## Key Issues

**Enterprise AD Technology**

Reader Notes

1. **What strategies, methods and tactics should AD organizations employ to better align applications and AD with business goals?**

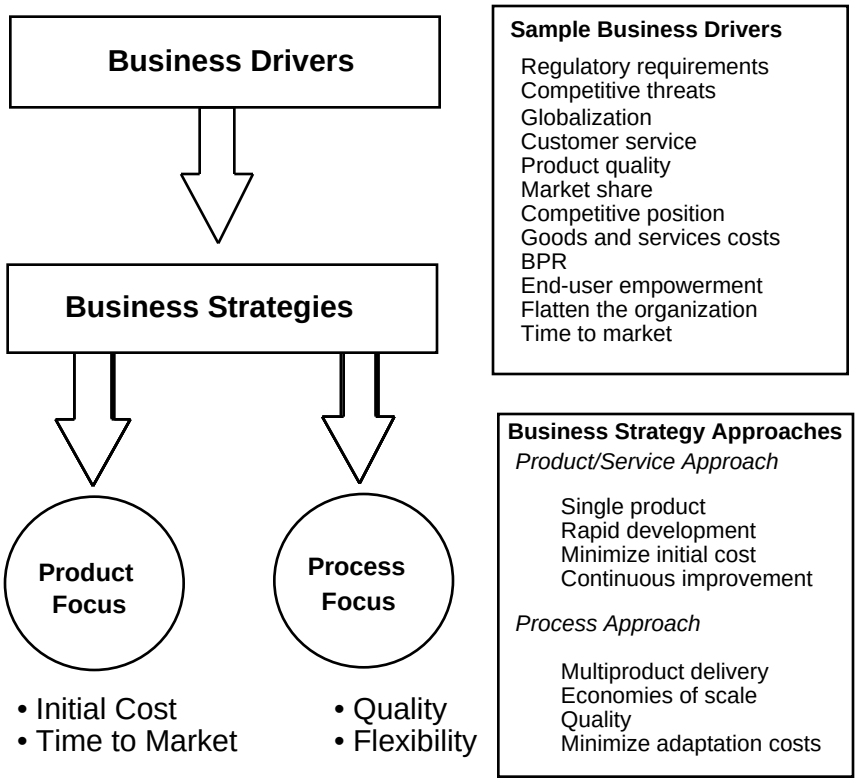
2. **What technologies, tools and vendors will best enable the effective development of enterprise-class applications during the next five years?**

It has become increasingly important for IS organizations to demonstrate alignment with enterprise business drivers and goals. This presentation explores the strategies, methods and tactics that IS organizations should employ to better align applications and AD with these drivers and goals. It also focuses on the selection of the best strategies, technologies, tools and vendors to enable the effective development of enterprise-class applications during the next five years.

**What strategies, methods and tactics should AD organizations employ to better align applications and AD with business goals?**

Reader Notes

**Business Drivers, Strategies and Approaches**



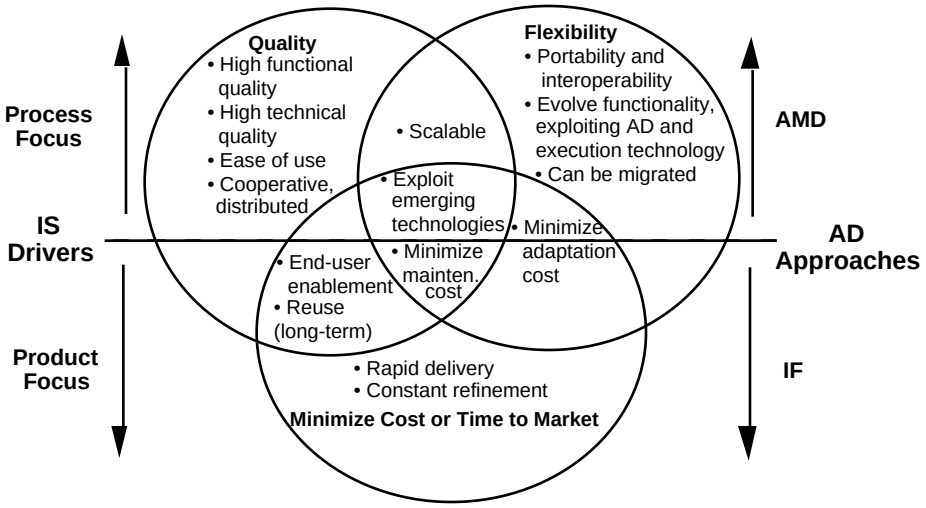

Source: Gartner Group

Many enterprises are struggling to comprehend the impact of the changes and trends that are driving business segments and whole industries. Important business drivers include: BPR, competitive position, customer service, end-user empowerment, global competition, market share, product quality, and shortened product time-to-market. Successful companies base their business strategies on the most-important business drivers affecting their markets. These strategies generally lead to the adoption of one of two focuses on product and service delivery, or a hybrid of them: 1) a "product/service focus" on a single product or service, using rapid development, minimizing initial cost, and evolving the product through continuous improvement; or 2) a "process focus" on multiproduct delivery, benefiting from economies of scale, improved quality, and minimized adoption costs. Both approaches are appropriate under different business circumstances. Frequently, departments or lines of business may have different delivery philosophies than that of the enterprise as a whole. The bottom-line impact on an IS organization is that it must be capable of supporting multiple business strategies and delivery approaches.

