Software history and erp's 18550 flashcard

Introduction

The topic for our paper and presentation is software. Because the software industry is so broad and all encompassing, we chose to present an overview of the software industry in general, but to focus specifically on the Enterprise Resource Planning system (ERP) industry and the four major players that dominate that particular industry.

The Software Industry

For all their bells and whistles, computer systems are not able to operate without detailed instructions, or programs, called software. It is the software that makes computer hardware apply itself to your problems and makes the system useful to you.

The US is the world leader in software development and software products. The creation of software useful to business, science, governments, and homes is one of the tasks done very well in the United States.

Computer system software may be classified into three broad categories: systems software (operating systems), application software, and development software. Systems software manages the computer system hardware. System software handles such essential, but often invisible, chores such as maintaining disk files and managing the screen, where application software performs word processing, database management, and the like. Application software processes your data in the way you want it processed. Both types of software are essential to a computer system. Development software is used to create software of all types.

To manage a computer's hardware components, to coordinate them so that they work together efficiently, and to schedule to make the best use of the computer's time, it is necessary to add a set of instructions that monitors and manages the system. This set of instructions is commonly referred to as systems software. By managing a computer's systems hardware and available time, systems software acts as the linkage, or interface, between the computer system and the application programs that the user wants to run (Schultheis, 1995).

In addition to these task-based categories, several types of software are described based on their method of distribution. These include the so-called canned programs or packaged software developed and sold primarily sold through retail outlets; freeware and public-domain software, which is made available without cost by its developer; shareware, which is similar to freeware but usually carries a small fee for those who like the program; and the infamous vaporware that either does not reach the market or appears much later than promised (Microsoft, 1998).

What makes software history so interesting is that most of the people who were active in the early days are still around to talk about it. The industry has changed so rapidly that " ancient history" is only twenty to thirty years ago so most software pioneers are still relatively young people with their memories intact.

Notable Events in the Evolution of Software

1943

The U. S. Army Ordnance Department commissions the ENIAC (Electronic Numerical Integrator Analyzer and Computer) to help produce missile trajectory tables for use in World War II. Even though it doesn't arrive until 1945 and misses the war, ENIAC can perform 5, 000 additions per second and is later used in artillery calculations. ENIAC weighs 30 tons and is 100 feet long, 8 feet high, and contains 17, 468 vacuum tubes. Programming ENIAC is anything During World War II; the British sent a team of mathematicians and others to a secluded country location – Bletchley Park. They were charged with developing a machine that could break codes produced by the German machine, Enigma. Their work resulted in the Colossus, which was operational by December 1943. This electronic digital computer relied on thousands of valves and 2, 400 vacuum tubes, as well as a scanner that read 5, 000 characters per second from paper tape.

1947

Jay Forrester extends the life of a vacuum tube from 500 hours to 500, 000, improving the reliability of the vacuum-based computers of the era. But at Bell Labs an even bigger revolution is taking place: William Shockley invents the transistor, a solid-state, reliable version of the vacuum tube.

1951

Although promised for delivery in 1948, UNIVAC is delivered to the U. S. Census Bureau three years late. It's a sensation, nevertheless, with revolutionary features such as mercury delay lines for memory and magnetic tape for input instead of punched paper.

1952

IBM introduces the Defense Calculator, one of its first major entries in the computer business.

1952 – We said it first! Eisenhower wins

UNIVAC is featured on CBS with Walter Cronkite and Charles Collingwood. At 9 P. M., UNIVAC was scheduled to predict the election results. UNIVAC predicted a landslide victory for Eisenhower. All the polls said it was a tight race. CBS suggested reprogramming UNIVAC, which still predicted an Eisenhower victory, but by a slimmer margin. UNIVAC's original call was right: Eisenhower by a landslide. CBS apologized; the papers had a field day.

1953

After spending four years in development, Jay Forrester and a team at the Massachusetts Institute of Technology install magnetic core memory into the Whirlwind computer, giving it a twice-as-fast access time of six microseconds.

1954

IBM brings out the 650, the first mass-produced computer. It's a great success, with 120 installations in its first year.

1955

Elmer Kubie founded Computer Usage Company, the world's first computer software company, with John W. Sheldon.

1956

John Bachus and his IBM team invent FORTRAN, the first high-level programming language.

1959

Marty Goetz co-founded Applied Data Research (ADR) and was issued the first patent issued on a software product.

1960

2, 000 computers are in use in the United States.

1964

John Kemeny invented BASIC and the first Local Area Network (LAN) is developed at Lawrence Livermore Labs. IBM announces System 360, a family of computers that can be used for science and business, and share the same software printers, and tape drives. Grace Hopper, a Naval Officer and computer scientist led the effort to develop COBOL (Common Business-Oriented Language).

1960's

In the mid 1960's, when software was still bundled with hardware, several independent contract-programming firms attempted to license a generalized program to multiple users for a standard fee. All software at that time was given away free by the hardware manufacturers. Users were freely

exchanging programs through SHARE, GUIDE and the like. There was no cry from the users for priced software.

1968

John Cullinane founded Cullinane Corp., which sold the IDMS database system. Cullinane was the first software product company to go public (in 1978). Also in 1968, the Justice Department spoke to many independent software companies and, in 1969, brought suit against IBM. The complaint, which covered IBM's dominance of hardware, also alleged that " starting in the early 1960's IBM inhibited the growth of the of the software products industry through its bundling of hardware and software."

1969

The independent software start-up ADR sued IBM for monopolizing the software products industry. In June 1969, two months after the ADR suit and six months after the Justice Department suit, IBM announced that it would unbundle all of its systems software, except operating systems, starting in January of 1970. In July 1970, ADR won a restraining order against IBM for a 60-day period. In August 1970, ADR settled its antitrust suit with IBM with an out-of-court settlement of $2 million.

One of the biggest challenges facing vendors of applications software products in the 1960's and 1970's was overcoming the Not-invented-here syndrome. It was difficult to convince customers that software that had not been written specifically for them could handle their business processes properly. This was a different sales problem from that faced by companies

selling systems software during that period. Customers understood that they would need standardized systems software such as operating systems, utilities, and language compilers to be able to use their computers effectively. But they expected to get systems software from the computer manufacturers for free so the challenge was to convince them that a systems software product sold by and independent vendor was worth paying for.

