Georgia Tech

CONTACT: John Toon/Ginger Pinholster
(404) 894-3444

EXTENDING THE LABOR SUPPLY:
SHORTAGES OF SKILLED LABOR MAY CHANGE
THE WAY COMPANIES USE TECHNOLOGY

For Immediate Release

September 10, 1990

Photography Available

Companies making decisions about automation in their facilities should consider a factor they may have overlooked: the labor shortages expected to affect many skilled jobs.

Businesses anticipating shortages of skilled employees should consider how technology might be used to develop partnerships with their available workers, suggests Dr. David Herold, a professor at the Georgia Institute of Technology. But to be successful in using technology to solve human resource problems, he warns, companies will have to change the way they make decisions about automation.

Company management tends to view technology primarily as a way to lower labor costs or improve quality, explained Herold, a professor in Tech's Ivan Allen College of Management, Policy and International Affairs. As a result, decisions are often made on a job-by-job basis, strictly on economic considerations. While economic justification is important, he believes it may ignore critical issues -- like labor shortages -- whose costs may be difficult to quantify.

"I'm encouraging people to realize that if we have only finite technology dollars, we ought to consider allocating them based on some opportunities for automating jobs that we know are going to be adversely affected by future labor shortages," he said.

In a paper to be published in the *Journal for Organizational Change Management*, Herold places jobs into four categories depending on the availability of workers and the skill levels of those prospective employees. He recommends technology options for each category.

1) Herold suggests companies put top priority on automation for jobs in which few applicants are available and the skill levels of those applicants are not sufficient. While extensive training to raise skill levels may be an
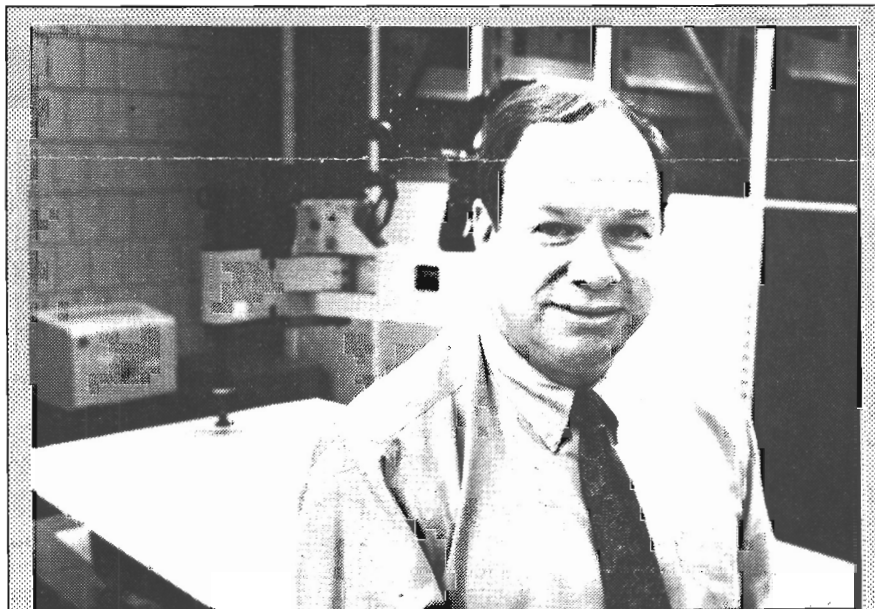
Dr. David Herold says companies should consider future labor shortages in making decisions about automation.

-OVER-

option, he points to automated milling or spray painting machines as examples of technology which can do the job of certain skilled workers.

2) For jobs with a sufficient number of applicants but insufficient skill levels, companies may use technology to build a "partnership between person and machine," augmenting the workers available. In a hospital admissions job, for instance, a computerized expert system could allow a lower-skilled person to handle initial screening work now done by a higher-level person.

3) For jobs attracting skilled applicants in insufficient numbers, companies may use technology to extend those workers by increasing their productivity. In a laboratory setting, for instance, automated equipment may handle routine work, allowing a small number of skilled technicians to concentrate on tasks requiring their skills.

4) Though automation may be justified on an economic basis, jobs attracting a sufficient number of skilled applicants should probably be the last to be automated, Herold suggests.

"Everybody says that demographic shifts are going to haunt us for the next few years, and I'm suggesting one of the things we can do is look for technology to help us out," he explained. "What we have done is created another factor in thinking about where we should put the technology dollars and in what order."

But if companies hope to use technology to solve their labor supply problems, they will have to change the way they make decisions about technology implementation, Herold argued.

Most such automation decisions are decentralized, made by line managers who consider the economic justification of each job they oversee. But these line managers often lack a perspective on the company's overall human resource problems.

"What is happening all too often from a strategic point of view is that the corporate strategic and technology planning are all done in the absence of human resource inputs," he continued. "When the decisions are made about plant location, level of automation and technology adoption, then it is thrown to the human resource people."

Such a failure can lead companies to invest in costly equipment requiring skilled operators -- who cannot be found. "Maybe the decision about technology adoption ought not to be independent of an assessment of our human resources problems," he argued.

More consideration of human resource issues in automation decisions would allow technology to be better tailored to the work force that may be available.

"People think that if they throw technology at a problem, they can solve it," he warned. "I would argue that a lot of the optimal solutions are not the highest technology solutions. You must find some optimal fit between the people and the technology."

Many companies expect technology to reduce the level of skill required to do a job, a process called "de-skilling." That may be true for some jobs, Herold says, until something goes wrong.

"When the machine starts to operate out of tolerance, will the low-skill worker know how to interpret the signals and have enough of an understanding to make a correction?" he asked. "Or will he wait until the whole system comes to a grinding halt? To really get the most out of the equipment, we need people who have an understanding of it."

#