

A stylized, colorful map of Chicago, Illinois, designed by Stamen Design. The map uses a vibrant color palette including shades of orange, yellow, green, blue, and purple to represent different urban areas, parks, and water bodies. The city's grid-like street pattern is clearly visible, and the map is oriented with North at the top. The text "Image/Map Credit: Stamen Design" is written in a small, elegant font in the top right corner.

*Image/Map Credit: Stamen Design*

# CIVIC DATA: HOW IT WORKS

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*@abhinemani | CAPP 30130 | University of Chicago*

A partial view of the Stamen Design map of Chicago, showing the bottom edge of the map with various colored blocks and streets.



# CIVIC TECH: KEYS TO SUCCESS

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## *Empathy*

- Build with, not for
- Talk to users
- Understand behavior
- Learn what's out there

## *Lean*

- It's more than just a technical process
- Expect failure
- Only build what's necessary
- Test, test, test

## *Data*

- Data “lives” everywhere
- Be ready to scrape
- Open data is your friend
- ETLs are your best friend

## *Users*

- ~~If you build it they will come~~
- Listen and learn
- Define metrics
- Find partners

## *Sustainability*

- Consider your options: startup, open source, non-profit, academic, etc
- Tech -> Policy
- Expect to train everyone
- Document everything

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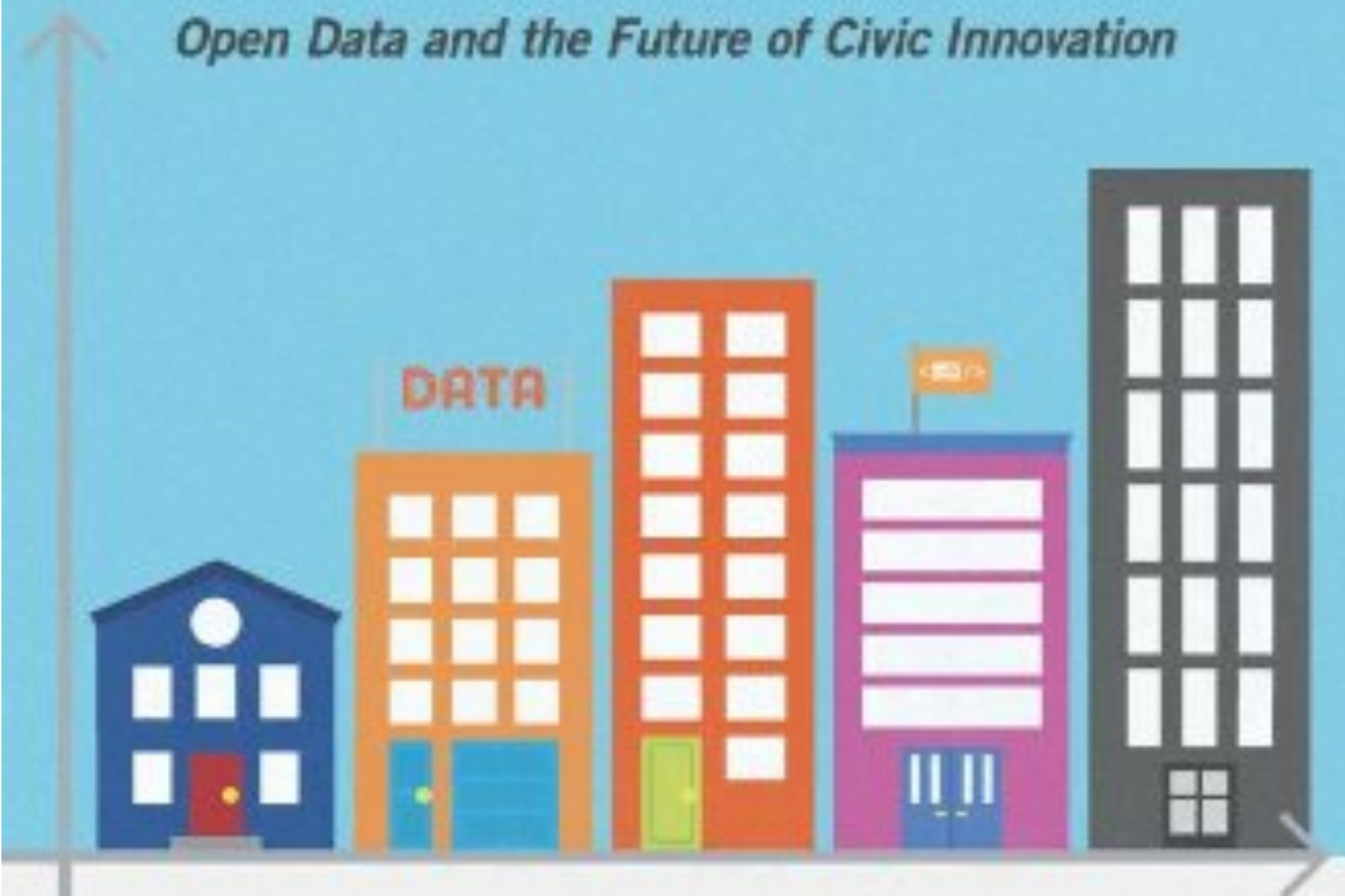
## *Sustainability*

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Edited by Brett Goldstein with Lauren Dyson

# Beyond Transparency

*Open Data and the Future of Civic Innovation*



*"A must-read for anyone who is passionate about what open data can do to transform city living."*  
—Boris Johnson, Mayor of London

## AGENDA

.....

- Case study: Chicago Public Health
- 3 Kinds of Data
  - Raw Data
  - Performance Data
  - Quality of Life Data
- How data-driven decision-making work?
  - Model
  - Challenges





@abhinemani

# CASE STUDY: CHICAGO & FOOD INSPECTIONS

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*Using data to optimize inspections & support public health*





# CHICAGO PUBLIC HEALTH

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- Issue: Food-borne illness
- Goal(s): Identify sources of food-borne illness (restaurants) and optimize inspections
- Data
  - 12 public-available datasets
    - Some obvious: restaurant's previous violations, the length of time since the last inspection, how long it's been operating, nearby garbage complaints
    - Some less obvious: nearby bulgaries, 3-day average high temperature, and whether the place is licensed to sell tobacco
- Intervention
  - Created civic app (foodborne chicago) to capture tweets / engage citizens for more data
  - Developed algorithm to predict unhealthy restaurants
- Alternative approaches / interventions
  - Better software for inspectors
  - More education / information for residents

Balompie Cafe - Inspection X

www.yelp.com/inspections/balompie-cafe-san-francisco

**yelp** Find tacos, cheap dinner, Max's Near San Francisco, CA Sign Up Log In

Home About Me Write a Review Find Friends Messages Talk Events

Balompie Cafe > Health Inspections

## Balompie Cafe

February 4, 2014 — Routine Inspection

### Violations

- Inadequate or unsanitary refuse containers or area or no garbage service [ date violation corrected: 2/4/2014 ]
- Improper storage of equipment utensils or linens [ date violation corrected: 2/4/2014 ]
- Moderate risk food holding temperature [ date violation corrected: 2/4/2014 ]

### Previous Inspections

Date	Inspection Type	Violations	Score
August 1, 2013	Routine	3	89
January 23, 2013	Routine	6	81
August 22, 2012	Routine	0	100
August 14, 2012	Routine	5	78

### Health Score

**92**  
out of 100

#### About Yelp Health Scores

We collect public inspection data directly from your local health department. Due to the local health department's inspection schedule as well as the time it takes to pass that information on to us, it is possible that we may not display the most recent inspection data. Please report any unreasonable delay and data inaccuracies to your local health department via their [website](#) or email.

CoInspect Product Use Cases Pricing Contact Blog About Us Resources Support Request Demo

## Avoid Expensive Redundancy

Archaic processes, extensive labor requirements, and poor systems have created an expensive and inefficient inspection process requiring spendy third-party auditors. With greater transparency, you can reduce the need for multi-layer systems.

Download on the App Store Get it on Google play

*Restaurant (or food) inspections is a oft-discussed topic in civic tech, particularly around public health. Apps such as CoInspect enable easier monitoring and tracking, platforms like Yelp showcase the data.*



“

...the rate of finding violations increased by 25 percent. That meant, inspectors found violations about seven days earlier than before – a week less of potential exposure for customers...

-PBS Newshour



# FOODBORNE CHICAGO



“Man I don't feel good.  
I think I have food poisoning!”



If you send out a public tweet, we'll hear you.



**LovelyStars**  
[@jazhearts](#)





Yep doctor said I had food poisoning 🤢🤢🤢  
🤢🤢

👤 from Chicago, IL

Reply Retweet Favorite More

6:51 PM · 13 Apr 2014

Reply to [@jazhearts](#)



**Foodborne Chicago** [@foodbornechi](#) · Apr 17

[@jazhearts](#) Sorry to hear you're ill. The Chicago health department can help. [foodborne.smartchicagoapps.org/45547842303003...](#)

Details

Reply Retweet Favorite More

CUTGroup 9 – Foodborne Chicago  
In-person Test on April 14, 2014



**Gianna** [@giannavoorhees](#) · Mar 11

I got food poisoning

Details



**Foodborne Chicago** [@foodbornechi](#)



[@giannavoorhees](#) That doesn't sound good.  
This might help:  
[foodborne.smartchicagoapps.org/44332315492076...](#)

Reply Retweet Favorite More

11:57 AM · 11 Mar 2014

What would your initial reaction be if you got this tweet?

- B:** “I’m not going there!” Wants to share on Everyblock and wants to let people everyone know not to go there
- Just having Fun!:** Wanted to know name of restaurant to see who would avoid it. Would follow link to see where it was coming from
- Things that Matter:** Proactive and timely information, “Is it legitimate?” I want to know what organization it is coming from
- Mowgli:** “If I got food poisoning it would be my own fault.” “I would be kind of hesitant” but it looks official. Would check it out. Looks official because it says Chicago in the name, and assumes it is a local initiative

Everyone had food poisoning in this group

If you have had food poisoning, what actions if any did you take to report it?

