

OPERATIONS ENTERPRISE MODEL
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Introduction

As the fictional American cartoon character Pogo once observed: "We are confronted with insurmountable OPPORTUNITIES." In reality, global business trends present opportunities of such magnitude that, in the 1990's, there will be no such thing as "business as usual."

Changes in business throughout the world are being forged by two factors -- globalization and technology. Great challenges and opportunities come from these ever-changing factors. In order to succeed under these circumstances, corporations must be able to digest and use mountains of data and move quickly within the international marketplace. Mature information systems are needed to make information out of an onslaught of data. And organizations must transform to achieve the competitive advantage these breakthroughs will bring.

MCI's Operation Enterprise Model (OEM) for Information System Technology seeks to transform and support the organization throughout its development as a highly competitive global corporation. The OEM is recognized as a revolutionary vehicle for this transformation and support.

Globalization as a Factor of Change

With the dramatic political and economic changes that are taking place in Europe and the rest of the world, globalization has become a reality which must be faced in the 90's. The European Common Market has plans for 1992 that will completely change the way business is conducted in Europe. The monumental political changes taking place throughout Eastern Europe will

provide significant new marketplaces. The return of Hong Kong in 1997 to People's Republic of China will necessitate significant adjustments.

With a world wide market, customer expectations and measures of excellence may vary widely. Customer service takes on new meaning when a corporation needs to accommodate the language and cultural expectations of its customers, and to support the many unique products developed for specific audiences. These challenges apply to the internal organization as well, where employees reside across borders and continents. Corporations such as MCI face the challenge of building teams, using highly skilled human resources, and managing highly complex projects spanning continents, time zones, atypical "work weeks," political/religious calendars, and work ethics, as well as cultural norms. As a result, corporations must be transformed into entities which are flexible, timely, and highly productive.

Technology as a Factor of Change

Information System (IS) technology has reached a new level of maturity which supports the globalization of corporations. Steve Covey in his book "Seven Basic Habits of Highly Effective People" (1) illustrates that people go through three stages of development: dependence, independence and interdependence. Using Covey's model, IS has gone through the first two stages of maturity since it emerged in the late 1940's. With the emergence of "groupware", it is approaching that final stage.

In the first stage (dependence), users were completely dependent on a MIS organization for the development

of applications and their operations. With the advent of personal computers in the 1980's, end users had the tools and personalities to independently develop and manage their own applications (stage 2). Information System Technology is on the threshold of the final stage of maturity (interdependence) with the advent of network strategies such as LANs (local area networks) and WANs (wide area networks), and the emergence of "groupware", products that function like bulletin boards in their ability to connect multiple users into databases of information. These new technologies allow users to cross hardware, software and language barriers common in the past. And more importantly, the users can exchange information, make decisions, complete tasks and manage processes in real time.

Information technology provides the vehicle, the tools, for corporations to expand into and operate in international markets at the accelerated rates required in the 90s. With the emergence of technology at this third stage, businesses will truly be able to become global.

Organizational Empowerment

Globalization and technology will cause an enormous transformation to take place within a business. In order to sustain a competitive advantage in the 90's, an organization must react quickly to the changing markets and conditions. Individuals must be empowered throughout the organization with the information and resources needed to perform their function on a real time basis. Individuals within the organization will have to cope with changes to their corporate culture. The corporation must transform its

organizational structure to accommodate constant change and rapid movement. Technology will become critical with new and innovative ways to cope with the tremendous changes.

In his latest research, Tom Peters, an American management consultant, claims that businesses must have three thrusts in the 90's: service-oriented products, products with a high degree of quality, and the products available in impressive cycle time. "Competing in Time" is the new variable in the equation which will force the automation of many aspects of today's businesses. The application of information system technology must be felt inside the company but should also directly affect the customers.

Organizational structures must be revolutionized to cope with the changes. Information system technology will be critical to the transformation which organizations will face throughout the next decade. The new emerging systems will have to support an environment which is highly flexible in order to cope with the constant reassessment of changing business priorities. Timely access to appropriate data and effective communication of the important information will be two of the keys to the transformation. Organizations will have to eliminate redundancy and clearly define roles and responsibilities.

IS must evolve from vertical function-oriented stand-alone systems and from horizontal management-layer-only systems (Executive Information Systems) to enterprise-wide information and decision support systems.

