Microsoft

Microsoft Internet Connectivity Data

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Microsoft AI For Good Lab

Microsoft AI For Good Lab: Who We Are

We are **Data Scientists, Economists**, and **Data Storytellers** across **four continents**

200+ projects and **70+ papers** published over the past five years

Working together with **subject matter experts** to address **urgent challenges**

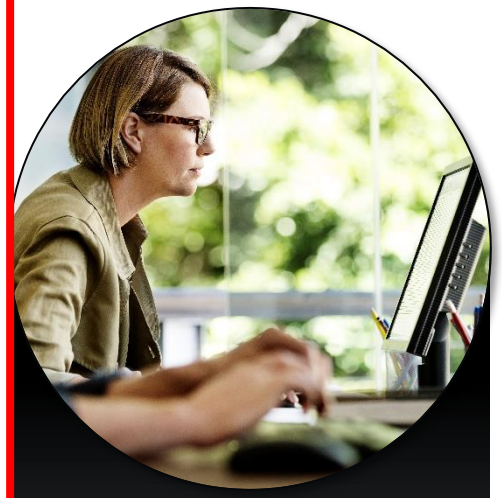
AI for Good Lab

One of Our Focus Areas: Digital Inclusivity

We are committed to **promoting inclusivity through digital skills** and opportunity. We are measuring digital literacy, creating analytics to boost digital skills, and expanding digital inclusivity in the Global South. Our efforts are helping to close the data divide and create a more equitable future.

5:1 data scientists in the Global North versus the Global South a significant gap in the ability to turn data into decision-making insights and action

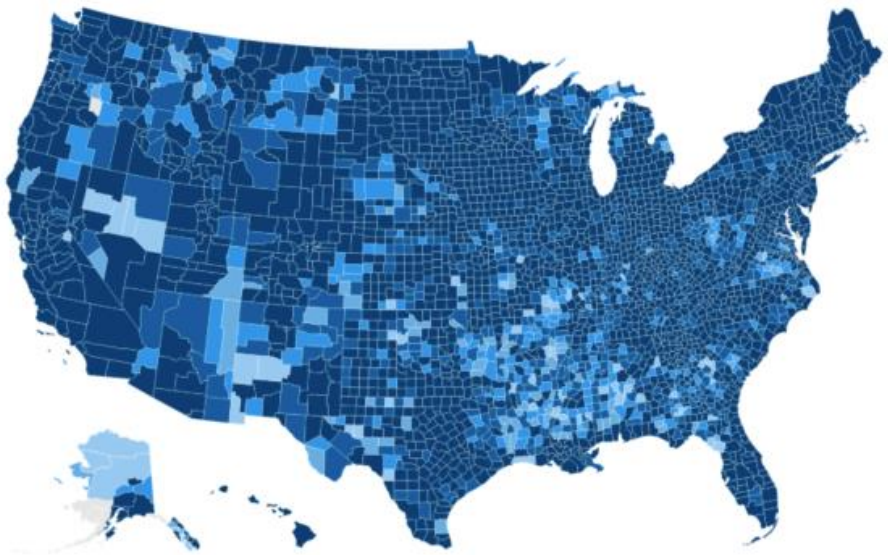
Education, healthcare, jobs, and other critical services increasingly require fast, **affordable broadband internet connection**



Worldwide initiative to help people acquire digital skills, identify in-demand jobs and access to online learning paths

Problem: 95% Broadband Coverage in the US?

