Chapter 9

Accounting and Enterprise Software

After reading this chapter, you will:

1. *Know* the evolution of accounting and enterprise software.

2. *Understand* the differences among various types of accounting and enterprise software.

3. *Be able to explain* how various functions in enterprise software work together.

4. *Understand* the architecture of enterprise systems, including their use of a centralized database.

5. *Be able to describe* the relationship between business process reengineering and enterprise system implementation.

6. *Be able to assess* the costs and benefits associated with enterprise systems.

7. *Recognize* when an organization needs a new AIS.

8. *Understand* how organizations go about selecting accounting and enterprise software.

Accounting software packages are standard tools in today's business environment. Selecting the right software, however, can be challenging.

F. Elikai, D. Inancevich, and S. Ivancevich,
''Accounting Software Selection and User Satisfaction,''
The CPA Journal (May 2007), p. 26.

INTRODUCTION

Because of the repetitive nature of many tasks in accounting, it is not surprising that these tasks have been automated. With advances in hardware and software technology, accounting software has become increasingly sophisticated and customized for specific industry needs. This chapter describes various types of accounting and enterprise software for today's business environments. Initially, accounting software packages were very basic. Typically they simply processed bookkeeping transactions for businesses. Now, accounting and enterprise-wide software are incredibly powerful, complex, and are capable of collecting a wide variety of data to support business decisions for multinational firms that operate globally and require information in various foreign languages and currencies. Further, specialized accounting software packages can accommodate specific industry information needs driven by some of the unique business processes described in the previous chapter.

Today, accounting software is evolving into yet another phase as these business solutions become a part (module) of integrated enterprise software called *enterprise resource planning (ERP) systems*. Examples include financial functions interfaced with manufacturing, sales and distribution, human resources applications, and others. The largest enterprises today, realizing the benefits of integrating their information systems, extend their ERP systems up and down their supply chains. This chapter discusses various aspects of integrated accounting software and enterprise-wide systems in some detail, including their functionality, architecture, impact on business processes, and associated costs and benefits. Because the impact of enterprise-wide software packages is so important to accountants, we cover this software in depth.

Knowing when to upgrade to a new accounting information system can be a challenge. In some cases, changes in an organization's external environment, such as increased competition, may force an upgrade. In other cases, management must identify and assess problem symptoms to make a decision. Because the software market has experienced a considerable number of consolidations and mergers since the mid-1990s, software selection can be even more complicated. As we point out with the opening quote for this chapter, selecting the right software for an organization can be very challenging. The last section of the chapter discusses the topic of software selection in detail.

INTEGRATED ACCOUNTING SOFTWARE PROGRAMS

Integrated accounting software programs process all types of accounting transactions. These include transactions affecting accounts in both general and special journals, such as sales and purchases. Integrated accounting software programs organize transaction

- Audit trails
- Budgeting capability
- Check and invoice printing
- E-commerce features
- Financial analysis tools
- Graphic reports
- Inventory management

- Recurring journal entries
- Ability to handle multiple users
- Ability to handle multiple companies
- Customizable financial reporting
- Cash-based and accrual-based accounting options
- Scalability (accommodates business growth)
- Variance analysis (budget to actual)

FIGURE 9-1   A sample of features commonly found in integrated accounting software programs.

processing in modules and provide links among these modules. The general ledger module, which includes the chart of accounts, is the foundation for the system. Using the accounting software, personnel record the general journal transactions in this module. Other modules typically found in integrated accounting software programs include accounts receivable, accounts payable, inventory, and payroll. These modules correspond to the business processes we discussed in the previous two chapters.

Journal entries recorded in accounting software modules update the general ledger module on a periodic or real-time basis. Depending on an accounting program's level of sophistication, it may include additional modules such as job costing, purchasing, billing, invoicing, and fixed assets. Figure 9-1 lists several features commonly found in integrated accounting software programs.

Small Business Accounting Software

At the low end, commercial programs are available for about $100, or even for free! For example, Microsoft now offers a small business program, *Microsoft Small Business Accounting*, bundled with selected versions of its Microsoft Office Suite. Currently, the free version of MS Accounting (called MS Accounting Express) is included in certain editions of MS Office 2007, and can also be downloaded free from their website.[1] The latest version of Microsoft Office Accounting (2008) is intended to serve small businesses that have approximately 25 employees or fewer.

As you might imagine, these accounting software packages are fully integrated with all other Microsoft Office programs. This means, for example, that you can easily import data from an *Excel* spreadsheet into the accounting program. Small business owners are usually most concerned with cash flows and determining if they have been profitable. This package and other low-end accounting software programs focus on this information.

Two other popular examples of inexpensive small business accounting software are *Quickbooks* by Intuit, and *Peachtree* products. These packages are really a set of **scalable** products, meaning that the software can grow as the business grows (i.e., the organization can add modules to the software or upgrade to a more powerful software without reinstalling or reconfiguring data). For example, the *Quickbooks* product line includes a low-end package with very basic financial accounting features for about $100. However, a company that becomes comfortable with the package and grows the business can choose

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[1]Source: http://office.microsoft.com/en-us/accountingexpress/FX101729681033.aspx.

from the *Quickbooks* product line that includes an enterprise-wide software package selling for several thousand dollars.

Even the lowest end programs typically include a chart of accounts and process general ledger, accounts receivable, and accounts payable transactions. They produce many kinds of accounting reports, including basic financial statements and budget reports as well as bar graphs and pie charts. Even low-end accounting software is quite sophisticated and generally has several sample charts of accounts for different types of organizations. Users can select one of these charts of accounts and then customize the selection to match their organizations' account structures.

A trend in low-end and mid-level accounting software has been the consolidation of vendors and the availability of more extensive product lines. For example, Intuit sells over twenty different versions of its accounting software, and you can select among ten Peachtree offerings. The variety of features offered in these software packages continues to grow. One feature that even low-end packages incorporate today is **Internet connectivity**, which permits small businesses to create websites and engage in electronic commerce. For example, *Peachtree Accounting* has a special link that allows companies to take orders and receive payments over the Internet.

Low-end accounting software is typically a good AIS solution for businesses with less than $5 million in revenue and few employees. The number of transactions processed monthly is another factor impacting the choice between low-end software and more sophisticated programs. For example, if a company processes only a few accounts receivable transactions daily, an inexpensive package should handle this processing satisfactorily. However, scalability is important because the cost of the software package itself is small in comparison to the costs associated with implementing and using the package. Each time a company changes software, employees must enter historical and current transaction data, and create new codes for customers, employees, products, and so on. Cost savings are significant when the software vendor offers programs that allow data to be transferred automatically to higher-end packages.

Because there are so many low-end accounting software packages readily available to small businesses, you would think that all small businesses have already adopted one. However, even though the software is cheap, the challenge is for the owner and employees to learn how to get the greatest value from the product. For example, how many features are there in MS Word that you don't use—or don't even know are available? Similarly, to gain the most benefit from any accounting software, a business owner should consider the firm's CPA firm or a local software consultant who can help select the software, train employees, help the firm identify useful reports for decision-making, or maybe even help with rescue and recovery needs should a disaster occur.

Mid-Range and Large System Accounting Software

When transaction processing needs grow in volume and complexity, a mid-range or large system software package may be a better choice. Some examples of accounting software packages of this type are Microsoft's *Dynamics GP, SAP Business One, Epicor*, Sage software's *MAS 90 and MAS200, Everest, Made2Manage*, and *Accpac*. These software packages, ranging in cost from $2,000 to well over $300,000, offer many features needed by mid-size and larger companies. For example, many large companies do business internationally and need software to handle transactions in multiple currencies. Some software packages can convert transactions from one currency to another and can even write checks in foreign currencies. Another example of a specialized feature that may
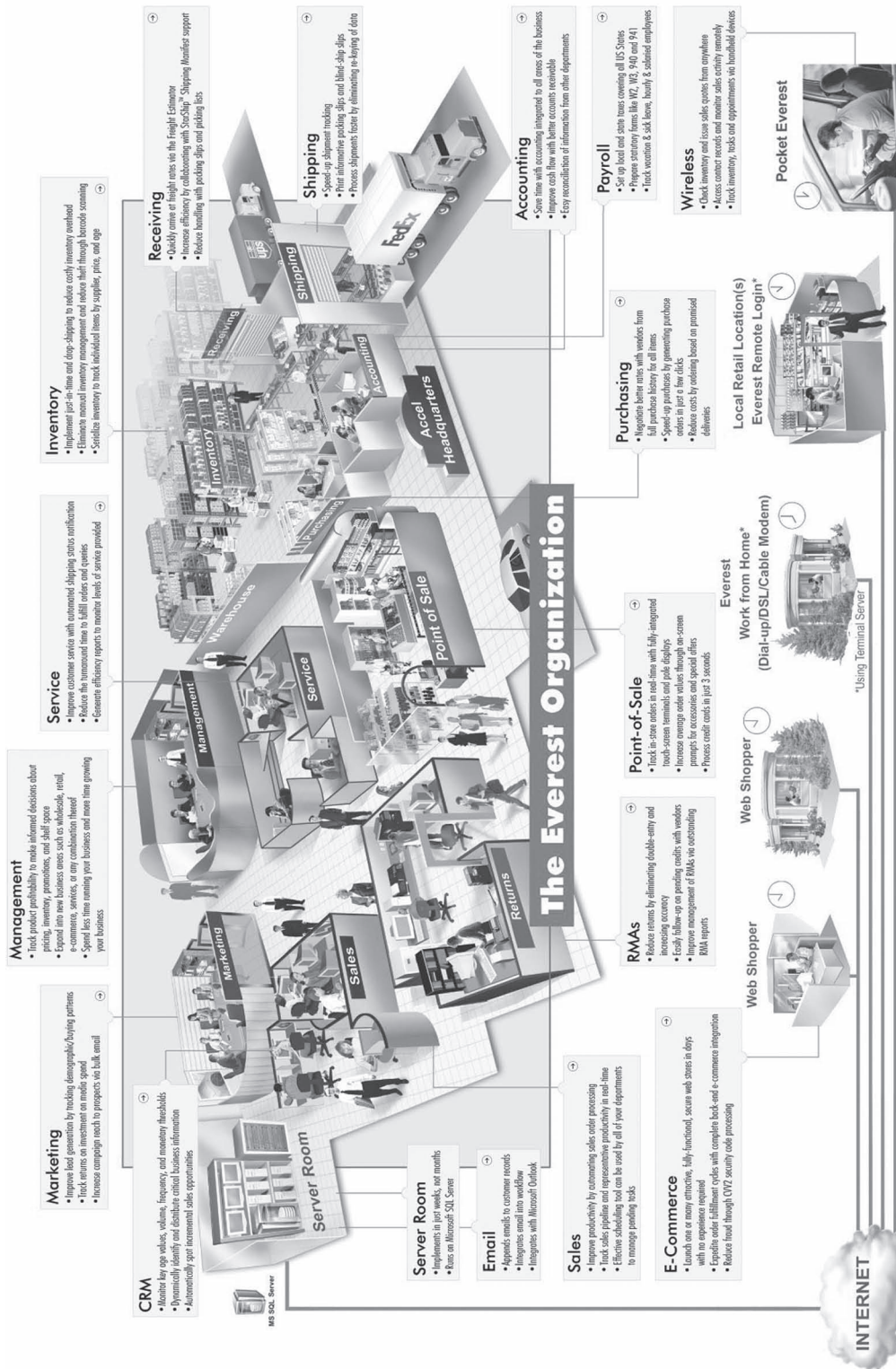
CRM
- Monitor key age values, volume, frequency, and monetary thresholds
- Dynamically identify and distribute critical business information
- Automatically spot incremental sales opportunities

