

San Antonio and Greater Bexar County Community Digital Equity Plan and Roadmap

Initiative Details: Data & Analytics

August 2021

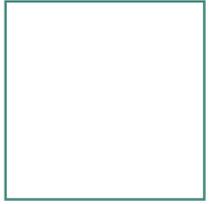
Disclaimer:

The information found in this portal is intended for public use. It reflects work produced and provided by the SA Digital Connects team and community members starting in January 2021 to the present.

Some information will reflect the moment in time when the work was done. Data, funding, maps and assumptions may fluctuate in the everchanging digital ecosystem.

Initiative Details

Data & Analytics



Nature of the problem

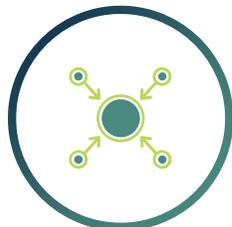
Identified areas for continued effort around data and analytics



Performance metrics to measure success and communicate the impact of digital access



Public facing online portals/dashboards to direct residents to community resources and provide status updates on progress



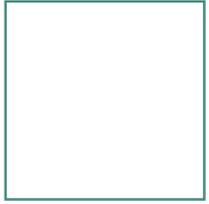
Centralized, continuous data collection with clear accountabilities and ownership



Robust analytics on collected data to optimize solution initiatives and refine data collection/aggregation processes



Improved stakeholder coordination and information sharing



Comparison city research and local efforts

Key themes from data and analytics



Local governments **conduct surveys and collect data from residents and families** to quantify digital connectivity

- **New York** Digital Equity Survey asked teachers about student devices and digital access and collected data by grade level and by location of use



Tracking **broadband infrastructure** is essential to monitor, maintain or expand digital network assets as needed

- **Los Angeles** tracks hard assets like building infrastructure using small cell nodes to identify and monitor



Information on **community resources** should be updated and disseminated regularly to residents

- **Portland** Digital Inclusion Network page allows users to share on-the-ground information and provides a community directory with links to resources



Presenting a **comprehensive view of digital divide** will help identify any gaps as well as spread awareness in residents

- **North Carolina** uses a map to display various data points, including hard assets, soft assets and unmet digital needs in the community

Case study | Portland, OR - Digital Inclusion Network (DIN)

In response to COVID-19, Portland's Digital Inclusion Network has been collaboratively working to overcome digital access barriers faced by underserved populations. As part of their efforts, tracking and disseminating data has been central.

Action tracker/resource portal

- Provides a virtual space for information sharing and communications among community orgs involved in expanding access
- Captures on the ground experiences and resource needs to crowd-source solutions
- Shares information about connectivity, devices, technical support services, and funding support with community

Services organized by household need with organizations ready to support each area

Community directory

Provides publicly available information on the following:

- Areas to access public Wi-Fi
- List of low-cost internet providers/device programs
- Technical support/ digital literacy courses



