

**Indiana University
School of Informatics
Strategic Plan
December, 2007**

"The best vision is insight." Malcolm S. Forbes

Background

The School of Informatics (SoI) is in a transition period, moving from its formative period under the leadership of founding Dean Mike Dunn to the beginning of a more mature stage under the leadership of a new dean, Bobby Schnabel. This transition period is a natural time for a strategic planning effort which examines the current and desired state of the school.

Strategic planning efforts often begin with an initial focus on mission, vision, values, and goals. In this case, the schools' leadership felt that SoI's current mission statement (<http://www.informatics.indiana.edu/overview/mission.asp>) provides an excellent foundation, and that the important need was to delve more deeply into needs and opportunities facing the School.

The strategic planning effort focused on a series of questions developed by the dean and the School's leadership council, with discussion with the School's faculty and staff (see Appendix A: School of Informatics Strategic Planning, Fall 2007; 8/31/07). An overarching theme of the process was to consider what the School's primary opportunities are for national and international prominence as well as for serving the State of Indiana, and the key steps needed to capitalize upon these opportunities.

"Innovation – the heart of the knowledge economy – is fundamentally social."
— Malcolm Gladwell

Methods

Five committees were convened to examine the issues posed in the strategic planning paper. These committees focused on essential elements in a research university: undergraduate education, graduate education, research, faculty development, and diversity. In addition, members of the school's leadership and the Dean's Advisory Council are examining the topic of economic development and entrepreneurship.

The first four committees each were led by co-chairs from the three units of SoI – the Bloomington Department of Computer Science, the Bloomington Department of Informatics, and IUPUI Informatics – with the dean chairing the diversity committee. Each committee included additional faculty from each of the three units. Graduate students and staff were represented on committees on the graduate and undergraduate education committees respectively. One of the benefits of the planning process was providing an opportunity for the three units to collaborate.

Each committee began with a SWOT (strengths, weaknesses, opportunities, and threats) analysis of their area. Beyond the common starting point of a SWOT analysis, a variety of methods was used by the respective committees. The undergraduate committee did considerable mining of data. The research committee conducted a formal survey of faculty. The faculty development committee conducted an informal survey of faculty. In addition to committee meetings (4-6 meetings were held for each committee), there were many discussions among faculty during the planning process. Thus, both quantitative and qualitative approaches were used during the planning process.

Each of the five committees undertook its charge with vigor. Some issues stirred considerable, passionate debate. At its heart, the overall process was as described in Gladwell's quote above, "fundamentally social."

Key Findings

The full committee reports are included in Appendix B. This section summarizes the key findings from each report.

“Education is not the filling of a pail, but the lighting of a fire.”
W. B. Yeats

Undergraduate Education Committee

The undergraduate committee met six times and examined considerable data. The report looks at key drivers for change, aspirations for undergraduate education, critical success factors, and strategic recommendations. This synopsis of the report simply presents the strategic recommendations, which were the “bottom line” of this committee.

Strategic Recommendations.

1. **Develop a new model of the undergraduate core for Informatics and Computer Science.** This recommendation includes suggestions for a common core for the entire school, three new courses, an additional project-based course, and more freedom and flexibility for students to evolve their degree emphasis as their program progresses.
2. **Develop new tracks within and across our existing programs to provide flexible and valuable opportunities for majors and non-majors.** This recommendation seeks to capitalize on the relative strengths of Bloomington and Indianapolis to leverage new course offerings that bridge programs. It further recommends partnerships with programs outside the school to create even further opportunities for students.
3. **Develop new course offerings for non-major students.**
4. **Co-develop new courses and programs that combine the unique strengths of the Indianapolis and Bloomington faculty.**
5. **Investigate the opportunities afforded through distance education technologies.**

Overall, there is considerable curriculum development work to be considered based on the recommendations of the undergraduate committee.

"Remember that our nation's first great leaders were also our first great scholars."

John F. Kennedy

Graduate Education Committee

The graduate education committee met four times and established three strategic goals:

1. Achieving an international reputation for our PhD programs.
2. Leveraging interdisciplinary opportunities, both within the school and with outside units.
3. Keeping abreast of best practices in the field, with continuing reassessment.

