

# The Evolutionary Path: Things You Can Do Today to Prepare for Oracle Fusion Applications

*An Oracle White Paper  
January 2009 (a new revision)*

**Note:**

"The following is intended to outline our general product direction. It is intended for information purposes only, and may not be incorporated into any contract. It is not a commitment to deliver any material, code, or functionality, and should not be relied upon in making purchasing decision. The development, release, and timing of any features or functionality described for oracle's products remains at the sole discretion of oracle."

# The Evolutionary Path: Things You Can Do Today to Prepare for Oracle Fusion Applications

Executive Summary .....	4
Introduction .....	4
Oracle Applications Unlimited .....	5
Oracle Fusion Middleware .....	5
Oracle Fusion Applications .....	5
Best practices.....	5
Keep Current with the Oracle Applications Releases .....	6
Inventory your Enterprise Business Assets .....	6
Inventory your Customizations.....	6
Inventory your Master Data .....	7
Prepare your Roadmap for the Future .....	7
Leverage Future-proof Solutions and Technology Today .....	8
Rethink your “Customization” Strategy.....	8
Scenario 1: Composite Applications.....	9
Scenario 2: Self-Service Applications for a Larger User Population (Internal and/or External) .....	10
Scenario 3: Empowering Information Workers Through Advanced User Interfaces.....	10
Consolidate your Master Data .....	12
Embrace SOA-Based Integration.....	13
1. Option #1: Consider Prebuilt SOA Integrations.....	14
2. Option #2: Build your Own SOA .....	15
a) SOA-Enablement of Oracle Applications Unlimited – “Bottom-Up” approach.....	15
b) Consider Business Process Analysis – “Top-Dow” approach.....	17
Extend your Business Intelligence Applications Portfolio .....	19
Adopt Enterprise Reporting and Publishing .....	20
Secure your Global Enterprise.....	20
Increase Information Worker’s Productivity.....	21
Incorporate Google-like Search.....	23
Consider Grid Infrastructure .....	24
Centralize your Applications Lifecycle Management .....	25
Summary .....	27

# The Evolutionary Path: Things You Can Do Today to Prepare for Oracle Fusion Applications

## EXECUTIVE SUMMARY

Oracle's next-generation applications, known as Oracle Fusion Applications, are being designed to harness best of business capabilities from all of our applications into a complete suite delivered on Oracle's open technology. Until then, there are a number of things you can do to get ready. These steps will not only prepare your organization for the power of Oracle Fusion Applications but more importantly will help optimize your business procedures and reenergize your enterprise with Oracle Applications Unlimited today.

## INTRODUCTION

Oracle's next-generation enterprise applications plan to merge the best features from Oracle's product lines—Oracle E-Business Suite and Oracle's PeopleSoft Enterprise, JD Edwards EnterpriseOne, JD Edwards World, and Siebel applications—into a new enterprise software line called Oracle Fusion Applications, based on Oracle Fusion Middleware. This is not just a vision for the future, but some of these features are being incorporated into the newest releases of Oracle Applications Unlimited today.

This paper explains how Oracle Applications customers can benefit from next-generation technology today through Oracle Fusion Middleware. It also discusses some of the business practices to consider while creating your roadmap for the future.

"I'm excited by the steps Oracle is taking to prepare its customers for the future of Oracle Applications. It is providing customers with numerous choices for moving forward through Oracle Fusion Middleware, Oracle Applications Integration Architecture, and the upcoming Oracle Fusion Applications. At the same time, Oracle is providing a means for customers to move forward at their own pace by protecting current application investments through the Oracle Applications Unlimited and Lifetime Support programs."

– Floyd Teter

System Engineer for Institutional Business Systems, Jet Propulsion Laboratory



Figure 1: Things you can do today to prepare for the Oracle Fusion Applications

But first, the following concepts and terminologies require further definition:

1. Oracle Applications Unlimited
2. Oracle Fusion Middleware
3. Oracle Fusion Applications

## Oracle Applications Unlimited

[Oracle Applications Unlimited](#) is Oracle's commitment to continue providing enhancements to current JD Edwards EnterpriseOne, JD Edwards World, Oracle E-Business Suite, PeopleSoft, and Siebel product lines beyond the delivery of Oracle next-generation of enterprise applications. Oracle Applications Unlimited will provide customers with more visibility into our existing product road maps and help them achieve continual success with their current applications by delivering dedicated, world-class development and support for years to come. Applications Unlimited is driven by Oracle's commitment to protecting its customers' investments. In 2007-2008, Oracle delivered significant releases for each of its product lines – Oracle E-Business Suite 12, PeopleSoft 9.0, Siebel 8.1.1, JD Edwards EnterpriseOne 9.0 and JD Edwards World A9.1. The next releases for each of these product lines are currently in development. Oracle is giving customers the option to choose what is best for their business. Customers can continue to derive value from their existing applications - which Oracle plans to continuously update - or they can upgrade to future technologies if there is a business case to do so. It is entirely the customer's choice.

## Oracle Fusion Middleware

[Oracle Fusion Middleware](#) is a family of middleware products that enables your organization to run, secure, adapt, and expand its business. It is the world's fastest-growing family of middleware solutions, spanning everything from service-oriented architecture (SOA), portals, and process management to application infrastructure, identity management, content management, and business intelligence.

## Oracle Fusion Applications

[Oracle Fusion Applications](#) are being designed to unify best-of-business capabilities from all Oracle Applications in a complete suite delivered on Oracle's open technology. The goal of Oracle Fusion Applications is to help customers transform their business into a next-generation organization. This next-generation organization will have more adaptable business processes, more productive people, and more manageable systems. Next-generation *adaptability* will come from a native service-oriented architecture that allows for easier integration with other applications and configurable business processes. Embedded business intelligence, a rich, pervasive, and personalized user experience, and enterprise 2.0 business processes will power next-generation *productivity*. Finally, centralized security, audit, and controls, and the ability to deploy applications on premise, as a service, or through business process outsourcing will deliver next-generation *manageability*.

## BEST PRACTICES

Efficiently and accurately completing an upgrade project that is critical to the business requires project planning. The sheer size of the project and the number of individuals involved can make completing the project properly more challenging. Among the best practices and common sense initiatives that this paper recommends for our applications customers are to keep current with the latest applications releases; get a complete inventory of enterprise assets, and start leveraging future-proof solutions and technology today.

## Keep Current with the Oracle Applications Releases

As with any upgrade and given the current economic climate, customers must justify their upgrade expenses and therefore it is fundamental to evaluate both your business and IT drivers, which will vary from one customer to another. However, it is still important for customers to plan to upgrade to the latest releases of Oracle Applications Unlimited: Oracle E-Business Suite 12, PeopleSoft Enterprise 9.0, JD Edwards EnterpriseOne 9.0, and Siebel 8.0 applications. Each of these releases represents a significant investment in providing new functionalities, which, although they vary from one product to another, all have in common the uptake of the next-generation platform—Oracle Fusion Middleware—today.

For example, Oracle E-Business Suite 12 is the first release that runs on the latest release of Oracle Application Server 10g, and that is one of the technical highlights of Release 12. This goes along with Oracle Applications' theme of delivering the Oracle Superior Ownership Experience through the simpler deployment of Oracle E-Business Suite with the latest Oracle Technology Stack.

Similarly, PeopleSoft Enterprise 9.0, JD Edwards EnterpriseOne 9.0, and Siebel Customer Relationship Management 8.0 all have the ability to run on the latest release of Oracle Application Server 10g as well as leveraging Oracle Business Intelligence Publisher for standard reporting out of the box. In addition, PeopleSoft Enterprise 9.0 has made a significant investment in the uptake of Oracle SOA Suite, particularly Oracle BPEL Process Manager, to deliver prebuilt samples of BPEL code for industry-specific functionality for the financial and communication sectors.

Truly, each of the latest applications releases has made a significant step toward Oracle Fusion Applications by adopting many of the components of Oracle Fusion platform already.

**“Managing the migration of a complex application portfolio starts with the creation of a detailed inventory of all assets involved. However, this is only the beginning: The inventory must be kept active over time. Four key inventory classes underpin Enterprise Platform Migration.”**

**- Andy Kyte, VP, Gartner**

**Gartner ITxpo, May 2007 - Barcelona**

**“Enterprise Platform Migration: The Great IT Planning Challenge”**

## Inventory your Enterprise Business Assets

A critical step in the preparation phase is to complete an asset “discovery,” which should deliver an accurate snapshot of what applications assets are in the live environment. This paper focuses on two very important assets of any company: customization—including interfaces, processes, and business flows—and data.

### Inventory your Customizations

Here are some of the details that need to be compiled for your customizations:

1. Type of customization, such as reports, screens, functional configurations, or interfaces between systems
2. Functional overview
3. Owner of this asset
4. Technology used to build the customization
5. For interfaces, it is important to note the interface/integration type:
  - a. Volume and frequency
  - b. Sync or async, point-to-point or hub-and-spoke integration
  - c. Technology used, such as electronic data interchange (EDI), file transfer etc....

