Better Data for Local Decisions in Times of Crisis: The Promise of the Curated Data Enterprise to Advance Sustainable Development Goals

"Data, COVID-19 and the SDGs"
June 2022 Open Virtual Meeting of the IAEG-SDGs

Joseph Salvo, Institute Fellow

Social and Decision Analytics Division

Biocomplexity Institute & Initiative

University of Virginia

Purpose and Use

Rural Communities · Family Units · Vulnerable Populations · Elderly Residential Care · The Unhoused · Local Businesses · Tribal Areas · Counting Children

Differential Undercount · Climate Change · Changing Demographics · Broadband Deployment · Commuting Patterns · Economic Mobility · Gig Economy · Equity and Inclusion · Migration · Emergency Preparedness · Workforce Automation

2

Making Sense of the Headlines

Gig Workers

"Racial and ethnic differences stand out in the U.S. Gig workforce." *Pew Research Center*, December 2021.

"The Wild West: Gig workers on the front lines of the coronavirus pandemic lack basic worker protections." *Economic Policy Institute*, April 2020.

Migration Patterns

"In 2020, fewer Americans moved, exodus from cities slowed." *Pew Research Center*, December 2021

"New census data shows a huge spike in movement out of big metro areas during the pandemic." *Brookings,* April 2022

Nursing Homes

"COVID-19 crisis advances efforts to reimagine nursing homes," *JAMA Network*, October 2021.

"Covid awakened Americans to a nursing home crisis. Now comes the hard part." *Washington Post*, April 2021.

Introducing the Curated Data Enterprise

The U.S. Census Bureau has begun modernization activities towards creating a **universal frame** that could form the foundation for a transformative capability to **integrate** the Bureau's demographic and economic **surveys and censuses with administrative and third-party data.**

This new innovative state is called the **Curated Data Enterprise (CDE)**.

CURATED DATA ENTERPRISE

The Census Bureau of the Future

- Both an infrastructure and a continuously evolving ambition to **empower and enable** Bureau scientists and their data users to develop **new measures** of people, places, and the economy.

- Exploits **multiple data sources**, from sample surveys, censuses, and other official administrative and third-party data, which can provide **more robust, timely, and comprehensive measures** when combined.

Research Components of the CDE

Goal: Illuminate the needed capabilities of the CDE and support its development

- Start with how to capture purpose and use
- Develop information collection processes for each box in the CDE framework
- Give insights into standards and automation
- Develop theory and methods

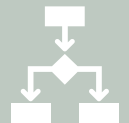Curated Data Enterprise Framework
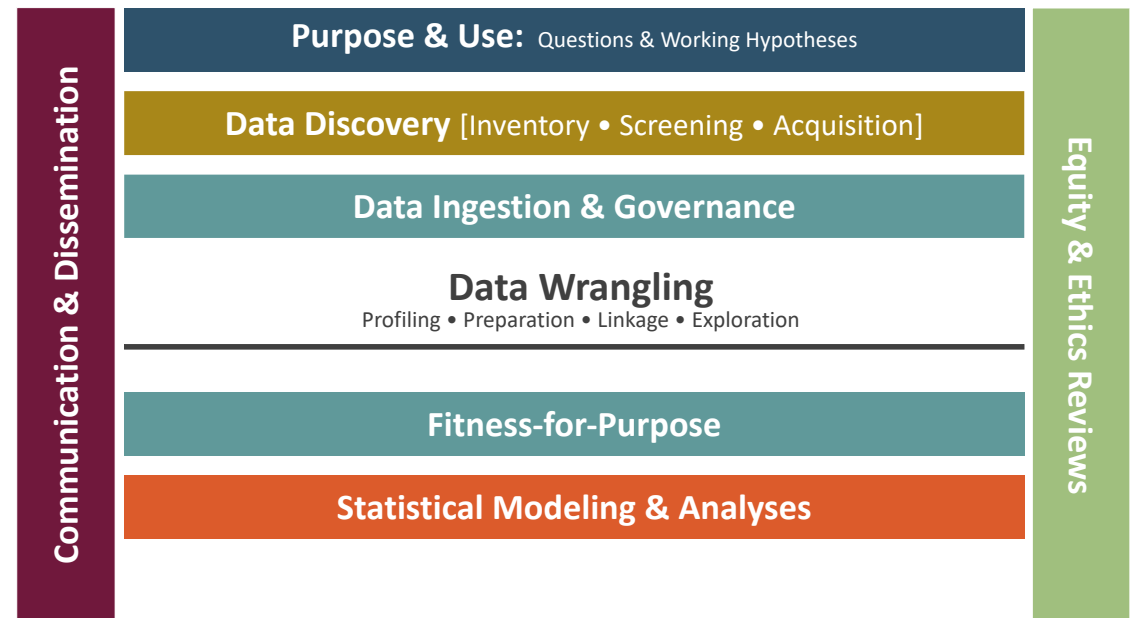
Curation applied at every step

