

Comparing the TCO of Centralized vs. Decentralized ERP

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Some enterprise resource planning applications in your organization may be redundant. Enterprises should consider centralized ERP deployments to reduce the total cost of ownership of multiple applications.

ANALYSIS

Multisite architecture strategies and deployment plans are becoming increasingly critical for enterprises supporting enterprise resource planning (ERP) systems on different platforms, databases, data structures, storage systems and continents. When building the business case for centralizing these systems, the most frequently asked question is: Which has a higher total cost of ownership (TCO), centralized or decentralized ERP?

The Simple Answer: Decentralized Solutions Have Higher TCO

The consequences of a decision to decentralize are higher initial implementation and ongoing ownership costs. The implementation of a single vendor's ERP solution in many locations without centralized standardization and control will result in multiple (often widely varied) configurations, or instances, of the ERP application. Each deviated configuration will require unique training and support capabilities. Other areas of nonstandardization will also increase ongoing costs, because each unique technical environment will require uniquely qualified support personnel.

Decentralized solutions also multiply the IT landscapes and the attendant system administration staff. Further affecting the decentralized scenario is the work required to periodically consolidate operations and financial information from unique ERP instances.

An added twist occurs if multiple vendors' solutions are implemented at different business units, rather than separate instances of a single ERP product. This causes higher TCO because custom-built integration code, data alignment issues, and variations in vendor-centric business processes require extra time and resources to implement and maintain.

This type of implementation scenario is becoming rarer in today's cost-sensitive IT climate. Individual business units are feeling increasing pressure to embrace new corporate technical, functional and data architecture standards, especially when an ERP consolidation strategy is driven by new business requirements.

General Trends: Instance Strategy for Single-Vendor ERP Deployment

Gartner has published research that addresses the general question of how many production systems should be used in a particular ERP deployment. Although this research refers specifically to SAP deployments, it includes material that is relevant regardless of the vendors evaluated (see "Centralized or Decentralized R/3: Cultural/Application Issues" and "Centralized or Decentralized R/3: Technology and Terminology").

In recent years, Gartner has observed a consistent trend toward minimizing the number of instances within any given enterprise. There are three major reasons:

- It's more expensive to build, operate and maintain multiple production systems.
- Application functionality across multiple systems diverges over time, making it difficult to get consistent views of vital business data. This causes duplication of master data describing customers, materials and products, and it increases the number of reports and the need for reconciliation across systems.
- Globalization is a reality for many enterprises. This requires standardized business processes whenever possible. It's simpler to harmonize and standardize business processes on a smaller number of production systems, that is, using a centralized approach. (See "How Procter & Gamble Runs Its Global Business on SAP" for a case study of a pioneering approach to ERP standardization.)

General Trends: Standardizing and Centralizing Deployments of Disparate Vendors' Solutions

Not all enterprises start with a clean slate. When an enterprise has grown through acquisitions, or previous IT strategies have supported decentralization, numerous vendors' products may be installed in various forms. The benefits described for the single-vendor deployment still apply. However, added factors may tip the scale toward a less-than-completely centralized solution. When the anticipated benefits are not measurable — or they appear to be low in value or priority to the business unit or the corporate entity — the costs of retiring the legacy solutions and deploying the corporate standard may be too high. Likewise, when business processes vary significantly by business model or industry, one standard ERP solution may not fit all business unit requirements.

Each potential area for centralization and standardization must be assessed in terms of deployment and transition cost vs. the increase in business value to the enterprise. Many enterprises are addressing the high-value areas first and letting costs and benefits drive the decision if and when to migrate the entire enterprise to the standard model. Others are developing separate small and large ERP models for use when there is a wide difference in business unit ERP requirements, including the amount of IT support needed for each business unit.

