Ross School of Business at the University of Michigan

Independent Study Project Report

TERM : **Fall 1998**

COURSE : **BA 750**

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TITLE : **Emerging Trends in the Enterprise Resource Planning Software Industry**

Emerging trends in the Enterprise Resource Planning Software Industry

by
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A research paper submitted in fulfillment of the reqiorements for 3 credits,
GRADUATE INDEPENDENT RESEARCH PROJECT Fall Term 1998,
Professor Will Mitchell, Faculty Supervisor

Faculty Comments

This was an excellent paper. The paper reviews empirical evidence on the use of ERP, outlines the market's business to ERP, and concludes with a discussion of implementation

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Date: Dec 15, 1998

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I. What is an Enterprise Resource Planning systems?

Enterprise Resource Planning(ERP) systems appear to be a dream come true for many an organization. These commercial software packages promise the seamless integration of all the information flowing through a company - financial and accounting information, human resource information, supply chain information, customer information.

Managers have struggled endlessly and with great frustration with incompatible information systems and inconsistent operating practices, the promise of an off-the-shelf solution to the problem of business integration is enticing.

It comes as no surprise, then, that companies have been beating paths to the doors of enterprise-system developers. The sales of the largest vendor, Germany's SAP, have soared from less than $500 million in 1993 to approximately $3.3 billion in 1997, making it the fastest growing software company in the world. SAP's competitors, including such compames such as Baan, Oracle, and PeopIeSoft, have also seen rapid growth in demand for their packages. It is estimated that businesses around the world are now spending $10 billion per year on ERP systems and that figures probably doubles if you add in associated consulting expenditures.

Big-name companies, such as Compaq Computer Corp., Alcoa, and Hershey Foods, say ERP systems have helped them reduce inventories, shorten cycle times, lower costs, and improve overall supply chain management practices. Such results have made household names out of the leading ERP providers, such as SAP AG, Oracle Corp., PeopIeSoft Inc JD Edwards Co., and Baan Co. They have also set off a frenzy for ERP software among' some of America's largest companies.

According to a recent Booz-Allen & Hamilton study, more than 70% of Fortune 1000 companies have either begun implementing an ERP system or plan to do so over the next few years. Smaller firms expected to adopt similar plans as prices for ERP packages drop and larger OEMs start demanding that suppliers be ERP compliant.

ERP system provides all users, from the company CEO to buyer at a remote plant, with a single, real-time view of their company's available resources and commitments to customers. David Caruso, director of enterprise application research at Advanced Manufacturing Research (AMR) Inc. of Boston, describes ERP systems as "a transactional backbone" that gives companies access to the information they need to make more knowledgeable decisions or to fuel more task-specific applications, such as electronic commerce or supply-chain planning software.

II. What are some of the Key Drivers for ERP systems?

To understand what has made ERP system implementation such a craze, we need to first understand the problem's they are designed to solve:

Fragmentation of Information: Every large organization collects, generates, and stores vast quantities of data. In most companies, though, the data are not kept in a single repository. Rather, the information is spread across dozens or even hundreds of separate computer systems, each housed in an individual function, business unit, region, factory, or office. Each of these so-called legacy systems may provide invaluable support for a particular business activity. But in combination, they represent one of the heaviest drags on business productivity and performance now in existence.

Maintaining Legacy systems: Maintaining many different computer systems leads to enormous costs - for storing and rationalizing redundant data, for rekeying and re-formatting data from one system for use in another system, for updating and debugging obsolete software code, for programming communication links between systems to automate the transfer of data.

Linkages between applications: Besides the direct costs associated with legacy systems we also have an associated indirect cost. If a company's sales and ordering systems cannot talk with its production-scheduling systems, then its manufacturing productivity and customer responsiveness suffer. If its sales and marketing systems are incompatible with its financial-reporting systems, then management is left to make important decisions by instinct rather than according to a detailed understanding of product and customer profitability. In other words if a company systems are fragmented, its business is fragmented.

Introduction of Client-server and Database Technology: With the introduction of Personal computers huge processing power is now available to users a Client-server environment. Users have demanded, and have received, the freedom to process information right on their desktops. Processing on desk-tops have also been enabled through many user-friendly software packages such as spreadsheets, word processing and database software. Coupled with this fact we also have, increasingly on desk-tops, access to powerful database software through which users can query large databases in simple English language to analyze data

Year 2000 Problem: The looming and much-publicized "Year 2000"(Y2K) problem is also driving companies to implement ERP systems. Thanks to two-digit coding conversion used to signify years in most software programs (e.g. "98" for "1998"), the Y2K bug threatens to cripple industry at the end o the millennium as the world's computerized devices --from accounting systems to machine tools-- automatically default to January 1, 1900.

Enter the enterprise system. A good ERP is a technological tour de force. At its core is a single comprehensive database. The database collects data from and feeds data into modular applications supporting virtually all of a company's business units, across the world (See the chart "Anatomy of an Enterprise system")

Let's say, for example, that a UK based salesperson of a US based computer manufacturer prepares a quote for a customer using an ERP system. The salesperson enters some basic information about the customer's requirements into his laptop computer and the ERP system automatically produces a formal contract, specifying the product's'configuration, price, and delivery date. When the customer accepts the quote the sales rep hits a key; the system, after verifying the customer's credit limit, records the order The system schedules the shipment; identifies the best routing; and then, working backwards from the delivery date, reserves the necessary materials from inventory; orders needed parts from suppliers; and schedules assembly in the company's factories in Asia.

The sales and production forecasts are immediately updated, and a material-requirements-planning list and bill of materials from inventory are created. The sales rep's payroll account is credited with the correct commission, and his travel account is credited with the expense of the sales call. The actual product cost and profitability are calculated, and the divisional and corporate balance sheets, the accounts-payable and accounts-receivable ledgers the cost-center accounts, and the corporate cash levels are all automatically updated. The system performs nearly every information transaction resulting from the sale.

The ERP system streamlines a company's data flows and provides management with direct access to a wealth or real-time operating information. For many companies, these benefits have translated into dramatic gains in productivity and speed.

Autodesk, a leading maker of computer-aided design software, used to take an average of two weeks to deliver an order to a customer. Now, having installed an ERP, it ships 98 /o of its orders within 24 hours.

III. Why is it so difficult to successfully implement an ERP system?

Clearly enterprise systems offer the potential of big benefits. But the very quality of the systems that makes those benefits possible - their almost universal applicability - also presents a danger. When developing information systems in the past, companies would first decide how they wanted to do business and then choose a software package that would support their proprietary processes. They also rewrote large portions of the software code to ensure a tight fit. With enterprise systems, however the sequence is revered. The business often must be modified to fit the system.

The ERP system is, after all, a generic solution. Its design reflects a series of assumptions about the way companies operate in general. Vendors try to structure the systems to reflect best practices, but it is the vendor, not the customer, that is defining

what "best" means. In many cases, the system will enable a company to operate more efficiently than it did before. In some cases, though, the system's assumptions will run counter to a company' s best interests.

Some degree of ERP customization is possible. Because the systems are modular, for instance companies can install those modules that are most appropriate to their business. However, the system's complexity makes major modifications impracticable. That leads us to a major concept that is: Configuring an ERP system.

Configuring an ERP system

Configuring an enterprise system is largely a matter of making compromises, of balancing the way you want to work with the way the system lets you work. You begin by deciding which modules to install. Then for each module, you adjust the system using configuration tables to achieve the best possible fit with your company's processes. The two configuration mechanism are:

- **Modules:** Most ERP systems are modular, enabling a company to implement the system for some functions but not for others. Some modules, such as those for finance and accounting are adopted by all companies that install an ERP whereas others, such as the one for human resource management, are adopted by only some companies. Sometimes a simply does not need a module. A service business for example, is unlikely to require the manufacturing module. In other cases the company choose not to implement a module because they already have a serviceable system for that particular function or they have a proprietary system that they believe provides unique benefits. In general, the greater the number of modules selected, the greater the integration benefits, but also greater the costs, risks, and changes involved.
- **Configuration tables:** A configuration table enables a company to tailor a particular aspect of the system to the way it chooses to do business. An organization can select, for example, what kind of inventory accounting - FIFO or LIFO - it will employ or whether it wants to recognize product revenue by geographical unit, product line, or distribution channel. SAP R/3, one of the more comprehensive and complex ERP packages, has more than 3,000 configuration tables.

  Although modules and configuration tables lets you customize the ERP system to some degree, your options will be limited. There might be instances when your specific requirements will not be met by the package. Then the company has two choices, neither of them ideal. It can actually rewrite some of the ERP's code, or it can continue to use an existing system and build interfaces between it and the ERP system. Both of these routes add time and cost to the implementation effort.

As a result, most companies installing an ERP system will need to adapt or even completely rework their processes to fit the requirements of the ERP system. The question is, Is it the best way of doing business? Do the system's technical imperatives coincide or conflict with the company's business imperatives?

Imagine, for example, an industrial products manufacturer that has built its strategy around its ability to provide extraordinary customer service in filling orders for spare parts. Because it is able to consistently deliver parts to customers 25% faster than its competitors - often by circumventing formal processes and systems - it has gained a large and loyal clientele who are happy to pay a premium price for its products. If, after installing an ERP, the company had to follow a more rational but less flexible process for filling orders, its core source of advantage may be at risk. The company may integrate its data and improve its processes only to lose its service edge and, in turn, its customers.

This danger becomes all the more pressing in light of the increasing ubiquity of ERP systems. It is now common for a single ERP package to be used virtually in every company in an industry. Such convergence around a single software package should raise a sobering question in the minds of CEO: How similar can our information flows and our processes be to those of our competitors before we begin to undermine our own sources of differentiation in the market?

Compaq computer is a good example of a company that carefully thought through the strategic implications of implicating an ERP system. Like many personal-computer companies, Compaq had decided to shift from a build-to-stock to a build-to-order business model. Because of the success of a build-to-order model hinges on the speed with which information flows through a company, Compaq believed that a fully integrated enterprise system was essential. At the same time, however, Compaq saw the danger in adopting processes indistinguishable from those of its competitors.

It realized, in particular, that in build-to-order environment an important advantage would accrue to any company with superior capabilities for forecasting demand and processing orders. Compaq therefore decided to invest in writing its own proprietary applications to support its forecasting and order-management processes. To ensure that those applications would be compatible with its ERP system, Compaq wrote them in the computer language used by its ERP vendor. Compaq saw the decision as a strategic necessity: it was the only way to protect a potentially critical source of advantage.

For companies that compete on cost rather than on distinctive products or superior customer service, ERP systems raise different strategic issues. The huge investment required to implement an ERP system at large companies - typically ranging from $ 50 million to more than $ 500 million - need to be weighed carefully against eventual savings the system will produce. In some cases, companies may find foregoing an ERP implementation may give them a cost advantage over competitors that are embracing the systems.

IV. ERP impact on an Organization

In addition to having important strategic implications, ERP systems also have a direct, and often paradoxical, impact on a company's organization and culture. On the one hand, by providing universal, real-time access to operating and financial data, the system allows company to streamline their management structures, creating flatter, more flexible, and more democratic structures. On the other hand, they also involve the centralization of control over information and the standardization of processes, which are qualities more consistent with hierarchical, command-and-control organizations with uniform cultures.

- **More Structured?** Some executives, particularly those in fast paced high-tech companies, have used ERP systems to inject discipline into their organizations. They see the systems as a lever for exerting more management control and imposing more-uniform processes on freewheeling, highly entrepreneurial cultures.

- **More Flexible?** But some companies have the opposite goal. They want to use their ERP systems to break down the hierarchical structures, freeing their people to be more innovative and more flexible. Union Carbide is standardizing its basic business transactions. Unlike many other companies, however, the leaders of its ERP project are already thinking in depth about how the company will be managed differently when the project is completed. They plan to give low-level managers, workers, and even customers and suppliers much broader access to operating information. Standardizing transactions will make Union Carbide more efficient, sharing real-time information will make it creative.

