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The Knowledge Commons: Theory and Collective Action; or *Kollektive Aktionismus*?

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Introduction

I am delighted to have the opportunity to speak here tonight about the work Elinor Ostrom and I are undertaking on studying ways to analyze knowledge as a commons. We are trying to find ways for a better and deeper understanding of knowledge as a resource.

Lin Ostrom, as you probably know, is the *grande dame* of the commons, one of the most cited social scientists in the world, particularly because of her prolific work on the commons, common-pool resources and collective action. Her award-winning book *Governing the Commons* has been translated into several languages and is used as a "Bible" on the subject throughout the world.

We are at the Workshop in Political Theory and Policy Analysis at Indiana University, an institute founded by Lin and her husband Vincent Ostrom in 1974. Lin and Vincent both wrote their dissertations on water resources as a commons, Vincent's in the 50s, Lin's in 1965. Lin's focused on the concept of ***public entrpreneurship*** in the California water arena. Forty years ago, she wrote:

> "The traditional literature of political science and economics has given little consideration to the strategy used by individuals in organizing public enterprises to provide public goods and services. Economists have long been concerned with entrepreneurship, but have largely confined their analysis of entrepreneurship to the private market economy.

Over the past 30 years, the Workshop has attracted hundreds and hundreds of scholars from around the globe who have come there to study the relationship between resources and institutions (meaning rules). Researchers have combined field work and case studies, theoretical analysis, experimental economics and game theory to better understand how people with bounded rationality can come together, make rules, in order

share, manage, and sustain (or not) resources – from community forests, grazing lands, and fisheries, to apartment buildings & playgrounds, to genetic code and air slots.

The Workshop Library contains the world's largest collection specifically devoted to the commons. In 2002 we opened the Digital Library of the Commons (DLC) as a gateway to the international interdisciplinary literature on the commons. It contains a self-publication portal, an archive of recently digitized older commons literature, and a comprehensive bibliography on the commons with 40,000 records and 6000 abstracts. We use Eprints2 and are OAI compliant.

My curious title

In the years between Garrett Hardin's "the Tragedy of the Commons" (TOC) in *Science* magazine in 1968 and the first Earth Day in 1972, I was a student at the universities of Munich and Regensburg. I was a young lefty (now I'm an old lefty) and besides studying *Vergleichende Literatur*, I was often in the streets protesting the Vietnam War along with many thousands of my fellow comrades. Engaged in discussions in the local *Kneipen*, my German friends would frequently accuse me and my countrymen & women of *aktionismus*: "*die Amerikaner können nicht die Theorie leiden, die hassen die Theorie– die sind nur aktionisten!*" (Americans can't stand theory, they hate theory – they're just actionists). So at their suggestion, I underwent a year-long sentence to *Kapitalschulin*g (a voluntary association of students who read *Das Kapital* page by page followed by detailed discussions). I was hoping to breathe in some *reine deutsche theorie.*

Now more than 30 years later I take great pleasure in being on the Theorie end of an aktionismus field. We need to better understand these resources, the communities involved, and the rules-in-use if we want to sustain and preserve them.

But, I have to say, I would like nothing better than to see 50,000-100,000 people out on the streets this evening protesting the corporate/ political war on ideas – theory or no theory! We desperately need more and louder voices.

The Ostrom-Hess Collaboration

What Lin and I are working on is: how can we better get our hands around this elephant – this complex, multi-layered, rapidly changing, global resource of the knowledge commons? Is it possible to draw from the rich corpus of research applied to the natural resource commons in order to illuminate the intellectual commons? Is it feasible to apply similar frameworks and methodologies to study digital ecosystems?

Commons research history

The dedicated study of the commons (any type of commons) is quite recent. Hardin based his 1968 narrative on an early 19th c. article by William Lloyd. (Lloyd, W F. 1837. *Lectures on Population, Value, Poor-laws, and Rent.* NY: Roake& Varty.)

In the early 50s Scott Gordon and Anthony Scott demonstrated the importance of economic analysis to the former biology-field of fisheries. Then only a few others like Ciriacy-Wantrup, until 1968 TOC – the narrative caught on like wildfire. In the early 80s the US National Research Council brought together an international interdisciplinary group of scholars together in order to study why the African region of the Sahel region was eternally confronted by drought.

