

IS10 Information & Power

UCLA Fall 2016

11/21/16



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Diana L. Ascher

Agenda

- Housekeeping
- Recap
- Revisiting Week 8
- Blockchain presentation & discussion with Jeff Shelton of Gem



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Housekeeping

- Capstone presentation
 - 20 minutes each
 - Class will begin at 6:15pm on December 6
 - Group file must be submitted by 5pm on December 6!
- Students have until 8:00 AM Saturday, December 3, to complete course evaluations for INF STD 10 through MyUCLA



Thinking about the gig economy

“[.]”

~ *Nietzsche*



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Revisiting Week 8

- Winner: Certain technologies are political by nature
 - Democratic or autocratic
 - Regardless of intent
 - Concrete social consequences that can be qualified in political terms



Ellsberg and the Pentagon Papers

- Security v. right to know
- How did he do it?
- What was the reaction
 - ▣ Of government?
 - ▣ Of public?
- What was learned?



Smith & Zittrain on privacy, fear, trust

- Which laws apply to online activities?
- Government surveillance
 - ▣ individuals increasingly seek assurances of protection from government overreach
 - ▣ Governments want to ensure unfettered access to information to enforce their laws
- Role of law in protecting our rights in the physical world online
- Complementary roles of law and technology in achieving this protection
- Need for governments to come together to eliminate conflicting laws



Trust in Retrospect

2015

TRUST is essential to INNOVATION

2014

Business to lead the debate for change

2013

Crisis of leadership

2012

Fall of government

2011

Rise of authority figures

2010

Trust is now an essential line of business

2009

Business must partner with government to regain trust

2008

Young influencers have more trust in business

2007

Business more trusted than government and media

2006

“A person like me” emerges as credible spokesperson

2005

Trust shifts from “authorities” to peers

2004

U.S. Companies in Europe suffer trust discount

2003

Earned media more credible than advertising

2002

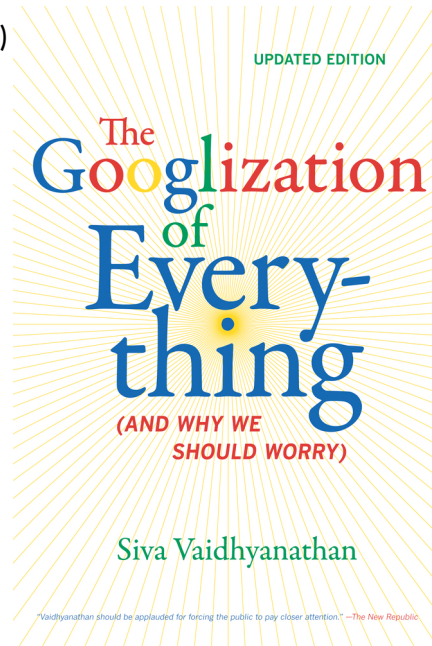
Fall of the celebrity CEO

2001

Rising influence of NGOs

Vaidhyathan on the Googlization of everything

- <https://youtu.be/AwLwaB7pJC4> (long)
- <https://youtu.be/mglOJthxbLk> (short)



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Noble & Roberts on control

- Why does Google Glass engender emotion?
- Types of user & bystander data
 - ▣ Biological
 - ▣ Psychological
 - ▣ Emotional
- Wearable technology implications
 - ▣ Occupying
 - ▣ Commodifying
 - ▣ Profiting



Noble & Roberts: Google Glass design flaw

- What is the flaw?
- How does this flaw manifest?
 - ▣ Privileges an imaginary of Whiteness
 - ▣ Facilitates exploration/intrusion into physical & emotional space of others



Metaphor

- Google Glass wearers as Explorers

- ▣ Marketing narrative
- ▣ Colonial narrative

- Signals

- ▣ “[P]ower, Whiteness, and class elitism are core values in the Google Glass design imaginary.” (Noble & Roberts, 2016)



Metaphor

- How does the Explorer notion affect reactions to Google Glass in Silicon Valley?
- How have critics & media characterized concerns?
 - ▣ GG as “an important site of the fight to resist...hypersurveillance and privacy concerns” (Noble & Roberts, 2016)

