U.S. SYSTEMS INTEGRATION PROGRAM

User Profiles

INPUT®

1953 Gallows Road, Suite 560, Vienna, VA 22182, (703) 847-6870

Systems Integration Program (SIP)

User Profiles

May 1991

ABSTRACT

INPUT's user profile project was initiated to accomplish two objectives:

- to identify on-going and completed systems integration projects and capture them in a data base; and
- to contact major U.S. corporations, typically in the Fortune 1000 plus, and determine their current plans for developing new systems.

The first component of this project, the data base of existing systems integration projects, is used as one of the elements of INPUT's market forecasting activities and as a source to identify and examine market trend and issues. It is also used as a source to develop answers to unique client research questions.

The second element of the project is to develop profiles of major systems development projects, based on interviews with information systems executives. The results of these interviews are included in this report. They consist of brief descriptions of the organization, its IS operating philosophy, and descriptions of major projects that are planned for development.

This section of the SI program documentation will be periodically amended. New company profiles will be added and existing profiles will be updated.

Table of Contents

I INTRODUCTION

A. Objectives I-1
B. Scope and Methodology
1. Scope I-1
2. Methodology I-2
C. Report Structure I-2

II USER PROFILES

Amerada Hess II-1
American Cyanamid II-4a
Boeing Aerospace Operations II-5
Citgo Petroleum II-7
Digital Equipment Corporation II-9
Dresser Industries II-11
Eastman Kodak II-13
Exxon Corporation II-15
Ford Motor Corporation II-17
Goodyear Tire & Rubber II-19
LTV Aerospace and Defense Division II-21
Measurex Corporation II-23
Monsanto Corporation II-25
Texas Instruments II-27
Textron, Inc. II-29
Union Carbide II-31
Westinghouse Electric II-33

Chapter I

INTRODUCTION

I. INTRODUCTION

The systems integration user profiles project is part of the Systems Integration Program (SIP) subscription service. It is intended as a resource for identifying and characterizing the large systems development projects being planned and implemented by major U.S. corporations.

U.S. business organizations are responding to the pressures of new competition and the need for worldwide operations by reorganizing their businesses and developing systems solutions to support them. Rapid changes in the environment are placing immense pressure on IS management to accelerate implementation of information systems solutions. These new systems solutions often require the implementation of new and advanced technologies that are, at times, beyond the existing skills of internal IS organizations.

In a quest to satisfy these growing requirements, many organizations are seeking systems integration firms to manage the development of new or reengineered systems. In some cases SI projects are being managed by vendors. In other cases, the internal IS organization retains control but subcontracts development, training or other services to vendor organizations. Regardless of who manages the project, significant business opportunity exists for information services companies that have the skills and capability to assist the user.

A
Objectives

The User Profile Project has the following objectives:

- Examine the companies in the Fortune 1000 plus and identify major information systems projects planned, their characteristics, and likelihood of using a systems integrator for implementation.

- Continue to build a data base of known systems integration projects for market analysis and forecasting, and as a source for responding to unique client support requests.

B
Scope and Methodology

1. Scope

The scope of the project is limited to the Fortune 1000 plus. This includes the Fortune 500 industrial companies, the Fortune 500 service

companies, and the largest state and local governments. Federal plans and projects are separately identified and tracked through INPUT's FISSP Procurement Analysis Report (PAR) service.

2. Methodology

INPUT identified the largest organizations in each of the fifteen commercial vertical industry markets and also in the Fortune 1000 plus, described above. From this list key information systems executives are identified, contacted via telephone, and interviewed regarding their organization and its systems plans. A copy of the questionnaire used to guide the interview is included following the Survey Data and Questionnaires in Volume II of the Systems Integration Program binders.

In addition to the user surveys, INPUT also maintains a data base of systems integration projects that have been or are in the process of being implemented. These projects are identified through on-going market research survey activity and through articles in periodicals. They are verified through direct contacts with users and/or vendors. This data base is maintained by INPUT for forecasting activities and support of client inquiries.

C
Report Structure

The user profile report is structured into two chapters: Chapter I, the Introduction, and Chapter II, the individual user profiles. The questionnaire used to gather the information for the profiles is included following the section titled, *Survey Data and Questionnaires*.

Chapter II

PROFILES

Company Profile

Amerada Hess
1 Hess Plaza
Woodbridge, NJ 07095

The Company

Amerada Hess Corporation, headquartered in New York City, is a Fortune 100 company that refines and distributes petroleum products. Hess Oil & Chemical, a major division, produces and distributes mixed natural and manufactured gas.

The company has 1990 revenue of $7.1 billion, up 27% from 1989. Profits rose only 1.3% to $482.7 million in 1990. The total number of employees in 1990 increased ten percent to 9,645.

Systems and Plans

The company's systems are mainly IBM, but applications are also running on DEC and Intergraph machines. The systems are, at the same time, both distributed and centralized. They are distributed in the sense that each remote site is autonomous, and centralized in the sense that at the end of the business day, packets of data are uploaded into the host system at headquarters. The flow of information is strictly one-way.

The company would like to develop systems that support divisional business transactions, as well as allow for a two-way flow of information. As business becomes more competitive, information is brought back to the host more than once per day. The highly interactive, two-way system will allow for faster reactions to merchandise changes at the remote sites (i.e., the Hess convenience stores). The company feels a gradual conversion to a client server architecture would best meet its needs.

There are a number of projects either delayed or canceled, due primarily to the Desert Storm operation. The company's main business is petroleum, and the crisis in the Persian Gulf decreased revenue and, thereby, capital investment availability.

The company is not outsourcing any of it systems operations, nor has outsourcing been considered. The prevailing idea is that the in-house staff is running operations far more efficiently than any outsider could. That is not to say that outsourcing will not be considered in the future; it would, however, have to show considerable advantage. The company indicated there are many problems in dealing with vendors, the largest being in the area of responsibility. There may be "finger pointing" if a problem occurs and no one will want to take responsibility for fixing the problem. It will also be difficult to find an outsourcing vendor that is

close to the company's philosophies, and, at the same time, can run the operations more cheaply. Once all those concerns are met, there still remains the problem of what to do with the existing staff.

Vendors are considered to be the primary source of staff when planning a project. The company keeps staffing levels low due to the fluctuating oil industry. It cannot afford to run the risk of being overstaffed. Therefore, anything beyond normal levels of programming and software maintenance is handled by contractors. The company does not use contractors for planning or organizational purposes. Project direction and control are insured by using in-house staff for management. Contractors fill in where critical development skills are lacking in-house. As the project progresses, the in-house staff are trained to take it over and support it once the actual development is completed.

Information systems have instituted guidelines for user-developed projects. The users develop the application with information systems, ensuring those guidelines are followed. For information systems projects, a steering committee is formed, chaired by the senior executives for whom the application is being developed. The senior vice president determines additional members of the steering committee, including the project manager.

The company has a highly centralized budgetary system, so funding for projects is not from either the user departments or information systems. Money is allocated for application development efforts, regardless of whether the application is to benefit information systems or the end user.

The company sees little change in the way applications will be developed over the next five years. The user is already highly involved in applications that directly involve him.

Major Projects

The company has indicated two projects at corporate-level that are part of its long-range systems plan.

The first is to build a new retail (POS) system for gas stations and convenience stores. The project will in actuality be a site control system, enabling greater control due to the two-way communications mentioned earlier. Each site will actually be a workstation, supporting EMAIL and LOTUS-type spreadsheet, as well as the POS applications. The company expects to have the first release ready for beta-test this fall. Over the next one to two years, the company will upgrade functionality with desktop tools and increase the level of integration of the POS system with the rest of the business.

The system will not use any new technology; instead, it will apply existing technology in new ways. DOS is the operating system, 'C' is the source code. Additional hardware must be either purchased or leased. The system will have a microcomputer backbone and the company will use its own version of graphics screen interfaces. The intent is to eventually put the entire business on-line.

This project involves the transfer of technology into the business organization. The technology must be transferred to humans; it is not enough to build a technologically perfect system. The users must be willing and able to use the system effectively. The company identified three objectives when designing any system:

- The system must mirror business procedures as well as operational procedures. It should not be very different in format than what the users are accustomed to, or they will be apprehensive about using it.
- Develop a good training program to train users on the system, to acquaint them with any changes.
- Provide job performance aids (quick reference guides), so the users know where to look for help.

The company segmented this project in an attempt to ease the transition to the tremendous amount of new applications. The project went through requirements definition in 1988. Design was initiated during March 1990 and completed in August. Then the "internal design and building aspect" were initiated. The company felt it needed to segment even this phase to ease the transition. It feels there must be an effective transition of technology into business, thus becoming a real part of the business.

The second project is a logistics and warehouse operations system. It is part of the overall strategy to put the "entire business" on-line. This will entail storing all forms associated with the logistics process and data basing all information required to complete a form. When a form is pulled up, information from the database is pulled in to fill in the appropriate spaces on the blank form. The data is not stored with the form; each form is stored separately and matched with the appropriate data whenever called for. This method reduces the learning curve because the users do not have to learn a new set of forms.

Company Profile

American Cyanamid
1 Cyanamid Plaza
Wayne, NJ 07470

The Company

American Cyanamid Co. is headquartered in Wayne, NJ. It was established in 1907 and is a leading manufacturer of pharmaceuticals. Major divisions of the company include the Chemical Products Division (industrial organic chemicals), the Agricultural Research Division (agricultural research), Davis & Geck (surgical and medical instruments), the Industrial Products Division (chlorinated solvents), the REDA Agency (advertising agencies), and the Lederle Labs Division (pharmaceutical preparations, drugs, proprietaries and sundries).

Total 1990 revenues were $4.8 billion, a drop of less than 1% from 1989. Profits rose 21% in 1990 to $353 million. The company employed 10% fewer people in 1990 compared to 1989, down to 32,012.

Systems and Plans

The company uses a mix of IBM, DEC, and Hewlett-Packard equipment. Mainframes are used for multilocation applications, minicomputers for manufacturing applications, and microcomputers for many different purposes. The type of application determines the hardware system it will reside on. The company's architecture cannot be characterized by any one category. It is a mix of centralized, decentralized, and distributed, depending on the application. The company does not see this changing in the near future.

There is currently no long-range systems plan. Plans are made for only one to two years in the future. The market is changing so quickly that any plan implemented for the long run will need to be updated within a few years. The short term plans are primarily for corporate level. Each division has its own MIS organization and its own short-term plan.