- Mowgli:** Just dealt with it
- Just having Fun!:** Did not report it, but did tell people through social media outlets
- B:** Reputation created from a suspect restaurant
- Bakunin:** If had food poisoning, thinks this looks official due to red cross and the name, Chicago

@abhinemani



“

For example, in the first 10 months after launching Foodborne Chicago, project staff identified 270 tweets with specific complaints of foodborne illness, leading to 193 complaints of food poisoning submitted to Foodborne Chicago. Of those, 10 percent sought medical care, and a total of 133 establishments received health inspections.

-Big Cities Health Coalition



# 3 KINDS OF DATA



# THREE KINDS OF DATA

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*Restaurant Complaints*  
*Restaurant Scores*



ID	PER...	PER...	ISSU...	ESTI...
1374921	100000586	PERMIT - ...	08/23/2004	66,000.00
1377863	100001883	PERMIT - ...	08/24/2004	120,000.00
1378485	100002267	PERMIT - ...	03/10/2006	45,000.00
1379556	100002902	PERMIT - ...	10/01/2010	51,500.00
1379931	100003191	PERMIT - ...	09/01/2004	83,000.00
1380473	100003598	PERMIT - ...	10/19/2009	0.00
1381541	100004342	PERMIT - ...	09/29/2005	38,000.00
1383310	100005367	PERMIT - ...	09/15/2004	77,150.00
1383915	100005841	PERMIT - ...	09/17/2004	33,361.00
1384219	100006085	PERMIT - ...	09/20/2004	0.00
1388140	100007043	PERMIT - ...	11/08/2010	15,200.00
1388563	100007383	PERMIT - ...	06/03/2011	0.00
1388656	100007470	PERMIT - ...	10/23/2008	2,500.00
1388897	100007643	PERMIT - ...	09/23/2010	75,000.00

# RAW DATA

- Data generated by government operations (“realtime”) or policies/programs (“static”)
- Source
  - Existing/Legacy Systems
  - Manual Entry
- Examples
  - “Realtime”
    - 311 Requests
    - Crimes
    - Government procurements/expenditures
    - Ride-share trips
  - Static
    - Transit routes
    - Zoning maps



# CHICAGO OPEN DATA PORTAL

<div>Categories</div> <div>Administration &amp; Finance</div> <div>Buildings</div> <div>Community &amp; Economic Development</div> <div>Education</div> <div>Environment &amp; Sustainable Development</div> <div>Show All...</div> <div>View Types</div> <div>Calendars</div> <div>Charts</div> <div>Data Lens pages</div> <div>Datasets</div> <div>External Datasets</div>	1319 Results		Sort by Most Accessed	
	<div>Crimes - 2001 to present - Dashboard</div> <div>Public Safety</div> <div>Data Lens</div>			
	<div>This dataset reflects reported incidents of crime (with the exception of murders where data exists for each victim) that occurred in the City of Chicago from 2001 to present, minus the most recent seven days. Data is extracted from <a href="#">More</a></div>		<div>Updated April 16, 2019</div> <div>Views 1,673,690</div>	
	<div>Tags No tags assigned</div>			
	<div>Current Employee Names, Salaries, and Position Titles</div> <div>Administration &amp; Finance</div> <div>Dataset</div>			
	<div>This dataset is a listing of all current City of Chicago employees, complete with full names, departments, positions, employment status (part-time or full-time), frequency of hourly employee –where applicable—and annual salaries <a href="#">More</a></div>		<div>Updated April 3, 2019</div> <div>Views 1,308,932</div>	
	<div>Tags personnel</div>		<div>API Docs</div>	
	<div>Building Permits</div> <div>Buildings</div> <div>Dataset</div>			
	<div>Permits issued by the Department of Buildings in the City of Chicago from 2006 to the present. The dataset for each year contains more than 65,000 records/rows of data and cannot be viewed in full in Microsoft Excel. Therefore, <a href="#">More</a></div>		<div>Updated April 16, 2019</div> <div>Views 584,229</div>	
	<div>Tags permits</div>		<div>API Docs</div>	




# THREE KINDS OF DATA

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*Raw Data*

*Restaurant Complaints*  
*Restaurant Scores*



*Performance  
Data*

*Response time*  
*Inspections/Month*



# DWP Call Wait Time

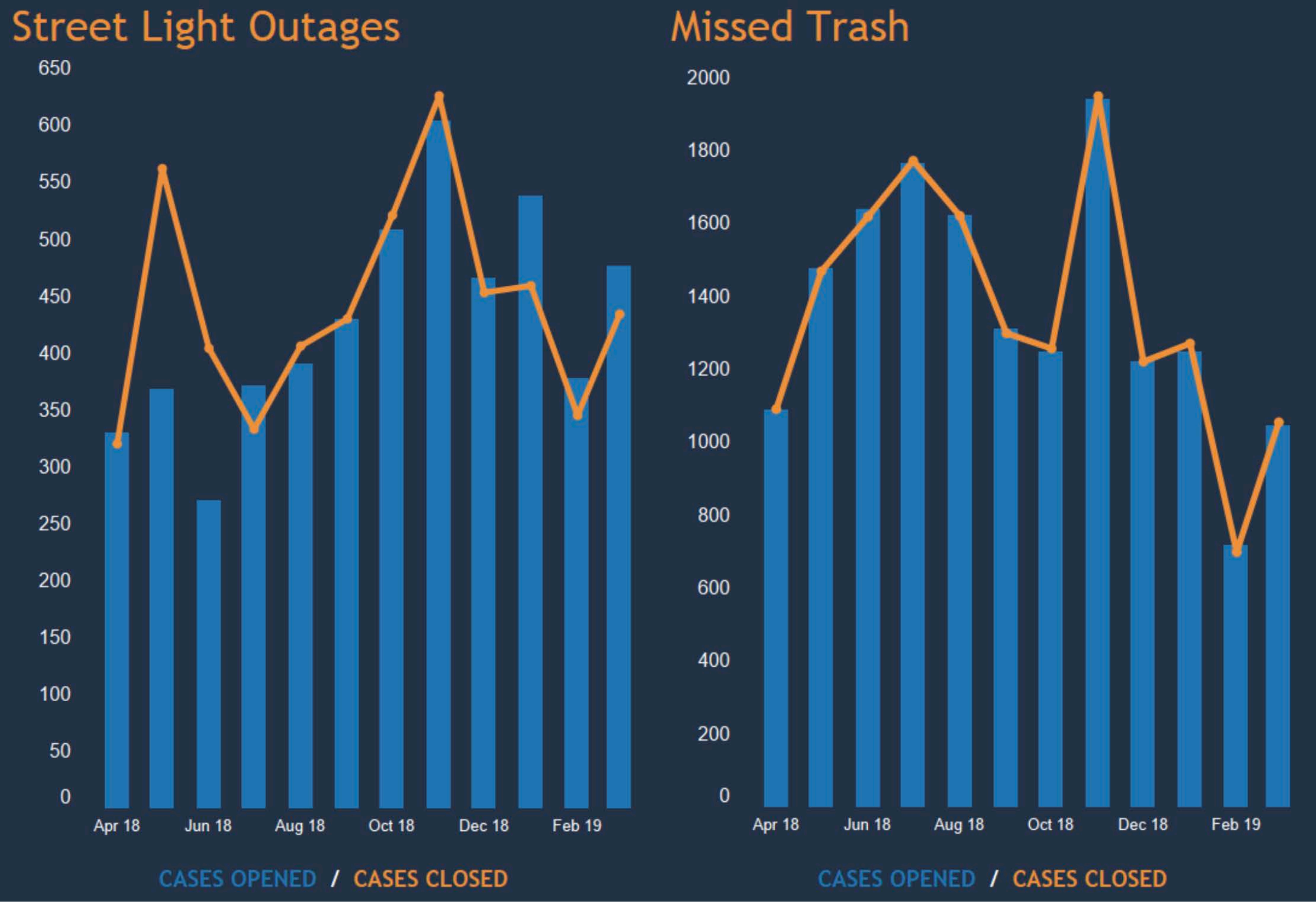


## PERFORMANCE DATA

- Measures of governmental activity / operations (typically assessed over a time horizon)
  - How well/quickly is the government operating?
- Sources
  - Sums / Aggregations of raw data
  - Separate systems
  - Manual entry
- Examples
  - 911 / 311 Wait Times
  - Permit processing times
  - Community events/month



