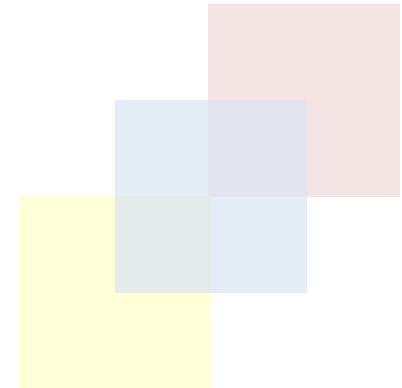


# Stepping up to Harness Big Data for Social Good

Claudia J. Coulton, Ph.D., MSW  
Lillian F. Harris Professor



Co-Director, Center on Urban Poverty and Community Development  
Jack, Joseph and Morton Mandel School of Applied Social Sciences  
Case Western Reserve University

## AASWSW Induction Ceremony

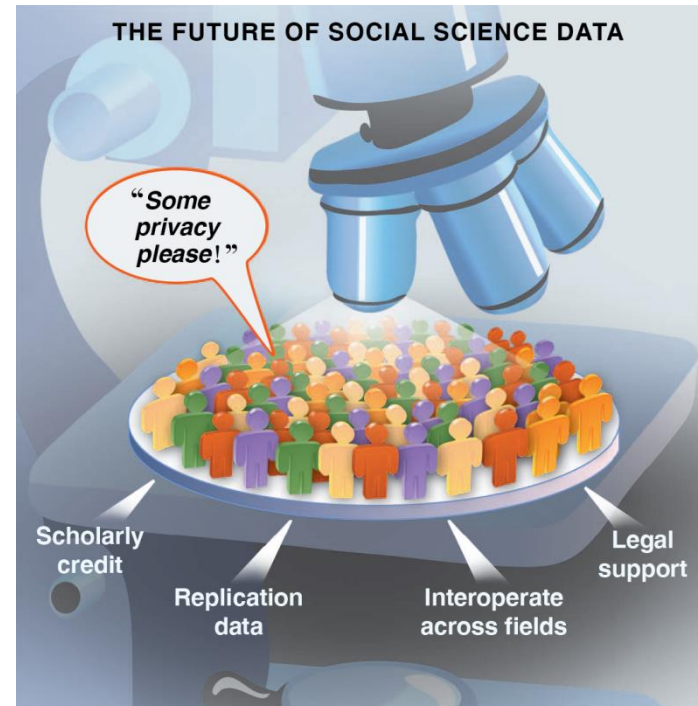
Tampa, FL

October 25, 2014

# Big data presents tremendous opportunities and challenges

“Analogous to what it must have been like when they first handed out microscopes to microbiologists, social scientists are getting to the point in many areas at which enough information exists to understand and address major previously intractable problems that affect human society.” *Gary King, MIT*

*Science*, 331, 11 February, 2014, 719



# Big data defined

## Definition:

Digital information that challenges existing technology due to size, complexity, analytic demands



