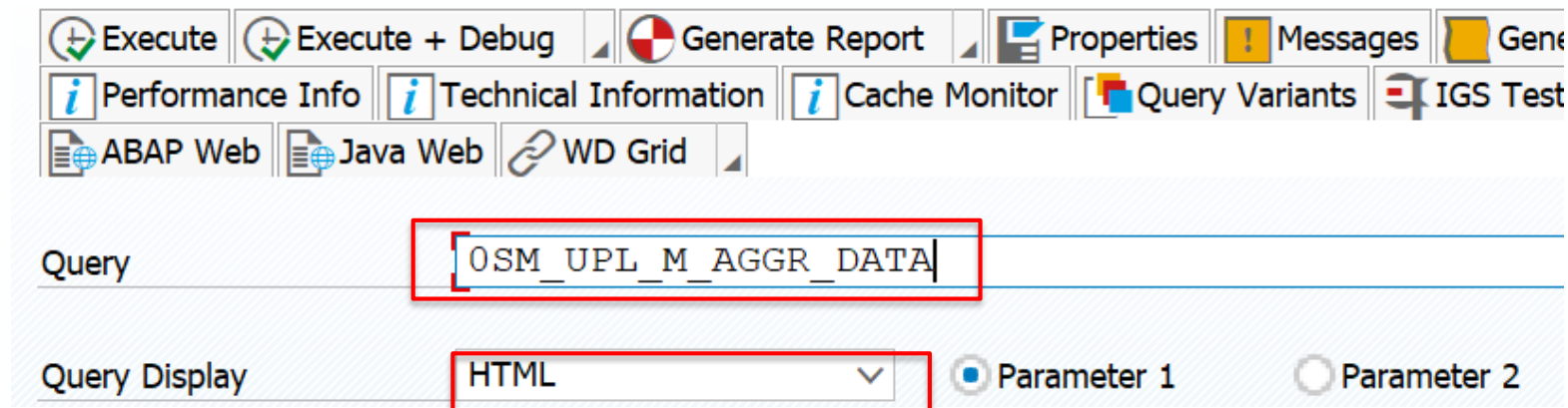
Activate Deactivate Settings Change Default Settings Administration UI for Extractor Framework

System Configuration Table:

System	Client	RFC Status	NOTE STATUS	IT Admin Role	UPL/SCMON Prerequisites	Settings	Activation Status	Operation Status
DML	100 - Pr...	■	■	Development System	🌐	Custom	🔔	■

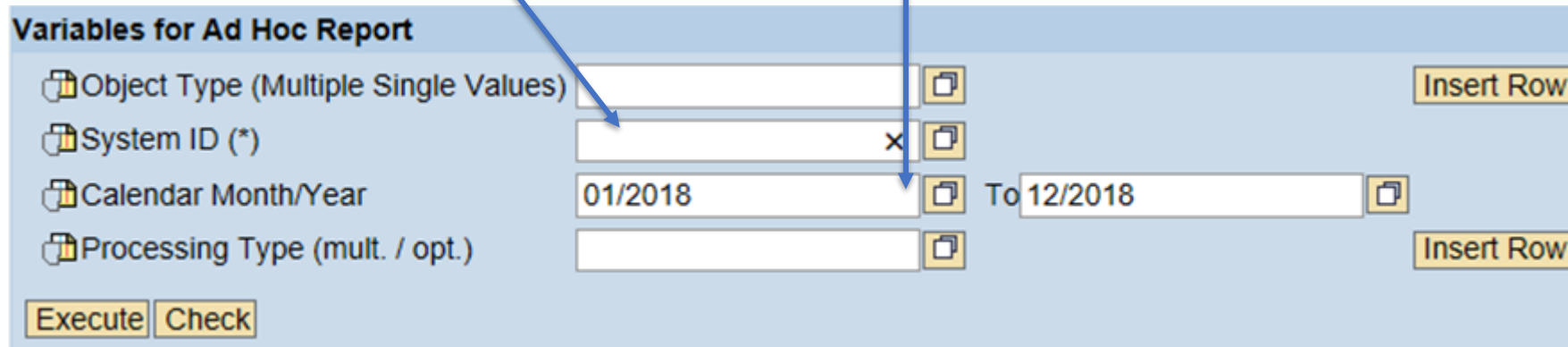
Collection of Usage Data Detail *(cont.)*

2. Allow Usage Logging to process for a minimum of 3 months (preferably for a year).
3. Use transaction **RSRT** in Solution Manager to execute query **OSM_UPL_M_AGGR_DATA** and change display method to “HTML”.



