



# Oracle E-Business Upgrade Methodology

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## SUMMARY

In evaluating any upgrade, there are many factors to consider, such as support timeframes, functional capabilities, technical infrastructure, and underlying business needs. These factors are often complex and interrelated—all of which adds to the importance of determining the most appropriate upgrade strategy.

## THE UPGRADE PROCESS

- Within the upgrade project, there are several key areas of work that begin with project definition and continue through the training of personnel on the new solution.
- A standard upgrade project is divided into the following six phases:
- Evaluation of the new release
- Planning the upgrade (including development of a comprehensive business case)
- Technical upgrade (including conference room pilots/test rounds)
- Functional testing (including conference room pilots/test rounds)
- Training
- Cutover to production

## EVALUATION OF THE NEW RELEASE

Before initiating an upgrade effort, the newest release will be evaluated to confirm whether the new capabilities and architectural enhancements will provide proportionate positive benefits to justify an upgrade.

Documentation review comprises a key facet of your Oracle E-Business Suite upgrade evaluation. Information such as release notes will help determine what will change in an upgraded system, and make you familiar with new features.

## PLANNING THE UPGRADE

A successful upgrade starts with a clear definition of the scope of the project as well as a detailed project plan. The definition of scope will include the objectives for upgrading, decisions regarding any new features and functionality to be implemented, potential changes to business processes, the impact of the upgrade on any customizations or interfaces in your current environment, and system downtime requirements.

The plan will identify project team members and their roles. Typically, an upgrade team combines both internal and consulting resources. Technical staff familiar with any customizations and interfaces should be included in the project, along with business users adept at using current Oracle functionality within their business processes. Consulting resources will provide the expertise in project management, supply knowledge of new technical and functional enhancements, and bring experience of upgrades undertaken by other clients. Communication with key stakeholders in the upgrade plan is an imperative for success. Key stakeholders include everyone in the company affected by the upgrade, from the accounts payable clerk or shipper/receiver right up to the executives approving expense reports.

Once the high-level technical decisions are made, detailed upgrade planning will begin. DBAs will download and review the Oracle Application Upgrade documentation and product release notes for their chosen upgrade path. Also, additional documentation will be reviewed for database upgrades, Middle Tier, and so on, to understand which steps need to be performed and which steps are deemed out of scope.

## PERFORMING THE TECHNICAL UPGRADE PROCESS

Executing the technical upgrade is a critical initial phase. Prior to executing the upgrade, systems and operations that will be affected by any production outages will be identified. Items such as hardware upgrades or changes to database upgrades need to be considered during the outage window.

Next, a detailed technical upgrade document will be developed specifically tailored for your environment and goals. Once this document is approved, a practice upgrade will be performed on a cloned instance of your production instance to gain experience with your unique upgrade and environments, as well as to expose any potential issues. The practice upgrade will be documented in detail, including, as a minimum, any issues and their resolution. The original detailed technical upgrade document will then be updated to include the lessons learned during the practice upgrade and each subsequent upgrade. Checkpoints will be set during the practice upgrade and regular backups will be captured throughout the upgrade process. If issues are experienced in subsequent steps, we will be able to restore the environment to a specific point rather than reinitiating the entire upgrade process.

## EXECUTING FUNCTIONAL TESTS

Any test scripts prepared during your initial Oracle implementation will be used as the baseline test scripts for the upgraded test environment. These scripts will be modified and additional scripts written for any changes in functionality that result from the upgrade. Expected results from the test scripts will be included so that they can be compared against actual results during testing.

Multiple rounds of testing will be completed to validate results. The first round of testing will be done to verify any setup changes or patch applications. Business end users will be included in testing as soon as possible and must ultimately decide if the tests are passed or failed. Between rounds of testing, make any setup changes or apply patches and retest.

## TRAINING END USERS

Training documentation will be prepared and user guides updated to reflect changes in both functionality and business process, if applicable. Note that this may include removing steps in a business process if the upgrade has streamlined the process or removed customizations that are no longer needed.

## CUTOVER TO PRODUCTION

At cutover, the final “production” upgrade pass is completed. As part of this effort to upgrade the production environment, a step-by-step go-live plan will be executed that includes all technical and functional upgrade steps. A formal go-live checklist will be used to verify that all steps were completed.

