Key Issues

Reader Notes

1. **What are the dominant trends in AD methodology, process and project management?**
2. **What are the potential benefits to applications developers of integrated methodology, process and project management technology?**
3. **Which vendors and tools are best-positioned to deliver integrated methodology, process and project management solutions?**

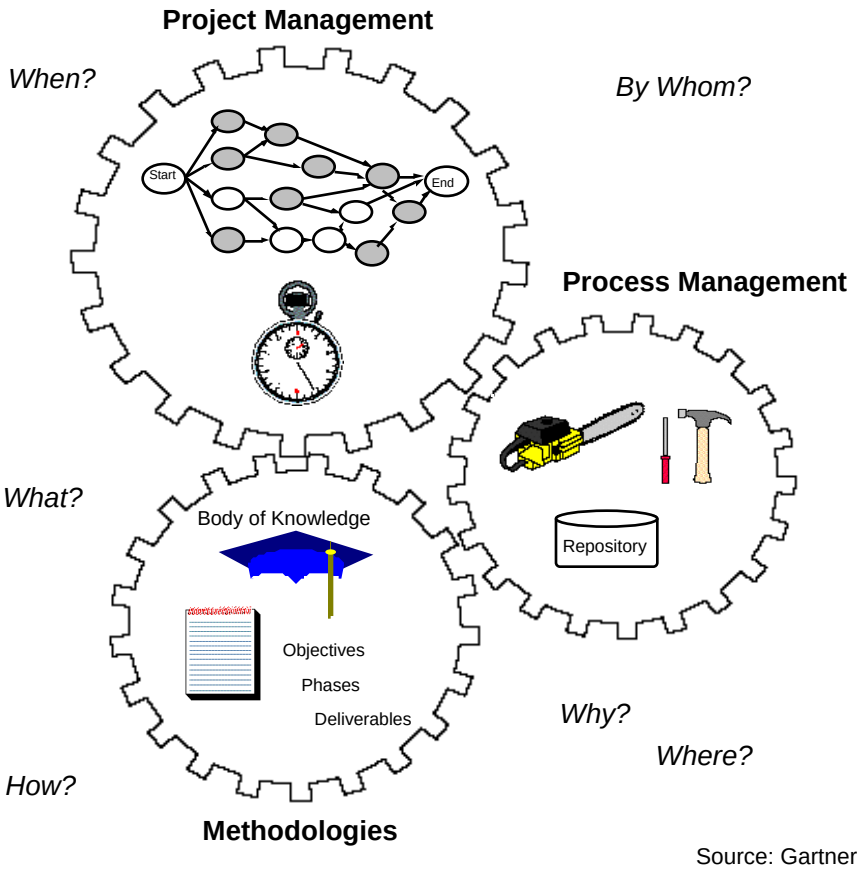
AD methodologies and process and project management technologies are coming together as an "AD management continuum" with the goal of delivering predictability and process improvement across the AD function (i.e., methodologies providing the knowledge and techniques, process managers providing the automated vehicle for planning and delivery, and project managers providing the scheduling, tracking and reporting functions).

This presentation focuses on the interrelationship of these technologies, their role in the AD life cycle, and the leading suppliers of such solutions.

What are the dominant trends in AD methodology, process and project management?

Reader Notes

The AD Management Continuum



Source: Gartner Group

Project management involves planning, estimating, organizing, launching, monitoring, managing and delivering a software development project. Project management tools devise the optimal schedule (CPM), assign and level resources, track actual effort vs. budgeted effort, and report project status.

Methodology is the formalized body of knowledge and expertise; it may also include techniques, and usually comprises objectives, phases, activities, tasks and related deliverables.

Process management involves a systematic, methodological approach to defining and managing the complex, interdependent steps that make up the software development and maintenance process. Process management tools help to manage the development process through an interactive repository that stores definitions and examples for roles and responsibilities, tasks, tools, standards, metrics and deliverables.

Commercial methodology providers that have not enabled their methodologies via process management technology by 1H96 will be relegated to niche market status (0.8 probability).

During 1995, leading vendors of commercial methodologies will continue to enhance their offerings to support the unique requirements of client/server development, but these methodologies will not be mature in all aspects until 1997 (0.8 probability).

Reader Notes

Methodology Trends

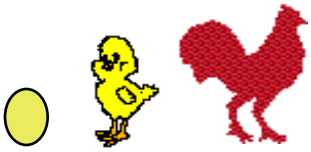
Automation via tools and multimedia

Multiple paths and routes through the core methodology

Increased emphasis on iterative development

Hallmarks — flexibility, customizability

Client/server methodologies are evolving (GUI design, physical design, partitioning and testing)



