



**Benchmarking
Partners**

Collaborative Solutions for Manufacturers

Mobil Corporation

**Knowledge Management across the
Global Manufacturing Network
using Lotus Notes and Lotus Domino**

January, 1998

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Executive Summary

Mobil Corporation

- One of the world's largest integrated oil companies
- Operates in more than 125 countries
- Revenue: \$81 billion in 1996
- Employees: 43,000

Lotus Notes Version: 4.1

Lotus Domino Server

Consultants:

- RPM Systems
- Rock Bottom Consulting
- Whittman-Hart
- Lotus Consulting

Applications:

- Issue Manager: Environmental Health and Safety legislation and regulation management
- BestNet: Best practices for manufacturing
- Electronic Mail Messaging

Current Status:

- BestNet: 23 sites, 300 users
- Issue Manager: 30 locations
20,000+ Lotus Notes Mail Users
(30,000 by end of 1998)

5-Year Return on Investment: 234%

Mobil Corporation, one of the world's largest integrated oil companies, faced two major business challenges in 1995: how to achieve dramatic cost reductions, while at the same time driving toward continued growth and expansion. Following a major restructuring initiative, it became clear that Mobil had to find an effective way to collaborate and leverage synergies, expertise, and knowledge across its geographically dispersed organization.

As with many leading manufacturing companies, Mobil faced the challenge of balancing a common shared services organization with effective, decentralized manufacturing organizations that are close to the customer. A collaborative solution was necessary to achieve the desired knowledge management across key business processes in the supply chain as well as among key functional areas of the enterprise.

Mobil chose Lotus Notes to help achieve this goal. They first developed an information sharing architecture in Lotus Notes called GENIE, and then began developing other Notes applications based on this architecture. After building simple connective functionality, Mobil developed enterprisewide collaborative solutions using GENIE architecture: featured are BestNet and Issue Manager.

BestNet was developed to allow teams of manufacturing experts to collaboratively develop, record, gain consensus on, and disseminate best practices across Mobil's manufacturing operations. This is particularly challenging at Mobil where manufacturing is dispersed geographically around the world and covers different types of operations. BestNet enables local manufacturing operations to implement best practices that increase their operating efficiency and enhance their responsiveness to customer needs.

Issue Manager was developed to help Mobil's Environmental, Health, and Safety (EHS) organization determine corporate response to new regulations and legislation. The EHS group, in various locations worldwide, uses Issue Manager to gain consensus around Mobil's approach to upcoming legislation, to influence legislation before it becomes law, and to ensure that the affected manufacturing functions are complying with existing regulations effectively and efficiently.

The projected internal rate of return of the GENIE and BestNet Lotus Notes implementations is estimated to exceed 65%, with a five-year return on investment of 234% and a payback period of less than one and a half years once deployed in full. Mobil is starting to see some significant benefits already, including savings from reductions in redundant work, and the ability to leverage key information to win new business.

The most important benefits, however, are more strategic in nature. The use of Lotus Notes has allowed Mobil to fundamentally change and improve its ability to leverage information, knowledge, and expertise across a geographically dispersed organization. The rollout of Lotus Notes as a strategic tool is continuing and expanding, beyond initial expectations, providing critical support for Mobil's competitive initiatives and future growth. In addition, Mobil is beginning to implement inter-enterprise supply chain collaboration using Lotus Notes—incorporating key trading partners and creating the potential to support business to business information sharing through an important industry trade association.

We would like to thank all the participants at Mobil who contributed their time and insights to this case study.

Company Profile

1996 Financials

Revenues: \$81.5 billion

Net Income: \$3 billion

Investment Spending: \$7 billion

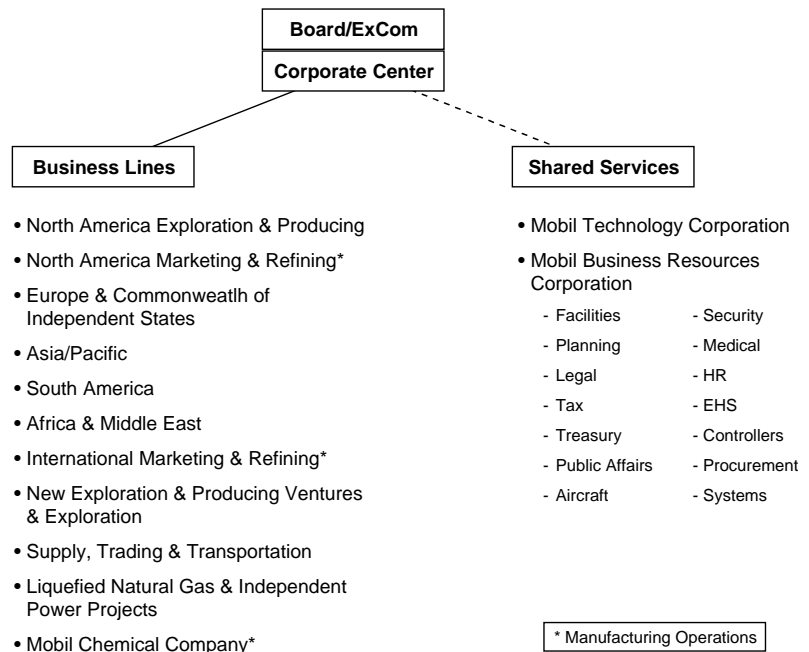
Earnings per common share:
\$7.38

With 1996 revenues of \$81 billion, Mobil Corporation is one of the world's largest integrated oil companies. The company employs 43,000 people and operates in more than 125 countries, including North and South America, Europe, Asia-Pacific, Africa, and the Middle East.