Thinking Like a "Local"

More than 70 percent of the 31,600 Places in the U.S. have fewer than 4,000 persons.

Local Planners as Consumers of data: Knowledge of population and the local economy permit an assessment of decisions and strategies adopted by local officials.

Local Planners as Directors: Decisions and strategies affect the quality-of-life of residents.

Reacting to the Pandemic: Questions and Strategies

Thinking Like a "Local" - Three Key Knowledge Areas for the local town planner:

1. Local economy/business: How are residents able to sustain themselves economically?

2. Are residents reacting to the pandemic "with their feet?" What is the impact on population?

3. What about those who are most vulnerable, e.g., persons in nursing homes?

Use Case - Understanding the State of Elder Care

Art of the Possible

- Comprehensive picture of elder care
  - Residents (vulnerable populations)
  - Staff
  - Owners

Data Sources

- Group Quarters (GQ) population-based on decennial census, ACS
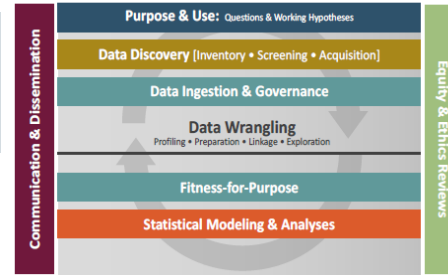- CMS administrative data
- BLS, CDC, NIH surveys

CDE Capability to Exercise

- Develop cross-agency partnerships
- Integrating data with different units of analysis, timing, geography

Older Populations
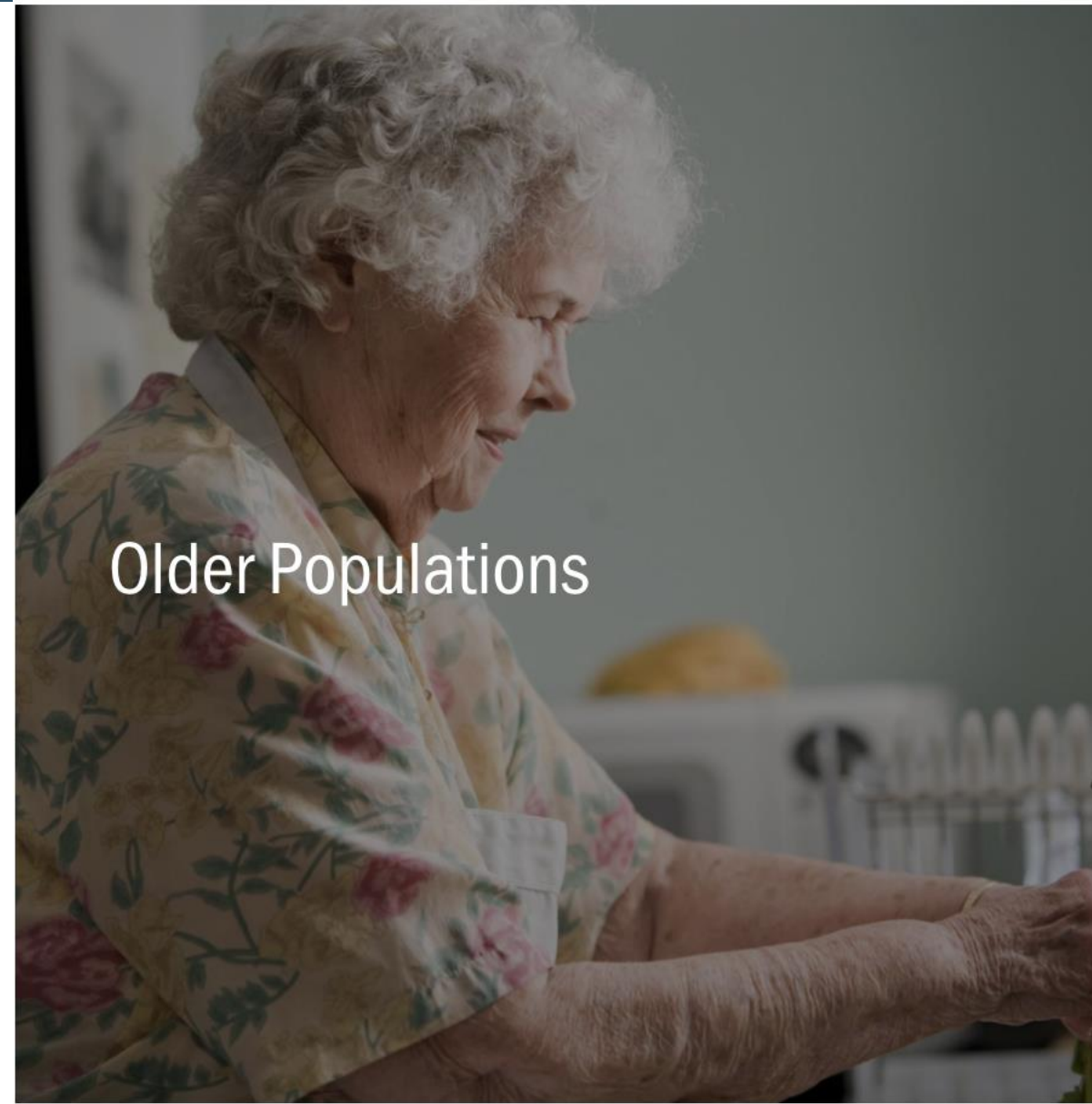
Applying the CDE in Response to a Climate Event

