



# Greater Minnesota Transit Technology Plan

Steering Committee Meeting  
29 September 2020

# Agenda

Time	Topic
1:00	1. Agenda and re-introductions - Erica Hamilton
1:10	2. N-CATT Summary - Chuck Morris
1:19	3. Project status - Erica Hamilton
1:20	4. Recap of SC Compact; final Group Norms for approval - Anne Carroll
1:35	5. Summary of Tech Maturity Assessment - Erica Hamilton
2:00	6. Peer Agencies and Technology Trends/Interests: Review - Charlotte Frei
2:20	7. Peer Agencies and Technology Trends/Interests: Discussion/activity - Kevin Chambers
2:50	8. Discuss Next meetings - Erica Hamilton

- 1 Re-introductions
- 2 N-CATT Update
- 3 Project Status



## Re-Introductions

- Name
- Organization
- Role





# N-CATT Technology Summit Update

## Minnesota Technology (Virtual) Summit Themes

1. Coordinated Back Offices / Goal: Cross-Agency Demand-Response Booking
2. Universal Trip Planner / Goal: Create One-Stop-Shop for Passengers to Book Trips
3. Mobility Management / Goal: Direct Customers to the Rides that Best Fits Need
4. Data Collection / Goal: Seamless Collection and Reduced Silos
5. Filling Coverage Gaps / Goal: Eliminate Cell/Radio Coverage Gaps
6. Statewide Program Management / Goal: Coordinate Recommendations and Tools
7. Group Procurement / Goal: Develop Streamlined Procurement Tool

# Project Status

Month	Task, Deliverable	Engagement Activities	Status
Aug-Sept 2020	Technology Maturity Assessment	<ul style="list-style-type: none"> <li>● <b>All stakeholders:</b> Provide information and perspectives on essential technology (Provider Survey)</li> <li>● <b>All stakeholders:</b> Provided with <a href="#">link to summary results</a></li> </ul>	<ul style="list-style-type: none"> <li>● Assess and evaluate current transit technology: 95% completed</li> <li>● Research other systems and trends: In progress</li> </ul>
Sept-Nov 2020	Combined tech memo: Technology Maturity Assessment, Industry Peer Review, Technology Trends and Opportunities	<ul style="list-style-type: none"> <li>● <b>Steering Committee:</b> Reviews and comments on outline/draft for combined tech memo (<b>see key conceptual information today</b>)</li> <li>● <b>All stakeholders:</b> Provided with links to completed Tech Memos + posted on website</li> <li>● <b>All stakeholders:</b> Invited to learn more/discuss Tech Memo learnings and relevance to Minnesota providers (via videoconference)</li> </ul>	<ul style="list-style-type: none"> <li>● Collaboratively identify technology goals and objectives: In progress</li> </ul>

## 4 Steering Committee Compact and Group Norms

# Steering Committee Compact

## Steering Committee Compact:

- Charge: Changes made to clarify SC members don't represent other stakeholders
- Membership: Changes made to confirm SC members who can't attend a meeting can send a substitute
- Final version attached to agenda





## Summary SC Group Norms for review and adoption:

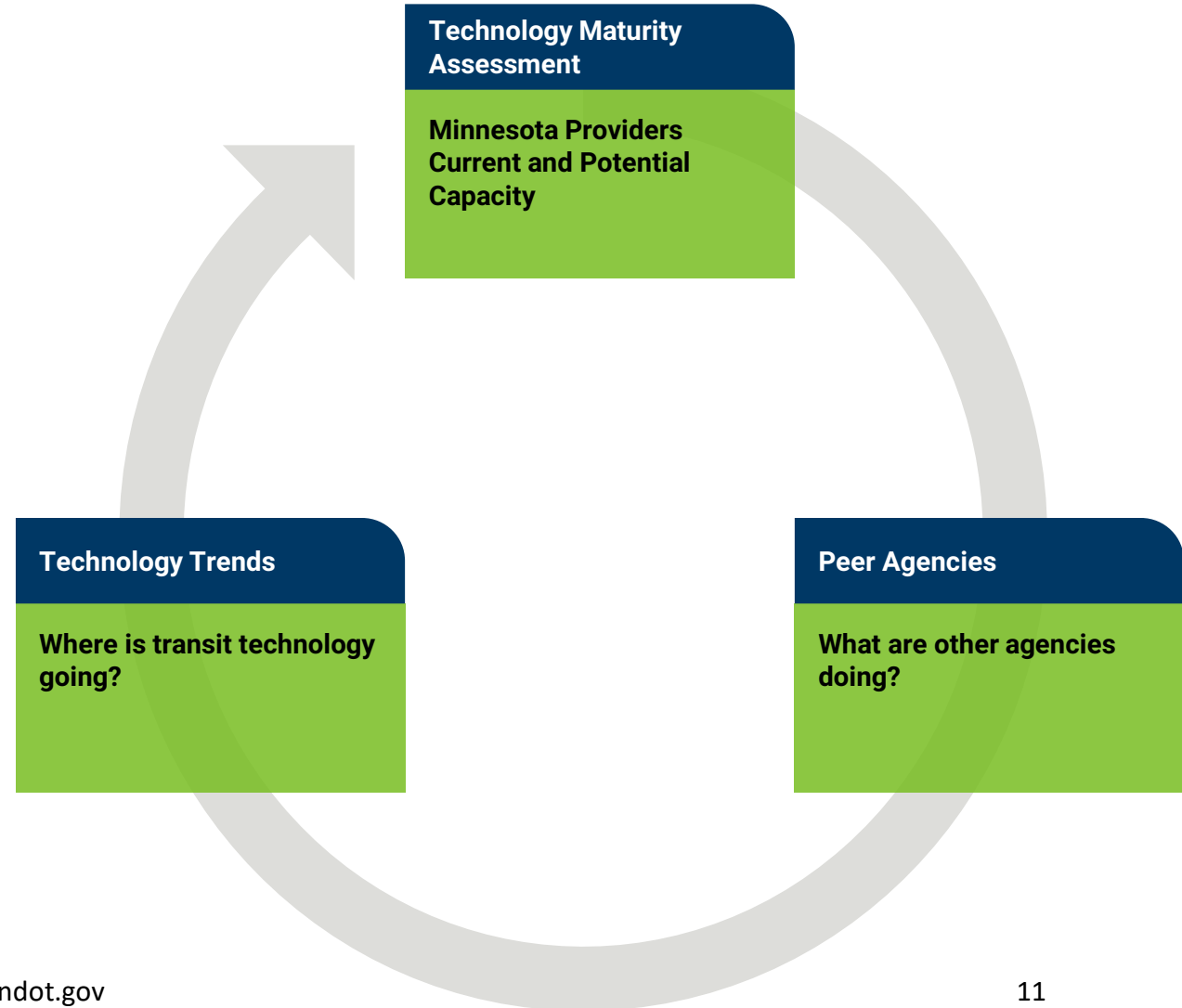
- Be prepared, responsible
- Be open minded and willing to learn, change
- Be engaged; contribute
- Be respectful, encouraging, and supportive
- Be positive, creative, curious
- Be inclusive

*(Norm details attached to today's agenda for SC reference)*

## 5 Technology Maturity Assessment

# Technology Maturity Assessment

- **Based on:**
  - Survey results
  - Comparison to peers and industry
- **Considerations:**
  - Technical capacity
  - Technology implemented, planned
- **Comparison:**
  - Where is Greater MN on technology continuum: silos vs. interconnected?