Mobil is currently organized into two major areas, reporting to its Executive Committee. The first area is comprised of its eleven business lines, or operating divisions, including exploration and producing, marketing and refining, and chemicals. The second area is Shared Services, which includes, for example, the human resources, finance, legal, information technology, and environmental health and safety (EHS) functions. (See Figure 1.)

Figure 1

Mobil Organization



Source: Mobil Corporation

Project Description

Business Challenges

Mobil faced two major business challenges in the 1990's: the need to dramatically reduce costs, while at the same time driving toward continued expansion. Between 1995 and 1996, Mobil launched a major restructuring

initiative to support these goals. In addition to a \$1.3 billion reduction in annual costs, the goal of the reorganization was “a new performance-driven organizational structure to support further growth and improve performance from existing assets” (Mobil 1996 Annual Report).

With the new organization, Mobil adopted a shared services model for its professional services staff. Prior to this time, each of the operating divisions had its own professional services staff, who performed overlapping and redundant activities. The Mobil Business Resources Corporation (MBRC), created in October of 1995, is made up of facilities, planning, legal, tax, Treasury, public affairs, aircraft, security, medical, human resources, controllers, procurement, systems, and environmental, health, and safety (EHS) departments. (See Figure 1.)

While MBRC itself is headquartered in Fairfax, Virginia, its personnel are geographically distributed all over the world. For example, about half of the EHS group work in shared service offices such as Fairfax, Dallas, London, Melbourne, but the other half are still located—and report to—embedded organizations such as the manufacturing operations. As such, one of the major challenges they face is how to operate as one group, sharing information and leveraging knowledge and expertise across a geographically dispersed population.

The manufacturing groups at Mobil face a similar challenge. With the reorganization, manufacturing is now divided among three different business lines: North American Marketing and Refining (M&R), International M&R, and Mobil Chemical Company. Moreover, they are geographically dispersed: for example, Mobil Chemical is a global organization with worldwide plants, with the manufacturing groups residing within the plants. With manufacturing personnel across three line organizations and numerous international geographic locations, Mobil needed an approach to strategic knowledge management whereby best practices and capabilities could be developed, communicated, and leveraged across all of the line organizations. They needed a strategy which would allow them to leverage the synergies of their manufacturing operations, while at the same time remaining geographically decentralized.

In December 1995, after they reorganized, Mobil began looking for a tool that would support collaboration among essentially worldwide, virtual teams. A parallel effort was underway in the procurement and legal groups to develop a Web-based technology for their collaboration needs. The EHS group considered using this technology as well, but did not feel that it would provide the level of security that they needed. In January of 1996, Mobil made the decision to use Lotus Notes. They chose Lotus Notes because of its security and its replication ability to work off-line then re-synchronize, and because it provided the most robust functionality, particularly in the areas of collaboration, workflow, and routing.

“Other technology alternatives did not provide us with the workflow functionality of Notes that enables distributed organizations to participate in threaded discussions, dynamic document sharing and issue resolution in a best practices manner”.

--Rob Esser, Global EHS Process Specialist for Information Services

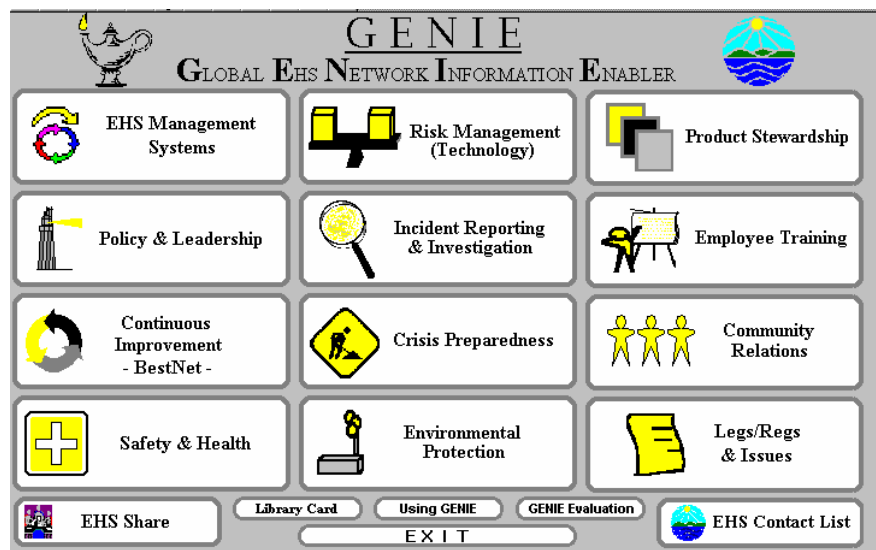
Lotus Notes Adoption Strategy and GENIE

One of the first groups to implement Lotus Notes was the EHS organization of Mobil Business Resources Corporation. They took an incremental, phased adoption approach, starting with basic applications to get people accustomed to the technology and its capabilities. Their first goal was to achieve connectivity among all shared services personnel. As Bob Andrew, EHS Integration Consultant, explained, “we wanted to take this very diverse organization, enable everyone to know who is where, how to get a hold of them, who they report to and what they do.” The first application they developed was a contact list that let people sort by job function, location, supervisor, etc.

In March 1996, after the first applications were adopted, MBRC turned to the development of an overall architecture which would provide a framework for all EHS Lotus Notes applications. The result, completed in December 1996, was an architecture called GENIE: Global EHS Network Information Enabler.