A number of projects have been either delayed or cancelled. The reasons are varied, and include insufficient project definition by the users, higher priority of another project, and lack of funding, to name a few.

Although none of the company's systems is being outsourced, it has been considered an alternative to running the systems in-house. After evaluation, the company determined that outsourcing its systems operations was not cost effective. The company indicated that outsourcing is a very strategic step and there is no reversing the decision once the vendor takes over.

When planning a project, the company takes the attitude of "risk minimization." Every attempt is made to keep the effort in-house. If there is a special need not met by the company's staff, the aid of a contractor is sought. The contractor's services are usually supplemental, although there was a systems integration project where the prime contractor managed the project. The company stated care must be taken when using a systems integrator, for some degree of control must necessarily be relinquished.

Both the user and information systems are involved in project definition, although funding is from the end user department. Actual development of the application is done by information systems. The project management varies depending on the capability of the individual involved. There are usually two individuals responsible for implementation, one from the user department and one from the IS area.

The company foresees no difference in the way it operates in the next five years. The users are involved at the outset of the project, and are consulted throughout the life cycle of the application development.

Major Projects

The company identified only one project at the corporate level. There is a need to develop a "flex benefit system" for health benefits. The objective is to reduce expenditures for employee insurance benefits.

The new system will integrate all employee benefits under one umbrella. Employees will be able to choose depth of coverage for insurance benefits. For example, in the case of dependents, someone may want more dental coverage than anything else (perhaps for braces). The new system will reside on a new computer and will administer a complex combination of benefits.

The project will be fully defined within the next six months. The company has not yet determined whether the project will be handled solely by the in-house staff or with the aid of a contractor. The company may buy a package and use a vendor for implementation. If not, the project may be built entirely by the in-house personnel. The new system must be finished by the end of 1992. The projected cost of the system has yet to be established.

The company has identified two projects at division level, but declined to provide details. The first is a customer service logistics system for the pharmaceutical division. The second is a sales force automation system for the agricultural and medical divisions.

Boeing Aerospace Operations

16840 Buccaneer Lane
Houston, TX 77058

The Company

Boeing Aerospace Operations, a subsidiary of Boeing Company, manufactures aircraft parts and equipment. Revenue for this segment is $215 million with approximately 2,500 employees.

Revenues for the Boeing Company as a whole reached $27.6 billion, a 36% increase over 1989. Profits rose 42% to $1.4 billion. The company has 161,700 employees and assets of $14.6 billion.

Other divisions and subsidiaries of Boeing Company include Boeing Aerospace Electronics, Boeing Computer Support Services, Boeing Petroleum Services, Boeing Computer Services Division, Boeing Electronics Co. and Boeing Military Airplane Co.

Systems and Plans

DEC is the leading hardware vendor, and Boeing has developed a number of applications using Oracle's data base products. It also has a number of IBM PC and compatibles, as well as Macintosh machines running a variety of applications. The systems are centralized with no plans to change architecture.

Boeing Aerospace Operations has long-range systems plans, but only for the Houston area.

On the rare occasion the company contracts with a vendor for services, it is for supplemental skills only. Project management is done exclusively in-house.

Project definition is done by both information systems as well as the end user. Funding is provided through user departmental funds. The actual development and management are done exclusively by information systems. The company does not expect this will change over the next five years.

The company feels users already have their daily jobs. To have them writing applications would be a second job. There is really no time or inclination on their part to develop the skills necessary to efficiently develop their own applications. That is the job of information systems. Users manipulate the tools to do their job; it is the job of information systems to provide the tools.

Major Projects

As part of its recent long range plans, the company has identified two projects it believes are important to its continued success.

The first is a bar coding system. The intent is to provide inventory tracking, movement of inventory and hardware, and tracking paperwork. The project is not yet fully defined. The system will not be employing any new technology, but will be bringing in technology new to the company. The company does not expect to acquire new computer systems. Scanners and wands for particular bar coding requirements will be purchased.

Funding has been approved, although total cost is not yet known. The company intends to use both in-house and vendor's staff for this project, which should last 2-3 years.

The second system involves the implementation of an MRP system.

The new system will aid in all aspects of manufacturing requirements planning, including MRP scheduling, capacity management, and shop floor control. Development is expected to be completed in-house, although the company may need to contract with a vendor for consulting services. The company will be adapting an off-the-shelf MRP package for its use. New hardware will not need to be purchased.

The MRP project is expected to take 3-5 years, beginning this year.

Company Profile

Citgo Petroleum
P.O. Box 3758
Tulsa, OK 94102

The Company

Citgo Petroleum Corporation is a leader in the oil extraction and processing industry. Citgo Pipeline Co. Inc., a major division, manufactures crude petroleum pipelines.

Total revenue for 1990 reached $7.6 billion, a 54% increase over 1989. Recent acquisitions include Camplins Refining operations on January 1, 1991 and an asphalt refining company in New Jersey.

Systems and Plans

The company uses a wide variety of hardware vendors, including IBM, Tandem, DEC, Apple, and Ungermann-Bass. The systems architecture is presently centralized, but the company indicated that, due to cost and functionality factors, it would be moving to a distributed environment.

There is a long-range systems plan, but it does not involve specific projects. Rather, there are four components to the company's long range objectives:

- a network through which all areas can share data;
- a database plan where all applications adhere to the corporate data model, to ensure data integrity and reduce redundancy;
- improved information delivery to end user, including graphical user interfaces; and
- the training, recruiting, and development of people. The company feels this is the most significant limiting factor in the implementation of projects. End-user training is also important, as they will not use new systems if they are not comfortable or familiar with them.

Approximately 40 projects are now underway. There are hundreds of application projects in every area proposed for the next few years. Instead of multi-year projects, the company uses small, modular projects that are incremental improvements to existing systems. There are a number of projects that have been delayed or cancelled due to staffing problems or lack of business justification.

None of the company's systems is being outsourced to a systems operations vendor. The company evaluates systems operations outsourcing annually and has, so far, determined there is no economic advantage to it.

Vendors are used as primary sources of staff only, if they can provide experts on particular applications areas. The company will use contractors for supplemental skills if there is a lack internally. Contractors may even be used to manage the project, depending on the nature of the project.

Today, the end users are charged with defining their development projects. Information systems provide funding and actual application development. The users and IS together manage the projects.

The future sees little change as far as definition, funding, and development are concerned. Project management responsibility, however, will be shifting to the end user.

Major Projects

The company has identified three areas, referenced earlier, that will have a number of "short modules":

- The first is an application dealing with safety and environmental compliance issues. The project will involve building databases and providing access to these databases throughout the company. The network project described earlier must be designed and implemented before this project can be completed. An image processing system will be established as part of this project. The purpose is to facilitate regulatory compliance (i.e., filing environmental permits, etc.).

  The first incremental improvement is funded, and scheduled to begin this year. The company intends that both a vendor and the internal people work together on this project. There is no estimate of when the system will be completed. It will be a continuing effort. The company estimates the hardware, software development, network software, and base information will cost at least $1 million this year alone.

- Another is for a refinery and manufacturing environment, to provide better information to decision makers.

- The last is a focus on customer information, intended to add value for those customers who require a large degree of support. The company declined to provide additional information.

Company Profile

Digital Equipment Corporation
111 Powder Mill Road
Maynard, MA 01754

The Company

At $13.1 billion, Digital Equipment Corporation is one of the world's largest suppliers of networked computer systems, software, services, and multivendor systems integration. As an international company, Digital derives more than one-half its revenue outside the United States, with customers in the Americas, Europe, and the Pacific Rim.

Profits in 1990 were down 93% to $74.4 million. The company has more than 124,000 employees worldwide. It has total assets of $11.7 billion.

Systems and Plans

Not surprisingly, Digital uses principally its own equipment. Systems, in general, are distributed, but this is expected to change to a combination of distributed and decentralized systems. There will be no large data centers. Architecture will depend on function alone.

When asked if Digital had a long-range systems plan, the response was mixed. In principle they do, but it's more at a business unit or area level rather than at corporate level. Corporate controls overall strategic direction, but each business unit has responsibility for its particular data processing needs.

There was at least one project delayed, not so much due to lack of funding, but rather a need to more fully define what exactly the project will accomplish and how it will be done. The project needs to be redirected and redefined.

Digital considers its systems architecture to be distributed. In the future, however, the architecture will shift towards a combination of distributed and decentralized systems. For example, large simulations need a dedicated processor. There will be no large data centers. Instead, equipment and architecture will depend on the needs of the application rather than the other way around.

There is currently no outsourcing of Digital's systems operations, although it was considered. The company will consider outsourcing in the future, but only for a specific functionality that, for competitive reasons, need not be supported on an in-house system.

When planning a project, vendors are not considered to be a primary source of staff. Instead, vendors are used only if there are not enough in-house people. The company has discussed contracting for

management of an entire project, and has occasionally done so. But typically, contracting is for supplemental skills only.

Both the end user and information systems have responsibility for project definition. If a project is strategic in nature, information systems provide the funding. If the application is for a particular business unit, then responsibility lies with that unit to supply the funding. Applications development and project management are done by information systems. The users contribute to application development, but as each business has its own local IS group, the degree of user involvement depends on that unit and the project in question.

Over the next five years, the relationship between the user, information systems, and the vendor will become much more clear. Although responsibility for all activities will fall to both IS and the user, who performs which activities and who provides the funding will be more clearly defined. IS will develop applications with respect to infrastructure; i.e., generic and IS management services. The IS area will also develop "dedicated functionality". The users will develop and manage their specific "local" applications in terms of how they interpret the information received from the corporate infrastructure.

Major Projects

The company indicated its major systems are meeting current company needs and it has few plans to make changes. Current plans are focused on an organizational support system.

The thrust of this project is to deliver an environment that lets managers and employees access information they need. They can communicate that information internally or with other business units (two - way stream) - the system lets managers get and then convey plans, discussions, and decisions to others. For example, if you have an internal TV system and have live interactive video, this provides the environment to motivate and communicate with employees.

The network is currently in place; it is part of Digital's proprietary network, described as the world's largest private network. A number of data bases are/will be in place and they will be accessible from anywhere on the system.

The project has been funded and is scheduled to begin this year. The company feels this project will most likely never be completed. Instead, it will be an on-going effort, and it will take at least five years to provide the basic functionality.

