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# فناوری و اجتماع

# Technology and Society

# مبحث ششم: جامعه اطلاعاتی و دموکراسی

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# THE INFORMATION SOCIETY: INNOVATION, LEGITIMACY, ETHICS AND DEMOCRACY

*In honor of Professor Jacques Berleur s.j.*

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# *Foreword* (By: Chrisanthi Avgerou)

It is now widely accepted that, though initially heralded for its anarchic technical nature and its potential for breaking through economic conventions for unlimited access to information without authority constraints and at virtually zero cost, the internet needs to be 'governed'. But how much and what kind of government is appropriate for the techno-information infrastructure of the contemporary global world? What aspects need to be controlled or safeguarded? Domain names? Intellectual property rights? The circulated 'content'? Access to available sites? Who should have governing powers? Nation state governments, economic actors, civil society bodies, or a mix of all of them? What is the basis for the legitimacy of internet governing power for each of them? How should the governing body be appointed or elected, and who should they be accountable to?

# Johnson's Main Idea

Computer systems, like other technologies, are socio-technical systems; they are networks of artifacts together with social practices, social relationships, social institutions and values. Viewing computer systems in this way helps to understand, at a deep level, how democracy can be affected by, and can affect, the design of computer systems.

## محورهای اصلی مقاله جانسون:

- نقش متخصصان ICT در جامعهٔ اطلاعاتی
- معنای ساده و مبنای اخلاقی دموکراسی
- پیچیدگی ها و چالش دموکراسی در دنیای امروز
- توجه به سه آموزه مطالعات علم و فناوری در چالش دموکراسی و ICT
- راهکارها: نظامنامه اخلاقی ICT، آموزش متخصصان، آموزش شهروندان

(Johnson, p. 6)

# ICT Experts in an Information Society

In an information society, a large number of individuals are educated for, and employed in, roles involving the design, production, maintenance, buying and selling, and use of ICT. Information societies need and depend on the special knowledge and know-how of these ICT professionals/experts. ICT professionals can deploy their expertise recklessly or cautiously, use it for good or ill, and the organization of these individuals into professional associations is an important social means of managing that expertise in ways that serve human wellbeing. ICT professionals are key players in an information society. Information societies need ICT experts and professionals who understand the values of democracy and see the connections between their work and the democratic character of the world they create through their work.

(Johnson, pp. 6-7 )

# Democracy

Thomas Christiano, Associate Professor of ethics and political philosophy, University of Arizona

The simple idea can be expressed as something like – individuals should have a say in decisions that affect their lives. Christiano, for example, writes about democracy that "broadly speaking, it is a form of decision-making wherein many of the individuals bound or affected by a decision have the opportunity to play a roughly equal role at an essential stage in the making of the decision" (Christiano, 2001). Christiano goes on to identify participation, decision making, equality, and openness as key dimensions of democracy.

(Johnson, p. 7)

# Moral Foundation of Democracy

As an ethicist I understand the moral foundation of democracy to be connected to a Kantian conception of human beings as ends in themselves. The moral idea of democracy is that every human being is an end in him- or herself, worthy of respect and, hence, never to be used merely as a means to another's end. For Kant and many moral philosophers, the respect that is due to human beings is tied to their autonomy. When we treat human beings merely as means, we deny and violate their autonomy. Dictatorships and oligarchies are morally unacceptable forms of government precisely because they do not respect the autonomy of human beings (even if or when they claim to respect the value of human beings). Giving individuals a say in the governance of institutions that directly and indirectly shape their lives acknowledges the value of human beings as ends; it acknowledges their autonomy.

(Johnson, p. 7)

# Democracy: Simple & Complex !

The simplicity of the idea of democracy leads to its complexity, for the simple idea can be manifested in many different forms – at different places, in different times, with differing institutions, in different cultures. Democracy has been and continues to be interpreted and reinterpreted, invented and reinvented as the world changes, because of new technology, new ideas, new circumstances, and many other kinds of change.

The simple idea of democracy is not just amenable to interpretation and reinterpretation, it promotes it. Democracies vary in how they achieve participation, decision making, equality, and openness, and these very features of democracy promote variation; that is, when individuals participate in relatively equal roles, in open environments, new ideas and new forms of democracy are envisioned and created.

(Johnson, p. 7)

# The Challenge of Democracy

The challenge, of course, is to figure out how, when, where, and at what point individuals should participate, what institutions are best at achieving participation, equality, openness and decision making. The challenge today is figuring out how to achieve democracy *given the complexities of modern life and the increasing interdependence of individuals within nations and across nations.*

The challenge of democracy today is the challenge of interpreting and reinventing the simple idea in the context of a global world, a global world in which regional and national economies and politics are intensely interdependent, a world in which individual and collective behavior in one place can fairly dramatically and quickly affect individuals and nation states in other places, near and far.

