

Document Persists

The document persists, visually and conceptually, as the human interface with information, but the technology underpinnings of the document will be revolutionized.

Documents Animate Business Rules

Documents will increasingly be used to describe business processes, and to embody and animate business rules. As a result, entire industries will change their business practices based on the availability of new IDOM technologies.

Organizations Need an IDOM Architecture

Organizations will face growing frustration with nonintegrated, fragmented, document-related “architectures” that fail to provide end-to-end digital document support of production business processes.

Vendor Fragments

The digital document technology fragments of workgroup computing and large-system vendors will coalesce into a new class of middleware.

Pace of Technology Absorption

Organizations will be challenged to match the pace of technology adoption with the pace of technology absorption, which will include the ability to operate efficiently even while continuously reinventing its production businesses processes.

Integrated Document and Output Management (IDOM) is focused on the technologies, architectures, organizational support and user behaviors that will allow users to transcend the constraints of today’s limited document structures, and directly apply the value of information content to business processes. The major focal points of IDOM are: production imaging, workflow and document management software; hard-copy output production, including distributed print and distributed output management; electronic forms; COM-R; and paper-reduction strategies, including RDSs, viewers and application development tools for production output.



1. How will the evolution of the document transform the nature and use of information?
 2. Which applications will be built on the IDOM architecture during the next five years?
 3. How will the IDOM architecture evolve during the next five years?
 4. Which vendors will be strategic to the creation and execution of an organization's IDOM future?
 5. Which organizational strategies will lead to the successful development of an enterprise IDOM architecture?
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By YE2000, at least 75 percent of all organizations will have suffered some form of “info-famine” or “info-gorge” (0.8 probability).

Reader Notes

Info-Famine

Users and processes cannot access document containers or their contents; users and processes are “starved” for info

Info-Gorge

Users and processes have access to too many containers without good content access; users and processes “drown” in info

The Mathematics of Info-Famine and Info-Gorge

No. of Office Documents/Year: X **Percent Accessed and Retrieved Manually:** = **No. of documents unavailable for IDOM processing in 1995:**
5.46 billion 59 percent 3.22 billion

Amount of Daily Computer Output:
600 million pieces

Number of Miles of Files Generated Daily:
170

Source: Gartner Group

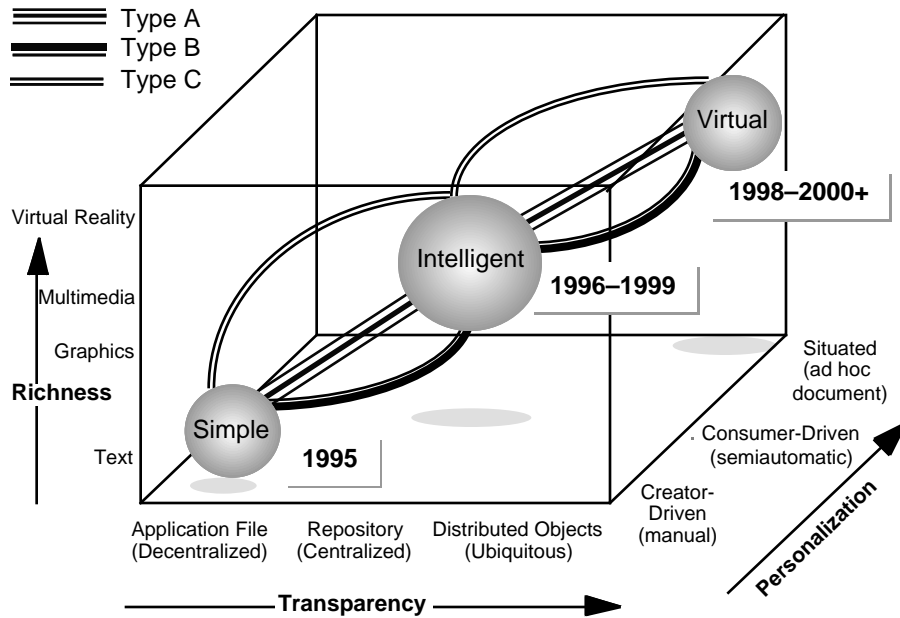
Key Issue: How will the evolution of the document transform the nature and use of information?

“Info-gorge” will occur when the floodgates to information are opened, without evolving the document in a way that reduces the volume of document containers. Without an evolved concept of the document, the IDOM system will be overwhelmed. “Info-famine” will occur when information access is too restricted by an inadequate IDOM system, or when an organization stops trying to access the overwhelming amounts of information and containers available. This two-headed ogre can be tamed by understanding the nature of the evolving document and building an IDOM architecture that leverages and supports a balanced integration of new document structures with improved business practices and processes.



Documents will evolve from today's "simple" containers of information to "virtual," situated and ad hoc views that will be created automatically, based on the interplay of environmental conditions (0.7 probability).

