Report of Revenue Enhancement Task Working Group

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Introduction
The committee (see Appendix A) was given the charge to explore all present, as well as possible future, revenue-related activities in order to maximize the Institute’s revenue flow. Areas of consideration should include:

- Resource Development
- Corporate Relations/Industrial Liaison Program
- Professional education
- Use of MIT space and facilities (such as auditoriums, dining areas, dormitories, athletic facilities) during the academic year, evenings, Summer
- Review of fee structures for use of Institute facilities/services and how these compare with those at peer institutions
- Possible OCW certificate, credit or degree programs, and other possible opportunities for distance learning
- Possible Summer school, extension or adult learning school
- Explore improved ways to connect with new donors, such as graduate alumni

With a few exceptions, the working group met regularly every Tuesday afternoons after the initial meeting Feb 17th, and we split into four subgroups that had additional deliberations of specific ideas:

1. Scalable Educational Platforms
2. Corporations and Government
3. Issue Based Groups and Individual Donors
4. Exploiting Physical Assets

In order to gain background information and understanding of the various revenue enhancement opportunities, we met with staff, faculty, and officials, including

- Education and OCW: Cecelia d’Oliveira, Executive Director of OCW, Steve Carson of OCW, Daniel Hastings, Dean for Undergraduate Education, Steven Eppinger, Deputy Dean Sloan, and Bhaskar Pant, Executive Director MIT Professional Education.
- Research: Claude Canizares, Vice President for Research and Associate Provost.
- Resource development: Jeff Newton, Vice President for Resource Development, Beth Raffeld, Karl Koster, and Rob Scott.
- Martin A. Schmidt, Associate Provost, and Steve Marsh and Michael Owu of the MIT real estate management office.

Additionally, Philip Khoury obtained information from Dean Michael Shinagel, Harvard Extension School, and Dean Jay Halfond of Boston University’s Metropolitan College.

1. Summary of Revenue Enhancement Opportunities
Table 1 lists ideas considered by the revenue enhancement working group. The revenue numbers are rough estimates of net revenues at steady state. Details of each idea with estimates, implementation considerations, and risks are provided in terms of “idea summary pages” in
Sections 3-6. A wide variety of ideas have been explored, and we present some of them in the spirit of promoting new ideas even if they don’t have the committee’s full backing, aren't right for MIT culturally, aren't executable in a manner that generates major revenues, or don't necessarily help the GIB. A short summary of the main ideas and recommendations are given in the following sections.

Table 1. Revenue Enhancement Ideas

<table>
<thead>
<tr>
<th>Section</th>
<th>Idea</th>
<th>Revenue Potential ($M/YR net)</th>
<th>Time to Implement</th>
<th>Rank</th>
<th>Summary/Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1</td>
<td>Online Freshmen Year</td>
<td>50-100</td>
<td>M</td>
<td>NR</td>
<td>Would radically change the MIT culture – not recommended</td>
</tr>
<tr>
<td>3.2</td>
<td>Selected Undergraduate Subjects for Credit via e-Learning. (See also Appendix B)</td>
<td>60</td>
<td>M</td>
<td>H</td>
<td>Web-based, for-credit, distance-education subjects to learners worldwide. The for-credit subjects would have 24/7 on-line TAs, homework submission and grading, and graded examinations.</td>
</tr>
<tr>
<td>3.3</td>
<td>E-Learning Masters Degrees (See also Appendix B)</td>
<td>30</td>
<td>M</td>
<td>H</td>
<td>Masters degrees at a distance (via asynchronous ‘e-learning’) to both individual learners and to groups of mid-career professionals at companies. On-line support would be offered by 24/7 graduate TA teams. An extensive market analysis, stratified appropriately by different market segments worldwide, would be needed.</td>
</tr>
</tbody>
</table>

1 S: short 1-3 years, M: moderate 3-5 years, L long term 5+ years
2 NR not recommended, H high, M Moderate, L Low
<table>
<thead>
<tr>
<th>Section</th>
<th>Idea</th>
<th>Revenue Potential (SM/YR net)</th>
<th>Time to Implement</th>
<th>Rank</th>
<th>Summary/Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.4</td>
<td>MIT Continuing Education Program (Extension Studies)</td>
<td>10’s</td>
<td>M</td>
<td>M</td>
<td>Develop full Continuing Education Degree or Certificate Program to be executed weekday evenings on the MIT campus and 24/7 online using a modified OCW platform and content. Non-regular faculty to teach on-campus courses.</td>
</tr>
<tr>
<td>3.5</td>
<td>MIT Lifetime Academy</td>
<td>9-45</td>
<td>L</td>
<td>M</td>
<td>MIT provides early, mid and late career education to advance alumni professionally and personally - in the form of short courses and modules, on campus and at a distance by e-learning.</td>
</tr>
<tr>
<td>3.6</td>
<td>Partnerships with Corporate Universities</td>
<td>&gt;10</td>
<td>S</td>
<td>M</td>
<td>MIT preferred partner to corporate universities with a strong scientific and technical orientation.</td>
</tr>
<tr>
<td>3.7</td>
<td>Executive/Professional Education to Enhance Corporate Partnerships (See also Appendix C)</td>
<td>20-30</td>
<td>L</td>
<td>H</td>
<td>Complement research in leading corporate relationships with significant custom executive/professional education programs.</td>
</tr>
<tr>
<td>3.8</td>
<td>MIT Energy Pathways</td>
<td>&lt; 10</td>
<td>M</td>
<td>M</td>
<td>A thematic set of educational offerings that cuts across a variety of delivery mechanisms proposed. This package of subjects/courseware could be exploited in several on/off campus revenue enhancement schemes.</td>
</tr>
<tr>
<td>Section</td>
<td>Idea</td>
<td>Revenue Potential ($M/YR net)</td>
<td>Time to Implement</td>
<td>Rank</td>
<td>Summary/Comments</td>
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<tr>
<td>4.1</td>
<td>Large Scale Institutional Initiatives</td>
<td>10’s³</td>
<td>M</td>
<td>M</td>
<td>Groups of faculty and researchers within MIT participate in large, interdisciplinary, institutional initiatives. Research income - modest GIB impact.</td>
</tr>
<tr>
<td>4.2</td>
<td>Lower Cost Recovery Rate for Foundation Research Grants (see also MIT Research Multiplier Fund below)</td>
<td>30+³</td>
<td>S</td>
<td>M</td>
<td>Policy changes to allow charging less than the rate established by ONR for recovery of overhead costs for research projects funded by foundations.</td>
</tr>
<tr>
<td>4.3</td>
<td>Foreign Government Collaborations</td>
<td>10’s³</td>
<td>M</td>
<td>M</td>
<td>International collaborations with foreign governments, in the style of SMA, MIT-Portugal, etc. Requirement for a fixed (say 10%) contribution to the GIB for all such agreements exceeding $10M/year.</td>
</tr>
<tr>
<td>4.4</td>
<td>Transition Laboratories</td>
<td>10’s</td>
<td>S</td>
<td>M</td>
<td>Establish labs and/or teams of faculty and researchers to perform applied research for industry. Primarily research support, but potential for contribution to GIB in form of fees and royalties.</td>
</tr>
<tr>
<td>4.5</td>
<td>Expansion of Office of Corporate Relations/Industrial Liaison Program</td>
<td>6</td>
<td>S</td>
<td>H</td>
<td>Increase the number of officers by 5 to expand ILP member portfolio by 50 to 230-240 companies to increase fees, research, and gifts plus corporate development for major MIT initiatives</td>
</tr>
</tbody>
</table>

³ Mostly research funds – modest contribution to GIB
<table>
<thead>
<tr>
<th>Section</th>
<th>Idea</th>
<th>Revenue Potential $(M/YR net)</th>
<th>Time to Implement</th>
<th>Rank</th>
<th>Summary/Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.1</td>
<td>MIT Research Multiplier Fund (related to Lower Cost Recovery Rate for Foundation Research Grants above)</td>
<td>&gt;10</td>
<td>M</td>
<td>M</td>
<td>Contributions from individual and corporate donors to match additional funds from a private foundation, supporting research, educational projects and other worthwhile initiatives at MIT. Potential for reduction of unrestricted gifts to MIT.</td>
</tr>
<tr>
<td>5.2</td>
<td>Expansion of the Resource Development Program</td>
<td>25</td>
<td>S</td>
<td>H</td>
<td>MIT's resource development is efficient but has significantly less staff than peer institutions. Officers currently manage 4,200 prospects, but the Institute has the potential to engage some 3,200 already identified additional major and principal gift prospects.</td>
</tr>
<tr>
<td>5.3</td>
<td>Expansion of Acceptable Gift Planning Vehicles</td>
<td>&gt;10</td>
<td>S</td>
<td>H</td>
<td>Generate incremental revenue by expanding its gift planning marketing efforts and gift acceptance policies to include additional instruments, e.g., charitable lead trusts, pooled income funds, and retained life estate gifts of real estate.</td>
</tr>
<tr>
<td>5.4</td>
<td>Marketing the MIT Brand</td>
<td>1-5</td>
<td>S</td>
<td>H</td>
<td>Devise a business model to vend Institute merchandise cost-effectively to specific, targeted markets.</td>
</tr>
<tr>
<td>5.5</td>
<td>Forging High-Return Alumni Connections: “William Barton Rogers Visitorships”</td>
<td>2</td>
<td>S</td>
<td>H</td>
<td>A visitorship for distinguished alumni, who, in conjunction with a significant gift would come to the MIT campus for an academic year.</td>
</tr>
<tr>
<td>Section</td>
<td>Idea</td>
<td>Revenue Potential ($M/YR net)</td>
<td>Time to Implement</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NR</td>
<td>Attract developer to build conference center (with hotel, retail space, and renovated MIT museum) where MIT provides conference content and outside party runs facility. MIT already has a very capable real estate development office that is profit driven.</td>
</tr>
<tr>
<td>5.1</td>
<td>Maximizing Use of MIT Owned Real Estate</td>
<td></td>
<td></td>
<td>S</td>
<td>Dorm rooms rented during the summer for academic conferences and other MIT-affiliated events during the summer.</td>
</tr>
<tr>
<td>6.2</td>
<td>Dorm Room Summer Rental</td>
<td>0.5/yr</td>
<td>S</td>
<td>M</td>
<td>MIT reinvents ‘roaming stacks’ in libraries by removing them, saving thousands of square feet of prime real estate for more productive purposes (including moving high-rent MIT offices onto campus). MIT and its partners change this library book delivery business model into a for-profit national company. This company is the first of several delivering routine services to colleges and universities.</td>
</tr>
<tr>
<td>6.3</td>
<td>Replace Library Roaming Stacks with new Business Model Phase 1</td>
<td>0.5/yr</td>
<td>S</td>
<td>M</td>
<td>(See Appendix D)</td>
</tr>
</tbody>
</table>

### 1.1. Scalable Educational Platforms

Figure 1 gives a schematic overview of the various educational revenue enhancement proposals in terms of the nature of the relationship and the degree of web based education. The placement with regard to “nature of sale” and degree of scalability is arbitrary, but we want to emphasize that there are choices on both dimensions. In general, the committee recommends reserving non-scalable (face to face) alternatives for high value bundling within relationships or for students
whom we select and want to have as alumni. MIT extension or summer school in 02139 is included as a low-leverage/scalability alternative without any relationship leverage on sale side, and for that reason, the committee recommend exploring the other more attractive e-learning options discussed in the following. The “freshman year on-line proposal” has considerable revenue potential and “thinking outside-of-box.” However, the majority of the committee finds it a too radical change in MIT culture and do not recommend further consideration of the idea.

* Also has significant benefits beyond direct revenue

Figure 1: Scalable Educational Platforms

For the e-learning degrees, MIT would implement web-based, for-credit, distance-education subjects to learners worldwide, using the lecture videos and other materials of OCW. OCW would remain free and Open Source. The for-credit subjects would offer 24/7 on-line TAs, homework submission and grading, and graded examinations. This option would be for transcript letter grades, either to individual students or to entire student ‘classes’ attending a tertiary education institution that partners with MIT to provide selected subjects via ‘e-learning.’ (In the latter case, there likely could be on-site tutors to assist local e-learning students.) Talented high school students could also take subjects for AP credit. It is estimated that 20 to 50 primarily undergraduate subjects would have a worldwide market sufficient to justify for-credit offerings. In addition to the estimated net revenue ($60M/year), the program would have the benefit of a large number of supported TAs for selected subjects, enhancing support for graduate students.