To date, Mobil has developed a number of applications within the GENIE environment. (See Figure 2). One of these applications is Issue Manager, used by the EHS group. A second application is BestNet, a best practices network for the manufacturing organizations. These are described below.

Figure 2
GENIE Environment



The Issue Manager application falls under the "Legs/Regs & Issues" category
The BestNet application falls under the "Continuous Improvement" category

Source: Mobil Corporation

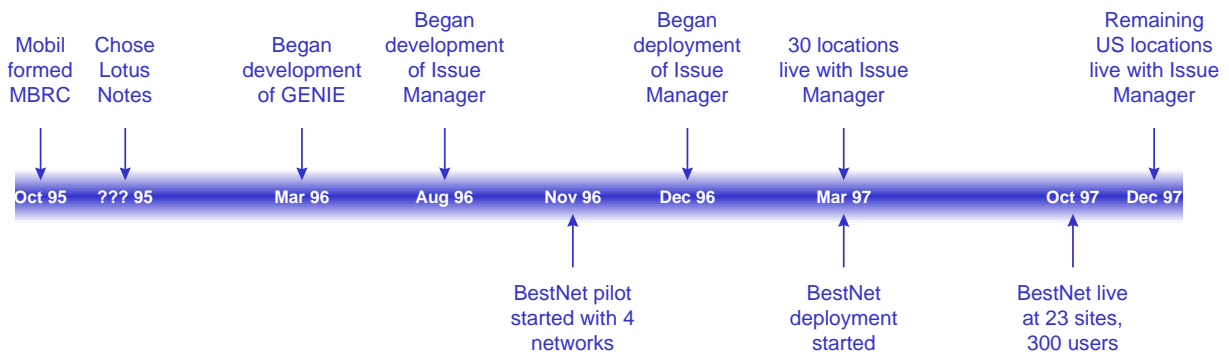


Figure 3
Project Timeline

Source: Benchmarking Partners

BestNet and Issue Manager

- Lotus Notes 4.1
- Lotus Domino/Intranet servers
 - HP NT servers with TCP protocol (replacing OS/2 servers with SPX protocol)
 - Dell desktop clients with Win 3.1 or Windows NT
 - IBM Thinkpad clients with Win 3.1 or Windows NT
- Workflow intensive
- Synchronous replication
- Complex security
- Discussion database
-
-
- Email enabled
-
-

The BestNet Application

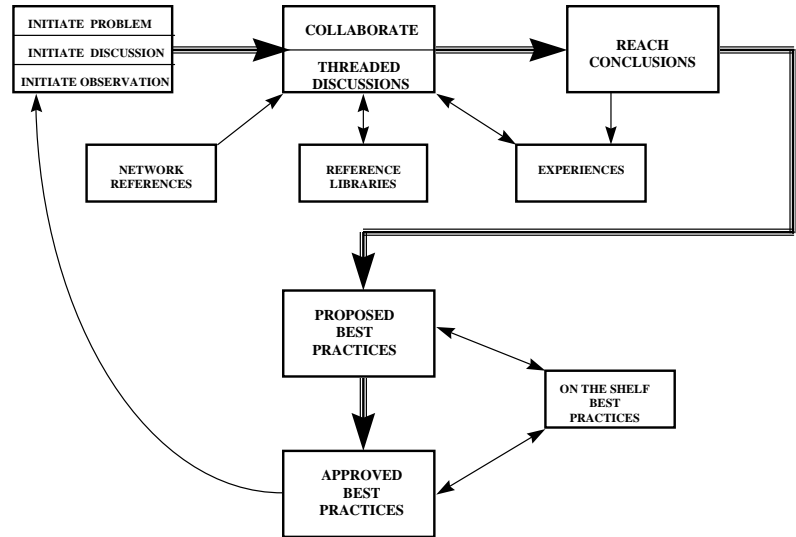
As noted earlier, in order to remain competitive in their market, Mobil needed a systematic, rigorous way to define, develop, and implement best practices. They also needed a way to leverage the extensive expertise and knowledge that exists across multiple locations.

Historically at Mobil, subject matter experts in the different manufacturing and marketing organizations were responsible for developing best practices for their group. However, there was little sharing of this information across groups. So, for example, someone in the Fuels business would not necessarily know who to contact in the Lubricants business for information that might be relevant to a particular issue.

In December of 1995, in order to better coordinate and consolidate all the best practice development activities across the different manufacturing groups, these experts formed virtual teams organized by subject matter (e.g., rotating equipment, pumps, worker safety, etc.).

They then defined a new best practice process model which would allow them to follow a defined series of steps to develop best practices that would be consistent across all the business units. The best practice development process defined by the team is highly collaborative and iterative. Phases include brainstorming, process definition, validation, dissemination, and continuing review. (See Figure 4.)

Figure 4
The BestNet Process



Source: Mobil Corporation

Over the next year, the group used the new process, supported by their existing tools and technology (phone, fax, email, face-to-face communication). At the same time, they began to develop a new tool to support the new knowledge management process. The objective of the tool was to “create and continually update encyclopedias of best practices, based on collaborative contributions from the team members” (BestNet Proposal).

In November of 1996, Mobil installed a prototype of the new BestNet application for a pilot group of four teams across five locations (two US refineries, one central engineering office, the Fairfax headquarters, and one New Zealand marketing office).

