Matrix Consolidation with Group Reporting: Utilizing Consolidation Groups vs Matrix Consolidation

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Introduction

In TruQua's previous whitepaper on Matrix Consolidation, the features available starting with the 19xx releases of SAP's S/4HANA for Group Reporting ("GR") and how to implement them were discussed. GR's primary purpose is supporting a full "legal" oriented financial consolidation through consolidation groups containing an underlying entity dimension made up of companies. However, organizations often have additional consolidated reporting requirements where reporting is needed either for reorganizations, for "managerial" oriented views of eliminated data along other dimensions like profit center or segment, or for alternative roll-ups of consolidation groups like a "regional" view. GR supports these types of "managerial" analyses using its Matrix Consolidation features to report multiple views of the same set of consolidated data by producing on-the-fly eliminated reporting beyond a consolidation group for the consolidation unit, profit center, or segment characteristics. It does this by using "virtual" elimination entities in a "first common parent" hierarchical approach when running reports. Some eliminated reporting requirements are best met with consolidation groups (i.e., a full legal consolidation). Others with the support provided by Matrix Consolidations (i.e., managerial views/consolidations). Part 2 of this whitepaper series will further examine Matrix Consolidation reporting to help determine when it is better to implement another consolidation group versus using the Matrix Consolidation features.

A Background of Managerial Consolidation

The premise of "managerial consolidation" in SAP has historically meant something other than a company or legal entity played the role of consolidation unit to drive eliminations within a consolidation group, such as profit center or segment. Unlike companies, managerial objects like profit centers and segments do not own each other making certain elimination entries like consolidation of investments somewhat irrelevant from a non-legal point of view. When a customer refers to needing a "managerial consolidation" what is generally meant is a "managerial eliminated" view of the reported data. Customers use the two terms interchangeably often leading to confusion as fully consolidated result implies having interunit eliminations plus consolidation of investment entries. However, as a profit center would not own another profit center, consolidation of investment entries would not really spread across profit centers like they would with consolidation units. Therefore, managerial consolidation reporting requirements usually take on one of the following three scenarios:

- Reporting an eliminated result of legal entities/consolidation units arranged other than by legal/statutory/parent-child roll-ups (e.g., regional, business segment, etc.).
- Showing eliminated results where a dimension other than company plays the role of consolidation unit (e.g. profit center driving eliminated results by profit center groups, etc.).
- Reporting a re-organization at the step consolidation group level.

GR's Matrix Consolidation features are SAP's way to address these kinds of consolidated managerial reporting requirements since in each of the above cases what is desired is a managerial view of the base data that include the impacts of interunit eliminations and excludes group specific postings like consolidation of investments (e.g. investment vs equity, NCI, etc.). Stated differently, legal includes group dependent postings while managerial does not (i.e., "managerial eliminated" vs "managerial consolidated"). So, GR offers the ability to support a full "legal consolidation" based on consolidation groups as well as "managerial eliminated/consolidated" reporting using Matrix Consolidation.

As one of the more common managerial consolidated reporting scenarios involves arranging companies in different roll-ups (i.e., by region instead of by parent/child), this can lead to confusion of when to make a new consolidation group versus when to use Matrix Consolidation to support the requirement. Both approaches are valid since both have consolidation unit as the entity dimension and consolidation unit drives posting level 20 entries unlike additional master data fields like profit center and segment. This choice will be explored as part of this whitepaper.