Community need dashboard

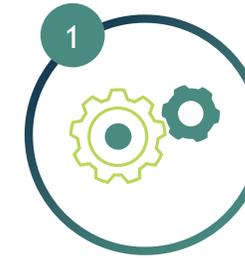
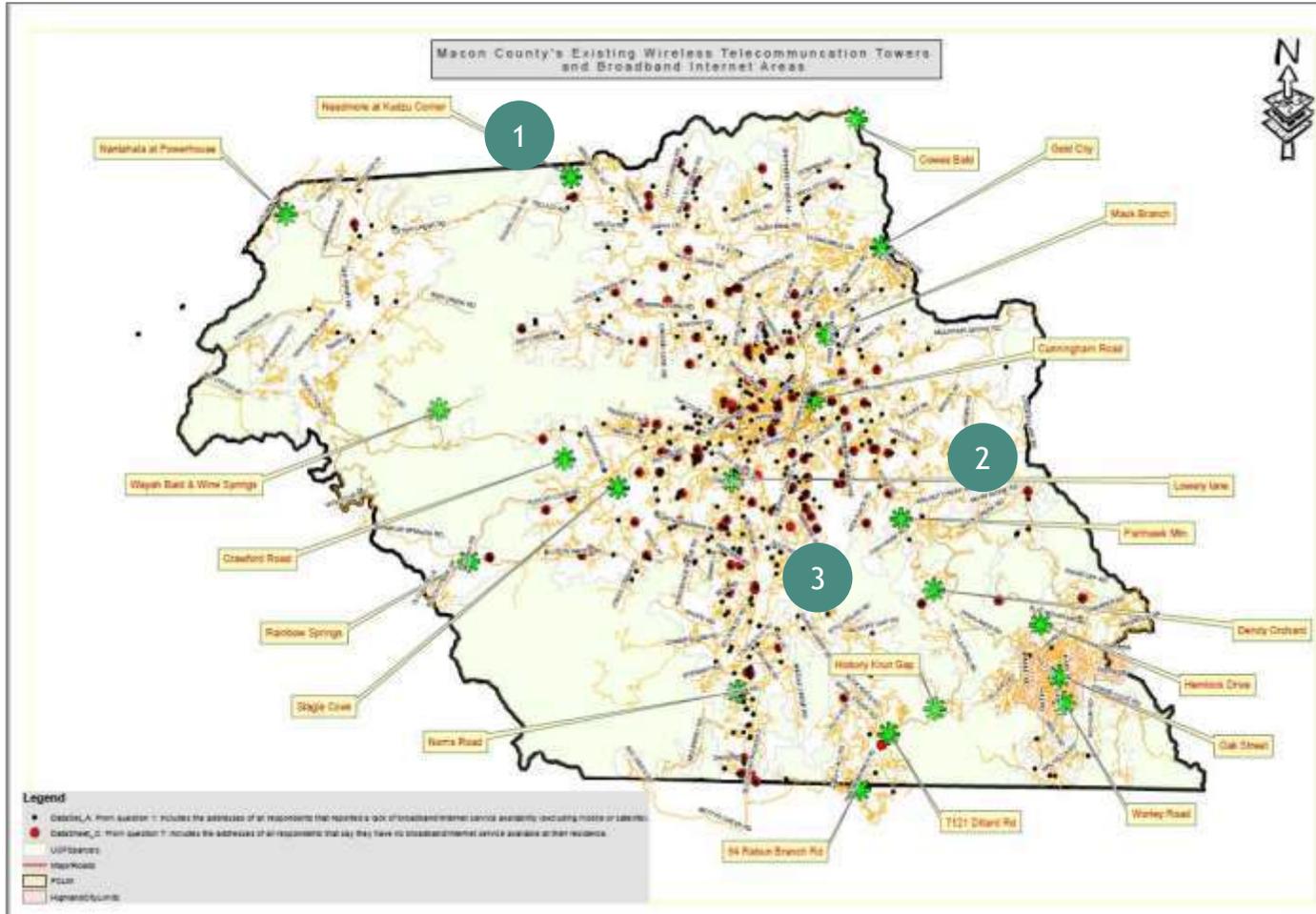
Integrates GIS maps of digital access and local efforts in order to:

- Measure and track impact
- Identify gaps in service and unmet need
- Track racial and socio-economic equity



Provides status update of digital divide performance metrics with gaps prioritized for future action

Case study | North Carolina offers model for San Antonio/Bexar County mapping efforts



1 Hard assets
GIS data offers inventory of assets (e.g., buildings, water towers, capital projects, community-owned land, utilities)



2 Soft assets
Includes higher-ed institutions, civic groups, nonprofits, businesses and other organizations that offer expertise, volunteer support & advocacy experience



3 Underserved need
Red and black dots indicates where survey respondents reported a lack of internet access

Case study | Iowa - Signify Health Community Care Network

To address social determinants of health outcomes, Signify developed a statewide coordinated Community Care database that integrates social care with medical services by collaborating with local social service and state health organizations



Action tracker/resource portal

- Fragmented data collection process
- Difficulty tracking vulnerable, transient populations
- Maintaining privacy protections



Community directory

- CBOs
- Health care plans/providers
- Non-profits
- Foundations
- Local governments
- State agencies



Community need dashboard

- Connect members to non-medical needs (e.g., transportation, housing and health management)
- Coordinate health and social services across organizations
- Track and measure both health /non-health patient needs
- Safely share patient information in a secure system



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Participating agencies and organizations



