FOREWORD

Thanks to the information technology around which the professional lives of most of our readers are centered, the ability for organizations to carry out their functions extremely efficiently has become increasingly important. A firm which does not emphasize efficiency, and which does not use technology to achieve that efficiency will likely have trouble surviving in an environment containing many competitors that are streamlining all their operations. There are both costs, especially human costs, and benefits to this kind of efficiency, certainly, but in a world whose character is increasingly shaped by information technology the demand for efficiency cannot be ignored.

Of the three articles in this issue that address issues of efficiency that written by Richard R. Hicks and John P. Kohl looks at the issues most globally. In the article they use a branch of the United States Army to investigate the use of computerized human resource systems as a means of providing effective service at a time when budget constraints have significantly reduced the size of the organization and the number of personnel specialists within it. Although the article looks at a public organization its lessons should carry over to those in the private sector.

Creativity has often been seen to be the one aspect of human life that will always be beyond the capacity of computers. Whether or not this controversial claim has merit, the humanist must at least cede that computers can be of assistance to human beings in their creative endeavors, at least making those endeavors more efficient in terms of time and resources. Chiu-Chi Wei, Wen-Yu Wen, and Yeong-Hoang Lee investigate the use of a particular quality control system, ISO 9000, in a research and development operation and conclude that this system does help businesses compete by improving the design capability of R&D departments.

Among the creative areas in which computers are used to increase the efficiency of design is, of course, the design of software itself. Programming remains an art but like many contemporary arts its practice has been enhanced by software tools. As Richard E. Yellen, MaryAnne Winniford, and Thomas Richards indicate, however, the human dimension is not lost even when software turns in on itself in computer aided software engineering. Unlike the machines they work with software engineers cannot be reduced to simple strings of commands and, contrary to many stereotypes, these engineers are not robot-like in themselves. The authors of this article investigate the important relationship of the human environment, and non-technical personal factors, in computer aided software engineering. Efficiency, it seems, can be enhanced by machines but it also depends greatly on treating human beings as human beings.

To be efficient is to make use of available resources to allow the maximum realization of human goals. Expert systems provide an important tool for this by making it possible to represent complex bodies of knowledge in computerized form and allowing the computer to suggest appropriate decisions in particular contexts. As many of our human projects get more complicated such tools will become more and more necessary. Developing these tools, however, is a very difficult task in artificial intelligence. Adel M. Aladwani's article provides an analysis of use of such a system for the difficult task of selecting a multiple comparison test.

Our last article, by Sherman Ong and Cheng-Hong Yang, deals with an important aspect of the human-machine connection: the identification of speakers by computers. This is the type of task which is automatic in human beings but very difficult to model and implement in machines and Ong and Yang survey a variety of attempts to make progress by using statistical features. Although it is more directly technical than the other articles in the issue it delves into an important area that has wide implications for security operations, for computer-interface development, and for many other areas.

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