**Through 2000, when selecting an approach to AD, tradeoffs will be needed among quality, flexibility, initial cost and time-to-market characteristics based on the enterprise's business strategies (0.8 probability).**

Reader Notes

**Mapping IS Business Drivers to the AD Approach**




**Architected, Model-Driven (AMD) AD Approach Characteristics**

- Layered architecture
- Model-driven
- Reuse strategy
- BPR and formal methodology
- Data warehousing
- DA, E-OOA/OOD, E-CASE, E-4GLs

**Implementation-Focused (IF) AD Approach Characteristics**

- Optimized architecture by application
- Rapid delivery
- Focus on a single application
- Constant refinement
- Ad hoc queries
- DBMS, OOP components, W-4GLs

Source: Gartner Group

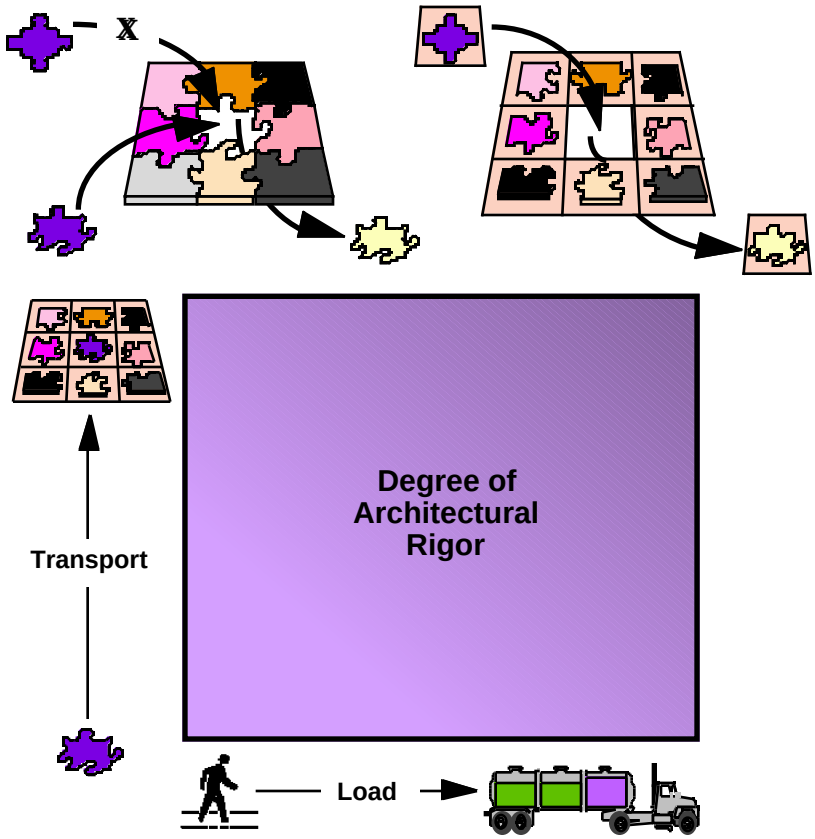
## Key Issue: What strategies, methods and tactics should AD organizations employ to better align applications and AD with business goals?

An enterprise's overall business strategies become business drivers to the IS organization. The IS organization then develops its own strategies and selects appropriate AD product/service ("implementation-focused") or process ("architected, model-driven") approaches based on quality, flexibility, initial cost and time-to-market requirements. The IS organization must not blindly base its strategies on these requirements alone. The challenge for most IS organizations is to achieve the right balance between the proactive process approaches and reactive product or service approaches, all within the realm of overall infrastructure costs. An IS organization that fails to implement and balance the approaches can find itself viewed as either unresponsive to users' requests, or too focused on the enterprise's immediate needs and unable to respond to tomorrow's demands. It is important that IS management communicates its alignment with enterprise drivers, strategies and approaches to corporate senior management, and that it wins management support for implementing a balance of AD approaches.

Reader Notes

**The amount of architectural rigor to be applied to an AD solution must be determined not only by IS business drivers, but also by transport and load requirements.**