FCC indicates broadband is not available to ~14.5M people



* FCC Broadband has or "could" provide greater than or equal to 25 Mbps / 3 Mbps

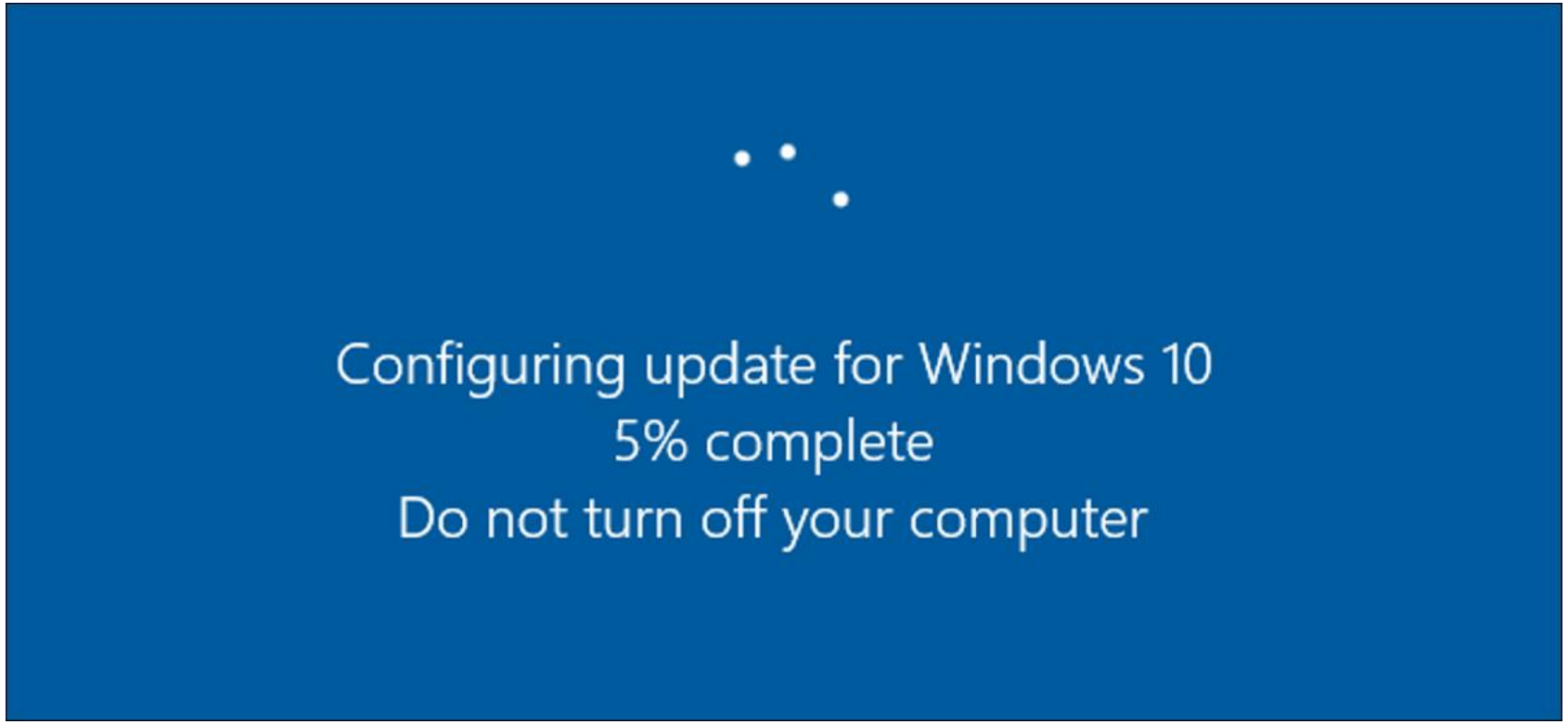
Microsoft Airband Initiative has a goal of increasing broadband coverage (>25 Mbps download) across the US (later expanded globally)

FCC relies on surveys of ISPs for what *could* be possible in an area, and suggests very high coverage across the country

Can we compare this against actual usage?

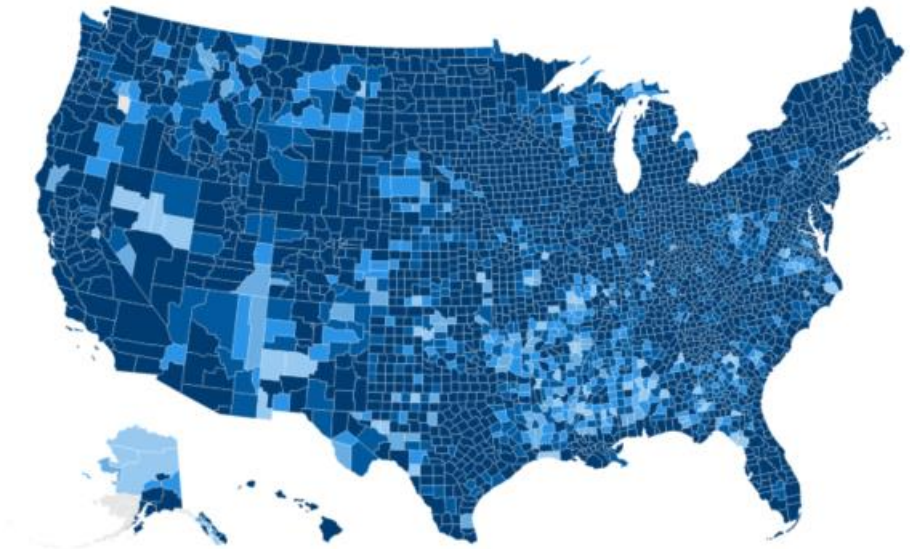
Measure Internet Speeds With Microsoft Data