MIT could also offer Masters degrees at a distance to both individual learners and to groups of mid-career professionals at companies. The program would be implemented asynchronously, meaning that that each program’s MIT academic subjects could be taught at the regular times for
on-campus students and that the off-campus students would not place any additional burden on the live on-campus learning. Rigorous admissions requirements would be identical to those for on-campus Masters programs. Tuition would be the same as for on-campus students. The academic subjects and the degrees themselves would be identical to Masters programs currently given on campus, thereby bringing current programs to a higher scale level. On-line support would be offered by 24/7 graduate TA teams.

An extensive market analysis, stratified appropriately by different market segments worldwide, would be needed before committing to offer any given Masters program via e-learning. In the end, only a fraction of current on-campus programs would be selected for the distance-learning alternative. Given the problem of the research thesis, it is more likely that the selected programs will be professional Masters degrees of the “M. Eng. variety.” Besides the estimated net revenue of $30M/year, the program would create enhanced relationships with those companies and countries benefiting from the program. More detailed information about these programs is given in the idea summary pages in Section 3 and in Appendix B.

The on-line offering could be complemented by a full Continuing Education Degree or Certificate Program to be executed weekday evenings and summers on the MIT campus using a modified OCW platform and content. Such a program could be developed with a for profit partner, which would cover start up costs in return for a fee or percentage of the profit for a fixed period of time, i.e., until MIT can administer the entire program on its own. MIT faculty would have the option to teach subjects, but based on experience at similar programs (Boston University of Harvard University), it is expected that the majority of the on-campus teaching would be done by non-regular faculty. Such a program would provide a great service to the Boston-area community and could ultimately bring a net revenue of $10M+/year. However, considerable efforts would be involved in creating and staffing such a program in contrast to the on-line program that could be built around educational offerings already delivered at MIT. Therefore, we have placed only a moderate priority on the extension program.

The MIT Lifetime Academy is based on the concept that MIT Freshmen are “MIT learners for life.” After they graduate and their career commences, MIT provides early, mid and late career education to advance them professionally and personally. Specifically, MIT would deliver lifetime educational offerings on-line, perhaps blended or face to face (e.g. summers) to alumni and "proto alumni” to help them: a) remain up to date in their base disciplines, b) explore new areas of interest, c) deepen expertise in core or new areas, d) integrate scientific and technical expertise with leadership, organizational, and strategic perspectives matching career and life stage. Much of this interaction would in the form of short courses and modules, some on campus and the majority at a distance by e-learning. The Academy program would be consistent with MIT’s mission and draw on and strengthens on-campus offerings. Moreover, it would deepen alumni relationships.

MIT could build on its existing experience with executive and professional education to become a preferred partner to corporate universities with a strong scientific and technical focus. MIT could provide overall program design and selected graduate-level subjects or modules, and could offer certification (e.g. CEU’s) and/or credit in some cases. Graduate-level subjects would be available to employees of these firms to: a) remain up to date in their base disciplines, b) explore new areas of interest, c) deepen expertise in core or new areas, d) integrate scientific and technical expertise with leadership, organizational, and strategic perspectives matching career stage. Such a program, together with custom executive education, could be another element of
enhancing major corporate relationships centered on research. It would also be possible for MIT to engage in higher margin activity of designing and certifying corporate university content. The program would have the advantage of drawing upon and strengthening on-campus offerings as well as deepening existing corporate relationships.

MIT could also complement research in leading corporate relationships/partnerships with significant custom executive/professional education programs. This is currently highly successful in the case of the BP relationship (BP is a lead sponsor of MITEI and also is engaged in two major E/P programs that are joint ventures of Sloan and SoE -- the Projects and Engineering Academy and the Operations Academy).

Executive/professional education (E/P) can have greatest value to the client and greatest value capture by MIT when it is built into relationship with a corporation that also includes research support, engagement in and hiring from our degree programs, and other forms of support and engagement with MIT. Synergies among these different forms of engagement result in large part from higher clock speed and more measurable benefits of E/P activities, in contrast to the slower speed and often deeper but more diffuse benefits of research engagement. The greater value capture results from the fact that E/P allows the bundling of value pricing with cost recovery and philanthropic "pricing models." More detailed information about these E/P programs is given in the idea summary pages in Section 3 and in Appendix C.

The MIT Energy Pathways program would be a thematic set of educational offerings that cuts across a variety of delivery mechanisms proposed by the revenue enhancement working group. It is envisioned as an integrated program of learning for undergraduates, graduates, and eventually 9-12. It begins with a “Pathways” module that: 1) portrays the existing energy system of the US and other countries, the challenges to it, and the nature of the transformation that must take place in the coming years; 2) identifies points in the energy supply and use chains where major changes are likely to take place; 3) showcases individuals engaged in the large number of roles that comprise this transformation with an emphasis on the knowledge and skills they use and how they acquired them and; 4) a “roadmap” of energy-related subjects that will allow an individual student to select his or her own pathway. For MIT undergraduates, this “Pathways” introduction could be an IAP offering, is followed by a variety of energy-related subjects in various majors and the Energy Minor.

From a revenue enhancement perspective, this package of subjects/courseware could be exploited in a variety of ways. First and foremost, it will be made available freely through OCW, with incremental revenues coming in the form of government and private donor grants. Second, it could readily be transformed into “MIT-inside” subjects to be delivered in conjunction with other schools; as part of MIT’s offer to corporate universities; and through a set of face-to-face, blended, or online executive/professional programs offered directly to individuals by MIT. It could also be used as the platform for a grades 9-12 program that would emphasize science and social science fundamentals required for addressing energy and environmental challenges, where the revenue model once again would be grants.

The program would have the additional benefits of enhancing the visibility for MIT as a leader in energy research and education as well as provide significant improvement in breadth and quality of MIT energy-related courseware. It could also serves a model for other pathway programs build around other large institutional programmatic initiatives in for example: Environment,
Smart Infrastructure, Water, and Healthcare/Life Sciences/Life Engineering/Life Systems. Opportunities for such larger research initiatives are discussed in the next section.

1.2. Corporations and Government

The Corporations and Government subgroup identified and evaluated a set of ideas around four areas for potential revenue enhancement:

1. Organizing groupings of researchers across MIT to develop and implement large institutional programmatic initiatives (i.e., “consortia” like MITEI related to, for example: Environment, Smart Infrastructure, Water, and Healthcare/Life Sciences/Life Engineering/Life Systems) attractive to corporate and other institutional funding sources.
2. Adjusting the Institute’s overhead policy to optimize successful application for private foundation grants.
3. Cultivating further large-scale foreign government sponsored programs.
4. Establish a “transition laboratory or laboratories” to perform applied research for corporations with the potential for increased fees.

Significant impediments to implementing any of these ideas were identified by the subgroup. Two major conclusions were reached:

• For each of the possible revenue enhancing schemes, most of potential revenue enhancement impact would probably accrue to individual MIT investigators as research funding, not the GIB of MIT. This would likely be the case even with implementation of strict pricing policy guidelines for major programmatic initiatives and foreign government sponsored programs.

• Moreover, the contribution to the GIB during the next five years, when revenue contributions to the GIB will be needed the most, will be minimal or perhaps even negative, given the multi-year gestation period required for the formation of such large-scale initiatives.

The consensus opinion reached was that although there are great opportunities for increased research funding the impact on the GIB will be relatively minor. More details of the opportunities are given in the summary pages in Section 4.

1.3. Issue Based Groups and Individual Donors

The first idea in this group is closely related to the Institute’s policy on under-recovery of overhead also discussed by the Corporations and Government subgroup. In this case, MIT would create a new fund, the MIT Research Multiplier Fund, and seek individual and corporate donors to contribute to this fund. Each dollar given to this fund would be matched by at least one additional dollar from a private foundation, supporting research, educational projects and other worthwhile initiatives at MIT. This fund would essentially support overhead under-recovery, and its assets would be used to fund under recovery of indirect costs associated with gifts and grants of private foundations that sharply delimit allowable overhead expense – often to 15%.
The running hypothesis is that MIT currently does not seek all available private foundation grant funds each year, in the many millions of dollars, due to lack of overhead under-recovery funds. The **MIT Research Multiplier Fund** would correct that and allow MIT to increase revenue directed at research, education and related beneficial initiatives, perhaps in the tens of millions of dollars annually. The Fund would be especially beneficial to SHASS, where private foundation funds are often the only source of funding for research and educational projects. The School of Science would be another beneficiary. Donors whose contribution exceeds some value would be publicly listed along with the supporting foundation as co-supporters of the research.

**MIT's Resource Development operations**

MIT's Resource Development operations are highly efficient. However, our cash receipts are significantly less than those of peer institutions who invest in more staff. The Institute has the potential to engage additional major and principal gift prospects. Furthermore, the number of major gifts prospects continues to grow/be renewed each year, since MIT produces an extremely high percentage of financially successful alumni and parent prospects. MIT's brand is also highly attractive to non-alumni, generating another significant prospect pool. In short, MIT has large potential to develop even more prospects, and the Institute can better tap this market by investing in frontline fundraising staff.

MIT could also generate incremental revenue by expanding its **gift planning marketing efforts** and gift acceptance policies to include additional instruments, namely charitable lead trusts, pooled income funds, and retained life estate gifts of real estate. MIT could also generate incremental revenue by becoming more flexible in establishing rates for charitable remainder trusts and charitable gift annuities to accommodate younger donors. A brief survey of the websites of select peer institutions (Stanford, Princeton, Yale, Harvard) indicates that these giving vehicles are offered, and presumably worthwhile.

**MIT merchandising** is currently managed by the Technology Licensing Office (TLO), which maintains all registered marks (seal, logo, name, etc.) of the Institute. Merchandise is produced and sold through 85 licensee companies who pay a 7.5% royalty to the Institute. A small portion of royalty funds are used for TLO overhead and the rest is plowed into the "Trademark Scholarship Fund," used for undergraduate scholarships. All sales of athletic gear generate a 10% royalty, which goes directly back to DAPER. All proceeds from class rings go directly back to the class.

TLO relies almost solely on the MIT COOP in Kendall Square to promote its merchandise for the purposes of MIT students and alumni. In order to expand **MIT merchandising**, MIT could devise a business model to vend Institute merchandise cost-effectively to specific, targeted markets through several options:

- Increase the number of licensed vendors and leverage philanthropic partnerships to get MIT products in more stores.
- Start an undergraduate-run business to produce and distribute merchandise on campus and at MIT-sponsored events (e.g. commencement, admissions fairs, public festivals, Institute contests, K-12 programs, MIT Museum, etc.).
- Maintain a Web page that is easily accessible from the MIT homepage and can be easily accessed by Alumni.
• a link to the Web page on public areas of MIT Web site that get heavy traffic (e.g. OCW).
• Develop a seasonal catalogue to be mailed to Alumni and parents around the holidays and commencement time.

MIT’s alumni form one of the most materially successful demographic groups that can be meaningfully distinguished. At the same time, MIT alumni have often incredibly strong senses of connection to the Institute, remembering their time here as the foundational experience of their very successful subsequent careers. Based on anecdotal evidence, there is a deep well of desire for renewed connections to MIT that go well beyond involvement in traditional alumni activities, gifts, and short visits to 02139.

Because of their successful careers, many MIT alumni can retire or grant themselves a sabbatical from their day jobs much earlier in their career-cycle than ordinary retirement. MIT could put in place a visitorship (“William Barton Rogers Visitorship”) for distinguished alumni, who, in conjunction with a significant gift on the order of $100,000 (or what the Development Office concludes the market will bear), would come to the MIT campus for an academic year.

The program to welcome them could be modeled on the Knight Science Journalism Fellowship structure: a common space and office support, a schedule of seminars and other events. In addition, depending on individual Visitor interests, each participant could/would be matched with a department, laboratory or program in whose area they wished to concentrate. Some formula for sharing the gift with such co-hosting venues would need to be worked out. The key to this idea is to give these visitors high profile, considerable access, social interaction with MIT’s finest, both in terms of faculty and the undergraduates whose are living now the experience many potential participants in this program regard as one of the best periods of their lives.

Individual departments and other relevant units could also be invited to set up a visitorship program for mid-to-end career alumni of their own, for durations to vary from short to full years. In something like a reciprocal proportion, funds attracted under this scheme could be shared between the unit and the GIB. Visits could be of any length, but this is an immersion experience that would reward shorter stays. We recommend that such funds for both versions be targeted to endowment rather than operating expenses, both to strengthen long-term operations and to avoid the overhang of soft-funded projects should visitors fail to materialize in any year. Additional details on these ideas are given in Section 5.