Reader Notes



Source: Gartner Group

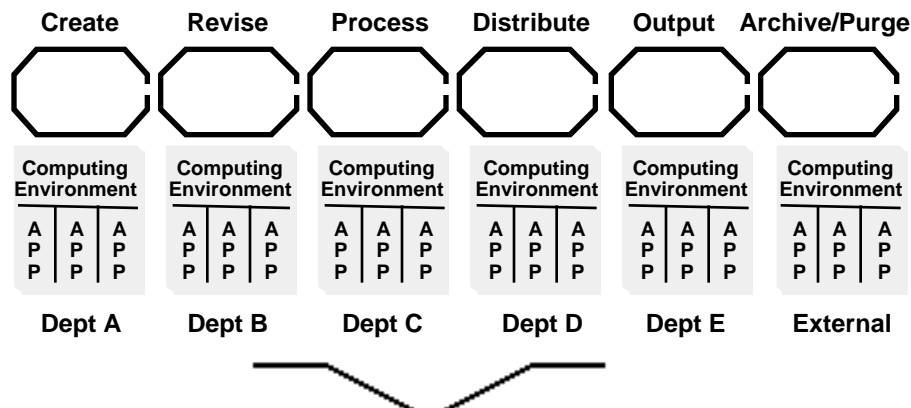
Key Issue: How will the evolution of the document transform the nature and use of information?

Document technology is too focused on managing the information container and too diffuse in the ability to access and use information objects directly. IDOM focuses on the technologies, architectures, organizational support and user behaviors that will allow users to transcend the constraints of information containers and directly apply the value of information content to business processes. Too many documents exist and not enough value is received from the amount of resources used to create, store, retrieve and manage these containers. Today's digital documents are merely electronic versions of the paper documents that have swelled filing cabinets and warehouses. Similarly, digital documents will overwhelm the file servers, RAID arrays and optical storage devices required to store these volumes. While electronic storage can yield direct storage cost savings and accelerate document retrieval, it does little to increase the users' ability to access and use document content. There are too many containers of unstructured information and they will shatter file systems, and even document management system storage constructs, if the absolute number of documents is not reduced.



Which applications will be built on the IDOM architecture during the next five years?

IDOM Application Value Chain



Cross-departmental business processes are hindered by unlinked departmental applications

- New Drug Applications
- Direct-Mail Marketing
- Claims Processing
- Financial Statement Generation
- Loan Underwriting
- Utility Rate Case Filings

Source: Gartner Group

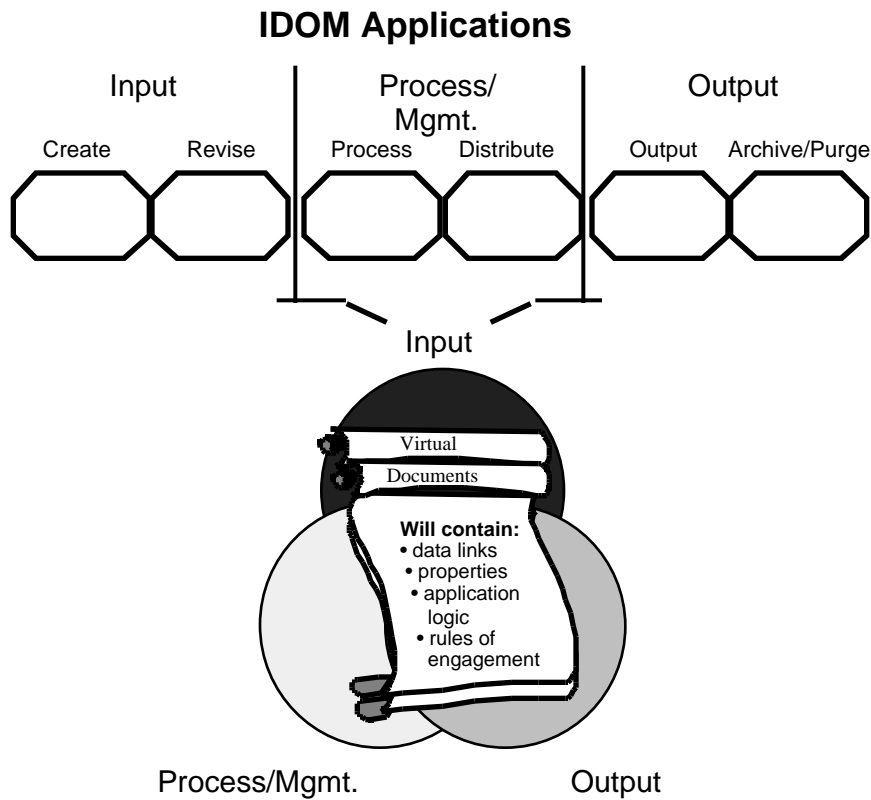
Key Issue Analysis: Gaps in the application value chain lead to longer times to market, higher price points, underutilization of resources and misallocation of investments in application and technology enhancements.

