The Handbook of Science and Technology Studies, 4th edition

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Note: Chapter authors are confirmed, although chapter teams may still change somewhat. Chapter titles are working titles. Final titles will be determined by the editors and author teams upon submission of chapters.

**Introduction**

This fourth in a series of STS Handbooks will appear at a time when the STS field has in its various different formations existed for more than half a century. It is also a time of growing popularity for STS among students from diverse intellectual traditions and growing importance and relevance of the field to science, engineering, and policy. Reflecting this, the objective of this Handbook is to reach a broad audience of people interested in STS, especially including those early in the process of entering or encountering the field (whether as students of the field in STS programs, in neighboring fields, or among practitioners). A substantive introduction will therefore be important, helping situate readers with regard to both the field and the volume’s contents. In this regard, the aim of the introduction will be threefold. It will (1) introduce our understanding of STS and how this led us to our objectives for the Handbook and how we constructed it as we did; (2) introduce the field with its history (also reflecting the former handbooks and how they wrote the history of the field); and (3) reflect on the institutional and geographic development of the field.

Building on the main introduction, each section will include an introduction to the specific topics raised by its chapters, explaining what holds the section together and how the chapters relate to the concerns of STS.

**Section I. Methods and Practices in Science and Technology Studies**

For a community that has placed reflexivity at the forefront of discussions about scholarly practices, reflections on the methods and practices of STS offer a valuable point of entry and one deserving of greater attention in print. In this version of the Handbook, we place this discussion up front. This section of the Handbook includes chapters that reflect on some of the field’s sensibilities about method and practice, positioning STS in relation to broader debates about method, the variety and multiplicity of epistemologies and methods that STS scholars use, and expositions of emerging arenas of research practice, such as digital, video, and art as methods of STS. This section also discusses some increasingly common practices of STS—including engagements with public participation in science and collaboration with natural scientists and engineers.

1. Quantitative and Qualitative STS: Scientometric Indicators, Performance Measurement, and Reflexive Deconstructions (Sally Wyatt, Staša Milojević, Diana Lucio-Arias, Han Woo Park, Selma Šabanović, Loet Leyesdorff)
2. Method, Performativity, and Materiality (TBD)
3. The STS of Documents (Kalpana Shankar, David Hakken, Carsten Østerlund)
4. Designing and Intervening in Digital Systems (Janet Vertesi, David Ribes, Laura Forlano, Yanni Loukissas, Marisa Cohn)
5. Between Relevance and Respecification: Ethnomethodology, Video and STS (Philippe Sormani, Morana Alač, Alain Bovet, Christian Greiffenhagen, Aug Nishizaka)
6. Art, Design, and Performance (Regula Burri, Joseph Dumit, and Chris Salter)
7. Experiments in Participation (Noortje Marres, Javier Lezaun, and Manual Tironi)
8. Making and Doing: New Knowledge Production, Expression, and Travel in STS (Gary Downey and Teun Zuiderant-Jerak)

**Section II. Making Knowledge, Making Societies**

The co-production of knowledge and social order remains one of the centerpieces of STS thought and one of its key contributions to knowledge beyond the field’s boundaries. The chapters in this section provide both cutting edge theoretical reflections on how the joint making of knowledge and society occurs and what that means for an improved understanding of both enduring intellectual problems and today’s societal challenges. They will examine the social (and therefore economic and political) organization of knowledge production, the ways in which such knowledge production becomes integral to patternings of human affairs, and the means and mechanisms of coupling that link the two.

1. Science and Democracy (Sheila Jasanoff)
2. The Politics of Science and Inequality (Sulfikar Amir, Scott Frickel, David Hess, Daniel Kleinman, Kelly Moore, and Logan Williams)
3. Social Movements (Steve Breyman, Nancy Campbell, Virginia Eubanks, Sang-Hyun Kim, and Abby Kinchy)
4. Classificatory Practices in Science, Society, and the State (Geof Bowker)
5. STS and Sex, Gender, and Sexuality (Jennifer Fishman, Laura Mamo, and Patrick Grzanka)
6. Race and Science in the 21st Century (Joan Fujimura, Ramya Rajagopalan, and Alondra Nelson)
7. Feminism/Postcolonialism/Technoscience (Banu Subramanian, Laura Foster, Deboleena Roy, Sandra Harding, and Kim Tallbear)

**Section III. Socio-Technological (Re-)Configurations**

The evolving relationships between technology and society have been central to STS scholarship. This work offers multiple approaches to investigate the use and deployment of technology that shapes animate and inanimate conditions. This section presents chapters traversing this varying terrain and highlights a set of themes, concepts, and issues relevant to STS scholars. The chapter authors will explore the varied interconnections between technology, society, and culture with the aim of explicating a slice of the past, present, and future scholarship. Attention will be given to the transnational flows of technology and how these movements impact societies in different parts of the world.