Marketing
- Improve lead generation by tracking demographic/buying patterns
- Track returns on investment on media spend
- Increase campaign reach to prospects via bulk email

Management
- Track product profitability to make informed decisions about pricing, inventory, promotions, and shelf space
- Expand into new business areas such as wholesale, retail, e-commerce, services, or any combination thereof
- Spend less time running your business and more time growing your business

Inventory
- Implement just-in-time and drop shipping to reduce costly inventory overhead
- Eliminate manual inventory management and reduce theft through barcode scanning
- Serialize inventory to track individual items by supplier, price, and age

Receiving
- Quickly arrive at freight notes via the Freight Estimator
- Increase efficiency by collaborating with StarShip™ Shipping Manifest support
- Reduce handling with picking slips and picking lists

Shipping
- Speed-up shipment tracking
- Print informative packing slips and blind-ship slips
- Process shipments faster by eliminating re-keying of data

Service
- Improve customer service with automated shipping status notification
- Reduce the turnaround time to fulfill orders and queries
- Generate efficiency reports to monitor levels of service provided

Accounting
- Save time with accounting integrated to all areas of the business
- Improve cash flow with better accounts receivable
- Easy reconciliation of information from other departments

Payroll
- Set up local and state taxes covering all US States
- Prepare statutory forms like W2, W3, 940 and 941
- Track vacation & sick leave, hourly & salaried employees

Wireless
- Check inventory and issue sales quotes from anywhere
- Access contact records and monitor sales activity remotely
- Track inventory, tasks and appointments via handheld devices

Purchasing
- Negotiate better notes with vendors from full purchase history for all items
- Speed-up purchases by generating purchase orders in just a few clicks
- Reduce costs by ordering based on promised deliveries

Point-of-Sale
- Track in-store orders in real-time with fully-integrated touch-screen terminals and pole displays
- Increase average order values through on-screen prompts for accessories and special offers
- Process credit cards in just 3 seconds

RMAs
- Reduce returns by eliminating double-entry and increasing accuracy
- Easily follow-up on pending credits with vendors with outstanding RMA reports
- Improve management of RMAs via informative RMA reports

Sales
- Improve productivity by automating sales order processing
- Track sales pipeline and representative productivity in real-time
- Effective scheduling tool can be used by all of your departments to manage pending tasks

Email
- Appends emails to customer records
- Integrates email into workflow
- Integrates with Microsoft Outlook

Server Room
- Implements in just weeks, not months with no experience required
- Runs on Microsoft SQL Server

E-Commerce
- Launch one or many attractive, fully-functional, secure web stores in days with no experience required
- Expedite order fulfillment cycles with complete back-end e-commerce integration
- Reduce fraud through CVV2 security code processing

The Everest Organization

Accel Headquarters

Server Room

MS SQL Server

Warehouse

Point of Sale

Management

Service

Marketing

Sales

Returns

Work from Home*
(Dial-up/DSL/Cable Modem)

Web Shopper

Web Shopper

Everest

Local Retail Location(s)
Everest Remote Login*

Pocket Everest

*Using Terminal Server

INTERNET

FIGURE 9-2 An example of mid-range Accounting Software's integration of business processes. (Used with permission, Everest Software, Inc.)

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be included in higher-end accounting software is the ability to split commissions among multiple salespersons. Mid-range and large system accounting software also may handle more than just accounting functions.

Case-in-Point 9.1   Sage software's *Accpac* product line includes modules for financial accounting, purchasing, sales and receivables, inventory management, project management, and payroll. The software can integrate with other solutions, extending its usefulness for customer relationship management (CRM), business intelligence, e-commerce, human resource management, point-of-sale, management of fixed assets, and supply chain (warehouse) management. Accpac's Extended Enterprise Suite now includes dashboards, a fixed asset management module, and other desirable features.[2]

In addition to offering a variety of modules and interfaces, mid-level and large accounting systems software vendors also allow customers to choose from an array of deployment options. For example, the software can be made available on a desktop computer, through a web-browser, or a hosted solution. Accounting software can be expensive. Even low-end packages require a significant investment to install the software, convert old data for the new system, customize features, and train users. Although the software itself is not the major cost component, some companies are choosing to purchase cloud computing services rather than buy the software outright. This arrangement is called a **hosted solution** and is available from several vendors, including *Peachtree* and *Accpac*. Two advantages of a hosted solution are that it is easily scalable and the programs and data are accessible anywhere, anytime.

Specialized Accounting Information Systems

In addition to vendors serving general industry categories, there are literally thousands of vendors that sell accounting software specially designed to fit a particular industry or even a very small niche within an industry. Some examples of these packages are accounting software programs for dental offices, pet retailers, video stores, and schools. In addition, many integrated accounting software package developers offer add-on modules that firms can use to process special information. These extra modules might be job-cost modules that are useful to construction companies or point-of-sale features tailored to retailers. For instance, the hotel industry needs software that includes many specialized functions. *Hotel*™, by Execu/Tech, integrates property management functions, reservations systems, housekeeping management, sales and marketing, online booking, event management, dining reservations, phone call and in-room movie accounting, with a back office accounting system that processes general ledger, payroll, and accounts payable transactions.

Case-in-Point 9.2   Not-for-profit accounting software allows users to track records by individual fund, which is sometimes required by donors or contributors. They also allow users to track projects and grants. *Cougar Mountain Fund Suite*[3] is an example of this type of software. This package features the ability to handle transfers among funds, multiple grants with varying year-ends, and the ability to track restricted, temporarily restricted, and unrestricted contributions and assets in separate categories.

Some vendors of general integrated accounting packages offer programs written by independent developers to interface with their packages and provide features needed

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[2]Source: http://www.sageaccpac.com.
[3]Source: http://www.cougarmtn.com.

by customers in specialized industries. Other software vendors include the source code with their programs so that businesses can customize the software to fit their specialized processing needs. Customizing software is a good business for value-added resellers or consultants who have programming ability and an understanding of the specialized needs of some businesses.

ENTERPRISE-WIDE INFORMATION SYSTEMS

An organization's information system must do much more than process strictly financial data. The capabilities of accounting software programs to process enterprise-wide data expand with the price and complexity of the software. Examples of software in this category, known as **enterprise resource planning (ERP) systems, enterprise software**, and **business application suites** include *Microsoft Dynamics AX, SAP All-in-One, Sage MAS 500, NetSuite Enterprise Solution, Exact Synergy, Infor Enterprise Solutions, Epicor*, and *Oracle*. Two important features of this type of technology are its integration and a central database. Typically, the software integrates the financial or accounting subsystem with customer relationship management (CRM), business services, human resources (HR), and supply chain management (SCM).

Because *SAP*'s high-end products can cost millions of dollars to implement, they are mostly used by the world's largest business organizations. Large-scale ERP software forces companies to reengineer or redesign their business processes for maximum efficiency. Such multinational corporations as Eastman Kodak Company, Owens-Corning Fiberglass Corporation, and Procter and Gamble have spent millions of dollars implementing *SAP* for its potential cost savings. Cost savings (discussed in detail later in the chapter) often come from streamlining, speeding, or consolidating processes.

> **Case-in-Point 9.3**   Kimball Electronics, an electronics manufacturing services provider, spent five years deploying an SAP ERP solution at all six of its facilities. The new system gave managers access to information not previously available to them in a number of separate systems. As a result, they can collect and analyze information about spending in a variety of views, such as by supplier, product, and customer. The new software has allowed the company to reduce its cost of materials by about 4%.[4]

Enterprise System Functionality

Basic ERP Functions.   Today's ERP systems provide integration among many of an organization's major business processes—e.g., order processing and fulfillment, manufacturing, purchasing, and human resources functions—all of which provide data to each other and to the financial system. This integration means, for example, that a salesperson taking an order in a manufacturing company is able to check inventory availability immediately. If inventory exists, the information system will notify shipping to pick the goods and fill the order. If no inventory is on hand, the ERP system can trigger the manufacturing subsystem to make more of the product. The integration between the customer order and manufacturing subsystems can result in a revision to production schedules to accommodate the new orders. Human resources may also be involved if the new order requires extra

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[4]Carbone, James, ''Consolidation Is the Key,'' *Purchasing* (January 12, 2006), pp. 62–63.

workers or workers to be reassigned. In short, all functional areas of the organization can use the same information to perform their tasks efficiently to meet customer needs.