The challenge of reinventing democracy today is the challenge of reinventing democracy in a world that is constituted by ICT. ICT is the infrastructure, the platform, the body, if you will, of the global world in which democracy must now be realized.

(Johnson, p. 8)

# Three Lessons of STS for the Challenge

Recent work in science and technology studies (STS) cautions against three mistakes that are often made in thinking about technology. These mistakes are important to avoid in discussing democracy, governance and ICT. The first mistake is that of presuming technological determinism; the second is the mistake of thinking that technology is merely physical objects or artifacts; and the third is the mistake of thinking that technology is neutral.

(Johnson, p. 9)

# 1. No Determinism … Co-shaping

The lesson here is that technology is not autonomous; it is not the way it is because that is the only way it can be; it is shaped by social forces and can be reshaped to fit the values and institutions we desire. So it is with ICT and the information society, we should not presume that ICT is the logical outcome of nature's bounty and we should not presume that ICT determines the information society, as if information societies are simply the byproduct of ICT. Information societies have developed as they have in part because of ICT but ICT, itself, is, in part at least, a product of the character of the societies that produced it. We can change the information society in part by changing ICT and we can change ICT by changing our societies. The two move in lockstep.

(Johnson, pp. 9-10 )

# 2. Unit of Analysis: Sociotechnical System

STS scholars argue that technology *is* and should be understood to be the combination of artifacts, social practices, social arrangements, and systems of knowledge or know-how. The combination is sometimes referred to as *sociotechnical ensembles* (Bijker, 1994) or *sociotechnical systems* (Hughes, 1994) or *networks* (Law, 1987). An artifact becomes a 'something' and it becomes functional through the social meaning and social practices around it. Artifacts cannot exist, cannot be used, and cannot have effects without social practices, social organization, relationships or arrangements. Likewise, many social organizations or practices could not exist *as they do* without artifacts.

(Johnson, p. 10 )

# ICANN:
# Internet Corporation for Assigned Names and Numbers

The hardware, software and telecommunication connections would not exist were it not for a wide variety of social institutions, political and economic arrangements, and social relationships, all of which were necessary to bring about the Internet, and continue to be essential to maintaining it. Think here of such institutions as the companies that design, produce, and market hardware and software, and the corporations and public agencies that make use of the Internet and call upon countless individuals to use it. Think of all of the regulatory or quasi-regulatory agencies such as ICANN that assure that the Internet works. Moreover, consider that users are not born knowing how to use computers and software, they have to learn how to use computers; there have to be incentives to learn and use ICT, and so on.

(Johnson, p. 10)

# ICT and Democracy as Sociotechnical Systems

In thinking about ICT and democracy, the connections between the two are hardly visible when we think of technology and ICT as merely physical objects or artifacts. Viewing ICTs as sociotechnical systems allows us to ask a whole host of questions about the democratic character of the social practices, social relationships, and social institutions that, with hardware and software, constitute ICT. This view of ICT compels us to ask questions we would not have thought to ask otherwise. Likewise, we must think of democracies as sociotechnical systems – combinations of social institutions and artifacts such as buildings, voting machines, maps, web sites, and so on. The shift in unit of analysis to sociotechnical systems reframes and helps us to see the links between ICT and democracy.

(Johnson, p. 11)

# 3. Not Neutral … Infused with Value /Winner

In STS, the seminal piece on values and design is Langdon Winner's 1986 piece "Do artifacts have politics?" Winner identifies the relationship between technology and systems of power and authority. His account implicitly acknowledges the point made in the preceding section, that technology is sociotechnical systems. Winner argues that particular artifacts cannot exist (function) without particular kinds of social arrangements. He argues that adoption of a particular technology means adoption of a particular social order, e.g., nuclear power necessitates a complex, hierarchical system of decision making, windmills require a more decentralized form of authority. Winner also illustrates how artifacts can enforce social biases and agendas.

(Johnson, p. 11)

# Different Designs … Different Social Orders / Lessig

More familiar to those who study ICT will be Lawrence Lessig's claim that architecture – the architecture of computer systems and the Internet – is a form of regulation (1999). Lessig identifies four different ways that social behavior is regulated: law, social norms, markets, and architecture. Lessig illustrates how different computer architectures create different social-political orders.

