

## Research Shared Services: A Case Study in Implementation

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**Abstract:** *The private sector has been moving toward the idea of consolidating administrative functions within organizations since the 1980s. While this sector has traditionally implemented shared services with cost reduction in mind, traditionally through economies of scale, many universities across the country have begun to explore the concept of managing the research enterprise with hopes of finding an enhanced model for supporting operational and administrative processes. While several university-based shared service campaigns have allowed for reinvestment of time and money into mission-critical endeavors, the complex realities of assessment, design, and implementation make it a potentially daunting undertaking. This manuscript describes the strategic challenges of implementing a shared service model for organizing research administration at a major academic medical center, Thomas Jefferson University.*

**Keywords:** *Research Shared Services, Research Administration Transformation, Organizational Realignment, Metrics, Reporting*

### Introduction

Over the past few years there has been increasing attention toward the idea of shared services as a model for supporting research administration at research-intensive institutions (Gideon, 2012). As with any type of organization, this model has pros and cons. While there is no one-size-fits-all model for research shared services, this type of organization generally has the following attributes: a level of centralization of services that are traditionally performed by local (school/department) research administration personnel, standardization of these services across the stakeholders served, and a Service Level Agreement (SLA) that guarantees support and level of services provided to customers, which can include a feedback mechanism and metrics to measure the quality of support.

At their core, shared service centers represent a redefined organizational model coupled with the opportunity for process transformation and technology enhancement. There are a variety of different models that can be executed based on the needs of the customers and the goals of the university. Leadership must consider the services that will be provided and determine which

model best balances the implementation goals with the potential impact on the stakeholders served (Cluver & Stevens, 2014). While institutions that have this type of organization vary in their approach, there are three primary models for research shared services:

1. *Model A: Cradle-to-Grave*

- Grants administrators serve as part of teams or pods and are responsible for cradle-to-grave research administration (both pre- and post-award).

2. *Model B: Specialization*

- Grants administrators serve as part of teams or pods, but are responsible solely for pre- or post-award.

3. *Model C: Hybrid*

- Grants administrators serve as part of teams or pods, but each team or pod designs their services in their unique fashion—one may have grants administrators responsible for both pre- and post-award, while another may have their administrators specialize.

In the following paper we outline the high-level steps to launch this type of organization at your institution and outline one university's experience—Thomas Jefferson University (TJU)—to illustrate the process and lessons learned from their design and implementation. As institutions begin to consider this type of model for research administration, it is critical they approach it with an eye toward change management, engagement of key stakeholders, and ongoing communication and monitoring post-implementation.

## **Making the Business Case – Do Research Shared Services Work for Your Institution?**

The goal of research shared services is to reorganize transaction-based activities that occur in decentralized units and departments so they become the core services of a new, specialized organization or group. Before implementing, each institution should have a unique business case outlining the opportunity for research shared services. The business case focuses on the unique needs of the Principal Investigators (PI), central units, and the institution at large. It is important to define why research shared services are a good fit for your institution, which elements your model will incorporate, and what results you expect to achieve (Azziz, 2014).

While some institutions may approach shared services as a cost savings measure (as they might finance, IT, or HR shared services), with research, an organization should think about it as an investment. The higher education climate mandates that institutions consider mission over margin when approaching an organizational change such as shared services. Higher education's mission and overarching goals mean that cost efficiency will not always determine operating decisions. For example, the University of New Hampshire's implementation was motivated by the standardization of services, enhancements to training offerings, improving internal controls, and eliminating "shadow systems" (Stony Brook University Senate, 2012). The return on investment for this method of service delivery transformation works by providing high levels of training, professional development, and cross-collaboration to employees, while breaking

down organizational silos and retaining PIs through delivering the necessary services with a high level of quality. If an institution believes in the caliber of its faculty and commits to building an administrative infrastructure capable of submitting and managing more complex sponsored research, then the increase in indirect costs will more than pay for this shared service investment.

## **High-Level Steps for a Research Shared Service Implementation**

### *Step 1: Review Core IT and Human Resource Components Related to Research Administration*

In order to understand your organization's readiness for a shared services model, it is important to consider the HR and IT components currently in place. Does your institution have an IT model that can support a more centralized model of local grants administration support? For example, at TJU, one of the requirements that became important to investigators was a detailed projection report for each of their active grants. While it was known that this support varied across departments in quality and frequency, TJU lacked the IT infrastructure to support the real-time projections that many faculty desired. To make up for this lack of IT support, the model required more staff support to create these reports manually. This was a substantial factor in determining the number of Full-Time Equivalents (FTE) required to support the research infrastructure.