Extended ERP Systems.   The business processes integrated by ERP systems are known as **back-office** functions because they primarily concern an enterprise's internal systems. Traditional ERP systems focus on internal data, generated for use primarily by internal processes (e.g., human resources and manufacturing) and an enterprise's own decision-makers. Today's ERP systems are extended with e-business and other **front-office** capabilities. Extended enterprise systems bring customers, suppliers, and other business partners, such as investors and strategic business relations, into the picture.

Today's ERP systems interface with suppliers and customers through **supply chain management (SCM)** applications. The supply chain for a single enterprise extends from the suppliers, from whom it purchases raw materials, to its end customers. However, the supply chain of one company is but part of a *linked* supply chain. Figure 9-3 demonstrates this concept for an automotive manufacturer. Note that goods and money are not the only commodities exchanged by partners along the chain. Information flows backward from customers to suppliers. SCM applications provide suppliers with access to the buyer's internal data, including inventory levels and sales orders. These data allow a business to reduce the cycle time for procuring goods for manufacture and sale. At the same time, the customer is able to view the supplier's information related to his or her order.

Case-in-Point 9.4   Catholic Healthcare West (CHW) spent almost 10 years implementing an ERP solution that integrated systems among 40 hospitals and medical centers. CHW's $54 million ERP software outlay consolidated 200 applications that used approximately 20 different databases. By sharing information, CHW can now close its books in a day, versus two weeks, and units can run their own departmental reports, rather than waiting for a regional
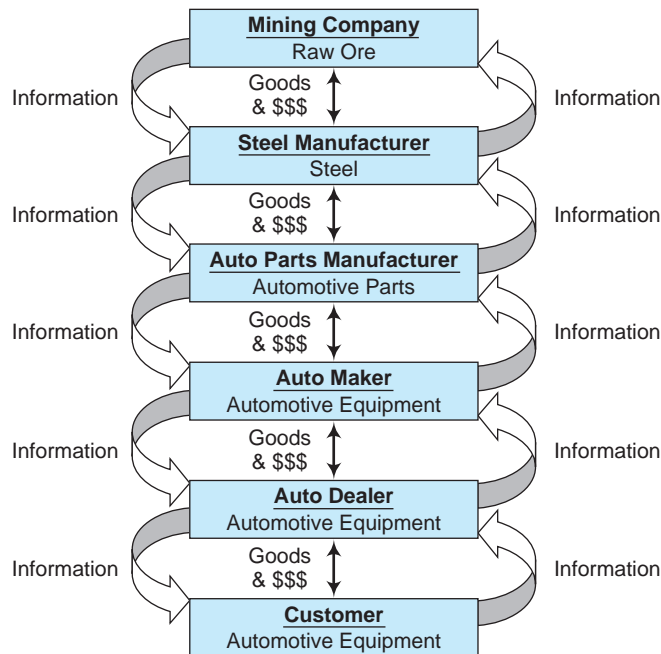

FIGURE 9-3   The supply chain for a component of the automotive industry.

office to do so. The organization expects to realize a 144% return on investment from reduced supply costs, cost savings in IT and paper support, and consolidated systems.[5]

Another tool that helps companies optimize their supply chain is **customer relationship management (CRM)**. CRM is not an application per se, but rather a collection of applications, including databases, sales order and customer service systems, and financial packages. The integrated CRM collects the data from these disparate applications and integrates them for use in decision-making. Businesses use CRM to analyze customer data—for example, looking for trends and buying patterns. This analysis can improve customer relations when the business uses the information to better meet customer needs.

Business intelligence (BI) tools are data analysis software that help managers get the most information from their CRM. CRM combined with BI analysis enables businesses to serve their customers better and also impact the bottom line. For example, CRM combined with BI can help a company learn which of their customers are most profitable and can then direct sales efforts towards those customers. Analysis of buying trends and special customer features can increase revenues and cut costs, as demonstrated in the following case-in-point.

Case-in-Point 9.5   A key to repeat sales for an auto dealer is bringing customers back for repairs and maintenance. At a Hyundai dealership in Florida, managers note that the sales department sells the first car, and the service department sells the customer their next ones. To compete against national chains, the company uses Autobytel's Retention Performance Marketing software. This product sends customers mail and email offers that match the dates and mileage with their cars' schedule for maintenance. The CRM solution also targets inactive customers and allows all customers to schedule appointments online. Online scheduling creates cost savings through better scheduling and workflow planning.[6]

Other ERP applications link strategic partners to an enterprise. Of course, many of these partners are suppliers and customers, but others include investors, creditors, and other channel partners with whom the enterprise might ''team up with'' to offer special services. **Collaborative business partnerships** are becoming more common as organizations find that there are often advantages to working with other businesses, even their competitors, to increase their power to meet customer demands. **Partner Relationship Management (PRM)** software enhances the working relationship of partners, particularly when they use the Internet.

Case-in-Point 9.6   Cartridge World, the leader in printer cartridge refilling and recycling, is the fastest-growing franchise in the $80 billion printer cartridge industry. Recently, it successfully integrated NetSuite into its operations to oversee hundreds of its 1,650 worldwide franchise locations and manage a rapidly growing business. The company saved about $200,000 in annual IT and administrative costs. Their B2B e-commerce capabilities supported a 200% increase in sales across their 1,650 stores worldwide, which helped grow sales to $425 million in 2007.[7]

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[5]Havenstein, Heather, ''Health Care Provider Nears End of 10-Year ERP Journey,'' *Computerworld* (December 19, 2005), pp. 1–2.

[6]Britt, Phillip, ''Autobytel's Key to Automotive Success,'' *Customer Relationship Management* (June 2006), p. 44.

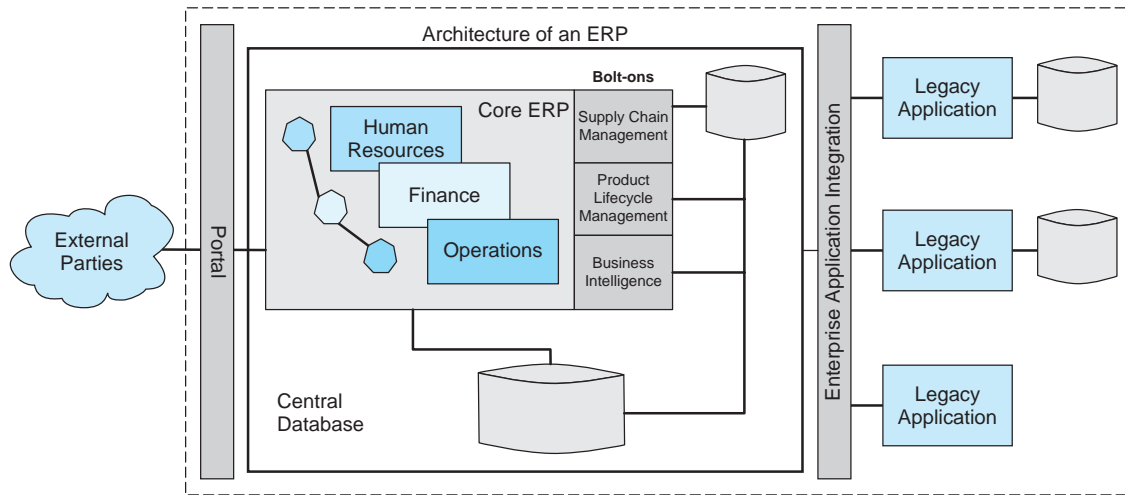[7]Source: http://www.netsuite.com/portal/customers/main.shtml.

FIGURE 9-4 A diagram of the architecture of enterprise resource systems.

Source: Adapted from www.army.mil/armybtkc/focus/sa/erp_ent_i1.htm.

The Architecture of Enterprise Systems

Four components that form an ERP's architecture or technical structure are the (1) systems configuration, (2) centralized database, (3) application interfaces, and (4) Internet portals. Please refer to Figure 9-4 as we examine each of these components in greater detail.

Systems Configuration. Although ERP systems are most often licensed software that run on a company's computer system, some organizations are choosing the hosted solution we discussed earlier. Organizations with concerns about the high cost of ERP and uncertain benefits may choose to purchase ERP services on the Internet. The customer doesn't own the software, and saves on the high purchase price, hardware costs, and maintenance and upgrade expenses.

In addition, there may be security advantages of the hosted option because the software provider assumes the responsibility for security and disaster recovery. A business that operates in a region at risk for natural disaster, such as hurricanes and earthquakes, may find that the hosted solution provides a greater comfort level regarding business continuity because the hardware and software are off-site. However, organizations in some industries where data security is especially important (e.g., healthcare and banking), may be concerned about a hosted solution because they give up control over their data and information.

Case-in-Point 9.7 Thermos, Inc. needed better information than they were getting from their current ERP system. However, the IT staff and others who had invested heavily in the current system were reluctant to upgrade. Management decided to take a risk and move to a hosted system, *Oracle On Demand*. The switch led to a downsize in IT staffing, and an increase in productivity. Estimated benefits from the hosted solution are expected to exceed $6 million.[8]

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[8]Edwards, John, ''Pay-per-View ERP,'' *CFO Magazine*, (February 2, 2006); access at: http:// www.cfo.com.

A Centralized Database.   To accomplish integration, ERP systems architecture is configured around a **central database**. The database stores information about each data item just once (thus avoiding data redundancy) and makes it immediately available to all the various functions in an organization. Having a central database means that the data in an ERP system have data integrity, are collected just once, are accurate, and are current. To appreciate the value of a central database, consider the following example.

