The power of enterprise integration

Part 1: Enterprise integration is the new competitive differentiator.

By Terri Rylander

Thomas Friedman, in his book "The World is Flat," says that we've entered Globalization 3.0, where the world has gone from small to tiny. Geographical and cultural distances no longer provide barriers to competition. Heightened competition in this new economy will serve to weed out companies that are not at the top of their game or leveraging all the assets available to them. To stay competitive, organizations must continually evolve and take advantage of their competitive differentiators, including one known as enterprise integration.

Friedman explains the phenomenon of moving from small to tiny as a flattening of the world, where convergence of technology enables intellectual capital and work to be delivered from anywhere to anywhere. In the book, he goes on to describe capabilities a company must develop to effectively compete. "For the world to get flat, all your internal departments—sales, marketing manufacturing, billing, and inventory—had to become interoperable, no matter what machines or software each of them was running. And for the world to get *really flat*, all your systems had to be interoperable with all the systems of any other company."

The scenario he describes is enterprise integration—the ability to link systems, business processes, and human capital (knowledge) in a way that is seamless, allowing businesses to share and leverage information assets. The challenge is making enterprise integration happen. Corporations have spent years upgrading and perfecting their proprietary systems such as customer relationship management (CRM) and enterprise resource planning (ERP). Now those proprietary systems are becoming a disadvantage in a quickly changing market. Today, speed and flexibility are the smartest investments a company can make and enterprise integration provides both.

How did we get here?
Technology has rapidly advanced in just the past few years, enabling companies to share and reuse business processes. With the advent of service-oriented architectures (SOAs), business processes can be packaged and exposed to other applications. Additionally, newer standards like extensible markup language (XML) allow data to be shared and joined easily, regardless of which hardware or software platform it resides on. Collaboration and social networking Web sites such as Wikipedia, MySpace and YouTube enable people to share knowledge and information around the world.

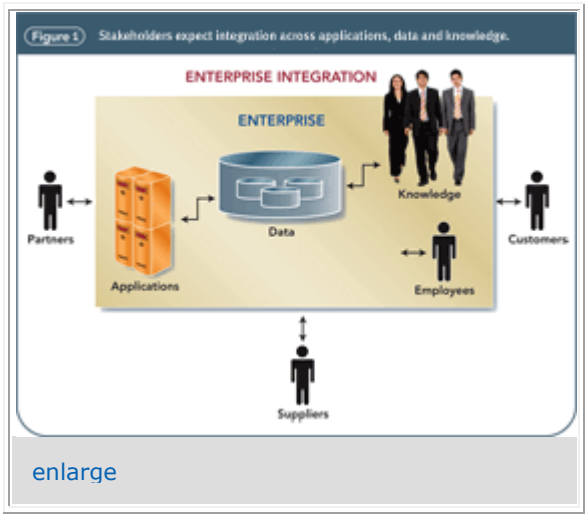
At one time, companies could differentiate by using data to read historical trends in the business. Product managers would use these trends to modify their actions going forward. They relied on a technical analyst to use SQL and pull data from transactional systems. Fortunately, advances in technology allowed companies to combine data from various systems in a data warehouse and access that data with user-friendly reporting and business intelligence (BI) tools.

Over time, data warehouses have evolved from historical to real-time and even predictive. Companies that took advantage of these advances in data warehousing capabilities were positioned to easily adapt and were more likely to lead the pack in their industry. But time has a way of reducing barriers to entry and leveling the playing field. Other competitors quickly implement the same capabilities and the differentiation is lost. Enterprise integration is the new differentiator, and companies must now begin to incorporate it into their strategy.

Making it happen
Some of the benefits of incorporating enterprise integration into business strategy may seem obvious. An integrated environment provides access to information not previously available, including new combinations of data and information locked inside the heads of employees. These new combinations enable more meaningful and actionable insights about the business that can be obtained in real time.

The less obvious benefits include reduced infrastructure costs by leveraging and reusing business processes and resources across proprietary systems. Processes in these systems can be linked using new architecture methods that allow systems to share functionality and data. This dynamic linking can be coupled and

uncoupled as needed—without impact to the systems—creating a business environment that can flex with the demands of the marketplace.