The graduate committee then listed vital steps required to achieve these strategic goals.

1. Assuring a sufficient supply of strong PhD candidates.
2. Securing sufficient funding to support PhD candidates.
3. Balancing MS vs PhD program sizes.
4. Developing a cost model for graduate education.
5. Investigating benefits of combining PhD programs into one coherent flexible structure that respects specific requirements of tracks (sub-disciplines).
6. Developing MS programs for targeted audiences coming from business and industry and course offerings serving the needs of other units where appropriate.
7. Reexamining admissions strategies.
8. Continuing the dialogue between the three departments on all issues concerning graduate education.

Thus, the ways in which graduate students are admitted and funded, and the structure of the programs were prominent for the graduate committee. As with the undergraduate committee, some curriculum development, particularly of master's programs, was recommended.

“In God we trust; all others bring data.”
W. Edwards Demming

Research Committee

The research committee met four times. It had perhaps the most difficult task of all the committees with the charge to identify “3-5 areas in which we are best positioned to achieve and/or sustain national and international prominence/leadership. (This includes developing some criteria for making this determination, and applying them.)”

The criteria the committee established included:

1. Sustainability: the future prospects in an area – part of growth trend at the national level or ability to create one.
2. Expertise within the school and capacity: record of scholarly achievement, reputation, and critical mass of faculty within the school.
3. Existing or anticipated collaborations /funding opportunities.

The committee report states that “for a research area to be considered strategic, it generally must satisfy all three criteria.”

The committee recommended seven research foci that met its established criteria:

- Complex Systems
- Data, Information, and Search
- HCI/Design
- High Performance Computing/e-Science
- Life Sciences
- Technology for Values
- Trust and Privacy in Cybersecurity

The fact that the committee ended up recommending seven areas underscores the challenges they faced in getting to the requested 3-5 areas.

The committee also identified strategies for insuring faculty research success including:

1. Sustain and promote research by making policies transparent, including policies on teaching loads, buyouts and indirect cost return.
2. Support collaborative research by clarifying the tenure and promotion policies dealing with co-PI participation.
3. Hire a grants editor to help prepare and finalize grant proposals.
4. Support graduate student admissions and funding which enhances faculty research capacity.
5. Sharing ideas. Develop a repository of successful grants as well as sponsor a “research day” to facilitate cross-unit interaction and collaboration.

Finally, the research committee identified several key strategic alliances including IU's Life Sciences Initiative and the Medical School and Regenstrief Institute in Indianapolis.

"Even if you are on the right track, you will get run over if you just sit there."

Will Rogers

Faculty Development

The faculty development committee met four times. It oriented its effort around work conducted by Buckingham and Coffman (First Break All the Rules; Simon and Schuster; 1999) concerning what talented employees need from their workplace.

The committee identified four primary areas for emphasis:

1. Improve the overall teaching and general work environment
 - a. Develop policies acknowledging the effort of preparing new courses and labs and developing online courses.
 - b. Standardize guidelines for course buyouts and teaching loads.
 - c. Reaffirm through rewards, recognition, and quality controls the importance of teaching to the academic mission of the school.
 - d. Identify ways to support and reward non-tenure track faculty.
 - e. Create and maintain a system of faculty records related to appointments, teaching, funding, and service.
 - f. Develop a survey for tenure-track and non-tenure track faculty around the key questions posed by Buckingham and Coffman.
2. Bring clarity, as much as possible, to the tenure and promotion process.
 - a. Regularly review promotion and tenure policies.
 - b. Collect statistical data on career paths.
 - c. Create an online tenure and promotion repository.
 - d. Incorporate creation and maintenance of dossiers into the faculty review process.
 - e. Assist junior faculty in identifying funding sources and networking for interdisciplinary research.
 - f. Provide guidelines for time management.
 - g. Provide administrative support for dossier preparation.
3. Improve the process of mentoring junior faculty.
 - a. Identify senior faculty who are open to mentoring and have the skill sets to do so.
 - b. Provide administrative support and rewards for faculty mentoring.
 - c. Develop career path mentoring procedures and objectives.
 - d. Give time and rewards to senior faculty who mentor.
 - e. Create policies and structures to develop future faculty leaders and mentors.