> *Example: Most businesses maintain price lists of product selling prices. The marketing department, which sets the prices, creates and maintains a price list. Accounts receivable also has a price list to reference for invoicing. The production department will have a price list for reference purposes. Finally, the web master uses a price list to update the selling prices displayed at the company's online store site. Suppose the marketing department makes a price change. Will all the other price lists also be updated? The point is that in an information system where various departments keep their own files or databases, a change by one requires a change by all.*

Application Interfaces.   Although an ERP system has the capacity to integrate data from many business units within one organization, the flexibility of choosing the best software in different categories may argue for a **best-of-breed** approach. For instance, a company might implement an ERP system from SAP and then choose to interface it with a supply chain management, a customer relationship management, or business intelligence product from another software manufacturer (these products are commonly called **bolt-ons**). Cost might be another reason for an organization to forego the ''one-system'' approach. For example, a company might run out of money during the implementation of an ERP and choose to complete its system with a module or two from another vendor.

> *Case-in-Point 9.8*   Virginia Commonwealth University in Richmond, Virginia, implemented an ERP system called Banner in 2006 that is widely used in higher education. This ERP has modules to support student registrations and payments, faculty course management, financial aid, finance, HR, and advancement. However, when the School of Business moved into its new building in the spring of 2008, decision-makers determined that the CRM module in Banner did not have the functionality desired. Accordingly, they selected a bolt-on CRM called Intelliworks Program Management. This CRM is a comprehensive solution to help current and prospective students through the initial exploration and inquiry stages, and also allows them to register for courses and submit payments online.[9]

Another useful interface to businesses is **enterprise application integration (EAI)**. EAI allows companies with legacy applications and databases to integrate and continue to use those systems. This is particularly beneficial if these firms decide to implement an ERP or acquire new applications that exploit the Internet, e-commerce, extranet, and other new technologies. EAI can accomplish this integration so that companies do not incur the cost of building their own custom interfaces to tie their multiple applications together.

Internet Portals.   Extended ERP systems interface with individuals inside and outside an organization through **portals**. A portal is a gateway to other websites or services to enhance communication and productivity among employees, customers, partners, and suppliers. For example, a company can allow its suppliers to see its price lists and also to learn the payment status of its invoices on a real-time basis. University portals allow

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[9]Source: http://www.intelliworks.com/news/press_releases/2008/VCU

students and faculty to access a wide variety of university resources, such as university calendars, course information, and online databases through the library. Company portals provide users access to corporate-wide systems, data, and information from across the enterprise to connect people for meaningful collaboration.

Business Processes and Enterprise Systems

Accountants and others record an organization's accounting transactions in the finance module of an ERP system, and this module can interact with any subsystems that are supported by the ERP (e.g., human resources, manufacturing, customer relationship management, or distribution). For example, the finance module can exchange payroll and tax data with the human resources subsystem. When a customer places an order, the distribution subsystem can check the customer's credit limit and accounts receivable balance in the finance module. A salesperson can check inventory levels, and better manage the customer account through the CRM. In a manufacturing environment, if an order requires additional inventory to be made, the customer order can impact the production schedule.

Business Process Reengineering and ERPs.   Buying an ERP system can be akin to buying a new way of doing business. It entails reengineering an organization, hopefully to conform to the best practices of the industry.

> *Case-in-Point 9.9*   When the University of Wisconsin-Superior (UWS), a small liberal-arts college, decided to implement an ERP, the biggest lesson it learned was that an organization needs to be proactive with reengineering and should plan for changes to business processes before implementing each module. In addition, many more processes had to be reengineered even after the system went live. Some of the benefits include the fact that students and faculty now have access to many more web-based services than before. For example, students can enroll for courses online, check on financial aid, fees, holds, and many other services.[10]

Clearly, implementing an ERP and reengineering business processes can be very demanding on employees throughout an organization. Knowing the lessons learned from those who have been through the process should be very useful. Although the above case-in-point identifies several key points about the business processing reengineering (BPR) efforts of one small university, a recent survey of 327 organizations (including over 13 major industry sectors) offers a more comprehensive understanding of BPR. The survey respondents identified the following as the most critical success factors in their BPR: (1) planning, where scope and roles were decided, (2) high-level review of current process, and (3) support from top management. Figure 9-5 lists several additional key aspects that should be considered to help ensure successful BPR initiatives.[11]

Sometimes multiple business units within one company do the same thing in many different ways. For instance, their accounts payable processes may differ. Another advantage of implementing an ERP system is that it encourages, if not demands, that the separate units conform. If all units standardize to adopt the best practice, the company should be more productive overall.

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[10]Yakovlev, Ilya, ''An ERP Implementation and Business Process Reengineering at a Small University,'' *Educause Quarterly* (2002), pp. 52–57.
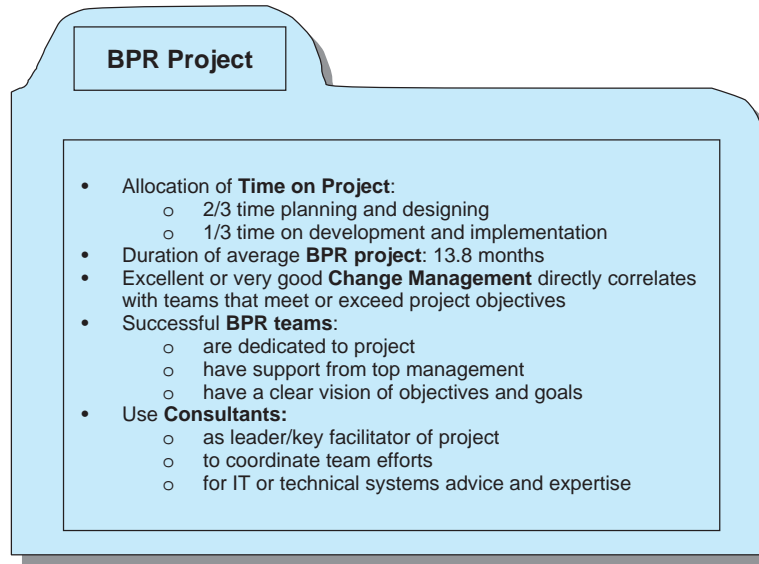[11]Source: http://www.prosci.com/bprbestpractices.htm.

BPR Project

- Allocation of **Time on Project**:
  - o 2/3 time planning and designing
  - o 1/3 time on development and implementation
- Duration of average **BPR project**: 13.8 months
- Excellent or very good **Change Management** directly correlates with teams that meet or exceed project objectives
- Successful **BPR teams**:
  - o are dedicated to project
  - o have support from top management
  - o have a clear vision of objectives and goals
- Use **Consultants:**
  - o as leader/key facilitator of project
  - o to coordinate team efforts
  - o for IT or technical systems advice and expertise

FIGURE 9-5 Key aspects of a successful BPR project.

Source: http://www.prosci.com/bprbestpractices.htm.

A company considering an ERP system may choose to conduct a business process reengineering (BPR) initiative before implementing the software, or it may undertake BPR concurrent with the implementation. The choice depends on how unique the business may be. For enterprises operating in a fairly straightforward industry, it's likely that the ERP software incorporates the best ways of doing business. This means that the organization can change its own processes to conform to those incorporated in the software and there may be no need for up-front BPR work. However, many companies may choose to conduct BPR first to figure out what processes they already have that incorporate best practices. Doing the BPR work at this time will help management to understand what kinds of process changes it needs, and this can also dictate which ERP software is best.

When an organization's practices and the processes dictated by the ERP system don't agree, a business must either change its processes or change its software. Usually, you want to change the process. Customizing ERP software should be done as a last resort because it can introduce bugs into the system and it also creates problems with software upgrades. Each time the software vendor issues an upgrade, the company must recreate the customized features.

Sometimes changing processes is desirable but not feasible, or at least problematic, for political or behavioral reasons. An enterprise that has had a nonintegrated legacy system for some time may struggle quite a bit during the ERP implementation. People who are used to doing their job in a certain way might resist the changes brought about by redesigned processes. This is sometimes true even when everyone knows the change is for the better. For instance, employees may be used to filling out travel request forms in a certain way. It may be a great improvement for them to be able to complete these forms online and in a new improved format that speeds up their reimbursement. However, if they're used to doing it the old way, they must learn how to do it the new way. This learning takes time and almost always meets with some resistance. To obtain the most benefits from a new ERP system, employees often have to learn to accept changes. This is why change management activities are such a critical aspect of an ERP implementation.

Risks and Benefits of Enterprise Systems

Because ERP systems are so expensive, require training and consultation with change management specialists, and take so long to implement, the potential risks and rewards associated with these systems are substantial. Unfortunately, there are many examples of failed ERP implementations, and these failures often have a disastrous impact on the financial statements of a business—if the business even survives.

Case-in-Point 9.10 Waste Management was looking for a new revenue management system and selected SAP's ERP software. After two years and over $100 million in project expenses, Waste Management discovered that their ERP software had significant gaps between its functionality and Waste Management's business requirements. So the implementation that should have been completed by December 2007 is now projected for sometime in 2010, without any assurance of success.[12]

Risks and Costs of ERPs. As depicted in the preceding case-in-point, one risk is that the system won't work. Besides the risks from failed implementations, ERP systems have many costs associated with them. Figure 9-6 identifies the costs and benefits normally associated with ERP systems. Implementation costs include hardware, software, and professional services. There are also costs for training, data conversion, and reengineering. Training costs involve technical training as well as training for those employees who are impacted by the new business processes. Data conversion can be very expensive. Imagine a multinational corporation that is replacing more than 100 legacy systems with an ERP system. It's possible, for example, that each of the 100 systems represented an employee number in a different format. The new system will have just one uniform employee number. Management must agree on the format of the new employee number, and staff working on the implementation will have to convert all employee data to the new standard. For very large firms, the cost of a software conversion program may be a wise investment to guarantee an efficient and error-free conversion of the data.

