

ERP alone is not enough...

ERP systems if chosen judiciously, implemented correctly and used properly can produce dramatic improvements in productivity and efficiency and can make the organization more competitive. During the last two decades, millions of organizations around the world have implemented ERP systems. Many implementations were complete failures and forced the companies to close shop. Many organizations failed, but managed to survive and salvage the systems wasting billions. Most companies that successfully completed the implementation, failed to utilize the full capabilities of the system. Only a very small percentage of the organizations implemented and used the ERP systems properly and were able to realize their true potential.

By the turn of this century, even the organizations that used ERP systems to their fullest potential were unable to compete effectively with their new business rivals. The surprising fact was that there was nothing wrong with the ERP systems. They were functioning as they were supposed to be. The employees were using the systems properly. But in all cases, after a certain point, the ERP systems were unable to take the organizations further ahead—ahead of the competition. What could be the reason?

Limitations of ERP Systems

ERP is an integrated software solution used to manage a company's resources. ERP's immediate predecessors—MRP and MRP II—focused mainly on managing the manufacturing and accounting resources of a company. ERP tried to manage more functions of enterprise. Today's ERP systems integrate all business management functions, including planning, inventory and materials management, engineering, order processing, manufacturing, purchasing, accounting and finance, human resources, and more. **But ERP was not designed to look beyond the 'four walls' of the organization, simply because the concepts of ERP were born in a time when organizations were run as independent enterprises with limited relationships with their customers and suppliers.**

Till a few years ago, an organization could have thrived and succeeded by delivering high quality products or services at reasonable prices. ERP was designed to do just that. With the right ERP package, companies could process orders, plan the production, manage inventories, invoice customers, pay the suppliers, and balance the books very efficiently and effectively. However, ERP systems have four significant limitations:

1. Managers and decision-makers cannot generate custom reports or queries when they need them, thereby preventing them from acting quickly and effectively.
2. ERP systems provide current status only, such as open orders. Managers often need to look past the current status to find trends and patterns for better decision-making.
3. The data in the ERP application is not integrated with other enterprise systems and does not include external intelligence.
4. ERP systems cannot meet all of the analytical and reporting needs of organizations.

There are many reasons for the above limitations. First, the ERP systems were not designed with the objective of information integration from multiple sources in mind. Second, ERP databases were designed to optimize performance and therefore lack the constructs required for multi-dimensional analyses. Third, most ERP solutions lack the advanced functionality of today's leading reporting and analytical tools. Lastly, performing complex analyses on the ERP database will impact the performance of the operational (on-line) systems.

ERP is a must, but ERP alone will not do...

Today, the business environment has changed. The business rules have changed, so have the business models. ERP was never designed to be customer-oriented and partner-facing. ERP systems lack many features that organizations require to effectively compete in today's eBusiness environment where business transactions happen almost instantaneously. Today, organizations should have the capability to communicate and transact with their customers and business partners electronically, using technologies like EDI and EFT. In this highly competitive and integrated business environment ERP alone is not enough to secure and maintain a superior position. Businesses need to find ways to integrate the new technologies that compliment ERP in ensuring improved sales, better customer satisfaction, faster order fulfillment, and other factors that improve the revenues and profits.

ERP can provide the backbone and infrastructure of enterprise applications that are the necessary and essential prerequisites of conducting business today. Successful orchestration of the complexities of the modern business enterprise, particularly in the context of an extended enterprise will be dependent on a company's ability to share information promptly, securely, and effectively with customers, partners and suppliers. This efficient exchange of information is a must for organizations to seamlessly integrate their supply and value chains. Through the process of e-transformation, companies must focus attention outwardly without losing any of the gains their inward focus brought them previously.

ERP systems are expensive to buy, implement, and maintain. But the real cost is the lost opportunities from not getting the most value from them—the sales a business never makes, the profits it never books, the customer and partner relationships it never cements and the market insights it never discovers. ERP systems were designed before the birth of the 24/7, global Web economy. Today, customers and business partners demand easy access to information about products and services, production and shipment schedules, and the status of billing and service issues. **A company cannot provide its customers and business partners with a personalized, unified online experience without a host of new technologies that integrates with their existing ERP applications for external-facing processes.**

