6.1 Introduction

This chapter addresses the daily operation of a National Science Foundation (NSF) Engineering Research Center (ERC). Suggestions are based on common experiences shared by existing centers, but there is no "right" way to manage an ERC. Major differences among institutions call for diverse management strategies; it is important to understand the institutional environment and then use the most relevant and helpful ideas. The lead institution of the ERC is responsible for administrative management, but the distribution of effort should be shared among the center's partner institutions. Specific tasks and responsibilities will change over time and may vary depending upon the management structure of the specific ERC, the university culture, and the experience and strengths of the leadership team. This chapter addresses the functions required to administer a diffuse enterprise with multiple academic partners, outreach institutions, industrial partners, faculty, professional and classified staff, and graduate and undergraduate students – across multiple time zones, cultures, and geographic areas. A new Administrative Director (AD) will discover that the most valuable resource is the vibrant and supportive community of ERC ADs that exists across the country. The Google Group site and listserv, the biennial NSF-ERC meetings, and the AD summer retreats all offer opportunities to collaborate with peers and build a network. A successful AD will utilize interpersonal, organizational, and management skills to facilitate the work of the center and foster an environment of collaboration and excellence.

6.1.1 Structure and Organization

There is no ideal organizational scheme for an ERC; every center will be (and should be) unique. The creativity that the ERC team brings to the development of the center can serve as a model for future developments within the lead institution and the academic partner institutions as well. Managing such a complex enterprise requires a sophisticated administrative structure and resources which are not typically available to a standard university department or single-investigator project. Every center is required to create and update an organization chart which should reflect the role of the department chair, dean, and other university officials in the center's infrastructure. Keep in mind that the governing instrument for an ERC is the NSF Cooperative Agreement, which is a specific type of award that emphasizes substantial agency involvement. The ERC Annual Reports and Site Visit Reports are key components of this involvement and the NSF Program Officer (or Program Director) is the individual who helps to guide the center throughout the life of the project. NSF does provide a start-up visit for the leadership team and also offers a consultancy visit for the new AD to help get things organized.

See Attachment 6.1 – Sample Organization Charts

See Attachment 6.2 – ERC Consultancy Guidelines

Critical Questions

- Will the center be a financially autonomous unit with independent bookkeeping or will financial management be distributed?
- How is the university-sponsored research office organized? Does it have separate "pre-award" and "post-award" units or are the responsibilities delegated by sponsor? Does the university offer training for sponsored-program management and accounting? Who is the Authorized Organizational Representative (AOR) for the lead institution?
- How will the partnerships with subcontractors be managed?
- How will the projects and thrusts be organized across multiple institutions to facilitate the implementation of

the strategic research plan?

Key Definitions

Core Project (or center-controlled project) – Projects that are supported with center-level funds from NSF and possibly other unrestricted funds under the center's control (e.g., membership fees from the Industrial Advisory Board) and in a center account. For reporting purposes, individual projects should be grouped together into clusters or thrusts that have multiple faculty members and a substantial budget.

Associated Project – A project that is central to either the research strategic plan or education strategic plan that is awarded to the home department of an ERC faculty member. Associated project funds are not controlled by the center and are reported as indirect sources of support. Only direct costs for these projects should be reported (no indirect costs or reserves remaining).

For associated projects whose funding is part of a larger award that includes faculty outside the center, include only the funding percentage that is directly in support of the center's strategic plan or vision, and only the percentage budgeted for the Current Award Year. It should be documented how this prorating was calculated. (This definition might be updated by NSF.)

Sponsored Project – Projects with a restricted or directed purpose that is specified by the funding source. Sponsored projects augment the center's core activities. The award goes directly to the center for a specific project and is classified as restricted cash. Examples of sponsored projects include Research Experiences for Undergraduates (REU) supplements, Defense Advanced Research Projects Agency (DARPA) awards to the center, and industry-sponsored projects with clearly intended outcomes or activities.