- **Common Systems**: For a Multinational corporation, ERP raises another important organizational question: How much uniformity should exist in the way it does business in different regions or countries? Some big companies have used their enterprise systems to introduce more consistent operating practices across their geographically dispersed units. Dow Chemical, for instance, became an early convert to enterprise systems because it saw them as a way to cut costs by streamlining global financial and administration processes. Some large manufacturers have been even more ambitious, using the systems as the basis for introducing a global lean-production model. By imposing common operating processes on all units, they are able to achieve tight coordination throughout their businesses. They can rapidly shift sourcing, manufacturing, and distribution functions worldwide in response to changing patterns of supply and demand. This capability allows them to minimize excess manufacturing capacity and reduce both component and finished-goods inventory.

Ownes Corning, for example, adopted an ERP system to replace 211 legacy systems. For the company to grow internationally, its chief executive, Glen Hiner, felt it was critical to coordinate order-management, financial reporting, and supply chain processes across the world. Having implemented the system and established a new

global-procurement organization, the company is now able to enter into larger, more advantageous international contracts for supplies. Finished-goods inventory can be tracked daily, both in company warehouses and in the distribution channel, and spare-parts inventory has been reduced by 50%. The company expects to save $65 million by the end of 1998 as a result of its adaptation of these globally coordinated processes.

V. Case Study of ERP Implementation at Elf Atochem

Elf Atochem North America, a $2 billion regional chemicals subsidiary of the French Company Elf Aquitaine, is a god case in point to prove that the companies deriving the greatest benefits from their systems are those that, from the start, viewed them primarily in strategic and organizational terms. They stressed the **enterprise,** and not the **system.** Following a series of mergers in the early 1990s, Elf Atochem found itself hampered by the fragmentation of critical information systems among its 12 business units. Ordering systems were not integrated with production systems. Sales forecasts were not tied to budgeting systems or to performance-measurement systems. Each unit was tracking and reporting its financial data independently. As a result of the many incompatible systems, operating data were not flowing smoothly through the organization, and top management was not getting the information it needed to make sound and timely business decisions.

The company's executives saw that an enterprise system would be the best way to integrate the data flows, and they decided to go with SAP's R/3 system, which was rapidly becoming the standard in the industry. They never viewed this project as simply a technology initiative. Rather, they viewed it as an opportunity to take a fresh look at the company's strategy and organization.

Looking beyond the technology, the executives saw that the real source of Elf Atochem's difficulties was not the fragmentation of its systems but the fragmentation of its organization. Although the 12 business units shared many of the same customers, each unit was managed autonomously. From the customer's perspective, the lack of continuity among units made doing business with the company difficult. To place a single order, a customer would frequently have to make many different phone calls to many different units. And to pay for the order, the customer would have to process a series of invoices.

Inside the company, things were equally confused. It took four days - and seven hand-offs between departments - to process an order, even though only four hours of actual work were involved. Because each unit managed inventory and scheduled production independently, the company was unable to consolidate inventory and scheduled production independently, the company was unable to consolidate inventory or coordinate manufacturing at the corporate level. More than $6 million in inventory was written off every year, and plants had to be shut down frequently for unplanned production-line changes. And because ordering and production systems were not linked, sales representatives could not promise firm delivery dates, which translated into lost customers.

The company decided to focus its efforts on four key processes: materials management, production planning, order management, and financial reporting. These cross-unit processes were the ones most distorted by the fragmented organizational structure. Each of the processes was redesigned to take full advantage of the new system's capabilities, in particular its ability to simply the flow of information.

Elf Atochem also made fundamental changes to its organizational structure. In the financial area, for example, all the company's accounts-receivable and credit departments were combined into a single corporate function. This change enabled the company to consolidate all of a customer's orders into a single account and issue a single invoice. It also allowed the company to monitor and manage overall customer profitability - something that had been impossible to do when orders were fragmented across units. In additional customer-service departments were consolidated into one department, providing each customer with a single point of contact for checking on orders and resolving problems.

The system gave the organization real-time information it needed to connect sales and production planning-demand and supply - for the first time. As orders are entered or changed, the system automatically updates forecasts and factory schedules, which enables the company to quickly alter its production runs in response to customer needs. Only one other company in the industry has this capability, which meant Elf Atochem gained an important edge over most competitors.

The company understood, however, that just having the data doesn't necessarily mean the data will be used well. Computer systems alone don't change organizational behavior. It therefore established a new position - demand manger - to be the focal point for the integrated sales and production planning process. Drawing on the enterprise system, the demand manger creates the initial sales forecast, updates it with each new order, assesses plant capacity and account profitability, and develops detailed production plans. The demand manager is able to schedule a customer's order - and promise a delivery date - up to six weeks ahead of production. Previously, production could be allocated to individual orders no more than a week in advance.

The way Elf Atochem is managing the implementation effort also reflects the breadth of its goals. The project is being led by a 60 person core implementation team, which reports to a member of the company's executive committee. The team includes both business analysts and information technologists, and is assisted by a set of so-called super users, representing the business units and corporate functions. These super users help ensure that decisions about system's configuration are made with the broadest possible understanding of the business. They also play a crucial role in explaining the new system to their respective departments and training people in its use.

The team is installing the Enterprise System one business unit at a time, with each unit implementing the same system configuration and set of procedures for order processing,

supplier management, and financial reporting. The unit-by-unit process ensures that the effort is manageable, and it also helps the team to refine the system and the processes as it proceeds. For example, the second unit to implement the system found that it didn't adequately support bulk shipments, which are the main way the unit gets its products to customers. The system was then modified to support bulk as well as package shipping, and the new configuration became the new standard.

Using the large and broadly representative implementation team, together with the unit-by-unit rollout, Elf Atochem has been able to staff the effort mainly with its own people. It has had to engage only nine outside consultants to assist in the project - far fewer than is usually the case. The reliance on internal resources not only reduces the cost of implementation, it also helps ensure that Elf Atochem employees will understand how the system works after the consultants leave..

Elf Altochem's ERP is now more than 75% complete - 9 of the 12 business units are up and running the new system - and the roll-out is ahead of schedule and under budget. Customer satisfaction level have already increased, and the company is well on the way to its goal of confirming 95% of all orders with one call, a dramatic improvement to the service enhancements, the company is operating more efficiently. Inventory levels, receivable, and labor and distribution expenditures have all been cut, and the company expects the system will ultimately reduce annual operating costs by tens of millions of dollars.

VI. Case Study of ERP Implementation at Fanuc Robotics Inc.

Study of a ERP implementation at FANUC Robotics, North America, Inc. Rochester Hills, Michigan

I conducted a study of a successful ERP implementation at Fanuc Robotics Inc. This was done through interviewing company executives and researching FANUC Robotics web-site for background information. Here are my findings

Company/ Industry specific information:

Type of Company?

FANUC Robotics North America, Inc. is an automation company dedicated to improving customer's productivity. FANUC Robotics offers total automation solutions for assembly, painting, palletizing, packing, welding, dispensing, cutting, laser processing and material handling applications.

Part of a wholly owned subsidiary of FANUC LTD, the world's most foremost robot manufacturer, part of a robotics team that combines worldwide experience and expertise to form the world's leading supplier of robot systems.

After more than 15 years of industry accomplishments, FANUC Robotics remains the leader and continues to seek innovative methods to help manufacturers face the growing challenges of global competition.

The company has this mission: FANUC Robotics is dedicated to leadership in improving customer productivity by providing superior quality robotics process solutions for an industrial environment. This is accomplished through innovative employees, empowered and dedicated to customer satisfaction and corporate performance.

Its corporate objective: Exceed customer expectations with performance and quality Best process solution for the customer, Market leadership with growth and profitability. '

Line of Business? Sales, distribution, service, systems integration of robots and robotics automation systems. FANUC's solutions cover assembly, painting, palletizing, packing welding, dispensing, cutting, laser processing, material handling and other emerging applications.

Financial Picture: Under 500M revenue organization with about 1200 employees

Facility Facts: North America's largest robot technology development center located on 56 acres of oak forest, Complete in-house resources to concept, design, build and debug each system before shipment, Advanced paint booth capability for automotive and process development, Over 150 qualified development and process application engineers 24-hour service hot line, Training facilities which have graduated more than 30,000 users/customers, Construction is currently underway for a new 102,000 square-foot Customer Technology Center.

Existing Legacy systems within the organization

Various types of existing legacy systems?

PRAXA, UDMS, STS (sales tracking), ETS (engineering tracking), PTS (purchase & traffic), PPS (product & parts)

What is the Hardware/Software platform?

VAX

Need for ERP package and Business Case for ERP package Implementation

History of how the Business Case was developed to implement an ERP package within the company?

Existing system was not designed to meet future information needs. External consultant was brought in to evaluate several packages. Baan was selected to be more suitable for our company.

What modules were selected to be implemented?

Project Management, Systems Engineering, Contract Administration, Order Execution System Quotation, Product Development, Personnel, Finance etc.

Methodology adopted for implementation

How was implementation achieved?

Dedicated internal groups were selected to the design the system modules under the guidance of Baan experts. The COO was directly involved in supervision and implementation of the system. All employees were trained on Baan prior to implementation of the system.

Use of Internal/External resources

External experts were hired to assist in the development of the modules and conversion of data from legacy system to Baan. Internal teams did the rest of the work.

Time-line for ERP package implementation

How long and in what sequence was the ERP package implemented?

Planning, design, test run, conversion of data, training of employees, implementation of a pilot system and final implementation was the sequence. It took about one year to complete the project.

Resources requirements

What sort of staffing was required to do the implementation?

CIS and internal staff from variety of functional groups were teamed up for implementation.

What percentage of internal Vs external consultants used?

Mostly external consultants were used for evaluation and direction. Implementation was handled by internal staff.

Organization structure/process/technology platform changes brought about by ERP implementation

Did any changes occur with respect to the organization structure after the ERP implementation?

Some. Order entry, execution and CIS support groups were reorganized. No major changes in organization structure occurred.

What was the Hardware platform on which the ERP implementation took place?

PCs (laptops & desktop's) with W95 or NT

How were the users trained to use the ERP package?

Internal CIS staff who were trained to provide internal training.

Cost Benefit analysis of successful implementation

Quantifiable cost/benefit analysis taken up to justify the business case for the ERP implementation ?

Not available.

Lessons Learned from successful ERP implementation
What are some of the lessons learned with respect to the implementation? (What, if any, could have been done differently to improve Cost/Time/Quality of delivery?)

Too early to evaluate success. Initial impression is that the system is better than the old system. Lack of experience with the internal process resulted in re-design of some modules. We are still getting used to the system after 3 months since implementation. The general feeling is that the system will

VII. Critical Success Factors

Every company that installs an ERP, as did Elf Atochem and also FANUC Robotics Inc., struggles with its cost and complexity. But the biggest problems are those that install an ERP without thinking through its full business implication.

Managers may well have good reasons to move fast. They may, for example, have struggled for years with incompatible information systems and may view an ERP as a silver bullet. They may be looking for a quick fix to the Year 2000 problem, or they may be trying to keep pace with a competitor that has already implemented an ERP. The danger is that while an enterprise system may help them meet their immediate challenge, the very act of implementing it may create even larger problems. A speedy implementation of an ERP may be a wise business move; a rash implementation is not.

A number of key questions should be answered before any decisions are made. How might an ES strengthen our competitive advantages? How might it erode it? What will be the system's effect on our organization and culture? Do we need to extend the system across all our functions, or should we implement only certain modules? Would it be better to roll the system out globally or restrict it to certain regional units? Are there other alternatives for information management that might actually suit us better than an ERP?

The experience at Elf Atochem and FANUC Robotics, and other successful adopters of enterprise systems underscores the need for careful deliberations. It also highlights the importance of having top management directly involved in planning and implementing an ERP system.

Many chief executives, however, continue to view the installations of an ERP system as primarily a technological challenge. They push responsibility for it down to their information technology department. Because of an ERP's profound business implication - and, in particular, the risk that the technology itself might undermine a company's strategy - off-loading responsibility to technologists is particularly dangerous. Only a general manger is equipped to act as the mediator between the imperatives of the technology and the imperatives of the business. If the development of an ERP system is

not carefully controlled by management, management may soon find itself under the control of the system.

