Information Systems

[redacted]

IS

RESEARCH NOTE

Strategic Planning & Research Advisory

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ISRN - 14

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OFFICE INFORMATION SYSTEMS IN THE 1990's

The common characteristic of OIS in the 1990's is change. At [redacted] this change is exacerbated by the introduction of SAP and a revamping of the IT infrastructure. IS faces the critical challenge of developing a migration strategy establishing an architecture that allows the addition of highly granular OIS functionality as required by the business.

Key Issue

What is the role and impact of OIS in the 1990's ?

How can [redacted] evolve it's OIS environments through technology generational changes?

How will OIS technologies, products, integration points, architecture, and assembled solutions evolve during the next 5 years?

Key Trends

Management models that stress the fracturing of large organizations into focused business units are both a cause and effect of rapid advances in OIS technologies.

The fundamental view of the office is changing from a physical location to a set of capabilities that empower users to streamline processes and use and add value to business information.

The proliferation of multiple systems and information sources through ad hoc deployment of PCs, LANs and groupware is fragmenting IT environments.

The OIS marketplace remains volatile, resulting in a new market model that will focus on component applications and frameworks.

INTRODUCTION

Office information systems (OIS) do not exist in a vacuum, they are but one element in the expanding IT universe at [redacted] (Figure 1). The tremendous change brought to all elements of the IT industry is especially evident in OIS. Today, OIS is founded on changing architecture, applications, objectives and vendors. The resulting transition from a proprietary, monolithic application focus to a client/server model based on open and interchangeable components has become a central theme of OIS industry turmoil.

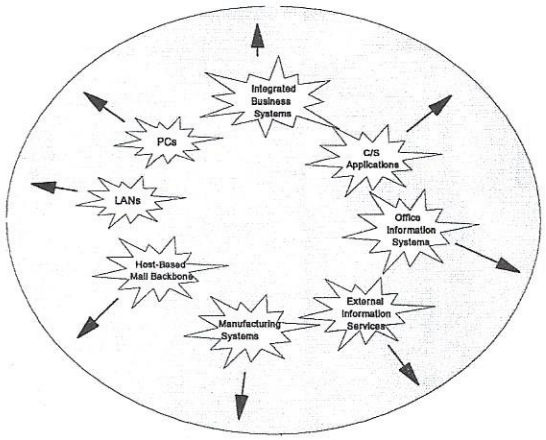

Figure 1. The Expanding IT Universe

As in most sectors of the IT industry, this tremendous change has produced an atmosphere of "continuous migration" in both the hardware and software components of OIS. Managing this migration is a complex process attributed, in part, to the unique collection of technologies and services that fall under the OIS umbrella (Figure 2). OIS has grown beyond personal productivity tools to include: workstation operating systems, LAN-based applications and services, and links to outside information sources.

The growing interdependence of these components -- especially apparent in the distributed client/server computing environment -- creates a dilemma in choosing a destination. How does a large enterprise get "there" from "here"? Where is "there"? Where is "here"? The "here" question should be easy to answer but is complicated by infrastructure *churn*, business re-engineering and organizational restructuring. The "there" question is more difficult to answer in the rapidly changing world of IT, in which product life-cycles continue to shrink and vendor mergers continue to accelerate.

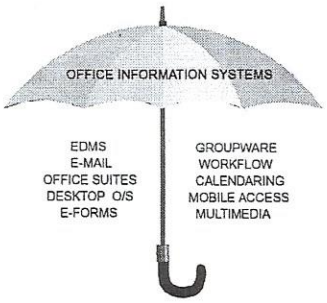

Figure 2. OIS Components

OIS AT [redacted]

The OIS strategy at [redacted] has been developed through a combination of standards created by [redacted] DSI group in [redacted] and the efforts of IS management at the Houston-based campuses to satisfy user business requirements.

CURRENT STATUS

The "here" of OIS is a mixture a multi-generation PCs (DOS and Windows 3.1 based), in a infrastructure which combines legacy data-switch connectivity with evolving 10Base-T LANs. OIS data is not tightly integrated with data used by host applications on HP, IBM and Concurrent servers. The legacy PC applications of DOS-based stand-alone, non-integrated personal productivity tools (dBase, WordPerfect and Lotus) are slowly being replaced by Windows-based integrated office suites (Microsoft Office). This transition, begun in 1994, is expected to be completed in 4Q96 -the target date for full implementation of LAN technology at both Houston campuses.

EDMS, E-forms, Workflow, Groupware, Calendaring&Scheduling do not populate the current OIS theater. As a consequence, dependency on paper remains high (1994 reproduction volume at [redacted] alone exceeded 5 million copies). Multimedia is limited to a handful of training workstations, and host-centric remote access is available on a restricted basis.