Baseline Curated Data Enterprise

Census Linked Frames

- Geography
- People
- Jobs
- Businesses

County Level Measures

- # of nurses for every 1000 persons >= 65
- # of home health agencies for every 1000 persons >= 65
- # of hospital beds for every 1000 persons >= 65
- # of empty nursing home beds divided by the # of nursing homes

Census Tract Level Measures

- CDC Social Vulnerability Index
- Climate and Economic Justice Screening Tool climate disadvantaged census tract designation

Skilled Nursing Home Measures

Residents

Demographic:
- Percentage
- Minority
- Percentage > 65
- Mental Health
- Physical Health
- Cognitive Function
- Percentage on Medicaid
- Total # of residents

Workers

Hours:
- RN hours/ resident day
- LPN hours/ resident day
- CNA hours/ resident day

Turnover:
- Total nursing staff turnover
- # of administrators who have left

Owners
- Facility type
- Whether the facility is a chain
- Whether the facility changed hands in the last 12 months

A comprehensive picture of nursing homes

Facility Safety Assessment
Total # of safety deficiencies over the last 3 years

Emergency Preparedness
Total # of emergency preparedness deficiencies over the last 3 years

- Building Knowledge Base (BKB)
- Transportation infrastructure
- How workers get to the nursing home
- Worker demographics
- Where workers live

- Hurricane, flooding, and riverine flooding predictions
- Past hurricane and extreme flooding events

