New Applications Emerge — Business Process Fusion

A new software category is emerging, enterprise process management applications, providing support for cross-functional business processes and built on a platform for collaboration, content management and transactions.

We are seeing the emergence of a new breed of business application. These applications differ in scope from current packaged applications, targeting cross-function, end-to-end business processes. They differ in technology base by incorporating not only transaction processing using relational data, but also the styles of processing associated with collaborative work processes, content management and business analytics, with the use of a service-oriented architecture as a key enabler. Business process management technology is also key in enabling flexible configuration of application components to match specific processes in an enterprise. None of these factors viewed independently is entirely new, but the confluence marks a discontinuity in the business application market. Gartner has termed this new category "business process fusion" applications.

Beyond the constant drive for innovation, the emergence of these applications is also driven by a more-specific shift in business demand. Business success increasingly is predicated on flexibility and speed in linking business processes — that is what increases the rate at which enterprises can deliver value to customers. This is the foundation of the "real-time enterprise." It is no longer sufficient to optimize segments of a value chain; the entirety of a value-creating activity must be supported in a coherent way.

Some enterprises have created applications with these characteristics in the past, but the cost of development and integration has been high. The platforms for composite application development, based on Web services and incorporating the full mix of technologies relevant to business process fusion applications, enable the creation of new packaged applications, and also enable enterprises to develop or extend such applications at lower cost. The boundaries between buying
a packaged application, purchasing components and creating a unique application configuration, and developing a new application now blurs. Enterprises rarely create totally new application functionality from scratch. Business process fusion applications emphasize the core value of reuse of application investments and the central role of integration technologies at the data level via integration broker technology, and at the user-interface level via portal frameworks.

**Application Types**

Packaged software applications have evolved:

- To serve specific business functions or processes, such as enterprise resource planning (ERP), customer relationship management or computer-aided design

- To support a generic need (create and store documents, send messages, search for information). Although specific business applications may incorporate some of the capabilities of the generic applications, they are targeted to service particular users and their roles in certain processes. Any user in almost any context can use generic applications, such as e-mail or document management

The new applications do not fit these traditional categories. The old business applications were specialized around particular functions, and the associated users and buyers. The new applications:

- Target end-to-end business processes that cross multiple business functions

- Cross user domains, often including interenterprise boundaries

- Integrate functions that were previously supported by independent generic applications (such as collaboration support or business intelligence) within a unified process support

- May be delivered by a combination of systems internal to the enterprise and externally hosted

For business process fusion applications to enable end-to-end process support, they must also incorporate established applications. Some of this integration will be achieved at the middleware level using application integration techniques. Integration via a portal framework will be increasingly important as the relevant standards mature, enabling more-sophisticated data passing between applications within the portal. This will also allow process specializations to be managed closer to the point
of user interaction, re-introducing the value of workflow in an application- and function-specific manner.

Blending of Architectures

Along with the functional distinctions, application software has been characterized by a number of distinct architectural models. Most business application software is built around a relational database with a transaction-processing engine supporting interaction logic. This model has remained in place from mainframe software through client/server to Web-based systems. The need to use the data maintained by such operational applications in the different context of business intelligence led to the emergence of data warehouses and analytics applications with different structures and loose coupling to operational systems. Document- (or "content-") oriented systems evolved to handle other types of information, text and, more recently, a range of media types. These systems might focus on the transfer (as by e-mail systems) or storage of documents and support for the processes involved with those documents in the form of workflow.

These boundaries are dissolving, at all levels. Oracle, IBM and Microsoft are looking to merge their database products to support all types of data in a single store. As the application server evolves toward a Web services platform, and the application platform suite merges application-server and integration-broker capabilities with a portal framework, the distinction between high-volume, small-size transactions and long-run workflow and business process interactions is disappearing. The smart enterprise suite combines higher-level content, collaboration and information management functions into a single platform. Application vendors are looking to exploit all of these capabilities in an integrated form.

The latest technology standards to implement service-oriented architectures that are emerging are making component-based, multitier applications broadly feasible. Web services are loosely coupled enough, are at the right level of granularity and have the necessary industry consensus to achieve this, where earlier standards, such as Common Object Request Broker Architecture, did not. These standards enable the creation of composite applications. Portal-based integration raises the level at which this can occur. Emerging standards such as Web Services for Remote Portals and Web Services for Interactive Applications will make significant contributions. The externalization of capabilities such as personalization and role-based authentication from individual applications into the portal framework is also an important element of the composite application framework. Multichannel support (notably for wireless
mobile devices), which has so far mostly been treated as a tactical addition to applications, will also be incorporated into the full business process fusion platform, enabling coherent multichannel interactions.