(Johnson, p. 11)

# Influencer … Not Determinative

Of course, we must be careful here, for Winner and Lessig can be read in a way that slips us back into a version of technological determinism; that is, they both seem to be telling us that technology determines our behavior. Hence, it is important to remember that the problem with technological determinism is not that it is wrong about technology influencing social behavior, social arrangements, and social institutions. Technology does have such influence. The mistake of technological determinism is believing that the technology is the way it has to be and believing that technology cannot be shaped and reshaped to be otherwise. When architecture regulates behavior, behavior is being indirectly regulated by those who designed the technology. Decisions are made about the features of technology and believing in technological determinism hides the systems of power and authority that produced and shaped the technology.

(Johnson, p. 12)

# Summary of Three Lessons …

3. To achieve democracy in a world constituted by ICT, ICT has to be designed for democracy; its design and the social practices that constitute it must embody democratic values.

The lessons from the literature of science and technology studies point to the importance of the design of ICT – design of its artifactual and social components – for reproducing the principles of democracy. And, of course avoiding 'technological determinism' is crucial to avoiding the ideology of 'fatality and the destiny of technology.' Technological determinism must be expunged from our thinking if we are to realize democratic values in constituting information societies.

(Johnson, p. 13)

# Technological Choices are Social Choices / Codes of Ethics

Our choices about technology (ICT) are choices about the kind of society in which we want to live.

Now, while there are many directions in which we might go from here, I want to conclude by briefly discussing two implications of acknowledging that technological choices are social choices. First, IT experts are implicitly making social and political choices when they design and produce ICT; hence, how ICT experts are educated is critically important. And, second, given that technological choices are social choices, how citizens are educated about technology is also critically important.

Recognition of the importance of trust in ICT professionals points directly to the importance of professionalism, and typically this takes us to codes of ethics for the professions of ICT.

(Johnson, p. 14)

# Education of ICT Professionals

Thus, when it comes to the education of ICT professionals, it seems critically important that they understand the full significance of their work. ICT professionals should be educated in ways that compel them to see that it is as important for them to understand social, political, economic and value issues as to understand computer science, mathematics and physics. ICT experts of the future should be sociotechnical analysts.1 They should be capable of thinking about the values that are infused in hardware and software, and the social practices and social relationships that come with the hardware and software.

(Johnson, p. 14)

# Educating Citizens

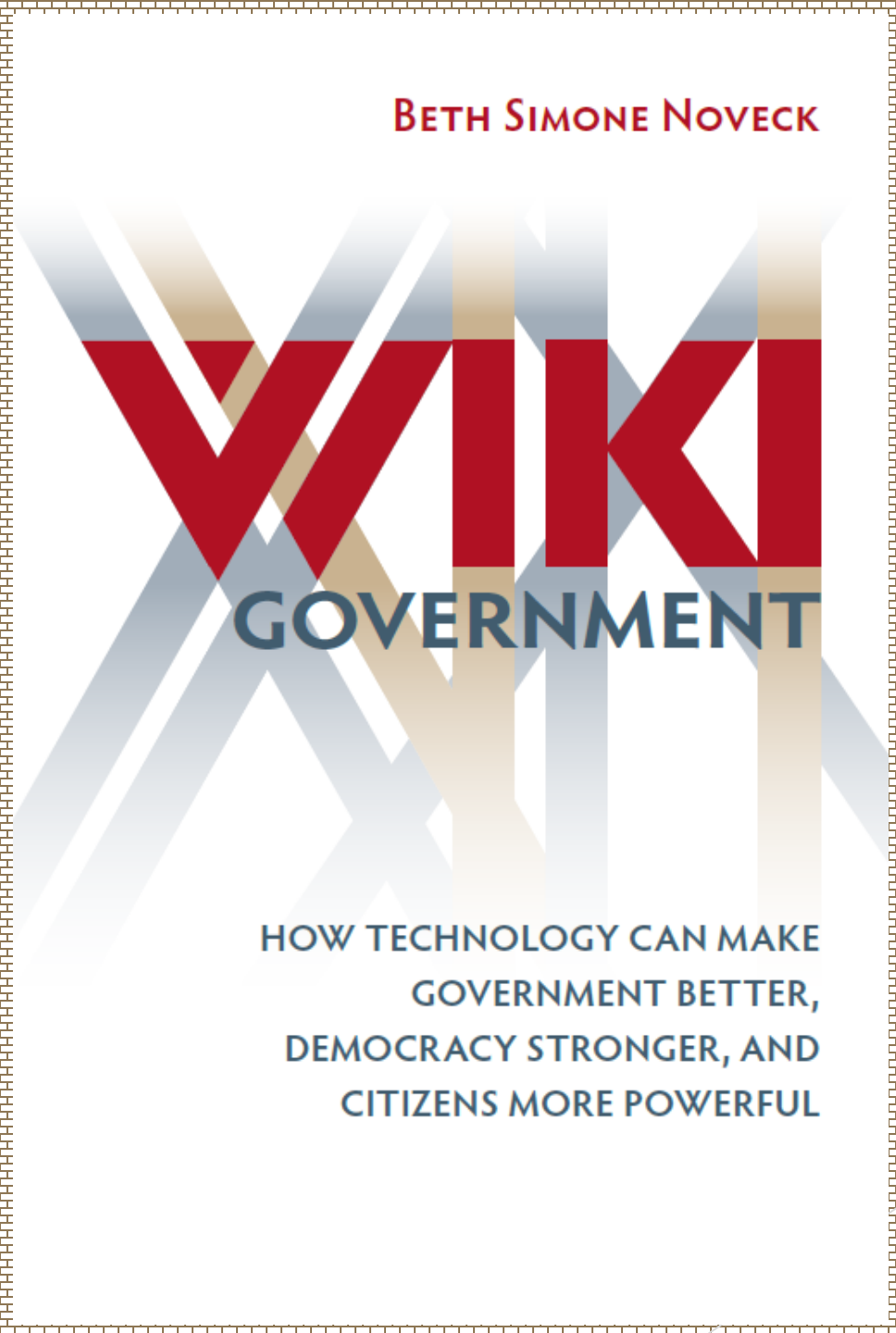
In many ways the challenge of figuring out how individuals should be educated for citizenship in information democracies is more daunting than figuring out the appropriate education of ICT professionals. The easy part is to say that like ICT professionals, citizens should be given the kind of education that helps them to see the intertwining of technological, social, political, and cultural choices. The easy part is seeing how important it is to do this. The hard part is figuring out how to do it.

