



Framework: Innovation and Communications Policy in a Networked Information Economy

Background: The core distinguishing characteristic of the networked information environment is that for the first time since the industrial revolution, the core economic inputs, into the core economic activities, of the most advanced economies, are widely distributed in the population

- Physical capital: computation, communications, storage, sensing, and capture
- Human capital: creativity, wisdom, perspective and insight
- Social capital: capacity to form association and comply with social structure

The widespread distribution on capital in the population lowers the cost barrier to effective economic organization. It renders the state/market binary conceptualization of the policy space obsolete, because that binary structure was a function of the two ways we knew how to raise the capital necessary to be effective.

Innovation and creativity in the networked environment can come from a broader range of strategies than was usually thought.

- Individuals
- Distributed social processes, or peer production, like free software development or Wikipedia
- Small and large business organizations that leverage networked behavior—like firms that integrate free software development or companies like Skype, that leverage user-owned equipment
- Newly effective nonprofits, like the Sunlight Foundation, which use their ability to direct funds and a small number of full-time employees and grantees to leverage large amounts of distributed human capital to achieve goals that were previously out of reach for most nonprofits
- Low-profit organizations: organizations that are for profit, but have found a way to keep costs low, and are willing to take some of the gain in non-monetary terms, such as fulfillment of professional values, or a sense of meaning in community. Some commercial blogs, like talkingpointsmemo, or companies like Craigslist, provide valuable new services on a model that seeks moderate sustainability, rather than market-clearing investor returns.
- Participatory government and public private partnerships: this is more aspirational than present, but there is no reason in principle why government should be any less able to leverage distributed social action than can nonprofits or low profits, to improve its own productivity, while at the same time improving its transparency, accountability, and openness for participation.

The modalities of potential government action have also changed. Partly this is a result of the network, and substantially as a result of the economic crisis. The watchword in the 1990s was “deregulation.” Deregulation or abstaining from regulation should continue to be an important arrow in the policy quiver, but it cannot be the dominant instrument. Instead, policy should weave regulation and deregulation with public provisioning, and public provisioning should, where possible, leverage social provisioning to decrease the cost and to increase civic participation in the provision of public goods.



Implications: The goal definition should be: A ubiquitous, open, and fair core common infrastructure of the highest quality in the world

- Innovation comes from everyone, everywhere, all the time
 - A “business” vs. “consumer” analysis misses the centrality of users to innovation and creativity
 - Today's periphery is tomorrow's core
 - Future innovation decoupled from past investment in infrastructure and inventory
- Meaningful expression comes from everyone
- Expanded range of economic sustainability models; play; social engagement; low-profit professional equally important to twentieth century models
 - Free of private, as well as public, control

Analysis and planning need to attend to technical, cultural, and social infrastructure

- Technical: Well understood.
 - Material: communications transport and devices
 - Logical: software and standards, both at lower and higher, application layers
- Cultural: Moderately understood.
 - Provide access to the wealth of cultural resources out of which to make new ideas and creative works by loosening proprietary bounds on utilization and by supporting non- and low-profit creativity to increase the flow of creative outputs that will seed the public domain
- Social: Largely seen as not connected to innovation, but falsely so.
 - Education and skills are a critical element of the information infrastructure. They are “infrastructure” in the sense that they are an input into diverse practices; they increase productivity; and provide high positive externalities beyond the person acquiring them.
 - Security of context: An economic system that is globally networked and constantly innovating is a social environment in constant high flux. Experimentation, failure, and learning are the core approach to dealing with such a highly uncertain and changing environment. When these occur in a distributed setting, a social safety net increases the risk tolerance, and hence experimentation tolerance, of the population at large.

Proposed action items: Table 1, organized by type of infrastructure and modality of action.



Modalities of action Domains: Technical	Regulation	De-regulation or non-regulation	Public provisioning	Support for social provisioning
Transport: wires	<u>Min</u> : present path + Net neutrality (unregulated duopoly alone untenable) <u>Alt</u> : Open Access / common carriage for bit transport Reopen access to competitors	Present state. Experiment introduced under Bush FCC; has failed by measures of broadband deployment and use	National Highway System equivalent as part of infrastructure stimulus investment	User-owned first 100 feet; Condominium fiber; -center for excellence approach -tax incentives
Transport: wireless	-Auctions dead ~ 5 years -Open networks or net-neutrality for network services on mobile proprietary platforms	- minimize prohibitions on unlicensed use - open higher frequencies for more experimentation - user-owned networks as benchmark, instead of incumbents	Resist temptation for cheap investments in wireless; emphasize public provisioning on expensive, long half-life investments: conduits, and dark fiber	Emphasis: unlicensed should be optimized for small-scale investment by end users to form user-owned networks
Devices: computation	Trusted Computing -vigilance for bleed between computer security and business model protection	Trusted computing platforms should not be encouraged or implemented by law		Possibly funding challenges for Herdict-like projects
Devices: handhelds	Carterfone for all wireless			
Software		- Improve patent quality; contain patentability -decriminalization of DMCA antidevice - Fair use for DMCA - Legislative reversal of Grokster	Focus on functionality in acquisition; not on proprietary/FOSS	Prizes; fellowships etc.; modeled on NSF/NIH: all comers eligible (commercial and non), peer review, outputs available under GPL or BSD



Standards	-Vigilance ¹ on Next Generation Networks so they do not undermine open access -Background RAND compulsory license on standards unless estopped	-Estoppel where patent on standard not asserted early	Prefer open standards and support adoption through contracting	-Very low to no fee compulsory license for nonprofit, non-commercial, or below-revenue-threshold actors
Search engines	Vigilance to assure absence of lock-in		NB: Need for continuous observation recommends an advisory committee on emerging threats to, and opportunities to enhance, open innovation	
Social platforms	Vigilance to assure against dominance and lock-in of immovable social graph	Vigilance but not yet action on limiting social networking by kids		
Cloud computing	Vigilance to assure data portability			
Technical knowledge		Much expanded experimental use exception to patent law	Investment in skills training; kids and adults	

¹ “Vigilance” throughout the table stands for: No action required, but framework for continued observation of domain for expected class of problems recommended.



Modalities of action Domains: Cultural	Regulation	De-regulation or non-regulation	Public provisioning	Support for social provisioning
		<p>Copyright legislative agenda: -Decriminalize individual copying -expanded new <i>de minimis</i> shelter for remix culture -expanded “fair use” to include low-profit commercial exercises; social commentary beyond parody, etc. -explore new models of graduate compulsory licensing of works for noncommercial and low-profit organizations -Drastically reduce broadcast indecency regulation</p>	<p>Digitize library of Congress; all classes of materials; Make all materials available in open formats; Make public domain materials free Acquire blanket licenses with broad free licensing for noncommercial and cheap and easy licensing for low-commercial creative reuse</p>	<p>Provide seed grants for organizations that build platforms for facilitating exchange of cultural creativity</p>
Social				
			<p>Invest in education and skills training as a core element of provisioning to under-served populations</p>	<p>Create a Volunteer Skills Corps to teach skills, and a Youth Corps for kids to teach kids how to use technology</p>