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Smart cities and surveillance



Adam Schwartz
EFF Senior Attorney
adam@eff.org

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ELECTRONIC FRONTIER FOUNDATION

EFF



What are smart cities?

White House fact sheet 9/14/15:

“Smart cities” are “communities that are building an *infrastructure* to *continuously* improve the *collection, aggregation, and use of data* to improve the life of their residents – by harnessing the growing data revolution, *low-cost sensors*, and research collaborations, and doing so securely to protect safety and privacy.”

What is surveillance?

Santa Clara Co. Surveillance Tech. Ordinance:

“Surveillance technology” means

- “*any electronic device*, system using an electronic device, or similar technological tool
- “used, designed, or primarily intended to *collect*, retain, process, or share
- “*audio*, electronic, *visual*, *location*, thermal, olfactory or similar *information*
- “*specifically associated with, or capable of being associated with, any individual or group.*

Smart cities

become

surveillance

when

(1) technology in public places

(2) gathers information
about identifiable people

Chicago's "array of things"



Chicago's "array of things"

Brenna Berman, Chicago Dept. of Innovation:

- “Depending on the speed of the car, would we be able to make out *make and model*? Maybe.
- “Would we be able to make out a license *plate* number? Possibly.
- “Could someone identify it was *you walking by*? Maybe.
- “Could we identify that it was *a petite, brunette female*? Yes.”

Source: Chi. Trib. 6/10/16

My bike share data

Completed trips

Start	End	Duration	Billed	Bike Angels
01/28/2019 2:40:58 PM Golden Gate Ave at Polk St	01/28/2019 2:52:47 PM San Francisco Caltrain Station 2 (Townsend St at 4th St)	11 min 49 s	\$0.00	0 points
01/28/2019 8:58:57 AM San Francisco Caltrain (Townsend St at 4th St)	01/28/2019 9:12:21 AM Golden Gate Ave at Polk St	13 min 24 s	\$0.00	0 points
01/25/2019 5:14:24 PM Golden Gate Ave at Polk St	01/25/2019 5:28:51 PM San Francisco Caltrain Station 2 (Townsend St at 4th St)	14 min 27 s	\$0.00	0 points

De-anonymization

Robust De-anonymization of Large Datasets (How to Break Anonymity of the Netflix Prize Dataset)

Arvind Narayanan and Vitaly Shmatikov

The University of Texas at Austin

February 5, 2008

Data risk: Breach

- U.S. Office of Personnel Management
 - 2015: 21 million job applicants

<https://www.opm.gov/cybersecurity/cybersecurity-incidents/>

- Equifax
 - 2017: 140 million credit report subjects

<https://www.consumer.ftc.gov/blog/2017/09/equifax-data-breach-what-do>

- Ashley Madison
 - 2015: 37 million customers

<https://www.nytimes.com/2015/08/20/technology/the-ashley-madison-data-dump-explained.html>

Data risk: Misuse

- National Security Agency
 - 2013: “LOVE-INT”
http://www.slate.com/blogs/future_tense/2013/09/27/loveint_how_nsa_spies_snooped_on_girlfriends_lovers_and_first_dates.html
- Police record systems
 - 2016 in California: 159 misuse investigations
<https://www.eff.org/deeplinks/2017/05/california-authorities-still-ignoring-rising-abuse-police-databases>
 - 2012 in Minnesota: half of officers misuse
<https://www.twincities.com/2016/09/28/audit-half-of-minn-law-enforcement-users-made-questionable-database-searches/>

Data risk: Mission creep



1942: U.S. Census Bureau shared addresses with U.S. military

ICE harvests data from state and local government

- **Fingerprints** – to FBI, then ICE

8 U.S.C. 1722 (interoperable federal databases)

- **ALPRs** – to vendors, then ICE

<https://www.dhs.gov/publication/dhs-ice-pia-039-acquisition-and-use-license-plate-reader-data-commercial-service>

- **Public data (e.g., car registry)** – to vendors, then ICE

<https://www.dailydot.com/layer8/ice-outsource-data-collection/>

- **Fusion centers** – straight to ICE

<https://www.npr.org/sections/codeswitch/2017/05/12/479070535/where-ice-already-has-direct-lines-to-law-enforcement-databases-with-immigrant-d>

