



# 1.1 About this Manual

## 1.1.1 Purpose and Intended Audience

This document is intended as a "how-to" manual for those involved in, or contemplating involvement in, the operation of a National Science Foundation-sponsored Engineering Research Center (ERC). Its purpose is to distill the existing knowledge and experience base regarding ERC start-up, operation, and management into a resource tool for use by directors and other managers of prospective, new, and established ERCs.<sup>1</sup>

The Best Practices Manual is also unusual in having been conceived and written largely by those who do the jobs and have the experience-current ERC managers-employing not only their own experience but also the responses to extensive questionnaires sent to others in those positions across the ERCs. (As such, it should be noted, the manual is a publication of the collective body of ERCs themselves, and not of the National Science Foundation.) It was envisioned as a "living document" that would have immediate utility and direct relevance to users' needs and concerns. The manual is structured in a way that makes it accessible and easy to read, as well as easy to update periodically. It is available for viewing or download on a dedicated website at <http://www.erc-assoc.org>.

The authors wish to emphasize that this manual is not a "cookbook" or template for structuring and operating an ERC. As a resource tool, it is rich in ideas and experiences; but every ERC is different and exists in a different environment. Each of the existing ERCs reflects that uniqueness, and NSF expects that every prospective and new ERC also will be unique.

## 1.1.2 Organizational Structure

The manual is organized by chapter according to management roles. A decimal numeric heading system has been used, with a separate Table of Contents for each chapter, to facilitate reader access to specific topics.

- Chapter 2 addresses the role of the ERC Director and other executives in providing leadership and strategic direction.
- Chapter 3 addresses the management, both long-term and day-to-day, of the center's research programs.
- Chapter 4 deals with the multifaceted education programs of an ERC.
- Chapter 5 describes the activities involved in industrial collaboration and technology transfer, focusing on the role of the Industrial Liaison Specialist.
- Chapter 6 describes the many vital tasks involved in the day-to-day administrative management of the center, including financial, personnel, and facilities management. The focus here is on the functions of the center Administrative Director.
- Chapter 7 deals with the efforts of the ERCs to increase the gender, racial, and ethnic diversity of the center leadership, faculty, and students, and to establish a thriving culture of inclusion, in the interest of fairness as well as to gain the greatest possible breadth of input from the widest possible pool of engineering talent.
- Chapter 8 focuses on the Student Leadership Councils (SLC) that each ERC has, in which the students play an active role in the programs and even the strategic planning of the center.
- Chapter 9 addresses the special challenges of operating multi-institutional centers such as ERC, with a variety of academic partners.

The approach taken in each chapter is similar, in that there is, first, an overview of the functional area and its relation to the overall center operations. Key issues and concerns are then identified and addressed across the specific functions within each section. Where appropriate, an effort has been made to differentiate these issues in terms of the different phases in the life cycle of an ERC: start-up (Years 1-3), mid-term (Years 4-7), and maturity (Years 8-10). There is a strong reliance on actual events and case studies of successes and failures to derive "lessons learned" and "tips" for the practitioner. Attachments to some chapters amplify material dealt with in the text of the chapter.



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In addition to the organizational similarities, the reader will also notice some differences in structure and style from chapter to chapter. These differences reflect the fact that different groups of ERC personnel wrote the chapters. Although the assembled document was edited throughout, the stylistic and organizational individualities of the chapters were in many cases retained as being reflective of, and pertinent to, the specific content and functions being addressed.

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