VIII. Cost Benefit Analysis of ERP Implementation

In both the case studies outlined we don't have any cost benefit analysis done consciously before the ERP implementation. Some of the logical steps involved to develop a sound cost benefit analysis for an ERP system implementation will involve:

Building a sound, cost-based business case for ERP entails extracting the savings that depend on ERP alone from the total savings to be had from ERP together with other sources. The process could involve these steps:

- Create a base case of year-by-year savings from cost cuts that could be made without the ERP system implementation.
- Create an ERP case of year-by-year savings that could be made with the ERP implementation. This should include savings that do not depend on ERP (the base case of step 1) as well as those that do.
- Subtract the base-case savings (step 1) from the ERP-case savings (step 2) on a year-by-year basis, and calculate the net present value (NPV) of the residual cashflow. A positive NPV will indicate that you should probably proceed with the deployment of ERP.

IX. Trends

A. Forecast of ERP market

The ERP software market will grow at the rate of 37 percent over the next five years, according to AMR Research Inc., of Boston. The firms "Enterprise Resource Planmng Software Report, 1997-2002" concludes that total company revenue will top $52 billion by 2002. This conclusion contradicts those of other forecasters who believe enterprise resource planning demand has been artificially stimulated by Year 2000 concerns.

"Given the time it takes to select and implement these major systems, companies have already passed the Y2K deadline," says Tony Friscia, president of AMR Research. We believe that most Global 1000 firms are well advanced in their ERP deployments and will now seek to extend ERP and related applications throughout their global supply chains.

AMR Research attributes the continued growth to the fact that ERP vendors are continuing to expand machete presence by offering new applications such as supply chain management, sales force automation, customer support and human resources. The report concludes the ERP market will continue to be one of the largest, fastest-growing and most influential in the applications industry into the new millennium.

B. "Bolt-on" to ERP packages

Despite all the hoopla surrounding ERP, the fact remains that early versions of the systems didn't actually do much. Users found that, while ERP compiled vital information into a single, companywide system, these solutions lacked functionality in key areas, such as transportation planning, inventory management, shop floor control, and electronic commerce.

These gap has spawned a new breed of software, known as supply chain management software, the most popular of which is Advanced Planning and Scheduling (APS) applications from companies such as i2 Technologies Inc., Manugistics Inc., and IMI Corp. These supply-chain planning applications take in the data from ERP orders or past sales history and create forecasts to help companies plan demand.

APS packages which "bolt-on" to an ERP system, is the next-generation of material requirements planning (MRP) technology. MRP and its successor promised to better control and order to the manufacturing floor. However, these systems operated under the assumption that companies have an infinite amount of manufacturing capacity, labor, and time.

APS software, on the other hand, takes into account constraints of real-world manufacturing environments, allowing buyers, materials managers, and production planners to develop realistic schedules that can fulfill new orders with existing resources.

C. Tools Suite to Analyze ERP Data

Concept Information Systems and MicroStrategy Inc. have recently announced release of Q-Manufacturing, a tools suite to help companies access and analyze data in their enterprise resource planning systems.

Q-Manufacturing uses Concept's middleware to extract and format data from ERP and transaction-management systems, including those from Baan, Manugistics, and SAP. MicroStrategy's DSS Suite then lets companies apply decision support, which helps users ?reduce costs, analyze sales and marketing data to locate the best customers, and look at operation data to trim processes and speed up development and delivery," says Philip Russom, a senior analyst at the Hurwitz Group.

Clairol Inc. in Stamford, Conn., plans to use Q-Manufacturing to analyze data across multiple systems, including Manugistics and SAP. Clairol wants to better understand customer demand so it can predict how to adjust production.

"You get an awful lot of information from ERP systems, but you can't slice it and dice it like you can with decision-support systems," says Kathy Shea, director of operations at Clairol." Q-Manufacturing allows us to understand demand-and hopefully anticipate it a lot better.

Q-Manufacturing includes extraction routines, a data warehouse and data marts, and data movement and data warehouse population routines, so users can move the ERP data into the data warehouse. It also includes analytical templates and modules for capacity planning and analysis, forecasting, production and schedule analysis, and an ?executive dashboard? template that lets senior managers view the information critical to them, according to Concept. Concept Information Systems and MicroStrategy Inc. this week will jointly release Q-Manufacturing, a tools suite to help companies access and analyze data in their enterprise resource planning systems.

D. ERP Outsourcing Post-ERP Trend

The demand by IS shops for enterprise resource planning consulting and implementation services has been strong for several years. But many businesses, faced with a lack of IT staffing, are now turning to ERP vendors and services firms to help with the ongoing management and maintenance of their ERP software and hardware.

Post-implementation ERP services were a welcome solution for Denis Wilson, IT manager at Energetic Solutions Inc., a $230 million explosives company in Dallas. Wilson is Energetic's sole IT staffer. Because of its limited resources, Energetic outsourced the applications management and infrastructure operations of its SAP R/3 software to systems integrator Origin Technology in Business Inc. after Origin completed the R/3 implementation in the summer of 1997. Without Origin, we would've had to hire more IT people to support the installation, and that wasn't part of our strategy,? Wilson says.

Energetic's approach indicates an emerging trend, analysts say. Historically, most businesses have easily acknowledged the need for outside help to design and implement their ERP systems, but many don't initially realize that it's just as complex to manage these applications.

"Many companies just don't have the resources to manage their ERP systems", says Allie Young, principal analyst at Dataquest. It's difficult to train internal IS people to do this, and it's even more difficult to keep them once they're trained. This situation is fueling demand for post-implementation outsourcing services-either at the customer site, or through remote management. According to Dataquest, the U.S. market for post-implementation ERP management services will grow from $758 million at the end of last year to $3.7 billion by 2002.

Among the drivers for these services has been the year 2000 crisis, van der Meer says. "With stretched resources, customers are looking for ways to off- load their IT problems in order to focus on year 2000 fixes."

Outsourcing the management of ERP systems helps businesses free IT resources to focus on the next set of technology and business challenges, such as Web initiatives and European currency conversion. The rate of change for technology is high, says Vinnie

Mirchandani, an analyst at Gartner Group Inc. If companies can outsource operations related to their ERP systems to help IT resources keep up with other changes, many will.

E. Electronic - Commerce

PeopleSoft Inc. announced last week an electronic business road map aimed at providing more avenues for companies to interact with their customers and suppliers on the Web. The company's E-Business strategy, unveiled at the PeopleSoft User Group conference here, will offer software and services that provide new, electronic commerce transaction capabilities and will give users access to Web content in areas such as employee benefits, procurement, payroll and profile management.

The main elements of the program include creating a PeopleSoft e-business system backbone, expanding the number of business processes that PeopleSoft ERP (enterprise resource planning) software can perform, and offering a program for managing and integrating content from other vendors' products into PeopleSoft applications.

The so-called E-Business Backbone will be created by enhancing current PeopleSoft applications with electronic data interchange, messaging technology and APIs, said officials from the Pleasanton, Calif., company.

E-Business Extensions will expand the range of business processes available to PeopleSoft customers. The first extension, dubbed Communities, will offer employee self-service applications for activities including benefits enrollment and payroll management. It will be announced in the first half of 1999 and delivered later in the year. Subsequent E-Business Extensions will focus on improved selling over the Web and electronic supply chains.

F. Beyond ERP

U.S. companies toiled for years and spent billions of dollars installing enterprise resource planning systems to automate key back-office business processes. But the ERP movement is far from over. A second, more powerful wave of ERP development promises to increase efficiency in handling transactions, improve decision-making, and further transform ways of doing business.

Now being built onto ERP platforms are applications more attuned to engaging customers and driving profits than the manufacturing, financial, and human resources apps that first defined the market. Some of these post-ERP apps-such as sales-force automation, customer-relationship management, data mining, and supply-chain management systems-have already emerged. Newer ERP add-ons focus on areas such as demand planning, component management, product data management, and transportation management.

A recently published Merrill Lynch forecasts sales of adjunct systems will reach $8 billion by 2002. Some of the emerging areas will be:

Optimization Systems:

- Demand planning
- Manufacturing planning and scheduling
- Supply planning and scheduling
- Transportation planning

Execution Systems:
- Component and supplier management
- Customer facing
- Enterprise asset management
- Manufacturing execution
- Product data management
- Warehouse management

Enterprise Information Systems:
- Analytical applications
- Data marts
- Data mining
- Data warehouse
- Knowledge management

X. Appendix

Appendix A: The Scope of an ERP System

Appendix B: Anatomy of an Enterprise System

Appendix C: ERP System Integrators: Some Basic Data (Logo Partners)

Appendix D: SAP.continuing to drive ERP market

Appendix E: ERP Total Market

Appendix F: Hoover Financial reports on SAP, Peoplesoft, Baan and Oracle

Appendix G: Bibliography and References

Appendix: A

The Scope of an ERP system

An enterprise system enables a company to integrate the data thoughout its entire organization. Ms list shows some of the many functions supported by SAP s R/3 package.

Financials
Accounts receivable and payable
Asset accounting
Cash management and forecasting
Cost-element and cost-center accounting
Executive information system
Financial consolidation
General ledger
Product-cost accounting
Profitability analysis
Standard and period-related costing

Human Resources
Human-resources time accounting
Payroll
Personnel planning
Travel expenses

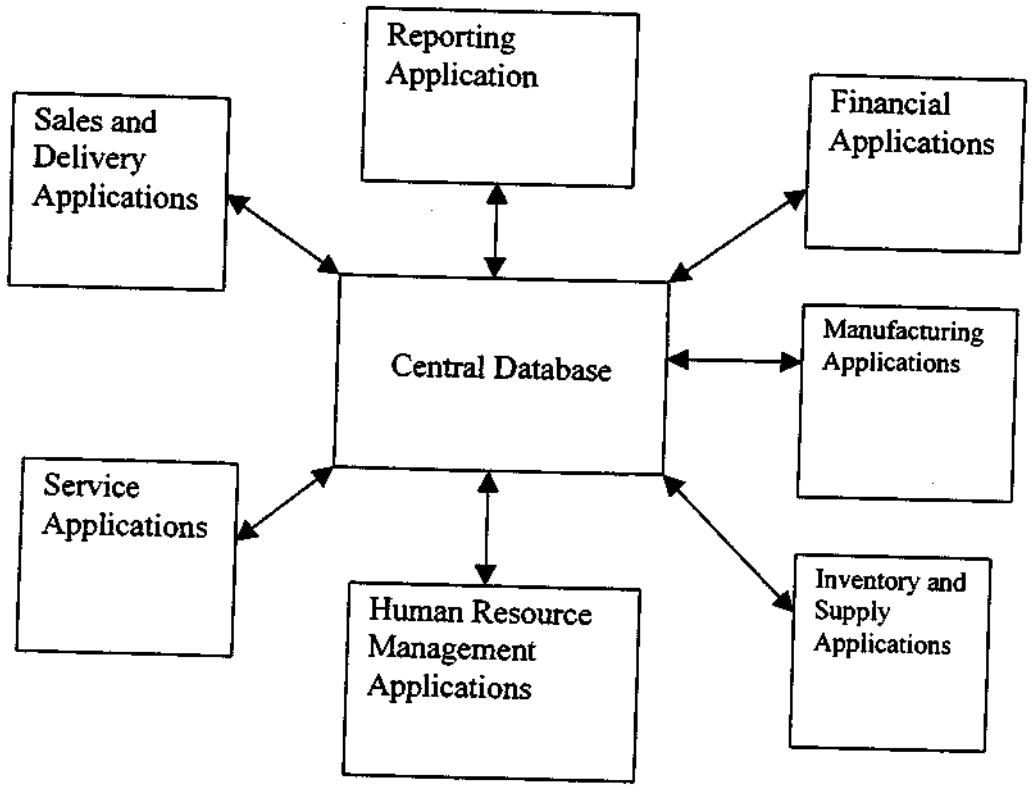
Operations and Logistics
Inventory management
Material requirements planning
Materials management
Plant maintenance
Production planning
Project management
Purchasing
Quality management
Routing management
Shipping
Vendor evaluation

