Research Administration Improvement Initiative (RAII)

Report of the Roles and Organizational Structure Team

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Research Administration Improvement Initiative
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Executive Summary

As part of the Research Administration Improvement Initiative (RAII) the Roles and Organizational Structure Team was asked to review and understand organizational models in the DLCs, as well as the roles and responsibilities of those involved in research administration across the Institute. The nature of research administration is changing, and the administrative structures within the university setting must evolve if we are to continue to meet the needs of the faculty and our sponsors. These changes are driven by increasing complexity of electronic tools, regulatory and compliance issues, and interdisciplinary, multi-institutional research programs.

A variety of funding models exist for supporting administrative staff across campus, and these funding models are driving the organizational structures and staffing levels of the departments, laboratories and centers (DLCs). Center grants and allocation accounts allow for centralization of most sponsored research administration in research centers and in laboratories. Academic departments primarily rely on Institute operating funds to provide for administrative staffing. With limited Institute funds, many units depend on administrative assistants working in direct support of faculty to manage sponsored research activities. As a result of these varying funding models, it is extremely difficult to change the organizational structure in one DLC, and seemingly impossible to achieve uniformity across the DLCs. The Institute needs to work toward achieving consistent funding levels for the DLCs, or accept the variety of organizational structures that exist, while working to enhance existing models to compensate for weaknesses caused in part by the funding models.

There is an assumption that a centralized organizational structure provides for a greater level of control than a decentralized organization; however, the Team’s preliminary review of internal audit findings did not show a difference between centralized and decentralized units. Still, we are seeing trends in decentralized academic areas to gravitate toward greater centralization of pre and post award research administration, and these moves should be encouraged. A preliminary evaluation of staffing across the DLCs indicates that wide variances in staffing exist across the units. These variances in both the numbers and levels of positions are problematic and deserve further evaluation. It is critical that the Schools work to assure appropriate levels of staffing across the units irrespective of the funding model.

Successful organizational models must include clearly defined roles, responsibilities and lines of accountability. The Team has prepared the Life of a Grant Process Hierarchy and the Roles and Responsibilities Accountability Matrix (appended to this document) for administrators to use in reviewing and assigning accountability to individuals within their areas. While it may be difficult to solve the overarching issue of inconsistent funding models across campus over the near term, addressing issues of staffing and accountability will allow us to continue to respond to the demands of an increasingly complex research environment, and to assure effective research administration and a high level of compliance at the Massachusetts Institute of Technology (MIT). The Team’s specific recommendations are included at the end of this report.
I Introduction

Charge to Team: As part of the Research Administration Improvement Initiative (RAII) the Roles and Organizational Structure Team was asked to review and understand organizational models in the DLCs, as well as the roles and responsibilities of those involved in research administration across the Institute. The goals of the Team were to study effective organizational models that currently exist, identify enhancement opportunities, and propose other models that could be implemented. The Team worked to understand issues of accountability related to research administration, and documented assignment of accountability to roles within DLC administration, as well as within the central units responsible for research administration, specifically the Office of Sponsored programs (OSP) and the Controller’s Accounting Office (CAO).

Process: The Team met on a weekly basis beginning November 14, building on the work accomplished by an earlier team comprised of Jonathan Bartels, Gillian Emmons, Deborah Fisher, Colleen Leslie, Diane MacDonald and Marilyn Smith. Team members sought input from individuals across the Institute, including representatives of the Audit Division, OSP, and CAO. The Team also gathered data from Assistant Deans and Administrative Officers in research intensive areas in an effort to gain a broader perspective of the challenges facing research administrators. The Team reviewed organizational models that exist at the Institute and considered possible new structures, examined assignment of accountability for research administration tasks, began a preliminary evaluation of staffing in the DLCs, and reviewed the most prevalent internal audit findings. Team members also began a preliminary review of materials pertaining to research administration and compliance at peer institutions in order to leverage efforts to the greatest extent possible, and produced two documents to assist administrators in evaluating issues of accountability.

The work of the Roles and Organizational Structure Team complements the efforts of the RAIi Technology Resources, Processes and Policies and Training Teams to improve the effectiveness of research administration on campus. For purposes of this review, the Team defined research administration within a narrow scope. The group focused on the “life of a grant”, which encompasses the processes of applying for and receiving funding, expending and managing resources in support of research, and reporting to sponsors. The Team recognizes that overall sponsored research administration is actually much broader in scope, involving issues such as space and facilities management, human resources (HR) administration, patents and intellectual property, environmental health and safety, information systems and intellectual integrity.

