

Johns Hopkins University

**METRICS FOR DETERMINING STAFFING NEEDS IN DEPARTMENTAL
RESEARCH ADMINISTRATION OFFICES**

A Capstone Paper Submitted to the
Krieger School of Arts and Sciences
Advanced Academic Programs
in Partial Fulfillment of the Degree of
Master of Science in Research Administration

by

Donna Schriver

Baltimore, Maryland
May 2018

Abstract

Departmental research administrators are the link between researchers and the offices of sponsored projects at major universities. They also serve as liaison between the researcher and the agencies that fund their research projects. Today's funding environment has become increasingly competitive and complex with the increase of compliance requirements mandated by the Federal government, funding agencies and research institutions. It is imperative that research administration keep apprised of these changes to assist their researchers in securing and managing sponsored funding.

At Johns Hopkins University's Krieger School of Arts and Sciences (KSAS), there is no consistent procedure for evaluating departmental research administration staffing needs. Typically, changes in funding dollars are used to justify any changes in staffing. That is not the only statistic impacting need. The research performed in each department is fundamentally different but the tasks that must be completed by research administration are similar. This Capstone Project evaluated the time it takes to complete each task, characterized the nature of each task, and determined the number of tasks completed in a given period. This information was used to assess the ability of a department to meet the needs of research administration.

For this capstone project, a questionnaire was sent to three research departments at KSAS; Biology, Chemistry, and Physics and Astronomy. This questionnaire collected data regarding the average time needed to complete a variety of tasks performed routinely by staff in research administration roles. The tasks were characterized as being either analysis or processing, or a combination of both. The researcher also examined the JHU

position hierarchy for research administration positions in order to assess the ability of a department to perform all of the tasks necessary to meet the needs of the researchers in their department.

For this project, data was collected on relevant position attributes and on the labor distribution of existing positions within a department. Metrics were developed to classify the various tasks needed to meet research administration needs and the time requirement of those tasks. This data can now be compared to the time available with the current staff levels in each department to determine their adequacy.

TABLE OF CONTENTS

Abstract.....	i
Tables.....	v
Abbreviations.....	vi
Chapter 1. Introduction.....	1
1.1 Background.....	1
1.2 Statement of the Problem.....	1
1.3 Research Questions.....	2
1.4 Objectives.....	3
1.5 Significance.....	3
1.6 Exclusions and Limitations.....	4
Chapter 2. Literature Review.....	5
2.1 The Business of Research Administration.....	5
2.2 The Research Administrator.....	8
2.3 Metrics Used in Research Administration.....	10
Chapter 3: Project Description.....	13
Chapter 4: Need Assessment.....	15
Chapter 5: Methodology.....	18
5.1 Job Complexities.....	21
5.1.1 Pre-award Activities.....	23
5.1.2 Post-award Activities.....	24
5.1.3 Current Funding Statistics.....	25
5.1.4 Compliance and Protocols.....	26
5.2 Position Attributes.....	29
Chapter 6: Project Results and Discussion.....	33
6.1 Introduction.....	33
6.2 Results and Discussion.....	33
Chapter 7: Recommendations and Conclusion.....	40
7.1 Recommendations.....	40
7.2 Conclusion.....	42
Bibliography.....	44

Appendix 1: Departmental Research Administration Task Survey.....	46
Curriculum Vitae.....	51

TABLES

Table 1: Research Administration Time Commitment Analysis.....	34
Table 2: Research Administration Staff Labor Distribution by Position.....	36
Table 3: Research Administration Time Commitment Analysis for Department X.....	37
Table 4: Sample Data to Compare Hours Needed to Hours Available (in one year) For Research Administration in Department X.....	39

ABBREVIATIONS

Eform	Effort Form
eRA	Electronic Research Administration
FCOI	Financial Conflict of Interest
FY	Fiscal Year
IACUC	Institutional Animal Care and Use Committee
IDC	Indirect Costs
IHE	Institutions of Higher Education
IRB	Institutional Review Board for the Protection of Human Subject
ISR	Internal Service Request (JHU payroll document)
ITAR	International Traffic in Arms Regulations
JHU	Johns Hopkins University
KSAS	Krieger School of Arts and Sciences
MTDC	Modified Total Direct Costs
NCURA	National Council of University Research Administrators
Pcard	Procurement Card
PI	Principal Investigator
RA	Research Administrator
SRAI	Society of Research Administrators International

Chapter 1: Introduction

1.1 Background

Departmental research administrators are the first point of contact for researchers. They provide assistance with administrative tasks related to all stages of an investigator's research project; from application to closeout. In this current culture of increased regulation and highly competitive funding opportunities, having an adequate support staff for researchers is essential to the success of a research institution. The aim of this capstone project is to examine the goals of research administration at the department level and to develop a set of metrics to assess if the goals are being met with the current number of existing staff. The same metrics could be used to justify the need for additional staff.

1.2 Statement of the Problem

How does a busy science department within a research institution determine if they are properly staffed with research administration personnel? At Johns Hopkins University, the major science departments within the Krieger School of Arts and Sciences are often faced with this question. Higher management relies primarily on the amount of sponsored funding awarded to researchers within a department to justify or deny the need for increased staff.

The profession of research administration has evolved over the last decade, responding to the implementation of stricter compliance requirements by funding agencies and the Federal government. As the administrative requirements of the research

increases, so do the responsibilities of the research administrator. Research administration is no longer an occupation that simply assists in the research process by reviewing proposals before submission. Increased compliance requirements imposed by funding agencies have greatly complicated the roles and responsibilities of research administrators. Employing an adequate number of staff is only one part of the staffing solution. The employed staff must also have the essential skills needed to assist and support researchers in their sponsored funding needs. Complex analysis coupled with the increase in required documentation has greatly impacted the workload of today's research administrator.

1.3 Research Questions

This project proposed that there are factors other than research dollars awarded in a defined period of time that impact the need for an adequate number and type of research administration staff within a department. Developing a set of metrics that assess the various complexities inherent with research administration is needed to address the concerns surrounding adequate staffing in departments with research administration job duties. A method to evaluate the amount of time required to appropriately and efficiently process the various tasks essential to the positions within research administration is the first step of the solution. That time assessment can then be used to determine the total amount of time required to complete all task in a given year. The last step in the process is to compare the time needed for the completion of all tasks, to the time available among the current number of staff in place within an individual department.

1.4 Objectives

In order to assess the complexities of job responsibilities and the need for a variety of research administration positions within a departmental research administration office, there are two main objectives of this project:

1. The first objective is to develop a set of metrics that effectively considers the various complexities existing in the current environment of research administration. These metrics will review the research and compliance attributes typically found in research administration at the department level, categorize those attributes as either analysis or processing, and evaluate the time commitment required to complete the tasks associated with those attributes.
2. The second objective is to examine the positions existing for departmental research administration teams. A set of metrics will be developed to analyze the need for various positions classified as part of a departmental research administrative team, based on the position hierarchy existing at Johns Hopkins University. The nature and time commitment of each attribute will be calculated and compared to activities completed within a department in a span of one year. This comparison will either support the current number of research administration staff members within that department or highlight the need for additional or alternate staff needs.

1.5 Significance

In addition to helping investigators create proposals, research administrators ensure the accurate and efficient processing of awards from initial receipt to final

closeout.¹ The needs of the research vary greatly from one investigator to another. The nuances of their funding portfolio will greatly impact the level and type of assistance required from their research administration team. These needs will not only vary between different departments but among the researchers within an individual department as well. The research administration needs of a biology researcher using vertebrate animals his lab are vastly different than a computational biologist whose research is conducted in a computer lab setting. These differences exist in the types and size of proposals they will submit, to the types and number of lab staff they will hire, and also the types of supplies they will purchase. Identifying the challenges within research administration associated with various needs of the research projects, building metrics to weigh and measure those challenges, and finally comparing those needs to the characteristics of the positions available within research administration team will build the foundation for justifying either staff reductions or staff increases within a research department.

1.6 Exclusions and Limitations

This project will develop metrics based on information gathered from the Biology, Chemistry, and Physics and Astronomy departments at Johns Hopkins University School of Arts and Sciences (KSAS). While there are other departments within KSAS that perform research, the data gathered from the three large science departments will be sufficient to build metrics relevant for any office with research administration staff.

¹ E. Lintz (2008). A conceptual framework for the future of successful research administration. *The Journal of Research Administration*, XXXIX (2), 68-80.