# BOSTON MAYOR'S DASHBOARD





# THREE KINDS OF DATA

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*Raw Data*

*Restaurant Complaints*  
*Restaurant Scores*



*Performance  
Data*

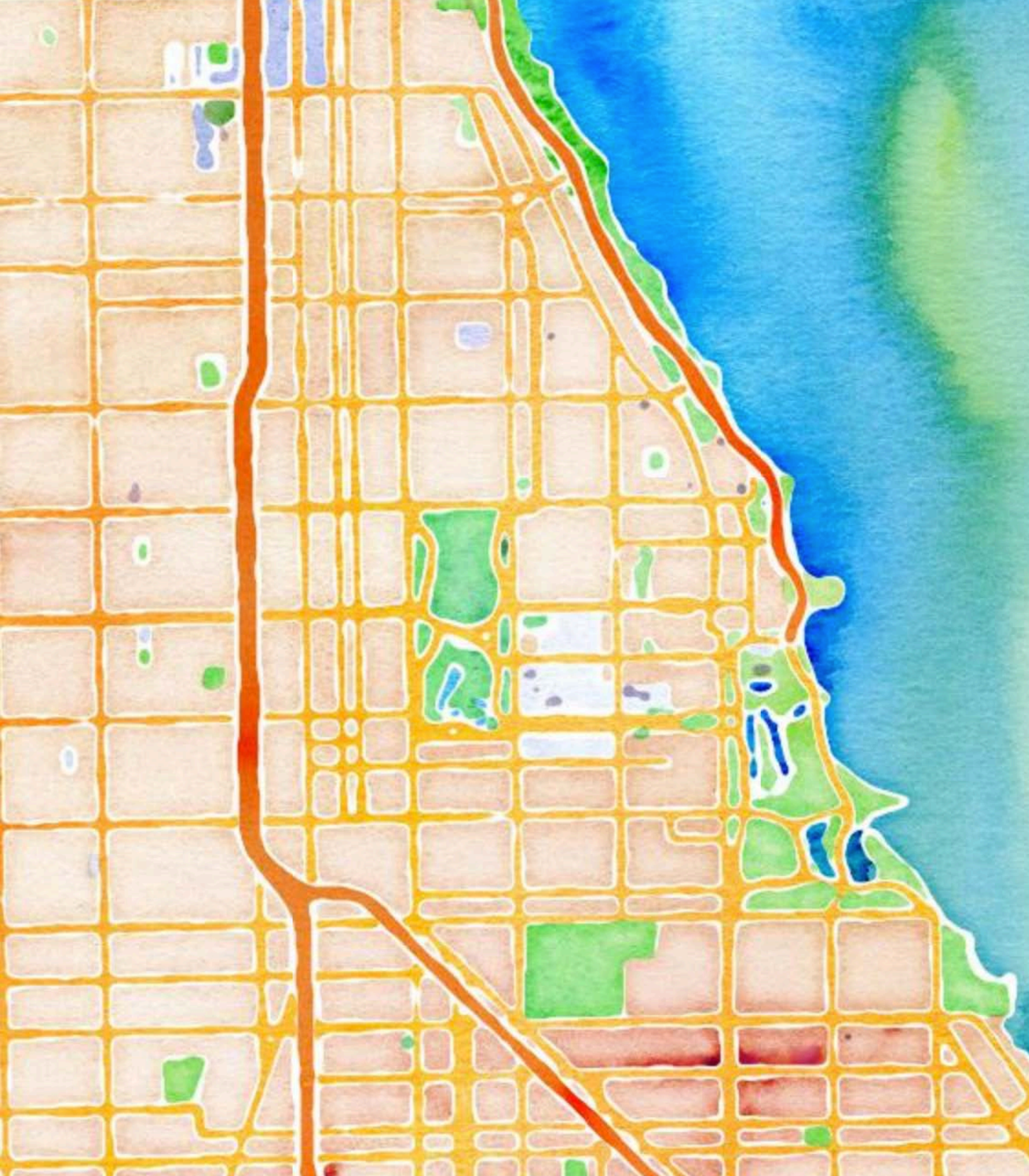
*Response time*  
*Inspections/Month*



*Quality of Life  
Data*

*# People Getting Sick*





# QUALITY OF LIFE DATA

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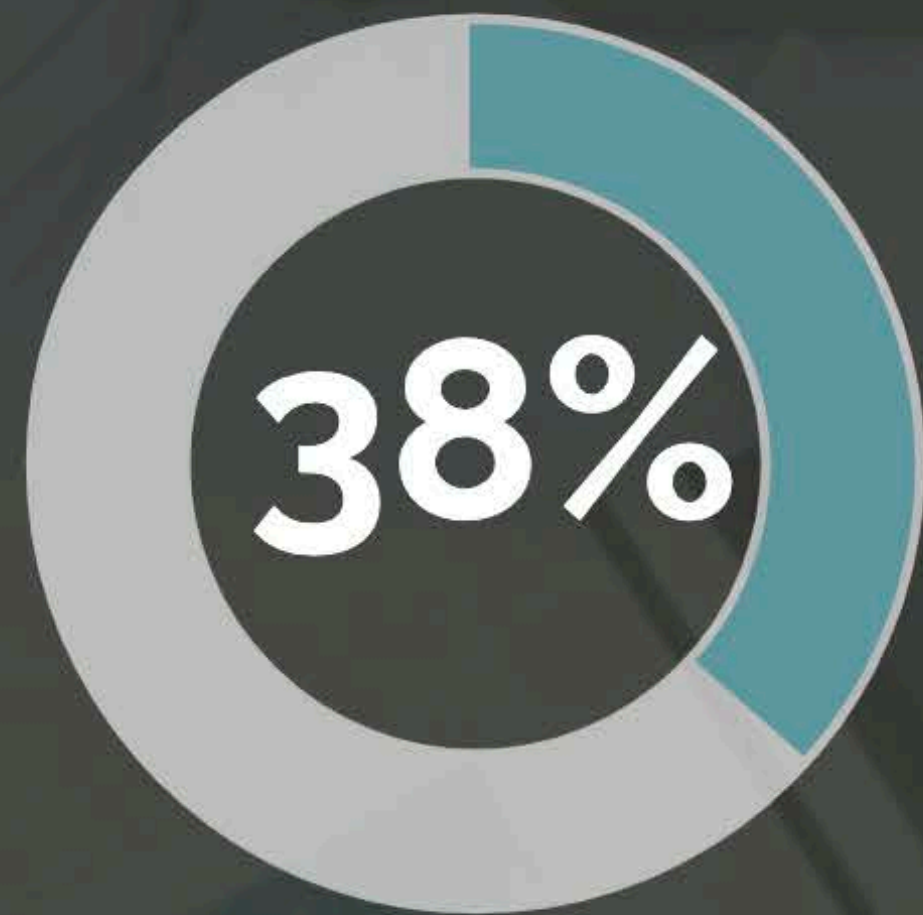
- Measures of the community activity that relate to civic institutions
  - What is going on in the city/state/country?
  - How do people “feel” about their community?
- Sources
  - Sums / Aggregations of raw data
  - Different systems / institutions
    - Eg Census, American Community Survey, etc
  - Surveys / Polling
- Examples
  - Crime rate
  - Unemployment rate
  - Public trust/confidence



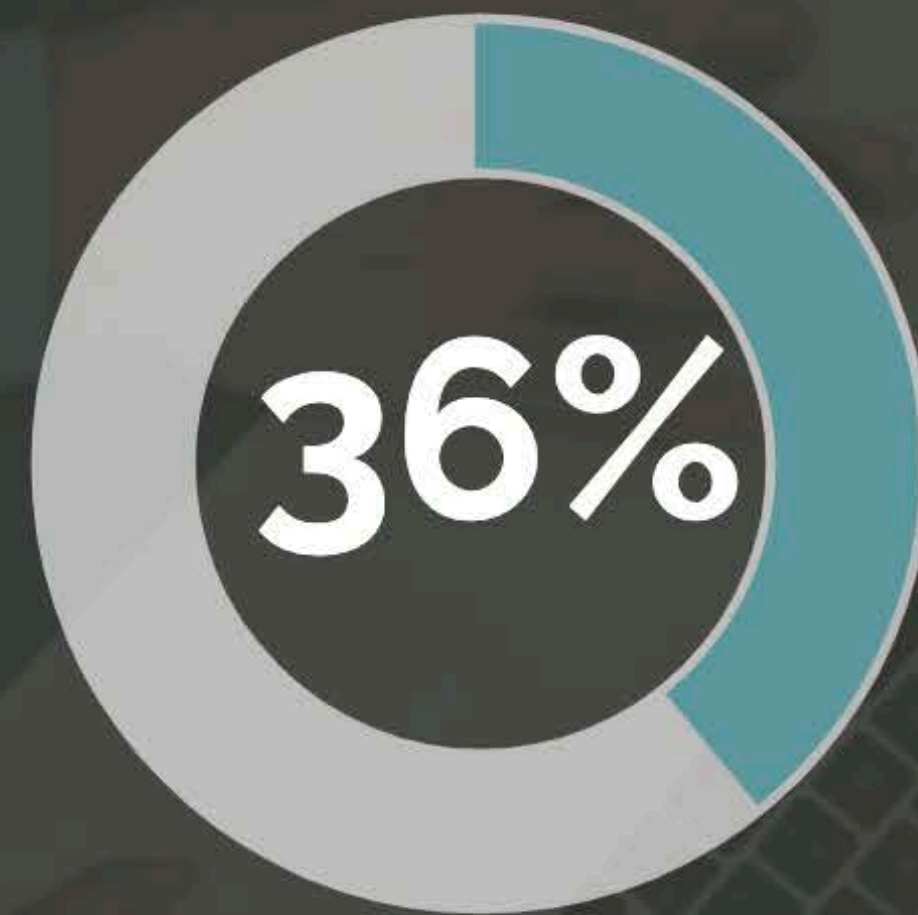
# SANTA MONICA WELLBEING PROJECT

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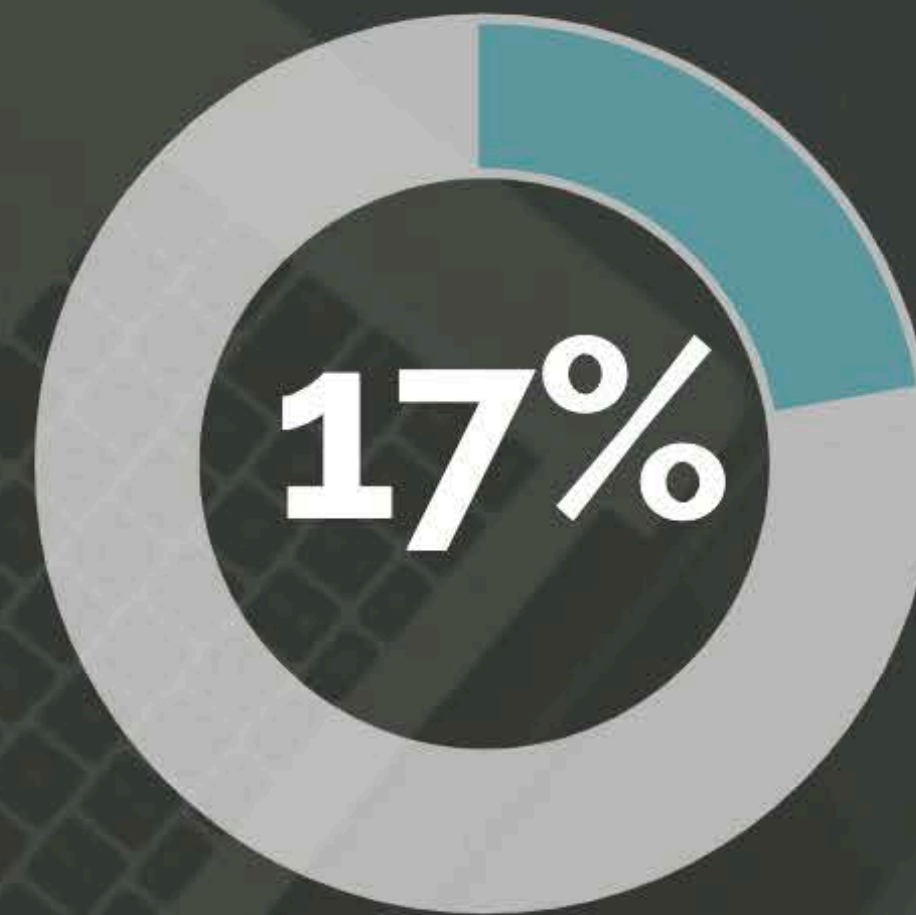
## how Are SANTA MONICANS MANAGING FINANCIALLY?