In 1971, Luanne Johnson founded Argonaut Information Systems to sell payroll and accounts payable software. Also in 1971, Sandra Kurtzig founded Ask Computer systems and introduced the first multi-terminal mini-based MRP (Manufacturing Resource Planning) system.

The ERP acronym is an outgrowth of MRP (materials requirements planning) and MRP II (manufacturing resource planning), older types of manufacturing-specific software that aim to keep the right inventories on hand and the lines humming. ERM (Enterprise Resource Management) is the term some analysts prefer and they make a subtle distinction between ERM and ERP. ERM encompasses accounting, HR and materials management; ERP is ERM plus applications.

SAP was founded in 1972 and was the pioneer in the ERP industry. Oracle was founded in 1972, as was J. D. Edwards. Baan, another major industry leader, was founded in 1978, and PeopleSoft entered the market in 1987.

Market Adoption/Adaptation Issues

· Architecture

Moore's Law, the first commandment of hardware evolution, predicts that the number of transistors on a microchip will double every 18 months. Until now, there has been no similar rule in the software business.

If one did exist, we might call it The Law of Software Development. It would be a Darwinian proposition stating that every dozen years or so, we witness the demise of one generation of software technology coupled with the rapid adoption of the next.

Over the past 25 years the software industry has seen this revolutionary evolution play out in the rapid rise and equally rapid fall of such software pioneers as Cullinet (the first public software company), Informatics (the first million-dollar product line), Pansophic, Ask Computers and many others.

The same model holds true in terms of operating systems. In the late ' 50s and early ' 60s it was the mainframe paradigm that brought us Fortran. In the early 1970s, Fortran gave way to Cobol running on microcomputers. Cobol, in turn, was overtaken by Basic, C and in the mid-to-late 1980s, networked relational client/server architecture, which is still the leading software paradigm today. It is a model that has made companies like Oracle, SAP, PeopleSoft, and J. D. Edwards world leaders.

These titans and the predominating client/server architecture have reached their dozen-year anniversary, when the architecture hits the limits of its developmental usefulness. The next revolutionary turnover predicted by the Law of Software Development is on the horizon. In the next few years we are going to se this scenario play out among the recently high-flying client/server giants. One thing all these companies have in common –

besides their dying architectural model – is that all reached maturity prior to the explosion of the Internet. This means that they are operating under a business model as obsolete as their basic technology (Taussig, 1999).

After years of double– and even triple-figure growth, the enterprise resource planning market is in the middle of a painful slowdown. Companies such as Baan, Oracle, PeopleSoft, and SAP are reeling from faltering sales, management turnover, and the apparent inability to crack such emerging markets as customer-relationship management and supply-chain management (Stein, 1999). Companies once spent millions of dollars on ERP applications to replace outmoded financial, manufacturing, and human resources systems. But the buying wave has fizzled due to market saturation. As a result, revenue growth for 1999 was flat, and the prices of all ERP stocks fell. The slowdown isn't having an effect on IT buyers so much as it is being shaped by them (Stein). Businesses aren't buying the all-in-one strategy pushed by the vendors. " We need to do integration based on what we want, not what the vendor wants," says PG Corp. CIO John Keast (Stein).

Can the mega-vendors give clients what they are asking for? Does the industry fully understand the technologies at their disposal?

Some of these businesses, like SAP and Oracle, are trying to inject a dot. com message into their public relations campaigns. In fact, the PeopleSoft 1999 Corporate report states that its " web-based self-service features are designed not only as a standalone solution but also to work in concert with and fulfill a range of integrated business practices." But this doesn't cancel out their deep institutional belief that it is more important to maintain a

proprietary stranglehold over their software than it is to empower customers. And it is this kind of restrictive mindset that probably spells extinction in a world of total Internet access and increasing customer empowerment (Taussig).

The Internet is driving transition from a sellers' market to a buyers' market. This is bad news for companies that still believe that their clients will remain quietly and happily locked into a proprietary system of business solutions that is probably not the most advanced or the least costly.

So the question becomes this: As these client/server-based companies fade, what will take their place?

The answer can be found in the emergence of Internet-enabled systems being developed by a generation of newer, smaller, more agile, what might be called " business performance systems" companies (mercurycenter. com). These differ from their client/server predecessors in that they are developing specialized, industry and solution-specific applications rather than omnibus programs that often take years and millions of dollars to implement.

Research suggests that top tier vendors will make progress with smaller

companies as they:

· Web-enable their products

· Cut costs of product

· Make ERP a more out of the box experience with reduced installation requirements

· Make partnerships with channel specialists

-Cahners In-Stat Group, 2000

The dynamics of the software industry have dramatically changed within the past few years as companies have shifted their focus away from ERP. Prior to Y2K, businesses in general had a different set of concerns. They were focused on becoming Y2K compliant and protecting their company from the dreaded Y2K bug. " In late 1998, the Internet was low on the totem pole of Maslow's needs, but became the front runner, post Y2K" (Henry McNally, JDE Sales Rep).

As companies safely transcended issues related to Y2K, they began turning their focus towards e-Business. The term E-Business is defined as " the business transformation that occurs by exploiting the benefits of enterprise integration, collaborative processes and global networking connectivity by using the medium of the Internet" (www. jdedwards. com " The JDE e-Business Advantage"). This collaborative relationship between customers, suppliers, distributors, and manufacturers is referred to as a value chain. As value relationships grew outside the four-walls of a self-contained enterprise, businesses had to change their processes to include both internal and external processes.

As a result of economies of scale, competition, and increased marketing, it is no longer feasible for one company to own all components in the value

chain. Therefore, each part of the value chain is now typically controlled by a different organization, which has lead to added complexity in the control of information. To be successful, companies must have the ability to quickly notify and collaborate with all members in the value chain as customer orders and shipments take place. The need for this collaborative effort is what has lead many organizations to move beyond traditional ERP systems.

" Enterprise software was originally designed to allow companies to take control of their individual financial and manufacturing planning processes. Under an e-Business scenario, enterprise software systems now have to provide core transactional functionality that will collaborate with e-Business front office applications of the value chain partners". (www. jdedwards. com " The JDE e-Business Advantage"). In order to be effective, the front office applications on the Web need to link together with the back office transaction systems.

