Data In Motion: Impacts of a Common Operating Picture for Public Health
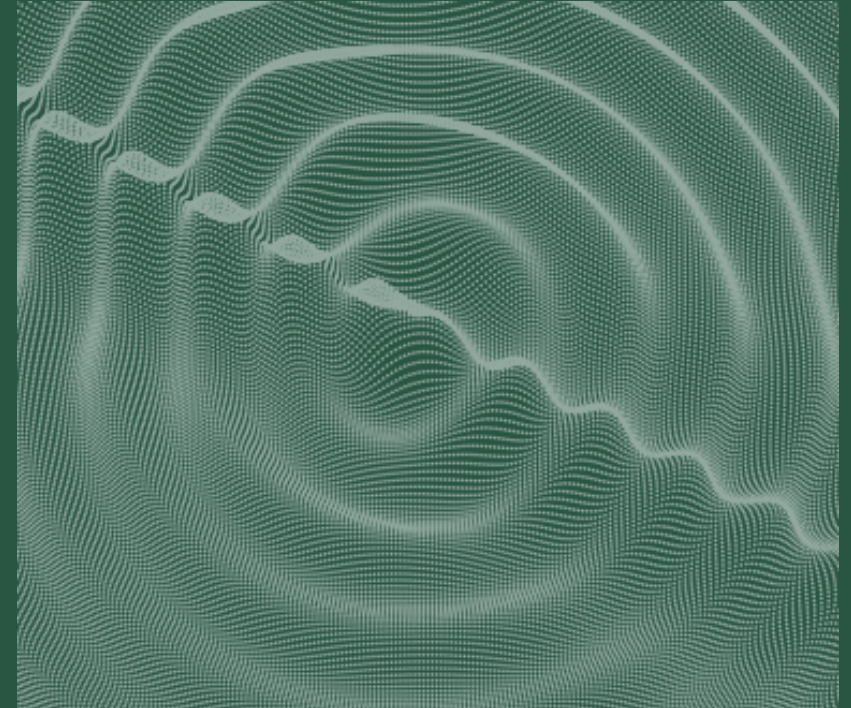
Palantir Technologies, USG

Eric Heller

CDC Account Lead

Shannon Harrer

Health and Science Strategy Lead

Agenda

→ Introduction and the Public Health Challenge

→ Common Operating Picture (COP) Fundamentals

    ▪ Case Study 1: Coordinated Foodborne Outbreak Operations
    ▪ Case Study 2: Whole-of-Government Pandemic Response Operations

→ Concluding Remarks: Vision for an Interoperable Future

Introduction

Who We Are

Palantir is a commercial software company. We make software that connects data and analytics to operations and decisions.
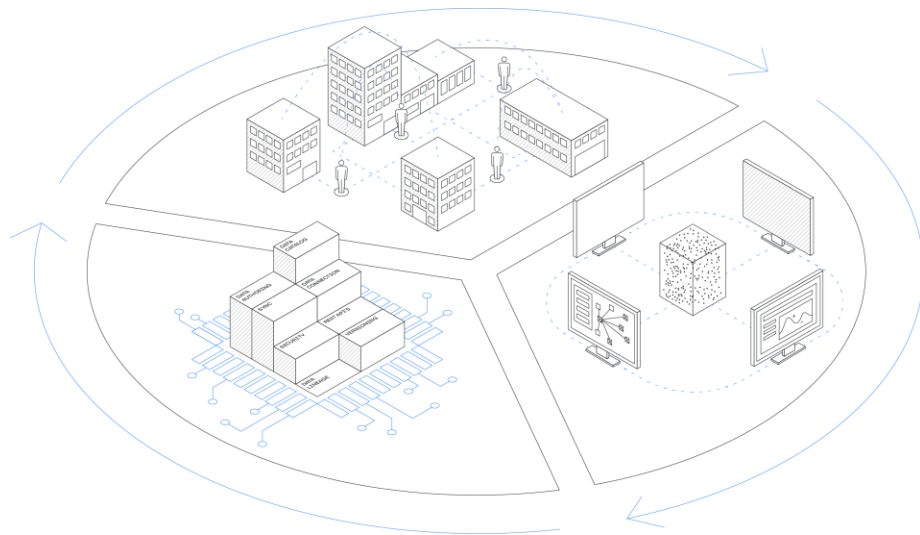
Our Partners in Health

| NIH | | USDA | | WFP | | CLEVELAND CLINIC

| FDA | | CDC | | ASPR | | MD ANDERSON

| VA | | PEPFAR | | HHS | | MERCK

What Our Software Does

→ Connects people, data, and decisions

→ Integrates human and organizational process flows with data

→ Protects data and privacy

→ Continually evolves to meet real-world challenges

The Challenge

In the context of technology and innovation, the gap in frameworks and technical infrastructure for connecting public health data to real-world decisions is the biggest challenge plaguing public health.