In-house staff will be used for this project, as the company feels there are no consulting firms that have the expertise to do this type of application. Digital may buy pieces of different organizational support systems and customize the interfaces internally.

The company did not identify any other specific projects.

Company Profile

Dresser Industries
1600 Pacific Avenue
Dallas, TX 75201

The Company

Dresser Industries, headquartered in Dallas, is a leading manufacturer of industrial and farm equipment. Its major subsidiaries and divisions include the Construction Equipment Division, Dresser Mining Machinery, Dresser Oilfield Products, Dresser Pump Division, Dresser Wayne Petroleum Division, Dresser-Msneilan Valve Control Division, Environmental Products, Guiberson Division, Guiberson International, Harbison-Walker Refractories Division, Instrument Division, Jeffery Mining Machinery, Le Roi Division, Lodge-Cottrell-Dresser, M-1 Drilling Fluids Co., Marion Division, Pacific Pumps Division, Presser Pump Division, Roots Division, Security Division, Security Drill Bits, Swaco Division, Swaco Geolograph Division, Waukesha Engine Division, and the Worthington Division.

Total revenue for 1990 was $4.5 billion, a 13% increase over 1989. Profits rose 8.5% in 1990 to $184.4 million. The company's total employees reached 33,100, a growth of 5% over 1989.

Systems and Plans

Amdahl is the primary mainframe vendor. The company uses a wide variety of microcomputers. There is more microcomputer and file server usage than in the past. Each division makes its own decisions regarding smaller systems. The company feels that no type of systems architecture is more prevalent than another.

The company does not have a long range systems plan. There are projects scheduled to begin over the next few years. No projects have been delayed or cancelled for any reason.

None of the company's systems operations is being outsourced. The company feels outsourcing would be an alternative only if it were unable to run the data center internally.

Project management is always done by the internal staff. If supplemental skills are needed, vendors will be contracted to satisfy any in-house shortages.

Projects are defined by the information systems people. Funding is supplied by the end user departments. Both IS and the end user are held accountable for the actual development of the application, although responsibility is weighted 10% user, 90% information systems. Project management is done by information systems.

The company sees very little change in accountability over the next few years. Senior management indicated systems analysts belong in the MIS department, so there will be a slight shift towards development being done by information systems.

Major Projects

Although the company indicated there were no long- range systems plans, there are several projects proposed for the next two to three years.

The first is reengineering the information flow from divisions to headquarters. The company intends to establish a centralized data base and modify existing applications systems to work with it. No additional hardware will be required.

The project is not currently funded, and it is uncertain when it will be. The system, once begun, is expected to take six to nine months to complete. The company intends to use both vendor staff as well as internal personnel to complete this project.

The company declined to comment on the other two projects, other than to say there will be a new benefits system and a project for the tax department. The latter will most likely entail customizing an existing package from Price Waterhouse.

Company Profile

Eastman Kodak
343 State Street
Rochester, NY 14650

Company Profile

Eastman Kodak manufactures scientific and photographic equipment. Total revenues for fiscal year ending 1990 are $19.1 billion, an 3% increase over 1989 revenue. Profits rose 33% to $703 million. The number of employees dropped 2% to 134,450 in 1990.

Major subsidiaries and divisions include Apparatus Division, Bio Image, Copy Products Division, Eastman Chemical Products Division, Eastman Gelatine Corp., Eastman Pharmaceutical Library, Edicon Division, Fastek Division, Kodak Copy Products, Materials Management Division, Motion Analysis Systems Division, and Texas Eastman Co.

Systems and Plans

The company uses multiple vendors in an environment that is both centralized and decentralized. Plans are to move to a totally distributed environment.

The company's long range systems plans include all divisions at the corporate level. While there are many projects being implemented and planned, the majority are unique to the individual division. Corporate decides which plans actually become projects. Due to funding problems, a number of projects have been delayed or cancelled. Many have been replaced by another project with a higher priority.

Responsibility for outsourcing is divided according to type of system. IBM is charged with daily systems operations. Digital Equipment handles telecommunications, and BusinessLand handles anything to do with microcomputers. Applications are still developed in-house.

Depending on the project, a vendor may be considered the primary source of staff. The company feels a lack of in-house people is not the only reason to use a contractor; others include the importance of the project and the availability of in-house skills. There are RFPs where the project management will be done by the contractor.

At this time, both information systems and end-user departments have responsibility for definition of the project. Funding is provided through user departments. Actual development of the application is done by information systems. Although project management is done by both the end user and information systems, the company indicated ultimate project accomplishment lies with the department that initiated it.

Over the next five years, the company sees a shift towards more end-user involvement in application development, and project definition will become the domain of the end-user.

Major Projects

Plans for future projects are proprietary. The company indicated that client servers would be used to support a variety of applications, one of which is supplier/vendor management.

Company Profile

Exxon Corporation
Corporate Information Systems
180 Park Avenue
Florham Park, NJ 07932

The Company

Exxon Corporation is a major producer of petroleum and related products. It is a public corporation with 1989 revenues of nearly $86.7 billion world-wide, a 9% increase over 1988 revenues. The company has more than 104,000 employees, a 3% increase over 1988. Its assets total more than $83 billion.

Major divisions and subsidiaries include Callaway Chemical Co., Exxon Biomedical Sciences Division, Exxon Capital Holding Corp., Exxon Chemical Co. Division, Exxon Co. International, Exxon Co. USA Division, Exxon Coal & Minerals Co., Exxon Energy Chemicals, Exxon Gas System Inc., Exxon Pipeline Co., Exxon Product Research Co., Exxon Research & Engineering Co., Exxon Supply Co., Exxon Trading Co. International, and Monterey Coal Co. #2 Mine.

Systems and Plans

The company's systems are primarily IBM, with other equipment supporting smaller applications at the microcomputer level. Systems are primarily distributed, and the company does not expect that to change.

Exxon has a long-range systems plan, as do many of its operating divisions. The division plans are geared to the unique requirements of the diverse operating units.

The company uses outside staff only if in-house resources cannot meet project needs. Internal staff usually manage the projects, with the vendor supplementing in-house technical skills.

The end user is very much involved in project definition and is expected to fund those projects from the department budgets. Applications development and project management is handled by the information systems area of the division.

Exxon feels some users may also be considered members of the information systems community, due to technical sophistication of the user and the large number of user-friendly products available.

The next two-three years will see the users becoming much more involved in managing the projects, although actual development will remain the responsibility of information systems. User departments will still be involved in the project definition and must still fund the projects.

Major Projects

The company indicated there were no new systems being planned. However, the corporate financial systems are currently being updated.

With the current system, there is difficulty managing the system and accessing the data and applications. The new system will move functionality from the mainframes to LANs and workstations. The company also wants to ensure interoperability between applications, enabling more efficient use of the data bases. This project is expected to be completed within the next five years.

The company did not identify any other specific projects.

Company Profile

Ford Motor Corporation
17101 Rotunda Drive
Dearborn, MI 48121

The Company

Ford Motor Corporation is a leading manufacturer of automobiles, headquartered in Dearborn, MI. The company's 1990 revenues reached $98.3 billion, a slight increase of 1% over 1989 revenues. Profits plummeted 78% from $3.8 billion in 1989 to $860 million in 1990. Total employees are 370,400, up only 1% from 1989.

Major subsidiaries and divisions include Air Transportation Co., Audio Systems, Casting Division, Design Center, DPO Accounting, Electrical & Electronics Division, Employee Relations Staff, Engine Division, Ford Aerospace, Ford Division, Ford Glass, Ford Holdings Inc., Ford International Export Sales, Ford Motor Company Tractor Division, Ford Motor Credit Co., and Ford Parts & Service Division.

Systems and Plans

The company's systems are a mix of Hewlett-Packard, IBM, and DEC for both business processing and plant floor operations. The structure is not clearly defined as centralized or decentralized, or even distributed. A "two-layered" approach is taken, where mainframes are used for processing the larger applications, and intelligent workstations for business applications and plant floor operations. There is a group of corporate systems managers (10) that represent the various systems areas. This group is chaired by the CIO. Within this structure, standard approaches are being implemented; for example, each area has an approved plan, and all systems are compatible. The company does not expect to change its approach, but is constantly reviewing the operations, benchmarking itself against others.

The company has long-range systems plans at both the divisional and corporate levels. Each division and component of the company puts together a systems plan that includes a projection of costs (both people and equipment) and application plans. These systems plans are then forwarded to corporate systems, where they are divided into two plans. The first is a North American automation plan, the second is a world-wide plan. These plans are reviewed and agreed upon by senior Ford executives. The plans include specific projects to begin within the next few years.

Some projects have been cancelled due to the poor economic climate and reduced cash flow. A number of projects have had their completion dates pushed back for the same reasons.

Only the farm implements unit at Ford was using outsourcing, and only because of the unique requirements of that unit. As Ford is ranked #2 in the nation in efficiency of their information systems, the company sees no benefit at this time in outsourcing any other information systems area. If the time comes when outsourcing is the better alternative, the company will switch to improve its efficiency.

Whenever possible, a project is staffed entirely by in-house people, unless a particular skill is required for the project. When contracting with a vendor, it is for the skills lacking internally, not for management of the project.

Both end-user departments and information systems are taking an active role in project definition, application development, and project management. Funding remains the task of the user departments. The company does not see this changing over the course of the next five years. Indeed, the company sees little change in its overall approach to information systems in the near future.

Major Projects

Although the company is evaluating several new technologies, only a new materials management system has a high priority for development and implementation.

The intent is to develop a single materials management system that handles everything from ordering materials to receiving the materials. The new system will be used in over 55 North American plants. Each one now has a unique system. The new system will standardize business practices within these groups, leading to common processing and documentation.

A new mainframe system will be acquired to process the information centrally, with workstations within the individual plants. The project will be handled by the in-house staff, supplemented by outside programmers under the company's management.

The project will take three years to complete and is currently funded. The project was initiated last year.

The company indicated future projects will include image processing and AI/expert systems.

Company Profile

Goodyear Tire & Rubber

1144 East Market Street
Akron, OH 44316

The Company

Goodyear Tire & Rubber Corporation, founded in 1898, manufactures rubber products, in particular pneumatic tires of all types. Total 1990 revenues are $11.5 billion, a 3.7% increase over 1989. The company suffered a loss in 1990 of $38.3 million, a drop of more than 118%. In 1990, employees numbered 107,671, a 3% decrease from 1989.