Human Resources benefits are another area to explore prior to implementing this type of model. You should consider the total rewards as they relate to all benefits of other institutions in your area and what benefits they can guarantee employees. In order to attract and retain top talent to your research shared service center, you should be able to offer the same or better benefits than the local departments and local institutions offer. Another opportunity with this model is to partner with your institution's HR department to create detailed, new job descriptions coupled with a compensation analysis of these new positions reflecting the duties needed to execute this plan. For example, at TJU, HR was a key partner and member of internal committees in completing these analyses and building career ladders for the members of the new organization.

An institution should consider the current research administration talent in their organization. If the institution previously had many local schools and departments that did not dedicate individuals to the profession of research administration, then it will be a challenge to implement this type of model. You will need to add time to the implementation schedule to train and on-board your new employees.

### *Step 2: Decide on the Model that is Best for your Institution*

Once the internal assessment is complete, it is important to present those findings to your most important constituency—the research faculty. This group should be engaged at the beginning of your process as well as throughout the design and implementation phases. The faculty are most affected by the change and will have the largest stake in the outcome.

TJU implemented a Faculty Advisory Committee (FAC) early on in its implementation process, and it was this body that advised on the design of the research shared service group. Ideally, this

group would be presented with the findings of the assessment phase:

1. Current state of IT supporting research administration and the ability to support a centralized, standardized model of local grants administration support.
2. Current state of HR recruitment and ability to recruit top research administration talent.
3. Proposed models for support and the pros and cons of each.

Based on these findings, the committee should weigh in on which model to move forward with and help to identify some of the challenges that will be faced by other faculty members and department administrators.

Another option at this stage is to present a panel of research shared service experts from other institutions (preferably local institutions, if this model exists in your area) to speak with the faculty and current department administrators regarding their own lessons learned. Hearing from peer institutions often holds more weight than asking your constituents to imagine how this new model could operate.

### *Step 3: Recruit the Leader/Director*

It is important to begin recruiting your director immediately after your institution has decided to move forward with research shared services. This should be the first job description written, analyzed for compensation, and posted—all the better if you already have someone at your institution who can fill this role. This is the first and most critical position to fill in your new organization.

There are two critical qualities for the director of a new organization: 1) the ability to facilitate well and 2) the ability to successfully navigate the political climate at an institution. Of course, you will seek a candidate with technical abilities in research administration as well, but these two “softer skills” are essential for the leader of a new organization within your institution.

The new director will need to own the process and become the face of your new research shared services organization. The earlier that person is involved, the more invested they will become in the process and the decisions being made. The director also must begin developing those important core relationships with individuals at your institution—finding those key influencers

<b>Does Your Candidate Have What it Takes?</b>	
√	<p><b>A Facilitator</b></p> <ul style="list-style-type: none"> <li>- Possesses excellent leadership abilities and is capable of overseeing multiple functions and departments.</li> <li>- Has a unique passion for service excellence and integrity.</li> <li>- Displays advanced skills in strategy development, systems planning, and change management.</li> </ul>
√	<p><b>The Ability to Navigate Political Waters</b></p> <ul style="list-style-type: none"> <li>- Exudes emotional intelligence and professionalism in building strategic university relationships.</li> <li>- Works collaboratively and acts persuasively in sensitive situations (i.e. skills in conflict management).</li> </ul>

*Figure 1. Candidate Profile*

and making sure they are involved in the process.

*Step 4: Develop Messaging and Performance Measurements*

Rather than a discrete step, messaging is something that should be threaded throughout your implementation and used to capture continuous feedback. Your key stakeholders will want and need frequent updates on the progress of the new organization and key decisions regarding the design. TJU, for example, implemented a monthly town hall meeting during their implementation process. Integral to these meetings were frequently asked questions and major decisions regarding job postings, hiring, and transition to the new organization.

In the months following implementation, TJU leadership began a rebranding effort with the goal of formalizing the partnership between their new shared service organization, Research Administration Center of Excellence (RACE), and the Office of Research Administration (ORA), the university's central pre-award office.