Chapter 2: Literature Review

Using metrics to measure performance in research administration offices is not a new concept. Choosing meaningful metrics starts with an understanding of the need for assessment and the current environment to be assessed. This chapter discusses the literature examined related to (1) the business of research administration, (2) the roles and responsibilities of research administrators, and (3) how metrics are currently used in research administration.

2.1 The Business of Research Administration

Research conducted at colleges and universities is big business.² According to the National Science Foundation (NSF), universities reported current dollar research and development (R&D) expenditures of \$72.0 billion in fiscal year 2016.³ That is no small amount and as with a for-profit organization, a research university must have a team of individuals employed to manage the funds they receive to support those expenditures. The majority of the overall R&D funding reported by NSF is derived from federal funding agencies. Regardless of the source of funding, the research university has a responsibility of good stewardship of the funds awarded to them. The scope and

² D.W. Lehman (2017, Fall). Organizational Cultural Theory and Research Administration Knowledge Management. *Journal of Research Administration Volumen XLVII, Number 2*, pp. 52-66.

³ R. Britt (2017, November 30). *Universities Report Increased Federal R&D Funding after 4-year Decline; R&D Fields Revised for FY 2016*. Retrieved from National Science Foundation: <https://www.nsf.gov/statistics/2018/nsf18303/>

complexity of the research enterprise of large institutions, parallels those of big business and the role of the research administrator has expanded to encompass this scope.⁴

Johns Hopkins University (JHU) is America's first research university. Founded in 1876, it has been the leader in research and development expenditures each year since 1979.⁵ Many of the faculty in JHU's nine academic divisions, not only instruct and mentor students, they maintain active research portfolios. To support their research, faculty, scientific research staff and even students seek funding opportunities from Federal and non-Federal sources. Costs incurred while conducting research can be categorized as either direct costs or indirect costs (IDC).

JHU has an indirect cost rate negotiated by the Federal Department of Health and Human Services; which acts on behalf of all federal agencies. According to the National Institutes of Health (NIH), direct costs are those that can be identified specifically with a particular sponsored project and directly assigned to that project, and indirect costs are those that may benefit more than one project and may not be readily assignable to one specific project.⁶ When building a budget for a funding application, these indirect costs must be considered. Many funding agencies allow IDC to be included in the proposed budget as a percentage of the direct costs requested but often there are agency specific exclusions from that IDC calculation. Including all allowable, reasonable and applicable costs into a project's budget is critical.

⁴ L.U. Chronister, & R. Killoren (2006). The Organization of the Research Enterprise. In E. c. Kulakowski, & L. U. Chronister, *Research Administration and Management* (pp. 41-61). Sudbury, MA: Jones and Bartlett Publishers.

⁵ <https://www.jhu.edu/research/>

⁶ <https://grants.nih.gov/grants/how-to-apply-application-guide/format-and-write/develop-your-budget.htm>

At JHU's Krieger School of Arts and Sciences (KSAS), the IDC that is awarded with any sponsored project is held by the school and no portion is directly available to the Principal Investigator (PI) of the project. These funds are used to support the infrastructure and administrative costs associated with research but not directly allocable to a specific project. These funds are used, in part, for salary support of research administrators, utilities, building improvements, administrative supplies and any other costs that may be incurred due to research activities but not directly allocable to any one specific research project.

The primary difference between a for-profit and a non-profit organization is that a for-profit organization hopes to earn a profit for stockholders and is fully reimbursed by the federal government for all IDC incurred. While a non-profit organization, such as a university, is only partially reimbursed by the federal government for IDC and uses the funds primarily to reinvest into the organization to support its mission. Yet both types of organizations must demonstrate to their stakeholders that they have been good stewards of the funds awarded to them. There is growing concern among institutional leaders to demonstrate to their stakeholders that resources dedicated to research are being used and managed wisely.⁷ As with any business, a research institution must maintain the appropriate staff to ensure good stewardship of funds available for their organization.

⁷ P.G. Waugaman, W.S. Kirby, & L. Tornatzky (2006). Performance Measurement. In E. C. Kulakowski, & L. U. Chronister, *Research Administration and Management* (pp. 137-147). Sudbury, MA: Jones and Bartlett Publishers.

2.2 The Research Administrator

The only element constant in the world of research administration is change. The expanding nature of the research administrator position is attributable to increases in sponsored research dollars, competitiveness for those dollars, complexity of meeting sponsor funding requirements, and accountability for managing research dollars.⁸ Rules, regulations, policy, and procedure changes are imposed frequently by funding agencies resulting in Universities having to design and implement new financial and non-financial infrastructure, policies and procedures. As these demands on universities increase, so do the roles and responsibilities of the research administrator within a research university. It is imperative that those with the responsibility for ensuring adherence to the rules and regulations have the requisite skills to do so. The fundamental purpose of research administration is to enhance the ability of the researcher to carry out successful research.⁹

The mission of most Institutions of Higher Education (IHEs) include commitments to student education, and commitments to research endeavors as well. To meet these commitments, the number of research administrators must be proportional to the research activities occurring at that institution. As available funding opportunities become more competitive and the application process for that funding becomes more complex, the number of research administrators will continue to increase, the research administrator roles will continue to develop, and there will be a continued need for adaptation to the changes in research policies.¹⁰

⁸ E. Lintz (2008). A conceptual framework for the future of successful research administration. *The Journal of Research Administration*, XXXIX (2), 68-80.

⁹ K.L. Beasley (2006). The History of Research Administration. In E. C. Kulakowski, & L. U. Chronister, *Research Administration and Management* (pp. 9-29). Sudbury, MA: Jones and Bartlett Publishers.

¹⁰ Ibid.

Research administration at JHU is primarily decentralized. Department research administrators act as liaisons between the researchers and the central offices of research administration. Often the department research administrator also acts on behalf of the PI on administrative questions addressed to the funding agency. There is a delicate balance between serving the best interests of the PI and ensuring compliance with all applicable rules. The research administration staff of JHU's Business and Research Administration Office is dedicated to providing outstanding customer service to KSAS faculty while ensuring compliance with federal, sponsor, and university policies and regulations.¹¹

There are three large science departments within JHU's KSAS: Biology, Chemistry, and Physics and Astronomy. All of these departments manage their respective sponsored research cradle to grave. This means that the research administrators within a department assist with proposal development, manage the projects that receive funding, help with progress reporting requirements associated with these awards, and aid with the award closeout. They are responsible for the proposal, management, and closeout of sponsored awards; for the entire life cycle of the award, beginning to end. Their duties can include assisting researchers with the preparation and submission of funding proposals, purchasing allowable supplies for funded projects, hiring and paying project personnel, reconciliation of all project expenses, submitting progress reports to the funding agency, and ensuring award closeout procedures are followed. The nature and size of each department's research portfolio often determines the type and level of research administration staff required to manage that portfolio.

¹¹ <http://sites.krieger.jhu.edu/kasper/sponsored-projects/>

Research administration must keep abreast of the changes occurring within funding agencies, changes implemented at the institutions in response to funding agency updates and federal policy changes overall. As the profession of research administration has evolved, professional organizations have emerged to meet the growing need for information dissemination and training within the profession. The National Council of University Research Administrators (NCURA) and The Society of Research Administrators International (SRA International) are two examples of these organizations. NCURA serves its members and advances the field of research administration through education and professional development programs, the sharing of knowledge and experience, and by fostering a professional, collegial, and respected community.¹² SRA International's mission is to develop, define and promote international best practices in research management, administration, knowledge transfer and growth of the research enterprise.¹³ Both of these professional organizations provide numerous educational and networking opportunities for research administration professionals.

2.3 Metrics Used in Research Administration

Research administration units need meaningful information – metrics – to measure and improve outcomes.¹⁴ For metrics to be useful, they must provide useful information and be measured with reasonable accuracy. In research administration, quantitative measures are often used to evaluate the services performed in their offices.

¹² <http://www.ncura.edu/AboutUs.aspx>

¹³ <https://www.srainternational.org/about-sra-international>

¹⁴ N. Haines (2012). Metrics for Research Administration Offices (Part 1). *Journal of Clinical Research Best Practices*, Vol. 8, No. 6.

The following metrics are an example of some that are commonly used in assessing research administration offices.

