Smart Cities and IOT
with opportunity comes risk
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Note: opinions expressed are my own – this presentation is not on behalf of Dell Technologies or any affiliate.
Smart Cities aka the Internet of Things

fostering collection of data related to many aspects of commerce, health, environment, and transportation.

- Energy
- Transportation
- Water
- Public Safety
- Buildings
  - Gov + Commercial
  - Homes
  - Data Centers
- Weather Conditions
tiny devices aren’t going to hold data for long. The devices will forward data to Internet connected data centers.

Ultimately this will drive demand for cloud hosted analytics that can access pools of this data with low latency, using results to influence and control many aspects of society.
What will this data be used for?

ADVANTAGES OF SMART CITY

PRODUCTION  CONTROL  UTILITY  SERVICES  TRANSIT  PUBLIC SAFETY
IOT = the central nervous system for society
THE PHYSICAL IMPACT OF A SEVERED SPINAL CORD
Why should anything go wrong?
transit, public safety utilities = control small details
... what is the big picture? – the aerial view

LOS ANGELES OPEN DATA

Information, Insights, and Analysis from the City of Los Angeles

A Message from Mayor Eric Garcetti

We are sharing city data with the public to increase transparency, accountability and customer service and to empower companies, individuals and non-profit organizations with the ability to harness a vast array of useful information to improve life in our city. I hope that this data will help drive innovation and problem solving within the public and private sectors and that Angelenos will use it to more deeply understand and engage with their city. I encourage you to explore data.lacity.org to conduct research, develop apps or simply to poke around.

https://data.lacity.org/
This could be useful... monitor government operations - measure effectiveness

http://dashboard.lamayor.org/
precedent for this open availability of data
Boston Public Library

THE COMMONWEALTH REQUIRES THE EDUCATION OF THE PEOPLE AS THE SAFEGUARD OF ORDER AND LIBERTY
another control loop
Free and Open access to trustworthy data
Could something like this ever happen?

wikiHow to do anything...

wikiHow to Change a Bad Report Card

Three Methods:
- Studying to Improve Your Grades
- Altering Your Report Card Using a Photocopyer
- Editing Your Report Card on the Computer  Community Q&A

Your teacher just handed back your report card for the term, and there are a few grades there you’re less than excited to see. You now have two choices: take the report card is, and face the disappointment of your parents, or fool them into thinking that you’ve d
Exhibit A:
... it’s happened before

The hero doctor

In the pediatric ward of Flint’s Hurley Medical Center, Dr. Mona Hanna-Attisha was seeing more and more worried parents fretting over rashes and hair loss.

No one believed state and local officials when they said that this icky brown water was safe.

Hanna-Attisha, an animated and passionate young pediatrician with horn-rimmed glasses who everyone calls Dr. Mona, realized there was a way to determine whether the water was affecting kids. Medicare requires states to keep records of blood lead levels in toddlers. The comparison was astonishing. Lead levels doubled and even tripled in some cases.

“When (my research team and I) saw that it was getting into children and when we knew the consequences, that’s when I think we began not to sleep,” Hanna-Attisha said.

At first, the state publicly denounced her work, saying she was causing near hysteria. They spent a week attacking her before reversing their narrative and admitting she was right.
Exhibit B: Distrust in “Authority”

After Fukushima: Crowd-Sourcing Initiative Sets Radiation Data Free

Internet entrepreneurs have created a global sensor network for collecting and sharing radiation measurements to empower people with data about their environments.

MARCH 04, 2014

It's nearly three years since the massive Tohoku Earthquake and ensuing tsunami devastated the east coast of Honshu, Japan, triggering the catastrophic Fukushima Daiichi nuclear disaster. Sean Bonner remembers it well. As news of the March 11, 2011 disaster spread, the Internet entrepreneur and hacking enthusiast began an e-mail thread with friends and colleagues around the world—including Joi Ito and Pieter Franken.

With the safety of family and friends confirmed, another concern arose: How high were radiation levels coming out of the stricken nuclear plant?

To their amazement, this potentially life-saving data simply was not available. Bonner says the Japanese federal government gave out broad-brush averages that were useless—a single reading for an entire city, for instance.

"That's akin to a weather forecaster giving out a single temperature for the whole of California," says Bonner, who shuttles between his home base of Los Angeles and Tokyo. "Radiation readings are vastly more nuanced than...

Related Media

Sean Bonner of SAFECAST shows the Geiger counters that collect radiation data.

Mobile devices can show radiation amounts down to neighborhood and street level.

THE TIMES
Child cancers up fiftyfold after Fukushima disaster

AP
Study shows alarming thyroid cancer rates in children living near Fukushima

UPI
A team of Japanese researchers... said cases of thyroid cancer in Fukushima Prefecture have skyrocketed
Summary: people have motives to tamper inside and out
Let’s assume powerful parties have bad motive.
Can evil still be prevented?

3 essential elements of crime

Motive

Means

Opportunity
Historical precedent: failures + attacks

Redundancy
Creative accounting is an absolute curse to a civilization. One could argue that double-entry bookkeeping was one of history's great advances.

Charlie Munger
The cash register was one of the great contributions to civilization. It’s a wonderful story. Patterson was a small retail merchant who didn’t make any money. One day, somebody sold him a crude cash register which he put into his retail operation. And it instantly changed from losing money to earning a profit because it made it so much harder for the employees to steal.

… Charlie Munger
precedent: dual communication channels
a distributed database that maintains a continuously growing list of data records that are hardened against tampering and revision, even by operators of the data store’s nodes.
How a blockchain transaction works

1. A and B wish to conduct an 'interaction' or 'transaction'.
2. Cryptographic keys are assigned to the interaction that both A and B hold.
3. The interaction is broadcast and verified by a distributed network.
4. Once validated, a new block is created.
5. This block is then added to the chain, creating a permanent 'golden source' of the interaction.
6. The transaction between A and B is completed.

Standard Chartered
1. There is an opportunity
2. There is a problem risk
3. You are likely part of the solution

But why me?

Can’t we just trust the government to take care of this?
Issues with government and open data

Conflict of interest

Incentive to hide bad report card

Precedent of censorship and slanted and one sided information delivery

Beware the use of fear mongering:

"THE ENEMY COULD USE THIS"
Issues with government and open data

Limited resources

Technology moves rapidly
- How well has this worked before under civil service hiring? government procurement practices?

The sport’s team analogy
Issues with government and open data

Basic fairness

Our own personal lives have become open books to both governments and corporations to a historically unprecedented degree

“You have zero privacy, get over it” – Scott McNealy

NSA offer: let us have access to all your data and we will relief your fear

Are these good, or fair bargains? Open Data could begin to level the playing field?

consider: “Citizens have the right to free and open access to all data the public paid for”
Where to go from here?

1. There is a problem
2. You are likely part of the solution
Thank You

This session wasn’t a deep dive into IOT or block chain technology – more information abounds on the web.

Data collected within the confines of you own house, our by your own, non-public devices, is different – and different rules should apply.
Questions?

@cantbewong