**"Architecting" for Transport and Load**

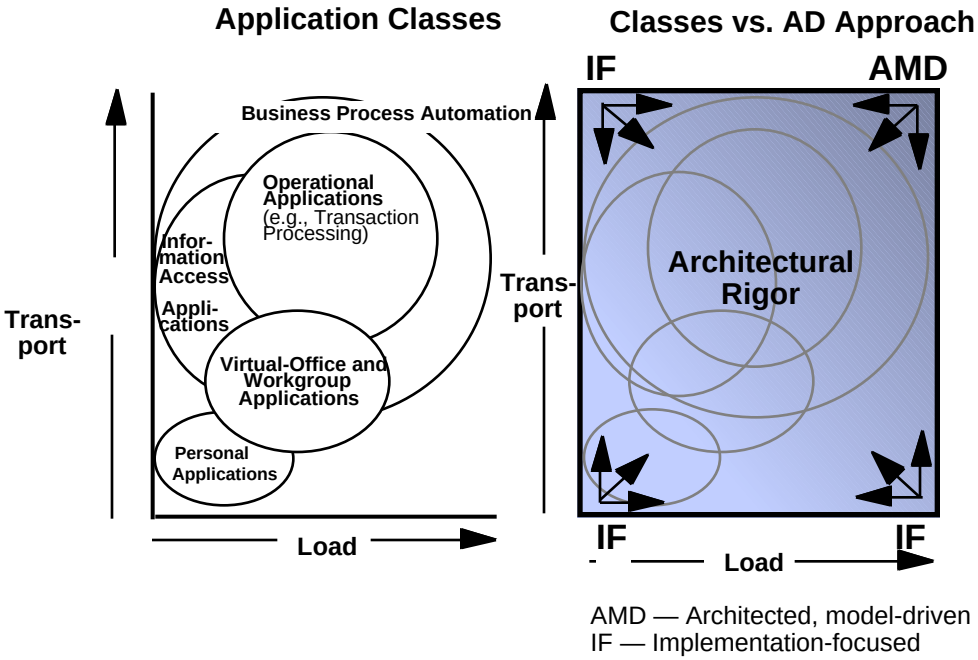



Source: Gartner Group

**Key Issue: What strategies, methods and tactics should AD organizations employ to better align applications and AD with business goals?**

In the absence of architectures, interfaces can be complex and inflexible, and the interfaced objects or the interfaces themselves may have insufficient quality to withstand peak loads. "Transport" is an architectural concept that is not specific to any one type of architecture. It deals with the issue of the number and complexity of interfaces that must be supported. Generally speaking, the greater the number and complexity of interfaces that an object has, the more advisable it is to formalize its interfaces. For example, motorists expect standard traffic light colors and stop sign shapes, and computer applications should have a common GUI interface look and feel. Similarly, "load" deals with the quality of the object and its interfaces. Different degrees of architectural rigor must be applied to making a path for an individual vs. building a suspension bridge for commercial traffic, or to deploying handheld walkie-talkies vs. worldwide telephone systems.

**Transport and load requirements help to determine to which class an application should be assigned and which AD approach to take.**




AMD — Architected, model-driven
IF — Implementation-focused

Source: Gartner Group

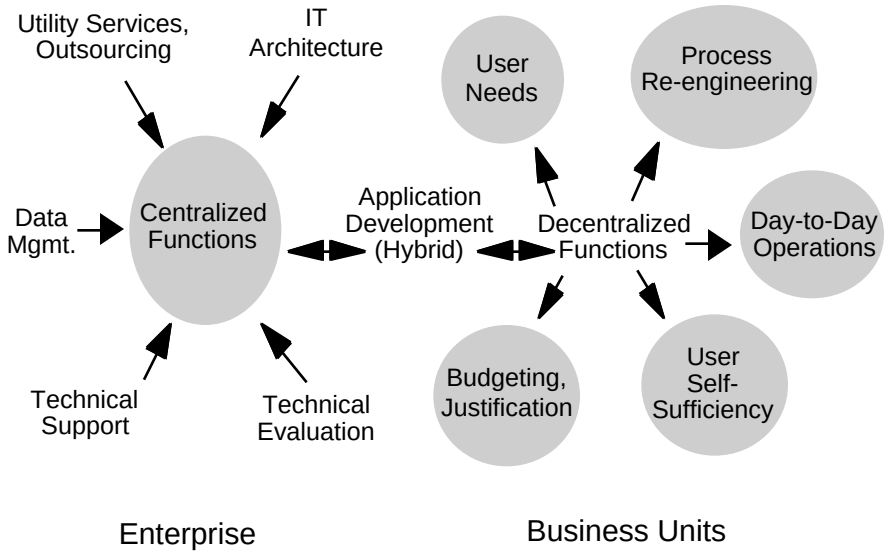
**Key Issue: What strategies, methods and tactics should AD organizations employ to better align applications and AD with business goals?**

An enterprise's application portfolio can be broken into five classes of applications: personal; virtual-office and work-group; operational (e.g., transaction processing); information access; and business process automation (systems that enable knowledge workers to deliver goods or services). As a generalization, these can be categorized based on transport and load requirements (e.g., operational applications may have many complex interfaces with heavy transaction volumes of concurrent users, while workgroup applications usually have far fewer interfaces and much lower concurrent-access requirements). The greater the combined transport and load requirements, the more advisable it is to add architectural rigor and consider selection of an architected, model-driven approach to AD. Despite the hype of vendors claiming to have "enterprise AD tools," generally speaking only the ones that support peak transport and load requirements do.