Was this a classic case of TOC? Or was it more complex than that? (It was more complex). A few years later some of these scholars founded the International Association for the Study of Common Property. Since the late eighties studies on the commons have grown exponentially. Most all of these focus on natural resources: shared land, forests, fisheries, wildlife, pastures, agricultural fields, water resources and irrigation systems. These are the traditional commons, still robust today, where sustainability of the resource necessitates cooperation, trust and reciprocity.

There are now literally thousands of studies on the commons. A majority are still driven by the Hardin narrative:

Hardin was not really describing a commons by rather an open access situation

There was no communication between the actors

The commons is not a quaint medieval system but still thrives today

Individuals can be driven by altruism as well as self-interest

That issues of heterogeneity and gender affect to outcomes of a resource

There were also parallel studies on the commons: on the history of the European land enclosure movements; and a separate literature on the common good, the village green with the connection of the commons with the democratic process but just about zero overlap with the natural resource commons research.

Global Commons

In the last ten years particularly we have seen a rapid rise of studies about new types of commons, many of these, global commons:

- Atmosphere
- Outer space
- Antarctica
- Deep Oceans
- Electromagnetic Spectrum
- Genetic code
- Knowledge & "Digital Commons"

All of these resources have in common that they are traditional public goods (non-rivalrous, low excludability resources)– where **new technologies** have enabled the capture and privatization of those "free" resources. Unlike enduring natural resource commons, these are new commons have no path dependent rules in place and often no dedicated community to protect and manage them.

Focusing on knowledge and digital information, we might ask: What makes knowledge a commons? And, "how do we recognize these new commons?"

We recognize them when we see traditional, free, and accessible goods now being competed for and enclosed. Knowledge artifacts, facilities, and ideas in their digital form are rapidly moving away from being public goods to becoming *common-pool resources* (CPRs) that *must be managed* – not by the government or private interests, but by us, the people, the true stakeholders of public knowledge.

CPRs are resources or goods with high subtractability and low excludability. All of a sudden, in the digital environment, I can take your information and ***ideas*** – and you can't have them. Knowledge is the classic example used by economists for a public good. Now it is becoming less and less public and more and more fragile—through overpatenting, copyright extension, contracts rather than sales, accidental (broken links),

arbitrary (publishers' discontinuation of certain journals indexed in a database) and intentional withdrawal of information (Bush administration), carelessness, underfunded archives, publisher centralization, cyberterrorism, and, perhaps most dangerous: public universities morphing from mission-driven to profit-driven institutions.

There are so many threats on the once robust world of knowledge – the cultural heritage of humankind -- we need a whole army of watchdogs to keep track of it all – and we need hordes of ***public entrepreneurs***.

So there is the more general term of the commons – a shared resource – and the political-economic term of *common-pool resource*. Both of these can have various property regimes. A common-pool resource can be privately or government-owned, for example, owned but when managed and harvested by a community it can still have traits of high subtractability and low exclusion. Often in the commons literature, the term **common property** is used with in reality, commons or common-pool resource is meant.

The term "commons" is useful for referring to ***jointness*** or ***the shared-nature*** of a resource. The traits of the digital or knowledge ***commons*** are:

