

NEWS

# Technology opens new doors to training

• **ADVANTAGE:** A compact disc-based multimedia technology that can interact with people has tremendous potential for TI. Tier Bill Mapp has developed a pilot program to show how the technology can be used for training.

By Don Geiger  
DALLASITE STAFF

Bill Mapp believes a picture really is worth a thousand words. And, he says, interactive multimedia proves it.

"The potential applications, products and markets for multimedia are really limitless — it will continue to rapidly change the way we all work, learn, play and communicate," he said.

Bill piloted a TI project using an interactive multimedia format called CD-I, or compact disc interactive. It's a format that involves putting a 5-inch disc into a special player that's about half the size of a briefcase. The unit has its own monitor, or can be easily plugged into a television set.

The result is an application that combines pictures, video, animation, graphics and sound. Users control the program's direction, pace and content. This allows them to go directly to what they want to see and hear quickly and easily.

It has very wide-ranging applications in areas such as communication and presentations, education, sales, marketing, manufacturing, customer service and entertainment.

## Pilot project

"The prototype helps clearly demonstrate the power and potential of using leading-edge technology and processes to provide state-of-the-art training for our customers — internal as well as external," Bill said.

"I'm really talking about a paradigm shift in training technology and methodology. Compact disc interactive is to VHS tape what audio CDs are to cassette tapes. Clearly, this has lots of advantages, as well as implications on how you go about reengineering training for the future."

Bill is manager of new business development for the Support Engineering Group within DSEG. He also serves on the board of the Dallas/Fort Worth Chapter of the International Interactive Communication Society.

## Potential

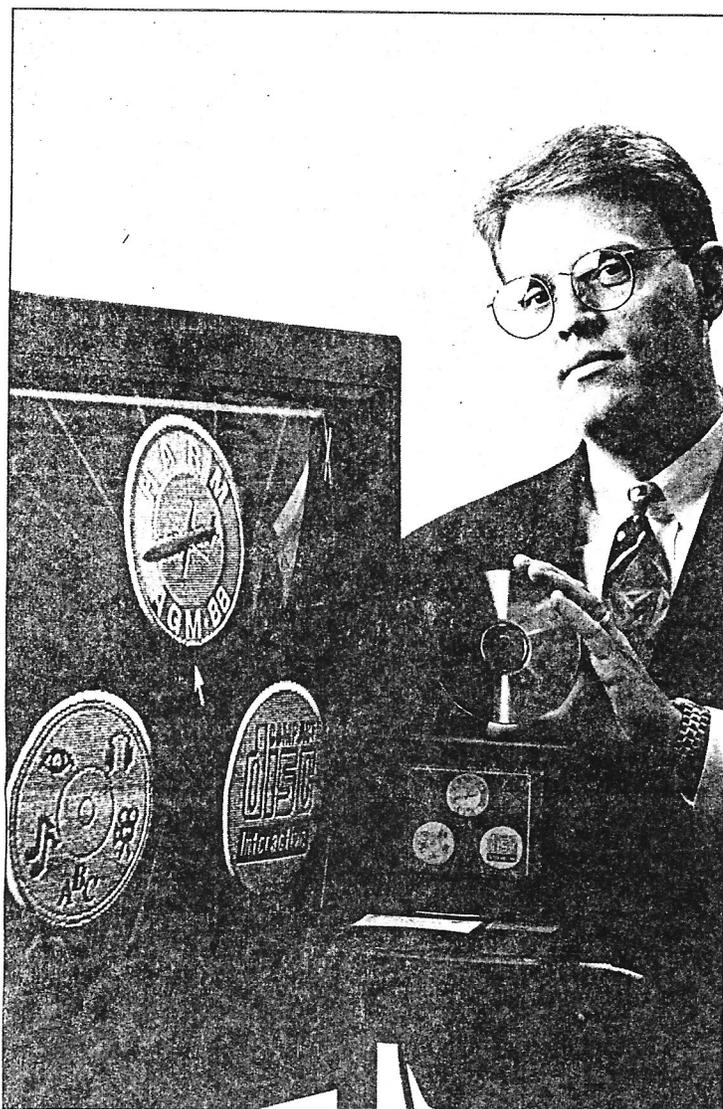
Jim Hysaw is excited by the potential of multimedia. He is training quality assurance manager for IIG's Education Center.

