

Data's Different Missions in E-Science, E-Social Sciences and E-Humanities

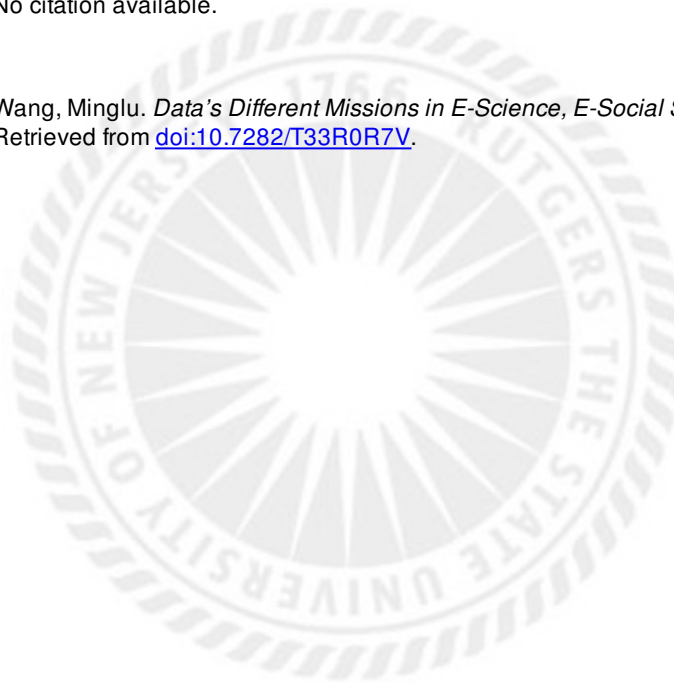
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Citation to Publisher No citation available.

Version:

Citation to *this* Version: Wang, Minglu. *Data's Different Missions in E-Science, E-Social Sciences and E-Humanities*, 2012.
Retrieved from [doi:10.7282/T33R0R7V](https://doi.org/10.7282/T33R0R7V).



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IASSIST 2012

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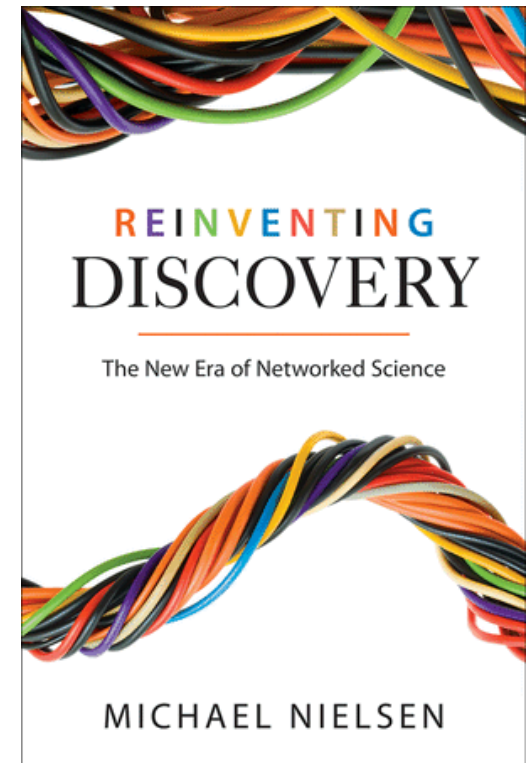
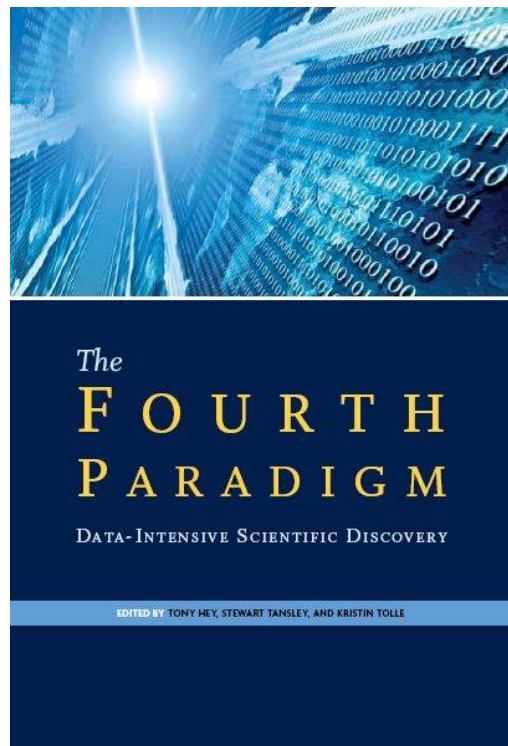
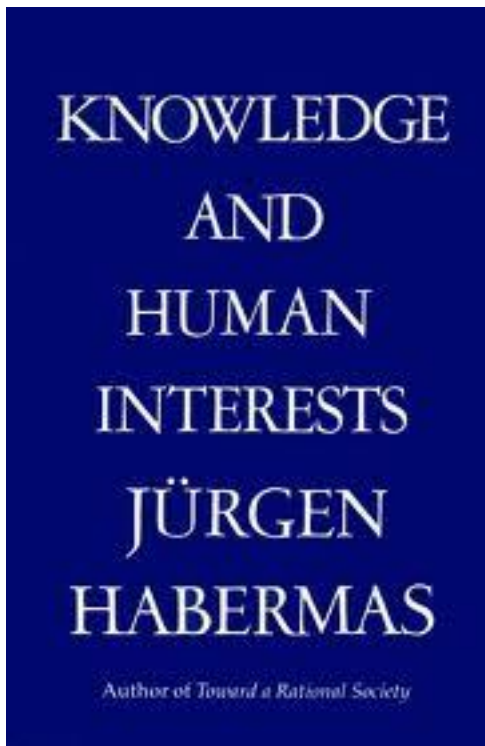
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E-Research: New Paradigm of Doing Science

