Leveraging Transit Data: Best Practices for Data Management and Sharing

June 29, 2021

Agenda

1. Why share data?

2. How do you share data?

3. How do you get external (non-transit) data?

Why share data? (And why not?)

Transit Passenger Data | Transit System Data

| Fare Card and Bank Card | Security Video | Wi-Fi and Bluetooth | App and Web Page | Survey | Passenger Counts | Incidents | Routes and Schedules | Vehicle Locations | Crew and Operations | Maintenance | Financial |

Risks of Sharing
- Privacy (Fare Card through Passenger Counts); Privacy (Incidents)
- Security (Fare Card through Passenger Counts); Security (Crew and Operations)
- Misuse (Fare Card through Financial)
- Strategic (Fare Card)

Benefits of Sharing
- Transparency (Fare Card through Financial)
- Innovation & Research (Fare Card through Financial)
- Customer Information (Fare Card); Customer Information (Incidents through Crew and Operations)
- Monetary Gain (Fare Card through Passenger Counts)
- Cost Savings (Routes and Schedules through Crew and Operations)
- Data Reciprocity (Routes and Schedules through Crew and Operations)
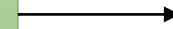
Benefits

- Innovation & Research

- Transparency & Increased Awareness

- Revenue Generation

- Cost Savings

- Data Reciprocity

- Supporting Multi-Modal Travel and Community Functions

Improved Performance and Customer Experience

Risks and Costs

Risks
- Privacy
- Security
- Misuse
- Strategic Risks

Costs
- Staff time and expertise

How do you share data?

Public and Private Data Sharing

Public Data Sharing

✓ Promotes transparency and increases customer access to information

✓ Can spur innovation

✓ Saves transit agencies time responding to individual requests in the long run.

✗ Lack of control over how the data is used

✗ Public release of data that can be used to identify individuals violates customers' privacy

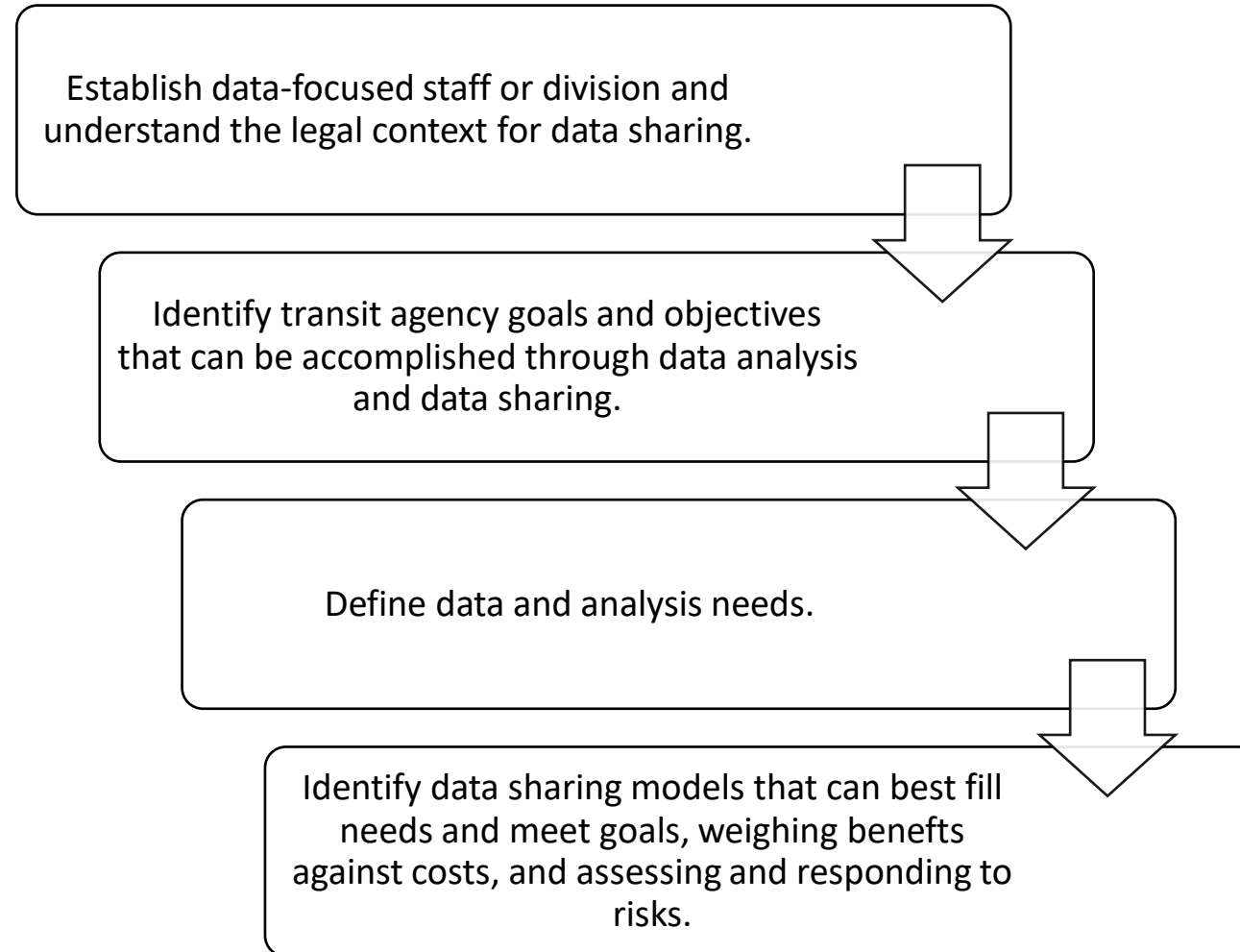✗ Depending on how data is shared, there may be significant effort required upfront

