Essentials of the Smart Columbus Operating System
USDOT PORTFOLIO

ENABLING TECHNOLOGIES
- CONNECTED VEHICLE ENVIRONMENT

ENHANCED HUMAN SERVICES
- MULTIMODAL TRIP PLANNING/COMMON PAYMENT SYSTEM
- SMART MOBILITY HUBS
- MOBILITY ASSISTANCE
- PRENATAL TRIP ASSISTANCE
- EVENT PARKING MANAGEMENT

EMERGING TECHNOLOGIES
- CONNECTED ELECTRIC AUTONOMOUS VEHICLES
- TRUCK PLATOONING
THE PRODUCT VISION

Essentials of the Smart Columbus Operating System
ESSENTIALS OF THE OPERATING SYSTEM

Data Environment
- Data ingestion
- Streaming data
- Data tagging
- Data aggregation

Security
- Data encrypted in transit & at rest
- ID Access Management (IDAM)

Scalable Capacity
- Built with open source/open architecture
- Elasticity with AWS Cloud Services
- Microservices

Data Lake
- Fast and slow storage
- Variety of data

Data Research Environment
- Social community
- Data discovery
- Visualization
- User dashboards

Shared Services
- Application hosting
- Function sharing through microservices (real-time ML, route optimizer)

Analytics
- Core analysis tools
- Machine learning
- Artificial intelligence
A SYSTEM OF SYSTEMS

Consumers/Providers:
- Government Entities
- COTA
- Financial Gateway
- Mobility Providers
- Insurance/Medicaid

Operating System:
- SCMS
- GNSS

Smart Infrastructure:
- Electric Vehicle Charging
- Smart Mobility Hubs
- Roadside Units

Smart Vehicles:
- People with Cognitive Disabilities
- Multimodal Travelers
- Prenatal Travelers
- Travelers

= System of interest

8
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<thead>
<tr>
<th>Time Frame</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>START</strong></td>
<td>4/2018</td>
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<tr>
<td></td>
<td>Open Data Portal <em>(Data Platform 1.0)</em></td>
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<tr>
<td><strong>DONE</strong></td>
<td>10/2018</td>
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<tr>
<td></td>
<td>- Streaming Data</td>
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<td>- Data-Science Notebook</td>
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<td><strong>IN-PROGRESS</strong></td>
<td>2-6 Months</td>
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<td>Smart Data Fabric <em>(Data Platform 2.0)</em></td>
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<td>- Big Data</td>
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<td><strong>UPCOMING</strong></td>
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<td>User Model (Security, Organizations, ...)</td>
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<td>Machine Learning</td>
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