Today, data and information are table stakes for any organization. Employees, customers, and even partners and suppliers have come to expect on-demand information access. (See Figure 1.) They also require that this information be accurate. Enterprise integration helps organizations meet those expectations by making information available across typical technical boundaries such as proprietary software and hardware, database languages and firewalls.

Integrating the enterprise happens at three levels:

1. Enterprise application integration (EAI)
2. Enterprise information integration (EII), which is the integration of data
3. Human capital integration, often known as knowledge management (KM)

Fortunately, any one of these alone provides value and is not dependent upon a completely integrated enterprise. The level of integration will depend on the business strategy, available skills and the underlying technology.

Applications and processes
EAI is the integration of applications such as CRM and ERP and business processes. The introduction of SOAs enables organizations to share and re-use business processes, described as services, across systems. These services may include processes such as calculating pricing in real time, checking customer credit, and handling an order. A travel agency may use a pricing calculation engine for both hotel and airline reservations. Rather than duplicate the engine for each system, SOA allows the engine to be accessed by both systems, regardless of its underlying architecture.

Over the years, applications have been developed and implemented by IT organizations to solve very specific business problems. Every time a department has a need a new system is added, creating multiple systems each with slight variations. Adding a new system was often cheaper than modifying existing ones. Mergers and acquisitions (M&As) amplify the problem of system redundancies. Companies have to decide which system gets shut down and what functionality they are willing to give up. And, with so much focus on compliance, policy changes can wreak havoc on an organization as every affected system must be identified and updated. All of these challenges support the case for application integration.

Data and information
Integrating data is known as enterprise information integration (EII). Through common protocols like XML, data from disparate systems can be joined and viewed as if it were coming from a single location. XML allows data to be defined using a common structure that can then be read by other "XML-capable"

databases and applications. Once defined in the XML language, queries and programs can be written to combine data across different domains, networks, data types and structures.

A key component to EII that cannot be ignored is master data management (MDM). While accessing disparate data sources can be a big challenge, the bigger challenge is ensuring data is defined and used consistently. MDM provides a common definition and map to data types such as parts, customers and suppliers. Without MDM in the EII picture, organizations can combine data but may spend countless hours reconciling it.

Human capital

With shared technology, processes and data, the final component is human capital and enabling the knowledge worker. Early on, automated, on-screen dashboards consolidated business information into one display point, creating a more holistic view for employees to manage daily responsibilities. Dashboards provided additional visibility to data, which led to more business questions and the need to search multiple systems. Portals were quickly adopted as a way of providing a single point of entry to these multiple systems. Now, more sophisticated search capabilities make finding information even easier, adding relevancy scores and related items of interest.

For years, organizations have known that employees have a vast amount of tribal knowledge that can exit the company at any time. The field of knowledge management (KM) is built on this dilemma—how to codify human knowledge and experience. The more difficult subsequent question is, "How do you *simplify* knowledge transfer from person to person?" Fortunately, technology has evolved that makes sharing knowledge much easier and can even provide incentives for doing so.

Sharing information is finally going mainstream. The "wiki" concept is catching on as a way to contribute, store and exchange information. The popular Wikipedia allows users to find definitions to items, contribute their own definitions and correct existing definitions. Social networks like MySpace are ways people can connect and share experiences as well as personal information. Organizations can leverage this new technology as a way to find subject matter experts—a kind of "employee yellow pages." While both of these examples are most popular in the public domain, they are quickly being modified and adopted in the corporate setting.

As companies struggle to maintain their competitive position, enterprise integration is one of the most strategic moves an organization can make. With increased pressure to reduce costs, optimizing use of existing assets is key, whether these assets are people, systems or processes. People and systems must be able to seamlessly perform business functions as if they are sitting together in the same room, even if they are from different companies in different countries. As the world moves from small to tiny, markets become more global, and enterprise integration will become a requirement to compete.

This article is the first in a series of four articles to address enterprise integration. The next article will address the mystery of EAI and how technology has evolved. The third article will explore EII and the value of combining operational, analytical, structured and unstructured data. The fourth and final article will take a look at the new information worker and how advances in technology help employees leverage the human capital they possess. **T**

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http://www.teradata.com/tdmo/v07n04/Features/EnterpriseIntegration.aspx