400K

Individuals identified in need of both clinical and social care



7M

Successfully completed services

Impact

LA Census Partnership Digital Equity Data Tracking

- City of LA partnered with Census's recent American Community Survey data to track digital divide
- Tracks computer and internet access, building infrastructure with small cell nodes, school and digital access and public wifi access points
- Users can use interface to create customized digital divide maps
- Links to GetConnectedLA where users can find information on accessing low-cost internet, computers and training sessions



University of Chicago Tracking of CHI digital divide

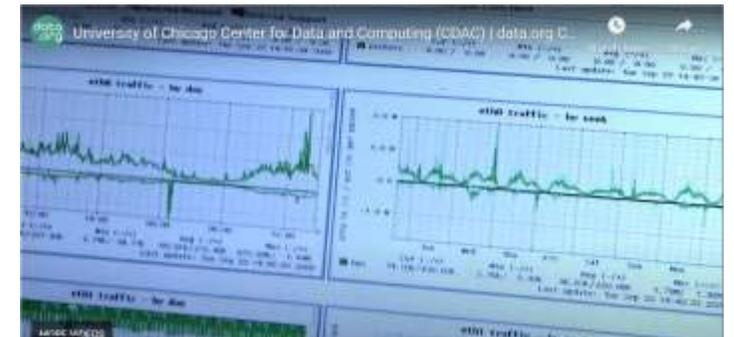
Received grant from data.org to map Chicago digital divide



Will track indicators such as lack of fiber connectivity, to speed, to broadband access



Will use data science, machine learning and will gather data from communities and online resources

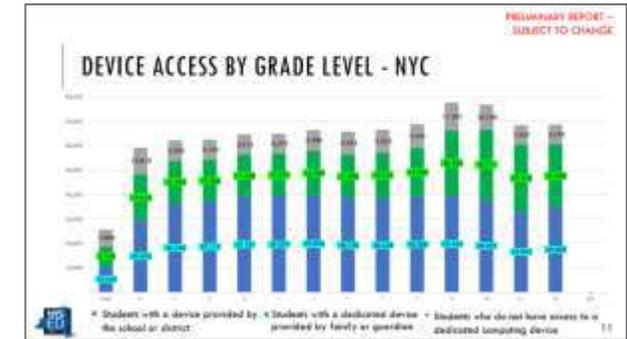


New York Digital Equity Survey

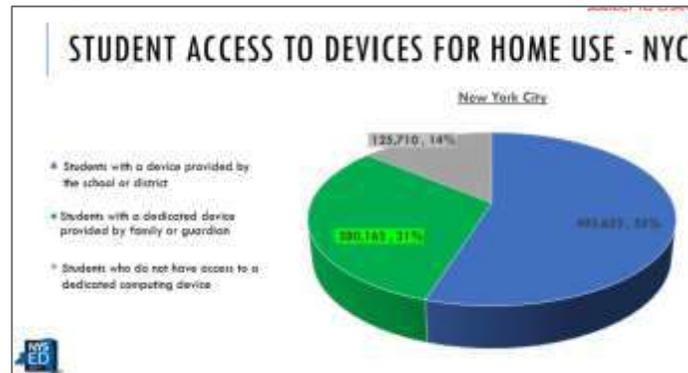
Received ~5K responses from teachers on student devices and digital access

Contains grade-level and other breakdowns of NYC and other cities

SURVEY PARTICIPATION				
	Submitted	%	Not Submitted	%
Rest of State Public Schools	2,652	99.8%	6	0.2%
New York City	1,583	100%	0	-
Big 4	175	100%	0	-
853, 4201, 4410, and State Operated Schools	236	99.2%	2	0.8%
Charter Schools	289	88.9%	36	11.1%
BOCES	37	100%	0	-
TOTAL	4,972	99.1%	44	0.9%



Have NYC specific data on student access to devices at home



Learnings from the performance metrics of comparison cities and municipalities



Use performance metrics for two key reasons: (a) internal improvement, (b) external transparency, call to action, and fundraising

- **Seattle** released analysis that identified broadband gaps and called on city leaders, ISPs, community groups, to support residents



Work to understand the most underserved areas in the community through surveys and fiber maps

- **Philadelphia** is standing up a program with local ISPs to understand where households are disconnected with have the poorest bandwidths



