Reader Notes

Organizational Instability
Management models that stress the fracturing of large, hierarchically structured organizations into confederations of nimble, focused business units have brought, and continue to bring, discontinuity within enterprises.

Operational Role Transformation
The time-honored emphasis on OIS as a tool for increasing office-worker productivity in support of the business (overhead reduction), has shifted to enhancing office-worker direct contribution to the business (individual role expansion), and is further evolving to integrating office work into the business function (process improvement).

Physical Identity Crisis
The fundamental nature of the office is changing from a physical location to a set of electronic capabilities that empower users and workgroups, throughout and beyond an enterprise, to communicate, share, use and add value to business information, and streamline business processes.

Implementation Fragmentation
Proliferation of multiple system classes and information types and sources through the ad hoc deployment of PCs, LAN E-mail, workgroup applications, the groupware phenomenon and “the explosion in digital information” is fragmenting IT environments.

IS Leadership Challenge
The unmanageable chaos of independent, incompatible OIS installations throughout many organizations is placing enormous pressure on the traditional IS function to lead, follow or get out of the way.

Market Turmoil
The OIS marketplace remains volatile with a new market model, emerging that will subsume the traditional host-based and current LAN-based segments, resulting in consolidation as vendors focus on component applications, application frameworks or complete solutions strategies.

Traditionally, OIS was a centrally planned, deployed and supported initiative driven by IS as a way to improve personal productivity. OIS products were complete, monolithic solutions offered by large, stable systems vendors and requiring skilled technical resources for implementation and ongoing operations.

The trends we observe here make future OIS strategic planning very much a journey rather than a destination. This journey must carefully consider balancing the:

- Legacies of the past
- Promises of the future
- Perils and pitfalls of the present.

Key Issues

1. **What is a realistic vision of the office in the year 2000?**
2. **How can the high, and highly visible, cost of traditional OIS re-engineering and new OIS implementation be justified as strategic investment rather than overhead expense?**
3. **How will OIS technologies, component products, integration points, architectures and assembled solutions evolve over the next five years to deliver on the promise of the new electronic workplace?**
4. **Which vendors will survive the volatile OIS market dynamics?**
5. **How can organizations reconcile and prioritize the conflicting application and deployment requirements of individual users, workgroups, departments, the enterprise and interenterprise interaction?**

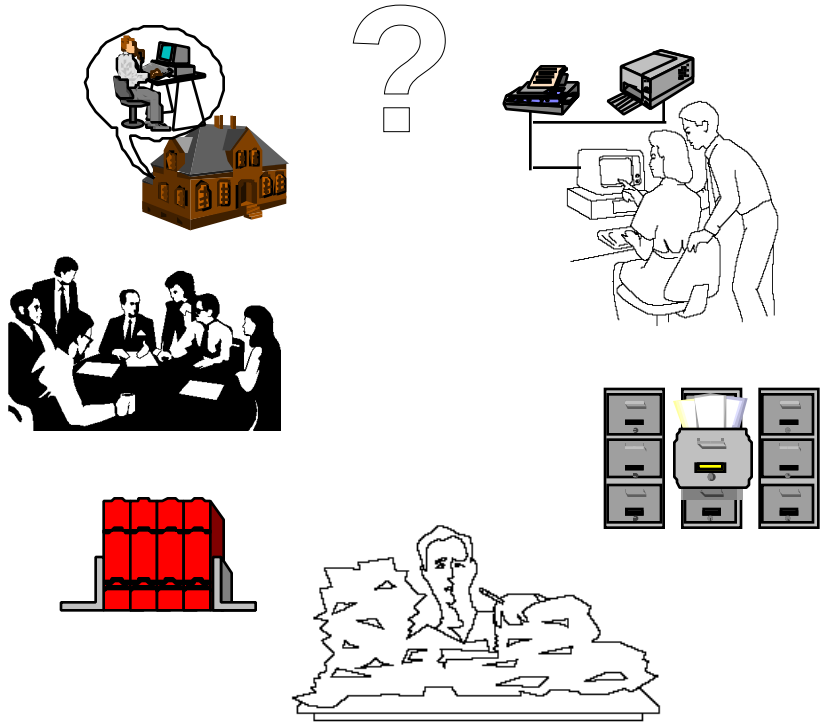
Reader Notes

In this presentation we will review the characteristics of an emerging new office model — *the electronic workplace*, and analyze the economic incentives, technological enablers, market dynamics, human factors and management strategies that will impact its deployment and institutionalization within organizations.

Our analysis here will encompass a number of individual OIS technology and market areas that contribute to the establishment of the electronic workplace: business intelligence; document management; E-mail/messaging; E-forms; information retrieval; management, architecture and migration; work management; and workgroup systems.

While our OIS Scenario will review trends and issues in these areas that have broad impact on comprehensive and cohesive OIS deployment, a deeper research agenda, explicit to each of these areas, is reviewed in individual core topic presentations.

The Ever-evolving Office



Source: Gartner Group

Originating as a transaction mill (a place where data was recorded, compiled and reported for use in support of business operations), the office has evolved and expanded in function to become a knowledge and information mill (a place where individuals and workgroups cohabited for the purpose of collaboration and information exchange, and to share physical resources). Viewed as an overhead expense, the pursuit of maximizing efficiency has made the office a focus of continuous change and improvement and a “hotbed” of technological application since its very inception.