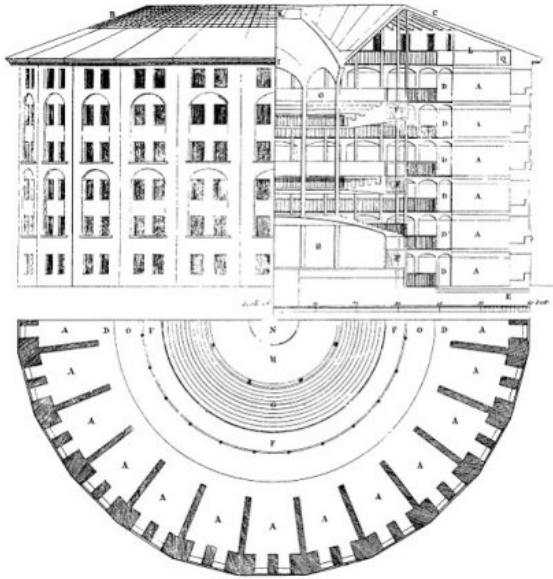


New York Times, 2013



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Another metaphor: Panopticon



... the Panopticon must not be understood as a dream building: it is the diagram of a mechanism of power reduced to its ideal form.

Michel Foucault, *Discipline and Punish*, 1977



Google Glass as panoptic tool

- Panoptic power
 - Represses emotional expression
 - Has implications for race, class, and gender
 - “Those who are more likely imprisoned and victimized by the gaze of surveillance technologies are poor, often people of color, and women, and never is this more evident than in the ways that digital observations of ‘the other’ are deployed in contemporary United States” (Noble & Roberts, 2016)



Glassholes & corporate interests

- Uncertainty about motives
- Lack of control
- Right to anonymity
- Content moderation
- Google as public good
 - ▣ Nothing to hide?



**Google Glass Is Banned
On These Premises**

stopthecyborgs.org © 0 0 0 0



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Glassholes & corporate interests

- Normalization of mass surveillance
 - ▣ Socialization of panoptic behavior
 - ▣ Remember Schiller?
 - Shift in power and control from state to private actors
 - Particularly over control and dissemination of communication and information
 - Lack of transparency and accountability under new privatized paradigms, with government protections



Thinking about the gig economy

“What is needed is an electronic payment system based on cryptographic proof instead of trust, allowing any two willing parties to transact directly with each other without the need for a trusted third party.”

~ *Satoshi Nakamoto*



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Gig economy

- Bartlett on dark net
- BBC on blockchain
- Snowden on Trump
- Snowden excerpt
- 5-minute bitcoin



Andreessen on Bitcoin

t over

via Paypal
or donate Bitcoins

1KuMH2zjty3CHnJ5JrjdGag4FvtyQiwMnT



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Andreessen on Bitcoin

- Digital ownership of physical assets
- Distributed network of trust
- Value derives from:
 - Current use
 - Speculation on future use
- Antifraud properties



Andreessen on Bitcoin

- To spend a Bitcoin, you need to know
 - ▣ Some information from the public blockchain
 - ▣ The owner's secret signing key
- So it's all about **key management**



Bitcoin benefits

- Availability
- Security
- Convenience



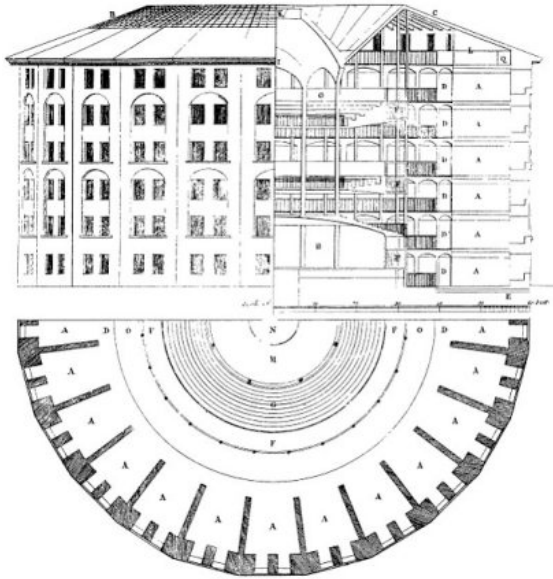
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Bitcoin benefits

