

## THE INSTITUTE FOR INFORMATION TECHNOLOGY

Started in mid-1984, the Institute of Information Technology at George Mason University reflects institutional recognition of the significance and pervasiveness of information technology in the present and future of society. The University has made a major commitment to establish itself as a national research center for information technology. The Institute will strive to play a catalytic role in increasing research activity both on the University campus and in area high technology industries. Research projects that involve cooperation between university and industry will be promoted as a way of pooling strengths and capabilities to strengthen the quality and significance of the research. Also such joint research will keep university faculty aware of the latest developments in industry thinking, while industry researchers will benefit from the insights that are constantly being generated in fundamental research studies.

In the highly competitive world of high-technology industry, commercial market shakeouts are the order of the day. Creative new products offer the opportunity for new business development and the creation of new jobs. But even highly creative effort and good product development no longer assure business stability. Competitors are quick to identify weaknesses in product consumer appeal as well as in performance, and can rapidly present insurmountable threats to those corporations that lack the capability of being intellectually and physically nimble in revising their product lines. Strong industrial management <sup>is</sup> ~~are~~ fully aware of this.

Universities have sometimes been slow to adjust to the times by changing their internal structures to accomodate the changing nature of knowledge. Also they have often sought to sustain time-honored disciplinary approaches to learning, knowing full well that in the applied world challenges do not present themselves in disciplinary modules.

Insert A All of the tensions and stresses of trying to achieve a mutually beneficial cooperative arrangement between university and industry are present at the industry-university interface.

Both the university and industry can expect that they will trade away some of their cherished myths in response to the growing recognition of interdependence. At the same time as the two kinds of institutions are beginning to interact strongly, each must retain a separate identity. If the university and industry became congruent, neither could benefit from the other in any significant way. Thus both organizational types must learn to tolerate differences in approach and operation, recognizing that these differences are the origins of their mutual interests.

The Institute of Information Technology can serve as a broker between these organizational types.

Nevertheless the Institute must also work within the university to stimulate, facilitate, prod, coax, and broker those actions needed to create foci of unusual competence. The means of building university strength in research in information technology is primarily the "center".

The development of research centers reflects the belief that a "critical mass" of people working together in a highly visible area (visible that is to research sponsors, to industry, and within the university) is a means for rapid and productive recognition of George Mason University as a central player in the high technology world. Such recognition will be forthcoming because of the way faculty colleagues that work together hone and sharpen their respective thinking, and because the visibility of their joint activity will attract student colleagues who lend their own distinctive ambition and capability to the buildup and production represented by the work of a center.

The pervasiveness of information technology means that centers can arise in almost any academic area. To prevent centers from stumbling over each other, the Institute will strive to help delineate the boundaries of centers. Since the same kind of theory, equipment, and apparatus is likely to be used in any center, the primary distinction among centers will lie in the domain of application toward which the research is directed.

At present, two centers have been initiated. One stresses the application of technology to organizational management, with emphasis upon the solution of complex management problems. This Center for Interactive Management has built a reputation among its past clients for unusually high productivity and excellent quality of work.

The other, the Center for Character Recognition, focuses upon the very specific application of converting <sup>hand-printed</sup> ~~handwritten~~ information directly to

digital computer input. Such a capability, embedded in a moderate-size, moderate cost instrument, would have potential utility everywhere records are hand-lettered for later computer data analysis. This could include department store ~~XXXXXXXXXXXX~~<sup>and</sup> bank transactions, electronic message generation for facsimile transmissions, and a host of other situations, including direct conversion of characters from Japanese and Chinese into digital input.

~~-In various stages of discussion-~~

Other centers in various stages of discussion include a sixth-generation computer research center, a robotics and flexible automation center, a brain research center, a technology transfer center, a center for the promotion of quality control in design and manufacturing, ~~and a center~~ a center for knowledge based intelligent systems, and a center for the development of computer-based education research. As the discussions proceed, some of these centers will develop out of faculty initiatives, while others will fall by the wayside. Those which evolve will almost certainly do so with enthusiastic support from components of industry in northern Virginia, and possibly from elsewhere in the Commonwealth.

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Industries have sometimes neglected creative discoveries in fundamental research in deference to more pressing immediate pressures from sponsors. But as the exploitation of U. S. basic research results in other nations continues to make inroads on our domestic industry, there is growing recognition that a more balanced research policy is needed in high-technology industry. A learning posture, as opposed to a not-invented-here posture, will become more prevalent.