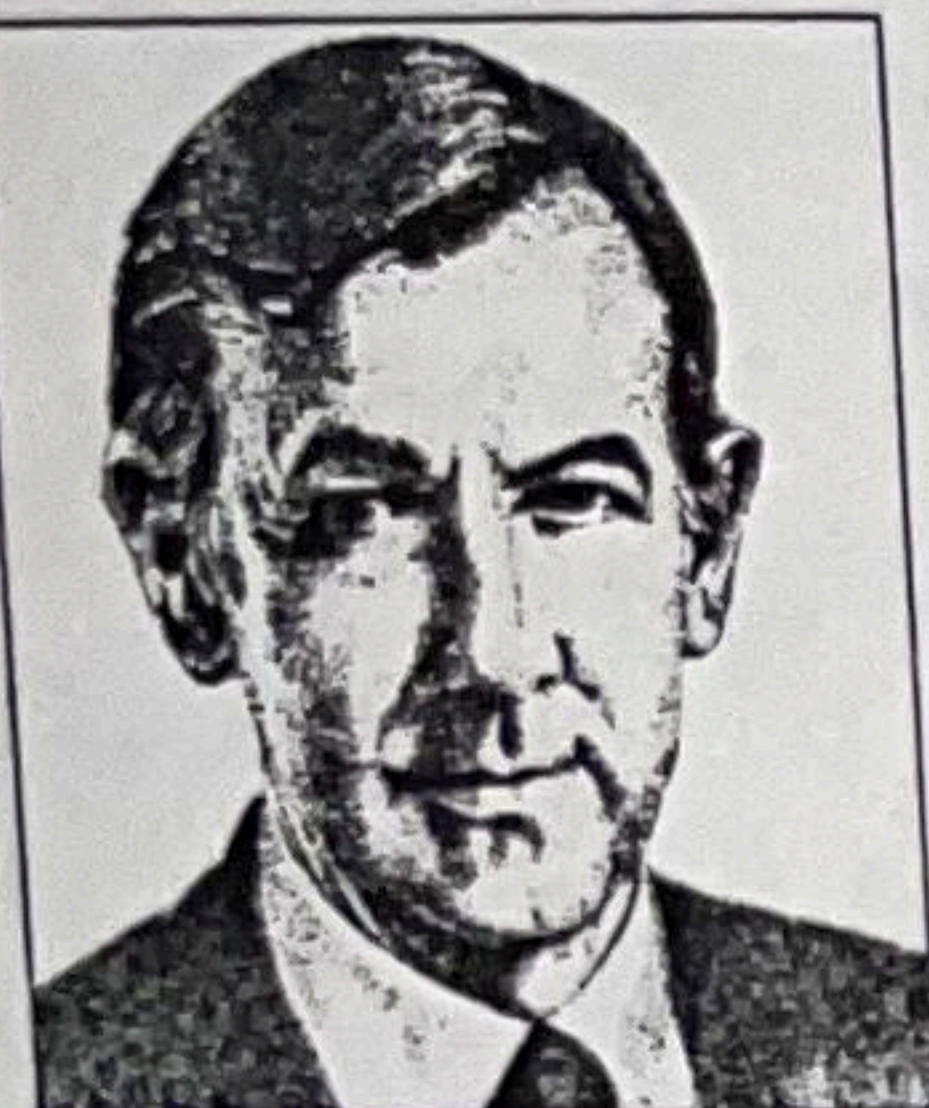


APPLIED INTELLIGENCE

RAD Techniques Are a Must for Retooling the IS Factory



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This is the second of a series of articles on rapid applications development (RAD), a development methodology designed to be much faster than the traditional method.

When the technology of major industry sectors slips into obsoles-

cence, they become ill-equipped to support new competitive thrusts and must retool. Failure to retool when needed slowly puts corporations out of business.

The core computer applications in most corporations are obsolete and fragile and cannot be maintained easily. They were created with third-generation languages, before modern design techniques were understood. They were built for dumb terminals or batch processing, not for powerful desktop machines connected by LANs to database servers, requiring worldwide connectivity.

An enterprise's information systems collectively can be thought of as an information factory. In most enterprises, the information factory is badly in need of retooling.