“Getting the right data quickly and consistently for all applications continues to be a key challenge for many enterprises.”

Forrester, January 2006

### Inventory your Master Data

An enterprise has three kinds of actual business data: transactional, analytical, and master. Transactional data supports the applications. Analytical data supports decision-making. Master data represents the business objects—such as customers, products, suppliers, and employees—involved in transactions and the analytical dimensions—hence its importance for any business.

IT landscapes have grown over the last several decades into complex arrays of different systems, applications, and technologies. This fragmented environment has created significant data problems such as duplication, inaccuracies, and incompleteness.

This is the best time, especially in preparation for Oracle Fusion, to invest in consolidating and cleansing your master data. And the first step is to get a good inventory of your master data by compiling and identifying the followings characteristics:

1. Type of data, such as customer, product, or supplier
2. Owner of this asset—that is, which application is the master of this data
3. Where this data is being used
4. Who cleans this data

“Oracle has brought industry and solution expertise at regular intervals into our business transformation to provide insight into new technologies. The Oracle Insight program has been instrumental in jointly developing strategies to solve our emerging business challenges.”

– Norm Fjeldheim  
CIO, QUALCOMM

“Oracle Insight created a new relationship between Bausch & Lomb and Oracle. It was used to build momentum in key focus areas, such as upgrades, release testing, investigation into technology components (SOA, grid, middleware). With this foundation, B&L began to understand Oracle’s strategic directions and align to them.”

– Aldo Cistrone  
Director, Bausch & Lomb

### Prepare your Roadmap for the Future

Do nothing is just not an option to survive the economic climate or to stay competitive in your market. Now is the time to plan and prepare for your future. To help you with this process, Oracle has set up a new program, called [Oracle Insight](#) that offers a structured approach for engaging application installed-base customers in a conversation about aligning their strategy and plans with Oracle’s direction.

Oracle Insight is a collaborative program that harnesses the best minds across Oracle. It explores your specific plans, and, as a result, Oracle will help you extend and evolve your IT portfolio to align with Oracle’s strategy for Oracle Applications Unlimited and Oracle Fusion Middleware. Through a series of discovery sessions, the program assesses where you are today from a technology uptake and application support/upgrade perspective.

Oracle starts the process with an interactive discussion with business and IT executives about industry trends, best practices, long-term vision and strategies, and issues that may affect your organization’s ability to achieve its goals. This conversation determines where to mutually explore how applications and technology can support your objectives and strategic goals.

Upon completion of the collaborative engagement, Oracle provides you with a road map for maximizing the return on your Oracle investment.

Not only do we provide recommendations on areas where you can receive business benefits today but we also answer questions about what our strategy means to you. Additionally, we introduce the adoption of new applications, new solutions and technologies in the context of your IT and business roadmap.

## LEVERAGE FUTURE-PROOF SOLUTIONS AND TECHNOLOGY TODAY

Oracle is developing the unified next-generation Oracle Fusion Applications by integrating the “best of the best” software capabilities and business practices across its portfolio of applications. Oracle Fusion Applications plan to deliver this functionality by using Oracle Fusion Middleware.

Therefore, as part of the “evolutionary path” to the future, our customers should start evaluating the benefits of Oracle Fusion Middleware and how it might apply to their business challenges today.

Oracle Fusion Middleware is a complete product line that includes a process orchestration modeling tool, identity management, data hubs, industry-specific analytics, XML reporting, and much more.

This paper shows how some of these capabilities can be incorporated into your applications and IT infrastructure. Leveraging the next-generation technology today helps you to:

1. Extend the value of your current applications investment today
2. Gain IT and operational skills today in preparation for the future

### Rethink your “Customization” Strategy

After you have completed an inventory of your customization, as discussed earlier in this paper, you should review it to see if the functionality in the latest Oracle Applications releases will enable you to retire any custom code. This effort will streamline your upgrade path and ensure that you have the newest features at your disposal—and you can often avoid the need for intrusive customization by considering the following recommendations:

1. Use the configuration and parameterization capabilities of the latest releases.
2. Use the personalization capabilities in the latest releases.

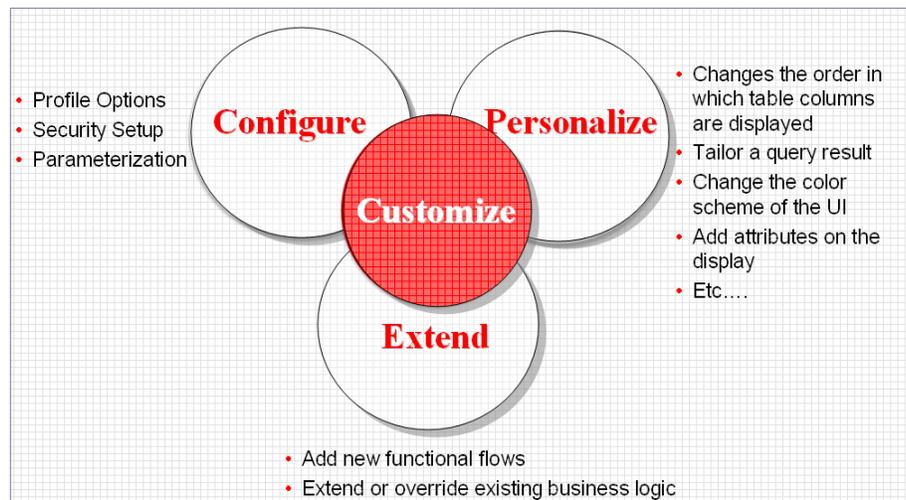


Figure 2: Rethink your “customization” strategy

Those customers who want the ability to extend their applications to support their organization’s competitive differentiators should evaluate the capabilities of Oracle Fusion Middleware, which is unique in the comprehensiveness of its integrated, standards-based developer and business analysis tools. Specifically, Oracle Fusion

Middleware offers the following capabilities to all Oracle Applications Unlimited applications (Oracle E-Business Suite; Siebel, PeopleSoft, and JD Edwards product lines) customers today:

- Oracle Application Developer Framework (Oracle ADF), the development framework for Oracle Fusion Applications
- Oracle WebCenter, the collaborative portal environment for Oracle Fusion Applications
- Oracle SOA Suite, including Oracle BPEL Process Manager, which can be used for human workflow extensions and orchestration of Web services as part of user interface extensions
- Oracle Business Activity Monitoring, which can be used to drive additional visibility and transparency into application workflows
- Oracle business process management solutions, which enable, from a top-down perspective, organizations to model business processes and orchestrate individual services into an end-to-end business
- Oracle Business Intelligence Suite Enterprise Edition, the same technology that underpins Oracle's business intelligence applications today for Oracle Applications Unlimited and tomorrow for Oracle Fusion Applications
- Oracle Business Intelligence Publisher (also known as Oracle XML Publisher within the applications customer base), which can be used today for your enterprise reporting and publishing

With Oracle Fusion Middleware certification and embedded functionality, you can build extensions that survive the upgrade to Oracle Fusion Applications while getting the value of your current Oracle Applications investment today.

Leveraging Oracle Fusion Middleware should be a key consideration when building new functionality to extend existing business functionality such as

- New screens
- New reports
- New business intelligence or analytics capabilities
- New business processes
- New integrations and interfaces to existing or legacy systems

Let's look at three common use cases in which Oracle Fusion Middleware can be of concrete benefit to Oracle Applications Unlimited customers.

#### **Scenario 1: Composite Applications**

In a service-oriented architecture (SOA) world, composite applications are applications that deliver novel and extended functionality but interface with Oracle Applications via Web services for back-end capabilities.

#### **Example**

A real customer example was to develop a module for automating the management of warranty claims—functionality that is outside the capabilities provided by

Oracle Applications today. Such a warranty management application includes a Web site where customers can submit claims and check claim status. Oracle ADF, together with Oracle WebCenter, would be the best choice for implementing such customer functionality as the front end to interacting with Oracle Applications via Web services.

In addition, the composite application provides a claims workflow user interface for caseworkers. Implementing this is easy: leverage the human workflow capabilities of Oracle BPEL Process Manager, part of Oracle SOA Suite, while interacting directly with Oracle Applications at the back end.

As you can see, building composite applications can benefit from the use of Oracle ADF, Oracle WebCenter, and Oracle SOA Suite. These technologies are beneficial for communicating with Oracle Applications via Web services.

### **Scenario 2: Self-Service Applications for a Larger User Population (Internal and/or External)**

Self-service applications extend the capabilities of Oracle Applications to a larger user base, mostly via the Web. A real customer example (from DeVry University) is the recruiting department who has a difficult time accessing the standard Oracle CRM screens to get leads, status leads and to follow up on leads, especially for field advisors who had very poor connectivity due to location and lack of high speed broadband.

DeVry University had developed a custom web JSP based application utilizing back end services to retrieve and update information from the Oracle E-Business Suite Student System together with Oracle CRM module. The access time for an advisor through the company portal dropped from 10+ minutes for a single lead to less than 30 seconds over a Sprint wireless card.

