Market Comparison Report:

How Does Your ERP System Architecture Address Change?

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Technology Evaluation Centers

How Does Your ERP System Architecture Address Change?

An Examination of Leading Change Management Strategies

In today's competitive market, businesses are living in a constant state of change. This is especially true in the services sector because of the more fluid "people resource" (versus supply chain commodity) factor, which brings an additional layer of change dynamics to business operations. Whether because of downsizing or expansion, mergers or acquisitions, changing business processes or stringent government and industry compliance regulations, today's businesses must quickly and cost-effectively react to business change to stay competitive.

Yet most ERP solutions currently installed are falling short. A February 2008 IDC survey of 250 US and UK companies entitled *Mid-Market Service Companies' Enterprise Investment Strategies and Adoption Trends* [1] reports that 47 percent of enterprise resource planning (ERP) software users say that their financial applications costs exceeded their planned budgets as much as 100 percent.

How is it that nearly half of all businesses are essentially blowing their ERP budgets each year to support change? How are the software vendors supporting recurring change—be it broad and sweeping, as in the case of changes in US Sarbanes-Oxley (SOX) requirements, or more personalized, like supporting new CEO-mandated business processes and best practices? The question is this: what are software vendors doing right and wrong in facilitating post-implementation change?

Change Management from the User's Perspective—Services Sector

Organizations comprising the bulk of the activity within the services sector (technology services, management consultants, architecture/engineering/construction firms, financial services, nonprofit organizations, and government services) are subject to high degrees of volatility in their day-to-day business environments.

The majority of IT professionals surveyed in this report said that the ability to easily, quickly, and cost-effectively manage ongoing change was their single overriding concern. Specifically, they referenced the following factors:

- Changes based on new government regulations. In the financial area, they referenced International Financial Reporting Standards (IFRS) and SOX, as well as emerging environmental rules and guidelines.
- Changes affecting the structure of their charts of accounts (to accommodate new lines of businesses, for example, or for future reporting requirements).
- Changes tied to analytics or historical projected data.
- Changes associated with segmented and global account structures that require compiling multiple currencies, varied tax accounting, and even multilingual needs, into one format for final statutory purposes.

The purpose of this report is to convey how adaptable various ERP system vendors are in addressing change. We considered organizations operating in the service industry and that chose to harmonize to a single system. This report examines three leading vendors in the field: Agresso, Oracle, and SAP.

1 IDC presentation prepared for Agresso, *Mid-Market Service Companies' Enterprise Investment Strategies and Adoption Trends*, February 2008.

Vendor Overview

Agresso

Agresso's Change Management Approach

Agresso provides organizations with a broad, scalable solution for addressing organizational, regulatory, and competitive change continuously after the initial implementation is complete. The solution is unique among ERP systems due to its unusually tight coupling of data management (information warehousing), process modeling (business processes), and information delivery (reporting and analytics). This means that business change made within Agresso applications is typically accomplished by business users rather than IT personnel—the user effects changes on the spot. These changes are captured and automatically reflected throughout the solution. There is no need to replicate actions for data, process, or reporting consistency.

By providing flexibility in the tight configuration of the software (i.e., the system doesn't require heavy customization), Agresso's aim is to eliminate the need to modify source code. This is accomplished via its VITA architecture, which sits underneath the level of typical service-oriented architectures (SOAs). Agresso supports SOA standards for non-Agresso and "Business Living IN Change" (BLINC) plug-in applications, though it is not dependent upon SOA for its native solution set, which already supports a deeper, fuller level of integrated data, process, and delivery change capabilities.

If desired, a standard customization tool set can be used, though many Agresso clients implement Agresso as is, out of the box. This is a reflection of the system's highly configurable design and project-centric customer base. An interesting feature of the system is that it does not force users into a standard chart of account framework for every transaction. Rather, it allows users to focus specifically on the information needed for each transaction. Users can analyze financial transactions in both the chart of accounts and cost center, while dynamic, relational reporting structures can be maintained independently of financial transaction analysis.

Altering the relational structure eliminates the need for costly re-engineering of reporting, posting, or analysis templates. The summary data is held in balance tables that identify the business accounts and drill down to the lowest levels. This represents a significant advantage in terms of cost savings for companies that are expanding as a result of either growth or acquisition.

Agresso 5.5 offers multicurrency, multilingual capabilities; flexible fields; an n-tier Web-based architecture within a .NET framework; extensible markup language (XML)–based data sharing; and a wide range of database management systems, including Microsoft SQL Server, Oracle, and MySQL. The system is middleware-independent and portal- and browser-independent.

Oracle

Oracle's Change Management Approach

Oracle is a global provider of complete enterprise solutions. The company's products cover a variety of industries and application functionality. One of Oracle's strengths is apparent in its frequent use at multilocation organizations with high-volume transactions.

Oracle leverages a single set of service offerings through its Universal Content Management (UCM) stack to integrate change management issues (as in the case of newly acquired or merged organizations). Oracle's approach is to create a single template and to replicate the changes at the application layer so that the content from one system can migrate to another.