Commercialization of OO methods from the traditional methodology providers

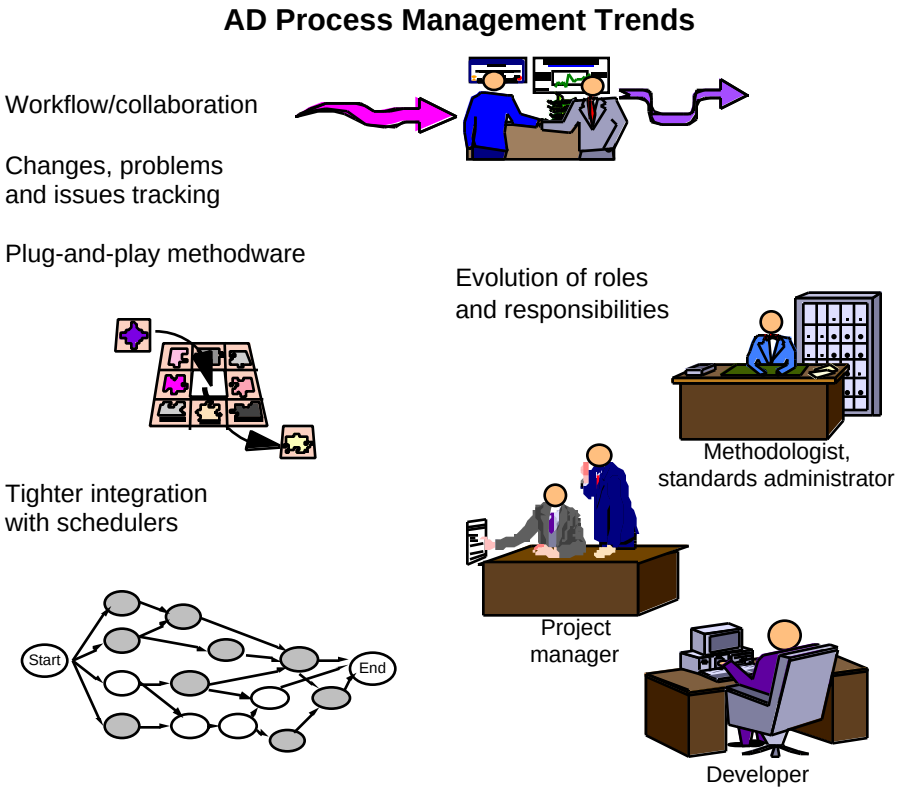
Source: Gartner Group

Key Issue: What are the dominant trends in AD methodology, process and project management?

In the past, commercial methodologies were mostly paper-based, "waterfall" in approach, cumbersome to use (i.e., limited customizability and extensibility), and not easily accessible by the development organization. Hypertext availability improved the situation, but fell short in terms of what was truly needed. Today, this is changing. Leading vendors are enabling their methodologies via AD process management technology. Multiple methodology paths are now available to support a mix of development. In addition, most methods have abandoned their "waterfall" heritage in favor of a more iterative approach, and client/server methods in particular are evolving toward greater maturity. Finally, object-oriented methods are emerging from the traditional methodology providers (i.e., providing process for the analysis and design techniques of Rumbaugh, Booch, Coad-Yourdon, Jacobson, Martin-Odel, Schlaer-Mellor and Wirfs-Brock).

The next generation of AD process management technology will feature a greater emphasis on advanced workflow, intrateam communications and collaboration.

Reader Notes



Source: Gartner Group

Key Issue: What are the dominant trends in AD methodology, process and project management?

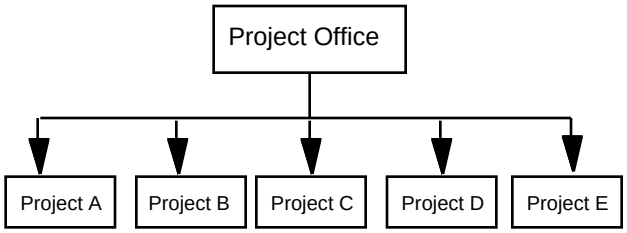
The next generation of process management technology will emphasize workflow and greater collaboration. Most vendor solutions have focused heavily on the methodologist and project manager (i.e., defining the AD process and creating project-specific instantiations). Beginning in 1995, process management solutions will emphasize execution and workflow (i.e., automating the flow of tasks, deliverables and approvals) — the pieces most important to the individual developers and team members.

Additional trends include tighter integration with project scheduling tools (e.g., bidirectional communications, metrics collection, cooperative resource scheduling, greater resource management and time reporting) and the emergence of "plug and play" methodware (e.g., through strategic partnerships, the commercialization of best practices for specific development tool environments).

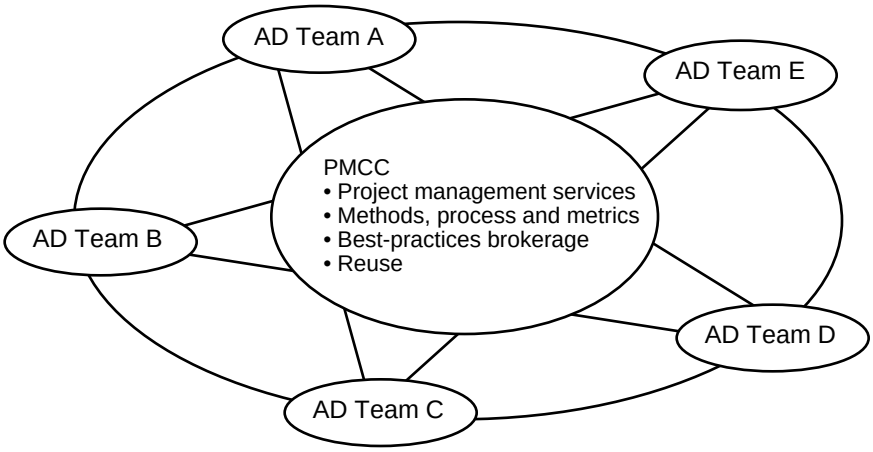
A competency center for project management services will be established in at least 50 percent of AD organizations by 2000 (0.7 probability).

