A Conceptual Framework for the Future of Successful Research Administration

Elizabeth M. Lintz, MA, CRA
Director, Grant Development and Sponsored Research
University of Maryland College of Education
3119 Benjamin Building
College Park, MD 20742-1121 USA
Tel: (301) 405-5884
Fax: 301-314-9890
Email: elintz@umd.edu

Author's Note

The author thanks Dina Sparks, Department of Education Policy Studies, College of Education, University of Maryland, for providing much appreciated feedback and guidance in all drafts of this paper. This paper is an expanded version of "A Conceptual Framework for Successful Research Administration" originally presented at the Annual Meeting of the Society of Research Administrators International 2007 Symposium, Nashville, TN.

Abstract

Research administration has experienced dramatic changes over the past decades. As scientific research has evolved, higher education institutions have tried to adapt, with varying degrees of success. This paper presents a conceptual framework based on six cornerstones of research administration: mission, information, communication, collaboration, transition or transformation, and outcomes. Within these cornerstones are key strategies that research administrators can apply according to their needs, resources, history, and goals. The purpose and importance of such a framework is to give research administrators a strategic role in leading their institutions into the highly competitive scientific research environment of the future.

Keywords: Research administration, grant administration, conceptual framework for research administration

Introduction

Historically, research administrators have largely been reactive to their environment. They reviewed proposals rather than creating them. They channeled proposals through the bureaucratic process rather than championing them toward award status. Recently, research administration has seen dramatic changes that affect fundamental aspects of the research administrator's role. Research administrators have become key participants in funded research strategic planning and leaders at the department, college, and university levels in attracting and managing external research dollars. 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. To achieve

success in obtaining funding, research administrators must be knowledgeable in numerous areas – accounting, law, technology, academic content, clinical trials, economic trends, public and social policy, and global issues. Likewise, institutions must recognize research administrators as valuable assets, and be willing to incorporate non-academics into the top levels of institutional strategic planning.

This paper presents a conceptual framework for the future of research administration based on six cornerstones of effective management: Mission, Information, Communication, Collaboration, Transition or Transformation, and Outcomes. This model serves to assist both the seasoned research administrator and someone new to the field. The cornerstones also contain key strategies that institutional officials can adapt to their needs, level of resources, and funding goals.

Historical Context

A 1945 report to President Franklin Roosevelt by Vannevar Bush, Director of the Office of Scientific Research and Development, defended the government's increases in scientific investment and the existence of what would become the National Science Foundation (NSF). While Bush's report was not a blueprint for research administration, it nevertheless contains clues for the establishment and success of the field.

Bush identified medical schools and universities as primarily responsible for basic research, and uniquely positioned to improve society via ideals he considered germane: 1) diffusion and flow of scientific knowledge (including the international exchange of ideas); 2) application of basic research to particular problems (applied research); 3) discovering and developing talent in youth; and thus, 4) full employment.

While not specifically mentioning research administration, Bush recognized that, to achieve these goals, a group of professionals would be needed to ensure the continued flow of scientific research.

The Conceptual Framework

The framework is based on six cornerstones essential to pre- and post-award research administration: Mission, Information, Communication, Collaboration, Transition or Transformation, and Outcomes. This framework proposes that a unit's ability to apply these cornerstones and adapt its operations appropriately will help it determine its level of success in achieving goals. A unit may be defined as broadly as a central office or as narrowly as a department.

Mission

A Mission is central to the function of any entity, and may consist of single or multiple components. Institutions of higher education (IHEs) have multi-tiered missions because their purposes are so complex. The challenge for IHEs is to transition from a more traditional mission to one that addresses the changing nature of society and the communities they serve. Society expects IHEs not only to educate and develop future leaders, but to lead in critical research areas and technological development (as evidenced by the increasing numbers of university-industry

partnerships). Further, IHEs are increasingly expected to practice civic responsibility, both locally and globally. It is no longer enough to focus on teaching or on research in the abstract. Universities educate the world's students.