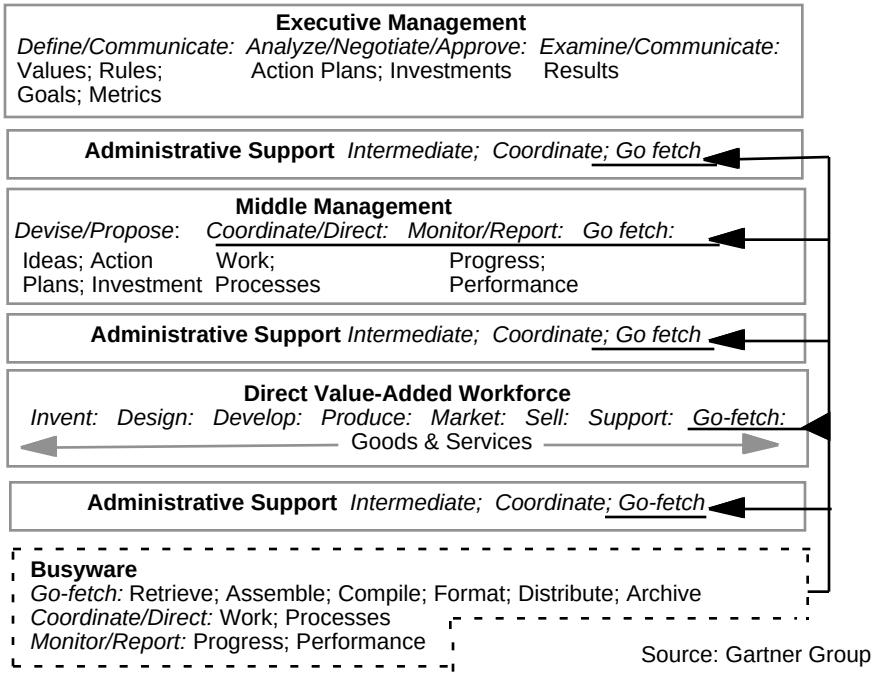
With the arrival of the information age and the increased automation and convergence of production and process, the office is further evolving, transcending its traditional role as an adjunct activity to become an integral function of the business. The emerging office is no longer a physical facility, rather it is a set of capabilities that empower end users and workgroups to communicate, share, use and add value to business information, and streamline business processes — *the electronic workplace.*

Reader Notes

By 2000, documents, data, business processes and people processes will have fundamentally converged; over 80 percent of traditionally manual, clerical processes will be heavily automated (0.7 probability).

By 2000, the integration of both administrative and coordination functions within line of business applications, through a "busyware" layer of services, will be well underway (0.7 probability).

The "Busyware" Layer



Source: Gartner Group

Key Issue: What is a realistic vision of the office in the year 2000?

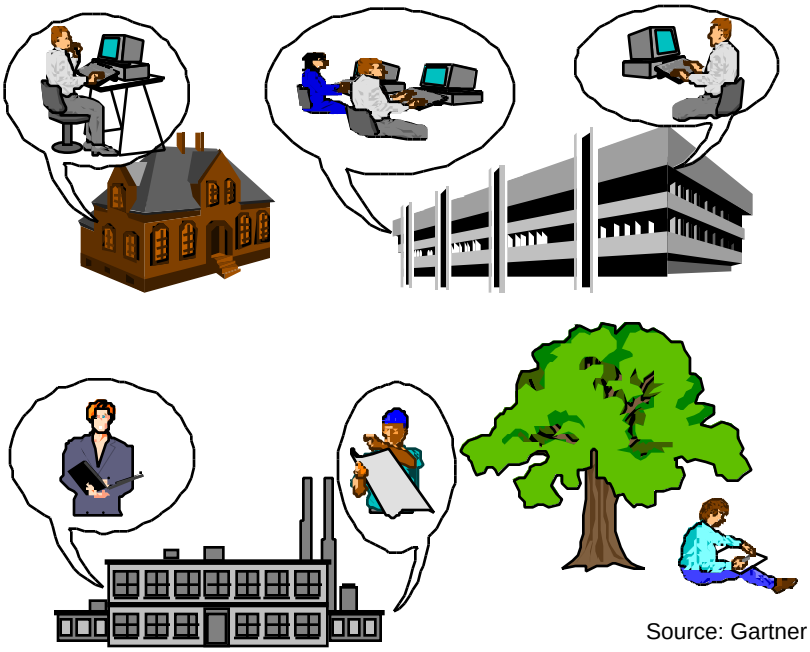
Low-skill administrative and clerical work, the "go-fetch" functions are already beginning to disappear from corporate job descriptions, replaced by readily accessible, easy to use, electronic capabilities ("busyware" applications). By 2000, this will extend to the traditionally labor-intensive middle management functions of monitoring and coordinating basic work activities, through a more powerful "busyware" layer of services that will support the embedding of core rules of business conduct and process, as well as the metrics defined to measure progress and performance, and provide for the integration of these functions within LOB applications.

The busyware layer will comprise stable, reliable infrastructure services supporting data and information capture, collection, analysis, compilation, reporting and archiving, as well as industrial-strength versions of today's nascent application and messaging software for facilitating the process of deliberation, debate, decision direction and worker coordination activities. The "busyware" layer will provide the foundation for the electronic workplace.

By 1998, a "personal electronic workbase" — comprising device(s), profession-specific and generic/administrative applications, communications services and entry point into the organization's infrastructure — will become a fundamental business tool for individual users (0.7 probability).

Reader Notes

Personal Electronic Workbase



Source: Gartner Group

Key Issue: What is a realistic vision of the office in the year 2000?

Much as the internal operations of the mailroom, courier or postal service have long since ceased to be of concern or interest to office workers, the busyware layer will become increasingly transparent to end users as both profession-specific and generic/administrative applications exploit its generally available underlying services.

As a simple example, previously manual, tedious tasks such as the compilation and submission of progress and activity reports will be automated through embedded links among personal organizer, group scheduling and project management applications. Rather than wading arduously through extraneous information to ascertain status against goals, next-level management will receive confirmation or exception notification as these automated reports are matched against defined business metrics.