Standup efforts to track outcomes-based metrics to better understand the true impact of digital programs

- **Chattanooga** is tracking data usage and **Ramsey County, Minnesota** analyzed the social ROI of its TechPak initiative



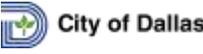
Measure a balance of output metrics (e.g., families connected, devices distributed) and outcome metrics (e.g., usage, digital literacy)

- **Chicago Connected** ran a survey highlighting how many students were connected and their engagement once logged on

Example metrics used by cities across output vs. outcome measures

Illustrative, Non-Exhaustive

Often tracked **output** metrics

Metric	Examples
Students enrolled	  
Devices/hotspots distributed	 
Households connected	  (Houston)
Wi-Fi Extenders implemented	  (Portland)
Available infra. and speeds	 
New route miles of fiber	  (Chattanooga)

Often tracked **outcome** metrics

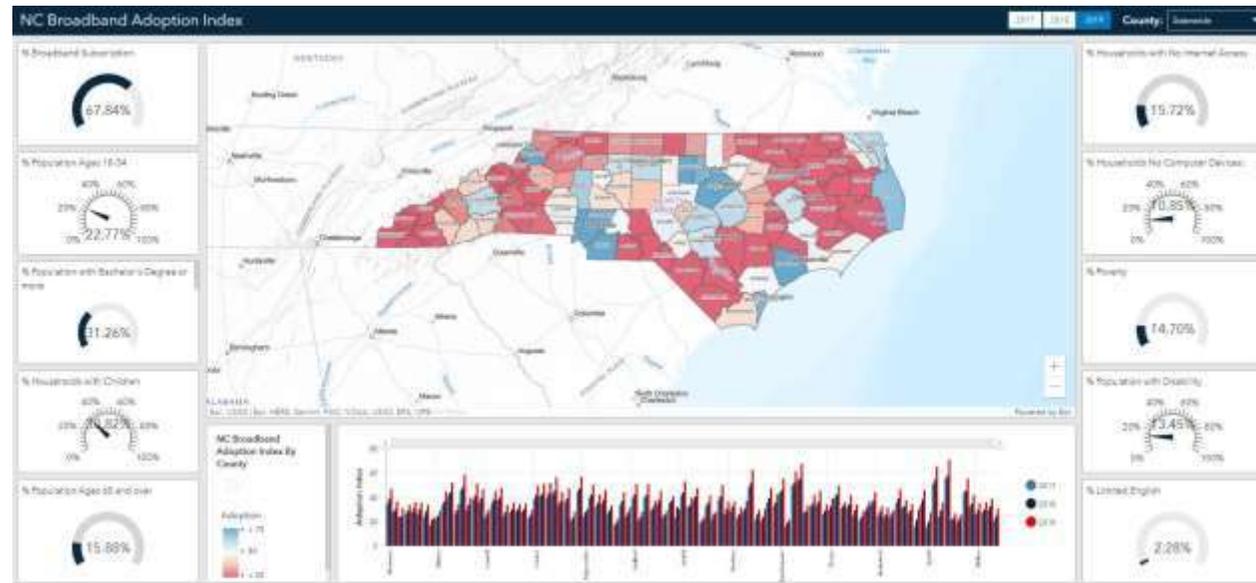
Metric	Examples
Data usage	 (Chattanooga)
Reasons for using internet	
Digital literacy	  (Portland)
Workforce training	 CITY OF KANSAS CITY, MISSOURI  (Portland)
Community orgs engaged	 CITY OF KANSAS CITY, MISSOURI 
Social ROI	 RAMSEY COUNTY

KPIs should measure both the technical progress of solutions and the outcomes/impact on the target population

State broadband offices have begun creating detailed dashboards with cities planning to follow suit