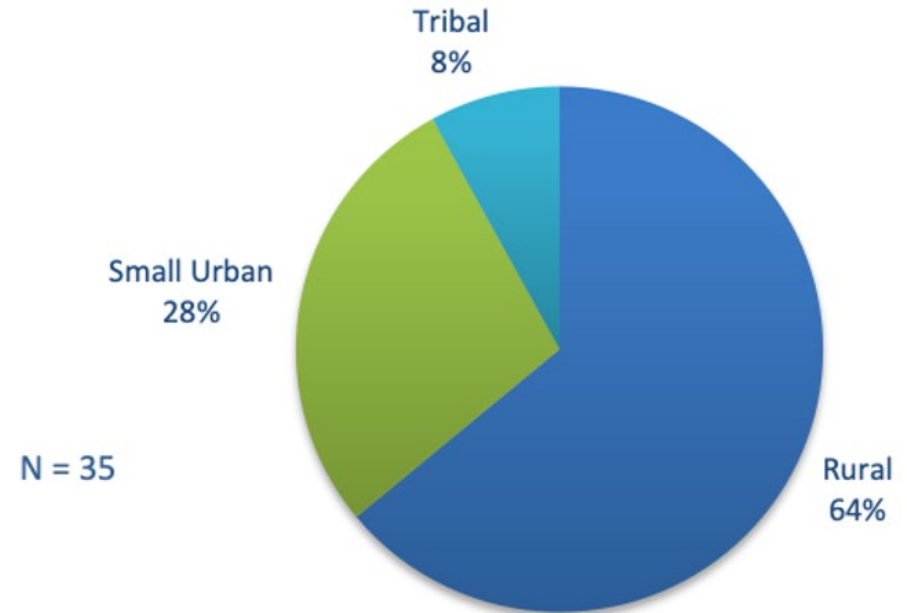


# Technology Maturity Assessment: Survey Results

- Survey open July 31 to August 20, and offered to 42 transit systems
- Follow-up efforts were made August 6, 13, 19, and during the N-CATT Summit
- Final: 35 systems responded (83%)

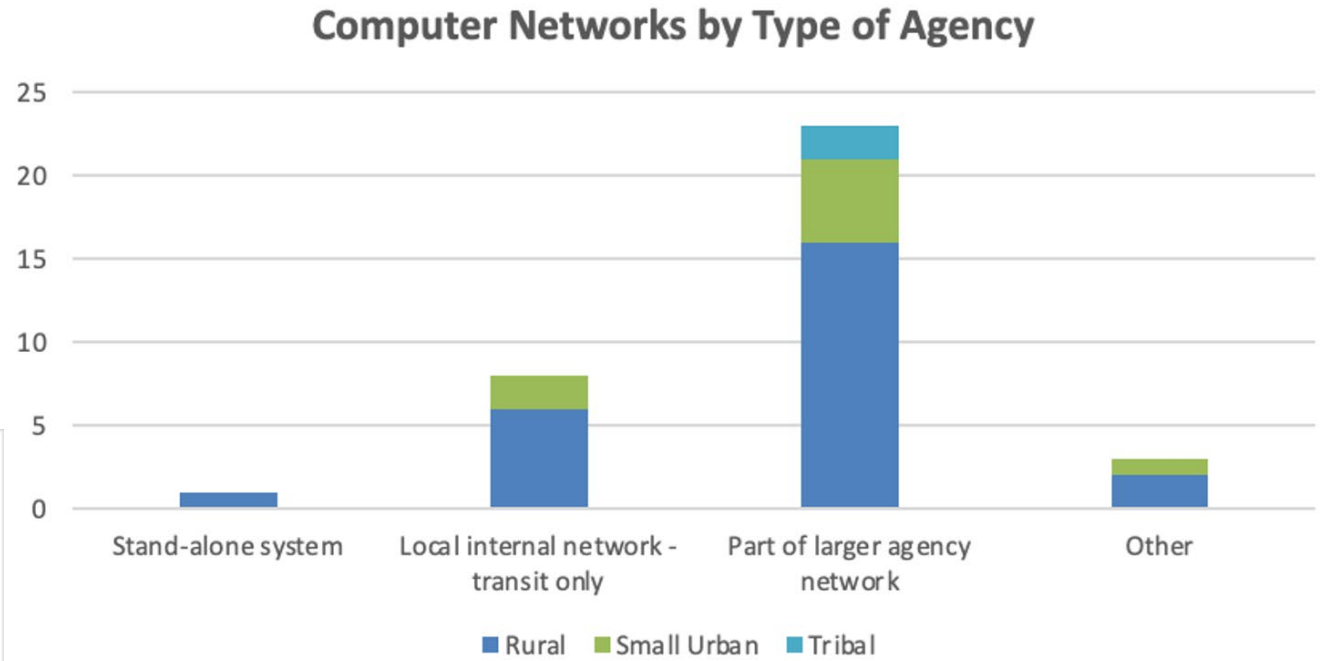
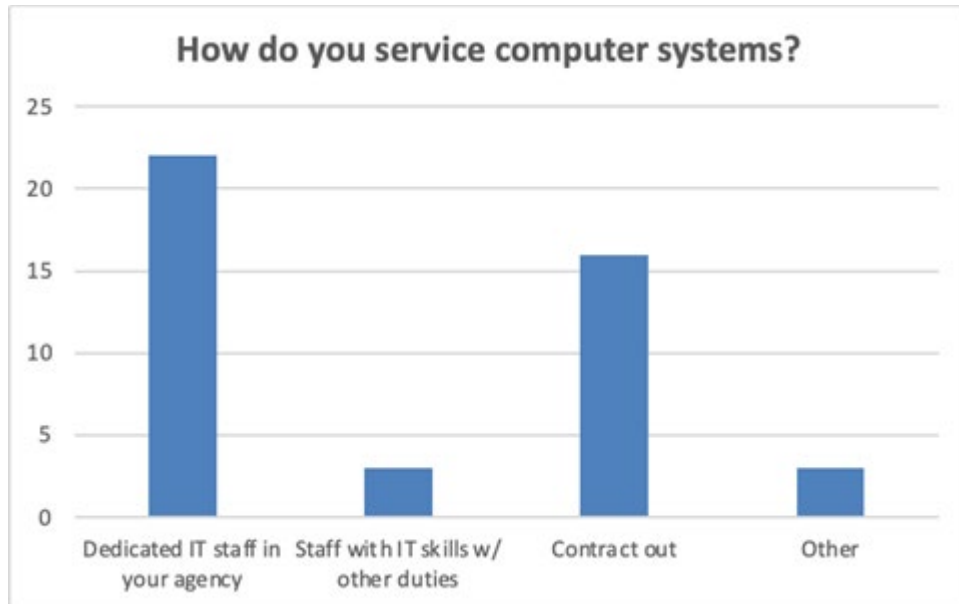
\*Note: some respondents completed only a portion of the survey