Users will be provided with the device(s) and applications appropriate to their role and logistics (e.g., mobility or remote location) in the business process. This "personal, electronic workbase" coupled with the "busyware" layer of services form the new electronic workplace.

Today's Typical OIS Environment

- Paper Files
- Production and TP Systems
- Legacy, Host-based Office Automation
- Shared-File LAN E-mail
- Local Workgroup Applications
- New Client/Server Applications
- Ad hoc Groupware
- Random Digital Files

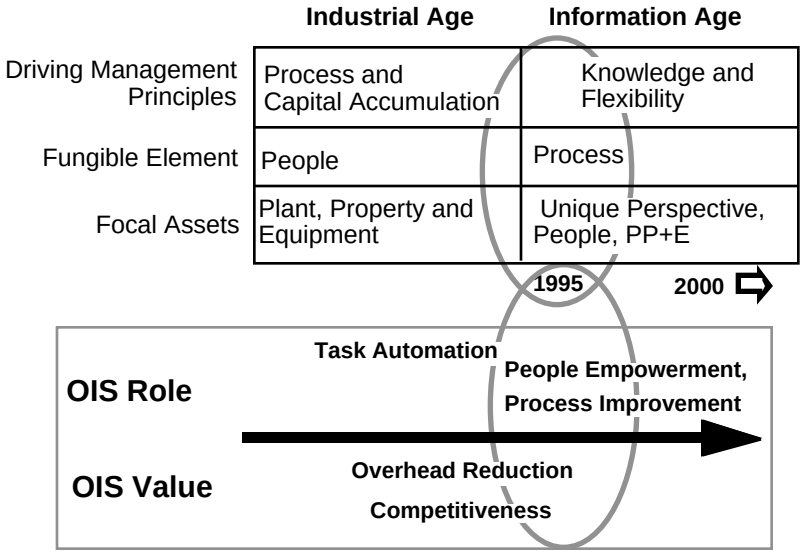
The extent of investment in legacy OIS installations in most organizations demands compelling reasons to incent the deployment of different technology for new users and any re-engineering and migration of the existing environment. In many cases the sunk cost of legacy systems has still not been written off based upon return on original investment models that assumed a five- to 15-year useful life. In addition, the cost of re-engineering these environments includes not only new technology but also substantial retraining of both users and support staff, as well as interoperability solutions during expansion and ultimate migration.

Justification for this level of investment must look beyond the cost side of the equation that traditionally justified OIS deployment to higher-level values and benefits.

Maximized leverage of human assets through individual role expansion will depend on highly adaptive and accessible information resources (0.8 probability).

Reader Notes

Changing Management Philosophy



"Business . . . is now so complex and difficult, the survival of firms so hazardous . . . that their continued existence depends on the day-to-day mobilization of every ounce of intelligence."

Konosuke Matsushita, 1982. In: Richard Pascale, *Managing on the Edge.* Viking Press, 1990

Source: Gartner Group

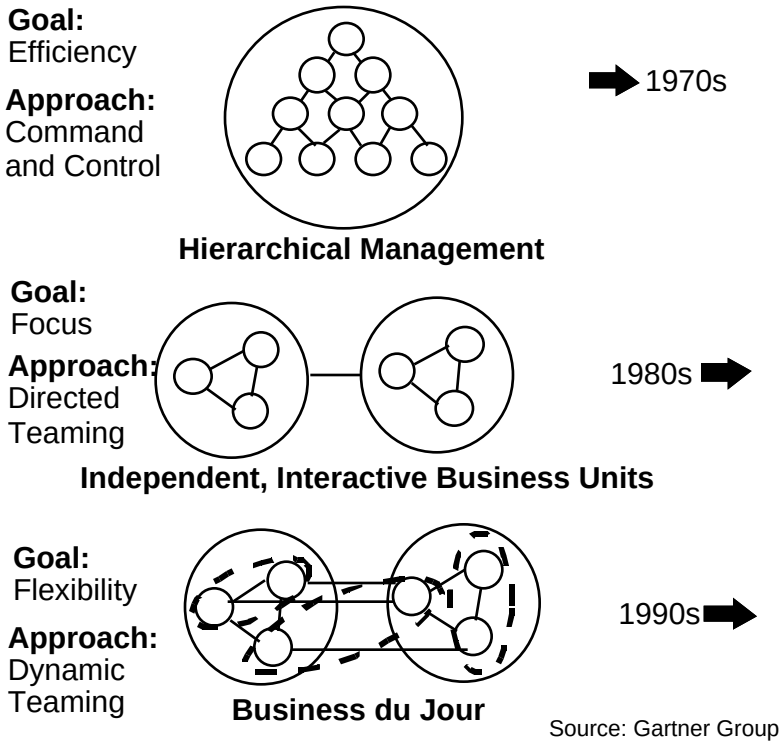
Key Issue: How can the high, and highly visible, cost of traditional OIS re-engineering and new OIS implementation be justified as strategic investment rather than overhead expense?

Since the industrial revolution, the relative proportion of knowledge work to unskilled, labor-intensive work has progressively increased. While this shift can be largely attributed to technology that mechanized tasks previously performed by people, continuation of the trend will depend on further enhancing the unique perspective of employees in business transactions and production processes. Leverage of human assets will become just as important as leverage of fixed assets and plant, property and equipment as industries where responsiveness and flexibility are key to *competitiveness*, successfully re-engineer business processes by focusing on end-to-end customer value chain enhancements.

The new electronic workplace will play a crucial role in increasing individual responsibility and discretion by providing consistent access to information, communication and analytical resources to better, and more quickly, apprise employees of status and variation of factors in process and facilitating collaborative decision making.