Challenges of public health decision making:

- Collaborating on messy data

- Complex web of diverse partners

- Thoughtful orchestration

- Connecting data to real world decisions and actions

A Common Operating Picture (COP) requires:

- Confidence in the underlying data and a shared ontology

- Flexibility

- Ability to support diverse users and user groups

- Security
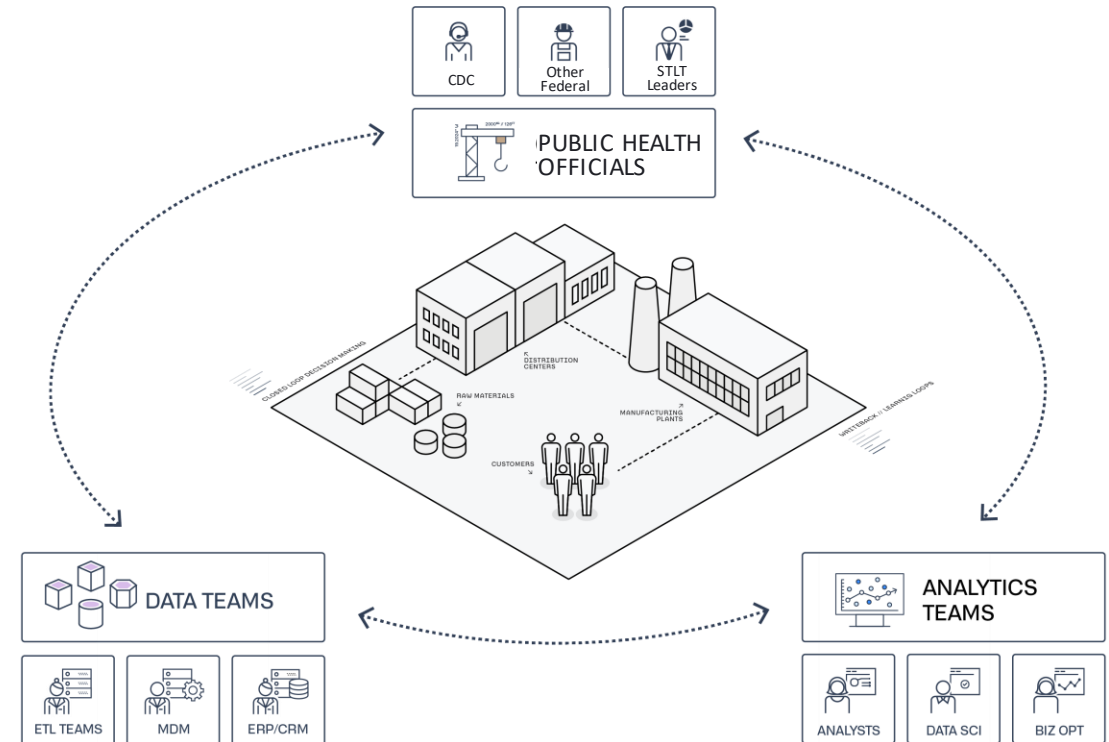
A connected, operationally-oriented view to understand the state of the world, share context, collaborate on decision making, and track outcomes.

Case Study 1: Coordinated Foodborne Outbreak Operations

In 2008, the U.S. saw a massive Salmonella outbreak. When the outbreak closed, there had been over 1442 cases located in 43 states; 286 individuals were hospitalized and 2 people died. **There was too much data in too many places.**

