networks, and local databases for the individual user. A need will also exist for interactive remote networking to central systems that handle the database and for remote access to the very powerful Cray class of machines for the occasional large analysis program that cannot be executed on anything else.

Graphics workstations operating in the Ethernet environment should also feature support for one or more of the interactive remote networking facilities available today, such as X.25 or the SNA standard from IBM. While this may add cost, it will also add functionality; and as hardware prices come down, the user will obtain exceptional performance for his investment whether his company is small or large.

The challenges are many for the distributed design environment, but the necessary hardware and software technology is available today. In several years, when the cost-effectiveness of these systems has been established, we will move on to the next step: the factory of the future. In this environment, the final design and analysis results are passed through to prototype manufacture and testing, which generate results that are fed back into the design and analysis loop; further results are fed back into prototype, and so on. In the process, better communication between all groups making a product for a given company will be achieved. The factory-of-the-future concept means that a product goes from the back of a napkin to manufacture on the factory floor in a completely automated sequence. The first step toward this level of automation is to implement the distributed design concept.

Lewis D. Brentano is vice-president, marketing, for Adage, Inc., Billerica, Massachusetts, a manufacturer of color raster and vector refresh computer graphics workstations. Prior to joining Adage in 1983, he was associate director of the Design and Manufacturing Automation Group of Dataquest, a CAD/CAM industry analysis service firm. Previously, he served as program manager for Prime Computer's CAD/CAM systems.

Brentano received an MS in aeronautics and astronautics from Stanford University and a BS in aerospace engineering from Notre Dame University. He is a member of ASME and NCGA.

The author's address is Adage, Inc., 1 Fortune Drive, Billerica, MA 01821.

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