## Common Features

Origin: Generated as by product of other activity

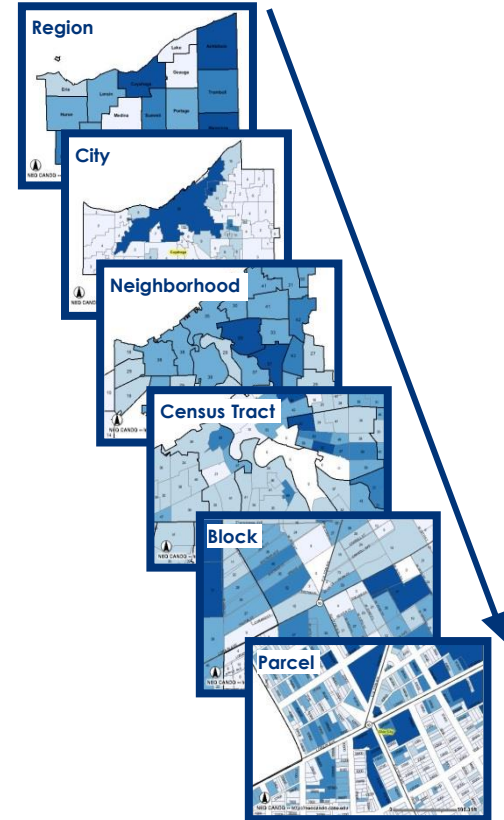
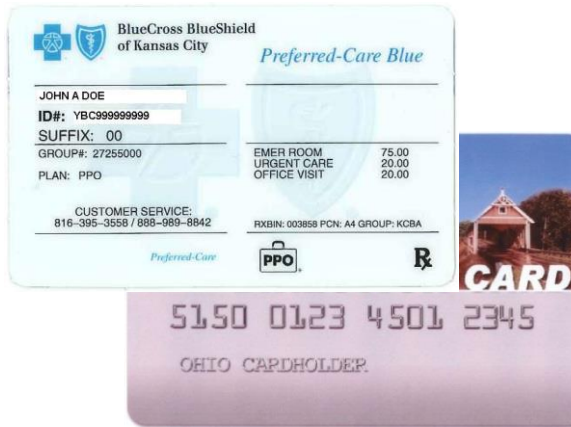
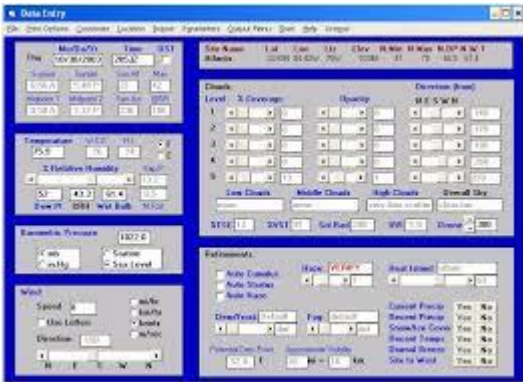
Proportionality: Encompass all data from a particular source

Dynamic: Capture events over time

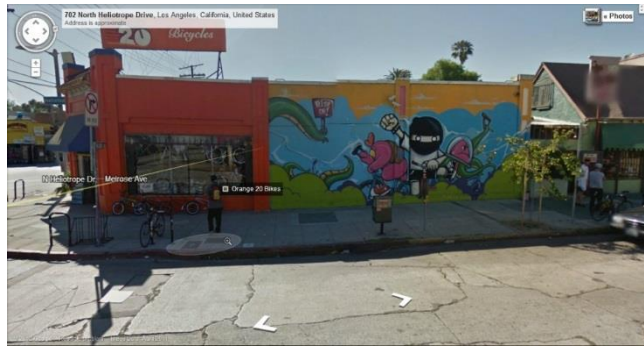
Variability: Many types and varying forms

Velocity: Real time data capture

# Digital processes generate social data: E-Records, E-transactions, Digital media, E-government



DATE	TIME	LOCATION	DESCRIPTION	COMPLETED BY
1/1/2014	10:00	1234 Main St	Client appointment	J. Doe
1/15/2014	14:30	5678 Elm St	Client appointment	J. Doe
2/1/2014	09:00	9101 Oak St	Client appointment	J. Doe
2/15/2014	11:00	2345 Pine St	Client appointment	J. Doe
3/1/2014	13:00	6789 Birch St	Client appointment	J. Doe
3/15/2014	15:00	1011 Spruce St	Client appointment	J. Doe



**Susan LaMotte**  
@SusanLaMotte



Everyone's talking about #bigdata in #HR.  
Everyone! [read.bi/ZESSZR](http://read.bi/ZESSZR)

Reply Retweet Favorite More

# But Big Data can be a heavy lift

- Ownership and access
- Transmission
- Data quality
- Data management and storage
- Analytic tools and models
- Visualization
- Applications