The datasets consist of data derived from anonymized data Microsoft collects as part of our ongoing work to improve the performance and security of our software and services, like…



Result: 120M Americans lack broadband access

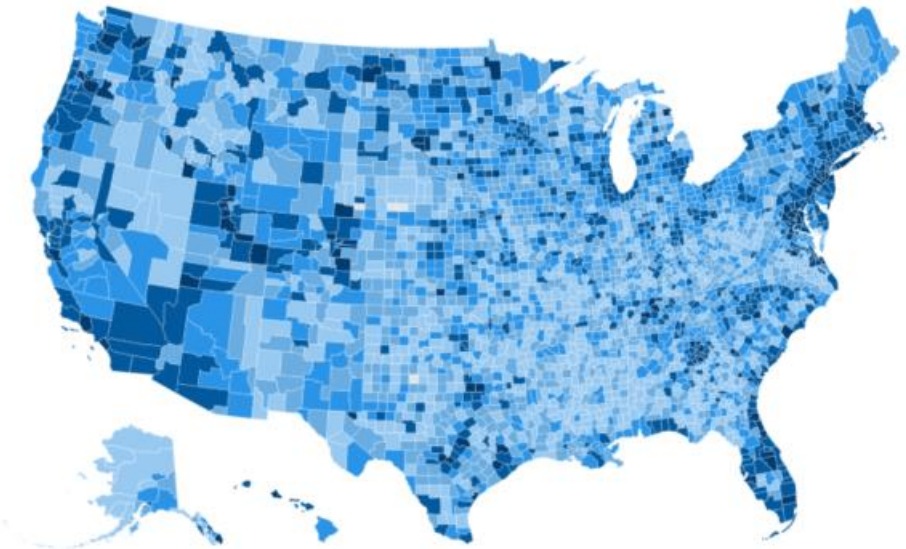
FCC indicates broadband is not available to ~14.5M people



FCC broadband availability* 0% >0 to 20% >20% to 40% >40% to 60% >60% to 80% >80% to 100%

* FCC Broadband has or "could" provide greater than or equal to 25 Mbps / 3 Mbps

Microsoft data indicates ~120.4M people do not use the internet at broadband speeds