Some enterprises have developed a top-level strategy for retooling their information facilities. Some have driven hard to evolve a rapid applications-development environment. Many, however, have no such strategy and are building non-integrated systems with slow and obsolete methodologies.

The following actions are vital in retooling the information-systems (IS) organization:

- Conduct a technology impact study to determine how the basic business of the enterprise should change to maximize the opportunities presented by rapid technological change.
- Evaluate how the corporation should be re-engineered to take advantage of new technology.
- Establish a program for replacing the core information systems with the most effective new technology. New technology may include integrated computer-aided software engineering (CASE) tools, common repositories, integrated computing architectures, information engineering and methodologies optimized for high-speed development.
- Establish a RAD environment throughout the entire IS organization.
- Establish a culture of reusability throughout IS.
- Drive for an environment of open interconnectivity and software portability across the entire enterprise.
- Establish intercorporate network links to most trading partners.
- Ensure that all knowledge workers have a high level of computerized knowledge and processing power.
- Change management structure to take full advantage of innovative systems.

A corporation taking these actions ahead of its competition will gain a major advantage.

IS must not be a bottleneck that impedes an organization from evolving and adapting to competitive challenges. The development processes used by IS need to match the speed of organizational change within the business. As business opportunities come up, information systems must be able to evolve in step with those changes.

The overall objectives of the IS applications-development process should be to achieve high speed, high quality and low cost.

Rapid applications-development techniques that minimize the time between user design and cutover have four essential aspects: tools, methodology, person-

nel and management. RAD techniques are based on the use of the most powerful available tool and on flexible methodologies that are optimized for high-speed development.

The techniques also require a high level of end-user involvement, and work best with bright, highly motivated people eager to learn new techniques and willing to take on new roles. In addition, the success of RAD techniques depends on changes in management.

RAD projects must be managed for speed. If any one of these ingredients is inadequate, development will take longer. When analyzing success stories with RAD, there always seems to be some-

time to evolve, once the it exists, applications development under RAD can proceed more rapidly and effectively.

The re-engineering of IS will require the use of powerful new tools, including highly integrated CASE tools; intelligent repositories; planning, analysis and design workstations; code generators capable of generating 100 percent of an application from design specifications; prototyping tools; and rule-based analysis techniques.

These tools, which are available now, help ensure the development of higher-quality applications at a lower cost.

They also provide the means to do the following: meet business needs better; fit

user capabilities better; enforce technical integrity in complex analysis and design; create bug-free systems; create systems with excellent human factoring; create systems that are easy to maintain; create very complex systems; and create systems that can evolve continuously, sometimes becoming rich in functionality.

The quality of the applications-development process may be defined as follows: meeting the business requirements (or users' requirements) as effectively as possible at the time the system comes into operation.

This is fundamentally different from the usual definition: conforming to the written specifications as effectively as possible.

In the traditional systems-development life cycle, the written specifications are frozen before the technical design, coding and testing are done. Often, they are frozen 18 months before the system becomes operational. During this time, business needs may change substantially, so the system may not meet those needs when it becomes operational. The users have to make do with an inadequate system.

RAD techniques require that users be thoroughly involved in the design of a system and that the design is in a computerized form that can be driven into code as quickly as possible.

Improving System Quality

In addition to avoiding obsolete specifications, RAD requires several factors, summarized in the figure, that improve the quality of the delivered system. These include:

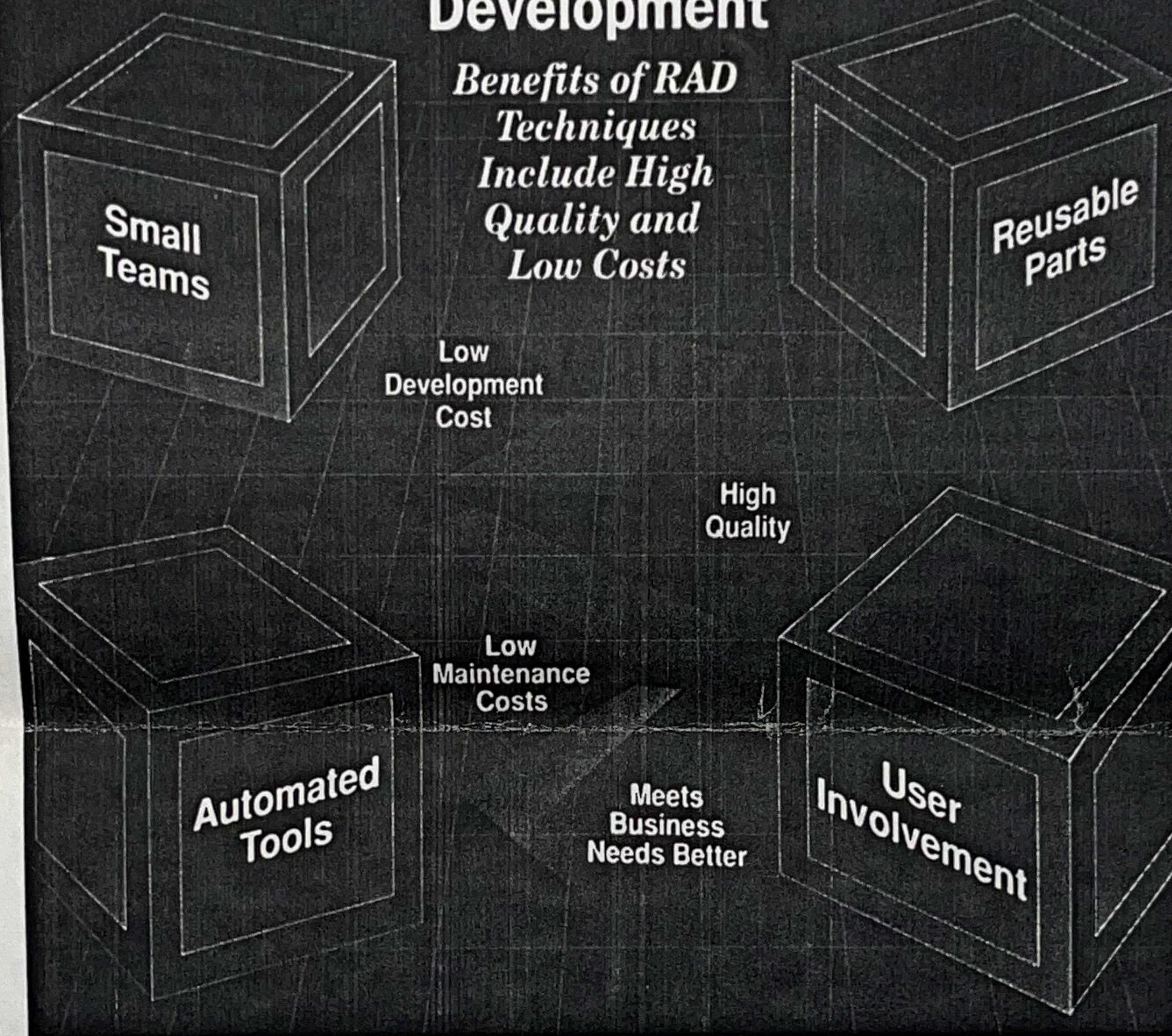
- the use of small teams of highly motivated and highly trained end users and analysts;
- the reuse of well-proven templates, parts, components or systems derived from an industry-standard CASE repository;
- the use of an automated CASE tool set, which enforces technical integrity in modeling and designing the system; and
- the extensive involvement of end users in the design and construction of the system, allowing the details to be adjusted if necessary.

The use of RAD techniques leads to lower cost, higher quality and greater conformance of applications with business needs. This is truly a win-win situation. Systems developed with rapid applications-development techniques meet the needs of the users better and have lower maintenance costs.

Next week, I will discuss how the support of top management can be gained through periodic measurement and reporting of productivity improvements. ■

The concepts embodied in RAD are described in a new volume in the James Martin Report Series. For more information on this volume, call (800) 242-1240. For information on seminars, contact (in the United States and Canada) Technology Transfer Institute, 741 10th St., Santa Monica, Calif. 90402 (213) 394-8305. In Europe, contact Savant, 2 New St., Carnforth, Lancs., LA5 9BX United Kingdom (0524) 734 505.

The Building Blocks Of Rapid Application Development



IS must not impede a firm from adapting to competitive challenges. Development processes used by IS must match the speed of organizational change within the business.