"That is the future of training. It's a fabulous technology," Jim said. "We're finding that it takes less time to get the same message across. It allows people to learn at different rates and do more exploratory learning."

"We're just in the infancy of this technology," Jim said. "I can't tell you what it will look like a year from now."

## Competitive advantage

Research confirms that interac-



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DSEG

tive multimedia learning can have a major impact on how well people remember what they study. It also can significantly reduce the amount of time it takes to learn. When people are in training, they retain:

- 20 percent of what they hear.
- 40 percent of what they see.
- 75 percent of what they can see, hear and interact with.

"Some powerful and very exciting things begin to happen at the point of intersection where the multiple media of video, sound, animation, graphics and text come together," Bill said. "This visual interactivity empowers people to become seekers of knowledge, and not just receivers of learning."

The approach has several other advantages. The training time required to learn is compressed 50

percent to 75 percent. Comprehension is increased, and knowledge is retained for much longer periods of time.

"This results in real hard-dollar savings, productivity increases, and quality improvements," Bill said. "Those, in turn, result in very significant increases in returns on training investment dollars and payback. That all translates into ongoing competitive advantages for TI."

## New paradigm

"If you take a 40-hour training class, you get a lot of material that you may never use for your specific job. And, by the time you get to work on Monday morning, there has been a substantial loss of knowledge — and dollars invested into that training. It's very well

documented," he said.

"Why not give people a day or two up front to get them started? You could provide them the exact information they need to get the job done, in the form they need it, at the precise point of need for just-in-time learning. As Einstein said, 'Why memorize something when you know where to find it?'"

Bill's pilot focuses on training for maintenance of the HARM missile.

"You can take this CD-I disc and go directly to the module on the target detection device (TDD). You would be able to replace the TDD on a HARM missile, even if you had never even seen a HARM missile or the device before," he said.

The display is convincing. It includes narrated, full-screen, full-motion video. It also lists the parts and tools needed to make specific repairs.

The training program is what Bill called "non-linear." In other words, you use the remote control to point and click to make a selection on the screen. The program takes you directly to the information you want. There's no fast forwarding or rewinding. This

## Benefits of interactive multimedia

- People who use it remember what they've seen, heard and interacted with.
- People learn more in less time.
- Increased training consistency and quality.
- Allows self-paced, individualized learning.
- Supports more learning styles than classroom, text or video training.
- Performance after training increases.
- Travel and lodging expenses are reduced.
- Return on investment is high.
- Gives a competitive advantage.
- Leads to increased productivity.
- Easy to update and distribute.
- Can present the same material in several languages.

gives users more control over the direction, pace and content of the program.

"But multimedia really isn't a new technology per se," Bill said. "It's a whole set of enabling technologies. Many of those technologies have been around since the 1920s and '30s in their basic forms — such as video and sound. They're being combined with the interactivity of computer technology in new, exciting and very powerful ways. The term multimedia at some point will eventually go away as it becomes commonplace, touching every aspect of our lives."

## Return on investment

"Despite all its advantages, multimedia, as with any new technology, is not a cure-all, panacea, or silver bullet," Bill said. "Interactive multimedia is a communication tool, whether it's for personal video conferencing, for training or whatever. As the saying goes, 'The best carpenter tools in the world won't make a person a master carpenter.'"

For example, interactive multimedia doesn't replace the need for a sound instructional design process used by trainers.

Jim agrees.

"With this approach, trainers become more facilitators than mere talking heads in front of a classroom," Jim said. "This puts the information on multimedia and lets the learners pace themselves. They call in the facilitators if they need to. This is a tool. The classroom of the future will have a CD multimedia player and other tools."

DSEG is evaluating the technology and plans to begin using it within a couple of months, said

## NEWS

## NEWS BRIEFS

## TI increases quarterly dividend

• The TI Board of Directors has declared a quarterly cash dividend of 25 cents per share of common stock, payable July 18, to stockholders of record June 29.

The dividend represents a 39 percent increase in the quarterly dividend. TI announced in April that management would recommend the dividend increase.

## TI to close employee stores

• TI's Personal Productivity Products (PPP) business has announced it is phasing out the Employee Stores that are presently operating on some sites. Individual stores will be closing on a staggered schedule that will allow Tiers to take advantage of discounted prices on a first-come, first-served basis. The closing of all Dallas-area stores will occur on or around Aug. 31.