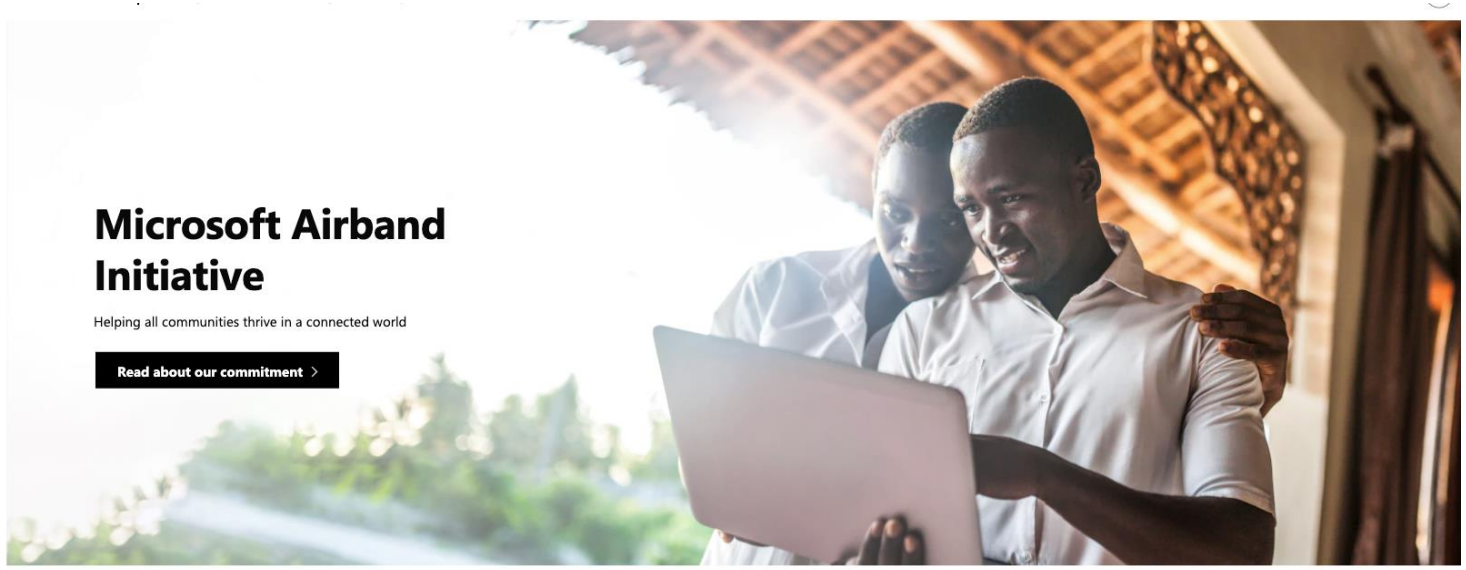


Broadband usage** 0% >0 to 20% >20% to 40% >40% to 60% >60% to 80% >80% to 100%

** Broadband speeds greater than or equal to 25 Mbps

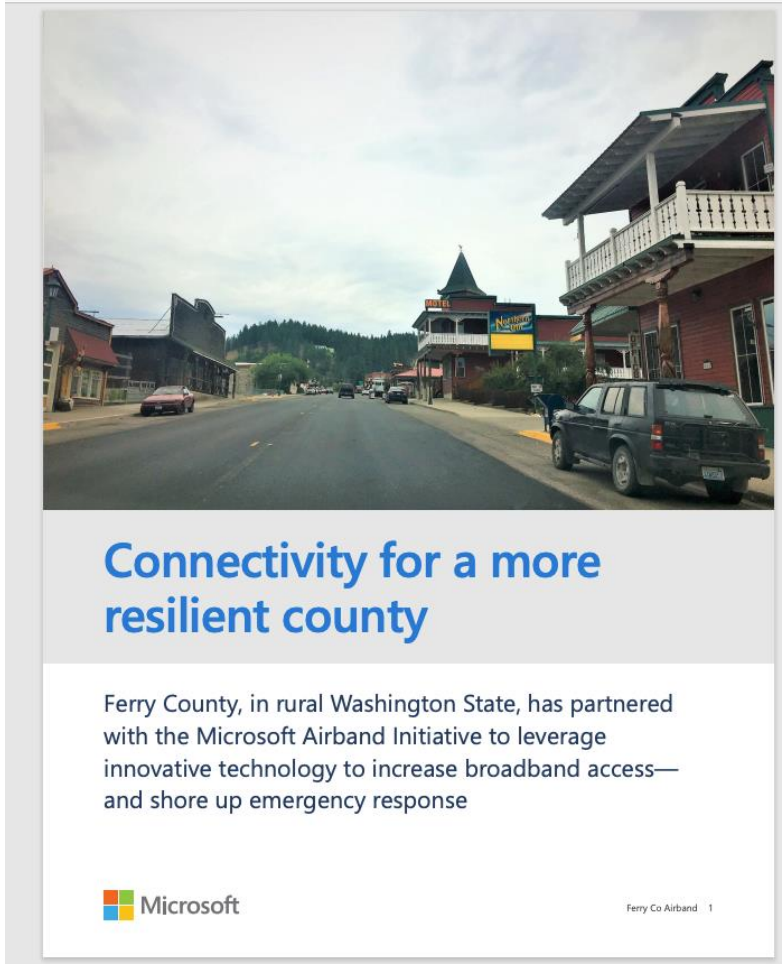
Sources: FCC Fourteenth Broadband report based on form 477 data from December 2019 and Microsoft data from October 2020
To assist with additional broadband mapping analysis data has been made downloadable here. Learn more in this GitHub repository.