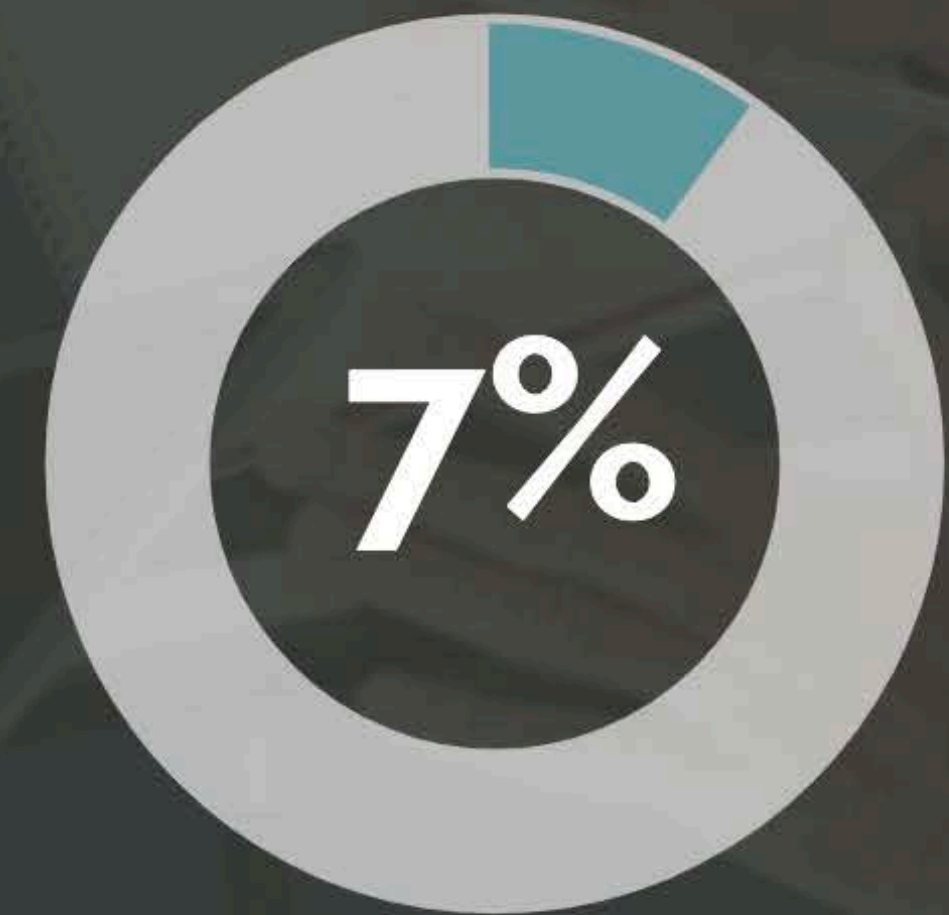
living comfortably



doing okay

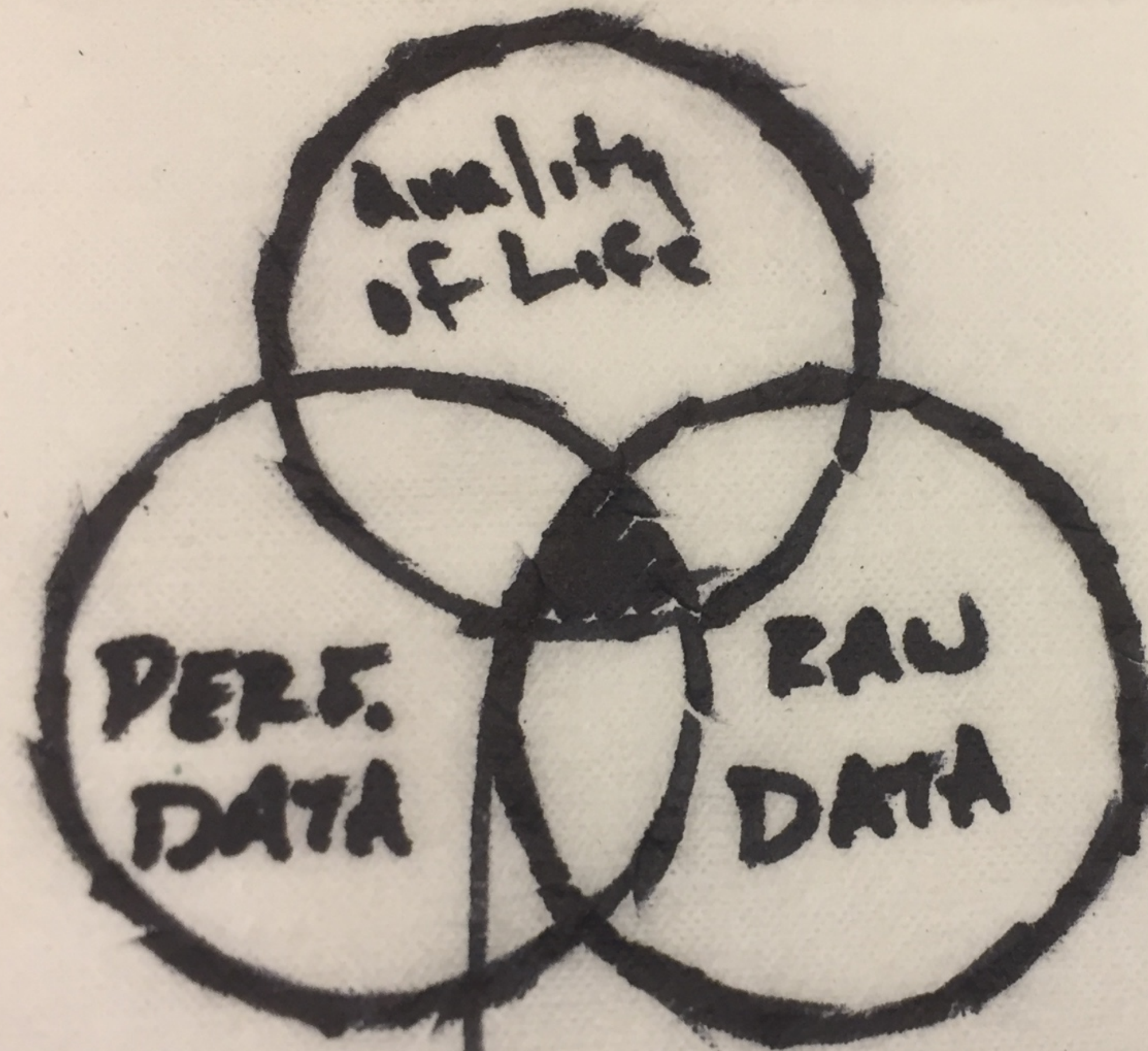


just getting by



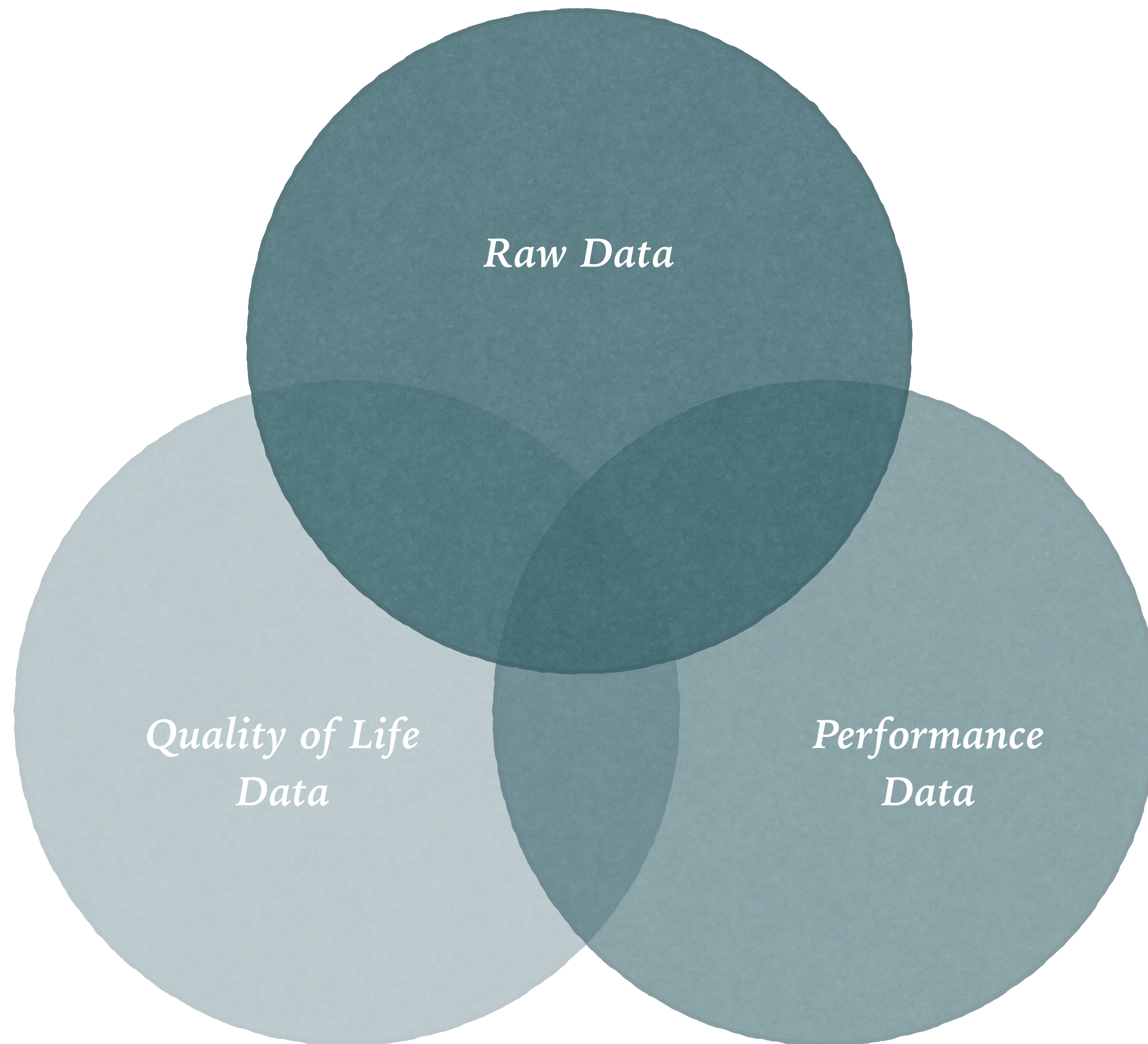
finding it difficult to get by



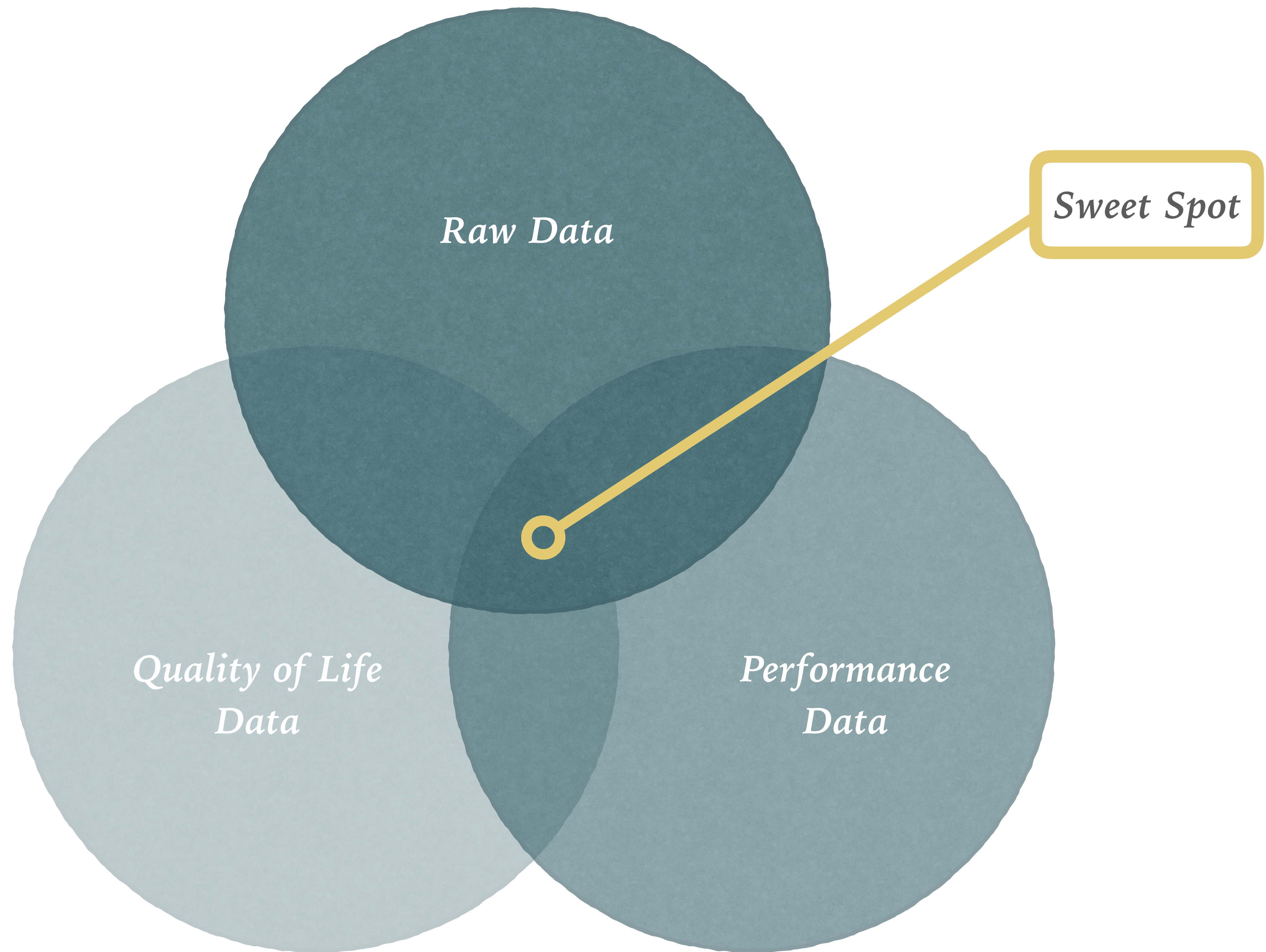


Insight