- The total number of proposals submitted during a cycle;
- The complexity of the projects proposed during a cycle;
- The success rate of those submitted proposals; and
- The amount of sponsored funding received during a cycle.¹⁵

These metrics are relatively easy to measure and compare across cycles but may not be the only data required to adequately assess the needs of a research administration office. Sponsored research managers are increasingly being asked, by higher management, to document their performance and to make compelling business cases for new resources where they are overworked and understaffed.¹⁶

Documenting performance and justifying additional resources for staffing needs is not an easy task when workload and available resources fluctuate with the number of application submissions and amount of funds awarded in any given period. Quality research administrative support for PIs is extremely important. Alleviating the administrative burdens that are inherent with the sponsored research application process and fund management, from researchers and placing those responsibilities with research administration instead, allows the researchers to focus their attention on their research projects. Ideally, this research provides more funding to not only support those specific

¹⁵ Z. Davis-Hamilton (2017, December 21). Do We Measure Up? How Research Administration Offices Evaluate Their Services/Pulse. *Society of Research Administration International Catalyst*.

¹⁶ P.G. Waugaman, W.S. Kirby, & L. Tornatzky (2006). Performance Measurement. In E. C. Kulakowski, & L. U. Chronister, *Research Administration and Management* (pp. 137-147). Sudbury, MA: Jones and Bartlett Publishers.

projects but also to support the university infrastructure as well. It is critical to ensure that available research administration resources adequately support investigators.¹⁷

Once again, the nature of the portfolio of research projects within a department will have a great impact on the type of metrics that should be used to evaluate the needs of that department. Organizational structures often differ between departments within the same institution. This is true for the three major science departments within JHU's KSAS and is another criteria to consider when developing metrics to assess the staffing needs of an individual department. The primary purpose of research administration is to support the researchers in their department. Yet effective support requires an analysis of the specific needs of those researchers.

¹⁷ S. Marina, Z. Davis-Hamilton, & K. Charmanski, (2015). Evaluating Research Administration: Methods and Utility. *Journal of Research Administration*, Volume XLVI Number 2, 95-110.

Chapter 3: Project Description

During the last two decades, a number of surveys, articles and reports have indicated that increased administrative and compliance requirements associated with federally funded research are consuming a significant proportion of the time that our Nation's scientists, engineers, and educators dedicate to this research.¹⁸ The goal of research administrators is to alleviate the bulk of administrative burden from researchers to allow those researchers to focus instead on their research. To achieve this goal, research institutions must employ an optimal staff of research administrators possessing the knowledge and understanding of all aspects of research administration.

As the first point of contact for researchers, departmental research administrators provide assistance with administrative tasks related to all stages of an investigator's research project; from application to closeout. At Johns Hopkins University's Krieger School of Arts & Sciences (KSAS), there are three large science departments engaged in sponsored research; Physics & Astronomy, Biology, and Chemistry. While the basic nature of research performed by researchers in each of these departments can vary greatly, many of the complexities of the work performed by the research administrators within these departments are similar. Determining the appropriate level of staffing to support each department's administrative needs is a challenge due to the absence of a standardized approach to assess and evaluate those needs.

¹⁸ National Science Board. (2014). *Reducing Investigators' Administrative Workload For Federally Funded Research*. Arlington: National Science Foundation.

There are two aspects of research administration for which metrics can be developed to properly analyze staffing needs: the complexity of the overall needs for a research administration team within a department, and the classification of the positions within that team that are available to meet those needs. Data related to these complexities and data related to the position classifications within research administration have been collected for the three major science departments within KSAS.

Chapter 4: Need Assessment

Currently, there is no defined formula for determining the adequacy of staffing for research administration within a Johns Hopkins University Krieger School of Arts and Sciences (KSAS) department. Typically, a request for additional staff positions is met with resistance from the Deans at the KSAS division. The initial assessment of need is a review of the department's research base.

Sponsored awards are typically divided into direct costs and indirect costs (IDC). The direct costs are those available for use by a Principal Investigator (PI) to complete their proposed projects. They can be used for expenses such as research staff salaries and research supplies. Most direct costs generate IDC, which are then used by the university to support infrastructure. These costs are based on a federal formula known as modified total direct costs (MTDC). MTDC excludes equipment, capital expenditures, charges for patient care, tuition reemission, rental costs of off-site facilities, scholarships, and fellowships as well as the portion of each sub grant and sub award in excess of \$25,000.¹⁹ The university's approved IDC rate is then applied to the MTDC of a project, resulting in the amount of IDC to be included in a proposal budget.

KSAS's Office of Research Administration in conjunction with department administrators, perform a yearly review of the research indirect base for each department. The research base consists of the MTDC of all active awards within each department. The goal of this review is to forecast the future MTDC and IDC for each department, based on the existing sponsored award portfolio. Basically, the greater the MTDC

¹⁹ <http://www.dartmouth.edu/~osp/faq/modifiedtotal.html>

available within a department, the more potential IDC to be generated for use by KSAS and JHU. IDC supports infrastructure expenses such as administrative salaries.

Presumably, the greater the IDC generated, the more funds available for staffing. The problem with using the indirect cost research base as a justification for staffing is that it is a retrospective or lagging indicator as it monitors past expenditures to forecast future spending and consequently future indirect costs expected to be generated. It does not consider all of the administrative needs of a research department.

To properly assess staffing needs, leading or forward looking indicators must also be examined. In order for direct costs to be awarded, applications must be submitted, funding must be properly monitored, and compliance issues must be addressed. The job of a research administrator has become increasingly complicated as funding has become increasingly competitive and compliance has become increasingly complex. If the goal of a research administrator is to support all of the administrative needs of the researchers, then the evolving intricacies of the research administration positions must be included in any assessment of a department's staffing needs. Comparing the department's indirect cost research base, while still very important, is not enough for an adequate measurement of need.

There is no existing set of metrics in place for assessing staffing needs within JHU's KSAS. Department managers struggle with inconsistent requests for random information when communicating additional staffing needs. The purpose of this project is to standardize the assessment of research administration staff within a department by creating an evaluation tool using a set of metrics that measures the type and complexities

of the tasks performed, and the time required to perform those tasks. This tool can then be used to compare the existing staffing levels to needed staffing levels.

Chapter 5: Methodology

Data was collected from various sources at Johns Hopkins University to build the necessary metrics needed to meet the two objectives of this project. JHU's Proposal, Awards and Financial Dashboards provided information regarding the types of metrics already measured at the university that can also be used to support staffing metrics. These include the number of proposals submitted, the number of proposals funded, and the amount funded. This information can be sorted by division, department and even by funding agency. Job postings for the reclassified research administrative positions provided position descriptions with labor distributions. Job complexities inherent to research administration were examined to assess the needs of research administration within a department and the attributes available within the existing positions were examined to assess the ability to meet the needs of research administration at the department level. Types of transactions processed, types of funding opportunities applied to, and types of accounts managed are just a few of the attributes that are universal to research administration but may vary in complexity depending on the type of award and the nature of the funding agency.

Transaction processing for a research administrator encompasses some degree of analysis before any data entry into the JHU's accounting or award management systems. This analysis requires a level of expertise that depends upon the type of transaction and the funding agency to which the resulting expenditure will be allocated. The following types or transactions are included in the responsibilities of research administrators (RAs) within a department:

- **Proposal Preparation and submission.** Before an application can be submitted to a funding agency, a myriad of activity must take place. RAs must have knowledge and understanding of Federal guidelines, agency guidelines, agency Institute or Center guidelines, and requirements specific to the selected funding solicitation, to ensure PI compliance prior to proposal submission. The guidelines specify PI and Institute eligibility, budget restrictions, formatting requirements, and provide specific instructions for the information required in each application section. In addition, each funding agency can specify the use of a particular submission method which often requires the use of an electronic system unique to that funding agency. Tasks related to proposal preparation and submission can range in complexity based on the specific project and funding agency.
- **Payroll.** Various payroll type transactions are often part of the responsibilities of RAs. Salary changes and redistribution of salaries for PIs, research staff and students working in research labs must be analyzed, calculated, and processed. Appointments letters must be issued periodically for those research personnel holding appointed positions. Researcher who are foreign nationals often require assistance with their Visa status changes or renewals. These tasks can also vary in complexity based on the funding availability and employment status of each individual.
- **Purchasing.** Most research projects require the purchase of supplies. An RA must monitor the project budget, understand any purchasing restrictions, and analyze the reasonableness of all purchases allocated to a sponsored project.

Purchasing transactions can range in difficulty from simple consumable lab supply acquisitions to the purchase of large pieces of scientific equipment. RAs must understand the JHU's competitive bidding policies and know when they are applicable.