Posting Levels, Reporting Logic, and How Data is Stored in GR

Before addressing the pros/cons of setting up new consolidation groups versus using Matrix Consolidation features, it is important to understand GR's data model and how it stores and reports consolidated data. From a technical standpoint, GR posts transaction data throughout the business process on various pre-defined posting levels. For most records, a consolidation group is not assigned on the database record but is determined when reporting based on the Group Structure assignments of consolidation units to a consolidation group. The dynamic nature of these records is what allows GR to use one set of base and eliminations pair data to support reporting for multiple consolidation groups as well as for the Matrix Consolidation features. Other records are group specific and are hardcoded to a consolidation group since they are only appropriate to that consolidation group's viewpoint. Examples would be consolidation of investment eliminations where the values posted depend on a subsidiary's ownership percentage (which can differ by consolidation group). Depending on the posting levels and data selected ultimately determines whether a user reports "aggregated" (unconsolidated), "eliminated" (aggregated plus elimination pairs), or "consolidated" (aggregated plus elimination pairs and all group dependent entries). This can be seen in the following:
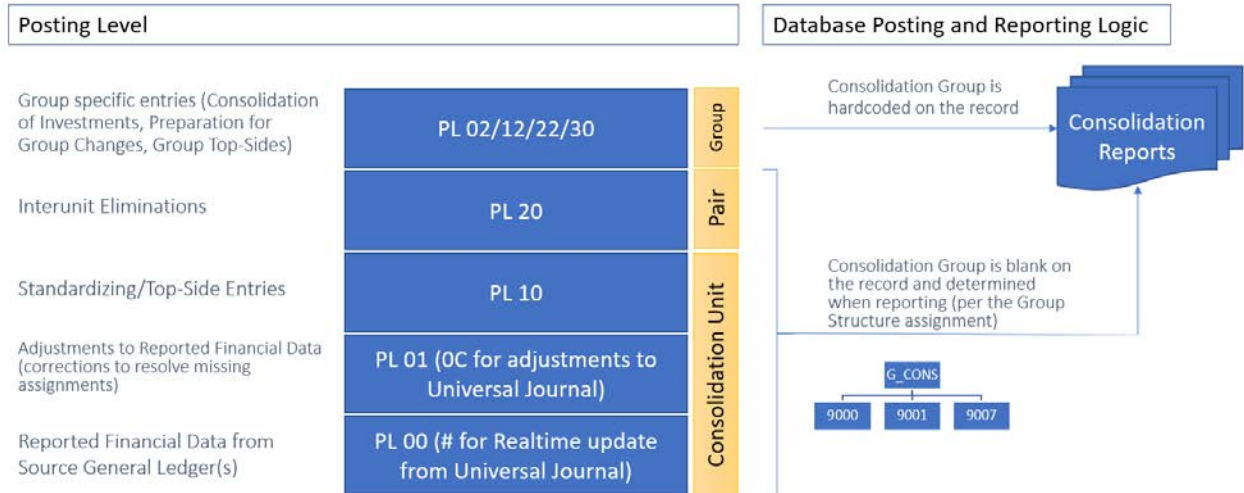
Posting levels classify document types into various kinds of entries in GR. They are not configurable and only those delivered by SAP can be used when configuring document types as some posting levels incorporate various program logic in consolidation processing.

- Posting levels "blank", 00, 01, 0C, 01, and 10 are considered "consolidation unit" postings and store reported financial data and unit level adjustments like standardizing entries. Consolidation group is not populated on these records but is assigned when running a report if the consolidation unit is part of the selected consolidation group (note: if consolidation group is set as "unassigned" when running a GR report, then consolidation group on these records will display as unassigned in the report as well).
- Posting level 20 is considered a "pair-wise" posting for interunit eliminations. Consolidation group is not populated on these records but is assigned when running a report if the consolidation unit and the partner unit are both part of the selected consolidation group (note: if consolidation group is set as "unassigned" when running a GR report, then consolidation group on these records will display as unassigned in the report as well).
- Posting levels 02, 12, and 22 are considered "group" postings and are adjustments made to reported data, standardized data, and two-sided eliminations respectively to prepare for a consolidation group change from when a consolidation unit is acquired or divested during the year. Consolidation group is hardcoded on these records as they are group dependent and only make sense from that consolidation group's perspective. They only report when the same consolidation group is selected at report run-time. None of these records report if consolidation group is set as "unassigned" when running a GR report.
- Posting level 30 is considered a "group" posting for consolidation of investment eliminations and group level manual topside postings. Consolidation group is hardcoded on these records as they are group dependent and only make sense from that consolidation group's perspective. They only report when the same consolidation group is selected at report run-

time. None of these records report if consolidation group is set as "unassigned" when running a GR report.

To see this from the database perspective, consider the following records on consolidation unit 9001 stored in the ACDOCU table:

Records on posting levels 00 and 20 have no consolidation group value stored on the record (i.e., group independent), while posting level 30 records do have consolidation group stored (i.e., group dependent). It can also be inferred from this example that consolidation unit 9001 has been assigned to consolidation groups G_CONS and G_9000 when managing the group structure. If consolidation group G_9000 was selected when running a GR report, then all posting level 00/20 records would appear in the report as well as the one posting level 30 record specifically on G_9000. None of the G_CONS postings would be reported. If consolidation group was selected as "unassigned" when running a GR report, then all the posting level 00/20 records would appear but none of the posting level 30 records as those are group specific records.

