Explore new features of R12 Ledger Architecture to achieve single global instance strategy

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Executive Summary

Organizations with any size, industry classification or geography are globalizing to be more competitive by accessing new marketplaces and increasing their customer base. They are also consolidating their multiple scattered applications into single instance for simplifying and standardizing the business processes as well as achieving cost effectiveness and operational efficiencies. Through single instance, they are also getting consolidated and consistent information quickly to make right decisions.

While companies realized that global single instance strategy is a key to success, it is also imperative that doing business globally is complex and poses many challenges like increased regulatory and security compliance, changing customer requirements and processes in different regions, diverse financial reporting requirements, multiple countries tax standards etc. So, the role of global simplification and standardization becomes vital for any such implementation. They are required to model their legal entities and financial structure in single instance such a way that it achieves data security, operational efficiencies as well as independence across legal entities together. It was difficult to achieve in Oracle Release 11i due to limitations in legal entity definition and architecture, which was not required to be consistent throughout the transaction processing flows. Oracle addresses these challenges through new R12 Financial Architecture features like Legal entity setup, Ledger Sets, Accounting Setup Manger, Data Access Sets and Multi-Org Access Control etc. This paper provides details of how this architecture can effectively be used to achieve successful single global instance strategy.

What is Single Global Instance?

Single global instance can be defined as 'One integrated environment using single installation of the application and database, which supports modeling of multiple organizations for a business enterprise operating across the countries'. It is primarily based on a unified data model and enables all the business functions to share information without having to transform or replicate the data.
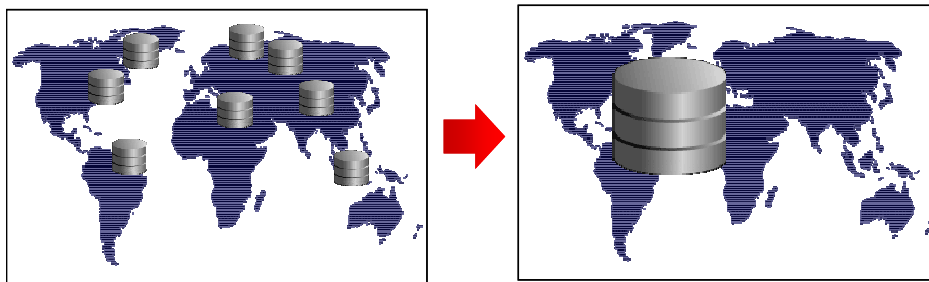

Figure 1: Single Global Instance

There are various factors, which need to be considered while deciding single global instance over multiple instances strategy. Each parameter needs to be evaluated in detail before organization can decide which option is best suited to their environment. Some examples are given below:

- **Geography Parameters** – Multiple Countries, Multiple Languages, Multiple Currencies, Multiple Time zones, Different Legislations, Local Requirements, Cultural Fit
- **Business Process Parameters** - Legal Entities Structure, Corporate Policies, Local Statutory Reporting, Management Reporting, Tax laws, Standardization of business processes, Financial Data Consolidation, Data and Setups Security, Shared Service Environment, Master Data Consolidation, Operational Efficiency, Intercompany Transaction support, Autonomy in operations

- **Technology Parameters** – Hardware Cost, Implementation Cost, Software Licenses Cost, Scalability, Server and Database sizing, Performance Benchmarks, Interfaces and Extensions with Offline Applications, Upgrade Readiness, Network Infrastructure Readiness, Downtime Constraints
- **Organizational Parameters** – Organization Structure, Current Organizational Initiatives, Executive Sponsorship, Mergers and Acquisitions, Risk Assessment, Change Management & Communication, Controls for Business Process Change, Post Production Support, Stakeholders Management

Organizations also need to evaluate in detail how most of the above mentioned business process considerations fit to Oracle R11i legal entities modeling for Oracle implementations, and what are the challenges exist to achieve single instance strategy.

Shared Service Centers

Shared service center is a business unit which enables organization to consolidate and standardize the non-core business functions and processes like Purchasing, Collections, Payroll, IT and Procurement etc. It process common activities for the entire enterprise. It helps reducing the cost of the operations and also minimizes the process risks by reducing the number of points to control for corporate governance. Some of the other advantages to implement the shared service center are to improve quality of services due to standardization, and also allow the organizations to focus on their core competencies.

Multiple Organization Support

Multiple Organization (Multi-Org) Support feature provides ability to model complex business enterprise for multiple divisions and define the relationship among them within a single global instance to secure and segregate sub-ledger transactional data. There are various types of organizations that can be defined in system. Definitions of some organizations types are given below as per Oracle Multiple Organizations Implementation Guide:

Business Group

The business group is the highest level classification in the organization hierarchy, and may correspond to entire enterprise or to a major grouping such as subsidiary or operating division. It is often related to country-specific legislation, and at least one business group is needed for each major employment jurisdiction. It is used for segregation of human resource data as well as to administer payroll and benefits for employees.

Set of Books

Set of Books depicts an accounting representation of an organization that is accountable in a self-contained way. It also serves as a as a repository of financial information or financial reporting entity that uses a particular Chart of accounts, Functional currency, and Accounting calendar. In many instances it is used to model the legal entity though in other cases more than a single legal entity can be represented within the same set of books

Legal Entity

Legal entity represents an entity registered under a specific law for which organization prepares fiscal or tax reports. Tax identifiers and other legal entity information are assigned to this type of organization. A real world legal entity is a discrete legal personality characterized by the legal environment in which it operates. The legal entity administers transaction level rules in compliance with national laws. It is the legal entity that ideally owns the transactions.