Lotus Notes provided the platform for Mobil to develop intranet capabilities. As of October 1997, BestNet was installed at 23 sites supporting 23 teams comprised of 300 users. Mobil is currently installing the system at 23 additional sites supporting 65 teams comprised of an additional 500 users. When it is completed, the Lotus Notes implementation of BestNet will support 125 teams and 2000 users across 250 sites. In addition, Mobil expects to add another 10,000 users with read-only access, which they refer to as “extended members” of the BestNet teams. Read-only access to BestNet masters is planned to also be available to all members of the teams for their business area via Lotus Domino.

Each of the best practice teams has its own database in BestNet, to which the team posts information specific to their area. Everyone in the network can respond to or comment on the information. Through the discussion, the experts reach consensus and define a best practice. At that point, the best practice gets rolled up to the area master database. Members of different teams can then access the area master databases to find information from

other teams that may be useful to them in developing their own best practices.

Ken Shugart, BestNet Project Manager, explained, “A person can play different roles on different teams. But there is also a need to be able to look across teams—what is somebody else doing? Okay, I’m on the rotating equipment side, what’s somebody doing on the electrical side, because there may be an implication there.” The rollup process to the area master mail-in databases uses agents that run nightly to the “hub” server in Dallas.

“By having common examples of EHS best practices or problem solutions available on demand, rapid and effective [knowledge] sharing is enabled and energized between like and unlike business units.”

--Rob Esser

Mobil is finding that the system is very useful for leveraging best practices knowledge sharing in a variety of ways. Senior Mobil and British Petroleum managers on the European Manufacturing Excellence Study, working to optimize jointly held fuels and lubes operations, leverage the security features of BestNet to conduct commercially sensitive knowledge sharing.

In Lubes, Kevin Thompson, Equipment Builder Advisor with the Global Business Support Group, explains, “In the discussion database you could have a problem. The problem is, a competitor just came into my regional market in Singapore. Since it’s a regional representation, a guy in Singapore can post a discussion note to the BestNet team and say, ‘Hey, I just got a competitor that has a semi-synthetic, which is inferior to Mobil One, but he’s pricing it right underneath me. Now how do I handle this?’ And the BestNet team drills down through the discussion database and they say, ‘Okay, here’s five things you need to do in this situation—you need to get an aggressive ad campaign, you need to educate the consumer of the difference between semi-synthetic and synthetic,’ and so on and so forth. And then they mark it for post-up to the area master, so anyone in their extended member list on a global basis can read it too.”

The Issue Manager Application

The EHS group manages Mobil’s complex legislative and regulatory affairs related to environmental, health, and safety issues. Compliance with environmental, health, and safety regulation is a major priority for manufacturing companies, especially in the energy industry. Non-compliance can result in fees and disruption of operations, impacting cost and customer service. More importantly, the environmental, economic, and corporate image impacts of a major environmental accident would be enormous. The corporate EHS organization is responsible for ensuring that these issues receive high-level visibility early in the regulatory process and that Mobil is compliant across its widespread manufacturing operations. Their charter is twofold: first, as regulations are being drafted, they analyze its impact on the industry and the competitive implications for Mobil, and draft any amendments which Mobil wants to propose. Second,

once the regulation is final EHS determines Mobil's response and prepares a "rollout package" that helps ensure that the plants are in compliance.

The Issue Manager application is designed to facilitate the workflow of EHS management professionals and to provide an electronic record of the issue management process. For each issue, an Issue Profile is created. The Profile summarizes the issue, its status, and its applicability to Mobil; lists the issue coordinator and team participants; serves as a repository for pertinent information; marks milestones; and records responses and comments.

"Mobil has always chosen to be proactive about where we stand with these issues and how we can help create sound policy driven by good science. So that's a part of what we use Issue Manager for internally, to come to closure on either our response to a particular initiative or in forming our policies."

--Bob Andrew, EHS Integration Consultant and Project Manager for GENIE

Issue Manager can be accessed either through the GENIE menu in Lotus Notes or via a browser using Lotus Domino. Issue Manager is accessed not only by EHS personnel, but also by any other members of the firm who are affected by a particular issue, and whose input on the issue is required. The system provides automated distribution mailing lists, notifying all affected personnel when there is a change in a particular issue. For example, Mobil U.S. Manufacturing Exploration & Production Managers rely exclusively on their name's presence on the "milestone" mailing list option in "Issues Manager" to be kept abreast of timely updates of EHS issues that affect their facility and business strategy. In addition, Issue Manager facilitates input and discussion on critical issues by those in the organization who are most knowledgeable about and impacted by each issue. Ultimately, it serves as a means to disseminate Mobil's official position on each issue, and is the primary resource for compliance information.

The Issue Manager application is scheduled to be rolled out to 180 locations worldwide. Between December 1996 and March 1997, thirty domestic locations went live with the system. Mobil is continuing to rollout the remaining 150 locations worldwide, and they are scheduled to be completed by the end of 1998. All US domestic locations are now on Lotus Notes and Lotus Notes Mail.

Organizational Change

There are two major areas of organizational change at Mobil resulting from the Lotus Notes initiative: changes related to processes, and changes related to roles and responsibilities.

Changes in Processes: Knowledge Management

Before Lotus Notes, both the manufacturing and EHS organizations within Mobil solved problems and shared information in a traditional manner, using paper and email-based communication. For an organization with so many geographically dispersed groups, this was often inefficient. Much of the communication around policy and best practices relied on personal

networking, and information was not readily available to the people who needed to access it. Lotus Notes allowed Mobil to move to a more collaborative, standardized information-sharing environment.