Sales and Marketing
Order management
Pricing
Sales management

Appendix: B

Anatomy of an Enterprise System

At the heart of an enterprise system is a central database that draws data from and feeds into a series of apphcations supporting diverse company functions. Using a single database dramatically streamlines the flow of information throughout the business



Appendix: C

ERP System Integrators: Some Basic Data (Logo Partners)

Firm	# of projects	# of consultants	Contact information	Clients
Andersen Consulting	150	3,700	200 Public Square Suite 1900, Cleveland, OH: 44114 Ph: 216-771-2195, Fax: 216-771-2294	Hewlett Packard, Amoco, Polaroid, Bay Networks, NEC TDS
Cap Gemini	500	2,000	5847 Fan Felipe, Suite 990, Houston, Texas: 77057, Ph: 713-307-7900	NA
Coopers & Lybrand	600	2,000	600 Lee Road, Suite 200, Wayne, PA: 19087, Ph: 610-993-5242, Fax: 610-993-5200	NA
CSC	100	750	2105 Spring Road, Suite: 660, Oakbrook, IL 60523, Ph: 630-472-1447, Fax: 630-574-1350	Chicago, NBD, ADC Telecommunications, Mobil
Deloitte & Touche	200	2,200	Chadds Ford Business Campus, Brandwine 5 Building, Chadds Ford, Pa 19317, Ph: 610-558-3900 Fax: 610-558-7200	NA
Digital	1,500	3,000	5555 Windward Parkway West, Alpharetta, GA 30201, Ph: 770-343-5059, Fax: 770-343-1755	NA
EDS/AT Kearney	100	700	972-605-0081	NA
Ernst & Young	150	2,000	2001 Market Street, Suite 4000, Philadelphia, PA	Buckeye Cellulose, Oklahoma, Gas & Electric, Hoechst, Celanese

IBM Consulting	200	3,000	IBM Global Services	Manfred Gerken, Elf Atochem, Micro Software Group, Seattle Times, IBM
KPMG	75	1,000	One Radnor Corporate Center, Suite 500, Radnor, PA 19087, Ph: 610-995-4405, Fax: 610-995-4436	Apple Computer, Amstrong, BMW, Deutsche Bank, Federal Express, Fujitsu, Motorola
Origin	75	1,300	Imperiastraat 12, B-1930 Zaventum Belgium	Procter & Gamble, AT&T, Shell, KLM, Ericsson
Plaut Consulting Inc	800	500	1100 Winter Street, Suite 2300, Waltham, MA: 02154, Ph: 617-768-0500, Fax: 617-768-0508	NA
Price Waterhouse	215	3,500	1306 Concourse Drive, Suite 501, Linthicum, MD: 21090	Anheuser-Busch, Bristol-Myers Squibb, Motorola, Samsung, Sara Lee
Siemens Nixdorf	1,000	2,000	200 Wheeler Road, Burlington, MA: 01803, Ph: 617-313-3668, Fax: 617-313-4232	Adidas, Bayer, Redland Dakproduckten, B.V., Electcoms Mobil, Jetmoli
SAP	400	3,000	1-800-872-1727	NA

Appendix: D

SAP: continuing to drive ERP market

The enterprise resource planning (ERP) software market is one of the most exciting segments of the IT business today. Fed up with costly and unreliable custom systems development, corporations round the world are embracing "off-the-shelf software that can be customized to meet the specific needs and requirements necessary to manage logistics, supply chains, financial, and human resources functions - all in an integrated manner SAP is the undisputed market leader in this segment (see Figure 1), and the world's largest consulting firms have raced to embrace the German software company, seeking to provide the encompassing services that every SAP installations requires.

The excitement surrounding SAP was apparent at the company's annual user conference - Sapphire - held in August in Orlando, Florida, where at least 10,000 people showed up to hear about the latest product releases and try to differentiate between the slew of SAP partners vying for the accompanying consulting services and add-ons of nearly every product sale. Over 200 vendors (not including SAP) participated at the conference, illustrating the strong trickle-down effect normally apparent with IT powerhouses such as IBM, Hewlett-Packard, Digital and Microsoft.

According to David Frost, who heads Coopers & Lybrand's SAP practice - and who expects to be busy integrating the software package "until at least 2005" - corporations have embraced SAP for several reasons, including client-server, ease of customization, breadth and depth, and international applicability (currencies and languages).

SAP provides the backbone for integrated inventory, materials, and finance functions in an integrated manner. Contrasts this with the disparate "islands of information' characteristic of centralized mainframe environments and the appeal of SAP can be readily understood. Executive management is attracted to SAP because of the integrated reporting that can be achieved: key data can be rolled up into comprehensive reports for accounting and analysis. And, like IBM years ago, "no one gets fired for implementing SAP" today.

Today, SAP boasts over 5,000 corporate clients and 500,000 users of its latest software, SAP R/3. Though SAP offers a cookie-cutter software package tailored to a specific industry and functions that requires less engineering than a customized application, it nevertheless less requires an army of consultants to facilitate successful implementation. SAP integration often involves reengineering, change management, and training, in addition to the expected system analysis, design and configuration. In fact, many consultants contend that the configuration only accounts for approximately 20 /o ot toe project; the majority of time is spent on other tasks. The result: a consultant's dream Estimates place the consulting dollar expenditure at anywhere between 2X and 10X the actual software cost. Installations currently underway at two major US manufacturers will total US $250 million and US $350 million when all is said and done. And,

considering SAP updates are now occurring about every 18 months, the long-term downstream opportunities are also considerable.
The market is also extending beyond IT consultants and reaching into the board-room. Because the capital expenditures are significant, the highest level of an organization are often required to buy into the concept, and, of course, sign the check. As a result, high-end strategy firms such as McKinsey & Company, Mercer Management Consulting and Booz-Allen & Hamilton are being solicited by SAP to gain a better understanding of its product, services and partners, in hopes of offering valuable recommendations in favor of implementing R/3.

The market for SAP services today is approximately US $5 billion; by the year 2000, Gartner Group expects it to be US $15 billion market. SAP has added new industry packages in recent years, expanding beyond its foundation of primarily manufacturing-oriented packages to offer 15 tailored solutions.

Some contend that SAP's 20% penetration of its global 2,500 target list suggests plenty of room for growth. But others believe the long-term outlook will be tougher. Many installations being pursued today are to circumvent the pesky Year 2000 issue. Though SAP is dedicating considerable R&D to non-Year 2000 initiatives, these critics contend that growth will simmer as many corporations look to garner returns on their pre-Year 2000 investments.

The partnership structure

SAP categorizes its consulting firm relationship into three tiers:

- Global Logo Partners: firms serving Global 1,000 enterprises (See Figure 2)
- National Partners: large firms with resources and capabilities to provide SAP support services throughout one particular country
- Implementation Partners: firms providing more localized or specialized SAP support, such as in one region of a country or in a specific industry

The Logo Partners are readily identifiable names in the consulting community. It didn't take these firms long to recognize the role ERP packages - and SAP in particular- were going to play in the marketplace. Kennedy Research group estimates the Logo partners and SAP's internal consulting group now account for about 80% of the total SAP consulting marketplace. This, however, is expected to change with the new focus on smaller ($200 million -$2 billion) corporations and as SAP's partner list continues to expand. Familiar names such as Kurt Salmon Associates, Arthur Andersen and Grant Thornton are on this list, focusing on specialty vertical industry segments (retail, KSA) and the middle markets (AA,GT).

National and implementation partners are firms that focus on country-specific or smaller corporations, All told, SAP boasts a global network of over 20,000 certified SAP consultants.

The marketplace

On the international scene, a battle is brewing between Andersen Consulting (AC) and Price Waterhouse (PW) for the top spot among the independent providers focused strictly on consulting services. Both AC and PW offer a broad range of services and truly global capabilities, which is necessary to capture the full market as SAP's growth is more rapid in the world's emerging markets.

Today, Price Waterhouse is the recognized force in the United States: Andersen Consulting is strongest in Europe. The battle for global superiority will occur over next three years. PW's has lofty goals; to triple the size of its practice by the year 2000. Notably, the firm is willing to take on value-based or risk-sharing pricing contracts in SAP projects in order to help facilitate growth. The C&L/PW merger means a combined SAP practice of 5,000 consultants, by far the largest in the world.

The middle market is also receiving more attention from SAP and its partners today. Arthur Andersen's recent announcement with SAP and Microsoft is notable in that the target is medium sized (US $200 million - US $2 billion in sales) corporations.

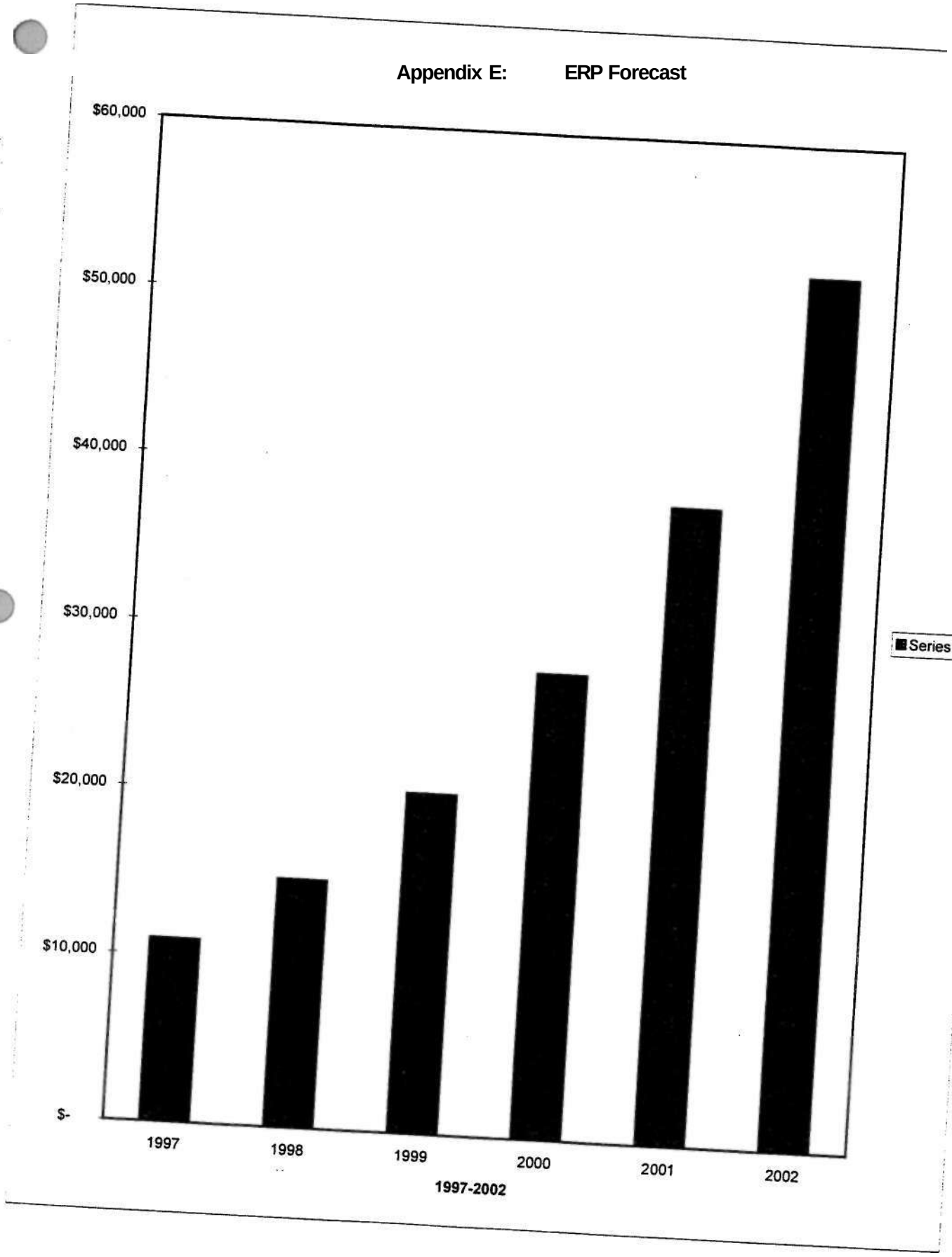
Success is elusive

Despite rapid market growth and prosperity by SAP and its consulting partners, project success is challenging. For the same reason SAP is appealing - its packaged delivery - its integration is quite complex and requires experienced, savvy consultants. Gartner Group predicts that "15% of all package implementation projects that are currently underway and that us consultants will run more than 25% over cost and time budgets."