- Data driven (needs)
- Technology driven (tools)
- **Human interests driven (goals)**



Habermas: Philosophy of Scientific Inquiry

“There are three categories of processes of inquiry for which a specific connection between logical-methodological rules and knowledge-constitutive interests can be demonstrated. This demonstration is the task of a critical philosophy of science that escapes the snares of positivism.”

Habermas, J. (1971). Knowledge and human interests: a general perspective. *Knowledge and Human Interests* trans. by Jeremy J. Shapiro (pp. 301-349).

Habermas: Knowledge and Human Interests

“The approach of the **empirical-analytic sciences** incorporates a *technical* cognitive interest; that of the **historical-hermeneutic sciences** incorporates a *practical* one; and the approach of **critically oriented sciences** incorporates the *emancipatory* cognitive interest that, as we saw, was at the root of traditional theories.”

Habermas, J. (1971). Knowledge and human interests: a general perspective. *Knowledge and Human Interests* trans. by Jeremy J. Shapiro (pp. 301-349).

Habermas: Three Categories of Knowledge

“the specific viewpoints from which, with transcendental necessity, we apprehend reality ground three categories of possible knowledge:
information that expands our power of technical control;
interpretations that make possible the orientation of action with common traditions;
and analyses that free consciousness from its dependence on hypostatized powers. ”

Habermas, J. (1971). Knowledge and human interests: a general perspective. *Knowledge and Human Interests* trans. by Jeremy J. Shapiro (pp. 301-349).

Habermas' knowledge theory helps
explain the different development
trends of E-Science, E-Social Sciences,
and E-Humanities

(complexity of data,
types of technology adopted,
and involvement of public audience)

Recent Literatures on E-Research

- *Social Science Computer Review (2007-2009)*
- *Philosophical transactions. Series A, Mathematical, physical, and engineering sciences (2010)*
- *Information, Communication & Society (2009-2012)*

E-Science

- Data
 - Large data
- Technology
 - High performance computing
 - Computational modeling and simulation
 - Visualization

E-Humanities

- Data
 - Multiple types of data, which are unstructured, dispersed, difficult to find, and complex to use (archives, text, numeric, image, sound, etc)
- Technology
 - Georeferencing
 - Interface/API; TEI; metadata harvesting; electronic publishing
 - Virtual research environments
 - New forms of learning and doing research (broader audience, more democratically)