Kevin Thompson says that getting information about best practices in other areas of the company “often relied on the old boys network: do I know who else was working in this area? Can I call him on the phone? Does he have time to answer me? *If* I knew who to call. Well, now you not only know who to call, but you have documentation of what they’ve done, and a very easy mechanism to place that call... [Before Lotus Notes] they wouldn’t have known who to get hold of or how to get the details.”

Before Lotus Notes

- Paper/email-based
- Non-continuous/information dependent on single person
- Transient knowledge
- Reactive
- Inefficient
- Discrete focus (state or federal, single business area)
- Push information
- Redundant
- Inconsistent
- Incomplete
- Dependent on who you know

After Lotus Notes

- Retention of knowledge
- Continuity/availability of information not dependent on single person
- Notes-based discussion/consensus
-
- Proactive
- Issue experts across all businesses and regions
- Communication across business units
- Pull information
- Standard way to access information
- Singular Solution

Vickie Jones, a manager in EHS, relates an example of the process when responding to a regulatory change: “Before we had Notes...there was an email sent to about 20 people and then each of those 20 people would comment back to the person who asked. Some of those would copy all other 20 people, some of them wouldn’t and pretty soon we would have this long string of email. Were that to happen today, those 20 people would be on a team and a person would just write up there [to the Issue Manager discussion database] and then people would just [respond]—yes, I agree or no I don’t—and they could see what was happening.”

In short, there is involvement by a greater number of people, everyone knows where the information is and how to access it, and there is more systematic communication across a geographically dispersed population. And, it allows Mobil to keep its experts physically located in the regions near the customers that they serve, while at the same time sharing information with their colleagues globally. Shugart calls this “global representation at the regional level.”

Anyone in the organization can access the database, see what the issues are, and become a part of the discussion process without having to wait for someone to put them on a mailing list. In addition, people who work out of their homes can be equal players on this technology platform without requiring any onsite administrative support.

In particular, BestNet provides Mobil with a standard repository for best practice information, as well as a standard way to access that information, allowing them to reduce redundant investigative and problem-solving efforts. Issue Manager facilitates a shared organizational understanding of EHS legislative issues, which in turn enables a standard Mobil response to those issues.

However, the ability to share information does not necessarily ensure that people will take advantage of it. They need to understand the value to their local groups that comes from collaborating across the global organization. This value is not always immediately apparent, especially because ninety percent of the people at Mobil will never meet the people with whom they are being asked to share information and solutions. “The sharing of solutions needs to be a measured part of individual’s and local management’s responsibility,” stated Rob Esser. “With the realities of an ever changing business climate, this shift in thinking is progressing but needs to be emphasized in training.” Mobil is measuring the performance of BestNet team members based on their contributions to the networks.

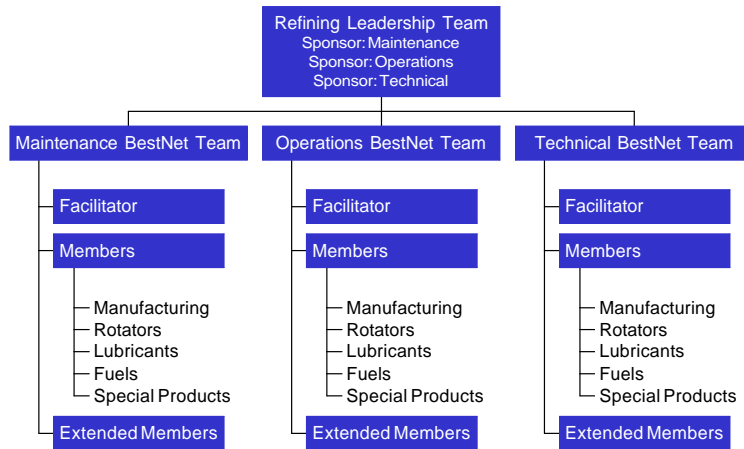
Changes in Roles and Responsibilities

Besides improving information exchange within Mobil, the Lotus Notes applications have also created changes in roles and responsibilities within the manufacturing and EHS organizations.

Within manufacturing, new roles and responsibilities have emerged to identify and manage best practices. A leadership team is formed at a particular business unit for each subject area. The leadership team, in turn, assembles virtual teams of experts from different business units on topics in each subject area. Each team of experts has a sponsor from the leadership team who provides coaching and serves as the champion for that team. Each team also has one or two facilitators who serve as administrative coordinators and owners of the knowledge generated by their team.

In addition to the core group of experts, each team has a class of extended members who have read-only access to the database. (See Figure 5.) All of these roles are part time, consuming up to 30% of a facilitator’s time and typically 10-20% of each member’s time.

Figure 5
Manufacturing BestNet Teams
Example: Refining



Source: Benchmarking Partners

Within EHS regulatory and compliance , the work is now organized around issues, rather than by location or business line. In the past, a person would be responsible for all of the regulatory issues within a particular region. Now, a designated member of the team is responsible for a particular set of issues worldwide, crossing regions, business units, and federal and state boundaries.

The system also allows the EHS group to better segment its work, leveraging the time and expertise of senior people more effectively. Junior-level people (paralegals and information technicians) now take primary responsibility for populating the Issue Manager databases around specific issues. In turn, senior-level managers are now freed up to concentrate on analyzing and developing Mobil’s response to these issues.