- Why don't we all use Bitcoin?
 - Digital ownership of physical assets
 - Distributed network of trust



Blockchain as Panopticon



... the Panopticon must not be understood as a dream building: it is the diagram of a mechanism of power reduced to its ideal form.

Michel Foucault, *Discipline and Punish*, 1977



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Data endurance



Permissioned v. permissionless blockchains

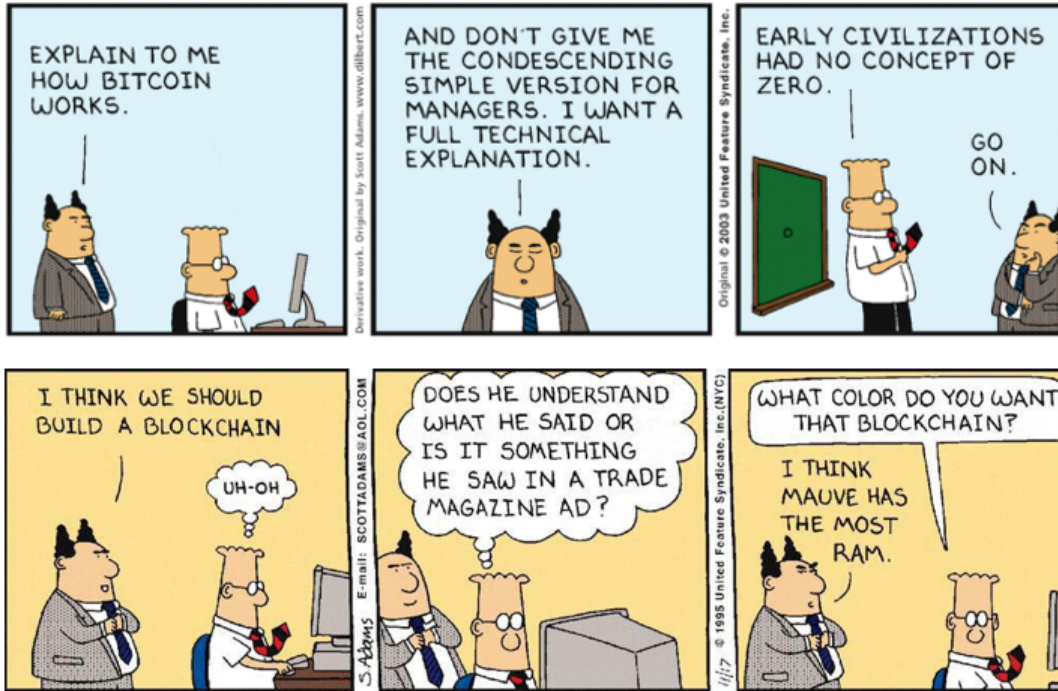


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Social implications



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Derivative work from Jack Gavigan (top) and Ken Tindell (bottom). Original from Scott Adams at Dilbert.com



Blockchain

- ❑ Neither the term “block chain” nor “blockchain” were used in the original Satoshi whitepaper
- ❑ Many projects, both permissioned and permissionless, use the following tech pieces:
 - Public key cryptography
 - Cryptographic signatures
 - Cryptographic hash functions
 - Hash tree
 - Cryptographic time-stamps
 - Resilient peer-to-peer networks



Each is targeting different use-cases

- ❑ Syndicated loans
 - ❑ Trade finance
 - ❑ Supply chain provenance
 - ❑ US Treasury repo
 - ❑ Clearing / settling OTC derivatives and FX
 - ❑ Cross-border payments
 - ❑ Identity / data authentication
 - ❑ Private stock / equity issuance
-
- ❑ **Commonality:** participants in these networks – including the validators themselves – are known (via KYC or KYB) and have legal or contractual obligations with other participants



What attracts or repels use-cases?