(Johnson, p. 14)

# Citizens, ICT and Democracy

This takes us back to the simple idea of democracy, the idea that individuals should have a say in decisions that affect their lives. If the preceding analysis is accurate, then citizens should have some say at an essential stage in many technological choices. Some, of course, will argue that citizens already do have such a say, through the market. This, I would argue, is only true of certain kinds of products, but in any case, my concern here is not so much with how citizens have a role in decision making but rather with the prior issue of *what sort of education will facilitate their participation in technological decision making.*

We can't expect citizens to understand technology in the way that experts do. On the other hand, they have to understand enough to participate in meaningful dialogue. Thus, a major challenge for information societies is figuring out this balance.


BETH SIMONE NOVECK
WIKI
GOVERNMENT
HOW TECHNOLOGY CAN MAKE
GOVERNMENT BETTER,
DEMOCRACY STRONGER, AND
CITIZENS MORE POWERFUL

# United States Patent and Trademark Office (USPTO) (Wiki Government, p.13)

In June 2008 the USPTO extended the pilot for a second year and expanded the subject matter of Peer-to-Patent from computer software to include so-called business methods, or patent applications pertaining broadly to methods and processes for doing business (such as the one-click shopping cart). Support for this experiment in collaborative governance also came from outside the Peer-to-Patent community. Among many media mentions, the head of the Ewing Marion Kauffman Foundation, Carl Shramm, and its vice president for research and policy, Bob Litan, also wrote in *The American* that, "assuming this experiment proves to be as promising as it sounds, the next president should urge the PTO to adopt and Congress to accept this new way of assessing patents much more broadly."[28] Jonathan Schwartz, CEO of Sun Microsystems, named Peer-to-Patent one of the "leading institutions promoting . . . patent reform."[29] In his campaign's technology platform, President Barack Obama called for incorporating Peer-to-Patent into USPTO's regular procedure.[30] The U.S. Chamber of Commerce endorsed the adoption of Peer-to-Patent.[31]

# Policy Wikis
# (Wiki Government, p.150)

To take this process one step further, consider the potential of collaborative editing technologies, known as wikis (of which Wikipedia is the most famous example). These technologies make it possible for a distributed team of individuals to craft a document together. An online group could not only consult about the science involved in setting an air quality standard, but it could also help the EPA draft the air quality criteria document. Rather than invite participants to comment on an already drafted document or regulation after the fact, the agency could tap public expertise earlier in the process and give it more scope. Again, such experiments should eschew traditional closed-door practices in favor of new technologically enabled ways of working that allow people to self-select as participants on the basis of expertise and enthusiasm. As in Peer-to-Patent, such a process need not cede agency responsibility to the public but could significantly augment its access to good scientific research.