IDOM applications will be the technical implementation of business process value chains. A value chain will merge individual business processes into larger, more extensive workflows. IDOM applications will allow users to transcend workgroup and departmental borders by exploiting cross-application and cross-platform communications in direct support of value chain processes. The individual components of the underlying technology are being put in place: image capture, document management, information retrieval, work management systems, online viewing, distributed output management, and so on. It is now time to focus on the applications that can be built on this foundation to forge the links of the value chain.



By YE2000, 15 percent of Type A clients will achieve time-to-market and price-to-market breakthroughs by completing the IDOM application value chain (0.7 probability).

Reader Notes



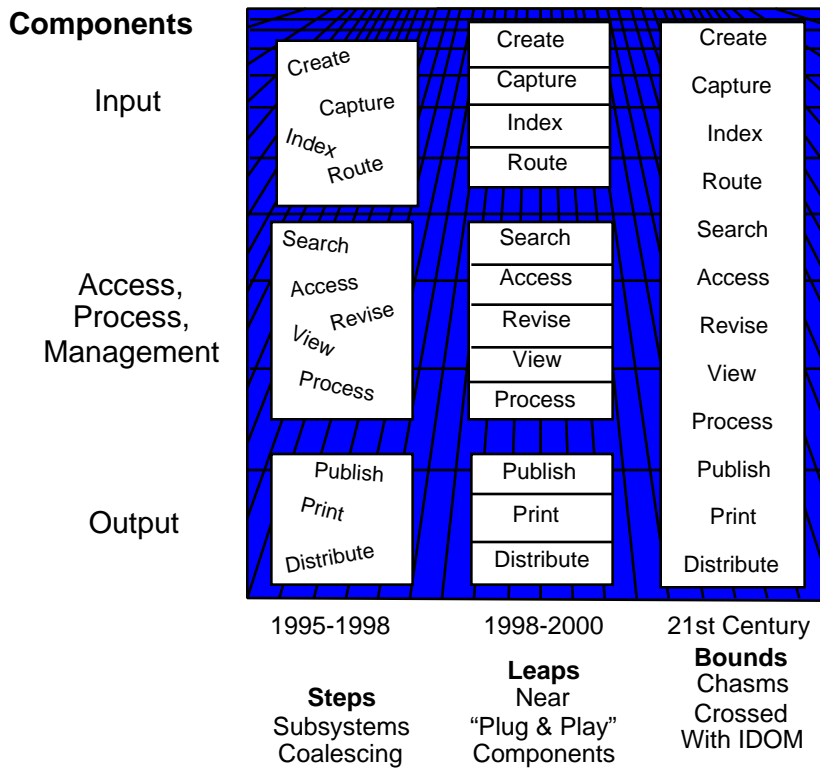
Source: Gartner Group

Key Issue: Which applications will be built on the IDOM architecture during the next five years?

Without an IDOM application in place, the value chain users will suffer functional chasms that limit the ability of the organization to drive down price-to-market and time-to-market measures. The manifestation of functional chasms will be felt as info-famine and info-gorge stresses. An over-reliance on manual or custom application coding will occur because document formatting, document content manipulation and manual workflow steps will disrupt the smooth flow of documents from inception to destruction in support of the business process value chain. In contrast to today's simple, passive documents, the virtual document will play an active role in interacting with IDOM middleware and end-user applications. Virtual documents will be self-aware, self-constructing and embody some of the business process and value chain logic within them.



Crossing the “Architectural” Chasm



Source: Gartner Group

Document creation, access, management, viewing, distribution and output applications will be built upon the foundation of familiar digital document middleware technologies that will in turn draw services and exploit integration points from the underlying IDOM architecture. Many of the IDOM technologies are only now reaching the point where functions are coalescing into “snap-in” subsystems (e.g., document imaging, document management, information retrieval), others are not yet there (e.g., workflow, RDS, distributed output management). We believe that a critical mass of subsystems and near “plug and play” components will develop near the end of the century to enable a complete IDOM architecture that will shrink the functional chasms value chain users will encounter over the next five years.