Essential Components for a Modern, Progressive Mission

Among the key elements essential to the IHE Mission are:

Education and critical inquiry. Education – of students, communities, and governments -- is the primary goal of IHEs. The education of students in critical inquiry ensures a future generation of researchers, who in turn may share their knowledge to the benefit of their communities and society as a whole in such varied specialties as education, public service, medicine, and law. Through innovative research, IHEs educate their communities, empowering them with knowledge born of discovery. Research administrators, in collaboration with IHE investigators and offices of public relations, convey findings from research and outreach activities to society. These findings in turn inform local, state, and federal governments as they address community issues.

Research. The goals of education and critical inquiry and research frequently overlap. The importance of research cannot be overstated, as it enhances current and introduces new knowledge to the potential benefit of every aspect of society. Nor can the importance of research administrators be overstated. In addition to helping investigators create proposals, research administrators ensure the accurate and efficient processing of awards from initial receipt to final closeout. By studying trends in funding, legislation, and policy, research administrators expand the knowledge base of investigators and help them focus on appropriate funding sources.

Civic responsibility. Formerly, IHEs existed to educate and conduct research. Today IHEs are expected to contribute to the difficult questions facing society, and to develop superior technology. IHEs have a civic responsibility, and the public is ready to hold them accountable for that role. Research administrators play a crucial role in ensuring research compliance with federal, state, and local regulations, as well as sponsor requirements. Through Responsible Conduct of Research (RCR) initiatives, research administrators have begun to take a proactive approach to problem solving.

Self-sustainability. Economic slowdowns create cuts in state budgets, which can reduce institutional budgets by millions of dollars. In turn, many IHE administrations rely on entrepreneurship to obtain funds, not only for research but for general operating support and capital projects. IHEs must find alternative ways to raise sufficient resources to ensure the continued quality education of their students. By collaborating with IHE development officers, research administrators help apply an entrepreneurial spirit in securing public and private funds for a variety of projects while maintaining high accountability standards. Partnerships with industry are one avenue for this endeavor.

Industrial and technological corporations increasingly collaborate with IHEs to tap the potential for research, development (e.g., patents, licensing), and other innovations. Both IHEs and corporations understand that these collaborations increase financial capital for all involved. In

addition, these partnerships build the human capital needed to advance global competitiveness, particularly in science, technology, engineering, and mathematics.

Information

Information is the second cornerstone of the conceptual framework. When developing or revising a strategic plan, early considerations should be given to the primary stakeholders involved for each part of the plan. This determination will guide a unit's method of employing this cornerstone. Different stakeholders require different information at different times and in different ways, depending on goals and expected outcomes. Information strategies need to be specific to each stakeholder's needs.

During pre-award processes, information is more than merely Request for Proposal (RFP) release dates and due dates. To achieve the greatest success possible, information must be obtained, tracked, and analyzed on several fronts: federal and local political climate; legislation and policy; sponsor funding priorities and trends; and the needs of the global community.

Additional information critical to post-award management includes trends toward greater accountability, outcomes of funded projects and programs, and lessons learned from institutional colleagues.

Communication

Communication is the third cornerstone. Once the appropriate information is obtained for particular stakeholders, it must be communicated in the most effective and efficient manner. Because communication can take many forms, and stakeholders differ in how they respond, information may travel through various channels. What works for one group may not work for another. To this end, research administrators should rely on several methods of communication – from e-mail to personal contact. Face-to-face contact is essential to maintain a true sense of collaborative teamwork and common purpose, and to eliminate the "us versus them" attitudes that engender negative feelings, both among research administrators themselves and between research administrators and investigators.

William M. Sullivan (1995), professor of philosophy, describes the "us versus them" phenomenon as negative interdependence. A unit or entity mired in negative interdependence realizes that "the prosperity depends upon close cooperation with the others…yet this seems to generate intensely distrustful, competitive, and hostile responses" (Sullivan, p. 136).