Severe Climate Event

Data Products

Building on the baseline to address specific questions

**Net residential movement was highest in areas with higher incomes**

Chart 3. Monthly Net Residential Moves by Borough, 2018-2021
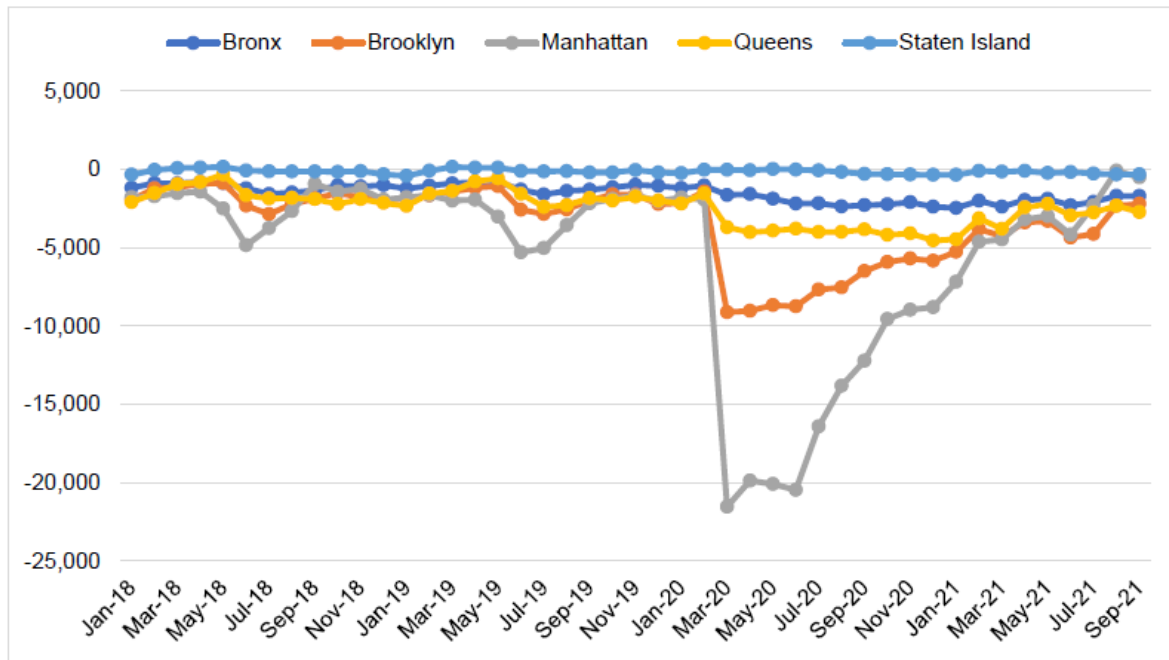
SOURCE: NYC Comptroller's Office analysis of United States Postal Service, "Change of Address Stats,"
https://about.usps.com/who/legal/foia/library.htm.

Note: Includes temporary and permanent moves.

Map 1: Change in Net Residential Moves from Pre-Pandemic Trend in 2020 (Change in Net Residential Moves per 1,000 Residents in 2020, as Compared to 2019)
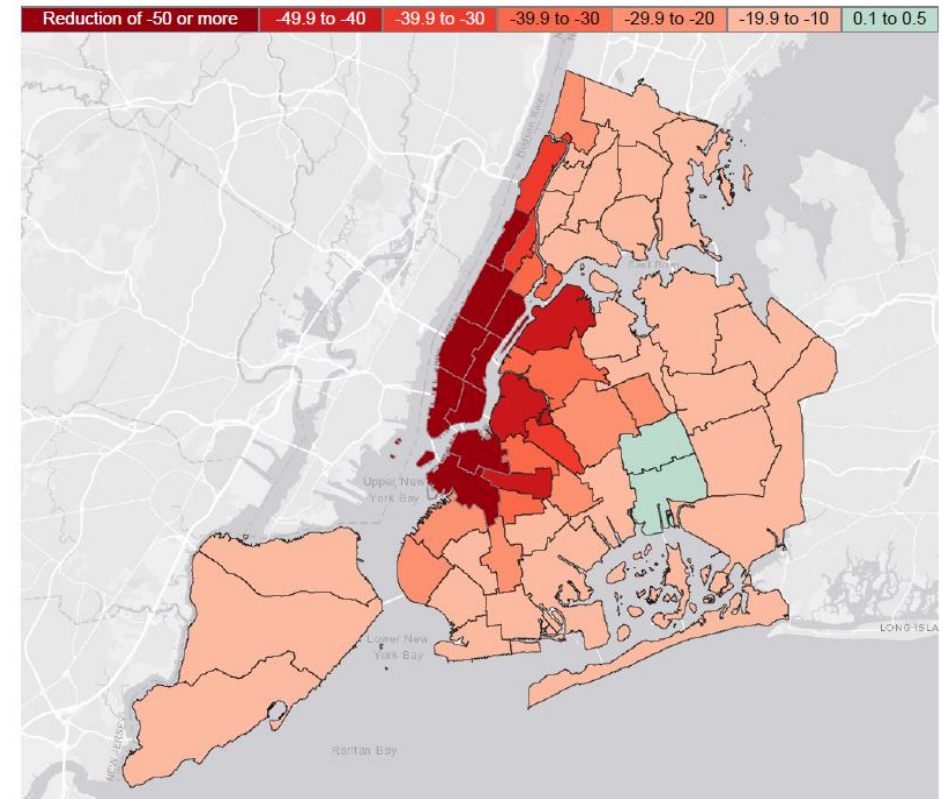
SOURCE: NYC Comptroller's Office analysis of United States Postal Service, "Change of Address Stats,"
https://about.usps.com/who/legal/foia/library.htm.