Reader Notes

Project Office — Chartering Organization



The Project Management Competency Center



Source: Gartner Group

Key Issue: What are the dominant trends in AD methodology, process and project management?

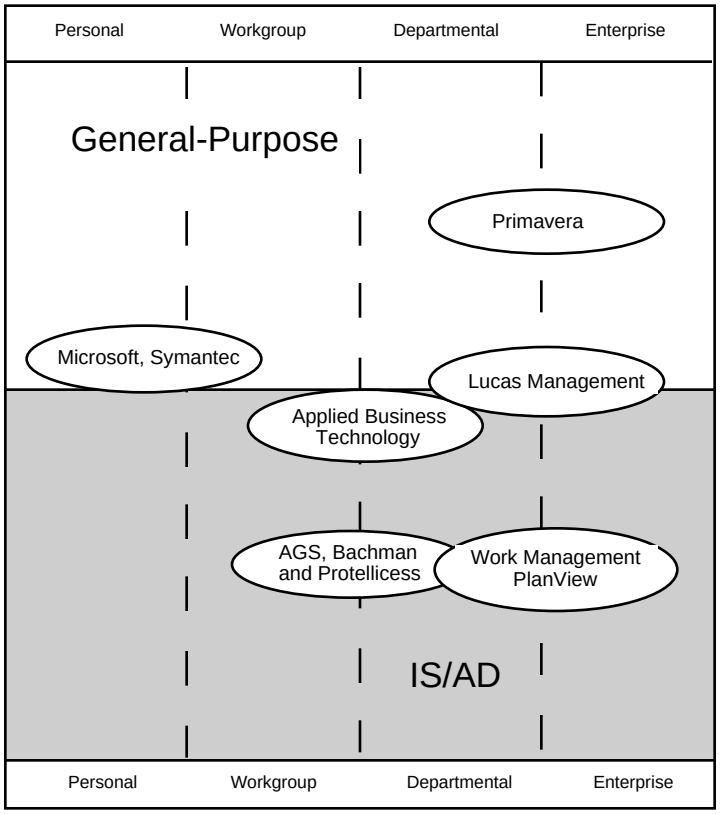
Most projects are delivered late and over budget, and they are often poorly estimated and even cancelled. Furthermore, most AD managers have limited visibility into their projects. This amounts to a continuing "crisis in project management" — fortunately, but sadly, AD organizations and project managers have learned to live with this problem.

Increased business-user involvement and a greater emphasis on resource management must become paramount. AD organizations should embrace an iterative development paradigm along with prototyping and "time boxing" whenever possible. We believe the "project office" is viable and worthy of reintroduction, though we admit that it is not a cure-all for the crisis. The project office must be reshaped into a service-oriented competency center. The increasing decentralization of AD and the growing complexity of distributed client/server development will create a continuing need for the services such an organization provides.

Through 2000, most enterprises will require several classes of project management tools to support business requirements (0.7 probability).

Reader Notes

PM Tools: Intended Usage by User Constituency



Source: Gartner Group

Key Issue: What are the dominant trends in AD methodology, process and project management?

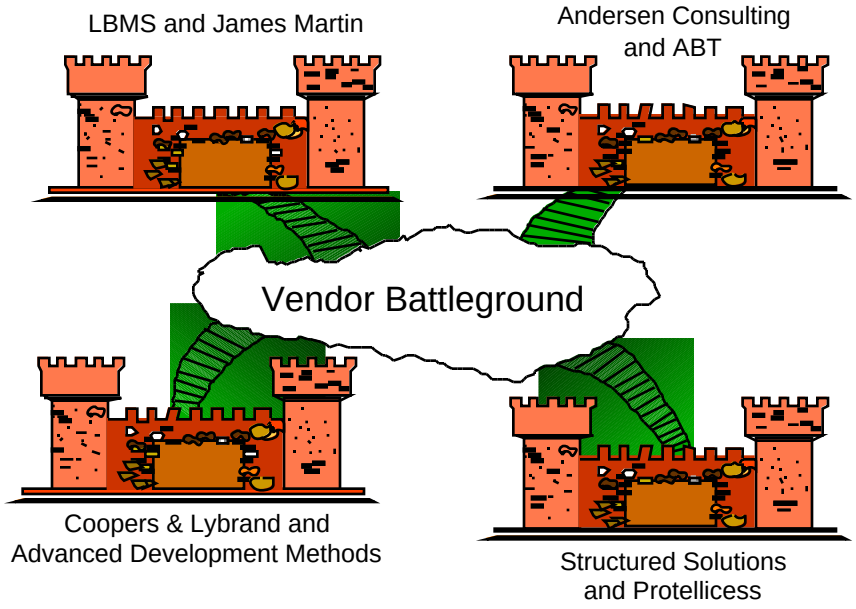
Project Management Tool Trends:

- Increased power and functionality being delivered to the PC/LAN platform
- Greater usability
- Integration (through DDE, OLE and ODBC)
- Commoditization of scheduling engines
- Differentiation through: 1) power and capacity, 2) price, 3) platform coverage and 4) added value and targeted function (e.g., methods, estimating, multiproject consolidation, time reporting and chargebacks).