Illustrative, Non-Exhaustive

North Carolina Dashboard



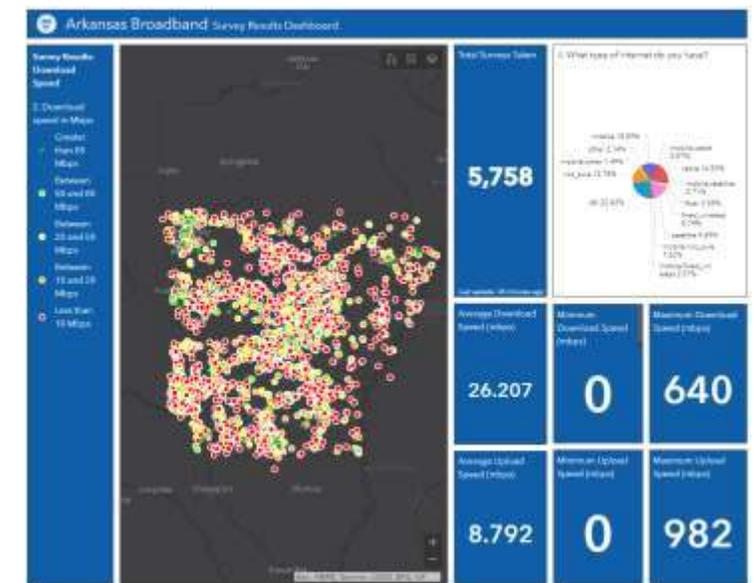
Adoption metrics tracked:

- Broadband subscription rate
- % Poverty
- % Population with Bachelor's
- % Population with disabilities
- % Households with children

Availability metrics tracked:

- % with 25/3 available
- % with 100/20 available
- % Population with fiber
- % Population with no ISPs
- % Houses build after 2010

Arkansas Dashboard



Speed survey metrics tracked:

- Surveys taken
- Internet type
- Average upload/download speeds
- Min and max upload/download speeds

Seattle, Salt Lake City, Austin have indicated plans to evaluate digital inclusion on community dashboards

Next Century cities identified best practice output and outcome-oriented metrics

Dimensions to consider when measuring success of digital programs



Output Metrics

Take rates: Measure the overall number of households and businesses that have gotten online

Diversity of institutions: Determine if connectivity reaches all corners of the community



Outcome Metrics

Financial stability: Understand the sustainability of the business model based on take rates and returns on investment (e.g., public investment brings tangible and intangible benefits to the community)

New businesses: Measure if new companies have set up shop in the community/existing businesses take advantage of new opportunities

Mutually beneficial partnerships: Determine if partnerships have formed with stakeholders that maximize benefits and mitigate risk for all parties

Engaged community: Assess if the community involved is in and supportive of the project and if the work serves true community needs

Both **output and outcome-oriented metrics** are needed to understand the full narrative around the **impact of a coalition's work**

Texas A&M evaluation | Connected Beyond the Classroom data collection and visualization



Data dashboard

Utilizing data visualization software (e.g., Tableau) to create multiple data dashboards for real-time decision-making by school administrators with plans to develop public facing versions



Key performance metrics

Tracking over 50 KPIs covering infrastructure (e.g., internet speeds, equipment functionality) and household impact (e.g., parental engagement, academic improvements)



Surveys

Collecting over 20K survey responses from students, parents teachers, and administrators on digital access barriers facing students to design targeted solutions around them



Recommendation

7

Data & analytics solutions

Detailed recommendations

- 7A Understand household level needs through surveys and direct usage data
 - Partner with Texas A&M on data evaluation and explore opportunities to scale data collection/analysis beyond students
 - Develop process for continuous online household surveying with embedded speed tests to stay current on the evolving needs of residents
 - Create feedback channels to continually improve data collection mechanisms
- 7B Build and maintain comprehensive database of 'hard' assets (e.g., fiber lines, light poles) sourced from existing (e.g., COSA permitting) and new mapping
 - Leverage city & county data collection/mapping of broadband infrastructure
 - Partner with organizations and companies specializing in mapping and asset assessment to verify and refresh data
- 7C Develop comprehensive inventory of community resources for digital inclusion
 - Develop process for continuous community inventory surveying
 - Crowdfund community directory of existing resources via grant applications
 - Encourage community members to continuously self-report data
- 7D Establish single source of truth to manage internal data collection/ownership and external data infrastructure (e.g., public dashboard, equity maps)
 - Develop aggregated data outputs (e.g., dashboard, online portal, mapping) to inform targeted solutions, track progress over time, and rally external support
 - Establish regular cadence of touchpoints to support information sharing and coordination across involved stakeholders
 - Create mechanisms for ongoing community/stakeholder engagement and plan activation (e.g., town halls, awareness campaigns, research reports)
 - Establish accountability and ownership for individual data pieces (e.g., maps) and tracking of key metrics