A&M Machines is a global leader in the design, manufacture, and support of automobile engines and power systems. Today's competitive automotive industry demands far more than power from an automobile engine. It demands performance at the lowest possible costs and the highest level of reliability. In order to retain its number one position, A&M had to constantly innovate—develop new products and improve the efficiency of the existing ones. The organization has a world class R&D center that helps it to be always ahead of competition. A&M was one of the first organizations that used an ERP system to improve the efficiency of its manufacturing processes. Today, approximately thousands of

A&M employees and contractors use ERP solutions for finance, quality management, plant maintenance, materials management, controlling, program management, logistics, accounting, and sales and distribution transactions. Even though, the ERP solution replaced a number of disparate legacy systems and provided a common ground to pull a lot of business functions together, the manual processes remained for managing large volumes of unstructured content (information such as digital photos, scanned images, and CAD drawings, not easily managed by any ERP system). In addition, difficulty finding critical information quickly hampered efficiency in numerous ways.

To increase efficiency and facilitate finding critical information quickly, A&M realized that it needed to complement its ERP solution with a product data management (PDM) solution. The PDM system integrated the document repository and ERP applications, empowering ERP users to collect, securely store, find, link, and easily retrieve the required documents. With just a few clicks, employees could view relevant documents stored within the document repository without ever having to leave their desks. By integrating a PDM solution with its ERP application, A&M gave its employees easy access to relevant documents and information. The integration of the PDM and ERP systems resulted in numerous benefits, including faster decision-making and compliance, increased efficiency, and significant time and cost savings.

Customer is the King...

The key differentiator in today's market is customer satisfaction. Those customers who receive the best quality of service, products, pricing and brand experience are most likely to become an organization's most profitable clients. The ERP systems include only the functions required for sales force automation (SFA) and call center operations and fail to provide a personalized experience to customers.

Braintree Books is one of the largest on-line bookshops in the country. In addition to books they also sell related products like stationery items, greeting cards, pens, etc. Braintree books adopted an ERP system for streamlining its business processes, improving operational efficiency, and automating the order processing system. The ERP system played a vital role in improving the efficiency of Braintree books and made the order processing faster and efficient. But after improving the efficiency and productivity to a certain level, the company began to stagnate. There sales revenue decreased, the number of customers started leaving the organization, and the profits started dwindling.

The ERP implementations leave many companies saddled with massive, isolated systems containing vital customer, product, or service data. These systems lack the functionality needed to optimize customer-facing operations and enable business partners to work more closely and efficiently. The solution is to integrate a Customer Relationship Management (CRM) system with the ERP system. CRM covers methods and technologies to manage the relationships with customers. Information about existing customers (and potential customers) in the ERP database and in the data warehouse is analyzed and used for this purpose. Automated CRM processes are used to generate personalized marketing and customer care based on the customer information stored in the system.

The main problem the Braintree books faced was lack of customer satisfaction. The company did not have any facilities to reward loyal customers. So a customer making his hundredth purchase was

considered just like a new customer. Customers who have been with the company for years did not get any special treatment—they didn't receive any advance announcements, product recommendations, gifts, or discounts. So, the company's customers began to drift towards other stores that offered personalized service and offered the regulars special treatment. Braintree books realized its mistake before it was too late. It augmented the capabilities of its ERP system by integrating a CRM package that included personalization features so that the customers received personalized service depending on their value to the organization. The CRM software also had features to run targeted promotional offers and mail campaigns so that the preferred customers get more incentives and discounts. The customer care center was also made state-of-the-art, and the customer care executives could see the purchasing history of the customer and were able to offer preferential treatment to loyal customers. The new initiatives started showing the results immediately and customer satisfaction, revenues, and profits improved. The satisfied customers brought in new customers (through a referral program) and the future looked bright.

Technology is the Key

According to Gartner Group, "organizations should accelerate investment in upgrading their eBusiness/eCommerce platforms and that organizations involved in B2B commerce should focus their investments in technology that further reduces the human touch needed to complete orders." **The ideal eBusiness platform would deliver consistent, personalized information about products and services, inventory, pricing, terms and conditions, service options and other vital areas to internal users as well as to customers and partners (resellers, distributors and suppliers) across the entire extended value chain.** eBusiness systems should expand the traditional boundaries of ERP systems, automate the sales and ordering process to save time and money, and make it easier for the company's customers to do business with it. Such a system should hide all the complexity of the seller's operation from the customer or partner, giving them a single view of important information and processes rather than forcing them to deal with their internal business systems and processes.

