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Digital Civil Society Lab

The Digital Civil Society Lab presents

Reclaiming Digital Infrastructure for the Public Interest

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"The power lives below what we can see."
- Laura DeNardis

Over the course of four weeks more than 300 people joined in to discuss the possibilities for reclaiming digital infrastructure in the public interest. The conversation moved from identifying multiple possible civic, community, and cultural logics for designing and using digital networks to considering possible new funding bodies and finally to pushing beyond the constraints of communication frameworks to recognize digital infrastructures as industrial control switches for most of modern life. Having structured three consecutive discussions, it would perhaps be prudent to circle back to the beginning and reimagine the civic and community logics in ways that directly incorporate and address/redress the control switch function. That is fodder enough for another series.

Beatrice Martini and Laura DeNardis argued that the shift in the internet from communications mechanism to control switch - or the shift to a cyber-physical world - is potentially more significant than even the transition from an industrial to an information economy. Because digital infrastructures now support everything from food systems to transportation they have become, in a way, subinfrastructural. Values such as interoperability, transparency and auditability, and openness - which were key to creating a global communications network - face challenges in this subinfrastructural role. Some of these challenges are questions of political philosophy and public policy. For example, are either openess or interoperability inarguable goods in systems supporting national security? Others, such as openness, are being challenged by the proprietary nature of the corporations building connected devices such as cars, transit networks and home appliances.

Seeing the internet's role as subinfrastructure is an opportunity to reimagine many of the "settled" questions of digital design and building, policy making, and community involvement. Seemingly simple questions, such as "who is a user?" become very difficult in the cyber-physical world. Adjacent discussions to this one, for example The Refusal Conference at UC Berkeley take on great importance in a world designed to "opt in everybody." Recognizing the depth and breadth of this subinfrastructure presents new challenges for ideas discussed during the series. A Corporation for Public Software, for example, would need to think not only about communications software but also industrial control switch functionality, and the degree to which its "public" purpose also required consideration of tools for managing what are now public utilities (water, electricity, sewers, transit) as well as what are now communication functions served largely by market actors (messaging, email, sharing files, storage).

Two other ideas from the series - community tech stacks and the role of centering marginalized groups - take on even greater importance in the "control switch" framework. First, community tech stacks - which were discussed throughout the series - provide numerous models that attend to software, hardware, public policy, and governance. The collective of community tech stacks have experience, wisdom, and replicable approaches to public participation and leadership, models of stewardship, and building literacy, competence, and personal/community agency. They also nod toward, organically and not by some larger design, the possibilities of multiple alternatives, locally-led but globally interoperable.

The second widely-agreed upon theme from the series centers on the need to design within and from the needs of communities most often overlooked by markets and policy makers. This includes communities of people with disabilities, who have decades of experience influencing infrastructural design and policy in both physical and digital spheres, as well as communities that have been sidelined, redlined, and marginalized by geography, race, income, or perceived literacy rates. These communities - which often intersect with each other - have shown the power and potential of building their own tech stacks. They are also communities with much to gain from the transition from text to voice interfaces, an area that is simultaneously growing very quickly, at risk of being locked down by proprietary interests, and one that can lay legitimate claim to offering inclusivity at a revolutionary scale.

Discussants in session three, which included Laura DeNardis, Beatrice Martini. Lydia X. Z. Brown, Greta Byrum, Rachel Coldicutt, Jimmy Garcia-Meza, Marleen Stikker, and Sander van der Waal agreed on several key elements. First, there is a present-day "turn to infrastructure" - including the governance layers of the internet such as domain name systems, technical standards, and protocols - as world powers recognize these control points as proxies for power.

All of the layers of the internet - especially the governance layers - are mechanisms of control with embedded power. As the internet leaves our screens and becomes embedded at both immediately personal levels (in our bodies) and at the largest level of social control (transnational interactions) the mechanisms by which it will be controlled become ever more contested.

Second, in addition to complicating questions such as "who is a user," this transition also challenges our ideas of what is a tech company, who should be regulating them, and how. The role of standards bodies, which make "policy by other means" becomes more important. As Laura DeNardis noted, this is both consequential and controversial. The controversial elements of this can be noted by recognizing that decisions by standards bodies about interoperability, for example, which might determine whether any aspects of people's lives can be kept private in the future, are the locus of human rights decisions on a previously unimaginable scale. Given the multi-faceted technological (thermodynamics, material sciences, chemical engineering and computer science) nature of these decisions and their human rights implications, setting these standards requires a different set of actors than have been involved in the past. It also requires rethinking who are policy makers and regulators, how and where are they influenced by external forces, and what are the necessary protections to ensure a focus on public interests.