E-mail - in the form of HPDesk - is a 1980's host-centric non-GUI system which is poorly received by the user community. Training programs initiated throughout the early 1990's failed to gain wider acceptance of the system.

FUTURE DIRECTION

Throughout the rest of this decade, increasingly powerful PC's will become more functional in highly personal (file organization, time management, information filtering, intelligent agents) and interpersonal ways. At the same time, the number and type of information sources, business-transaction origins and business-transaction destinations will continue to expand. These developments have set the stage for a new model of OIS deployment based on increased technological openness.

[redacted]s being propelled into just such an open model through the implementation of the SAP integrated business software package. SAP's infrastructure requirements have accelerated plans for deployment of an enterprise-wide LAN, deployment of Windows 3.1 and Microsoft Office Suite, upgrades to the existing messaging backbone, and establishment of a robust remote connectivity capability.

The upheavel of the [redacted]IT infrastructure caused by migration to a client/server, open architecture, Windows-based LAN environment will likely create conflicting requirements as both the infrastructure and the business itself is molded into a new reality. The conflicting requirements of independent workgroup-solution deployment and enterprise considerations for interworkgroup, virtual-workgroup and line-of-business application integration will see tensions between IS and individual workgroup and end user departments intensify. IS must leverage the guidelines outlined in Note 1, to minimize overly optimistic end users from viewing IS as control based and unnecessarily restrictive on OIS issues.

The [redacted]Strategic Business Computing Plan 1994-1999 presented a detailed exploration of the philosophies and technologies selected to fulfill the requirements of SAP and the vision of the five year business strategy: *"Always make more than $50 million a year"*. Based on that five year strategic plan, a number of target strategies have been developed to define individual technological directions (see Note 2 for a listing). These strategies, and others still in development, form the basis of the envisioned IT architecture for [redacted]in Figure 3.

Note 1.
Five OIS Migration Planning Guidelines

1. Align OIS Migration plans with core business objectives.
2. Involve the end users and LOB managers in the pilot programs and functionality testing.
3. Educate and motivate end users and management about migration plans and benefits.
4. Do not agree to integrate all departmental applications and custom systems without first assessing the viability of standardization.
5. Have a clear policy about what data and functionality will be migrated before attempting to execute.

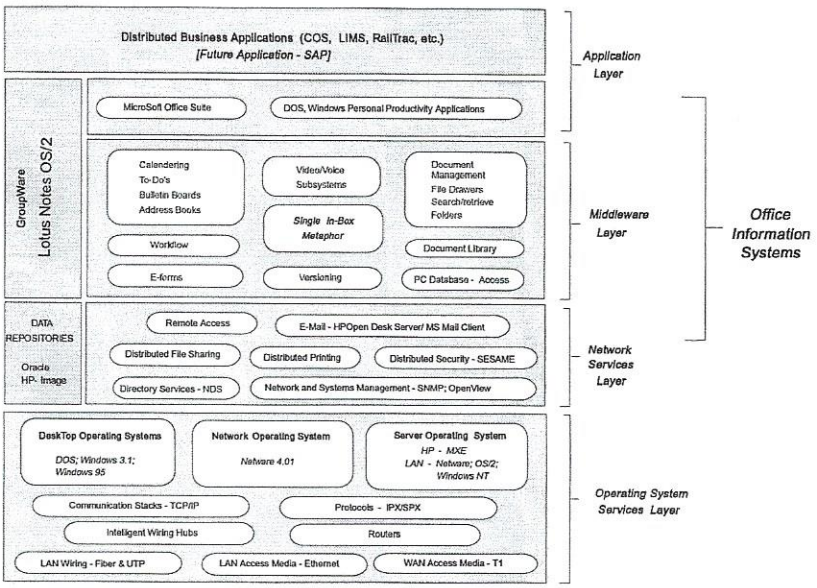

Figure 3. Solvay Polymers Information Technology Architecture

Note 2:
Published Research

- **Document Management Strategy:** #ISRN-7 (March, 1994)
- **Electronic Messaging Strategy** #ISRN-8 (March, 1994)
- **Windows Strategy Brief** #ISU-3 (May 1994)
- **The INTERNET: Business In Cyberspace.** #ISRN-12 (Feb. 1995)

As the organizational model flattens and business races to reduce costs, speed decision making and focus on core business processes, it is clear that what is needed from OIS tomorrow, is far different from what is provided today. It is also certain that a combination of host and PC LAN systems offers the most advantageous path.