Integration, partnerships and "coopetition" will accelerate through 1H96, followed by a period of increased mergers, acquisitions and consolidations through 1998 (0.7 probability).

The AD methodology/process management market will grow 25 percent to 30 percent annually through 1997 (0.7 probability), and 35 percent to 40 percent annually from 1998 to 2000 (0.6 probability).

Reader Notes



.... more to come!

Source: Gartner Group

Key Issue: What are the dominant trends in AD methodology, process and project management?

During the past two years, several key alliances and partnerships have crystallized in the methodology, process and project management arenas. Andersen Consulting now delivers its Method/1 via Applied Business Technology's (ABT's) Methods Architect, Project Bridge Modeler and Project Workbench toolset. Similarly, Coopers & Lybrand has chosen Advanced Development Methods' MATE engine to deliver its Summit-D. In April, Protellicess (formerly Poc-IT Management Services) acquired Structured Solutions (AD/Method and MAP), and it is now positioned to deliver an integrated methodology, process and project management solution. Lastly, a form of partnership called "coopetition" has emerged, exemplified best by LBMS and James Martin. In this scenario, vendors exchange technology and royalties while competing in the same battleground. We estimate the annual revenues of the integrated methodology/process management market to be between $70 million and $80 million (i.e., licenses and services), and we believe it could reach $500 million by 2000.

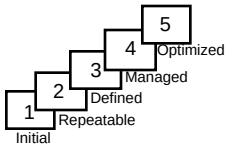
What are the potential benefits to applications developers of integrated methodology, process and project management technology?

Using a process manager in conjunction with a development methodology will increase the consistency and quality of the AD process and improve productivity by at least 30 percent over manual approaches.

Reader Notes

Process Management "Catalysts"

Mind-share success of the SEI CMM model

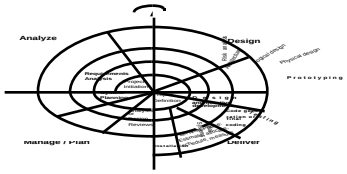


Interest in re-engineering IS/AD (defining repeatable, automated, effective AD processes)

Capturing and implementing "best practices"

Measurement programs

Client/server development (hunger for new methods and techniques)



Source: Gartner Group

In addition to the "crisis in project management" that we addressed earlier, the industry is experiencing a "software development crisis" (e.g., poor software quality, the growing AD backlog and the continuing struggle with the time required to deliver applications).

Through 1997, a renewed focus on AD methodologies, process improvement initiatives and best-practices standardization will continue as the principal demand-creating catalyst for process management. AD organizations that have standardized on a methodology should use process management technology to augment the delivery and evolution of methods, techniques and metrics. AD organizations that have experienced less success should consider process management technology as a way to reintroduce methodology and as a starting point for implementing best practices.

Case Study: Adopting an integrated methodology, process and project management approach.

Reader Notes

Case Study

Company:	Midsized systems integration/consulting firm.
Problem:	$10 million (approximately 3 percent to 4 percent of total revenues) were written off due to poor project management practices (i.e., planning, estimating, staffing and so on).
Objective:	Minimize project write-offs; optimize profit yield per project.
Approach:	Adopt an integrated methodology, process and project management approach. Create a standard framework for the enterprise.
Results:	*Tangible* — On individual-project basis, reduced the time to create a detailed project plan from three weeks to several days (i.e., an average savings of approximately $15,000 per project). *Intangible* — Greater project plan integrity and accuracy; increased credibility; used as a sales tool and differentiator; rapid proposal generation.
Futures:	Creation of a metrics “feedback loop.”
Success Factors:	Management commitment (top-level), training, simplicity of chosen tool, incentive programs.

Key Issue: What are the potential benefits to applications developers of integrated methodology, process and project management technology?

Although the above case study depicts a systems integration/consulting firm, it is included here to illustrate what can be realized using an integrated methodology, process and project management approach. Clearly, such an approach can help AD organizations deliver project plans more rapidly and with more accuracy and integrity. It is also clear that: 1) the decision must be made at the highest levels of the organization, 2) there must be a clear commitment from senior managers, and 3) incentives must be part of the equation.

Over a four-year horizon, the total cost of implementing integrated methodology/process management will be twice the initial cost of the licensing and enablement services (0.7 probability).

Reader Notes

Four-Year Cost Scenario

First year:

Initial licensing = $

Customization/enablement services and training = $

Total first-year cost = $$

Second, third and fourth years:

Maintenance fees, rollout and ongoing training = $$

Total four-year cost = $$$$

Source: Gartner Group

Key Issue: What are the potential benefits to applications developers of integrated methodology, process and project management technology?

