

MEMORANDUM

August 3, 1999

TO: Dr. Ronald Douglas, Provost

FROM: Fred Heath
Chair, Telecommunications and Informatics Task Force

SUBJECT: TITF RECOMMENDATIONS

The following recommendations of the Task Force serve as the final report to you on important new directions Texas A&M can follow in the areas of telecommunications and informatics. **Part One** of the report repeats the earlier recommendation for an umbrella organization to nurture interdisciplinary programs in these areas. Committee discussions since that date suggest that the existing Academy for Advanced Telecommunications and Learning Technologies could serve as the foundation for that umbrella organization.

Part Two of the report recommends development of an interdisciplinary program concentrating on the development of future telecommunications networks and systems. The proposal calls for an interdisciplinary group focusing on teaching and research in Telecommunications and Network Engineering, Communications Technologies, Telecommunications Management, Information Security, Telecommunications Policy, and Telephony. It would draw upon strengths in Computer Science, Electrical Engineering, Engineering Technology, Management Information Systems, Journalism, and the Center for Distance Learning Research. Mr. Willis Marti led the collaborative effort that produced this recommendation.

Should you approve this blueprint, the Task Force will proceed with development of an implementation plan, including staffing, budgetary, and programmatic requirements. We have constructed our plan assuming a \$250,000 launch budget. Substantial follow-on funding will be required, perhaps including endowed chairs to spearhead the effort. Our recommendations are drafted with these modest initial resources in mind. The umbrella organization, the Academy for Advanced Telecommunications and Learning Technologies, would continue its efforts to help identify other telecommunications and informatics initiatives that could benefit from this collaborative, interdisciplinary approach. A rapid scaling up of activities would be possible, as resources become available.

PART ONE: Telecommunications and Informatics Umbrella: The Academy for Advanced Telecommunications and Learning Technologies

Information science and the technologies of information processing and telecommunications have brought about dramatic changes in the conduct of almost all areas of scientific inquiry in the past decade. Their impact on industrial, commercial, and educational activities has been no less profound. Both as educational and as research centers, universities must respond to these developments, harnessing the potentials of these breakthroughs in order to advance their missions.

Leading universities have responded organizationally to the rapidly changing information technology landscape. We consider it urgent for Texas A&M to take similar steps. We agree that it is essential for Texas A&M to create the environment and structure that permit an interdisciplinary faculty to come together, pool their creativity, and advance the university in the emergent disciplines. Given the resource constraints, we feel that an existing organization, the Academy for Advanced Telecommunications and Learning Technologies, is best suited to coordinate the University's efforts.

MISSION

The Academy shall provide the focal point for research and instruction in telecommunications and informatics by fostering interdisciplinary programs, by providing a forum for the exchange of ideas, and by sponsoring basic research. As we move toward implementation, we should consider the following:

Balance. Relatively equal emphasis should be given to both research projects and curricular innovations.

Structure. The demands for academic programs of study in the fields of telecommunications and informatics transcend College and disciplinary bounds. The Academy will serve as an umbrella organization acting in the best interests of all of the colleges.

Mainstreaming. The presence of an instructional component will ensure the long-term integration of the Telecommunications and Informatics Program into the University's activities.

ORGANIZATION/GOVERNANCE

To ensure an effective Telecommunications and Informatics Program, enlisting the support of the colleges and encouraging faculty creativity, the Program should be headed by a director responsible to the Provost and reporting through a Council of Participating Deans. It will be necessary to rework the governance structure of the Academy, but the changes can be made with relative ease. Until sufficient funds are available to support a director, the Director of the Academy shall serve as director of the Program. In year one, no funds will be allocated to administrative purposes.

Model. The development path will be evolutionary, developing first an incubator sustained initially from start-up funding, and expanding as it develops into an entity capable of maintaining itself by responding to emergent programmatic demands and by its own entrepreneurial successes.

Faculty. Faculty should be encouraged to participate in the Program(s) while retaining standing in their departments and colleges. The Program should be seen as being responsive to faculty, providing opportunities for involvement at every level. The initial number of faculty participants should be small.