A detailed, well-planned, and coordinated production upgrade is important in reducing the production outage window and minimizing risk. There are a number of techniques that can be employed to reduce downtime, such as staged upgrades, patch merging, distributed upgrade, and parallel processing. We will recommend where possible to use these techniques to help reduce your production outage.

## EXAMINING YOUR UPGRADE CRITERIA

There are several areas to consider when developing the business case to upgrade Oracle E-Business Suite. These areas may include application functionality, technological enhancements, operational considerations, and support availability.

## APPLICATION FUNCTIONALITY

When considering an upgrade, most organizations begin with a critical assessment of the new capabilities and enhancements to current features provided in the new release. A firm grasp of these new capabilities and enhancements is essential to evaluating the value to be gained through your organization’s investment of time and resources.

In many instances, new capabilities can offer productivity advantages, increased business value, and lower operational costs (for example, through the retirement of customizations). The Oracle E-Business Suite release notes are the best first step to understanding the major changes included in the new release. Also, these documents provide valuable references to other documentation that can help us evaluate and implement the new release. We will help you identify new features, functionality, and processes that may provide value to your organization.

## TECHNOLOGICAL ENHANCEMENTS

As your application upgrade strategy evolves, we will assess your technical infrastructure requirements, including client architecture, application server, Web services, and database options. We will consider what has changed or what will change in terms of platform support, and also be aware of infrastructure enhancements that may provide additional benefits to your production environments.

## IDENTIFYING YOUR UPGRADE PATH

In addition to the factors already discussed, we will consider the amount of time needed to upgrade and ensure you will have the full support and coverage for your solution. The timing of the release availability should not significantly alter your upgrade plans; instead, your upgrade decision will be based on the ability of your currently deployed release to support your business in the near-to-medium term.

- Upgrading from Oracle E-Business Suite 11.5.x to Oracle E-Business Suite Release 12
- A typical upgrade path for an Oracle E-Business Suite 11.5.x customer is as follows:
  1. Using AutoUpgrade, upgrade to release 11.5.7 or higher. An upgrade to 11i.10 is recommended.
  2. Upgrade the database to Oracle Database 10g
  3. Apply prerequisites for Release 12
  4. Configure the database to use OATM
  5. Install R12 components using rapidwiz/RapidInstall
  6. Apply the Release 12 upgrade driver and appropriate additional patches
  7. Run rapidwiz/RapidInstall one more time to configure and start R12 services

## UPGRADE BEST PRACTICES

In preparing to successfully upgrade, there are multiple considerations that will be included in the upgrade planning and execution efforts. The following recommendations will help manage a successful upgrade project.

## GENERAL RECOMMENDED TASKS

The following general considerations will form the backbone of the upgrade initiative.

### TASK #1—DETERMINE THE UPGRADE PATH

System requirements and supported platforms on Oracle MetaLink will be referred to determine supported upgrade paths for major releases. We will determine whether you can upgrade directly to the latest release or whether you must first upgrade to a previous release before moving to this target release. In addition, the complexity of your upgrade effort will be evaluated based on the number of modules implemented, number of customizations, number of integration points, number of interfaces, and the total number of scripts. Finally, we will determine the metrics and cost associated with each aspect of the upgrade. Each consideration will be addressed through a thorough upgrade assessment.

### TASK #2—TREAT YOUR UPGRADE ACTIVITY AS A FORMAL COMPANY PROJECT

The single best predictor of upgrade success may be the planning and project management rigor invested. A structured approach for managing the tasks, resolving issues, and measuring progress is absolutely critical. Equally important is a clearly defined and documented project scope. A defined

scope is critical to project measurements necessary for time and cost containment. Experience has demonstrated that clear issue definition, strong project management, and executive ownership are critical success factors to a well-performing project effort. Experienced project management skills will ensure proper guidance and controls are in place. We can provide someone with experience managing technical projects who can also help you anticipate and manage the effects of this initiative on other parts of the organization, including end users, managers, and executives.