[redacted] OIS strategy must empower individual users while ensuring that they contribute to core organizational processes. OIS technologies must break the boundaries of geography and time zones so that there are few information-based limitations in accomplishing the goals of the business. The basic OIS requirement at [redacted] include:

- Elimination of paper at every possible turn: Electronic Document Management, Enterprise-wide E-mail, LAN -based E-forms, EDI services.
- Seamless integration of OIS and line-of-business information.
- Leverage the power of the Windows environment, OLE, integrated office suites, and advanced workstation technology.

Note 3:
Strategic Assumptions

1. Support of remote detached workers will be as important as support of central office employees by 1996.
2. More than 50% of office information will be in digital form by 1996.
3. Vendor consolidation in the software and hardware sectors will continue at the current pace thru 1997.
4. The mainframe will continue to be the platform of choice for some aspects of the IT infrastructure.
5. Without proper planning, conflicts will arise from multi-source offerings of E-mail, Imaging and Workflow services.
6. Demands for color printing will increase through the remainder of the decade.

- Secure access to outside information sources.
- Provide groupware services (E-forms, bulletin boards, calendaring and scheduling, workflow) available as an extension to E-mail (e.g., Microsoft Exchange).
- Knowledge management. Expansion of a document management system to serve as a repository of the corporate knowledge-base.
- Remote/Mobile Computing access infrastructure (i.e., security, client/server applications, asynchronous links).

INDIVIDUAL STRATEGIES

Messaging (E-mail)

[redacted] messaging strategy is based on the evolution from a host-centric E-mail application (HPDESK) to a client/server based E-mail incorporating HPOpenDesk as the E-mail backbone with Microsoft Mail as the Windows-based client. Over time, a phased implementation will migrate the E-mail system to a messaging platform.

Phased implementation will move the HPOpenDesk/MS Mail architecture from the initial pilot stage to wide spread implementation at the Houston campuses. This will include integration with Microsoft Office applications (Figure 4).

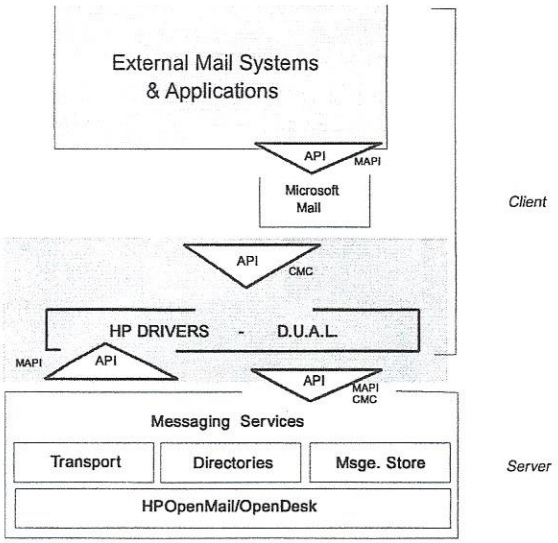

Figure 4. HP OpenDesk / Microsoft Mail Connectivity

Further migration will integrate E-mail and third-party applications such as scheduler's and bulletin boards and the leveraging the features of Microsoft Exchange. The concept of the Single In-Box Metaphor will begin to evolve to provide a single collection point. Final expansion integrates the corporate E-mail system with SAP Mail (Figure 5).

Note 4:
For a detailed description of E-mail implementation please refer to [redacted] **E-mail Upgrade Project Description.**

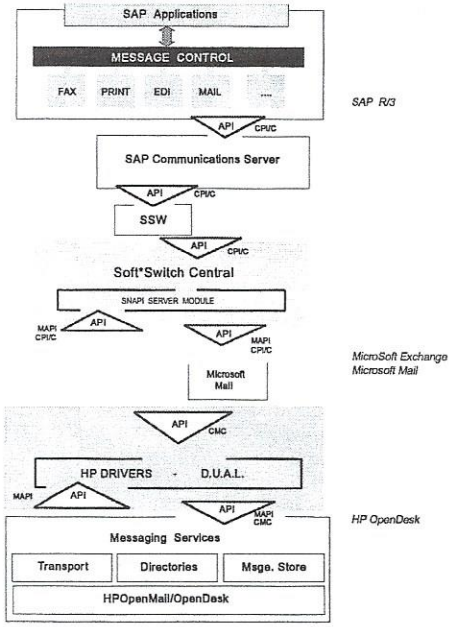

Figure 5. SAP - HP OpenDesk - MicroSoft Mail Connectivity

Document Management (EDMS)

Recognition of the strategic value of document management was underscored at the 1995 Annual Business Review meeting when [redacted] president, [redacted] presented an Electronic Document Management System as a critical component of his vision to propel [redacted] into a 'world class' company.