Administrator. An administrator with distinguished research credentials is desired, one who has administrative authority for the program and who responds to college and faculty-driven priorities on current and future initiatives. The primary functions of the Director are to provide leadership for research programs and to coordinate interdisciplinary instruction within the degree programs offered by the colleges. Search for a director will begin in Year Two, or as soon as sources of funding are identified.

Governance. Colleges making specified contributions (see Funding below) to the Program shall have seats on the Council of Participating Deans.

External Advisory Council. There should be an external advisory council that facilitates fund-raising and fosters industrial and corporate partnerships designed to advance both research and curricular development.

Space. The faculty should have access to an identifiable physical space of their own, common ground that encourages genuine, interdisciplinary, collaboration and ensures optimal cross-fertilization.

FUNDING

The Telecommunications and Informatics Program should be funded for its initial three years from

University start-up funds and from contributions from the participating colleges. \$250,000 should be allocated by the Provost to the Program in Year One. College contributions should begin in Year Two as University funding is augmented.

University Funds. Start-up funds shall be made available to purchase release time for a core group of faculty from across the University or to compensate colleges for other contributions.

College Contributions. At levels established by the Council of Participating Deans, colleges shall annually contribute positions, funds or other approved resources.

External Fund-raising. The Director should aggressively seek foundation support and corporate partnerships. The potential for external funding support is significant, as has already been demonstrated by other universities. Such partnerships can be invaluable in developing academic programs that meet the needs of students as well as potential employers.

After the initial three-year start-up funding, the Telecommunications and Informatics Program should seek to sustain itself on a blend of external funding and operational support from the University.

PART TWO: Telecommunications Systems and Networks Initiative

Texas A&M has significant strengths in telecommunications which, combined with the industry concentration in Dallas and other locations in Texas, provide an opportunity to secure a unique leadership position among research universities in the state and nationally. Our strengths include researchers, academic programs and facilities.

The Provost should empower the Academy to perform three missions:

- Mentor and coordinate principal investigators working in key areas of telecommunications research;
- Coordinate interdisciplinary academic programs and support course development; and
- Establish, manage and grow general use laboratory facilities for both research and teaching.

The rapid evolution in this field means some actions should be taken now to preserve Texas A&M's opportunity to be a leader. Some actions can act as proof of concept to highlight the external value of our strengths. These three missions encompass enough so that their full scope must be determined by experience, not laid out in detail at start. The following initial steps are recommended:

- *Strategic:* Appoint a committee to pursue the creation of an NSF Engineering Research Center (ERC) in some aspect of telecommunications, possibly in conjunction with other Texas universities.
- *Research:* Provide resources for matching funds or graduate student support to foster industry sponsored research. In Year One provide \$50,000 for matching funds to support telecommunication systems and networking proposals. Designate \$25,000 to fund emerging Informatics recommendations.
- *Infrastructure:* Provide funds to sustain and enhance the existing telecommunications infrastructure, including the Texas GigaPOP and the Texas A&M University Digital Library (TAMUDL). In Year One make \$50,000 available for these purposes.
- *Academic Programs:* Designate a Coordinator for Interdisciplinary Telecommunications Programs and provide funding annually for course development time and faculty positions (in existing departments)

for existing telecommunications programs and for a new Master's degree in Network Engineering. In Year One, make \$100,000 available to secure faculty to support the Network Engineering degree. Designate \$25,000 to fund emerging Informatics recommendations.

- *Facilities*: Designate a Common Facilities Manager and provide resources in Year Two for facilities, possibly with industry matching.

\$250,000 should be provided during Summer 1999 to allow for course development, infrastructure upgrade, and solicitation of industry matching for new laboratories. The attached chart, **Telecommunications and Informatics Initiatives**, maps the recommended distribution of funds for Year One.

Summary

In response to the Provost's initial charge, these recommendations of the Telecommunications and Informatics Task Force are a modest and essential first step. As the resources initially envisioned for the Telecommunications and Informatics initiatives are made available, the Academy will be able to rapidly ramp up the scale and scope of activities. The Life Sciences Task Force has already agreed in principle to the prospect of joint ventures in bio-informatics. Significant initiatives combining the faculty skills and university resources in Informatics and Life Sciences will emerge as resources and campus priorities warrant.