Collection of Usage Data Detail *(cont.)*

4. Enter **system (SID)** and **month/year** combinations (can do for a whole year or individual months).



The screenshot shows a web-based form titled "Variables for Ad Hoc Report". It contains four input fields, each with a folder icon to its left and a copy icon to its right. The fields are: "Object Type (Multiple Single Values)", "System ID (*)", "Calendar Month/Year", and "Processing Type (mult. / opt.)". The "Calendar Month/Year" field is filled with "01/2018" and has a "To" field next to it filled with "12/2018". There are "Insert Row" buttons to the right of the "Object Type" and "Processing Type" fields. At the bottom left are "Execute" and "Check" buttons. Two blue arrows point from the text in step 4 to the "System ID (*)" and "Calendar Month/Year" fields.

Variable	Value	Action
Object Type (Multiple Single Values)		Insert Row
System ID (*)		
Calendar Month/Year	01/2018	To 12/2018
Processing Type (mult. / opt.)		Insert Row

Execute Check

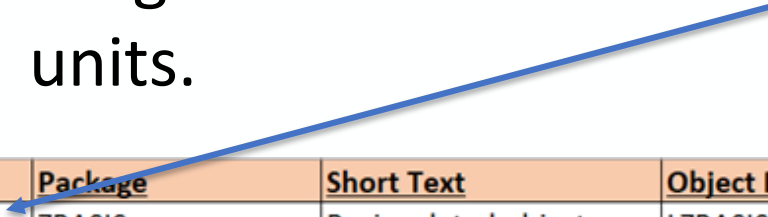
5. Export the resulting output to Excel or save the data to a CSV file and (if needed) combine multiple files into a single file.

Comparison of Data Detail

1. Open CSV/data file (from previous slide/step) in Excel and complete the following:
 - a. Copy columns **OBJECT TYPE** and **OBJECT NAME** to a new worksheet.
 - b. Remove duplicates comparing on both columns.
 - c. If focusing solely on custom code objects, remove anything not in customer namespace (reverse if SAP objects are the target).
 - d. Save resulting unique objects in new file.

Comparison of Data Detail (cont.)

- Using Excel, open files for 1) ABAP code units to be analyzed and 2) usage data. Add a new column “Used” to the file of the ABAP code units.



Used	Package	Short Text	Object Name	Obj. Type	Report title	Original	Pers.Resp	Type	LoC
	ZBASIS	Basis related objects	LZBASISTOP	PROG				I	1
	ZBASIS	Basis related objects	LZBASISU01	PROG	Basis: Sysl			I	155
	ZBASIS	Basis related objects	LZPP_LDAPTOP	PROG				I	12

- Using VLOOKUP functionality in Excel again, compare the ABAP code units with the usage data. Where there are matches, marked the “Used” column with an “X”.