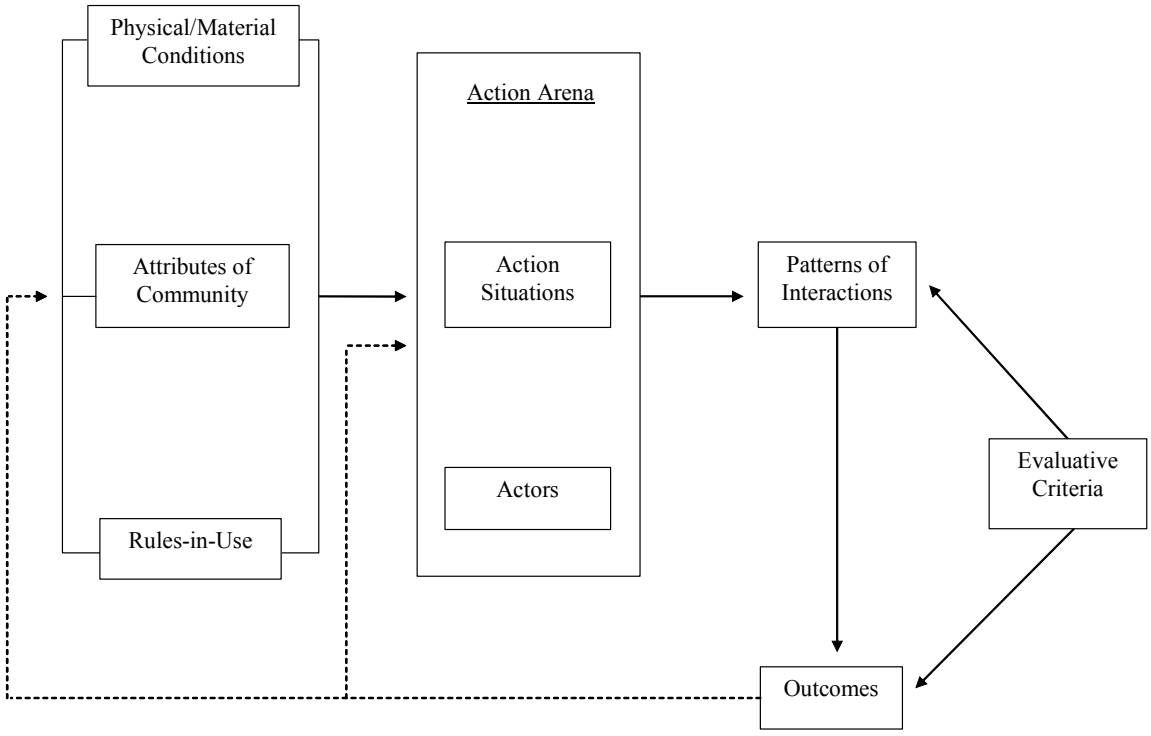
- There are multiple types of knowledge/ digital commons, such as code, bandwidth, databases, libraries, archives etc; all with different characteristics and communities
- They are shared
- They contain both free and fee-based information
- They contain both public domain and copyrighted materials
- They must be managed to ensure sustainability and protect against threats
- They are linked with freedom and democracy
- They are vulnerable to enclosure and competition for capture

IAD Framework

The framework we are attempting to apply to the study of the commons and common-pool resources is called **the Institutional Analysis and Development (IAD) framework.** We define institutions as the rules, norms, and behaviors that two or more people use in interacting and making decisions that produce outcomes and consequences.

The framework looks at the physical characteristics of the resource; the community of users and the rules-in-use. It helps illuminate how patterns of interaction lead to outcomes, how the variables in an action situation lead to patterns of interaction, and how they all can be evaluated. The framework may not be able to make the whole "elephant" visible, but it may help one see interrelated parts more clearly. Its foundations are drawn from the field of political economy, where understanding the effects of rules and decisions on performance is critical. It gives clarity to the knowledge gaps as well as the governance issues. And, the framework allows for the Hayekian analysis of general knowledge with place and time exigencies.

A Framework for Institutional Analysis



Source: Adapted from Ostrom, Gardner, and Walker (1994: 37).

For more on this framework, please see our papers on the Digital Library of the Commons.

New Research Agenda

What we have found thus far, is that commons research must be interdisciplinary and should draw from the following:

- the vast literature on natural resource commons, including studies of property rights regimes, collective action, gender and heterogeneity studies, etc
- the study of institutions and institutional analysis
- the global commons and international regimes; problems of scaling up
- The growing work on complex adaptive systems, vulnerability analysis, robustness and resilience
- Interdisciplinary studies on trust, reciprocity, social capital, and civil society
- Institutional and ecological economics; contingent valuation and willingness to pay
- The north/south digital divide, inequity, and "common but differentiated responsibilities" (the norm being used in international treaty-making)

There are crucial and complex issues involved. Can we, as humans, afford the continuation of privately-owned global resources, such as water, air and knowledge? How do we turn the tide of privatization toward the public good? How do we educate and translate these complex issues to policymakers? What have we learned so far and where do we need to go? How do we evaluate how we are doing?

A few closing comments

How do we educate people about the importance of the commons, and, specifically, about the threats to the digital commons? The work Lin and I are doing is aimed at the academy and those in the process of generating new knowledge. We focus on how one *studies* the commons. But whether within the academy or with the public at large, I think it is crucial that more and more of us begin to *think* like a commons. We need to consciously build horizontal rather than vertical social structures – much as Lin and Vincent Ostrom did when they design our Workshop: each person must take

responsibility for their work and equal respect is afforded all members, regardless of their position. By expecting reciprocity and respect, we build cooperation and social capital.