Balancing Entity

Within a set of books chart of account, user can nominate a segment to be a "balancing segment". The values (Balancing Segment Values or BSV) that user assign in that segment represent entities in the organization for which companies want to measure both income and wealth, that is, to prepare income statements and balance sheets, and to measure return on investment. It can be a division, plant, legal entity or externally reportable segment etc. All accounting entries must balance for this segment in the Accounting Flexfield structure.

Operating Unit

Operating units is a system organization to partition sub-ledger data, setups and definitions to logical boundaries in a single database. It may be a sales office, a division or a department. As compliance with transaction tax auditing legislation is built into transaction types (used in sub-ledger applications) and transaction types are stored by an operating unit, this is an effective way to manage transaction compliance. Users are given access to the data they

handle though responsibilities. A responsibility is associated with a specific operating unit, or with several operating units.

Inventory Organization
The Inventory Organization represents an organization where users track inventory transactions and balances. These organizations might be manufacturing or distribution centers. Several modules and functions in the Oracle Manufacturing and Supply Chain Management suite secure information by Inventory Organization.

Legal Entities Modeling Scenarios in R11i

In Oracle R11i, Organizations can choose to model and implement their legal entities and operating unit structure in many ways. However, there are various external as well as organizational factors, which impact the design considerations like Organic/inorganic growth, Tax laws, Globalization, Simplification, Standardization, Security, Flexibility, Autonomy, Reporting, Cost of implementation and maintenance etc. It is even more challenging for the companies who are also expanding through inorganic growth by frequent acquisitions and mergers. There are many different options mentioned below to model legal entities and their consideration attributes through definition of Instance, Set of Books, and other Chart of Account Segment values.

Option 1: Multiple instances with Multiple SOBs
Option 2: Single Global Instance with Multiple SOBs, each with One BSV
Option 3: Single Global Instance with One SOB, each with Multiple BSVs
Option 4: Single Global Instance with One SOB, One BSV, Multiple Location Segment Values

Option 1: Multiple instances with Multiple SOBs

This is the most conventional approach where organizations model each legal entity in separate instance having their own independent sets of books. The biggest advantage for this approach is to secure data, transactions and setup definitions by each legal entity. In this model, organizations can operate and model their each set of books having different accounting calendars, functional currency or chart of accounts structure. Companies can also report independent legal entities in highly regulated countries. However, due to multiple instances, it brings lots of challenges in operational efficiency and do not support shared service environment.
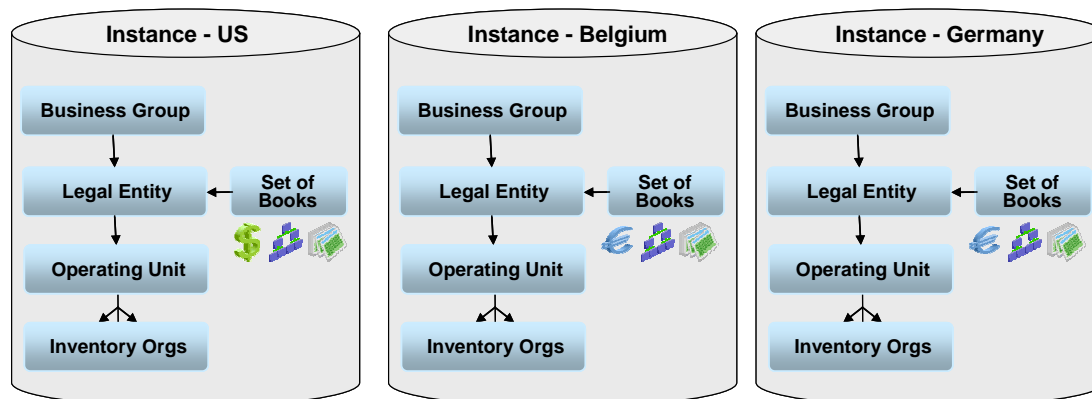

Figure 2: Multiple Instances structure

- It is difficult to achieve standardized business processes due to scattered systems across the globe
- Organizations can not implement centralized shared services, and difficulty to implement corporate policies
- It requires much higher IT cost to implement and maintain due to multiple databases, additional hardware etc.
- Organizations are forced to maintain duplicate master information for suppliers, items and customers etc. in each instance as well as requires off-line systems for consolidation and allocations financial data. It overall brings inefficiencies and increase the cost to operate the business
- It is extremely difficult to report consolidated data due to fragmented databases across the instances
- The inter-company transactions need to be recorded and reconciled manually