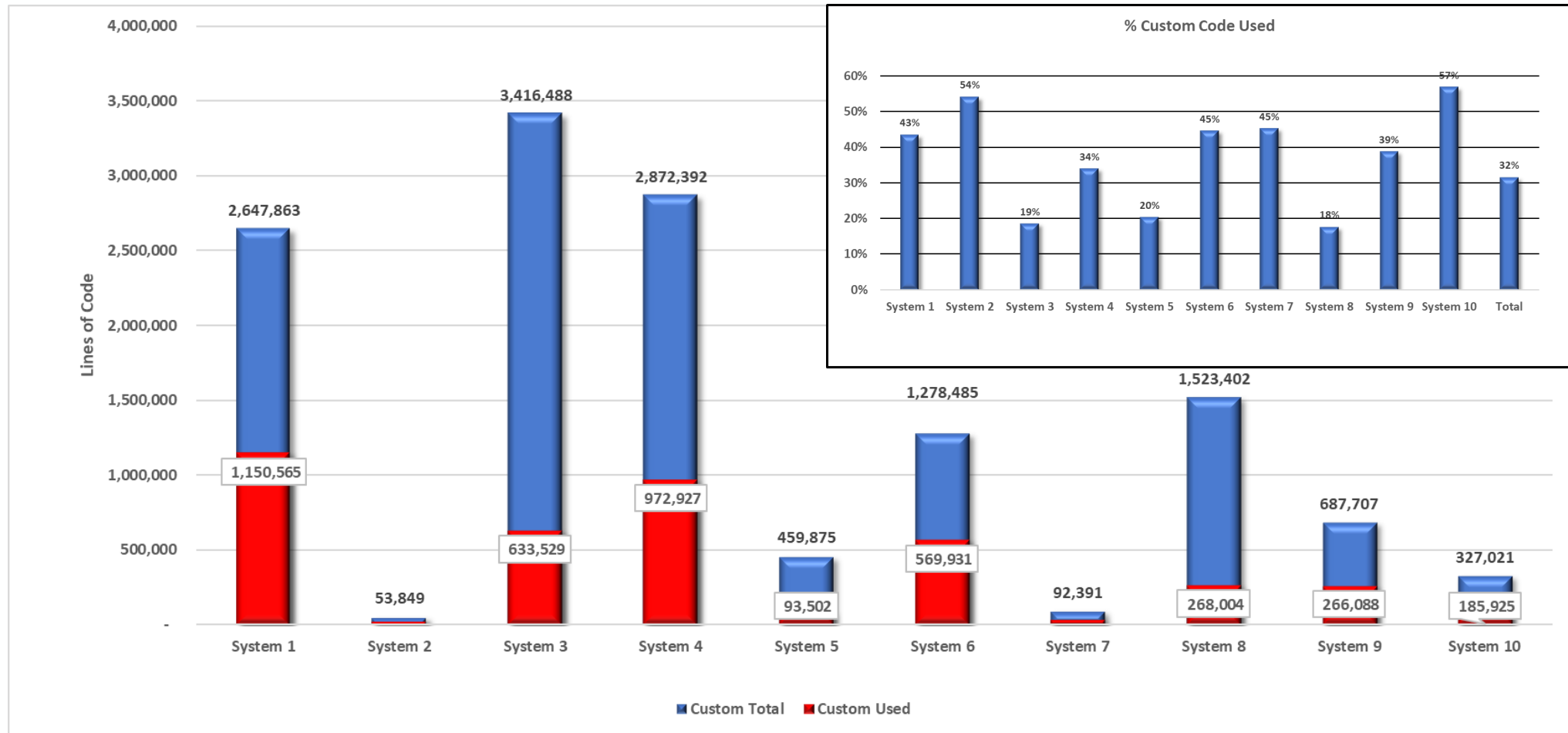
Comparison of Data Detail *(cont.)*

4. Filtering on the “Used” column, you can now collect the **LoC** column statistics to get the lines of code utilized. You can compare this against the total LoC statistics to produce reports/graphs for ratios.
5. Repeat all steps for each system combining all results into a single cumulative Excel spreadsheet.

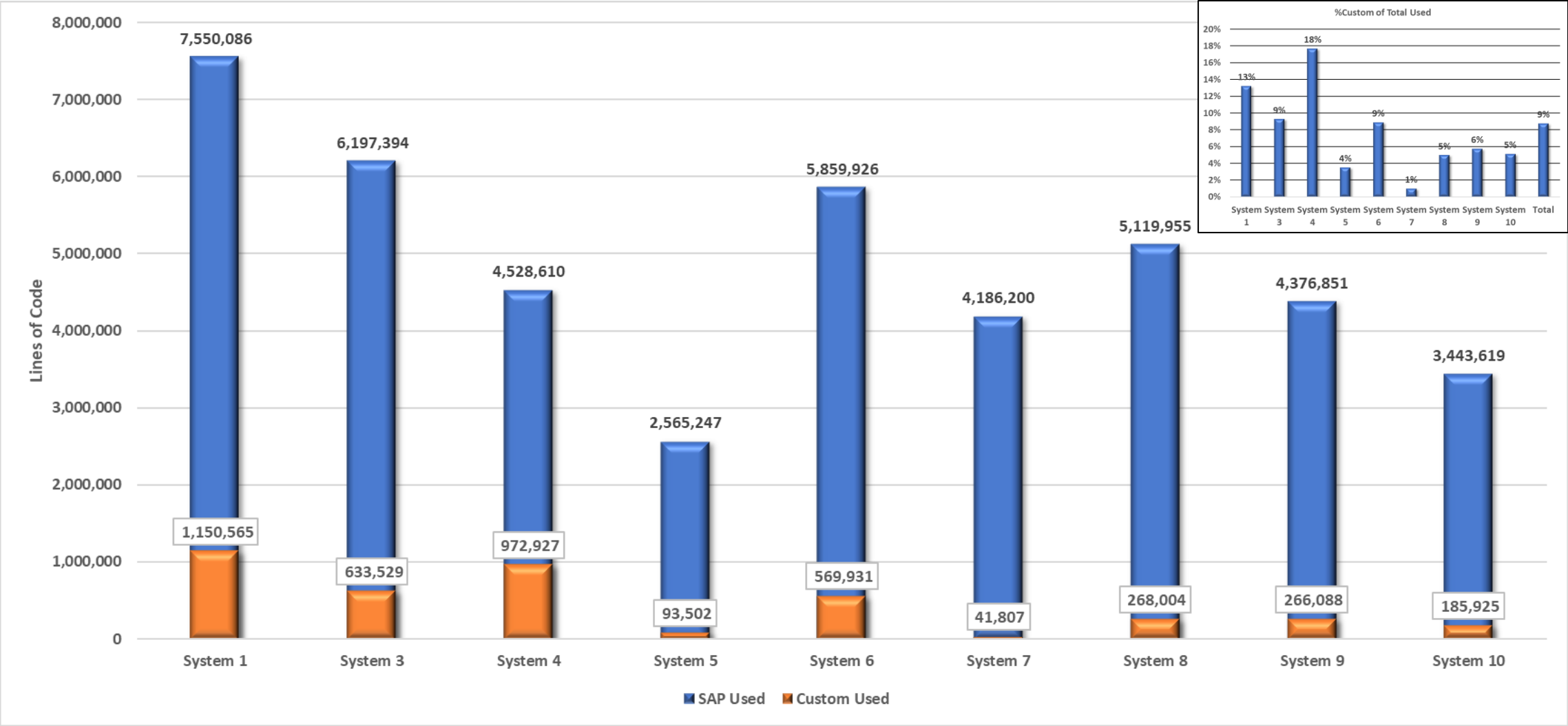
Note: You can further enhance reporting options with additional analysis and/or custom utilities. For example, Lockheed also uses a custom ABAP utility to provide statistics by application area and it uses the same object/usage data as detailed in this presentation.