In addressing issues of staffing, Team members did not consider these broader issues, but focused on those issues most visible to OSP, CAO and the Audit Division, because these are the issues of greatest concern in terms of compliance. While it did not seem feasible to complete a more comprehensive review within the short time frame available to the Team to perform this work, it is important to remember that research administration does encompass a larger scope of activities when considering organizational models. It is
important to fully integrate the narrowly focused pre and post award research administration activities discussed in this report into the overall operations of an academic department or research unit in order to assure success.

In performing this review, Team members were able to draw upon their own experiences working in academic departments and research units within the Schools of Science and Engineering, as well as in the interdisciplinary laboratories and centers reporting to the Vice President for Research. This work was approached with an inherent understanding of existing organizational structures at the Institute, and knowledge of the strengths and weaknesses of centralized, decentralized and hybrid organizations. This review was completed with an understanding of the differences between academic departments and research centers/laboratories, and recognition of the challenges in accomplishing broad based change at MIT.

We should proceed thoughtfully when considering what changes may be needed to assure that research administration continues to be well done across the Institute. Different organizational models are appealing to different DLCs for sound reasons, and support mechanisms or gradual changes may be all that is needed to strengthen existing models. Any changes in organizational structure must be coupled with appropriate levels of staffing and clear assignment of accountability, taking into consideration the needs of the faculty and the units. Addressing issues of staffing and accountability, even without changes in organizational structure, will assure excellent research administration and compliance with a number of different models working effectively across campus.

II Forces Driving Us to Review Organizational Structures

In recent years, we have witnessed increasing complexity of regulatory and compliance issues. Common practices are now scrutinized. Research grant applications are more complex as well. Highly interdisciplinary proposals involving a number of Principal Investigators (PIs) across a series of academic units with subcontracts to other universities and industries are now common. This increasing complexity is the overriding driving force that pushes us to consider and evaluate organizational models within the DLCs.

We have also witnessed increasing complexity of administrative tasks. With the advent of a multitude of electronic tools for managing financial, sponsored research, HR and payroll activities at the Institute, and the movement by funding agencies toward electronic proposal submission, the opportunity to have a few highly skilled individuals handling increasingly complex tasks may be appropriate in some areas. A given unit must now possess the technical ability to use web based procurement tools for purchasing activities, Roles Database for managing authorizations, SAP for financial review and control (FRC) activities, COEUS for sponsored research administration, electronic grant application preparation and submission tools such as COEUS and Fastlane, Brioquery for generating financial and HR reports from the Data Warehouse, NIMBUS for completing annual budget submissions, the electronic payroll and staff appointments and distribution (SANDI) system, and the student information system (WebGradAid). In addition to...
these existing systems, the HR module of SAP will soon be implemented for HR activities, with uncertain implications for the academic and research units. The electronic DACCA (eDACCA) for salary certification, and the electronic salary distribution system (eSDS) replacing the paper DINDI and electronic SANDI are scheduled for implementation in July of 2006.

An individual requires dedicated training and considerable practice in order to be able to use any of these tools successfully, and it is difficult for any individual to become well versed in all of these tools. As critical daily administrative functions become increasingly complex, it is both appealing and necessary to have a small number of specialists accomplishing these activities for the largest number of faculty groups possible. It is unrealistic and unnecessary to train a large number of Administrative Assistants (AAs) to perform all of the required tasks. The decentralized management of sponsored research accounts, which has served many academic units so well for so long, will need additional support structures if this model is to remain effective well into the future. The overall nature of research administration is changing, and it is appropriate for some administrative structures to evolve in order to meet the needs of the faculty and our sponsors.

III Review of Organizational Models

A. The Team surveyed organizational models across the Institute, and found that the prevalent models are centralized organizations, decentralized organizations and a hybrid of these two types.

Centralized Organization

In a centralized organization, all pre and post award management would typically be handled by a relatively small group of individuals with specialized training in financial management specific to research administration in the university setting. The following items illustrate the types of activities that might be handled.

- Pre award administration, including the preparation of grant and contract budgets and application forms, compilation of complete proposals reviewed for compliance with Institute and sponsor guidelines;
- Maintenance of authorizations in the Roles Database;
- FRC activities, previously referred to as account reconciliation;
- Management of labor distribution and effort reporting, distributing and collecting signed copies of the DACCA’s, processing changes in the electronic SANDI system and on paper DINDI’s, and reviewing and clearing items in suspense;
- Initiation or approval of procurement activities;
- Approval to pay invoices;
- Verification of credit card purchases;
- Retention of documentation for backup;
- Processing travel vouchers and management of delinquent travel report lists;
- Processing journal vouchers;
- Monitoring telephone usage;
- Review of overrun lists and resolution of overruns;
- Oversight of spending rates through reports such as 90 day to expire report; and
Handling WBS element close out action notices.