" The major ERP vendors have been busy developing, acquiring, or bundling new functionality so that their packages go beyond the realms of finance, materials planning, and human resources" (P. J. Jakovljevic 5/2/00). As competitors provide new services such as ordering on-line, checking the status of an order, and requesting account information, companies must match or surpass this capability in order to remain competitive. " Research in the field of e-Business predicts that the total amount of commerce transacted via the Internet by business and consumers will exceed $2. 3 trillion by 2003 (www. jdedwards. com- OneWorld and Scalability April 2000). As a result, companies that do not have this type of flexibility will be left behind in the new Web-based economy.

In order to see the tremendous changes taking place within the software industry, let's turn our focus to the leading software providers. As we will find, competitors such as J. D. Edwards, Oracle, PeopleSoft and SAP have begun placing less emphasis on ERP in the past few years. Their focus has moved into other areas, all aimed at providing solutions for an " Internet Economy."

J. D. Edwards & Company was founded on March 17, 1977 by Jack Thompson, Dan Gregory, and Ed McVaney. Their aim was to specialize in developing computing software that would enable users to perform their jobs more efficiently. With this vision in mind, they created J. D. Edwards in Denver, Colorado, which currently serves as their Corporate Headquarters. Because of their extensive background in accounting and software, Thompson, Gregory, and McVaney were successful in determining what was required in order to build a successful software company in an ERP market.

As the company became more successful, branch offices sprang up in Dallas, Newport Beach, Houston and Bakersfield. The company took their solutions worldwide in 1988 by opening an office in Brussels, Belgium, which has since moved to the United Kingdom. J. D. Edwards currently has 21 offices in the United States, and over 41 offices throughout Europe, Asia, Latin America, Africa and the Middle East.

Initially, J. D. Edwards designed software for several small and medium-sized computers, eventually focusing on the IBM System/38 in the early 1980's. " It was in this effort that J. D. Edwards pioneered the CASE software development and design tool, which lends consistency across the broad

range of J. D. Edwards' integrated applications" (www. J. D. Edwards. com: Company History).

Like all other software vendors, J. D. Edwards faced many challenges as a result of their tremendous growth as the years progressed. In order to stay ahead with industry changes, McVaney and Thompson developed WorldSoftware™, which is run on an IBM AS/400 operating system. " By the mid-1980's, J. D. Edwards was being recognized as an industry-leading supplier of applications software for the highly successful IBM AS/400 computer, a direct descendant of the System/38" (www. J. D. Edwards. com- Company History).

After roughly 10 years of proven success with their WorldSoftare™ product, J. D. Edwards introduced OneWorld™ in 1996, which far surpasses the functionality found in WorldSoftware™. Building on the CASE technology pioneered in the 1980s, OneWorld™ " combines a full range of platform independent applications with and integrated toolset" (www. J. D. Edwards. com- Company History). OneWorld™ allows companies the " freedom to choose" as different business requirements and processes evolve.

After introducing OneWorld™ in 1996, J. D. Edwards went public on September 24, 1997 at an initial price of $23 per share. Today, J. D. Edwards is publicly traded on the Nasdaq- (JDEC) and services more than 5, 500 customers worldwide. Customers include big names such as Blockbuster, Dole Foods, Robert Mondavi, Fox Television, Bacardi Rum, and Coca-Cola. Further, J. D. Edwards employs approximately 5, 000 employees throughout the world.

J. D. Edwards attributes much of its' success to a corporate culture that emphasizes quality at all levels. The vision outlined in their Corporate Culture Document states, " The ultimate goal of J. D. Edwards is to build a great, truly global, company that makes a fair profit, has a heart for its employees, and is dedicated to total customer satisfaction." Other phrases such as, " Have fun along the way," " Tolerance and Forgiveness," " If you don't have your heart in J. D. Edwards, you shouldn't be working here," and " To build outstanding software, we must build upon outstanding people" also appear in their culture document.

In addition, J. D. Edwards is governed by seven corporate ideals: 1-Honor God in everything we do, 2-Preserve our corporate culture, 3-Make a fair profit, 4-Aspire to quality and excellence in everything we do, 5-Care for employees, our most valuable asset, 6-Achieve total customer satisfaction, and 7-Grow at a sustainable rate. With this, it is evident that J. D. Edwards corporate culture is hard to match. While they recognize that these ideals may be difficult to meet at times, they also have a clear vision of their expectations.

J. D. Edwards fosters their corporate culture by providing an environment where the founder and CEO (yes, Ed McVaney) attends the monthly birthday-cake and ice-cream celebration of its employees. Other " perks" that help cultivate their corporate culture include complimentary breakfast every Wednesday, refrigerators continually stocked with drinks, occasional Friday afternoon " beer-carts," free flu shots and on-site workout facilities. Neil McCoy, a famous country singer, even provided entertainment at their Kickoff event in 1998. In addition, Fortune Magazine sited J. D. Edwards as

one of the " 100 Best Companies to Work For," ranking J. D. Edwards number 53, not one of its competitors was listed (Fortune Magazine).

Leanne Vakoc, an ex-J. D. Edwards employee who moved to Oracle, shared some of her thoughts regarding how the culture differs between the two competing companies. When asked to describe the culture of both companies, Vakoc stated, " JDE was friendly and fun. Oracle is professional, we are #1 and #2 is unacceptable." She also stated that Oracle could focus more on " having fun along the way", which is one of the key focuses actually stated in J. D. Edwards' culture document.

Ed McVaney lives and breathes J. D. Edwards' corporate culture. Anyone who has ever heard Ed McVaney give a speech can attest that he is truly down-to-earth, has a passion for J. D. Edwards' success and genuinely cares for his employees. McVaney states, "[Our culture] forms the foundation upon which we will build a great company. Without this foundation, our company will become ordinary. If we allow ourselves to become ordinary, we will perish" (Corporate Culture Document).

In addition to its' strong corporate culture, J. D. Edwards has made several impressive accomplishments in the past 23 years. For example, in 1997 they received a business award naming them Company of the Year by Colorado Business Magazine. J. D. Edwards demonstrated its commitment to education by donating $4 million dollars worth of software to Colorado State's College of Business in February 2000. " The software will allow business students to learn firsthand what enterprise software is all about, how it works, and why it

is changing the face of business" (www. jdedwards.

com/newsroom/archive/colostate. asp).

In addition, Ed McVaney was recently inducted into the Colorado Business Hall of Fame (Rocky Mountain News 5/23/00). J. D. Edwards is also ISO 9000 certified and have held this certification since February 1994. Further, the company generated $944, 231 in revenue in 1999, which is remarkable considering the effects Y2K had on the software industry during the past year (J. D. Edwards Annual Report 1999).

