

USDOT Perspective on Data Collection, Aggregation and Distribution

Transportation Research Board
Annual Conference Workshop on Pervasive Data
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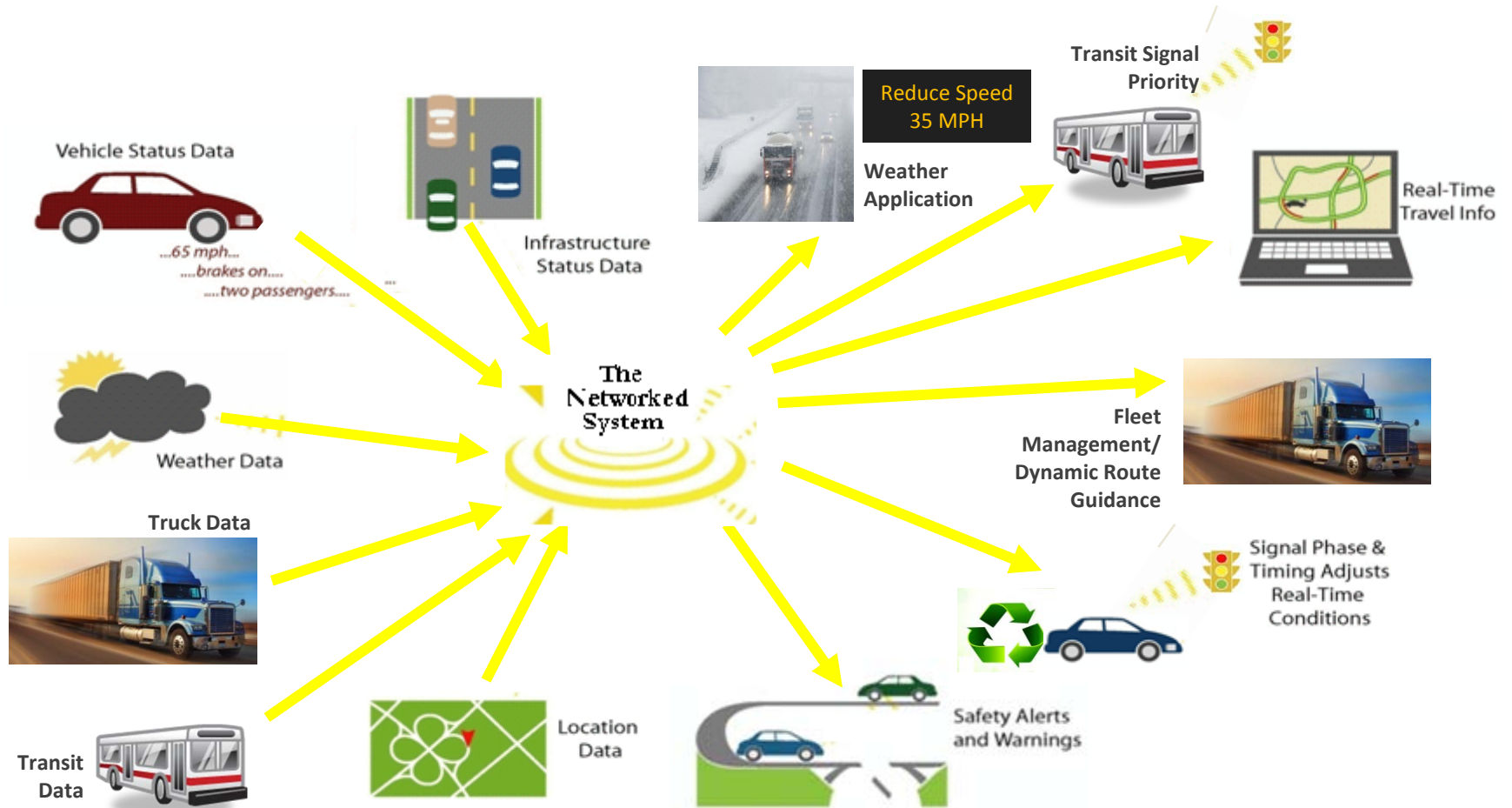
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Presentation Outline

- The Wireless Networked Environment
- The Real-Time Data Capture & Management Programs
- Data Environments
- Outcomes
- Getting Involved