**Through 2000, driven by demands for rapid development and deployment, the power shift will continue toward business unit control of applications and investment, within a set of organizational guidelines and an infrastructure defined by AD (0.7 probability).**

Reader Notes

**Centralization/Decentralization and Specialty Center**




Source: Gartner Group

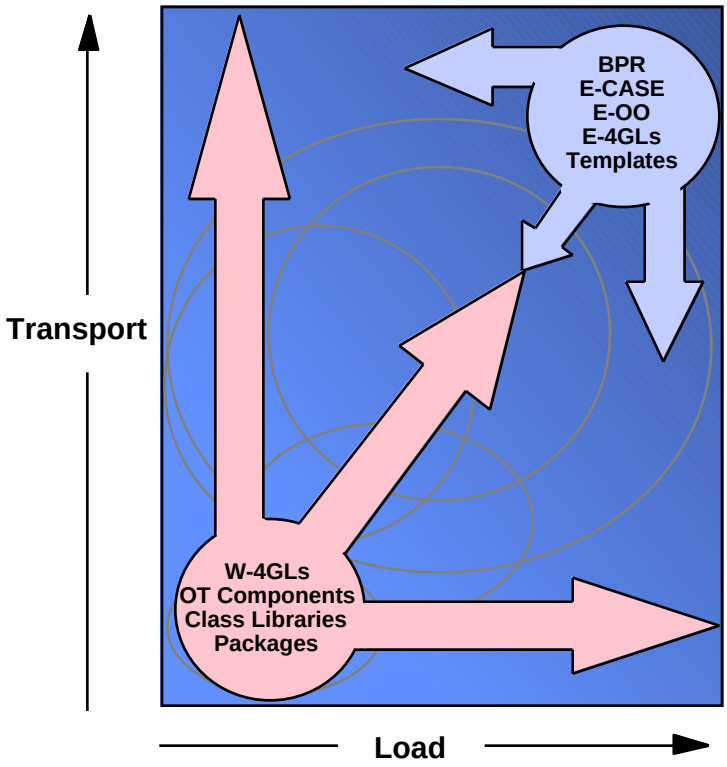
**Key Issue: What strategies, methods and tactics should AD organizations employ to better align applications and AD with business goals?**

The optimal organizational strategy is to support the business directly and also support the enterprise-level needs in terms of a consistent, sensible approach. To do this, some firms are splitting up the AD organization into two parts: 1) a decentralized portion, made up of individual teams of AD personnel working within the particular business units, learning their needs and acting as IT advocates; and 2) a centralized portion, made up of specialized technical skills that are used to address the creation of enterprisewide standards, to carry out broadly applicable technology evaluations, to provide second-level user support, and to provide resources for AD and its consistent utilization. Given this structure, cross-unit communication to update staff on new developments, vendor experiences and successful (or unsuccessful) applications is a necessary activity to maintain.

**What technologies, tools and vendors will best enable the effective development of enterprise-class applications during the next five years?**