#### **Example**

A good example that is very familiar to most Oracle customers is the Oracle *MetaLink* system. At the moment, Oracle itself is implementing a new version of Oracle *MetaLink* on top of Siebel Support Web services, using Oracle ADF with Oracle Web Services Manager to secure Siebel Web services. A benefit of Oracle ADF is also that user interface components built with it can be reused easily in different contexts. For example, user interface elements that are custom-built for call center agents can be easily adapted and reused for customer self-service on the Web. Oracle ADF provides important features for easily creating maintainable variations of user interface elements.

### **Scenario 3: Empowering Information Workers Through Advanced User Interfaces**

Last but not least, the Oracle Fusion Middleware toolset provides capabilities for user interface (UI) enhancements that wouldn't be possible with native Oracle Applications tools.

#### **Examples**

1. One example of such a user interface enhancement is an Ajax-style UI. For example, let's say you want to give your employees an "autosuggest" capability such as Google's for searching your employee directory stored in your Oracle Applications human resources module. Oracle ADF is an effective tool for implementing such advanced UI features.

**"The Oracle Fusion Middleware provides standard's based powerful tools to unlock many of the features in Oracle E-Business Suite that are buried under the standard interface through application specific connectors and other productive enhancement features."**

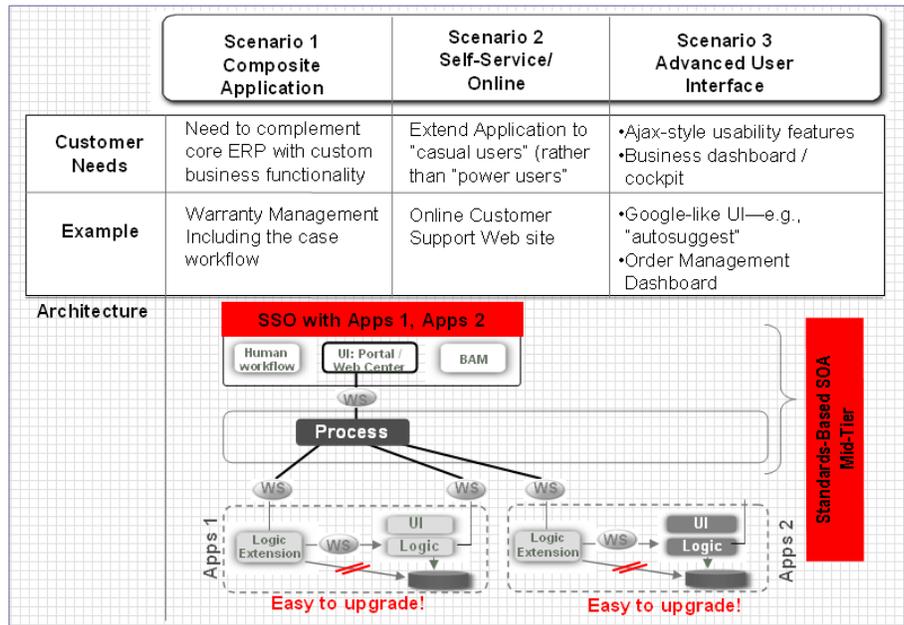
**– Sam Tong**

**IT Director, DeVry University**

- Oracle Fusion Middleware provides business activity monitoring (BAM), the ability to deliver to business users dashboards, real-time gauges of their transactional systems and business processes. Executives often see great value in dashboards, because they foster transparency of the business. BAM is an excellent tool for instrumenting workflows and activities within Oracle Applications and enhancing the user interface via real-time dashboards.

**Summary**

As you can see from the use cases and examples, Oracle Fusion Middleware lends itself more to substantial user interface extensions than to simple page customizations or personalization.



**Figure 3: Rethink your extension strategy**

The native applications tools and technology such as Oracle Forms/Oracle Applications Framework for Oracle E-Business Suite and PeopleTools for PeopleSoft Enterprise applications are appropriate for customizing applications' internal functionality, because these tools have a strong integration with applications infrastructure such as menus, security, and look and feel. For composite applications, Web self-service extensions, and UI enhancements outside of the capabilities of native tools, Oracle Fusion Middleware toolset is the right choice today.

The rest of this paper explores areas that make lot of sense for customers to evaluate and embrace today.

“Oracle Customer Data Hub proves Oracle’s ability to integrate with third-party datasources. It gives us a single view of our guests yet allows us to continue to use applications from a variety of vendors.”

— Patrick Piccininno  
VP, Information Technology,  
IHOP Corporation

## Consolidate your Master Data

Most companies do not intentionally build systems and business processes that encourage multiple versions of master data (customers, suppliers, products, accounts, and more), but as companies evolve, systems proliferate. There is a natural fragmentation of data, data quality practices, and contributing business processes. Proactively managing data quality is critical for operational and analytical systems integrity.

Oracle provides a complete master data management (MDM) solution to help our customers consolidate, cleanse, and synchronize their master data. Key solution components include Oracle Customer Data Hub, Oracle Product Hub, and Oracle’s Hyperion Data Relationship Management. By using these together with Oracle Fusion Middleware offerings, customers can create a quality data foundation for application deployments, business process optimization, and SOA initiatives.

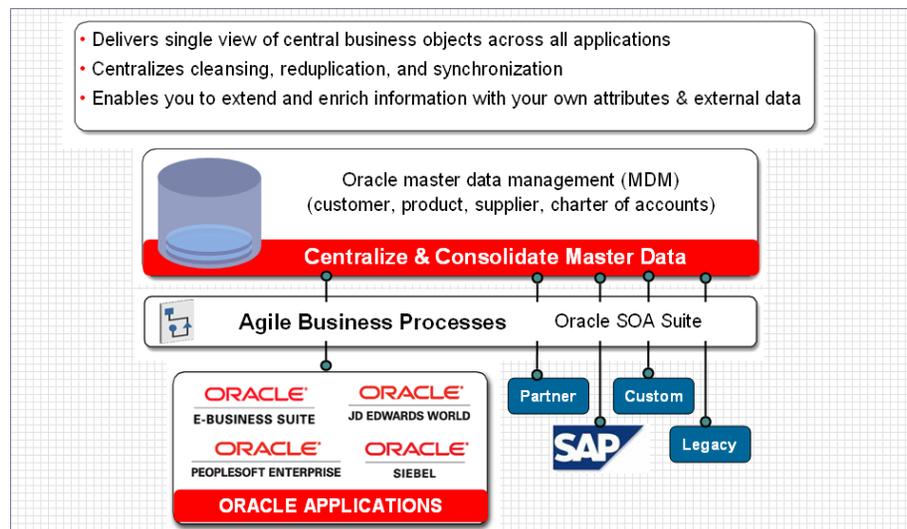


Figure 4: Consolidate your master data

Oracle’s recommendation for our Oracle Applications customers is to seriously think about using Oracle MDM to centralize and cleanse their distributed master data before going to Oracle Fusion Applications. Two key reasons why this is a good idea: (1) it brings real business value to the enterprise now, and (2) it facilitates the move of all your master data into the Oracle Fusion data model prior to the actual upgrade to Oracle Fusion Applications. This is a powerful approach that brings increased business flexibility now and lowers the cost of upgrading to Oracle Fusion in the future.

As you start your migration to Oracle Fusion, one of the primary steps is core data migration. Therefore, it is fundamental to have the most accurate master data. This way, before you start the migration process to Oracle Fusion Applications, you can be assured that your master data is unique, certified, and unified. In fact, for customers looking to migrate to Oracle Fusion Applications, this is a unique opportunity to master your key enterprise business entities, which will increase data quality, provide trustworthy information, and lead to robust business processes—thereby enabling you to run your business better.

This transition can be accomplished in three straightforward steps:

1. Deploy Oracle MDM data hubs to manage as many master data entities as possible (customer, product, supplier, chart of accounts etc...).
2. Utilize Oracle Application Integration Architecture (details can found in section - Consider the Oracle Prebuilt Integrations) to integrate the master data with existing business processes and Oracle Applications. Oracle plan to provide out-of-the-box integrations between Oracle MDM data hubs and Oracle Applications, including Siebel Customer Relationship Management, Oracle E-Business Suite, PeopleSoft Enterprise, and JD Edwards EnterpriseOne.
3. Upgrade the Oracle MDM data hubs to the Oracle Fusion versions as soon as they are available. When this second generation of master data management applications is released, Oracle plan to provide the upgrade scripts to move the existing master data to the Oracle Fusion Data Model.

At the end of this process (highlighted by Figure 4 below), customers will have all of their existing Oracle Applications connected to their master data in the Oracle Fusion Applications model. In addition, significant business value will have been realized by the Oracle MDM solution itself.