Outbreak strain of Salmonella found in jalapeno
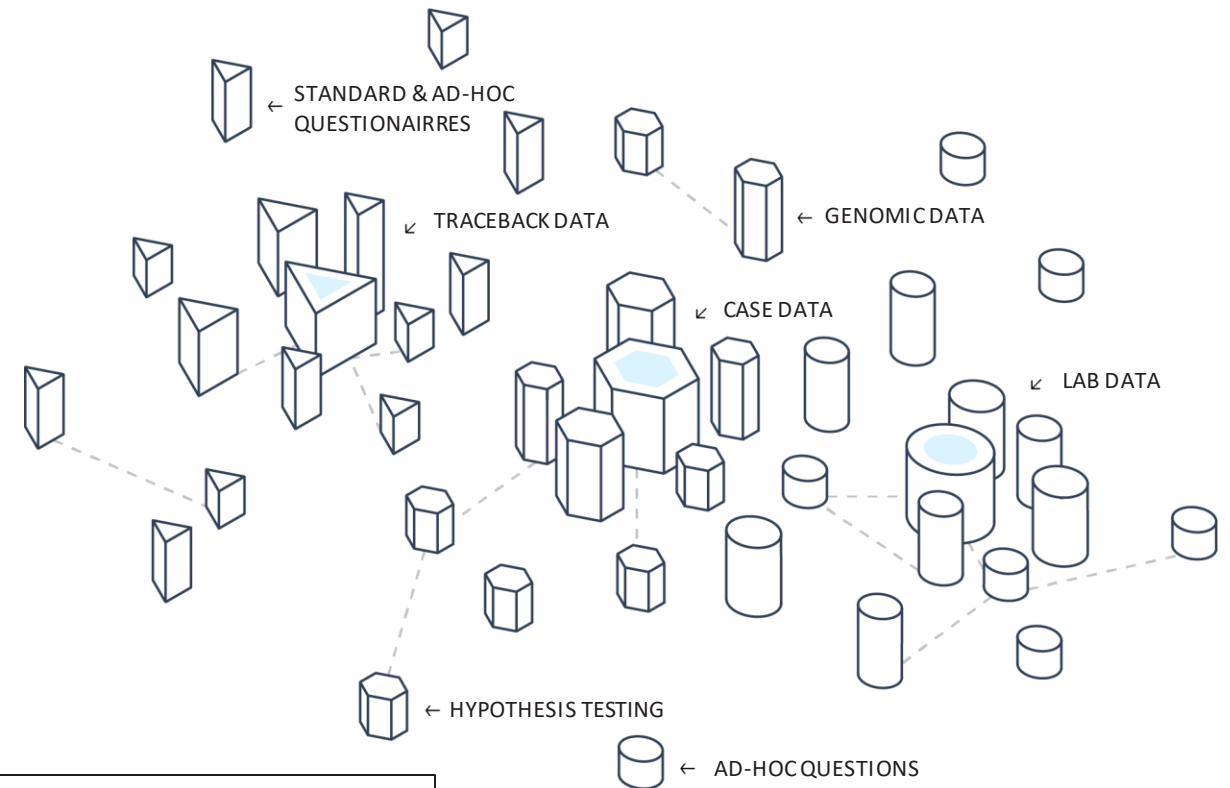
Lisa Schnirring, July 21, 2008

