

# **PROMOTING ACCESS TO DIGITAL KNOWLEDGE RESOURCES: MANAGING IN THE COMMONS**

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Professor Robin Mansell  
London School of Economics

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# Managing Information in the Digital Commons: Contending Oppositional Models

Useful knowledge depends on scientifically validated and curated digital information regardless of how information is sourced in the big data, crowdsourcing, online era.

or

Useful knowledge depends on the voluntary contributions of distributed online groups using a commons-based peer production model for validating digital information.

# Social Technology

- Arrangements, practices and norms that enable the organisation of society
- The 'system of conscious and purposeful organisation of persons' (Henderson 1901)
- Institutional modes of coordination facilitating markets and collective action (Nelson & Nelson 2002)
- Social technologies apply in market and non-market contexts.
- What social technology for managing in the digital information commons and in enclosed online domains?



# Diverse Social Technologies within the Information Commons

**Many kinds of commons**

**‘Outcomes of the interactions of people and resources can be positive or negative or somewhere in between’**

**(Hess and Ostrom 2007)**

**Strong collective action is needed to avert risk of problems**

**A self-organised commons requires ‘strong collective action and self-governing mechanisms, as well as a high degree of social capital on the part of the stakeholders’**

**(Hess and Ostrom 2007)**

**Is there an ‘in between’ mode for managing commons based relationships?**

# Continuum of Constituted & Adaptive Authority

**Strong collective action  
→ constituted authority**

**Single Authority exercising Top Down Control  
Control exercised based upon collective  
interest in accuracy and accountability –  
characteristic of science**

**Outcome: Accumulation of curated information  
stocks supporting re-use and re-combination**

**Dispersed collective action  
→ adaptive authority**

**Multiple Authorities in Peer Relationships  
No single controller – consistency and  
accuracy subject to negotiation and  
voluntary compliance  
Characteristic of loosely organised  
online groups (e.g. voluntary action, OSS  
communities, commons based peer  
production)**

**Outcome: ephemeral information flows used  
as inputs (e.g. for social action)**

# Formal Science & Loosely Connected Online Groups

**Formal Science Groups**  
→ **Constituted Authority**

**Value curated stocks of digital information resources**

**Value ‘open science’ but “open science is not an unqualified good”**

**Access is for ‘qualified others’**

**Privileged role for formal science in the ‘big data’ era**

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**Loosely Organised  
Online Groups**  
→ **Adaptive Authority**

