6.5 Information Technology and Management

As early as possible, the ERC should design a systematic process for collecting and storing the large quantities of information needed to manage a multimillion-dollar operation. It is a challenge to determine the most effective and cost-efficient way to gather data across the institutions and miles. Be open to developing multiple strategies for data collection and reporting. A comprehensive, all-encompassing system might seem ideal, but designing such a system requires a level of experience and understanding that takes time to acquire. It may be best to begin with a step-by-step approach while simultaneously planning for a long-term solution. Be sure to consider user needs and ease of use for all participants. Determine how to leverage existing institutional information systems and collaborate with personnel from the accounting, grants management, and IT departments to come up with the best solution. Collect and maintain information on the activities of the center for multiple users and purposes, as is detailed below.

6.5.1 IT Requirements

Annual Report Data – The NSF ERC program requires extensive and detailed reporting. Key reference documents are online in the ERCWeb library*https://www.erc-reports.org/public/library*. The Guidelines for Preparing Annual Reports and Renewal Proposals and the ERCWeb Data Entry Guidelines are updated yearly on October 1 and contain detailed information regarding data that need to be collected and the tables and figures that will be produced for the Annual Report. The general categories are:

- Support
- Academic Institutions
- Personnel
- Research
- Budgets
- Outputs and Impact

Website/Intranet – Each ERC must design and maintain a website for outside constituents. Many centers will simultaneously design an intranet for center participants, specific research groups, and industrial or advisory partners. Other centers may instead use existing institutional software to facilitate online collaboration, or they may purchase and maintain their own collaboration tools.

Mailing Lists – Useful lists include: all center participants; participants by institution or organization, individual working groups, or project teams; and personnel categories such as faculty, staff, graduate students, undergraduate students, administrative support staff, and program or thrust leaders. Copy the ERC Leader or designate with updated Center mailing lists.

Calendar – An online resource that is easily updateable by select participants at each institution.

Agreements and Certifications – Work with the sponsored programs, accounting, and technology transfer offices to

determine how to maintain official documentation. Be sure to track the NSF cooperative agreement base award and amendments, as well as supplemental and other grant proposals and awards.

Inventory – Hardware and software licensing details are usually required by each institution.

Financial Records – Maintaining and communicating accurate financial records is crucial. Ideally, new centers should meet with the sponsored programs and/or accounting offices in the first months of operation to find out how well the university system will support the NSF annual financial reporting requirements. Many ERCs create shadow systems using spreadsheets or databases. Every ERC should expect to be audited and must maintain documentation to verify all data submitted in the Annual Report. As noted above, the Guidelines to ERCWeb Data Entry contain detailed information regarding financial data that need to be collected and the tables and figures that will be produced for the Annual Report.

***Tip**: You will need to manipulate data by month and by cluster, thrust, and project level to develop the ERC's functional budget as required by NSF. Design a flexible system to accommodate that need.*

6.5.2 System Design

The IT system must allow for multi-platform access, which is why a comprehensive web-based system can be so useful. Be sure to document system development so that modifications can be made as needs and requirements change. Design a flexible, user-friendly system so that data input and output tasks can be delegated as warranted.

Key Considerations

- Hardware and software acquisition and maintenance
- Integration with University information systems
- Institutional IT policies
- Security
- Integration with theERCWeb Annual Report Data Entry System

Look for technical expertise within each academic partner institution and utilize the skills and strengths of the ERC team members. It may be necessary to hire outside consultants or pay for in-house system development; but in any event, significant time and resources will be required. Consider how to integrate with existing institutional systems, since much of the needed information might already be available.

The ideal system will be easy to use and maintain. The goal will be to accommodate the needs of all users and to educate them on the value and use of the system. Much of the data will be collected to meet ERC and institutional reporting requirements, but it’s also important to support center-wide policies and goals. When designing the system, consider the multiple users of the data:

- National Science Foundation
- Academic Institutions – lead and all partners

- Center personnel – faculty, research staff, administrative staff, students
- Sponsors – industry and other organizations
- Advisory Board Members

Tip: *Some centers have worked with a vendor to customize an open-source, web-based data collection system using Drupal. This system was originally developed in conjunction with the Synberc Engineering Research Center.*

6.5.3 Electronic Tools and Resources

Centers use a wide variety of tools to enhance collaboration and collect data. There is a cost involved with updating and change, so plan for testing, user education, and rollout tasks when considering upgrades or the purchase of new software. Email, word processing forms or templates, spreadsheets, online survey and questionnaire software apps may all be useful for different purposes. Examples:

- Cisco WebEx – meetings, webinars
- Citrix GoToMeeting – meetings, webinars
- Dropbox – online collaboration tool, file sharing
- Survey Monkey – questionnaire
- Survey Gizmo – questionnaire
- Google Apps – suite of collaboration tools
- Doodle – meeting scheduler

6.5.4 External Systems

The ERC Administrative Director will need to use a number of government and external systems for proposal and award management. Here is a partial list:

- Grants.gov – Federal government centralized location for grant seekers to find and apply for federal funding opportunities: http://www.grants.gov/web/grants/home.html
-

NSF Fastlane.gov – NSF proposals, awards, and status: https://www.fastlane.nsf.gov/

- NSF Research.gov – NSF grants management system upgrade to Fastlane. Use to submit Annual Report: http://www.research.gov/
- ERCWeb – ERC Program Annual Report Data Entry System:https://www.erc-reports.org/public/login

Source URL: https://legacy.erc-assoc.org/content/65-information-technology-and-management