In order to combat negative interdependence, an entity would have to employ routine, effective key strategies that enable all stakeholders to "learn to cooperate, regulating and sharing responsibility for the collective effects of their individual actions" (Sullivan, p. 137). Successful key strategies would empower all parties to "develop the breadth of understanding, skills of cooperation, and willingness to share responsibility which enable them to turn the situation to their advantage" (Sullivan, p.141), thus resulting in positive interdependence.

Collaboration

The fourth cornerstone, Collaboration, is essential if the stakeholders within the research enterprise are to implement a complete, successful framework. Collaboration encompasses many of the ideals previously discussed. Collaboration can be defined narrowly or broadly, depending on the event (singular or continuous) in which stakeholders are involved. No stakeholder can operate singularly; each must cross boundaries to achieve his or her goals. Faculty and research administrators must collaborate to advance research agendas. Business managers and faculty must work together to ensure that pre- and post-award systems operate smoothly. Business managers and central research administrators must collaborate to convey policy and system changes in pre- and post-award processes.

To advance the ideals of Vannevar Bush, collaboration must extend beyond local entities into other, non-traditional realms. The increase in university-industry partnerships is one example, and coordination between public and private funding is another. IHE's and research administrators need to employ key strategies that enable partnerships to exist and excel.

Transition or Transformation

The fifth cornerstone is Transition or Transformation. Each unit must decide which kind of change to champion, depending on current conditions and future goals. A transition may be minor, involving relatively little movement from one level to another. A transformation, on the other hand, involves a complete reframing of ideals, structure, goals, use of human capital, and resources. Common to the two is adaptability. An entity's willingness and ability to adapt to new landscapes will determine what kind of changes need to occur. A unit that fails to follow trends and resists forward progress may find itself in need of a transformation, rather than a mere transition. It is more cost-effective to transition slowly than to transform in a hurry.

By becoming more proactive, the field of research administration has already effected a transformation. No longer merely a business office, the office of research administration has become an active partner in a process of inquiry. However, the bigger question is, how do research administrators help move their units into the future? How do research administrators transform the field itself into a strategic position to help universities and medical schools become stronger, healthier centers for research and translate basic research to applied fields?

Another transition or transformation that needs to occur is in the perception of research administrators, principal investigators and other players in the research arena. Here, collaboration paired with transition or transformation can reduce negative interdependence and increase positive interdependence. William M. Sullivan (1995) cites Benton MacKaye, founder of the Appalachian Trail, who felt the way to change people's "mental maps" is to change their "physical maps" (Sullivan, p. 230). People need to be able to envision the impact they have on the world and their connection to it. Once people can do that, MacKaye said, "they often become active stewards of the land they inhabit and love" (Sullivan, p.230). Research administrators need to view themselves outside the bureaucratic process of proposal-submitting, and become involved in the science proposed by investigators. Investigators need to view research administrators as active supporters of their research rather than policy-driven roadblocks. Research administrators have

a wonderful opportunity to follow ideas with investigators from initial concepts to completed projects. It is important that research administrators understand how the science they helped advance impacts current and future knowledge. When all participants are invested and engaged, there exists an environment for positive, sustainable common good.

As paper-based communications make way for electronic systems (e.g., Grants.gov, electronic effort reporting), research administrators can quell the fears this sweeping transformation can create.

Outcomes

Outcomes – defined as quantitative or qualitative results -- comprise the final cornerstone. A frequent mistake is considering only quantitative results; it is equally important to analyze and understand the seen and unseen, intended and unintended results of any efforts.

Quantitative Outcome Measures

Most colleges and universities have an office of institutional research whose responsibility is to measure and analyze standard variables that enable administrators to determine the level of activity and effectiveness in a particular area (e.g., enrollment, research, faculty productivity). For research, it is important to look at variables such as number of sponsored research dollars per full-time equivalent (FTE); expenditures per FTE; number of graduate students and postdoctoral students supported; number of proposals submitted; dollars requested; and number of awards. However, rather than mistake one or two high numbers as a sign of success, institutional administrators must seek additional measures of efficiency. Proposal submissions need to be strategic. The level of effort expended (pre-award) should relate to level of return (post-award).