**Respondents by Type of Agency**



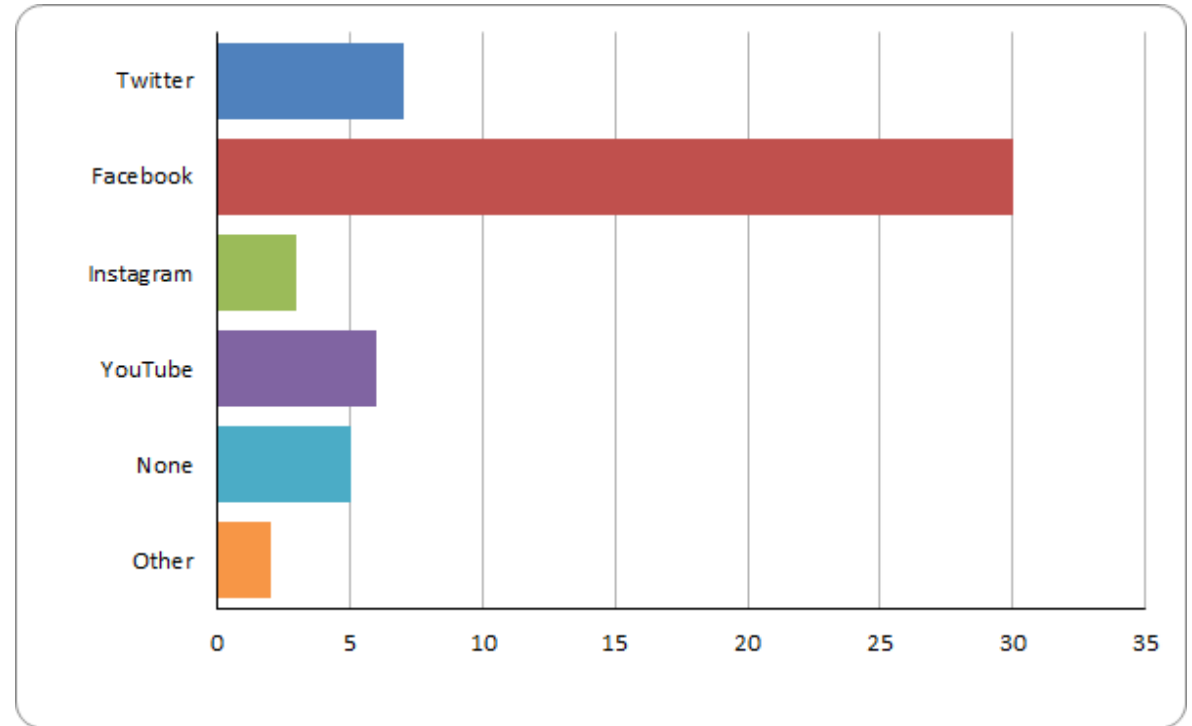
# Technology Maturity Assessment: Survey Results

Most transit systems have networked computer systems, reliable internet, and dedicated IT staff or IT contracts to help service their computers

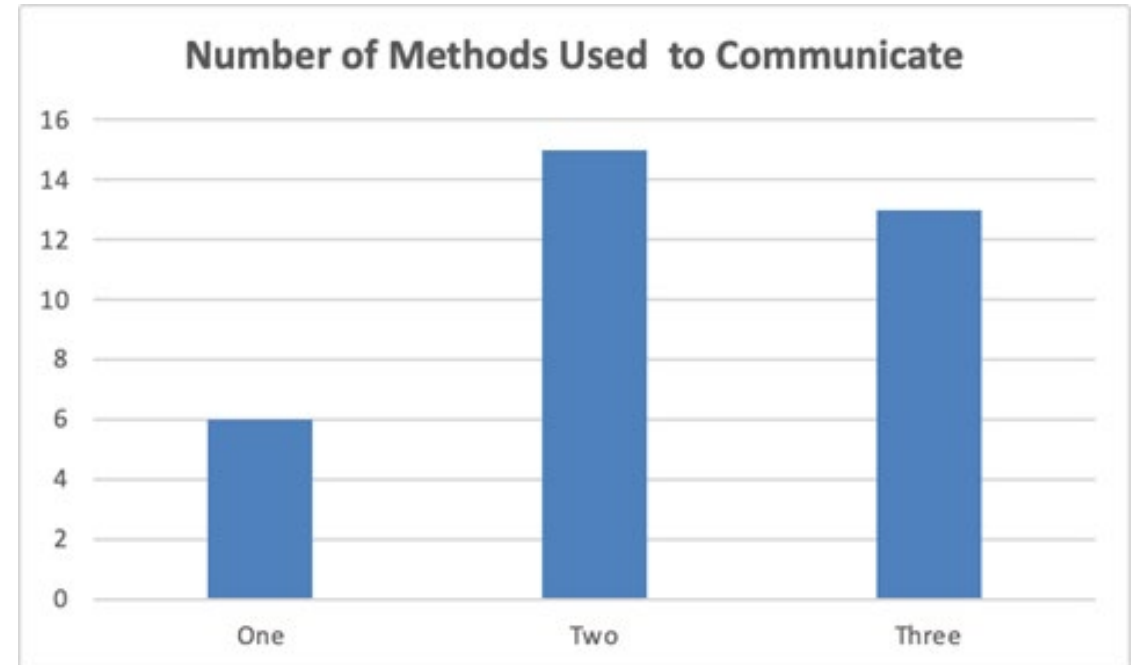
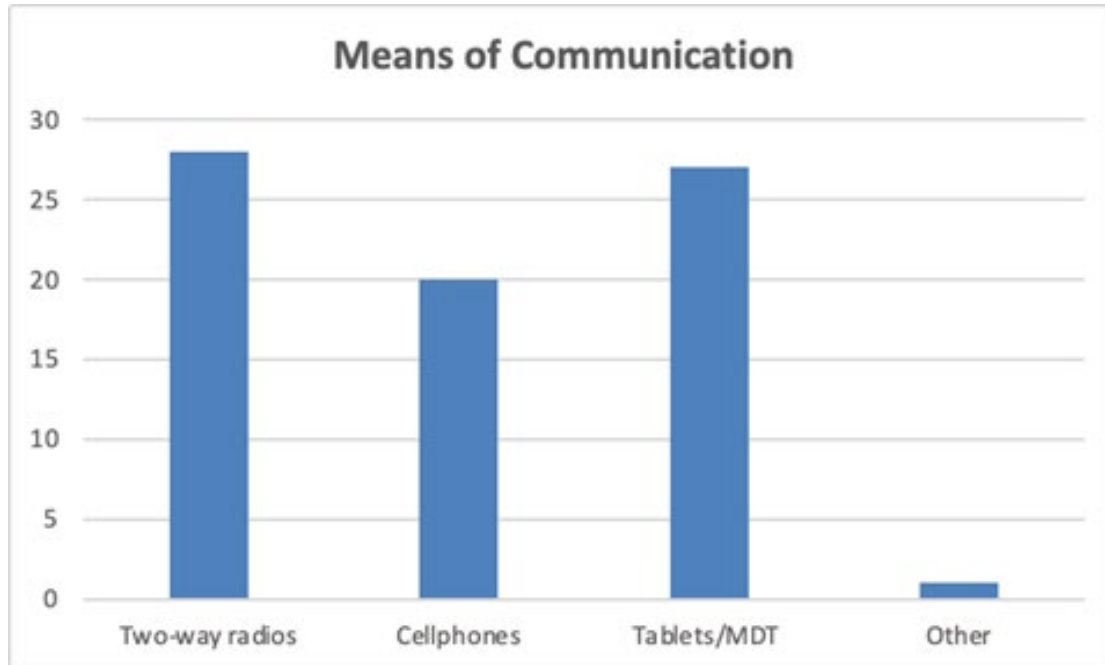


# Technology Maturity Assessment: Survey Results

- All agencies that responded have websites
- Many noted they contain mostly static information
- Neither websites nor social media accounts are frequently updated