Major divisions and subsidiaries include the Chemical Research Division, Goodyear Auto Service Center, Goodyear Industrial Products, Goodyear Truck Tire Center, Goodyear Wholesale Tire Center, Goodyear Energy Inc., Goodyear Financial corp., Goodyear Rubber Plantations Co., and the Retail Store Division.

Systems and Plans

The company uses Hewlett-Packard equipment in the plants, with IBM mainframes used for the remaining applications. The systems are currently centralized, but are moving towards a decentralized configuration.

There is a long range systems plan for the company as a whole. Projects have had to be delayed or cancelled altogether due to economic reasons.

None of the company's systems is being outsourced, although it has been considered. The company will not consider outsourcing in the future. A study evaluating the efficiency of the data center stated the company is already running operations more efficiently than can any outside vendor.

Vendors are not considered to be a primary source of staff; on the contrary, outside vendors are considered only if there are not enough in-house people to complete the project. The company prefers to retain control of the project, contracting only to supplement in-house skills.

Both information systems and end-users are involved in project definition. Actual application development is the responsibility of information systems. Funding is provided by the end-user departments. Project management is done by the end user.

The company does not see any of these areas of responsibility changing over the next five years.

Major Projects

The company indicated there are two projects of strategic importance.

- The first, a specification system, is felt to be of such strategic importance that the company would not provide information about it.

- The second project is a new distribution system. The current system is 17 years old. There will be new technology involved; however, the project is currently in the planning stage.

  Only the preliminary planning is funded. The planning and analysis are being done now; the company hopes to have this done by the end of the year.

  It is still to be determined if an outside vendor is to be used. The company expects that the project will take approximately two years to complete, at an estimated cost of $2 million.

LTV Aerospace and Defense Division

P.O. Box 655907
Dallas, TX 75265

The Company

LTV Aerospace & Defense Division, a Division of LTV, manufactures commercial and military transportation equipment. Total 1990 revenues for this division are approximately $2 billion and it has 18,500 employees. Total 1990 corporate LTV revenues were $6 billion, profits $7.1 million, and total employees 35,300.

Other major subsidiaries and divisions of LTV include LTV Aircraft Products Group, LTV Missile & Electronics Group, LTV Electro-Galvanizing Inc., LTV Energy products Co., LTV Sales Finance Co., LTV Steel Co. Inc., and LTV Steel Tubular Products Co.

Systems and Plans

The division's main applications systems run on centralized Amdahl equipment; the company does not expect this to change. Engineering applications run primarily on DEC minicomputers. There are also some IBM microcomputers.

Each division has its own long-range information systems plan. These plans include specific projects to be funded over the next two to three years.

Project management and staffing are normally done with in-house people. Vendors are used only to fill gaps in the skills necessary to complete the project.

Project definition is done by the information systems department. Both users and information systems are responsible for the funding of the corporate-wide projects. If the system is department specific, then that department funds the work. Development is performed by information systems to ensure adherence to development and documentation standards. The division feels users often do not follow information systems guidelines, which results in a lack of standardization across systems. There may also be a problem when mission-critical systems lack sufficient documentation. Project management is performed by the information systems organization.

Like many organizations, LTV Aerospace and Defense Division sees a shift towards greater user involvement. User departments and information systems will jointly define, fund, and manage the project.

Users are becoming more familiar with information systems. The division feels that computer literate users will be an operational

requirement in the future. Applications development will remain the responsibility of information systems. Historical data has to be maintained, and the company feels this to be part of the continuing role of information systems.

Major Projects

As part of its long range systems plans, a new MRP II system will be developed. The new system is being funded by the company, not the division, because of its strategic importance. The system will be based on Andersen Consulting's software package for MRP II, and modified for the company's particular needs.

The project is currently underway and will take four to five years to complete. Andersen Consulting is providing some support staff, but the company is in control of the project. Estimated cost of the project is approximately $20 million.

Future plans include an Executive Information System. The company feels this will be a derivative of the MRP II system.

Company Profile

Measurex Corporation
1 Results Way
Cupertino, CA 95014

The Company

Measurex Corporation, a public company with revenues of nearly $400 million, manufactures computer interface equipment for industrial process control. Assets reached $333 million, a 10% gain over the previous year. The company employees nearly 2,600 people. Measurex Systems Inc., a subsidiary of Measurex located in Cupertino, is a wholesale firm dealing in computers and peripheral equipment and software.

Systems and Plans

The company's centralized systems are almost exclusively IBM. There are no plans to change the systems architecture.

The company does not have a long-range systems plan. Systems are evaluated once per year. Upgrades, enhancements, and new systems are determined at that time, as is funding.

In-house people normally staff projects. When contracting for services, the company will go to a vendor only to obtain skills not supplied internally. Project management is handled entirely by the in-house staff.

As is often the case, end users are fully involved in definition of the projects. They also provide the funding which comes out of departmental/divisional budgets. Information systems do the actual development and project management.

Future trends indicate that, not only will end users continue to be responsible for project definition and funding, but also for development of projects. Users are becoming more skilled and knowledgeable in the use of higher level languages. Information systems will also continue to develop and manage projects.

Major Projects

The company indicates its major systems are meeting current company needs and have few plans to make any changes. Current plans are focused on revising the purchasing system.

The intent of the revision is to make the system more efficient. To further that end, the new system will entail conversion to a data base architecture. There will be no new application modules or enhancements made to the system.

This project is expected to be completed by the end of the year, being only a single year endeavor. Costs are expected to be under $1 million.

Monsanto Corporation
800 North Lindberg
St. Louis, MO 63167

The Company

Monsanto Corporation is a leading chemicals manufacturer with 1990 revenue over $9 billion, exceeding 1989 figures by 4.2%. The company's profits, however, dropped 20% to $546 million. The number of employees in 1990 also dropped 3% to 41,081.

Major divisions and subsidiaries of Monsanto include Detergents and Phosphates Division (soap and other detergents, industrial organic and chemicals); Fibers & Engineered Products Division (engineering services); Fisher Controls (valve repair, industrial); Monsanto Agricultural Co. (agricultural chemicals); Resins Division (plastics materials and resins); and Treasury Division (management services, real estate agents and managers).

Systems and Plans

The company utilizes primarily IBM equipment, but Hewlett-Packard and DEC are also used. The systems architecture is distributed. Minicomputers are typically the LAN servers and database machines. The company expects the architecture to change, but has not yet determined in what direction.

There are long-range systems plans for both corporate and its divisions. Due to reduced cash flow, certain projects have been delayed. The projects planned to begin within the next 2-3 years have a higher priority than those delayed.

The company is not outsourcing any of its systems operations. Outsourcing has been evaluated, and it was determined the systems can be operated much more cost effectively by the in-house staff. Systems operations outsourcing will be periodically reviewed to determine feasibility.

Monsanto maintains a minimal data processing staff. When there is a need for additional staff to supplement skills, the company contracts with a vendor to handle the increased workload. The company has rarely used vendors for project management.

End users have primary responsibility for project definition and funding. Actual development of the application is done by information systems. Either information systems or the end user manages the project, depending on the nature of the project. If the project involves system

infrastructure with high technology, then IS manages it. If the project entails developing extensive user interface, then the user manages it. The company does not expect any change in responsibility over the next few years.

Major Projects

Monsanto indicated two corporate level projects as part of its long-range systems plan.

The first is to update the human resources system. There will probably be no new hardware purchased; the intent is to use existing equipment. Monsanto would like to buy a software package (or many of them, if necessary) and modify it for their particular use. The database will be accessible by everyone on the network who needs human resources-type information.

The project is funded and is expected to begin by year's end. The company intends to use both internal staff as well as vendor staff to complete any necessary modifications. The project is expected to take two to three years to complete at a cost of approximately $10 million.

The second project is a computer integrated manufacturing project. The company, due to strategic reasons, declined to provide information regarding this system.

Texas Instruments
6550 Chase Oaks Boulevard
Plano, TX 75086

The Company

Texas Instruments manufactures computer and other electronic equipment. Total 1990 revenue was $6.6 billion, a slight decrease (less than one percent) from 1989. The company experienced a loss of $39 million, a decline of 113% from the previous year. There were 70,318 employees in 1990, down 5% from 1989.

The company has subsidiaries and divisions worldwide. A few of the company's US subsidiaries and divisions include the Computer Systems Division, Control Products, and the Semi-Conductor Group Division.

Systems and Plans

The company is a multivendor shop using IBM, Amdahl, and Hitachi Data Systems mainframes and Sun, Apollo, and DEC minicomputers. A wide variety of IBM and compatible microcomputers exists. There are both centralized and decentralized systems, tied together in a cooperative processing environment. The company is expending a great deal of effort in creating a cooperative processing infrastructure.

The long-range systems plan encompasses both corporate and division-level information systems. There are many projects scheduled to begin over the next few years. Some must be delayed or cancelled because there are more projects than can be handled by the company's existing IS resources.

Corporate systems operations are currently being outsourced; this will continue as long as it is cost effective. The contract is for platform systems operations. There is no interest in outsourcing applications maintenance or development; that will remain in-house.

Vendors are not considered as a primary source of staff when planning a project. The company contracts primarily to supplement in-house skills. It also prefers to manage its projects.

The end-user is heavily involved in most aspects of development projects. Funding is driven by departmental or divisional requirements, but both IS and users contribute. Actual management of the project is done by information systems.

The company sees no shift in the way applications will be developed over the next five years. Joint responsibility for project funding, definition, and development has proven to be very successful because the users are

so much involved. Having information systems manage all projects keeps each project in its proper perspective as it relates to the rest of the corporation.

Major Projects

Although the company did not indicate any specific projects, four types of activities were identified, as follows:

- The company does not believe future application processing can be done with the systems architecture that is currently in place. New application systems, such as EDI and human resources, will be built using a new application environment. Isolated manufacturing sites will move to a totally integrated manufacturing environment. Critical data will reside on a Knowledgeware repository where it will be available to many systems.

  TI has a number of alliances with global partners and is designing systems so they can exchange data with them, when required.

- The company will also be migrating to cooperative processing. The software will control applications across a number of computer systems. There will be a number of multimedia workstations adapted to user level (secretary, engineer, etc.).

- The new application environment will be completely business-processing oriented and will cross traditional marketing/sales/manufacturing boundaries.

- The company will be evaluating CASE tools that will permit implementation of the above technologies.

These target areas are funded for further study, and it is expected that development will begin by the end of 1991. This multi-million dollar overhaul is expected to last at least three years.