Private Data Sharing

✓ Research partnerships can ensure data is analyzed to support transit agency needs

✓ Training of trusted partners and non-disclosure agreements can enable sensitive data to be safely shared

✗ Significant effort and resources may be required to develop individual data agreements and respond to individual data requests

✗ Perceived lack of transparency and equity – data is only shared with certain partners
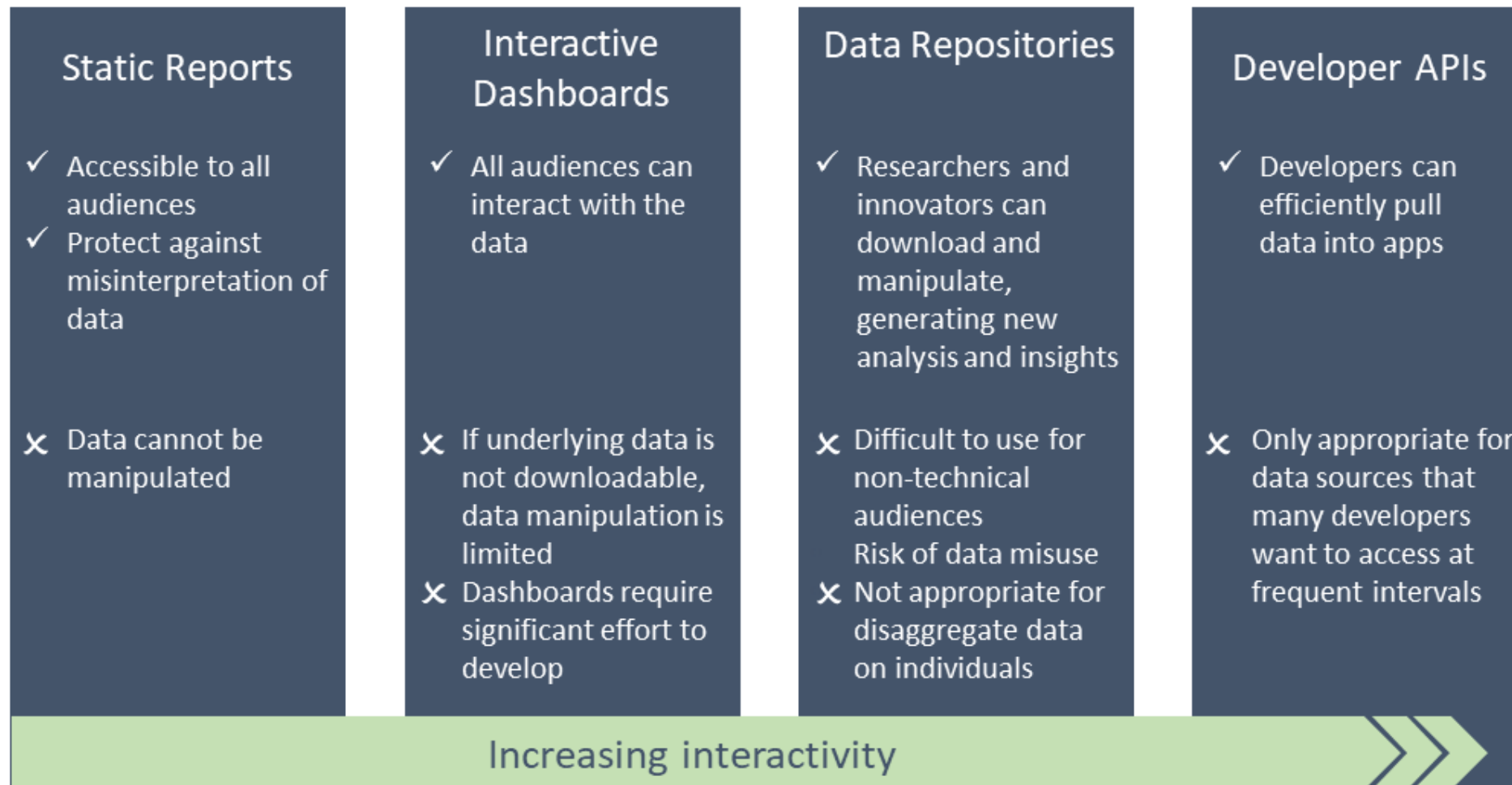
Challenges

- Internal organizational needs

- External needs: protocols and data standards

- Determining best level of aggregation for public data sharing

Developing a Data Management Process to Leverage Data Sharing

Establish data-focused staff or division and understand the legal context for data sharing.

Identify transit agency goals and objectives that can be accomplished through data analysis and data sharing.

Define data and analysis needs.

Identify data sharing models that can best fill needs and meet goals, weighing benefts against costs, and assessing and responding to risks.

Public Data Sharing Methods

Static Reports	Interactive Dashboards	Data Repositories	Developer APIs
✓ Accessible to all audiences ✓ Protect against misinterpretation of data	✓ All audiences can interact with the data	✓ Researchers and innovators can download and manipulate, generating new analysis and insights	✓ Developers can efficiently pull data into apps
✗ Data cannot be manipulated	✗ If underlying data is not downloadable, data manipulation is limited ✗ Dashboards require significant effort to develop	✗ Difficult to use for non-technical audiences Risk of data misuse ✗ Not appropriate for disaggregate data on individuals	✗ Only appropriate for data sources that many developers want to access at frequent intervals

Increasing interactivity ⟫⟫

How do you get data from external entities?

External Data Sources

Public:

- Census
- Household Travel Survey
- Weather
- GIS layers

Private:

- Location data from smartphone location-based services and other devices w/ GPS
- Data from transportation apps (transit planning, fare payment, private mobility services)
- Other data (financial, geospatial)

Methods for Accessing External Data

- Purchasing

- Mobility service partnerships

- Third party agreements

- Regulation/ legislation

Benefits of Accessing External Data

- Enable transit agencies to evaluate overall demand, mode alternatives

- Inform and improve bus operations that are impacted by overall traffic

- Infer information about access and egress modes and needs

Summary

- There are many benefits to sharing data

- There are many ways to share data

- There are many benefits to purchasing data and accessing external data

For More Information

http://www.trb.org/Main/Blurbs/180188.aspx

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