Improving Graduate Admissions Processess at MIT

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THE GRADUATE ADMISSIONS process is central to maintaining the vitality and quality of our education and research enterprise. During the 2011 admissions cycle, MIT had the highest number of graduate applicants (22,220) and the most competitive admission rate (15%) in its history. However, the graduate admissions process at MIT is currently decentralized across more than 40 graduate programs and highly heterogeneous, using a variety of electronic, paper-based, and hybrid systems.

The current state of graduate admissions

Discussions with graduate administrators, graduate officers, and Department Heads raised many systems-based issues with the current graduate admissions process, as detailed following. A significant administrative burden exists due to manual data entry, reporting, double-checking, formatting, scanning, file conversion and consolidation, and maintaining shadow systems and reporting. Unintuitive, awkward and slow interfaces have resulted in poor applicant experience with various software platforms. Generally, there is no capability for real-time data reporting, as well as inconsistent data capture and reporting between programs. The use of time and financial resources due to paper-based and hybrid paper-electronic systems (for example, during faculty evaluation of applications) is highly inefficient. Lastly, there is difficulty in maintaining resources for training and documentation to support admissions processes.

Graduate administrators, admissions staff, and faculty do an outstanding job with the systems available to them, but it is clear that there is an urgent need and broad support for an improved infrastructure to support their work.

Assessing the need

The *2007 Student Systems Vision Project: Graduate Admissions Workshop Report* and the 2009 Institute-wide Planning Task Force both recommended that MIT pursue an online paperless graduate admissions system. When considering the transition to an all-electronic centrally-supported admissions system, it is essential to consider the graduate admissions process as a whole, including our current procedures, as well as potential future needs and innovations.

In January 2011, as Dean for Graduate Education, I assembled a *Task Force on Improving Graduate Admissions Processes* chaired by Professor Nicolas Hadjiconstantinou of the Department of Mechanical Engineering. The charge of the Task Force was:

• To comprehensively analyze the capabilities and limitations of current graduate admissions systems utilized across the Institute and by our peers; to assess baseline functionalities required by all graduate programs; and to propose a plan (including organization and implementation) for the development of a centrally-supported online paperless admissions system.

The Task Force conducted its work during the spring 2011 semester, which included interviewing a number of graduate admissions experts from across MIT, surveying 38 graduate programs at MIT with the assistance of MIT Institutional Research/Office of the Provost, and investigating internally constructed and external commercial options.

• To catalog current graduate admissions processes and develop recommendations for innovation in the graduate admissions evaluation process.

• To explore synergies with the centralized undergraduate admissions system and processes from recruiting, to selection, to yield.

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below); interfacing with other student information and financial aid systems; cost; value-added; long-term sustainability; and implications.

Recommendation

The Graduate Admissions Task Force released its final written report entitled "*Towards an MIT-supported, all-electronic admissions system, and a highly diversified applicant pool,*" in early June, 2011. This report recommended adopting the system developed by Professors Frans Kaashoek and Robert Morris of the Department of Electrical Engineering and Computer Science (EECS) Institute-wide over a timeframe of three admissions cycles, in a manner allowing graduate programs to opt-in and commercial vendors to be phased out. Under this plan, graduate admissions at MIT would evolve from a fragmented structure with multiple providers to an all-electronic system with one recommended and supported application provider. Adoption of the EECS system will additionally provide opportunities to simplify and unify the graduate admissions data flow and database structure, including a decrease in the number of data feeds and necessary maintenance, as well as improve graduate admissions data quality and timeliness of access.

The EECS system is a demonstrated excellent, customizable, and adaptable platform that will improve efficiency, reduce processing times and paper use, streamline the review process by faculty, and improve applicant experience and recruitment competitiveness. The system provides a Web interface for collecting applications and fees; application review is performed using a second Web interface, which reviewers (e.g., admissions committee members or other experts) are invited to visit using their MIT Kerberos and a local password. This latter Web interface provides the reviewer with a list of assigned applications which they can proceed to review on the computer screen. The reviewer then provides a

numerical score that is tallied with those of other reviewers for the Admissions Officer's consideration, as well as the ability to enter comments.