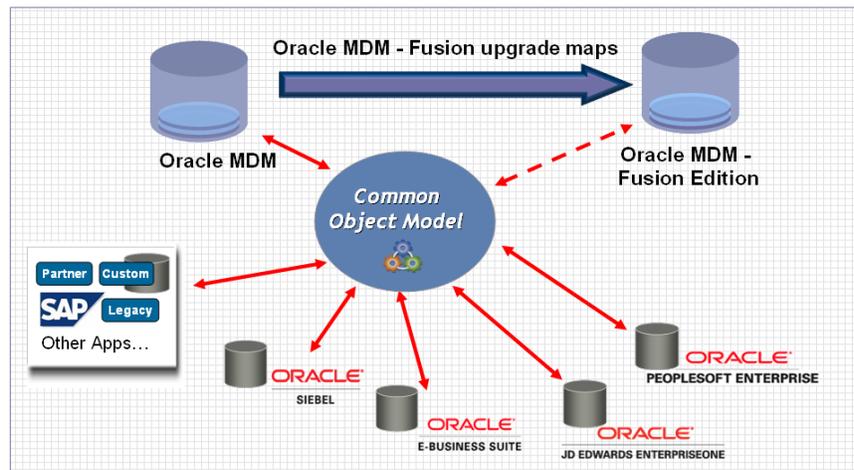


Figure 5: Oracle Master Data Management (MDM) to Oracle Fusion MDM

### Embrace SOA-Based Integration

Given Oracle's recent applications acquisition strategy and the company's desire to make the shift to the SOA world, Oracle has embarked on several projects and initiatives to embrace the SOA approach:

1. Oracle is developing the next generation of business applications—that is, Oracle Fusion Applications—with SOA design principles in mind. This approach will also enable third-party developers to extend the capabilities of Oracle Applications to add, for example, industry-specific functionality or custom services.
2. Oracle's desire is also to SOA-enable the current Oracle Applications Unlimited by exposing its core functionality as services that can be consumed by outside applications and hence play a role in the SOA world.
3. Oracle is providing a standard method of integrating business application functionality from Oracle E-Business Suite and product lines such as

PeopleSoft, JD Edwards, and Siebel. This initiative has already begun under the umbrella of Oracle Application Integration Architecture, which is closely tied to Oracle Fusion Middleware and, in particular, Oracle SOA Suite.

Based on Oracle's own experience in embracing SOA-based integration, the following recommendations may help customers with the adoption of an SOA-based approach:

1. Consider the Oracle prebuilt SOA integrations
2. Build your own SOA and Oracle SOA Suite and there are 2 design principles to achieve this:
  - a. "Bottom-Up" approach, by leveraging the Oracle Applications SOA capabilities as further discussed below.
  - b. "Top-Down" approach, by consider business process analysis (BPA) tools to model and simulate your business processes

### **1. Option #1: Consider Prebuilt SOA Integrations**

Oracle's recommendation is to consider the various prebuilt SOA-based extensions and integrations, such as Oracle Application Integration Architecture, before embarking on new development yourself.

**"Oracle Application Integration Architecture will help us solve our problems with integrating our front- and back-office systems. By leveraging an open, standards-based architecture, we will have the flexibility to make discrete changes without disrupting the entire business process."**

**– Brian Simmermon, CIO,  
Subaru of America, Inc.**

#### *Oracle Application Integration Architecture*

Oracle removes some of the key inhibitors to SOA by providing both a prebuilt SOA and industry-optimized service-oriented applications, all built around an SOA governance model that encourages effective design and reuse. The result is [Oracle Application Integration Architecture](#), providing all the components of SOA in one integrated whole.

Oracle Application Integration Architecture is a comprehensive set of products that delivers sustainable business-process-based integrations across Oracle Applications as well as third-party and custom applications. With its open, standards-based foundation, Oracle Application Integration Architecture enables you to create streamlined business processes that span application boundaries while greatly shortening time to value.

Oracle Application Integration Architecture helps you gain greater business agility with the applications you have today.

Oracle offers three components with Oracle Application Integration Architecture:

1. Process Integration Packs (PIP)
2. Foundation Pack (FP)

By offering prebuilt [Process Integration Packs](#), Oracle intends to help significantly reduce the cost of deploying and maintaining process-driven integrations while supporting a more adaptive application infrastructure.

“After considerable architectural and functional consideration, ScriptPro determined that the Oracle Application Integration Architecture vision provided the opportunity to leverage our Siebel Customer Relationship Management investment, as well as a flexible mechanism for adapting to changing business drivers.”

– Chris Duffy, VP, Information Systems & CIO, ScriptPro

By offering the [Foundation Pack](#) Oracle intends to provide a new approach to business process integration across disparate applications. It combines the power of Oracle’s Fusion Middleware along with a set of best in class application Objects & Business Services that together, form the building blocks for a new generation of composite applications allowing customers to leveraging existing investments to fulfil mission critical business processes.

While Foundation Pack is dependent on Oracle Fusion Middleware, there is no dependency on our application products because of its application independent design. Similar to our Process Integration Packs, Foundation Pack is designed to work in heterogeneous environments

Finally, with its Oracle SOA Suite foundation, Oracle Application Integration Architecture enables Oracle customers to more easily transition to an SOA and achieve their SOA goals. It also gives them a start toward deploying a business process platform, with the overall objective of migrating their current applications to Oracle Fusion Applications.

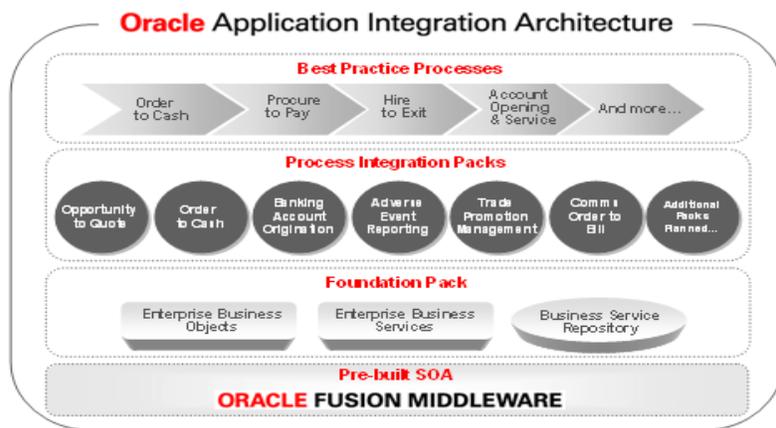


Figure 6: Oracle Application Integration Architecture (AIA)

For more information on Oracle Application Integration Architecture, please refer to the white paper [“Offering Seamless Cross-Application Business Processes Using Oracle Application Integration Architecture”](#).

## 2. Option #2: Build your Own SOA

In addition to Oracle Application Integration Architecture’s methodology and prebuilt processes, customers can leverage the SOA capabilities within both Oracle Applications Unlimited and Oracle SOA Suite to develop SOA-based composite applications today.

### a) SOA-Enablement of Oracle Applications Unlimited – “Bottom-Up” approach

Oracle has invested heavily in getting Oracle Applications ready to play a role in the SOA world, as evidenced by the following capabilities:

1. Each application in Oracle Applications Unlimited has a standards-based approach to exposing Web services (natively or through the “adapter”) that can be consumed by Oracle SOA Suite.

The Oracle Applications adapters expose the existing assets, such as native APIs and express them as Web Services Description Languages (WSDLs)

that can be invoked by other Oracle Fusion Middleware products such as Oracle SOA Suite (Oracle BPEL Process Manager, Oracle Enterprise Service Bus, and so on). As you will see below, Web-services-enabled applications will eventually minimize the need for adapters, but most organizations expect that the adapters will continue to play a key role in their integration infrastructure for years to come.

- a. The Siebel product line provides this capability through its WSDL 1.1 standards-based Web services. Siebel 7.8+ has native support for Web services and can be directly integrated with Oracle Fusion Middleware components such as Oracle BPEL Process Manager and Oracle Enterprise Service Bus. Prior to Siebel 7.8, the Oracle Adapter for Siebel is needed for integration.

For further details, please visit our Oracle Fusion Middleware and Siebel CRM Best Practice Center on OTN:

<http://www.oracle.com/technology/tech/fmw4apps/siebel/index.html>

- b. Oracle E-Business Suite provides this capability through Oracle XML Gateway, service bean architecture or through the Oracle E-Business Suite adapter. The Oracle E-Business Suite adapter enable reuse of existing assets, such as PL/SQL APIs, concurrent programs, interface tables, views etc... by exposing them as services that can be integrated with Oracle Fusion Middleware products such as Oracle BPEL Process Manager and Oracle Enterprise Service Bus.

For further details, please visit our Oracle Fusion Middleware and Oracle E-Business Suite Best Practice Center on OTN:

<http://www.oracle.com/technology/tech/fmw4apps/ebs/index.html>

- c. PeopleSoft Enterprise provides this capability through its Integration Broker. PeopleTools 8.4.6+ has native support for Web services and can be directly integrated with Oracle Fusion Middleware products such as Oracle BPEL Process Manager and Oracle Enterprise Service Bus. Prior to PeopleTools 8.4.6, the Oracle Adapter for PeopleSoft is needed for integration.