Vendor Positions

The major application vendors, notably SAP, PeopleSoft and Siebel Systems, are major drivers in the creation of business process fusion applications. Their interest demonstrates the belief that there is a market opportunity, but also reflects a perception of enterprise demand — even if it is not yet fully articulated. The need is driven in part by the broad deployment of the now-familiar categories of applications. Integration costs are approaching one-third of total spending on application development and deployment. The pressure of competitive innovation across all business sectors demands new capabilities, but fewer opportunities remain within functional silos. Business process fusion provides a new type of opportunity.

SAP is leading in this new field. It has already introduced its first business process fusion applications under the name xApps, and has recently announced NetWeaver as a platform for the creation of xApps by SAP and independent software vendor partners. PeopleSoft’s AppConnect strategy and Siebel’s UAN are headed in the same direction.

Complementing this is the move by generic software vendors, led by IBM, to componentize the capabilities of generic applications and deliver these as Web services. The Oracle Collaboration Suite will likely evolve not just as a packaged set of generic applications, but also as a set of componentized services that can be exploited within Oracle business applications. Microsoft will doubtless continue to develop platform and generic applications alongside its business application offerings, although it has yet to articulate a strategy that links them. More-specialized vendors of portals, content management and other generic products are adopting similar strategies.

Business Process Fusion Requires Composite Applications

Because business process fusion applications link across processes, they must also link with current systems. If they are to be widely adopted, they must achieve the flexibility and specificity of matching individual enterprise processes, without the prohibitive costs of specialized system integration projects. The evolving framework for composite applications is a critical element in their success.
Composite application technology predates Web services, but is now moving to a new level as Web services and associated tools dramatically reduce the cost of creating composite applications. Composite applications blur the traditional dichotomy between tactical and strategic application development. Tactical development emphasizes opportunistic time frames, rapid construction using high-productivity tools, straightforward requirements and limited scope. Strategic development emphasizes doing a complex job correctly and systematically, with careful methodology applied by a large team of skilled developers, at the expense of a large budget and extended time frame. Composite application technology enables the construction of enterprise-scope applications at tactical speeds.

It must be noted, however, that Web services are still immature technologies, and tools for developing composite applications are in their infancy. These capabilities will require a sophisticated application development organization for early exploitation.

**Adopting Business Process Fusion Applications**

Business process fusion applications will deliver increased scope and capability, offering potential advantages to purchasers. However, exploiting these capabilities will increasingly drive user enterprises to a single vendor solution, as the scope and interrelationship between business process fusion applications make it more challenging to source from multiple suppliers. Enterprises will need to re-examine all aspects of single-vendor strategies: simplicity vs. vendor lock-in and reduced cost of integration vs. reduced leverage in negotiation. Compounding the difficulty is that different constituencies in the enterprise likely will make different assessments, and short-term advantages may not match longer-term objectives.

In practice, enterprises will deploy this new breed of applications for targeted business processes that have high business value. In enterprises that have a substantial investment with a single application vendor, it will be natural and easy to adopt additional business process fusion applications from that vendor (where they exist). Those with more-heterogeneous systems will continue in that mode by adopting new applications to add to current applications. The real challenge will be for enterprises that have sought to reduce their application vendor variety (for example, buying into the ERP II concept), but have not been willing to relinquish control of an independent infrastructure strategy. Such enterprises expect to make database, application server or portal choices unconstrained by business applications. This will become more difficult.
Although business process fusion applications will be delivered as "packaged" application products in the lineage of ERP, it must also be recognized that these applications are highly service-content-oriented. They will be "adjusted" to meet a particular client's needs — and that may mean anything from simple configuration to substantial customization. Because they seek to meet end-to-end process needs, they will typically be closely matched to the particularities of industry processes and data. No vendor, even one of the scale of SAP, will be a dominant supplier of business process fusion applications. It is notable that SAP's xApps strategy recognizes this by incorporating a major initiative to create an independent software vendor channel for xApp development — a radical departure from its traditional approach to R/3 applications.

**Bottom Line:** Business process fusion applications promise comprehensive support matched to specific business processes, taking advantage of extensive platform functionality and advances in composite application technology. This will bring about increased business agility and efficiency, and staff productivity. Enterprises should recognize that deploying business process fusion applications will still require a significant services input in many cases, particularly for early adopters. The lessons of enterprise resource management implementations should not be forgotten because of the enthusiasm for new technology and new functionality.

**Recommended Reading and Related Research**

"Application Platform Suites: An Emerging Software Market"

"Portlets Help 'Tame' the Delivery of Web Services"

"Multichannel APS: Beyond Commodity"

"SODA Environments Support the Application Platform Suite"