- **Travel Reimbursements.** Often research endeavors require that the PI or other research staff travel as part of the planned project. Whether to attend scientific conferences to present research data or to travel to a remote location to collect data samples, travel reimbursements for research personnel must be processed by RAs. The RA must understand any travel restrictions imposed by the funding agency, the Federal government, or the University and must review the budget for inclusion of travel costs. The "Fly America Act" requires the use of U.S. air carriers for all travel funded by the Federal government. Foreign travel, the use of per diem rates and first class travel are other areas that can be specifically allowed or disallowed by the funding agency, Federal government, or University. The travel destination and means of travel can greatly impact the complexity of processing travel related transactions related to an RA's assigned personnel.

Sponsored funding comes with rules and regulations. Rules and regulations imposed by the Federal government, the funding agency and the University all impact the job of an RA. Processing transactions resulting from sponsored funding requires a detailed understanding of all of the rules and regulations affecting the award. The complexity of the transaction and the nuances of the funding agency have an impact on the time needed for analysis and processing of these tasks. Understanding the complexities of the tasks

required in the management of sponsored projects and knowing the attributes of the positions available to manage those sponsored projects will assist in the overall objective of this capstone project: building metrics to properly analyze staffing needs for departmental research administration teams.

5.1 Job Complexities

Challenges and complexities, both unique to the research administration within individual departments and shared by the three departments examined at Johns Hopkins University (Physics and Astronomy, Biology and Chemistry) were compiled into a comprehensive list of attributes. The attributes were then analyzed with regard to the impact on workload (time commitment) and the type and level of knowledge needed (analysis vs. processing) for a research administrative professional to perform the task. The researchers firsthand knowledge of departmental research administration aided in determining the attributes to be used to build the metrics in this project. The newly reclassified positions within research administration contain a very specific list of duties and levels of knowledge required for the positions in the job postings found on the employment Website of Johns Hopkins University. These job posting also aided in the compilation of attributes surrounding job complexities.

Krieger School of Arts and Sciences has a decentralized organizational structure. The departments within the school perform research administration duties related to both pre-award and post award activities. This organizational structure was considered and the attributes examined for this project were divided into four main categories:

- Pre-award activities including proposal planning and preparation activities

- Post-award activities including account management, purchasing and closeout.
- Current funding statistics including the number of proposals submitted and awarded.
- Compliance and protocols including those concerning the use of animals, human subjects and export control.

The nature of each department's research portfolio impacts the significance of each attribute. For instance, the use of vertebrate animals is very significant for the workload in the Biology department, but has no significance in the Physics and Astronomy department. Some research is impacted by federal export control regulations, while others are not. Within the science departments, export control regulations can specifically impact research projects that involve any military, defense or other highly proprietary information as well as collaborations with researchers in certain foreign countries. Research that requires radioactive or other hazardous material use is subject to safety protocols. The use of animal or human subjects in research requires compliance with very strict rules and regulations. The inclusion of any of these elements in a research project can greatly impact the level of knowledge and the time needed for a research administrator to assist in the proposal and management of such a project. The complications can include applications for protocols, monitoring compliance to those protocols and submission of reports required by the funding agencies.

5.1.1 Pre-award Activities

Information regarding proposal submissions was ascertained from the Proposals, Awards and Finance Dashboard resource maintained by JHU's University Finance. Data collected included:

- The number of research proposals submitted to Federal funding sources in FY17.
- The number of research proposals submitted to non-Federal funding sources in FY17.
- The number of contracts negotiated in FY17.
- The number of sub-awards issued in FY17
- The number of research proposals awarded in FY17.
- The success rate (number of successful applications divided by the number of applications submissions) for proposal applications with start dates in FY17.

This project examined all of this data and how it impacts the number and level of personnel needed within a research administration department.

Each funding agency awarding a grant or a contract may have its own set of rules and regulations that must be adhered to during the application stage of a research project. In addition, proposals submitted to Federal funding agencies must comply with Federal rules and regulations. Non-Federal funding agencies can adapt their own rules, which can sometimes be more complicated and cumbersome than Federal agency requirements. Contracts can pose an added challenge with regards to detailed terms and conditions imposed on deliverables and ownership of intellectual property or data; all of which must be reviewed and negotiated.

Applications systems are another challenge for pre-award research administrators. The majority of research proposals require electronic application submissions. These electronic research administration systems (eRA) mandated for proposal submission may vary from one funder to another, requiring the RA to have knowledge of and the ability to use each system. In addition, each funding agency dictates their submission process. Collecting data concerning the variety of funding agency applications and eRA systems used as well as the number of applications is relevant when assessing the needs of research administration within a department.

5.1.2 Post-award Activities

Post award activities range from award management to award closeout and each have their own complexities. Data for attributes in this section were retrieved from the Sponsored Compliance Dashboards resource maintained by JHU's University Finance. This dashboard includes monthly compliance metrics for the following list of research administration attributes:

- Financial Status Reports outstanding and submitted during FY17.
- The number of non-payroll cost transfers submitted on time and those submitted late in FY17.
- The number of Effort forms completed during FY17.

Transaction processing is another part of research administration that can greatly impact workload. Again, the impact of transaction processing can vary based on the type of research performed. A research project for a Computational Biologist may only require payroll transactions. A research project in a lab with live vertebrate animals will not only

require payroll transactions but a large quantity of transactions for animal purchases, animal care facility charges, and a variety of lab supply purchases. Using the JHU Enterprise reporting system, data was gathered regarding:

- The number of purchase orders created in FY17.
- The number of online payments processed in FY17.
- The number of reimbursement transactions processed in FY17.
- The number of procurement card transactions processed in FY17.
- The number of payroll documents processed in FY17.
- The number of appointment requests submitted in FY17.

All of this data impacts the number and level of personnel needed within a research administration department.

5.1.3 Current Funding Statistics

The Proposals, Awards and Finance Dashboard resource maintained by JHU's University Finance provided information regarding funding during FY17 for the departments of Biology, Chemistry, and Physics and Astronomy. Traditionally, these are the statistics heavily relied upon in the past for decisions regarding staffing changes. While not the only attributes that should be examined, this data is still an important part of determining work load and staffing needs.

- Direct dollars received in FY17
- Total research expenditures incurred in FY17
- The number of sponsored awards, sub awards and contracts, active during FY17

The sheer number of awards can greatly impact the workload of research administrators. The internal auditors at JHU require that all sponsored funding be monitored, including a process of reconciliation for all expenses and proof that the PIs of that funding have been informed of the financial status of their awards. This proof must be in the form of the PIs signature on financial statements of their accounts. Providing this information to the PIs of the project is the responsibility of research administration as is ensuring the proper stewardship of funds received from a sponsor. This includes applying appropriate regulations such as 2 CFR 200: Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards, the Federal Acquisitions Regulations, etc. and determining the allowability, allocability, consistency and reasonableness of all expenses allocated to a sponsored account.

5.1.4 Compliance and Protocols

Various research related protocols are required based on the nature of the sponsored research being performed. These include protocols governing the usage of animals, human subjects, hazardous materials, and financial conflict of interest. The appropriate paperwork must be submitted to the governing offices and approval is needed from the university committees associated with these offices prior to a projects initiation. This includes the following committee offices at JHU:

- Institutional Review Board for projects that include human subjects;
- Animal Care and Use Committee for projects that include animal usage;
- JHU safety office for projects that include hazardous material usage;
- Office of International Services for projects that employ foreign nationals;

- KSAS Conflict Review Committee for projects that may result in investigator conflicts of interest or conflicts of commitment.

Follow up is also required as these protocols and compliance areas are generally for a defined period of time or only approved for a specific project.