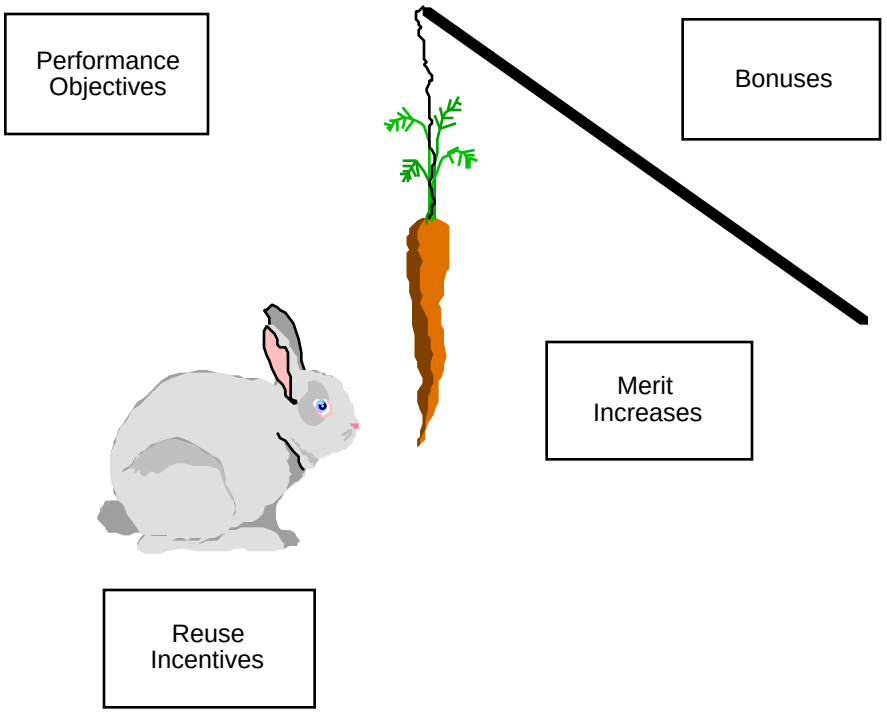
The total cost of implementing an integrated methodology, project and process management solution will vary by organization. Variables include an organization's size, maturity level, culture and implementation horizon. We offer the following "stalking horse" of cost percentages by category over four years: 1) the product license constitutes 25 percent; 2) the initial implementation, including customization and training, constitutes 25 percent; 3) annual maintenance for the methodology and toolset constitutes 10 percent to 15 percent; and 4) ongoing enablement services (i.e., rollout, additional training and customization) constitutes 35 percent to 40 percent.

We believe the critical period for adoption is the third and fourth years. After this time, the probability of success is drastically reduced.

Performance measurement systems and incentive compensation programs will be instrumental in realizing the benefits of the AD management continuum.

Reader Notes

No Pain, No Gain!



Source: Gartner Group

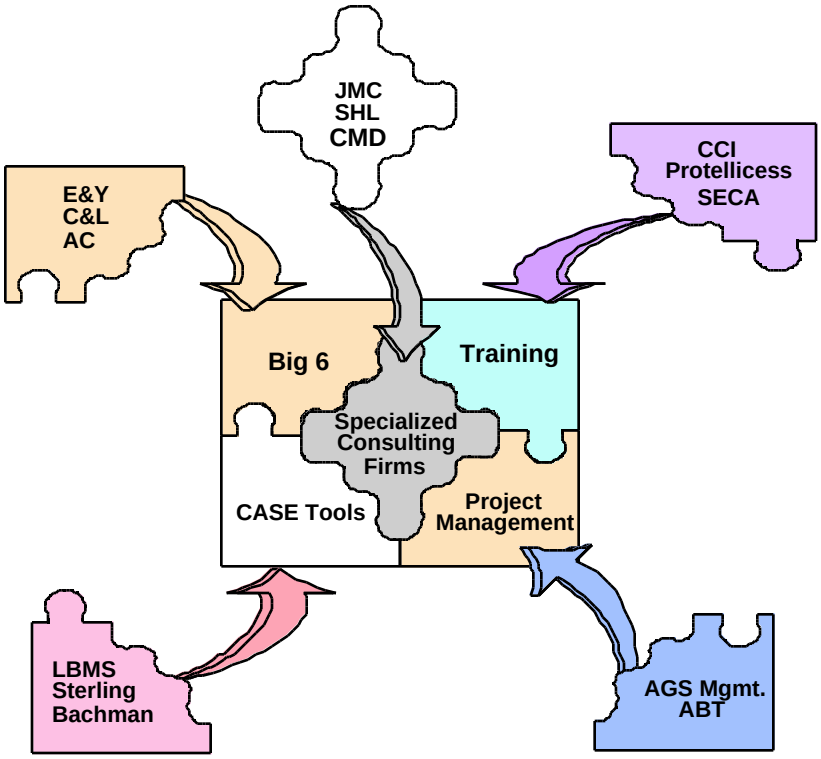
Key Issue: What are the potential benefits to applications developers of integrated methodology, process and project management technology?