The [redacted] vision which identifies document management as a strategic tool also realizes the value of the collective corporate knowledge-base and the elimination of 'corporate amnesia'. This vision, which begins with the installation of an Electronic Document Management System (EDMS), extends beyond this to Integrated Document

Management (I-DM). I-DM establishes a document management system which is transparent and ubiquitous, with links to SAP, desktop office applications and groupware platforms. The selection of a robust core system for such an evolution has been completed and subsequently reviewed by an outside consultant. Figure 6 illustrates the envisioned evolution of document management at [redacted]

Note 5:
For further information on the EDMS vendor selected refer to [redacted] EDMS Project Justification.

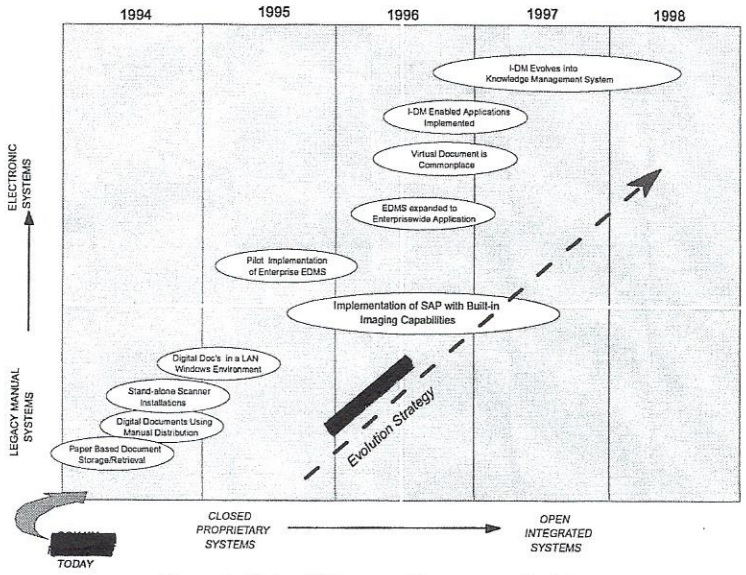

Figure 6. Vision Of Document Management Evolution

Note 6:
Microsoft's Impact

Microsoft's litigations may appear to bode poorly for the company's future, however, it is believed that it will, through 1999, agree to antitrust remedies that it judges to be inconsequential to its future business plans. In addition, government attempts to separate Microsoft's application and operating system businesses will be foiled by Microsoft's emphasis on OLE and other middleware APIs.

Desktop O/S and Applications

[redacted] will face a O/S mix of DOS, DOS/Windows 3.1, Windows 95, Windows 96 and Windows 97 throughout the remainder of this decade. Application deployment will parallel this O/S mixture, evolving to the component applications (or 'appletts' level), replacing today's popular 'suite' paradigm. This process has already begun in the IT industry with the migration of stand-alone applications such as workflow and imaging to the operating system level.

In the short-term planning horizon the desktop itself will retain much of its current features in term of the every increasing need for RAM and hard drive storage capacities. Despite LAN connectivity, various applications will continue to reside at the desktop. The evolution of desktop processors beyond the Pentium will set the stage for widespread multimedia applications and video over the LAN.

Windows 95 is expected to impact the infrastructure by YE96, with the compliment of Win95 versions of Office to follow thereafter. Win95, in conjunction with MS Mail and Exchange will provide a highly integrated OIS environment in the short term planning horizon. Upgrade costs, however, will be significant. The Gartner Group estimates $ 200-700/per user for the operating system alone.

This "Microsoft Everywhere" approach must be monitored carefully however. To many, Microsoft of the 1990s looks like IBM of the 1970s - a benevolent dictator obsessed with growth and profits, and not obsessed with the success of its locked-in users.

Note 7:
Windows 95

Windows 95 is a compromise hybrid architecture which allows for 16bit backward compatibility. Strategically it is part of Microsoft's strategy to establish its Win32 API as a point of standardization.

While Win95 offers users a litany of improvements over Win 3.1, the 1.0 release of any software is not suitable for widespread corporate deployment. Solvay Polymers should wait for the first "dot" release before considering mass upgrades.

The IS department must capture end-user mind share to successfully lead the Win95 migration by educating them on the migration strategy.

A credible Win95 message will lay out in clear terms the organization's current IT architecture and strategy, the impact of Win95 on the installed base, and the resources needed for staged migrations and testing.