Tasks are commonly distributed in one of two ways within a highly centralized organization. In the first example, a wide range of activities are handled by one individual in a “cradle to grave” manner. The same individual might prepare the grant application, monitor expenditures once funding is received, and facilitate close-out of the project once completed. In the second example, a variety of individuals handle more narrowly defined tasks. One individual might concentrate on pre award activities, and a second person might handle post award activities. Both organizational structures can work quite well. It is most common for research centers and laboratories to be managed on a centralized basis, and for academic departments to be managed on a decentralized basis. The reason for this is a result of the current funding models available to support administrative personnel across the DLCs.

Many research centers and/or laboratories have center grants that provide funding for core administrative personnel. A number of research centers and/or laboratories have adopted allocation methods, where research grants are assessed a fee calculated as a percentage of actual expenditures. These fees are transferred to an allocation cost object, which is then available to support administrative personnel and operating expenses for the center or laboratory. This method can be advantageous as research volume increases, because funding for additions to headcount becomes available automatically. There are also inherent risks associated with this funding model. When research volume falls below a critical level, inadequate funding is generated to support base staffing levels. We are now seeing large interdisciplinary programs involving a number of PIs from a variety of DLCs, some assessing allocation costs and others having no fees of this nature, creating a level of complexity and budgeting challenges within large interdisciplinary proposals. The use of allocation accounts makes MIT vulnerable, and it is unclear how the Institute will respond if forced to phase out this funding mechanism in the future.

Cradle to Grave Centralized Organizational Structure
Decentralized Organization

In a decentralized organization pre and post award activities would typically be handled by AAs reporting directly to faculty members across an academic department. Oversight would be provided by the Administrative and/or Fiscal Officers (AO and FO).

Activities handled by Administrative Assistants:

- Pre award administration, including the preparation of grant and contract budgets and application forms, and compilation of complete proposals for review by Administrative and/or Fiscal Officer;
- FRC activities, previously referred to as account reconciliation;
- Initiation or approval of procurement activities;
- Approval to pay invoices;
- Verification of credit card purchases;
- Retention of documentation for back up;
- Processing travel vouchers;
- Processing journal vouchers; and
- Handling WBS element close out action notices.
Oversight provided by Administrative and/or Fiscal Officers:

- Research proposals reviewed for compliance with Institute and sponsor guidelines;
- Maintenance of authorizations in the Roles Database;
- Management of labor distribution and effort reporting, distributing and collecting signed copies of the DACCA’s, processing changes in the electronic SANDI system and on paper DINDI’s, and reviewing and clearing items in suspense;
- Approval of procurement for items over a spending limit;
- Monitoring telephone usage;
- Review of overrun lists and resolution of overruns;
- Oversight of spending rates through reports such as 90 day to expire report; and
- Management of delinquent travel report lists.

As noted above, it is most common for academic departments to be managed on a decentralized basis, because the lack of adequate general operating funds makes it difficult to fund centralized positions for research administration.

**Decentralized Organizational Structure**

Each of the existing models described above could be enhanced with additional training opportunities for staff members, and by strengthening the ties between the DLC administrators and their respective OSP representatives. In addition, the decentralized model could be modified as shown below by separating the sponsored research tasks completed by AAs from the other administrative tasks in support of the faculty, and by creating a formal oversight/reporting relationship between those responsible for FRC activities and the Fiscal Officer. This would integrate the most complex and compliance related activities within the fold of headquarters operations.

**Modified Decentralized Organizational Structure**
Hybrid Organization

All decentralized organizations are in fact a hybrid of tasks handled on a decentralized basis plus oversight accomplished through the headquarters area. Decentralized academic units vary in terms of which activities are decentralized versus centralized. The following organizational structures illustrate the variety of structures in the academic units across MIT, and are interesting to consider.

Department of Aeronautics and Astronautics:

In the Department of Aeronautics and Astronautics research administration is decentralized through four FOs serving nine research laboratories, and two Program Coordinators (PC) supporting a major grant and center of excellence. FOs and PCs are responsible for cradle to grave administration of projects in their assigned areas. This includes all pre award administration, and FRC activities through cost object close-out. Fiscal Officers are responsible for assuring appropriate salary distributions, and providing procurement oversight. In some cases AAs process travel documents, prepare requisitions, and assist FOs in proposal preparation.

Administrative Services Organization:

The Administrative Services Organization (ASO) provides financial and human resources administration, as well as a number of other administrative services, for the Departments of Chemical Engineering and Materials Science and Engineering (DMSE), the Center for Biomedical Engineering (CBE) and Archaeology. The Organization was created as an experiment within the School of Engineering approximately eight years ago. Though the implementation phase was difficult, the Organization is now running smoothly. ASO is a hybrid organization where the majority of all pre award and many of the post award activities are centralized. Procurement activities are decentralized, and some FRC activities still occur on a decentralized basis. The structure of the ASO varies from other administrative structures on campus in that it serves more than one academic unit in the School of Engineering, and one research center reporting to the Vice President for Research.