### **TASK #3—USE CHANGE MANAGEMENT APPROPRIATE FOR AN UPGRADE**

During an upgrade, it is imperative to freeze metadata and system data in your production environment. With respect to the new release, we will ensure all relevant patches available are applied appropriately. Failure to effectively manage these different change management requirements can result in upgrade step failures and unexpected user acceptance test results. Once we have addressed this consideration, we will proactively search for issues throughout your upgrade effort and schedule relevant updates until you reach a “go/no-go” milestone. We will periodically check for known issues within the specific products installed with Oracle E-Business Suite.

### **TASK #4—BUILD AN UPGRADE TEAM WITH BROAD AND COMPLEMENTARY SKILLS**

Several different skill sets will be necessary to successfully upgrade your system. The following list details recommended roles that should be staffed within the upgrade project team. Note that a steering committee is critical to success. Creation of an active and interested steering committee is imperative because critical business decisions must be efficiently made and dealt with throughout the project. Furthermore, project failures are often traced to the lack of an effective governance body. If possible, it is best to enlist people who were involved in the original Oracle implementation project to take part in the upgrade project. This will leverage not only their knowledge of Oracle, but also their information on the implementation process itself. A typical upgrade team should include the following members:

- Steering committee
- Business owner of the application (such as the CFO)
- Application data owner
- Key user group representatives
- Dedicated project manager
- Technical functional lead
- Oracle E-Business Suite administrator
- Database administrator
- Technical change management owner/release coordinator
- Operating system administrator(s)
- Testers—both technical and functional
- Technical upgrade specialist(s)
- Organizational change management/training lead

### **TASK #5—DECIDE WHEN TO CHANGE OR ADD BUSINESS PROCESSES**

In many cases, there is functionality in the release being evaluated that will help your business improve processes and automate tasks. This can be a small enhancement to business processes you are already using, or larger changes such as the adoption of a new module. One critical decision for your upgrade project is whether you will implement the new functionality as part of the upgrade, or upgrade your current processes without change, and implement new functionality as a follow-on project. Generally, implementing your current processes in a new system can be a way to mitigate risk in the upgrade project. However, your business realities may preclude this approach, especially if the updated processes native in the software can markedly improve operations. For example, the business may be driving to take advantage of new capabilities as quickly as possible, or it may be more appropriate to modify processes and engage in a coordinated training effort to increase user adoption of the new solution. We will help you in carefully weighing the pros and cons of these approaches so that the best strategy for your organization will be chosen.

## TASK #6—PLAN FOR UPGRADE TUNING

Another critical area that will be considered is the performance tuning of your new system. Tuning your production upgrade scripts can significantly reduce downtime during the final stages of your upgrade. We suggest taking advantage of the expertise of our consultants who have experience tuning your new release to ensure you get the most from your infrastructure.

## TASK #7—ESCALATE AND RESOLVE PROBLEMS AS APPROPRIATE

As an Oracle Partner, we communicate with Oracle on a regular basis. We have vast experience working with Oracle Support which is beneficial when experiencing upgrade issues. Upgrade project timelines are generally pretty tight so it is critical that problems are escalated and resolved as efficiently as possible.

## PROJECT INITIATION CONSIDERATIONS

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There are a number of things that can be done as your project begins, or even before it formally kicks off, which will ensure that the project has a proper foundation and is well positioned for success.

## TASK #8—PREPARE THE ORGANIZATION

As we enter the initial stages of an upgrade project, we will engage the entire affected organization to help them prepare for the work ahead and the changes they will experience in their jobs. We will obtain formal buy-in from the stakeholder organizations and kick off the project in a face-to-face meeting. Formality, visibility to upper management, and team building are key aids to securing the cooperation and problem solving help we will need as the project progresses. These discussions will include both the business impact of the change and the associated change schedule. For example, secure agreement on all business blackout periods necessary for system changes. Once the project starts, we will provide regular updates regarding the progress of the upgrade to the organization.

## TASK #9—ENSURE THE QUALITY OF YOUR DATA

One of the key steps in preparing for a successful upgrade is ensuring that your data is accurate and complete. Hopefully you already have standard practices for handling duplicate records, verifying data integrity, and ensuring the overall health of your data. Before the upgrade, we will take time to review what practices are in place or need to be created to ensure that your data is relevant and reliable. Ensuring high quality data using these techniques will aid the effective completion of table conversions and will assist greatly in seamless operation of your Oracle EBusiness Suite solution after the upgrade is complete. In like fashion, it's recommended that we help you complete a detailed review of your current reporting strategy prior to the upgrade. A clearly stated policy of reporting preference with a goal toward report reduction or consolidation can improve the efficiency of your operations, promote cost reductions, and minimize report maintenance.

