

**MEMORANDUM**

**To:** Board of Regents  
**From:** Board Office  
**Subject:** New Institute for Information Infrastructure  
**Date:** March 3, 2003

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**Recommended Action:**

Approve Iowa State University's request to establish a new institute to be called the Information Infrastructure Institute.

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**Executive Summary:**

**Four Components** The proposed Information Infrastructure Institute at Iowa State University will serve as an umbrella organization for conducting and coordinating Information Technology-related research and applications. The Institute will have four major components:

- 1) Information Technology (IT) applications;
- 2) Dependable information infrastructures;
- 3) Enabling computer engineering and computer science technologies; and
- 4) Computational sciences.

**Consolidated Effort** Current efforts in the IT area are fragmented at ISU and the University lacks a consolidated effort to advance multidisciplinary learning, discovery and engagement in order to develop information solutions for the general good of society. This new Institute will provide leadership to guide, foster and lead strong research and education programs. Activities of the Institute will promote seed funding for innovative and collaborative research projects and will also promote the organization of focus groups within the participating departments.

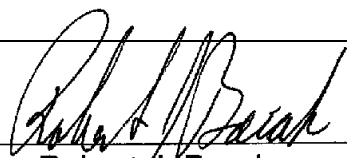
**Four Participating Colleges** The Institute will report to the Vice Provost for Research and Advanced Studies through an administrative board consisting of deans of the participating colleges:

- Agriculture,
- Business,
- Engineering,
- Liberal Arts and Sciences, and
- Two other members selected from chairs of the participating departments.

Funded from President's Office      The Information Infrastructure Institute will be funded as an "Academic Initiative" from resources allocated for new, dynamic and interdisciplinary programs by the President's Office in the estimated amount of \$399,000 for 3 years.

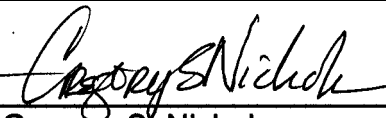
Regent Questions for New Centers      The University's responses to the Regent Questions on new centers and institutes are attached.

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Robert J. Barak

Approved:



Gregory S. Nichols

## Information Infrastructure Institute

### 1. What is the title of the proposed center or institute?

Information Infrastructure Institute (I<sup>3</sup> or ICUBE)

### 2. What is the administrative relationship of the proposed unit to other entities on campus, such as departments or colleges?

The Information Infrastructure Institute consists of faculty members from various academic units with a mission of strengthening the existing research and education programs of various departments and colleges. In addition, it will enhance interdisciplinary interaction among them. The members of the Institute reside in multiple departments in multiple colleges. The four colleges are: Engineering, Agriculture, Business, and Liberal Arts and Sciences. The Institute will be structured as an umbrella organization for conducting and coordinating Information Technology-related research and applications. The I<sup>3</sup> will lead multidisciplinary research activities, which will be promoted by various mechanisms such as seed funding for innovative collaborative research projects and organization of focus groups within the departments. The Institute will facilitate large funding proposals from ISU and will result in these proposals being attractive and competitive by providing the necessary critical mass and synergy.

The Institute will have four major components:

- IT Applications
- Dependable Information Infrastructures
- Enabling Computer Engineering and Computer Science Technologies
- Computational Sciences

Each of these components will be developed by various faculty members in different departments.

### 3. To whom will the administrative director of the unit report?

The Director of I<sup>3</sup> will report to the Vice Provost for Research through an I<sup>3</sup> Administrative Board, consisting of Deans of participating colleges and two other members selected from chairs of the participating departments. The I<sup>3</sup> Administrative Board will be chaired by the Vice Provost for Research. The Co-Directors are faculty members in the Department of Electrical and Computer Engineering. The Co-Directors will manage the Institute through a seven-member I<sup>3</sup> Executive Council composed of faculty members participating in the Institute. The I<sup>3</sup> Executive Council will make recommendations through the Director to the I<sup>3</sup> Administrative Board.