6.1.2 Role of the Administrative Director

As a key member of the management team, the Administrative Director will serve the entire ERC as the guardian of resources, policies, and myriad detail. To be effective, the AD must have some knowledge of all center activities and maintain a big-picture perspective. The AD will need to consider the needs of all stakeholders (NSF and the ERC program, academic and industrial partners, funding sponsors, faculty, students, foreign collaborators, and staff) and balance potentially competitive internal resource demands among research, education, technology transfer, and management initiatives.

The AD needs to develop a strong and efficient infrastructure to enhance collaboration and facilitate the work of the center. The AD plays an important role in strategic planning by adding an operational perspective and by providing the "glue" that holds the various administrative functions of the center together. Below are some of the key characteristics of an effective Administrative Director:

- Executive mindset
- Optimistic and positive attitude
- Organizational skills and attention to detail
- Strong interpersonal skills such as being respectful of differences in work styles, , diplomatic, and having a collaborative attitude toward meeting challenges Flexibility to respond to changing demands
- Financial management experience

- Ability to guide and advise the leadership team in a forthright manner and with clear and thorough information
- Ability to work independently and exercise good judgment and discretion
- Excellent problem-solving skills to address difficult, complex issues
- Ability to multitask, prioritize, and delegate
- Institutional knowledge and experience with sponsored research.

***Tip**: It is recommended that the AD become actively involved in at least one professional organization that monitors changing standards, such as the National Council of University Research Administrators (NCURA), the Society of Research Administrators International (SRA), or the National Association of College and University Business Officers (NACUBO).These contacts and resources for continuing professional education are very valuable.*

See Attachment 6.3 – Sample AD Job Descriptions

6.1.3 ERC Operational Functions

The first order of business will be to review all the ERC operational functions and create a staffing plan in close cooperation with the leadership of the center. The administrative structure should be designed to support the strengths and expertise of all the team members. The AD will need to delegate tasks and responsibilities and establish priorities and goals for center administration. ERC operational functions typically include the following:

- Administrative coordination of center activities
- Program grant/contract administration and compliance
- Accounting/financial planning
- Human resources management
- Information Technology – systems development, database design, and management of data
- Annual report production
- Communication and public relations
- Conference and events planning and management
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Facilities management.

6.1.4 ERC Life Cycle

ERCs attract creative, entrepreneurial individuals who are eager to build something new. An ERC continually balances a dynamic tension between creative change and organizational stability. The focus on innovation helps to explain the unique character of the NSF ERC, and management expectations will shift over time. The exciting bursts of activity required to do something for the first time are replaced by a heightened focus on longer-term goals so that delegation, collaboration, and teamwork become increasingly important as the center evolves. . An effective AD should be able to handle any of these challenges to help the center achieve its stated vision.

Major transition periods may be precipitated by NSF Annual and Renewal Site Reviews, industrial and advisory board input, construction of new facilities, major remodeling activities, physical moves, and the eventual phase-down of NSF support in the later years of the award. Centers will need to respond to significant changes affecting the university partners, government and industry. Changes in the leadership team, participating faculty, key program staff or University officials may also impact the strategic plans of the center. Management plans need to be flexible and responsive to these forces in addition to the evolving research. Figure 1 illustrates the key components of an ERC “year.”