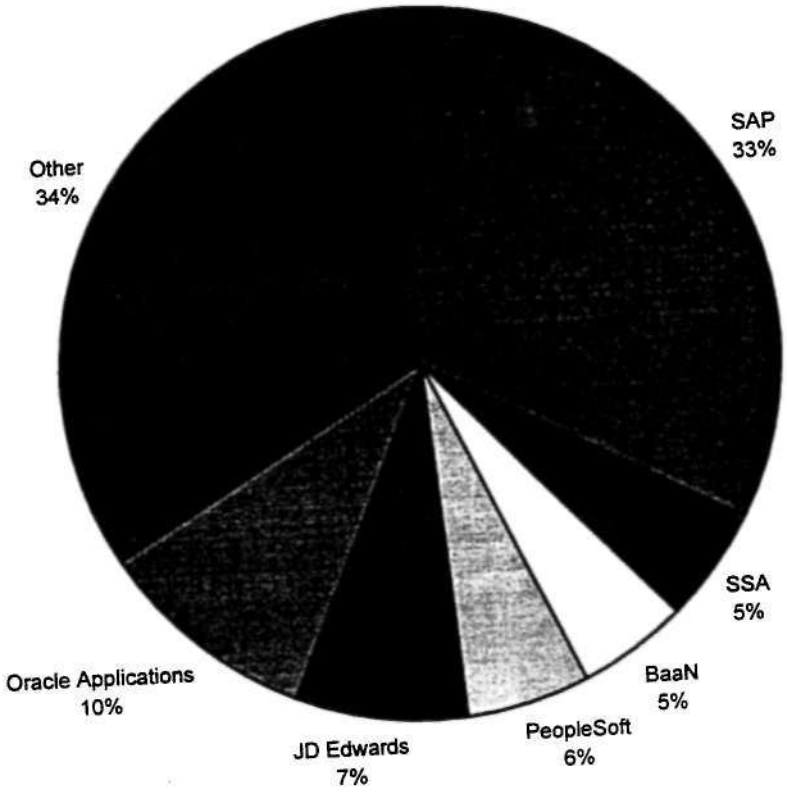
In customary fashion, the consultants have developed hundreds of proprietary methodologies and processes to facilitate successful integration. These include everything from preliminary software package selection to process redesign to training. Indeed, the market encompassing SAP software is lucrative.

In light of SAP's tremendous success, it is no surprise that competition has sprung up in the ERP market. Leaders in this segment have grown at impressive rates over the past few years, and continue to yield strong results.

Appendix E: ERP Forecast



Appendix E: ERP Total Market - 1996



SAP AG

OVERVIEW

Die US ist das Mutterland der Datenverarbeitung — the US is the motherland of data processing. That may be true, but it's Walldorf, Germany-based SAP that makes the mother of all bookkeeping programs, known as enterprise resource planning software. The company, the world's fourth-largest independent software firm (after Microsoft, Oracle, and Computer Associates; Microsoft and IBM are #1 and #2 overall) and the only top 10 developer not based in the US, makes its R/3 software for corporate networks. The software helps small and midsized firms worldwide manage their financial, human resource, production, distribution, and other processes. More than 80% of its sales come from outside Germany.

Although SAP dominates the enterprise client/server software market, challengers such as Oracle are trying to win over customers by pointing out potential weaknesses in R/3. The product, they claim, is hard to install, customize, or integrate with existing software systems. Despite the complexity of the program and the multimillion-dollar expense of installation, SAP's R/3 software is used by 8,500 companies, including Chevron, GM, Microsoft, and Nestle.

To stay ahead, SAP has added Internet and telephone capabilities to its R/3 software. It has also drafted a team of in-house consultants to manage installation and implementation problems (more than 30% of its sales come from such services).

SAP is far from the typical German company. An entrepreneurial sense pervades its small-town headquarters, giving it an almost Californian feel. While most German employees wear suits to work, SAP's offices are more casual, with employees donning sandals and choosing their own schedules. Three of SAP's founders — led by multibillionaires Hasso Plattner and Dietmar Hopp — control about two-thirds of the company.

HISTORICAL FINANCIALS & EMPLOYEES

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Sales ($ mil.)	101	217	333	465	513	634	1,182	1,875	2,415	3,345
Net income ($ mil.)	14	40	53	81	78	84	181	281	367	513
Income as % of sales	13.8%	18.6%	15.8%	17.4%	15.2%	13.2%	15.3%	15.0%	15.2%	15.3%
Employees	—	1,367	2,138	2,685	3,157	3,648	5,229	6,857	9,202	12,856

HEADQUARTERS

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Fax: +49-6227-7-57575
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US Phone: 610-355-2500
US Fax: 610-355-2501
Web site: http://www.sap.com

KEY NUMBERS

NYSE: SAP
Fiscal Year-End: December

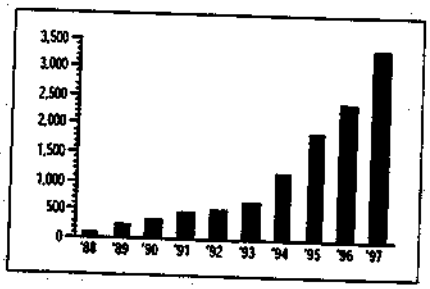
1997 Sales ($ mil.): $3,345.5
1-Yr. Sales Growth: 38.6%

1997 Net Inc. ($ mil.): $513.1
1-Yr. Net Inc. Growth: 39.7%

1997 Employees: 12,856
1-Yr. Employee Growth: 39.7%

SALES HISTORY

($ mil.)



ABOUT HOOVER'S

Hoover's, Inc., a leading publisher of company information, covers more than 13,000 public and private enterprises worldwide.

HISTORY

Software engineers Hans-Werner Hector, Dietmar Hopp, Hasso Plattner, and Klaus Tschira started SAP in 1972 when the project they were working on for IBM was being moved to another unit. The four agreed to write a program for IBM customer Imperial Chemical Industries (UK), and SAP (named for the IBM project they left — Systems, Applications, and Projects) was formed.

Set up in a cornfield, the group worked nights on borrowed computers until business picked up. While rival software firms made multiple products to automate the various parts of a company's operations, the engineers decided from the start to make a single system that would tie a corporation together. Their first year they launched a real-time accounting transaction processing program called R/1. Seven years later they adapted the program to create R/2 mainframe software, used to link a company's external databases and communication systems.

The company went public in 1988. That year it began a massive R&D project, led by Plattner, to create software for the client/server market. In 1992, as sales of its R/2 mainframe software lagged, SAP introduced its R/3 client/server software.

Still basically a stranger outside Europe, SAP built a technology development center that year in Foster City, California, to attract attention from the Silicon Valley crowd. To support the push into the US, the company launched a $2 million advertising campaign in 1993 (though it wasn't supported by the board). The gamble paid off as sales soared past projections, making the company the world's leading developer of client/server software. Also in 1993 SAP introduced a Japanese version of R/3 and allied with Microsoft to make R/3 compatible with Windows NT.

By 1995 the US had become SAP's largest market. Charismatic and competitive co-chairman Plattner instilled an Americanized way of running companies (open-door policies, mingling with employees in the cafeteria at lunch) that began to be emulated across Europe. That year SAP teamed with Microsoft, Netscape, and Sun Microsystems to make R/3 software Internet-compatible.

SAP opened an office in Singapore in 1996 to boost the company's presence in Asia. That year, apparently unwittingly, co-founder Hector signed away control of about 10% of SAP's common shares, possibly undermining takeover barriers. In 1997 the company created a joint venture with Intel, called Pandesic, to help small and midsized businesses conduct commerce via the Internet. SAP Systems Integration GmbH, a joint venture with #2 German software firm Software AG, was formed to provide support services for SAP software. In 1998 SAP moved to the NYSE.

OFFICERS

Chairman, Supervisory Board: Dietmar Hopp
Co-Chairman, Executive Board: Henning Kagermann
Co-Chairman, CEO Executive Board: Hasso Plattner
Deputy Chairperson, Supervisory Board: Helga Classer
Executive, Human Resources Development: Michael Gioja
Executive, Logistics Development: Claus E. Heinrich
Executive, R/3 Services, Training, and Internal Systems: Gerhard Oswald
Executive, Basis Development: Gerhard Rode
Executive, Logistics Development and Industry Solutions: Peter Zencke
CFO: Dieter Matheis
CEO, SAP America: Kevin McKay
Manager Basis Development: Karl-Heinz Hess
Manager Sales, Germany: Paul Neugart
Auditors: Arthur Andersen

CONTACT HOOVER'S

We invite your comments. Call, write, or visit our Web site:

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Tel: (512) 374-4500 Fax: (512) 374-4501
Web: Hoover's Online at www.hoovers.com

LOCATION

SAP has offices and subsidiaries in more than 90 countries.

1997 Sales

	$ mil.	% of total
Europe		
Germany	638	19
Other countries	776	23
Americas	1,443	43
Asia/Australia	436	13
Africa	52	2
Total	**3,345**	**100**

PRODUCTS/OPERATIONS

1997 Sales

	$ mil.	% of total
Product sales	2,278	68
Consulting	696	21
Training	322	10
Other	49	1
Total	**3,345**	**100**

Selected Products

R/2 (software for mainframes)
R/3 (software for client/server systems)

KEY COMPETITORS

Baan
Computer Associates
Inprise
J.D. Edwards
Lawson Software
MAPICS
Oracle
PeopleSoft
Progress Software
SAS Institute
SOFTWARE AG
Sybase
System Software Associates

SAP AG

NYSE: SAP **Fiscal Year-End:** December

Data Definitions

COMPANY CAPSULE | COMPANY PROFILE ★ | FINANCIALS | NEWS

Stock Price Data | Annual Financials | Investor Resources | Delayed SEC Filings (EDGAR Online) | Real-time SEC Filings (EDGAR On

★ Hoover's Online members have access to Real-time SEC Filings and In-depth Financials Market Data, Comparison Data, Detailed Annual Financials, Detailed Quarterly Financials, a Financials. Find out how to join now.

INCOME STATEMENT All dollar amounts in millions except per share amounts.	Dec. 97	Dec. 96	Dec. 95
Revenue	3,345.5	2,414.6	1,875.4
Cost of Goods Sold	--	--	--
Gross Profit	--	--	--
Gross Profit Margin	--	--	--
SG&A Expense	--	--	--
Operating Income	--	--	--
Operating Margin	--	--	--
Net Income	513.1	367.3	280.5
Profit Margin	15.3%	15.2%	15.0%
Fully Diluted EPS ($)	--	--	--

BALANCE SHEET ($ mil.)	Dec. 97	Dec. 96	Dec. 95
Cash	554.5	478.4	228.0
Net Receivables	--	--	--
Inventories	--	--	--
Total Current Assets	2,069.2	1,631.6	1,003.2
Total Assets	2,818.9	2,184.3	1,542.8
Short-Term Debt	--	--	--
Total Current Liabilities	1,087.9	723.4	455.3
Long-Term Debt	2.8	5.7	14.3
Total Liabilities	1,116.3	749.8	479.0
Common Stock Equity	1,702.6	1,434.5	1,063.8
Shares Outstanding (mil.)	104.3	103.5	101.2

Baan Company N.V.

OVERVIEW

Baan knows computers keep better track of things than people do. With dual headquarters in Reston, Virginia, and Barneveld, the Netherlands, Baan Company is a leading provider of enterprise resource planning (ERP) software, which lets a global company compile and integrate information across corporate resources. The software automates distribution, finance, inventory, manufacturing, project management, sales, and transportation. Baan targets its products to five manufacturing realms — automotive, technology/electronics, build-to-order and other hybrid manufacturing, aerospace/defense, and process industries (food/beverage, chemicals, plastics, and paper). Customers include Boeing, Northern Telecom, and Snap-on. An investment company formed by former chairman Jan Baan and his brother Paul owns about 30% of the company; Goldman Sachs owns about 10%.

