

Contents

Series Foreword vii

Foreword by Charles M. Vest ix

Preface xi

- 1 From Inventions to Systems 1**
 - 2 What Is an Engineering System? 23**
 - 3 (Re)Thinking about Systems 45**
 - 4 Life-Cycle Properties of Engineering Systems: The Illities 65**
 - 5 Modeling and Analyzing Engineering Systems 97**
 - 6 Partially Designed, Partially Evolved 123**
 - 7 Engineering Systems Research and Education 147**
 - 8 What the Future Holds 167**
- Appendix: Engineering Systems Terms and Definitions 185
- Notes 193
- Index 207