Networked Environment

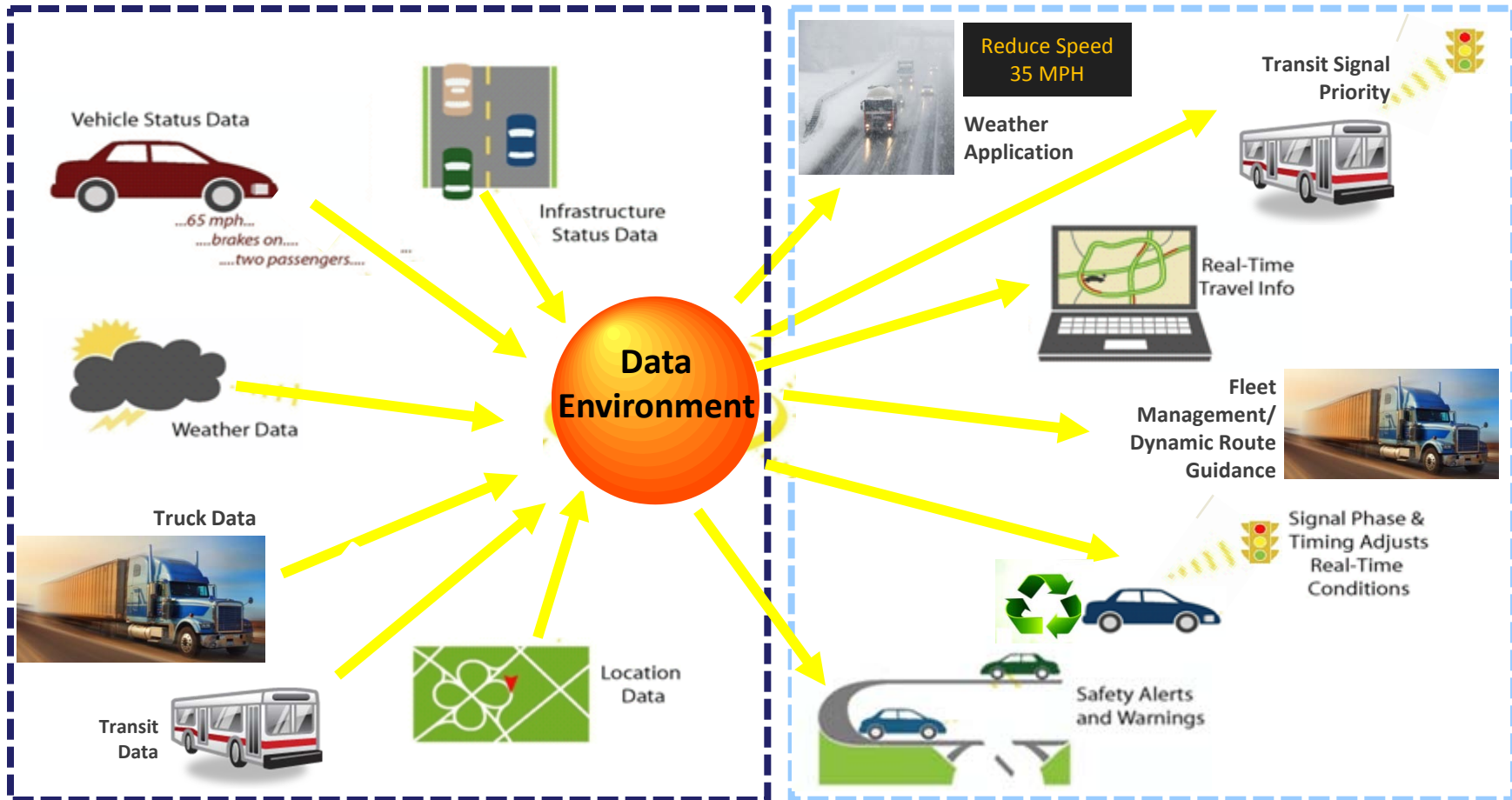
DATA IN, ACTIONABLE INFORMATION OUT



The U.S. DOT Mobility Program

Real-time Data Capture and Management

Mobility and Environmental Applications



Real-Time Data Capture and Management

Vision

- **Active** acquisition and **systematic** provision of **integrated, multi-source** data to **enhance** current operational practices and **transform** future surface transportation systems management