In brief, the internet in everything expands a form social control - omnipresent data collection- that is already known to be discriminatory and extractive. How then, as the practice seeps into every part of daily life, can members of the public "see" these activities (designed to be invisible), make decisions about the subinfrastructures (deliberately buried) and maintain personal and collective agency. Practices such as differential privacy provide some clues, but the need for much more inclusive co-creation of these practices, as well as systems of redress when violations occur, is a collective action problem that opens the door to needing hole new forms of cyber-physical governance.

Finally, the third session and the series as a whole, leads to an identified set of needs, if not answers to how to meet them:

- We need new centers of power, rooted in oft-marginalized communities, to develop governance models that will serve everyone
- Civil society, community groups, and common good minded policymakers need to include technical standard setting bodies as a place of political and economic power
- Our collective object of inquiry has to move beyond the content layer of the communications internet to the deeper infrastructure of digital societal control
- This requires a conceptual shift for policy makers, scholars, civil society and private sector from communications system to control system
- There is a multistakeholder and multi-level ecosystem of solutions
    - Corporate governance is critical. For example, meeting security standards for liability reasons is a way in which insurance might become a key lever of change
    - There is potentially a large role for external inducements, such as the buying power of organized collective or the standards setting by government purchasers
    - Liability is going to become increasingly important as a vector of design

Critical Questions Raised in Breakout Groups

- Government may not be native to this space, and may be more prone to surveillance tactics. What should their role be?
- What are the underpinning ideas around ownership and control with IP, patents, etc?
- What can we learn about the asymmetrical responses with those with less power? Such as gamers who have created guilds, etc.
- How can we move from ownership to stewardship?
- How to expand community networks to fully function as alternatives to commercial networks?
- In Kenya more literature/cases are needed to guide court decisions
- How do we communicate the mutual benefit of transparency between governments and companies on one side and organizations/citizens on the other?
- Power dynamics must be attended to directly when you are seeking a diversity of expertise (especially with funders)
- Build in pathways to collect information and priorities from disabled people (especially multiply marginalized disabled people) in an iterative process when in R&D or in policy development implementation
- The model of NGI Zero, which supports early-stage research and has a string of successes, is promising.
- Considering the first point on the principles for "public software" (from Corp for Public Software proposal) is that it be government funded, what kind of political will is required to get this off the ground? Are policy makers paying attention to this or are still in the planning/academic stages?
- How does this framework (CPS) take care of the concerns raised by the control regime?
- How can we encourage individuals to participate in the establishing process of public digital infrastructure?
- What is the role of money as it flows through the system, and how can it empower public technology to be of the same quality as commercial?
- Are we talking about "public" as in government-provided structure or cooperative structure?
- How do we find resources to develop alternative tech that's robust enough to compete? We face constraints in funding, developer skills, larger global power structures, etc.
- How do we create meaningful community engagement? How do we create a social and cultural shift?
- How can communities connect at an international level to do standards setting etc?
- Software engineering skills are a premium in the market. How do you create/retain talent to do things that are not capitalist in a capitalist world?
- There are many in this community who are working on related projects. How do we best avoid working in silos and reinventing the wheel?
- How to deal with market mechanisms? Does "open" culture distort the market?
- What are the best practices to handle governance of big data?
- What is the relationship to "the commons" and scale? -- Commons are much easier to govern at smaller scale
- Challenge: Regulatory frameworks are built around individual autonomy/choice, whereas the problems we are facing need collective action
- Will certain demographics become sort of "prey" for data collectors?

Calls to Action:

The following known "next steps" emerged from the conference:

- A workshop proposal has been submitted to the NSF to continue investigations of how to build support for software as public infrastructure (Gastil, Davies, Gordon, Bernholz)
- A group is convening to develop policy frame on public infrastructure with Biden transition team as key audience (Schaake, Bernholz)
- Organize a research volume on public digital infrastructure (Davies)
- Organize a process for broad participation and sign-on to a report aimed at policy makers (Davies)
- Build political support (Davies)
- Introduce, pass, and sign legislation for corporation for public software (Davies)
- The role of the government must be to empower the people to build public digital infrastructure in a transparent, decentralized and participatory way. (Weimann)

- Interventions are needed at different levels. e.g. policy stack, tech stack - how to coordinate, mobilize, track?
- “Fractured by Design” → A model of distributed governance?
- Burden should not be on individuals to deal with privacy issues, needs to have a greater balance of power between individuals and companies (and the state) -- a challenge!
- Evolve/build upon commons and collective models