An eBusiness system makes it easier for customers and internal stakeholders to get product information, configure products and services, order them and get updates on those orders. It becomes easier for the internal sales organization to organize and present information online, to cross-sell (selling related products) and up-sell (selling higher priced alternatives) customers and to share vital business and customer information with its channel partners. By making it easier for customers to transact business, a full-functioned eBusiness application can make the difference between a customer making a purchase or moving on, or between a reseller becoming a valued partner or finding another vendor. Increased sales, increased margins, improved customer satisfaction, increased channel sell-through—all of these factors have a material impact on the bottom line. All these are now possible if the organization can identify the right technologies and integrate them with the ERP system.

Information is a Competitive Weapon

Today, managing your organization efficiently and productively is not enough for survival. To be a winner in today's business environment, organizations must not only know what is happening inside the organization but also what is happening outside. In fact, knowing the external factors—changes in the business environment, customer preferences and trends, new rules and regulations, strategies by the

competitors, market trends, etc.—are more important. This information is critical for the survival and is more difficult to get when compared to the internal information.

Another factor that is very important is the organization's historical data. Organizations store the details of transactions and related information in archives. The historical data (usually stored in a data warehouse) is a gold mine, as it can provide the organization with valuable insights regarding demand, customer demographics, customer preferences, etc.

Enterprises find new and different ways to collect data every day, along with ways to automate the collection. Information from external sources is abundant. Never before has there been so much information available to the decision makers. The challenge faced by organizations is to avoid information overload by intelligently selecting the information that is available and present it in a way that is intuitively meaningful.

Information is the second most important resource of a company; the first being its employees. **When a company can make decisions based on timely and accurate information, it can improve its performance. Organizations should have mechanisms to expedite decision-making, as acting quickly and correctly on information before competing businesses do can often result in competitively superior performance. It can also improve customer experience, allowing for the timely and appropriate response to customer problems and priorities.**

Business Intelligence Shows the Way...

According to FWP (www.findwhitepapers.com), "Business intelligence (BI) is a broad category of applications and technologies for gathering, providing access to, and analyzing data for the purpose of helping enterprise users make better business decisions. The term implies having a comprehensive knowledge of all of the factors that affect your business. It is imperative that you have in-depth knowledge about factors such as your customers, competitors, business partners, economic environment and internal operations to make effective and good quality business decisions. Business intelligence enables you to make these kinds of decisions."

By adding a data warehouse and a business intelligence front end to your ERP system, we can use the events in the past to predict the future. Just as ERP fine-tunes resource planning and management, business intelligence for ERP fine-tunes ERP. A data warehouse organizes ERP data so that it is easily accessible for on-line analysis. Business intelligence systems improve business competitiveness by providing reporting and analysis tools to the desktop, enabling communication with the entire supply chain via the Web and automating alerts and actions.

Competitive Intelligence (CI) is a branch of BI, which is concerned with the external environment. CI gathers information that would help the organization to formulate strategies to beat the competition. CI collects information about the business environment, decisions and actions of the competitors, governmental policies, new rules and regulations and presents that information to the decision-makers so that they can predict the future trends accurately and make smart decisions that will help them gain more market share and outperform the competitors. CI helps in making use of the information before your competition does.

The ultimate objective of BI is to improve the timeliness and quality of information. Timely and good quality information is like having the ability to predict the future trends and how to formulate strategies to make the best use of it. BI gives an organization the information about its strengths and weaknesses, the strengths and weakness of its competitors, the opportunities available and the problems that could arise. It also gives information about the economical, cultural and cultural changes, the changes in the regulations and how other firms are reacting to these changes. BI help organizations to become aware, adapt, and react to the changes—in the business environment and customer preferences—quickly and effectively. Thus, BI helps organizations to use information to become proactive.

BI systems provide on-line analytical processing (OLAP) and data mining tools that managers can use from the desktops to discover significant trends and patterns. For example, analysts can drill down to obtain progressively more detailed information about retail sales, change metrics, view graphs and charts, reuse reports, create "what-if" analyses and generate best-case and worst-case scenarios.