By 2000, the dynamic linking of individuals from autonomous business units, both within and beyond the enterprise, for the purpose of "business of the day" interaction, will be a fundamental requirement (0.8 probability).

Organizational Models



Source: Gartner Group

Key Issue: How can the high, and highly visible, cost of traditional OIS re-engineering and new OIS implementation be justified as strategic investment rather than overhead expense?

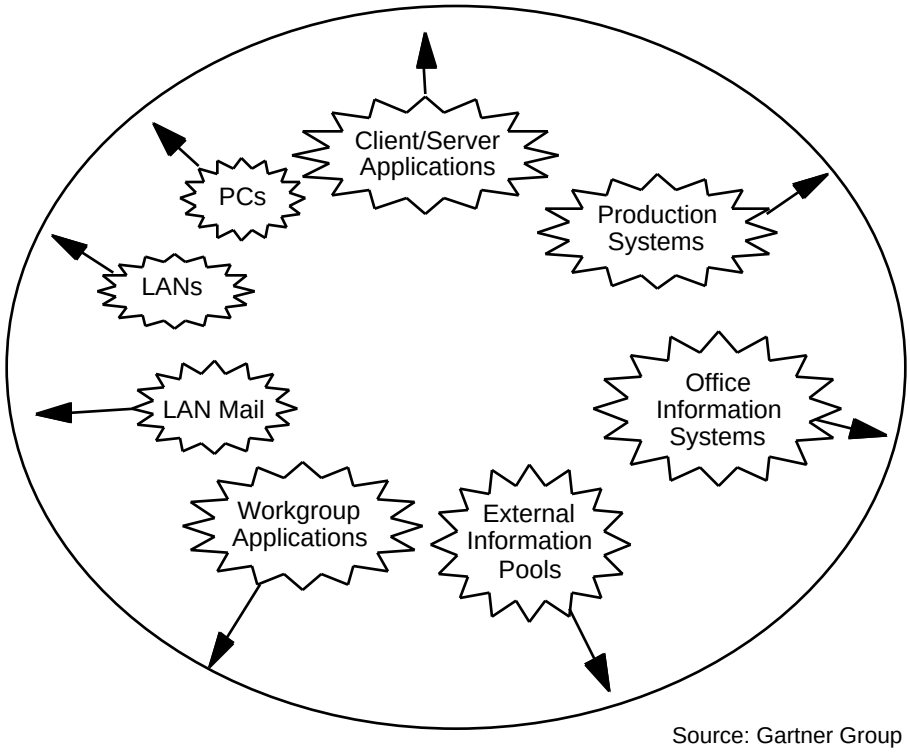
New business economics accentuate the competitive advantage of specialization in core competencies vs. dilution of resources and focus through diversification. In this environment, employee mobility, contingent workforces, new ways of organizing people, information, capital and work processes are necessary. Traditionally rigid structures and processes are being dismantled as formerly large organizations disaggregate into highly flexible and adaptive entities that can react daily to new business conditions. At the same time, previously impervious boundaries between companies are giving way in favor of strategic, managed "coopetition" (i.e., cooperation/competition).

This notion of "business du jour" cannot succeed in chaos. Rather, reliable, secure internal business information architectures and external interfaces will need to be imposed by virtue of requirements for instant, peer-to-peer communication, process interoperability and broad visibility into the activities of workers.

How will OIS technologies, component products, integration points, architectures and assembled solutions evolve over the next five years to deliver on the promise of the new electronic workplace?

Reader Notes

IT Integration and/or Disintegration?



Source: Gartner Group

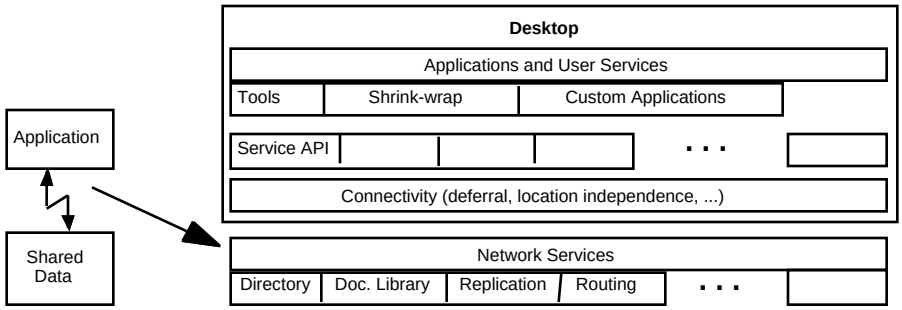
Throughout the rest of this decade, personal computers will progress to be more functional in highly personal and interpersonal ways. Increasingly powerful computing devices will offer more functional software for personal services, such as desktop file organization, time management, information filtering, intelligent agents and visual analysis tools. At the same time, there will be continued explosion in the number, and type, of information sources, as well as business transaction origins and destinations. These developments will set the stage for the personal electronic workbase and the busyware layer of services only through increased technology openness to integration of heterogeneous components and with production business applications.

The redefinition of office information systems from a product to an architectural model, consisting of component applications, interfaces and underlying services, while already well underway, will remain incomplete through 2000 (0.8 probability).

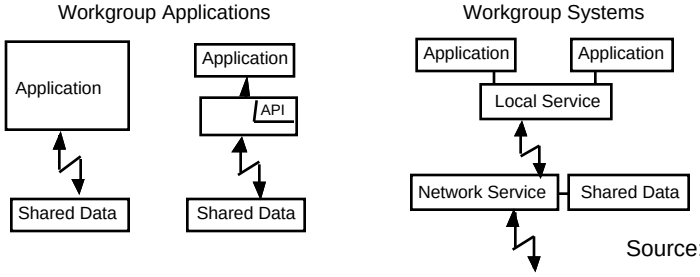
By 1998, discrete workgroup applications will shrink from 90 percent to 30 percent of the workgroup computing market, while workgroup systems will grow from 10 percent to 70 percent (0.6 probability).