# Technology Maturity Assessment: Survey Results

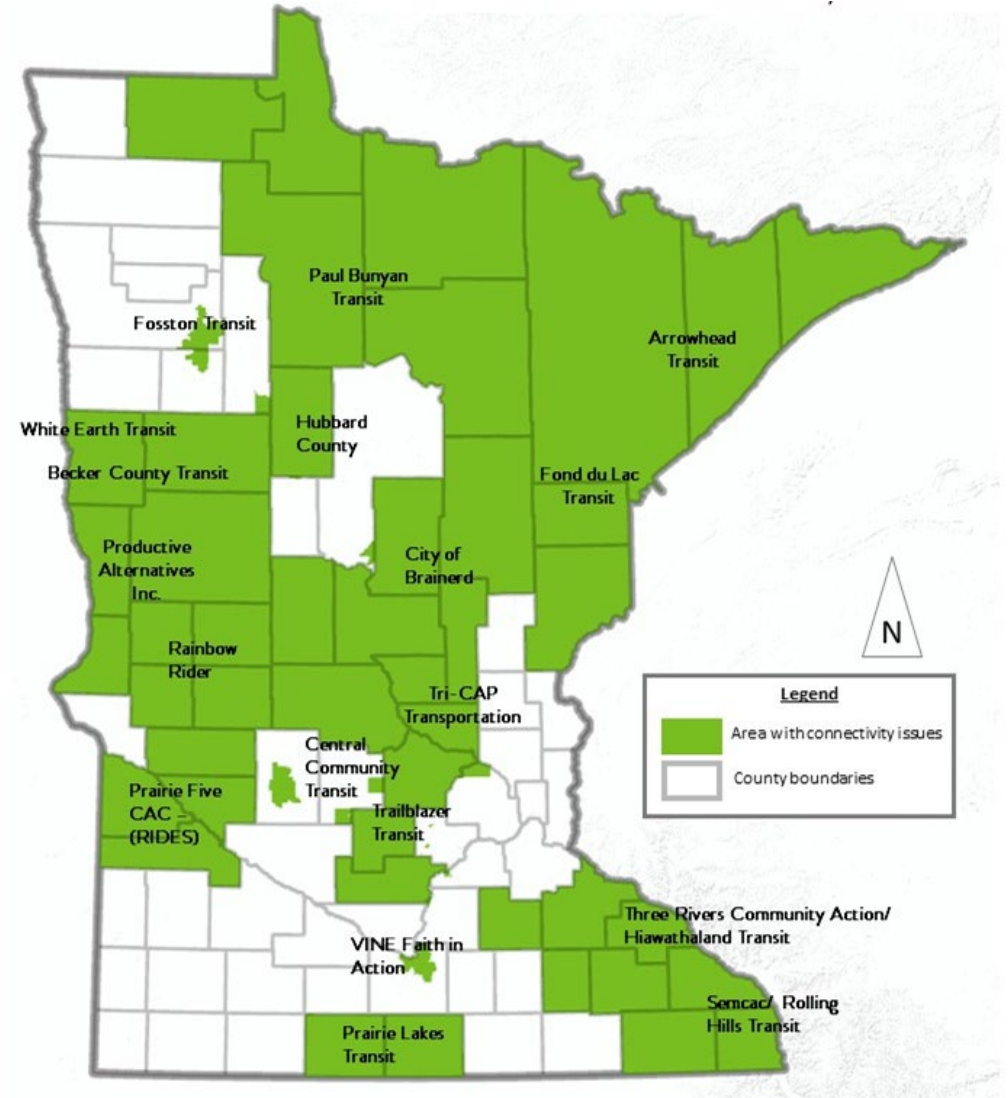


- Transit systems are split on how dispatchers and drivers communicate
- Most use more than one form of communication device

# Technology Maturity Assessment: Connectivity Survey Results

In a follow up at N-CATT summit:

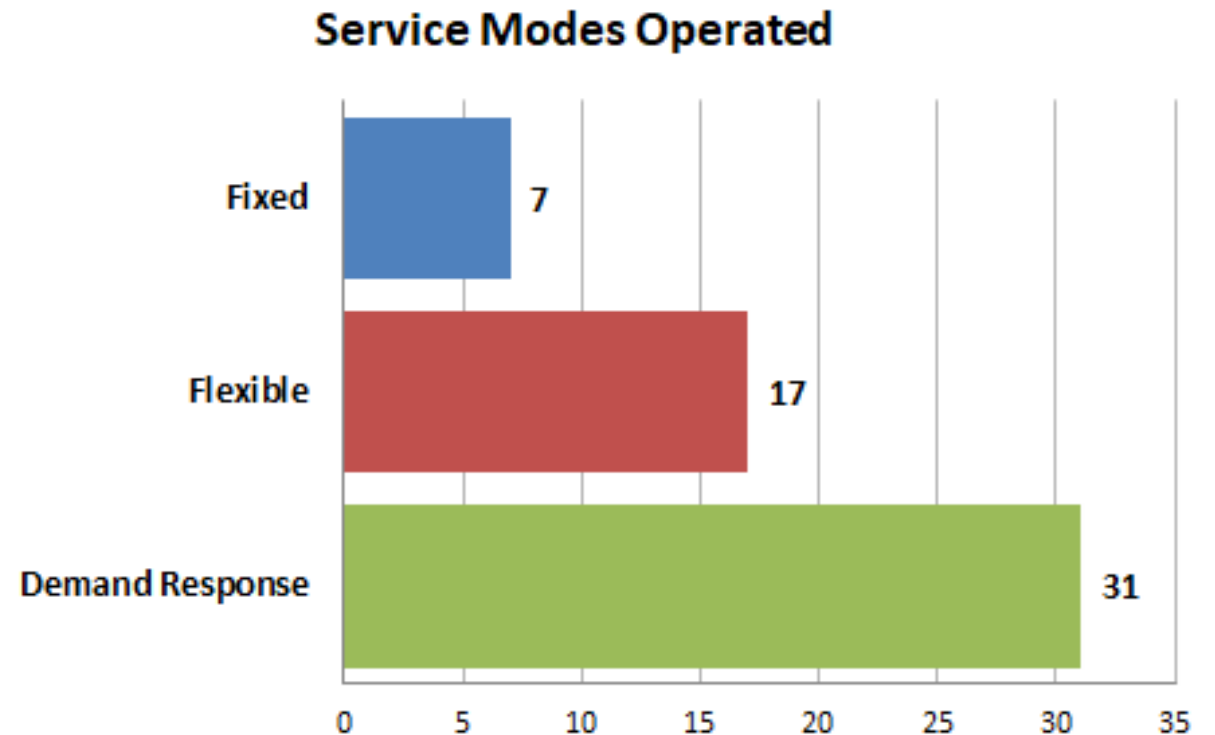
- **52%** of agencies indicated the connectivity disruptions occurred **weekly or daily**
- **13%** reported monthly disruptions
- **34%** reported minor to no disruptions