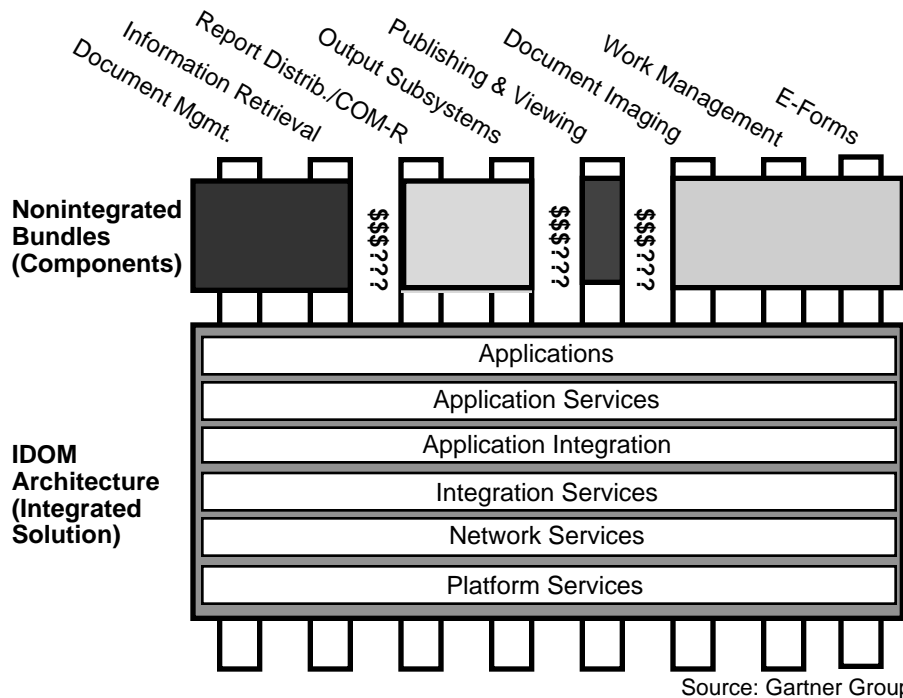


How will the IDOM architecture evolve during the next five years?

Reader Notes

Strategic Planning Assumption: Strategic IDOM vendor solutions will emerge in the next five years, driven by market opportunities to profitably reduce the fragmentation of technology bundles (0.8 probability).

Integrated Document and Output Management

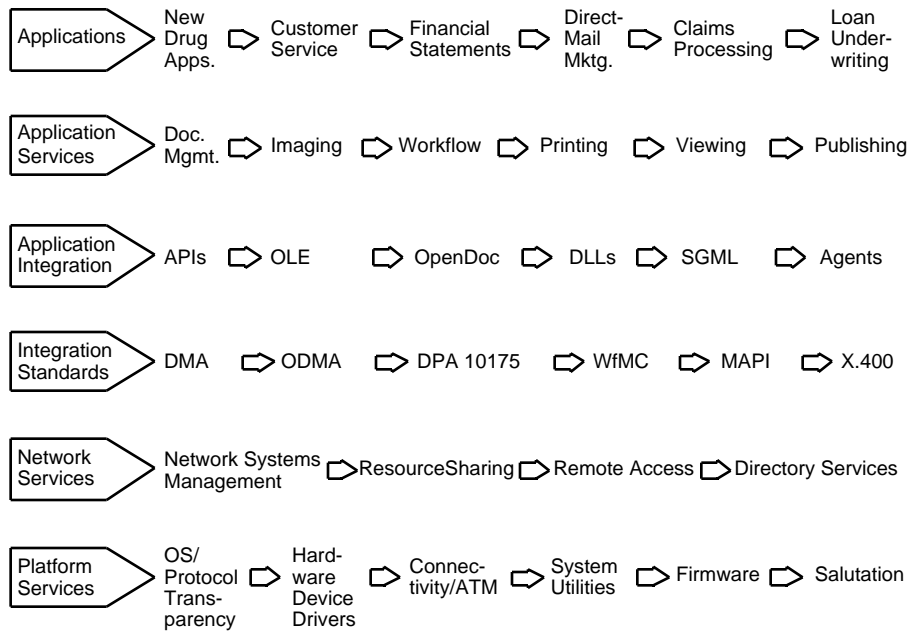


In 1995, the IDOM market is a highly fragmented collection of component technologies, with no single integrated vendor or even a framework for automating the entire document life cycle. Users are faced with nonintegrated bundles of technology with no unifying architecture for guidance. Users are integrating these components on an ad hoc, tactical basis, with no clear mandate or vision for solving the automation of the document life cycle from creation and capture through to access, management, viewing and output and distribution. Strategic IDOM vendor solutions will emerge in the next five years, driven by market opportunities to profitably reduce the fragmentation of technology bundles. This convergence has already begun in the form of joint marketing and integration efforts between component providers (integration of document management, document imaging and workflow) and operating-system vendors (e.g., Microsoft and Wang, Workflow Management Coalition, Open Document Management Association and the Document Management Alliance). This tentative level of integration activity will accelerate into a flurry of strategic alliances, and even merger-and-acquisition activity, when users begin to invest in their IDOM architectures in the late 1990s.



The successful implementation of an IDOM architecture will be enabled by investment in “unlimited” bandwidth, widely accepted integration standards and WAN and MAN system accessibility (0.8 probability).

IDOM Architecture



Source: Gartner Group

Key Issue: How will the IDOM architecture evolve during the next five years?

The IDOM platform that will eventually be brought to market will consist of specific implementations of existing or planned standards and protocols. These implementations may be proprietary or may represent a “pure” implementation of a standard based on the individual vendors existing technology base and strategic direction. Enough of the standards and technologies exist today to construct this platform, but not without pioneering work and high costs of development and custom integration. It is “early days” for many of the individual standards and protocols so packaging some or all of them into a complete architecture is currently beyond any individual vendors ability or development budget.