After looking at the history of J. D. Edwards, it is important to gain a deeper understanding of the software they develop in order to fully understand their current positioning in the market. J. D. Edwards offers over 70 different applications. From Financial (A/P, A/R, G/L, Fixed Assets), Distribution, Contract Service Billing, and Payroll Applications, to Sales Order, Job Cost and Shop Floor Management, J. D. Edwards provides a wide-range of functionality. J. D. Edwards prides itself on integration and flexibility across all systems.

This integration and flexibility is what led J. D. Edwards to create the concept of Idea to Action™. Idea to Action™ provides the capability to make flexible, run-time changes to the enterprise system. ActivEra, also developed by J. D. Edwards, is the suite of tools and technologies that enable these changes to occur. Using these tools, organizations are able to turn ideas into working solutions in a very short time frame, without a lot of technical complexity.

In this manner, organizations are able to maintain control of their businesses as circumstances, technologies and markets change. " By minimizing the

technical complexity and allowing users (rather than programmers) to employ easily understood techniques to make system modifications, J. D. Edwards refocuses the emphasis of enterprise software on solving real-world business problems" [(www. jdedwards. com) OneWorld™ and Scalability].

The concept of Idea to Action™ is incorporated into both WorldSoftware™ and OneWorld™. Currently, WorldSoftware™ is available in release levels A7. 3 cum 11 and A8. 1 cum 3. WorldSoftware™ will eventually phase out as clients make the transition to OneWorld™. Clients may choose to use WorldSoftware™ and OneWorld™ simultaneously, as the products are co-existent for added flexibility. The latest release of OneWorld™ is B733. 2, and B733Xe will be released sometime in September 2000. The Xe stands for " X-tended Enterprise," which portrays enhanced functionality compared to B733. 2.

OneWorld™ provides cutting-edge technology, as opposed to other products on the market because of the tremendous flexibility it provides. OneWorld™ is truly platform independent and is Java™, HTML, and XML enabled. " In addition to the AS/400, OneWorld™ runs on UNIX™ machines (HP 9000™, Sun Solaris™ Servers, IBM RS/6000™) and Intel®-based Windows NT® Servers. Database options for OneWorld™ include Oracle, MS SQL Server, and IBM DB2/400" [(www. jdedwards. com) OneWorld™ and Scalability].

The ability to run on multiple platforms is a big selling point for clients because they are not locked into one platform or database. OneWorld™ allows a business to change their focus without having to make changes to their software. For example, Liz Claiborne may be running OneWorld™ on an

AS/400 platform and decide to purchase Ann Taylor who may be running OneWorld™ on a HP 9000™ platform. Liz Claiborne would not incur added expenses of purchasing a larger AS/400 or employing extensive technology changes because they could run OneWorld on both, the AS/400 and the HP 9000™. " New severs, including Web servers, can be added where and when necessary without the need to rewrite the applications for the new configuration" [(www. jdedwards. com) OneWorld™ and Scalability].

J. D. Edwards WorldSoftware™ product contained approximately 13 million lines of programming code. Inflexible, massive systems based on millions of lines of code can't accommodate an environment that is constantly changing. Traditionally, changes to a conventional system required a business to rewrite lines of code.

On the other hand, OneWorld™ was achieved using 3, 500 reusable objects and no lines of code, which is a very competitive differentiator. J. D. Edwards component-based Web-ready solutions allow their customers to act quickly and reconfigure their systems as new ideas emerge, without additional programming. " All OneWorld™ applications are Web ready, making the information and capabilities within the enterprise available anywhere, anytime over the Internet." Further, " OneWorld's openness to third-party technologies also ensures that business needs- not technical limitations- dictate system configuration." (J. D. Edwards Annual Report, 1999).

OneWorldXe allows organizations to move beyond the boundaries of their own enterprise and link with other organizations. To achieve this, J. D. Edwards has developed XPI, " extended process integration." With this, the

outbound process of one organization becomes the inbound process of another organization. For example, a customer's purchase order now has the flexibility to link directly into the sales order system of another company, regardless of the software being used.

In order to achieve this functionality, J. D. Edwards purchased code from an EAI (Enterprise Applications Interfacing) provider and incorporated it right into OneWorldXe. With this, companies no longer have to write custom interfaces in order to link other software packages. Not one of J. D. Edwards' competitors currently supplies this level of functionality.

Gartner Group, an organization who evaluates software vendors, states, " With its flexible OneWorld™ product, J. D. Edwards is positioned as well as or better than its competition to ride this [the next ERP wave]." Further, they state, " J. D. Edwards' primary advantage with OneWorld™. . . is that it is further along in its life cycle than competitors' next generation products. OneWorld has been in the field since early 1997, and is steadily building a portfolio of live customers. Major competitors, Oracle, PeopleSoft, have all delivered ERP " components" more or less designed for agility, but none has delivered a complete product, let alone developed a track record for it" (Gartner Group).

Dan Wark, VP at Pericom, comments on J. D. Edwards extended flexibility, " The long-term benefits of having chosen J. D. Edwards center around the flexibility to be able to grow with us. The ability to modify processing options is pretty exciting to us." In addition, Tuck Vosburg, president and CEO of Pacific Steel & Recycling states, " By moving to OneWorld™, we feel like we

will have the flexibility to adjust our software package to the needs of the business, and we've been able to use business professionals to adapt the programs rather than computer programmers" (JDE Brochure).

While J. D. Edwards has a very strong product, their entire marketing approach needs to be revamped in order to better position themselves in the next decade. In a letter to his employees, Ed McVaney stated, " What we are missing is a clear definition of who and what we want to become in the Internet economy . . . to lead the revolution, we clearly need to improve our market presence." In an interview with Kris Hudson, a reporter from the Rocky Mountain News, McVaney stated, " Clearly we had to revitalize our marketing efforts; we clearly have to establish ourselves as a leader in the whole area of business-to-business collaboration" (Rocky Mountain News 5/23/00). Further, an Oracle business partner stated, " If J. D. Edwards had Oracle's marketing, they would be the market hero" (www. jdedwards. com).

After laying off 800 employees worldwide May 22, 2000, McVaney announced a new strategic plan for the company. McVaney shared the company's new direction in an interview with a reporter from the Rocky Mountain News, which calls for J. D. Edwards to focus on high-end e-commerce software systems. " Unlike ERP systems, which primarily support a company's own operations, J. D. Edwards " business-to-business" collaboration software will allow companies to automate their business processes and connect them digitally to their customers, suppliers and partners" (Rocky Mountain News 5/23/00). Major changes include providing the ability to engage in E-Business, ensuring systems interoperability, and providing agile solutions in a rapidly changing business world.