A few large academic departments such as the Department of Electrical Engineering and Computer Sciences (EECS) and Physics handle instructional activities through the academic departments, but manage research activities by having faculty affiliate with one or more of the Institute’s research laboratories and centers. Pre and post award research administration is then handled through those laboratories and centers.

B. The following additional organizational models have been considered by the Team and members of the community. At present, only the Research Administration Services (RAS) model is being implemented.
Research Administration Services Pilot

The Research Administration Services structure is being implemented on a pilot basis to support the Department of Mechanical Engineering and the Laboratory for Manufacturing and Productivity (LMP). The RAS will provide for the cradle to grave administration of sponsored research projects for faculty in these areas. Dedicated research administration specialists will work in the centralized organization. The goal is for RAS to assign responsibility for research administration activities to individuals with clearly defined roles and responsibilities who have the appropriate training and the necessary skills and expertise to provide excellent service to faculty.

The RAS is envisioned as an extension of OSP with a dual reporting line to the Head of the Department of Mechanical Engineering and the OSP Director. Since the RAS will be located in the Department, responsibility for daily management of the RAS will belong to the Department. The OSP Director together with the Mechanical Engineering Department Head will be responsible for staffing the RAS, and OSP will be responsible for training the RAS staff. These positions will be part of the OSP budget, and will be built into the F&A base for purposes of providing a funding mechanism. This model, like this report, focuses on activities related only to the “life of a grant”. The integration of these activities with other areas of research administration, including human resources and space management, has not been defined.

While it is hoped that this model will be successful in providing excellent service to the faculty served by the RAS, it would most likely be quite difficult to duplicate this model on a widespread basis due to the impact on the indirect cost rate.

Decentralized Organization with Team Based Approach

The decentralized model can be enhanced. Rather than having one AA reporting to a small group of two or three faculty performing both administrative and financial tasks, one could have a Fiscal Assistant (FA) and an AA with shared responsibility for handling the needs of perhaps four to six faculty. In such a scenario it is envisioned that the FAs would report to a DLC Fiscal Officer, and the AAs would report to the faculty. This approach has merit in terms of strengthening a decentralized organization, and should receive further consideration.

Modified Version of ASO Model

The ASO model could be considered for small units, where administration is provided by a dedicated group of staff for a number of small academic units. This may be feasible in areas such as Humanities or Architecture, where individual Administrative Officers may process only a few research grant applications, and do not have the opportunity to gain expertise. A grants and contracts Fiscal Officer could provide great assistance to these individuals in preparing electronic submissions and adhering to compliance guidelines.
A second variation on the ASO model is to link one academic unit with research laboratories involving large numbers of that unit's faculty, rather than to link multiple academic units. This provides for “one stop shopping” for the faculty involved. This option may have merit should MIT be forced to phase out allocation costs in the future.

**Dedicated Individual in OSP to Prepare Grant Applications for Small Units**

Many units struggle with the pre award phases of research administration, specifically grant preparation, regardless of organizational model. This is particularly true in small areas that submit relatively few grant applications. It would be very useful to have a dedicated individual in OSP to prepare grant submissions directly, or to assist administrators in preparing applications. The need is becoming more urgent as we work to respond to sponsor demands for electronic grant submissions, and face a near term future where use of grants.gov via COEUS becomes mandatory.

**IV Challenges in Accomplishing Change**

If no organizational structures were in place, it might prove useful to select one model for implementation across the Institute. Since each DLC currently has a structure however, it is not realistic to consider implementing new structures Institute wide. It is more prudent to address problems as they arise within units encountering difficulties. In some cases, the implementation of a new structure may be appropriate in addressing problems, however, one should not look to a new organizational structure to solve human resource issues, where personnel changes alone can solve existing problems. While the concept of decentralized Administrative Assistants performing research administration presents challenges, strong oversight from a competent and well trained Fiscal Officer with appropriate staffing provides for a well managed department with minimal compliance risk. Of course one of the major challenges in considering implementation of a new organizational structure with greater centralization is how to successfully migrate from a decentralized to a more centralized approach. One concept that has been discussed is the option of identifying AAs in a given decentralized academic organization with financial skill, and moving these individuals into a centralized finance office. Other AAs would be assigned non financial tasks in support of the faculty.

There are many challenges to accomplishing this type of change at MIT including money, space and emotional resistance. The practice of supporting administrative staff on single investigator sponsored projects cannot be justified in a centralized academic organization, and allocation cost objects have been limited to use in research units. Accomplishing greater centralization in the academic areas will require an investment of general resources, the level of which has not been quantified. The centralized approach requires that staff work in close proximity to each other, requiring dedicated space, which could be quite difficult to achieve in many areas. Any major change of this nature would require the support of the faculty, which may have its own set of challenges.

