Contents

Foreword by Ian Goldin ix
Preface xi
Acknowledgments xiii
Contributors xv

World Wide Research: An Introduction 1
William H. Dutton and Paul W. Jeffreys

1 Foundations 19

1 Reconfiguring Access in Research: Information, Expertise, and Experience 21
William H. Dutton

1.1 The Long Now of Cyberinfrastructure 40
Geoffrey C. Bowker, Paul N. Edwards, Steven J. Jackson, and Cory P. Knobel

1.2 Identifying Winners and Losers: The Role of Webometrics 45
Mike Thelwall

1.3 “Superstar” Concentrations of Scientific Output and Recognition 48
Robert Ackland

2 The Developing Conception of e-Research 51
Paul W. Jeffreys

2.1 Research Platforms in the Cloud 67
Tony Hey, Roger Barga, and Savas Parastatidis

2.2 The New e-Research 72
David De Roure

2.3 The Promises and Threats of e-Research in the Strategies of Firms and Nations 75
John Taylor
## II State of the Practice 79

### 3 Digital Resources and the Future of Libraries 83
Eric T. Meyer, Christine Madsen, and Jenny Fry

#### 3.1 Data Webs for Image Repositories 98
David Shotton

#### 3.2 Digital Technology and Ancient Manuscripts 102
Alan Bowman

### 4 Key Digital Technologies to Deal with Data 107
Yorick Wilks and Matthijs den Besten

#### 4.1 Embedded Networked Sensing 120
Christine L. Borgman

#### 4.2 Identifying Digital Objects 125
Michael A. Fraser

#### 4.3 Use of the Semantic Web in e-Research 130
Kieron O’Hara, Tim Berners-Lee, Wendy Hall, and Nigel Shadbolt

### 5 Embedding e-Research Applications: Designing for Usability 135
Grace de la Flor, Marina Jirotka, Sharon Lloyd, and Andrew Warr

#### 5.1 Trusted Computing Platforms 153
Andrew Martin

#### 5.2 Social Networking and e-Research 157
Mike Thelwall

## III Social Shaping of Infrastructures and Practices 161

### 6 Enabling or Mediating the Social Sciences? The Opportunities and Risks of Bottom-up Innovation 165
William H. Dutton and Eric T. Meyer

#### 6.1 An e-Infrastructure for the Social Sciences 185
Rob Procter

#### 6.2 Chinese e-Social Science: A Low-End Approach 188
Jonathan J. H. Zhu and Xiaoming Li

### 7 Institutional Infrastructures for Global Research Networks in the Public Sector 191
Paul A. David and Michael Spence
7.1 Ownership of Medical Images in e-Science Collaborations: Learning from the Diagnostic Mammography National Database 214
Tina Piper and David Vaver

7.2 The Value of Authorship in the Digital Environment: Producing and Protecting Scientific Information 218
Justine Pila

8 The Politics of Privacy, Confidentiality, and Ethics: Opening Research Methods 223
William H. Dutton and Tina Piper

8.1 Ethical and Moral Dimensions of e-Research 241
Michael Parker

8.2 Data Sharing in Genomics—Is It Lawful? 245
Jane Kaye

8.3 Protecting Confidentiality 249
Julia Lane

IV Implications for Research 253

9 The Changing Disciplinary Landscapes of Research 257
Jenny Fry and Ralph Schroeder

9.1 The Agenda-Setting Role of e-Research 272
Paul Wouters

10 Reshaping Research Collaboration: The Case of Virtual Research Environments 277
Annamaria Carusi and Marina Jirotka

10.1 The Future of Virtual Research Environments 295
Matthew Dovey

11 Will e-Science Be Open Science? 299
Paul A. David, Matthijs den Besten, and Ralph Schroeder

11.1 The Politics of Open Access 317
Gustavo Cardoso, João Caraça, Rita Espanha, and Sandro Mendonça

11.2 Open Access versus “Open Viewing” for a Web of Science: The Neurocommons Example 322
John Wilbanks and Hal Abelson

12 Shaping Research in Developing Areas 325
Marcus Antonius Ynalvez, Ricardo B. Duque, and Wesley Shrum
Coda: The Ends and Means of World Wide Research  343
William H. Dutton and Paul W. Jeffreys

Glossary  349
Abbreviations  355
Index  357