Reader Notes

OIS Architectural Metamorphosis



Upscaling Workgroup Deployments



Source: Gartner Group

Key Issue: How will OIS technologies, component products, integration points, architectures and assembled solutions evolve over the next five years to deliver on the promise of the new electronic workplace?

Office information systems have been disaggregating from their original integrated product, monolithic design center, for almost a decade. E-mail has led the way in this complete modularization and separation of function from service and is poised to transcend its original application role and become an intrinsic network service.

At the same time, workgroup applications, discrete, separate products built on a LAN-based file, or database, sharing architecture, have been proliferating. With individual, unique and inconsistent user interfaces and APIs, duplicated facilities (e.g., user directory), and their own (often closed) database engines, the result has been architectural pollution.

The remainder of this century, will bring increasing systematization of commonly required services and APIs and emphasis on workgroup deployment with distributed and decentralized management. However, universal openness and "plug and play" will continue to be necessarily thwarted by innovation in functionality based on proprietary integration and mandating collaborative planning and deployment.

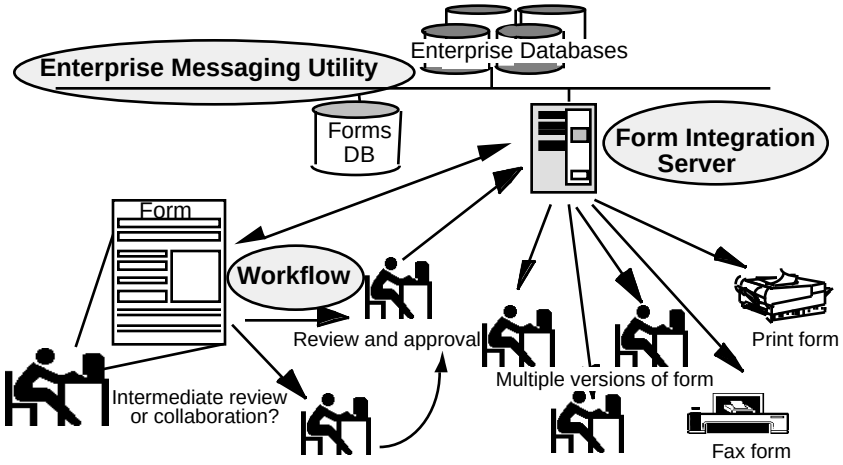
Reader Notes

Beginning in 1996, standard middleware services and APIs will enable elimination of the barriers that have prevented workflow component integration and interoperability (0.7 probability).

The production availability of extended MAPI by 1H96 will provide the common switching layer for independence of underlying messaging services and applications (0.8 probability).

By 2000, the vast majority of organizations will integrate E-forms in combination with E-mail and workflow (0.7 probability).

E-forms, Enterprise Messaging, Workflow Integration



Source: Gartner Group

Key Issue: How will OIS technologies, component products, integration points, architecture and assembled solutions evolve over the next five years to deliver on the promise of the new electronic workplace?

While we estimate that $6 billion per year is spent on paper forms in North America, at least 20 times that amount is spent on processing these forms. This obvious attraction has spurred the progressive maturing and expanding of E-forms products beyond their initial role of data capture, report display and paper replacement, to become a tool to automate administrative processes. The integration with databases, and messaging capabilities, included in leading E-forms products for some time, has been complemented by the introduction of basic workflow facilities. This relatively simple-to-deploy routing and tracking capability offers an inexpensive way to streamline typical forms-based processes, such as expense report approval and travel authorization that has put pressure on traditional production-class workflow vendors as an entry-point workflow solution.

As extended MAPI and the WfMC initiative deliver a more open and comprehensive interface to the Enterprise Messaging Utility and workflow services, E-forms' power and value will increase.

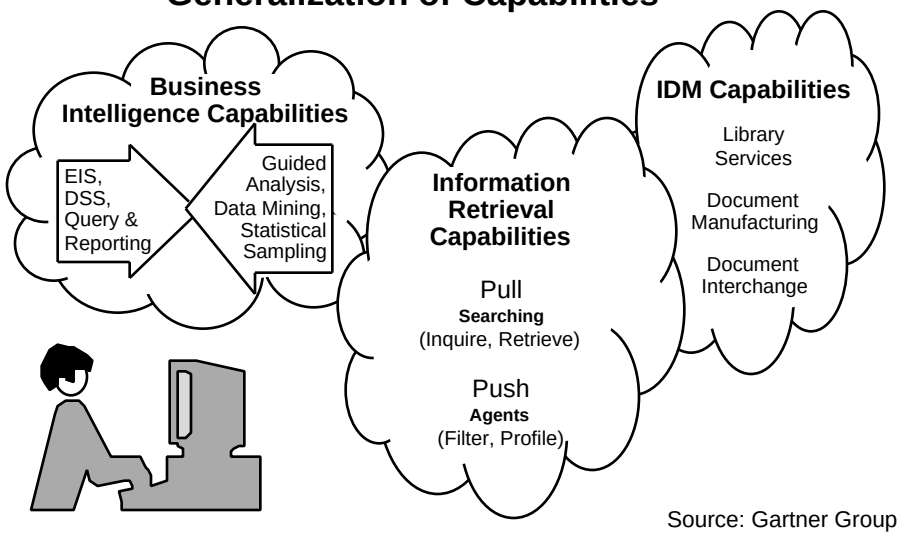
Reader Notes

Driven by market changes, current BI tool categories (i.e., EIS, DSS, query & reporting) will experience convergence, with new classes of BI tools emerging through the balance of the 1990s (0.8 probability).