Reader Notes

**Technology Alternatives**



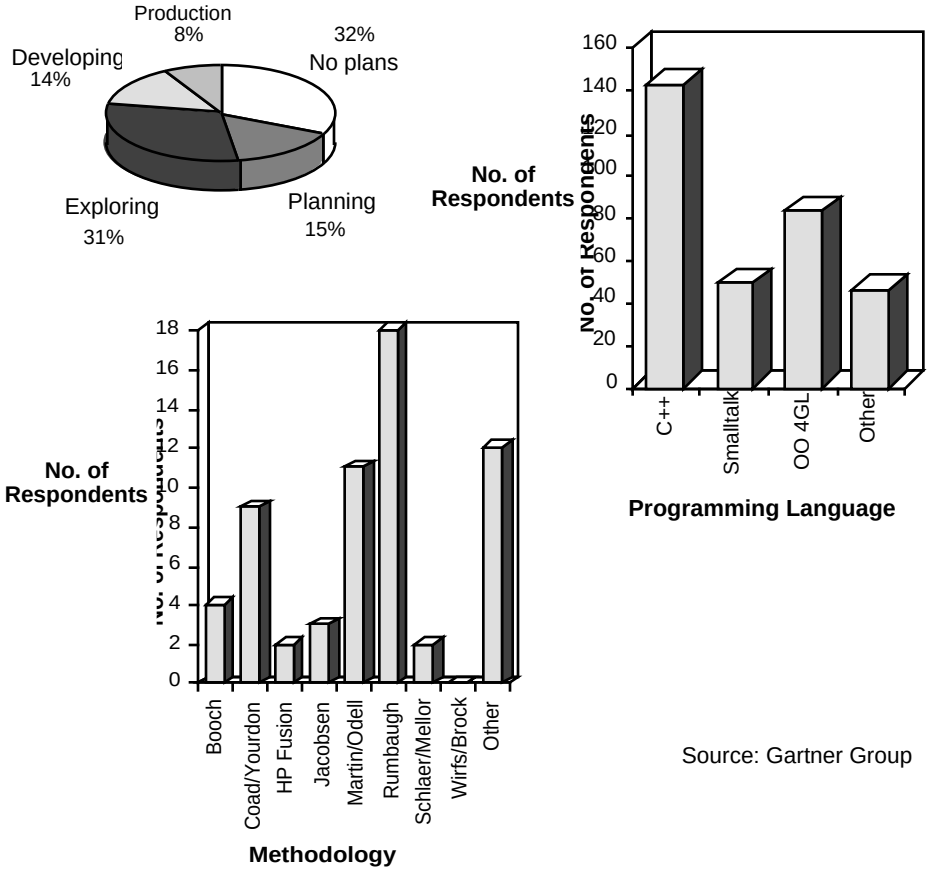

Source: Gartner Group

Business drivers and strategies emphasizing low initial cost and quicker time to market — along with the proliferation of personal computers and increases in decentralized end-user AD — are fueling the implementation-focused (IF) AD tools market. The use of workgroup 4GLs, object technology components, class libraries and packages is growing substantially to meet implementation-focused drivers. However, after initial success with these tools, many organizations are struggling to obtain similar successes with them when having to “scale up” to satisfy peak transport and load requirements. This market will look different in a few years as BPR tools tied to OO enablers evolve, and as more templates and “customizable packaged applications” are delivered using E-OO, E-CASE and E-4GL technology, making it possible to achieve rapid results without de-emphasizing architecture.

Reader Notes

**By the year 2000, at least five in 10 new applications will use object technology, primarily for user interfaces and complex C/S functionality (0.8 probability).**

**ADM7 OO Survey Results**




Source: Gartner Group

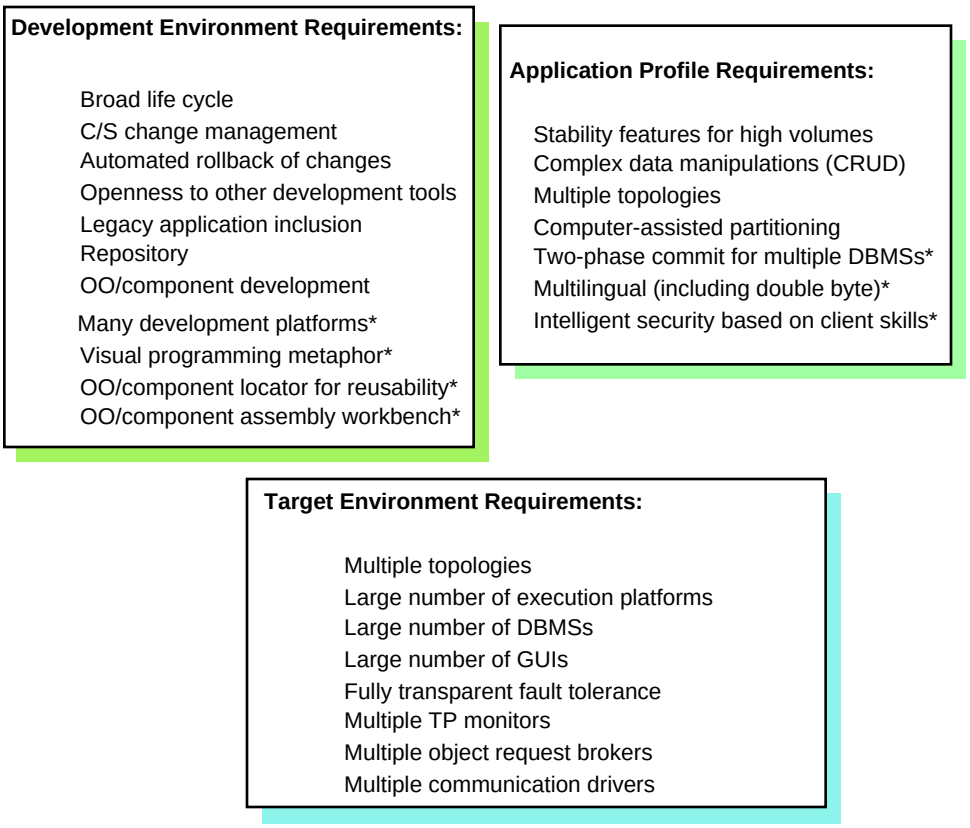
**Key Issue: What technologies, tools and vendors will best enable the effective development of enterprise-class applications during the next five years?**

In May 1994, we conducted a survey at our ADM7 conference concerning OO attitudes and penetration. The numbers were surprisingly similar to those of a survey we conducted in 1992, with both surveys showing roughly 15 percent of organizations planning to use OO and 8 percent actually deploying OO applications to production. While more than 80 percent thought that objects offered benefits and more than 70 percent said that objects were not hype, nearly 80 percent considered objects “risky and hard to do.” Moreover, compared to 1992, 16 percent fewer reported exploring OO and 6 percent fewer said they were developing OO applications. Part of this difference can be attributed to the fact that in 1992 the OO audience was mostly early adopters from Type A companies, whereas today’s audience comes from more mainstream populations (Type B and C companies). Despite the survey results showing C++ as the preferredprogramming language, we expect Smalltalk to play a key role in OO. We also expect more standardization of OO methodologies by 1997.