Textron Inc.
40 Westminster Street
Providence, RI 02903

The Company

Textron Inc., based in Providence, RI, is an aerospace manufacturer with 1990 revenues of $7.9 billion, a 6% increase over 1989 revenues. Profits rose 9% to $283 million. The number of employees dropped 7% in 1990 to 54,000.

Major subsidiaries and divisions include Textron Capital Corp., Textron Financial Corp., Avco Systems Textron Div., Bell Helicopter Div., Camcar Div., Compressor Components., Davidson Instrument Panel, Fuel Systems Div., Greenlee Tool Div., Homelite Div., Randall Div., Textron Marine Systems, Townsend Div., and the Speidel Div.

Systems and Plans

Business and manufacturing, finance and insurance applications at corporate level are supported by IBM equipment. The smaller divisions use DEC equipment for their business systems, and manufacturing and engineering applications. While the systems architecture is currently centralized, the company will be shifting to a distributed structure.

The company's long range systems plans include both corporate and division levels. Project cancellations were due to changes in business requirements. In some cases, funding constraints were the limiting factor.

None of the company's systems operations is being outsourced, although it has been considered. The company will consider outsourcing in the future, but will convert only if it is more cost effective.

In certain cases, vendors are the primary source of staff. The company prefers to handle any development projects in-house. Projects done in house use contractors to supplement skills lacking internally.

The end user and information systems organization jointly define the project, while information systems must provide funding, development, and management of the application. Funding can vary according to division. In most cases, however, IS has the budget. Sometimes there may be an internal transfer of funds from the user department to information services.

Over the next five years, the company expects a few changes. Project definition will be done solely by the user, who will have a better ability to

define the kind of tailored reporting needed. Funding and actual development will still be done by information systems. Management of the development effort will be done by the user.

Major Projects

The company has identified a number of projects as part of its long-range systems plan.

- The first is implementation at several divisions of MRP systems and integrated financial systems.
- At another division there will be an integrated financial management system for commercial lending.
- Yet another division will be looking at a branch office financial management system focused on personal loans.

For strategic reasons, the company declined to provide any further details.

Company Profile

Union Carbide
39 Old Ridgebury Road
Danbury, CT 06817

The Company

Union Carbide, headquartered in Danbury, CT, manufactures chemicals and related products. Revenues in 1990 declined 13% to $7.6 billion. Profit dropped 47% in 1990 to $308 million with assets of $8.7 billion. The company employs 37,756 people world-wide.

Major subsidiaries and divisions include Union Carbide Chemicals and Plastics Co., Union Carbide Industrial Services Co., and Union Carbide Industrial Gases.

Systems and Plans

The company uses primarily IBM machines, ranging from microcomputers to minis to mainframes. There are also Digital Equipment VAX machines running under a cluster environment. The company has an assortment of HP, Wang, and Prime minis, as well as a large number of MacIntosh microcomputers. The systems are decentralized and there are no plans to change that. There have been no projects canceled or delayed for any reason.

The company has a long range systems plan, but at the corporate level only. The individual divisions are responsible for developing their own plans.

No systems operations are currently being outsourced, although it has been considered and will be an option for evaluation in the future.

Vendors are not considered a major source of staffing for projects; only when there are insufficient in-house staff to supply skills for the project does the company seek outside personnel. Project management is done by the company.

The company firmly believes in partnership between MIS and end users. Both MIS and user departments participate in the definition and management of the projects. However, the departments are still responsible for funding the projects and the MIS area continues to manage the projects.

The belief in the users working together with MIS has been so successful that the company does not expect areas of responsibility to change over the next five years.

Major Projects

The company indicated one project, in particular, targeted as part of its long-range plans. That is an imaging system for the human resources applications.

There is a need for storage of employment forms as images and presenting them on the screen adjacent to other data base information.

MIS intends to use the existing host computer and integrate the new system with information and applications already in place. The only new equipment that will need to be purchased are scanners, optical disk drives, and special terminals.

The company has funding to evaluate the project over the next 4-6 months. Preliminary plans indicate that the company may need to contract for some consulting work, but that is not yet confirmed.

Future projects include an Executive Information System and implementation of CASE tools.

Westinghouse Electric
1001 Brintain Road
Pittsburgh, PA 15221

The Company

Westinghouse Electric is a large, diversified public company headquartered in Pittsburgh, PA. The company derives its revenue from miscellaneous industries (24%), electronic systems (21%), commercial (18%), energy & utility systems (16%), divested/other (9%), financial services (8%), and broadcasting (4%).

The company's 1990 sales were $12.9 billion, an increase of less than one percent over 1989. Profits dropped 71% to $268 million in 1990. The company has 115,774 employees and $22 billion in assets.

Major subsidiaries and divisions include Westinghouse Beverage Group, Westinghouse Broadcasting Co., Westinghouse Communities, Inc., Westinghouse Credit Corp., Apparatus Repair Div., Control Div., Environmental Systems Service Group, Marine Div., Nuclear Service Integration Div., Oceanic Div., Power Transformer Plant, Relay & Telecommunications Div., Silk City Electrical Supply Co. Div., Tethered Aerostat Systems Div., Wesco Div., Westinghouse Energy Systems, Westinghouse Furniture Systems Div., Westinghouse Resources Energy Service, and Westinghouse Financial Services.

Systems and Plans

The company's systems are predominantly IBM, with some DEC VAX systems as well as Prime and HP for smaller applications. The systems are primarily centralized, running payroll, human resources, and financial systems at the corporate level. The company does not expect any major changes in its overall approach.

The company does not have a long-range systems plan. Systems evaluations are performed on a yearly basis.

Vendors are not a primary source of staff; they are brought in only if there are insufficient personnel in-house with skills to complete projects. Project management is reserved for the internal personnel.

User departments are heavily involved in project definition and fund projects from their budgets. Information systems perform all applications development. Project management is done by both the user department as well as information systems. The company does not expect this to change over the next five years.

Major Projects

The company indicates its major systems are meeting current company needs and it has few plans to make any changes. Current plans are focused on revising the corporate employee savings plan system.

The intent is to rewrite the corporate savings plan system, using Oracle for the first time in a centralized VAX environment. The company is currently implementing the system and expects to be completed by the end of 1992. The projected cost of the entire project is expected to be approximately $6 million.

The company did not identify any other specific projects.

Company Profile
Boise Cascade Corporation
One Jefferson Square
Boise, ID 83728

The Company

Boise Cascade is a Fortune 500 company whose 1990 revenue dropped 3.4% from 1989 to $4.2 billion. Profits declined 72% to $75.3 million. There are approximately 19,810 employees, an increase of only 1% over 1989. The company manufactures and distributes paper and paper products, office products, and building products; it owns and manages timberland to support these operations.

Major divisions and subsidiaries include Boise Cascade Aviation, Boise Cascade Office Products, Boise Cascade Truck Division, Boise Packaging Division, Boise Southern Paper Mill, Coated Paper Division, Corrugated Container Division, Office Products Division, Paper Group Division, Timber & Wood Products Group, Trucking Division, and White Paper Division.

Systems and Plans

The company's systems are predominately based on IBM and Hewlett-Packard equipment, with AT&T being used for communications applications. The company's systems architecture is decentralized. Boise Cascade operates two central data centers. The first is a large data center for the office products distribution business and the corporate strategic IS organization. The second acts as a "service bureau," providing mainframe services to divisions that choose to use it. Most divisions follow the standards set by corporate operations.

The company does not have a corporate long-range systems plan that encompasses all divisions and subsidiaries. Each business unit develops its own data processing plan. Corporate is trying to expand its activities into networking, with LANs and WANs that will be mainframe based, interfacing with minicomputers and PCs. More and more people want to access from remote locations (i.e., other offices, hotels, etc.). Specific applications will be developed for network use, not merely for one specific user site. There are a number of projects scheduled for the next three years. The company will be spending more for systems development in the next few years than it has in the past 20 years. Although no planned projects have been delayed or cancelled, smaller enhancements to existing systems have been postponed.

None of the company's systems operations are currently being outsourced, although outsourcing has been considered as an alternative to running the data center in-house. The company has determined that it is more economical to do the processing with internal staff rather than have an outside firm responsible for systems operations. If, at some point, it becomes more cost efficient to have a vendor run operations, then the company would certainly consider switching to a vendor.

When planning a project, vendors are considered to be a major staffing source. Depending on the project, the company may either contract for supplemental skills or contract for management of the entire project. Some projects require both.

Each business unit is considered to be the end user. Each user group has its own applications development staff. There is a rapidly growing trend at Boise Cascade towards microcomputer applications developed by the end user. Project teams for large systems applications development include participation by user group's staff. The end-user organizations have responsibility for all phases of the project life cycle, including project definition, funding, application development, and project management.

The company does not expect any organizational changes to take place in its IS structure. If anything, applications will become even more user driven as SQL and microcomputer packages become more available. There will be still more emphasis on microcomputer imaging capabilities that will eventually change the way the business units operate.

Major Projects

Three major projects were identified by the company spokesperson.

There is currently a systems integration project being completed with CSC Partners. The project entails a total re-engineering of data processing operations in the Office Products Division. The division, having outgrown its current software system, needs to upgrade to a more competitive system. The new system includes order entry, inventory control, and warehouse control for the distribution business. The initial development and implementation is being done at one of 33 sites. Testing of the new system and final programming at this "test site" will be completed by the end of the year. The remaining 32 sites are scheduled for installation by October 1992. Projected cost of the entire project is expected to be approximately $17 million.

The division also plans a Project to Improve Revenue Cycle Systems (PIRCS). Because Boise manufactures to order, there is a tremendous amount of document interchange with suppliers and customers. The client would like to electronically query manufacturing systems as to when its order will be manufactured. The new system will include accounts receivable, order entry, inventory management, and even scheduling of manufacturing. There will be an interface between PIRCS and the Production Management System. The Regional Service Centers require the ability to manage inventory and the central system needs a customer database in support of the different modules of the system. The project is funded at $13 million and is expected to be completed sometime in early 1992.

There is also an Employee Information Services (EIS) system, funded for approximately $6 million. EIS will allow managers to enter employee transactions without use of paper. The forms are available in electronic format and managers pull the forms up on the screen and type in the information. The messaging system can be used to notify managers when an approval is needed. The manager then logs onto the employee system and indicates his/her approval. The system is based on DB2 and SQL, and uses a 3270 interface.