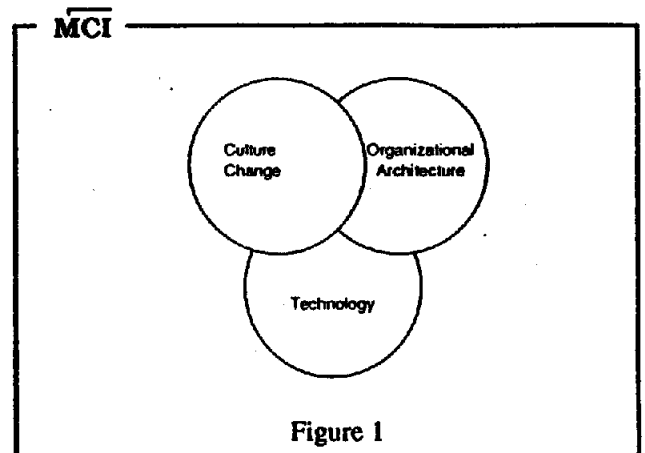
OEM Fundamentals

MCI has begun the process of evolution towards the new type of IS with its Operations Enterprise Model (OEM). The OEM is an enterprise-wide information and decision support system. The OEM is focused on improving individual and organizational productivity through the use of technology.

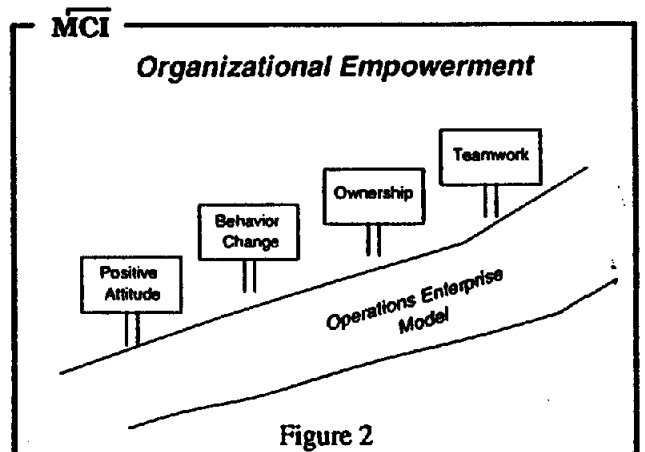
Culture change is one of the principle tenets behind the OEM's focus on automation. Individual attitudes are contagious regardless of whether it is a new product, a new technology or a new billing system. A positive attitude can energize an individual and an organization. This concept of promoting positive attitude throughout an organization will cause significant behavior change in both individuals and organizations. Embracing this idea will lead to unbelievable dedication and job satisfaction. One initial focus of the OEM has been directed toward creating a positive work environment and spreading the resulting culture change throughout MCI.

A second principle of the OEM is focused on organizational architecture. Modern business bureaucracies have too many organizations which are tasked to do similar jobs. This can often lead to an environment of redundancy and waste. In addition, entire areas of the business are ignored because of the lack of resources and focus. The key to solving this set of problems is to focus on clear cut roles and responsibilities for both individuals and organizations, thus promoting the concepts of ownership of projects, problems and solutions. Once ownership is established, clear internal and external interfaces must be defined for an organization to properly operate. This requires

that people work with other people. Teamwork can only be built and sustained in an atmosphere of trust and positive attitude. See Figure 1.



The four concepts that emerge from these principles are positive attitude, behavior change, ownership and teamwork. This guiding focus on empowerment has provided clear avenues for avoiding and managing the malaise of bureaucracy. See Figure 2.



The organizational hierarchies which are present today in most businesses evolved without the benefit of modern computer technology. The pyramid shape of modern bureaucracy is a result of the lack of technology in both decision making and communication. Even with the incredible advances in technology over the last fifty years, organizational architectures have failed to substantially change. If modern technology was fully utilized, the resulting structure would be completely different: less hierarchical and flatter.

Technology provides the catalyst for the transformation, allowing for the elimination of drudgery and the promotion of creative problem solving. Information system technology has been a leader in this evolution and has provided numerous avenues for the necessary change. See Figure 3.

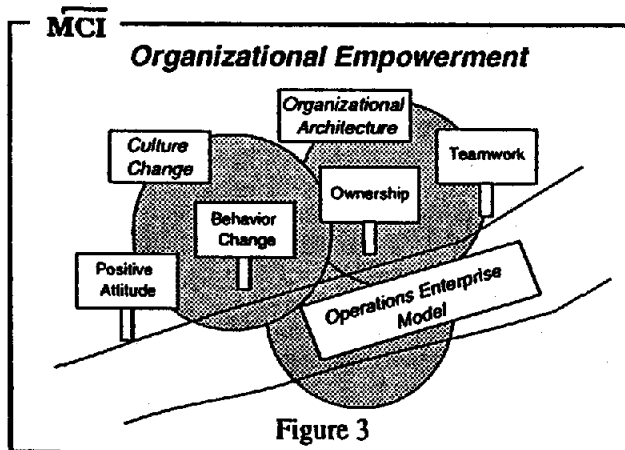


Figure 3

MCI has developed a clear path to "world class" quality to follow during the evolution of the OEM. People are the most important resource in a company. Through the use of technology, a positive work environment is created which allows

for people to assume ownership and establish successful teams. Business processes must be clearly understood in order to improve and automate. If processes can be identified as predictable, repeatability becomes a significant factor in streamlining the business. Consequently cycle time reduction and a zero defect environment can be a reality. See Figure 4.