Leveraging the Data: Microsoft Airband Initiative

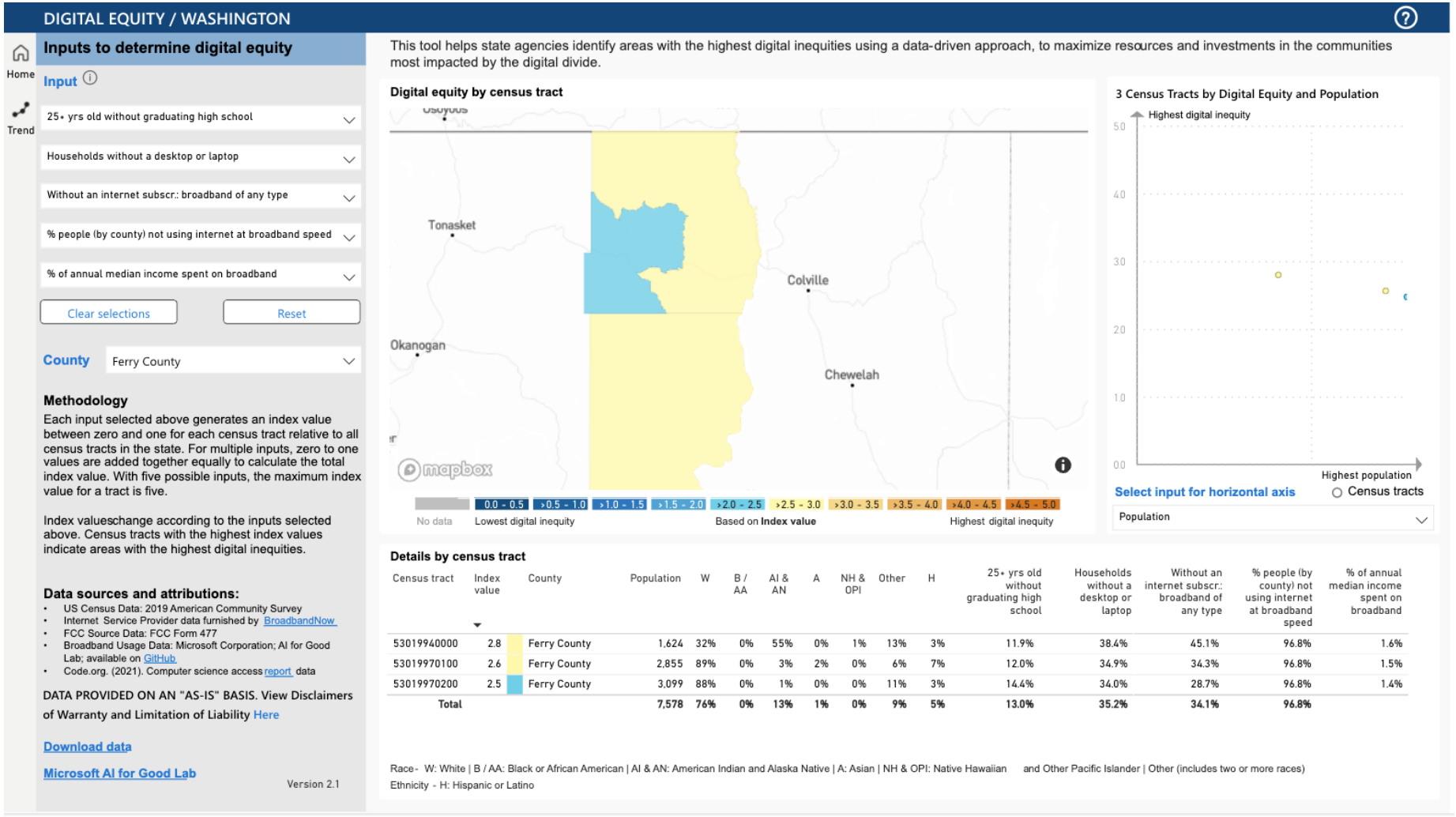


Broadband maps helped the Microsoft Airband Initiative identify areas for investment in multi-technology and multi-frequency solutions

Ferry County (WA)
FCC estimate: >99% broadband access
MSFT estimate: 3% broadband access