Efficiency is the elusive measure. How do research administrators determine if they are efficient? It is not an easy question to answer, but benchmarking – which uses both quantitative and qualitative measures to assess effectiveness and efficiency -- may help. A lengthy discussion of benchmarking will not be undertaken here. (Waugaman, Kirby, and Tornatzky (2006), describe the process at length.) Suffice it to say, it is a reliable method that research administrators may utilize to establish both intra- and inter-institutional comparisons.

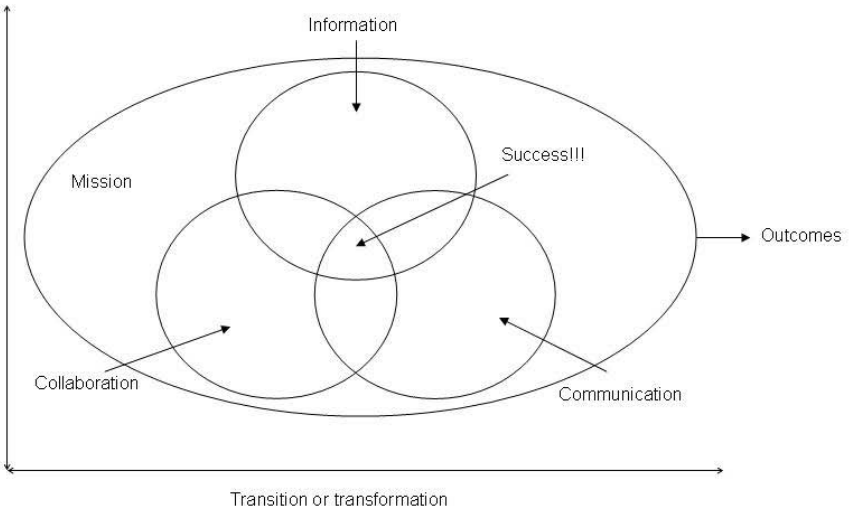
Qualitative Outcome Measures

In judging the success of each cornerstone, it is equally important to measure variables such as perception, satisfaction, and level of engagement or investment. For example, to achieve success during a transformative stage in a unit, institutional administrators should learn how satisfied the stakeholders are in their current positions, their perception of the changes, and what is needed to make the changes successful.

Outcome measures such as these may be obtained through surveys and focus groups, particularly with the assistance of offices of institutional research/assessment, with their extensive research backgrounds and experience in methodology.

Figure 1depicts the cornerstones of the conceptual framework, which builds on significant overlap of domains. The intersection and overlap of the components illustrate success. A unit is more poised to achieve its goals when it operationalizes all cornerstones correctly and efficiently. If the domains operate independently and without coordinated overlap, success can be tenuous.

Figure 1
The conceptual framework.



The degree of overlap varies according to the amount of resources invested in each cornerstone. For example, a unit rich in human capital (usually stakeholders) and financial resources would expect to have a larger overlap (or success) area than a unit with fewer engaged stakeholders and financial resources. It is not enough to define each cornerstone as it relates to a specific goal or set of goals. Administrators should employ a specific research process when defining each cornerstone and applying it to an event (see below).

Operationalizing the Cornerstones

Needs Assessment

A needs assessment guides the process of developing strategies to achieve particular goals or objectives. Before developing or expanding strategies for each cornerstone, it is important to remember that a needs assessment is a continual process. Research administrators should conduct a needs assessment during strategic planning to determine what resources are required to achieve stated goals. Further, needs assessments should be conducted for each unit and event—campus, college, department, faculty member, and proposal. The overall goal is to manifest the model at every level, especially during the preparation of what will be a successful proposal.

Four questions are integral to a needs assessment:

What do the stakeholders need?
What do the stakeholders want?
What existing processes and strategies work?
What is the best method of dissemination (e.g., information and services)?