Costs	Benefits
• Hardware	• Reduced inventory investment
• Software	• Improved asset management (e.g., cash and receivables)
• Training: – technical – business processes	• Improved decision-making
• Data conversion	• Resolved data redundancy and integrity problems
• Interfaces and customization	• Increased flexibility and responsiveness
• Professional services	• Improved customer service and satisfaction
• Reassigned employees	• Global and supply chain integration
• Software maintenance	
• Software upgrades	

FIGURE 9-6 A summary of costs and benefits typically associated with ERP systems.

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[12]Source: http://www.cio.com/article/205852/Waste_Management_Sues_SAP_Over_ERP_Implementation.

There are also many costs that don't always make it into the cost/benefit equation. These include internal staff costs. An ERP implementation will need some inside help, even if an organization hires specialized consultants for various aspects of the implementation. Company employees who are dedicated to the project cannot do their normal jobs. If they are assigned to the implementation, their salaries should be too.

Many ERP costs will continue even after implementation. These include software maintenance and upgrade costs. One company noted that it had not realized how much it would cost for the highest level of vendor support, to constantly send their IT staff to training on the software, and to continually upgrade the system. ERP operating costs can vary from a hundred thousand to hundreds of millions of dollars.

Benefits of ERPs.   Despite the high costs, there are many compelling reasons to implement an ERP system. These benefits can sometimes be difficult to quantify. For example, how can you estimate precisely what dollar benefit arises from improved decision-making or more satisfied customers? On the other hand, management might decide the business imperative to integrate an organization's IT systems is to match competitors.

Typically, most organizations make an attempt to identify the benefits they expect from the new ERP system. Many of the benefits are from cost reductions, such as reductions in inventory and employees. **Spend management** describes an approach to cutting expenses to their bare minimum. These include reducing employee travel expenses, procurement expenses, and even the costs associated with invoice processing.

Case-in-Point 9.11   Microsoft, one of *Purchasing* magazine's Spend Analysis award winners, created its own in-house software tool to capture and report procurement data. The software links to Microsoft's *SAP* enterprise system and captures data every time an employee places an order. A feature of the system is that buyers must select a United Nations Standard Products and Services Code (UNSPSC) for each transaction. This categorization allows for tracking and analysis that cut several weeks from the time needed to analyze spending.[13]

Another benefit from ERP systems is the wealth of information collected in the transactional data. Most ERP systems offer predefined reports, but do not offer the ability to analyze the data to provide managers a decision-making advantage. However, strategic companies use software tools to extract data directly from the ERP system, analyze the data instantly, and get any kind of report desired.[14]

Yet another benefit of ERP systems is the ability to monitor business processes in new and different ways—with dashboards and enterprise mashups. In Chapter 1, we introduced the idea of dashboards and how they are used by senior management to monitor corporate performance with respect to the balanced scorecard. However, the use of dashboards is actually one of the biggest trends in business intelligence, and they can be used successfully throughout the organization.[15]

Digital dashboards and scorecards are essential tools for organizations to monitor a wide variety of business processes. For example, a sales dashboard would probably monitor key sales activities so that managers could identify sales trend information, such as best customers, products, and salespeople (and measure these by revenue, units, margin, or region). Figure 9-7 shows an example of a sales dashboard that managers might use. Production dashboards are used to monitor and compare real-time production figures with

[13]Porter, Anne, James Carbone, Susan Avery, & David Hannon, ''Super Spend Analysis,'' *Purchasing* (March 18, 2004), pp. 28–39.

[14]Menninger, David, ''Information on Demand,'' *Strategic Finance* (September 2003), pp. 50–53.

[15]Curt Hall, ''Dashboards & Scorecards Chart Business Performance,'' (http://softwaremag.com), December 2004.
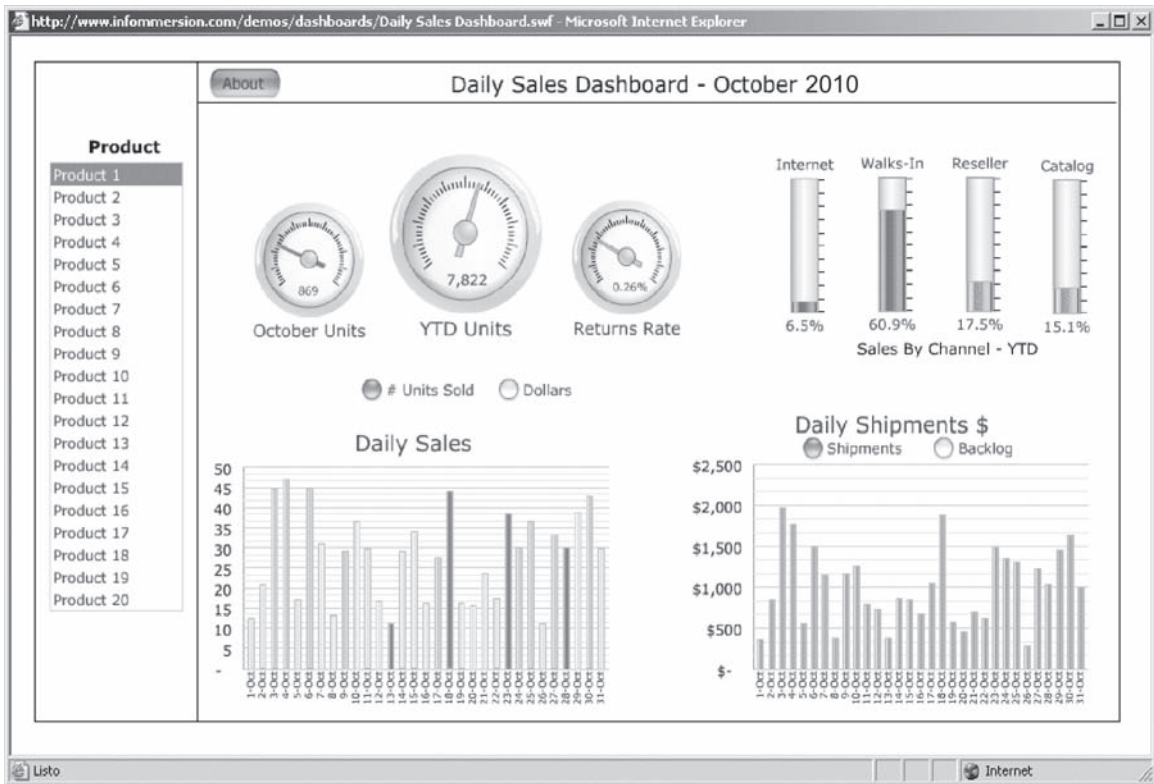
FIGURE 9-7   Example of a sales dashboard. Source: http://www.infommersion.com/demos/dashboards.

historical trends to put current events in perspective. Dashboards are used in universities by deans and department chairs to monitor processes, such as assessment data for reporting to accrediting bodies, student enrollments, budget status, and others.

The examples just cited indicate how managers might use dashboards that are based on data collected from within the organization. However, the VP for Emerging Internet Technologies at IBM is encouraging managers to experiment with **enterprise mashups**.[16]

Visualize a dashboard that collects data from a variety of sources—both inside and outside the firm—that's a mashup. In a recent pilot of a mashup, IBM developed such a content-oriented application for one of the national home improvement retail chains. The idea was to merge weather reports with inventory management. For instance, if a Category 3 or higher hurricane is predicted, it makes sense to transfer inventories of plywood to stores near the area of the storm. Normally, weather reports of a possible hurricane would not be an event that would trigger a transfer of inventory in most ERP systems. And, unlike more formal corporate applications, mashups do not take as much time to develop. Figure 9-8 illustrates the anatomy of a digital dashboard.

Quantifying the Business Value.   The decade of the 1990s will probably be remembered for large investments in IT. However, many IT departments were unable to quantify the business value of these huge expenditures, and managers did not agree as to how

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[16]Tony Baer, ''IBM Pushes Enterprise Mashups,'' (www.computerwire.com), June 16, 2006.
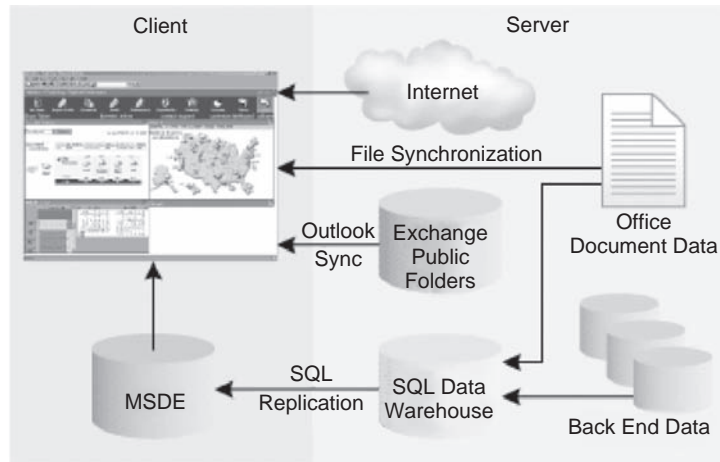
FIGURE 9-8 **The anatomy of a digital dashboard**. This dashboard has three possible data sources: the Internet, Microsoft Exchange, and relational data in a SQL Server table. All of these sources are available offline as well as online.
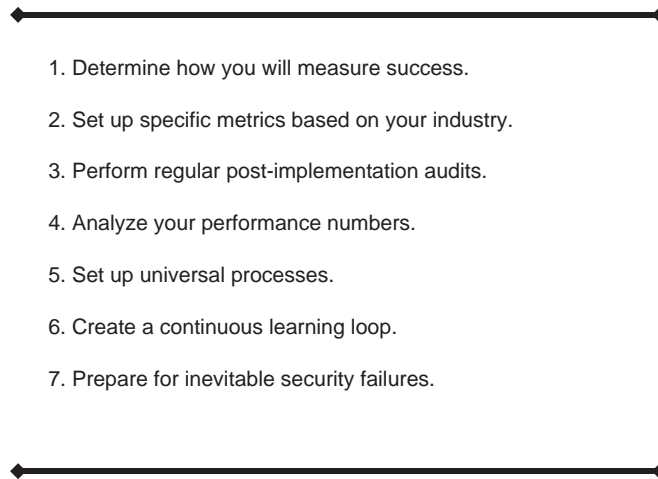
Source: http://msdn.microsoft.com/msdnmag/issues/0700/Dashboard