Religion plays an important part in Baan's operations. The brothers, members of a conservative Dutch church, have 19 children between them, forbid working on Sundays, and are quick to quote scripture to illustrate business philosophies. The brothers, however, have stepped down from executive posts amid criticism about Baan's relationships with private companies owned by the family.

To counter intense competition, the company has formed a division dedicated to providing software to the untapped midsized corporate market. Baan continues to expand its sales channels through partnerships with heavyweights like Microsoft and IBM.

HISTORICAL FINANCIALS & EMPLOYEES

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Sales ($ mil.)	—	—	34	35	47	63	123	216	388	680
Net income ($ mil.)	—	—	(1)	1	7	(2)	1	15	36	77
Income as % of sales	—	—	—	3.7%	14.5%	—	1.0%	7.1%	9.4%	11.4%
Earnings per share ($)	—	—	—	—	—	—	—	0.09	0.19	0.37
Stock price - FY high ($)	—	—	—	—	—	—	—	12.28	20.56	40.81
Stock price - FY low ($)	—	—	—	—	—	—	—	5.31	10.16	17.44
Stock price - FY close ($)	—	—	—	—	—	—	—	11.31	17.38	33.00
P/E - high	—	—	—	—	—	—	—	136	108	110
P/E - low	—	—	—	—	—	—	—	59	53	47
Dividends per share ($)	—	—	—	—	—	—	—	0.00	0.00	0.00
Book value per share ($)	—	—	—	—	—	—	—	0.66	0.87	1.50
Employees	—	—	—	—	389	796	943	1,525	2,389	4,254

HEADQUARTERS

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US Fax: 703-471-8786
Web site: http://www.baan.com

KEY NUMBERS

Nasdaq: BAANF
Fiscal Year-End: December

1997 Sales ($ mil.): $679.6
1-Yr. Sales Growth: 75.2%

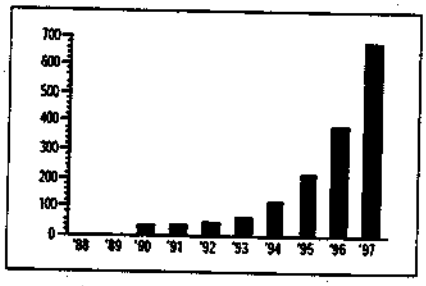
1997 Net Inc. ($ mil.): $77.2
1-Yr. Net Inc. Growth: 112.7%

1997 Employees: 4,254
1-Yr. Employee Growth: 78.1%

1997 FYE Market Value ($ mil.): $6,392.1
1-Yr. Market Value Change: 104.8%

SALES HISTORY

($ mil.)



ABOUT HOOVER'S

Hoover's, Inc., a leading publisher of company information, covers more than 13,000 public and private enterprises worldwide.

HISTORY

Jan Baan was a Dutch college dropout with a mediocre career (food-processing clerk, controller, accounting consultant), but he and his wife had saved a handsome sum from buying and selling several homes. In 1978, with $250,000, he started Baan Co., a consulting firm specializing in financial engineering. He began software development the next year to improve clients' factory efficiency.

Ex-construction executive Paul Baan joined the company in 1981, and the company shipped its first software the next year. By 1984 the company catered to the manufacturing, building, and contracting industries. In 1987 Baan launched its first enterprise resource planning (ERP) software based on the UNIX operating system. Operations began blooming beyond the Netherlands by 1988.

In 1993 Baan bought several companies to expand its product and market presence, including UK-based Agility Business Software and Canadian firm Probe Software Sciences. Also that year Baan sold 34% of the company (a stake since reduced to about 4%) to General Atlantic Partners as part of its international expansion. Although initial US expansion efforts were unsuccessful, a $20 million contract with Boeing in 1994 led to the establishment of a second headquarters in the US. Sales reached $123 million that year.

Also in 1994 the devoutly religious brothers Baan — early employees were hired through ads in their church bulletin — gave the value of their stock (keeping the voting control) to Oikonomos (Greek for "stewardship"), a foundation they created to fund charitable ventures. The move also formed Baan Investment, a venture capital firm designed to promote ERP software development.

Baan went public in 1995 and began expanding its lines by buying smaller companies, such as Berclain (supply chain management, 1996), Beologic (sales automation, 1997), and Aurum Software (customer interaction tools, 1997). It also established operations in Japan in 1995.

In 1997 the company formed a division (controlled by Baan Investment) to sell to small and midsized firms — a customer base Baan expects will eventually generate half its revenues. But Baan's convoluted affiliations with Baan Investment and other private companies owned by the brothers began unraveling the software firm. In 1997, Putnam Investments sold its 9% stake over concerns about those relationships, including the recording of sales to Baan Investment of software that had yet to reach end users. As the spotlight intensified in 1998, Baan Investment changed its name to Vanenburg Ventures to distance itself, and the brothers stepped down from executive positions at the software firm to concentrate on running Oikonomos and Vanenburg. COO Tom Tmsley was named chairman and CEO, replacing Jan Baan, who announced he would not seek reelection to Baan's supervisory board.

Also in 1998 the company agreed to buy logistics planning software specialist CAPS Logistics. Thinning profits and sinking shares mat year prompted shareholders to file a lawsuit against Baan alleging accounting irregularities. Baan also made plans to cut 20% of its workforce (up to 1,200 employees).

OFFICERS

Chairman and CEO: Tom C. Tinsley, age 44
President: Mary E. Coleman, age 44
EVP and President, Strategic Global Accounts: Kevi Calderwood
EVP Customer Initiatives: Douglas L Fredrick
EVP and President, Global Held Operations: Robert Lewis
EVP Research and Development: Laurens van der Tar age 32
SVP, COO, and CF0: N. M. "Klaas" Wagenaar, age 39
SVP, Secretary, General Counsel, and Compliance Officer Robert Goudie
SVP Global Marketing and Information Teehnoloe Management and Chief Information Officer: Johr Jendricks
SVP Finance and Corporate Controller Ralph Zeped
Chairman, Vanenburg Ventures B.V.: J. G. Paul Baar age 47
President, Baan Global Support: Peter Aird
President, Asia/Pacific Christopher Chung
President, Baan Consulting: Gordon Mousinho
President, Baan Education: Christine B. Pittman
President, Eastern Europe: Karl-Heinz Voss
EVP, Supply Chain: Amal M. Johnson, age 45
VP Human Resources: Gerrit J. van Munster
VP Human Resources, Baan Americas: Terry Carter
Managing Director, Baan Japan: Hiroo Sakamoto
Auditors: Moret Ernst & Young

CONTACT HOOVER'S

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Web: Hoover's Online at www.hoovers.com

ANNUAL FINANCIALS

Income Statement ($mil. except per share amounts)	Dec 97	Dec 96	Dec 95
Revenue	679.6	388.0	216.2
Costs of Goods Sold	227.2	153.4	93.4
Gross Profit	452.4	234.6	122.8
Gross Profit Margin	66.6%	60.5%	56.8%
SG&A Expense	329.5	175.0	99.4
Operating Income	122.9	59.6	23.4
Operating Margin	18.1%	15.4%	10.8%
Total Net Income	77.2	36.3	15.3
Net Profit Margin	11.4%	9.4%	7.1%
Fully Diluted EPS ($)	0.37	0.19	0.09
Balance Sheet	**Dec 97**	**Dec 96**	**Dec 95**
Cash	111.4	198.0	12.2
Net Receivables	226.8	150.3	87.2
Inventories	0.0	0.0	0.0
Total Current Assets	533.5	364.0	131.1
Total Assets	722.4	440.7	186.6
Short-Term Debt	1.8	1.5	4.3
Total Current Liabilities	224.1	103.5	59.3
Long-Term Debt	200.7	176.2	1.7
Total Liabilities	432.0	284.6	72.6
Common Stock Equity	290.5	156.0	114.1
Shares Outstanding (mil.)	1,937.0	1,795.8	1,724.9
Year-End Ratios	**Dec 97**	**Dec 96**	**Dec 95**
Debt Ratio	0.4	0.5	0.0
Equity as % of Assets	40.2%	35.4%	61.1%
Return on Assets	13.3%	11.6%	11.6%
Return on Equity	26.6%	23.3%	13.4%
Current Ratio	2.38	3.52	2.21
Dividend Yield	—	0.0	0.0
Dividend Payout	—	0.0	0.0

QUARTERLY FINANCIALS

Income Statement ($mil. except per share amounts)	Third Quarter Sep 98 (Prelim.)	Second Quarter Jun 98	First Quarter Mar 98	Fourth Quarter Dec 97	Third Quarter Sep 97 (Prelim.)
Revenue	195.0	230.1	179.5	215.6	173.2
Cost of Goods Sold	—	74.3	78.0	—	—
Gross Profit	—	155.8	101.5	—	—
Gross Profit Margin	0.0%	67.7%	56.5%	0.0%	0.0%
SG&A Expense	—	116.5	98.7	—	—
Operating Income	—	39.3	2.8	—	—
Operating Margin	0.0%	17.1%	1.6%	0.0%	0.0%
Total Net Income	(31.7)	17.1	2.1	29.2	18.3
Net Profit Margin	(16.3%)	7.4%	1.2%	13.5%	10.6%
Fully Diluted EPS ($)	(0.16)	0.08	0.01	0.14	0.09
Balance Sheet	**Sep 98 (Prelim.)**	**Jun 98**	**Mar 98**	**Dec 97**	**Sep 97 (Prelim.)**
Cash	—	170.8	188.7	111.4	—
Net Receivables	—	289.3	268.2	226.8	—
Inventories	—	0.0	0.0	0.0	—
Total Current Assets	—	613.2	612.6	533.5	—
Total Assets	—	811.2	806.4	722.4	—
Short-Term Debt	—	2.1	2.3	1.8	—
Total Current Liabilities	—	256.2	271.0	224.1	—
Long-Term Debt	—	192.3	200.6	200.7	—
Total Liabilities	—	476.2	498.8	432.0	—
Common Stock Equity	—	334.9	307.6	290.5	—
Shares Outstanding (mil.)	1,988.0	1,988.0	1,956.8	1,937.0	1,795.8

Financial data provided by Media General Financial Services, Inc.

LOCATION

Baan Company has direct sales offices in 47 countries.

1997 Sales

	$ mil.	%
US & Canada	277	
Europe		
Germany	90	
The Netherlands	79	
Other Europe & South Africa	85	
Other international operations	83	
Related party revenues	66	
Total	**680**	

PRODUCTS/OPERATIONS

1997 Sales

	$ mil.	% of
License	434	
Maintenance & service	245	
Hardware & other	1	
Total	**680**	

Products

After sale/field service software (BaanService)
Customer interaction software (BaanFrontOffice)
Enterprise resource planning software (BaanERP)
Financial, resource, and accounting software (BaanCorporateOffice)
Plant maintenance software (BaanMaintenance)
Product documentation management software (BaanEngineering)
Supply chain management software (BaanSCS)
Web communication and access software (BaanE-Enterpris
Work flow and decision support software (BaanDEMse)

Subsidiaries

Antalys, Inc.
Aurum Software, Inc.
Baan Argentina Ltda.
Baan Asia Pacific Pte. Ltd.
Baan Australia Pty. Ltd.
Baan Austria GmbH
Baan Belgium NV
Baan Brasil Sistemas de Informatica Ltda.
Baan Canada, Inc.
Baan Chile Sistemas de Informatica Ltda.
Baan China Limited
Baan Colombia Ltda.
Baan Deutschland GmbH
Baan Development BV
Baan Education Asia Pacific (M) Sdn Bhd.
Baan France SA
Baan Hellas Limited
Baan Iberica IS, SA
Baan Info Systems India Pvt. Ltd.
Baan International BV
Baan Italia Srl
Baan Japan Co., Ltd.
Baan Korea Co. Ltd.
Baan (Malaysia) Sdn. Bhd.

