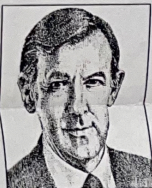


APPLIED INTELLIGENCE

Start with I-CASE To Reshape the Development Process



JAMES MARTIN

Information-systems managers committed to refining the applications-development process should be actively evaluating integrated computer-aided software engineering (I-CASE) tools as the first step toward building pilot projects.

As shown in the figure, I-CASE tool sets support all phases of the applications-development life cycle, from strategic planning and design through code generation and version control. The front-end planning, analysis and design components of this genre of tools are tightly integrated with the back-end code, database and documentation-generation facilities.

I-CASE tools are distinguished by their ability to generate 100 percent of the code for an application based on a set of design specifications in a central repository. Recently, these tools have evolved even further, allowing code generation for complete systems to take place on the desktop.

Simply put, the process of using an I-CASE tool is as follows: Through a graphical user interface, a systems analyst interacts with the CASE tool, creating, verifying and revising an assortment of diagrams on the screen. The I-CASE tool then analyzes the diagrams for logical consistency and completeness, and converts them into source code to create a finished application.

Most CASE tools furnish sets of diagrams that are associated with a variety of development methodologies. Some diagrams follow modern techniques based on state-of-the-art information-engineer-

ing concepts, while others deliver older, manually oriented techniques based on structured-engineering ideas.

Analysts enter the appropriate diagrams into the I-CASE system using the planning, analysis and design components of the tool set. Each front-end component supports a set of diagram

structure of the organization and its goals and priorities, as well as represent its business information, business activities and interactions.

While creating the organizational model is the domain of the planning tool set, the analysis tool set is typically used to define fully normalized data

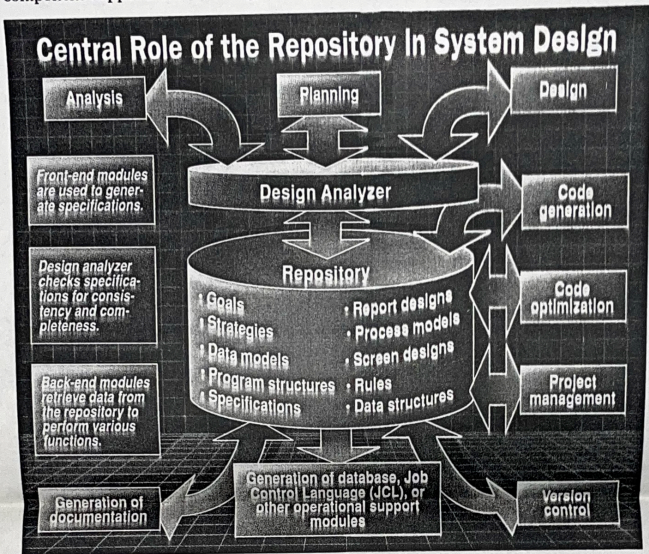
prototyping methodology. The design tool set also handles the specification of screens, reports, structure charts, dialogue flow and action diagrams used to specify the customized procedural logic.

Once the design information is collected and organized, it is sent to the I-CASE tool's central repository. Information relating to the design of the application is accumulated at a high level initially, then at progressively more detailed levels.

As the analyst progresses through the planning, analysis and design stages of the applications development life cycle, additional levels of detail are added to the system specification. This process continues until sufficient detail has been collected, ensuring that code can be generated automatically.

The repository should maintain the design specification database in abstract form. Increasingly, the abstract design information in the repository will be stored using an industry-standard meta-data model, such as IBM's AD/Cycle repository. Currently, more than 40 CASE vendors have committed themselves to providing products that are compliant with this de facto standard.

Next week, I will discuss the AD/Cycle environment, which provides a common set of standards for user interaction, programming interfaces, communications interface and repository services.



John Avakian

types that is specialized to a particular methodology and to a specific phase of the life cycle.

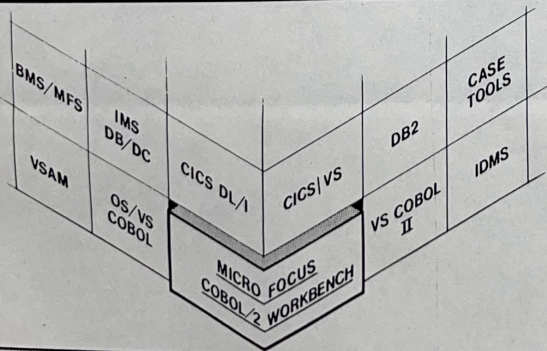
For example, in a CASE product that follows the information-engineering methodology, the planning tool set would be used to produce a high-level model of the corporate enterprise and its data. This model would depict the

models, entity relationships, process decomposition and data flow diagrams. This component is also used to create matrices that indicate which data entities are used, updated and created by specific processes.

The design tool set is primarily used to create and evolve system prototypes that can be built with a rapid

The concepts embodied in this article are described in the CASE 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.

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