4. Create a culture of accountability and contribution.
 - a. Link recognition and reward to accountability
 - b. Systematically identify rewards and recognition for several types of faculty.
 - c. Identify mechanisms for rewarding increased senior faculty involvement in School activities.

Thus, the faculty development committee's work bridged the overall climate of the school for faculty with specific suggestions on mentoring, tenure and promotion, and nurturing a culture of accountability and contribution.

"If we are to achieve a richer culture, rich in contrasting values, we must recognize the whole gamut of human potentialities, and so weave a less arbitrary social fabric, one in which each diverse human gift will find a fitting place."

Margaret Mead

Diversity

The diversity committee met two times. The committee's rationale for the importance of diversity was threefold:

- Innovation – diverse participants lead to broader think, ideas and solutions.
- Workforce – we need to draw broadly from our population to achieve national needs.
- Social equity.

The committee established two high level goals:

- Broad representation of and participation by women and underrepresented minority groups among our students, faculty and staff in our School.
- Have the school be a national example of how the broad view of computing and IT embodied in the School can lead to more diverse participation by students and faculty.

The committee developed four strategies for achieving these goals:

1. Hire a school-wide diversity coordinator, with the goal of having this position become self-funded through grants and gifts within 18-24 months.
2. Led by the diversity committee and coordinator, establish a set of key actions for achieving our diversity goals.
3. Assure that the reward structure of faculty and staff properly rewards contributions to the School's diversity program, whether through merit review, travel funding, course release if appropriate, and School-wide awards.
4. Work with the National Center for Women and IT for the School to be an "exemplar" on a school wide (Bloomington and Indianapolis) basis, but focusing both on women and underrepresented minorities. Use this affiliation to help assess our current state.

Common Themes

A key aspect of the strategic planning process is melding the discussions and work of the committees together and recognizing important themes that are shared and reinforced between them. This activity was led by the School's planning director, aided by the dean and the leadership council. Several issues stand out as bridging the committees and thus as overarching issues for the School.

Curriculum development and refinement. Curriculum development that builds upon the breadth of the School was a major theme of the planning process. The undergraduate committee pointed to significant curriculum development opportunities both for major and non-major courses. The graduate committee suggested some potential realignment of the PhD program to span the entire school and new course/program development for the Masters program. These are long-term initiatives that may require a period of 1-3 years to complete.

Enhance PhD student admission and support. Both the graduate and research committees discussed at length the process for admitting PhD students, supporting them, and matching them with faculty for research interests and support. These issues are at the heart of both the graduate programs and the faculty's ability to conduct research and are a high priority for prompt attention.

Create an equitable faculty workload across the School. This issue was discussed in the research and faculty development committees. The research committee focused on policies for course buyout and teaching loads as well as those for collaborative research. The faculty development committee called for linking reward and recognition to accountability. There is an excellent opportunity for the School to look at all these issues cohesively with the goal for creating an environment that recognizes and rewards a variety of faculty contributions.

Develop, nurture and reward senior leadership. The importance of a highly engaged senior faculty was emphasized to varying degrees by the all four committees. The undergraduate committee aspired to "enhance and sustain faculty engagement in undergraduate education." The faculty development committee recommended "facilitating the association of junior faculty with senior faculty who are skilled and invested in mentoring." The process showed that senior faculty leadership is essential in a number of areas that directly impact the national and international reputation of SoI.

External Scans. The graduate and undergraduate committees, and to a lesser extent the research committee, call for ongoing scans of the external environment including competing Universities and business and industry. Given that the mission of SoI is based in rapidly changing science and technology, it is particularly important that regular scans are an ongoing part of the operation of SoI.

Funding Issues. Funding issues were at the heart of several committee recommendations, such as graduate student support, undergraduate curriculum, and course buy-out strategies. As strategic planning moves to implementation, a detailed financial analysis will be required.

Overall Opportunities and Priorities

SoI's leadership council has considered the reports from each committee and analyzed them from two perspectives. The first is to extract the handful of the most promising and important opportunities for SoI to achieve national and international prominence in the coming years, based upon the committees' recommendations. The second is to determine which of the recommendations summarized in the previous sections are of highest priority, based both upon each committee's individual input and the intersection of the recommendations from the committees. Work on the recommendations listed as key priorities will commence immediately.