- **Police task forces** – straight to ICE

<https://theintercept.com/2017/06/16/how-sanctuary-cities-can-protect-undocumented-immigrants-from-ice-data-mining/>

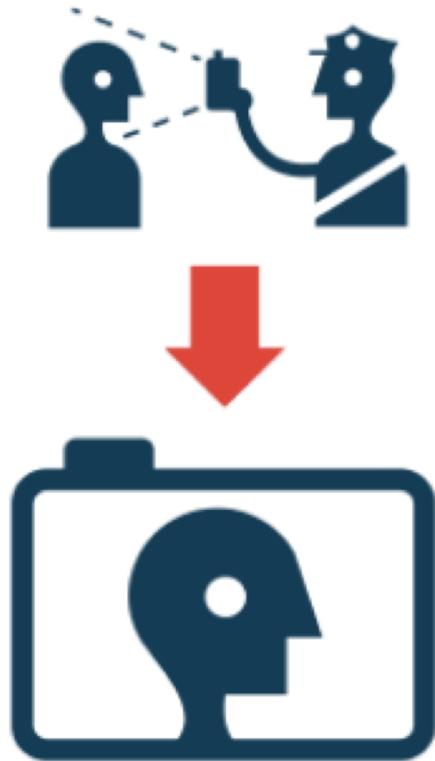
How ICE uses data



Street-level surveillance



Face Surveillance



Surveillance chills speech

Law

- “Deterrent effect.” *Lamont v. Postmaster* (1965)

381 US. 301

Empirical research

- Stoycheff, “Facebook’s spiral of silence effects in the wake of NSA Internet monitoring” (2016)

<https://journals.sagepub.com/doi/pdf/10.1177/1077699016630255>

- Penney, “Online surveillance and Wikipedia use” (2016)

<https://scholarship.law.berkeley.edu/btj/vol31/iss1/5/>

The color of surveillance

Spying on advocates – e.g., Black Lives Matter

- Automated social media monitoring

<https://www.theguardian.com/technology/2016/oct/11/aclu-gcofedia-facebook-twitter-instagram-black-lives-matter>

- Phony social media accounts

https://www.washingtonpost.com/news/morning-mix/wp/2018/08/23/memphis-police-used-fake-facebook-account-to-monitor-black-lives-matter-trial-reveals/?utm_term=.13db56fe4bb8

Criminalizing neighborhoods

- Watch lists – over-inclusive and error-riddled

<https://www.eff.org/deeplinks/2017/04/next-steps-toward-reforming-californias-unfair-gang-databases>

- Cameras – over-deployment

<https://www.eff.org/deeplinks/2015/01/what-we-learned-oakland-raw-alpr-data>

Artificial intelligence - amplifying bias

<https://www.newscientist.com/article/2166207-discriminating-algorithms-5-times-ai-showed-prejudice/>

Problems, in review

- Data breach, misuse, mission creep
- Privacy invasion
- Immigration enforcement
- Racial disparity
- Speech chilled

Solutions

- Democratic control
- Privacy by design
- Privacy safeguards
- Privacy officers

Democratic control

- City council decides:
 - *Whether to adopt at all!*
 - If so, limits and safeguards
- Public has notice and comment
- Annual reporting

Democratic control

Adopted in Bay Area:

- BART
- Berkeley
- Davis
- Oakland
- Palo Alto
- Santa Clara County

Adopted elsewhere:

- Cambridge, MA
- Sommerville, MA
- Nashville, TN
- Seattle, WA

Privacy by design

- Vendors and city continuously collaborate to build privacy safeguards into smart city tech.
- *Not:* bolt privacy safeguards onto completed tools.