The Business Case for Lotus Notes

Mobil uses a formal, structured proposal process for information technology investments, called a BASE (Business Agreement for System Expenditure). A BASE includes the following components:

- Executive summary
- Infrastructure, technology, application, and data standards
- Anticipated strategic and tangible benefits
- Major project milestones and deliverables
- Economic assessment (with required funding, IRR, NPV, and payout period, as well as full lifecycle system costs and benefits)
- Risk assessment
- Organizational ownership

BASE proposals were submitted and approved for both the GENIE and BestNet projects. (The BASE for GENIE included the justification for Issue Manager and other EHS applications, EHS Management System and Risk Management, which have not been discussed here.) These proposals identified and quantified specific strategic and tangible benefits expected from the implementation of these Lotus Notes applications.

Strategic Benefits

Strategic benefits highlighted in the BASE for BestNet include:

- Provide timely access to best practices by staff in the Mobil refineries and in associated support services
- Facilitate on-demand global knowledge sharing in a systematic, prioritized manner across divisional and geographic boundaries
- Institutionalize the process of recording metrics and quantifying business improvements

Strategic benefits highlighted in the BASE for Issue Manager include:

- Enable timely, proactive response to emerging legislative issues and resulting regulatory impact assessments
- Help develop strategic responses to new regulations as well as gain industry consensus around legislation and regulatory issues
- Significantly improve the workflow associated with employing a virtual team approach to managing issues by: 1) enabling access to discussion “threads” that lead to position consensus; and 2) providing an effective tool to roll out and maintain regulatory impact statements
- Ensure the most comprehensive impact analysis possible by facilitating on-demand, global sharing of information
- Help improve the EHS performance of the whole industry

“Companies that can locate, interpret, react, and disseminate information fastest succeed and can take advantage of the marketplace. This project [GENIE] provides for just this type of information transmittal throughout the virtual teams.”

GENIE BASE Proposal

- Sustain the labor savings achieved as a result of the reorganization

Tangible Benefits

Mobil expected to realize many tangible benefits as they completed the worldwide rollout of Lotus Notes and the applications matured. The tangible returns outlined in the GENIE BASE proposal are outlined below. (See Table 1.)

- *Enhanced staff productivity:* A 10-15% time savings in routine, low-value information processing was expected as a result of the improved resource management enabled by Issue Manager. This might include, for example, elimination of redundant manual searches through the Federal Register for legislative issue information. Savings in this area are reflected in cost avoidance rather than direct reductions of staff.
- *Coordinated subscriptions:* Issue Manager with its associated EHS Intranet was expected to enable the consolidation and standardization of numerous hard-copy subscriptions and electronic information services within the US. In addition, a global view of subscription needs would enable Mobil to continue to leverage its corporate buying power to reduce the cost of those subscription services.
- *Document preparation and distribution:* Mobil expected to reduce the expenses associated with preparing and distributing “how-to” and compliance manuals throughout the organization through reduction of six positions that publish hard-copy to one position publishing on-line manuals that users can download and print as required.
- *Leverage existing point solutions:* Mobil Exploration and Production-US has several Lotus Notes point solutions for tracking contractor safety records, emergency management guidelines, and waste management information. Previously, these solutions were not available to other organizations within Mobil. By consolidating these databases under the GENIE menu, Mobil expected the Manufacturing and Refining organization and the Chemical Company to be able to access and leverage these time-saving applications. Expected benefits included cost savings related to staff efficiencies, maintenance and delivery of manuals, and avoidance of duplicate system development.
- *Implementation cost avoidance:* By implementing the EHS Management System on Lotus Notes, Mobil expected the implementation to take 15% less resources than an implementation on another platform. With Lotus Notes, they can implement one solution at one location and replicate it across the organization, rather than performing a LAN-based deployment of multiple solutions at multiple locations, which requires a costly duplication of effort at each site.
-

| Benefit Area | Benefit* | Annual Savings | One-Time Savings |
|--|--|------------------|--------------------|
| Enhanced staff productivity | Improve staff productivity resulting in reduced time to respond to clients | \$120,000 | |
| Coordinated subscriptions | Coordinate subscriptions to external regulatory information sources | \$75,000 | |
| Document preparation and distribution | Eliminate hard copy manual preparation and distribution costs | \$75,000 | |
| Leverage existing point solutions | Migrate existing Lotus Notes applications to GENIE for access by all manufacturing organizations | \$155,000 | |
| Implementation cost avoidance | Efficient implementation of EHS-MS for consistent "facility-specific" gap analysis and best practice sharing | | \$1,100,000 |
| Total | | \$425,000 | \$1,100,000 |

*Note: The benefits outlined in the GENIE BASE proposal included Issue Manager, EHS Management System, and Risk Management applications.

Source: Mobil Corporation

Table 1

BASE Proposal:
Tangible Benefits from GENIE

Because the development of BestNet leveraged proven methodology with the GENIE architecture, and the same design team, its design cost was therefore minimal and Mobil was able to justify BestNet solely on a strategic basis.

Return on Investment

In 1997 Mobil began to realize the strategic benefits of the GENIE Lotus Notes application. Issue Manager has helped improve the Mobil's response to vital legislative issues as well as improved Mobil's ability to avoid the tremendous cost of an environmental accident. Within manufacturing, knowledge management has improved greatly with BestNet.

In addition, Mobil has begun to quantify the tangible benefits of GENIE and Issue Manager realized in 1997. The biggest change to the projected numbers is in the area of implementation cost avoidance. Originally, Mobil expected a one-time cost avoidance of \$1.1 million. However, they are finding that the cost avoidance will more likely be spread out over the five years, with the greatest benefit realization in 1998. The cost avoidance in 1997 totaled \$200,000. While Mobil projected the cost avoidance savings to run about 15%, their initial experience has been closer to a 25% savings. The savings related to coordinated subscriptions have exceeded Mobil's anticipated \$75,000 by 33%, resulting in a total savings of \$100,000 in that area. The 1997 savings on document preparation and

distribution were 20% less than Mobil had anticipated, but they expect to recover an additional \$15,000 in 1998.