It is important to keep the concept of reporting logic in mind as the presence of posting level 30 records is one of the key differences between "Group" and "Hierarchical" consolidation views using one set of data. The "Group" view represents the traditional "legal" consolidated reporting including all group dependent postings. The "Hierarchical" view represents an alternative managerial or reorganizational perspective up through interunit elimination postings (i.e., no posting level 02/12/22/30 records). Please note that it is also possible to report a combined view. However, a "Group" view requires a consolidation group and since a consolidation group is comprised of consolidation units, an implementation question is how to handle a scenario where an alternative arrangement of consolidation units is needed to report a "managerial consolidated" result.

Consolidation Reporting Example – Group View

For illustrative purposes, consider the following data for three companies (C001, C002, C003) which together make up a consolidated Example Corporation. All subsidiaries are 100% owned by the parent company C001.

FS Item ▲	FS Item ▼▲	Partner Unit | Consolidation Unit ▲	C001	C002	C003
111100	Cash on hand	#	$ 20,000.00	$ 3,100.00	$ 1,600.00
121800	Oth. Receiv.	C002	$ 200.00		
		C003	$ 300.00		
172100	Inv subs JV AE	C002	$ 2,500.00		
		C003	$ 1,000.00		
211800	Oth payables,NC	C001		$ -200.00	$ -300.00
311000	Issued capital	#	$ -24,000.00	$ -2,500.00	$ -1,000.00
317000	Net income	#		$ -400.00	$ -300.00
411100	Sale of goods	#		$ -2,500.00	$ -2,700.00
560000	Wages,oth benef	#		$ 600.00	$ 1,350.00
585000	Oth op.expenses	#		$ 1,500.00	$ 1,050.00
799000	Net income/loss	#		$ 400.00	$ 300.00
Grand Total			$ 0.00	$ 0.00	$ 0.00

To support a "consolidated" report, consolidation group G001 (Example Corporation) has been created with all three consolidation units assigned effective 2019/12.

After processing both the data and consolidation monitors, a Group Data Analysis report is run using a "Group" view. This represents the traditional legal consolidated view where a single consolidation group is selected with reporting logic determining the appropriate data to report per the group structure assignments. By selecting consolidation group G001 and leaving the "hierarchy" selections as "no hierarchy" ("$"), no Matrix Consolidation features are engaged. The system reports the base data, all appropriate interunit eliminations, and all group specific entries (i.e., preparation for consolidation group change and consolidation of investment entries) for G001 to provide a "legal" consolidated result.

Drilling down on the data by posting level shows the following results. All intercompany amounts appear to be fully eliminated, as well as Investment in subsidiaries and subsidiary equity balances based on group ownership percentages. This makes sense given all consolidation units of Example Corporation are part of this consolidation group.

		GC Amount			
	Posting Level	00	20	30	Total
FS Item ▲	FS Item | Posting Level ▼▲	Reported data: Entry	Two-sided elimination entry	Consolidation entry	
111100	Cash on hand	$ 24,700.00			$ 24,700.00
121800	Oth. Receiv.	$ 500.00	$ -500.00		$ 0.00
172100	Inv subs JV AE	$ 3,500.00		$ -3,500.00	$ 0.00
211800	Oth payables,NC	$ -500.00	$ 500.00		$ 0.00
311000	Issued capital	$ -27,500.00		$ 3,500.00	$ -24,000.00
316000	Retained earn.			$ 0.00	$ 0.00
317000	Net income	$ -700.00			$ -700.00
319000	Net inc.Clear.			$ 0.00	$ 0.00
411100	Sale of goods	$ -5,200.00			$ -5,200.00
560000	Wages,oth benef	$ 1,950.00			$ 1,950.00
585000	Oth op.expenses	$ 2,550.00			$ 2,550.00
799000	Net income/loss	$ 700.00			$ 700.00
1721HC	Elim.inv OC			$ -3,500.00	$ -3,500.00
1721OC	Elim.inv OC			$ 3,500.00	$ 3,500.00
21100D	CL- Rec/Pay,C		$ 0.00		$ 0.00
S00001	Group Shares (%			$ 0.00	$ 0.00