For further details, please visit our Oracle Fusion Middleware and PeopleSoft Enterprise Best Practice Center on OTN:

<http://www.oracle.com/technology/tech/fmw4apps/peoplesoft/index.html>

- d. The JD Edwards product line provides this capability through its integrated Business Services capability beginning with JD Edwards EnterpriseOne Tools 8.97. Also, the Web Services Gateway can be used to SOA enable JD Edwards EnterpriseOne.

The Oracle Adapter for JD Edwards EnterpriseOne is not needed for integration with JD Edwards EnterpriseOne 8.9, 8.10,

and 8.11. It is advisable for customers to upgrade to JD Edwards Tools 8.95 to integrate with Oracle BPEL Process Manager and Oracle Enterprise Service Bus.

For further details, please visit our Oracle Fusion Middleware and JD Edwards EnterpriseOne Best Practice Center on OTN:

<http://www.oracle.com/technology/tech/fmw4apps/jde/index.html>

2. Each application in Oracle Applications Unlimited has a services repository—that is, a catalog for all interfaces:
  - a. For Oracle E-Business Suite, it is called the Oracle Integration Repository. It houses all the existing integration points—that is, public interfaces (Web services, open interface tables, PL/SQL APIs, Java APIs, and so on) and is hosted online for Release 11.5.10 (<http://irep.oracle.com>) and shipped with Release 12.
  - b. For PeopleSoft Enterprise and JD Edwards EnterpriseOne, it is called the Integration Services Repository and is available online. This repository already contains more than 1,500 Web services.
  - c. For Siebel Customer Relationship Management, it is called the Service Repository (SR), is available online, and currently contains more than 1,500 Web services.

APIs that are exposed through the Oracle Integration Repository are accessible as standards-based services through Oracle BPEL Process Manager. There are more than 1,000 predefined business events in the Oracle E-Business Suite Business Event System that can be leveraged to produce and consume services. PeopleSoft Enterprise already has more than 1,500 Web services, the JD Edwards product line has more than 200 core Web services, and the Siebel product line has more than 1,000 business events.

Oracle BPEL Process Manager, a component of Oracle SOA Suite, which is part of Oracle Fusion Middleware, provides a comprehensive, standards-based, easy-to-use solution for creating, deploying, and managing cross-application business processes with both automated and human workflow steps—all in a service-oriented architecture. Oracle BPEL Process Manager consumes services from various applications and orchestrates them into a business process. Its native support for standards such as BPEL, JCA, JMS, Web services, XML, XPATH, and XSLT makes it an ideal solution for creating integrated business processes that are portable across platforms. It fully leverages sophisticated features of the underlying Oracle Fusion Middleware platform such as security, scalability, and high availability.

To learn more about Oracle SOA Suite, please go to:

<http://www.oracle.com/technology/tech/soa/index.html>

#### ***b) Consider Business Process Analysis – “Top-Dow” approach***

So far we have seen how to enable application services to participate in enterprise-wide cross-application processes—starting with the building blocks that are the

services or the proprietary APIs and all the way up to building full composite applications—a bottom-up approach to building SOA applications.

At the same time, organizations can start by modeling business processes and orchestrating individual services into end-to-end business processes that can be monitored, optimized, and easily changed—a top-down approach to SOA design. Here we describe how Oracle Business Process Analysis Suite, which is among the Oracle business process management solutions, enables you to build and extend business processes that involve Oracle Applications across your organization or even to your business partners.

In addition, Oracle Business Process Analysis Suite is innovatively integrated with Oracle BPEL Process Manager to provide closed-loop business process management (BPM) capability. With this integration, you can do the following:

- **Model and simulate with Oracle Business Process Analysis Suite.** Model and then simulate business requirements to analyze your business processes. You can do that by using Oracle Business Process Analysis Suite, which has the same metadata format as the process execution engine—Oracle SOA Suite—and helps business and IT seamlessly collaborate.
- **Implement, deploy, and execute with Oracle BPEL Process Manager:** With Oracle BPEL PM, you can generate an outline model of business requirements and business process; use tools to integrate the business process with interfaces or services of existing systems and applications; and implement business process, define business rules associated with process, and map data.
- **Monitor and optimize with Oracle Business Activity Monitoring.** Make processes visible for end users, and monitor the efficiency of business processes in real time and historically. Oracle Business Activity Monitoring captures executed process data in real time and feeds that data back into the simulation engine for real-world planning. Oracle Business Activity Monitoring is part of Oracle SOA Suite.

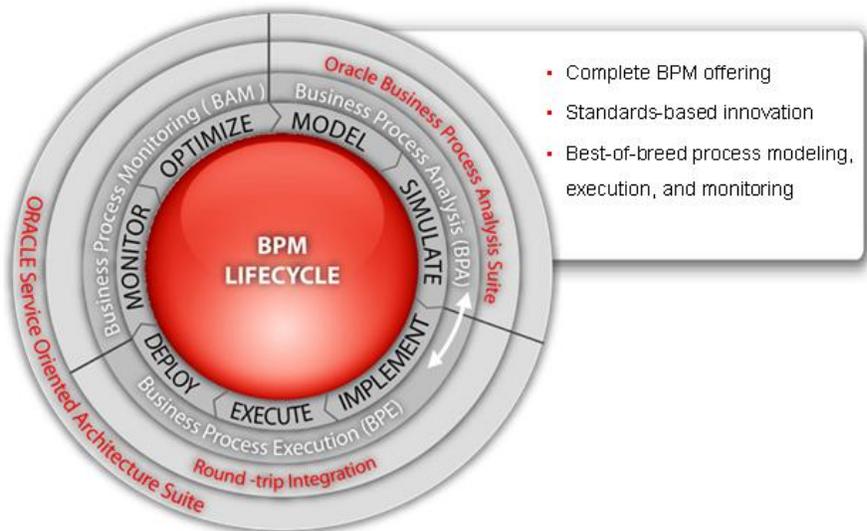


Figure 7: The Oracle business process management solution and the business process lifecycle

To learn more about the Oracle business process management solution, go to <http://www.oracle.com/technologies/bpm/index.html>

“With Oracle’s prebuilt analytic solutions for sales, marketing, and service, we were able to deploy a powerful BI solution in less than three months. Verizon Business employees across the enterprise are now empowered with relevant, complete information tailored to their role.”

– Rob Moore  
Executive Director, Verizon Business

### Extend your Business Intelligence Applications Portfolio

Oracle has always been a strong believer in prebuilt business intelligence applications, and this has been demonstrated by several prebuilt, role-based business intelligence offerings. Now Oracle takes this one step further by providing this intelligence not just for one single business application but also for a solution that spans multiple datasources and business applications. This solution lacks the barriers of traditional business intelligence solutions that are typically confined to one subject or functional area, are difficult to use and maintain, and cannot provide insight across the company value chain. Oracle business intelligence (BI) applications provide the answer to this critical business challenge.

Oracle Business Intelligence Suite was developed with the assumption that data resides in multiple places and multiple business applications such as Oracle E-Business Suite, PeopleSoft Enterprise, Siebel Customer Relationship Management, SAP, or JD Edwards EnterpriseOne as well as in legacy applications. It is built on the Oracle Business Intelligence Suite Enterprise Edition platform, the same technology used for Oracle Fusion Applications. In fact, Oracle business intelligence applications are already available today for Oracle Fusion and can be leveraged by all Oracle Applications customers. Of course, these BI applications plan to continuously evolve, offering more coverage for specific industries as well as across industries.

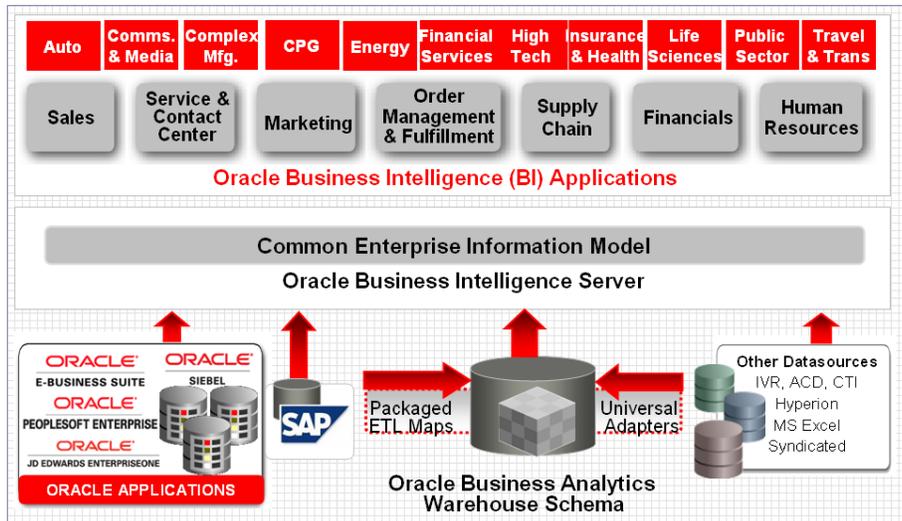


Figure 8: Extend your business intelligence portfolio with Oracle BI applications

So by extending your business intelligence today with Oracle BI applications, you get one step closer to Oracle Fusion Applications. You gain value today from these applications while gaining the IT and operations skills required for Oracle Business Intelligence Suite Enterprise Edition.