Valuable in its own right, ERP information becomes even more valuable when it is combined with information from other sources. A BI system allows this, as well. *For example, a marketing manager might want to combine sales information from the ERP system with consumer demographics from A. C. Nielsen or business demographics from Dun & Bradstreet. With this information, the company can better segment its customers and improve customer relationship management. An automobile manufacturer for instance, can combine its internal ERP data with external databases to identify customers likely to be receptive to advertisements for a sports car, sedan, van or sports vehicle. Similarly, a pharmaceutical company can integrate its ERP information with sales and prescription information from pharmacies and doctors to better target its advertising. Similarly, the purchasing department of a computer manufacturer might combine its ERP data with external data about sales forecasts for microprocessors. With this information, purchasing can react to rising demand by consolidating all memory purchases to obtain a better price from a single supplier. In another example, a sales organization could combine the data from its ERP system with that of its sales force automation (SFA) system. With the combined information, sales analysts and sales engineers can create special promotions for overstocks and supply up-to-date product availability to the sales force at the point of sale.*

Businesses can optimize their investment in ERP systems by closing the loop between the BI system and the ERP system. The loop begins when the company discovers valuable business information from the ERP system; it closes when the company feeds those discoveries back into the ERP system to continually improve business processes. For example, an on-line business can use the business intelligence system to discover each customer's purchasing patterns and then update the operational system with recommended products. The next time the customer visits the site the operational system would tailor the Web page to feature products the customer would be likely to purchase.

Business intelligence systems for ERP can also issue alerts when certain events occur or thresholds are met, enabling your business to react more quickly to problems and opportunities. For example, if a certain number of customers return a product for the same reason, the system can automatically alert engineering, manufacturing, customer service and send a letter to customers to apologize and offer a

replacement or a reduced price on an enhanced product. Similarly, a customer service manager might want the system to generate a thank-you note to all customers who purchase a product and suggest the customer also purchase a warranty.

Thus, by integrating information from disparate company functions, ERP systems consolidate valuable business information. Unfortunately, ERP reports generally provide only a fraction of the useful information in the system. Data warehousing and business intelligence unlock the power of ERP systems by providing managers with quality information, quickly and efficiently.

ERP and the Internet

All organizations use the Internet and WWW to selling the products and service of the company to customers anywhere in the world through the on-line shops and portals that are open 24x7. But, the ultimate value from the ERP investment results from integrating the ERP system not only with a business intelligence front end, but also with the Internet. When you provide a Web-based interface to the information in the business intelligence system, the Internet becomes an enterprise information utility for employees, partners, suppliers and customers.

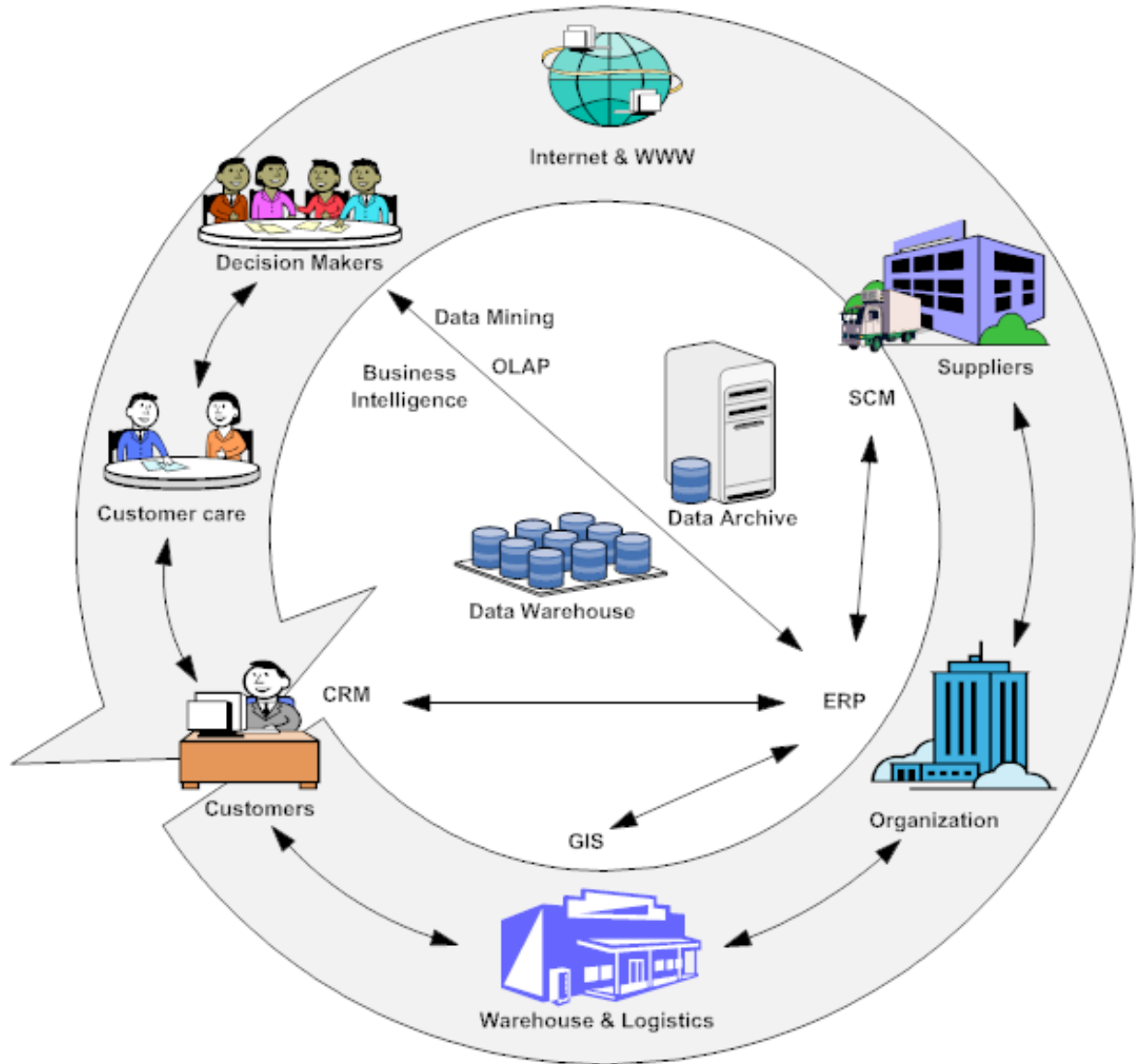
A popular early application for integrating ERP business intelligence with the Internet is supply chain management. All participants—engineering and product design, vendors and suppliers, production, marketing, distributors and customers—can get the information they want, when they want it, from wherever they want it. So marketing people could provide the customers with the latest product details and pricing information, the inventory management could be done based on real-time information, production can be fine tuned so that the right quantities are produced and that too when it is required.

