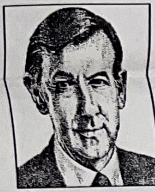
APPLIED INTELLIGENCE

Retooling Information Systems for High Quality, Low Cost



JAMES MARTIN

This is the first in a series of articles on the architectures, methodologies and tools required to retool information systems.

In the 1990s, managers must be able to build strategically important applications faster, with higher quality and at lower cost. The technologies available to meet these goals include advances in integrated computing architectures, applications-development methodologies and integrated CASE tools.

Managers need to ask themselves a few key questions: Where do we want information systems to be three or five years from now? What issues should we be looking at now? What are the components of a strategic plan for retooling information systems? How do architectures, methodologies and tools fit into the strategic plan?

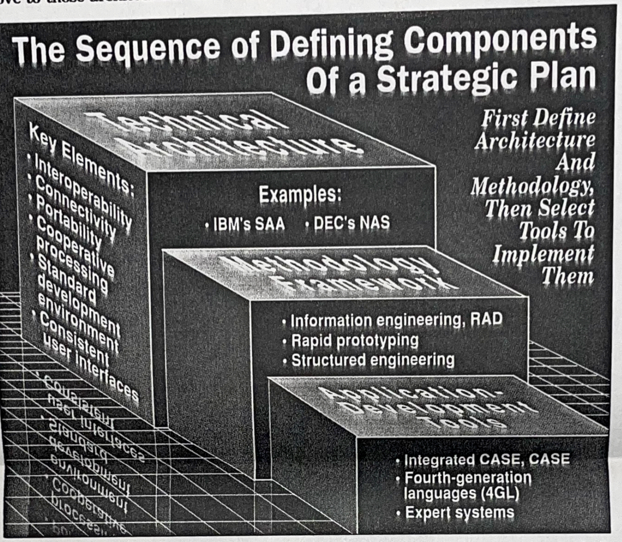
The figure illustrates a useful starting point for dealing with these issues. It emphasizes that one must begin with a definition of the overall information-systems architectural framework, then resolve methodology issues and, finally, select tools that support those choices.

As shown in the figure, architectural issues need to be resolved first. These include requirements for interoperability, portability of applications, connectivity, consistency of user and communications interfaces, standard applications-development environments and support of cooperative-processing applications.

IBM's SAA and Digital Equipment's NAS exemplify integrated computing architectures. They provide a framework so that cooperative-processing applications can distribute data and code for cross-platform compatibility throughout a complex computer network.

I recommend evaluating SAA in the IBM environment and NAS in the Digital environment, and starting to plan to move to those architectures now. You can use major aspects of them today, and by making a commitment to an integrated architecture, you establish a framework for many of the other decisions that will be made in the selection of methodologies and tools.

The Sequence of Defining Components Of a Strategic Plan



John Avakian

The second major area requiring strategic planning is that of methodologies, which allow us to build applications using a well-defined set of tasks. Rapid-prototyping methodologies, such as rapid applications development (RAD), let us build strategically important applications much faster than is otherwise possible.

A commitment to RAD has a major impact on the selection of CASE tools. A rapid-prototyping development life cycle works best if the application prototype is demonstrated to the end user. The prototype typically contains screens and reports, menus, dialogues and some procedural logic. The end user can then suggest improvements.

The use of rapid-prototyping techniques places a heavy burden on the CASE tool. Methodologies such as RAD produce the greatest increase in productivity if the CASE tool is used to develop entire applications on the desktop. However, current CASE technology can't fully meet this objective.

*Even though CASE technology is still in its infancy, it does allow us to select tools that are capable of converting design specifications into the code re*quired for a running application, and to generate the whole application on the desktop.

In evaluating CASE tools for rapid-prototyping applications, look for integrated tools that provide a tightly integrated code generator, capable of generating all the code for an application on the desktop and in multiple source languages. The tool should help create cooperative-processing, real-time, and engineering applications under Unix, all for use on multiple hardware platforms.

Additional requirements for an integrated tool include version control, traceability, project-management abilities and support for an industry-standard repository of design information. No single integrated CASE tool supports all of these requirements, but leading vendors are working toward this goal.

Next week, I'll discuss the evolution of a corporate information strategy based on advances in integrated architectures, methodologies and integrated CASE tools. ■

The concepts embodied in this article are described in the High-Productivity Technology volume in The James Martin Report Series. For more information on this volume, call (617) 639-1958. 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.