To learn more about the Oracle business intelligence applications, please go to <http://www.oracle.com/technology/products/bi/bi-applications.html> and <http://www.oracle.com/appserver/business-intelligence/bi-applications.html>

“Oracle Business Intelligence Publisher opens up completely new possibilities for the generation of business documentation and the presentation of business information across divisions.”

– Dieter Schuster,  
IT Manager, Ziemann+Bauer GmbH

## Adopt Enterprise Reporting and Publishing

Your enterprise must produce a wide range of reports and documents to support internal operations and management, customer communications, and government reporting. Each document type requires a different delivery method: daily management reports must be delivered to a Web portal, operational reports are sent via e-mail, checks and labels must be printed, and individual customers request different delivery methods for their invoices.

Traditionally, supporting all these requirements has required several reporting and publishing solutions. Oracle Business Intelligence Publisher (or Oracle XML Publisher) provides the solution to run and deliver your business documents in all the formats described above and more.

Oracle Business Intelligence Publisher incorporates the principles Oracle is carrying forward into Oracle Fusion. It integrates today with Oracle E-Business Suite and the JD Edwards and PeopleSoft product lines (integration with the Siebel product line is planned). By adopting Oracle Business Intelligence Publisher now, you can not only shed multiple third-party solutions but can also put in place a cornerstone piece of Oracle Fusion technology today.

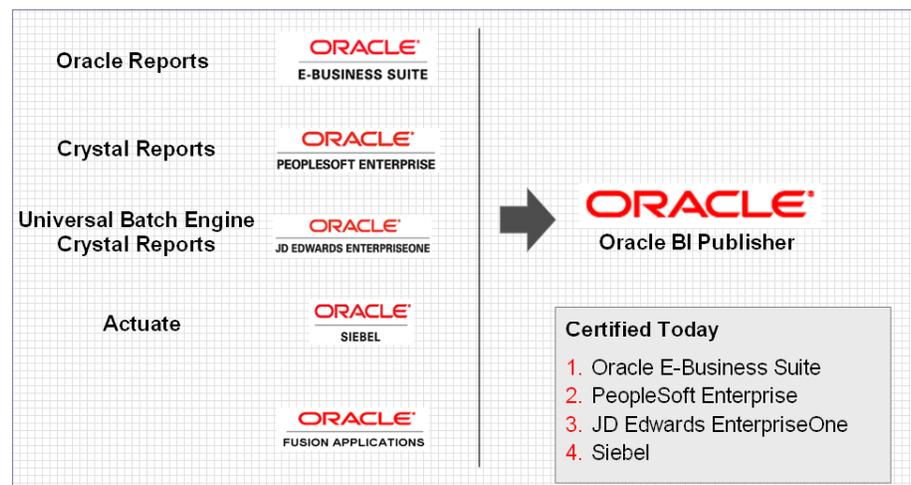


Figure 9: Oracle Business Intelligence Publisher provides a complete reporting solution today and beyond

To learn more about Oracle Business Intelligence Publisher, please go to <http://www.oracle.com/technology/products/xml-publisher/index.html>

## Secure your Global Enterprise

Security in Oracle Applications today is based on application-specific tools and technologies that were developed over many years when there was a lack of enterprise security standards. Now enterprise customers are dealing with a variety of complex technologies in distributed and heterogeneous environments that put an additional burden on application developers.

Today, the Oracle recommendation is for those Oracle Applications customers to start leveraging Oracle Identity and Access Management Suite, which is part of Oracle Fusion Middleware. Customers can start the process of externalizing and centralizing their user management today, with Oracle Identity and Access Management Suite, and be ready for Oracle Fusion Applications.

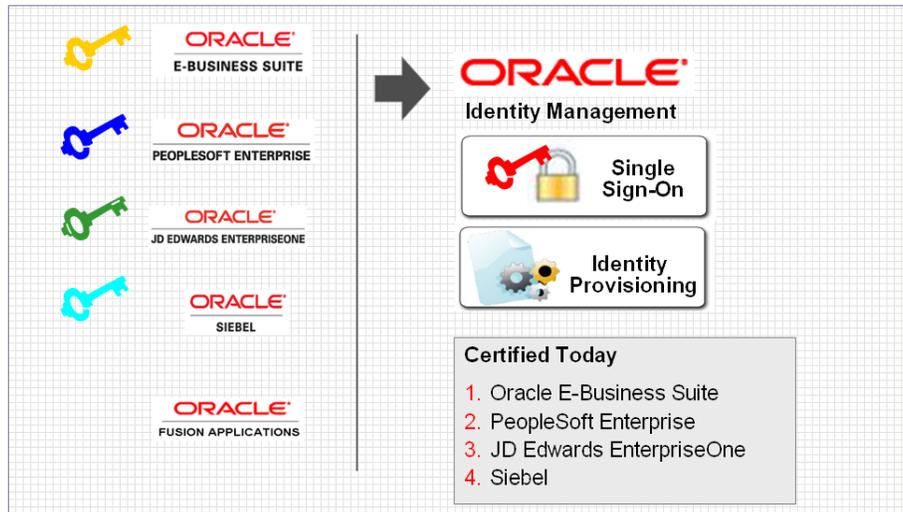


Figure 10: Centralized identity management for applications

To learn more about Oracle Identity Management, please go to [http://www.oracle.com/technology/products/id\\_mgmt/index.html](http://www.oracle.com/technology/products/id_mgmt/index.html)

"Oracle WebCenter Suite reflects Oracle's effort to provide a common interaction pattern for its wide array of applications, as well as third-party applications regularly accessed by knowledge workers. . . Oracle WebCenter Suite will serve as the UI shell for the next-generation Oracle Fusion Applications....Oracle WebCenter Suite represents one of the first moves by a major application vendor to incorporate technologies associated with the Web 2.0 movement."

— David Gootzit  
Principal Research Analyst,  
Gartner Group, December 2006

### Increase Information Worker's Productivity

As organizations continually reinvent themselves and strive for higher levels of efficiency and productivity, the demands on information workers are constantly increasing. Unfortunately, in today's business environment, it is unusual to find an organization that has a totally homogeneous software infrastructure. Rather, it is very often the case that the various lines of business within the organization have independently sourced very different software packages to meet their specific tactical or strategic needs.

Whether due to an attempt to purchase the "best of breed" or simply because of consolidation of organizations that have standardized on different vendors, it is becoming increasingly common for businesses to end up implementing several different enterprise application suites across their organization.

For example, a large sales and manufacturing organization may have its business information compartmentalized as follows:

- Sales force employee information within PeopleSoft Human Resources Management System
- Customer relationship/purchasing within the Siebel Customer Relationship Management Orders modules
- Invoicing and financial processing in Oracle E-Business Suite
- The warehousing and manufacturing systems within the JD Edwards EnterpriseOne environment

Although the choice of application was seen as optimal for the specific requirement, this topology significantly decreases the productivity of end users who need to perform transactions across these functions, as the users themselves effectively become the point of contextual integration. That is, as users perform a task that transcends the boundaries of the individual application, they have to remember the purpose and operation of each of the different suites, remember their multiple logins, and also be conversant with how to find the data they are

seeking. In short, they lose the connection to the task in hand as they jump between multiple applications.