Key Strategies

Regardless of its level of success, each unit can employ key strategies to achieve its mission and achieve upward mobility (See Table 1). Strategies are the tools that research administrators use in their day-to-day operations. Some key strategies, such as using free listservs, are very simple and require minimal investment. Others, such as professional development courses and certification, require a high level of financial or human capital. The ability of a unit to adopt certain key strategies depends on the level of investment it is willing to commit. Each cornerstone of the model has its own set of strategies available to research administrators. Some strategies may overlap within and across cornerstones, but some remain unique to each unit's specific experiences and needs. Those unique strategies will ensure maximum performance under each cornerstone. Repetition of key strategies within and across cornerstones is not a sign of redundancy, but rather an indication of symbiotic relationships -- an acknowledgement of agreed-upon strategies between pre- and post-award units.

Table 1
Mobility within the Conceptual Framework

Key Strategies by Cornerstone	Level of Resources or Investment
MISSION	
Pre: No involvement in campus mission development; no mission statements or underdeveloped mission statements; mission statement does not address overlapping offices/units; unspecified long-term goals; no evaluation of mission *Post:* No involvement in campus mission development; no mission statements or underdeveloped mission statements; mission statement does not address overlapping offices/units; unspecified long-term goals; no evaluation of efficiency/success in meeting goals/objectives	Minimum
Pre: Individual office/unit missions; specific 5-year plan with moderately defined objectives; infrequent evaluation of mission *Post:* Individual office/unit missions; specific 5-year plan with moderately defined objectives; infrequent evaluation of mission; infrequent evaluation of efficiency/success in meeting goals/objectives; employee satisfaction a consideration	Moderate
Pre: Significant involvement in campus mission development; ; individual unit/office missions reflect all aspects of campus mission; routine evaluation of mission/objectives; specific 5- and 10-year plans with measureable objectives; frequent evaluation of efficiency/success in meeting goals/objectives; external reviews conducted at regular intervals; employee satisfaction a significant consideration in developing pathways to success *Post:* Significant involvement in campus mission development; ; individual unit/office missions reflect all aspects of campus mission; routine evaluation of mission/objectives; specific 5- and 10-year plans with measureable objectives; frequent evaluation of efficiency/success in meeting goals/objectives; external reviews conducted at regular intervals; employee satisfaction a significant consideration in developing pathways to success	High
INFORMATION	
Pre: Listservs (sponsors, Grants.gov, professional associations, university research centers); newspapers, news outlets; Catalog of Federal Domestic Assistance (CFDA): Federal Register *Post:* Email, memos, Listservs (e.g.-NIH-Findings of Scientific Misconduct); Office of Management and Budget (OMB) Circulars	Minimum
Pre: Monthly publications & emails: Federal Assistance Monitor, Contracts and Grants Weekly, (e.g. Thompson Publishing Group); Campus-sponsored workshops *Post:* Informational publications (e.g. Single Audit Information Service); targeted trainings (campus-sponsored)	Moderate
Pre: Site licenses for large databases (e.g. The Foundation Center); high-end grant directories; sponsor-hosted workshops; grant-seeking and grant-writing courses *Post:* Specialized professional development for research administrators	High