Note: Per-capita figures based on 2020 decennial census data. Includes temporary and permanent moves.

What is the "Art of the Possible?"
From the Local Planner's Perspective

Goal is to

Forge a path that leads to evidence-based decisions to mitigate shorter-term impacts related to the pandemic and devise longer-term strategies to promote economic growth
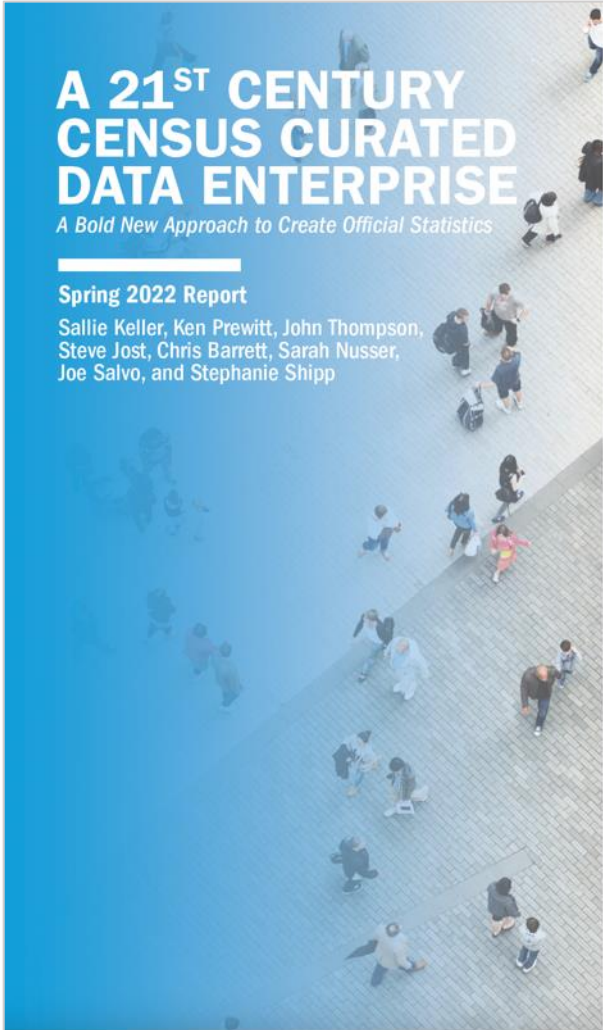
Based on

A timely and accurate view of the current demographic and social characteristics of the population and the economic conditions of individuals and businesses

Using

Data products that are actionable at a local level

https://biocomplexity.virginia.edu/
institute/divisions/social-and-
decision-analytics/census

A 21ST CENTURY CENSUS CURATED DATA ENTERPRISE

A Bold New Approach to Create Official Statistics

Spring 2022 Report

Sallie Keller, Ken Prewitt, John Thompson, Steve Jost, Chris Barrett, Sarah Nusser, Joe Salvo, and Stephanie Shipp

UVA BIOCOMPLEXITY INSTITUTE

UVA | BIOCOMPLEXITY INSTITUTE

A 21st Century Census Curated Data Enterprise

Supporting Innovation at the U.S. Census Bureau

Numquam sagittis voluptate! Quidem diam quasi? Donec turpis dis aspernatur, itaque libero! Nunc quas imperdiet, maxime! Dignissimos blandit

Reports

Spring 2022: A Bold New Approach to Create Official Statistics

White Papers

New ideas for a new era

Appendices

In the News

Innovation

U.S. Census Bureau's History of Innovation

Use Cases

Art of the Possible

UVA | BIOCOMPLEXITY INSTITUTE

For additional information please contact Joseph Salvo at ckp7gd@virginia.edu