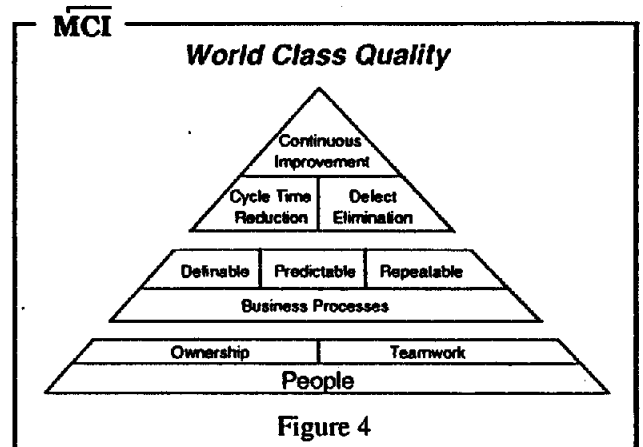


Figure 4

Business Areas Within OEM

MCI's OEM targets four primary tools for improving individual and organizational productivity: people, business, technology and desktop. See Figure 5.

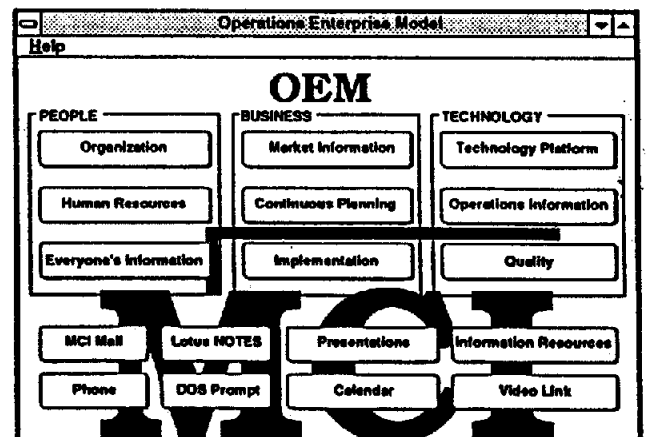


Figure 5

People

People affected by the OEM are presented with three primary tools: Organizational Models, the "Everyone's Information System", and a Customer Information System.

People are the most important resource within a company. As a result, the initial focus area is to provide organizational modeling tools which assist in clarification of roles and responsibilities, promote ownership of assigned tasks, and create structures that foster teamwork. The types of tools that exist or are in development include concepts such as a "living" Organization Chart, an Organizational Capacity Model, a skills inventory, quarterly assignment inventory, and a quarterly achievement database. These tools provide MCI with an organizational architecture which begins to define clear roles and responsibilities, core competencies and skills required to perform an assigned role; tools which match existing skills to prioritized projects and a constant feedback of individual and team performance.

Information is key to the success of an individual as well as an organization. The OEM embraces the concept of the Executive Information System and extends it to everyone within the organization, thus the "Everyone's Information System". It provides an information system that allows appropriate access enterprise wide and provides appropriate levels of detail and summarization at the various levels of management. This approach avoids the documented pitfalls of most EIS systems: providing only one level of management with automated tools to run the business. The OEM approaches information in an entire enterprise mode. Applications within this area which currently

exist or are under development include personal profiled real time news feeds, traffic trends and projections, economic and business analysis tools, organizational status reports available in various views, group and personal calendaring, CD ROM access to technical information, and key business indicators. These tools provide the power of an executive information system and applies it to every organizational level.

MCI is a provider of telecommunications services throughout the world. Consequently, MCI's knowledge database of its customers, its customers requirements, and the various key data about customer accounts is its most empowering feature. Transformation in this area means responsiveness and quality customer service. The OEM will be providing tools which will allow MCI to examine customer needs across a range of key accounts and provide the services required for its customers. The OEM will meet customer concerns with a database of complete customer profiles as well as quality control measurements that track the customer perspective. All the elements of world class customer service will be accounted for: instant access to critical data, ensured timely, appropriate responsiveness, and proactive customer support. See Figure 5.