By YE98, the componentization and cross-platform availability of Integrated Document Management functionality will enable it to become a prevalent and mainstream service to a variety of applications (0.7 probability).

Within the next five years, text-retrieval products will become inherent components within the busyware layer (0.7 probability).

Generalization of Capabilities

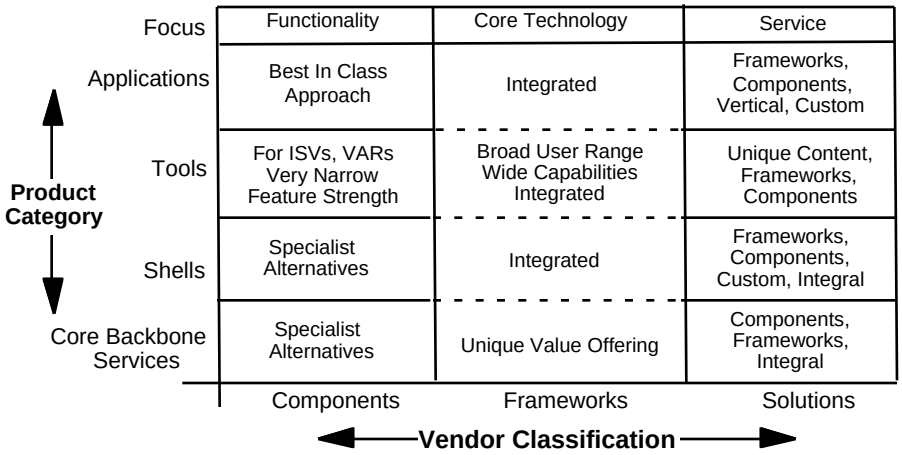


Source: Gartner Group

Key Issue: How will OIS technologies, component products, integration points, architecture and assembled solutions evolve over the next five years to deliver on the promise of the new electronic workplace?

The personal electronic workbase will encompass a generalization of business intelligence, Document Management and Information Retrieval capabilities as integration points and interface specifications that will enable an integrated architecture of busyware services become defined, endorsed and implemented.

Redefined OIS Vendor Classes



Source: Gartner Group

As the OIS architectural metamorphosis unfolds, the market will divide into new vendor classes to meet different situation needs, and no single class will offer a perfect solution for any organization — intelligent, situation-specific trade-offs will be required.

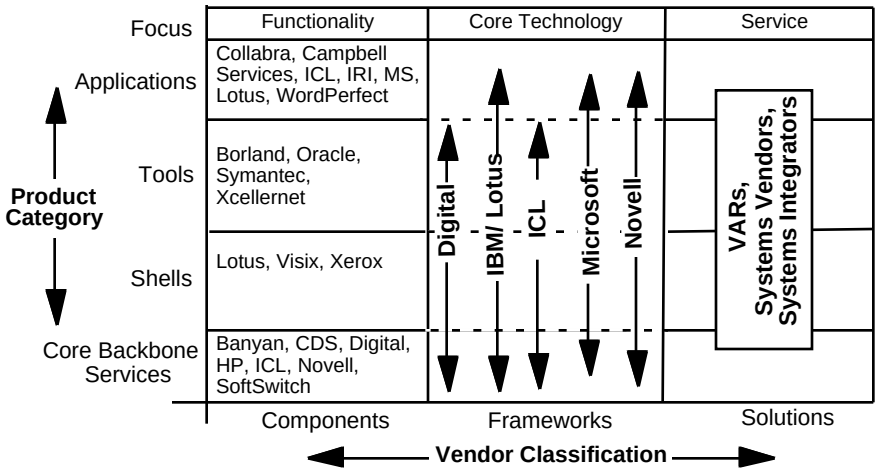
Solutions vendors provide broad functionality and homogeneity but are limited in flexibility and modularity, in exchange for a well-defined, broadly capable system. *Component vendors* offer best-in-class functionality but require more effort for operational integration. *Frameworks vendors* offer a middle-ground approach, almost as painless as a complete solution approach, but providing a degree of flexibility, at higher cost, by supporting integration of alternative, best-in-class, components from other vendors.

Vendor survival and long-term success will depend on: maximum innovation for functionality specialists; channel and customer targeting for complete solution vendors; and maximum market share for framework vendors.

Reader Notes

OIS Vendor Strategies

(Partial Listing)