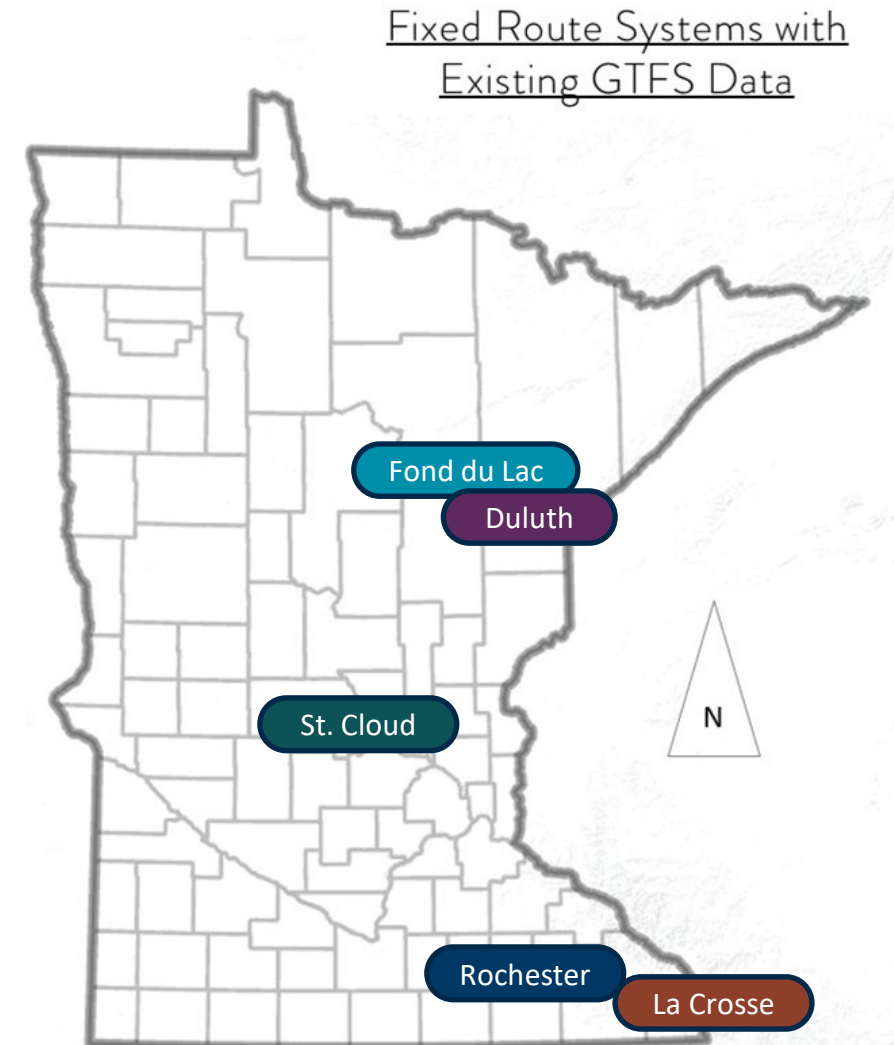
# Technology Maturity Assessment: Survey Results

The majority of transit systems operate demand response, or flexible route services.



# Technology Maturity Assessment: Survey Results

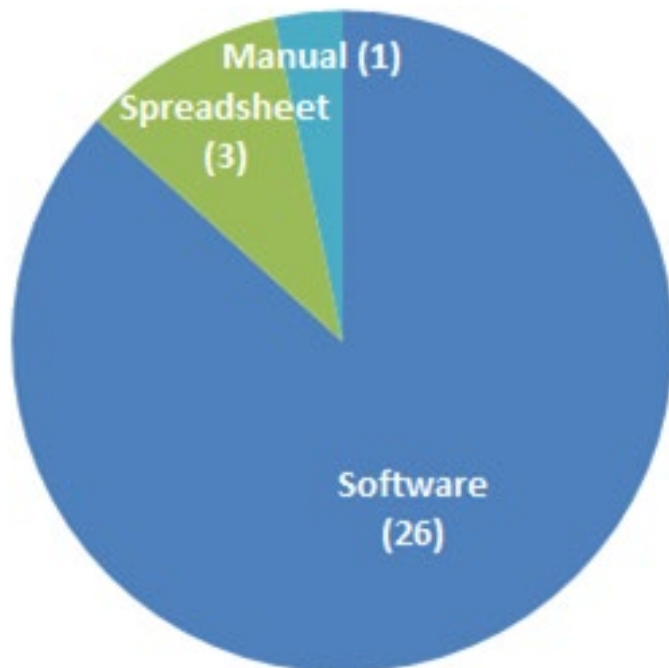
- Trip planning software requires general transit feed specifications data (GTFS)
- 5 of the fixed route transit systems already collect GTFS data



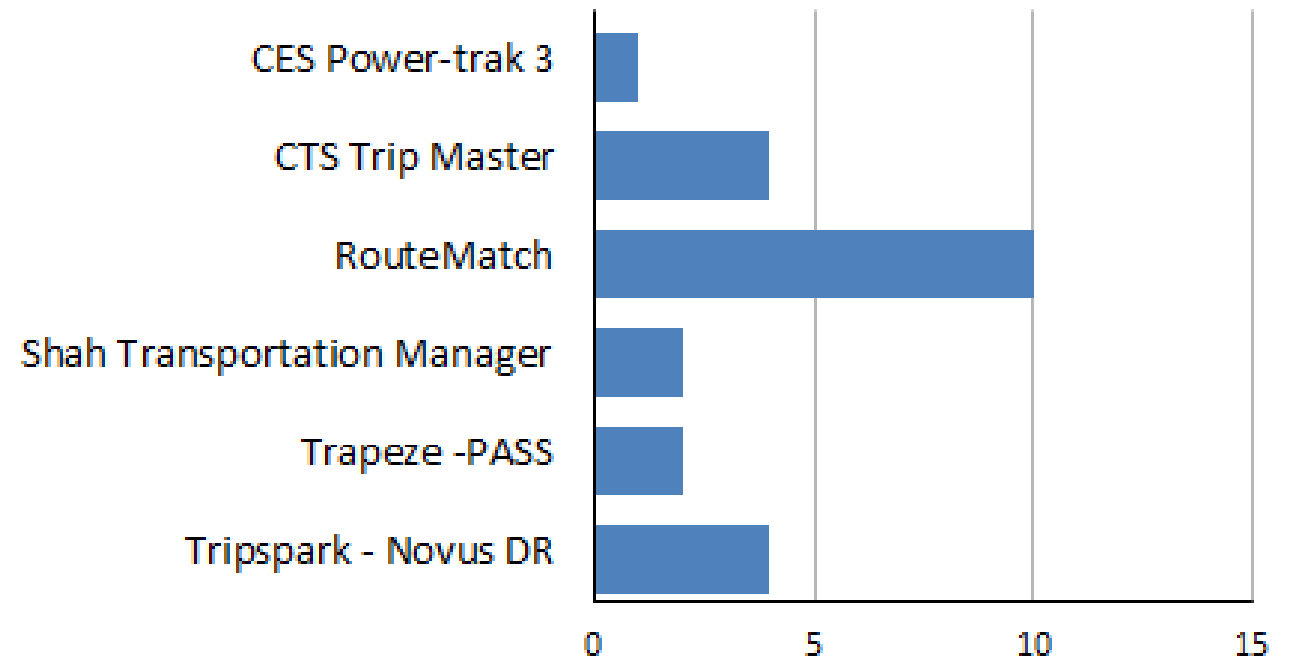
# Technology Maturity Assessment: Survey Results