The Offices of Research Support Services, as the parent organization is now called, provides a much needed bridge between the university's faculty-centric support services for research administration at TJU. The relationship between RACE and ORA has been critical in developing and refining the current research administration support model. Much of the organizational success can be attributed to team building and cross-collaboration initiatives such as WRAP (Working Research Administration Partnership) meetings, Research Support Services monthly management meetings, and brown bag training sessions. Key accomplishments of these initiatives include:

1. Creation of roles and responsibilities matrices/FAQs spanning the full life cycle of research administration;
2. Professional development opportunities (e.g., multiple NCURA workshops hosted at TJU);
3. Establishment of an Online Training Library consisting of 38 research administration training courses in Blackboard; and
4. Development of an ORA SLA that complements the RACE SLA.

The Research Support Services leadership also provides updates to the campus' research community. This is a great opportunity to obtain feedback from the research faculty and school and departmental administration. Some examples of these forums are departmental meetings, professorial meetings, as well as the Provost Council and the Jefferson Committee on Research. The purpose of these meetings is two-fold: RACE leadership provides a general update, including an overview of the unit's key performance measures, comparing the organizational performance against the agreed-upon SLA, and the VP of Administration provides a macro overview of the state of research administration at TJU.

As part of the overall strategy for monitoring the progress of the new organization and to ensure the communication mechanisms employed were having the desired effect, TJU instituted several feedback loops for the research community. Upon implementation, all RACE staff placed a link to a 2-question survey in their e-mail signatures. Essentially a "how am I doing survey" allowed

for real-time feedback on services provided. In addition, the FAC continued to meet and bring feedback from the faculty being served to the project leadership team as the implementation was rolling out. This mechanism was essential in giving faculty an outlet—through their peers—to express feedback and help tweak the model as necessary. Finally, the Research Support Services leadership also instituted semi-annual surveys to research faculty regarding services received in both ORA and RACE—an effort to ensure that the full research administration life cycle was operating at the level desired.

*Step 5: Finalize Timeline*

Implementation is a multi-step process that does not follow a defined footprint. As such, you should allow your institution ample time to evaluate, redefine, and adjust the project implementation timeline where appropriate. The circuit breaker steps, highlighted below, are necessary components of any implementation. These defined steps allow project stakeholders to step back and re-evaluate the project goals and institutional impact of the proposed service delivery model. Below is a sample phased timeline for the implementation of a research shared service center.



**Phase 1: Plan**

**Phase 2:  
Evaluate**

**Phase 3: Design**

**Phase 4:  
Implement**

**Phase 5:  
Optimize**

Phase	Primary Outcomes	Expected Duration
<p><u>Phase 1:</u> Plan</p>	<ul style="list-style-type: none"> <li>- Establish project goals, milestones, and communication strategies                             <ul style="list-style-type: none"> <li>o Establish project goals and objectives with project team</li> <li>o Develop project plan and timeline</li> <li>o Identify stakeholders for and create steering committee</li> <li>o Identify stakeholders for and create faculty advisory committee, if applicable</li> </ul> </li> </ul>	<p>3-4 Weeks</p>
<p><u>Phase 2:</u> Evaluate</p>	<ul style="list-style-type: none"> <li>- Assess the current local research administration model and provide potential path to optimization to enable leadership to make a “go/ no-go” decision                             <ul style="list-style-type: none"> <li>o Conduct interviews and workshops with faculty, staff, and leadership to understand the current local research administration support system</li> <li>o Evaluate service delivery through qualitative surveys to the customers and service providers (e.g. customer satisfaction survey)</li> <li>o Identify opportunities to improve service delivery</li> <li>o Evaluate current IT and HR structure supporting research administration and ability to support new, proposed organization</li> <li>o Propose initial solutions to address opportunities including, but not limited to, governance, organizational structure, staffing requirements, etc.</li> <li>o Conduct impact analysis to evaluate institutional readiness for change</li> </ul> </li> </ul>	<p>2-3 Months</p>
<p><b><i>CIRCUIT BREAKER</i></b>—validate the decision to implement research shared service</p>		
<p><u>Phase 3:</u> Design</p>	<ul style="list-style-type: none"> <li>- Create roadmap for transformative change                             <ul style="list-style-type: none"> <li>o Develop task force(s) in charge of organization implementation, including appropriate committee structure</li> <li>o Create implementation roadmap</li> <li>o Finalize organizational structure and staffing requirements, including job descriptions</li> <li>o Develop and validate new governance model and structure</li> <li>o Design new processes, including enabling technology, roles and responsibilities matrices, and process documentation</li> </ul> </li> </ul>	<p>3-6 Months</p>