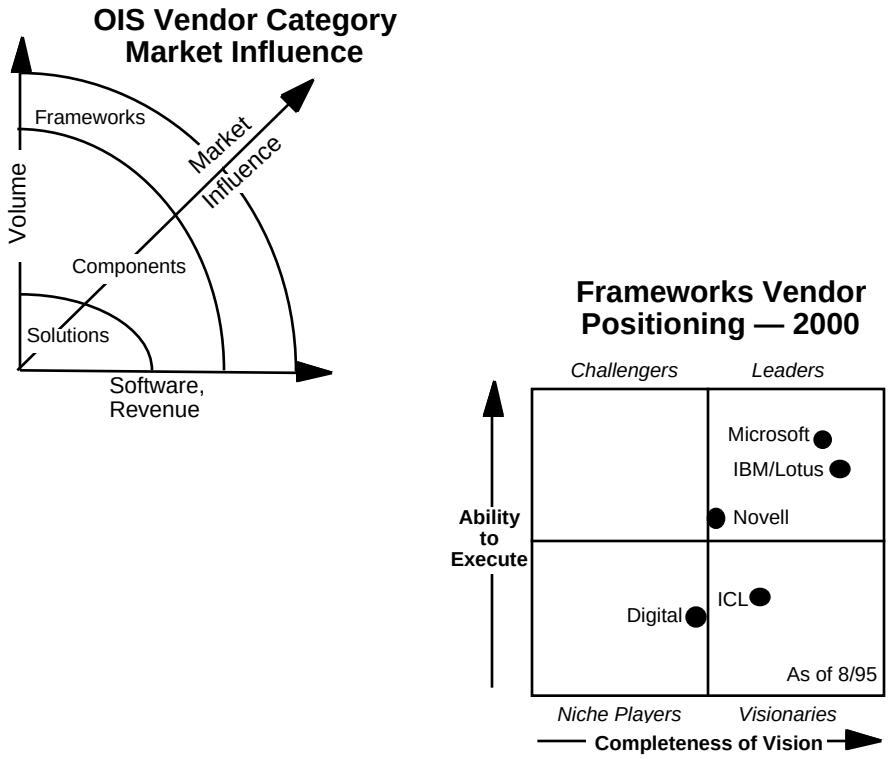
Source: Gartner Group

Key Issue: Which vendors will survive the volatile OIS market dynamics?

The volatile OIS market dynamics through the next five years will see vendors wrestling with the investment and opportunity trade-offs between specialization and diversification. Competing in multiple segments will become increasingly difficult and some vendors will move among segments as they devise their strategy and identify their core competencies and competitive differentiation. Solution vendors that also provide component products and / or core technology will need to clearly separate their service component as organizations become more wary of potential technology lock-ins. Frameworks vendors will need to aggressively recruit solution vendors as both a service provider and a channel, as well as component suppliers to fill out the framework.

Frameworks vendors will have the greatest influence on OIS market direction through 1998 (0.8 probability).

Reader Notes



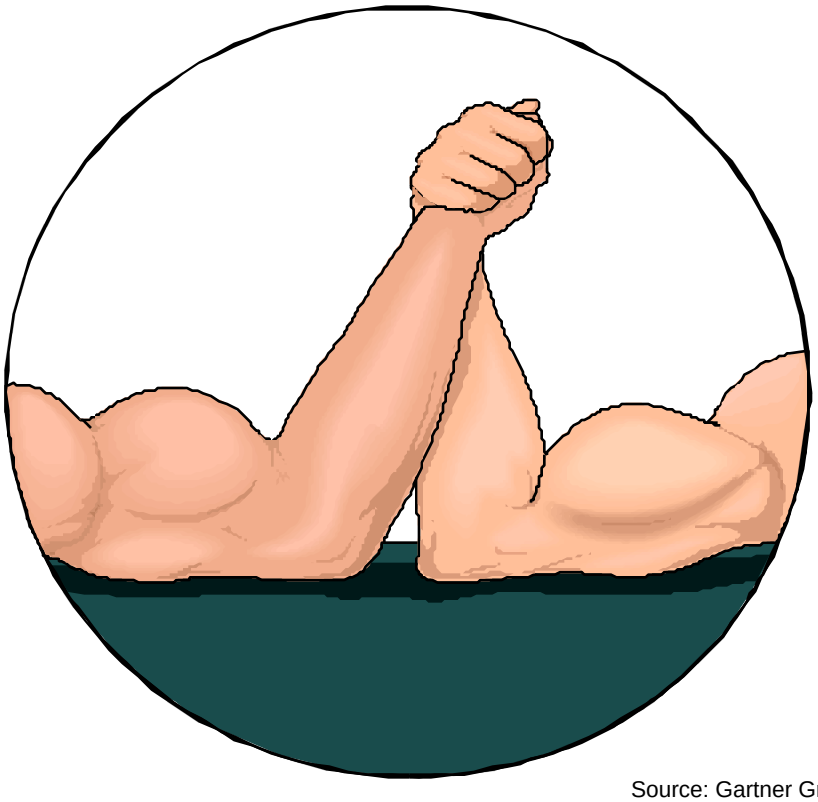
Source: Gartner Group

Key Issue: Which vendors will survive the volatile OIS market dynamics?

As organizations and individuals tire of the frustration of random discrete component application implementation, the compromise offered by frameworks vendors will increase in attractiveness. Microsoft, through the sheer weight of its operating system integration approach, will be well positioned to exploit this market demand. However, the consolidation of Lotus' presence with Notes, both in market visibility and solutions vendor support, and IBM's industry control points, represents a solid springboard that the company will attempt to capitalize on as it converges and re-engineers the combined product set to provide a more open frameworks environment. Novell/WordPerfect has the underlying technology and the potential to revitalize its solutions vendor support that previously rallied around NetWare, but has yet to articulate a comprehensive frameworks strategy.

How can organizations reconcile and prioritize the conflicting application and deployment requirements of individual users, workgroups, departments, the enterprise and interenterprise interaction?