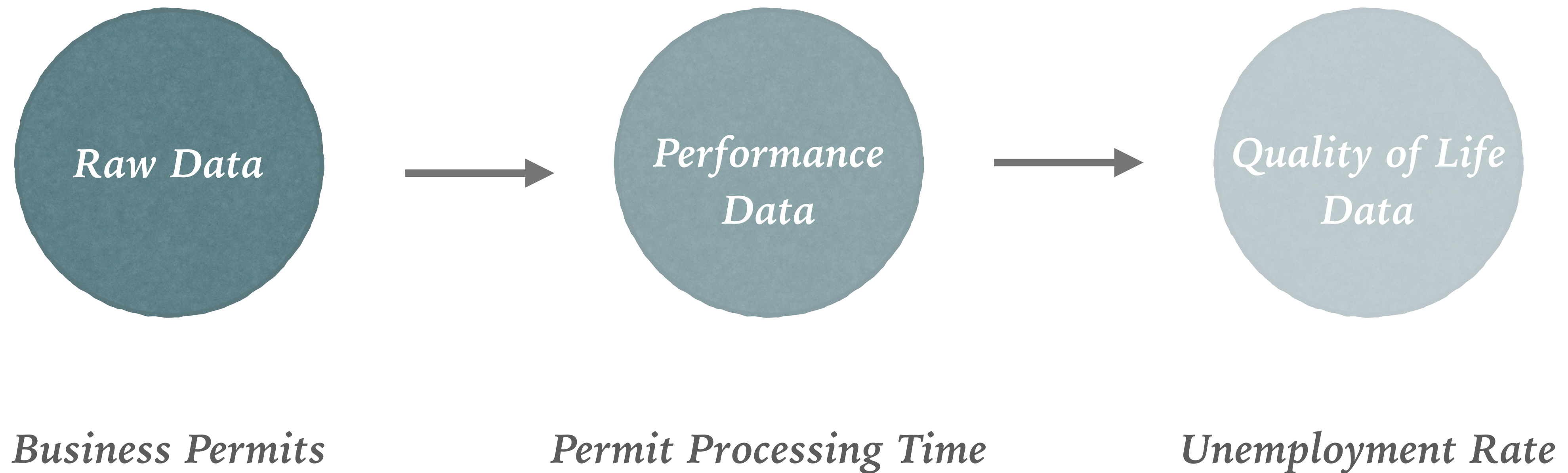
# MODEL: DATA-DRIVEN DECISION-MAKING

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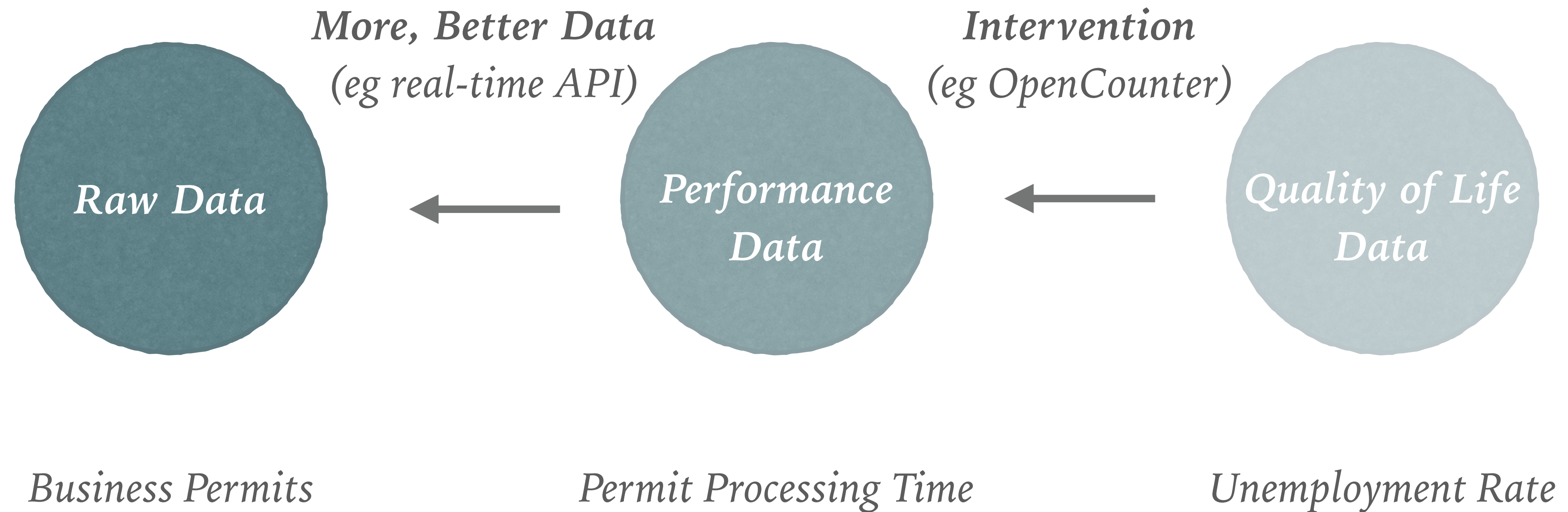
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# MODEL: DATA-DRIVEN DECISION-MAKING