**4. Succinctly describe the basic purposes and objectives of the unit.**

**a. How will the activities of the unit relate to the general mission and teaching programs of the university?**

The I<sup>3</sup> initiative addresses both research and educational needs keeping in mind the land grant mission of the university. It combines fundamental developments in IT and its applications with the education and training of students, engineers, and scientists. Leadership in information technology will meet the joint objective of becoming national leaders in a critical technical area and providing leading edge research and educational experiences for ISU students. The I<sup>3</sup> team will provide **strong leadership** strengths to **guide, foster and lead strong research and education programs**. It will build on existing research strengths, and make a concerted effort in developing multidisciplinary research projects with IT as the core technology. I<sup>3</sup> will bring researchers from various disciplines together and promote research on:

- Developing a deeper understanding of both IT and its various applications to allow their integration, and cross-fertilization between disciplines so that seemingly disparate applications can benefit from common overarching solution techniques, and lead to the development of more robust and efficient solutions.
- Enabling IT technologies including: real-time dependable high-performance computing, new processor and memory designs, high-speed and dependable computer networks, software engineering, complex software systems, database systems, distributed computing, security, and decision support systems.

**b. How do they relate to the strategic plan of the department and/or university?**

Iowa State University, Iowa's Land Grant Institution has the stated goal to be the "Best Land Grant University" in the nation. While ISU has the unique distinction of being the birthplace of the first digital computer, efforts in the IT area are currently fragmented and exist only among individuals or small research groups. We lack a consolidated effort to march ahead with multidisciplinary learning, discovery, and engagement in order to develop information solutions for the general good of society.

The state of Iowa has a strategic goal to boost the IT industry and to retain IT professionals in the state. These strategic goals are interrelated. In order to attract new IT ventures into the state, entrepreneurship, incubation of new technology and well-trained professionals are essential ingredients. In order to attract students into any program, an opportunity needs to be provided to them for gainful employment in the state of Iowa. Over the past few years at ISU, IT-related disciplines like computer engineering, computer science, and management information systems have seen enormous increases in student enrollment and interest at both the undergraduate and graduate levels. A majority of these students migrate to IT industry outside Iowa. In order to stem this flow, an attractive base needs to be provided for IT industry to locate in the state. To achieve this goal, the Institute will establish an umbrella organization to promote development of new IT technologies and their applications to solve real-world problems. This organization

will work closely with existing industries in Iowa and provide a supportive environment for developing commercially viable technologies.

ISU's IT-researchers and those in potential application domains are currently contributing to this land-grant vision through generic, fundamental discoveries and innovations, as well as through the use of existing IT solutions in new ways for different applications. Although these efforts are succeeding as evidenced by the progress of individuals and small groups, there is very large potential, in terms of greatly increased funding and highly enhanced national and international recognition, associated with harnessing the integrated and coordinated energy of this group. The I<sup>3</sup> will provide the impetus and will be the stepping-stone to make this happen. The conceptual structure below illustrates the interactions among the main components of I<sup>3</sup> and how it will be able to assist in encompassing the strategic plan of ISU.



**5. Do similar units exist at other public or private colleges or universities in Iowa? If so, how does the proposed unit relate to them?**

There are no similar units at various institutions within the state of Iowa. The Beckman Institute at the University of Illinois, Urbana-Champaign (UIUC), the Peter Kiewit Institute of Information Science and Technology at University of Nebraska, Omaha, (<http://www.pki.uneb.edu/>), the University of Minnesota's Digital Technology Center with a mission to develop a center of excellence at the University in digital technologies ([www.evpp.umn.edu/evpp/aia/april.htm#digital](http://www.evpp.umn.edu/evpp/aia/april.htm#digital)), the Pittsburgh Digital Greenhouse (<http://www.digitalgreenhouse.com>), Louisiana State University's 7.5M dollar IT initiative, Cornell, and University of Illinois Chicago, where multimillion dollars have been spent to create facilities to bring researchers together, are some of the examples.

- 6. What are the proposed sources and annual amounts of funding for the unit? Please itemize. (Include faculty, staff, and clerical salaries; supplies; equipment; travel; other costs).**

Budget Item	Description	Amount
A new faculty position	3 years, \$125K	\$375K
Annual workshop and Seminar series	FY 03	\$ 24K

- 7. Which of the costs in item 6 represent new financial obligations to the general fund of the university?**

All the funds listed above. This funding will be made available through the President's Academic Initiatives Program.