Topics: <u>Foodborne Disease</u> , <u>Salmonella</u>

U.S. narrows salmonella warning to Mexican jalapenos

Salmonella Saint Paul Tainted Tomatoes in Arizona, California, Colorado, Connecticut, Idaho, Illinois, Indiana, Kansas, New Mexico, Oklahoma, Oregon, Texas, Utah, Virginia, Washington, and Wisconsin.
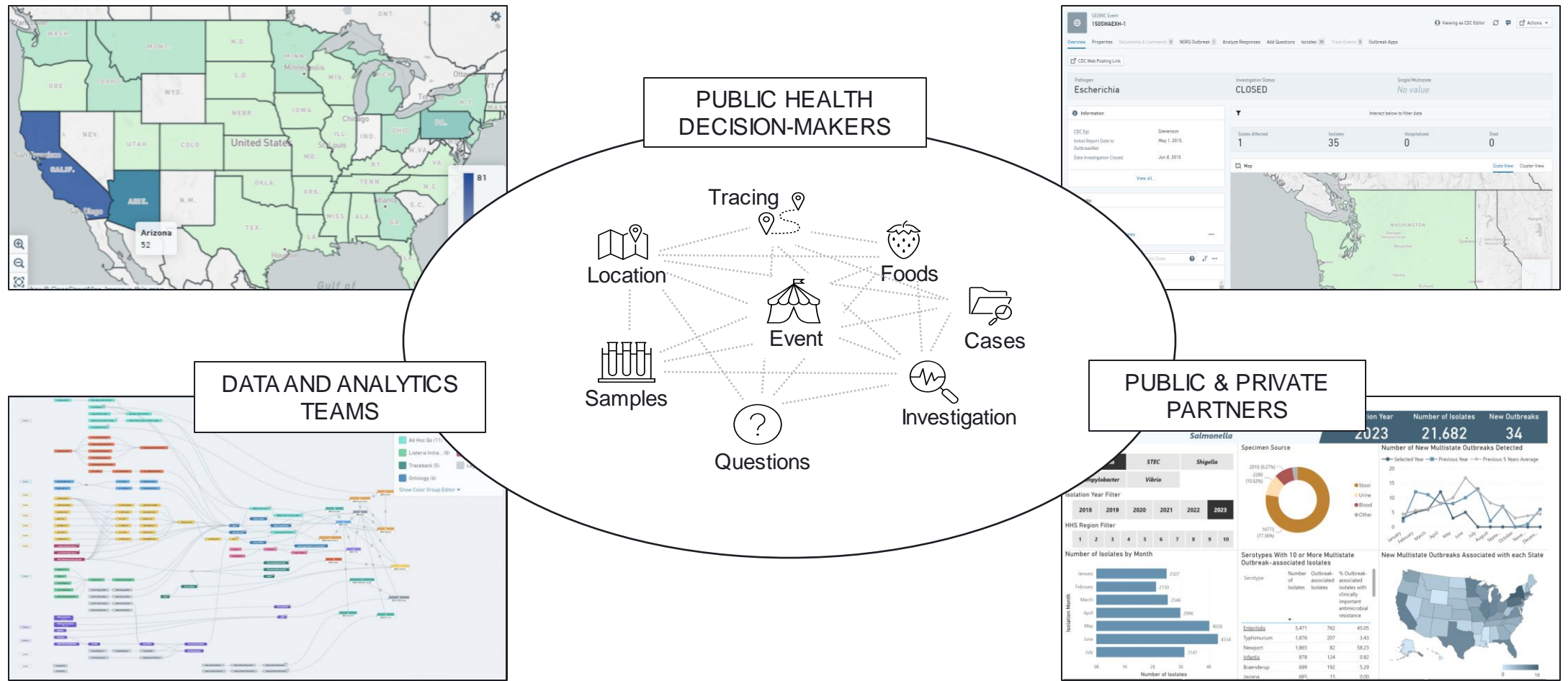
By Food Poisoning Attorney on June 8, 2008

Salmonella outbreak sickens over one thousand in United States

← STANDARD & AD-HOC QUESTIONAIRRES

↙ TRACEBACK DATA

← GENOMIC DATA

↙ CASE DATA
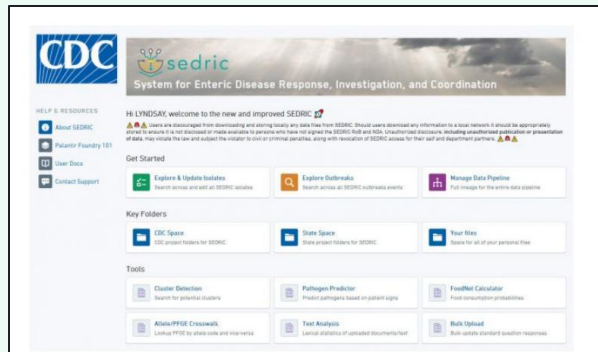
↙ LAB DATA

↙ HYPOTHESIS TESTING

← AD-HOC QUESTIONS

Case Study 1: Coordinated Foodborne Outbreak Operations

In 2010, CDC established the System for Enteric Disease Response Investigation and Coordination (SEDRIC) to integrate its data, people, and processes for **coordinated decisions and actions**.