**E-C/S development tools will continue to emerge through 1995 but will not mature until 1998 (0.7 probability).**

Reader Notes

## Enterprise C/S AD Requirements




*** Denotes desirable; the rest are mandatory**

Source: Gartner Group

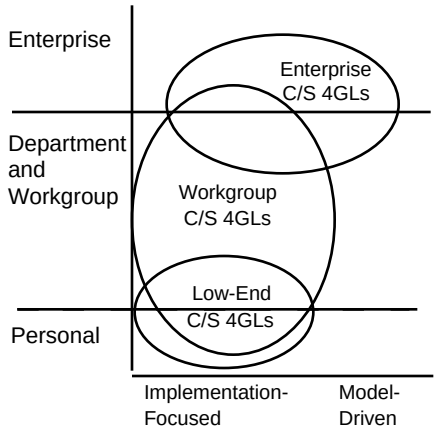
**Key Issue: What technologies, tools and vendors will best enable the effective development of enterprise-class applications during the next five years?**

**Application Profile Requirements:** E-C/S AD tools should ramp up to support applications performing more than 10 transactions per second with more than 100 users, and must support complex create/read/update/delete (CRUD) scenarios with two-phase commit across heterogeneous databases as an eventual target. They should be able to support applications that can have multiple topologies, including "thin client/fat server," "fat client/multiple thin server," and variations on that continuum. The logical unit of work must be configurable and must include some form of computer-assisted partitioning. Because of the emphasis on business process automation, sophisticated online help with multilingual support is expected, with interfaces to intelligent security features. See ADM *Research Note* SPA-550-1090, Nov. 23, 1994, for more details on the development and target environment requirements.

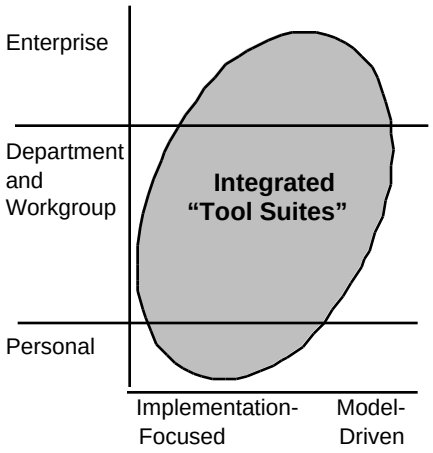
Reader Notes

**By 2000, all leading C/S 4GL vendors will either participate in alliances that provide integrated, enterprise-to-desktop AD tool suites, or will have their own single-vendor solutions (0.7 probability).**

**C/S 4GLs in 1995**




**C/S AD Tools in 2000**



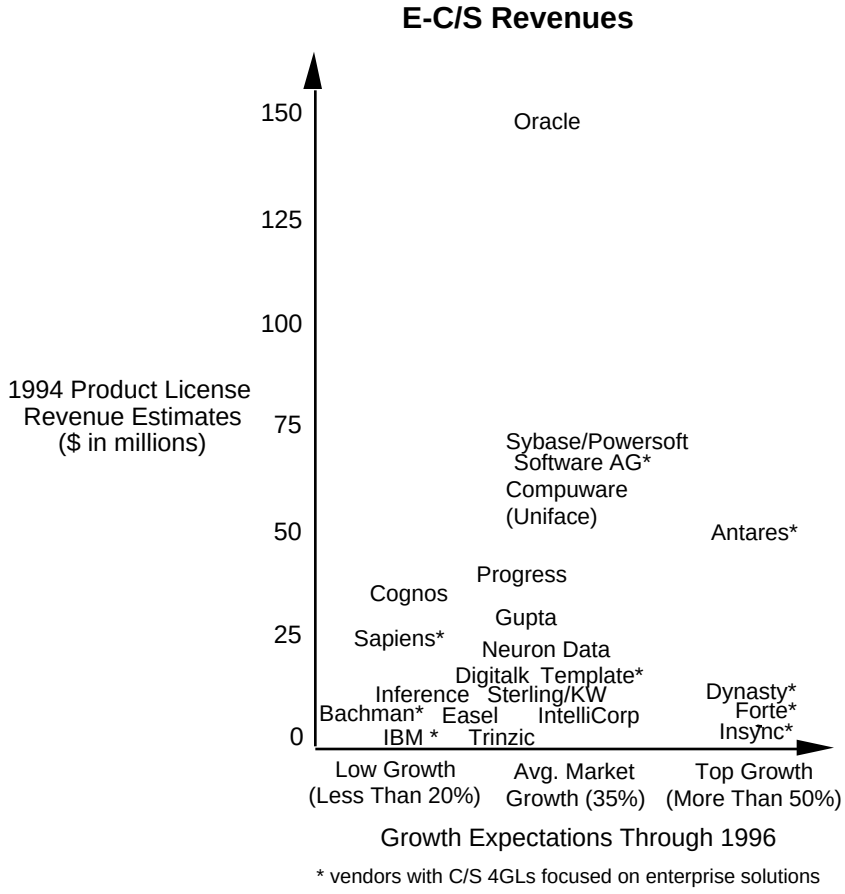

Source: Gartner Group

**Key Issue: What technologies, tools and vendors will best enable the effective development of enterprise-class applications during the next five years?**