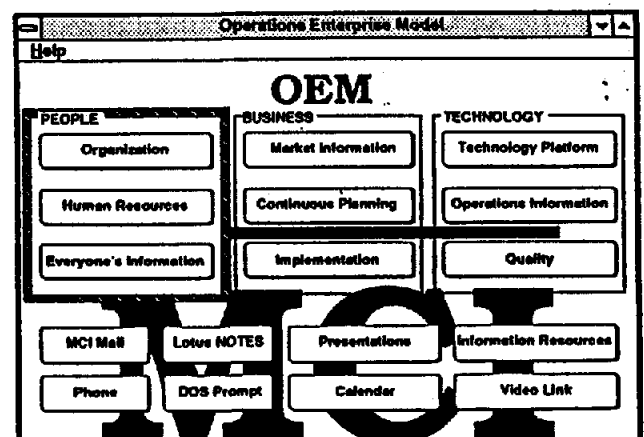


Figure 5

Business

The business area of the OEM includes: Planning Information, Program Management Information, and Budget Information.

The OEM provides MCI with a planning information system which promotes a continuous planning environment that goes beyond strategic and tactical planning to include end-to-end planning (rolling four years and four quarters). The associated tools provide precise desktop support for defining the business strategies and for goal-based product and infrastructure prioritization. The applications cover automated development plans, marketing and product forecasting tools, competitive market analysis tools, revenue and expenditure analysis tools, program prioritization tools and direct linkages to the program management and budget information systems within the OEM.

Program Management provides an integrated information base for optimizing program implementation by providing a state-of-the-art Program Management Facility. This tool will allow MCI to track not only program schedules and resource allocations but work, cost, and organizational breakdown structures on each program. Issues and resolution are natural outgrowths of this tool. The OEM is providing a program management facility, executive reporting of key program management deliverables and milestones, manpower utilization and task ownership, impact assessments, and a direct linkage to both the automated planning and the budget information systems.

The budget information system will consist of a budget allocation and tracking system that provides the programs to support its customer

base. The OEM will deliver an automated capital and budget allocation and tracking system which are directly linked into the planning and program management information systems. See Figure 5.

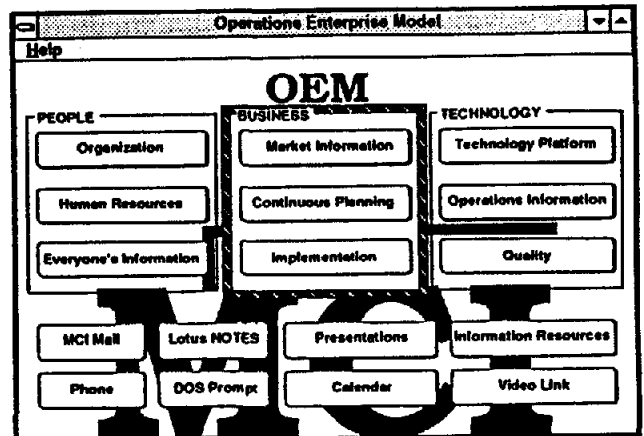


Figure 5

Technology

Within the scope of the technology component of the OEM are: Technology Platforms, Operations Information, and Quality.

The Technology Platform system provides a set of models for examining new technologies and their potential impacts on the MCI network. This tool set offers the desirable architectures and technologies for selection, and optimizes their deployment and implementation. The telecommunication service sector has just transformed itself from an analog to a digital environment. New technologies need to be carefully examined to determine their proper deployment within the infrastructure. Specific applications include architectural validation, analysis tools for technology selection, and performance analysis tools.

An Operations Information System has also been developed to track the billions of bits of operational data it has on the performance of its network (switching, transmission, etc.). These tools will provide trending and analysis capabilities which will allow MCI to proactively predict traffic anomalies, potential network degradations, and proper restoration and planning aids for network outages. They also measure, analyze, and optimize the performance of MCI networking facilities thus enabling premier customer service. Three applications will be developed: operational characteristic tools, performance management tools, and trending and analysis of operations information.

The Quality Information System is a set of tools to trend and analyze network availability, queuing/delays, call setup times, bit error rates, and other measures associated with "world class" telecommunications service delivery. The set of applications envisioned will provide their basis for measurement of quality of service for both internal and external consumption. See Figure 5.