Data collection will evolve from proxies to direct inputs over time

Proposed categories of KPIs to assess SA/Greater Bexar County's digital strategy

Bold = topline metric to track

ROI

- **Social ROI on digital investments across local, state, and federal funding**
- Inclusive growth (e.g., employment rate, GDP, graduation rates, equity maps)
- Business-related KPIs (e.g., number of STEM graduates, digitally advanced city)
- Impact of broadband across other sectors (e.g., health, traffic)

Note: ROI metrics require add'l analysis to derive impact associated with broadband access

Increase Usage

- **Usage of digital across key use cases (e.g., workforce, telehealth)**
- Average GB usage per household and average speeds
- Digital standards and usage in education programs
- Digital skills/certifications (e.g., ability to navigate website, search the web)

Drive Adoption

- **# and % of households without home internet and/or devices (by segment)**
- % of households with physical infrastructure (across benchmark speeds)
- # and % of households who cannot afford internet/devices (with gov. programs)
- # and % of households who have distrust in current digital programs

Backup | Key metrics to be tracked across a variety of data sources and compiled on a centralized hub

			Illustrative, Non-Exhaustive
Category	Metric	Tracking Mechanism	Potential Source
ROI	Social ROI on digital investments across local, state, and federal funding	➤ Analyses from third-party companies to quantify Social ROI of digital equity programs	Analytics groups/companies
	City growth (e.g., employment rate, GDP, graduation rates, equity maps)	➤ Regression analyses to determine the impact of broadband (vs. other factors) on city growth metrics	Analytics groups/companies
Increase Usage	Usage of digital across key use cases (e.g., workforce, telehealth)	➤ Digital usage from standards from various use case organizations (e.g., SA Ready to Work)	Various community organizations
	Digital standards and usage in schools	➤ Connected Beyond the Classroom statistics and Local/Microsoft data around usage	City
Overcome Adoption	# and % of households without home internet or device (by segment)	➤ School/household surveys	Texas A&M, ESC20
	Enrollment in digital literacy/navigators programs (e.g., OATS)	➤ Reoccurring touchpoints with OATS and other Digital Navigator programs	Various community organizations
Overcome Barriers	% of households with physical infrastructure (across benchmark speeds)	➤ BroadbandNow, FCC, ACS data on household access, speed test data, local fiber maps	City/County (e.g., permitting, IT office), Connected Nation
	# and % of households who cannot afford broadband (with gov. programs)	➤ School/household surveys and ACS income data	Texas A&M, ESC20

Metrics to be tracked across different entities but brought together in a single dashboard

Performance metrics to be integrated across both a public facing dashboard and research reports

Illustrative, Non-Exhaustive

Dashboard Metrics

Tracks overall adoption and each leg of the stool to measure progress, improve coordination across stakeholders, and inform future solutions

Adoption: Overall broadband/device subscription rate across geographies

Availability:

- % of households with 25/3 and 100/20 available
- # and % of households with fiber access, miles of new fiber deployed
- % of households with no ISPs
- % of households build after 2010

Affordability:

- # and % of households that can't afford broadband (with gov. programs)
- % of households enrolled in Lifeline, other gov. programs
- % of households below the poverty line
- Broadband prices and service options (including low-cost options)

Devices:

- % of households with a device available
- Device prices (including low-cost options)

Adoption:

- # and % of households who have distrust in current digital programs
- % of households that speak limited English
- % of households with children
- % of population 65 and older
- % of population with disabilities

Research Report Metrics

Highlights the ROI of programs for future digital advocacy and fundraising

Return on Investment:

- Social ROI on digital investments across local, state, and federal funding
- Inclusive growth (e.g., employment rate, GDP, graduation rates) due to broadband access
- Business-related KPIs (e.g., number of STEM graduates, digitally advanced city)

Increase in Usage:

- Usage of digital across key use cases (e.g., workforce, telehealth)
- Average GB usage and speed per household
- Digital standards and usage in education programs
- Digital skills/certifications (e.g., ability to navigate website, search the web)