As developers look to use 4GLs to build complex, mission-critical enterprise applications, an increased demand for E-C/S 4GL tools is emerging. Many W-C/S 4GL vendors are evolving their products to compete in this market at the same time low-end C/S 4GL vendors are entering the W-C/S 4GL market from the desktop. Disintegration of C/S 4GL classes will accelerate during the next five years. By 2000, vendors will ally into "supergroups" providing enterprise-to-desktop tool "suites," with each "supergroup" having its own development framework and common repository. (Note: Suites should not be confused with marketing "bundles" from a single vendor.) When selecting technology, it is advisable to stay within a given alliance partnership, as cross-product integration and functionality within the alliance's suite of tools should provide a greater return on investment and avoid the issues of cross-suite release incompatibilities

Reader Notes

**The overall market for E-C/S 4GLs will exceed a 30-percent CAGR through 1997, driven by at least a 50-percent CAGR for high-end E-C/S 4GLs (0.7 probability).**




Source: Gartner Group

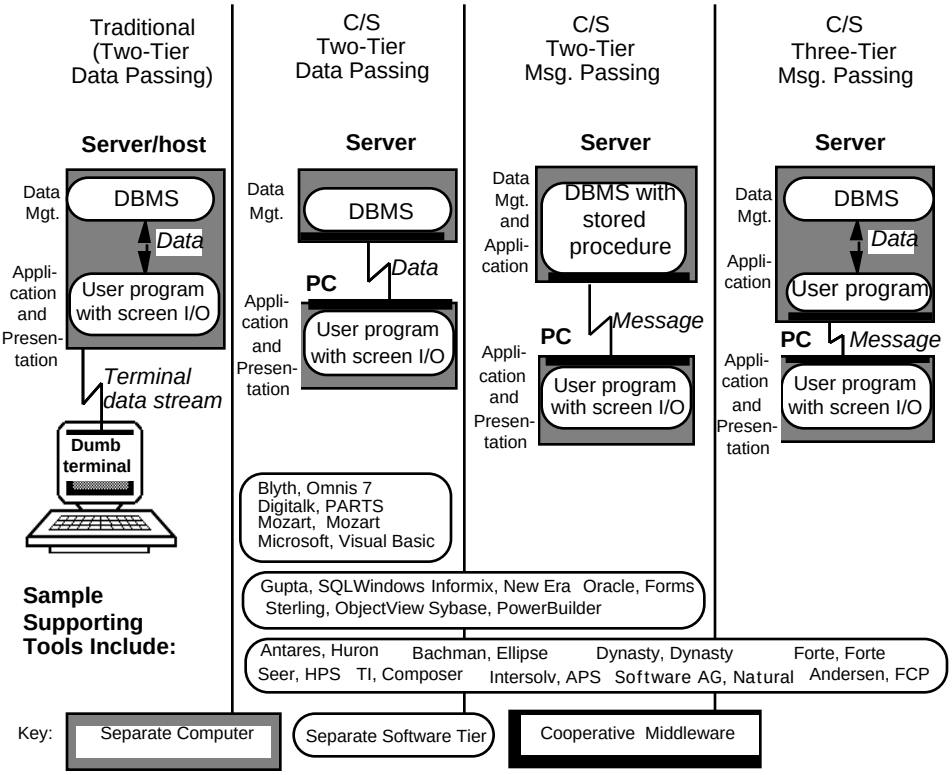
**Key Issue: What technologies, tools and vendors will best enable the effective development of enterprise-class applications during the next five years?**

We estimate that the enterprise C/S 4GL market grew 33 percent in 1994 to $775 million. However, approximately 72 percent of this valuation is attributed to W-C/S 4GLs that compete in this marketplace, yet lack the strength to develop true enterprise C/S applications. The remaining 28 percent of this market comprises revenue from 4GLs that are primarily in transformation from being mainframe-based to having full C/S capabilities. With a large proportion of users already experienced in C/S AD on a workgroup level and ready to build true enterprise C/S applications, there is a strong demand for a new, advanced breed of C/S 4GLs. The market for E- C/S 4GLs will explode during the next three years as it evolves to meet this demand.