Company Profile
Borden, Inc.
Corporate Headquarters MIS Division
180 E. Broad St.
Columbus, OH 43215

The Company

Borden, Inc. is a food packaging company. In 1990, revenue rose 0.5% to $7.6 billion. Profits remained unchanged from 1989 at $363.6 million. The number of employees also remained constant at 46,300.

Major divisions and subsidiaries include Dairy & Services Division, Deli Foods, Doxsee Foods, Greggs Food Division, Meadow Gold Dairies, Orleans Food Co., Packaging & Industrial Products, Philan Division, Snacks International Consumer Products Division, Snacktime Co., Transprint UK, and Vernon Plastics.

Systems and Plans

The Corporate Headquarters, MIS Division, uses both IBM and DEC equipment. The financial systems are centralized throughout the corporation for consolidation of data and monitoring across divisions. The manufacturing systems are decentralized on the basis of geographic location or plant, and are serviced by that division's IS group. There are also distributed systems at sites that must interface with the central systems. This combination of system architectures will not be changed over the next few years.

This IS division services the corporate headquarters division and has developed long-range plans. Project groups exist within this division, and each project group has its own long-range plan. All of the corporation's divisions have both short- and long-term plans.

None of the systems operations are currently being outsourced, although it is certainly a future consideration. There has been no formal study identifying the pros and cons of outsourcing. A shortage of staff would be a valid justification for outsourcing of systems operations, according to company spokespersons. Due to staff reduction, approximately 50% of the applications maintenance and development is currently being outsourced.

Vendors receive contracts primarily to supplement the in-house staff. When a project has an accelerated time frame and needs additional resources to fulfill the user's expectations, a vendor is used to expedite completion of the project. However, when users need a critical system immediately and no in-house staff is available, the division will turn the entire project over to a vendor for execution. The division manages all the projects, with a senior staff member overseeing the vendor's activities.

Information Systems actually develops and manages the project activities. The division has attempted to shift the development activity to the user groups. However, it discovered that there was neither time for the users to learn and become well versed on the systems, nor was there any real motivation on the part of the users to do so. The end users generally provide the funding, although there are situations where the CEO provides funding for mission critical projects. Both end user groups and information systems staff define the project. Project managers are recruited from Information Systems and meet with the user managers to develop applications specifications, then monitor development and implementation.

In the future, the division plans to structure a more formal arrangement to foster more joint development efforts between IS and user groups.

Major Projects

As part of its long-range systems plans, the IS division has identified two projects it believes are important to the continued success of the company.

The first is an update of the centralized financial systems. The new system will be an on-line system developed with CICS and VSAM versus the current RDBMS based one. The system will run on a network linking mainframe to mainframe. The majority of the system is currently resident at the headquarters location. Access will be either through direct leased line or via dial-in. The new systems will have the ability to download data to PCs and the PCs will be able to make inquiries or enter data from remote sites to the mainframe.

The project is currently funded and portions of it are underway with both in-house and vendors's staff contributing. The central payroll system should be completed in early 1992, and the human resources module by the end of 1992. The A/P, A/R, and general ledger systems will take an additional year and one-half, with completion expected in the first quarter of 1994. The division spokesperson was unable to identify the cost of the project because the scope of the system keeps expanding.

The second project is a human resources application that will be adapted from a purchased software package. Some customization of the reporting module will be made, as well as interfaces to other systems. The customization will be done using the package's own fourth-generation language or COBOL to develop interfaces. The system is primarily for human resouces functions at the corporate level. Other divisions also had indicated an interest in accessing the system.

The project is currently funded and is expected to begin this year (1991). Both internal and external staff will be involved. The project is expected to be completed by first quarter 1992, with further expansion of the system being completed in 1994. The division has no estimate of the cost of the system, since it consists of a series of smaller projects funded individually as they need to expand. The savings and pension segment, however, has been estimated to cost $1 million to implement.

Company Profile
Chrysler Corporation
12000 Chrysler Dr.
Detroit, MI 48288

The Company

Chrysler Corporation is an international manufacturer of automobiles with 1990 revenues of $30.9 billion, a 14.6% decrease from 1989. Profits plummetted 81% to $68 million. Employees total 124,000, a 2% increase over 1989.

Major divisions and subsidiaries include Chrysler Lamborghini USA, Chrysler Motor SLS Division, Chrysler Financial Corp., Chrysler Learning Inc., Chrysler Motors, Chrysler Pentastar, Chrysler Techs Corp., Chrysler Transport Inc., Dallas Fleet Division, Denver Parts Depot, Fleet Division, Fleet Operations, Kokomo Casting Plant, Liberty Development Center, New York Westside Service Center, Portland Fleet Division, Service & Parts SLS Division, Sterling Heights Assembly Plant, Sterling Stamping Division, Toledo Plant Machining, and Trenton Chemical.

Systems and Plans

The company uses both IBM and DEC equipment in a totally centralized environment. There are no plans to change the systems architecture.

The long-range systems plans have been developed for the company as a whole, not just the corporate division. There are a number of projects planned for the near future. No major critical projects were delayed or cancelled because of the economic climate. Some of the non-critical projects were delayed due to manpower and resource difficulties.

None of the company's systems are currently being outsourced, although it has been considered. The company feels that the in-house capabilities are much more efficient than those available from an outside firm. Outsourcing will continue to be evaluated as an option.

Vendors are used only if there are not enough in-house people to meet the needs of the project. The vendor's staff then serve to supplement the internal people only. The company would not contract for management of the project. It wants to maintain firm control over all projects.

Today, both information systems and the end user provide funding and project definition. Applications development and project management are, however, handled solely by information systems.

The next five years will bring a major shift in responsibilities within the Chrysler IS community. The responsibility for project definition and funding will lie with the end user only, instead of jointly with information systems. Project definition will migrate to the end user due to the availability of more powerful tools at that level and increased user sophistication. End users will develop the simpler applications, while information systems will maintain the large databases, complex applications, and network systems, as well as manage any user-initiated projects.

Major Projects

A Chrysler spokesperson indicated that the only major project underway for the next few years will be the dealership system.

The National Automobile Dealers Association (NADA), Hughes Network Systems Inc., General Motors Corp. (GM), and Chrysler Corp. have agreed to jointly build and share a very small aperture terminal (VSAT) network linking multi-franchise dealerships. The network will allow dealers who sell different makes of cars to access the data bases of manufacturers for ordering both cars and parts, or for accessing warranty information. GM and Chrysler terminals are linked to Hughes communications equipment connected to the VSAT. The data from these terminals is transmitted as X.25 packets using Hughes' Spacelink protocol. These packets are then transmitted to GM or Chrysler hubs at speeds of up to 128K-bps. Packet switches at the hubs then send the data over leased lines to the manufacturer's host.

The project is currently funded, and has already begun. Outside vendors will be used primarily for supplemental programming. It is estimated that the project will take approximately 18 months to complete at an undisclosed cost.

Company Profile
The Dial Co.
Consumer Products Division
Dial Tower
Phoenix, AZ 85004

The Company

The Consumer Products Division of The Dial Corporation provides consumer products and services to U.S. consumers. Revenue in 1990 for The Dial Corporation reached $962 million, and total employees was approximately 4800 people.

Systems and Plans

The division's equipment includes both IBM and DEC hardware. The architecture is currently centralized, but it is in the process of being decentralized throughout the organization. Distributed applications will be developed in conjunction with the new decentralized system over the next 5 years. The new system will use DEC VAX processors connected to an IBM mainframe.

There is currently no long-range systems plan. One is, however, being outlined. The plan would encompass the corporate as well as division and subsidiary levels. There are a number of specific development projects planned for the next few years. A number of projects have been delayed or cancelled due to lack of funding or because other projects had higher priority.

Anderson Consulting is the systems operations contractor for the division's mainframe data processing. A small percentage of the applications maintenance is also being outsourced. The division remains in firm control of any development effort, however.

A certain percentage of the division's staff serves as consultants. The division indicates that having the consultants on staff works better from a strategic point of view. The division understands that it is not realistic for the user department staff to be familiar with every aspect of every system, as well as with new developments. Because consultants with that knowledge can be brought from central staff only when needed, there is less overhead associated with special projects. Again, the division prefers to manage all projects with in-house staff.

The end user must provide funding for the project as well as fully define what needs to be accomplished. Projects related to infrastructure and network backbone methodology are funded and defined by Corporate Information Systems. Information Systems sets standards for what methodology will be used. Both the end user and Information Systems are involved in the actual coding of the project. The information systems project manager reports to the end user project manager during the course of the project.

Within the next five years, the end user departments will have full responsibility for definition, funding, development, and management of their projects. Information Systems will still handle projects related to infrastructure and network backbone methodology. End users will, thus, have total ownership of any system to be implemented at the user level.

Major Projects

The division indicated two major projects are to be developed and implemented within the next few years.

The first is a manufacturing system whose objective is to implement applications at the lowest-end platform possible, preferably a PC on a LAN server. The system will require upgrading the technical skills of user staff so they can manage LANs. The focus of the new system will not be on the development of language used, but rather on defining the corporate enterprise information that must be made available. Information Systems must agree to supply that data on a fixed schedule and maintain its integrity. The information that is needed will be captured in a repository for anyone who needs it. There will be extensive transfer of information between systems.

The project is currently funded and is planned to start before 1992. The project will be completed with the aid of both internal and external staff. The project will be on-going, taking at least five years. The most challenging aspect of the project will be educating the people to understand and use the new system. The division will be re-casting the traditional IS role into one of selling new applications and getting out of the project development business.

The second major project is a marketing intelligence system. It will provide a database of external competitive information. POS terminals and a PC/LAN network environment will be installed. Information for a very large competitive database will then be gathered, entered, and updated on a regular basis. The project is funded and began in September 1991. The division intends to use mainly external contract programmers, managed by internal IS staff, to develop the system. Estimated cost of the project is $2.3 million.

Company Profile
Georgia-Pacific Corp.
Distribution Division
133 Peachtree St. NE
Atlanta, GA 30303

The Company

Georgia-Pacific Corp., the parent company of Georgia Pacific Distribution Division, is a major producer of wood and lumber products. Its 1990 revenue reached $12.7 billion, a 24.5% increase over 1989 revenue. Profits in 1990, however, dropped 44.8% to $365 million. Contributing to the decline in profits was the acquisition of Great Northern Nekoosa on June 26, 1990. Employees numbered 63,000 in 1990, a 43% increase over 1989.