COMMUNICATION	
Pre: Newsletters; email groups; face-to-face meetings; meetings with administrators; Web site	Minimum
Post: Paper-based systems; segregated professional development	
Pre: Routine meetings between administrative groups regarding research agenda, planning; increased use of electronic systems; established work groups focused on campus initiatives *Post:* Some mid-level electronic research administration systems; campus-sponsored workshops; work groups for post-award issues	Moderate
Pre and Post: High-end electronic research administration systems; full administrative commitment to Responsible Conduct in Research (RCR) initiatives *Post:* High-end publications detailing research endeavors and accomplishments disseminated nationwide; routine public relations plan implemented within local and national media outlets; specialized professional development for research administration staff	High
COLLABORATION	
Pre: Web sites; contacting other experts in the field; listservs *Post:* Segregated professional development; professional development for senior level staff only	Minimum
Pre: Campus personnel act as liaisons in setting up research groups; campus-sponsored research grant programs; research centers with interdisciplinary affiliated faculty *Post:* Integration of mid-level electronic research administration systems; campus sponsored professional development	Moderate
Pre: Faculty are highly entrepreneurialÑ actively seeking out partners with non-profits, industry, etc.; research incentive programs for centers or specific initiatives (e.g., Science, Technology, Engineering and Mathematics (STEM) *Post:* Full integration of electronic research administration; specialized online training modules for faculty and staff; specialized professional development and certification of research administration personnel	High
TRANSITION OR TRANSFORMATION	
Pre: ÒWeÕve always done it that wayÉ Ó segregated offices with overlapping interests; lack of communication; lack of knowledge about colleagues; unwillingness of advance/learn; paper-based system dependence; lack of knowledge of campus objectives; lack of awareness of role in achieving objectives; Òwhat happens once the money arrives is their problem.Ó *Post:* ÒWeÕve always done it that wayÉ Ó segregated offices with overlapping interests; lack of communication; lack of knowledge about colleagues; unwillingness of advance/learn; paper-based system dependence; lack of knowledge of campus objectives; lack of awareness of role in achieving objectives; Ò I can only do so much before and after my lunch hour.Ó	Minimum
Pre: Coordination with post-award mission/personnel; interest in investment in mid-level electronic system(s); average knowledge/interest in science/principal investigators *Post:* Coordination with pre-award mission/personnel; interest in investment in mid-level electronic post-award system(s); average knowledge/interest in science/principal investigators	Moderate
Pre: Significant overlap and coordination with all post-award mission/personnel (even at local levels); significant interest in overlapping/cohesive e-systems for both pre- and post-award missions; hiring personnel with expertise in pre- and post-award areas *Post:* Significant overlap and coordination with all post-award mission/personnel (even at local levels); significant interest in overlapping/cohesive e-systems for both pre- and post-award missions; hiring personnel with expertise in pre- and post-award areas	High
OUTCOMES	
Pre: ÒWe do what we can do for today;Óno interest or strategy for measuring success, efficiency, etc. This is also a reflection of vague mission statements, lack of identity/common purpose *Post:* ÒWe do what we can do for today;Ómost basic measures exist for measuring success; no measures for efficiency. This is also a reflection of vague mission statements, lack of identity/common purpose	Minimum
Pre: Routine internal auditing practices to measure success, efficiency as well as qualitative variables; some change occurs as a result of findings; stakeholders are given opportunity for input before changes are made; strategic planning in Ògo/no-goÓdecisions; some benchmarking practices *Post:* Routine internal auditing practices to measure success, efficiency as well as qualitative variables; some change occurs as a result of findings; stakeholders are given opportunity for input before changes are made; some benchmarking practices	Moderate
Pre: Routine internal auditing practices to measure success, efficiency as well as qualitative variables; external evaluations/audits are conducted at scheduled intervals (every 3-5 years); change occurs as a result of findings; stakeholders are given opportunity for input before changes are made; findings are made public to university community; significant strategic planning in Ògo/no-goÓdecisions; structured benchmarking practices *Post:* Routine internal auditing practices to measure success, efficiency as well as qualitative variables; external evaluations/audits are conducted at scheduled intervals (every 3-5 years); change occurs as a result of findings; some change occurs as a result of findings; stakeholders are given opportunity for input before changes are made; findings are made public to university community; structured benchmarking practices	High

Pre- denotes pre-award practices
Post- denotes post-award practices

Evaluation

A thorough evaluation is needed upon completion of each event. It is in the best interests of stakeholders to repeat positive history. Administrators should conduct the evaluation as it relates to each cornerstone to indicate how the use of key strategies affected the intended outcome(s) of the overall event.