Option 2: Single Global Instance with Multiple SOBs, each with One BSV

With the introduction of Multi-org architecture in Oracle, organizations can implement multiple legal entities in single instance keeping data segregated and secure by each set of books. Centralized and decentralized business process flows and functions in the organization impact the decision of multi-org architecture. Centralized and shared services functions are better accommodated by a single operating unit approach in R11i. However, decentralized services are better accommodated by multiple operating units approach. Regardless of the number of operating units, organizations can implement a single instance of Oracle ERP. There are several reasons why an organization would choose to implement separate set of books and operating unit for each legal entity in single instance. The primary driver for such modeling is to segregate each set of books to secure data and transaction information, as well as automate inter-company processing and document sequencing etc. required by highly regulated countries, which mandate certain processes to be reported by separated set of books.
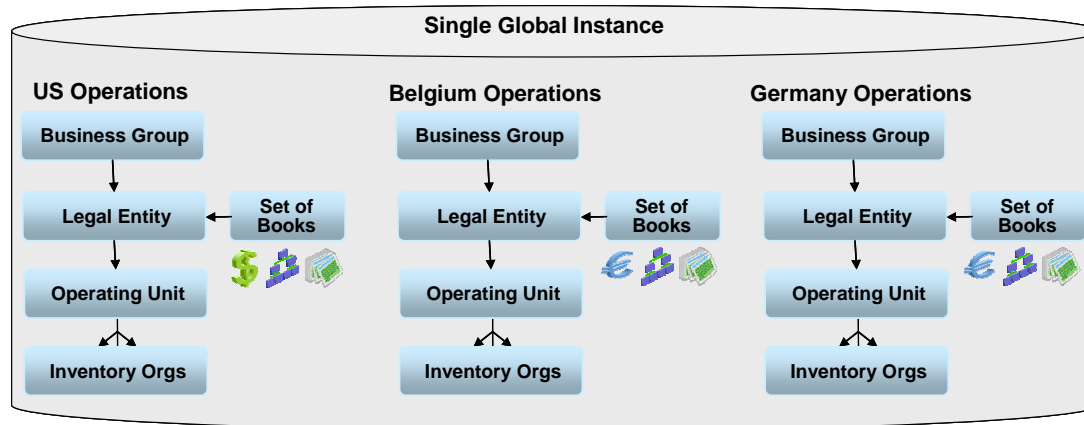

Figure 3: Single Global Instances with Multiple SOBs structure

Advantages

- **Secure Data Access**: Organizations can secure data and transactions across sets of books by assigning users to specific responsibilities, which ties to particular operating unit. This restricts users to create/modify or view data within that organization only, such as viewing or creating purchase orders.
- **Secure Setups and Definitions**: Organizations can secure setups and definitions across legal entities and sets of books such as FSG reports definitions, operating unit specific setups etc.
- **Single Master Data**: Single database to maintain master data as well as flexibility to define and control site level data by different operating units
- **Sharing Master Data**: In multi-org architecture, the header information for master data like Customers and Suppliers are shared across operating units, however sites are specific to operating units
- **Order and Ship from different Legal Entities**: Organizations can order items from one legal entity, and then ship it from another legal entity. Application automatically generates the intercompany invoices to record accounting entries for intercompany receivables and payables accounts.
- **Receiving items with any Inv Orgs with Centralized Purchasing:** Organizations can centralize purchasing for multiple operating units, and receive the items in any inventory organization within the same set of books.
- **Cross Organization Reporting:** Users can setup application to allow multiple organizations reporting by setting up the top reporting level profile option.
- **Lower Implementation and Maintenance Cost:** This approach reduces IT implementation and maintenance cost as well as overall cost to operate business due to single instance of one database and application.

Disadvantages

- **Switching Responsibilities**: Users can not be assigned to more than one operating unit in single responsibility. So, in a centralized environment, they need to switch responsibilities to perform day to day transactions. This increase the transaction processing time and decrease efficiency of shared service model
- **Duplicate Configurations**: Each set of books and operating unit need to set up and maintain system configurations separately. Sub-ledgers applications like receivables, payables, purchasing etc. need to be set up multiple times if there are multiple legal entities and sets of books.

- **Complex Configuration**: For few European countries implementation, the implementation/configuration becomes complex to address local statutory requirements, which is normally handled in Oracle through Global Accounting Engine.
- **Increased Maintenance due to Multiple Books**: There are many sets of books to be maintained by financial users, which increase the maintenance effort by additional reconciliation activities, consolidation and multiple books audit requirements etc.
- **Time Consuming Opening and Closing Periods**: Users need to perform opening and closing periods for each book separately, which is time consuming if there are multiple sets of books. Period statuses for sub-ledger application are controlled at set of books level, so if there are multiple operating units, user can not open/close period by each operating unit.
- **Difficult to perform operations across Legal Entities**: Users cannot perform operations across sets of books like receiving items created in other set of books, running payment batches, pick release operations etc. Customers and Suppliers Merge processes also work within an operating unit only. Implicitly by supporting inter-org shipments using the in-transit method, inter-legal entity transactions is achieved if the orgs belong to different legal entities.
- **Difficult to share data and setups**: It is very difficult to share data, setups and definitions across sets of books. E.g., sales reps cannot be shared from one organization to another. If the customers are defined in a different organization than the sales rep's organization, then the sales rep will not have access to data. Other example is that users can only drill down from General Ledger to Sub-ledgers data only for the current operating unit.
- **Difficult to report multiple books data**: It is difficult to generate reports having consolidated transactions data from multiple sets of books. It requires additional consolidated books, mapping sets etc. to be created, and consolidation process needs to be run for each set of books for reporting.