When asked to comment on the layoff, McVaney noted, " we had ill-considered spans of control. . . we lost track of some of the fundamentals, the basic things like answering phone calls promptly and just providing good service to our customers." When asked what the most critical objective is to turning the company around, McVaney stated, " Revenue growth, profit growth, customer satisfaction, employee satisfaction. We always boil it down to those four basic things" (Rocky Mountain News 5/23/00).

It is important to realize that this type of layoff is not incredibly uncommon in the software industry. In fact J. D. Edwards' competitors, Oracle, SAP and Peoplesoft all experienced layoffs within the past year. Out of all the areas affected, training was probably hit the hardest because customers indicated they preferred web-based training. The bottom line is that the layoffs are not representative of an inferior product or company; they simply represent J. D. Edwards' re-focus.

In an effort to emerge as the market leader, the company announced its new marketing message June 19th -22nd at FOCUS, an annual conference held every year for employees, customers and prospective clients. J. D. Edwards new focus revolves around allowing customers the " freedom to choose" and providing " agile, collaborative solutions for the Internet economy". Part of this new vision included abandoning their old conservative logo, and creating a new company logo that is more conducive to an Internet economy:

(Old Logo) (New Logo)

The creator of the new logo, Kurt Augustin states, " Our customers should be free to choose in order to get the best solutions for their business needs. J. D.

Edwards creates the most killer applications, but we also give our customers the tools to seamlessly integrate with other applications – giving us the collaboration edge over our competitors. We believe our new logo will help communicate this to new and present customers" (www. httpsknowledgejdedwards. com). As we have seen, J. D. Edwards has a revolutionary product line, strong relationships with best-of-breed companies (i. e. Siebel, Ariba…), and a solid foundation that will foster their vision well into the future.

Another leading software provider is Oracle. The company was co-founded in 1977 by Larry Ellison, current CEO and Chairman. In it's early days, the company was actually named Software Development Laboratories (SDL). Bob Miner and Ed Oats teamed up with Ellison to form SDL after landing a contract with Precision Instruments. Their task was to develop software for the company's microfilm readers. Initially, Ellison remained an employee of Precision Instruments, and simply took part in the venture Miner and Oats started. Ellison bought 60% of the stock for $1, 200, while Miner and Oats each bought 20% of the stock for $400. Soon after, Ellison resigned from Precision Instruments and became the President of SDL. From the beginning it was rather clear that Ellison was the leader of the company.

Rather than continue to write software on a contract basis, Ellison, Miner and Oats decided it would be in their best interest to write a single program and sell it over and over again. Just about this time, IBM published papers divulging how their System R worked in conjunction with SQL. With this, SDL decided they could succeed if they built a working relational database system just like IBM's. " Larry Ellison's nimble and opportunistic little

company had a relational database product on the market before IBM managed to move System R from the Research Division to Development (Wilson, 68)." While IBM was just getting their feet wet, Ellison was rapidly gaining market share.

In December 1978, the three men moved their office in Santa Clara to Menlo Park, which is located in the Silicon Valley. They also changed their name from SDL to Relational Software Inc (RSI). Their first contract entailed developing a relational database management system for the CIA. RSI soon developed Version 3 of Oracle, which was written entirely in the C programming language. RSI needed to ensure that their product would run in any environment because their clients often used several different operating systems and computers. This functionality is what allowed Oracle to flourish in the database world. In order to match their name with their actual product, the company again changed its' name in 1982 from RSI to Oracle.

Today, Ellison presides over a $3 billion company. Oracle's main product is still database software. The latest release is Oracle 8i, which now runs on " IBM mainframes, on Unix servers made by Sun, IBM, and Hewlett-Packard, and on PC servers from dozens of manufactures that use Microsoft's Windows NT software" (Schlender, 3). Oracle owns 40% of the database market share (see next page).

Oracle also makes ERP software that has traditionally run on desktop computers such as PCs. They, in turn, " tap into database servers to gather the raw information, which enables tracking and managing accounting, manufacturing, HR and sales information" (Schlender, 3). Oracle was a late

entrant to the enterprise applications market. The company introduced its applications- financials, manufacturing and HR software in 1989. Today 28% of its revenues are generated from selling applications (Schlender, 3).

Oracle went public on the Nasdaq Stock Exchange (ORCL) in 1986. Their customer base comprises over 8, 000 clients and consists of big names such as Ford, Yahoo!, Motorola, Amzaon. com and Xerox. Oracle employs over 43, 000 employees worldwide and has offices in more than 140 countries (Read, 3). The company remains active in the public realm, as employees often engage in volunteer work. Activities include preparing Thanksgiving care packages for low-income families, engaging in Project READ and working in soup kitchens. Further, Oracle donated $100 million to support America's Promise by providing Internet to access in schools throughout the nation.

While Oracle has greatly succeeded in the past 23 years, many do not attribute this success to the company's corporate culture. Because Oracle is so large and spread out, functions typically occur at the group level, rather than company wide. At Headquarters, one will find a variety of restaurants, each with its own cuisine theme (Italian, American, Japanese, French). Further, there is a giant sized workout facility, dry cleaners and florist. Because Oracle expects employees to work excessive hours, they try to make everyday chores easier. " The schedule here is flexible. You can work any hours you want- but don't kid yourself- it's 60 hours a week" (Read, 16).

Oracles' corporate culture is typically characterized as being sales driven, professional and extremely competitive. Leann Vakoc, an ex-J. D. Edwards employee who moved to Oracle, describes their culture as, " Professional.

We are #1, #2 is unacceptable" (Vakoc). Further, she comments on the differences between the two companies noting that, without a doubt, Oracle will lay you off if you do not perform. In an interview with John Dodge, editor for PC Week magazine, Ellison directly confirms this. Dodge states " Oracle did have a reputation as a hard place to work," and Ellison replies, " I have no problem asking people to leave" (Dodge, 3). In fact, the company laid off 1% of its workforce (325 employees) in June 1999.