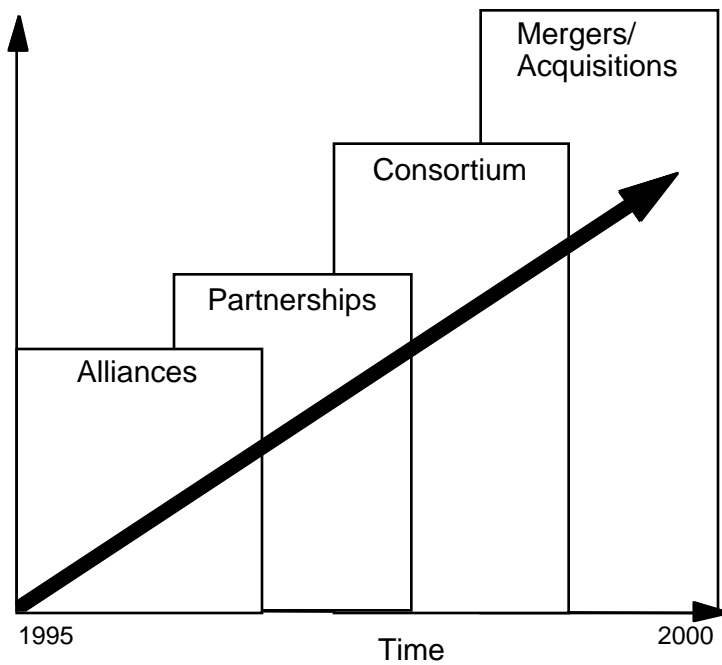
Which vendors will be strategic to the creation and execution of an organization's IDOM future?

Reader Notes

Strategic Planning Assumption:

Low-cost, well-integrated IDOM platforms will not be available from individual vendors until the market passes out of the consortium phase in 1999 (0.7 probability).

Intimacy of Business Relations



Source: Gartner Group

Since the costs of full and even partial IDOM architecture development will exceed the interests and budgets of any individual vendor in the next five years, the IDOM market will pass through four typical market stages: alliances, partnerships, consortium and mergers/acquisitions. The drivers behind these stages of market development will be the need to add functionality, gain access to new customers, and to begin to set some standards that can be used as a foundation for future differentiation.

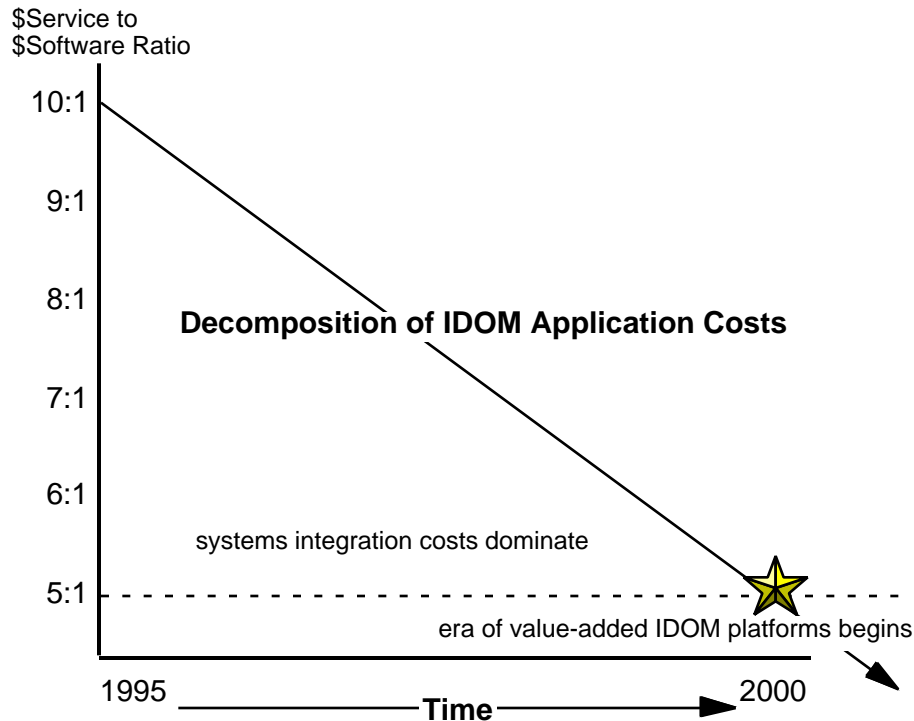


Strategic Planning Assumption

IDOM Scenario

Through 2000, users will rely on systems integrators for IDOM architectural implementation at service to software ratios in excess of 5:1 (0.8 probability).