The strongest barrier to accomplishing organizational change in the DLCs is the fact that the variety of funding models for supporting administrative staff across the DLCs are the
driving force behind the organizational structures that have evolved. As indicated previously, research centers and laboratories are most commonly managed on a centralized basis, while academic departments are primarily managed on a decentralized basis. The primary reason for this is the availability of center grants and allocation accounts to support administrative personnel for centers and laboratories. The funding provided through these mechanisms allows for the staffing needed to handle research administration on a centralized basis. While research centers with core grants are constrained by sponsor caps on the cost of administration, and allocation units need to keep their rates low, these units have the ability to centralize administrative functions because they have control of the resources centrally.

The academic units lack adequate funding for administrative personnel to handle all aspects of research administration including space, human resources issues and student activities on a centralized basis. As a result, they have grown dependent on faculty controlled research grants to support AAs who handle some research administration tasks, forcing a decentralized structure. The dependence of the DLCs on varying funding models for administrative staff across campus makes it difficult to change the organizational structure in one DLC, and seemingly impossible to achieve uniformity across the DLCs.

V Issues of Accountability

Ideally, responsibilities for research administration would always be assigned to individuals with clearly defined roles and appropriate training. Any organizational structure must be complemented by appropriate levels of staffing and clear assignment of accountability if it is to be successful. In order to begin to address issues of accountability, and to assure excellent research administration and compliance, Team members prepared two documents, which are appended to this report. The Life of a Grant Process Hierarchy (Attachment A) traces the cradle to grave processes of preparing a grant application through its active phases and project close-out. This process hierarchy organizes the life of a grant into twelve phases as follows:

1. Identify funding opportunities;
2. Prepare and route proposal;
3. Review and submit to sponsor;
4. Negotiate with sponsor;
5. Receive funding award;
6. Set up award and cost object/s;
7. Transact against award;
8. Manage sponsored award;
9. Report on award;
10. Collect funds;
11. Close award and cost object/s; and

The broad functions outlined in the Life of a Grant Process Hierarchy are further detailed in the Roles and Responsibilities Accountability Matrix (Attachment B). The purpose of these two documents is to assign primary accountability to either the central or academic units, with the goal of providing a management tool to assist individual DLCs and central
units in reviewing and assigning accountability to individuals within these areas. The Roles and Responsibilities Accountability Matrix was reviewed by representatives of OSP and CAO to assure accuracy of the information, and they are in agreement with the assignment of tasks between centralized and DLC administrators. The tools will prove useful to DLCs for self evaluation when facing staffing vacancies, and will assist in developing training programs, as the documents highlight topic areas where training is needed.

It is important to note that while a variety of organizational structures exist within individual units at the Institute, lines of accountability are present throughout the MIT organization. Accountability related to research administration is tied to the faculty in the DLCs through the Deans, the Vice President for Research and the Provost. OSP and CAO work in collaboration with the DLCs to provide an oversight role. The tension that sometimes exists between the DLCs and the central units may be in part due to this oversight role, but these tensions work to assure compliance with Institute standards.

VI Staffing Issues

The Team chose to begin a preliminary evaluation of staffing related to research administration in the DLCs, by collecting data regarding structure, staffing, research volume and Principal Investigator counts. Sample profiles were prepared for fifteen DLCs across the Schools of Science and Engineering and the interdisciplinary laboratories. The Team wished to review numbers and levels of positions with responsibilities for research administration, with the goal of making recommendations for appropriate base-line staffing levels. It will be necessary to analyze sponsor mix and complexity of grant applications and awards, and to quantify support received from outside headquarters through decentralized AAs in order to adequately evaluate this data. In addition, a greater number of units must be reviewed. While the complexity of the data did not allow the Team to complete this review in the detailed manner necessary to make sound recommendations, preliminary observations can be offered.

Wide variances in both the numbers and levels of research administration positions exist across the units without obvious justification for this occurrence. Availability of resources is likely a contributing factor. These variances are problematic, and deserve further review and evaluation. The method of funding positions (allocation, center grant, other direct research, general funds, indirect cost base) is driving the number of positions provided to support research administration across the DLCs. Staffing levels should be consistent across the units, irrespective of the funding model. It is recommended that the Institute accomplish a review of staffing levels across the DLCs in support of research administration, and attempt to address inequities that exist. Some have the impression that it is easier to obtain approval to add headcount to the Sponsored Research Administrative Staff category, which are supported by research funds, than to the Administrative Staff category supported by Institute general operating funds. The Administrative Staff category is used in the academic departments, and due to pressure not to increase headcount, it is difficult to obtain approval for new positions. One must
consider the possibility that problems arising with managing workload have as much to do with inadequate staffing as with organizational structure.