The suppliers and partners in turn, can share the information with their suppliers. Product designers, both for manufacturing and service companies, can capture customer information in real-time, refining their products for greater market appeal or customizing them for key customers. In a financial services company, a product designer can capture information about customers' investment habits, using data mining tools to develop new investment packages. By adding a Web-based interface to your ERP business intelligence, you can integrate the supply chain, speeding time to market and gaining manufacturing efficiencies. This web-enabling will further help in improving the on-line performance.

Supply Chain Integration

There are many technologies that help to overcome the limitations of ERP systems. ERP systems along with these technologies will help in transforming the brick and mortar companies into e-businesses. For example, the integration of Product Lifecycle Management (PLM) and ERP significantly improves the productivity and effectiveness of users and organizations working with product and plant related information because such an integration helps in improving the efficiency all phases of the product life cycle.

The brick and mortar companies conduct its business in the traditional way, doing most of the process manually, with no information integration and process automation. This kind of a business model is very difficult to succeed in today's competition.



ERP and the Enabling Technologies

Today organizations are constantly innovating methods to improve operational efficiency, reduce costs, provide high-quality and personalized customer service, improve customer satisfaction and increase profit margins. So only those companies which are lean, aggressive, and which are constantly looking for ways to improve and streamline their operations will survive. For this to happen, the companies and organizations have to embrace the technological advancements and make full use of them. Companies that use technology, integrate it into the core of their business planning and are ready to face the challenge of conducting business in this Internet age are called eBusinesses. ERP is the central or the core component around which the various technologies are integrated to build an organization that works at the speed and efficiencies of the Internet age and where most processes are automated and things happen at Internet speed.

The technologies that will enable the companies to do business at Internet speed when integrated with the ERP system are Business Intelligence (BI), Data Warehousing, Data Mining, On-line Analytical Processing (OLAP), Supply Chain Management (SCM), Product Lifecycle Management (PLM), Customer Relationship Management (CRM), Geographical Information Systems (GIS), Internet, etc. We will have a brief overview of these technologies and see how they play a role in transforming brick and mortar companies into e-businesses.

Business @ Internet Speed

In this Internet age the main factor that separates the market leaders from the followers is the ability to gather the right information, get it to the right people and help them make better decisions quickly so that the company can react to the changes in the business environment quickly and efficiently, find and seize new business opportunities, lead the organization through uncharted waters, anticipate and provide the customers and partners what they want, make the customers and partners feel special and so on. **For this ERP alone is not enough; ERP should be integrated with other technologies that will enable the companies to do business at Internet speed.**