Baan Mexico, SA de CV
Baan Mexico Servicios, SA de CV
Baan Nederland BV
Baan Nordic AB
Baan Peru, SA
Baan Polska Sp. Zoo
Baan (Schweiz) AG
Baan Singapore Pte. Ltd.
Baan Software BV
Baan Software India Pvt. Ltd.
Baan South Africa (Proprietary) Limited
Baan UK Ltd.
Baan USA, Inc.
Baan Venezuela, SA
Beologic A/S
Berclain Group Inc.
  Berclain Canada Inc.
  Berclain (Deutschland) GmbH
  Berclain USA Ltd.
Matrix Holding BV

KEY COMPETITORS

Computer Associates
Computron Software
GSE Systems
J. D. Edwards
MAPICS
Oracle
PeopleSoft
SAP
Sybase
System Software Associates
Wall Data
Wang

PeopleSoft, Inc.

OVERVIEW

PeopleSoft's hallways are lined with pictures of grinning employees, but president and CEO Dave Duffield no doubt wears the broadest smile. Duffield, mixing corporate competitiveness and cheery collegiality (the photos, enlarged into recruitment posters, feature the company's self-proclaimed "PeoplePeople" posed in silly hats), has spearheaded six consecutive years of doubled sales at the Pleasanton, California-based software firm. PeopleSoft's software helps government and industry clients manage human resource, financial, manufacturing, inventory planning, and distribution data from a variety of operating systems and programs. The company also develops industry-specific software, including products targeting health care, higher education, transportation, communication, and utility markets. Half of its sales come from training, installation, and other services. Duffield, whose brother Albert is an SVP (and whose wife, son, daughter, and nephew are also employees), owns about 23% of the company.

Duffield and chief technology officer Ken Morris founded PeopleSoft in 1987. Duffield had previously founded mainframe-based human resource management software supplier Integral Systems, but he and Morris quit when Integral's board rejected Duffield's ideas for network-based software. In 1988 they delivered the market's first network-based human resource software. PeopleSoft branched into financial software in 1992 — the year it went public.

The software maker refined its products for medical industry and government use, moving toward applications that could serve a company's entire data tracking needs. To compete with the likes of SAP and Oracle, PeopleSoft added purchasing and inventory-control software in 1994.

As the company grew and repositioned itself, however, some customers found service lagging. Duffield, a "just-one-of-the-workers" executive who plays guitar in company band the Raving Daves, now rewards employees who go beyond the call of service duty with cash or stock options.

PeopleSoft continues to grow through acquisitions. It bought inventory planning expert Red Pepper Software in 1996 and privately held retail management software specialist Intrepid Systems in 1998. Also that year PeopleSoft formed a separate company, Momentum Business Applications Inc., to conduct R&D on e-commerce and industry-specific software.

HISTORICAL FINANCIALS & EMPLOYEES

	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
Sales ($ mil.)	—	—	6	17	32	58	113	228	450	816
Net income ($ mil.)	—	—	—	2	5	8	15	29	36	108
Income as % of sales	—	—	6.6%	11.1%	15.2%	14.4%	12.8%	12.9%	8.0%	13.3%
Earnings per share ($)	—	—	0.01	0.02	0.03	0.04	0.06	0.12	0.15	0.44
Stock price - FY high ($)	—	—	—	—	2.00	2.53	4.94	11.75	26.13	39.50
Stock price - FY low ($)	—	—	—	—	1.41	1.47	1.63	3.75	8.56	15.31
Stock price - FY close ($)	—	—	—	—	1.77	1.95	4.72	10.75	23.97	39.00
P/E - high	—	—	—	—	67	63	82	98	174	90
P/E - low	—	—	—	—	47	37	27	31	57	35
Dividends per share ($)	—	—	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Book value per share ($)	—	—	(0.00)	0.01	0.29	0.39	0.49	0.79	1.18	1.87
Employees	—	—	50	75	188	362	651	1,341	2,490	4,452

HEADQUARTERS

4440 Rosewood Dr., Pleasanton, CA 94588-3031
Phone: 925-694-3000
Fax: 925-694-2699
Web site: http://www.peoplesoft.com

KEY NUMBERS

Nasdaq: PSFT
Fiscal Year-End: December

1997 Sales ($ mil.): $815.7
1-Yr. Sales Growth: 81.2%

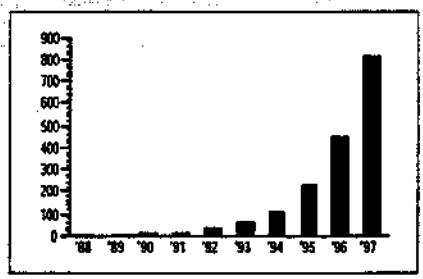
1997 Net Inc. ($ mil.): $108.3
1-Yr. Net Inc. Growth: 201.7%

1997 Employees: 4,452
1-Yr. Employee Growth: 78.8%

1997 FYE Market Value ($ mil.): $8,725.4
1-Yr. Market Value Change: 69.1%

SALES HISTORY

($ mil.)



RANKINGS

S&P 500 Company

ABOUT HOOVER'S

Hoover's, Inc., a leading publisher of company information, covers more than 13,000 public and private enterprises worldwide.

ANNUAL FINANCIALS

Income Statement ($mil. except per share amounts)	Dec 97	Dec 96	Dec 95
Revenue	815.7	450.1	227.6
Costs of Goods Sold	250.8	131.3	63.1
Gross Profit	564.9	318.8	164.5
Gross Profit Margin	69.3%	70.8%	72.3%
SG&A Expense	398.7	263.0	119.6
Operating Income	166.2	55.8	44.9
Operating Margin	20.4%	12.4%	19.7%
Total Net Income	108.3	35.9	29.4
Net Profit Margin	13.3%	8.0%	12.9%
Fully Diluted EPS ($)	0.44	0.15	0.12
Balance Sheet	**Dec 97**	**Dec 96**	**Dec 95**
Cash	267.9	169.9	88.1
Net Receivables	299.2	163.7	97.8
Inventories	0.0	0.0	0.0
Total Current Assets	726.0	396.6	243.6
Total Assets	898.3	540.1	314.2
Short-Term Debt	0.0	0.0	0.0
Total Current Liabilities	481.0	286.8	156.1
Long-Term Debt	0.0	0.0	1.3
Total Liabilities	481.1	286.8	157.4
Common Stock Equity	417.3	253.2	156.7
Shares Outstanding (mil.)	2,237.3	2,152.8	1,995.4
Year-End Ratios	**Dec 97**	**Dec 96**	**Dec 95**
Debt Ratio	0.0	0.0	0.0
Equity as % of Assets	46.5%	46.9%	49.9%
Return on Assets	15.1%	8.4%	12.1%
Return on Equity	26.0%	14.2%	18.8%
Current Ratio	1.51	1.38	1.56
Dividend Yield	—	0.0	0.0
Dividend Payout	—	0.0	0.0

QUARTERLY FINANCIALS

Income Statement ($mil. except per share amounts)	Third Quarter Sep 98	Second Quarter Jun 98	First Quarter Mar 98	Fourth Quarter Dec 97	Third Quarter Sep 97
Revenue	351.3	320.5	277.7	260.6	217.1
Cost of Goods Sold	124.4	109.3	97.9	77.0	65.9
Gross Profit	226.9	211.2	179.8	183.6	151.2
Gross Profit Margin	64.6%	65.9%	64.7%	70.5%	69.6%
SG&A Expense	161.6	152.9	128.8	122.5	107.4
Operating Income	65.3	58.3	51.0	61.1	43.8
Operating Margin	18.6%	18.2%	18.4%	23.4%	20.2%
Total Net Income	44.2	39.2	33.8	39.5	28.7
Net Profit Margin	12.6%	12.2%	12.2%	15.2%	13.2%
Fully Diluted EPS ($)	0.17	0.15	0.13	0.17	0.11
Balance Sheet	**Sep 98**	**Jun 98**	**Mar 98**	**Dec 97**	**Sep 97**
Cash	474.9	349.9	300.6	267.9	222.4
Net Receivables	351.6	341.2	335.7	299.2	258.2
Inventories	0.0	0.0	0.0	0.0	0.0
Total Current Assets	1,055.6	876.4	801.8	726.0	609.1
Total Assets	1,306.1	1,126.8	990.8	898.3	775.9
Short-Term Debt	0.0	0.0	0.0	0.0	0.0
Total Current Liabilities	609.9	591.3	519.5	481.0	417.7
Long-Term Debt	0.0	0.0	0.0	0.0	0.0
Total Liabilities	688.0	591.3	519.5	481.1	417.6
Common Stock Equity	618.1	535.5	471.3	417.3	358.3
Shares Outstanding (mil.)	2,330.2	2,304.5	2,266.6	2,237.3	2,220.0

Financial data provided by Media General Financial Services, Inc.

OFFICERS

Chairman, President, and CEO: David A. Duffield, a
$470,079 pay
SVP Finance and Administration, CFO, and Secr
Ronald E. F. Codd, age 42, $332,172 pay
SVP Corporate Operations: Margaret L. Taylor, age
$413,450 pay
SVP Worldwide Operations: Albert W. Duffield, age
$410,191 pay
SVP Product Strategy, Business Development, a
Marketing: Aneel Bhusri, age 32, $264,746 pay
SVP Service Operations: James J. Bozzini, age 31
SVP and Chief Technology Officer: Kenneth R. Mon
age 47
President, Product Industries Division: Jeff Carr
President, Government and Higher Education
Division: Paul Salsgiver
President, Service Industries Division: Phil Wilmi
Chief Information Officer: Steve Zarate
Director Human Resources: Larry Butler
Auditors: Ernst & Young LLP

CONTACT HOOVER'S

We invite your comments. Call, write, or visit our Web sit

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Web: Hoover's Online at www.hoovers.com

LOCATION

PeopleSoft operates in Argentina, Australia, Belgium, Brazil, Canada, France, Germany, Hong Kong, Japan, Mexico, the Netherlands, New Zealand, Singapore, South Africa, Spain, Switzerland, the UK, and the US.

1997 Sales

	$ mil.	% of total
US	690.6	85
Other countries	125.1	15
Total	**815.7**	**100**

PRODUCTS/OPERATIONS

1997 Sales

	$ mil.	% of total
License fees	433.2	53
Services	382.5	47
Total	**815.7**	**100**

Software

PeopleSoft Distribution
PeopleSoft Financials
PeopleSoft Financials for Public Sector
PeopleSoft HRMS (human resources management)
PeopleSoft HRMS for Public Sector
PeopleSoft HRMS for US Federal Government
PeopleSoft Manufacturing
PeopleTools (development, data management, and productivity tools)
Red Pepper (supply chain management)

KEY COMPETITORS

Baan
Ceridian
Computer Associates
Computer Sciences
EDS
Geac Computer
Hyperion Solutions
i2
J. D. Edwards
Lawson Software
Manugistics Group
Marcam Solutions
Oracle
QAD
SAP
System Software Associates

Oracle Corporation

OVERVIEW

The world is growing wise to Oracle's answers. As the #1 database software company (and the world's #2 independent software company, after Microsoft; Microsoft and IBM are #1 and #2 overall), the Redwood City, California-based firm has already made a fortune telling corporate computers how to gather information. Oracle's core products are database-fed programs that manage a company's entire resources from sales orders to payroll. Now chairman and CEO Lawrence Ellison is foreseeing Oracle's role in emerging technologies such as interactive television and electronic commerce. The company also makes application development tools.

Hoping to thwart market dominance by Intel and Microsoft, Ellison backed the network computer (or NC), a cheap, Wintel-less PC. But with Ellison's NC vision all but fizzled, he is chasing the networking brass ring from different angles. Oracle is investing heavily in the rapidly growing market for application servers, software that lets companies organize and access data over networks. The company has also introduced a plan to let small businesses lease software and computing muscle over the Internet.

To win back market share, Ellison is taking more interest in Oracle's day-to-day affairs (employees had nicknamed him Elvis for his infrequent office "sightings"). The CEO owns 23% of Oracle, as well as a majority interest in nCUBE, a maker of massively parallel computers.