1.4. Exploiting Physical Assets
We discussed ideas for maximize return from MIT owned real estate (conference center, hotel, mixed use space, …) with Steve Marsh and Michael Owu at the MIT real estate management office. At the present time MIT owns a substantial amount of commercial real estate. The total market demand for commercial real estate in Cambridge is 300K sq. ft./year. A conference center is a loss leader. Hotel rooms are the money-maker. It costs about $300K/bed to build and the market now is returning about $200K/beds so no one wants to build a hotel now. Additional ideas for use of MIT space were discussed. The bottom line is that MIT has a very
capable real estate development office that is profit driven. In the current economical situation the opportunities for enhancing revenue for the GIB are limited for the near term.

**Summer rental of dormitory rooms** already takes place, at least at a small scale for student visitors, high school students, and undergraduate students who stay on campus over the summer for various academic programs or research opportunities. There is a potential for small revenue enhancement (<$0.5 M/year) by offering vacant rooms for academic conferences to be held in MIT facilities. However, this opportunity might not be worth the potential complications for regular MIT undergraduates and yearly dorm maintenance.

In another potential use of MIT physical space, MIT could reinvents ‘roaming stacks’ in libraries by removing them, saving thousands of square feet of prime real estate for more productive purposes, including moving high-rent MIT offices onto campus. Out-of-copyright books would be available free on line via Google. In-copyright books can be browsed on line and ordered on line from a near-Cambridge low-rent warehouse that operates at Amazon.com picking efficiency and delivered to the MIT campus once or twice per day, either picked up by the borrower at a central location or delivered to the borrower the next day in Institute Mail. MIT could attempt to do this collaboratively with several or many other Boston-area colleges and universities.

This idea could be developed further into a new business opportunity. Specifically, MIT and its partners could change this library book delivery business model into a for-profit national company. This company would be the first of several delivering routine services to colleges and universities. Potential annual revenues of these companies are hundreds of millions of dollars per year. Further descriptions of these ideas are given in the summary pages in Section 6 and in Appendix D.
2. Summary Idea Pages: Scalable Educational Platforms

2.1. Online Freshmen Year

Overview
Status: Idea
Priority: Not recommended
Time to implement: short once the faculty goes for it
Cost to implement: Moderate
Revenue potential,
   Years 1-2: Moderate;
   Years > 2: Very high

Summary
MIT will offer the freshmen year online. Courses in Math, Physics, Chemistry, Biology, (and others, like writing) will be offered online. Most of the lectures will be taped. No freshmen year at MIT. Charge $1,000 per course. Offer it worldwide (estimated market: 100,000 students/year or, say 10,000 per course); use performance as one of the MIT admission criteria to the sophomore year. Can be applied in stages

Benefits
Estimated revenue: $50 - $100 million/yr
Budget category for revenue: GIB
Will fund hundreds of TA slots; will make rock stars out of the freshmen year teachers
Will allow an increase in the sophomore — senior UG population
Infrastructure can be used for other distance education purposes
MIT will get several smart students who will take this in high school and do the MIT SB in three years

Costs
A few million dollars in development costs; each TA can serve about 200 students @ $25K/course for a total of $1.25 million/ 10,000 students course; continued web and communications support required at, say $5 million/yr

Risks
Size of the market
Competitive response from other schools

Implementation timeline and challenges
Getting it through the faculty will be the toughest challenge (just like any other big idea)

Comments: This can be started without canceling the freshmen year in order to test the market.
2.2. Selected Undergraduate Subjects for Credit via e-Learning.

Overview
Status: Idea
Priority: High
Time to implement: Short to Medium
Cost to implement: Moderate
Revenue potential,
   Years 1-5: Moderate;
   Years > 5: High

Summary
MIT implements web-based, for-credit, distance-education subjects to learners worldwide, using the lecture videos and other materials of OCW. While OCW remains free and Open Source, the for-credit subjects would have 24/7 on-line TAs, homework submission and grading, and graded examinations. It is estimated that 20 to 50 primarily undergraduate subjects would have a worldwide market sufficient to justify for-credit offerings. The for-credit option would be for transcript letter grades, either to individual students or to entire student ‘classes’ attending a tertiary education institution that partners with MIT to provide selected subjects via ‘e-learning.’ (In the latter case, there likely would be on-site tutors to assist local e-learning students.)

Benefits
Estimated revenue: gross revenue ballpark estimate: $120 million/yr. Expenses up to half of that.
Budget category for revenue: Provost and Schools
Other benefits: Huge number of supported TAs for selected subjects, enhancing support for graduate students.
Potential for providing funding for OCW as front end.
Development of trusting relationships with partnering emerging universities in developing countries.

Costs
Estimated implementation costs: Moderate, requires on campus support for web pages, recordings, TAs, but builds on existing subjects and faculty efforts. Marketing costs unknown.

Risks
Potential devaluation of MIT brand? Certification of identity of students at a distance.
Implementation timeline and challenges: 2 years. Challenge: a conservative MIT faculty.
Other information. Begin by building on existing OCW & professional education infrastructure.
Comments: Appendix B elaborates on these ideas & related e-learning possibilities.
2.3. E-Learning Masters Degrees

Overview
Status: Idea
Priority: High
Time to implement: Medium
Cost to implement: Moderate
Revenue potential, Years 1-5: Moderate; Years >5: High

Summary
MIT offers masters degrees at a distance (via asynchronous ‘e-learning’) to both individual learners and to groups of mid-career professionals at companies. Rigorous admissions requirements would be identical to those for on-campus Masters programs. Tuition would be the same as for on-campus students. The academic subjects and the degrees themselves would be identical to Masters programs currently given on campus, thereby bringing current programs to a higher scale level. On-line support would be offered by 24/7 graduate TA teams. An extensive market analysis, stratified appropriately by different market segments worldwide, would be taken before committing to offer any given Masters program via e-learning. In the end, only a fraction of current on-campus programs would be selected for the distance-learning alternative. Given the problem of the research thesis, it is more likely that the selected programs will be professional masters degrees, of the “MEng variety.”

Benefits
Estimated revenue: 10 Masters programs with 200 students each. Suppose $15,000/student is net revenue. (Expenses to subtract from gross revenue: TA, admin and technology support). Net revenue estimate = 10*200*15,000= $30,000,000/yr.

Budget category for revenue: Split: Provost and Schools offering the programs

Other benefits: Good will and enhanced trusting relationships in those companies and countries benefiting from the program. Asynchronous e-learning means that each program’s MIT academic subjects can be taught at the regular times for on-campus students and that the off-campus students do not place any additional burden on the live on-campus learning.

Costs: Estimated implementation costs: Moderate, requires on campus support for web pages, recordings, TAs, but builds on existing academic subjects and faculty efforts

Risks: Potential devaluation of MIT brand? Low risk if this is done carefully, as Stanford has incurred no diminution of its brand from offering engineering masters degrees to Silicon Valley engineers (and now worldwide) for about 35 years.

Implementation timeline and challenges: Most likely requires a new office of distance learning programs to design, organize and manage. But the program could be up and running within 12 months.

Comments: Appendix B further elaborates on these ideas & related e-learning possibilities. It should be read in conjunction with this template.
2.4. MIT Continuing Education Program (Extension Studies)

Overview
Status: Idea:
Priority: Moderate
Time to implement: 3-5 years.
Cost to implement: considerable additional financial cost, significant time commitment of faculty (not necessarily MIT faculty) but affiliates) and staff.
Revenue potential,
Years 1-5: $2M-5M/year in revenues, with significant contribution to GIB.
Years > 5: $10M+/year in revenues, with significant contribution to GIB.

Summary
Develop full Continuing Education Degree or Certificate Program to be executed weekday evenings on the MIT campus and 24/7 online using a modified OCW platform and content. Could be developed with a for profit partner which would cover start up costs in return for a fee or percentage of the profit for a fixed period of time, ie, until MIT can administer the entire program on its own. Faculty would oversee course design for distance learning component but teaching/tutorial instruction by TAs. Non-regular faculty would teach on-campus courses.

Benefits
Estimated revenue: $10M+/year. Online component could bring in considerable net profits.
Budget category for revenue: entirely educational, significant contribution to GIB.
Other benefits: MIT provides great service to the Boston-area community and enhances reputation world wide by building on the OCW platform to deliver high quality distance learning to world.

Costs
Estimated implementation costs: TBD (400 hours required to design and implement each new online course).

Risks
Generating faculty support and commitment. Late entrance into the market, considerable local competition (Harvard, BU, others)
Implementation timeline and challenges
The time it takes to establish such an initiative is significant.

Other information

Comments

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2.5. MIT Lifetime Academy

Overview

Idea: MIT Freshmen are “MIT learners for life.” After they graduate and their career commences, MIT provides early, mid and late career education to advance them professionally and personally. Much of this is in the form of short courses and modules, some on campus and the majority at a distance by e-learning.

Status: no lifetime program for alumni/proto alumni (like our alumni in aptitude, education, interests), but many elements in place.

Priority: Moderate

Time to implement: Would require some design, dedicated staff. 1 year to first launch, 3 yrs to full operation.

Cost to implement: $1-5 million prior to any revenues.

Revenue potential: 18 to 90 million gross, 9 to 45 million net

Summary

MIT will deliver lifetime educational offerings on-line, perhaps blended or face to face (e.g. summers) to alumni and "proto alumni" to help them: a) remain up to date in their base disciplines, b) explore new areas of interest, c) deepen expertise in core or new areas, 4) integrate scientific and technical expertise with leadership, organizational, and strategic perspectives matching career and life stage.

Benefits

In steady state, “lifetime tuition” equal to “on site tuition” if spread over 25 years, would be 16% of annual tuition per year for “fully participating alumni.” Would only attract fraction of MIT grads, but could extend to proto alumni. If FTE participants were equal to 10% of students, gross revenues would be $18 million, if 50% would be $90 million.

Consistent with mission. Draws on and strengthens on-campus offerings.

Deepens alumni relationships.

Costs

Investment beyond OCW in basic subject content and delivery

Risks

Done poorly, this could hurt MIT brand

Implementation timeline and challenges

Requires focus and determination like everything else! Pricing offers several innovative options. One would be to sign a lifetime educational contract with MIT within N years of graduation, the annual fees perhaps scaled over time to anticipated earnings. Signing such a commitment early would offer significant discounts over a la carte purchasing of educational services. Of course, any such long time commitment would have to include ‘out’ clauses, minimum guarantees on educational offerings, etc.
2.6. Partnerships with Corporate Universities

Overview

Status: Many elements currently provided to various firms, but not brought together within a single relationship

Priority: Moderate

Time to implement: short to begin, though requires time to scale given need to build up staff, faculty capability

Cost to implement: None in advance, can be developed within initial engagements.

Revenue potential: GIB equivalent contribution (provost and school level) $10 million/yr. in early years, substantially higher later.

Summary

MIT will seek to become a preferred partner to corporate universities with a strong scientific and technical focus. It will provide overall program design and selected graduate-level subjects or modules, and may offer certification (e.g. CEU’s) and/or credit in some cases. Graduate-level subjects would be available to employees of these firms to: a) remain up to date in their base disciplines, b) explore new areas of interest, c) deepen expertise in core or new areas, 4) integrate scientific and technical expertise with leadership, organizational, and strategic perspectives matching career stage.

This (together with custom executive education) is another element of enhancing major corporate relationships that are centered on research.

Benefits

Assuming 10 major clients “buying” 20 subjects a year, the gross proceeds could be $30 million a year with a GIB contribution of $10 million (or perhaps greater given the economies of scale involved). Could also engage in higher margin activity of designing and certifying corporate university content.

Budget category for revenue: GIB and school-level contribution

Consistent with mission. Draws on and strengthens on-campus offerings.

Deepens existing corporate relationships.

Costs

Investment beyond OCW in basic subject content and delivery.

Significant scaling of SoE Office of professional education, some additional scaling of Sloan Executive Education Office, creation of similar capabilities for other three schools.

Risks

Competition

Diversion of attention of lead faculty

Implementation timeline and challenges: Requires focus and determination like everything else!
### 2.7. Executive/Professional Education to Enhance Corporate Partnerships

**Overview**

Status: Highly successful in one case  
Priority: High  
Time to implement: short to begin, though requires time to scale given need to build up staff, faculty capability  
Cost to implement: Significant engagement of lead faculty, though compensation is “off-load.”  
Revenue growth

**Summary**

MIT will seek to complement research in leading corporate relationships/partnerships with significant custom executive/professional education programs. This is currently highly successful in the case of the BP relationship (BP is a lead sponsor of MITEI and also is engaged in two major E/P programs that are joint ventures of Sloan and SoE -- the Projects and Engineering Academy and the Operations Academy).