PUBLIC HEALTH DECISION-MAKERS

DATA AND ANALYTICS TEAMS

PUBLIC & PRIVATE PARTNERS

Tracing
Location
Foods
Event
Cases
Samples
Investigation
Questions

Case Study 1: Coordinated Foodborne Outbreak Operations

Today, over 600 federal, jurisdictional, and other partners use SEDRIC for their daily program operations including outbreak investigation and response. However, **the biggest story is that** *there often is no story at all.*

Foundational ontology

OBJECTS NOT USED

Evolves with partner needs
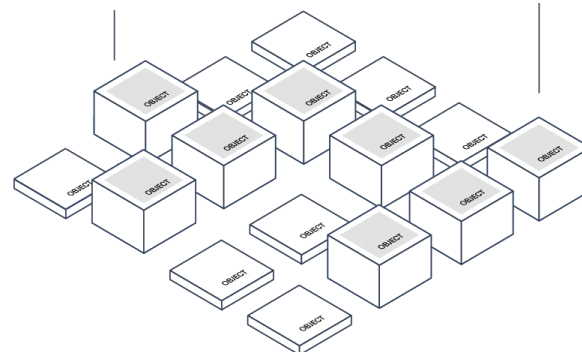
Adapts to real-world developments

Common Operating Picture Fundamentals

Approach: Provide the technical infrastructure to connect public health data to real-world decisions. The ontology and the common operating picture that emerge are key enablers to that connection.
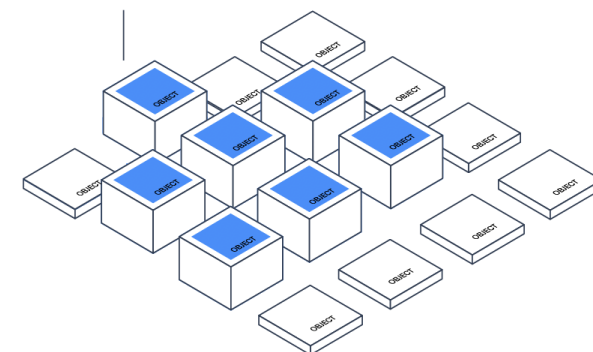
→ Public Health Ontology

→ A Platform Enabling Data in Motion

    → Collaborative, many-to-many flows

    → Everyone is a producer, everyone can be a consumer

    → Decisions captured as data

03 OPERATIONAL & DECISION MAKING APPLICATIONS

OPERATIONAL APPS · DYNAMIC REPORTING · MODELING & ANALYTICS

02 ENTERPRISE ONTOLOGY

ED VISIT · VACCINE · MORTALITY · REGION · HOSPITAL
SOCIAL DETERMINANT · CASE · LAB TEST · STATE · GENOMIC VARIANT

01 PLATFORM CORE DATA IMANAGEMENT

00 SOURCE SYSTEMS

Palantir Health
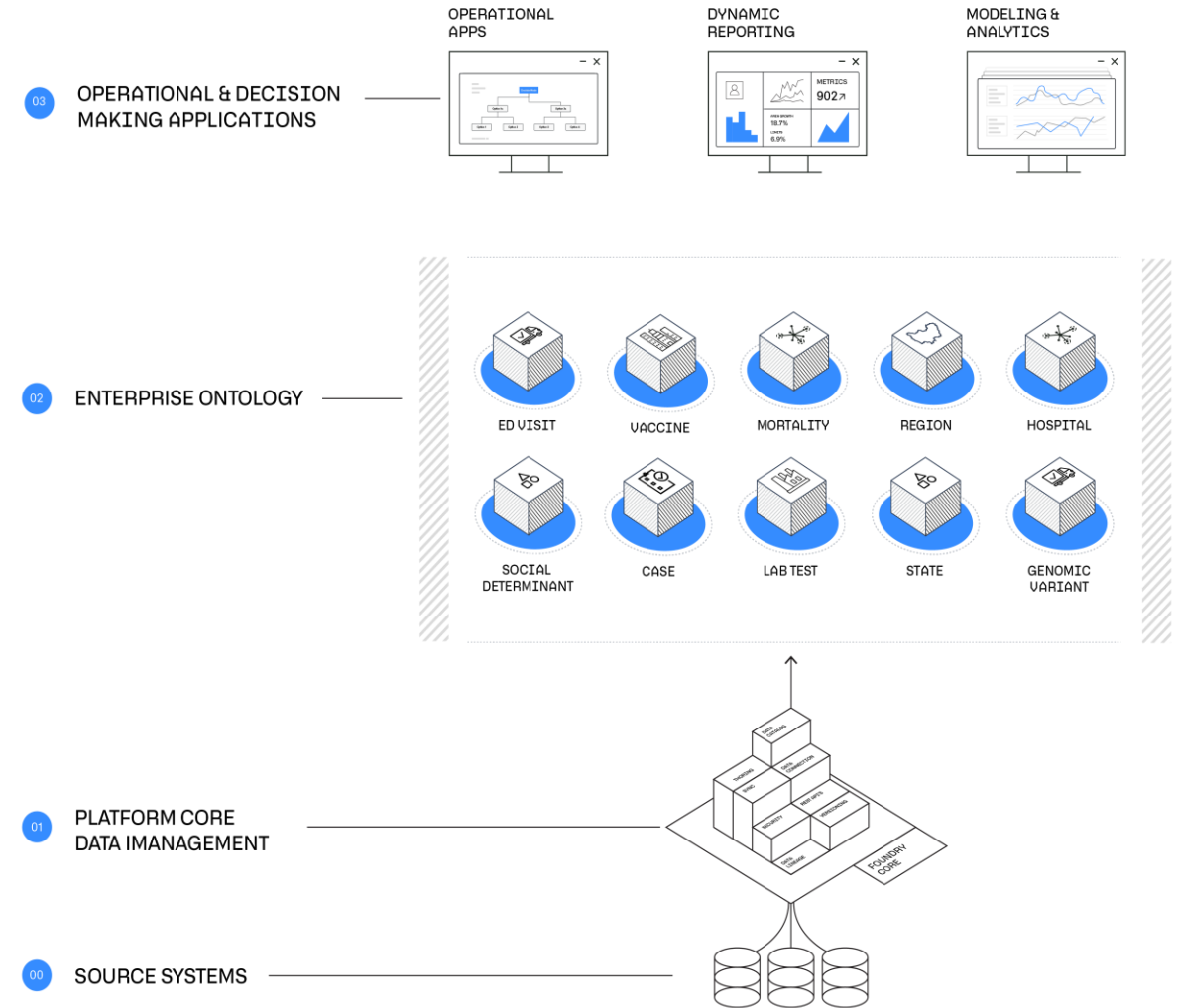
Case Study 2: Whole-of-Government Pandemic Response Operations