1. Determine how you will measure success.

2. Set up specific metrics based on your industry.

3. Perform regular post-implementation audits.

4. Analyze your performance numbers.

5. Set up universal processes.

6. Create a continuous learning loop.

7. Prepare for inevitable security failures.

FIGURE 9-9 Methodology for measuring the value of an ERP.

technology should be measured. Erik Keller, research fellow in residence at AMR Research, suggests a measure of business value—productivity—which is an increase in a given output at a constant or declining cost.[17] This means that a company holds the line on IT spending but increases the business benefit received from it, or decreases IT spending for a business function. Trish Saunders is a contributing author to *Customer Insights*, a Microsoft newsletter for midsize businesses in the US. She claims that whatever methodology a company uses to measure the value of an ERP, it should be applied consistently across the organization at specific points following the implementation.[18] Saunders offers guidelines to help a typical organization conduct such an audit. Figure 9-9 includes the steps she recommends—if a

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[17]Source: http://www.informationweek.com/shared/printableArticle.jhtml?articleID = 18201406.
[18]Source: http://www.microsoft.com/dynamics/community/mbs_measuring_your_erp.mspx.

company does not establish specific performance metrics, it will be very difficult to gauge how well the ERP meets organizational objectives or how to correct any performance gaps.

SELECTING A SOFTWARE PACKAGE

It should be clear from reading this chapter so far that an organization has many choices when selecting accounting information systems. The table in Figure 9-10 summarizes these choices. In this section we briefly discuss how managers and owners can recognize when they need a new AIS, and how they might go about selecting one. Chapter 13 covers the process of developing new systems and selecting hardware and software in more detail.

When is a New AIS Needed?

Believe it or not, there are still many small businesses that keep their accounting systems in a shoebox, a filing cabinet, or similar storage. Small business entrepreneurs often begin with an idea to sell goods or services. They likely do not have accounting degrees, and therefore they need to rely on others for expertise in keeping their books. It is not unusual for

Software Type	Business Characteristics	Cost Range	Examples
Entry-Level	Smaller businesses Revenues < $5 million, up to 20 employees	$100–$4,500	*ACCPAC Simply Accounting, Peachtree, QuickBooks, Microsoft Small Business Accounting*
Small–Medium Business (SMB)	Sales up to $100 million, up to 100 employees	$3,000–$100,000	*Sage ACCPAC Advantage Series, Sage MAS 90 and MAS 200, Macola ES, Cougar Mountain, NetSuite, Microsoft Dynamics GP*
Small–Medium Enterprise (SME)	Sales up to $500 million, up to 500 employees	$20,000–$500,000	*Sage MAS 500, e by Epicor, Lawson, Microsoft Dynamics AX, mySAP All-in-One*
High-End Enterprise Resource Planning (ERP)	Sales > $500 million, more than 500 employees	$400,000–$300 million*	*SAP, PeopleSoft, J.D. Edwards, Oracle*
Special Industry Not-for-profit, retail, construction, banking, health care, insurance, government, and many others		$300–$300,000+	*Peachtree Nonprofit, Cougar Mountain Fund* (NFP), *AccuBuild* (construction), *Everest POS* (retail), *Phoenix* (insurance)
Custom-Built Medium–large firms with very specific information needs	Sales > $20 million	$100,000–hundreds of millions of dollars	Available from software developers and consultants

*Based on a survey by Meta Group of 63 companies. Total cost of ownership (TCO) of ERP includes hardware, software, professional services, and internal staff costs. TCO includes getting the software installed and the two years following installation.

Source: Adapted from R. Johnston, ''A Strategy for Finding the Right Accounting Software'' (September 2003), pp. 39–46, www.ctsguides.com, www.findaccountingsoftware.com and www.2020software.com.

FIGURE 9-10 A summary of types of accounting and enterprise software.

1. Late payment of vendor invoices, which means late fees and lost cash discounts.
2. Late deliveries to customers.
3. Growth in inventories, accompanied by an increase in stockouts.
4. Slowdown in inventory turnover.
5. Increased time in collecting on receivables.
6. Late periodic reports.
7. Increasing length of time to close out books at the end of a period.
8. Managers concerned about cash flows and financial picture of organization.
9. Manager complaints about lack of information needed for decision-making.
10. Owner worries about cash flows, taxes, and profitability.

FIGURE 9-11   Indicators that a company needs a new (or upgraded) AIS.

these businesses to use paper for receipts, invoicing, and reporting. The owner may deliver financial records to a bookkeeper or accountant periodically to see how well their business is doing. Of course, this is not likely to be the most ideal way to run even a small business, but small business owners who are largely preoccupied with sales and keeping customers and vendors satisfied may feel that implementing and using an accounting software package is just not something they can afford to take the time to do. The problem with manual accounting systems is that they cannot easily classify sales by customers, amount of sale, or product line, do not automatically alert their owners to impending deadlines for purchase discounts, and of course are incapable of generating even the simplest financial statements.

For those already using computer-based AISs, there are many signals to business owners and managers that a new accounting software package, or an upgrade in software, is a good idea. Often, these signs concern cash and operating a business better. Figure 9-11 lists ten such signals. When a business owner or manager recognizes that it is time to purchase new (more powerful) software, the next question is, ''Which software should I select?'' or ''How do I know which software package is the best fit for my company?''

Sometimes owners and managers of companies observe external warning signs that alert them to their need for a new AIS. These signs may have nothing to do with the company itself, or its vendors or customers. One example might be new regulations or legislation that changes the way companies must operate. Compliance with rules or laws, such as the Sarbanes-Oxley (SOX) Act of 2002, is often a reason to move to new software, or to purchase a bolt-on to an ERP. Compliance with SOX calls for built-in controls, visible audit trails, workflow and documentation software features, and management alerts.

Selecting the Right Accounting Software

The approach to buying accounting software varies with the complexity of the business and the software. At the low end, for small businesses, the approach is much quicker and less expensive than when a large company decides on an ERP system. Large organizations with specialized accounting information needs may decide to build a custom AIS from scratch. Although custom systems are difficult and expensive to develop, they are becoming less so with advances in object-oriented programming, client/server computing, and database technology. Custom systems are likely to be costly and take longer to develop than management anticipates, which is why most firms retain consultants to help with the selection and implementation of AISs. Consultants usually find that packaged software can

handle about 80% of a client's processing needs. A company can either ignore the other 20%, meet their needs with such other software as spreadsheet or database programs, or develop its own modules.

Today's accounting software is easy to use and feature-rich. Internet research and discussions with other business owners in a similar industry may be enough to help a business owner select a software package. A number of helpful sites are available on the Internet to help with this selection process.

Case-in-Point 9.12   Two websites, www.2020software.com and www.ctsguides.com, list features in accounting software packages, describe these features, and allow individuals to compare the various features in the software packages. The first, 2020 software, provides software demos, offers purchase discounts, and includes a free software evaluator. If the individual gives 2020 contact information and software specifications, 2020 will email the person a software recommendation. The second, CTS, offers detailed online software reviews and other services to business owners—once the owner answers questions, such as type of business, annual sales, server operating system, desired functions, and software budget.

Shopping mall software retailers typically do not sell middle-range or high-end accounting software packages. Instead, business owners and managers at larger firms are most likely to purchase them from a **value-added reseller (VAR)** or a qualified installer. VARs and qualified installers make special arrangements with the software's vendor to sell the programs. They also provide buyers with services such as installation, customization, and training. These services are necessary due to the complexity of the middle-range accounting programs. A VAR offers a broader array of services for more software programs than a qualified installer. Chapter 13 elaborates further on this topic and discusses tools available to help in making software selection decisions.

Because ERP systems can cost millions of dollars and take years to implement, it is always advisable to get the help of an expert in choosing among them. Consultants conduct a thorough analysis of your organization and its processes to determine not only which software vendor has the best solution, but also what customization might be needed. There are many types of ERP consultants, including those who work for the vendors, professionals who work in IT consulting firms, and specialists within large accounting and professional service firms. The best way to choose a consultant is to look for someone who has experience with your industry, and who is familiar with more than one package in some depth. As you would expect, vendor consultants are unlikely to suggest any solution other than the one or ones offered by their employer.

AIS AT WORK
Sheldon Needle and CTS Guides

In 1983, Sheldon Needle left his full-time accounting job to start his own business, Computer Training Services (CTS). He knew a lot about accounting software and decided to create a company that would evaluate software and publish guides for various businesses. He published a paperback book that compared five small business software programs, advertised the book in the *Journal of Accountancy*, and waited for the orders. His phone quickly began ringing off the hook, and he knew that the service he offered was in high demand.

Sheldon next developed a spreadsheet rating system that compared the major features of top-selling accounting software programs. The program, called *Requirements Analyst*,

also allowed users to determine whether a software feature was necessary, desirable, or optional. The program user, usually a software consultant, could then use *Requirements Analyst* to choose the best software for a given client. CTS grew, adding guides for special industries and different levels of accounting software. Competition came from other consultants and services that also offered software comparisons. But CTS had an advantage in that the evaluations were performed by Sheldon or the independent contractors he hired. Other comparison programs typically used vendors to supply the data about what their programs could and could not do.

The Internet began to impinge on the value proposition for CTS as search engines and vendor websites decreased the value of the software guides to users. For example, a decade ago, a business in the construction industry would need to do exhaustive research to find the top industry accounting software packages, and lists of their features. Now Internet search engines make this information accessible to anyone. Also, some consultants began to offer their services in helping companies select software for a low fee, over the Internet. A small business owner could answer a few questions about the company, such as number of users, annual sales dollars, numbers of customers, employees, and suppliers, industry niche, and so on—and the website would instantly recommend a software package.