Executive/professional education (E/P) can have greatest value to the client and greatest value capture by MIT when it is built into relationship with a corporation that also includes research support, engagement in and hiring from our degree programs, and other forms of support and engagement with MIT. Synergies among these different forms of engagement result in large part from higher clockspeed and more measurable benefits of E/P activities, in contrast to the slower speed and often deeper but more diffuse benefits of research engagement.

**Benefits**

Estimated revenue: $20 - $30million/yr  
Budget category for revenue: GIB and school-level contribution  
Will enhance quality of research relationships, improve integration and utility of ‘on-campus” teaching, and provide faculty with integrative real world perspectives.

**Costs**

Significant scaling of SoE Office of professional education, some additional scaling of Sloan Executive Education Office, creation of similar capabilities for other three schools.

**Risks**

Competition  
Diversion of attention of lead faculty

**Implementation timeline and challenges:** Require focus and determination like everything else!
2.8. MIT Energy Pathways

Overview

Status: Idea
Priority: Moderate
Time to implement: Medium
Cost to implement: Low millions
Revenue potential: Moderate to high depending on breadth of revenue-seeking exploitation. Also very important for national, MIT core mission and visibility.

Summary

MIT Energy Pathways is a thematic set of educational offerings that cuts across a variety of delivery mechanisms proposed by the revenue enhancement working group.

The revolution in energy sources, conversion and distribution, and uses that that must take place in the coming decades will require a step function in human ingenuity grounded in scientific foundations, technology/engineering and social sciences as they relate to energy and associated environmental challenges.

Energy Pathways is envisioned as an integrated program of learning for undergraduates, graduates, and eventually 9-12. It begins with a “Pathways” module that: 1) portrays the existing energy system of the US and other countries, the challenges to it, and the nature of the transformation that must take place in the coming years; 2) identifies points in the energy supply and use chains where major changes are likely to take place; 3) showcases individuals engaged in the large number of roles that comprise this transformation with an emphasis on the knowledge and skills they use and how they acquired them and; 4) a “roadmap” of energy-related subjects that will allow an individual student to select his or her own pathway. For MIT undergraduates, this “Pathways” introduction could be an IAP offering, is followed by a variety of energy-related subjects in various majors and the Energy Minor.

From a revenue enhancement perspective, this package of subjects/courseware could be exploited in a variety of ways. First and foremost, it will be made available freely through OCW, with incremental revenues coming in the form of government and private donor grants. Second, it could readily be transformed into “MIT-inside” subjects to be delivered in conjunction with other schools; as part of MIT’s offer to corporate universities; and through a set of face-to-face, blended, or online executive/professional programs offered directly to individuals by MIT. It could also be used as the platform for a grades 9-12 program that would emphasize science and

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4 The guiding vision for energy-focused education at MIT, developed over the past year by the Energy Education Task Force (EETF), is that an MIT graduate focusing on energy will have a solid base in a discipline or professional field relevant to energy (through his or her major area of study), combined with a broad understanding of the. She/he will have specific expertise and the understanding of the broader context, tradeoffs, and realms of action required to create, evaluate, and advocate meaningful solutions to these challenges and effect change.
social science fundamentals required for addressing energy and environmental challenges, where
the revenue model once again would be grants.

Benefits
Estimated revenue: 10 million in grants for development. Wide variety of possible revenue
streams depending on model(s) chosen.
Budget category for revenue: Split: Provost and Schools offering the programs
Other benefits: Visibility for MIT as a leader in energy research and education.
Significant improvement in breadth and quality of MIT energy-related courseware.
National and global impact.

Costs
Estimated implementation costs: Moderate to high, at a minimum requires additional
development of MIT subjects and costs of posting and streaming. Much higher costs if
"Pathways” introduction is to be developed with high production values to have maximum reach
and impact, e.g. a series of Nova-like programs followed by blended modules. Costs of
converting into blended delivery modules (see e.g. the Blossom program)

Risks
That MIT will not move quickly enough to establish leadership in this domain.
Lack of vision, focus, and follow through.
Silos.

Implementation timeline and challenges: Like MITei and the Energy Minor, this program cuts
across all schools and many departments. Could be developed as joint venture of MITEI and
OCW, but requires deep engagement throughout the Institute.
3. Summary Idea Pages: Corporations and Government

3.1. Large Scale Institutional Initiatives

Overview

Status: Idea
Priority: Moderate
Time to implement: 3-5 years.
Cost to implement: Low additional financial cost, significant time commitment of faculty and staff.
Revenue potential,

Years 1-5: $10s of millions/year in research, minimal-modest contribution to GIB.
Years > 5: $10s of millions/year in research, minimal-modest contribution to GIB.

Summary

- Organize groups of faculty and researchers within MIT to participate in large, interdisciplinary, institutional initiatives (modeled after MITEI and others) potentially around: environment, water, smart infrastructure, and healthcare/life sciences/life engineering/life systems.

Benefits

Estimated revenue: $10s of millions/year.
Budget category for revenue: majority research, some unrestricted gifts, minimal-modest contribution to GIB.
Other benefits: Continued strong contribution of MIT to addressing societal challenges. International and national profile of MIT enhanced. Attracts top student, faculty, and staff talent.

Costs

Estimated implementation costs: Low.

Risks

Generating faculty support and commitment.

Implementation timeline and challenges

Such large-scale initiatives would take a considerable amount of time to establish. For example, the formation MITEI began in late 2004 when President Hockfield began to informally canvas faculty about the possibility of a campus wide energy initiative. The Energy Research Council was appointed in June 2005 to develop the plan, and it took approximately one year (May 2006) for the ERC to issue its report. A several-month process of review/feedback followed. In September 2006 MITEI was formally announced. Importantly, however, the most significant financial commitments to MITEI (and these were mostly corporate commitments) were not secured until late 2007 and in 2008. So in the case of this example of establishing a large scale institutional initiative, the time from inception (late 2004) to stable, funded-status was
approximately 4 years (mid-2008). Therefore, a conservative estimate of “time to implementation” for any new initiatives of similar magnitude would likely be 3-5 years. This is consistent with the launch of other initiatives, from corporate partnerships to international institutional initiatives.

Other information

Apart from the contribution to MIT’s overall research funding that such initiatives provide, their contribution to the GIB is very limited relative to their size - as currently structured - and is likely under most scenarios to be in the $100Ks/year levels per initiative. In the case of MITEI only a small fraction of their revenues contribute to the bottom line of the GIB. The fellowship support in MITEI may serve to offset GIB commitments for fellowship support that might otherwise have to be made, while the ILP fee in MITEI membership, at $50K-60K per company, contributes modestly in aggregate to the GIB. (Note: total ILP program contribution to GIB in FY08 from its 194 members, after faculty revenue sharing distributions, was $2.3M on revenues of $9.6M.) In the most optimistic circumstances, even after implementing several such agreements of this size, calculations would suggest contributions to the GIB of only several $100Ks per year. The sub-group considered the feasibility of requiring that the pricing to sponsors of such initiatives would include a certain percentage for the GIB. However it is very uncertain that the market would be willing to accept such “premium pricing” in most cases. For example with the MITEI corporate members the greatest resistance to the bundled pricing has come with respect to funding the fellowships.

A second crucial consideration is how to develop the necessary faculty support to launch such a project. With a fixed number of faculty and no relief in the senior researchers-to-faculty ratio, the overall capacity of the Institute to support multiple new large-scale programs is limited. In some disciplines, this limit has probably already been reached. One other option being discussed in the sub group would be the feasibility of enlarging the pool of non-faculty senior researchers to participate in such initiatives.

Comments
3.2. Lower Cost Recovery Rate for Foundation Research Grants

Overview

Status: Idea
Priority: Moderate
Time to implement: Various options, ranging from few months to 2 years.
Cost to implement: Needs detailed analysis.
Revenue potential,

- Years 1-5: Moderate
- Years >5: Moderate

Summary

- Examination of the actual cost recovery rules to determine if there are any possible changes for foundation support.
- Adjust policy to allow charging less than the rate established by ONR for recovery of overhead costs for research projects funded by foundations.
- Establish a fund at MIT to offset internal cost recovery.

Benefits

Estimated revenue: Potentially >$30M+/year.
Budget category for revenue: Research.
Other benefits: Increased research revenue and greater leverage for recruitment and retention of faculty.

Costs

Estimated implementation costs: Low

Risks

Subject to ONR approval?

Implementation timeline and challenges

If internal legal review of Office of Management and Budget (OMB) requirements reveals that private foundations are exempt from ONR cost recovery requirements, effect could be immediate. If negotiation is required with ONR or via creation of internal offset fund, implementation could take several months to 2 years.

Other information

Foundations typically cap the amount they are willing to pay on overhead for research grants at about 10-15%. MIT practice has been that the overhead rate charged to non-government sponsors be no less than the negotiated government rate of ~68%. The result is that MIT researchers either do not apply for or fail to secure many grants from foundations wanting to give
significant gifts to be used for research purposes (because MIT cannot make-up the difference between what the foundation is willing to pay and what ONR requires for overhead recovery).

A first step to address this would involve an examination of the actual cost recovery rules to determine if there are any possible changes for foundations.

Another possibility would be to attempt to negotiate with ONR for a lower rate to be applied to research funded by private foundations.

Success with either of these options could result in more research revenue from foundation sources.

A more complicated approach would be for the Institute to accept foundation grants without requiring complete cost recovery, a method Stanford is known to practice. Stanford requires faculty to get at least 8% from foundation sponsors, as compared to the full 68% overhead rate required by ONR, and then uses re-allocates internal funds to make up the difference. At MIT such a policy would require the creation of a fund that would be used specifically for this purpose. (A side benefit to unrestricting research sponsorship in this way is the increased opportunities faculty have to raise research dollars, which creates an advantage for the school in terms of faculty recruitment and retention.)

Comments
3.3. Foreign Government Collaborations

Overview
Status: Idea
Priority: Moderate
Time to implement: 3-5 years
Cost to implement: Low additional financial cost, significant time commitment of faculty and staff.
Revenue potential,
Years 1-5: $10s of millions/year in research, modest contribution to GIB.
Years > 5: $10s of millions/year in research, modest contribution to GIB.

Summary
- Pursue international collaborations with foreign governments, in the style of SMA, SMART, CMI, Masdar, MIT-Portugal, MIT-Zaragoza, etc.
- Standardize the requirement for a fixed (say 10%) contribution to the GIB for all such agreements exceeding $10M/year.

Benefits
Estimated revenue: $10s of millions/year.
Budget category for revenue: majority research, some unrestricted gifts, modest contribution to GIB.
Other benefits: Greater visibility for MIT internationally and opportunity for faculty to obtain additional research funding, for Institute to obtain endowment, gift and/or unrestricted and/or GIB revenues.

Costs
Estimated implementation costs: Moderate.

Risks
Over-exposure of MIT brand
Insufficient faculty support and commitment; stretching faculty/researchers too thin.

Implementation timeline and challenges
- Based on previous negotiations of this type, the time estimate to implement such agreements is in the several years range.
- Current global economic conditions may hinder prospects for finding governments with the necessary resources to fund such contracts.

Other information
Faculty availability is already limited for projects of this scope.
Comments

Opportunities for additional large scale, international collaborations with national and regional
governments exist. Based on the models of MIT’s existing agreements of this type, a significant
component of any new agreement could involve considerable investment of MIT faculty and
staff time (travel, education, research, etc.). For example, SMA demands the involvement of ~50
MIT faculty from six Departments and two Schools, while the SMART Centre agreement
requires each participating MIT faculty member to reside in Singapore for a total of one year
spread out over a five-year period. Finding a sufficient number of faculty who are willing to
make such additional commitments will probably be difficult since experience with organizing
faculty teams to participate in the SMART initiative shows that MIT is close to capacity for
collaborations of this type, especially in the Schools of Science and Engineering.

If new agreements are pursued, MIT might consider embedding a separate line item into each
contract that would provide a set fixed percentage to go to the GIB. Contributions to the GIB
from previously negotiated contracts of this sort are not consistent. In the case of many of these
contracts it was difficult for the sub group to get a clear understanding of what the actual
financial contribution to the GIB was for any one of them. Understanding the financial
contributions of such international collaborations to the GIB would be useful and necessary to
further consideration of this proposal.
3.4. Transition Laboratories

Overview
Status: Idea.
Priority: Moderate.
Time to implement: 1-2 years.
Cost to implement: Low.
Revenue potential,
   Years 1-5: Moderate.
   Years > 5: Moderate.