26 out of 30 transit systems have trip scheduling software

**Trip Scheduling Systems**

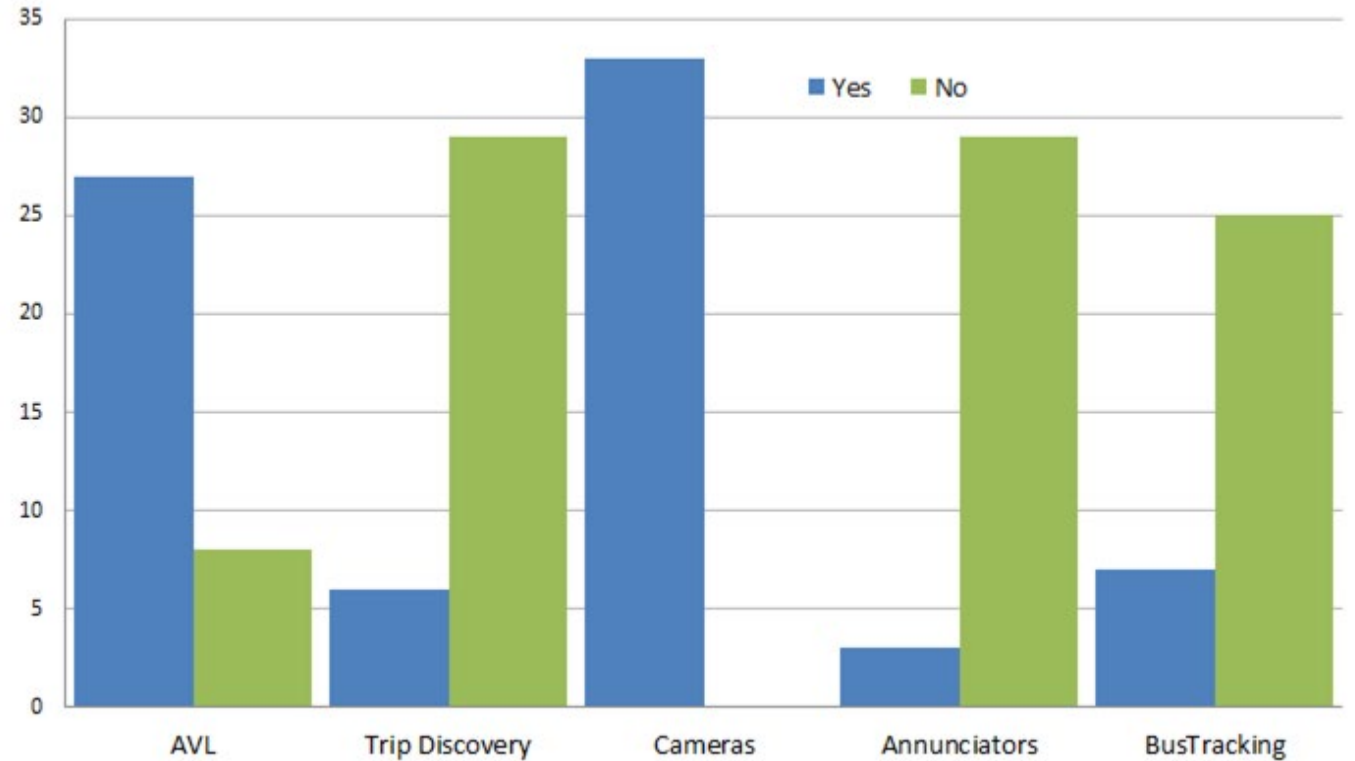


**Scheduling Software Installations**



# Technology Maturity Assessment: Survey Results

- 27 of 35 agencies have computer-aided dispatch/automatic vehicle locator (AVL)
- 78% of respondents have no way to inform customers of vehicle location



# Technology Maturity Assessment: Survey Results

## Electronic ticketing systems

### In place: 3 rural, 1 Tribal

- Chisago-Isanti County Heartland Express
- Semcac/Rolling Hills Transit
- Minnesota River Valley Transit
- White Earth Public Transit

### Under development: 2 small urban

- Rochester
- St. Cloud



# Technology Maturity Assessment: Survey Results

## **Assistance needed with:**

- Procurement,
- How to use technology to improve operations/assessing overall tech needs,
- Website ideas, content, maintenance,
- Scheduling and management software,
- Helping customers plan across multiple providers,
- Customer information software options

# Technology Maturity Assessment: Survey Results

The following **tools would be most helpful:**

- Scheduling software,
- Dispatch/route optimization,
- 'Find my bus' app,
- Scheduling app for riders to book rides,
- Coordination across providers,
- Prepaid fare cards

# Technology Maturity Assessment: Functions, transit agencies

- **Technology needs to take into consideration the key functions of the agency**
  - **For example, a transit system would consider the following for their operations:**
    - Scheduling software
      - Driver and vehicle run schedules
      - Dispatching and communication
      - Subscription trips (trips that repeat in a consistent manner)
    - Fare collection and handling
    - Passenger counting
    - Maintenance scheduling and reporting
    - Asset management
    - Financial management
    - Reporting
    - Personnel management (e.g., employee files, training, time keeping)



# Technology Maturity Assessment: Functions, transit agencies

## Technology for transit system needs to consider other key functions like:

- **Communication with customers**
  - Webpage
  - Social media
  - Complaints, queries, comments, and compliments
  - Enable riders to plan complete trips (and reserve and buy tickets)
  - “Where’s my bus” info, reminder calls (IVR)
  - Real-time disruptions en route
- **Provide safe service and vehicle-to-vehicle technology**
- **Coordinate with other agencies or modes**
- **Communicate with MnDOT**
- **Report to MnDOT and FTA**

# Technology Maturity Assessment: Functions, RTCCs + MnDOT

- **Different agencies undertake different functions**

## RTCCs

- Help riders identify travel options (for all modes)
- Help transit providers share trips
- Help human service programs get rides for clients
- Help ensure funding follows clients

## MnDOT

### **Grant management and documentation**

### **Reporting for grants and NTD**

### **Support for transit systems**

- Procurement assistance
- Training
- Funding
- Grant application, award and distribution