Maintaining compliance with these protocols is crucial. Noncompliance could result in loss of current funding as well as jeopardize future funding for the PI and the University. Fines, legal actions and disbarment are other extreme measures that could result from noncompliance to regulations governing various attributes of research. It is imperative that departments engaging in research employ staff members with a thorough knowledge of the rules regarding compliance. This is particularly important for research projects subject to:

- **IACUC.** The Animal Care and Use Committee at Johns Hopkins University is designed to assure that animals used in research are cared for in compliance with the Animal Welfare Act regulations and Public Health Service (PHS) Policy.²⁰
- **IRB.** All human participant research conducted under the auspices of the University is evaluated by an Institutional Review Board (IRB) for the Protection of Human Subjects to ensure that the rights and welfare of participants are fully protected.²¹
- **Hazardous Materials.** Johns Hopkins University has safety policies in place to ensure operations are conducted in compliance with applicable federal, state, and

²⁰ <http://web.jhu.edu/animalcare/about.html>

²¹ <http://homewoodirb.jhu.edu/>

local regulations, and the Department of Health, Safety and Environment guidelines and standards.²²

- **Export Control Data Collection.** In December 2010, the U.S. Citizen and Immigration Services introduced a new data collection requirement in Part 6 of its Form I-129, Petition for a nonimmigrant worker, for certain categories of H, L, and O visas. Petitioners are required to make a certification regarding the release of controlled technology or technical data subject to the Export Administration Regulations (EAR) or the International Traffic in Arms Regulations (ITAR) to foreign persons in the United States.²³ Research administrators must gather the necessary information and file the required documentation regarding any relevant data or technology shared with foreign nationals that falls under these guidelines.
- **Conflict of Interest.** KSAS realizes that by actively participating in research, PI's must often interact with government, industry, business and other institutions and these interactions may lead to conflicts of commitment or interest.²⁴ It is imperative that any real or perceived conflicts of interest or conflicts of commitment be reported to, resolved by, or managed by the Conflict Review Committee at KSAS to ensure compliance with the University policy to protect the integrity and reputation of JHU's staff and the University itself.

²² <https://www.hopkinsmedicine.org/hse/policies/index.html>

²³ http://ois.jhu.edu/For_Administrators/H1B/Export_Control_Information/

²⁴ http://sites.krieger.jhu.edu/kasper/files/2017/09/CoI_CoC_Divisional_Policy.pdf

5.2 Position Attributes

In an attempt to standardize positions included in the finance track of the university, the Krieger School of Arts and Sciences has recently begun the process of reclassifying the positions existing within departmental research administration. Positions with titles such as: Senior Research Service Analyst, Research Service Analyst, Budget Analyst, and Budget Specialist, have been renamed and reclassified for consistency across the various schools of Johns Hopkins University.

Existing attributes within research administration positions were examined to determine their complexity levels and that information was used to determine a labor distribution percentage. Johns Hopkins University's compensation department was then able to apply that information in the assignment of appropriate job titles. This analysis took place in 2017 and was performed by a JHU's Central Compensation office, Divisional Human Resources offices and Department Administrators at the JHU School of Medicine, Whiting School of Engineering and Krieger School of Arts and Sciences.

All departmental personnel within JHU schools will eventually be formally reclassified into the five tier Grants and Contracts position hierarchy as described below. For this project, metrics related to the assessment of current staff and staffing needs were based on the new position hierarchy.

The reclassified positions are listed below:

1. Grants and Contracts Manager

A Grants and Contracts Manager is responsible for all activities related to sponsored projects within a department. This position oversees the pre-award, post-award and closeout activities with varying levels of complexity for a variety of grants and

contracts. This role also manages a staff of two or more research administration professional level positions. For planning and development of grant application budgets to various federal agencies, private agencies, foundations and commercial contract proposals, this position serves as the first point of contact and resource guide for department faculty and Grants and Contract Analysts.

Duties include providing instruction on protocol, regulations and guidelines pertinent to the funding agency and university. A thorough knowledge and understanding of Johns Hopkins University's accounting system and related fiscal office as well as a thorough knowledge and understanding of external Federal guidelines and procedures for grants and contract is required for this position. The labor distribution for this position is 50% management/supervision and 50% analysis/project development.

2. Senior Grants and Contracts Analyst

A Senior Grants and Contracts Analyst is responsible for pre-award and post-award functions that include, but may not be limited to: proposal preparation, submission, budget development, account maintenance and oversight, billing, invoicing, reporting, compliance, and closeout. This position provides professional level sponsored funds management on a variety of grants and contracts ranging from simple to highly complex.

Duties include providing in-depth professional administrative level guidance on protocols, regulations, and guidelines to PIs, other research professionals, and other research administration professionals, both within and outside of Johns Hopkins University. Knowledge and understanding of Johns Hopkins University's accounting system and related fiscal office as well as a thorough knowledge of external Federal guidelines and procedures for grants and contract is required for this position. While this

role may assist with some aspects of non-sponsored funds, the primary goal of this position is to ensure timely, effective and efficient functioning of sponsored funding. The labor distribution for this position is 95% analysis and 5% transaction processing.

3. Grants and Contracts Analyst

A Grants and Contracts Analyst is responsible for post-award functions that include, but may not be limited to: budget development, account maintenance and oversight, billing/invoicing, reporting, compliance, and closeout. Pre-Award responsibility may include proposal preparation, submission, and budget development. Knowledge and understanding of Johns Hopkins University's accounting system and related fiscal office as well as a knowledge of external Federal guidelines and procedures for grants and contact is required for this position. While this role may assist with some aspects of non-sponsored funds, the primary goal of this position is to ensure timely, effective and efficient functioning of sponsored funding. The labor distribution for this position is 80% analysis and 20% transaction processing.

4. Grants and Contracts Specialist

A Grants and Contracts Specialist is responsible for post-award functions that include, but may not be limited to assisting with: budget preparation account maintenance and oversight, billing/invoicing, reporting, and closeout. Pre-award responsibility may include assisting with proposal preparation and other support related to grant application procedures. This role provides entry level professional sponsored funds management. While this role may assist with some aspects of non-sponsored funds, the primary goal of this position is to support the timely, effective and efficient functioning of sponsored funding. General knowledge and understanding of Johns Hopkins University's

accounting system and related fiscal office as well as a general understanding of external Federal guidelines and procedures for grants and contact is required for this position.

The labor distribution for this position is 50% analysis and 50% transaction processing.

5. Grants and Contracts Coordinator

A Grants and Contracts Coordinator is the first tier in the Grants and Contracts position hierarchy. This position is responsible for post-award functions that include, but may not be limited to assisting with: budget preparation, account reconciliation, billing/invoicing, standard report writing, and close-out procedures. This role may also provide preparation assistance and support related to grant application procedures. While this role may assist with some aspects of non-sponsored funds, the primary goal of this position is to support the timely, effective and efficient functioning of sponsored funding. General knowledge and understanding of Johns Hopkins University's accounting system and related fiscal office as well as a general understanding of external Federal guidelines and procedures for grants and contact is required for this position. The labor distribution for this position is 80% analysis and 20% transaction processing.

Chapter 6: Project Results and Discussion

6.1 Introduction

The reclassification of research administration positions at JHU will standardize position titles across the various university schools. Regardless of their titles, the staff in a department engaging in sponsored research share similar tasks. These tasks can be categorized as ‘analysis’ or ‘processing’; often, some combination of both. As the primary point of contact for researchers within a department, as well as the primary liaison between the researcher and funding agencies, it is imperative that research administration staff members have adequate time and the essential knowledge to meet the needs of their investigators. These needs include the ability to analyze and process the various transactions necessary as part of the management of sponsored funding. One implication for not meeting these needs is noncompliance with federal regulations which can lead to loss of current funding or in some circumstances can jeopardize future funding for the PI and the University.

6.2 Results and Discussion

A questionnaire was administered to various full-time employees and members of the research administration teams in the departments of Biology, Chemistry, and Physics and Astronomy at JHU. Nineteen questionnaires were distributed electronically and responses were received from seven individuals; five Senior Grants and Contracts Analyst (SGCA), one Purchasing Coordinator (PC) and one Administrative Coordinator (AC). The questionnaire asked each person to estimate the average time required during

their 37.5 hour workweek to complete a single specific task related to their positions within the department. The times collected as responses to each questions were tallied and an average time per task was calculated. These averages per task are entered below into the **Table 1: Research Administration Time Commitment Analysis**, which was designed by the author of this paper. Since this table does not have any department specific data relating to the number of transactions performed there are no total hours to complete all tasks.