Summary
- Establish labs and/or teams of faculty and researchers to perform applied research for industry.

Benefits
Estimated revenue: $10s of millions/year.
Budget category for revenue: majority research, potential for contribution to GIB in form of fees and royalties.
Other benefits: Opportunities to collaborate on applied research projects can interest a broader spectrum of industry that would otherwise not be interested in participating in basic research programs. This would include companies seeking ways to reduce R&D costs and accelerate new products/services.

Costs
Estimated implementation costs: Significant.

Risks
The possibility that retaining control over IP would not be a feasible arrangement in directed research that is performed under this model.

Implementation timeline and challenges
- MIT transition labs would be competing directly with product development consulting companies.
- Justifying transition labs as non-profit might be difficult and would require management completely separate from MIT.
- Collecting royalties might be unrealistic. The product development consulting companies’ model is to assign patents to clients rather than charging royalties.

Other information
Georgia Tech. has a similar program that is considered the university’s “applied research arm,” the Georgia Tech. Research Institute (GTRI). In principle, GTRI is open to investment from
industry and foundations, but its primary customer is the US Federal Government, which is the source of approximately 70% of GTRI’s clients. (GTRI’s practice with respect to IP ownership and license grants, they have reported, is largely the same as MIT’s.)

Comments

This concept has been articulated over the years on numerous occasions. Recent proposals would postulate that transition labs would own or lease space from MIT, have minimal administrative staff, provide shared infrastructure, and own patents on some developed technology. Most researchers would come from MIT on a part-time or temporary basis. A joint MIT-company member board would agree on the scope of work. Prototype products would be provided to member companies for attractive royalty rates depending on the level of project-specific investment made.
3.5. Expansion of Office of Corporate Relations/Industrial Liaison Program

Overview

Status: Idea
Priority: High
Time to implement: 1-2 years.
Cost to implement: Moderate.

Revenue potential,

Years 1-5: With 5 new ILOs, $6.4M/year in revenues: $550-600K/ILO/year (ILP fees) + $675K/ILO/year (research/gifts) + corporate development support for major MIT initiatives.

Years > 5: With 5 new ILOs, $6.4M/year in revenues: $550-600K/ILO/year (ILP fees) + $675K/ILO/year (research/gifts) + corporate development support for major MIT initiatives.

Summary

- Increase the number of ILOs by 5 to expand ILP member portfolio by 50, to 230-240 companies. Additional membership would generate ~$3M/year in fees and potentially another ~$3.4M/year in research/gifts plus corporate development support for major MIT initiatives (like MITEI) or targeted corporate fundraising opportunities (e.g., expendable graduate fellowship support from distinct industry sectors). See Templates 4.1 and 4.3.

Benefits

Estimated revenue: ~$3M/year in ILP fees with estimated 40% ($1.2M/year) net to GIB plus an estimated $3.4M/year in gifts/research commitments.

Budget category for revenue: unrestricted funds, sponsored research, gifts

Other benefits: Historically, approximately 50% of ILP companies make gifts and/or sponsor research at MIT. Increasing the ILP portfolio will create more opportunities for companies to make additional investments at MIT.

Costs

Estimated implementation costs: Moderate. Salary and benefits of ~$130K/year per ILO, plus operational costs associated with managing corporate relationships (travel, events, etc.). Requires adequate salaries to attract and retain qualified staff.

Risks

- Potential of continued deterioration in the global economy.
- Competition from other leading research universities offering similar services at low/no cost to corporations.
- Staff attraction and retention.

Implementation timeline and challenges

- The approximate timeline to hire and orient additional ILOs is 1-2 years.

Other information
The Office Corporate Relations and the ILP are net contributors to MIT’s GIB. These contributions to the Institute’s revenue streams are realized through ILP fees, the attainment of research and gift funding, and support of Institutional initiatives. In FY08 ILP membership fees totaled $9.6M in unrestricted support. (Net contribution as a percentage of expenditures was 39%). Since FY03 the ILP increased membership by 32 companies net, and revenues by $1.98M, a 26% increase. ILP companies are regularly responsible for one third of all corporate research expenditures at MIT and about one fifth of all corporate gifts. OCR also plays a role in securing contributions to major Institute research and gift priorities, most recently, for example, with MITEI. Expansion of OCR/ILP can be expected to have a positive impact on all of these revenue streams.

Comments
An additional key benefit to expanding OCR/ILP staff would be the office’s increased availability to support faculty lead research initiatives. (These topics are covered in templates 4.1 and 4.3.)
4. Summary Idea Pages: Issue Based Groups and Individual Donors

4.1. MIT Research Multiplier Fund

Overview
Status: Idea
Priority: Moderate
Time to implement: Medium
Cost to implement: Low
Revenue potential,
Years 1 - 5: High;
Years > 5: High

Summary
MIT creates a new fund, the MIT Research Multiplier Fund, and seeks individual and corporate donors to contribute to this fund. Each dollar given to this fund would be matched by at least one additional dollar from a private foundation, supporting research, educational projects and other worthwhile initiatives at MIT. This fund is essentially to support overhead under-recovery, and its assets would be used to fund under recovery of indirect costs associated with gifts and grants of private foundations that sharply delimit allowable overhead expense – often to 15%. The running hypothesis is that MIT currently does not seek all available private foundation grant funds each year, in the many millions of dollars, due to lack of overhead under-recovery funds. The MIT Research Multiplier Fund would correct that and allow MIT to increase revenue directed at research, education and related beneficial initiatives, perhaps in the tens of millions of dollars annually. The Fund would be especially beneficial to SHASS, where private foundation funds are often the only source of funding for research and educational projects. Donors whose contribution exceeds some value \( X \) (to be determined) will be publicly listed along with the supporting foundation as co-supporters of the research.

Benefits: Estimated revenue: guess of at least $10 million/yr
Budget category for revenue: Provost and Schools (indirect to GIB)
Other benefits: Helping those faculty members and schools that need to rely on private foundation grants and gifts.

Costs: Minimal implementation costs. Need lawyers and accountants to assure that this is done correctly. Need market outreach people to explain this new alternative for charitable giving to MIT.

Risks: Reduction of unrestricted gifts to MIT. Attitudinal risk, both within and outside MIT. This is not a ‘slush fund,’ but rather a real positively focused fund whose contributions are matched by private foundations on at least a dollar for dollar basis. To avoid any misinterpretation, MIT should maintain its current level of overhead under-recovery, so that donations to this new fund are a net new enabler of additional MIT research.

Implementation timeline and challenges: Can do it quickly!
Comments: Other universities apparently have no problem accepting gifts and grants from private foundations that limit overhead expenses. It is time for MIT to create a way to do the same.
4.2. Expansion of the Resource Development Program

Overview

Status: Idea
Priority: High
Time to Implement: 2-3 years
Cost to Implement: High
Revenue Potential:
- Years 1-3: estimated $100-500k/gift officer/yr
- Years > 3: estimated $1.5M+/gift officer/yr

Summary

MIT's resource development operations are highly efficient -- we spend only about $0.07/dollar raised. We raise approximately $1.4M per resource development staff person, which ranks us third among our peer institutions in efficiency. However, our cash receipts are significantly less than those of peer institutions who invest in more staff.

MIT
- staff = 171
- cash = $241M
- cost/$ raised = $0.07

Yale
- staff = 285
- cash = $440M
- cost/$ raised = $0.09

Stanford
- staff = 412
- cash = $911M
- cost/$ raised = $0.08

Harvard
- staff = 531
- cash = $595M
- cost/$ raised = $0.10

(NOTE: Staff and cash figures based on FY06 numbers. Cost/$raised figures based on averaged FY06-08 cash receipts.)

MIT has a total of 30 frontline major and principal gift fundraisers. These gift officers currently manage 4,200 prospects capable of giving $100k-$5M+. However, the Institute has the potential to engage some 3,200 additional major and principal gift prospects. These prospects have already been identified by Resource Development.

Furthermore, the number of major gifts prospects continues to grow/be renewed each year, since MIT produces an extremely high percentage of financially successful alumni and parent prospects. MIT's brand is also highly attractive to non-alumni, generating another significant prospect pool. In short, MIT has incredible potential to develop even more prospects, and the Institute can better tap this market by investing in frontline fundraising staff.

Finally, recent studies have shown that support staff play an indispensable role in enabling frontline staff to get out into the field and focus on engaging donors. As such, investing in support staff can significantly increase the productivity of field staff.

Benefits

- Increased bandwidth in Resource Development to engage at least 3,200 additional, identified prospects capable of giving $100k-$5M+.
- Modest additional short-term revenues (approx. $100-500k/gift officer/yr in years 1-3).
- Significant additional long-term revenues (approx. $1.5M+/gift officer/yr in years >3).
• Ramping up of frontline fundraising staff over the next 2-3 years will well-position Resource Development to undertake the next major campaign.

Costs
• Estimated average salary/benefit cost = $100,000/gift officer
• All operational costs associated with prospect management (e.g. travel, events)

Risks
• Potential of another down economy
• Complications of a larger management structure
• Staff turnover and retention

Implementation Timeline & Challenges
• The approximated timeline to hire additional frontline fundraisers is 2-3 years.
• All typical challenges associate with a lengthy hiring process would be expected (e.g. drain on staff time to interview candidates/train new employees)
4.3. Expansion of Acceptable Gift Planning Vehicles

Overview
Status: Idea
Priority: High
Time to Implement: 2-3 years
Cost to Implement: Moderate
Revenue Potential: >$10M

Summary
MIT could generate incremental revenue by expanding its gift planning marketing efforts and gift acceptance policies to include additional instruments, namely charitable lead trusts, pooled income funds, and retained life estate gifts of real estate. MIT could also generate incremental revenue by becoming more flexible in establishing rates for charitable remainder trusts and charitable gift annuities to accommodate younger donors.

A brief survey of the websites of select peer institutions (Stanford, Princeton, Yale, Harvard) indicates that these giving vehicles are offered, and presumably worthwhile.

Charitable lead trusts are most compelling in the short run. Income from the trust accrues to MIT for the life of the trust, and principal is returned to the donor or her/his designee (usually her/his children) at maturity, providing funds for MIT’s educational mission immediately. To estimate potential revenues it is reasonable to presume a 5% payout rate on CLT’s, so a $10 million CLT would generate $500,000 in income (less incremental management costs). Incidentally, the current economic climate (low interests rates and depressed asset values) favors lead trusts.

Like a charitable remainder trust, pooled income funds and donor advised funds enable donors to “invest” their gifts in a fund managed by MIT that provides income to the donor, and, at some future date, a remainder benefit to MIT. The eventual revenue stream to MIT is estimable using trust software and assumptions for returns and gift balances.

A retained life estate enables a donor of real estate, often a principal residence, to live in the home for a specified period, at which time ownership is transferred to MIT and usually sold. Income from this source is a function of timing and market conditions, so difficult to estimate.

Benefits
- Incremental revenue difficult to predict in short run; long term opportunity exceeds $10M in remainder balances and income.
- Increases value proposal for gift planning to key donors, thus increasing their philanthropic engagement with MIT throughout life and legacy giving.

Costs
- Legal and accounting work with internal and/or external counsel is important to ensure compliance and precision for new products and gift balances.
• Successful implementation would require additional Gift Planning frontline fundraisers to seek and respond to market inquiries.

**Risks**

Investment risks with any type of split interest gift are real. Investments must be made in compliance with the fund/trust documents and with an eye toward meeting return and philanthropic objectives.

Donor relations/stewardship risks are also real. If adequate income is not generated, or principal grows more slowly than expected, or the proper balance between the two is not met, the donor will be unsatisfied even if the letter of the gift/trust agreement is met.
4.4. Marketing the MIT Brand

Overview

Status: Idea
Priority: High
Time to Implement: Short
Cost to Implement: Low
Revenue Potential: $1-5M, needs market analysis

Background

MIT merchandising is currently managed by the Technology Licensing Office (TLO), which maintains all registered marks (seal, logo, name, etc.) of the Institute. Merchandise is produced and sold through 85 licensee companies who pay a 7.5% royalty to the Institute. A small portion of royalty funds are used for TLO overhead and the rest is plowed into the "Trademark Scholarship Fund," used for undergraduate scholarships. Merchandise sales contribute about $50,000 to the fund each year. All sales of athletic gear generate a 10% royalty, which goes directly back to DAPER. All proceeds from class rings go directly back to the class.