Reader Notes



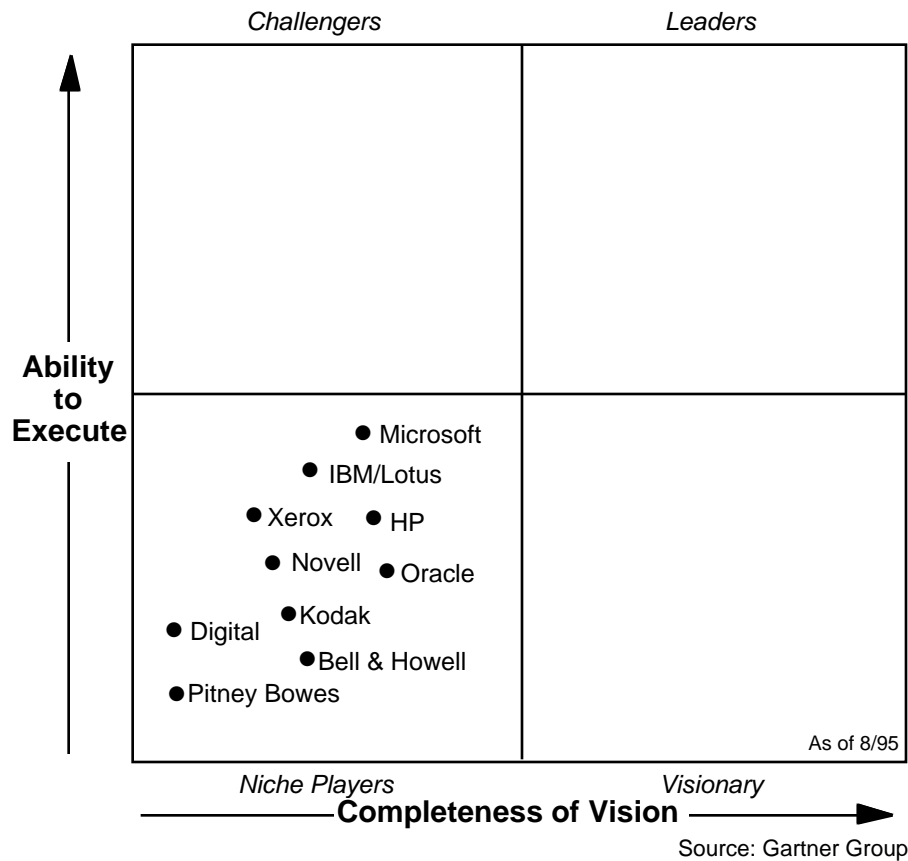
Source: Gartner Group

Key Issue: Which vendors will be strategic to the creation and execution of an organization's IDOM future?

We expect a new "Golden Age" for systems integrators and software developers with substantial service and support businesses. The expense of an IDOM architecture or application will not be in the software itself but in the custom coding, application development and systems integration with existing technologies and applications. Astronomical service dollar to software dollar ratios are anticipated, limiting the early development of IDOM applications to business processes that can yield extraordinary ROI.



By 2000, leadership in providing integrated IDOM solutions will surface from major system vendors and workgroup computing vendors (0.7 probability).



Strategic Planning Assumption: The fragmentation of the IDOM market guarantees that users will not be able to go to a single vendor for an integrated IDOM solution in the next five years (0.8 probability).

An integrated solution built around an IDOM architectural framework is what users should strive for in this planning period. We believe two to three vendors will emerge from the major system and workgroup computing markets to offer frameworks that hold out the promise of complete IDOM solutions at reasonable prices. An appropriate expectation for these frameworks is that the cost and pain of integrating the IDOM component bundles will be reduced, beginning in 2000.



Which organizational strategies will lead to the successful development of an enterprise IDOM architecture?

Reader Notes

Trends

Strategies

Value chains for competitive advantage



Marry technology with re-engineering efforts

Standards-based architectures



Invest in standards-centric approaches

Applications must bridge functional chasms



Invest along defined complexity/cost curves

A new, "Golden Age" for systems integrators



Buy knowledge and skills from systems integrators

Source: Gartner Group

Users are plunging headlong into an era of rapid testing and deployment of electronic document technologies yet the coherent coalescence of these technologies into a rationale IDOM architecture will lag behind. User and organizational strategies must recognize the underlying trends driving their business decisions and associated technology investments and respond with strategies that position them to begin an incremental adoption of the IDOM.