	<ul style="list-style-type: none"> <li>○ Develop Service Level Agreements (SLA), as appropriate</li> </ul>	
<b>CIRCUIT BREAKER</b> —validate the decision to implement select model of research shared service		
<u>Phase 4:</u> Implement	<ul style="list-style-type: none"> <li>– Provide project management and operational assistance throughout the implementation               <ul style="list-style-type: none"> <li>○ Identify, revise, and finalize policies and procedures determined as areas of focus by senior leadership</li> <li>○ Document business processes and update documentation and other supporting materials to reflect institutional policy changes</li> <li>○ Complete training and deployment planning, prepare facilities and workspace, and finalize transition steps and timing</li> <li>○ Review and finalize SLA with institutional stakeholders</li> <li>○ Deploy hiring plan</li> <li>○ Support units, as needed, to reorganize the work of unit-based staff to accommodate the new service delivery model</li> </ul> </li> </ul>	6-8 Months
<u>Phase 5:</u> Optimize	<ul style="list-style-type: none"> <li>– Ensure the sustainability of project goals and optimal results               <ul style="list-style-type: none"> <li>○ Identify maintenance plan for on-going training</li> <li>○ Implement and monitor new process, monitor progress, and identify/resolve issues</li> <li>○ Measure defined Key Performance Indicators (KPIs), implement continuous improvement, and conduct customer and employee satisfaction assessments</li> <li>○ Expand technology footprint to support service delivery improvements</li> <li>○ Develop/refine training materials to instruct faculty and staff on changes to policies and its impact on the day-to-day operations</li> <li>○ Devise stakeholder communications and messaging of policy and process changes</li> <li>○ Assess staffing annually as it relates to the size of your institution’s sponsored research portfolio to ensure ongoing SLA criteria is met</li> <li>○ Expand technology footprint to support service delivery improvements</li> <li>○ Develop/refine training materials to instruct faculty and staff on changes to policies and its impact on the day-to-day operations</li> <li>○ Devise stakeholder communications and messaging of policy and process changes</li> <li>○ Assess staffing annually as it relates to the size of your institution’s sponsored research portfolio to ensure ongoing SLA criteria is met</li> </ul> </li> </ul>	Ongoing

*Figure 2. Implementation Timeline*

## Thomas Jefferson University – The Research Shared Service Opportunity

As TJU embarked on a new blueprint for strategic action, one of the areas of focus was high-impact science. The Provost’s research strategic vision focused on programmatic team science and a diversification of TJU’s sponsored research portfolio. Research administration was a major component in delivering the Provost’s vision. The opportunity was to ensure that TJU’s research administrators were positioned and trained to assist research faculty with preparing more complex proposals from a variety of sponsors. TJU also wanted to ensure that research administrators were trained and had the tools from a post-award perspective to manage the complex grants once awarded.

The vision of creating a shared service model was to provide faculty-centric research administration support across TJU by standardizing processes and restructuring positions. This vision included enhancing service for all researchers across campus, ensuring consistent processes and procedures across schools and departments, and providing grants management staff a clear career path and opportunities to grow their careers through professional development and networking.

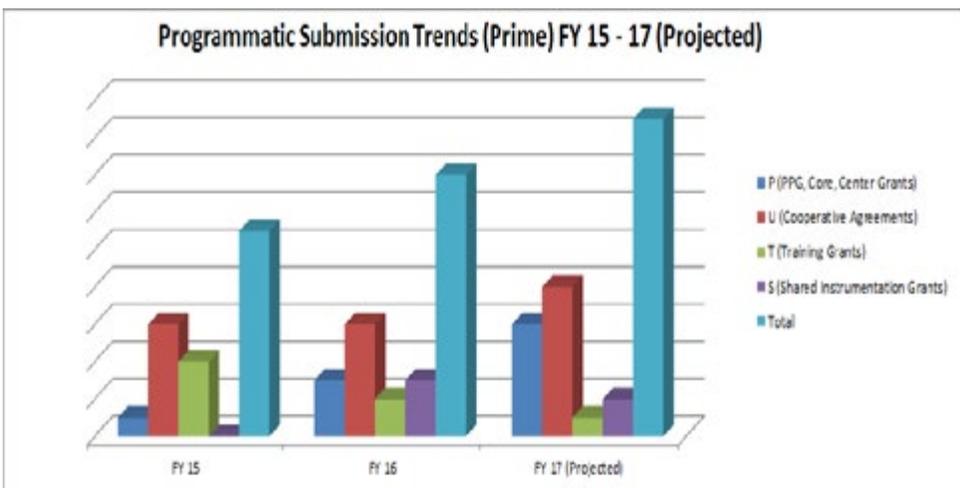


Figure 3. Programmatic Submission Trends

### Lessons Learned

Implementing any new organization has its challenges—a research shared service group is no exception. Indeed, because this type of office is integral to the success of PIs and research faculty, it tends to garner much more attention at institutions than other types of organizational change (e.g., a Human Resources or IT shared service organization).