While Larry Ellison possesses admirable leadership qualities, some would argue that his approach is rather harsh. In an article entitled, " One of a Kind," author Gary Rivlin states, " He's not a nice guy, and he's explicit about it. He has never pretended to be anything but the rapacious capitalist he is. He possesses a blood lust for victory, openly gloats, glories in his obscene wealth, and doesn't try to hide his entrepreneurial brutality behind a nerdy, aw-shucks persona" (Rivlin). To further illustrate this point, a former executive at Oracle states, " We didn't just want to beat a competitor, we wanted to destroy them" (Rivlin).

In the early days of Oracle, Ellison would end company meetings with the chant, " Kill, kill, kill." In fact, a consulting firm concluded that Oracle's customers tended to regard the company as a bunch of " thieves, crooks, and bandits" (Rivlin). Undoubtedly, this reputation stems from principles fostered by Ellison as he fought to be number one at any price.

Stuart Read, an ex-Oracle employee, wrote a book entitled, " The Oracle Edge: How Oracle Corporation's Take No-Prisoners Strategy Has Created an $8 Billion Software Powerhouse." In an interview with Karen Watterson, Read

shared some thoughts on the company. When asked if he liked Ellison, Read stated, " My goal was for Larry never to know my name. Larry can be ruthless- [he] takes no prisoners. I figured that anonymity was my friend."

Another case that illustrates Oracle's business aura can be seen in their bonus policy. In his book, Read states, " The Oracle bonus process is inherently arbitrary and unfair" (Read, 171). Oracle's bonus and raise policy aims to overly compensate top performers and pass on all others. The whole philosophy behind this is to motivate people to become " top performers." Many would argue that this approach only fosters competition, resentment and a bad attitude.

After looking at Oracle's corporate culture, let's turn our focus to their applications software. Earlier releases of Oracle include versions 10. 7 and 11. Traditional systems are rather costly to implement and maintain. It is also difficult to extract data because information is typically scattered among hundreds or thousands of computers. Because of this, Ellison believes that it makes more sense to have clients perform business functions via simple standardized Internet browsers, rather than by complex application software. " If the actual data crunching is confined to servers, and merely controlled and displayed by browsers" much of the cost and complexity of managing software can be eliminated (Schlender, 3). This would give executives access to essential information instantaneously.

With this new focus in mind, Oracle has created version 11i. The ' i' stands for Internet, which portrays its capabilities via the Internet. Oracle has only released version 11i to a few clients, as the general release has been

delayed several times. The entire e-Business Suite, Customer Relationship Management (CRM) and Order Management components are now available to these selected clients, in addition to the already released Financials, HR, Manufacturing, Procurement, and Supply Chain modules. Further, clients may run their applications on a variety of different platforms, including, Digital, HP, IBM, NEC, Sun, Siemens, Hitachi and Fujitsu.

Oracle's main selling point revolves around the fact that 11i is fully integrated across all suites and is web enabled. The link between CRM and ERP also adds to its strengths. Oracle states, " this allows companies to completely automate their e-Business from web selling and marketing, all the way through to Internet supply chain and procurement" (Oracle Press Release 5/24/00).

Oracle claims that in order to achieve this level of functionality with other software, clients would be forced to purchase integration packages such as Siebel, Ariba, Commerce One or SAP, which are costly. " With Oracle E-Business Suite 11i, all this integration expense and risk is avoided because the suite comes with out-of-the-box integration as well as robust functionality in each key business area" (Oracle Press Release 5/24/00).

A drawback Ellison fails to mention is that in order to take advantage of all the new features via the web, clients must be on release 11i. " To take advantage of the new order management application, you have to be using the company's new 11i application suite. The software isn't available as a stand-alone module, so companies using older versions or Oracle's ERP

applications, must find another way. . . You have to be an end-to-end Oracle application shop to reap the benefits" (www. the451. com).

In other words, clients who are currently at release level 10. 7 or 11 will not be able to integrate with the CRM and e-Procurement products, as these products rely on functionality available only in 11i. In order to get to release 11i, clients must go through a whole new implementation, it is not a simple process like installing an upgrade (Stites).

Another aspect that clients must consider is the fact that Oracle applications only run on Oracle databases. This does not offer much flexibility if clients should decide to acquire another company that may be using a different database. With this, it becomes evident that companies are more locked into Oracle if they choose to run their applications. Another fact to keep in mind is that Oracle is merely Java enabled. Their competitors are Java, HTML, and XML enabled, which leaves Oracle at a disadvantage.

Although Oracle has promised a lot with its new release 11i, it is important to remember that they do not have a strong history for offering products with deep functionality. Analyst P. J. Jakovlijevic warns, " if one should judge the past, it is to expect product quality problems with [Oracle's] immature product release as well as uneven functionality across the functional breath" (Jakoviljevic, 2).

Jim Riley, president of MDR Fitness Corporation comments on Oracle after recently purchasing their software. Riley states, " After all that, [$700, 000] nothing is running right now. Oracle is the least customer-centric company I've dealt with . . . We wasted nearly a year and lost a lot of money on this…

it all goes back to Oracle's attitude towards its customers" (www. developer. com). MDR's dissatisfaction largely stems from promises made by Oracle regarding the functionality of their software. Many of the promises made by Oracle never surfaced.

Another company voices its dissatisfaction with Oracle in an article that appeared in the Dow Jones Business News. Tri Valley Growers filed a suit against the company alleging fraud, negligent misrepresentation, malpractice and breach of contract. Tri Valley said that the Oracle product never worked. They were forced to abandon their investment and hire another vendor, SAP, to address their overall systems needs. An article produced by the Gartner Group reaffirms this lack of functionality, " While Oracle does provide an integrated front and back-office application suite- the benefits of integration are overwhelmed by lack of functionality" (Gartner Group).

PeopleSoft, Inc.

PeopleSoft was co-founded by Ken Morris, Senior VP and Chief Technology Officer and Dave Duffield, President and CEO, in 1987. Dave Duffield owns 14% of the company that is based out of Pleasanton, California and is listed on the NASDAQ under symbol PSFT. PeopleSoft currently has a market capitalization of $4 billion. Sales for 1999 totaled $1, 429. 1 million, a one-year sales increase of $8. 8%, and net income of ($177. 80M). For the 3 months ended 3/31/00, total revenues rose 7% to $375. 4M. Net income totaled $16. 8M vs. a loss of $171. 2M. Revenues reflect increased service

revenues due to an increase in maintenance. Net income reflects the absence of a $176. 4M contribution to Momentum Business Applications.

The company that delivered the market's first network-based human resources software is the #3 seller of applications that tie together customers' global back-office operations (SAP is #1; Oracle is #2).