Regardless of the chosen solution, introducing an integrated methodology, process and project management approach will require significant organizational change. To realize the benefits of such an approach, senior managers must: 1) manage resistance to change through a combination of organizational behavior techniques, including team building and incentive compensation programs; 2) invest not only in products and training, but also in requisite infrastructure (e.g., performance measurement systems); and 3) vocalize (i.e., bless and mandate) that AD best practices, process improvement and reuse (e.g., methods, processes and application components) are evolving, continuous, enterprisewide initiatives.

Which vendors and tools are best-positioned to deliver integrated methodology, process and project management solutions?

Reader Notes

Vendor Heritage



Source: Gartner Group

The vendors providing integrated methodology, process and project management solutions have emerged from an assortment of backgrounds. Perhaps most well-known are the “Big 6” consulting firms (e.g., Ernst & Young and Andersen Consulting), which base their methodologies on real-world best practices. Their ongoing desire for tool neutrality can limit the robustness of their techniques. Several CASE vendors are also competing, most notably LBMS and Sterling. While users are often wary of how “tool independent” a CASE vendor’s methodology can be, we believe there is little need for concern with respect to these vendors. Additional camps include specialized consulting firms (e.g., James Martin), CASE tool and methodology training companies (e.g., Structured Solutions and SECA) and project management vendors (e.g., AGS Management Systems).

Integrated methodology, process and project management solutions from all five categories of vendors are viable. The heritage of a particular vendor may become evident in how robust or tool-neutral its techniques are, and by its commitment to knowledge transfer.

Leading AD organizations will consider evaluations for methodology, process management and project management technologies as a single, integrated strategic decision.

Reader Notes

Minimum Process Manager Elements:

- Online and customizable methodology support, including templates (i.e., paths or routes) — for example, client/server, RAD, classic, maintenance and purchased package implementation
- Project-specific planning (i.e., methodology tailoring, configuring work-breakdown structures)
- Estimation, risk analysis
- Work guidance (i.e., online to-do lists, context-sensitive help, tool techniques, deliverable illustrations, references to organizational policies, procedures and standards)
- Unidirectional interfaces into project schedulers
- Tool invocation

More-Robust Offerings:

- Distinct roles or views for:
  1) methodologists/ standards administrators
  2) planners/project managers
  3) developers/team members
- A skills database
- Bidirectional interfaces into project schedulers or integrated scheduling/ tracking subsystems
- Metrics capture, management and analysis
- Advanced workflow/ collaboration

Source: Gartner Group

Key Issue: Which vendors and tools are best-positioned to deliver integrated methodology, process and project management solutions?

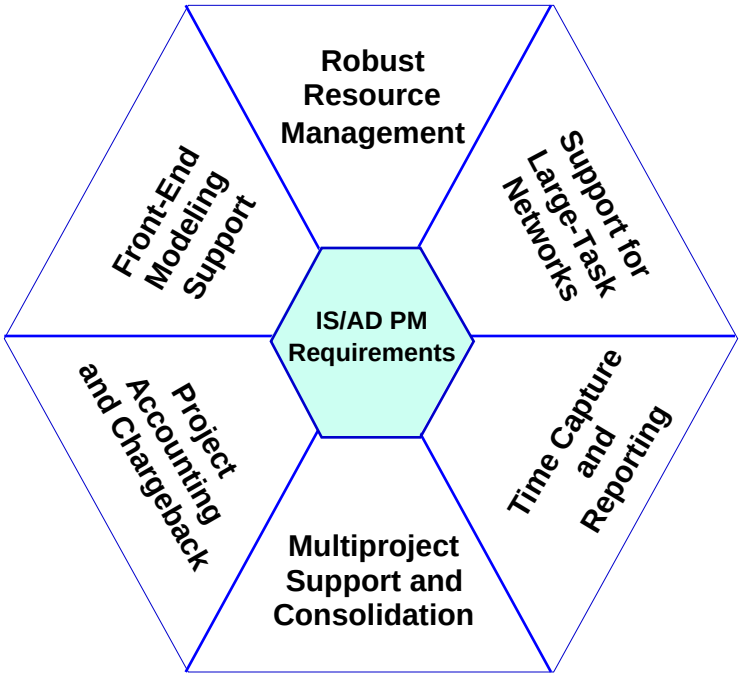
In traditional terms, a methodology is the "what" — a compilation of the steps involved in AD. It is a set of repeatable processes that can be applied to a variety of enterprises, situations and types of AD. The methodology should have multiple options or paths that accommodate an organization, rather than just one path that requires an organization to accommodate the methodology. The methodology must also use an iterative development process that involves the user and provides formal modeling, prototyping, implementation and updating, as well as incremental improvements.

Process management technology automates the "what" (methods), the "how" (techniques), the "when" (schedule), the "why" (objectives), the "where" (phases) and the "by whom" (assignments).

Through 1997, most AD organizations will require at least two project management tools to support project leaders and AD managers (0.7 probability).

Reader Notes

IS/AD Project Management Requirements



Source: Gartner Group

Key Issue: Which vendors and tools are best-positioned to deliver integrated methodology, process and project management solutions?