One issue that must be addressed to facilitate improved research administration is the difficulties the DLCs face in attracting and retaining good people to Fiscal Officer roles. While part of the issue is attributable to compensation, quality of life issues are more overriding. Inadequate staffing in terms of the numbers of positions supporting these roles, coupled with the high pressure associated with multiple and constant grant deadlines, difficulties in gaining timely response from faculty during the pre award phase in meeting these deadlines, and new technology for grant submissions make the Fiscal Officer role stressful. One must consider the issue of sheer volume. The volume issue in a large area can become quite intense, and one must wonder at what point the pressure to respond to deadlines during the pre award phase results in lack of adequate oversight during post award financial review and control. Appropriate staffing will help to relieve stress, and appropriate compensation will help to reward good performance and retain good people, improving overall compliance. Less than adequate staffing leads to burn out, errors and turnover.

There is also the need for promotional opportunities for Fiscal Assistants to obtain the training and skills needed to become Financial Administrators. Succession planning is needed in large areas, so that junior staff members can prepare to absorb broader responsibilities over time, providing stability and continuity as higher level positions open. Appropriate staffing coupled with promotional opportunities for fiscal staff in the DLCs is greatly needed in order to assure stability and compliance. In addition, there is concern that the job levels of research administrators across campus are inequitable. For example, a Fiscal Assistant in one unit may be performing the same tasks as a Financial Administrator in another area. It will be increasingly difficult for the DLCs to access the appropriate pool of talent if compensation is not appropriate and equivalent across the schools, central and academic areas.

The Team began a preliminary review of activities at other universities, and it appears that other organizations are facing similar issues to those experienced at MIT. The Huron Consulting Group completed the Research Administration Assessment for Georgia State University (GSU), and made the following recommendation in their report of July 5, 2005: "GSU should develop measurable criteria, such as research expenditures per full time equivalent (FTE) or awards per FTE, for making staffing decisions within the academic units. While each college may have slightly different criteria based on roles and responsibilities, as a general rule, a department/college should strive to have at least one administrator dedicated to research administration for a targeted range of research activity, such as every $2 to $3 million in sponsored expenditures."

Harvard Medical School has also adopted a formula for staffing research administration activities. The School provides units with one FTE per $1.5 million of research volume. It is interesting to compare these guidelines to staffing levels seen in the fifteen units reviewed by the Team. Headquarters staffing levels ranged from .16 FTE to 1.6 FTE per $3 million in research expenditures in fiscal year 2005. Eight units had less than one
FTE per $3 million in expenditures, and seven had one or higher, with only one unit having 1.5 FTE or greater.

In addition to research volume, which is an indication of post award activity levels, other factors must be considered. This includes the number of proposals submitted, which is an indication of pre award activity levels. According to data gathered from OSP, the unit with .16 FTE headquarters staff generated 114 research proposals during fiscal year 2005. During this same time period, one large academic unit with .77 headquarters FTE prepared 140 proposals, and another unit with .74 FTE submitted 200 applications. The unit with the highest level of staffing at 1.6 FTE submitted 102 proposals. It would be instructive to further investigate how other research universities have attempted to quantify staffing levels needed to assure excellent research administration. As noted earlier, sponsored research administration is much broader in scope than those activities discussed in this report. It is important to consider issues such as space and facilities management, human resources administration, patents and intellectual property, environmental health and safety, information systems and intellectual integrity when addressing issues of staffing.

VII Specific Audit Findings

One of the primary reasons the Team was asked to consider and evaluate organizational models across the DLCs is the existence of consistent low to moderate risk audit findings encountered during the internal audit review process. The Team met with the Head of the Audit Division to review audit findings by DLC across the units. One might wonder if audit findings indicate greater risk in one organizational model, such as a decentralized unit, but preliminary review of internal audit findings does not show that any given organizational model carries greater risk than any other.

Recent internal compliance and financial reviews conducted by the MIT Audit Division showed the following issues to be the most prevalent items of concern across the DLCs. These are issues that cannot be addressed through changes in organizational models. While a move to greater centralization may help administrators deal with increasing complexity, this will not solve the issues encountered during internal audits. The direct charging of administrative costs to research is a policy issue, which must be addressed broadly by the Institute. The remaining items require improved training, and should be linked to the STAR curriculum. Training closely coupled with clear accountability and appropriate staffing are needed to address the issues described below.