Objectives

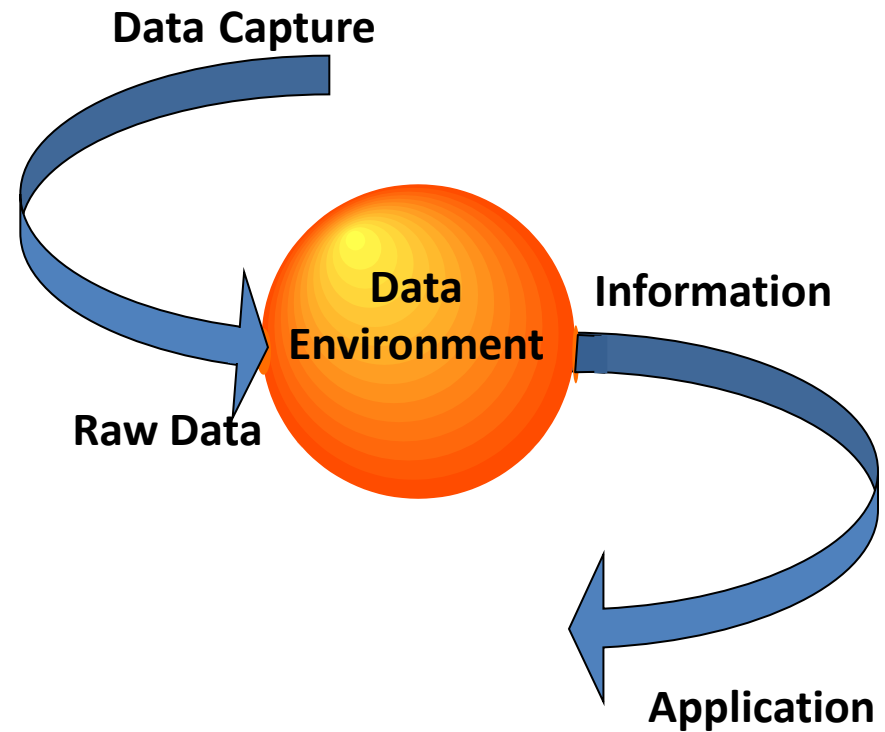
- **Enable systematic** data capture from connected vehicles (automobiles, transit, trucks), mobile devices for passengers, and infrastructure
- Develop data environments that **enable integration** of data from multiple sources for use in transportation management and performance measurement
- **Reduce costs** of data management and **eliminate technical** and **institutional barriers** to the capture, management, and sharing of data