Selecting a project management tool for IS/AD organizations can be a trying experience for two reasons: IS/AD groups typically have requirements that extend beyond general-purpose usage; and the plethora of project management tools available makes it difficult to categorize and evaluate them. IS/AD constituencies require support for robust resource management and leveling, front-end modeling, multiproject consolidation, large-task networks, time tracking and chargeback accounting. From a classification perspective, project management tools can be segmented by platform (e.g., DOS/Windows, OS/2, Unix and Macintosh), degree of function/capacity (e.g., low, medium or high), and intended use (e.g., general-purpose vs. IS/AD-targeted).

Integrated methodology/process management solutions will be selected based on their match with organizational needs, often dictated by project types, organizational culture and the installed base of development tools.

Reader Notes

	Platforms	Methods (Routes)	Estimating	Metrics Repository	Prob./Issues Tracking	Bidirect. to PM Tools	Tool Invoc.	Skills DB	E-Mail Support	Multi-media
E&Y *Navigator*	Win 3.X	CS,R,C, B,O,P, M	TB,DB,RA	Y	Y	Y	Y	Y	Y	Y
C&L *SUMMIT Process*	Win 3.X	CS,R,C, I,P,L,PM,M IE, RE	FP,TB,RA	N	N	Y	Y	N	Built-in messaging	N
Andersen *Method/1*	Win 3.X	CS,R,C, P,PM,M	FP,TB,RA	N	Y	With ABT's PMW	Y	N	N	N
James Martin *Architect*	Win 3.X	CS,R,IE, B,RE,P,M	FP,RA,WA	Y	N	Y	Y	Y	N	N
LBMS *Process Engineer*	Win 3.X	CS,R,C, I,P,PM,M,O	FP, RA,WA	Y	N	Y	Y	Y	N	Y
Protellicess *MAP*	Win 3.X	CS,R,C,P, RE,M,B,O	FP,TB,RA	Y	N	Y	Y	Y	N	N
Sterling Software *KEY:Advise*	OS/2 server Win 3.X client	CS,R,C,I, P,B,PM,RE	TB	N	N	N	Y	N	N	N
CMD *Synergy*	Win 3.X	CS,R,C,P, M,PM,IE, RE,L	FP,TB,RA	Y	Y	Y	Y	N	Y	Y
SECA *SE/Companion*	Win 3.X	CS,R,C, P,PM,M,B	DB	N	N	N	Y	N	Y	Y
SHL Sys. House *Transform*	Win 3.X	CS,R,PM, B,P, CSN, CSSM	TB	N	Y	N	Y	N	Y	Y
Corp. Computing *RADpath*	Win 3.X	CS,R	FP,TB	N	N	N	N	N	N	N
AGS Mgmt. Sys. *FIRSTcase*	Win 3.X	CS,C,IE,S, P,M	FP,TB,RA	Y	N	PM component included	N	Y	N	N
Bachman *Serveyor*	Win 3.X, OS/2, Unix	Rules-based determinat.	FP,TB	Y	N	PM component included	Y	N	N	N

Source: Gartner Group

Key Issue: Which vendors and tools are best-positioned to deliver integrated methodology, process and project management solutions?

Key:

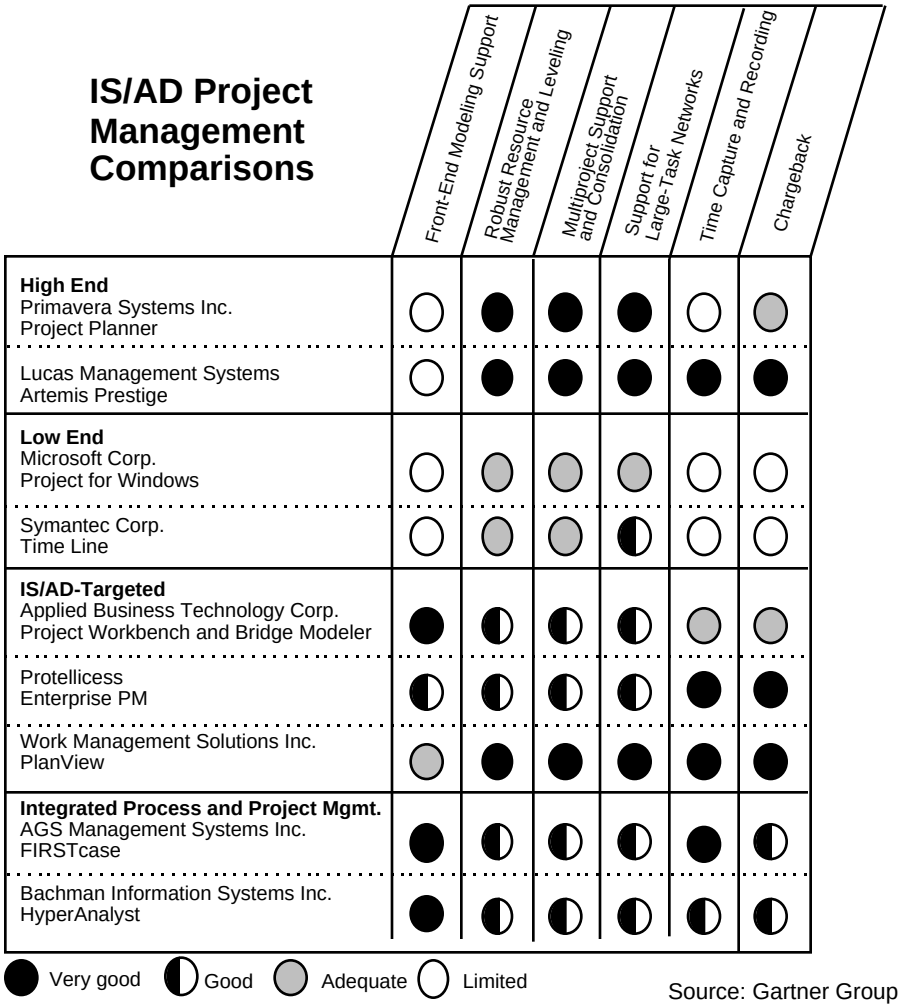
Methods (routes): CS (client/server), R (RAD), I (incremental), P (purchased package), C (classic, host-based, waterfall), IE (information engineering), B (business process re-engineering/innovation), O (object-oriented), PM (project management), M (maintenance), RE (redevelopment/re-engineering), S (structured), L (legacy-system enhancement), CSN (client/server networking) and CSSM (client/server systems management).