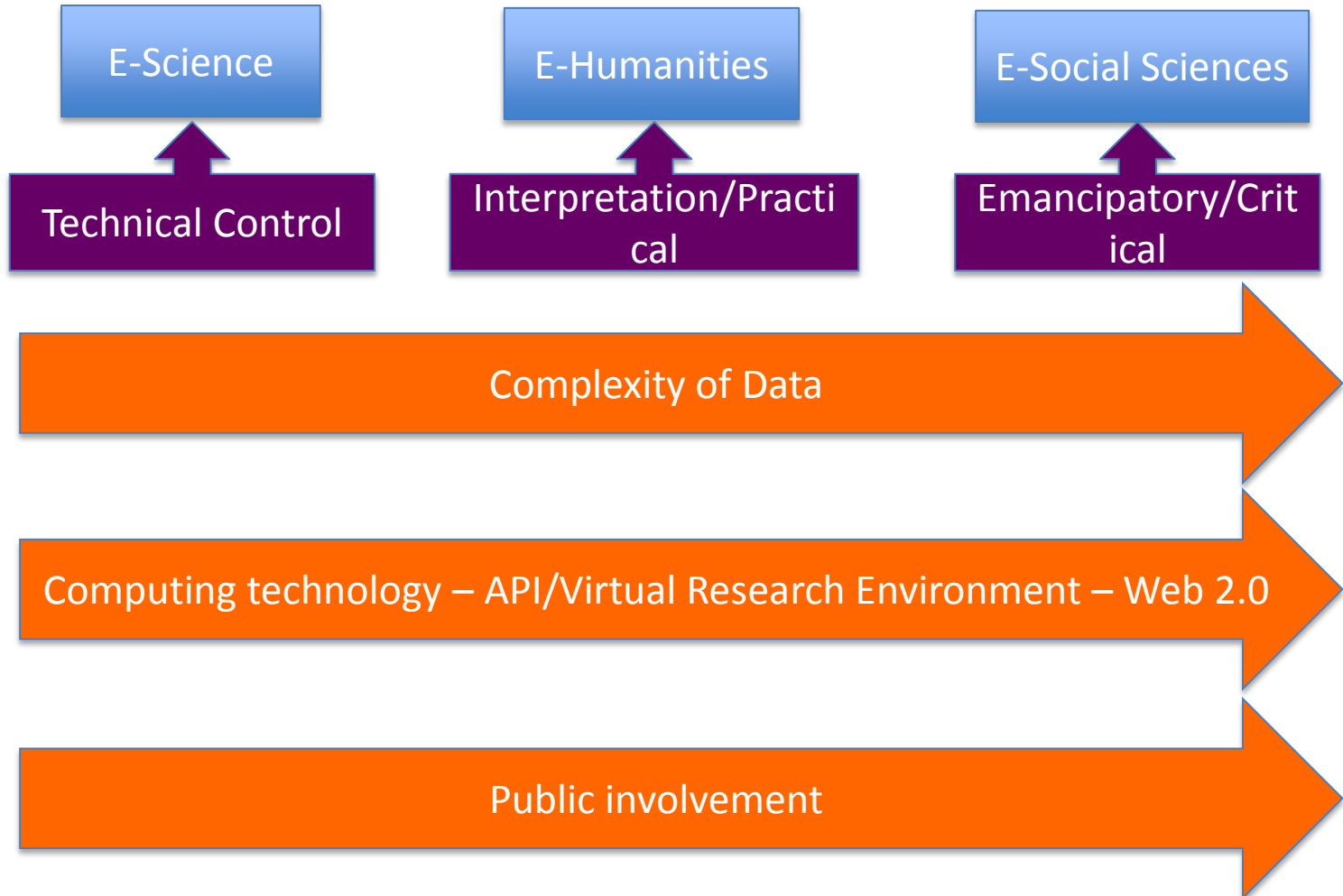
E-Social Sciences

- Data
 - World Wide Web (news and corporate sites, wikis, blogs, etc.),
 - digital communications (e-mail, newsgroups, speech, short message service [SMS]),
 - transactional records (purchases, etc.)
 - research, learning, and teaching repositories
 - Rapid growth of literature

E-Social Sciences

- Technology
 - New tools (e.g., web crawler, text mining, social network analysis)
 - Modeling and simulation of social scenarios
 - Statistical computing power; GeoComputation
 - Semantic web, web 2.0, metadata
 - Aggregating, cataloging, and analyzing resources (quantitative and qualitative) for research and decision making
 - Disseminating and democratizing social science
 - ethical concerns (technology is not neutral, privacy issues)

Observation



Data Services Professionals

Mindset: Knowledge to fulfill human interests

- Inter-disciplinary research/collaboration
- Top-down vs. bottom-up
- Awareness of possibilities
- Bridging between technicians and researchers