Option 3: Single Global Instance with One SOB, each with Multiple BSVs

Many organizations choose to implement as few set of books as possible for taking advantage of centralized shared service environment. In this approach, they model single set of books and common chart of account structure consist multiple balancing segments where each segment value represents single legal entity. This approach provides flexibility in transaction processing and consolidated reporting. This approach addresses all the issues faced by organizations in earlier approach of one legal entity by one set of books. The primary disadvantage of this approach is with security, and unavailable for companies which can not operate with common chart of accounts, accounting calendar and functional currency. It is also difficult for organizations to implement this model that operates in highly regulated countries like France, Italy etc. where companies need to report data by separate set of books.
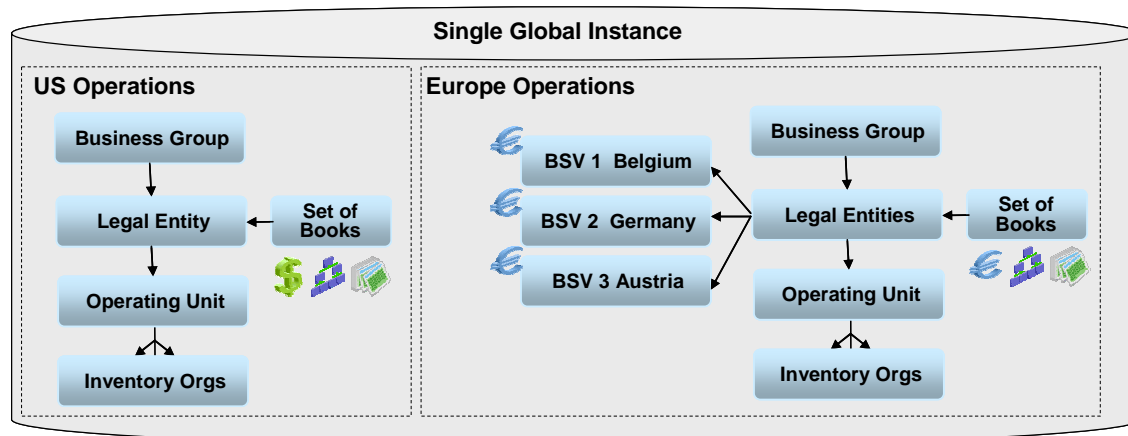
Figure 4: Single Global Instances with Multiple BSVs structure

Advantages
- **No Switching responsibilities**: As multiple legal entities can share the same operating unit, organizations can achieve centralized shared services environment. So, users need not to switch responsibilities to perform day to day transactions across legal entities.
- **No Duplicate Configurations**: Users need not to have duplicate setups and definitions by legal entities in one operating unit. This approach also minimizes the configuration maintenance.

- **Reduced Maintenance due to Fewer Books:** There are fewer books to maintain by users which expedite reconciliations activities and the closing process. It also eliminates the multiple audit requirements.
- **Operations across Legal Entities**: Users can perform the operations across legal entities like open and close the periods for many legal entities in single operation, creating allocation entries across legal entities etc.
- **Easier to Report for Consolidated Data:** Organizations can get the consolidated information and reporting easily for all the legal entities in single set of books.
- **Share data and setups**: This approach share data, setups and definitions across legal entities due to single operating unit. Users can drill down from General Ledger to Sub-ledgers data for all the legal entities etc.

Disadvantages
- **Difficult to Achieve Data Security**: It is difficult for organizations to achieve data security in this approach. Organizations can implement Flexfield Value Security feature to secure GL data and help users to create/modify transactions to correct balancing segment value. Security rules apply to account inquiry, budgets, FSG, journal entry functions and trial balance, account analysis, and many GL standard reports. However, they do not apply to review or posting of journals. All the legal entities can access each others sub-ledger data and transactions which integrate with single GL. Users also need to switch responsibilities in shared service environment if security rules are implemented.
- **Difficult to Secure Definitions and Setups:** It is difficult to secure definitions and setups like limiting access to certain reports in single responsibility, FSG reports definition, Mass allocations etc. Companies can also not segregate master data by operating units like customers or supplier sites by divisions.
- **Difficult to Secure Processes:** There is no security on the processes and functions like users can not open or close periods independently by each legal entity.
- **No Sharing of Data across Currency Boundary**: If the implantation is in single instance and across the globe, then need to take the multiple sets of books approach as cannot share the data and setups across currency boundary. This factor forces to define multiple sets of books and then later use multi-currency reporting and consolidations features to report at corporate level.
- **Difficult to Setup Defaults**: Lists of values (LOV) for sub-ledger applications will be expanded to include all the values for multiple legal entities as well as default value set may only satisfy requirement for one legal entity and other divisions need to manually override it. This brings inefficiency and overall increases the manual data entry time and may also impact the electronic transaction processing.
- **Cannot Setup Multiple Purchasing Approval Hierarchy**: Organizations can not implement multiple purchasing approval hierarchy for both Inventory & Non-Inventory transactions by legal entity, which is very common business requirement.
- **Difficult Sub-ledger Reporting by Legal Entity**: Reporting at each legal entity level would require custom reports as most of the sub-ledger standard reports partition data by operating units.
- **Additional Configurations and Extensions:** Require additional configurations and sometime extensions to derive correct accounting entries for balancing segment value. Users face challenges like cannot report balance sheet items such as receivables by legal entity at sub-ledger level and require extension to achieve it. E.g., single customer invoice transaction having multiple revenue lines, users can split P&L items by legal entity through AR auto accounting rules, however receivables will flow to only one legal entity by standard functionality. There are many such scenarios which lead to extensions.