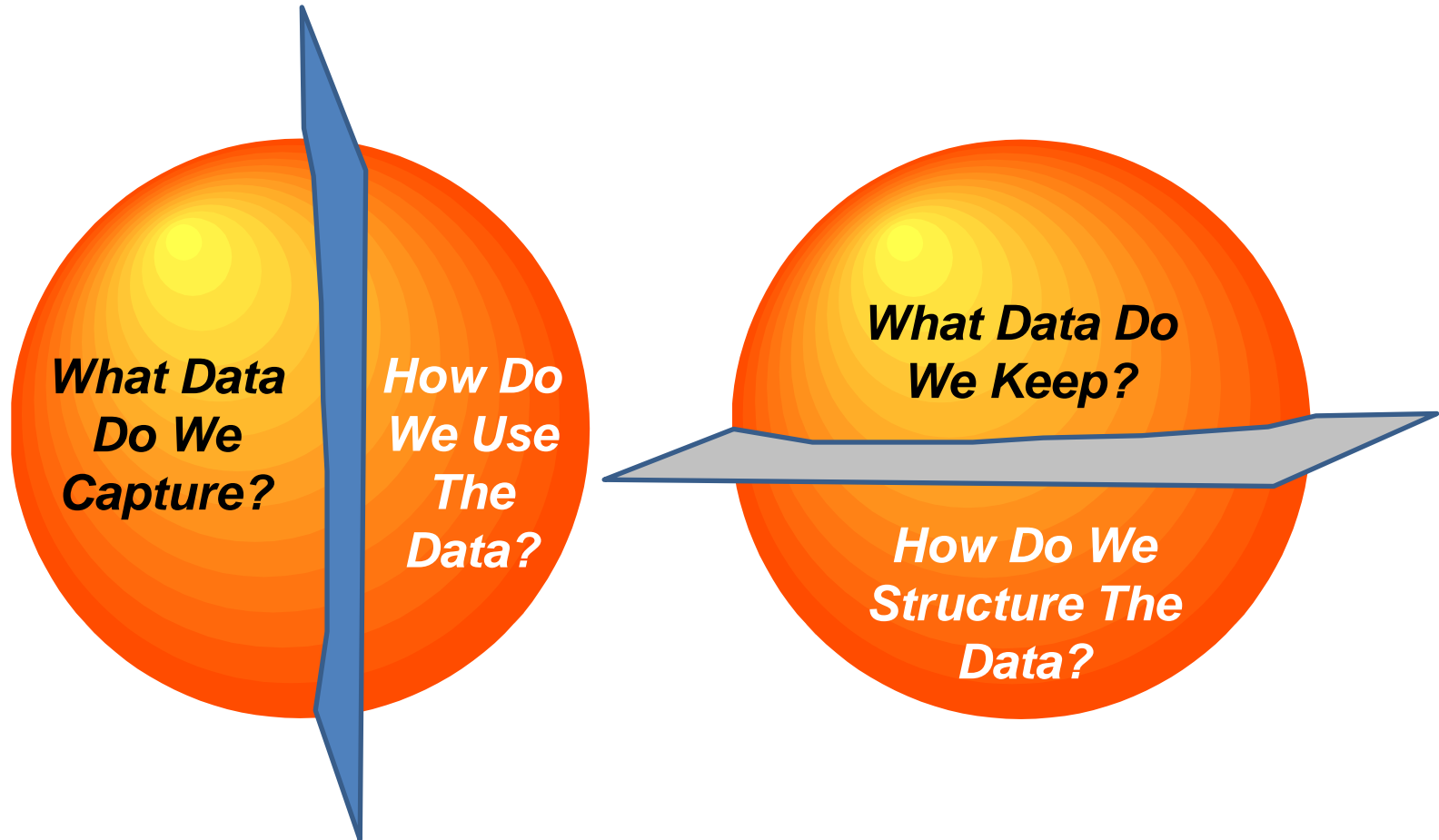
Creating a Data Environment

Data environment:

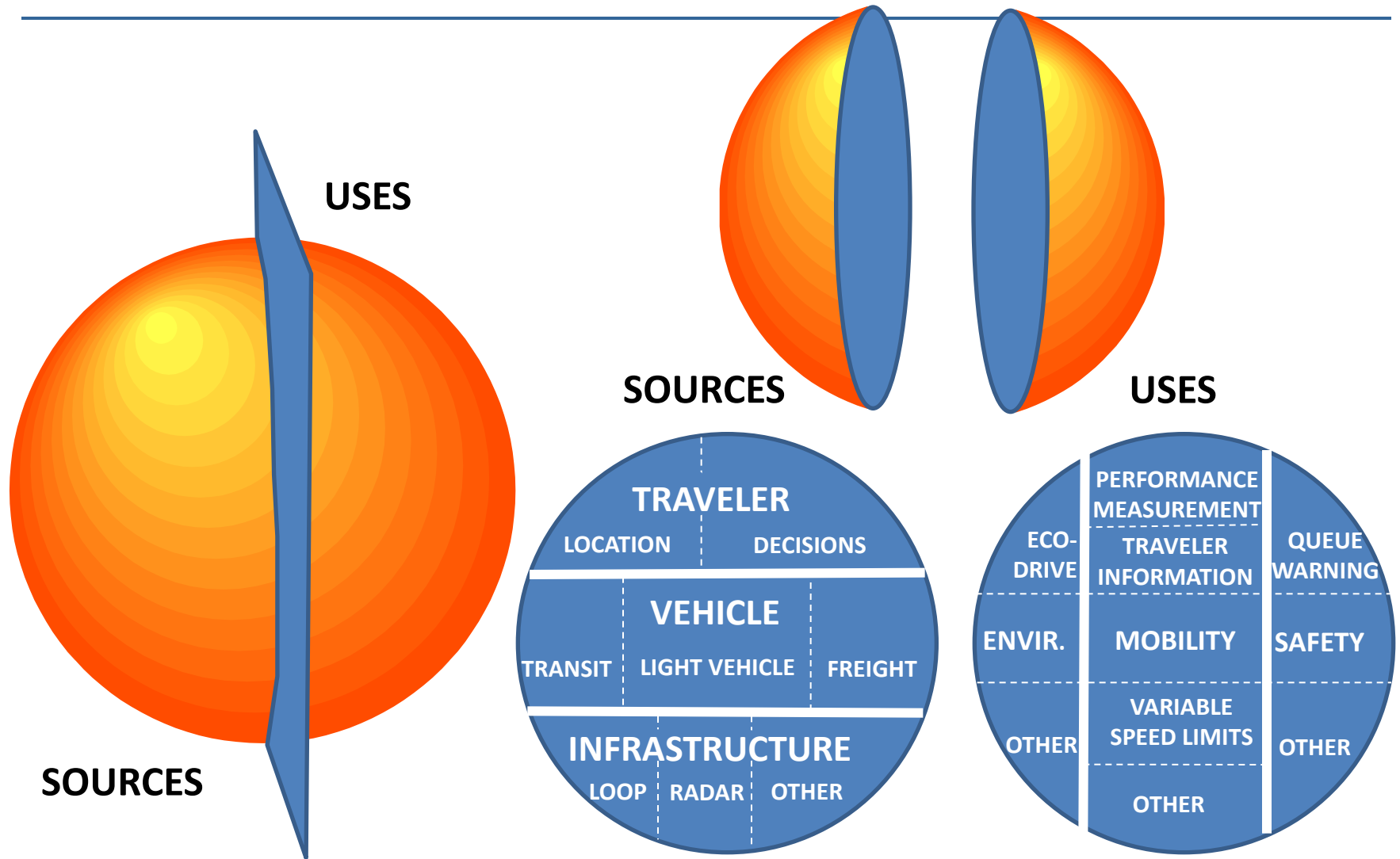
- **Well-organized** collection of data of specific type and quality
- Captured and stored at **regular intervals** from one or more sources
- **Systematically shared** in support of one or more applications



