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Model Task Force & Transportation
Data and Analytics Workshop

FTO FORECASTING & TRENDS OFFICE
FDOT TDA TRANSPORTATION DATA & ANALYTICS

Smart Cities Data Collection

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December 2001: Ginger

"As big a deal as the PC"
-Steve Jobs

https://msu.edu/~luckie/segway/i167/i167.html

2018:

38.5 million trips

Source: https://nacto.org/2019/04/17/84-million-trips-on-shared-bikes-and-scooters/

Could we have seen this coming?

- Option 1: Track three trends:

Rise in rideshare and bikeshare adoption rates

Success rates of autonomous vehicle pilots

Number of e-scooters seen on public streets

- Option 2:
  - Ask a tech company, “Are you looking into this?”

Objectives

- Discuss the role of Smart Cities in the data ecosystem
- Define strategies for improving data on emerging mobility trends
- Provide examples of new data strategies

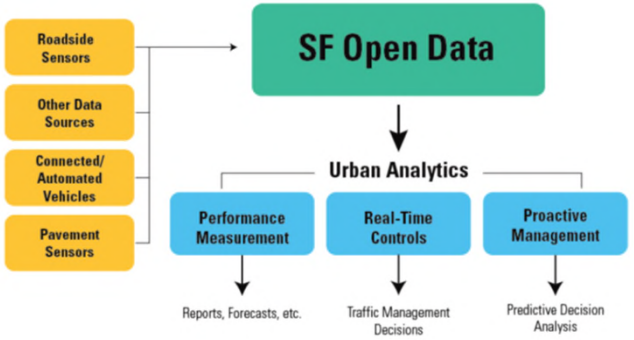
Smart Cities Architecture (30,000 ft)

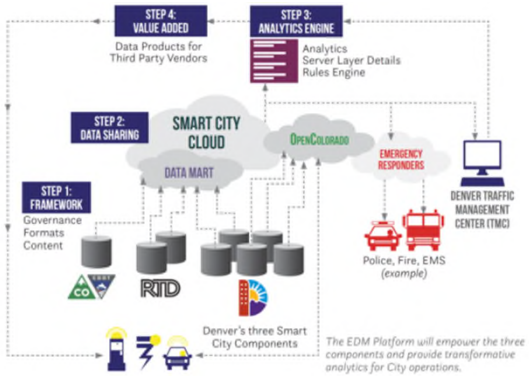
Applications

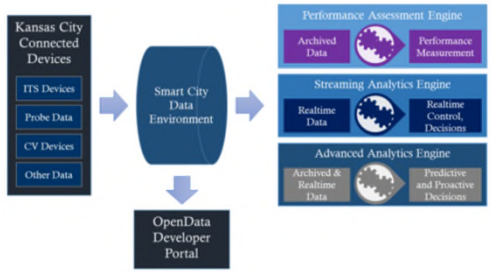
Analytics

Communications

Sensors







Challenge #1: Vendor Engagement

- Example: Connected Corridor pilot program
  - Step 1: Engage local stakeholders
  - Step 2: Install roadside V2X infrastructure
  - Step 3: Deploy connected vehicles
  - Step 4: Monitor progress

- Core issue: how to incentivize privately-controlled assets to participate publicly-run pilot programs?

Solution: Focus on Bottlenecks and Nodes

Bridges

Airports

Intermodal Facilities

Challenge #2: Citizen Engagement

- Smart City solution: City-specific (or agency specific) app
  - Theory:
    - Leverage data being captured by a Smart City
    - Provide to citizens
    - Allow for feedback
  - Reality:
    - Low usage rates
    - Competing with other apps
    - Little useful input from citizens