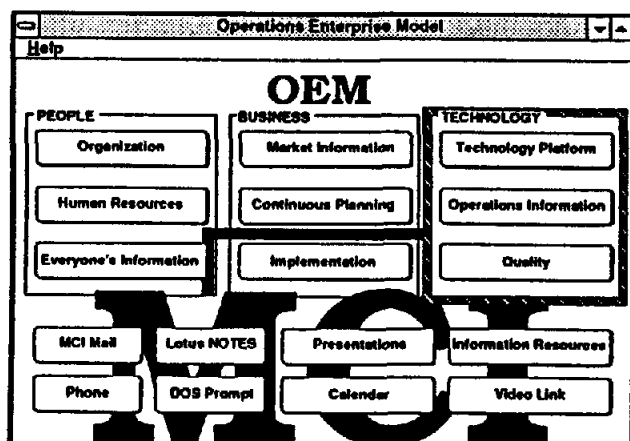


Figure 5

Desktop

Under development is an improved desktop to promote the use of OEM tools to users across MCI's LANs and WANs. Users will get improved communication tools, desktop access to MCI's Information Resource Center, and seamless access to the various available operating systems for the more sophisticated users of the OEM. The goal is to provide a universal desktop that looks and feels the same under DOS, OS2, VMS, MVS and System 7.

MCI fully utilizes its own products for internal and external communication including voice and data and MCI's own E-Mail system, MCIMAIL. E-mail systems are excellent mediums for 1-to-1 and 1-to-many communications. "Groupware" products enhance the existing mediums to provide many-to-one and many-to-many communications. The body of applications which have been developed or envisioned for this area of the OEM include access to an on-line phone directory, easy to use launches to E-mail from any place within the OEM, automated pointers to groupware which promote new communication techniques, automatic phone log, personal phone directories, desktop audio and video conferencing, improved access to the various word processors and graphic packages that are available to OEM users via its LAN/WAN, and a library of the various media presentations.

OEM users also have access to MCI's Information Resource Center. MCI is developing a state-of-the-art technical research and library facility in Richardson, Texas.

Tools used with the OEM

The approach taken by MCI to develop the OEM includes four

distinct categories: network, services, workstations, and applications.

Network

The transport portion of the OEM utilizes what MCI calls its "Enterprise Network": a single, heterogeneous computer environment encompassing all computers, services, resources, elements and networks at MCI. The intent of such a network is a transparent front end for the user, encompassing file, print, communication and applications services. Various types of workstations can be in service and the interface is transparent. The "Enterprise Network" has or will provide access to multiple client/server platforms (DOS, OS2, MAC, UNIX, VMS, MVS), WAN integration, interoperability, distributed processing, and a single-point concept of network administration.

Services

OEM users currently have basic network services which are available seven days a week, twenty-four hours a day and encompass basic file, disk, print, communication, and application services. File disk service provides users with storage on one or all servers. Printer service connects all users to all printers on the network. Communication service puts OEM users in touch with all applications residing on the Network. The applications service provides access to a wide variety of distributed-application engines.

Workstation

MCI is committed to providing a seamless presentation layer. The OEM "screen"/driver appears identically on each user's workstation and serves as their

menu-driven front-end, regardless of their choice of workstation. Although the predominant client is an INTEL-based 80286/386 PC, efforts are under way to include MAC, UNIX, and RISC clients.

Applications

OEM applications development is based on a rapid prototyping model. These prototypes automate day-to-day business processes and facilitate discussion, tracking, problem solving, issue resolution, and presentation of critical data. The applications are developed using the most appropriate software for the situation. Embedded in the applications are advanced data management capabilities which provide "what if" scenarios to decision makers.

Software interoperability requires applications to interface with one another using such processes as DDE (dynamic data exchange) and OLE (object linkage exchange). Wherever possible, linkages are made to data in its original location to avoid duplication of data. The current trend toward multi-vendor architecture permits development on economical and available platforms. It also supports the ultimate goal of scalability, once a prototype has been tested and approved for full-scale development.

SAS and the OEM

One of MCI/OEM's key partnerships is with SAS Institute. SAS was selected because of its leadership role in the decision support community and its commitment to similar ideals essential to the maturation of the OEM. SAS Institute has also embraced multi-vendor architecture, making its products easily incorporated into

systems and available to applications developed with other software on various platforms.

The OEM development group has been working with the SAS Institute for more than a year in prototyping several key components of the OEM: a skills inventory module, graphics presentations of traffic patterns and trends, interfaces with project management software, revenue analyses, and database access methods for VMS and MVS. MCI is using SAS/ACCESS, AF, FSP, GRAPH and will be incorporating the EIS product as soon as it is available.

Summary

MCI is in a position to develop a revolutionary enterprise-wide information and decision support system -- the Operations Enterprise Model. By automating critical business processes and providing instantaneous access to crucial data, the OEM will provide MCI with a strategic and competitive advantage for the 90's and beyond.

Acknowledgements

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