Option 4: Single Global Instance with One SOB, One BSV, Multiple Location Segment Values
Few organizations which are growing through acquisitions and mergers are looking to consolidate multiple legal entities to single legal entity to achieve centralized shared service environment. There are many other factors also which impact the decision of legal entities consolidation like Tax impacts, corporate policies, locations etc. In Oracle R11i, such organizations do not want to implement multiple balancing segments approach due to number of issues like difficult cross selling items accounting, additional extensions and customizations, rigidity in GL by balancing segment, difficult sub-ledger level reporting by divisions, multiple faces to suppliers and customers by many legal entities, multiple audits, reconciliation and tax filing activities, intercompany transactions recording for each cross selling item across divisions etc..

Simplifying legal entity structure addresses many of disadvantages of multiple balancing segment values as well as multiple sets of books approaches. In this approach, organizations model only one set of books with one balancing segments, and perform reporting of their multiple business operations through location or some other chart of account structure segment values. The assumption here is that company can share same chart of account, accounting

calendar and functional currency for all the divisions, no multiple statutory reporting, as well as can act as single face to external world as one LE.

R11i Pain Points in Legal Entities Modeling in Single Global Instance

In Release 11i, none of the above modeling approaches support True shared service environment in single instance, where organizations can achieve together the security, flexibility in operations and independence across legal entities. The other important issue is that there is no functionality in R11i which is driven from legal entity definition, and it is also not consistent in the business process flows – the legal entity was a mere placeholder that was only implicitly linked using a set of books or a balancing segment value. Whichever approach the organizations choose, they need to either compromise on some aspects or develop extensions in the system to achieve desired results. To implement a true shared service environment in a single instance strategy, organizations are looking for following aspects together:

- Data, Setups, Definition Security across required legal entities
- Access and Flexibility in processes to perform operations across legal entities for shared services functions
- Easy Reporting for consolidated information as well as data by legal entities
- Autonomy across legal entities to perform some operations independently by specific legal entity
- No additional configurations or extensions to be done

Oracle R12 new financial and ledger architecture is an answer to implement true shared service environment and single instance strategy where many or all the legal entities data, transactions, setup, and definitions are effectively secured but also possibly shared. Organizations can model the legal entities in single instance with multiple sets of books and still get processing efficiencies like opening or closing periods in single operations etc. The new architecture also supports accounting same transaction in multiple accounting representations (parallel accounting). By making an explicit connection with the legal entity and ledger and balancing segment values, the transaction ownership has also been set to the legal entity. Oracle R12 Ledger Architecture provides many new features, which address R11i pain points.

1. Accounting Setup manager
2. Multi-Org Access Control
3. Management Segment
4. Ledger Sets
5. Data Access Sets
6. Definition Access Set

Accounting Setup Manager (ASM)

Oracle has replaced old Sets of Books concept with new Ledgers Architecture in R12 to support Parallel accounting, streamlines period end processing and to make financial reporting easier. Now, the Ledgers (Earlier known as Sets of Books) are defined by 4Cs – Chart of Account, Accounting Calendar, Primary Currency and Sub-ledger Accounting Method (Convention).

In R12, the Legal entity acts as the single point in which all the financial transactions funnel. Using Subledger Accounting architecture (SLA) it supports the ability to account for the same transaction in multiple accounting representations by applying different business rules, preserving the integrity of both corporate accounting standards and local compliance in a single consistent business process.

Ledgers can be either a Primary Ledger or Secondary Ledger. The Primary Ledger is a main record-keeping ledger, which stores the primary accounting representation for one or more legal entities. In ASM, each accounting setup requires minimum one primary ledger and optionally one or more secondary ledgers and reporting currencies.