Leverage existing ecosystems

Open APIs and
standardized feeds

Customer feedback
on private apps

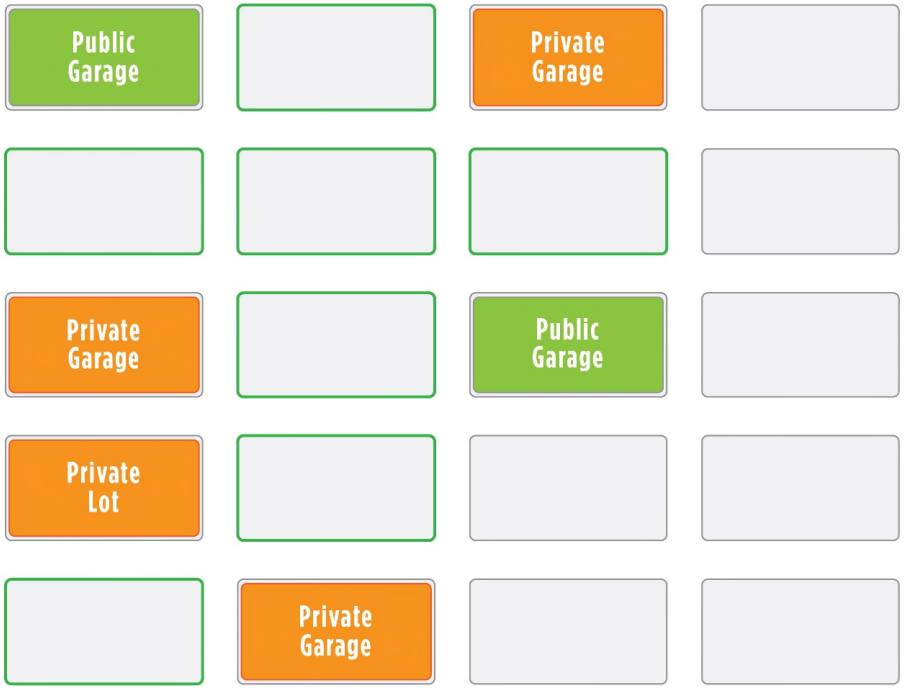
Data
marketplaces

Parking Data from Open Data Platform

- Data Provided: Public Garage Parking
  - Total capacity of garages
  - Real-time utilization rates
- Potential Applications:
  - Parking API
  - Utilization rates
  - Capital planning

Parking Data from an Open Marketplace

- Additional Data Sets:
  - Curb parking
  - Private parking
- Potential Applications:
  - Trip generation rates
  - Land use planning
  - Real estate decisions
  - Curb management



Challenge #2: Planning and designing for data capture

Planning
- RFP requirements
- Census data
- OD surveys
- Mapping

Design
- RFP requirements
- Plans
- Traffic forecasts
- Design standards

Construction
- RFP requirements
- Designs
- ROW requirements
- Permits

Operations
- Sensor data
- Field reports
- Incident reports

Maintenance
- Field inspections
- Complaints
- Warranties and contracts

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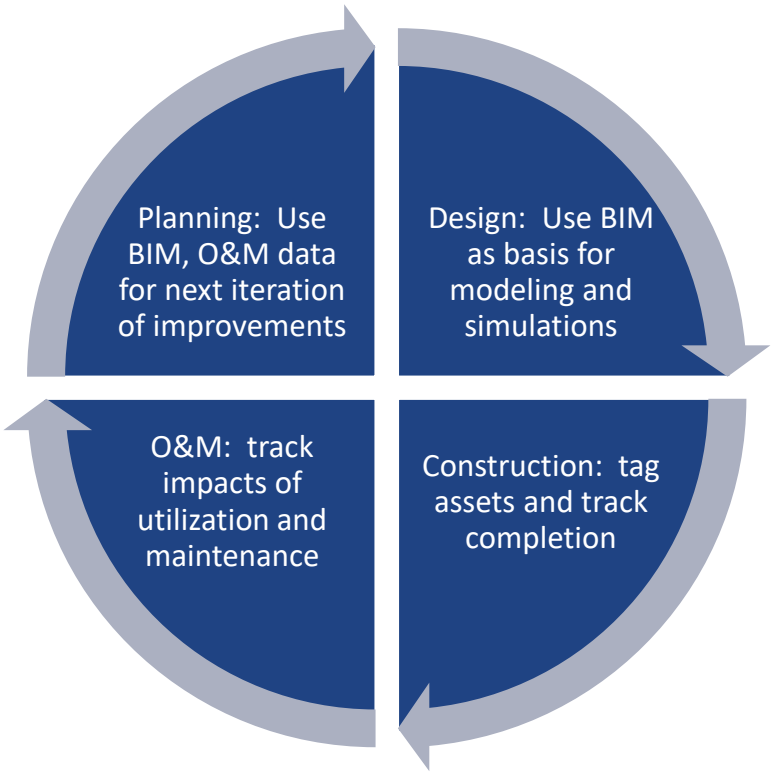
Solution: Develop a lifecycle data strategy