- Direct charging of administrative costs to research:
  Federal guidelines state that “direct charging of these costs may be appropriate where a major project or activity explicitly budgets for administrative or clerical services and individuals involved can be specifically identified with the project or activity.” In addition, A-21 guidelines require consistency in our approach to direct and indirect charging of support staff time. Academic departments generally provide a percentage of an AA to support the work of each faculty member, and this level of support varies across the DLCs with between 5% and 50% support provided through general funds. Direct
charging the percentage of support staff time not covered by general funds to research grants is the normal practice in many departments across the Institute. If we are to solve this problem, increased general operating funds are required to support the cost of salaries for support staff directly assisting the faculty in support of academic efforts.

- Lack of certification by individuals involved in human subject testing: Until recently, policies surrounding this issue have been unclear, but recent communications from the Vice President for Research have helped to clarify which individuals are required to complete human subjects training. These efforts should help to improve compliance.

- Lack of certification of effort by an individual with first hand knowledge: The implementation of the electronic effort certification process (eDACCA) scheduled for July 2006 may make it easier for units to review compliance in this regard. The new process will also make it easier for auditors to determine which units or faculty members are not in compliance. The burden remains on administrators in the units to communicate with the faculty in order to assure that they receive signed paper backup to allow administrators to electronically certify by proxy.

- Insufficient credit card controls: The issues of insufficient credit card controls include unsupported charges, purchase of restricted items, charges split to circumvent transaction limits, and lack of cancellation or transfer of cards issued to former employees. While the availability of the credit card allows us to expedite work, the inherent risk associated with the use of a credit card makes issues of control in the procurement process even more difficult to insure. If the use of the credit card is to continue at MIT, the Institute will need to accept a certain level of tolerable risk. Ongoing mandatory training for both purchasers and verifiers is needed, and an annual renewal process for procurement cards is recommended. On-line training could possibly be offered, with a mechanism to certify that material has been reviewed, perhaps in the form of an examination. Credit cards should automatically be terminated upon the termination or transfer of an employee.

- Lack of documentation for monthly review of financial transactions: It is difficult to determine from the audit findings whether financial review and control procedures are occurring without documentation that this has in fact occurred, or if the FRC activities are not always being conducted. The issue of documentation can easily be resolved through training by simply reminding individuals to endorse the FRC sign-off sheet. If FRC tasks are not being completed in some areas, this is most likely related to staffing, which can only be resolved through an increase in personnel dedicated to these tasks.

- Insufficient information systems controls: Issues related to insufficient information systems controls include lack of contingency plans (back-ups), lack of data security controls, and system authorizations not being reviewed and updated in a timely manner. While this is an issue of concern Institute wide, this is not considered to be an issue of research administration, and for this reason is not addressed by the Research Administration Improvement Initiative.
VIII Conclusions

The success of an organization is more dependent on the people within the organization coupled with appropriate staffing levels than on the organizational model in which these individuals work. A variety of good organizational models exist across the DLCs, and each can work within the appropriate setting given adequate staffing and well trained, highly motivated people. It is important to have clearly defined responsibilities and an understood structure of accountability to complement the organizational model. Even with what might be considered to be the most effective model, if staffing is inadequate or if the supervisor is weak and not accountable, audit findings are likely to appear.

It is easy to say that we wish to assign responsibility for research administration to individuals with clearly defined roles, appropriate training and the necessary skills to provide excellent service to faculty. Assuring that this occurs will require a commitment to providing staffing and training. Wide variances in staffing exist across the units. These variances in both the numbers and levels of positions are problematic, and deserve further evaluation. Preliminary review of activities at other universities suggests that some institutions are moving in the direction of providing specific guidelines for staffing based on a formula for funding a given number of FTEs per million dollars in research expenditures. This approach is deserving of further consideration.

As discussed above, it is important to assure that clear lines of responsibility exist throughout the MIT organization. While a variety of organizational structures exist within individual units at the Institute, lines of accountability are present throughout MIT. Accountability related to research administration is tied to the faculty in the DLCs through the Deans, the Vice President for Research and the Provost. OSP and CAO work in collaboration with the DLCs to provide an oversight role.

While Team members believe that a centralized organizational structure provides for a greater level of control than a decentralized organization, this has not been substantiated by audit findings. Still, we are seeing trends in decentralized academic areas to naturally gravitate toward greater centralization of pre and post award research administration, and moves in this direction should be encouraged. These changes are being driven by the increasing complexity of electronic tools, regulatory and compliance issues, and large, interdisciplinary, multi-institutional research programs. DLCs are recognizing the need for a small number of individuals with specialized expertise and skills to master increasingly difficult daily tasks. The constant pressures to meet pre award deadlines, and the increasing complexity of proposal preparation cause concern that it will become increasingly difficult to address low level audit findings related to post award administration if staffing issues are not addressed.