Reader Notes

**Through 1998, AD organizations will increase their focus on multitier C/S message-passing applications.**

**Evolution of C/S Architectures**

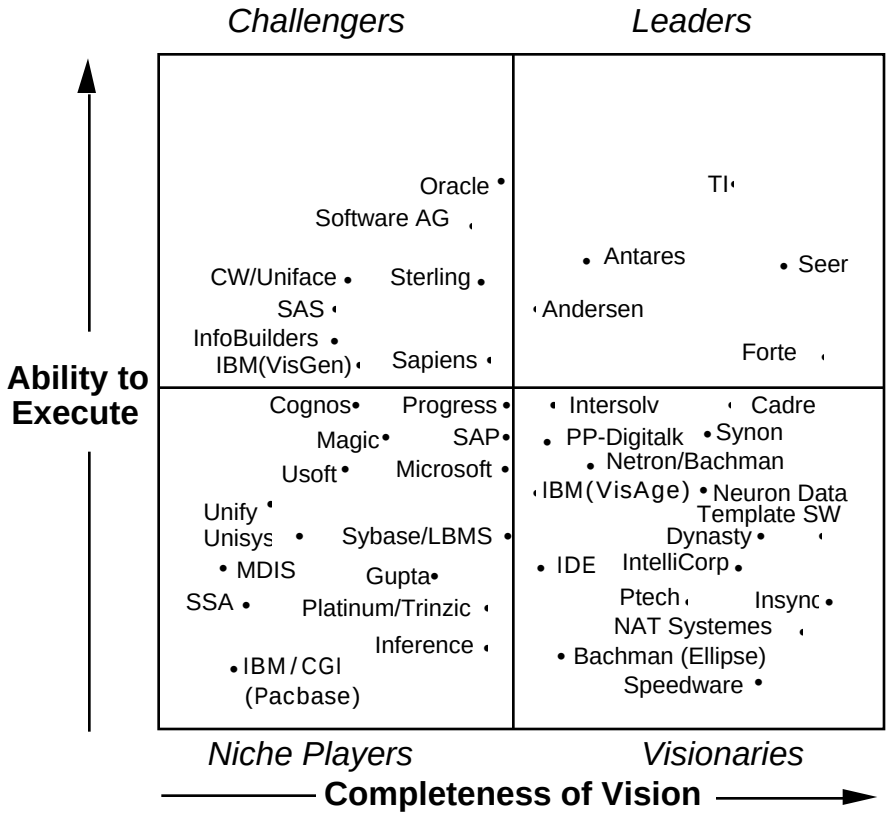



Source: Gartner Group

**Key Issue: What technologies, tools and vendors will best enable the effective development of enterprise-class applications during the next five years?**

C/S technologies that dominated the market in the early 1990s implemented a single model of C/S, namely remote data management or two-tier data passing. Growing emphasis is placed on the importance of multiple-tier architectures, because of the need for specialized processing servers for business process automation applications. Examples include inference, image, message router and calculation servers. While new solutions are appearing from converging E-CASE, E-OO and E-4GL vendors, most AD organizations will concentrate on remote-data-management applications through 1995, migrating to distributed logic (two-tier or three-tier message passing) as the tools and methods mature through 1997.

**Representative E-AD Vendors**




As of 7/95
Source: Gartner Group

**Key Issue: What technologies, tools and vendors will best enable the effective development of enterprise-class applications during the next five years?**

**Selected Leaders:** Andersen Consulting (Foundation, FCP), Antares (Huron, ObjectStar), Forte (Forte), Seer (HPS), Texas Instruments (Composer). **Selected Challengers:** Compuware (Uniface), IBM (VisualGen), Infomation Builders (Focus), Oracle (Designer/2000, Developer/2000), Sapiens (Ideo, Sapiens, ObjectPool), SAS Institute (SAS), Software AG (Natural, New Dimension), Sterling (KEY for Enterprise). **Selected Visionaries:** Bachman (Ellipse, Bachman Analyst), Cadre (Teamwork, ObjectTeam), Dynasty (Dynasty), IBM(VisualAge), Interactive Development Environment/IDE (STP/OMT, I-CASE OMT), Intersolv (APS, Excelerator), InSync (Passport), Intellicorp (Kappa, OMW), Nat Systemes (NS-DK), Netron/Bachman (CAP, Bachman Analyst), Neuron Data (C/S Elements, Nexpert Object, OIT), ParcPlace-Digitalk (VisualWorks, PARTS, Visual Smalltalk), Ptech (Ptech), Speedware (Speedware), Synon (Synon2E, Obsydian), Template Software (SNAP). **Selected Niche Players:** Cognos (Axiant), Gupta (SQL Windows), IBM/CGI (PACBASE), Inference (ART*Enterprise), Magic Software Enterprises (Magic), MDIS (PRO-IV), Microsoft (OLE/DB, Integrated Dev Env & Debugger, SourceSafe), Platinum/Trinzic (ObjectPro), Progress (ADE), SAP (R3, ABAP/4), SSA (AS/SET), Sybase/LBMS (PowerBuilder, System Engineer), Unify (Vision), Unisys (Linc, Mapper), Usoft (Usoft Developer).

## Bottom Line

- Through 2000, when selecting an approach to AD, tradeoffs will be needed among quality, flexibility, initial cost and time-to-market characteristics based on the enterprise's business strategies (0.8 probability).

- Through 2000, driven by demands for rapid development and deployment, the power shift will continue toward business unit control of applications and investment, within a set of organizational guidelines and an infrastructure defined by AD (0.7 probability).

- By the year 2000, at least five in 10 new applications will use object technology, primarily for user interfaces and complex C/S functionality (0.8 probability).

- E-C/S development tools will continue to emerge through 1995 but will not mature until 1998 (0.7 probability).

- By 2000, all leading C/S 4GL vendors will participate in alliances that provide integrated, enterprise-to-desktop AD tool suites, or will have their own single-vendor solutions (0.7 probability).

- The overall market for E-C/S 4GLs will exceed a 30-percent CAGR through 1997, driven by at least a 50-percent CAGR for high-end E-C/S 4GLs (0.7 probability).

Reader Notes