- Build data management requirements into RFPs at every stage
- Leverage data generated from every phase of an asset's lifecycle
- Standardize practices across projects to allow comparisons across projects



Putting it All Together

Potential Opportunity: Public Private Partnerships

- Typically used at transportation bottlenecks or nodes
  - Toll roads
  - Bridges
  - Airports
- Performance criteria incentivize innovative approaches and partnerships
  - Tech spec: "Build a 12-lane bridge"
  - Performance spec: "Move 120,000 people a day over this river"
- Availability payments incentivize continuous improvement

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Example: A Data-Enabled Toll Bridge

Performance Criteria:

Build a bridge that can handle 120,000 AADT in 2050

Minimize lifecycle costs and technology risks

Integrate into state and regional data architecture

Design

- Model alternatives with fewer lanes
- ID vehicle and tech partners
- Integrate data strategy into BIM model

Construction

- Use BIM model to guide construction
- Tag assets in BIM as they are put in place
- Build IoT infrastructure

Operations

- Work with partners to optimize performance
- Offer incentives to users
- Monitor performance in real-time

Maintenance

- Use tech to minimize MOT requirements
- Leverage BIM model as asset management tool

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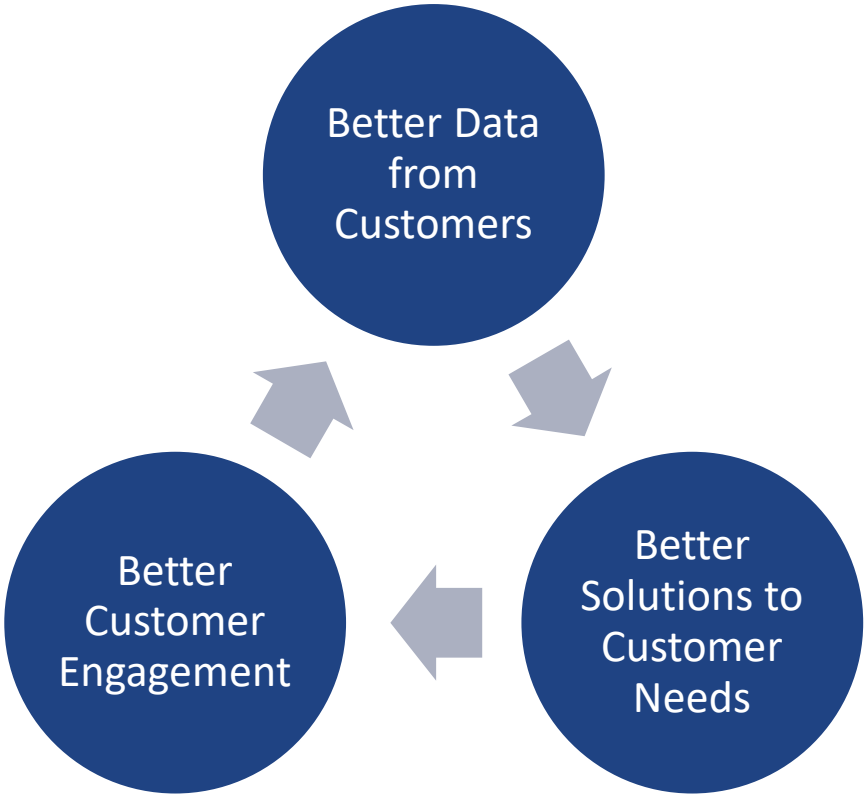
Conclusions



- Integrate data strategies into lifecycle planning for facilities
- Engage in larger ecosystems, leverage standardized platforms
- Test strategies at bottlenecks and nodes

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Thank You

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