Gary Rado, senior vice president and deputy manager of PPP, said the action is due to the changing nature of the charter of employee stores. The employee stores were first established as an outlet for Tiers to buy 100 percent TI product, Gary said. TI products now account for only 20 percent of the product mix.

"The employee stores have shifted to becoming an outlet similar to other mass merchants in the area," Gary said. "This change, plus the additional cost of carrying the assets needed to run the business, led to our decision to phase out the stores."

## TI makes sole presentation

• TI was the only technology company invited to present at the Sanford Bernstein Strategic Decisions Conference, which was held June 15 in New York. TI Chairman, President and CEO Jerry Junkins made the presentation.

Jerry focused on the long-term stability of the world semiconductor market and outlined TI's strategies. His speech was well received by a standing-room-only crowd of about 150 money managers. Tiers can read the speech on TIOLR at T.LE:TALK.1994.JR.J05.01.

## Savings bond interest rate set

• The semiannual market-based interest rate for Series EE Bonds issued between May 1 and Oct. 31 is 4.70 percent for their initial interest period. The current minimum rate is 4 percent for bonds purchased on or after March 1, 1993, regardless of how long they are held, up to original maturity, a term of 18 years.

The semiannual rate changes each May and November, based on market averages during the preceding six months.

## TI team looks at education needs

• A new TI Strategic Learning Team has been formed to provide a centralized repository for information on strategic education programs available at TI. Aligning the education programs with TI's business needs is among the objectives for the team.

The team is also working to promote consistency in how the programs are handled across the company. The team has begun consolidating all available information on an IMS menu under M STRATEA. For information on strategic education, see the menu. For information on education-related programs not contained in the menu, contact Shirley Lee in the Corporate Education Office at 917-7648, or MSGID: SHIR.

## TIRIS used in collection system

• TI's Radio Frequency Identification System (TIRIS) is providing a waste-management solution for 13,000 households in Santee, Calif. The new system carries an incentive for residents to recycle while making it easier for municipalities to comply with a state law on landfills.

Each Santee household has received three 64-gallon carts that are color-coded for household waste, yard waste and recyclable items. Each cart is outfitted with a TIRIS transponder. The TIRIS system automatically identifies the homeowner, records the time and date of service, and identifies the contents of the cart.

## MCCR Software achieves SEI Level 3

• Following the Software Engineering Institute's (SEI) method of Software Process Assessment (IPI-Internal Process Improvement), a TI organization has achieved the rating of SEI Level 3, the highest level of software engineering proficiency of any externally appraised organization in the United States.

"Using the SEI's newest evaluation methodology, the IPI method, TI's DSEG Mission Critical Computer Resources (MCCR) becomes the first field exercise site to report a Level 3 rating," according to Paul Byrnes of SEI's IPI project.

"Based on the most current data from SEI, TI DSEG MCCR (Primary) Software is among the top 7 percent of all software engineering organizations worldwide," according to Mark Rabideau, SEI-authorized assessor.

According to Sematech, a Level 3 organization is as much as six times more cost effective than a typical Level 1 organization.

## Need help making that tough decision?

By Glenn Coleman  
TI ETHICS OFFICE

The TI Ethics Office receives about 120 contacts each month, primarily through phone, mail and the MSG system. Although the majority of these contacts are Tiers seeking information, many are requests for help in making decisions.

We all make decisions every day on subjects such as the use of TI assets, conflicts of interest, relationships at work, and even when to question the directives of our managers and supervisors. Some of our decisions are tough ones and, even though there are many sources of good, professional advice at TI, some Tiers are reluctant to seek help.

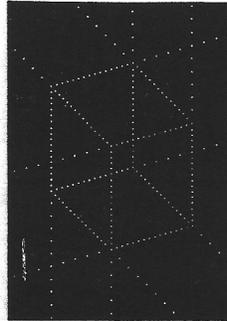
## Sources

We always recommend first asking your supervisor, team members or facilitator for assistance. They generally know your situation the best. But, there are other sources, depending on the question or issue. These other sources include TI Legal, Human Resources, Security, and, of course, the TI Ethics Office.

When you call on the Ethics Office for help in making that tough decision, we'll help identify all possible solutions and their associated risks. Every alternative carries its own set of repercussions and risks. We'll discuss with you the role we can play, and we'll go through the ethics quick test with you.