Key Issues in Defining A Data Environment

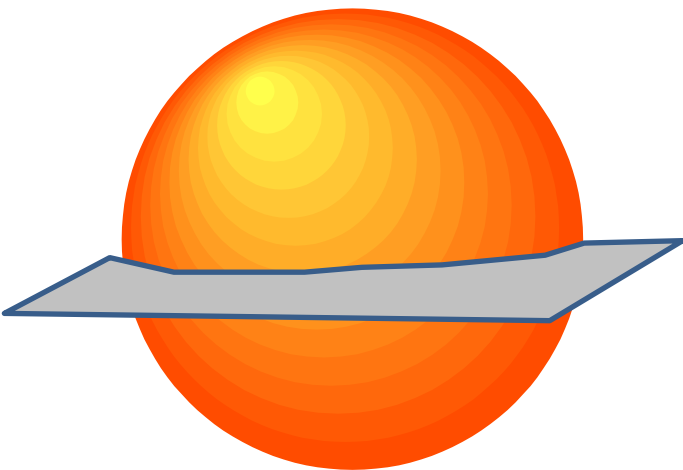


Data Sources and Uses



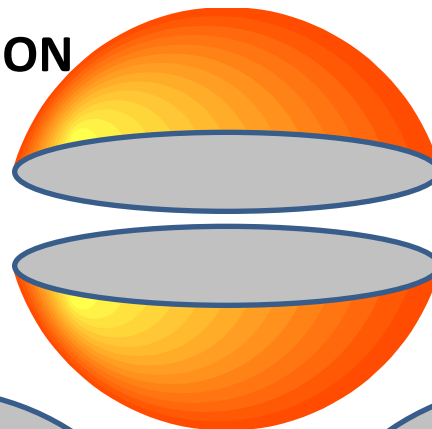
Data Aggregation and Structure

AGGREGATION



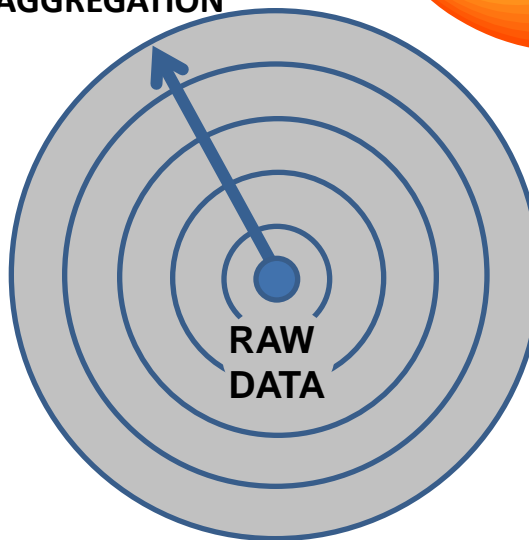
STRUCTURE

AGGREGATION



STRUCTURE

**AREA-WIDE
AGGREGATION**



AGGREGATION



STRUCTURE



Data Structure

Access: Balance issue of open access of data with legitimate security concerns

IP rights: Ensure licensing restrictions of private sector data are preserved while making as much data as possible available without cost