While TJU’s shared service implementation was ultimately successful, there were several critical lessons learned from their process:

1. Identify the Decision Makers: It is important that there is a clear leader at the helm

during a shared service implementation. It should be clear what person or governing body has authority to make the final decisions. As much feedback as you are garnering during this process, keep in mind that there will be disagreements. There are going to be points of impasse and someone at your organization with political clout and authority should be on point to make a final decision and provide an explanation for that decision. While this occurred later in the TJU implementation, it was not immediately clear in the early stages who had ultimate decision-making authority. This caused some confusion at critical junctures that could have been avoided with a stronger governance structure in place.

2. **Create a Clear Career Path:** One of TJU's stated goals for implementing a shared service organization was the creation of a clear career path for research administrators. In creating the new positions for the shared service group, an attempt was made to differentiate between levels of Grants Administrators to accomplish this goal. While this worked to some degree, it was not until after implementation that a new Grants Coordinator position was created. This position became an entry-level job whose primary responsibility was taking on the administrative tasks of each team. This became the gateway position for employees to enter the organization and grow into the Grants Administrator I role. Had this path been clearly defined at implementation, better support could have been provided for Grants Administrators as they learned their new portfolios.
3. **Define Flex:** A benefit of this type of research administration support is the ability for team members to provide the same type and level of support, no matter what school or department is being served. It is critically important to develop standard operating procedures and an SLA between the new organization and its customers. There is, however, also a need to define the term "flex" within the shared services group. This is often a confusing proposition because many universities are not accustomed to having standardized operating procedures for tasks across schools and departments. Many schools and departments are given almost complete autonomy within the organization for most tasks and research administration support is no exception. The idea of using team members across shared service teams and flexing support when one team is busier than another is a learned skill rather than something that occurs naturally within the group. This idea of flex should have been better defined at TJU, with pilot groups employed prior to full implementation.
4. **Anticipate Initial Challenges with Workload and Faculty Experience:** SLAs are an excellent vehicle to assist in building relationships and setting expectations between research shared service centers and their customers. When implementing an SLA, leaders should anticipate some degree of difficulty in executing the agreement out of the gate. At TJU, Grant Administrators needed to quickly learn their portfolio, build a rapport with PIs, while also learning new processes and institutional intricacies. This made the SLA, at times, difficult to execute. SLAs can quickly become unnecessarily bureaucratic and burdensome without proper attention to initial feedback and workload-related problems within the center. The agreement should be perceived as a living framework for an

evolving and organic relationship of transactions between the stakeholders and providers. Proper attention and evolution of SLAs can be a great benefit to research shared service centers as their services and results mature.

5. **Determine Staffing Requirements and Institutional Variables:** RACE staffing requirements were originally developed based on a declining sponsored research portfolio. During evaluation, the project team identified 50+ individuals involved in research administration who were, at the time, fragmented throughout various schools and departments. The initial goal of research shared services was to decrease this overall FTE count, centralize approximately 27 dedicated Grant Administrators, and reduce the cost for administering research. After several months of workload-related challenges, RACE leadership made the decision to conduct a two-phased staffing recalibration, which resulted in an increase of six FTEs, for a total 33 RACE staff members. This staffing increase was primarily due to onboarding difficulties, institutional-specific knowledge gaps, and additional required services that were not fully automated. The first question asked during evaluation should have been “how many FTEs are required to provide the administrative infrastructure to execute the research strategic plan?” This question was only answered after the recalibration of RACE. In retrospect, the project team should have worked with senior leadership to consider the implications of executing the research strategic plan and its effect on staffing requirements. Two years later, there is documentation illustrating the growth of TJU’s programmatic research and complex proposal submissions (e.g., SPORE, program projects and large collaborative research projects). Previously, the expertise to support this type of research was sporadic within departments. Today, TJU is effectively doing “more with less” and has a dedicated team of research administration professionals fostering a stronger foundation for service, institutional collaboration, compliance, scalability, and personal career growth. Research shared services is an investment, not only in terms of time and cost, but also in executing your institution’s own vision for research strategy and growth.
6. **Engage an External Partner:** Most, if not all, academic institutions lack the bandwidth, mindset, and ongoing commitment to pull off a large-scale transformation such as research shared services. External partners enable institutions to execute their strategic vision and provide assistance in the trenches during the ramp-up period of the new organization. Research institutions do not have the luxury of pausing while a shared service center is implemented and external partners help to fill this gap while new Grants Administrators are trained and onboarded.
7. **Phase Implementation:** Inclusion of departments within the research shared service center should span several phases, starting with the units most in need of the service. The last phase should include those departments that previously had established research administrators at the local level.