Consolidation Group vs. Matrix Consolidation

Example Corporation also has a reporting requirement to show a consolidated view of consolidation units rolled up by regions in addition to the previous overall Example Corporation legal consolidation. For this requirement, users want to have consolidation units C001 and C002 report as an eliminated "North America" and consolidation unit C003 as part of "EMEA". As always, all consolidation units together should still equate to an overall Example Corporation. As this requirement is based on an eliminated result of legal entities arranged other than by legal/statutory/parent-child roll-ups, it is more managerial in nature. Since this is based on consolidation unit, which unlike profit center or segment, is the entity dimension, it also means there are two paths to satisfying the requirement: creating a new consolidation group or using Matrix Consolidation. The choice of which to use fundamentally comes down to whether "group dependent" postings are needed for this regional view of consolidated data (i.e., posting levels 02/12/22/30). If so, then a new consolidation group is needed. If not, then either a new consolidation group or Matrix Consolidation could be used. However, there would be less effort with using Matrix Consolidation.

In an alternative roll-up of consolidation units, "North America" and "EMEA" could be new consolidation groups that would provide a consolidated/eliminated reporting point by region. The introduction of new reporting logic beginning with the 19xx releases meant consolidation groups were no longer arranged in a top group / sub-groups organizational structure (i.e., stepwise

simultaneous consolidation). Each consolidation group is now an independent object containing a flat listing of applicable consolidation units. While it is quite easy to make a new consolidation group and assign consolidation units to it, there is overhead to doing this. Unlike with the old reporting logic, the entire consolidation monitor can no longer be run from the top consolidation group. Each consolidation group must be independently processed for group dependent entries to happen on posting levels 02, 12, 22, or 30. This can be cumbersome even with the ability to copy and import manual posting level 30 entries between consolidation groups. Unless users need the group-dependent postings <u>and</u> are willing to process all additional consolidation groups to get them posted to the database, then a new consolidation group is not necessarily the best approach to satisfying the requirement. This is where Matrix Consolidation can be an answer since new consolidation groups are not needed when using this feature and all additional configuration and data processing can be avoided. In most cases, the reporting requirement can be met by simply adding a Global Accounting Hierarchy. However, this means that any managerial eliminated reporting can only happen from base data up through interunit eliminations (posting level 20) through "virtual" elimination entities in a "first common parent" hierarchical approach.

Consolidation Reporting Example – Hierarchical View

Based on the Regional reporting requirement, a Global Accounting Hierarchy for consolidation unit is needed to use Matrix Consolidation. This whitepaper does not discuss how to create global accounting hierarchies. Please see the appropriate documentation for further discussion on creating global accounting hierarchies as they are not exclusive to GR. The following consolidation unit hierarchy was created for reporting the Regional perspective:

As nothing has changed from running the earlier tasks on consolidation group G001, there is no need to process the monitors again and the data can simply be reported. Using the Group Data Analysis report, data is reported using a "Hierarchical" view representing the alternative Matrix Consolidation perspective based on a chosen elimination hierarchy. By selecting consolidation group as "unassigned" (#) and picking the consolidation unit hierarchy as "Region", the system reports the base data as well as all appropriate interunit eliminations per the pairings. However, all eliminations pairings are assigned to a virtual elimination entity based on the first common parent node. This is what makes an aggregation that replicates an eliminated result (i.e., adding base data on consolidations + eliminations on the virtual elimination entity). No group-dependent entries are reported since the consolidation group selection is unassigned (#).

The "hierarchical" view of data reported by posting level shows the following. Please note that the report must also be spun on or filtered using the "… Eliminated" dimension with the hierarchy enabled. In this example, it is "Consolidation Unit Eliminated". Now it is possible to see an eliminated North America even though only one consolidation group exists in the system.