In 2003, CTS changed their business model so that now most information is available at no cost to visitors at www.ctsguides.com. Rather than earning profits from customers, the company now receives income from software vendors. The vendors use CTS for advertising and distributing information about their product. Sheldon shares his expertise personally and talks with clients, either on the phone or via email. His company also continues to sell guides, tips on software selection, and tools such as one that helps users create a Request for Proposal (RFP). The new business model is working well and CTS has successfully navigated the constantly changing world of technology and accounting software.

SUMMARY

- Categories of integrated accounting software include entry-level, small to medium business, ERP, special industry, and custom-built software.

- Integrated accounting software packages may include modules or transaction groupings for general ledger, accounts receivable or sales, accounts payable or purchasing, inventory, and payroll.

- Entry level accounting programs usually include a chart of accounts that users can customize, along with the ability to produce a variety of accounting reports, including financial statements and budgets.

- Mid-range and large system accounting software packages include special features and options, such as international currency translation.

- Deployment options for accounting software and high-end ERP systems include hosted solutions, where users lease software as a service and customer data resides on the vendors' hardware.

- ERP systems integrate both financial and non-financial information from an organization's business processes.

- Traditional ERP systems are back-office information systems, integrating financial, manufacturing, sales and distribution, and human resource systems. Extended ERP systems add front-office features to the traditional systems, helping an organization to integrate its supply chain.

- ERP systems have a central database that allows them to reduce data redundancy, enhance the integrity of the data, and make more information available for decision-making.

- There are many costs and benefits associated with ERP systems, and managers need to consider all of them in making a decision about implementing such a large system. Savings often accrue from redesigned and more efficient business processes that lead to increases in revenues and cost savings.

- There are several warning signals that indicate when a company needs to upgrade its AIS, including dissatisfied vendors, customers, or employees. Sometimes the impetus is external, such as with Sarbanes-Oxley legislation or other regulations.

- The Internet provides many tools to help in selecting a new AIS, but consulting or VAR help is usually needed to select and implement a new system.

KEY TERMS YOU SHOULD KNOW

application interface	enterprise software
back-office	extended ERP systems
best-of-breed	front-office
bolt-ons	hosted solution
business application suites	integrated accounting software programs
business intelligence (BI) tools	Internet connectivity
central database	partner relationship management (PRM)
collaborative business partnerships	portals
customer relationship management (CRM)	scalable
enterprise application integration (EAI)	spend management
enterprise mashups	supply chain management (SCM)
enterprise resource planning (ERP) systems	value-added reseller (VAR)

TEST YOURSELF

Q9-1. Low-end accounting software is increasingly complex and sophisticated. However, software costing only a few hundred dollars is not likely to:

   a. Provide information to multiple stores where a company operates more than one

   b. Include a chart of accounts that users may customize to suit their industry

   c. Provide all the information needed to optimize customer and supplier relationships

   d. Provide information for budgeting decisions

Q9-2. Which of the following reasons might explain why a small business owner would hire a CPA firm or a software consultant to help select accounting software?

   a. To train employees to use the software

   b. To help the firm identify useful reports for decision-making

   c. To help with rescue/recovery needs should a disaster occur

   d. All of the above

Q9-3. Which of the following accounting software programs would be appropriate for a small business (e.g., a sole proprietorship with 20 employees)?

   a. SAP

   b. QuickBooks

   c. NetSuite

   d. Oracle

Q9-4. Mid-level accounting software:

    a. Can only be deployed through a server networked with desktop computers

    b. May be purchased in modules that match various business processes

    c. Will not be appropriate for a multinational company because these programs cannot handle foreign currencies

    d. Is generally inappropriate for a company operating in a specialized industry, such as retail or not-for-profit

Q9-5. Which of the following is NOT a distinguishing characteristic of an enterprise-wide (ERP) system?

    a. Hosted solution

    b. A central database

    c. Integration

    d. Best practices for business processes included in the software

Q9-6. Which of the following is correct regarding ERP systems?

    a. Early ERP systems focused on back-office functions

    b. ERP systems evolved largely from a manufacturing environment

    c. ERP systems do not include CRM or SCM functionality

    d. Both a and b are true

Q9-7. An organization will always need to upgrade to a new AIS if:

    a. A major competitor buys a new package

    b. Customers complain about late deliveries

    c. The company wants to begin doing business over the Internet

    d. None of the above are necessarily reasons to buy new accounting software

Q9-8. Accounting and enterprise software can be expensive. Which of the following is likely to be the highest cost associated with a new AIS?

    a. The cost of new hardware

    b. The cost of implementing and maintaining the new system

    c. The cost of the software

    d. The cost of converting old data for the new system

Q9-9. In selecting a new AIS, a company's management should:

    a. Always hire a consultant

    b. Always consult with your accountant during the decision process

    c. Never rely on your accountant for help in this decision

    d. Always use an Internet software service to make the decision

Q9-10. Components of an ERP's architecture typically include:

    a. A centralized database and application interfaces

    b. Internet portals and multiple databases

    c. A centralized database running on a mainframe computer

    d. Business intelligence and multiple databases

DISCUSSION QUESTIONS

9-1. Which accounting software features are likely to be most important for the following businesses? Search the Internet for an example of an AIS that you would recommend for each of these owners and include your rationale for that product.

    a. a boutique shop that sells trendy ladies clothing

    b. a small business specializing in custom golf clubs, replacement shafts for clubs, replacement grips for clubs, and similar repairs

    c. a local CPA firm with 3 partners, 5 associates, and 2 administrative employees

    d. a pet breeder that specializes in Burmese kittens

    e. a business that sells and rents Segways in Washington, DC, that is located on Constitution Avenue, near the Lincoln Memorial

    f. a high-end men's clothing business that has 4 stores that are all located in the same large metropolitan city (56 employees), and the owner is contemplating additional locations for stores in nearby cities

9-2. The difference between the price tag for middle-market accounting software versus an ERP system can be millions of dollars. What can these high-end systems do that the less expensive enterprise accounting packages cannot?

9-3. Discuss the differences between traditional ERP and extended enterprise systems.

9-4. Discuss some of the basic features of an ERP. How do these features distinguish an ERP from an integrated accounting software program?

9-5. What are some of the benefits of a centralized database architecture? What are some of the difficulties in moving from multiple databases or files to a centralized database structure?

9-6. A new company will have no business processes in place. How would the owner go about selecting an appropriate AIS for the new company? Should the owner consider acquiring an ERP package immediately?

9-7. Find an article about a company that has adopted a business application suite. Identify the company and its basic characteristics (such as location, products, number of employees). What are some cost savings realized by the company? Were there specific efficiencies identified as a result of the ERP implementation? Were there problems implementing the system? How long did it take for the company to complete the implementation? Were there cost or time over-runs?

9-8. Although you are likely to purchase a middle-end accounting software package from a value-added reseller (VAR), why should you be cautious about hiring one to recommend a software package for your business?

9-9. What are some of the consequences to a company that makes a poor decision in selecting a new AIS?

9-10. Why do businesses typically need to engage in business process reengineering when they adopt an ERP? Identify at least 5 key aspects of a successful BPR project.

9-11. Assume that your company is considering the purchase of an ERP. In anticipation of this purchase, you must identify some processes that the company should target for BPR. But first, your supervisor asked you to suggest a ''framework'' that the company should use for these BPR projects. Explain the steps that should be included in this framework. HINT: search the internet for information to answer this question.

PROBLEMS

9-12. Visit the software websites of two low-end accounting software package vendors and then two ERP vendors. Do you see a relationship between the complexity of the website and the price of the software? Identify a number of differences.

9-13. Define the concept of ''scalability''. Explain why it might be a good idea for owners of small businesses—and managers in larger businesses—to understand this concept.

9-14. Tom O'Neal always wanted to own his own business. When he was in high school, he worked evenings and most weekends at a neighborhood bicycle shop. When Tom went to college at the nearby State University, he still came home in the summers and worked at the bike shop. Upon graduation from college, with his accounting degree in hand, the sole proprietor (Steven Judson) of the bike shop invited Tom to become a full partner in the bike shop. Steven told Tom that he really wanted to grow the business and thought that Tom was just the person to help him do this. Tom decided to join Steven.

Over time the business grew and they opened two more bike shops in neighboring cities. Sales increased to more than $3.5 million dollars during the past year and the three bike shops now employ 14 full-time workers and another six part-time employees. Although Steven and Tom hired an accountant who was keeping their books for them and producing the financial statements each year, the partners thought they needed much more information to really run their business efficiently. They thought that they might need to make an investment in information technology to take their business to the next level.

a. Would you recommend that Steven and Tom consider an investment in IT?

b. Visit the websites of the vendors that offer the appropriate-sized software packages for this business. What are some of the features of possible software packages that Steven and Tom should consider?

c. Would you advise Steven and Tom to hire a consultant? Support your recommendation with appropriate research citations (e.g., business articles that offer this type of advice—what rationale do they give?).

9-15. B&R, Inc. is one of the world's largest manufacturers and distributors of consumer products, including household cleaning supplies and health and beauty products. Last year, net sales revenues exceeded $5 billion. B&R has multiple information systems, including an integrated accounting system, a computerized manufacturing information system, and a supply chain management software system. The company is considering an ERP system to be able to conduct more of its business over the Internet.

B&R hired National Consulting Firm (NCF), and NCF recommended the move to an ERP system, which would have electronic commerce interfaces that will allow B&R to sell its products to its business customers through its website. The cost/benefit justification for the new software, which comes with an estimated price tag of $100 million (including consultant fees, all implementation, and training costs) shows that B&R can expect great cost savings from improved business processes that the ERP system will help the company to adopt. NCF implements the ERP, adopting the industry's *best practices* for many of the business processes.

a. What are the likely advantages of an ERP system for B&R?

b. Visit the websites of the major ERP vendors. What are some of the characteristics you notice about their customers?

c. B&R has heard some horror stories from other CEOs about ERP implementations. What are some of the concerns B&R should address as they move forward with this project?