TLO relies almost solely on the MIT COOP in Kendall Square to promote its merchandise for the purposes of MIT students and alumni. TLO tentatively pursued the idea of MIT vending its own merchandise, but this idea was deemed unfeasible for two reasons:

- The consensus among current vendors and a marketing consulting firm was that MIT did not have the national footprint to profit from producing and distributing merchandise "in-house" (the costs outweighed the revenues).
- TLO did not have the capital or the bandwidth to invest in production and distribution of merchandise

There is one existing example of internal merchandising: SloanGear, a student-run business housed within the Sloan School. SloanGear maintains a Web site and offers a modest selection of products.

Summary

- MIT should devise a business model to vend Institute merchandise cost-effectively to specific, targeted markets. MIT can also increase the number of licensed vendors selling MIT products by leveraging new/existing partnerships (e.g. Krafts/Patriot Place).
- Propose an undergraduate-run business to produce and distribute merchandise on campus and at MIT-sponsored events (e.g. commencement, admissions fairs, public festivals, Institute contests, K-12 programs, MIT Museum, etc.). This could be realized through collaboration with the MIT Venture Mentoring Service.
- Maintain a Web page that is easily accessible from the MIT homepage and can be easily accessed by Alumni.
- Put a link to the Web page on public areas of MIT Web site that get heavy traffic (e.g. OCW).
• Develop a seasonal catalogue to be mailed to Alumni and parents around the holidays and commencement time.
• Increase the number of licensed vendors and leverage philanthropic partnerships to get MIT products in more stores. [Vendors would presumably take a profit and return the standard 7.5% royalty to the Institute. However, could/would the right vendor return all proceeds to the Institute as a deductible charitable contribution?]

Benefits
• Heightened visibility of MIT brand
• Community and camaraderie building among students and alumni
• Generation of support for undergraduate scholarships and release of pressure on Institute operating budget
• Opportunity for undergraduate students to get hands-on retail management experience
• Create student jobs

Costs
• Investment in cost-benefit analysis
• Development of infrastructure to design, produce, house, market and distribute merchandise
• Initial overhead/maintenance costs
• Marketing campaign to announce venture

Could/would a donor fund the start-up costs of a new undergraduate-run business, particularly if the venture would ultimately create a self-sustaining revenue stream for the Institute?

Risks
• Insufficient demand for products
• Insufficient student interest
• Revolving student management
• Competition with the COOP
4.5. **Forging High-Return Alumni Connections: “William Barton Rogers Visitorships”**

**Overview:**

<table>
<thead>
<tr>
<th>Status</th>
<th>Idea</th>
</tr>
</thead>
<tbody>
<tr>
<td>Priority</td>
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</tr>
<tr>
<td>Time to Implement</td>
<td>&gt;1 year</td>
</tr>
<tr>
<td>Cost to Implement</td>
<td>Small but non-zero</td>
</tr>
<tr>
<td>Revenue Potential</td>
<td>$2 million/year.</td>
</tr>
</tbody>
</table>

**Background**

MIT’s alumni form one of the most materially successful demographic groups that can be meaningfully distinguished. The gross product associated with MIT – associated companies is a rough metric, but impressive – witnessed by such delightful headlines as the decade-ago banner in *Nature* that proclaimed MIT’s GDP to exceed Thailand’s. To the entrepreneur alumni cohort, add those who have achieved great success within established enterprises.

At the same time, MIT alumni have often incredibly strong senses of connection to the Institute, remembering their time here as the foundational experience of their very successful subsequent careers. Based on lots of anecdotal evidence, there is a deep well of desire for renewed connections to MIT that go well beyond involvement in traditional alumni activities, gifts, and short visits to 02139.

The fact of our alumni’s successes adds the third element supporting the new revenue activity to be proposed: many MIT alumni can retire or grant themselves a sabbatical from their day jobs much earlier in their career-cycle than ordinary retirement.

**The Proposal**

1. **1.0:** MIT should institute a visitorship for distinguished alumni, who, in conjunction with a significant gift on the order of $150,000 (or what the Development Office concludes the market will bear), would come to the MIT campus for an academic year.

   The program to welcome them could be modeled on the Knight Fellowship structure: a common space and office support, a schedule of seminars and other events. In addition, depending on individual Visitor interests, each participant could/would be matched with a department, laboratory or program in whose area they wished to concentrate. Some formula for sharing the gift with such co-hosting venues would need to be worked out. The key to this idea is to give these visitors high profile, considerable access, social interaction with MIT’s finest, both in terms of faculty and the undergraduates whose are living now the experience many potential participants in this program regard as one of the best periods of their lives.

2. Individual departments and other relevant units would be invited to set up a visitorship program for mid-to-end career alumni of their own, for durations to vary from short to...
full years. In something like a reciprocal proportion, funds attracted under this scheme could be shared between the unit and the GIB. Visits could be of any length, but this is an immersion experience that would reward shorter stays – which would also expand the universe of MIT alumni whose lives would permit them to come.

We recommend that such funds for both versions 1 and 2 should be targeted to endowment rather than operating expenses, both to strengthen long-term operations and to avoid the overhang of soft-funded projects should visitors fail to materialize in any year.

3. The constraint on both the highest profile visitors of ver. 1 and those coming with more specific ends in view under ver. 2 is the length of stay needed to feel one is in MIT rather than dropping by. A third variant would be a brief Visitorship – one week stays – during which attendees could receive a concentrated series of seminars on MIT’s work at the cutting edge. To draw another analogy from the Knight Science Writing Fellowship example, the “boot camps” for journalists that this unit schedules three times a year focus on particular topics of central public concern. Similarly we could lead groups of alumni through the breaking ideas in several fields per year, combined with other experiences that could include laboratory visits, encounters with undergraduates (see above) and more. Such programs would not be presented as examples of executive or mid-career education. Rather, this is a program that is more aspirational, intended to welcome the intellectually hungry former 18 year-olds back to the thrill of encountering new knowledge that our alumni recall from their first exposure to the Institute.

Benefits:
- Significant income potential
- Renewed alumni ties
- The potential for an incentive structure to encourage units and faculty to engage in a funding activity that would expand endowment and not simply cover (or not) ongoing research expenses.

Costs:
- Market analysis to establish levels of interest within the MIT alumni community
- Space, infrastructure and staff to organize and staff the visitorship. On the order of a director and two administrative support positions.
- Marketing costs to announce venture
- Some administrative cost to establish procedures and accounting for MIT units to participate.

Risks:
Lack of interest. This risk manifests itself before significant money needs to be spent. Without conducting the market analysis, it is impossible to quantify any risk/reward claim. But the reward potential is high and open ended, while the downside risk is small and limited.
5. Summary Idea Pages: Exploiting Physical Assets

5.1. Maximizing Use of MIT Owned Real Estate

Overview
Status: Idea
Priority: Low
Time to implement: 5 years
Cost to implement: See Comments
Revenue potential: See Comments

Summary of Idea
- Attract developer to build conference center (with hotel, retail space, and renovated MIT museum) where MIT provides conference content and outside party runs facility. Business plan TBD.

Comments
We visited Steve Marsh and Michael Owu at the MIT real estate management office. We presented our idea and learned what their office does to maximize return from MIT owned real estate. There are four limitations to the viability of any idea. They are:

1. Market – At the present time MIT owns a substantial amount of commercial real estate. The total market demand for commercial real estate in Cambridge is 300K sq. ft./year. A conference center is a loss leader. Hotel rooms are the money-maker. It costs about $300K/bed to build and the market now is returning about $200K/bed. The Hotel at MIT was sold at a price of $400K/bed near the top of the market. Bottom line is that nobody wants to build a hotel now.
2. Physical Environment – Our idea is possible to build. Many ideas just don’t work.
3. Legal – It takes about 1.5 years to get a project approved by Cambridge.
4. Use Model – Any idea has to be vetted against other usage to optimize return. In addition longer range plans for MIT need to be taken into account.

During our visit Steve and Michael reviewed a plan to build two 250K sq. ft. buildings near Main St. and showed us what needs to be done to get Cambridge approval. They received approval for these plans. At this time they are looking for a client and are flexible on a variety of financial arrangements. The goal is to invest $350M capital to make $100M. There are many more details about the business arrangement, but the main point is to meet the customer’s needs and then work the numbers to make the profit goal. While such development is profitable, it should be noted that with the above numbers, 500K sq.ft. is equivalent to ~5 years of MIT’s average share in market demand.

At this point we conclude that our idea is not a viable option to enhance the GIB in the near term. The bottom line is we learned that MIT has a very capable real estate development office that is profit driven. They are constantly reviewing plans and looking at potential deals. The one thing they need is for their Board, MIT Senior Administration and the Corporation to be in a position to move quickly when a deal is ready.
5.2. Dorm Room Summer Rental

Overview
Status: Idea
Priority: Moderate
Time to implement: Short
Cost to implement: Low
Revenue potential: Low

Summary
Dorm rooms are rented during the summer for academic conferences and other MIT-affiliated events during the summer.

Benefits
Estimated revenue: ~500K/year
Budget category for revenue: modest contribution to GIB
Other benefits: can attract more academic conferences with lower budgets to MIT

Costs
Low costs associated with cleaning rooms and washing linens in between rental periods.

Risks
Increased difficulties with scheduling annual maintenance/cleaning when all dorm rooms are being constantly rented out over the summer.

Implementation timeline and challenges
None really.

Other information
This is something that already occurs in a smaller capacity, with high school students and undergraduate students who stay on campus over the summer for various academic programs or research opportunities. This proposal suggests increasing revenue by offering vacant rooms for academic conferences, to attract these events to Boston. Higher room rates can be charged for weekly rentals to conference-goers than for summer rentals to students.

Comments
5.3. Replace Library Roaming Stacks with new Business Model

Overview:
Status: 2 Ideas
Priority: High
Time to implement: Short to Medium for Phase 1; Medium to Long for Phase 2
Cost to implement: Moderate for Phase 1; High for Phase 2.

Revenue potential,
Years 1-5: Moderate;
Years > 5: High

Summary

Phase 1: MIT reinvents ‘roaming stacks’ in libraries by removing them, saving thousands of square feet of prime real estate for more productive purposes (including moving high-rent MIT offices onto campus). Out-of-copyright books will be available free on line via Google. In-copyright books can be browsed on line and ordered on line from a near-Cambridge low-rent warehouse that operates at Amazon.com picking efficiency and delivered to the MIT campus one or 2 times per day, either picked up by the borrower at a central location or delivered to the borrower the next day in Institute Mail. MIT attempts to do this collaboratively with several or many other Boston-area colleges and universities.

Phase 2: MIT and its partners change this library book delivery business model into a for-profit national company. This company is the first of several delivering routine services to colleges and universities. Potential annual revenues of these companies are hundreds of millions of dollars per year.

Benefits
Estimated revenue: Phase 1: $500,000/yr, net of operational costs; Phase 2: $200 million/yr.

Budget category for revenue: Provost

Costs
Estimated implementation costs: Moderate for Phase 1, requiring (a) repurposing of library space currently devoted to roaming stacks and using that space more productively; (b) setting up Boston-area book warehouse system. Substantial for Phase 2, perhaps requiring co-investors eventually including perhaps a public stock offering.

Risks
Phase 1: Near-term local disruption of library usage; possible misinterpretation of innovation, implying need to transparency and good communication; Phase 2: Risks typical of any new private sector startup.

Implementation timeline and challenges: Immediate for Phase 1, requiring 2 years to implement fully; Phase 2: Likely to require 3 to 5 years to implement fully.