HEADQUARTERS

500 Oracle Pkwy., Redwood City, CA 94065
Phone: 650-506-7000
Fax: 650-506-7200
Web site: http://www.oracle.com

KEY NUMBERS

Nasdaq: ORCL
Fiscal Year-End: May

1998 Sales ($ mil.): $7,143.9
1-Yr. Sales Growth: 25.7%

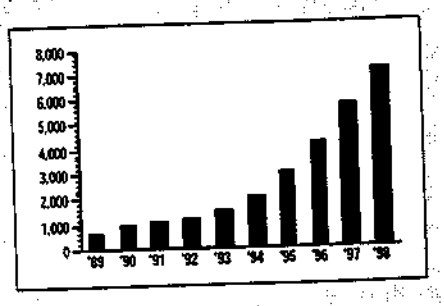
1998 Net Inc. ($ mil.): $813.7
1-Yr. Net Inc. Growth: (0.9%)

1998 Employees: 36,802
1-Yr. Employee Growth: 25.0%

1998 FYE Market Value ($ mil.): $23,000.0
1-Yr. Market Value Change: (24.3%)

SALES HISTORY

($ mil.)



HISTORICAL FINANCIALS & EMPLOYEES

	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Sales ($ mil.)	584	971	1,028	1,179	1,503	2,001	2,967	4,223	5,684	7,144
Net income ($ mil.)	82	117	(12)	62	98	284	442	603	822	814
Income as % of sales	14.0%	12.1%	—	5.2%	6.5%	14.2%	14.9%	14.3%	14.5%	11.4%
Earnings per share ($)	0.09	0.13	(0.01)	0.07	0.10	0.28	0.44	0.60	0.81	0.81
Stock price - FY high ($)	2.28	4.21	3.56	3.13	6.62	11.20	17.13	24.47	34.02	42.13
Stock price - FY low ($)	1.08	2.15	0.72	1.09	2.08	5.90	9.98	15.13	21.34	17.75
Stock price - FY close ($)	2.26	2.93	1.11	2.21	6.19	10.16	15.46	22.09	31.10	23.63
P/E - high	25	32	—	45	66	40	39	41	42	52
P/E - low	12	17	—	16	21	21	23	25	26	22
Dividends per share ($)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Book value per share ($)	0.27	0.44	0.38	0.46	0.55	0.77	1.24	1.90	2.42	3.04
Employees	4,148	6,811	7,466	8,160	9,247	12,058	16,882	23,113	29,431	36,802

RANKINGS

#280 in FORTUNE 500
#246 in Hoover's 500
S&P 500 Company

ABOUT HOOVER'S

Hoover's, Inc., a leading publisher of company information, covers more th 13,000 public and private enterprises worldwide.

HISTORY

Lawrence Ellison, Robert Miner, and Edward Oates founded Oracle in 1977 to create a relational database management system (DBMS) for minicomputers according to theoretical specifications published by IBM. Ellison, a native of Chicago's South Side, studied physics at the University of Chicago but dropped out to seek his fortune in Silicon Valley in the 1960s. Working first for Ampex and then Amdahl, he was part of the team that developed the first IBM-compatible mainframe. Miner, an experienced programmer, was mostly responsible for developing Oracle DBMS, introduced in 1979. One of Oracle's advantages was its ability to run on many computer brands and sizes, from PCs to mainframes.

When Oracle went public in 1986, it targeted government and within two years had a 36% share of Uncle Sam's PC database market. It also added financial management, graphics, and human-resource management software.

The company's rapid growth came at a great cost, including its reputation as a leader in "vaporware" — products announced but not developed. Software was released prematurely, bug-ridden, and lacking promised features. Oracle also offered generous payment terms, which led to uncollectible receivables. Duplicate billings and the booking of unconsummated sales inflated revenues.

Oracle recorded a loss for fiscal 1991, accompanied by a downward restate for past years. Its stock nosedived. The company laid off 400 employees and revised its growth estimates.

Recognizing (with help from the board) that Oracle had passed the entrepreneurial stage, Ellison got company funding on solid ground by granting Nippon Steel an option to buy 25% of its Japanese operations. He also brought in Raymond Lane, formerly of Booz, Allen, giving him six months to reorganize the company. Lane streamlined and centralized operations and imposed strict performance standards. In 1992 Oracle launched Oracle7, a network database with easier information access. (A faster, more flexible version, Oracle8, debuted in 1997.)

Sales hit the $2 billion mark in fiscal 1994, which helped secure the company's position as the top provider of DBMS software. That year British Telecom chose Oracle to provide software for its London cable network.

In 1995 the company unveiled a desktop version of its business database software. The next year it bought Information Resources (online analysis tools). Also in 1996 Oracle won an order from the US Department of Defense to create a database consisting of nearly two million current and retired military personnel and their dependents.

In 1997 Oracle joined IBM, Sun Microsystems, and Netscape to promote standards that allow customers to mix and match network computing software from any of the companies — a move aimed at slowing Microsoft's momentum in the client/server market. In addition, Oracle and Netscape merged their joint venture Navio Communications into Network Computer, an Oracle affiliate. In 1998 Oracle, working to bolster its sales and marketing offerings, acquired Versatility, a computer telephony integration software specialist.

OFFICERS

Chairman and CEO: Lawrence J. Ellison, age 54, $1,
pay
President and COO: Raymond J. Lane, age 51, $1,1
pay
EVP and CFO: Jeffrey O. Henley, age 53, $758,437 pa
EVP Support Services and Education: Randy Bak
EVP, Worldwide Alliances and Technologies Di
Gary L. Bloom
EVP Corporate Development; CEO, Network Computer: David J. Roux
SVP, Secretary, and General Counsel: Daniel Coo
SVP Commercial Applications: Peter Dunning
SVP Alliance Program: John L. Hall
SVP Worldwide Marketing: Mark Jarvis
SVP Consumer Sector Worldwide: Charles Schneid
SVP, Oracle Tools Product Division: Sohaib Abbasi
SVP, Europe, Middle East, and Africa: Pier Carlo Fa
SVP Sales, Europe: Robert D. Gordon
SVP, Worldwide Industrials Group: George Kadifa
SVP Sales, North America: George Roberts
SVP American Services, Latin America and Brazil
Edward Sanderson
SVP, Japan: Chikara Sano
SVP, Asia Pacific: Derek Williams
VP Alliances and Marketing, Americas: Shari Simo
Auditors: Arthur Andersen LLP

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ANNUAL FINANCIALS

Income Statement ($mil. except per share amounts)	May 98	May 97	May 96
Revenue	7,143.9	5,684.3	4,223.3
Costs of Goods Sold	2,273.6	1,550.5	1,096.0
Gross Profit	4,870.3	4,133.8	3,127.3
Gross Profit Margin	68.2%	72.7%	74.0%
SG&A Expense	3,626.1	2,870.9	2,222.4
Operating Income	1,244.2	1,262.9	904.9
Operating Margin	17.4%	22.2%	21.4%
Total Net Income	813.7	821.5	603.3
Net Profit Margin	11.4%	14.5%	14.3%
Fully Diluted EPS ($)	0.81	0.81	0.60
Balance Sheet	**May 98**	**May 97**	**May 96**
Cash	1,273.7	890.2	715.7
Net Receivables	2,065.0	1,709.0	1,204.0
Inventories	0.0	0.0	0.0
Total Current Assets	4,323.1	3,271.1	2,284.5
Total Assets	5,819.0	4,624.3	3,357.2
Short-Term Debt	2.9	3.4	5.6
Total Current Liabilities	2,484.2	1,922.1	1,455.0
Long-Term Debt	304.3	300.8	0.9
Total Liabilities	2,861.5	2,254.5	1,486.7
Common Stock Equity	2,957.6	2,369.7	1,870.4
Shares Outstanding (mil.)	9,733.4	9,774.8	9,832.5
Year-End Ratios	**May 98**	**May 97**	**May 96**
Debt Ratio	0.1	0.1	0.0
Equity as % of Assets	50.8%	51.2%	55.7%
Return on Assets	15.6%	20.6%	20.9%
Return on Equity	27.5%	34.7%	32.3%
Current Ratio	1.74	1.70	1.57
Dividend Yield	—	0.0	0.0
Dividend Payout	—	0.0	0.0

QUARTERLY FINANCIALS

Income Statement ($mil. except per share amounts)	First Quarter Aug 98	Fourth Quarter May 98	Third Quarter Feb 98	Second Quarter Nov 97	First Quarter Aug 97
Revenue	1,749.1	2,412.6	1,748.8	1,613.7	1,368.8
Cost of Goods Sold	679.3	670.4	586.4	548.6	468.2
Gross Profit	1,069.8	1,742.2	1,162.4	1,065.1	900.6
Gross Profit Margin	61.2%	72.2%	66.5%	66.0%	65.8%
SG&A Expense	792.0	1,304.2	844.1	793.1	851.8
Operating Income	277.8	438.0	318.3	272.0	48.8
Operating Margin	15.9%	18.2%	18.2%	16.9%	3.6%
Total Net Income	195.0	402.8	215.1	187.3	8.5
Net Profit Margin	11.1%	16.7%	12.3%	11.6%	0.6%
Fully Diluted EPS ($)	0.20	0.40	0.22	0.19	0.01
Balance Sheet	**Aug 98**	**May 98**	**Feb 98**	**Nov 97**	**Aug 97**
Cash	1,628.1	1,273.7	977.5	994.3	1,006.7
Net Receivables	1,351.4	2,065.0	1,322.8	1,321.4	1,183.4
Inventories	0.0	0.0	0.0	0.0	0.0
Total Current Assets	4,134.4	4,323.1	3,334.2	3,312.4	3,134.8
Total Assets	5,691.5	5,819.0	4,749.8	4,762.7	4,597.1
Short-Term Debt	3.6	2.9	13.4	10.0	4.9
Total Current Liabilities	2,234.8	2,484.2	1,803.4	1,724.1	1,813.5
Long-Term Debt	304.2	304.3	304.5	304.6	300.7
Total Liabilities	2,610.3	2,861.5	2,172.6	2,094.2	2,151.7
Common Stock Equity	3,081.2	2,957.6	2,577.0	2,668.6	2,445.3
Shares Outstanding (mil.)	9,719.1	9,733.4	9,734.6	9,839.6	9,805.0

Financial data provided by Media General Financial Services, Inc.

LOCATION

Oracle has offices in 80 cities in the US and 60 subsidiaries in other Americas, Africa, Asia, Europe, and the Middle East.

1998 Sales & Operating Income

	Sales		Operating Income	
	$ mil.	% of total	$ mil.	% of tota
Americas				
US	3,571	50	992	7
Other countries	478	7	80	
Europe/Middle East/Africa	2,297	32	239	1
Asia/Pacific	798	11	100	
Total	7,144	100	1,411	10

PRODUCTS/OPERATIONS

1998 Sales

	$ mil.	% of tota
Services	3,950	5
Licenses & other	3,194	4
Total	7,144	10

Selected Products:

Application Development and Business Technology Tools
Oracle Designer (for modeling and generating client/server applications)
Oracle Developer (tool to build scalable database application
Oracle Discoverer/Oracle Express/Oracle Reports (query, reporting, and analysis tools)
Oracle Express (support tool for data access)
Oracle JDeveloper (development tools for Java user interfac

Client/Server Business Applications
Oracle Applications (more than 45 distinct software module for use in areas such as finance, human resources, manufacturing, and project systems)
Oracle Applications for the Web (access to business data via the World Wide Web)
Oracle Business Intelligence System (reporting, decision support, and corrective action software)

Server Technologies
Oracle Express Server (engine for data warehousing)
Oracle Open Gateway products (allows integration with no Oracle database systems)
Oracle Web Application Server (allows transaction processi with large numbers of users and data)
Oracle8 (database server)

Selected Services
Consulting
Education
Software updates
Technical support

KEY COMPETITORS

Affiliated Computer
Baan
BMC Software
Business Objects
Cognos
Computer Associates
Forte Software
Hyperion Solutions
IBM
Informix
J. D. Edwards
Microsoft
Netscape
Novell
PeopleSoft
PLATINUM technology
Progress Software
Red Brick Systems
SAP
SOFTWARE AG
Sun Microsystems
Sybase
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Unisys

Appendix: G

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