## TASK #10—INVENTORY THE SYSTEM

All configuration elements of your enterprise system will be inventoried and the current configuration items (versions) will be copied and stored for technical change management control. Upgrading is analogous to moving; before starting, we will make sure where all your belongings are and that they are being handled appropriately. Early in your project, we will be diligent in gathering this information through composing and completing a preliminary upgrade questionnaire. The key considerations that will be included in your inventory process are:

- Customizations, extensions, and modifications
- Localizations
- Interfaces, APIs, and integrations
- Third-party products
- Hardware
- Software releases and patches, including operating system, database, and Oracle E-Business Suite applications

## TASK #11—PREPARE A GO LIVE CHECKLIST

Once we have completed the initial planning, a checklist of criteria will be created to guide the ultimate deployment of the upgraded solution. The planning activities will allow us to develop a robust checklist to assess appropriate “go/no-go” decision points. Creating this checklist as soon as possible is a good way to organize project goals, validate the plan, and identify the success criteria before the pressure is on to complete the project. This list will be reviewed periodically during the upgrade to ensure progress is sufficient to complete on time.

## TASK #12—UNDERSTAND AND MITIGATE PROJECT RISKS

Early in the project, a risk analysis will be undertaken to determine project risks such as resource contention, other projects going live at the same time, and so on. For risks that have a high probability of occurring and have a large impact, specific mitigation plans will be developed. These plans describe, in advance, what actions to take if the risk becomes a reality. The analysis and plans will be reviewed on a regular basis throughout the project. We will look for key points of failure, especially in the area of resource loading for technical and business specialists. If bench strength is lacking in any particular areas, a plan will be developed to supplement and/or back up critical personnel.

## PREPARING YOUR TECHNICAL ENVIRONMENT

While many of the activities required for a successful upgrade project involve end users and net change for the applications, changes to your technical environment must also be managed carefully.

## TASK #13—EVALUATE THE ARCHITECTURE

There are several key technological decisions to make that will affect the project. Changing any part of the architecture increases the complexity of the upgrade project, and careful planning is required to determine when to make this change as well as account for the technical work required. If you are not planning on changing architecture (although it may be mandatory for you to change your architecture depending on the version of the applications you are on currently), it is important to clarify this throughout your organization and create consensus to minimize disruptions. We will plan to complete a full performance test prior to the go-live date. This action will better allow us to tune the system, getting all we can from your available resources and minimizing performance-related issues at go-live. It is imperative that this evaluation be made early on to remove uncertainty and allow the project team to focus on other upgrade related details.

- Platform: Most upgrading customers choose to remain on their current hardware, operating system, and database architecture through the upgrade. However, many customers take advantage of the upgrade timeframe to upgrade hardware and transition to the latest support version of the operating system and other third-party software. If your requirements include considering a change in this area, it is vital that this decision be made early on as the platform often drives most, if not all, of the software utilized. We will help you make any platform decisions based on the assessment of your current environment.
- Nonproduction Hardware: It is important that all of your testing environments are adequate for handling the anticipated testing loads. We often concern ourselves only with the production environment and assume that performance is not important in a test environment. Bad performance during critical phases of testing can not only provide users with a bad experience, but can also affect the upgrade schedule by hindering completion of testing and delaying system deployment.

## TASK #14—CALCULATE NEW HARDWARE SIZING

Given the potential changes to your current system configuration, it is absolutely vital to get an accurate sizing for your new architecture. The combination of expanded Oracle E-Business Suite product functionality, technological change, anticipated changes in the way you use the applications, and possible implementation of new modules could all impact sizing requirements for the upgraded solution. Accurate sizing information will help you decide whether you can reuse current hardware,

need to increase hardware resources, or should consider upgrading one or more of your servers. Similarly, sizing considerations are important whether or not you intend to upgrade in place (with potential reuse) or switch to a new hardware platform during the upgrade process. Performance and load testing can help determine if the hardware is adequate to support your production requirements.