| Consolidation Unit Eliminated ▲ | FS Item ▲ | Posting Level | 00 | 20 | Total |
		FS Item | Posting Level ▼▲	Reported data: Entry	Two-sided elimination entry	
∨ REGION	111100	Cash on hand	$ 24,700.00		$ 24,700.00
	121800	Oth. Receiv.	$ 500.00	$ -500.00	$ 0.00
	172100	Inv subs JV AE	$ 3,500.00		$ 3,500.00
	211800	Oth payables,NC	$ -500.00	$ 500.00	$ 0.00
	311000	Issued capital	$ -27,500.00		$ -27,500.00
	317000	Net income	$ -700.00		$ -700.00
	411100	Sale of goods	$ -5,200.00		$ -5,200.00
	560000	Wages,oth benef	$ 1,950.00		$ 1,950.00
	585000	Oth op.expenses	$ 2,550.00		$ 2,550.00
	799000	Net income/loss	$ 700.00		$ 700.00
	21100D	CL- Rec/Pay,C		$ 0.00	$ 0.00
> EMEA	111100	Cash on hand	$ 1,600.00		$ 1,600.00
	211800	Oth payables,NC	$ -300.00		$ -300.00
	311000	Issued capital	$ -1,000.00		$ -1,000.00
	317000	Net income	$ -300.00		$ -300.00
	411100	Sale of goods	$ -2,700.00		$ -2,700.00
	560000	Wages,oth benef	$ 1,350.00		$ 1,350.00
	585000	Oth op.expenses	$ 1,050.00		$ 1,050.00
	799000	Net income/loss	$ 300.00		$ 300.00
> NA	111100	Cash on hand	$ 23,100.00		$ 23,100.00
	121800	Oth. Receiv.	$ 500.00	$ -200.00	$ 300.00
	172100	Inv subs JV AE	$ 3,500.00		$ 3,500.00
	211800	Oth payables,NC	$ -200.00	$ 200.00	$ 0.00
	311000	Issued capital	$ -26,500.00		$ -26,500.00
	317000	Net income	$ -400.00		$ -400.00
	411100	Sale of goods	$ -2,500.00		$ -2,500.00
	560000	Wages,oth benef	$ 600.00		$ 600.00
	585000	Oth op.expenses	$ 1,500.00		$ 1,500.00
	799000	Net income/loss	$ 400.00		$ 400.00
	21100D	CL- Rec/Pay,C		$ 0.00	$ 0.00
REGION_ELIM	121800	Oth. Receiv.		$ -300.00	$ -300.00
	211800	Oth payables,NC		$ 300.00	$ 300.00
	21100D	CL- Rec/Pay,C		$ 0.00	$ 0.00

In reviewing the results, some points should be noted. First, since all consolidation units are part of this "Regional" hierarchy as well as part of consolidation group G001, the same overall values at the REGION node for posting levels 00 and 20 should equal the earlier "Group" view example. This is because these posting levels are group independent and having the same consolidation units included means an equal result should be reported. Second, the presence of the virtual elimination member in the consolidation unit eliminated dimension reports the impact of the interunit eliminations along a first common parent logic. In this case, REGION_ELIM represents the impact of eliminations between consolidation units under the EMEA node and the NA node (i.e., EMEA + NA + REGION_ELIM equals total eliminated company REGION). These virtual

elimination members can also be thought of like level-based eliminations. The consolidation unit hierarchy must be enabled to see this hierarchical node which equals an eliminated result. Finally, the dimension ending in "… Eliminated" is not the same as the original dimension (i.e., consolidation unit eliminated is not equal to consolidation unit). However, a user can drill on both at the same time as one way to see the source member of interunit eliminations. For example, to prove that a user does see an eliminated North America as per the requirement, consolidation unit and partner unit can be added to the analysis. By doing this, users can see that all eliminations in North America are only between C001 and C002 and that no amounts have been eliminated for C003 as it is not under the NA node.