CASE ANALYSES

9-16. The RETAIL Cooperative (Enterprise Portal)

Over the past decade, The RETAIL Cooperative (TRC) successfully acquired a number of smaller retailers. These strategic acquisitions enabled TRC to grow significantly. In fact,

TRC is now one of the largest retailers in Europe, and employs over 230,000 people in 25 countries. The company has three primary business units: Department Stores, Hardware Stores, and Food Stores. TRC has many cross-division service companies in both Europe and Asia to support the three primary business units. These support companies provide a variety of services, such as purchasing, information technology, advertising, human resources, and others.

In early 2007, the CEO scheduled a full-day strategy session with the vice-presidents of the business units. By the end of the day, these senior managers decided on a set of specific strategic objectives to continue the growth of the company. In particular, the CEO and vice-presidents of TRC determined that the company needed to: (1) attract well-educated, skilled managers to succeed in future expansions, and (2) focus on optimizing distribution channels so that managers at all levels of the organization would have immediate access to information for decision-making. The goal was to link TRC's management expertise with the geographic area of operation so that the company would continue to be dynamic and responsive to customers 24/7. Essentially, the senior managers wanted TRC mid-level managers in each of the business units to have the ability to ''Coordinate Globally—Act Locally.''

The consensus was that the Human Resources support company would develop and implement appropriate procedures to find the quality managers that TRC requires. However, the VPs of the business units wanted to be directly involved in the distribution channel optimization. As a result of TRC's rapid growth, the VPs of the business units were encountering a number of recurring problems, such as lapses in customer service, inability to respond to customer queries, and coordination problems with product availability and delivery dates. In addition, the manager for the travel department of the company noticed a significant increase in travel expenses for each of the business units and sent each of the VPs a memo. Based on these concerns, the VPs decide to meet with the Controller and Chief Information Officer (CIO) to discuss these problems and to identify possible options to resolve these issues.

To prepare for the meeting, Robin Frost (the CIO) talked with several top-level managers to collect their ideas and suggestions of the features that might be required of any new technology the firm might purchase. Each of the managers agreed that TRC would need an e-business application(s) that would give its managers a detailed online view of the status of the purchasing process that is shared among TRC's employees, suppliers, and customers. For example, each purchasing agent would like to access all the purchase prices, inventories, and selling prices that are in place in any store no matter where it is located. He/she should also be able to see TRC's manufacturing prices for its own brands, the bids made by TRC's suppliers, and the comments or complaints made by TRC's customers.

In addition, the new technology would have to link TRC's suppliers, distributors, and resellers with the company's Logistic, Production, and Distribution departments. The Accounting and Finance departments would need access to information so they could track the status of TRC's sales, inventory, shipping, and invoicing in any TRC store, worldwide. And finally, the Marketing and Sales departments would also need access to manage and update the company's product catalogs, price lists, and promotional information for any TRC outlet, regardless of its geographic location.

At the meeting with the VPs, Robin made a 10-minute presentation on Internet portals. Her research on this new technology leads her to believe this might help the VPs solve the problem of information asymmetries—that is, information not being readily available to mid-level managers working with customers. At this point, Robin just knows that software packages exist that can make information available to company employees. She's not able

to articulate all the pros and cons of the technology, and has not yet called any outside consultants for advice. Robin believes that the primary challenge for this new technology will be to create a real-time ''retail connectivity'' that will allow vendor collaboration, multi-channel integration, and public and private trading exchanges across the globe.

Requirements:

NOTE: Research is required to properly respond to the following case questions, which could include journal articles on enterprise portals, and Internet research that could include online journal articles as well as vendor websites for product information.

1. Assume you are a consultant with one of the application platform vendors (e.g., IBM, Oracle, SAP, Microsoft) and Robin called you for information regarding Enterprise Portals. Prepare a one-page summary of the advantages TRC might be able to achieve if they used an Enterprise Portal for each of the business units (and for TRC-wide operations).
2. After preparing the one-page summary, now prepare a 10-minute PowerPoint presentation on Enterprise Portals, focusing on the advantages for TRC of implementing this technology. (HINT: As a minimum, be sure to address such issues as scalability of the portal, reliability, performance, and fault-tolerance.)
3. What sort of implementation schedule would you recommend for TRC, that is, what steps are important in an orderly implementation of this technology? Explain.
4. Based on your research, which system do you recommend for TRC? Prepare a matrix that compares the different features of the different Enterprise Portal solutions that you considered.

9-17. Linda Stanley and State University (Legacy Systems to an ERP)

Linda Stanley is the Vice President for Computing and Information Services at State University (SU), a large, urban university that has experienced a 3% growth in enrollments every year for more than a decade. The university how has almost 27,000 students, just under 12,000 faculty and staff, nearly $1 billion in revenues, and can currently accommodate 5,000 students in residence halls. In addition, the state legislature has financially supported infrastructure development for SU to help accommodate the sustained growth in enrollments. The campus has significantly and positively impacted the visual appearance and the economy of the city where it is located.

The number of legacy systems across campus has adequately served SU in the past, but with the growth in enrollments, the university has also increased the number of faculty, support staff, and services. Currently, the core applications at SU include Blackboard, Lotus Domino, web self service, and legacy administrative applications for all other purposes.

In recent meetings with the Provost of the university, Linda and her staff have responded to a number of concerns and problems from the Deans of academic departments on campus, as well as a number of the support departments, such as payroll, student financial aid, and HR. As Linda pointed out to the Provost and Deans, universities have unique technology challenges, such as an open technology environment 24 hours a day, 7 days a week, and that is 365 days a year, not just when school is in session. She also mentioned that SU has other factors that impact the effectiveness of IT services, such as their urban location

and the rapid growth of the university over the past decade. Linda reminded the Provost that she and her staff were diligently working on a number of major technology initiatives for SU, including network reengineering, email consolidation, telephony modernization, helpdesk/customer care redesign, and classroom technology.

Last week, the Provost called Linda and asked her to meet him at the coffee shop in the Student Commons—he wanted to ask her opinion about a technology issue. In the discussion, the Provost reflected on the growth of SU and wondered aloud if the university might be at a stage of maturity where they really should consider the entire technology infrastructure of the university. He pointedly asked Linda what she thought—should they consider purchasing an ERP?

Of course, Linda was not prepared to discuss this question in great depth and told the Provost that she would do some research and make an appointment in a couple of weeks to have a more meaningful discussion of the issue. When she returned to her office, she scheduled a meeting with her staff for the next day so that she could go over the Provost's request with them and then assign different parts of this research project to them. Linda reminded everyone that they had a limited amount of time to pull the information together, and that she needed to deliver the Executive Summary to the Provost in the next few weeks.

Requirements:

NOTE: Some Internet research is required to properly respond to the following case questions.

1. Search the Internet and find ERP solutions that might be suitable for a university, such as SU. What are the primary modules for this type of ERP? Briefly describe the functions of each module.

2. What business processes would most likely be affected if SU implemented an ERP?

3. Because this is a state university, the Board of Visitors and the State Legislature will need to see a report on the expected costs and benefits of an ERP, both tangible and intangible. Although you don't have any dollar amounts, identify some typical costs and benefits that Linda should include in her executive summary.

4. Should Linda use consultants? If so, what types of support should she expect from them?

5. Search the Internet—can you find an expected timeline for implementation of an ERP at a university? Do you think Linda should include a possible timeline in her report to the Provost? Why or why not?

9-18. Springsteen, Inc. (Enterprise Resource Planning System)

Springsteen, Inc. is a large furniture manufacturer, located in Asbury Park, New Jersey. They sell to furniture wholesalers across the United States and internationally. Revenues last year exceeded $500 million. Currently, the company has over 100 legacy information systems. Recently Wendy Stewart, the Chief Information Officer (CIO), met with Bruce Preston, Chief Financial Officer (CFO), and CEO Patricia Fisher, to discuss some technical problems occurring in these systems. Patricia noted that several competitors have implemented ERP systems and she wondered if maybe it wasn't time for Springsteen to do the same. Wendy

and Bruce agreed, with some reservations. Each had heard that Hershey couldn't ship its candy bars one Halloween because of problems with an SAP implementation. They'd heard other horror stories as well. Bruce thought maybe a Best of Breed solution would be less costly. Patricia suggested that they all meet with a consulting team from Warren-Williams (WW), a global consulting firm.

The meeting takes place the next week. Present are: Wendy Stewart—CIO; Bruce Preston—CFO; Patricia Fisher—CEO; Clarence Martin—Analyst, WW; Rosalita Jones—Analyst, WW; and Steve Johnson—Analyst, WW.

Patricia opens the meeting. Her role is to manage the discussion and look for a decision. She talks about what she thinks an ERP might be able to do in terms of providing competitive advantages, particularly with respect to business processes.

Bruce discusses what the dollar costs and benefits of an ERP are and the expected effect on the bottom line.

Wendy explains the architecture of an ERP and explains the technical issues associated with implementing these systems.

Clarence tries to sell the project any way he can. He also tells the company representatives what his firm will do for them, the expected cost of the system, and the implementation schedule to be expected.

Rosalita explains the potential risks and benefits of such a system for Springsteen, focusing on the benefits.

Steve describes the functionality of an ERP—what the various modules are, etc. He also talks about options for extending the ERP through the Internet to integrate the supply chain.

Requirements:

This case is designed for in-class role play. Each actor and assigned support staff have 20 minutes to prepare for the meeting. The support staff are the other class members. During the meeting one support staff member for each role will capture the main points brought out during the meeting, relative to that role. For example, a scribe for Wendy Stewart would make a list of every technical issue brought out in the meeting. The meeting is scheduled to last approximately one-half hour.

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ANSWERS TO TEST YOURSELF

1. **c**   2. **d**   3. **c**   4. **b**   5. **a**   6. **d**   7. **c**   8. **b**   9. **b**   10. **a**