1999 – 2000 Comparison Chart

PeopleSoft is a worldwide leader in eBusiness solutions offering Customer Relationship, Supply Chain Management, Human Resources Management, Financial Management, Professional Services Automation, and Learning Solutions for a range of industries. The company markets its applications as "…Software solutions for any enterprise, in any industry and in any country" (1999 Annual Report). PeopleSoft supplies eBusiness applications, consulting, and education for large and medium-size enterprises that desire flexibility, speed, and lower cost of ownership in the Internet community. PeopleSoft started as human resource vendor and launched PeopleSoft HRMS in 1988 and continues to be the leader in the human resources arena enjoying over a 50% share of the HRMS market.

The latest releases under the PeopleSoft 8 series of products and services are Vantive 8. 5, the Customer Relationship Management (CRM) industry's first Internet server architecture, and PeopleSoft eProcurement 2. 0, a PeopleSoft eBusiness application providing rapid and cost-effective access to B2B (Business to Business) exchanges. Vantive 8. 5 ' s scalability allows enterprise customers to support up to 20, 000 concurrent users, more than any other CRM platform. Vantive 8. 5 also offers an open platform for

building high-performance browser-based Internet applications and supports Unix, Windows NT and all major database platforms. eProcurement 2. 0 extends service to B2B exchanges and the Commerce One Global Trading Web, the world's largest trading community. An easy-to-use, Website-like interface encourages casual users to take advantage of the solution without having to be trained, lowering total cost of ownership (PSFT 26-Apr-2000).

All products have been updated with global enhancements aimed at making the application more attractive to international companies. PeopleSoft has also added global human resources support to address the country-specific needs of the HR departments of its clients including multi-language support for French, German, Spanish and French-Canadian users and expanded support for the European Monetary Union for both accounts payable and receivable. In addition, PeopleSoft Europe has announced an aggressive recruitment drive across its European, Middle Eastern and African (EMEA) operations planning to increase its workforce in EMEA by more than 20%. PeopleSoft is also planning on establishing operations in Italy and Scandinavia (peoplesoft. com 25-May-2000).

With 4000+ customers and 7000 employees, including 2400 consultants, and products installed in more than 90 countries, PeopleSoft leads its customers in achieving the highest value from eBusiness solutions.

PeopleSoft considers itself a customer-driven organization as is evidenced by their rapid growth of revenues and expanding customer base. They are proud of their " Positively Outrageous Customer Service" and in a recent client survey, 96% reported that they would choose PeopleSoft again, an

almost cult-like following. Some of the more notable clients include Cisco Systems, Corning, Inc., Morgan Stanley/Dean Witter, Bank of America, American Express Financial Advisors, A. G. Edwards & Sons, Merrill Lynch, and Visa U. S. A. In addition, the company won the Datamation 1999 Product of the Year award in the Enterprise Applications category.

Although the leader in the HRMS segment, PeopleSoft has 11 distinct business units which provide software solutions specific to a broad range of public and private sector industries staffed by industry experts including:

· Communications

· Customer Relationship Management

· Federal Government

· Financial Services/Service Industries

· Healthcare

· Higher Education

· Manufacturing

· Consumer Products

· Retail

· Transportation

· Utilities

The company believes that human resources applications are at the core of PeopleSoft Professional Services Automation. The PeopleSoft 1999 Corporate report states that they provide the only solution to integrate the human resources, financial, and business intelligence systems required to deliver a complete, 360-degree view of an organization's knowledge workers and their capabilities.

Condensed PeopleSoft Timeline

1987

PeopleSoft was founded by Dave Duffield and Ken Morris in 1987. PeopleSoft was dedicated to building client/server applications that redefined traditional approaches–that put power in the hands of users, adapted to the ever-changing nature of modern business, and were supported by the highest quality customer service.

1988

PeopleSoft HRMS was developed. Now, with more than 50 percent of the human resources market, customers call them the leader in the Human Resources arena.

1990

Ninety-eight pioneers attended the first users conference. In 1996, they were up to 7288.

1991

After crossing several technological borders, they set up offices in Canada. This led the way to their presence in Europe, Asia, Africa, Central and South America, and the Pacific Rim.

1992

In 1992, their Financial Management product line was only four years old, but had become the standard at leading multinational enterprises, including Alcoa and Nuveen. This supported an initial public offering at $4. 25 a share.

1993

The company decentralized its operations and established sales and support offices on five continents.

1994

The annual users conference had grown to 2200, their stock split, the product line grew to include PeopleSoft Distribution and PeopleSoft Financials for the Public Sector. Fortune magazine anointed them as the fastest growing software company in America.

1995

The Student Administration System offered a way to control the high cost of administration for higher education, and the strategy for the manufacturing sector was so compelling that Andersen Consulting dubbed it " the next generation manufacturing solution" and urged its MACPAC/OPEN users to migrate to PeopleSoft. They announced strategies for other industry markets, such as healthcare, the federal government, and financial services.

1996

PeopleSoft Manufacturing included all of the integration and advantages they had promised. PeopleSoft 6 offered comprehensive enterprise solutions with global functionality and multinational support.

1997

In 1997 PeopleSoft delivered industry-specific solutions, support, and service with 10 industry business units. They announced PeopleSoft Select: a complete packaged solution for medium-sized organizations. And they delivered PeopleSoft 7, a major new release of enterprise applications.

1998

PeopleSoft delivers 7. 5, the next release. Building on the functionality and technology in previous releases, PeopleSoft 7. 5 delivers a global, comprehensive, and proven enterprise solution that meets the changing business requirements of organizations worldwide, across multiple industries.

1999

PeopleSoft delivers the industry's first comprehensive analytic solution, PeopleSoft Enterprise Performance Management, and launches the first in a series of PeopleSoft applications for eBusiness: PeopleSoft eStore, enabling organizations to sell goods and services over the Internet; and PeopleSoft eProcurement, for business-to-business procurement over the Internet.

PeopleSoft views e-Business as much more than making Web-based commercial transactions. E-business includes:

· Self Service

· Electronic Commerce

· Supply chain collaboration

PeopleSoft currently devotes 16% of its revenue to research and development. Apparently, this is an investment that is paying off. The company recently announced a new initiative focusing on the development of the market for outsourced enterprise solutions and is a pioneer in the Application Service Provider (ASP) market. ASP is a market that the Gartner Group projects will reach $22. 7 billion by 2003 (www. erpsupersuite).