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# INTERVENTIONS

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- Opportunities
  - Technical
    - Data science
    - Digital transformation
      - Civic/GovTech application
    - Digital optimization
      - Optimize digital experience/workflow based on analytics
  - Non-Technical (the “3Ps”)
    - Policy
    - Programs
    - Pocketbook





# INTERVENTIONS -> BETTER DATA

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- “Better data”
  - Cleaner
    - Automatically generated by new technology
      - No manual entry
      - More precise location information
        - “Dropped pin”: Lat/Long
  - More actionable
    - Data directly related to the intervention
    - Usually visualized through dashboards or automatically reported
  - More accessible
    - Modern databases, APIs, better metadata

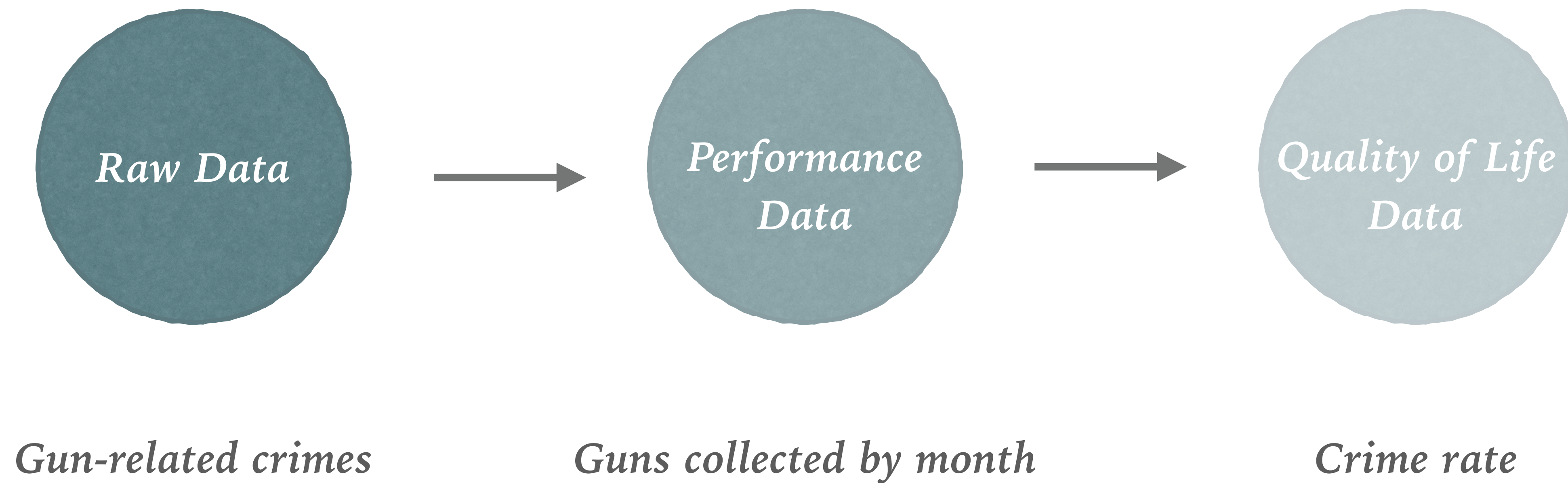


**WHEN IT COMES TO DATA,  
THINGS AREN'T ALWAYS  
SO SIMPLE.**



# MODEL: PUBLIC SAFETY

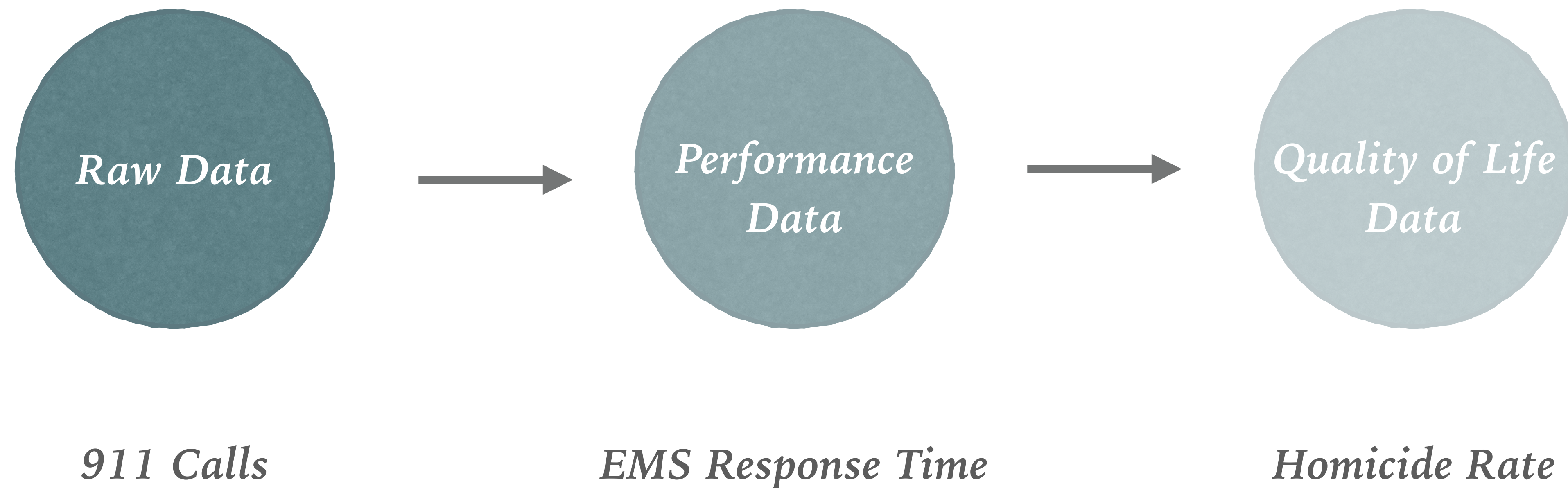
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# CAUSATION? CORRELATION? NEITHER?