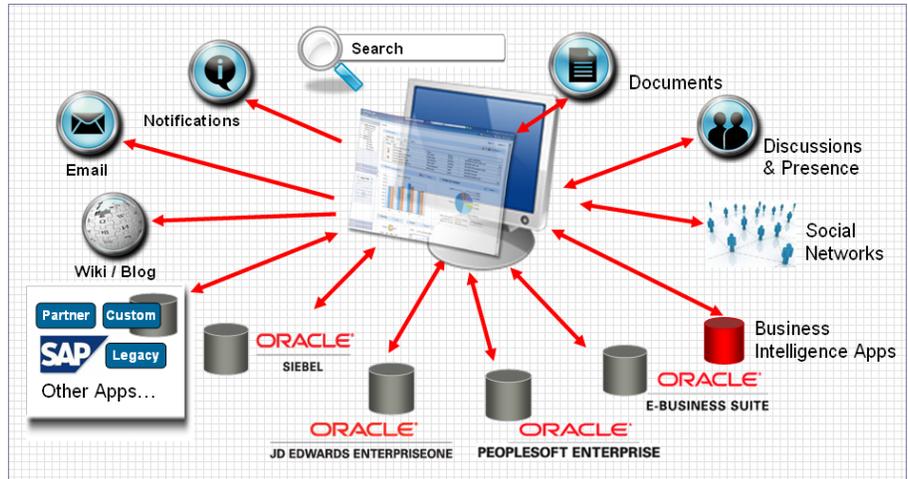


Figure 11: Unify user interactions and empower your information workers with Oracle WebCenter

The introduction of Oracle WebCenter Suite to the organization described above would allow for the development of a user-driven, transactional application that would improve productivity by bringing the required information to the users (as they perform the task at hand) rather than sending them off to find it. This situation is outlined in the following scenario:

1. The sales manager of the company described above has received notification (via the integrated workflow process) of a large product order from a member of the field force. Given the size of the deal and the strategic nature of the customer, the rep is requesting approval for a significant discount on the order. Quite naturally, the sales manager would like to discuss the deal with the rep before signing off on the discount. Not only does the application, based on Oracle WebCenter, display the rep's contact details from the HRMS system but the manager is also able to determine if the rep is currently online and either chat with that person directly via instant messaging or automatically dial the contact phone number listed for a voice conversation.
2. Having discussed the deal with the sales rep, the sales manager is further able to see the strategic nature of the client by viewing its relationship history directly in the same page. The client has been a great repeat customer and certainly deserves the requested discount, but the size of the order itself may be a concern. Is there sufficient inventory to cover the order, or will a back order be required? Again, the integrated application is able to present this detail directly in context by exposing the relevant product information from the inventory system. There is sufficient inventory on hand, so the order is approved and the information sent off to the order entry and financials system for processing.

**"The vision is compelling, combining transactional, collaborative, and analytical modes of working into a single interface, rather than requiring users to jump back and forth between unintegrated enterprise, desktop, and Web applications. ... Further, Oracle WebCenter gives developers complete control of how different elements are combined, regardless of source, and allows interfaces to be personalized by business users at the individual, group, and organizational levels."**

**Jim Murphy,  
Research Director  
AMR, October 2006**

In this simple sales scenario, the manager was able to be notified of the order, discuss it with the rep, investigate the customer's order history, determine if there was sufficient stock on hand, and finally approve and instigate the order/invoice processing—all within the context of the current transactional application. The

fact that four quite disparate enterprise resource planning (ERP) systems were accessed was completely transparent to the manager.

And, because Oracle WebCenter is a core component of Oracle Fusion Applications, the applications you build with Oracle WebCenter today plan to seamlessly blend with both the current and future applications from Oracle.

To learn more about Oracle WebCenter, go to <http://www.oracle.com/technology/products/webcenter/index.html>

### Incorporate Google-like Search

With the popularity of search engines on the Internet, the power of effective search technologies such as “google-like” search has become clear to everyone. Business users are adept at using search technology on the internet, and they expect similar search experience within Enterprise Applications (e.g. Oracle E-Business Suite, Siebel, etc.).

But search within enterprises differs radically from public Internet search. The information that businesses store and use for decision making is scattered across millions of documents and data fragments. Many documents are confidential or private - access to these must be controlled to ensure that only documents such as invoices or expense reports etc.... that the user is authorized to see are returned by the search engine.

“Enterprise search has moved beyond simply offering faster access to information. Instead, we see search and indexing capabilities deployed to help companies manage the rising tide and growing risks posed by unstructured information.”

Forrester Wave, 2008,

“For every 1,000 workers, Enterprises waste \$2.5 million per year due to an inability to locate and retrieve information.”

IDC,  
The High Cost of Not Finding Information

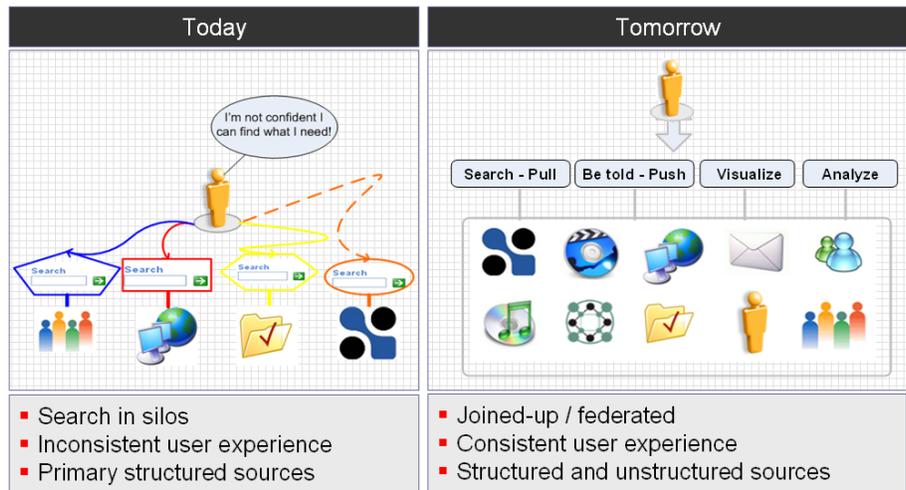


Figure 12: Incorporate Google-like search in enterprise applications

With the introduction of [Oracle Secure Enterprise Search \(SES\)](#), you can now incorporate a simple, fast and secure “google-like” search for a variety of Oracle Applications (e.g. Oracle E-Business Suite, Siebel, etc.).

Oracle Secure Enterprise Search is a standalone product that provides a simple to use, yet powerful way of searching all your data. Oracle SES is a self-contained product that can crawl and index any content and returns Internet-like search results. It also provides a query service API that can be plugged easily into various components to get a search service.

There are two modes in which enterprise application search can be deployed: the SES standalone case and the embedded search case. In the standalone case, users can come directly to the search site and search for application data, while in the

embedded case the user is inside the application context and performs a search through the application.

Enabling search for Enterprise Applications enhances users' experience by providing:

- Direct Navigation: Users can go directly to an application menu function or option based on keywords. For example, typing in “notifications” should be able to provide a link that can take the user directly to his / her “notifications” page within the Employee Self-Service menu in E-Business Suite.
- Speedy and Secure Information Retrieval: Users can quickly search and retrieve relevant application's transactional and non-transactional data in the context of application sources, using simple keyword input or in combination with advanced search criteria, much in the way they use traditional search engines. Because most of the time we are dealing with *protected* application sources, the underlying access and security policies from each application must be enforced.
- Unified Search across multiple application modules: Users can use Oracle SES as a single point of searching and accessing information across multiple application modules. Thus users need not have to know which application module contains the relevant information before searching. This also helps in collating information from multiple application modules in a single screen without having to first navigate to each module.
- Visualization: Finally, the visualization of information specific to a datasource can further enhance the productivity of the end user. For example, instead of showing a standard hit list for human resources *people* results, it might be more useful to show a simple table for each hit that contains all the relevant information (e.g. name, address, contact information, etc.) upfront in an easy-to-understand format.

Please refer to the whitepaper “[Searching Enterprise Applications with Oracle Secure Enterprise Search](#)” on how to leverage Oracle SES with Oracle Applications. Further details on Oracle E-Business Suite integration with Oracle SES can be found here “[Datasheet: Oracle E-Business Suite Secure Enterprise Search](#)”.

### **Consider Grid Infrastructure**

Today most organizations have underutilized servers with little or no resource sharing from one application to another. Due to an inflexible IT infrastructure that was planned on a per-application basis with a one-time budget, buyers have sized their servers to support peak capacity.

As a result, IT organizations now manage inflexible silos of servers, software, and storage dedicated to individual applications—and organizations must manage their infrastructure at a lower cost.

Imagine instead an infrastructure of standard, inexpensive, reusable components with a central management console to automate hardware, software, and storage procedures and policies. Such an infrastructure simplifies the IT environment, reduces cost, and frees up staff to focus on value-oriented activities. By virtualizing

resources, the IT organization is better able to implement SOA, the “next big thing” in enterprise software.

When choosing an SOA strategy, corporations must rely on solutions that ensure data availability, reliability, performance, and scalability. They must also avoid “weak link” vulnerabilities that can sabotage SOA strategies.

Hence, one of our recommendations in preparation for the future is to incrementally standardize, virtualize, consolidate, and automate your enterprise architecture, reducing costs in the process using grid computing.

[Grid computing](#) provides the solution, enabling scalability, reliability, and high availability within a service-oriented architecture that can be fully monitored and serviced with a single management tool called [Oracle Enterprise Manager](#).