Of course one of the major challenges in considering implementation of a new organizational structure with greater centralization is how to successfully migrate from a decentralized to a more centralized approach. The variety of funding models for supporting administrative staff across the DLCs are driving the organizational structures in addition to the staffing levels. The RAS pilot now being implemented in Mechanical...
Engineering is yet a new and different funding model, and the need to fund positions through the F&A base is driving reporting relationships and organizational structure.

As noted above, research centers and laboratories are most commonly managed on a centralized basis, while academic departments are primarily managed on a decentralized basis. The availability of center grants and allocation accounts to support administrative personnel for the center or laboratory allow for the additions to headcount needed to handle research administration on a centralized basis. Academic departments rely on Institute general operating funds to provide for administrative staffing, and the level of funding available to most departments is inadequate to support the headcount needed. The lack of adequate general funds to support administrative positions has forced the departments to become dependent on faculty controlled research grants to support AAs, and this makes it difficult to move away from decentralized research administration. The issue of supporting AAs on research grants is intertwined with the difficulty of migrating from a decentralized organization to a more centralized approach. There are inadequate dollars in the general budgets of most, if not all, academic units to be able to make up for the dollars from research grants for AA salaries, and so attempts to reorganize these staff members are paralyzed.

The dependence of the DLCs on varying funding models for administrative staff across campus makes it difficult to change the organizational structure in one DLC, and seemingly impossible to achieve uniformity across the DLCs. The Institute needs to work toward achieving consistent funding levels for the DLCs, accept the variety of funding models and organizational structures that exist, and/or work to enhance existing models to compensate for weaknesses caused in part by the funding models.

It would be most effective to focus on strengthening decentralized organizations by providing resources to allow Administrative and Fiscal Officers to centralize the most complex work, while retaining the overall decentralized approach for supporting basic financial tasks such as procurement and invoice approval. One must have appropriate staffing to centralize work. Team members believe that most Administrators and Fiscal Officers would choose to centralize some work if given funding to support new positions. In addition, one must determine how to effectively capture and utilize the released time for AAs no longer needing to accomplish research administration. Over time, a gradual decrease in the numbers of AAs providing direct support to the faculty would be expected, lessening the burden on research grants for this support.

Alternatively, financial tasks could be separated from administrative/academic tasks by having dedicated financial assistants and dedicated administrative assistants serving a group of faculty. The team was mindful that one of the goals of RAII is the reduction of administrative burden and improved services to the faculty. While organizational changes will directly affect the work of administrative assistants supporting the faculty, these changes are sought to improve the delivery of research administration services to the faculty. Team members are hopeful that recommendations included in this report will receive serious consideration for implementation, and appreciate the opportunity to contribute to this effort.
IX Recommendations

The Team offers the following specific recommendations for consideration. Team members recognize that these recommendations may have funding implications, the level of which have not been quantified.

Organizational Models:

- It is recommended that MIT work to strengthen decentralized organizations by providing resources to allow Administrative and Fiscal Officers to centralize the most complex work, while retaining the overall decentralized approach for supporting basic financial tasks such as procurement and invoice approval.

- It is recommended that the Research Administration Services structure being piloted in the Department of Mechanical Engineering be formally evaluated two years after initial launch, to determine if the pilot is successful prior to consideration of duplicating the model elsewhere on campus. The evaluation should include a survey of faculty supported by the RAS.

- It is recommended that the Office of Sponsored Programs have a dedicated individual to prepare grant submissions, and/or to assist administrators in preparing applications, in order to support small units submitting few grant applications. This need is urgent in light of sponsor demands for electronic grant submissions, and mandatory use of grants.gov via COEUS in the near future.

Staffing:

- It is critical that the Schools work to assure appropriate levels of staffing across the units irrespective of the funding model. It is recommended that staffing guidelines be developed and agreed upon. It is also recommended that the Institute accomplish a review of staffing levels across the DLCs in support of research administration, and attempt to address inequities that exist despite funding implications. Further review of formulas for staffing levels at peer institutions will be useful.

- The Institute must work to assure that job levels of research administrators across campus are equitable, so that Schools, central units and DLCs have equal access to the appropriate pool of talent. It is critical to assure that individuals are appropriately compensated for the work they perform.

- It is recommended that the Institute work to specifically create promotional opportunities for Fiscal Assistants, so that junior staff members can prepare to absorb broader responsibilities, providing stability and continuity as Fiscal Officer positions open.

Accountability:

- It is recommended that the Institute endorse the Life of a Grant Process Hierarchy and the Roles and Responsibilities Accountability Matrix, and that these tools be made available through the MIT website to administrators for the purpose of reviewing and assigning accountability to individuals within their areas.

Audit Findings:

- Ongoing on-line mandatory training for both credit card purchasers and verifiers is needed, and an annual renewal process for procurement cards is recommended. Credit cards should automatically be terminated upon the termination or transfer of an employee or student.