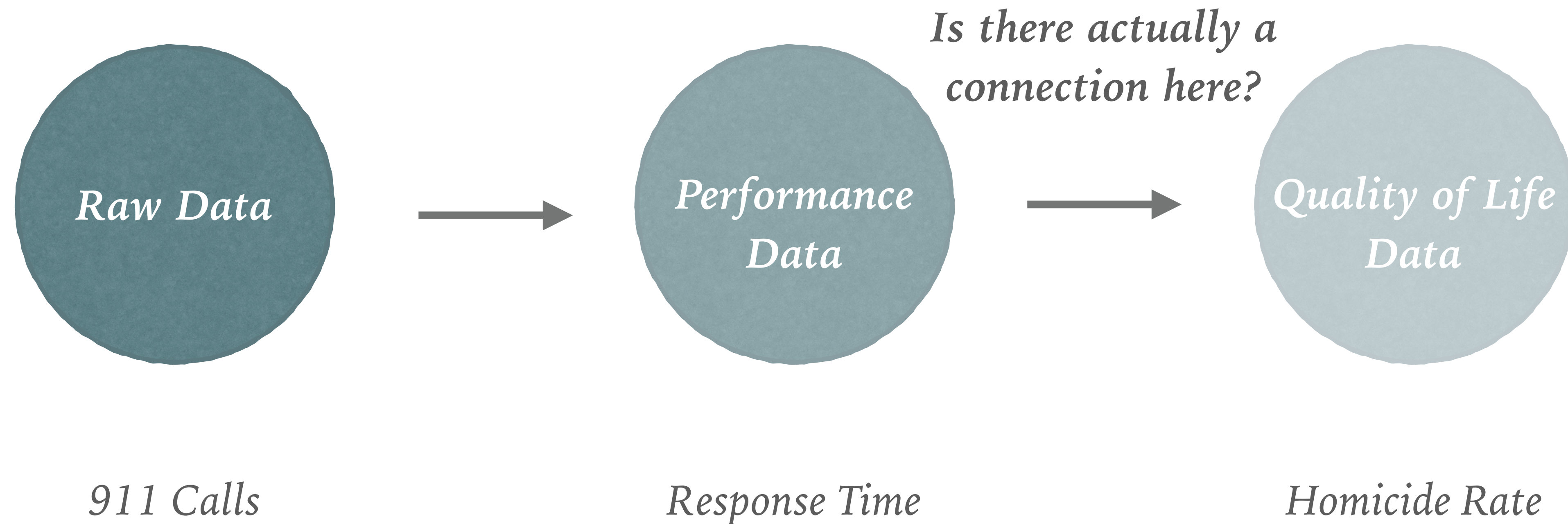
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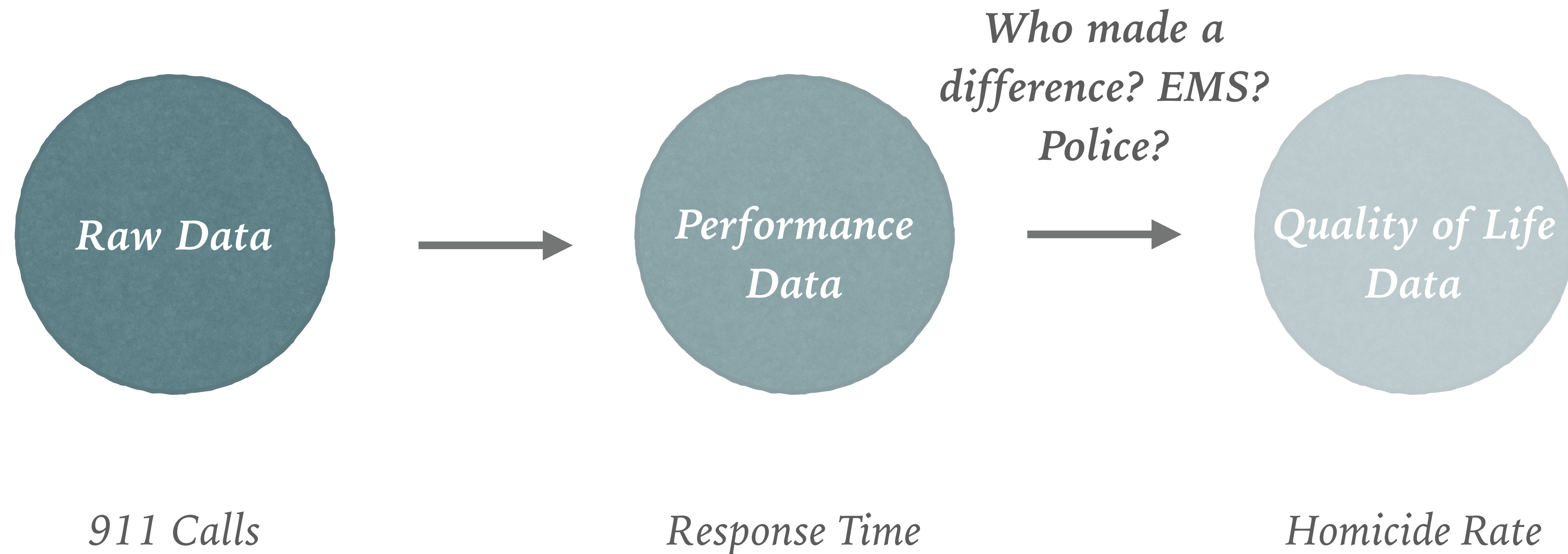
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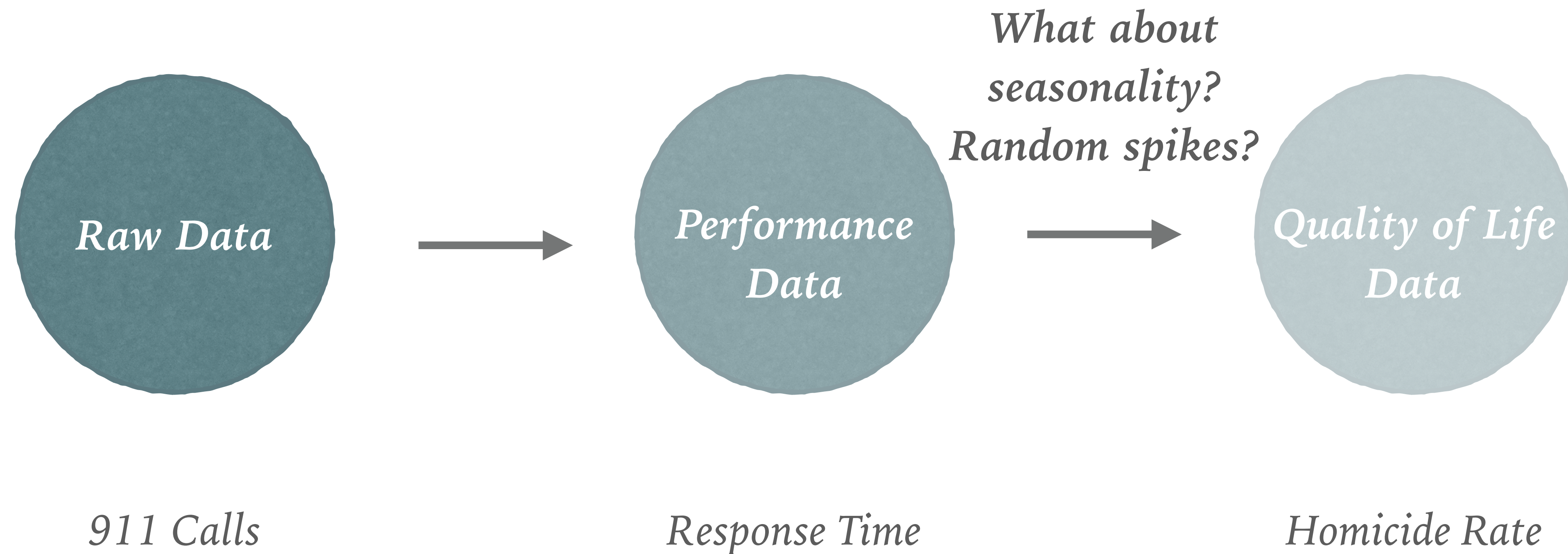
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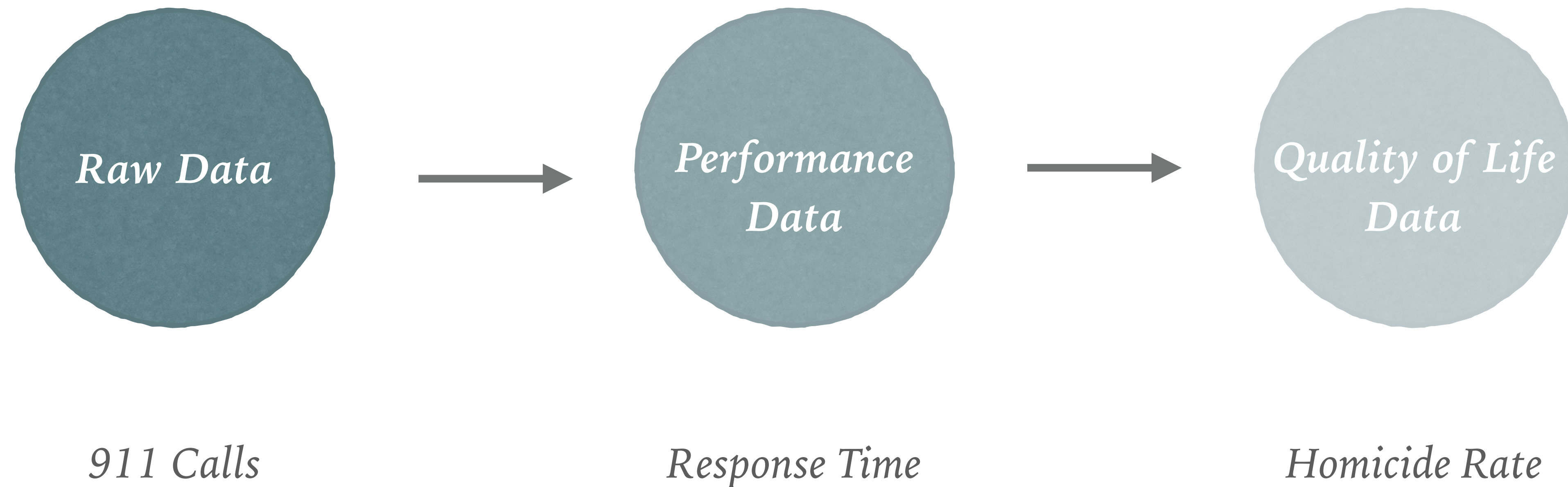




# DATA ISSUES: TECHNICAL

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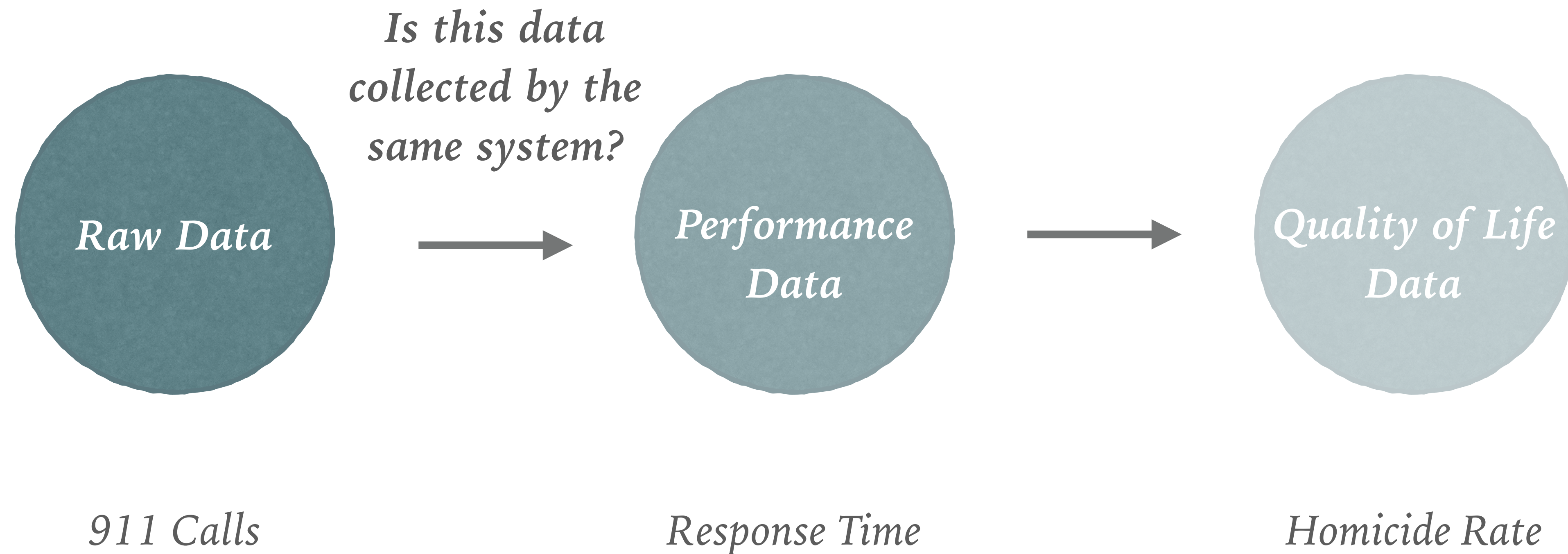
*Is all the data actually  
being collected?  
Accurately?*