<b>What Worked Well?</b>	
✓	<b>Incorporating Open Houses Quarterly</b> , whether by team, specialty, or portfolio
✓	<b>Including the Purchasing function</b> within the organization, allowing schools and departments to utilize shared service personnel to order research supplies
✓	<b>Scientific Editor</b> <ul style="list-style-type: none"> <li>– This new service to faculty was added as a part of the new organization, but could be separate from a research shared service center</li> </ul>
✓	Schools and departments without previous local research administration support began increasing proposal submissions. For the first time, they felt there was consistent, <b>stable support for their researchers</b>
✓	Lessons learned as a part of the research shared service implementation made <b>future organizational changes easier</b> , such as the Jefferson Clinical Research Institute (JCRI)
✓	<b>Service Level Agreement</b> <ul style="list-style-type: none"> <li>– The document clearly outlined the difference in service between the central offices and the new shared service organization</li> </ul>
✓	<b>Monitoring</b> <ul style="list-style-type: none"> <li>– Creation of an organizational dashboard, which is currently sent to research administration leadership on a monthly basis. In turn, the data is analyzed and assembled into a monthly metrics report, creating organizational transparency and accountability</li> </ul>
✓	Establishing a <b>new culture for research administration</b> . Previously, this was one of “policing” – now it is centered around customer service and cross-collaboration, involving both RACE and ORA

*Figure 4. Lessons Learned*

## **Conclusion**

A research shared services organization has the potential to bring a consistent and high level of service to PIs, while also minimizing compliance risk and ensuring that research administrators serving schools and departments are skilled, trained professionals. However, to make the transition to this type of organization, research-intensive institutions must approach the process thoughtfully and with attention toward change management and data-driven decisions. It is vital to consider the value proposition of this type of change, followed by a detailed assessment of the current state of research administration. Once a course of action is agreed upon, with clear decision makers at the helm, it is important to create clear and broad-reaching messaging to the research community as the implementation moves forward. Clear messaging and a continuous feedback loop, coupled with clear metrics showing progress toward goals, will ensure that the shared services organization maintains accountability and superior service now and in the future.

## **Authors' Notes**

This manuscript is based on a two-year assessment and subsequent implementation of a research shared service center at Thomas Jefferson University in Philadelphia, Pennsylvania. The organizational realignment discussed in this paper stemmed from the Provost's strategic vision for research focused on programmatic team science and to ensure that TJU's research administrators were positioned and trained to better assist research faculty in the development of more impactful science. This paper, in its earlier form, was published in abbreviated copy in the March/April 2016 edition of NCURA Magazine, the journal of the National Council of University Research Administrators. This manuscript provides a complete narrative of the goals, challenges, and lessons learned by TJU in successfully implementing a more suitable organizational structure for supporting researchers at the university.

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## References

- Azziz, R. (2014, August 18). Implementing shared services in higher education: How universities can benefit from a concept frequently and successfully implemented in the corporate world. *University Business* [Trumbull]. Retrieved September 16, 2016, from <https://www.universitybusiness.com/article/shared-services>
- Cluver, M., & Stevens, N. (2014). Shared service center implementations—an inclusive approach. *NCURA Magazine XLVI*(1), 19-21. Retrieved from [https://www.huronconsultinggroup.com/-/media/Resource-Media-Content/Education/JanFeb2014\\_Mag\\_Excerpt.pdf](https://www.huronconsultinggroup.com/-/media/Resource-Media-Content/Education/JanFeb2014_Mag_Excerpt.pdf)
- Gideon, G. (2012, March 23). Shared services gaining ground in higher education. *Yale News* [New Haven]. Retrieved September 16, 2016, from <http://yaledailynews.com/blog/2012/03/23/shared-services-gaining-ground-in-higher-education/>
- Stony Brook University Senate, Administrative Review Committee. (2012, May 7). *Report on shared services*. Retrieved from Stony Brook University Arts & Sciences Senate website: <https://www.stonybrook.edu/senatecas/pdf/SharedServices-Report-Final.pdf>