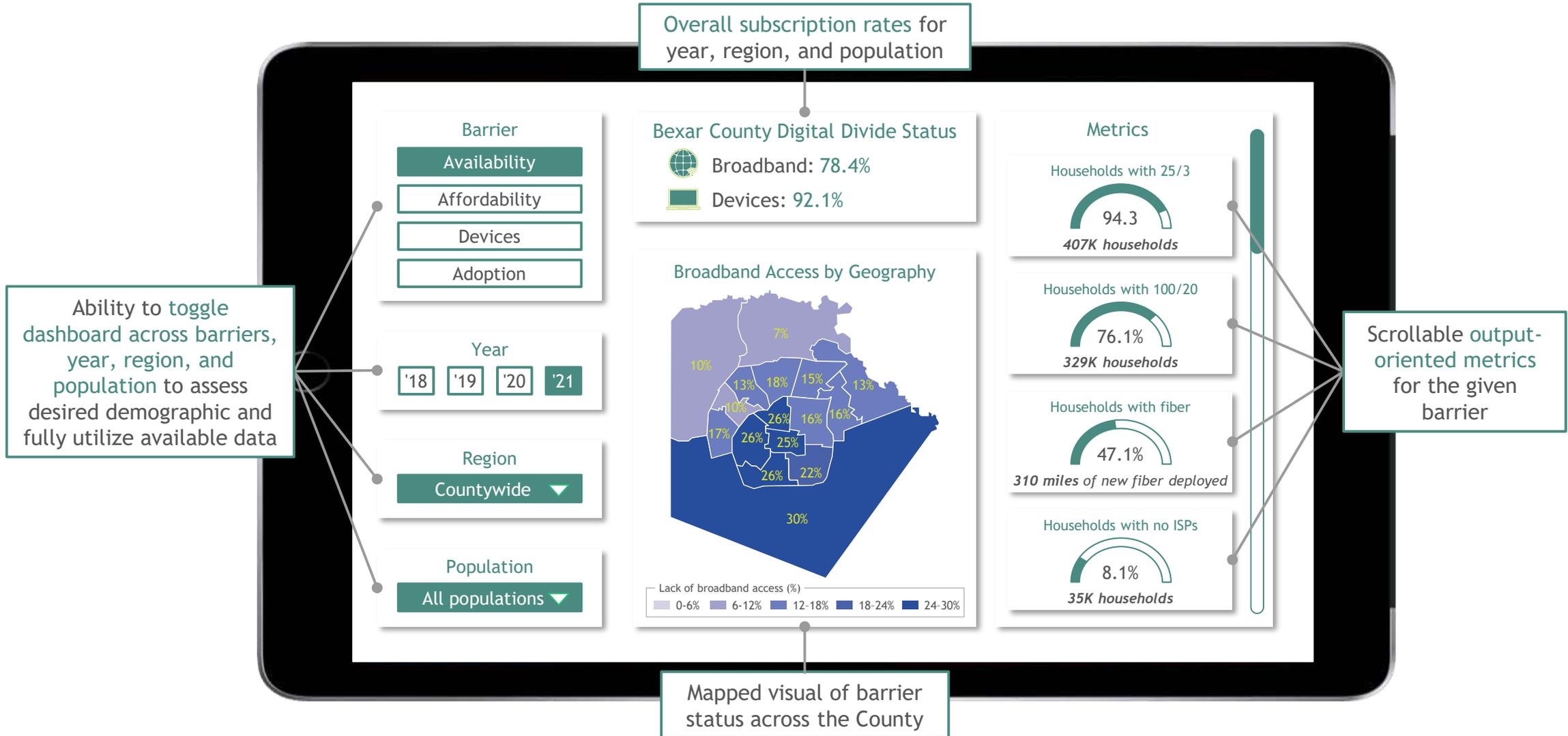
Community Engagement:

- Enrollment in digital literacy/navigators programs (e.g., OATS)
- Creation of partnerships and assessment of community engagement



Example dashboard on next page

Example Dashboard - Tracking Digital Equity Progress



Several tactics should be employed to ensure that the defined KPIs are integrated across the community



