
Changing the Conduct of Science in the Information Age

Summary Report of Workshop Held on November 12, 2010

National Science Foundation

June 28, 2011



Disclaimer: Any opinions, findings, conclusions, or recommendations expressed in this material are those of the workshop participants and do not necessarily reflect the views of the National Science Foundation.

Contents

Executive Summary.....	1
1. Introduction	3
2. Data Access	4
2.1. Social Challenges.....	5
2.2. Technical Issues.....	7
2.3. Role of Funding Agencies	9
3. Knowledge Access	10
3.1. Social Issues.....	10
3.2. Technical Issues.....	12
3.3. Role of Funding Agencies	12
4. Conclusions and Next Steps	12
Appendix A: Workshop Background	15
Appendix B: Workshop Structure	19
Appendix C: Participant and Observer Biographies.....	21
Appendix D: List of Background Papers	33
Appendix E: White Papers from November 12, 2010, Workshop	35
Baker, Shenda, et al., "Data-Enabled Science in the Mathematical and Physical Sciences: Workshop Report".....	37
Börner, Katy, "Briefing Document for Changing the Conduct of Science in the Information Age".....	55
Conlon, Mike, "The Objects of Science and Their Representation in eScience"	57
Elias, Peter, "Digital Technology and the Conduct of Scientific Research".....	59
European Union, "Riding the Wave: How Europe Can Gain from the Rising Tide of Scientific Data"	63
Evans, James, "Identification and the Complex System of Research"	103
Fenner, Martin, "White Paper for Changing the Conduct of Science in the Information Age"	107
Fenner, Martin, "Scientific Attribution Principles"	109
German Data Forum, "RatSWD Working Paper Series No. 150: Recommendations for Expanding the Research Infrastructure for the Social, Economic, and Behavioral Sciences"	111

Hey, Tony, "Open Access, Open Data, Open Science"	137
Hirsh, Haym, "How Do You Cite a Crowd?".....	145
Lambe, Patrick, "Changing the Conduct of Science in the Information Age: Discussion Points"	147
Lauer, Gerhard, "Changing the Conduct of Science in the Information Age: Focusing on Sharing Knowledge and Data".....	155
National Science Board, "Long-Lived Digital Data Collections: Enabling Research and Education in the 21st Century"	157
Office of Science and Technology Policy, "Harnessing the Power of Digital Data for Science and Society".....	161
Papazoglou, Theodore, "IT-Based Approaches in Support of ERC's Mission to Support 'Frontier Research': First Experiences"	219
Pfeiffenberger, Hans, "Focusing on Social Constructs"	221
Sauermann, Henry, "Discussion Points for Session 3: Social Constructs; in Particular: Incentives"	223
Schutz, Bernard, "Data Access: Digital Technology and Scientific Communities"	227
Trasande, Caitlin, and Timo Hannay, "Changing the Conduct of Science: A Publisher's Perspective"	245
Viegas, Evelyne, "Data as an Enabler of Open Innovation: Challenges and Opportunities".....	249
References	251