In a merged or acquired company, users can migrate one system to another if they are using a similar standard to the application program interface (API) standard (e.g., Oracle BPEL—Oracle's middleware

solution). Otherwise, users can deploy a third party tool to track standard business process flows. Either tool (Oracle BPEL or a third party tool) will check standard transactional data flows by verifying similar standards between merged companies through a UCM, across table overlays. The UCM is a common user interface and is part of the Oracle Fusion middleware stack, which is integrated with BPEL at the SOA layer.

Oracle's approach to integration of different companies' workflows is to determine where workflows reside (the Oracle applications search by infrastructure, for integration of the hardware environment with application hardware). Usually these integration points address workflow according to service level agreements (SLA) for BPEL standards. In other words, BPEL integrates to a common workflow SLA.

Oracle's approach for companies that merge or acquire one another is to integrate the companies' systems using its middleware tools and APIs. The more standard an architecture is, the easier it is to integrate. For example, suppose Company A acquires Company B and insists that Company B use its standard practice. This is easier to do if there is a common business process language between the two systems. Internal systems analysts must come to an agreement on how to address such issues as security. The acquiring parties address flexibility via integration of application processes.

SAP

SAP's Change Management Approach

Another large solution provider, SAP, offers a wide variety of applications to many vertical industries. The products offer a breadth of functionality in line with the company's global scope. It claims to have thoroughly tested its solutions among the leading industries, which may help instill confidence in organizations that acquire the solution.

At the product management level, SAP has a team that manages financial compliance-related issues. SAP's team analyzes impact on any business application, determines whether a change is major or minor, and decides whether users will need to change their existing SAP deployment—either immediately or when the next version of the software is released.

In terms of integrating non-advanced business application programming (ABAP) applications (i.e., non-SAP solutions), programming changes can be made at the GUI level through an interface overlay. The ABAP application developer uses the GUI level to synchronize the changes in both the ABAP and non-ABAP solution at the project management level by creating a virtual portal landscape at the SOA level. The role of the portal is to simplify inconsistent data capture and to combine the workflow between the ABAP and non-ABAP system. The other purpose behind the virtual portal is to maintain changes in both systems via a central change management library solution manager, though this typically cannot be done by a business user.

SAP employs a multi-tiered approach to using SAP Solution Manager to manage changes at the project level. At the SOA level, SAP uses NetWeaver. In one example described by SAP, a purchasing department dealing with both financial and non-financial data may have to make changes to the system with respect to both types of data. The approach then would be to use the API tools with SAP BAPI and SAP MS DUET, and to use SAP middleware tools (e.g., SAP NetWeaver 7.0 SPS 12) to integrate the different systems.

Vendor Survey – Change Methodology

We took three global ERP vendors—Agresso, Oracle, and SAP—that provide offerings to the services sector, and identified five prospective areas of change: compliance to new regulations, reorganization and restructuring, mergers and acquisitions, business process change, and financial management–driven change. We then interviewed customers of each vendor and asked what technology methodology they needed to support business change in each of these five areas.

Without exception, each user company said that change was supported in one of two areas:

- **graphical user interface (GUI)**

  The GUI is a display on the desktop that enables *the user* to quickly move, merge, and display data through various windows, icons, and mouse movements.
- **application level (APP)**

  The application level is a programming level that requires *IT department staff* to integrate similar files, tables, and data sets of an application.

Following is a compilation of survey results on where change is supported architecturally by each of the three vendors, in each of the five identified "business change" areas:

1. Complying to New Regulations	Agresso	Oracle	SAP
Makes changes to new regulations introduced by the government	GUI	APP	APP
Makes changes required to compare new and old reporting standards	GUI	APP	APP
Makes changes to the way additional cost is organized or split	GUI	APP	APP
Changes the structure of the chart of accounts to meet changes in future reporting requirements	GUI	APP	APP
Makes changes so financial data can be reported with non-financial data	GUI	APP	APP
Makes changes required to update reports that are dependent on new account structures	GUI	APP	APP
New compliance processes can be designed in the business process framework	GUI	APP	APP
Document and content management platforms can be changed to manage documents and other content	GUI	APP	APP
Makes changes to business rules that monitor compliance issues across major organizational processes	GUI	APP	APP
Makes changes to financial consolidation data	GUI	APP	APP

2. Reorganization and Restructuring	Agresso	Oracle	SAP
Makes changes to move a cost center into a different division	GUI	APP	APP
Ability to make changes to new organizational processes and integrate them with different software systems	APP	APP	APP
Makes changes to existing methods of segmenting products or organizational structure (e.g., from product to regional or both)	GUI	APP	APP
Changes management by office to management by job type	GUI	APP	APP
Makes changes to financial organization system so history of existing structure and planned structural changes can be compared	GUI	APP	APP
Makes changes to employees' rights to review reports and to the level of access they have, especially when employees change positions	GUI	APP	APP
Makes changes when departments are divided, including structural changes, responsibilities, and processes	GUI	APP	APP
Makes changes when parallel functions of an acquired company are integrated into a unified technological platform	GUI	APP	APP