The EECS system exhibits a large number of functionalities that make it exceptionally flexible. Departments may

customize parts of the application and the review system on their own. The system may be set up to flag applications based on any searchable criterion (e.g., students who have previously applied to that particular graduate program, previously admitted students from a particular institution, underrepresented minority students, etc.). Reviewers typically enter a numerical score, but also may add comments that can be made visible/blind to the subsequent reviewers. Searches are possible in real time (i.e., by applicant's School, research sub-area of interest, reviewer's comments, etc.). Letters submitted by the same recommender on behalf of different applicants over the years can be reviewed for comparison. Applicants are given a copy of the notification e-mail sent to each recommender, so that the applicants themselves can ensure timely submission. Applicants can check on-line if the recommenders have submitted their letter. Departments can compile real-time statistics (i.e., admitted/applicant population, number of applications received per period, etc.). The possibility exists to store applications locally and/or

to print to hard copy for review later when an Internet connection is not available. Turn down letters can be posted on the applicant's status page. Applicants can upload documents (i.e., PDFs, etc.) and application fee waivers can be implemented.

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Implementation

The release of the Graduate Admissions Task Force report was followed by a two-week comment period to solicit input from the MIT community. Feedback from faculty, students, staff, and administrators during the open comment period included broad support for the adoption of the EECS system Institute-wide. There was a strong appreciation that the EECS faculty developers have previously demonstrated successful transitions to three graduate programs, significantly improving their graduate admissions processes. The community acknowledged the numerous benefits, provided suggestions for enhancements, and articulated some concerns, potential risks, and recommendations to develop mitigation strategies for these risks.

A project team consisting of the EECS faculty developers, Information Services and Technology (IS&T), the Office of the Dean for Graduate Education (ODGE), and the Office of the Dean for Undergraduate Education (DUE) was formed over the summer of 2011 and a detailed implementation plan developed, that includes Institute financial/staffing

Improving Graduate Admissions
Ortiz, from preceding page

support. The EECS faculty developers will transition the EECS system over to all graduate programs that would like to opt-in by directly working with and training department graduate administrators and officers. They will make development, customization, and enhancement decisions, manage and maintain the system for those departments who have opted in. IS&T will work on modification to and maintenance of the central data flow and storage structure for graduate admissions, and work with EECS on integration issues between the EECS system and MITSIS.

For each graduate program, the transition to the EECS system involves a number of steps. The EECS faculty developers initially meet with the graduate officers and administrators, and set up an account with access to the demo application, as well as their unique database on the EECS server. Requests for updates are subsequently handled via e-mail, which the EECS faculty developers then carry out. There are generally no fundamental software changes required and the graduate programs can configure the system themselves. An online guide has also been prepared to assist the graduate administrators through the transition. The graduate program is responsible for closing out the prior system and requesting that central admissions redirect their Webpage to the EECS system.

An *ad hoc* Committee on Graduate Admissions (CGA) has been assembled to serve as the primary Institute body for review and oversight of the all-electronic graduate admissions transition consisting of faculty, a graduate student representative, a graduate administrator representative and a representative from the Central Admissions office in the Office of the Dean for Undergraduate Education. The CGA will periodically review, discuss, and provide feedback and recommendations to the EECS faculty developers on the all-electronic graduate admissions system. Additionally, the transition will be reviewed by the Committee on Graduate Programs (CGP) and the Student Systems Steering Committee (SSSC). ODGE will act as the project sponsor, provide information, feedback, advice, coordination, communication and act as a liaison with various relevant committees. Central Admissions will continue to play the role they do now in customer service and data management.

The EECS faculty developers have been working to transition 10 graduate programs for the fall 2011 admissions in-take including Biology, Brain and Cognitive Sciences, Chemical Engineering, Chemistry, Civil Engineering, Computational and Systems Biology, Engineering Systems Division, Mechanical Engineering, Microbiology, and Physics. At the time of writing this article, all of these programs were live with the new system and accepting applications while customization refinements were ongoing. Enormous improvements and relief have already been realized for these graduate programs. In addition to the new graduate programs being transitioned over, the EECS faculty developers have continued to work with the Departments of Mathematics, Aeronautics and Astronautics, and EECS, which already had the EECS system in place prior to AY12.

We welcome comments and questions on the all-electronic graduate admissions transition; feel free to contact me directly at the e-mail address below.

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