Major subsidiaries and divisions include Container Division, Distribution Division, El Dorado Division, Great Northern Nekoosa Corp., Griffin Container & Supply Co., Gypsum Division, Mid-West Regional Office, Milwaukee Plant, Northern Pulp & Paper Division, Packaging Division, Paper Transport, Pearson Wood Products Division, Toledo Pulp & Paper Division, and Western Division.

Systems and Plans

The division's systems are primarily IBM based on a distributed architecture with central control. As business is transacted in the field, it is reported to the division via a network controlled by an IBM System 36.

For the first time, the division is developing a long-range systems plan. There are several projects scheduled to begin over the next few years, as well as several that were delayed in favor of more pressing projects. Priorities may change, however, depending on the final version of the long-range plan. It is uncertain when the plan will be completed.

None of the division's systems operations are being outsourced. Systems operations was strongly considered as an option, but the division determined that outsourcing was not cost effective. Outsourcing will be included in future considerations, however. The division indicated that applications maintenance is even more difficult to outsource. Frequently, applications maintenance is carried out on field systems at remote sites, as changing market conditions demand it. The division feels that outsourcing would decrease the flexibility needed to make these changes.

Contract support is used at Georgia Pacific in two cases. First, when there is insufficient in-house staff to complete a project, the division will contract for supplemental programmers. Second, when a project is a turnkey application not technologically strategic to the division, an outside vendor will be used. The division does not want knowledge of a proprietary system residing with the vendor, so limits the vendor's involvement to non-strategic applications.

Both Information Systems and the end user provide both project definition and funding. Information Systems establishes a budget for projects and specifies a certain level of funding for each project. If more is needed for a specific project, the end user must make up the difference. Actual development and management of the new system is handled by Information Systems staff.

The next five years will see responsibilities shifting towards a more computer literate end user. Project definition and funding will be increasingly furnished by the end user. Projects involving network transactions will continue to be developed by Information Systems staff, while projects that manipulate user or client information will be be handled by the end user.

Anderson Consulting has recently completed an order entry, invoicing, and accounting system for the division. It involved linking 143 distribution centers into a System 36, and took four years to complete at an undisclosed cost.

Major Projects

Two projects were identified as major projects scheduled for the next three year period.

The first is a vendor information database. The goal is to design a database keyed to the reporting requirements of the end user. Query tools will also be developed to more efficiently view the needed data. The network for the system is already in place. The project will be a joint effort between the end users and Information Systems staff. The project was to have been funded this year (1991), but was delayed one year. The project is expected to be completed by the end of 1992 at an estimated cost of half a million dollars.

The second project is an upgrade of the previously mentioned order entry and accounting system developed with Andersen Consulting. It is an evolving system that will replace the front end interfaces to the System 36 with IBM PC/ATs. All of the development of the user interfaces will be done on the PCs in a cooperative processing environment.

Funding for the pilot project has been approved for this year. The results of the pilot will determine the direction of the project. The division is currently looking for a vendor to write the technical interface between the PC and the System 36. The vendor must be familiar with Token Ring networks using a System 36 and PCs, and be able to develop the above in a cooperative processing environment. The project is expected to take three years to complete and will cost at least $15 million.

Company Profile
Borden, Inc.
Corporate Headquarters MIS Division
180 E. Broad St.
Columbus, OH 43215

The Company

Borden, Inc. is a food packaging company. In 1990, revenue rose 0.5% to $7.6 billion. Profits remained unchanged from 1989 at $363.6 million. The number of employees also remained constant at 46,300.

Major divisions and subsidiaries include Dairy & Services Division, Deli Foods, Doxsee Foods, Greggs Food Division, Meadow Gold Dairies, Orleans Food Co., Packaging & Industrial Products, Philan Division, Snacks International Consumer Products Division, Snacktime Co., Transprint UK, and Vernon Plastics.

Systems and Plans

The Corporate Headquarters, MIS Division, uses both IBM and DEC equipment. The financial systems are centralized throughout the corporation for consolidation of data and monitoring across divisions. The manufacturing systems are decentralized on the basis of geographic location or plant, and are serviced by that division's IS group. There are also distributed systems at sites that must interface with the central systems. This combination of system architectures will not be changed over the next few years.

This IS division services the corporate headquarters division and has developed long-range plans. Project groups exist within this division, and each project group has its own long-range plan. All of the corporation's divisions have both short- and long-term plans.

None of the systems operations are currently being outsourced, although it is certainly a future consideration. There has been no formal study identifying the pros and cons of outsourcing. A shortage of staff would be a valid justification for outsourcing of systems operations, according to company spokespersons. Due to staff reduction, approximately 50% of the applications maintenance and development is currently being outsourced.

Vendors receive contracts primarily to supplement the in-house staff. When a project has an accelerated time frame and needs additional resources to fulfill the user's expectations, a vendor is used to expedite completion of the project. However, when users need a critical system immediately and no in-house staff is available, the division will turn the entire project over to a vendor for execution. The division manages all the projects, with a senior staff member overseeing the vendor's activities.

Information Systems actually develops and manages the project activities. The division has attempted to shift the development activity to the user groups. However, it discovered that there was neither time for the users to learn and become well versed on the systems, nor was there any real motivation on the part of the users to do so. The end users generally provide the funding, although there are situations where the CEO provides funding for mission critical projects. Both end user groups and information systems staff define the project. Project managers are recruited from Information Systems and meet with the user managers to develop applications specifications, then monitor development and implementation.

In the future, the division plans to structure a more formal arrangement to foster more joint development efforts between IS and user groups.

Major Projects

As part of its long-range systems plans, the IS division has identified two projects it believes are important to the continued success of the company.

The first is an update of the centralized financial systems. The new system will be an on-line system developed with CICS and VSAM versus the current RDBMS based one. The system will run on a network linking mainframe to mainframe. The majority of the system is currently resident at the headquarters location. Access will be either through direct leased line or via dial-in. The new systems will have the ability to download data to PCs and the PCs will be able to make inquiries or enter data from remote sites.

The project is currently funded and portions of it are underway with both in-house and vendors's staff contributing. The central payroll system should be completed in early 1992, and the human resources module by the end of 1992. The A/P, A/R, and general ledger systems will take an additional year and one-half, with completion expected in the first quarter of 1994. The division spokesperson was unable to identify the project because the scope of the system keeps expanding.

The second project is a human resources application that will be adapted from a purchased software package. Some customization of the reporting module will be made, as well as interfaces to other systems. The customization will be done using the package's own fourth-generation language or COBOL to develop interfaces. The system is primarily for human resources functions at the corporate level. Other divisions also had indicated an interest in accessing the system.

The project is currently funded and is expected to begin this year (1991). Both internal and external staff will be involved. The project is expected to be completed by first quarter 1992, with further expansion of the system being completed in 1994. The division has no estimate of the cost of the system, since it consists of a series of smaller projects funded individually as they need to expand. The savings and pension segment, however, has been estimated to cost $1 million to implement.

Company Profile
Chrysler Corporation
12000 Chrysler Dr.
Detroit, MI 48288

The Company

Chrysler Corporation is an international manufacturer of automobiles with 1990 revenues of $30.9 billion, a 14.6% decrease from 1989. Profits plummeted 81% to $68 million. Employees total 124,000, a 2% increase over 1989.

Major divisions and subsidiaries include Chrysler Lamborghini USA, Chrysler Motor SLS Division, Chrysler Financial Corp., Chrysler Learning Inc., Chrysler Motors, Chrysler Pentastar, Chrysler Techs Corp., Chrysler Transport Inc., Dallas Fleet Division, Denver Parts Depot, Fleet Division, Fleet Operations, Kokomo Casting Plant, Liberty Development Center, New York Westside Service Center, Portland Fleet Division, Service & Parts SLS Division, Sterling Heights Assembly Plant, Sterling Stamping Division, Toledo Plant Machining, and Trenton Chemical.

Systems and Plans

The company uses both IBM and DEC equipment in a totally centralized environment. There are no plans to change the systems architecture.

The long-range systems plans have been developed for the company as a whole, not just the corporate division. There are a number of projects planned for the near future. No major critical projects were delayed or cancelled because of the economic climate. Some of the non-critical projects were delayed due to manpower and resource difficulties.

None of the company's systems are currently being outsourced, although it has been considered. The company feels that the in-house capabilities are much more efficient than those available from an outside firm. Outsourcing will continue to be evaluated as an option.

Vendors are used only if there are not enough in-house people to meet the needs of the project. The vendor's staff then serve to supplement the internal people only. The company would not contract for management of the project. It wants to maintain firm control over all projects.

Today, both information systems and the end user provide funding and project definition. Applications development and project management are, however, handled solely by information systems.

The next five years will bring a major shift in responsibilities within the Chrysler IS community. The responsibility initiated for project definition and funding will lie with the end user only, instead of jointly with information systems. Project definition will migrate to the end user due to the availability of more powerful tools at that level and increased user sophistication. End users will develop the simpler applications, while information systems will maintain the large databases, complex applications, and network systems, as well as manage any user projects.

Major Projects

A Chrysler spokesperson indicated that the only major project underway for the next few years will be the dealership system.

The National Automobile Dealers Association (NADA), Hughes Network Systems Inc., General Motors Corp. (GM), and Chrysler Corp. have agreed to jointly build and share very small aperture terminal (VSAT) network linking multi-franchise dealerships. The network will allow dealers who sell different makes of cars to access the data bases of manufacturers for ordering both cars and parts, or for accessing warranty information. GM and Chrysler terminals are linked to Hughes communications equipment connected to the VSAT. The data from these terminals is transmitted as X.25 packets using Hughes' Spacelink protocol. These packets are then transmitted to GM or Chrysler hubs at speeds of up to 128K-bps. Packet switches at the hubs then send the data over leased lines to the manufacturer's host.

The project is currently funded, and has already begun. Outside vendors will be used primarily for supplemental programming. It is estimated that the project will take approximately 18 months to complete at an undisclosed cost.

Company Profile
The Dial Co.
Consumer Products Division
Dial Tower
Phoenix, AZ 85004

The Company

The Consumer Products Division of The Dial Corporation provides consumer products and services to U.S. consumers. Revenue in 1990 for The Dial Corporation reached $962 million, and total employees was approximately 4800 people.