- Folk law: “Anything that needs censorship-resistance will gravitate towards censorship-resistant systems.”
- Sams' law: “Anything that doesn't need censorship-resistance will gravitate towards non censorship-resistant systems.”
- Banks are currently focused on: fulfilling compliance requirements, reducing cost (centers), downscaling branching and implementing digital channels. None of this requires censorship-resistance.

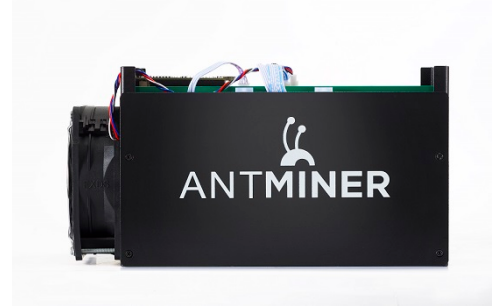


Terms of service

- No recourse in the event of a block reversal or censored transaction
 - On April 25, 2015, a BitGo user, due to a software glitch, accidentally sent 85 BTC as a mining fee to AntPool (Bitmain's pool operated in China)
 - To resolve this problem, the user spent several days publicly conversing with tech support (and the community) on Reddit.
 - Eventually the glitch was fixed and AntPool – to be viewed as a “good member of the community” yet defeating the purpose of a proof-of-work blockchain – sent the user back 85 BTC
 - Why bother with pseudonymity?



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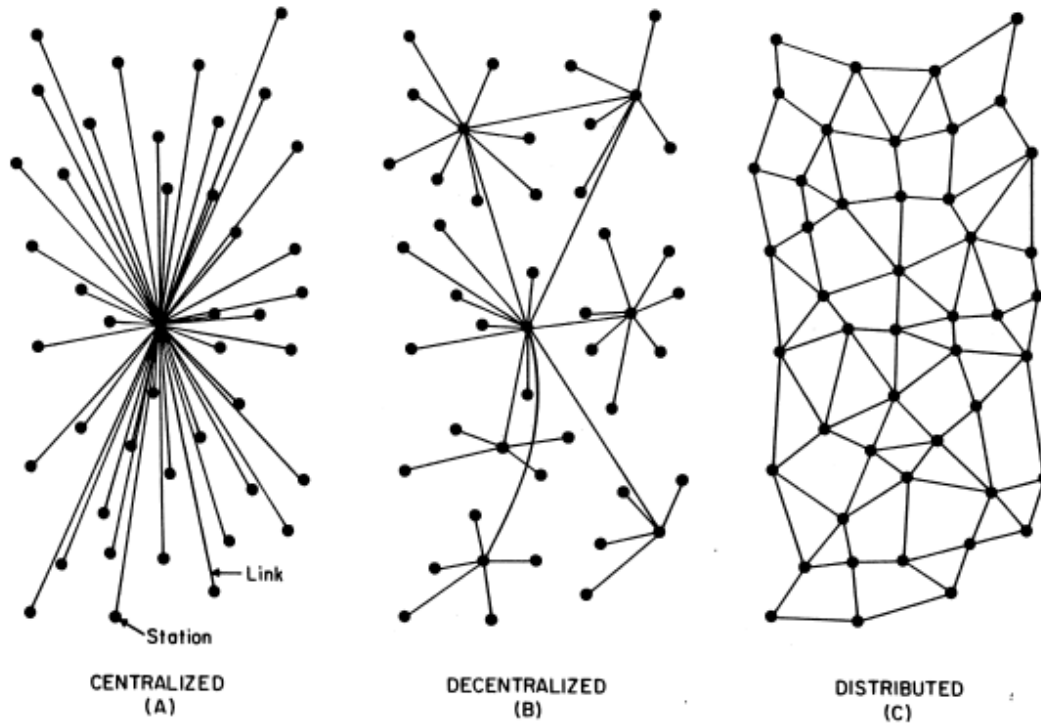


FIG. 1 – Centralized, Decentralized and Distributed Networks



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Anatomy of a Bitcoin transaction

- Alice holds 1 BTC in a virtual wallet with an associated public key and private key
- Alice wants to send the BTC to Bob, who also has a wallet
- Bob sends his Bitcoin wallet address/public key to Alice
- Alice creates a transaction message with Bob's address and the transaction amount
- Alice signs the transaction with her private key, and announces her public key for signature verification
- Alice broadcasts the transaction on the Bitcoin network for all to see.
- The transaction is verified by the Bitcoin network through cryptographic work of miners.