Sample Visualizations

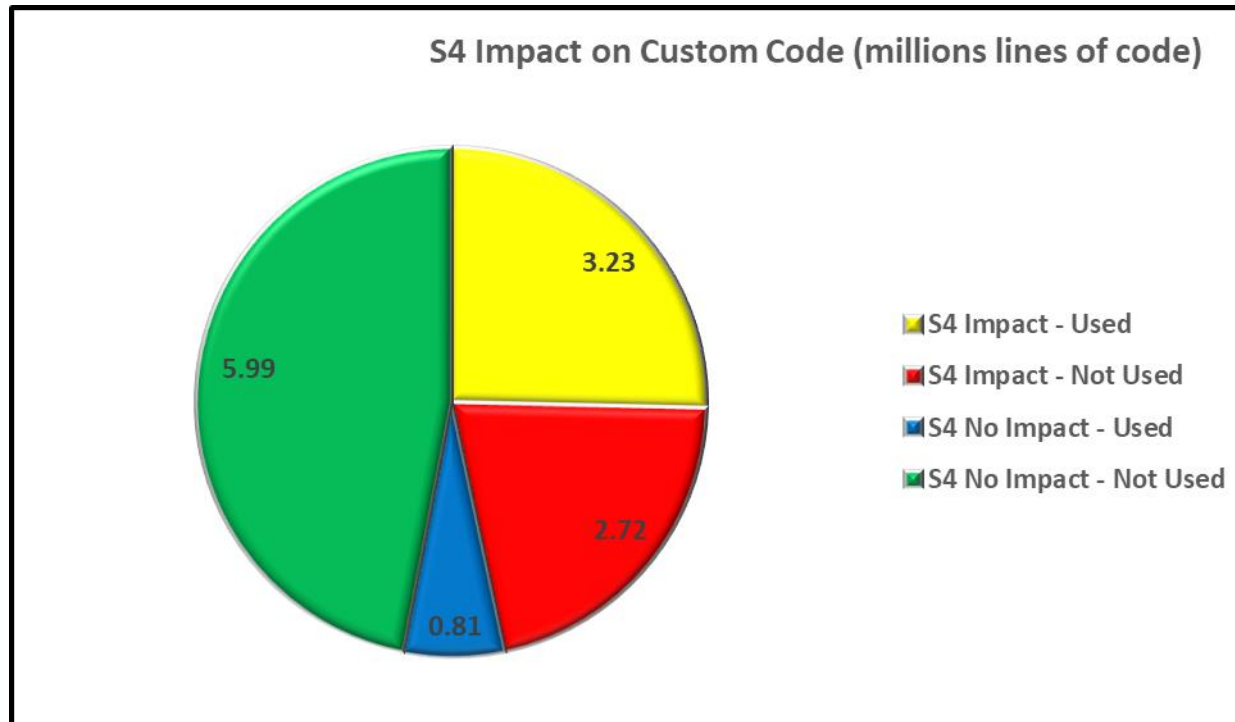
Custom Code Usage by System



SAP vs Custom Code Usage by System



S4 Impact on Custom Code



Combined usage data with results of S4 Custom Code Analysis

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Presentation Materials

Access the slides from 2019 ASUG Annual Conference here:

<http://info.asug.com/2019-ac-slides>

Q&A

For questions after this session, contact us at
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