Consolidation Unit Eliminated ⏶	FS Item ⏶	FS Item ⏷⏶	Consolidation Unit ⏶	Posting Level Partner Unit | Posting Level ⏶	00 Reported data: Entry	20 Two-sided elimination entry	Total
	111100	Cash on hand	C001	#	$ 20,000.00		$ 20,000.00
			C002	#	$ 3,100.00		$ 3,100.00
	121800	Oth. Receiv.	C001	C002	$ 200.00	$ -200.00	$ 0.00
				C003	$ 300.00		$ 300.00
	172100	Inv subs JV AE	C001	C002	$ 2,500.00		$ 2,500.00
				C003	$ 1,000.00		$ 1,000.00
	211800	Oth payables,NC	C002	C001	$ -200.00	$ 200.00	$ 0.00
⌄ NA	311000	Issued capital	C001	#	$ -24,000.00		$ -24,000.00
			C002	#	$ -2,500.00		$ -2,500.00
	317000	Net income	C002	#	$ -400.00		$ -400.00
	411100	Sale of goods	C002	#	$ -2,500.00		$ -2,500.00
	560000	Wages,oth benef	C002	#	$ 600.00		$ 600.00
	585000	Oth op.expenses	C002	#	$ 1,500.00		$ 1,500.00
	799000	Net income/loss	C002	#	$ 400.00		$ 400.00
	21100D	CL- Rec/Pay,C	C001	C002		$ 200.00	$ 200.00
			C002	C001		$ -200.00	$ -200.00
	111100	Cash on hand	C001	#	$ 20,000.00		$ 20,000.00
	121800	Oth. Receiv.	C001	C002	$ 200.00		$ 200.00
				C003	$ 300.00		$ 300.00
C001	172100	Inv subs JV AE	C001	C002	$ 2,500.00		$ 2,500.00
				C003	$ 1,000.00		$ 1,000.00
	311000	Issued capital	C001	#	$ -24,000.00		$ -24,000.00
	111100	Cash on hand	C002	#	$ 3,100.00		$ 3,100.00
	211800	Oth payables,NC	C002	C001	$ -200.00		$ -200.00
	311000	Issued capital	C002	#	$ -2,500.00		$ -2,500.00
C002	317000	Net income	C002	#	$ -400.00		$ -400.00
	411100	Sale of goods	C002	#	$ -2,500.00		$ -2,500.00
	560000	Wages,oth benef	C002	#	$ 600.00		$ 600.00
	585000	Oth op.expenses	C002	#	$ 1,500.00		$ 1,500.00
	799000	Net income/loss	C002	#	$ 400.00		$ 400.00
	121800	Oth. Receiv.	C001	C002		$ -200.00	$ -200.00
NA_ELIM	211800	Oth payables,NC	C002	C001		$ 200.00	$ 200.00
	21100D	CL- Rec/Pay,C	C001	C002		$ 200.00	$ 200.00
			C002	C001		$ -200.00	$ -200.00

From an eliminated reporting perspective, an eliminated North America along the consolidation unit dimension can now be reported in a hierarchical context. Including group dependent entries generally would not make sense in this view but a combined view can be reported. In the future, if group dependent postings such as Consolidation of Investments and Non-Controlling interest were needed to report a fully consolidated result then a North America consolidation group could be created and processed regardless of any use of the Matrix Consolidation features. Using one feature does not prevent the use of the other (note: this is only true with consolidation unit since profit center/segment cannot be an entity dimension). However, Matrix Consolidation can often be simpler to implement for certain reporting requirements and does not generally require additional configuration. This is largely why it is SAP's direction for "managerial consolidated" reporting.

Key Points on Matrix Consolidation

- GR supports a full "legal" oriented financial consolidation based on consolidation groups containing companies as the underlying entity dimension. Matrix consolidation is a way to support certain complex consolidated reporting requirements where reporting is needed both for reorganizations as well as for "managerial" oriented views of eliminations along other dimensions like profit center or segment.
- GR can report both "Group" and "Hierarchical" consolidation views using one set of data.
- Most customers' definition of a "managerial consolidation" is a report that includes base data and interunit eliminations but excludes group-dependent postings like consolidation of investments eliminations.
- When doing alternative consolidated views involving consolidation unit, the requirement can be met by either creating a new consolidation group or using Matrix Consolidation features. The choice of which to use fundamentally comes down to whether "group dependent" postings are needed for reporting <u>and</u> whether users are willing to process the additional consolidation groups to get them.
- To report eliminated views of profit center or segment requires using Matrix Consolidation. A new consolidation group will not suffice as posting level 20 eliminations are only supported with entity as a driver.
- New consolidation groups are generally easy to set up but may require some configuration within other parts of the process in addition to the extra master data maintenance and data processing requirements. Matrix Consolidation usually means adding a time-dependent Global Accounting Hierarchy which is entirely master data maintenance and no reprocessing of data.

Conclusion

Matrix Consolidation coupled with the new reporting logic is GR's way to show matrix-like managerial results including the impacts of eliminations. It is SAP's approach to delivering what most customers consider to be a "managerial consolidation" while still providing the primary legal consolidated reporting in GR. When alternative roll-ups of consolidation units are needed in a managerial eliminated view, Matrix Consolidation can be a way to provide such reporting as an alternative to creating a new consolidation group and processing data to populate it with group dependent postings that may not be needed by users.

Additional Information

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