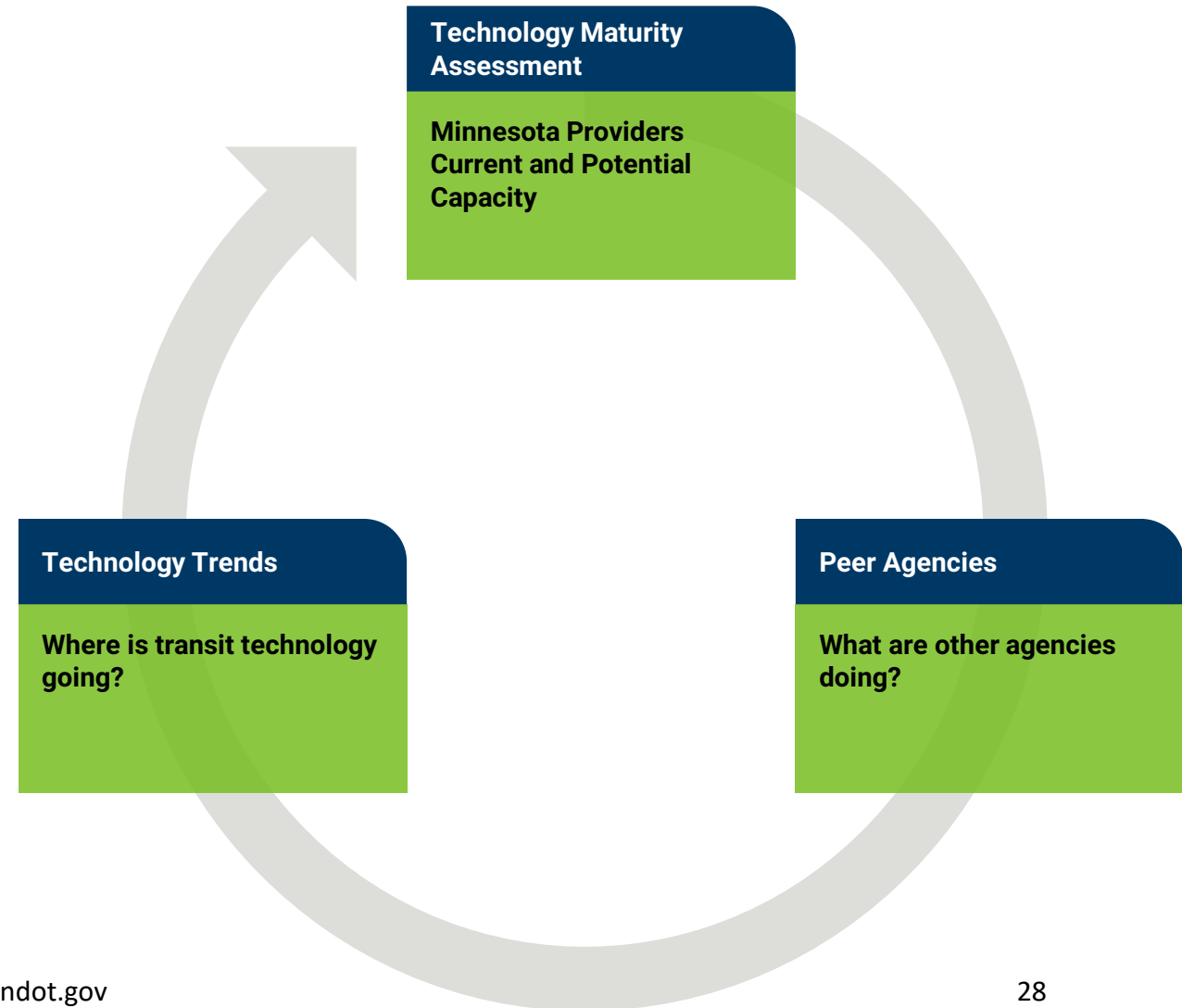
### **Providing comprehensive travel information**

### **Using technology to support goals**

- For example, effective use of resources, equity, mobility across rural areas
- Providing strategy for technology fulfill mission of statewide mobility

# 6 Peer Agencies, Technology Trends: Outline and Overview

- **Peer Agencies:**
  - Technology implemented, planned
  - Technology priorities
  - Lessons learned



# Peer Agencies: Michigan Mobility Challenge

## Evaluation learnings from 13 projects

- DOT assumed risk
- Single launch event discussed needs and built partnerships
- Work plan must have defined roles
- Start with a performance evaluation plan
- Evaluators should be independent
- Learn from mistakes to create standards and ensure replicability

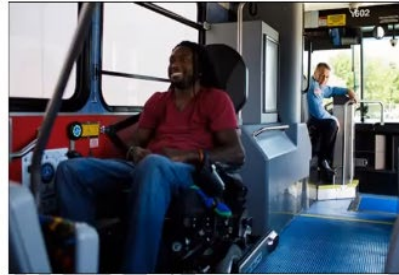


Image Source: Janet Geissler

# Peer Agencies: New Technology Project Implementation



- **Training, support and engagement are critical**
  - Throughout project lifecycle and for post-evaluation
- **Communicate with other departments/agencies**
  - Keeping others up-to-date on innovation
  - Opportunities for intergovernmental agreements
- **Important to gather feedback from all partners**
  - Allow time for partnership formation/definition - 3+ months recommended
- **Ownership of data and revenues is a challenge for transportation industry**

# Peer Agencies: Technology Interests



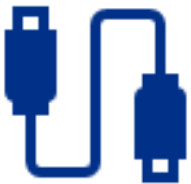
- **Contactless fare payment and wheelchair securement are priorities**
  - COVID19 motivation + Impacts on dwell time, on-time performance
  - Still interviewing several agencies on their fare payment approach/status



- **Defining the link between trip planning, scheduling, and dispatch**
  - Training availability/staff time to learn new tools
  - User needs for both customer and providers



- **Industry progress on defining transactional standards for trips**
  - Addressing HIPAA compliance and eligibility
  - Enabling back-office integration and “mobility wallet”
  - Opportunities ... and challenges of the development process



# Peer Agencies: Technology Interests



1. Fare payment and other contactless technologies



2. Transactional standards, especially eligibility and “back office”

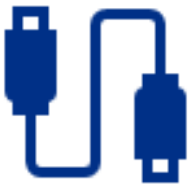


3. Technology for planning, scheduling, and dispatching

a. Associated training needs

b. Associated organizational capacity

c. Brokerage models/tools



## For each of these:

- Comparing these issues/themes to each other, how urgent are they to Greater MN transit agencies?
- Comparing these to *other* issues agencies are facing, how urgent are they?
- What is stopping or delaying transit agencies from adopting this?
- Who / what would agencies need to move forward?



# Technology Trends and Opportunities: Interviews

## Major topic areas covered

- Leadership
- Organizational capacity
- Institutional change
- Coordination
- Training
- Procurement
- Data standards
- Research and development
- Specific technologies