Standards: “Tech neutral”

Anticipated DCM-related Standards
Relevant NTCIP, TCIP, Freight, IEEE,
SAE & International Standards

Storage: Explore the concept of virtual warehousing in addressing storage requirements

Regulation: Address Data Ownership, Terms & Conditions



Privacy: Address concern about protecting the privacy of participants

Data Quality: Implement a data quality assurance matrix



Elements of Data Capture and Management

▪ Meta data:

- Provision of **well-documented** data environment

▪ Virtual warehousing:

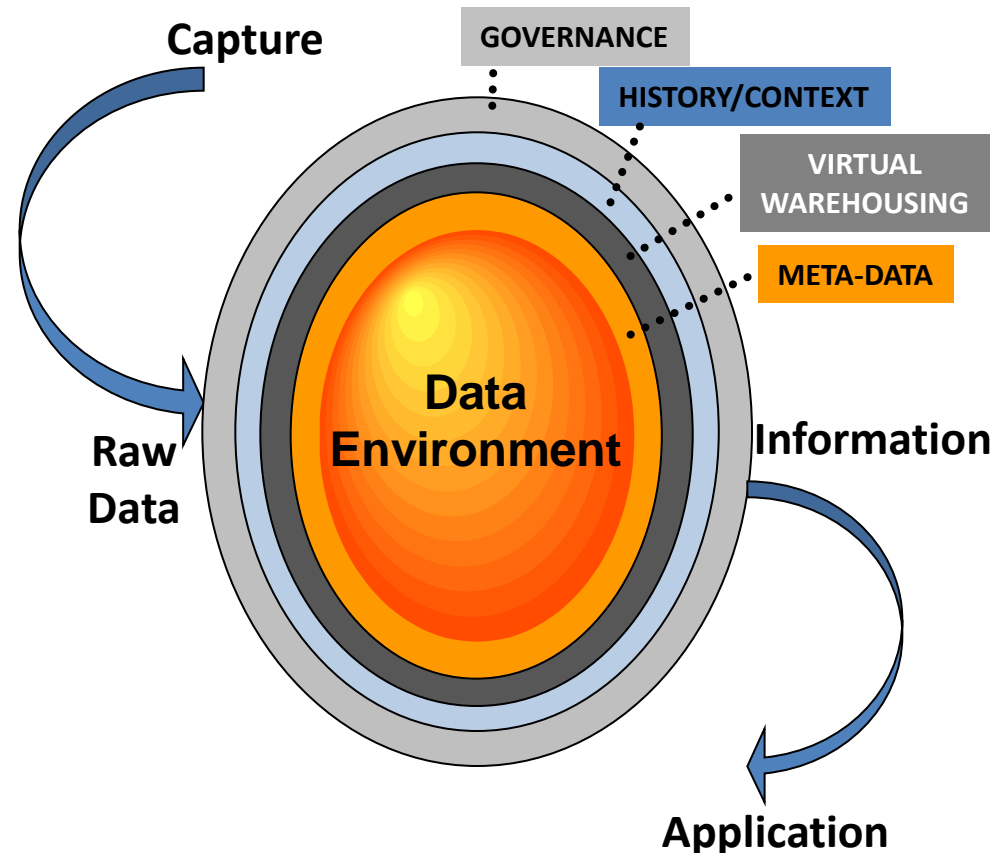
- Supports **access to data** environment and forum for collaboration

▪ History/context:

- Objectives of data assembly

▪ Governance:

- **Rules** under which data environment can be accessed and **procedures** for resolving disputes



Projected Outcomes

- Establish one or more data environments
- Broad collaboration supporting data environment utilization
- Implementation of data management processes representing best practices
- Provide data resources through data.gov initiative



- Multiple applications developed leveraging multi-source data
- Research spurs commercialization
- Applications enable transformational change

Getting Involved

- Provide feedback on program direction, goals, data environment, mobility applications
- Respond to upcoming funded requests for research and development of mobility applications
- Seek to leverage the program's data and applications resources in other non-federally funded research projects
- Offer new data sets and applications
- Actively commercialize mobility applications developed within the mobility applications program



For More Information...

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