**Value ephemeral flows of digital information**

**‘Overflowings’ generated by ‘concerned groups’ are hard to accommodate in constituted authority models**

**Employ practices and principles of open source communities**

**Are part of the participatory online culture**

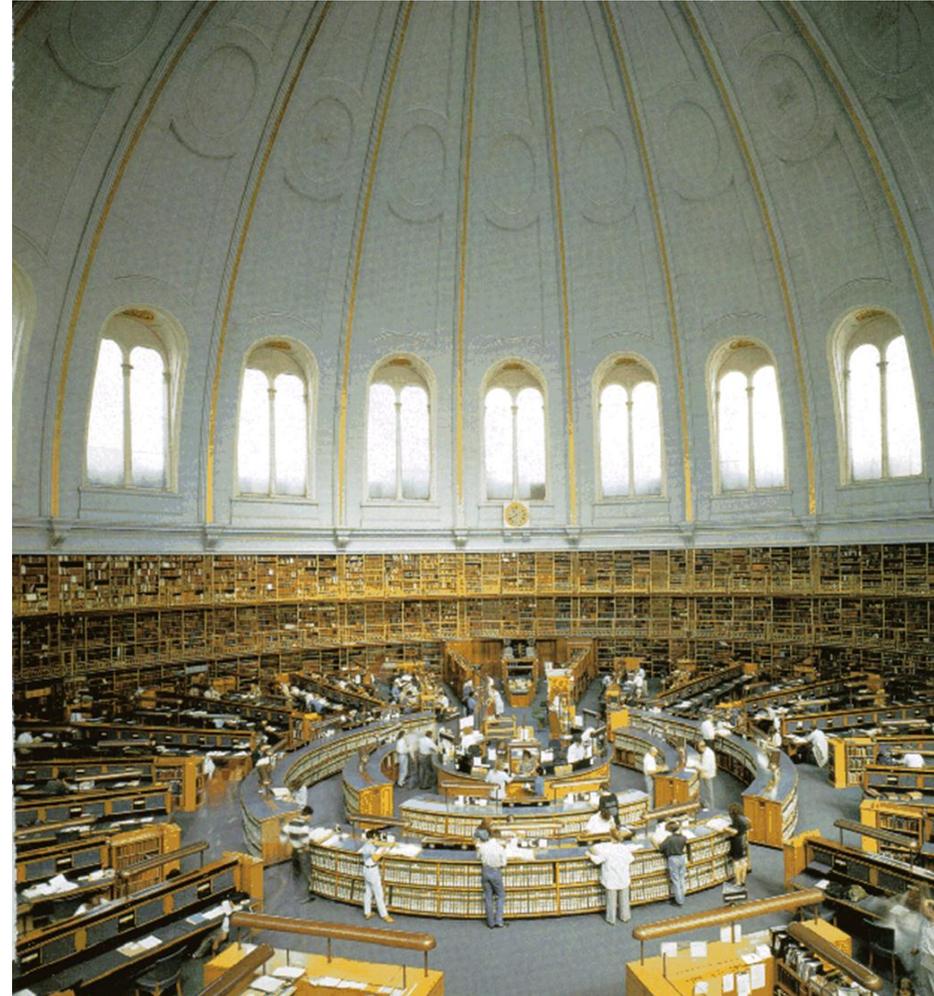
# Digital Curation

- ‘Maintaining, preserving and adding value to digital research data throughout its lifecycle ... in trusted digital repositories [which] may be shared’ (Digital Curation Centre, UK)
- Conceptualising, creating, accessing and using, preserving, storing, assessing and reusing and transforming digital information
- **Goal:** the long term accumulation of useful knowledge
- **Values:** consistent with values of formal science



# Content Curation

- Loosely connected online groups
  - use some (not all) formal science information practices
- Aggregate, distill, sift and select information at a point in time
- Little emphasis on information storage, preservation, or reuse
- Voluntary with few financial resources
- **Goal:** useful knowledge for immediate application
- **Values:** consistent with values of voluntary communities and loosely connected online groups

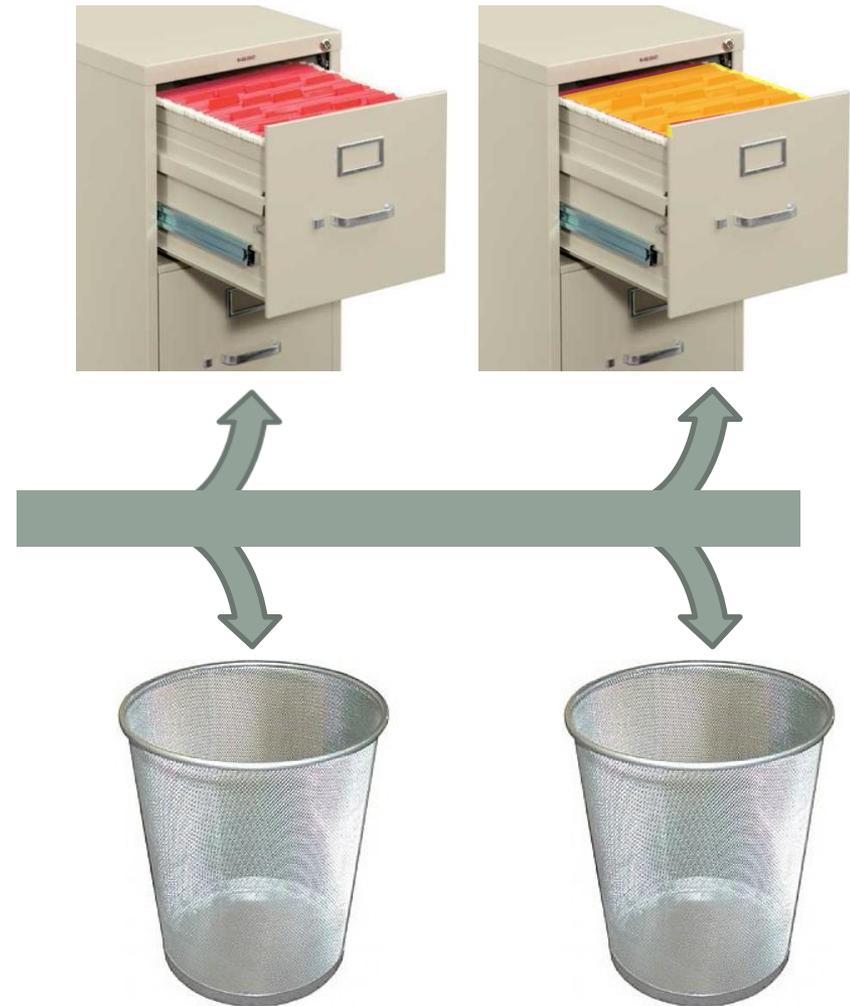


# Relating Social Technologies to Information Stocks and Flows

Type of Information → Social Technology of Authority	Curated Information Stocks	Ephemeral Information Flows
Constituted Authority		
Adaptive Authority		