# DATA ISSUES: TECHNICAL

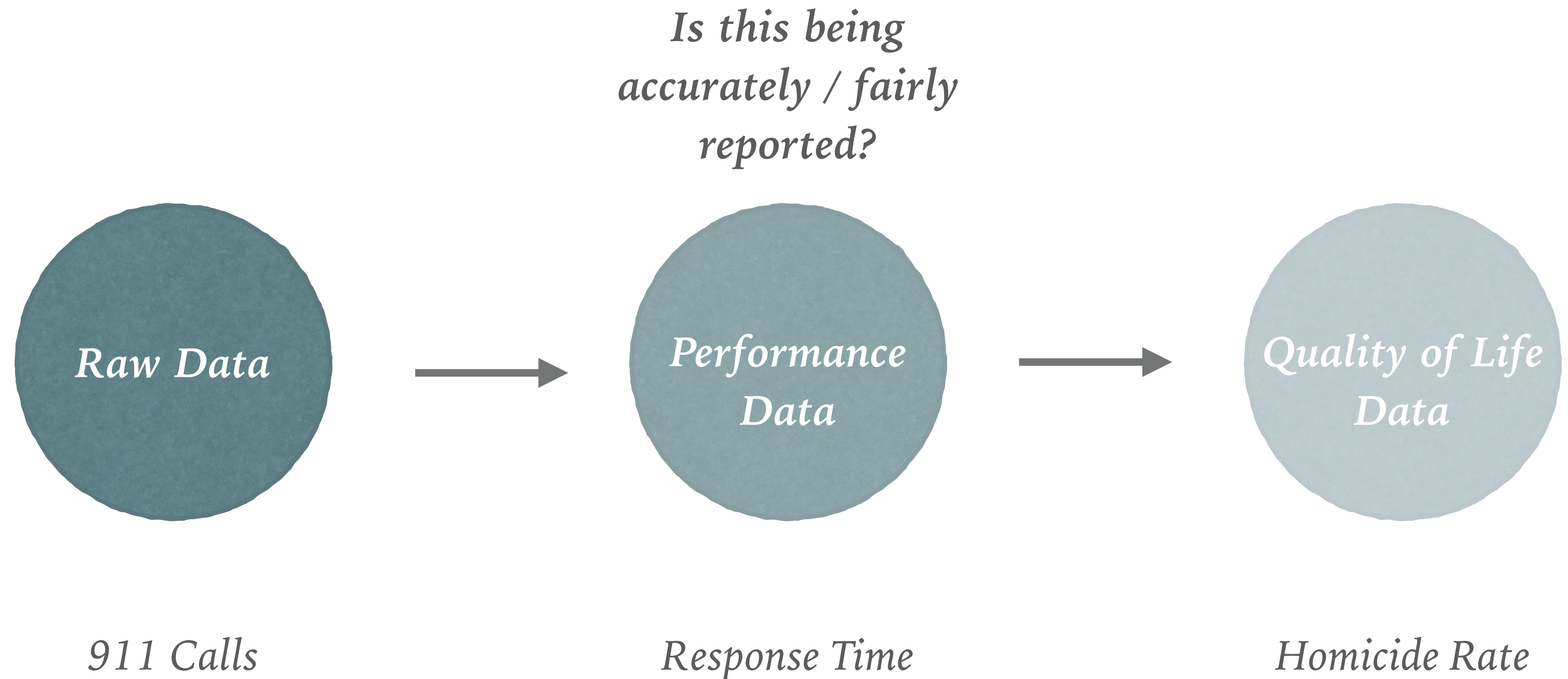
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# DATA ISSUES: TECHNICAL

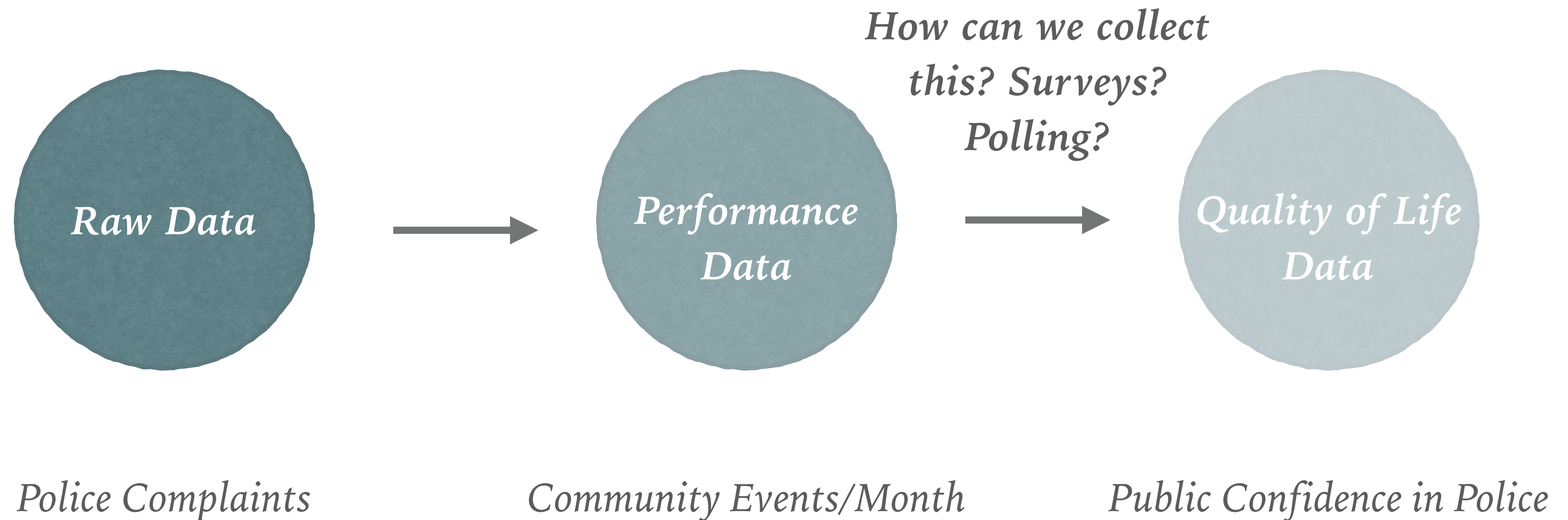
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# DATA ISSUES: TECHNICAL

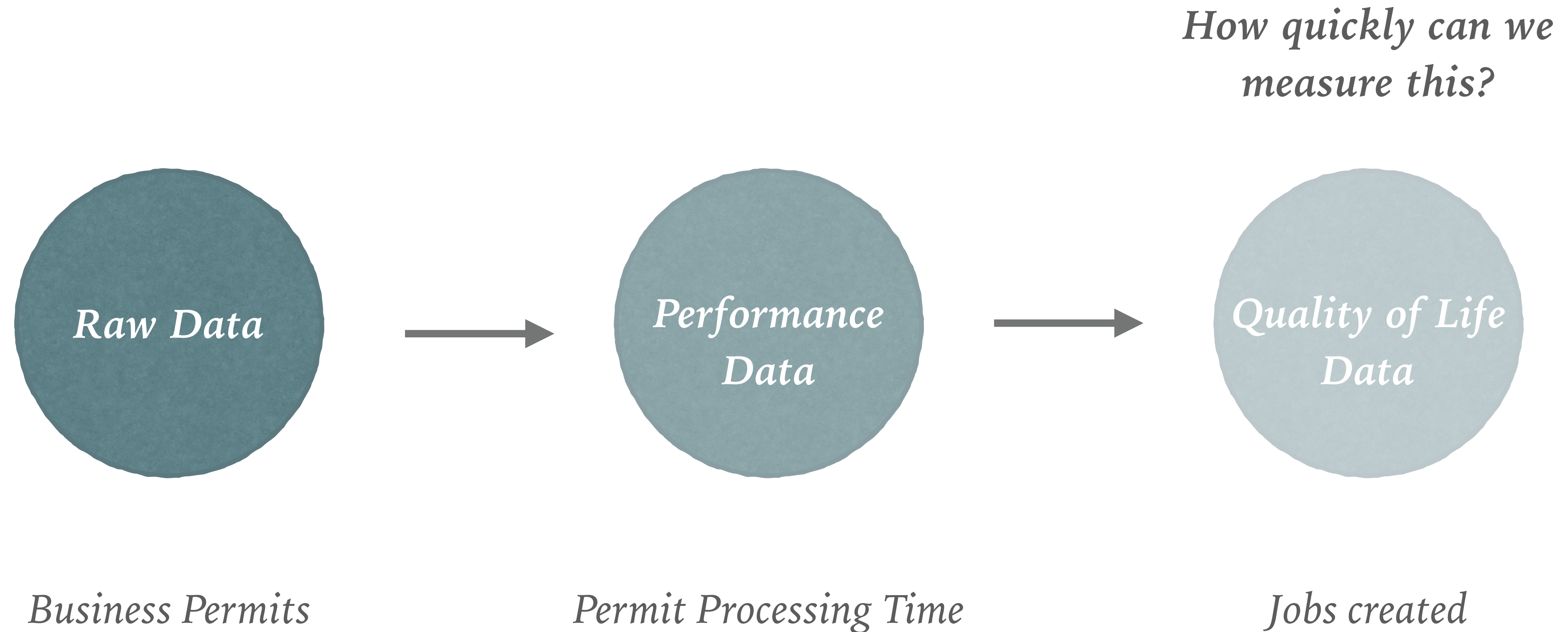
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# DATA ISSUES: TECHNICAL

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**ALL DATA IS NOT  
CREATED EQUAL.**



**DATA QUALITY, ACCESS, AND  
TIMELINESS ARE ESSENTIAL FOR  
DATA-DRIVEN GOVERNMENT.**



“

Chicago's open-data portal proved pivotal to the food inspections initiative, offering a data source that was accessible by all parties working on the project.

*-Stephen Goldsmith*



# ASSIGNMENT LECTURE 6 (4/17)

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## ➤ Readings

- Oakland and the Search for the Open City by Steve Spiker
- Generating Economic Value through Open Data by Michael Chui et al
  - Optional: Open Data: Unlocking Innovation and Performance with Liquid Information by McKinsey Global Institute
- Open Data in Chicago: Game on by Brett Goldstein

## ➤ Project Work

- Find 3 civic datasets and add to your web-deployed instance (Due 4/22)
- Continue customization of JKAN (Final due 4/24)



# PREVIEW: DATA-DRIVEN DECISION-MAKING

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connecting the dots:  
data and delivery.