The Secondary Ledger is an optional and additional accounting representation (which can differ in one or more of COA, Currency, Calendar, Accounting Method and/or ledger processing options of primary ledger) for local statutory or additional reporting requirements. If there is only need for different currency representation, then users can use Reporting currencies feature instead of secondary ledger. Secondary ledgers and reporting Currencies can be maintained at the following data conversion levels:
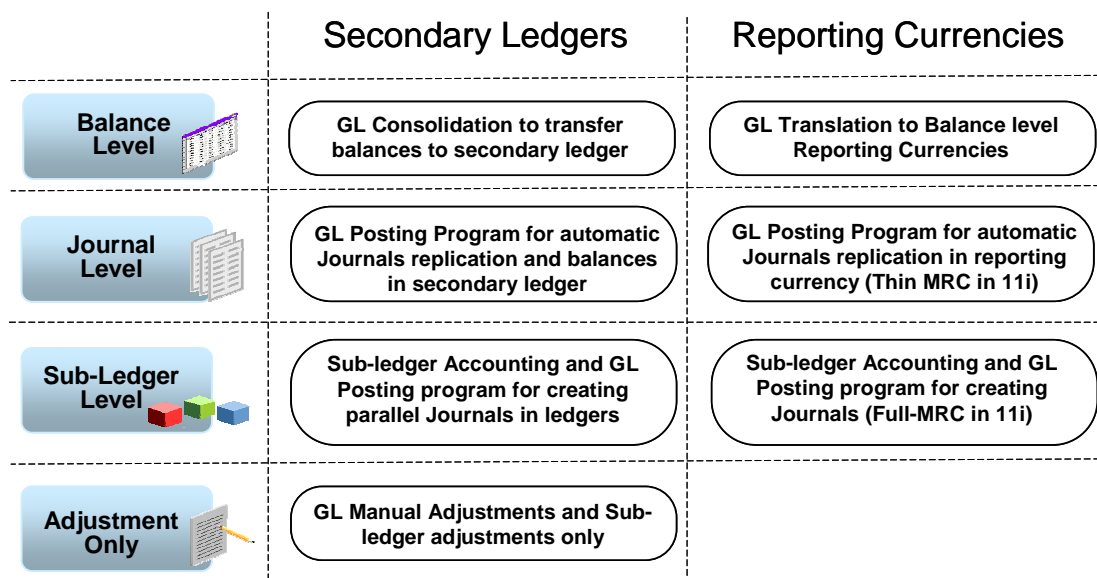
	Secondary Ledgers	Reporting Currencies
Balance Level	GL Consolidation to transfer balances to secondary ledger	GL Translation to Balance level Reporting Currencies
Journal Level	GL Posting Program for automatic Journals replication and balances in secondary ledger	GL Posting Program for automatic Journals replication in reporting currency (Thin MRC in 11i)
Sub-Ledger Level	Sub-ledger Accounting and GL Posting program for creating parallel Journals in ledgers	Sub-ledger Accounting and GL Posting program for creating Journals (Full-MRC in 11i)
Adjustment Only	GL Manual Adjustments and Sub-ledger adjustments only	

Figure 5: Data Conversion levels for Secondary Ledgers and Reporting Currencies

Accounting Setup Manager is a new feature that allows configuring common financial setup components such as legal entities, operating units, ledgers (primary and secondary), reporting currencies, sub-ledger accounting, inter and intra-company balancing, accounting and reporting sequencing etc from a central location. Now users need not to navigate to multiple screens to define, maintain and review accounting related setups, like it used to happen in R11i.

Benefits
- Secondary Ledger and Reporting currencies concepts allow unlimited numbers of additional accounting representations and currency representations respectively for meeting the flowing reporting requirements:
  - Legal reporting to comply with various countries' local statutory requirements
  - Regulatory reporting to meet industry-specific requirements
  - Management reporting through Management segment qualifier
  - Consolidation
- R12 allows organizations to add reporting currencies at anytime with automated conversion programs to convert historical data to support business changing needs for corporate reporting
- It is easier to add entities and ledgers through accounting setup manager at any time even if organizations go to new geographies or acquire new companies
- Accounting setup manager reduces the setup errors and improves efficiency through centralization of setups, by eliminating need for log in and out in different applications, and guided setup approach.

Multiple Organizations Access Control (MOAC)
R11i Multi-org architecture allows organizations to secure access in sub-ledger applications through partitioning of data in operating units, and provides a tight relationship between the functions a user can perform and the data a user can process, and enable organizations to implement applications in a single instance. In this architecture, user can only access data for one operating unit at a time from each responsibility. If working in a shared service environment, this is a highly inefficient way.

Now in R12, Multi Organization Access Control feature enables organizations to implement true shared service environment for efficiently processing their business transactions because users are allowed to enter, process, view, and report on data for multiple operating units from a single responsibility. In other words, no more changing responsibilities!

Multi-Org Preferences allows the user to control and limit the number of operating units they have access to based on their work environment. So if a user processes data for say 6 operating units, but on a given day only needs to work with 2 of them, the users can change their settings themselves without calling the system administrator to do it for them.

Cross organization reporting has been enhanced to be more consistent with the MOAC. So now user can run reports for multiple operating units from a single submission. In Release 11i, this was not possible.

Benefits
- Multi-Org Access Control feature improves processing efficiency as it eliminates the need to switch responsibilities for organizations that have centralized functions.
- Multi-Org Access Control feature provides better information for decision making as users can get consolidated view of data across operating units like customer sites and supplier sites etc.
- Multi-Org Access Control feature reduces overall costs because users are now able to enter data across operating units more quickly as well as need not to have the overhead of setting up and maintaining too many responsibilities.

Points to note
- Multi-Org Access Control feature has not been implemented for every report or function in Oracle Applications

Management Reporting

For the R12 chart of account structure, Oracle has introduced a new Management Segment Qualifier for management reporting. User can optionally qualify a segment as the management segment if that segment has management responsibility like cost center, line of business, product line etc.

The added advantage of using a management segment is that users can now secure management segment values using data access sets. So they can grant read only or read and write access to specific management segment values to prevent certain managers from viewing and updating data for cost centers, lines of business, or product lines outside of their management authority.

Benefits
- Management Segment Qualifier enables users to perform management reporting and analysis by leveraging a management dimension in the chart of account structure.
- Management Segment Qualifier enables the organization to effectively implement corporate policies and internal controls by preventing managers from accessing data outside their area of responsibility.

Points to note
- Management Segment Qualifier only Impacts General Ledger module.
- Users can enable the management segment qualifier for any segment except balancing, natural account, and intercompany segment.

Ledger Sets

Ledger Sets allow to access and process data for multiple ledgers from a single responsibility simultaneously such as including open/close periods, create journals, perform allocations, translate and revalue, ability to view data, submit reports and create financial statements. Essentially, Ledger Sets allow treating multiple ledgers as one.