1. Agency and Citizenship in a Technological Society (Andrew Feenberg)
2. Technology and Development (Aalok Khandekar, Koen Beumer, Annapurna Mamidipudi, Pankaj Sekhsaria, and Wiebe E. Bijker)
3. STS in the City (Iganacio Farías and Anders Blok)
4. STS and ICTs as Socio-Technical Architecture (Hector Postigo and Casey O’Donnell)
5. Reconceptualizing Users Through Rich Ethnographic Accounts (Lisa-Jo van den Scott, Carrie Sanders, and Fiona Miller)
6. Technoscience and Imagination (Maureen McNeil, Michael Arribas-Ayllon, Joan Haran, Adrian Mackenzie, and Richard Tutton)

**Section IV. Practices and Institutions of Science**

Attention to the structures and institutions of science has created a productive tension in STS from the first critiques of Mertonian perspectives to more recent reflection on pressures toward institutionalization of STS within academe. The chapters in this section contribute to that fruitful conversation about the tensions between understanding institutional power and critiquing our roles in knowledge production. This section of the Handbook includes chapters that situate current and prospective STS scholarship on the practices and institutions of science within intellectual debates on scientific work, inequalities, standardization, expertise, communication, and the enrolment of publics in science.

1. The Social Organization of Scientific Work (Edward Hackett, John Parker, Bart Penders, and Niki Vermeulen)
2. Gender and Careers in the Scientific Workforce (Mary Frank Fox, Kjersten Whittington, and Marcela Linkova)
3. Interactional Expertise (Harry Collins, Robert Evans, Martin Weinel)
4. Science Communication (Maja Horst and Alan Irwin)
5. Citizen Science (Caren Cooper, Bruce Lewenstein, Morgan Meyer)

**Section V. Values, Ethics, and Responsibility**

Over the past two decades or more, STS has been devoted to looking into issues of governance of science and technology. This section examines one central facet of that effort, focused on issues of responsibility, the way we define and deal with ethical issues, and more broadly speaking which kinds of valuation regimes are at work at the multiple interfaces of science, technology and society. This will mean engaging with processes of anticipation, and how scientific and societal actors reflexively deal with the challenges arising through innovation. This section will thus contain chapters which reflect on what we can learn from past experiences (such as ELSA/ELSI programs), how we currently address value questions, in which ways the future has become an important “object” to critically address, how regulation and surveillance have entered lab practices and finally, on the complex relations of the knowledge, risk and justice.

1. History of ELSI, Bioethics, and Relations with STS (Stephen Hilgartner)
2. Responsible Research and Innovation (Jack Stilgoe and David Guston)
3. The Future in STS (Harro Van Lente, Kornelia Konrad, and Christopher Groves)
4. Surveillance and Regulation of Laboratory Practices (Ruthanne Huising and Susan Silbey)
5. Advancing Environmental Justice: Contributions from Science and Technology Studies (Gwen Ottinger, Javiera Barandarian, and Aya Hirata Kimura)

**Section VI. Engaging with Societal Challenges**

The Handbook’s final section examines the current and potential future contributions of STS to societies’ efforts to identify, understand, and respond to significant challenges. The chapters reflect both the reality that societies—and especially public institutions and discourses—increasingly construct their policy initiatives around so-called grand challenges and also the recognition that STS, reflexively, is well positioned to contribute to and critique these formulations, especially as they enroll, relate to, and/or derive from particular configurations of science and technology as societal enterprises. This section will, we envision, speak both to the field’s practitioners who, in their capacity as engaged scholars, seek to put their scholarship to work in service of society and those outside the field who may be positioned to help facilitate productive dialogues between STS, other fields of inquiry, and the world of scientific and policy practice.

1. Finance and Market Instabilities (Alex Preda)
2. Securing Knowledge: Science, Technology, and Security (Kathleen Vogel, Brian Balmer, Samuel Evans, Inga Kroener, Miwao Matsumoto, Brian Rappert)
3. Transnational STS Research and Engagement for Poverty Reduction, Environmental Sustainability and Social Justice (Adrian Ely, Melissa Leach, Ian Schoones, and Andrew Stirling)
4. STS and Global Sustainability Research (Silke Beck, Timothy Forsyth, Pia Kohler, Myanna Lahsen, Eva Lövbrand, and Martin Mahony)
5. Food and Agriculture Metabolism: The Co-production of Bodies, Ecosystems, and Industry (Alastair Iles, Garrett Graddy-Lovelace, Ryan Galt, and Simon Nicholson)
6. Disaster-STS (Kim Fortun, Scott Knowles, Vivian Choi, Paul Jobin, Miwao Matsumoto, Pedro de la Torre, Max Liboiron, and Luis Felipe Rosado Murillo)
7. STS and Aging: Theorizing the Socio-material Constitution of Later Life (Kelly Joyce, Alexander Peine, and Louis Neven)
8. The Brain in Society (Sal Restivo and Jen Croissant)