Table 2
Realized Tangible Benefits: 1997

| Benefit Area | Benefit | 1997 Savings |
|--|--|------------------|
| Enhanced staff productivity | Improve staff productivity resulting in reduced time to respond to clients | \$120,000 |
| Coordinated subscriptions | Coordinate subscriptions to external regulatory information sources | \$100,000 |
| Document preparation and distribution | Eliminate hard copy manual preparation and distribution costs | \$60,000 |
| Leverage existing point solutions | Migrate existing Lotus Notes applications to GENIE for access by all manufacturing organizations | \$155,000 |
| Implementation cost avoidance | Efficient implementation of EHS-MS for consistent "facility-specific" gap analysis and best practice sharing | \$200,000 |
| Total 1997 Benefit | | \$635,000 |

Source: Mobil Corporation

In addition, Mobil is starting to see some other substantial benefits. For example:

- The Fuels market organization in Egypt was investigating the possibility of retail automation to a service station. Prior to BestNet, they would have done extensive research to investigate the best course of action. By using BestNet, they were able to save several hundred thousand dollars of up front time and money by knowing where to look for relevant information. Instead of starting from scratch, they leveraged the experience that other Mobil organizations had already gained.
- One salesperson reported that he won a \$20,000 contract from one customer in part because he was able to give the customer information on best practices for wax emulsion processing from around the world. Bob Berry , Special Products Advisor in Global Business Support, described the case: "This salesperson was able to go into the customer and say, 'in Scandinavia they do this, in Germany they do this, Latin America, U.S.A., etc., here's all the ways it's done.' We can attribute that to this group of people establishing and communicating information. We're going to see a lot of that."
- Line managers are gaining greater confidence in EHS' ability to help them with compliance issues. Line managers can see the discussion that occurs around EHS issues, can understand how a conclusion is reached, and can influence that conclusion through their own feedback. Bob Andrew explained: "Remember, we're very geographically dispersed, but now we're speaking with one voice. There may be a debate, but now [line managers] can see that

debate—for example, where should California take a stand versus Texas—and it enables us to display a thread of what the hell is going on here.” Moreover, because line managers have a better understanding of and input into Mobil’s stand on a particular issue, they are more cooperative in implementing compliance measures.

The potential benefits of the BestNet application continue to expand beyond Mobil’s expectations. While the original scope of BestNet was mainly within manufacturing operations, Mobil is finding that other groups can use this same structure to grow their businesses. The product groups, in particular Lubes, are seeing the advantages of using the BestNet application for best practices around branding and advertising across the world. One of the biggest opportunities, with a potential benefit of \$10 million, is the expansion of the Lubes market across Africa, using BestNet to support that growth.

Lessons Learned

Two years into its Lotus Notes implementation, Mobil has learned some important lessons from its experiences to date.

Sponsorship

Bob Andrew emphasized the importance of having sponsors for each application within the Lotus Notes environment. “The management sponsor is the one who stands up and says, ‘this is a good initiative, here’s value for money, here’s why we’re doing it,’” said Andrew. “We have sponsors for each of the individual databases. That’s something we’ve learned the hard way—it’s only sustainable if it has management’s ongoing commitment.” This is particularly important since, as noted earlier, BestNet facilitators at Mobil are required to spend up to 30% of their time developing best practices. “Managers need to understand this commitment and allow them the time to participate.”

Project Team

Mobil found that they needed to pay particular attention to resource retention. Lotus Notes is a leading-edge technology, and Lotus Notes/Lotus Domino implementers are in high demand in the marketplace.

Andrew also emphasized the importance of having the right resources on the project, some of which were not immediately obvious. For example, the technical writer played an important role on this project. “I doubt we could have achieved what we needed without a good technical writer. They bring a whole different flavor to communicating with users [than do designers].”

Adoption Strategy

One significant aspect of the adoption strategy for this type of application is the importance of keeping the momentum going and getting a critical mass of users quickly on the system. “In my opinion, you need 80% to 90% of your members before you can make it work,” said Andrew. “It doesn’t make sense if you have only 50% on it, and the other 50% have to be copied on email.” To maintain the Lotus Notes adoption momentum Mobil addressed the following issues:

- The Lotus Notes roll out timing needed to be integrated with a separate initiative to roll out a standard desktop environment for all employees. This SME (Standard Managed Environment) initiative is a prerequisite to the Lotus Notes Mail rollout, and is proving to be a constraint to more rapid Lotus Notes application adoption.
- Training on the software must take into account the level of prior experience with Lotus Notes. “GENIE was one of the first Notes projects enterprisewide at Mobil, so there’s a learning curve,” said Pete Tunnard, IS Business Leader. At the same time, Jones went on to explain, “I think the learning curve with Notes is less than with some other things we’ve done in the past [on mainframes].”
- In addition, they have found that they need to train people on both the software *and* how to work in a virtual team. Mobil instituted a kickoff meeting for each new BestNet team as it came into existence, to coach members in working together as a team and to learn the required new behaviors, roles and responsibilities. “There’s nothing that can take the place of that initial kickoff meeting for the core members,” said Andrew.