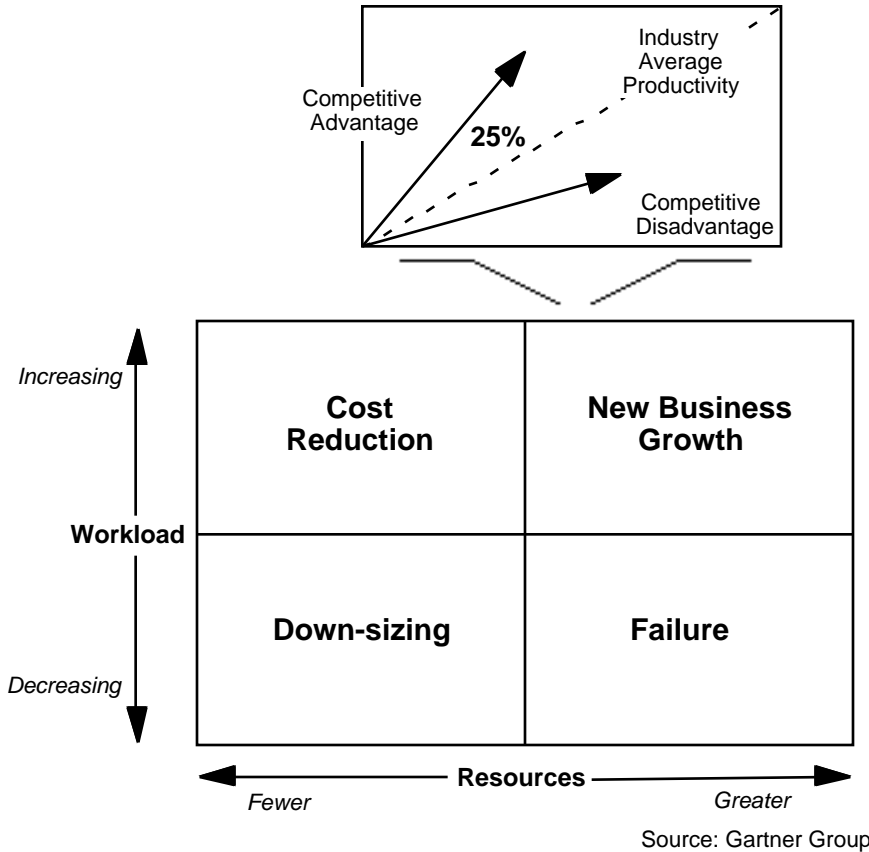


Strategic Planning Assumption

IDOM Scenario

Between 1995 and 2000, competitive advantage will be achieved by technology advances that provide productivity gains at least 25 percent higher than the industry average (0.7 probability).

Reader Notes



Key Issue: Which organizational strategies will lead to the successful development of an enterprise IDOM architecture?

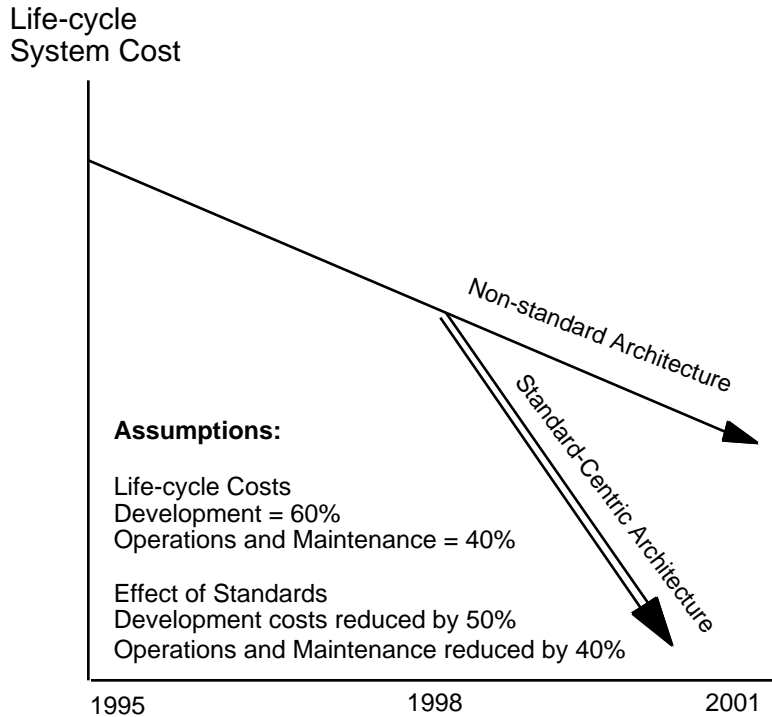
Technology is typically used to either do more with less, do the same with less or do more with more. All three approaches are accomplished through improved worker and technical asset productivity. While productivity gains are important regardless of the stage of life an organization is in, the new business growth stage will find its competition setting very high goals for productivity improvements. Rapid business growth is always predicated on a highly scalable business model which almost always includes high levels of human and technology asset productivity.



By YE98, a standards-centric architecture will reduce IDOM system development and ongoing operational costs by 45 percent over the life of the system (0.7 probability).

Reader Notes

The Standards “Payoff”



Source: Gartner Group

Key Issue: Which organizational strategies will lead to the successful development of an enterprise IDOM architecture?

The payoff of a standards-based IDOM architecture comes not in the application development or systems integration phase (given the relative immaturity of the technologies and the overall inexperience with these types of application) but will be collected over time as lower maintenance and operating costs. The key to the payoff will be in better long-term system extensibility, the development of standards-based maintenance and support utilities and increasing functionality derived from the IDOM middleware layer. Detriments to the payoff will be non-standards-derived custom code and applications that require custom maintenance and support.