Table 1: Research Administration Time Commitment Analysis

RESEARCH ADMINISTRATION TIME COMMITMENT ANALYSIS							
		Average time to complete a single transaction (in Hours)	Number of Transactions per Department per Year	ANALYSIS		PROCESSING	
				%	Number of hours per department per year	%	Number of hours per department per year
PRE AWARD ACTIVITIES							
	Proposal preparation for Federal Funding Sources (meeting with researcher, gathering and review of application parts)	6.60		100%	0	0%	0
	Proposal preparation for Federal Funding Sources (upload to agency application system and Coeus)	3.80		0%	0	100%	0
	Proposal preparation for non-Federal Funding Sources (meeting with researcher, gathering and review of application parts)	5.50		100%	0	0%	0
	Proposal preparation for non-Federal Funding Sources (upload to agency application system and Coeus)	3.80		0%	0	100%	0
	Proposal preparation for Contracts (meeting with researcher, gathering and review of application parts)+B42	4.67		100%	0	0%	0
	Proposal preparation for Contracts (upload to agency application system and Coeus)	4.33		0%	0	100%	0
	Sub award issuance (sub forms completed)	1.88		95%	0	5%	0
	JIT requests (gathering info and submitting to funding agency)	2.25		95%	0	5%	0
POST AWARD ACTIVITIES							
Account Management							
	Monthly reconciliation of a sponsored account	2.30		100%	0	0%	0
	Monthly reconciliation of a contract account	2.38		100%	0	0%	0
	Monthly reconciliation of a non sponsored/general funds account	1.75		100%	0	0%	0
	Monthly reconciliation of a sub award account	1.67		100%	0	0%	0
	Monthly reconciliation of a pass through account	0.75		100%	0	0%	0
	Approving/processing pass through invoices	0.63		100%	0	0%	0
	Quarterly meetings with Faculty (to discuss financial status, review actual and planned spending, etc.)	2.50		100%	0	0%	0
	FSR completion (review, reconciliation, approval)	2.88		100%	0	0%	0
	Progress report submission (gathering info, entering data in to agency system, review)	3.10		95%	0	5%	0
HR / Payroll							
	New/Reappointment request made (gathering info and preparing request letter)	1.65		95%	0	5%	0
	Non appointment research staff requests made (gathering info and posting position)	1.00		95%	0	5%	0
	Visa processing for J1	0.88		80%	0	20%	0
	Visa processing for H1B and other	3.50		80%	0	20%	0
	ISR initiation in SAP	0.62		10%	0	90%	0
	ISR approval in SAP	0.29		10%	0	90%	0
	Eform initiation in SAP	0.58		10%	0	90%	0
	Eform approval in SAP	0.12		10%	0	90%	0
	Effort form Prereview	4.38		90%	0	10%	0
Purchasing/Reimbursements/Online payments/billings							
	Shopping cart initiation in SAP	0.61		10%	0	90%	0
	shopping cart approval in SAP	0.65		90%	0	10%	0
	Online payment initiation in SAP	0.43		10%	0	90%	0
	Online payment approval in SAP	0.72		90%	0	10%	0
	Orders placed using Pcard	0.29		10%	0	90%	0
	Pcard allocation in JPMorgan (per transaction)	0.22		10%	0	90%	0
	Pcard approval in JPMorgan (per transaction)	0.53		90%	0	10%	0
	Travel/non travel reimbursements initiated in SAP	0.73		10%	0	90%	0
	Travel/non travel reimbursements approved in SAP	0.73		90%	0	10%	0
	Nonpayroll cost transfers initiated in SAP	1.15		10%	0	90%	0
	Nonpayroll cost transfers approved in SAP	1.19		90%	0	10%	0
	Service Center billings entered in SAP (or other billing system)	4.04		50%	0	50%	0
PROTOCOLS AND COMPLIANCE							
	IACUC protocol confirmation	0.69		100%	0	0%	0
	IRB protocol confirmation	1.00		100%	0	0%	0
	ITAR compliance	-		100%	0	0%	0
	Hazardous material protocol confirmation	0.69		100%	0	0%	0
TOTAL HOURS TO COMPLETE ALL TASKS				0			

The tasks listed in the first column represent the items included on the questionnaire. The second column includes the averages calculated based on the questionnaire answers. The third column, *Number of Transactions per Department per Year*, is left blank in the table above but allows for input by any department administrator, based on the specific number of transactions completed by their department, per year. The last four columns of Table 1 include formulas and will calculate once the third column is populated. These last columns in the table represent the breakdown in percentages of the labor distribution per task. The identification of a task as either an analysis type of task or a processing type of task is based on the job descriptions for each position included in the financial research administration track within JHU. The completion of these tasks involves a percentage of analysis and/or processing ability. The columns calculating the number of hours per department per year are based on JHUs standard 37.5 hour work week, which when multiplied by 52 weeks in a year, equates to 1950 available working hours in a year. The author did not exclude holidays and vacation into the calculations.

The positions available to perform the research administration tasks included on the questionnaire are listed in **Table 2: Research Administration Staff Labor Distribution by Position**. This table lists all of the positions available for a department with research administration functions and lists the percentage of time available for the functions of management, supervision, analysis, project development, and processing. These percentages were based on the job classification descriptions resulting from JHUs reclassified research administration hierarchy. The far right columns in Table 2 calculate

the number of hours available in a 37.5 hour workweek for the functions required for research administration.

Table 2: Research Administration Staff Labor Distribution by Position

RESEARCH ADMINISTRATION STAFF LABOR DISTRIBUTION BY POSITION									
	MGMT	SUPERVISION	ANALYSIS	PROJECT DEVELOPMENT	PROCESSING		YEARLY HOURS AVAILABLE (BASED ON 37.5 HR WORK WEEK)		
							MGMT/ Supervision	ANALYSIS	PROCESSING
Senior Financial Mgr		50%	50%				975	975	0
Financial Mgr			95%		5%		0	1852.5	97.5
Grants and Contracts Manager		50%		50%			975	975	0
Senior Grants and Contracts Analyst			95%		5%		0	1852.5	97.5
Senior RSA			95%		5%		0	1852.5	97.5
Grants and Contracts Analyst			80%		20%		0	1560	390
RSA			80%		20%		0	1560	390
Budget Analyst			50%		50%		0	975	975
Grants and Contracts Specialist			50%		50%		0	975	975
Budget Specialist			5%		95%		0	97.5	1852.5
Grants and Contracts Coordinator			80%		20%		0	1560	390
Admin/HR Coordinator(for finance)			5%		95%		0	97.5	1852.5
Purchasing Coordinator			5%		95%		0	97.5	1852.5

The expected labor distribution by position included on this table was derived from the reclassification efforts made by JHU as the process of standardization of research administration positions continues. The table includes the old and new position titles as the changes have not been fully implemented within the departments surveyed. JHU employs a 37.5 hour work week for these types of staff positions and that was used to derive the yearly hours available for analysis and processing activities per position. The management functions of research administration were not evaluated by this project, only the analysis and processing activities of research administration were assessed by the researcher.

Next, the number of tasks performed by a department in any given year can be entered into **Table 1: Research Administration Time Commitment Analysis**. This information is available from various dashboards maintained by University Finance and

other reports available within the JHU's accounting software, SAP. For the purpose of this project, sample data was entered and the results are represented in **Table 3:**

Research Administration Time Commitment Analysis for Department X.