Publicize KPIs on the community website with rationales for why each metric is being tracked



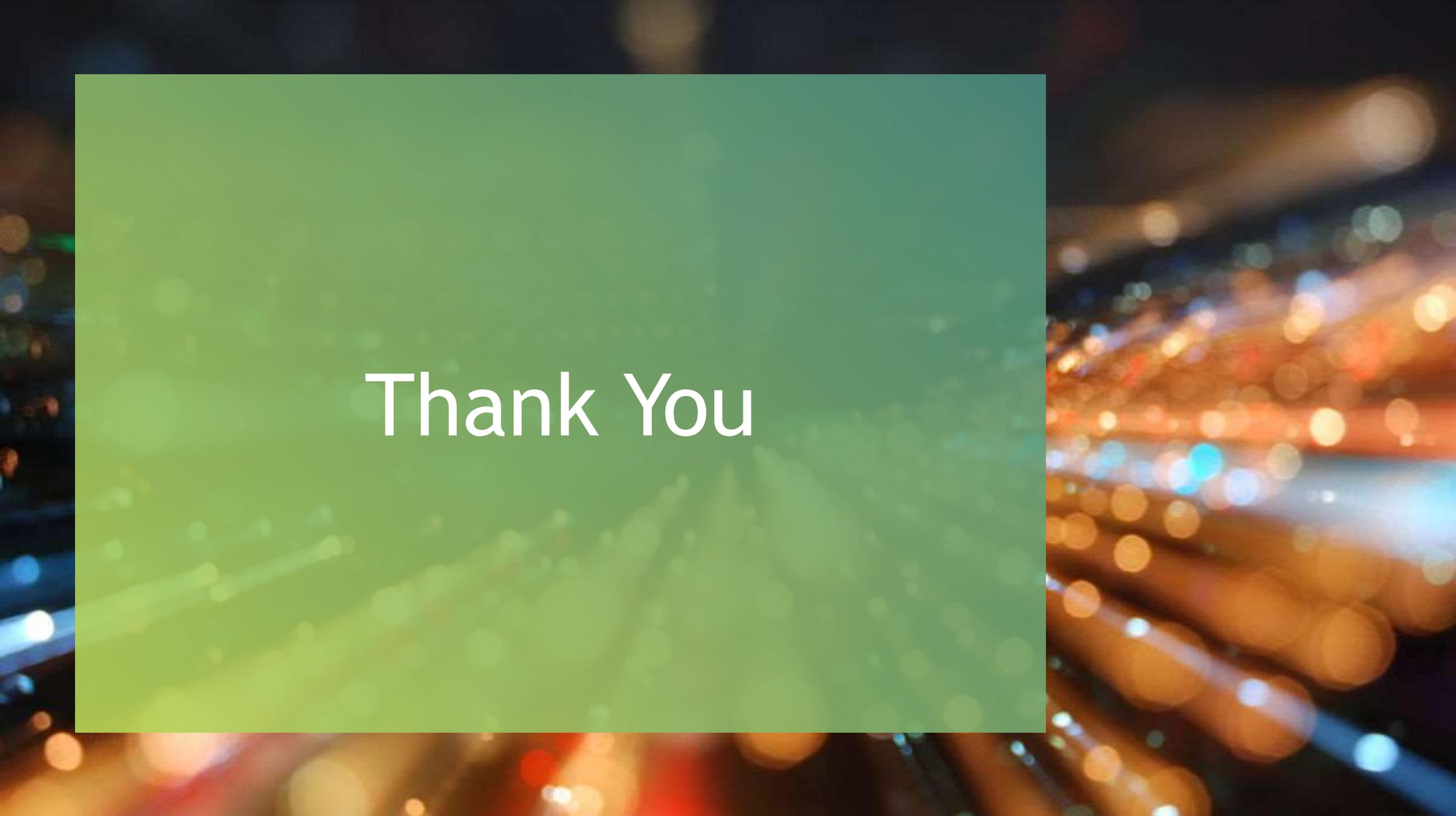
Report progress on defined KPIs on an ongoing basis through monthly/quarterly newsletters



Use KPIs in the economic narrative to support future requests for investment



Require grants applications to use the defined KPIs, ensuring that grantees track these metrics



Thank You