#### **TASK #15—IDENTIFY CUSTOM CODE AND SCRIPTING**

Any custom code integrated with Oracle E-Business Suite may be impacted during an upgrade. It is important to not only identify any custom code but also track the progress of any retrofit efforts during the project. We will identify the code, who owns the code, and its status. During the original implementation of Oracle software, any customizations should have been registered as a custom application using the System Administrator responsibility. A supporting directory structure on the application server should have also been created at this time. All customizations registered as custom applications will be protected from being overwritten during the upgrade process. If a custom application was not used for some or all of the current customizations, we recommend performing this step prior to initiating the upgrade. All interfaces, form customizations, descriptive flexfields, and customized reports will require extensive testing to ensure that they have not been affected by changes to tables or APIs in the upgraded software. Custom responsibilities and menus will be reviewed and potentially updated as well. In some cases, customizations can be removed following an upgrade if new features and functionality satisfy the business requirements previously met with the custom code.

#### **TASK #16—DEFRAGMENT AND REORGANIZE YOUR DATABASE**

From a general database perspective, there are a few actions that can be completed to assist the upgrade project. To optimize the efficiency of the system as you upgrade, we will defragment and reorganize the database to the greatest extent possible beforehand.

#### **TASK #17—STUDY AND ADHERE TO CURRENT MINIMUM TECHNICAL REQUIREMENTS**

A critical step in ensuring success is adhering to the technical requirements for your system. This applies to the release currently in production as well as the release to which you are moving. We will review these requirements early in the project to ensure that you have the right components and understand any updates or changes and how they will affect the upgrade plan.

### **INSTALLING THE NEW RELEASE**

Installing the new solution properly is a critical component of the upgrade process.

#### **TASK #18—VERIFY THE INSTALLATION**

After installing the new Oracle E-Business Suite solution, we will complete an inventory check to confirm that all components were installed correctly and are behaving properly. Installation documentation will be explicitly followed to minimize potential issues. Once all aspects of the installation are confirmed, the process can continue.

#### **TASK #19—GET CODE CURRENT**

In addition to the basic installation and upgrade steps, it is critical to get “code current” in the new environment before you invest in the testing, configuration, and validation associated with going live. We will research the most current aggregate fixes to be applied, such as Consolidate Upgrade patches, recommended patches, and so on. Installing these fixes to the system early in the project is a significant predictor of project success. The best-run and most successful projects do this early in the project, right after installing and upgrading the database.

## UPGRADING DATA

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Once the system is installed, we will turn our attention to data considerations. This step is a critical to upgrade success, and often the most time sensitive.

### TASK #20—MINIMIZE APPLICATION DATA TO UPGRADE

There are several steps to take to prepare application data for the conversion. The first step is to minimize the amount of data needed to upgrade. If you have a defined archiving and purge strategy for your data, be sure to apply it before the upgrade. If a defined data strategy does not exist in your organization, we strongly recommend implementing one. We will help you define and implement an archive, purging, and data lifecycle strategy for your current system as well as for your upgraded environment.

### TASK #21—TEST WITH A COPY OF THE PRODUCTION DATABASE

Converting data accurately and efficiently depends on the quality and makeup of the data itself. Working with a current copy of production data will give valuable information about how the testing process will be structured as well as how long it will take to complete. Typically, the first conversion will be the longest and the most difficult. As we progress through the upgrade project, we will continue to work with accurate, current data, taking a fresh copy as directed in the upgrade path documentation. This consideration not only ensures the highest data quality, but will provide more accurate upgrade activity time estimates during performance testing.

### TASK #22—CHOOSE THE NUMBER OF TEST UPGRADES AND FUNCTIONAL TESTING CYCLES

Successful upgrade projects test the data conversion multiple times. The number of tests will depend on the complexity, volume, and success of the process. From a functional standpoint, we will likely want to run 4–5 distinct test cycles, including one to three conference room pilots (CRPs), a system integration test (SIT), and a user acceptance test (UAT). Each of these test cycles will correspond to a separate test build. From a technical standpoint, additional builds are useful to practice the upgrade, tune the process, and collect timings for the production upgrade weekend. This practice instills confidence in the accuracy of the final conversion timeframe. Testing after the first successful conversion will help prove repeatability in the process.