Table 3: Research Administration Time Commitment Analysis for Department X

RESEARCH ADMINISTRATION TIME COMMITMENT ANALYSIS						
	Average time to complete a single transaction (in Hours)	Number of Transactions per Department per Year	ANALYSIS		PROCESSING	
			%	Number of hours per department per year	%	Number of hours per department per year
PRE AWARD ACTIVITIES						
Proposal preparation for Federal Funding Sources (meeting with researcher, gathering and review of application parts)	6.60	33	100%	217.80	0%	-
Proposal preparation for Federal Funding Sources (upload to agency application system and Coeus)	3.80	33	0%	-	100%	125.40
Proposal preparation for non-Federal Funding Sources (meeting with researcher, gathering and review of application parts)	5.50	15	100%	82.50	0%	-
Proposal preparation for non-Federal Funding Sources (upload to agency application system and Coeus)	3.80	15	0%	-	100%	57.00
Proposal preparation for Contracts (meeting with researcher, gathering and review of application parts)+B42	4.67	0	100%	-	0%	-
Proposal preparation for Contracts (upload to agency application system and Coeus)	4.33	0	0%	-	100%	-
Sub award issuance (sub forms completed)	1.88	6	95%	10.69	5%	0.56
JIT requests (gathering info and submitting to funding agency)	2.25	20	95%	42.75	5%	2.25
POST AWARD ACTIVITIES						
Account Management						
Monthly reconciliation of a sponsored account	2.30	62	100%	142.60	0%	-
Monthly reconciliation of a contract account	2.38	1	100%	2.38	0%	-
Monthly reconciliation of a non sponsored/general funds account	1.75	75	100%	131.25	0%	-
Monthly reconciliation of a sub award account	1.67	10	100%	16.68	0%	-
Monthly reconciliation of a pass through account	0.75	7	100%	5.25	0%	-
Approving/processing pass through invoices	0.63	28	100%	17.50	0%	-
Quarterly meetings with faculty (to discuss financial status, review actual and planned spending, etc.)	2.50	32	100%	80.00	0%	-
FSR completion (review, reconciliation, approval)	2.88	10	100%	28.75	0%	-
Progress report submission (gathering info, entering data in to agency system, review)	3.10	50	95%	147.25	5%	7.75
HR / Payroll						
New/Reappointment request made (gathering info and preparing request letter)	1.65	81	95%	126.97	5%	6.68
Non appointment research staff requests made (gathering info and posting position)	1.00	10	95%	9.50	5%	0.50
Visa processing for J1	0.88	10	80%	7.00	20%	1.75
Visa processing for H1B and other	3.50	3	80%	8.40	20%	2.10
ISR initiation in SAP	0.62	300	10%	18.48	90%	166.32
ISR approval in SAP	0.29	300	10%	8.70	90%	78.30
Eform initiation in SAP	0.58	728	10%	41.93	90%	377.40
Eform approval in SAP	0.12	728	10%	8.44	90%	76.00
Effort form Prereview	4.38	500	90%	1,968.75	10%	218.75
Purchasing/Reimbursements/Online payments/billings						
Shopping cart initiation in SAP	0.61	660	10%	39.93	90%	359.37
shopping cart approval in SAP	0.65	660	90%	383.13	10%	42.57
Online payment initiation in SAP	0.43	529	10%	22.92	90%	206.31
Online payment approval in SAP	0.72	529	90%	340.89	10%	37.88
Orders placed using Pcard	0.29	100	10%	2.90	90%	26.10
Pcard allocation in JPMorgan (per transaction)	0.22	5128	10%	112.82	90%	1,015.34
Pcard approval in JPMorgan (per transaction)	0.53	5128	90%	2,430.67	10%	270.07
Travel/non travel reimbursements initiated in SAP	0.73	582	10%	42.49	90%	382.37
Travel/non travel reimbursements approved in SAP	0.73	582	90%	384.47	10%	42.72
Nonpayroll cost transfers initiated in SAP	1.15	408	10%	46.92	90%	422.28
Nonpayroll cost transfers approved in SAP	1.19	408	90%	436.05	10%	48.45
Service Center billings entered in SAP (or other billing system)	4.04	720	50%	1,454.40	50%	1,454.40
PROTOCOLS AND COMPLIANCE						
IACUC protocol confirmation	0.69	4	100%	2.77	0%	-
IRB protocol confirmation	1.00	0	100%	-	0%	-
ITAR compliance	-	0	100%	-	0%	-
Hazardous material protocol confirmation	0.69	20	100%	13.87	0%	-
TOTAL HOURS TO COMPLETE ALL TASKS				8,837.79		5,428.63

Once the number of transactions for each task listed are entered into this table, the built-in formulas automatically calculate the number of hours this department needs per year to complete all of the analysis and processing tasks associated with the activities described. In this example, Department X requires the appropriate mix of research administrative personnel to spend 8,837.79 hours on analysis and 5,428.63 hours on processing in one year.

The last step of the process is to use the information in the tables to ascertain the ability for each department to meet the needs of its research administration workload. A small surplus or deficit of hours would represent a department appropriately staffed. A large surplus or deficit would represent a department with staffing concerns. Table 4 illustrates the analysis of a fictional department where there are no staffing concerns. The “Number of Positions” column represents the current staffing in Department X. The last two columns are populated using the distributions from Table 2, derived from the reclassified positions descriptions of JHU. The table below, **Table 4: Sample Data to Compare Hours Needed to Hours Available (in one year) for Research Administration in Department X**, focuses only on the analysis and processing functions of the existing position in department X. The “Total Needed Hours” cells feed from the last row in Table 3: Research Administration Time Commitment Analysis for Department X.

Table 4: Sample Data to Compare Hours Needed to Hours Available (in one year) for Research Administration in Department X

RESEARCH ADMINISTRATION STAFF DEPARTMENT OF X HOURS AVAILABLE VS HOURS NEEDED			
	NUMBER OF POSITIONS	EXISTING AVAILABLE ANALYSIS HOURS	AVAILABLE PROCESSING HOURS
Senior Financial Mgr	1	975	0
Financial Mgr	1	1853	98
Grants and Contracts Manager		0	0
Senior Grants and Contracts Analyst	3	5558	293
Senior RSA		0	0
Grants and Contracts Analyst		0	0
RSA		0	0
Budget Analyst	1	975	975
Grants and Contracts Specialist		0	0
Budget Specialist	1	98	1853
Grants and Contracts Coordinator		0	0
Admin/HR Coordinator(for finance)	1	98	1853
Purchasing Coordinator		0	0
TOTAL AVAILABLE HOURS		9555	5070
TOTAL NEEDED HOURS		8837.79	5428.63
SURPLUS (DEFICIT) HOURS		717.21	-358.63

In this example, the number of hours required is less than those available for analysis activities. For document processing, the number of hours required is more than those available. Overall, there are enough hours existing among the appropriate existing research administration staff to complete the tasks dictated by the current workload within a single sample year. Overall, the number of surplus hours (358.58) is less than the number of hours for a full position in a year (1,950) which leads to the conclusion that this fictitious department is properly staffed.

Chapter 7 Recommendations and Conclusion

7.1 Recommendations

The idea of developing a set of metrics to evaluate existing staffing levels for departmental research administration teams is not a novel one. Obtaining sponsored funding has become increasingly competitive and the associated application process has become increasingly complex. Changes in Federal regulations have impacted the management of sponsored funding received by imposing additional guidelines governing the use of that funding. These changes have greatly impacted the responsibilities of research administrative staff within a department. JHU has responded to these changes by examining their hierarchy of research administrative positions and making the necessary changes to ensure consistency of those types of positions across its schools. The best method of determining the appropriate mix and number of positions needed has long been debated. This project has examined the research administration needs of JHU's large science departments and the staff positions available to meet those needs. This capstone project concluded with two recommendations.

Recommendation 1: Management acceptance that a well-defined, consistent method must be used to assess research administration staffing needs within departments.

The profession of research administration has morphed over the years, from a mostly administrative one to a highly technical one. JHU has recognized this change and responded by developing a hierarchy of research administration positions. Even with these changes, justifying the staffing needs for an individual department still remains a problem. There is no consistent method for determining a department's staffing need.

Since the portfolio of research can vary greatly from department to department and even from one researcher to another researcher within a single department, measuring the needs of each department can be subjective.

Before a solution can be examined, there must first be an acknowledgement that a problem exists. This capstone project has examined the many intricacies of departmental research administration within the departments of Biology, Chemistry, and Physics and Astronomy at JHU. Using this information, the researcher was able to develop a set of metrics that assesses the staffing needs of any department based on the workload generated by the funding portfolio of each department. Implementing a standard method of determining appropriate staffing levels would benefit the department, school and university by saving time wasted due to repeat and ambiguous requests for information, by management to department administrators, to justify staffing needs.

Recommendation 2: Use the metrics developed in this project to assess and justify research administration staffing needs within departments.

Currently, managers for the departments of Biology, Chemistry, and Physics and Astronomy within JHU's KSAS do not have a consistent method for expressing their staffing concerns. This project developed a set of metrics that can be used to compare the current level of staffing with the research administration needs of a department. Tasks associated with departmental research administration were presented in a table format and those tasks were identified as either requiring analysis skills or processing skills by the standardized position hierarchy at JHU. An average time for completion of a specific type of task was calculated by questioning a sample number of research administration

staff performing those tasks. The number of tasks performed by a department in a particular year was obtained through various reporting and dashboard features in existence at JHU. All of his data was entered into the tables developed for this project to identify staffing concerns. Using the metrics developed for this project will greatly assist department administrators and central management in assessing the staffing needs of departments with research administrative staff by providing clearly defined expectations for the justification of staffing requests.

7.2 Conclusion

There is no procedure currently in place at JHU to consistently analyze the needs of departmental research administration staff. Much time is wasted with individual and varying assessments of needs based on changing and seemingly random criteria. Developing a set of metrics based on actual work load and position expectations would not only save time but greatly improve efficiency of departmental research administration. The research conducted during this project resulted in a defined list of tasks that must be performed by the staff in the three large research departments within the Krieger School of Arts and Sciences at Johns Hopkins University. While the research performed in these departments might vary in complexities and volume of tasks, a set of metrics using the average time for completion of those various tasks is achievable. The volume of work is available through a variety of dashboards and reports already accessible to management. This project presents that data in a table format which allows a visual representation of the needs of research administration and the ability of a department to meet those needs with the current staff.