3. Mergers and Aquisitions	Agresso	Oracle	SAP
Makes changes required to determine initial integration points between the two different organizations' financial systems	GUI	GUI	APP
Makes changes to the newly acquired/merged entity by integrating different software systems	APP	APP	APP
Makes changes required to consolidate globally produced group accounts (in different formats) back into one format for final statutory purposes	GUI	GUI	APP
Makes changes required to merge charts of accounts and customer and supplier accounts across all your entities so you can produce consistent accounts across all entities at a group level	GUI	GUI	APP
Makes changes required to move to operating one credit control department for the entire group	GUI	APP	APP
Makes changes required to enable employees from the newly acquired organization to operate across divisions/projects	GUI	APP	APP
Makes changes required to introduce a common reporting structure across multiple client companies and regions while maintaining local reporting requirements	GUI	APP	APP
Determines how aggregate data will be collected for BI analysis	GUI	APP	APP

4. Business Process Change	Agresso	Oracle	SAP
Makes changes required to introduce a new approval flow related to corporate purchasing and local expenditures	GUI	APP	APP
Makes changes required to change an existing workflow—for example, in adding an additional approval step to approve invoices over a designated amount	GUI	APP	APP
Makes changes required to introduce a new payment—perhaps a one-time bonus, or additional benefit (e.g., child care vouchers)	GUI	APP	APP
Makes changes required to track a project (the life cycle) in situations where the organizational structure changes, thereby changing ownership of the different phases of the project to new resources	GUI	APP	APP
Makes changes required to allow project managers to track debtors, creditors, commitments, budgets, actual, forecast, and margins by individual project in a situation whereby the delivery methodology is changed from hourly rates to fixed price	GUI	APP	APP
Makes changes required to allow project managers to track debtors, creditors, commitments, budgets, actual, forecast, and margins by individual projects. This applies in situations whereby it's decided to outsource part of the service delivery to subcontractors.	GUI	APP	APP
Changes required to change purchasing workflow processes to map to changes in organizational structure or staff	GUI	APP	APP

5. Financial Management-Driven Change	Agresso	Oracle	SAP
Makes changes required to change the accounting calendar from January 1 – December 31 to April 1 – March 31	GUI	APP	APP
Makes changes required to move from a supplier ID look-up to a company number or VAT number as the standard look-up value	GUI	APP	APP
Makes changes required to add extra analytical elements to the accounting key in your financial transactions	GUI	APP	APP
Makes changes required to change the length of an analytical dimension (e.g., from 12 to 15 characters) due to new information requirements in your business	GUI	APP	APP
Makes changes required to introduce new VAT rates or to amend existing rates impacting the reporting systems	GUI	APP	APP
Integration of AP/AR process between the two organizations	GUI	APP	APP
What type of IT support will be offered the organizations	GUI	APP	APP
What are the SLAs offered for the merged organizations companies	GUI	APP	APP
Streamlining IT policies between two companies	GUI	APP	APP
Diagrams of IT architecture and documentation	GUI	APP	APP
Documentation of system audits	GUI	APP	APP
Documentation on e-systems HR, financials, ERP	GUI	APP	APP
Inventories of IT assets	GUI	APP	APP

Summary

SAP and Oracle integrate changes through the SOA layer using the appropriate API middleware software applications. Conversely, Agresso primarily expedites change (with the exception of integrating non¬native applications) at the GUI level via its drag-and-drop functionality. The drag-and-drop functionality lets business users manipulate metadata residing below the SOA layer. Agresso considers this functionality to be one of its main differentiators.

GUI CHANGE REQUIREMENTS—Change that is made at the GUI level is generally performed by one person: the user.

APPLICATION CHANGE REQUIREMENTS—Change that is made at the application level generally requires all or some combination of the following additional business processes and either internal or external employees to support these processes:

- resources to clearly identify new end user requirements clearly for programming personnel
- resources to translate these new requirements into new programming design
- resources to do the new programming
- resources to test the new programming
- a project manager to oversee the above four phases

These four business process steps (plus management) are time-consuming and expensive. According to the Foote Partners Research Group's recent press release, *IT Skills and Certification Pay Index Q1 2008 Update* [2], the rising cost of IT skills has been "Spurred by a widening supply/demand gap for many SAP skills, overall pay for IT skills continues its ascent despite recession jitters." The accompanying *Rising Skills Pay: Noncertified Skills* shows that pay for SAP ERP technology skills jumped a full 18 percent for the six-month period ending April 1, 2008. The article sites SAP's continued move into the small to medium business (SMB) market is fueling IT labor shortages, raising the price to attract ERP programming and integration personnel, and causing technology budget shortfalls at companies.

If your organization's industry segment or business model is highly dynamic (i.e., integrating new locations, undergoing rapid growth, or involved in a series of mergers and acquisitions), then as with all ERP vendors, you should compare your specific business requirements to each vendor you review.

2 Foote Partners, LLC; Executive Summary – IT Skills and Certifications Pay Index™ Q1 2008 Update.