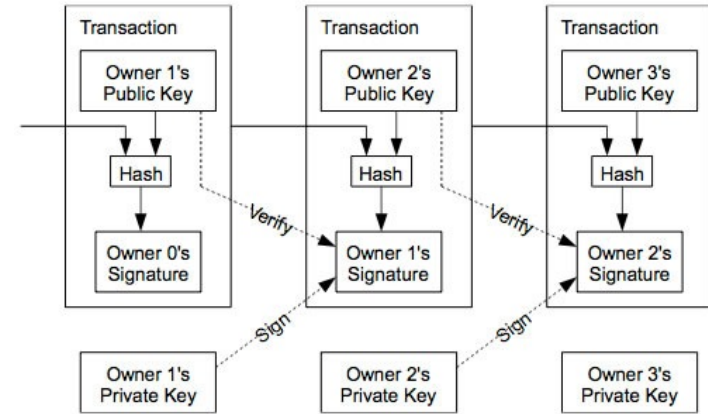


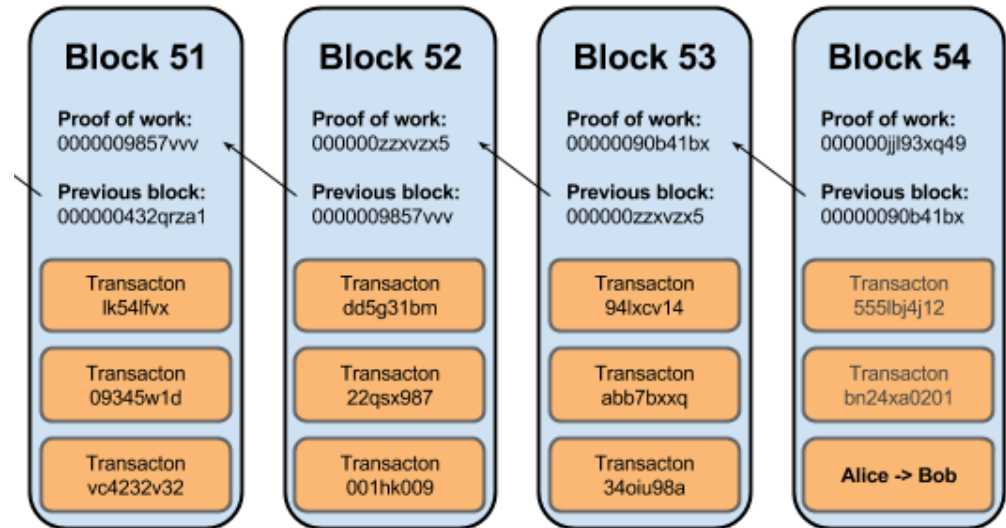
Diagram of a Bitcoin

from *Bitcoin: A Peer-to-Peer Electronic Cash System*, published in 2008 by "Satoshi Nakamoto".



Blockchain

- Decentralized public ledger
- Records issuance and transfer of digital tokens



Other Distributable Ledgers

- Title recording systems
 - ▣ Real estate
 - ▣ Motor vehicles
- Notarized transactions
- Stock transfer ledgers
- Secured transactions



“Code is law.”

~ Lawrence Lessig



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Smart Contracts

- Self-enforcing contracts—from sports bets to derivatives
- Escrows
 - ▣ Crowdfunding
- Smart stock
- “Trustless” letters of credit
- Proof of existence
- Unbreakable contracts?

