

An Oracle White Paper
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Oracle IT Modernization Series: Why Modernize?

All organizations want to realize the highest business value possible from their existing investments in IT infrastructure and application software. However, maintaining the application and infrastructure software in a legacy environment consumes a disproportionate percentage of IT budget and human resources.

The average company spends from 60 to 85 percent of its IT budget maintaining legacy applications that fail to meet the changing competitive needs of the business. As a result, IT organizations are under increasing pressure to reduce costs and react more nimbly to ongoing business demands. The solution? IT modernization.

IT modernization is the continuous evolution of an organization's existing application and infrastructure software, with the goal of aligning IT with the organization's ever-shifting business strategies. Such alignment enables top line revenue growth, while reducing bottom line expenses—resulting in increased profit margins. IT modernization also lets organizations maximize their existing application assets as they move toward a more open, complete, and integrated application and infrastructure platform.

Organizations that do not begin the move toward IT modernization will soon find their business lagging behind their competitors.

IT modernization is the continuous evolution of an organization's existing application and infrastructure software, with the goal of aligning IT with shifting business strategies. IT modernization implies the acquisition and deployment of modern technologies—along with their associated skill sets and capabilities—to replace legacy environments.

Why Modernize?

Legacy applications have become a significant business problem. They carry a high cost of ownership, are difficult to modify to meet ongoing business demands, require a legacy skill set that fewer and fewer people possess, and do not adequately meet today's compliance demands.

For these reasons, organizations are considering the move to new technologies and architectures. But while it is possible to develop applications from scratch that fully utilize new technologies, the approach is expensive and risky. The strategy that a growing number of organizations are embracing is to modernize their existing applications and infrastructure software.

To get the maximum strategic business benefit from modernization, it is important to base the modernized system on an architecture that is built on open standards and deployed on open systems. IT modernization based on an open architecture offers the benefits of reduced total cost of ownership, increased agility, reduced reliance on legacy skill sets, and improved compliance.

Reduced Total Cost of Ownership

Historically, many organizations acquired “one of everything,” so their current IT environments are very expensive to maintain. Organizations already spend a large percentage of their IT budget on the maintenance of legacy applications—and this cost is increasing.

Today's IT budgets are either frozen or decreasing. To free up funds to address ongoing business needs, IT organizations must reduce their budget spend on legacy applications and environments.

IT modernization reduces costs by

- Optimizing business processes to save labor costs
- Automating previously manual processes to further reduce the cost of labor
- Reducing the need to extend or modify applications through the use of reusable service-oriented architecture (SOA) components
- Reducing or eliminating ongoing maintenance and support fees for expensive, proprietary legacy infrastructure

Organizations can achieve these cost reductions by adhering to three key principles:

- Using lower-cost software platforms
- Leveraging packaged applications where possible
- Consolidating technology and technology providers

Using Lower-Cost Software Platforms

To reduce costs, organizations must use lower-cost computing platforms based on more-modern software technology—such as Oracle Database, Oracle Fusion Middleware, and Oracle Enterprise Manager—to form an application and database grid infrastructure that acts as an open, integrated, and highly scalable unit. In customer benchmarks and numerous production deployments, these systems deliver mainframe-class quality of service characteristics, often at a fraction of the cost. Grid-enabled environments range from mainframe emulation and best-of-breed hosting of COBOL/C logic to leading Java/J2EE application servers with seamless, end-to-end integration that can quickly deliver savings and enable long-term benefits.

In turn, grid computing platforms combined with SOA create the next-generation IT environment where orchestrated application components combined with computing resources in multiple locations form a virtual environment with a single point of management, control, and access. Oracle supports exactly such an architecture—an architecture that is product-independent and can be used with both Oracle and non-Oracle products.

Taking Advantage of Packaged Applications

Whenever possible, organizations should consider using packaged applications if the applications fit with the needs of their business. Packaged applications should adhere to SOA standards and work with the organization's underlying architecture. Purchasing applications that cannot easily be integrated using SOA creates new application silos, keeps costs high, and decreases the agility needed to react to business change.

Oracle offers the most complete portfolio of business applications delivered on a secure and open technology infrastructure. Oracle Applications can support your business end-to-end and top-to-bottom with both line-of-business and industry-specific solutions ranging from finance to freight management to sales.