ERP Consolidation Strategy

Because of the complexities involved in centralized vs. decentralized ERP deployment decisions, Gartner recommends that enterprises conduct a feasibility study to evaluate the general benefits of any proposed ERP consolidation approach. Numerous issues should be considered in such a study; however, on balance, most enterprises conclude that it's more cost-effective and of higher business value to consolidate along a more-centralized approach, unless:

- Various business units already have a number of separate ERP systems and are happy with those solutions
- Various business units are happy with the total operations costs view of all the systems
- The enterprise prefers a highly autonomous approach to running its various business units, which would make it difficult to re-centralize
- The enterprise will achieve minimal business value from standardized ERP business processes (for example, if corporate reporting for separate divisions is not a priority)

We've seen enterprises with a single vendor's solution deployed in a decentralized fashion opt to begin consolidation by simply moving all of their supporting ERP hardware into one physical data center. Although this first step does not address the issues of common data structures and business processes, it does have a positive effect on IT costs and can be used to achieve IT infrastructure standardization. A second step can be to adopt new server and disk storage consolidation technologies to further reduce costs.

With a centralized systems approach, enterprises must correctly design the infrastructure to handle all classes of users. It's necessary to pay particular attention to proper server sizing, as well as the correct design of the wide-area network (WAN) infrastructure. This is achievable for most users, but the amount of network bandwidth required will increase over time with each new release of the vendor's product. Furthermore, it's just as important to optimize the strategy for providing disaster recovery and to design the right level of overall application availability into all production systems. In particular, consider using more-robust enterprise storage disk technology.

Potential Problems With the Centralized ERP Strategy

A single centralized ERP solution is not for everyone (see "Standardizing ERP Systems: Will It Work for You?"). One potential challenge to consider is mergers and acquisitions, which need to be planned more carefully with the centralized approach. In addition, some enterprises struggle to support upgrades and certain language combinations in a single ERP instance approach; however, this issue can be overcome. In "World-Class SAP Upgrades: Proving It Can Be Done," Gartner describes how one enterprise has been successful on a single production system for 4,000 named users, 19 countries and nine languages. (This example describes a SAP solution, but the strategies apply regardless of the vendor selected.)

The centralized ERP decision also has major impact on architectural complexity as regards system landscape design, the operational challenges of managing multiple languages and time zones, and business recovery issues. These challenges affect the design of application servers, graphical user interfaces (GUIs), and printer management and interfaces. However, real-world experience has shown that all of these issues can be overcome by careful design. Consequently, enterprises should factor globalization decisions into their ERP architectures and be careful with data center business recovery plans.

Other Issues to Consider

Most enterprises that take the decentralized path tend to regret it unless they have very different business units with genuinely different business processes. Many large enterprises are totally re-implementing their ERP systems because they ended up with:

- Nonstandard ERP systems that share very little information, processes and knowledge — business and technical
- Significant manual intervention to consolidate business performance metrics and reports
- Much higher TCO due to "reinventing the wheel" or too many servers, storage, database software, software tools and related infrastructure
- An uncoordinated technical architecture

The most successful enterprises have some form of ERP competence center to maximize return on investment (ROI) by sharing knowledge and skills across the enterprise. In "Maximizing ROI From R3 With an SAP Competence Center," we discuss using competence centers to leverage this hard-won intellectual capital.

Features

"Centralized or Decentralized R/3: Cultural/Application Issues" — Cultural factors, application design issues and costs are the three main factors involved in the choice between a centralized or decentralized approach to SAP R/3. **By Derek Prior**

"Centralized or Decentralized R/3: Technology and Terminology" — Technical issues and terminology are two areas that need to be clarified when evaluating centralized and decentralized approaches to R/3. **By Derek Prior**

"How Procter & Gamble Runs Its Global Business on SAP" — Procter & Gamble has successfully standardized its enterprise resource planning systems by deploying a global ERP and supply chain backbone. **By Derek Prior**

"Standardizing ERP Systems: Will It Work for You?" — Enterprises with multiple ERP systems need to consider many factors, including the business drivers and the enterprise profile, before deciding whether standardization makes good business sense for them.

"World-Class SAP Upgrades: Proving It Can Be Done" — Dow Corning's experience confirms that major upgrades to large-scale, live SAP deployments can be carried out within acceptable downtime constraints. **By Derek Prior**

"Maximizing ROI From R3 With an SAP Competence Center" — The SAP competence center model can produce superior return on investment from SAP projects. **By Derek Prior**

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