School of Informatics
Indiana University
November 15, 2007

Strategic Planning Subcommittee for Graduate Education – Final Report

Co-chairs: David Leake, Mathew Palakal, Erik Stolterman

This report summarizes the committee's conclusions, developed over four committee meetings. They reflect extensive discussion of a SWOT analysis conducted by the committee for which a summary generated by Jim Shea is attached to this document, as well as extensive input received in response to solicitations to all faculty in the three departments.

We have summarized our results into "**Key Strategic Goals**" and "**Vital Steps.**" These points address the questions suggested in the charge to the committee, however, they are framed in a somewhat different way to emphasize crucial steps to take.

Key Strategic Goals Identified

These *key goals* should be seen as the most central guiding principles for future work in improving our graduate programs. They do not include all strategic issues or the many tactical issues and ideas raised to the committee.

- *Achieving international reputation for our PhD programs*

It is a top priority for the School of Informatics to develop our PhD program(s) in a way that leads to national and international reputation. The research in the school depends on the work of our PhD students and we have to attract students with the appropriate skills and competence to enable conducting research of highest international quality. At the same time the quality of the research in the School is the premier aspect that attracts the best PhD students.

- *Leveraging interdisciplinary opportunities, both within the school and with outside units*

Our graduate education has to leverage the existing multi-disciplinary structure of the school. Many faculty have joined the school because they believe that interdisciplinary research has potential that cannot be found elsewhere; this potential must be realized by having the strong PhD-level research needed to exploit these areas. Likewise, this

uniqueness could be a key point in attracting top students. This has to be recognized and supported in the planning and design of our graduate programs.

- *Keeping abreast of best practices in the field, with continuing reassessment*

The school is not alone in its attempts to develop well functioning and high quality graduate programs. We have to recognize that others over time have developed best practices and we should make an ongoing effort to stay informed and maintain competitiveness with what is done at competing schools and programs.

Vital steps towards the key goals:

- *PhD program requirements aimed towards efficient preparation for and transition into research*

For educational reasons, school research productivity, student support, and competitiveness with other PhD programs, it is essential for doctoral students to move into research as soon as feasible for their chosen areas, and to be able to complete their degrees in a timely manner. Program requirements must be revisited in light of this goal.

- *Assuring a sufficient supply of strong PhD students*

A sufficient supply of strong students is essential to research productivity and critical mass for educational programs. It is vital for the research of the department as a whole, and for the development of junior faculty, who cannot flourish if "starved" for students. Thus increasing admissions of strong PhD students is essential to the quality and reputation of the graduate programs and the School as a whole. While it is not possible to predict in detail how many students can be admitted, it is necessary for the school to have a long-term goal and plan for the graduate admissions (see next point).

- *Securing sufficient funding to support PhD students*

Sufficient graduate student funding is necessary to compete against other institutions to recruit high quality students into our PhD programs. Better use must be made of current funding, replacing current over-conservative admissions strategies with better predictions of acceptance rates and a well developed plan (budget) for smoothing fluctuations over time. Even in tight financial times, maintaining the PhD program is a vital investment for the future. Likewise, graduate students must be brought into research rapidly when possible, to enable them to be productive RAs sooner. Because of the importance of associate instructor positions to support graduate students, especially before they can be productive RAs, strengthening undergraduate enrollments is crucial as well.

- *Balancing MS vs. PhD (area-specific)*

The committee sees the needed balance and size of MS programs in relation to PhD programs to be highly area specific. Managing the balance involves financial issues as well, because MS programs may bring in funding to the school. However, MS admissions must be managed wisely in order to avoid potential risks to the PhD program and the school's reputation, especially if admissions criteria are adjusted to grow the MS program.

The committee recommends investigating options for master's degrees oriented towards professionally-oriented students, potentially including new courses and a new or adjusted MS in computer science or bridging departments. One course currently playing a key role for such students in the CS master's program, Software Engineering, faces retirement of the professor in charge. There may be opportunities for a new school-wide replacement course providing similar practical team-oriented experience.

- *Developing a cost model for graduate education*

One of the requirements for making the right decisions about graduate programs is development of a clear cost model identifying the costs and revenues associated with students in the PhD and MS programs.

- *Investigating benefits of combining PhD programs into one coherent flexible structure that respects specific requirements of tracks (sub-disciplines)*

One vehicle for increasing flexibility and supporting interdisciplinarity might be to institute one broad PhD degree in Informatics covering all three "departments," while accommodating special needs within certain areas (for requirements on incoming students and on the educational process), to increase student flexibility and benefit from the multi-disciplinary character of the school. At the same time, such a change would pose risks (it is essential that the areas of the degrees be recognizable to potential employers), and the committee is aware of at least one similar effort which failed. The committee believes that careful investigation, by a committee including those with strong views on both sides, would be needed to adequately determine the benefits, risks, and tradeoffs of such an approach and to generate a proposal if this is considered desirable.

- *Developing MS programs for targeted audience coming from business and industry, and course offerings serving the needs of other units where appropriate.*

Specialized Graduate Certificate Programs and MS Degree Programs should be developed to meet the needs of the business community and the changing job market. This must be done in relation to the overall strategic goals of the school.

- *Reexamining admissions strategies*

The committee believes that there should be closer coordination of admissions in Bloomington. It also recommends exploring making admissions less tightly related to departments or "tracks" or predefined areas than today, e.g., by accepting PhD students

into broader categories of competence where they after one year have to make a choice of track together with their program committees.

- *Continuing the dialogue between the three departments on all issues concerning graduate education*

The committee members have found the cross-school discussion of graduate strategic issues and plans highly valuable, and encourage that contacts be maintained.