Combining packaged application solutions with SOA-enabled grid platforms for unique custom components enables the flexibility that IT needs to respond rapidly to business needs and competitive pressures. Using open standards, Oracle Application Integration Architecture serves as the foundation for deploying and integrating packaged applications alongside existing and new software applications. Oracle Application Integration Architecture enables a modernized enterprise to function cohesively and helps it meet new business requirements in a timely manner.

Consolidating Technologies and Providers

Using an assortment of highly proven IT modernization approaches, organizations can consolidate technologies and technology providers while determining the best combination of modernization approaches for each application. (The best combination of approaches for an application is based on the business needs of the organization.) For more information about the types of modernization approaches and when to use them, see the Oracle white paper, *Oracle IT Modernization Series: Approaches to IT Modernization*.

Increased Agility

When adapting to business needs, legacy applications are anything but agile. The architectural concepts underlying legacy applications do not reflect the way business works today—processes that are easy to change in business are often difficult and costly to change in legacy computer applications.

As IT organizations work to transform themselves for better alignment with business requirements, they are recognizing the need to move toward process-driven SOA. Process-driven SOA allows the use of individual application components as services—that is, the components are located and accessed only when needed at execution time. Creating services from legacy components can be difficult, but Oracle solutions can help IT organizations make timely, cost-effective transformations by using a variety of modernization approaches.

In addition, using SOA services in combination with process-orchestration engines capable of driving services (such as Oracle BPEL Process Manager) lets IT organizations create applications that more closely reflect the organization's process flow and business procedures. Such process-driven applications are easier to enhance and maintain because process and workflow changes are elevated above individual services and are maintained in an easier-to-change orchestration layer that uses a declarative approach without affecting reusable SOA components.

Reduced Reliance on Legacy Skill Sets

People with skill sets in legacy technologies are getting harder and harder to find, creating an ongoing and ever-increasing risk for all organizations with legacy applications. Knowledge of languages, such as ADSO, NATURAL, or IDEAL, and expertise with databases, such as ADABAS, IDMS, and Datacom/DB, are increasingly scarce and expensive. People with skills in mainframe systems and application development (or maintenance) are also rare. Most programmers no longer learn legacy technologies in school and, even if they were trained in them, prefer to work in environments that support the latest technologies. Organizations need only check with their human resources department for the retirement dates of personnel with legacy skills to determine when the sustainability of legacy application systems will become a problem.

If the trend toward diminishing availability of legacy skill sets continues, many experts believe that IT organizations will begin to experience a legacy crisis—with fewer and fewer IT resources devoted to the development of new systems.

Improved Compliance

Government regulations such as Sarbanes-Oxley require that CEOs and CFOs verify that their systems are doing precisely what they claim they do. Executives cannot safely vouch for their systems unless the company fully documents its processes.

To improve transparency and track ongoing business process changes, many organizations are taking advantage of process-driven SOA to create applications that reflect and implement application processes as they are defined by the business. Using SOA components makes it much easier to track the current processes, as well as when and how they change.

Why Oracle Modernization?

Oracle offers an array of IT modernization approaches in support of the complex variety of legacy modernization challenges. These approaches include

- Replacing legacy applications with packaged, commercial off-the-shelf (COTS) applications
- Enabling service-oriented architecture (SOA)
- Rearchitecting legacy applications
- Automating the migration of legacy languages based on 4GLs and other legacy languages
- Offloading a mainframe's MIPS transactions to an open system using data caching
- Rehosting application logic and data, intact, to a more-open, cost-effective, and agile platform