Research conducted at colleges and universities is big business.²⁵ Like any big business, adequate staffing is essential to ensure success. Department research administrators work very closely with their researchers. They eliminate much of the growing administrative burden inherent with sponsored research from the researchers by performing the tasks needed to apply for and manage research activity. Adequate staffing is often perceived as subjective due to the amount of variables impacting workload. The variety, complexity, and number of tasks are dissimilar among departments but the nature of the tasks are relatively similar. Creating metrics to assess the goals of departmental research administration and the ability of departments to meet those goals with their existing staff was the aim of this project.

²⁵ D.W. Lehman, (2017, Fall). Organizational Cultural Theory and Research Administration Knowledge Management. *Journal of Research Administration Volumen XLVII, Number 2*, pp. 52-66.

Bibliography

- Beasley, K. L. (2006). The History of Research Administration. In E. C. Kulakowski, & L. U. Chronister, *Research Administration and Management* (pp. 9-29). Sudbury, MA: Jones and Bartlett Publishers.
- Britt, R. (2017, November 30). *Universities Report Increased Federal R&D Funding after 4-year Decline; R&D Fields Revised for FY 2016*. Retrieved from National Science Foundation: <https://www.nsf.gov/statistics/2018/nsf18303/>
- Chronister, L. U. (2006). The Organization of the Research Enterprise. In L. U. Chronister, *Research Administration and Management* (pp. 41-61). Sudbury, MA: Jones and Bartlett Publishers.
- Dartmouth. (2009, September 14). *What is a Modified Total Direct Cost?* Retrieved from Dartmouth Office of Sponsored Projects: <http://www.dartmouth.edu/~osp/faq/modifiedtotal.html>
- Davis-Hamilton, Z. (2017, December 21). Do We Measure Up? How Research Administration Offices Evaluate Their Services/Pulse. *Society of Research Administration International Catalyst*.
- Haines, N. (2012). Metrics for Research Administration Offices (Part 1). *Journal of Clinical Research Best Practices*, Vol. 8, No. 6.
- Johns Hopkins Office of International Services. (n.d.). *Export Control Information*. Retrieved from Johns Hopkins Office of International Services: http://ois.jhu.edu/For_Administrators/H1B/Export_Control_Information/
- Johns Hopkins University. (n.d.). *Overview*. Retrieved from Animal Care and Use Committee: <http://web.jhu.edu/animalcare/about.html>
- Johns Hopkins University. (n.d.). *Home*. Retrieved from Homewood Institutional Review Board: <http://homewoodirb.jhu.edu/>
- Johns Hopkins University. (n.d.). *HSE Policies*. Retrieved from Health Safety and Environment: <https://www.hopkinsmedicine.org/hse/policies/index.html>
- Johns Hopkins University. (n.d.). *Research & Faculty*. Retrieved from Johns Hopkins University: <https://www.jhu.edu/research/>
- KASPER. (n.d.). *Sponsored Projects*. Retrieved from Johns Hopkins University Krieger School of Arts & Sciences: <http://krieger.jhu.edu/kasper/sponsored-projects/>
- Krieger School of Arts & Sciences. (2018). *Conflict Review Committee*. Retrieved from Krieger School of Arts and Sciences Pathway to Electronic Resources: http://sites.krieger.jhu.edu/kasper/files/2017/09/CoI_CoC_Divisional_Policy.pdf

- Lehman, D. W. (2017, Fall). Organizational Cultural Theory and Research Administration Knowledge Management. *Journal of Research Administration Volumen XLVII, Number 2*, pp. 52-66.
- Lintz, E. (2008). A conceptual framework for the future of successful research administration. *The Journal of Research Administration, XXXIX (2)*, 68-80.
- Marina, S., Davis-Hamilton, Z., & Charmanski, K. (2015). Evaluating Research Administration: Methods and Utility. *Journal of Research Administration, Volume XLVI Number 2*, 95-110.
- National Science Board. (2014). *Reducing Investigators' Administrative Workload For Federally Funded Research*. Arlington: National Science Foundation.
- NCURA. (n.d.). *Core Purpose and Mission*. Retrieved from NCURA: <http://www.ncura.edu/AboutUs.aspx>
- NIH. (2018, February 9). *Develop Your Budget*. Retrieved from National Institutes of Health, Grants and Funding: <https://grants.nih.gov/grants/how-to-apply-application-guide/format-and-write/develop-your-budget.htm>
- Society of Research Administrators International. (n.d.). *About SRA International*. Retrieved from SRA International: <https://www.srainternational.org/about-sra-international>
- Waugaman, P. G., Kirby, W. S., & Tornatzky, L. (2006). Performance Measurement. In E. C. Kulakowski, & L. U. Chronister, *Research Administration and Management* (pp. 137-147). Sudbury, MA: Jones and Bartlett Publishers.

Appendix 1: Departmental Research Administration Task Survey

Departmental Research Administration Task Survey

Average time to complete a single task (in hours)

Pre Award Activities

Please enter the average time to complete a single task.

Proposal preparation for Federal funding sources (meeting with researcher, gathering and review of application parts)

Your answer _____

Proposal preparation for Federal funding sources (upload to agency application system and Coeus)

Your answer _____

Proposal preparation for non-Federal funding sources(meeting with researcher, gathering and review of application parts)

Your answer _____

Proposal preparation for non-Federal funding sources(upload to agency application system and Coeus)

Your answer _____

Proposal preparation for Contracts (meeting with researcher, gathering and review of application parts)

Your answer _____

Proposal preparation for Contracts (upload to agency application system and Coeus)

Your answer _____

Subaward issuance (sub forms completed)

Your answer _____

JIT requests (gathering info and submitting to agency)

Your answer _____

Other PreAward activity not listed above

Your answer _____

Post Award Activities

Monthly reconciliation of a sponsored account

Your answer _____

Monthly reconciliation of a contract account

Your answer _____

Monthly reconciliation of a non sponsored/general funds account

Your answer _____

Monthly reconciliation of a subaward account

Your answer _____

Monthly reconciliation of a pass through account

Your answer _____

Approving/processing pass through invoices

Your answer _____

Quarterly meetings with Faculty to discuss financial status, review actual and planned spending, etc.

Your answer _____

FSR Completion (review, reconciliation, approval)

Your answer _____

Progress Report submission (gathering info, entering data into agency system)

Your answer _____

New or Reappointment requests made (gathering info and preparing request letter)

Your answer _____

Non Appointed research staff requests made (gathering info and posting job)

Your answer _____

Visa processing for J1

Your answer _____

Visa processing for H1B and other

Your answer _____

ISR initiated in SAP

Your answer _____

ISR approved in SAP

Your answer _____

Eform initiated in SAP

Your answer _____

Eform approved in SAP

Your answer _____

Shopping Cart created in SAP

Your answer _____

Shopping Cart approved in SAP

Your answer _____

Online payments initiated in SAP

Your answer _____

Online payments approved in SAP

Your answer _____

Orders placed using Pcard

Your answer _____

Pcard allocation in JP Morgan

Your answer _____

Pcard approval in JP Morgan

Your answer _____

Travel / non travel reimbursements initiated in SAP

Your answer _____

Travel / non travel reimbursements approved in SAP

Your answer _____

Non payroll cost transfers initiated in SAP

Your answer _____

Non payroll cost transfers approved in SAP

Your answer _____

Effort form pre-review

Your answer _____

Service Center Bill entered in SAP or other system

Your answer _____

Other Post Award Activity not listed above

Your answer _____

Protocols and Compliance

Average time to complete a single task (in hours)

IACUC protocol confirmation

Your answer

IRB protocol confirmation

Your answer

ITAR compliance

Your answer

Hazardous material protocol confirmation

Your answer

Other compliance or protocol activity not listed above

Your answer

Curriculum Vitae

Donna Schriver is a graduate of the Masters of Science Research Administration program at Johns Hopkins University. She followed the Program Administration and Facilitation and the Financial Management of Sponsored Programs curriculum tracks of this program. Donna earned her Bachelor of Science degree in accounting at Towson University. She has been employed at Johns Hopkins University since 2005. Her entire tenure at Johns Hopkins University has been with the Department of Biology in various research administration roles. She is currently the department's Senior Financial Manager, supervising the department's research administration staff and overseeing all of the department's sponsored funding. Donna is also the current Secretary of the Chesapeake Chapter of The Society of Research Administration.