Systems and Plans

The division's equipment includes both IBM and DEC hardware. The architecture is currently centralized, but it is in the process of being decentralized throughout the organization. Distributed applications will be developed in conjunction with the new decentralized system over the next 5 years. The new system will use DEC VAX processors connected to an IBM mainframe.

There is currently no long-range systems plan. One is, however, being outlined. The plan would encompass the corporate as well as division and subsidiary levels. There are a number of specific development projects planned for the next few years. A number of projects have been delayed or cancelled due to lack of funding or because other projects had higher priority.

Anderson Consulting is the systems operations contractor for the division's mainframe data processing. A small percentage of the applications maintenance is also being outsourced. The division remains in firm control of any development effort, however.

A certain percentage of the division's staff serves as consultants. The division indicates that having the consultants on staff works better from a strategic point of view. The division understands that it is not realistic for the user department staff to be familiar with every aspect of every system, as well as with new developments. Because consultants with that knowledge can be brought from central staff only when needed, there is less overhead associated with special projects. Again, the division prefers to manage all projects with in-house staff.

The end user must provide funding for the project as well as fully define what needs to be accomplished. Projects related to infrastructure and network backbone methodology are funded and defined by corporate information systems. Information systems sets standards for what methodology will be used. Both the end user and information systems are involved in the actual coding of the project. The information systems project manager reports to the end user project manager during the course of the project.

Within the next five years, the end user departments will have full responsibility for definition, funding, development, and management of their projects. Information Systems will still handle projects related to infrastructure and network backbone methodology. End users will, thus, have total ownership of any system to be implemented at the user level.

,

Major Projects

The division indicated two major projects are to be developed and implemented within the next few years.

The first is a manufacturing system whose objective is to implement applications at the lowest-end platform possible, preferably a PC on a LAN server. The system will require upgrading the technical skills of user staff so they can manage LANs. The focus of the new system will not be on the development of language used, but rather on defining the corporate enterprise information that must be made available. Information Systems must agree to supply that data on a fixed schedule and maintain its integrity. The information that is needed will be captured in a repository for anyone who needs it. There will be extensive transfer of information between systems.

The project is currently funded and is planned to start before 1992. The project will be completed with the aid of both internal and external staff. The project will be on-going, taking at least five years. The most challenging aspect of the project will be educating the people to understand and use the new system. The division will be re-casting the traditional IS role into one of selling new applications and getting out of the project development business.

The second major project is a marketing intelligence system. It will provide a database of external competitive information. POS terminals and a network PC/LAN environment will be installed. Information for a very large competitive database will then be gathered, entered, and updated on a regular basis. The project is funded and began in September 1991. The division intends to use mainly external contract programmers, managed by internal IS staff, to develop the system. Estimated cost of the project is $2.3 million.

Company Profile
Georgia-Pacific Corp.
Distribution Division
133 Peachtree St. NE
Atlanta, GA 30303

The Company

Georgia-Pacific Corp., the parent company of Georgia Pacific Distribution Division, is a major producer of wood and lumber products. Its 1990 revenue reached $12.7 billion, a 24.5% increase over 1989 revenue. Profits in 1990, however, dropped 44.8% to $365 million. Contributing to the decline in profits was the acquisition of Great Northern Nekoosa on June 26, 1990. Employees numbered 63,000 in 1990, a 43% increase over 1989.

Major subsidiaries and divisions include Container Division, Distribution Division, El Dorado Division, Great Northern Nekoosa Corp., Griffin Container & Supply Co., Gypsum Division, Mid-West Regional Office, Milwaukee Plant, Northern Pulp & Paper Division, Packaging Division, Paper Transport, Pearson Wood Products Division, Toledo Pulp & Paper Division, and Western Division.

Systems and Plans

The division's systems are primarily IBM based on a distributed architecture with central control. As business is transacted in the field, it is reported to the division via a network controlled by an IBM System 36.

For the first time, the division is developing a long-range systems plan. There are several projects scheduled to begin over the next few years, as well as several that were delayed in favor of more pressing projects. Priorities may change, however, depending on the final version of the long-range plan. It is uncertain when the plan will be completed.

None of the division's systems operations are being outsourced. Systems operations was strongly considered as an option, but the division determined that outsourcing was not cost effective. Outsourcing will be included in future considerations, however. The division indicated that applications maintenance is even more difficult to outsource. Frequently, applications maintenance is carried out on field systems at remote sites, as changing market conditions demand it. The division feels that outsourcing would decrease the flexibility needed to make these changes.

Contract support is used at Georgia Pacific in two cases. First, when there is insufficient in-house staff to complete a project, the division will contract for supplemental programmers. Second, when a project is a turnkey application not technologically strategic to the division, an outside vendor will be used. The division does not want knowledge of a proprietary system residing with the vendor, so limits the vendor's involvement to non-strategic applications.

Both Information Systems and the end user provide both project definition and funding. Information Systems establishes a budget for projects and specifies a certain level of funding for each project. If more is needed for a specific project, the end user must make up the difference. Actual development and management of the new system is handled by Information Systems staff.

The next five years will see responsibilities shifting towards a more computer literate end user. Project definition and funding will be increasingly furnished by the end user. Projects involving network transactions will continue to be developed by Information Systems staff, while projects that manipulate user or client information will be handled by the end user.

Anderson Consulting has recently completed an order entry, invoicing, and accounting system for the division. It involved linking 143 distribution centers into a System 36, and took four years to complete at an undisclosed cost.

Major Projects

Two projects were identified as major projects scheduled for the next three year period.

The first is a vendor information database. The goal is to design a database keyed to the reporting requirements of the end user. Query tools will also be developed to more efficiently view the needed data. The network for the system is already in place. The project will be a joint effort between the end users and Information Systems staff. The project was to have been funded this year (1991), but was delayed one year. The project is expected to be completed by the end of 1992 at an estimated cost of half a million dollars.

The second project is an upgrade of the previously mentioned order entry and accounting system developed with Andersen Consulting. It is an evolving system that will replace the front end interfaces to the System 36 with IBM PC/ATs. All of the development of the user interfaces will be done on the PCs in a cooperative processing environment.

Funding for the pilot project has been approved for this year. The results of the pilot will determine the direction of the project. The division is currently looking for a vendor to write the technical interface between the PC and the System 36. The vendor must be familiar with Token Ring networks using a System 36 and PCs, and be able to develop the above in a cooperative processing environment. The project is expected to take three years to complete and will cost at least $15 million.

Company Profile
Boise Cascade Corporation
One Jefferson Square
Boise, ID 83728

The Company

Boise Cascade is a Fortune 500 company whose 1990 revenue dropped 3.4% from 1989 to $4.2 billion. Profits declined 72% to $75.3 million. There are approximately 19,810 employees, an increase of only 1% over 1989. The company manufactures and distributes paper and paper products, office products, and building products; it owns and manages timberland to support these operations.

Major divisions and subsidiaries include Boise Cascade Aviation, Boise Cascade Office Products, Boise Cascade Truck Division, Boise Packaging Division, Boise Southern Paper Mill, Coated Paper Division, Corrugated Container Division, Office Products Division, Paper Group Division, Timber & Wood Products Group, Trucking Division, and White Paper Division.

Systems and Plans

The company's systems are predominantly based on IBM and Hewlett-Packard equipment, with AT&T being used for communications applications. The company's systems architecture is decentralized. Boise Cascade operates two central data centers. The first is a large data center for the office products distribution business and the corporate strategic IS organization. The second acts as a "service bureau," providing mainframe services to divisions that choose to use it. Most divisions follow the standards set by corporate operations.

The company does not have a corporate long-range systems plan that encompasses all divisions and subsidiaries. Each business unit develops its own data processing plan. Corporate is trying to expand its activities into networking, with LANs and WANs that will be mainframe based, interfacing with minicomputers and PCs. More and more people want to access from remote locations (i.e., other offices, hotels, etc.). Specific applications will be developed for network use, not merely for one specific user site. There are a number of projects scheduled for the next three years. The company will be spending more for systems development in the next few years than it has in the past 20 years. Although no planned projects have been delayed or cancelled, smaller enhancements to existing systems have been postponed.

None of the company's systems operations are currently being outsourced, although outsourcing has been considered as an alternative to running the data center in-house. The company has determined that it is more economical to do the processing with internal staff rather than have an outside firm responsible for systems operations. If, at some point, it becomes more cost efficient to have a vendor run operations, then the company would certainly consider switching to a vendor.

When planning a project, vendors are considered to be a major staffing source. Depending on the project, the company may either contract for supplemental skills or contract for management of the entire project. Some projects require both.

Each business unit is considered to be the end user. Each user group has its own applications development staff. There is a rapidly growing trend at Boise Cascade towards microcomputer applications developed by the end user. Project teams for large systems applications development include participation by user group's staff. The end-user organizations have responsibility for all phases of the project life cycle, including project definition, funding, application development, and project management.

The company does not expect any organizational changes to take place in its IS structure. If anything, applications will become even more user driven as SQL and microcomputer packages become more available. There will be still more emphasis on microcomputer imaging capabilities that will eventually change the way the business units operate.

Major Projects

Three major projects were identified by the company spokesperson.

There is currently a systems integration project being completed with CSC Partners. The project entails a total re-engineering of data processing operations in the Office Products Division. The division, having outgrown its current software system, needs to upgrade to a more competitive system. The new system includes order entry, inventory control, and warehouse control for the distribution business. The initial development and implementation is being done at one of 33 sites. Testing of the new system and final programming at this "test site" will be completed by the end of the year. The remaining 32 sites are scheduled for installation by October 1992. Projected cost of the entire project is expected to be approximately $17 million.

The division also plans a Project to Improve Revenue Cycle Systems (PIRCS). Because Boise manufactures to order, there is a tremendous amount of document interchange with suppliers and customers. The client would like to electronically query manufacturing systems as to when its order will be manufactured. The new system will include accounts receivable, order entry, inventory management, and even scheduling of manufacturing. There will be an interface between PIRCS and the Production Management System. The Regional Service Centers require the ability to manage inventory and the central system needs a customer database in support of the different modules of the system. The project is funded at $13 million and is expected to be completed sometime in early 1992.

There is also an Employee Information Services (EIS) system, funded for approximately $6 million. EIS will allow managers to enter employee transactions without use of paper. The forms are available in electronic format and managers pull the forms up on the screen and type in the information. The messaging system can be used to notify managers when an approval is needed. The manager then logs onto the employee system and indicates his/her approval. The system is based on DB2 and SQL, and uses a 3270 interface.