Other information: See Appendix C
Appendix A: Members of the Revenue Enhancement Working Group and Subgroups

<table>
<thead>
<tr>
<th>Revenue Enhancement Working Group:</th>
<th>Revenue Enhancement Subgroups:</th>
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<tbody>
<tr>
<td>Paul Baranay, Undergraduate, Biological Engineering</td>
<td><strong>Scalable Educational Platforms</strong></td>
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<tr>
<td>Daniel Barkowitz, Student Financial Services</td>
<td>Paul Baranay</td>
</tr>
<tr>
<td>Angela Belcher, Department of Materials Science and Engineering</td>
<td>Daniel Barkowitz (co-chair)</td>
</tr>
<tr>
<td>Klavs Jensen, Department of Chemical Engineering, Co-chair</td>
<td>Richard Larson</td>
</tr>
<tr>
<td>Chris Kaiser, Department of Biology</td>
<td>Donald Lessard (co-chair)</td>
</tr>
<tr>
<td>Philip Khoury, Office of the Provost, History Program, Co-chair</td>
<td></td>
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<tr>
<td>Karl Koster, Office of the Vice President for Resource Development</td>
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<tr>
<td>Richard Larson, Department of Civil and Environmental Engineering</td>
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<tr>
<td>Systems Division</td>
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<tr>
<td>Lorekna Lee-Houghton, Graduate, Biological Engineering</td>
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<tr>
<td>Donald Lessard, Sloan School of Management</td>
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<td>Thomas Levenson, Program in Writing and Humanistic Studies</td>
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<td>Ernest Moniz, MIT Energy Initiative</td>
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<td>Jason Pontin, Technology Review</td>
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<td>Beth Raffeld, Office of the Vice President for Resource Development</td>
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<td>Roberto Rigobon, Sloan School of Management</td>
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<td>Yossi Sheffi, Engineering Systems Division</td>
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<tr>
<td>Charles Sodini, Department of Electrical Engineering &amp; Computer Science</td>
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<td>Li-Huei Tsai, Department of Brain and Cognitive Sciences</td>
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<tr>
<td>Robert van der Hilst, Department of Earth, Atmospheric, &amp; Planetary</td>
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<tr>
<td>Sciences</td>
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<tr>
<td>Victor Zue, Computer Science &amp; Artificial Intelligence Lab</td>
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</table>

|                          | **Corporations and Government**                                     |
|                          | Angela Belcher                                                      |
|                          | Chris Kaiser (co-chair)                                             |
|                          | Karl Koster (co-chair)                                              |
|                          | Ernie Moniz                                                        |
|                          | Lorekna Lee-Houghton                                                |
|                          | Li-Huei Tsai                                                       |

|                          | **Issue Based Groups and Individual Donors**                       |
|                          | Beth Raffeld (co-chair)                                            |
|                          | Tom Levenson (co-chair)                                             |
|                          | Jason Pontin,                                                       |
|                          | Victor Zue                                                        |

|                          | **Exploiting Physical Assets**                                      |
|                          | Daniel Barkowitz                                                   |
|                          | Lorekna Lee-Houghton                                                |
|                          | Beth Raffeld                                                       |
|                          | Charlie Sodini (co-chair)                                           |
|                          | Robert van der Hilst (co-chair)                                     |
Appendix B: New Possibilities for MIT e-Learning

The Revenue Enhancement Task Force has discussed the possibility of significant new revenues to MIT by leveraging the Internet and related telecommunications technologies as vehicles for offering educational programs beyond the Cambridge campus. The MIT precedent exists and is well established, with the 11-year-old SMA (Singapore MIT Alliance) program offering Masters degrees at a distance (http://web.mit.edu/SMA/about/edtech/index.htm), the 13-year-old SDM (Systems Design and Management) Program offering Masters degree via distance learning (http://sdm.mit.edu/distance.html), recent e-learning activities of the MIT-Portugal program, and other MIT e-learning activities on smaller scales. And it is our understanding that there is no degradation in educational outcome due to the fact that some learners are at a distance, some even 12 time zones away from the MIT campus. This positive educational outcome property of well-engineered distance learning programs is consistent with the experiences of other premier universities such as Stanford, which has been offering masters degrees via distance learning to Silicon Valley engineers for over 35 years. MIT’s SMA program has had similar experience – in shared academic subjects, the learners in Singapore do just as well as MIT campus-based students.

The potential for tens of millions of dollars of new revenue, perhaps even hundreds of millions in new revenues, is possible with greatly expanded e-learning programs that MIT might consider. However, as with any new innovative program at MIT, new initiatives must be chosen with extreme care and must be compatible with MIT’s unique culture.

The quest for new MIT revenue need not be incompatible with broader social goals. In fact, MIT reaching out with additional educational programs could be central to supporting those goals. As an example, the World Bank has just published a key report, The Challenge of Establishing World-Class Universities, by Jamil Salmi (2009). The report focuses on the importance of developing countries establishing their own universities recognized by the world for quality of teaching and research. Increasingly, the most precious assets of a country are no longer buried under ground as oil, gold or silver, but are buried between the ears of its citizens. MIT reaching out and providing collaborative educational programs, at least to those new universities starting out, could conceivably catapult them into higher levels of achievement than would be possible without collaboration.

In this discussion, MIT brings many assets to the table. First and foremost is MIT’s reputation as a world-class research university, specializing in engineering and science and having world-class programs in management, architecture and urban planning, and in humanities, arts and social sciences. Second, we have the materials for the great majority of our subjects already

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5 By Richard Larson

6 Sources at Stanford report that students taking Stanford engineering courses at a distance score on average 2 points higher on exams than their on-campus counterparts.


8 Individually, many MIT faculty members provide support for emerging universities in developing countries. Plus, MIT institutionally has supported such efforts in the past, in such countries as India, Malaysia, Venezuela and others.
digitized and available via MIT’s path-breaking Open Source initiative, OpenCourseWare (OCW). Millions of learners throughout the world are now familiar with MIT’s excellent educational offerings as a result of OCW. Third, we have had decades of experience in using video and now the Internet in off-campus learning. As a result of significant investments over the past 12 years, many of our classrooms are equipped with the latest technologies for providing learning to off-campus students at a distance from Cambridge.

It is the position of the Revenue Enhancement Task Force that any serious consideration of options here must be accompanied by research, in the finest tradition of MIT. The research must embody several quite different considerations. First, it must assess the state of the MIT faculty members as to their willingness and availability to participate in any significant way in new distance learning programs. This assessment is likely to pose sets of feasible options and also to create constraints in which we must operate. Second, we need to acquire significant knowledge of the educational marketplace – worldwide. This ‘market assessment’ is no small task! Third, we need to consider the various distance-learning academic possibilities by segmenting MIT’s educational offerings, by degree levels and majors. Fourth, we need to consider alternative forms of distance learning, segmented by such attributes as synchronous learning vs. asynchronous learning, for-credit vs. certificate vs. not for credit, etc.

The Revenue Enhancement Task Force has been asked to look at significant ideas, namely those having revenue implications greater than say $10 million. For that reason we do not focus on niche or small crafted programs, which may be quite beneficial educationally to those who participate, but do not satisfy the requirement of being significantly revenue positive for MIT. In the remaining paragraphs of this white paper we consider several options that research may show would be beneficial to MIT and to learners who participate.

1. Undergraduate Offerings.

MIT prides itself on the total on-campus educational experience, and our Task Force has not considered changing the importance of campus-based education for MIT undergraduates. Two ideas have surfaced, however, that we report here.

1.A. OCW Undergraduate Subjects

Virtually all major undergraduate subjects have posted their educational materials on MIT’s path-breaking OCW web sites. For most freshman core subjects, these postings include video lectures, many such as 8.01 famous via Apple I-Tunes University. MIT has received emails from many non-MIT students asking if these subjects may be available for credit. Without jeopardizing OCW’s Open Source status, it would be possible to leverage these OCW materials with on-line support of teaching assistants to provide a variety of contemporaneous learning opportunities. Many of these subjects could be offered for credit, using essentially the same homework assignments and examinations used for on-campus students. The credit could be graded transcript credit or some sort of certification less than graded transcript credit. The transcript credit may be appealing to certain other colleges and universities whose faculty members would rather focus their teaching expertise on subjects that differ from MIT’s core undergraduate subjects. This may be especially true in developing countries whose emerging

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9 Careful attention would have to be devoted to assuring that work submitted by any learner from a distance is indeed that student’s own work, created independently of all others.
universities might welcome such educational collaboration with MIT. But it may also apply in the USA especially to small liberal arts colleges where the focus is on small seminar type classes.

There is significant worldwide market knowledge of MIT’s OCW’s core undergraduate subjects, and our hypothesis is that the market for some fraction of these subjects (perhaps numbering 20 to 50 subjects) could be significant, say in the thousands of learners per subject. In very approximate round numbers, if net tuition for distant students averaged $2,000/subject, 30 subjects were offered in this way, and 1,000 students took each subject in each of two semesters, then annual new revenue would be approximately $2,000*30*1,000*2 = $120,000,000. While this is a huge number, we must recall that there would be costs associated with running the program, most notably the cost of graduate and perhaps also undergraduate TA’s to interact with and to support the distant learners. If designed well, however, there should not be significant new time pressures on the faculty members who teach such subjects. In fact, some of the professors teaching the subjects to distant learners may not even be active in the teaching of the subject on the MIT campus – due to the fact that videotapes of their lectures were made in a previous year, and that they are now teaching other subjects to on-campus MIT students10.

1.B. Freshman Year at a Distance.

Another option that has been discussed briefly is that of offering the core freshman subjects at a distance to thousands of (reduced) tuition-paying students worldwide, and in effect having the MIT undergraduate experience start in the sophomore year. In the event, the class size for sophomore, juniors and seniors would each be increased to about 1,400 students. The underlying hypothesis here is that many of the required freshman year subjects are by now ‘commodity subjects’ as viewed by many colleges and universities and by students themselves. For instance, introductory subjects in physics, calculus, chemistry and biology do not change significantly (if at all) from year to year. Viewed this way, MIT could invest significantly in re-purposing these subjects into the most effective possible pedagogically compelling on-line asynchronous learning experiences. Depending on assumptions used for reduced tuition at a distance and numbers of students allowed to participate in this way, this option also shows revenue in the tens of millions of dollars. It remains to be seen what the student and parental support market for such an alternative may be.

2. Masters Programs

MIT already offers masters degrees at a distance to students in Singapore via the SMA program and to students in industry via the SDM program. As mentioned above, Stanford University and others have been offering Masters degrees at a distance for decades. Done well, not only are there significant revenue increases, but also strong ties can develop with companies whose engineers are obtaining Masters degrees.

10 Faculty members who participate in OCW, allowing their materials to be used in OER (Open Educational Resource) mode, have assumed that their materials would not also be used for increased revenue generation. So, it is our belief that faculty members whose materials are to used in these new revenue-producing ways would have to be approached to sign another agreement (amending their original OCW agreement), perhaps allowing the possibility of royalties or some other form of compensation that recognizes the importance of their contribution.
At MIT the current e-learning Masters degree subjects are offered primarily in synchronous mode. This limits class size and constrains time zones. It remains to be seen if offering a broader set of options for ‘e-learning’ synchronous Masters degrees from MIT would have significant revenue increases. Even within the same time zone, engineers and other fully employed professionals have complicated work schedules that are often incompatible with fixed time-of-day classes required in synchronous learning mode. Our hypothesis is that the only way to extend out from a rather limited class size, ‘craft’ style of teaching masters students at a distance, is to offer programs asynchronously. This is the primary e-learning mode at Stanford and many other universities.

In the School of Engineering there are two types of Masters degrees: S.M., typically requiring two years with a thesis, and MEng, usually one year with no thesis. For working professionals, our hypothesis is that the educational marketplace is much larger for MEng type degrees than for S.M. degrees. And with e-learning S.M. degrees, there could be all sorts of complications with regard to the Masters thesis, which may or may not be possible to do at a distance. Without segmented market research, it is impossible to speculate at this time on the magnitude of new revenues available in this area. But it is our belief that asynchronous MEng programs in engineering could have significant revenue implications as well as secondary benefits of creating closer ties with companies whose engineers are obtaining MIT’s e-learning MEng degrees.

The asynchronous option also may be the only feasible option in terms of faculty time. That is due to the fact that the regular on-campus lecture is videotaped, digitized and placed on the web to be viewed by the students-at-a-distance at a time and place of their convenience, and the MIT faculty member does not have to do additional preparation or other work associated with the distant learners. The primary ‘labor’ associated with the distant learners would be on-line TA’s.

At this time we do not have enough information about other (non-engineering) Masters degrees that MIT offers to know if e-learning options might be feasible. We welcome inputs from the broader MIT community in this regard.

3. Short Programs

MIT offers short certificate programs through the Professional Institute (PI) and other programs on campus. Some, such as those offered by the Sloan School of Management, are highly tailored to a particular corporate client. Others such as those of the PI are marketed to individual learners.