Users can group all types of ledgers in a ledger set (Primary ledger, Secondary ledgers, and Reporting currencies), as long as they share the same chart of accounts and accounting calendar/period type combination. The same ledger can belong to multiple ledger sets, and ledger sets can contain other ledger sets. E.g., if organization has setup reporting currencies at either journal level or sub-ledger level, they can group both primary ledger and reporting currencies in single ledger set. This enables organizations to perform operations like open/close periods as well as viewing consolidated data simultaneously.

Benefits
- Ledger sets allow financial users to expedite the period close process by treating multiple ledgers as one during month-end activities such as performing translation, revaluation, running reconciliation reports, opening/closing periods across the ledgers in single operation etc.
- Ledger sets provide increased flexibility to centralize/decentralize accounting functions by performing operations through ledger sets across legal entities

- Ledger Sets also provide timely and accurate consolidated data reporting, as no transfer of data or separate data warehouse required to report across ledgers / legal entities. The reporting data is based out of transactional system.

Points to note
- Only those ledgers which are sharing the same Chart of Accounts, Accounting Calendar and Period Type can be combined into a Ledger Set.
- Ledger Set feature is only used by General ledger module. However, few Receivables and Payables modules reports can be run for ledger or ledger sets such as Payables Posted Payment Register, Open Account Balances Listing etc.

Data Access Sets

Data access sets feature control which ledgers and/or ledger sets can be accessed by different responsibilities. Optionally, it can also grant read-only or read and write privileges to the entire ledger, certain Balancing Segment Values and/or Management Segment Values. By restricting a user from accessing certain Balancing Segment Values (BSV), also secure the access across legal entities if balancing segment value assigned to Legal Entities.

Users can define three different types of data access sets.

- **Full Ledger Access**: This type grants full access to all the data in a ledger. So, users have full read and write access to all the balancing segment values or management segment values in a ledger. This type of access is required to perform many operations, such as opening /closing periods, creating summary accounts, creating budgets, and performing Mass Maintenance. It provides better system performance than any other data access set type.
- **Balancing Segment Value Access**: This type grants access to all or specific ledger/balancing segment value combinations. This is useful for companies implementing above mentioned option 3 that uses a small number of ledgers with a high number of balancing segment values to represent multiple legal entities.
- **Management Segment Value Access**: This type grants access to all or specific ledger/management segment value combinations. This type can only be used if users have specified a management segment in the chart of accounts structure.

Oracle GL automatically creates a data access set when user either create a new ledger or define a ledger set. This new system generated data access set uses the same name as the ledger or ledger set. It always uses the Full Ledger access set type, and can not be updated by users. Users can create their own custom data access sets if they want to further limit read and write access to ledgers, ledger sets, or specific balancing segment values or management segment values for a ledger or ledger set.

Benefits
- Data Access Sets provides efficient access to data by combining this feature to the ledger sets. So, now users need not to switch responsibilities to access required data across legal entities.
- Data Access Sets enables the organization to effectively implement corporate policies and internal controls by preventing unauthorized access or update of ledger data. This is very useful if organizations using above mentioned option 3 where multiple legal entities share the same ledger through balancing segment values.
- Data Access Sets work with Segment Value Security Rules and GL Cross Validation Rules. It provides users to utilize best of all these features to secure segment values from specific responsibilities.
- Data Access Sets also enables effective management reporting and analysis by securing data based on area of responsibility to prevent managers from viewing and updating data outside their management responsibility.
- Data Access Sets support the shared service environment where it provides flexibility for centralized accounting functions to secure access to the entire ledger or portions of the ledger at a very granular level

Points to note
- Ledgers and ledger sets assigned to a data access set must share the same chart of accounts, accounting calendar, and period type.
- Data Access Set is only used by GL module and Sub-ledger Accounting (SLA) architecture
- Each responsibility can have only one data access set assigned.

- SLA allows users to have only two Data Access Sets through profile options 'GL: Data Access Set' and 'SLA: Additional Data Access Set' if user has already set the profile option 'SLA: Enable Data Access Set Security in Subledger'.
- User must specify one of the three types for each data access set. Once defined, they cannot change the type. However, users can add or delete ledgers/ledger sets and segment values specified.
- When users assign specific balancing segment values/management segment values, they can specify all values, parent values that include children or child values individually.
- If defining custom data access sets, always include Reporting Currencies with their source ledger to prevent posting errors.

Definition Access Sets

Definition Access Set is an optional security feature that enables organizations to control access to setups and definitions independent of data security. Users can now secure setups and definitions that are naturally shared across ledgers and legal entities such as FSG (financial statement generator) Reports, Mass Allocations, Recurring Journal Formulas, Consolidation Sets, Budget Formulas, and Accounting Calendars etc. It allows organizations to assign access for a specific setup or definition to a user or group of users, and also specify what actions can be performed on secured definitions.

