

CONTENTS

Contributors page ix

Editors' Introduction xi

Part I. Conceptual Framework 1

- 1 Monitoring, Datafication, and Consent: Legal Approaches to Privacy in the Big Data Context** 5
Katherine J. Strandburg
- 2 Big Data's End Run around Anonymity and Consent** 44
Solon Barocas and Helen Nissenbaum
- 3 The Economics and Behavioral Economics of Privacy** 76
Alessandro Acquisti
- 4 Changing the Rules: General Principles for Data Use and Analysis** 96
Paul Ohm
- 5 Enabling Reproducibility in Big Data Research: Balancing Confidentiality and Scientific Transparency** 112
Victoria Stodden

Part II. Practical Framework 133

- 6 The Value of Big Data for Urban Science** 137
Steven E. Koonin and Michael J. Holland
- 7 Data for the Public Good: Challenges and Barriers in the Context of Cities** 153
Robert M. Goerge
- 8 A European Perspective on Research and Big Data Analysis** 173
Peter Elias

| | | |
|-----------|---|-----|
| 9 | The New Deal on Data: A Framework for Institutional Controls | 192 |
| | Daniel Greenwood, Arkadiusz Stopczynski, Brian Sweatt, Thomas Hardjono, and Alex Pentland | |
| 10 | Engineered Controls for Dealing with Big Data | 211 |
| | Carl Landwehr | |
| 11 | Portable Approaches to Informed Consent and Open Data | 234 |
| | John Wilbanks | |
| | Part III. Statistical Framework | 253 |
| 12 | Extracting Information from Big Data: Issues of Measurement, Inference and Linkage | 257 |
| | Frauke Kreuter and Roger D. Peng | |
| 13 | Using Statistics to Protect Privacy | 276 |
| | Alan F. Karr and Jerome P. Reiter | |
| 14 | Differential Privacy: A Cryptographic Approach to Private Data Analysis | 296 |
| | Cynthia Dwork | |