Challenge: Not simply too little data, disconnected data, or data in the wrong place. It was a limited ability to connect the data to decisions being made.

→ It took **days** to standup HHS Protect as the whole-of-government pandemic response COP

→ 300+ data sources, including case, testing, hospitalization, mortality, mobility, schools, therapeutics, medical supply chains, social determinants, and more

→ Nearly 4000 users, across 30+ federal agencies, 56 + states and territories, and the private sector

CDC details first U.S. case of novel virus spreading in China

Reprints

Hospitals struggle with PPE shortages amid new COVID-19 surges

By Robert Ki

48 states have ordered or recommended that schools don't reopen this academic year

CDC calls on Americans to wear masks to prevent COVID-19 spread

NEWS

'Spreading like wildfire': Alabama hits record number of daily COVID cases as omicron surges

Covid-19: First vaccine given in US as roll-out begins

Palantir Health

# Case Study 2: Whole-of-Government Pandemic Response Operations

→ As COVID-19 spread, public health officials identified hotspots to drive early responses

  → Identified COVID-19 outbreak clusters based on public health-defined algorithms and data from fragmented sources

→ As the pandemic evolved, CDC transitioned to COVID Community Levels (CCL)

  → Updated CDC's COP logic, while leveraging data and the ontology

→ **Outcomes**

  → Public awareness of impact and spread

  → Secure, whole-of-government collaboration

  → Nationwide situational awareness and decision support tools

January 2022
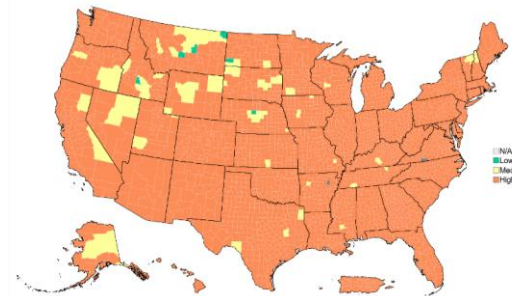
February 2022

	% of Counties	% of Pop.
Low	0.2%	0.0%
Medium	3.2%	0.5%
High	96.5%	99.5%
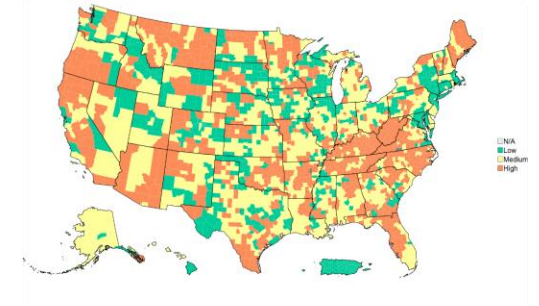
	% of Counties	% of Pop.
Low	23.0%	29.5%
Medium	39.6%	42.2%
High	37.3%	28.2%

WHAT'S A COVID-19 COMMUNITY LEVEL?