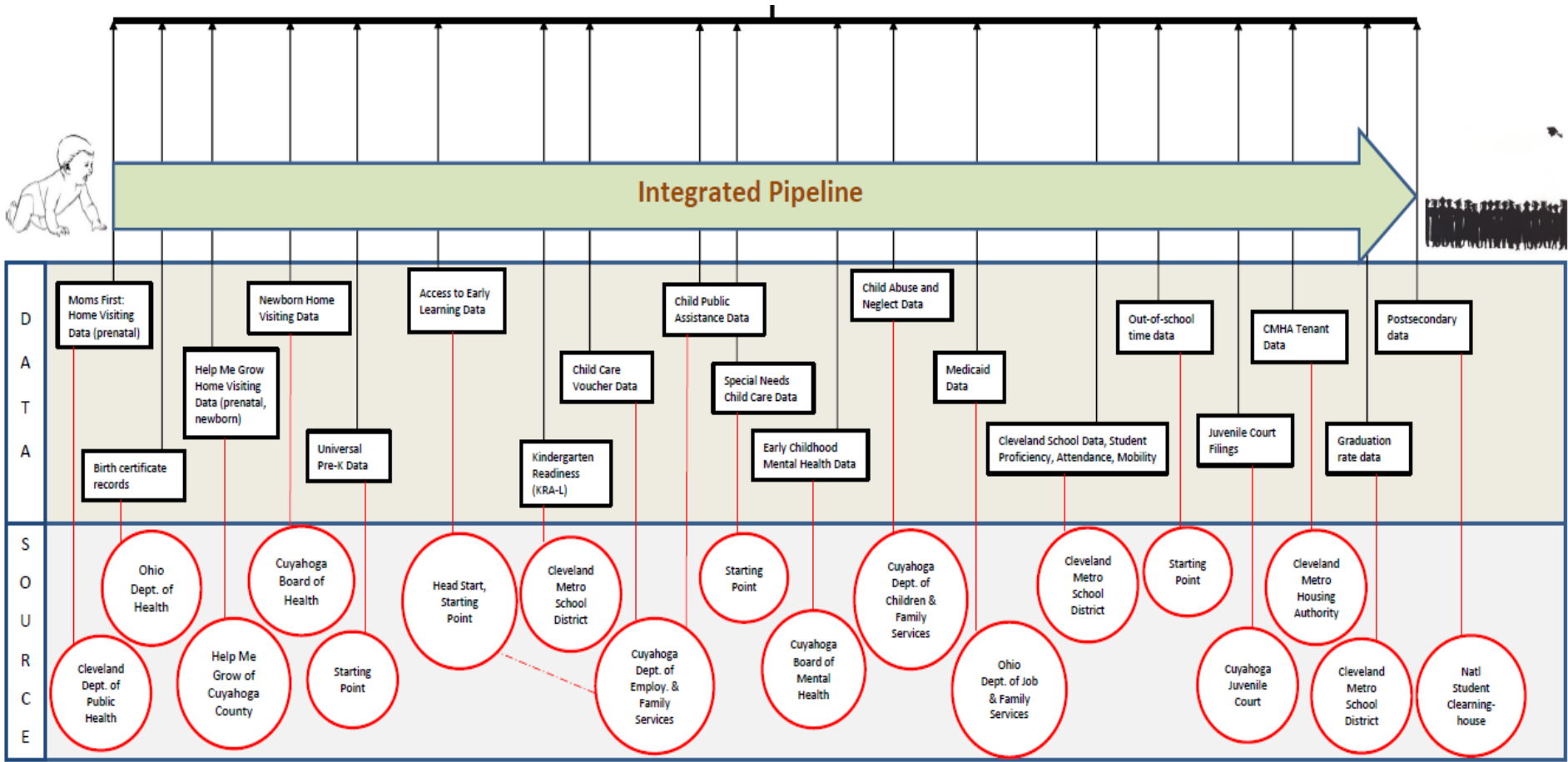
<http://www.nytimes.com/2014/08/18/technology/for-big-data-scientists-hurdle-to-insights-is-janitor-work.html>

# Strengths of social work in Big Data

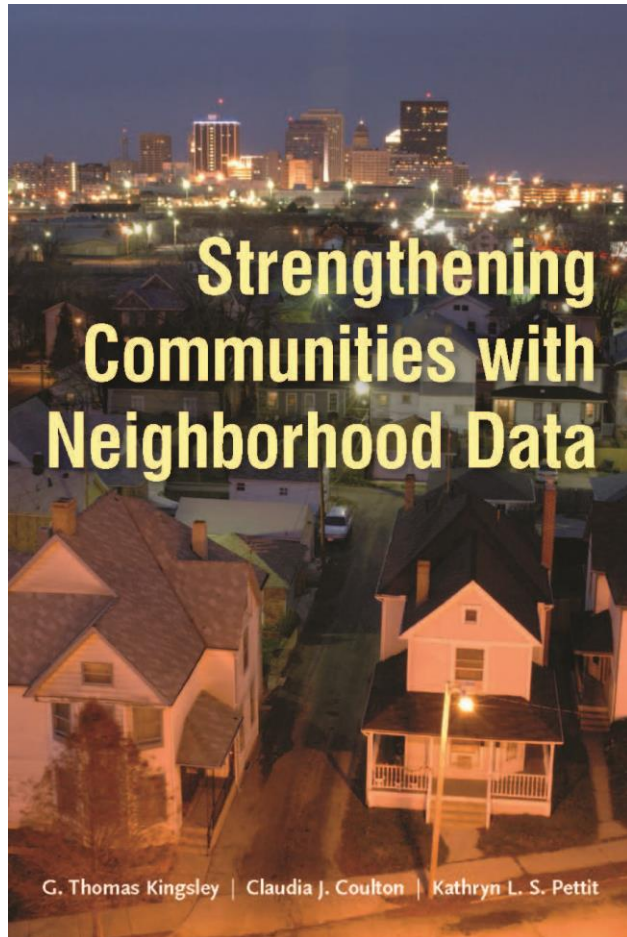
- Notable successes (just a few examples)
  - Multi state foster care archive impacts practice/policy
  - Homelessness data system analysis leads to Housing First
  - Big data on public assistance dynamics impacts welfare policy
  - Big data on neighborhood ecology of child maltreatment yields community approaches
- Exciting capacity building
  - Integrated data system (IDS) projects
  - Neighborhood indicators system initiatives