Components of an evaluation stem from the original questions in the needs assessment:

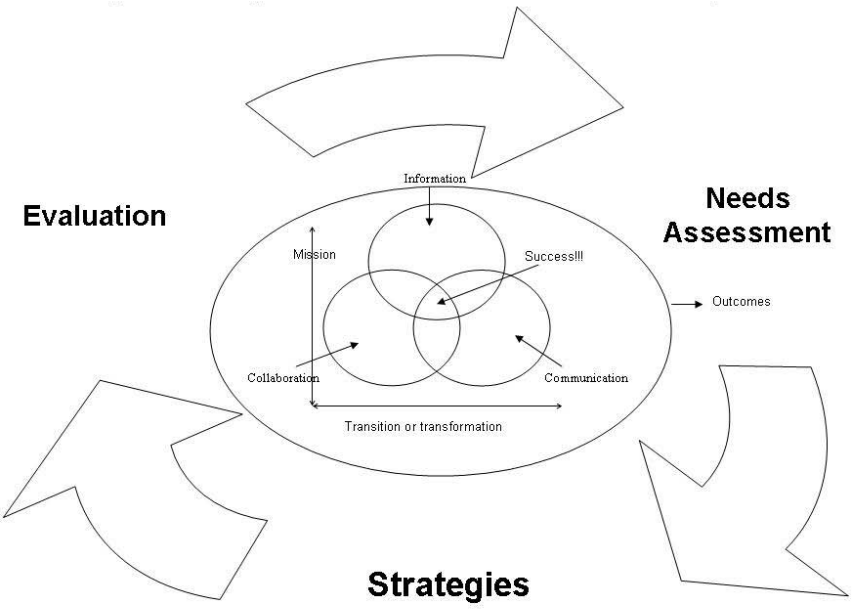
Were needs properly identified?
What were expected outcomes?
What worked/needs improvement?
Were services and information effectively and efficiently disseminated?

Identifying strengths and weaknesses in key strategies enables research administrators to learn from the past and implement stronger strategies for the future. During an evaluation, a unit can identify the current level of investment and develop other key strategies to move to the next level for greater success.

Just as important as the evaluation components are the roles and responsibilities of the individuals participating in the evaluation. Each stakeholder must be willing to accept responsibility for his or her role in the process and be willing to make improvements that may include additional responsibilities. If certain stakeholders are not willing to participate in the evaluation, it is incumbent upon each research administrator to do his or her own evaluation and maintain records of strategies that worked and those that need improvement. Effective evaluations can assist in improving performance for future events. Improved performance will garner increased trust and respect from faculty and other peers. In research administration, one must continually seek to improve knowledge, skills, and performance.

As Figure 2 illustrates, when a unit defines each cornerstone, completes a needs assessment, implements key strategies, and evaluates its performance, it has implemented the feedback cycle inherent in the conceptual framework adoption.

Figure 2
Full implementation of the framework and feedback loop.



As seen in Table 1, key strategies can be categorized according to cornerstone, by pre- and post-award relevance and by level of resources, although there is some overlap. This table is not exhaustive or mutually exclusive, but serves as a foundation. Research administrators should adapt strategies to each cornerstone, and then adapt again by level of resources (or investment) related to level of output (success). Generic strategies such as listservs or newsletters are the starting point. Depending on the cornerstone or the level of resources, these items should be made relevant to the stakeholder audience. Resources for the purposes of the conceptual framework discussed here include human capital, level of access to information, and willingness or ability to invest. Similarly, success includes, but is not limited to: number of proposals submitted; number of proposals funded; number of interdisciplinary collaborations and sub-awards; significant compliance with institutional, sponsor, and federal guidelines; number of highly trained (or certified) staff and senior research administration personnel, and effective management practices.

Theoretical Framework

One theoretical framework ascribed to by research administrators is servant leadership, the modern theory developed by Robert Greenleaf (2002). Servant leadership stresses the role of leaders as stewards of resources provided by an organization. The servant-leader focuses on serving others while advancing and achieving the goals and aspirations of the organization. While this theory does stress collaboration and trust-building, the connotation of the word servant calls to mind the idea of research administrators as just there to do as directed.