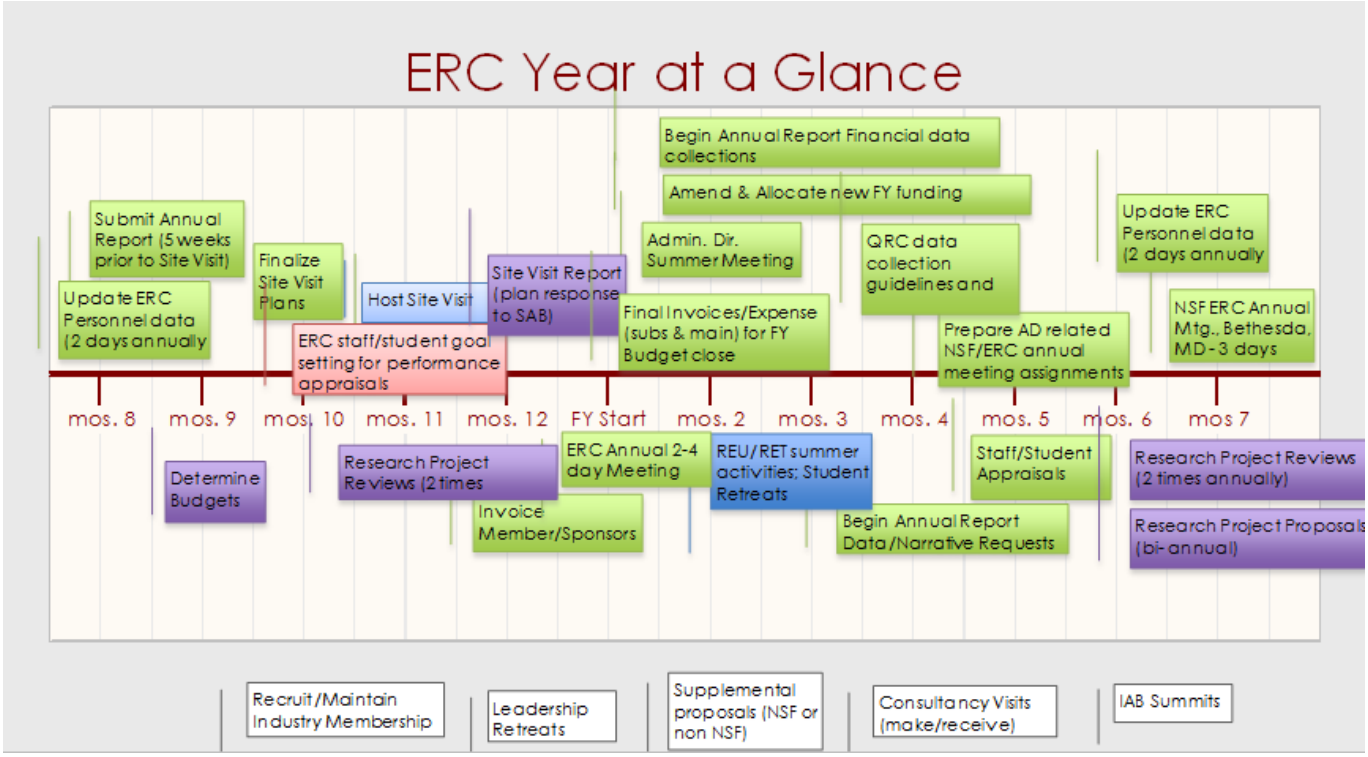


Figure 1. ERC Year at a Glance (Credit: Lisa Wissbaum, ERC for Compact and Efficient Fluid Power, University of Minnesota)

6.1.5 Reporting Time Periods

It is critical to understand the multiple fiscal and reporting time periods for an ERC. This information will guide the development of financial and management systems.

Key Definitions

Award Year – A 12-month period that begins on the date that the ERC first receives NSF funding, which is the official “award date.” The Award Year start and end dates remain constant throughout the life of the center.

Reporting Year – The ERC Reporting Year is a 12-month period established by the ERC Program Officer and the Center Director when the NSF Cooperative Agreement is awarded.

Fiscal Year – The Federal Fiscal Year runs from 10/1 to 9/30. Each partner institution’s Fiscal Year and State Fiscal Year can differ.

The term “year” may also refer to the Calendar Year or the term of an industrial partnership. In addition, the ERC program requires data based on the Prior and Current Reporting and Award Years as well as promised and actual funding information. These distinctions have a profound impact on management and reporting of budgets, revenues, and expenses. It is important to understand the ERC reporting requirements and the University’s financial system in order to generate reports for specific time periods, and it is usually necessary to create a shadow system. The Guidelines for ERCWeb Data Entry provide more detail.

Source URL: https://erc-assoc.org/content/61-introduction