It was reported on June 20, 2000, that with more than 125 customers, PeopleSoft eBusiness applications are the most widely hosted in the ASP industry. Part of their success may be attributed to their ability to offer customers the flexibility to choose between PeopleSoft ASP partners that host PeopleSoft eBusiness applications, along with other vendors' products, and PeopleSoft eCenter, the company's own ASP offering that hosts a tightly integrated, end-to-end PeopleSoft solution.

" PeopleSoft was early to launch an ASP initiative, and that is now paying off for them, " Through its ASP partnerships and its direct ASP offering, PeopleSoft gives customers the ability to choose which hosted environment best suits their needs. The flexibility PeopleSoft offers customers to choose among various application services is in the customer's best interest."

-Clare Gillan, group vice president, Applications and Information Access Research at IDC.

" We want customers, not hostages," said Deepak Gupta, senior vice president and general manager of PeopleSoft eCenter. " PeopleSoft eCenter is designed from the bottom up to provide maximum service and single vendor accountability to customers".

PeopleSoft does have its weaknesses. Steve Cooper, director of strategic IT at Corning, Inc., which is using PeopleSoft for HR, financials, and manufacturing, agrees that ERP vendors may be " spreading themselves too thin." He says PeopleSoft's recent rush to add business-intelligence applications and create a new business portal for the internet are intriguing, but he would like to see more focus on the thing that concerns him most – the vendor's relatively immature manufacturing and supply-chain applications, which were released only two years ago. The company started its operations with human resources applications, then moved into financials, and last, manufacturing. So while J. D. Edwards, Oracle, and SAP had a fully integrated suite from the start, PeopleSoft has been playing catch-up. " PeopleSoft doesn't have a best-in-class integrated product suite," states Harry Tse, an analyst at the Yankee Group. " As a result, it has had a tough time selling additional applications to its HR customers."

SAP is the third-largest software company in the world. Founded in 1972 by fiveformer IBM systems engineers, SAP now employs more than 22, 000 people in more than 50 countries. SAP software is deployed at more than 22, 000 companies in more than 100 countries and is currently used by

companies of all sizes, including more than half of the world's 500 top companies. Customers using SAP software to increase their competitiveness and efficiency include Autogrill, Chevron Corp., Colgate Palmolive Co., CompUSA, Fiat, Microsoft Corp., Minolta Co. Ltd., Mott's, Robert Bosch, Siemens AG, and Sony Corp. In addition, SAP customers include new dot com companies around the globe such as barnesandnoble. com, Westell Technology and Streamline. com.

SAP has been a public company since 1988 and is listed on several stock exchanges including the Frankfurt stock exchange, the German index of blue-chip companies, and the New York Stock Exchange under the symbol " SAP." This Germany-based public company is the oldest of the remaining ERP vendors. Hasso Plattner, one of the original co-founders of the company, and Henning Kagermann share responsibilities at the helm of the company, both as co-chairmen of the executive board and CEOs. Claus Heinrich, Gerhard Oswald and Peter Zencke further complement the executive board, with co-founders Dietmar Hopp and Klaus Tschira serving as members of the company's supervisory board.

SAP employs a total of 5, 400 software developers around the globe. Complementing the main development center at the company's headquarters in Walldorf, the network of SAP development labs has offices in Palo Alto, Calif.; Tokyo; Bangalore, India; and Sophia Antipolis, France, as well as in the German cities Berlin, Karlsruhe and Saarbruecken. The following is a brief history of the company:

1972 SAP is founded

1988 Company goes public (Frankfurt)

1992 SAP R/3 solutions are launched

1996 SAP R/3 Release 3. 1 is Internet-enabled

1996 Company begins developing industry-specific solutions; AcceleratedSAP™ rapid implementation methodology is introduced

1997 New solutions for customer relationship management, supply chain management and business intelligence are launched

1998 SAP delivers industry solution maps, business technology map, and service map for complete customer life-cycle solutions and support

1998 Company is listed on the New York Stock Exchange

1999 SAP delivers on its EnjoySAP™ initiative to make SAP software easier to learn, tailor and use

1999 SAP delivers mySAP. com

2000 SAP forms SAPHostings, a subsidiary dedicated to the Internet application service provider and application hosting business.

2000 SAP forms SAPMarkets, a subsidiary dedicated to creating and powering globally interconnected Business-to-Business marketplaces on the Internet.

SAP paved the way for the ERP market by developing their software to handle many different business functions. The German based company

needed to satisfy the many various ways that different European markets handle their day to day business functions. This diverse mix of businesses allowed them to create software that is highly adaptable to many different types of businesses. Once they established a good base software to handle business functions, they were primed to take on the American markets, focusing on the Fortune 500 companies. Their software allowed them to enter the American market with a complete package.

SAP's main strength is the complete package that their software entails. The R/3 software allows businesses to implement total business solutions. The software has many modules that businesses need. Examples include accounting, manufacturing, purchasing, payroll, and multi-currency functionality. The R/3 is very reliable and stable and has proven itself in the marketplace. They have many big name companies on their payroll including Hershey, Lego, Dow Chemicals, Volkswagen, and Orange County School District to name a few. As you can see the R/3 technology can be implemented into many different forms of business types. Anything from non-profits to large corporations. SAP's software has captured a huge portion of the market and even today they control 30% of the market which is, by far, the largest of any of the ERP companies. The next closest is Oracle with only 13%. This huge dominance gives SAP many options and draws many companies to them.

SAP has a good record for data management. R/3 has complete rollback recovery which allows tracking of all transactions and provides 100% data integrity. Their data is stored on UNIX, NT and OS/400 databases. Their main provider is Oracle, and Oracle is the largest database business partner for

SAP. Data integrity is ensured through what SAP calls a ' two-phase commit' process. The ' two-phase commit' is " an internal, four step verification process for transactions that takes a split second." Basically, data is entered to the database and upon arrival the record shows with a status of ' commit this record.' Then the receiving side responds with a ' ready to commit' message and at this point the data cannot be interrupted which allows for strong data integrity. Data integrity is a major strength for SAP.

Another strength is the new ASAP implementation. ASAP is a quicker version of the R/3 software that allows for a more rapid implementation process. However, the functionality is not as strong as the full R/3 implementation. ASAP only provides about 80-85% of the functionality of R/3, but it dramatically reduces the time it takes for a business to go live on the system.