## TRAINING

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While many of your team's existing skills will serve you well in your upgrade project, we can provide training on the new features, business processes, and other changes, to help your staff become more efficient and effective with the new version.

### TASK #23—TRAIN END USERS ON THE NEW SOLUTION

When first implementing your system, your end users must be trained from the ground up to use the new application solution. However, during the upgrade, you will likely have experienced users who are already familiar with the basics. This fact can both assist and impede the upgrade project effort. Your end users, most importantly those who will be testing the system, must have good information about how the resulting solution will be different—that is, whether the changes are functional or technical in nature. These considerations will prevent issues from being reported that result from misunderstandings, and better position overall acceptance of the new solution. We can provide functional and technical training as needed.

### TASK #24—GET SPECIFIC TECHNICAL TRAINING

The project team and support team must be proficient in the new technologies introduced in the latest release. Team members must also understand the new architecture and performance best practices. We can perform an assessment to reconcile the skills needed to support the development and maintenance of the new release. This consideration is especially critical for a successful upgrade initiative. Applicable training can then be provided as needed.

## TASK #25—OPTIMIZE TRAINING PROCESSES

One of the best ways to reduce the number of issues to track, research, and resolve is to train users at an optimal time in the upgrade process. Although many of the core functional and administrative business processes are similar between releases, training will give your users the information they need to distinguish true issues from intended changes. For this reason, the timing of this functional training is important. While you may want key users to be trained early on to give input to the project and assess impact, most users prefer to be trained closer to going live on the new system so they don't have to remember what they have learned over a long period of time without being able to apply this knowledge. Again, we can provide functional and technical training as needed.

## POST-UPGRADE ACTIVITIES

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Once the core technical upgrade has been completed, there are several additional steps to ensure success.

## TASK #26—SECURE FUNCTIONAL USER BUY-IN

Functional validation of the system is a key task. Most projects use functional users, away from their main responsibilities, to accomplish this objective. Though it may be self-evident, if you have functional users complete testing, they must see the value of the process and share the project goals to complete the task effectively. Typically, these resources are setting aside important tasks to participate in the upgrade initiative, so we will take the time to solicit both management and individual cooperation. Once this cooperation is achieved, we will ensure we are collectively allocating enough time to complete a thorough testing cycle. We can provide resources to participate in the functional validation so that normal day-to-day activities are not impacted.

## TASK #27—TESTING SCOPE

A comprehensive testing effort is one of the key steps to finishing the upgrade and going live on the new release. As such, we consider the testing element of the upgrade as a major software update. A full, integrated test is performed that includes user acceptance and performance testing, and exercises all the business processes the organization will use. Automated testing tools may be used. In most cases, this automated approach will be augmented with human testing as well.

## TASK #28—DECIDING TO GO LIVE

Ultimately, the decision to start running the business on the new solution must be made internally, and taken seriously. As you approach the milestone of a new Oracle E-Business Suite solution, we will make sure that the team has enough information to enable a defensible "go" or "no go" decision to be made. The go live checklist created earlier in the upgrade process will be leveraged to verify that the success criteria have been achieved during the project. We will make sure that all affected groups from both business and IT are represented in this decision. If we use a formal steering committee, this will be the appropriate decision-making body. If for some reason there is no steering committee, we will call a meeting for this purpose, gathering input from the stakeholders ahead of time and fostering the communication that will allow for an informed and broadly supported decision.

## TASK #29—UPDATE USER PROCEDURE MANUALS

If your company has a set of standard Oracle operating procedures documented in a manual for end users to reference during their daily work, we will be sure to update this documentation as required. In the current and emerging regulatory environment, it is important to ensure that your compliance requirements are met.

## CONCLUSION

As part of Oracle's commitment to Applications Unlimited, Oracle E-Business Suite continues to evolve, offering greater value and providing new advantages for your business. Upgrading Oracle E-Business Suite is key to realizing the maximum return on your Oracle investment. Each organization must evaluate the costs, risks, and rewards of an upgrade in the same way it would evaluate a new business proposal. This methodology document outlines best practice procedures to enhance your upgrade project's success and value to your organization. Our consultants are ready to help you analyze, plan and execute an Oracle EBusiness Suite application upgrade, in a lead or supporting role, as your organization desires.