A more suitable theoretical framework for the model is the theory of successful intelligence. This psychological theory applied traditionally to education adopts a domain-general approach, which means its purpose is to apply a "general theory of cognitive and other skills that apply across subject-matter areas" (Sternberg, 2008, p. 150). The four main tenets of this theory are: a) definition of success; b) different paths to success; c) adapting to existing environments, shaping those environments and selecting new; and d) balancing abilities (analytical, creative, and practical).

Sternberg (2008) describes *definition of success* in relation to the individual in one's sociocultural context. This is relevant to research administrators and research administration, and allows application of the six cornerstones. Each research administrator needs to have a firm idea of what it means to be successful, not only in a personal sense, but also in the context of the larger unit or organization. A unit of research administration needs a firm idea of success for the unit itself, but also in context of the university's Mission and Outcomes.

Sternberg describes *different paths to success* as having the knowledge to understand there are no single pathways to success for any goal. Pathways may change as organizations or units change. In this model, *different paths to success* are key strategies, especially for Communication, Collaboration, Transformation, and a final needs assessment.

The third tenet, *adapting to existing environments, shaping those environments and selecting new,* involves staying current, looking ahead and preparing for changing conditions. The Transition or Transformation component is all about avoiding stagnation, and constant evolution.

The final tenet of Sternberg's (2008) theory is *balancing abilities.* Analytical abilities enable research administrators to plan, forecast, and measure outcomes, and solve problems. Creative abilities (program/project design, a sense of entrepreneurialism) engender great ideas. Practical abilities enable implementation of those ideas into action. These abilities serve as the foundation for Information, Communication, and Collaboration. Sternberg (2008) emphasizes that successful people need not be capable across all three, but discover ways to accommodate for strengths and weaknesses.

Sternberg's final point suggests a stronger commitment towards continuing professional development for research administrators at all levels. Continuing professional development helps create experts while at the same time addressing weaknesses. Capitalizing on strengths and developing expert research administrators will help diffuse negative interdependence. Professional development must remain continuous and consistent to be most effective. Central research administrators' levels of expertise should not be so far in advance of those at local levels. An environment characterized by limited and segregated professional development only breeds mistrust and discontent. Continuing professional development will increase engagement and investment among research administrators and lessen issues of retention and turnover.

For professional development to play such a critical role, it is important to have full administrative support from supervisors and senior research administration. Increased support will engage and motivate stakeholders. As stakeholders become more engaged, they are more than likely going to increase their participation and investment. Fully engaged stakeholders will support the unit's mission overall, and that will lead to more sponsored research funding. In the end, that is what research administration is all about.

Conclusion

The conceptual framework was developed to assist research administrators with improving their approach to research administration as a whole. If a unit is to grow and achieve greater success, research administrators must move beyond what is minimally required to get the job done. If the field of research administration is to grow and gain wider acceptance and respect, then research administrators need to prove that they can help a unit move beyond the status quo and be valuable stakeholders in promoting a unit's success.

Even highly successful units desire greater success. The conceptual framework is open to an individual unit's own interpretation and leaves room for creativity and entrepreneurialism. For the conceptual framework to be successful, it is incumbent upon each unit to determine the meanings of key concepts such as needs, strategies, and successes and then develop a more specific framework around those determinations.

References

Bush, V. (1945). Science: The endless frontier. Washington, D.C.: United States Government Printing Office.

Greenleaf, R. K., & Spears, L. C. (2002). *Servant leadership: A journey into the nature of legitimate power and greatness.* New York: Paulist Press.

Sternberg, R. (2008). Applying psychological theories to educational practice. *American Educational Research Journal,* 45(1), 150-165.

Sullivan, W.M. (1995). Work and integrity: The crisis and promise of professionalism in America. Stanford: Jossey-Bass.

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