Privacy safeguards

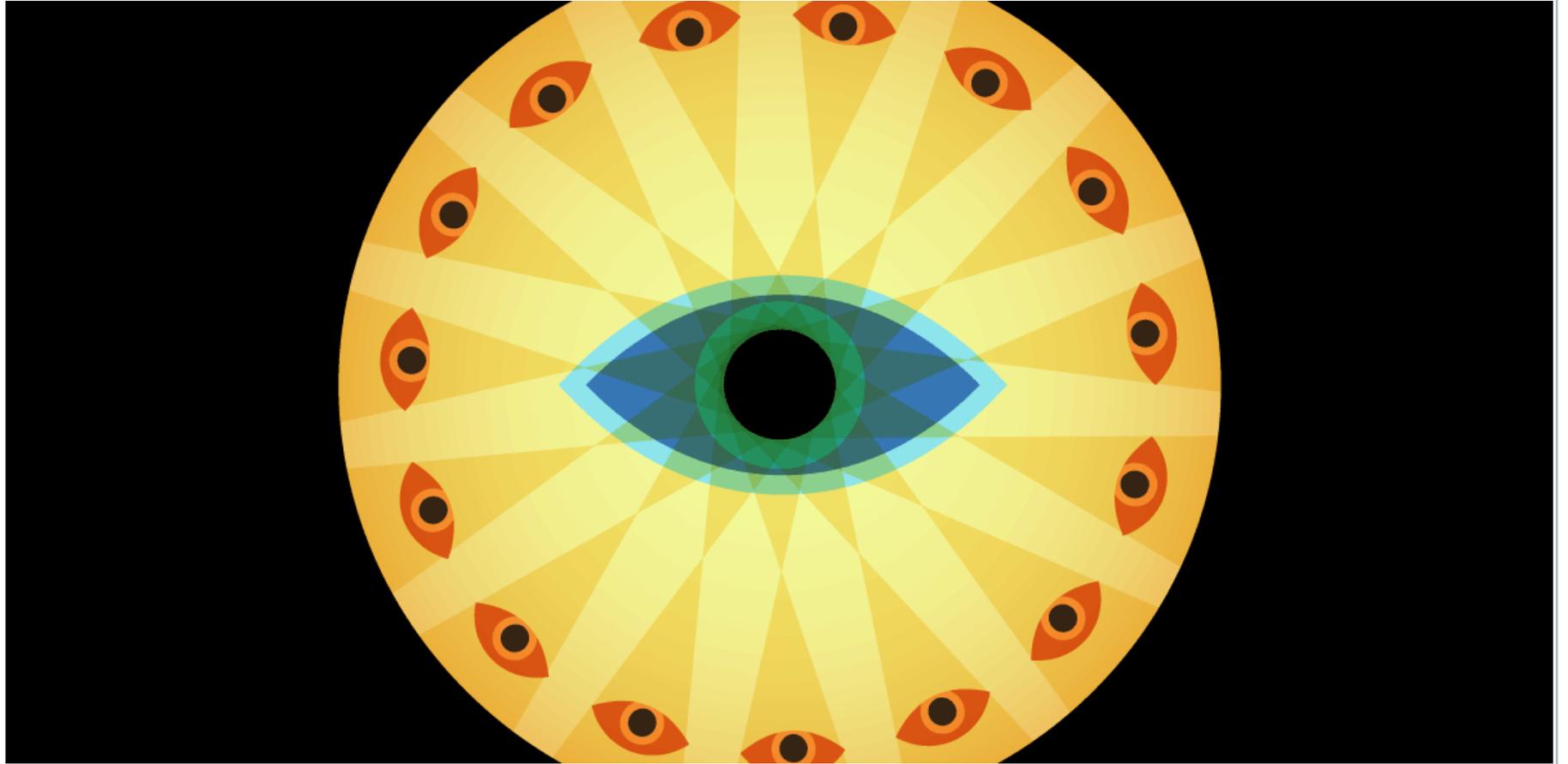
Lifecycle of personal information

- Collection
- Secure storage
- Use
- Sharing
- Destruction

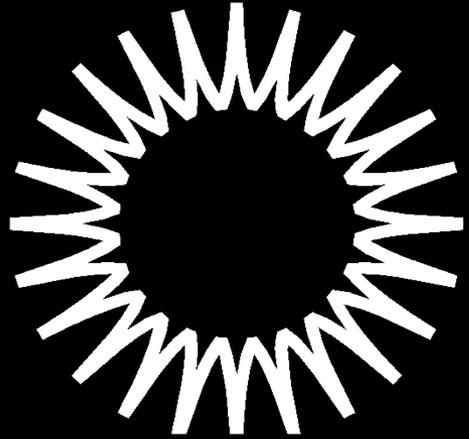
City privacy officer

Expertise in:

- Technology
- Law
- Policy







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