Primary Opportunities for National and International Prominence

The School of Informatics is unique nationally in its breadth of coverage of the fields of computing and informatics, coupled with its size in terms of faculty and students, and its inclusion in one of the nation's top research universities. These characteristics position the school to play crucial, leading roles in the evolution and progress of computing and informatics on a national and international scale. Based upon the recommendations of the planning committees, the following opportunities stand out as the most prominent and important possibilities for national and international leadership. The order of this list does not denote priority (it follows the order of the previous sections); all of these opportunities are of great importance and promise.

1. Establish a new model for undergraduate education in computing and informatics that spans the breadth of this discipline, from scientific and technical aspects to a broad array of applications and consideration of societal implications.
2. Develop a novel PhD that reflects the breadth of the School and the discipline of informatics and computer science.
3. Develop the premier professional master's degree in selected areas within the School, such as human computer interaction / design.
4. Examine the needs of the research areas considered to be best positioned to achieve and/or sustain national and international prominence, by the criteria of sustainability of the research area, expertise within the School, and existing or anticipated collaboration and funding opportunities. These are (alphabetically): complex systems; data, information and search; human computer interaction / design; high performance computing / e-science; life sciences (including bioinformatics, chemical informatics, health informatics); technology for values; trust and privacy in cybersecurity.
5. Develop selected large scale funded research programs that capitalize not only upon the breadth and strengths of the school, but also upon unique strengths of the University (e.g. the medical school and the IT environment) and/or collaborators at other organizations (universities and others). (The identification of these leading large scale research opportunities is ongoing.)
6. Become a national example of how the broad view of informatics and computing embodied in the School can lead to greatly increased participation and leadership by women and underrepresented minorities, as students and faculty.

Key Priorities

Undergraduate Education

1. Develop a new, combined model of the undergraduate core for Informatics and Computer Science.
2. Examine and develop new course offerings for non-major students that best mesh University needs to the School's capabilities.

Graduate Education

1. Assure a sufficient supply of strong PhD candidates.
2. Secure sufficient funding to support PhD candidates.
3. Investigate the benefits of combining PhD programs in Computer Science and Informatics into one coherent flexible structure that respects the requirements of specific sub-disciplines.

Research

1. Examine and begin to address the key needs to attain or sustain national and international prominence of the seven research areas identified above.
2. Design unified policies that support research productivity and maintain high teaching standards.
3. Build an excellent grant preparation organization to assure that the School is maximally competitive for research funding.
4. Support graduate student admissions and funding which enhances faculty research capacity. (Overlaps with #1 and 2 under graduate education.)

Faculty Development

1. Bring as much clarity as possible to the tenure and promotion process.
2. Develop and maintain an excellent process for mentoring junior faculty.

Diversity Committee

1. Make a school-wide commitment to excellence in diversity, starting by hiring a school-wide diversity coordinator.
2. Begin the process of becoming a national diversity exemplar by becoming a National Center for Women & IT "exemplar" on a school-wide basis.

"Everything must degenerate into work if anything is to happen."

Peter Drucker

Next Steps

In any organization, strategic planning is an ongoing activity. The committee reports are the end products for this stage of the strategic planning process, and a vital initial milestone.

The committee recommendations are leading to important next steps. SoI's leadership council, under the direction of the dean, has begun creating task forces to address the key priorities mentioned in the previous section. In a few cases this work already is underway; in the remaining cases it will begin early in the spring 2008 semester. The leadership council is developing charges, leaders, and timeframes for each task force. Tentatively, the initial task forces will focus on:

1. Developing the common undergraduate core;
2. Developing priorities and pilots for new non-major undergraduate curriculum;
3. Examining issues concerning PhD admissions;
4. Examining the possibility of an overarching PhD and the interaction between the three units;
5. Examining the needs of the research areas identified as most promising for attaining national and international prominence;
6. Mentoring junior faculty; and
7. Faculty policies including relation of teaching loads and research activity, indirect cost return, and course buyout from research grants.

The Leadership Council also will direct the work to be done based on the soon-to-be delivered report from the economic development committee.