It is our belief that a potentially large marketplace exists here for professional programs offered in e-learning mode. There are clearly defined professional markets related to at least three of MIT’s schools: Engineering, Sloan School of Management and the School of Architecture + Planning. To fully develop these markets, MIT’s computer scientists may be challenged to develop collaborative software that mimics that ‘shoulder rubbing’ inter-personal experiences that one obtains by attending programs on campus. Many who attend PI and related professional programs on campus value highly the ‘getting to know each other’ aspect of being together as a group for a week or so. Our hypothesis is that social networking software and related software would have to be tailored or perhaps developed from scratch in an attempt to capture this element of the usual on-campus experience.
Since many professional programs are offered during the summer, when more faculty time is available, there should be faculty support for e-learning professional programs. Such programs also offer additional compensation to faculty members, beyond the usual two-months summer support constraints associated with research grants.

As a back-of-the-envelope calculation, suppose that 100 new one-week professional programs were to be offered, to a combination of clients – some corporate (where the company selects the learners) and some to individuals. Suppose that the average per-student tuition fee is $2,500 and that 50 e-learners take each offering. Then the gross new revenue each summer would be $100*2500*50 = $12,500,000. This is a very speculative number, but its magnitude suggests that there are potentially significant revenue possibilities in developing professional programs for distant learners.

4. Where from Here?

As can be seen from above, there are compelling arguments for MIT rethinking its policies with regard to e-learning. Some of the new possibilities would entail significant changes in the way MIT conducts its educational business. Some would require fundamental and applied research, to create pedagogically effective learning environments for students at a distance. If one or more of the large alternatives discussed above is selected, it is likely that a new administrative unit would have to be established on campus, one coordinating all aspects of e-learning.

The good news is that a potentially large e-learning marketplace exists. The bad news is that it takes years to fully develop a new market, years during which up-front investments would likely mean net revenue losses.

It is our strong recommendation that MIT move forward in this direction, but cautiously. The next obvious step is to undertake a market analysis, with the market segmented along the lines discussed above. This will require time and budget. At the same time we suggest that MIT poll its faculty members to understand their views with regard to possible new forms of teaching and learning at a distance, and to understand their constraints and incentives.
Appendix C: Executive/professional education for corporate clients

Premise:

Executive/professional education (E/P) can have greatest value to the client and greatest value capture by MIT when it is built into relationship with a corporation that also includes research support, engagement in and hiring from our degree programs, and other forms of support and engagement with MIT. Synergies among these different forms of engagement result in large part from higher clockspeed and more measurable benefits of E/P activities, in contrast to the slower speed and often deeper but more diffuse benefits of research engagement. The greater value capture results from the fact that E/P allows the bundling of value pricing with cost recovery and philanthropic "pricing models" (Figure C1 illustrates where these initiatives fall in MIT’s range of activities and pricing models.)

<table>
<thead>
<tr>
<th>Pricing Models</th>
<th>Research</th>
<th>Education</th>
<th>Outreach</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free</td>
<td>Publications</td>
<td>OCW</td>
<td>MIT World, K-12, etc.</td>
<td></td>
</tr>
<tr>
<td>Cost recovery</td>
<td>Sponsored research</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tuition</td>
<td>Degree programs</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Value priced</td>
<td>IP, Logistics Network*</td>
<td>Executive, professional education</td>
<td>Inst tuition building e.g. SMA*, Sloan International, Masdar*</td>
<td></td>
</tr>
</tbody>
</table>

* Bundle including research, inst tuition building

Figure C1: Activities and pricing models

Potential engagements differ along several dimensions, the three that are most important for our purposes are the two identified in the OCW presentation -- 1) the extent of recognition provided by MIT, 2) the “intensity” of MIT (faculty) engagement, and 3) whether the program or offering is focused on a cohort/cadre as part of an organizational change initiative or on individuals as part of their personal career development. Executive education (Sloan) tends to involve more of the former, while professional education (SoE) involves more of the latter, though neither is pure along these lines. The MIT (faculty) intensity ranges from “hands off” transmission of teaching material (current OCW model) to direct face to face instruction, with clear differences in scalability and unit price.

Illustrative Examples:

To illustrate the potential of E/P within relationships we focus on two programs, the “Corporate Academy” (a synthetic illustration drawing on the experience with the BP Academies) and the “Corporate College” (a synthetic illustration drawing on experience in Merrill Lynch Partnership and other programs). (Figure C3 illustrate where these two programs fit on a “beneficiaries and bundles” chart. This figure also shows that the Corporate College program could be of interest to professional associations and issue-based organizations as well, and that a highly scalable “Google-OCW platform” could serve corporations as well as individual learners, professional associations, etc. Each is described in a highly stylized fashion below.

54
Corporate Academy—integrative programs for cohort development, corporate transformation.

MIT (Sloan and SoE working together) deliver two major executive development programs to BP, one focused on Projects and Engineering, the other on Operations. These programs are offered on campus in the form of three two-week modules over a year, with intervening group projects. These programs target senior projects, engineering, and operations personnel with 10-15 years experience, and are focused around three integrative streams: technology/engineering, business acumen, and leadership.
Instruction is on an intensive face to face basis. Faculty time is offload -- "bought in" from the allowed fifth day a week at an MIT standard. Sloan (and to a lesser extent SoE) have substantial staff costs for the delivery of these programs as well. The volume of these programs varies from year to year but is currently running at $3-4 million per year. This is roughly equivalent to BP’s research spend at MIT, and BP has acknowledged that the E/P relationship was a key factor in deciding to provide this level of research support to MIT.

Sloan’s total portfolio of custom E/P programs is on the order of $15 gross per year.

Revenue potential: The E/P education can provide an attractive GIB contribution\(^{11}\) in E/P is on the order of 33% excess of direct costs (including the provost and school level contributions). Depending on the volume of E/P and the specific assumptions re pricing, GIB contribution from this source could range from 5-10 million. This level of activity would imply the engagement of 100-150 faculty members for 25-50% percent of their fifth days, so it is within reach from a total resource basis. However, it would undoubtedly involve bottlenecks in some critical areas and would require a significant scaling of professional staff.

**Corporate college—individual subjects for individual career development**

The Merrill Lynch partnership that ran from 1999 to 2004 included three components: $3 million per year for reach under the normal MIT terms, $1 million per year to be expended on E/P, and a $1 million per year grant to sponsor the Financial Technology Certificate Program (a graduate certificate houses in Sloan and EECS).

A key element in the E/P component was an advanced investments subject based on classroom materials from MIT. The classes (26 lectures) were taped and provided to a group of ML employees in CD form. The instructor also met in person (twice) and virtually (twice) with the class and co-supervised new product development projects together with ML mentors. No academic credit was offered for this subject. The price of this course was on the order of 300k per year with a GIB contribution on the order of 33%.

The most likely context for offering such subjects is a Corporate College that allows employees to enroll in various advanced subjects provided by MIT. Stanford does this on a credit and non-credit basis, as do a number of other schools. Assuming 10 major clients “buying” ten subjects a year, the gross proceeds old be $30 million a year with a GIB contribution of $10 million (or perhaps greater given the economies of scale involve).

Sloan is currently preparing two similar subjects, based on current graduate offerings, for another financial institution, but without the project component.

**Further Opportunities with Corporate Universities**

An even higher value engagement with corporate universities would be to co-design and certify their offerings, as well as delivering some subjects. No revenue estimates are included, but could be substantial.

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\(^{11}\) Different revenue sources should be compared on a GIB equivalent basis, since they involve very different ratios of costs and hence “profits. Philanthropy, for example, yields GIB contribution of roughly .9 (if one assumes a 10% cost of fund raising and stewardship) It is very hard to put a GIB figure on research, since the “net” to MIT itself is hard to compute and there is value to MIT in graduate student education and research output. Arms-length research such as Lincoln Labs that provides few of either of these benefits, can be viewed in GIB terms more easily.
Appendix D: Shared Library Delivery

Here is an idea regarding MIT libraries. First, note that libraries on campus are already being closed: MIT Libraries Lays Off Staff, Plans to Close Two Branches, The Tech, Volume 129, Issue 12: Friday, March 13, 2009. And note the trends: The MIT library system is investing heavily in a digital repository: DSpace. Digital is where the world is going. Newsprint newspapers are becoming history. The US Postal Service is losing billions because email and web-based services (such as paying bills) have supplanted first-class mail. Most faculty members get their journal articles on line, not via paper copies of journals. And older books are going on line, as Google Book Search allows public-domain works and other out-of-copyright material to be downloaded in PDF format.

What we are about to say may be difficult emotionally for many faculty members, as most of us have fond memories of bygone days in libraries. There is a certain nostalgia thinking about the way things used to be, such as the morning newspaper in paper, an item no longer viable financially since readers get timelier and more complete news from the Internet. This gets us to ‘the stacks.’ Isn’t it time for MIT to say that all the thousands of square feet allocated to books in stacks also represent a relic of history? We do not know the statistics of MIT community members wandering up and down the stacks looking for the perfect book. But if they wandered on Google, even for copyrighted books, they could do it more efficiently and faster. Our impression is that the numbers of stack users looking for books is way down, and that students’ primary use of libraries is as places for quiet studying.

Might it be time to say that MIT will no longer dedicate thousands of square feet of prime real estate to book stacks? Of course there should be exceptions, such as books on reserve for MIT academic subjects, which would remain available. But these are not kept in roaming stacks.

Here is a plausible alternative: Shared Library Delivery. Under this system, MIT partners with other universities and colleges in the greater Boston area (at last count there were over 50 of them), institutions of higher learning that also want to reclaim underutilized prime real estate, that is, massive square footage dedicated to stacks in libraries. Under this system, all books whose copyrights have expired and are available for free over the Internet, are no longer retained in paper as hard copies. Newer books still protected by copyright are stored efficiently for robot picking in a large warehouse in a near-Boston location that enjoys low real-estate rental costs (on a sq. foot basis). Any MIT community member who wants a paper hard copy of a copyrighted book, perhaps after roaming virtual stacks on the web or searching via Google, completes a web-based request for such a book. That request is sent immediately to the nearby shared warehouse facility and picked from storage with Amazon.com efficiency. Several times a day trucks or vans are dispatched from the book warehouse to deliver ordered books to central locations at each respective institution participating in the program. If many institutions participate, then there most likely would be several different cyclic routes, each serviced by different trucks or vans. The central location at MIT would have to be selected to maximize convenience to the MIT community, perhaps somewhere near the center of campus. For those individuals who do not need the book today, it could be delivered by Institute mail to the person’s MIT mail address the following day.

Richard Larson with valuable inputs from Yossi Sheffi
The convenience of this service should rival the service now provided by the on-campus stacks system. But the new system is likely to be even better than the status quo. Often a person seeks a book, only to find that the nearest copy is located at another Boston-area university or college, and then it is acquired for borrowing through the inter-library loan system. This takes days, sometimes many days. But if most Boston-area colleges and universities participate in the proposed program, then all shared books would be just as available as those originally purchased and owned by MIT. The warehouse would be one giant shared library! No more special activities for inter-library loans. There is still another advantage. Newer books are often so popular that several copies must be purchased in order to assure that people who need them can find them available and not all out on loan. If each individual library system must do this, then many books are purchased. But if this problem is confronted by the shared system, with its giant warehouse, then the law of large numbers suggests that the total number of such popular books that must be purchased to assure a given level of availability to book borrowers is less, sometimes much less, then that in the each-institution-goes-it-alone system.

If other Boston-Cambridge-area universities and colleges were to participate in such a program, the program could be viewed as a test bed for much greater collaboration, perhaps even national in scope. One can imagine the great bargaining power in various procurements if the colleges and universities of the area (or even nationally) got together and merged many of their purchasing needs. One can even imagine starting a for-profit company that simultaneously offers huge cost savings to participating institutions of higher education and yet makes a healthy profit for shareholders. The health care area has seen the emergence of such companies over the years, companies such as American Hospital Supply Corporation (purchased by Baxter Travenol Laboratories in 1985), Shared Medical Systems (purchased by Siemens in 2000), Universal Hospital Services (acquired in 2007 by an affiliate of Bear Stearns for $712 million), and Angelica (acquired by Lehman Brothers in 2008 for $300 million).

Just in case we think that market size for higher education is nowhere near that of health care, we give some approximate statistics. There are over 4,000 institutions of higher education in the United States, with enrollment of over 17 million students. There are about 7,500 hospitals in the United States but with less than one million beds. Customer ‘churn’ in hospitals is far greater then that of colleges and universities, as hospitals admit about 35 million people per year. But the ‘market sizes’ of the two markets appear to be in the same order of magnitude.

So, we have here an opportunity that could affect simultaneously various MIT Provost appointed Task Forces: cost savings, revenue enhancement, space, administrative processes and procurement.