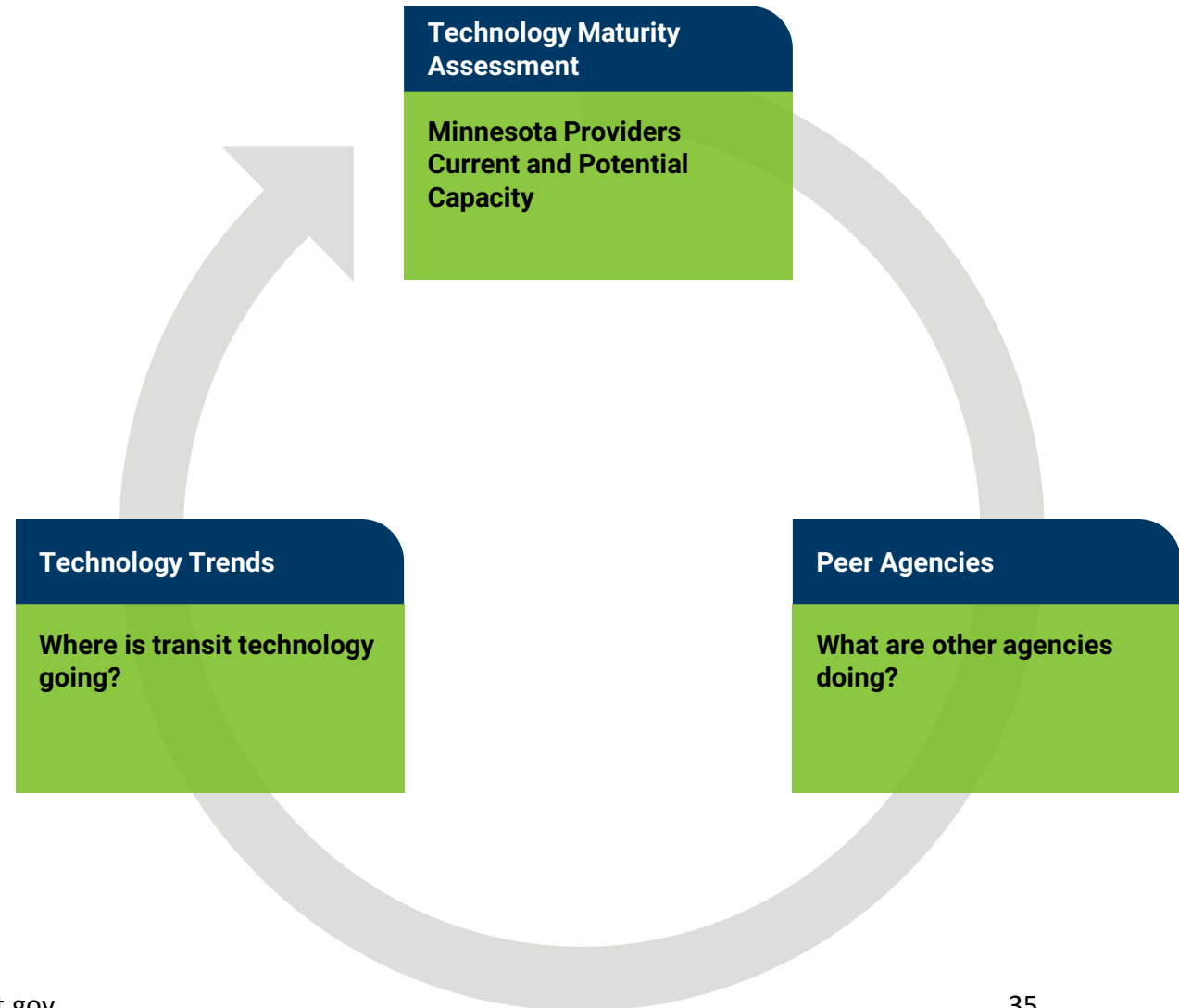
## Completed expert interviews

- Ruth Miller, California DOT
- Steve Weekley, OATS-Missouri
- Ryan Taylor, UTA-Utah
- Matthew Barnes, Oregon DOT
- Ritesh Warade, IBI
- Cara Marcus & Elizabeth Taylor, National RTAP
- Carl Fredlund, MobilityData
- Ross MacDonald, VTrans-Vermont
- Janet Geissler and Jean Ruestman, Michigan DOT
- Tim Geibel & Kristen Arendash, CATA-Pennsylvania

# 7 Peer Agencies, Technology Trends: Discussion/Activity

# Technology Trends

- **Technology Trends:**
  - Context of other organizations
  - Distribution of functions
  - Discussion



# Technology Trends and Opportunities

## Proposed Evaluation Framework



### Centralized to State Level

- Economies of scale
- A single source of truth
- Easier to manage and support

### Shared Responsibility

### Distributed to Agency Level

- Greater local control
- Easier to adapt to local conditions

# Technology Trends and Opportunities: Profiles

## Distributed model common in many states

### Context

- Little or no state funding
- State distributes federal funds to local subrecipients

### Objectives

- Maintain federal funding by ensuring subrecipient compliance
- Minimize state-level admin costs
- Maximize funds for distribution to subrecipients

# Technology Trends and Opportunities: Profiles

Distributed model common in many states

Centralized

Distributed

 Leadership

 Market Research

 Procurement

 Training

 Asset Management

Not Involved:

 Software Development

 Standards Development

# Technology Trends and Opportunities: Profiles

## OATS Model, Missouri

### Context

- One statewide organization, six local offices
- Recently “mom and pop” operation
- Challenges with efficiency and consistency across the organization

### Objectives

- Increase operational efficiency
- Modernize IT infrastructure
- Increase consistency across local offices
- Have in-house expertise for day-to-day support

# Technology Trends and Opportunities: Profiles

## OATS Model, Missouri

Centralized

Distributed

 Leadership

 Market Research

 Procurement

 Training

 Asset Management

Not Involved:

 Software Development

 Standards Development



# Technology Trends and Opportunities: Profiles

## Oregon DOT

### Context

- Largely distributed model common to many states
- DOT staff-level focus on the statewide network
- History of agency input in DOT decisions through advisory committees
- Recent statewide payroll tax for transit

### Objectives

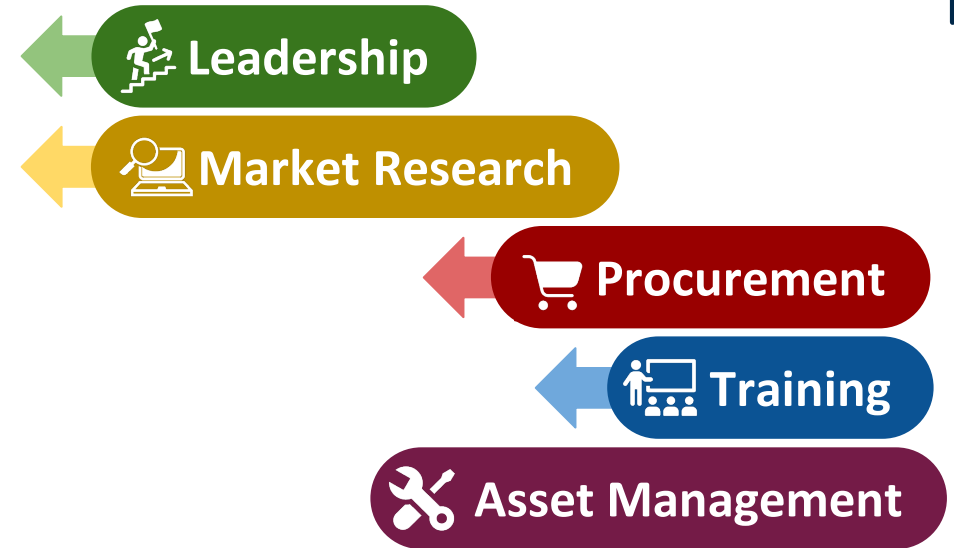
- Support and expand the statewide mobility network
- Adopt a data-driven approach for decisions
- Incrementalism through staff-level activities
- Recently: expand technical assistance for smaller agencies

# Technology Trends and Opportunities: Profiles

Oregon DOT

Centralized

Distributed



Software Development

Standards Development

# Technology Trends and Opportunities: Profiles

## Caltrans Integrated Travel Project (Cal-ITP) Model

### Context

- Historically, largely distributed model common to many states
- State is world's fifth largest economy by GDP
- Over 350 transit agencies
- Highly fragmented state network

### Objectives

- Improve transit experience in the state
- Reduce inequality
- Increase public agency buying power for technology & services
- Realize benefits of technology for transit services
- Meet California climate change law

# Technology Trends and Opportunities: Profiles

## Caltrans Integrated Travel Project (Cal-ITP) Model

Centralized

Distributed

 Software Development

 Standards Development

 Training

 Market Research

 Procurement

 Leadership

 Asset Management

# Technology Trends and Opportunities

## What are your reactions?

 Leadership

 Centralized vs Distributed 

 Procurement

 Market Research

 Training

 Asset Management

 Risk Management

 Standards Development

 Software Development

## 8 Next Steps



- **Upcoming Steering Committee meetings**
  - Next meeting: Week of November 2nd or 9th? (Doodle Poll?)
- **Toward end of October, watch for request for SC feedback on:**
  - Technology maturity assessment
  - Technology trends and opportunities
  - Peer interviews
- **Website resource:** Project updates and materials  
<https://greatermntransittech.com>

# Thank you!

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