# Key Junctures for Conflict

- What information should be retained, how should it be organised and accessed?
- Barriers to transforming ephemeral information flows into curated information
- Inability to retain or systematically assess 'know what' and 'know why', prevents social welfare gains that might otherwise be possible.
- A loss to formal science and to loosely connected online groups
  - Both argue their approach is the **optimal way** to encourage accumulation of useful knowledge



# Crowdsourcing Projects as Instances

- **Wide variety of digital platforms for crowdsourcing available to both formal science and to loosely connected online communities**
  - **Message boards, podcasts, wikis, blogs, mapping and geotagging → faster, cheaper data collection, aggregation, analysis and publication**
- **Bias towards one or other social technology will imply different approaches, values and opportunities for information curation**
- **Little comparative empirical study of who initiates and invests, who controls and assesses information, who accesses and who applies crowdsourced digital information – whether it is ephemeral or curated**

# Instances

Social Technology of Authority	Curated Information Stocks	Ephemeral Information Flows
<p><b>Constituted</b></p>	<p>LHC@Home GalaxyZoo Oldweather <i>GlobalPulse</i></p>	<p>Zooniverse PyBossa WideNoise Smart Citizen <i>Global Pulse</i></p>
<p><b>Adaptive</b></p>	<p><i>Global Pulse</i> MapKibera Radiation Map Haiti Ushahidi</p>	<p><i>Global Pulse</i> NightSkies Network Astronomers Without Borders Lets Do It World Russian Fires</p>

# Managing Access to Digital Information

**Formal Science,  
Government, Other  
Public Organisations  
favour:**

**Constituted authority**  
**Hierarchical practices and control**  
**Validation of information in line with  
science model**  
**Curation of digital information**

**Loosely Connected  
Online Groups favour:**

**Adaptive authority**  
**Bottom-up initiatives and dispersed  
control**  
**Immediacy of application of ephemeral  
information flows**  
**Limited interest in curation, few  
financial resources and different norms  
for validating information**

# UN Global Pulse – Negotiated Hybridity of Social Technologies

- **Real-Time Big Data Initiative - improving coordinated responses for humanitarian assistance and emergency relief**
- **Crowdsourced data collection and analysis to complement official statistics**
- **Combines constituted and adaptive authority**
- **Combines curated information and ephemeral information flows**
- **Conflicts - privacy, ethics, data access, rivalry, reputation**



# Accumulating Useful Knowledge?

- **Formal science professionals and loosely connected online groups make strong claims about the usefulness of their digital information for social action and problem solving**
- **Differences in social technologies create barriers to realising the benefits from the contributions of these groups**
- **'Hastily formed networks' clash with the science model, producing incoherent accumulations of largely unmoderated information**

# Options - 1

## Constituted Authority Prevails

Ephemeral information flows move to  
constituted authority/curated  
information model

Incentives created for digital information  
production and curation following 'open  
science' model

Research attention focuses on struggle  
over widening the scope for public  
domain knowledge in the proprietary  
sphere

Type of Information → Social Technology of Authority	Curated Information Stocks	Ephemeral Information Flows
Constituted Authority	<b>X</b>	
Adaptive Authority		

# Options - 2

## Adaptive Authority Prevails

Ephemeral information flows retain adaptive authority modes of collective action, with little attention to curation

Incentives created for digital information production and curation following bottom up, participatory online culture model

Research attention focuses on characteristics of horizontal governance of online distributed groups while ignoring interactions with formal institutions

Type of Information → Social Technology of Authority	Curated Information Stocks	Ephemeral Information Flows
Constituted Authority		
Adaptive Authority		X

# Options - 3

## New Combinations of Constituted and Adaptive Authority

Type of Information → Social Technology of Authority	Curated Information Stocks	Ephemeral Information Flows
Constituted Authority		
Adaptive Authority		

X

- Research attention focuses on the struggle to build bridges between social technologies of constituted and adaptive authority within the information commons
- Constituted authority becomes better attuned to dynamics of producing large ephemeral flows of information, meeting immediacy of real time challenges, and engaging with the politics of adaptive authority
- Bridge-building through negotiated contracts and collaborative agreements
- Loosely organised online groups successfully resist seizure of control by constituted authority