Ongoing Usage

Defining protocols, standards, and responsibilities for ensuring appropriate ongoing usage of the system is also critical, particularly since it requires a change in behavior. Dave Navarre, BestNet Administrator, explained: “You need to get all your people on the same page. Where do you post news, where do you post an observation, who’s going to respond to what. Each team needs to decide that. Or here’s an interesting one—what version of the software are you going to use for attachments?”

It’s also important to assign specific roles and responsibilities for ongoing usage. For example, the role of the BestNet facilitator at Mobil was defined to ensure consistent and effective usage of the system by all members. Within each area (such as Manufacturing), Leadership Teams resolve which BestNet team will be assigned topic accountability.

For the EHS system, certain managers have been assigned as sponsors, to track and monitor usage and ensure that the necessary behavioral changes are taking place. “We need to make sure that we use the system as a discussion tool, as opposed to a data filing tool,” said Jones. “Right now, it’s heavily populated with attached documents. The dialogue is taking place, but it’s often back in email notes. It’s a behavior change, and it needs a champion.”

Finally, balancing enthusiasm for the new capabilities with the need for confidentiality is another challenge. “How do we address all of this enthusiastic information sharing in a way that maintains our corporate licenses and confidentiality?” posed Jones. “Some of the positions we want to take, influencing new legislation or regulation, are not things we want posted. People sometimes get carried away, ‘see my brilliant strategy here’, without realizing that it may be confidential.”

Future Plans

Mobil has been very excited about their Lotus Notes implementation so far. As Bob Andrew said, “We plan to be in this core energy business and using Lotus Notes for a very long while.”

“We plan to be in this core energy business and using Notes for a very long while.”

--Bob Andrew

Mobil has started numerous additional and ongoing Lotus Notes initiatives. They are continuing to roll out Lotus Notes across the entire organization. The rollout of a standard desktop environment currently underway at Mobil now includes Lotus Notes and Notes Mail 4.5. And, as the rest of the company becomes Lotus Notes-enabled, they will have access to the Issue Manager and BestNet applications.

They are also continually leveraging their investment in the GENIE architecture to develop new applications for other areas of the company, including a full BestNet suite of leadership networks and functional excellence networks for the EHS organization worldwide.

Importantly, Mobil is now extending its use of Lotus Notes to its external industry partners. They are currently deploying an extranet version of Issue Manager using Lotus Notes/Lotus Domino with Korea Gas, a Mobil customer, and Radian, a strategic consulting partner. In this way, selected issues within Issue Manager will be available for read access by Korea Gas and Radian, and Mobil plans to roll it out to other strategic partners in the future.

They have also been successful in actively encouraging other industry partners—most notably, the Chemical Manufacturers Association—to adopt Lotus Notes to facilitate cross-industry information sharing. “The CMA Chemical Manufacturers Association is an important trade association for our business. They have been a CC Mail and Organizer user; now they’re going to go to Organizer 97, Lotus Notes Mail, Lotus

Domino driven web, etc.,” for distribution of electronic newsletters and other industry information, said Bob Andrew.

The use of Lotus Notes has allowed Mobil to fundamentally change and improve its ability to leverage information, knowledge, and expertise across a geographically dispersed organization. The rollout of Lotus Notes as a strategic tool is continuing and expanding, providing critical support for Mobil’s competitive initiatives and future growth.

Appendix: Tangible Benefits, Costs, and 5-Year Return on Investment*

| | |
|---------------|---------|
| Interest Rate | 15% |
| NPV | \$1,315 |
| ROI | 234% |
| IRR | 67% |

Note: 5-Year ROI Analysis (1997-2001)

15% Discount Rate

All Figures in \$Thousands

| Costs | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 |
|--------------------|------|------|------|------|------|------|------|
| BestNet | 0 | -87 | -16 | 0 | 0 | 0 | 0 |
| GENIE | -94 | -607 | -185 | -25 | 0 | 0 | 0 |
| Total Costs | -94 | -694 | -201 | -25 | 0 | 0 | 0 |

| GENIE Benefits | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 |
|--|------|------|------|------|------|------|------|
| Enhanced Staff Productivity | 0 | 0 | 120 | 120 | 120 | 120 | 120 |
| Coordinated Subscriptions | 0 | 0 | 100 | 100 | 100 | 100 | 100 |
| Document Preparation and Distribution | 0 | 0 | 60 | 90 | 75 | 75 | 75 |
| Leverage Existing Point Solutions | 0 | 0 | 155 | 155 | 155 | 155 | 155 |
| Implementation Cost Avoidance | 0 | 0 | 200 | 500 | 200 | 100 | 100 |
| Total Benefits | 0 | 0 | 635 | 965 | 650 | 550 | 550 |

| Cash Flow | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 |
|----------------------|------|------|------|------|------|------|------|
| Costs | -94 | -694 | -201 | -25 | 0 | 0 | 0 |
| Benefits | 0 | 0 | 635 | 965 | 650 | 550 | 550 |
| Net Cash Flow | -94 | -694 | 434 | 940 | 650 | 550 | 550 |

| Discounted Cash Flow | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 |
|---------------------------------|------|------|------|------|------|------|------|
| Costs | -94 | -694 | -175 | -19 | 0 | 0 | 0 |
| Benefits | 0 | 0 | 552 | 730 | 427 | 314 | 273 |
| Net Discounted Cash Flow | -94 | -694 | 377 | 711 | 427 | 314 | 273 |

*Note: The benefits and costs outlined in the GENIE BASE proposal included Issue Manager, EHS Management System, and Risk Management applications.