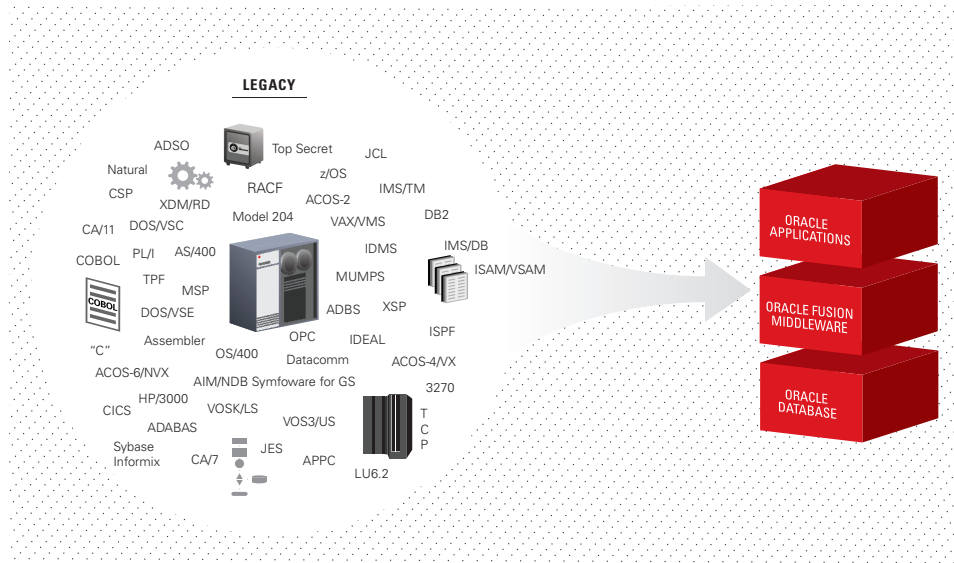
A combination of these approaches is typically required to provide a complete solution to the business problems. (See the Oracle white paper, *Oracle IT Modernization Series: Approaches to IT Modernization*, for details on these approaches.)

Oracle Delivers for Legacy-Software Customers

While some organizations delay because of risk concerns, Oracle customers have embarked on the modernization journey with confidence. Mainframe-based legacy application systems are well known for their high quality of service attributes, but the cost remains very high. The robust foundation provided by Oracle Database Grid and Oracle Application Grid (based on Oracle Tuxedo, Oracle Coherence, and Oracle WebLogic Server) and deployed in Oracle's Maximum Availability ensures that the modernized application systems offer availability and performance that's equal to or higher than mainframes. Oracle customers have experienced mainframe-class reliability and performance after migrating to open systems; they have also gained scalability and availability advantages at a fraction of the cost.

Reality provides the proof. Business systems based on Oracle technology have delivered greater than 99.999% availability for many customer production environments, including those that manage reservations, handle government benefit transactions, and deliver business-critical financial services such as mobile billing. Some of these applications run at tens of thousands of transactions per second (tps) in production; in some customer benchmarks, the Oracle infrastructure exceeded 100,000 tps while maintaining a subsecond response time.

To get the maximum strategic business benefit, it's important to base the modernized system on an architecture built on open standards and deployed on open systems. Using Oracle's complete, open, and integrated software solutions, organizations can implement business systems that align IT and business strategies and deliver a preintegrated solution at a lower cost—letting businesses save not only on the initial deployment and integration costs, but also on ongoing operational and maintenance expenses. Oracle's complete, open, and integrated software enables top-line revenue growth while reducing bottom-line expenses, resulting in increased profit margins for the business.



Oracle's complete, open, and integrated software solutions are built on open standards and deployed on open systems—for a reduced total cost of ownership, increased agility, reduced reliance on legacy skill sets, and improved compliance.

IT modernization can be done as quickly or as slowly as an organization requires. Strategies and road maps can span multiple years, but must align with the organization's business priorities and budget constraints. To determine the best IT modernization approach or combination of approaches for a specific organization, Oracle works closely with its modernization partners. Sometimes a customer may ask for a recommendation for a qualified partner, but many Oracle partners are already preferred vendors of our customers.

Planning an IT modernization effort includes defining a strategy and developing a plan that maps the current legacy environment to the desired state. The planning process also includes identifying a target architecture, acquiring the required software, and creating a multiphase execution plan.

Modernization projects typically require a combination of three solution providers: a systems integrator to manage the overall project, a modernization vendor to provide process expertise, and a technology vendor to provide the new target environment. As part of its comprehensive Oracle PartnerNetwork, Oracle has put together the Oracle Modernization Alliance: best-of-breed vendors to collaborate in a modernization partner team that can address any modernization project.

Conclusion

IT organizations are under increasing pressure to reduce costs and increase their ability to react to ongoing business demands. Legacy applications continue to be a problem for organizations because these applications are expensive and difficult to maintain and do not meet the needs of today's businesses.

IT modernization is the continuous evolution of an organization's existing applications and infrastructure software, with the goal of aligning IT with shifting business strategies. IT modernization implies the acquisition and deployment of modern technologies—along with their associated skill sets and capabilities—to replace legacy environments, without having to start from scratch or take the risk of rewriting business-critical applications.

Oracle's open, complete, and integrated infrastructure and application software can be the foundation of an IT modernization effort that reduces total cost of ownership, increases agility, eliminates reliance on legacy skill sets, and improves compliance.



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