Estimating: FP (function point support), RA (risk analysis), WA (weighted average), TB (task-based) and DB (deliverables-based).

Additional criteria to consider: documentation engine, time reporting, workflow (collaboration) futures, annotations, education (training) and consulting capabilities.

AD organizations should tailor and weight selection criteria to accommodate organization-specific requirements.

Reader Notes



Source: Gartner Group

Key Issue: Which vendors and tools are best-positioned to deliver integrated methodology, process and project management solutions?

Higher-end project management tools provide comprehensive support for multiproject management and consolidation, multiproject resource sharing and leveling, and large-task networks. Lower-end tools provide much less capacity but greater ease of use and implementation. Most project management vendors target certain audiences — for example, the general-purpose, engineering/construction (e.g., aerospace and defense) and IS/AD markets. Applied Business Technology and AGS Management Systems provide methodology support, estimation and metrics analysis. AGS and Bachman Information Systems also provide process management capabilities. Lucas Management Systems, Protellicess and Work Management Solutions focus heavily on the concept of "work management" (i.e., work request initiation, scoping, authorizations and chargebacks) and resource (i.e., staff) management, including time reporting.

The integration of methodology and process management technology is essential to meeting the challenges of AD in the 1990s.

Reader Notes

	Methodology	Process Management	Enablement-Focused
AGS Mgmt. Systems *FIRSTcase*	Good	Good	Good
Andersen Consulting *Method/1*	Good	Good	Poor
Bachman *Serveyor*	Fair	Good	Fair
CMD *Synergy*	Good	Very good	Very good
Coopers & Lybrand *SUMMIT Process*	Very good	Very good	Poor
Corporate Computing *RADpath*	Good	Fair	Very good
Ernst & Young's *Navigator*	Very good	Very good	Poor
James Martin & Co. *Architect*	Very good	Very good	Very good
LBMS *Process Engineer*	Good	Very good	Very good
Protellicess *MAP*	Good	Very good	Very good
SECA *SE/Companion*	Good	Very good	Very good
SHL Systemshouse *SHL TRANSFORM*	Good	Very good	Good
Sterling Software *KEY:Advise*	Good	Good	Fair

Very good Good Fair Poor

Source: Gartner Group

Key Issue: Which vendors and tools are best-positioned to deliver integrated methodology, process and project management solutions?

Methodology Breadth and Depth: Example criteria include: support for an iterative development process including RAD and JAD techniques; full life cycle coverage from planning through implementation and maintenance; support for all types of applications, including mainframe (batch and OLTP) and client/server (GUI, data access and distributed function); support for package selection; support for projects of many sizes from small to very large; a quality-assurance focus, including metrics, reviews, testing and standards; and facilities for extending and customizing the methodology.

Process Management: The degree to which these methodologies are automated and delivered through a supporting toolset (see the chart on page 13 for an itemized list of requirements).

Enablement-Focused: The degree of commitment that the vendor has demonstrated with respect to knowledge transfer, training and mentoring, as well as the ability and ease of applying the vendor's methods (i.e., usability).

Reader Notes

- Commercial methodology providers that have not enabled their methodologies via process management technology by 1H96 will be relegated to niche market status (0.8 probability).

- During 1995, leading vendors of commercial methodologies will continue to enhance their offerings to support the unique requirements of client/server development, but these methodologies will not be mature in all aspects until 1997 (0.8 probability).

- The next generation of AD process management technology will feature a greater emphasis on advanced workflow, intrateam communications and collaboration.

- A competency center for project management services will be established in at least 50 percent of AD organizations by 2000 (0.7 probability).

- Through 2000, most enterprises will require several classes of project management tools to support business requirements (0.7 probability).

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- Using a process manager in conjunction with a development methodology will increase the consistency and quality of the AD process and improve productivity by at least 30 percent over manual approaches.

- Over a four-year horizon, the total cost of implementing integrated methodology/process management will be twice the initial cost of the licensing and enablement services (0.7 probability).