For organizations, which prefer to secure and do not want to share specific definitions and setup components with users across ledgers and legal entities, it is a very useful feature. E.g. in R11i, any user can view, make changes or even delete FSG reports as long as they have access to FSG report components in their responsibility function. So, there is no way in R11i to prevent setups and definitions in shared legal entities model. Organizations can control who has access to definitions by assigning users and responsibilities to Definition Access Sets. There are following Access privileges available:

- **Use Access**: This privilege allows user to use a definition in a process or report. It also enables a user to use the definition to create another definition. If a user only has Use access to a definition, that user cannot view or modify the definition. For each setup or definition, Use access means a little different. E.g., in FSG, use access refers to submitting the FSG report, however for Recurring Journals, it means generating the recurring journal.
- **View Access**: This privilege allows user to view or query a definition, but user can not modify the definition. This allows the user to create a definition based on an existing definition without changing the original. E.g. users can view the recurring journal formulas and amounts; however they can not generate it to update balances.
- **Modify Access**: This privilege allows user to view and modify a definition, but user can not use the definition. User can also change the definition access set security for that definition.

Benefits
- Definition access sets provides efficient access to setups and definitions by combining this feature to ledger sets. So, now definitions that are not secured can be shared across ledgers and legal entities. In this case, definitions only need to be defined once and can be reused by multiple legal entities.
- Definition access sets enables the organization to effectively implement corporate policies and internal controls by preventing unauthorized access or update of definitions and setups. This is very useful if organizations using above mentioned option 3 where multiple legal entities share the same ledger through balancing segment values.
- Definition access sets support the shared service environment where it provides flexibility for centralized accounting functions to prevent certain users from using, viewing, or modifying setup and definitions that are specific to a legal entity

Points to note
- Definition access sets only Impacts General Ledger Setup and Definitions.
- Definition access sets are assigned to a Responsibility, but access granted to a user or group of users.
- Definition access set security feature is independent from Data access sets. It secures definitions while data access sets secure access to data. However, it works together. E.g. a user may be able to generate a recurring journal based on definition access set, but he must also has write access to the ledger and balancing segment values contained in that journal in order to generate a valid journal entry.

Summary

Oracle R12 new financial and ledger architecture is a global release which enables organizations to implement true shared service environment and single instance. Based on the above definition of R12 ledger architecture, we can

summarize that most of the issues associated with R11i legal entities modeling in single instance have been addressed.

Category	Functionality	Option 1 Multiple Instances	Option 2 Multiple SOBs	Option 3 Multiple BSVs	Option 4 Multiple Locations	R12	R12 Features
Security	Secure Data across ledgers	Yes	Yes	Partial	Yes	Yes	Data Access Sets
	Secure Setups and Definitions	Yes	Yes			Yes	Definition Access Sets
	Secure processes and operations	Yes	Yes			Yes	Ledger Sets and Access Sets
	Management Security					Yes	Management Segment Qualifier
Standardization	Single Master Data across ledgers		Yes	Yes	Yes	Yes	Single Instance and Multi-Org
	Standarized business Processes		Yes	Yes	Yes	Yes	Single Instance and Multi-Org
	Shared service environment Support			Partial	Yes	Yes	Multi-Org Access Control
Autonomy	Independent operations across Ledgers	Yes	Yes			Yes	Ledger Sets
	Easier to Setup LOV Defaults	Yes	Yes			Yes	Multi-Org Access Control
	Flexbility for different entities modeling	Yes	Yes			Yes	Ledger Architecture
Flexibility	Fewer Ledgers to maintain			Yes	Yes	Yes	Ledger Sets
	Performing Operations across Ledgers			Yes	Yes	Yes	Ledger Sets
	Easier to share data, setups & definitions			Yes	Yes	Yes	Ledger Sets and Access Sets
	No changing responsibilities			Yes	Yes	Yes	Multi-Org Access Control
	Automated Intercompany Accounting		Partial	Partial	Partial	Yes	AGIS
Reporting	Easier GL reporting across ledger			Yes	Yes	Yes	Ledger Sets
	Easier Sub-ledger reporting across OUs			Partial	Yes	Yes	Multi-Org Access Control
	Easier consolidation and allocation			Partial	Partial	Yes	Ledger Architecture
Cost	Lower hardware and application cost		Yes	Yes	Yes	Yes	Single Global Instance
	Lower maintenance Cost			Yes	Yes	Yes	Ledger Architecture
	No Duplicate setups and Configurations			Yes	Yes	Yes	Ledger Architecture
	Minimized extensions for accounting	Yes	Yes		Yes	Yes	Ledger Architecture

The above table describes the difference with each option and R12 architecture. Option 1 and Option 2 provides security and Autonomy to Organizations, however has cost disadvantage as well as not much flexible to support shared service environment. On the other side, Option 3 and 4 provides cost advantages with flexibility to organizations, but difficult to get autonomy and, secure data and definitions.

Conclusion

While globalization is a common mantra for CXO today, it is very critical for organizations to achieve global simplification and standardization by consolidating their financial systems, managing compliance with international regulations, centralizing their accounting setups and maintenance, improving the efficiency on transactions processing as well as adopting best practices in single instance. The best time to improve competitive position in the market place is during technology shift and investing in the next generation applications platforms like R12/Fusion etc. As summarized above the Oracle R12 Financial Architecture is the superset of most of the functionalities needed for a newer Global business model. It significantly increases the success probability for single global instance implementation initiatives.

References
- Oracle Applications Multiple Organizations Implementation Guide Release 12 (Part No B31183-02)
- Oracle General Ledger Implementation Guide Release 12 (Part No B31219-03)
- Release 12 Field Readiness Workshop Sales Track Financials Ledgers