• It's a new tool to help communities decide what prevention measures to take based on the latest data

• Every community in the United States is classified as:

**Low** Limited impact on healthcare system, low levels of severe illness

Medium Some impact on healthcare system, more people with severe illness

High High potential for healthcare system strain; high level of severe illness

Vision for an Interoperable Future

A common operating picture provides the technical infrastructure to allow for interoperability of data, people, processes, and outcomes at all levels of public health.
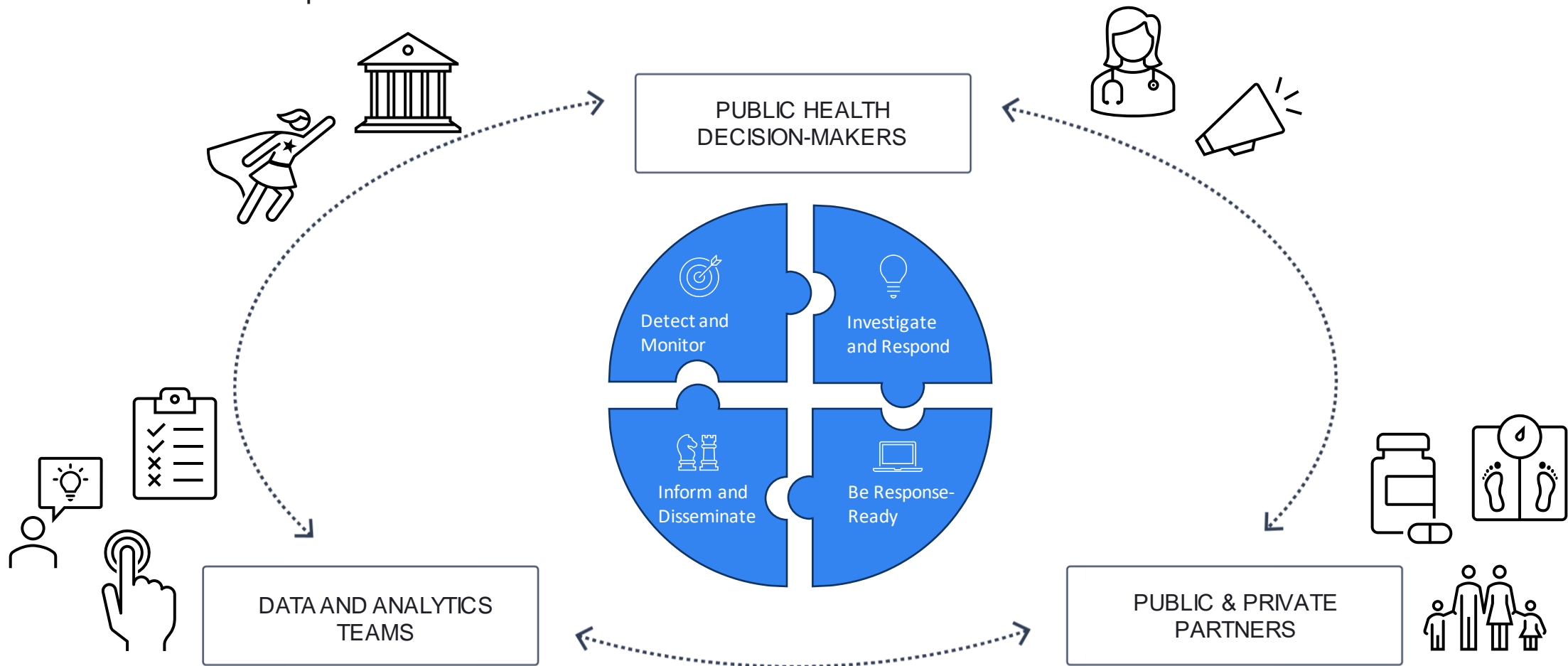
Questions and Discussion

Eric Heller

eheller@palantir.com

Shannon Harrer
sharrer@palantir.com