Reader Notes



Source: Gartner Group

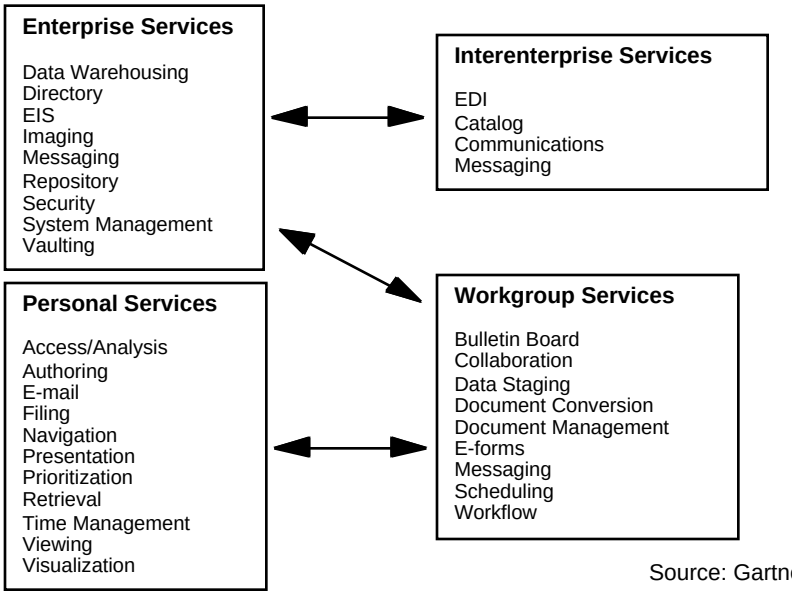
The evolution of OIS technology toward the provision of the electronic workplace will ultimately reconcile the conflicting requirements of independent workgroup solutions deployment and enterprise considerations for inter-workgroup, virtual-workgroup and LOB applications integration. However, during this evolution, the tension between IS and individual workgroup and end-user departments will intensify. This is due to the inevitable, inverse proportion to reality, end-user expectation for the level of interoperability supported and the extent of effort and investment required for implementation and reliable operation of a heterogeneous environment. While IS departments cannot responsibly abdicate focusing on strategic, thoughtfully planned deployment, overly optimistic end users will resent and resist IS efforts as control-based and unnecessarily restrictive.

Moving from a mainframe environment to a distributed environment will dramatically change the way IS manages and delivers technology in four areas: cost, pace, deployment and vendor relations.

The success of the "personal electronic workbase" and busyware layer will depend on the establishment of rich "interpersonal" computing services founded on an Enterprise Messaging Utility and application integration (0.8 probability).

Reader Notes

Interacting, Enabling Services



Source: Gartner Group

Key Issue: How can organizations reconcile and prioritize the conflicting application and deployment requirements of individual users, workgroups, departments, the enterprise and interenterprise interaction?

A distributed vs. host-based OIS strategy affects all dimensions of implementation. To ensure successful *enterprisewide* solutions, organizations must maintain some degree of cohesion in acquisition, deployment and management of technology that will enable interaction within and among individuals, workgroups, enterprises and the global business environment. IS departments must proactively address both enterprise and workgroup level deployments with comprehensive policies and business models to justify them, calm executive angst at increased costs, pre-empt end users and departments from implementing their own non-scalable, incompatible solutions (that will later have to be abandoned or re-integrated), and solidify the critical position of IS in assuring the cost-effective exploitation of new technology.

To fully realize the value of the electronic workplace, IS departments must begin laying the groundwork to enrich personal computing with a robust set of interpersonal, enterprise-scale services with a collaboratively planned, deployed and maintained approach.

Reader Notes

The Electronic Workplace Successfully Emerges (0.7 probability)

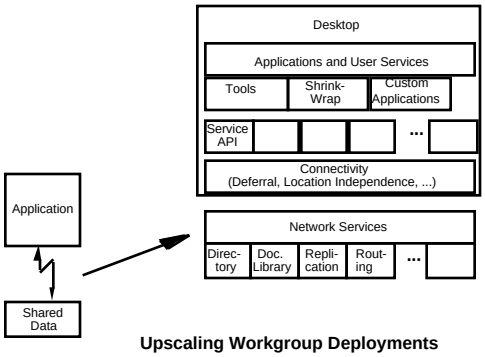
- By the year 2000, elimination of the limitations of the traditional, physical office will be possible through the deployment of the *electronic workplace,* which comprises a "busyware" layer of infrastructure services and a "personal electronic workbase" supporting individual, professional and logistical requirements (0.8 probability).
- Justification for electronic workplace deployment will come from the competitiveness achievable through maximized leverage of human assets and streamlining of business processes (0.7 probability).
- The OIS architectural metamorphosis from a product to an architectural model consisting of component applications, interfaces and underlying services will be well underway but still incomplete through the year 2000 (0.7 probability).
- As the OIS architectural metamorphosis unfolds, the market will divide into new vendor classes. While frameworks vendors will wield the most influence on market direction, no single class of vendor will offer a perfect solution for any organization — intelligent, situation-specific trade-offs will be required (0.7 probability).
- To ensure a successful electronic workplace, IS departments will proactively address individual, enterprise and workgroup priorities and devise architectural and operational standards supported by comprehensive policies and business models (0.6 probability).

The Electronic Workplace Fails (0.3 probability)

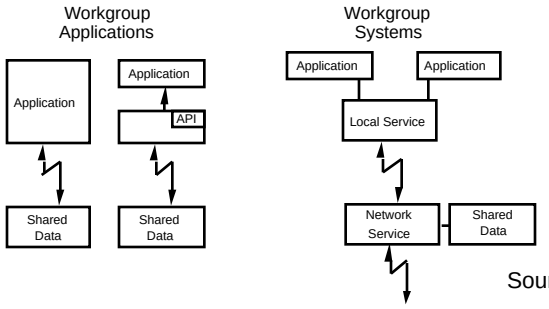
- By the year 2000, neither the "busyware" layer of infrastructure services nor the "personal electronic workbase" emerges (0.2 probability).
- Users fail to understand the justification for electronic workplace deployment (0.3 probability).
- The OIS architectural metamorphosis from a product to an architectural model consisting of component applications, interfaces and underlying services does not materialize by 2000 (0.3 probability).
- As the OIS architectural metamorphosis unfolds, the market becomes muddled, having no clear winners or losers (0.3 probability).
- IS departments fail to proactively address individual, enterprise and workgroup priorities and devise architectural and operational standards supported by comprehensive policies and business models (0.4 probability).

PAGE 4 ORIGINAL SLIDE. DISCARD.....

OIS Architectural Metamorphosis



Upscaling Workgroup Deployments



Source: Gartner Group