# Linked electronic records (IDS) data drive collaboration and innovation



# Neighborhood indicators systems turn data into neighborhood solutions



## Homeless In San Francisco? There's An App For That



<http://hereandnow.wbur.org/2014/03/26/homeless-app-sf>



# Weaknesses of social work in Big Data

- Agency culture and politics is not sufficiently data driven and data savvy
- Big data requires long term investments, but this type of funding is tough to raise, and short term results come quicker from “one off” data collection
- Proportion of social work researcher effort devoted to big data small relative to survey and clinical data
- Too few MSW and Ph.D.s with Big Data skills



# Opportunities for social work in Big Data

- Funding
  - NSF, NIH, White house all have Big Data announcements
  - New philanthropists believe in power of digital data
  - Social investor models (e.g. SIBs)—rely on Big Data
- Evidence based practice and policy demands
  - Low cost and cluster based RCTs use Big Data
  - Long term cost benefit studies using Big Data
- Civic engagement and new partnerships
  - Social genome metaphor
  - Money ball revolution
  - Open data movement
  - Code-athons, civic hacking “cool” factor



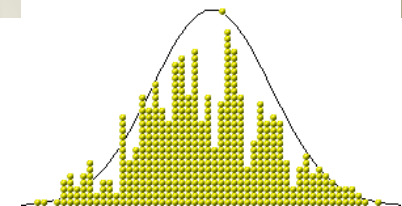
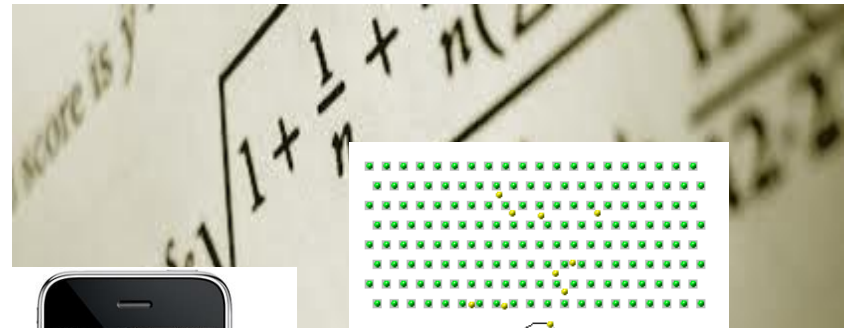
# Threats for social work in Big Data

- Eclipsed by other fields
  - Most social sciences and professions taking on Big Data
  - Human service agencies may go “commercial”
  - Big data analyses uninformed by social work knowledge
- Erroneous predictions and conclusions
  - The “Google Flu” controversy
  - Failure to compensate for what’s missing and artifacts
- Privacy breaches
  - Protected and confidential records
- Publishing restrictions
  - Proprietary or sensitive data
- Statistical discrimination



# A future for Social Work Informatics?

- By 2018 60% shortage in the supply of analytics workers
- Leaders of Social Work Big Data programs report few social workers with right mix of skills
- Need data science training at Masters and Doctoral level
- Funding models for infrastructure/ tech advances
- Cultural shift in agencies and systems
- Collaboration for innovation



# By recognizing big data as a common theme in the profession, social work can have a bright Big Data future

- New talent attracted to Social Work Informatics
- Social work Big Data initiatives on a par with others
- Tackle complex scientific and social problems
- Push the boundaries of professional disciplines
- Multi-site projects facilitated by cloud computing
- Data applications integral to community and clinical practice