Mobile Computing

A stable Dial-In service for mobile users is expected to be available 2H95, providing for rudimentary remote access to the LAN. Advanced features such as asynchronous applications and intelligent agents are expected in later phases.

INTERNET Connectivity

A strategy for connecting to the 'Net is currently being addressed by DSI to provide full Internet access via the [redacted]. The primary issue is vulnerability of host systems to hackers if accessed by a PC connected to the LAN in Houston. A pilot offering stand-alone PCs for data searches in being implemented 3Q95 to satisfy user requests. This pilot will collect data on how users are utilizing 'Net access and what services are typically being tapped.

Advanced Internet access will include the posting of a Home Page for [redacted] on the World Wide Web.

Miscellaneous

A comprehensive OIS Strategy must address a collection of issues that, for the short-term planning horizon, may appear to be obscure. In the [redacted] infrastructure these include: Wireless Communication, Multimedia, Plug 'N Play Bios, and the P6 Triton chipset.

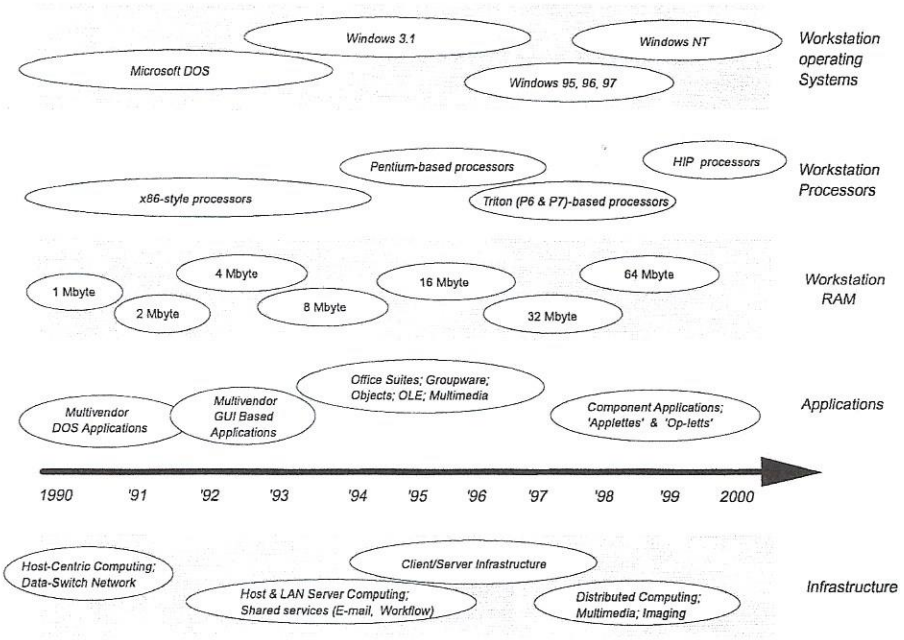

Figure 7. [redacted] *Envisioned OIS Migration*

Research is underway to evaluate the impact of these issues on the [redacted] infrastructure. Figure 7 illustrates the general migration vision of the [redacted] OIS environment during the remainder of this decade.

BOTTOM LINE

The scope and expectations of OIS are greatly expanded from their 1980's heritage. IS' critical task will be to ensure appropriate attention to integration issues between OIS elements, and with other line-of-business applications.

To summarize the [redacted] OIS Migration Strategy in a single word, that word must be "integrated". Integrated with what? Since messaging will become ubiquitous, every application must be capable of seamless integration with MS Mail, allowing for application-based mail services.

This integration applies to the office suite as well as the document management, E-form, Calendar/ schedule software, and bulletin board groupware systems.

A more detailed strategy would require open standards (OLE, MAPI, SQL, TCP/IP, etc.) support plus seamless coexistence with the "givens" of the [redacted] environment throughout the short-term planning horizon:

- SAP as the primary integrated business application
- Oracle as the corporate DBMS
- HPOpenDesk/MicroSoft Mail as the corporate E-mail standard.
- Microsoft Exchange rather than Lotus Notes as a groupware backbone.
- MicroSoft Office Suite for desktop applications.
- Novell 4.x as the LAN operating system.
- Intel processor based workstations.

OIS migration is inevitable. There is no way out. [redacted] is pressured to do more with less and to do it faster. The migration to SAP invariably spawns a secondary migration to an enterprise-wide LAN and the Windows environment. From an OIS perspective this means greater demands for managing business documents and their contents, greater demands to manage the processes of the business, and more advanced tools for accessing, analyzing and sharing information relevant to the business. A cohesive plan that oversees how the various OIS puzzles pieces fit together will minimize the cost of this migration.