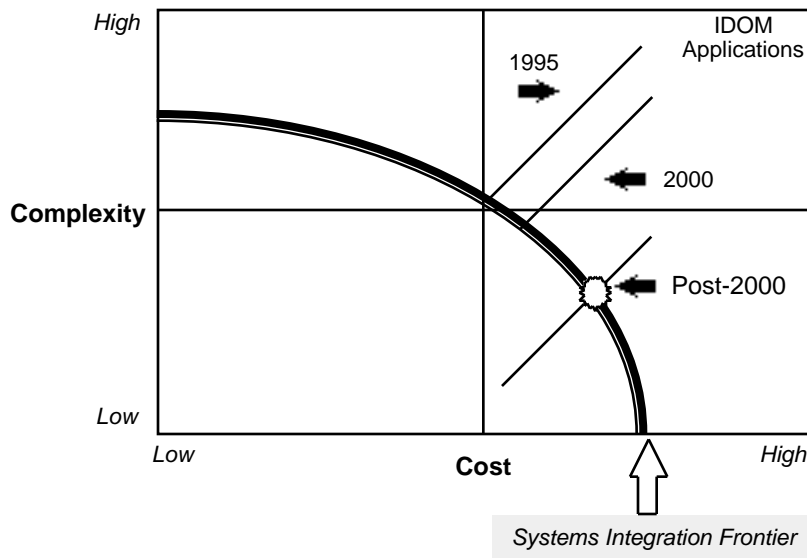


By YE2000, 70 percent of the startup cost of an IDOM application will be planning and development expenses (0.8 probability).

The rapid commoditization of IDOM technologies will not substantially reduce IDOM application startup costs by YE2000 (0.7 probability).

By YE2000, 30 percent of systems integration expenditures should be focused on the education, training and experience building of internal skills and resources (0.8 probability).

IDOM Application Cost and Complexity

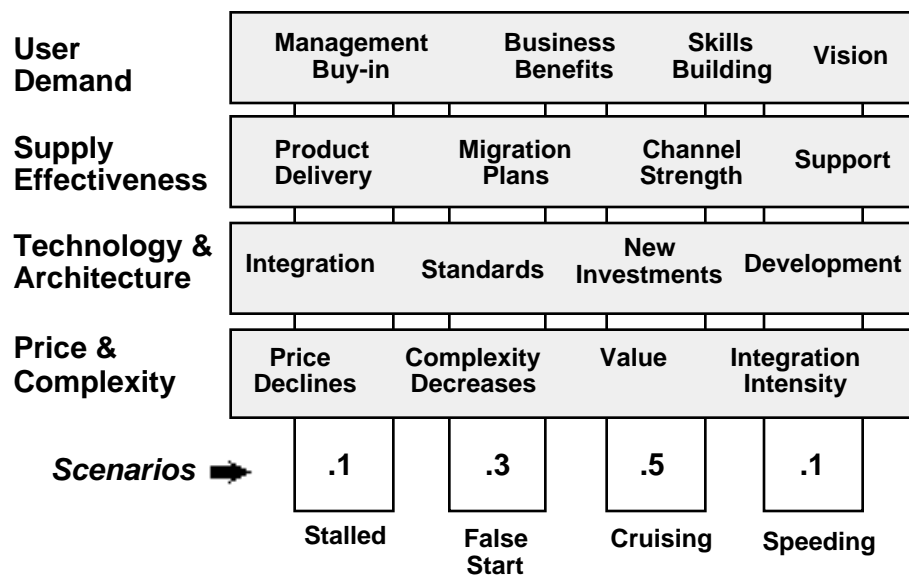


Source: Gartner Group

Key Issue: Which organizational strategies will lead to the successful development of an enterprise IDOM architecture?

The end result of IDOM systems integration expenditures should not be a new cult of IDOM “high priests.” Rather, these expenditures should be strategic investment in internal training and skills building. As IDOM middleware matures, there will be a premium on low-cost, rapid application development that will likely be executed on a more cost-effective basis with internal IS staff as opposed to high-priced external resources. Most organizations will be able to draw upon their experiences with the individual IDOM technologies since most of these will mature and begin to commoditize over the next five years. Systems integration expenses can be seen as a way to scale a steep learning curve, but once surmounted, those skills can become part of an IS department’s repertoire.





Stalled (0.1 probability): IDOM market never becomes recognizable due to a fundamental supply and demand market failure, an insurmountable price and complexity barrier or an overwhelming conflict with existing technical architectures and infrastructures.

False Start (0.3 probability): Supply and demand begin to approach equilibrium which never adequately stabilizes because of continuous gyrations in individual technology markets and in underlying technology architectures.

Cruising (0.5 probability): Supply and demand meet for long enough periods of time that a base level of IDOM middleware integration is achieved and an architectural foundation is established. Price points and complexity fall but systems integration remains strong because technology and market shifts periodically upset the equilibrium.

Speeding (0.1 probability): IDOM becomes an enterprise architecture for the seamless integration of electronic documents in support of cross-departmental, cross-platform applications. Supply and demand reach equilibrium rapidly and progress in tandem as architectural standards, declining price points and decreasing complexity support a smooth migration to increasingly sophisticated IDOM applications.