*Maximize quality of service and better asset utilization*

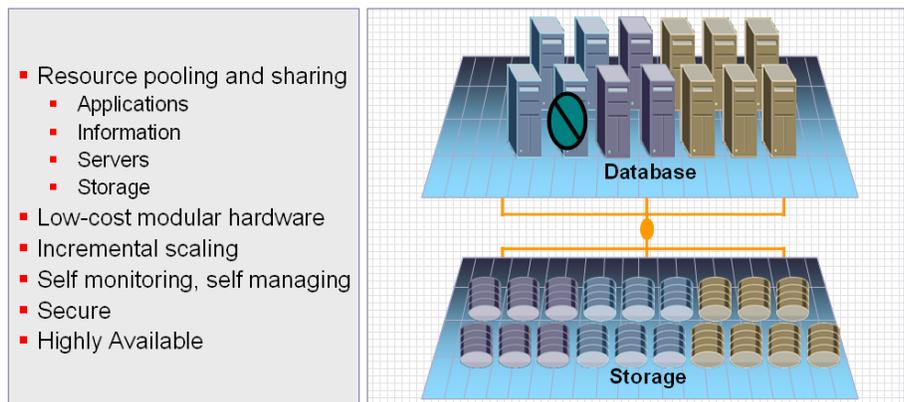


Figure 13: Consolidate your IT landscape by using grid infrastructure

To learn more about Oracle Grid Computing, go to:

<http://www.oracle.com/technologies/grid/index.html>

Oracle Application Management Packs extend Oracle Enterprise Manager to provide complete, integrated, and application-specific management.

### Centralize your Applications Lifecycle Management

A key goal of Oracle Fusion Applications is to focus on delivering the Oracle Superior Ownership Experience in application manageability. We are standardizing on Oracle Enterprise Manager as the base platform for building Oracle Fusion application management tools. To build the bridge necessary to facilitate customer-driven, incremental adoption of Oracle Fusion technologies, we are applying some of our latest ideas back to the current generation of applications so that there will be a continuous road map into Oracle Fusion.

Oracle Enterprise Manager is Oracle’s flagship management product. It provides enterprise-class capabilities that are required for managing today’s complex, heterogeneous data center environments, with their collections of applications, middleware, databases, servers, storage, and network devices. It offers a complete set of advanced management tools that include application performance management, configuration management, service-level management, event management, job management, diagnostics, patching, and provisioning—all built on an integrated architecture that simplifies deployment and promotes ease of use. It also offers integration capabilities to coexist with help desk and other management tools you have deployed.

Through [Oracle Application Management Packs](#), you can start centralizing the management of your existing packaged Oracle Applications on Oracle Enterprise

Manager, immediately reaping many of the benefits of improvements promised by Oracle Fusion Applications. These management packs complement existing bundled application tools, such as Oracle Application Manager and Oracle's Siebel Server Manager and PeopleSoft Performance Monitor that provide tactical administrative functions. The packs leverage Oracle Enterprise Manager's advanced capabilities to facilitate proactive management and Information Technology Infrastructure Library (ITIL) best practices implementation. When you combine the functionality of the packs with other Oracle Enterprise Manager tools, you can use a single console to gain complete visibility into your entire application infrastructure, including all your application instances; the SOA-based fabric you use to connect your applications; Oracle and non-Oracle databases and middleware; and your servers, storage, and network devices, all of which influence your application's performance and availability but are not handled by the bundled tools.

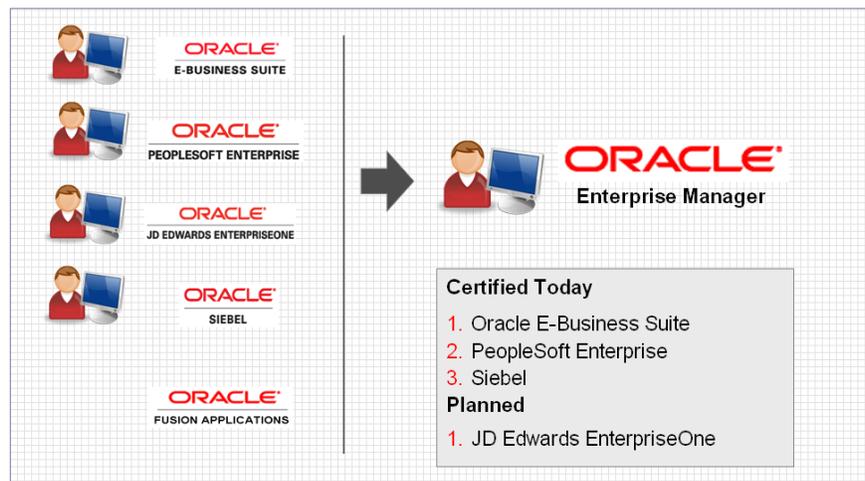


Figure 14: Centralize system management with Oracle Applications Management Packs

In addition to gaining advanced management capabilities, you can also smooth the transition to Oracle Fusion Applications through Oracle Enterprise Manager. As you modernize your application infrastructure by using Oracle Fusion Middleware technologies such as Oracle BPEL Process Manager, Oracle SOA Suite, Oracle Identity Management, Oracle Content Manager, Oracle Portal, and Oracle Business Intelligence Suite, you can plug these technologies into Oracle Enterprise Manager and manage them together with your existing applications as a single logical system, achieving management simplicity and minimizing the deployment risks associated with adopting new technologies. Ultimately, when you decide to adopt Oracle Fusion Applications, you can plug these applications into Oracle Enterprise Manager as well and manage them alongside your existing applications during the transition period when old and new applications coexist.

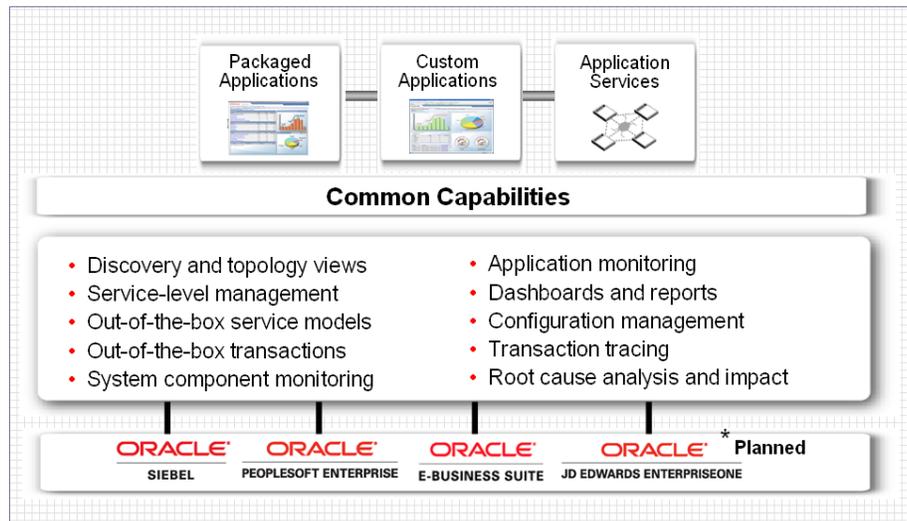


Figure 15: Common capabilities of Oracle Applications Management Packs

To learn more about the Oracle Applications Management Packs, go to [http://www.oracle.com/enterprise\\_manager/applications-management-packs.html](http://www.oracle.com/enterprise_manager/applications-management-packs.html)

## SUMMARY

As you have seen in this paper and as part of the “evolution path” to the future, Oracle’s strongest recommendations are for customers to (1) keep current with the Oracle Applications Unlimited releases and (2) to start evaluating the benefits of Oracle Fusion Middleware and how it might apply to their business challenges.

This paper has demonstrated how leveraging the next-generation technology today will help you to:

1. Extend the value of your current applications investment
2. Gain IT and operational skills in preparation for the future

To summarize, the recommendations in this paper will not only help your plan for migrating to Oracle Fusion Applications but, more importantly will extend the value of your Oracle Applications Unlimited today. You can

1. Increase data quality and provide trustworthy information with Oracle master data management, which will lead to robust business processes enabling you to run your business better today and will also help make your data migration to Oracle Fusion Applications a lot smoother
2. Reduce integration costs with Oracle Application Integration Architecture and extend with Oracle SOA Suite
3. Make better business decisions with Oracle business intelligence applications
4. Improve flexibility and reduce costs of custom reporting investment with Oracle Business Intelligence Publisher
5. Improve security with Oracle Identity Management

6. Increase information worker's productivity by unifying user interactions with Oracle WebCenter as well as introducing google-like search capabilities using Oracle SES
7. Unify system management across your applications, middleware, and database with Oracle Enterprise Manager.



The Evolutionary Path: Things You Can Do Today to Prepare for the Future

January 2009

Author: Nadia Bendjedou

Oracle Corporation  
World Headquarters  
500 Oracle Parkway  
Redwood Shores, CA 94065  
U.S.A.

Worldwide Inquiries:  
Phone: +1.650.506.7000  
Fax: +1.650.506.7200  
[oracle.com](http://oracle.com)

Copyright © 2007, Oracle. All rights reserved.

This document is provided for information purposes only and the contents hereof are subject to change without notice.

This document is not warranted to be error-free, nor subject to any other warranties or conditions, whether expressed orally or implied in law, including implied warranties and conditions of merchantability or fitness for a particular purpose. We specifically disclaim any liability with respect to this document and no contractual obligations are formed either directly or indirectly by this document. This document may not be reproduced or transmitted in any form or by any means, electronic or mechanical, for any purpose, without our prior written permission. Oracle is a registered trademark of Oracle Corporation and/or its affiliates. Other names may be trademarks of their respective owners.