## Ethics Quick Test

The TI Ethics Quick Test provides checks to examine the ethical



implications of your decisions. Failing any of these tests probably means you should back away from the anticipated action. However, passing all of these tests still doesn't mean the action is acceptable. There may be other unique circumstances, but these should lead you to a more complete evaluation of the issues. Let me share these tests with you.

• Is the action legal? That's simple enough. If the action is illegal, don't do it. TI never wants you to break the law. Period.

• Does it comply with your understanding of TI's values? Check the TI commitment and the corporate values in the Ethics booklet if you have questions.

• If you do it, will you feel bad? Does your contemplated action meet your own personal standards? How are you going to feel about it tomorrow?

• How will it look in the newspaper? Would you take this action if you knew that every detail would appear tomorrow on the front page of the site newspaper?

## INTERACTIVE

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Dick Sandlin, who works at the TI Learning Institute at Park Central North.

"We believe the involvement of senses other than just hearing can help with learning styles," Dick said. "People learn in different ways — seeing, hearing, participating."

Interactive technology can give trainers a better return on the investment required to develop training programs, Bill said.

Up-front development costs can be expensive. However total life-cycle costs are reduced — especially for training programs that need to reach a large, dispersed or very diverse audience. Half-year to one-and-a-half year paybacks on investments are common and well-documented throughout industry, academia and government, he said.

The Italian and German governments have expressed interest in using interactive multimedia to train people to maintain the HARM systems they buy from TI. Bill's pilot CD demonstrates HARM maintenance training in six languages, including German and Italian.

The training also can be updated easily. Paper-based training requires new manuals, which are cumbersome and heavy. Training that's based on compact discs can

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be updated, shipped and stored easily and cheaply.

## Technology

Compact disc interactive is a worldwide standard developed by Philips. It also can play audio CDs, photo CDs and the new video CDs for movies being put onto the CD-I format. The technology started off slowly, but is beginning to catch on fast.

Consumer units that run the discs are widely available and can be bought for several hundred dollars. In addition, there are hundreds of CD-I titles available, from *Top Gun* to *Sesame Street*.

The format can hold up to 74 minutes of full-motion video because the information is stored digitally. This allows the data to be compressed before it is put onto the disc.

As a result, more information can be stored on a 5-inch CD-I disc

• If you know it's wrong, don't do it. This may be the toughest of all. You know your action will be wrong, but other pressures are forcing you toward that improper action. Simply don't do it. Don't ever assume that doing something you know is wrong is ever in TI's best interest.

• If you are not sure, ask. Always work from the strong position of knowledge. Ask questions.

• Keep asking until you get an answer. If your supervisor, team members or facilitator cannot give you the answer, or if it's the type of question you cannot ask them for one reason or another, ask someone else. Your Human Resources center or your Legal department can often provide guidance. And you can always contact the TI Ethics Office. Your concerns will always be treated confidentially.

## Information

The Ethics Office can help you with the first two and the last two of these seven items, providing you with information regarding the applicable rules, procedures and policies. If we cannot provide you an immediate answer, we can research it or direct you to where you can find the answer. However, the middle three items depend solely on your personal principles and values.

You will find this quick test repeated in the back of the *Cornerstone One* booklet (TI Form 28172), in the Ethics Tool Box (TI Form 29064) and on the ethics wallet card (TI Form 28501). They're available through your forms supplier or stationery store.

than on the older 12-inch analog laser discs. Additionally, CD-I allows users to have up to eight languages on one disc for things such as presentations, learning or entertainment. Just choose the language you want to hear.

## Opportunities

Bill is a multimedia evangelist, spreading this interactive high-tech gospel throughout TI.

"TI is multimedia-ripe," Bill said. "There are so many opportunities at TI where multimedia could add incredible value, especially where the costs could be leveraged by multiple divisions within the organization. This is being done elsewhere throughout industry."

"It's not a matter of whether we use multimedia, but when and where we will use it," Bill said.

"The bottom line is that when you get beyond the over-optimistic industry analysts and vendor hype, there are just too many benefits to ignore."

For example, Federal Express expects to save more than \$100 million by using interactive systems for employee training.

"The benefits of this increasingly strategic technology are very real and can be a powerful source of sustainable competitive advantage for TI," Bill said.