Leveraging the Data: Digital Equity Dashboard



Combine internet connectivity data with other sources to create a *digital equity index*

Allows policy makers to identify the areas in most need of broadband beyond just download/upload speeds

Potential Limitations

Microsoft has good coverage on PCs/laptops, but mobile coverage is limited

Proximity to Microsoft data centers may be a factor for some countries (would expect lower download speeds for countries without nearby data centers)

PC coverage may be limited in some countries, increasing bias in speed estimates

Susceptible to short-term connectivity trends like electrical outages

Future Work

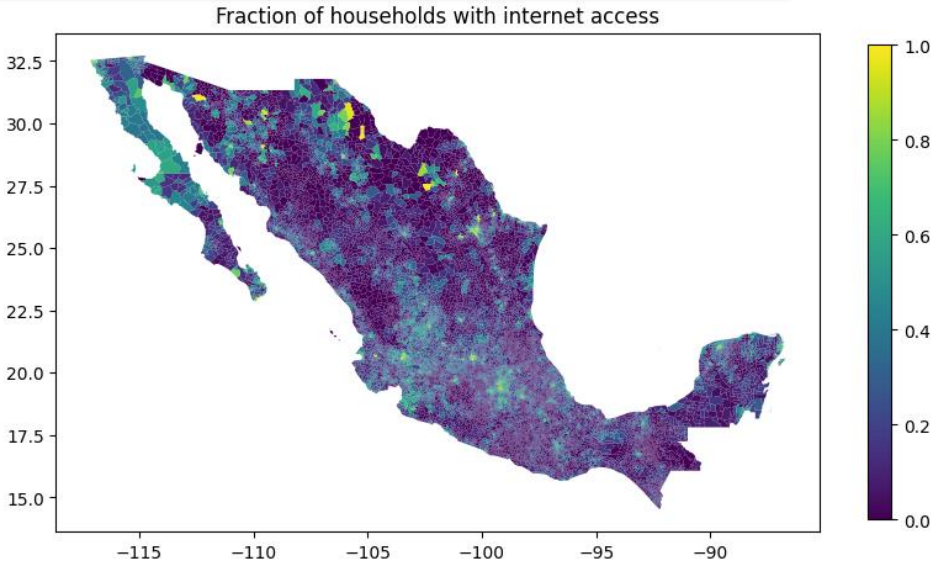
Release a worldwide dataset to the public

Partnering with ITU on measuring household internet connectivity

Use Microsoft data to go from internet access to meaningful connectivity by including download speeds and tie this into the Early Warnings For All initiative

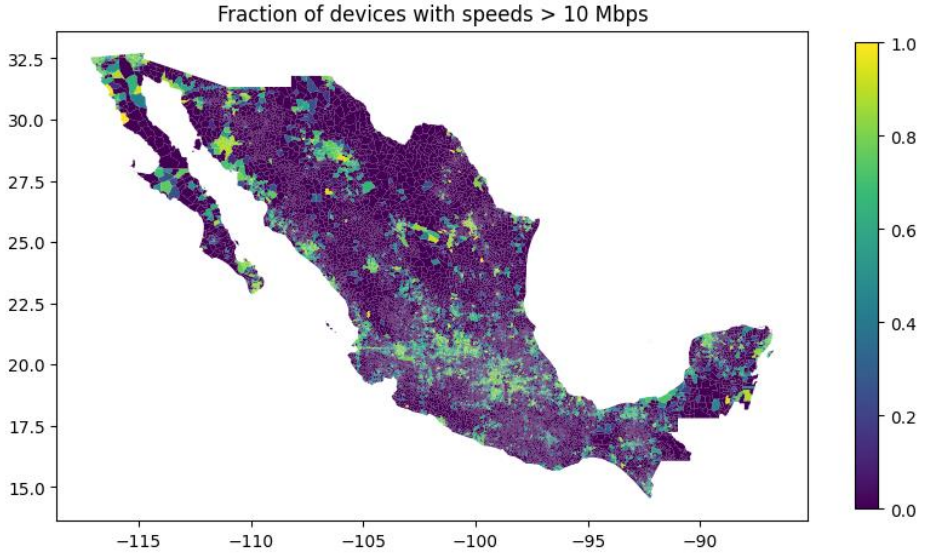
Explore other Microsoft datasets to improve coverage

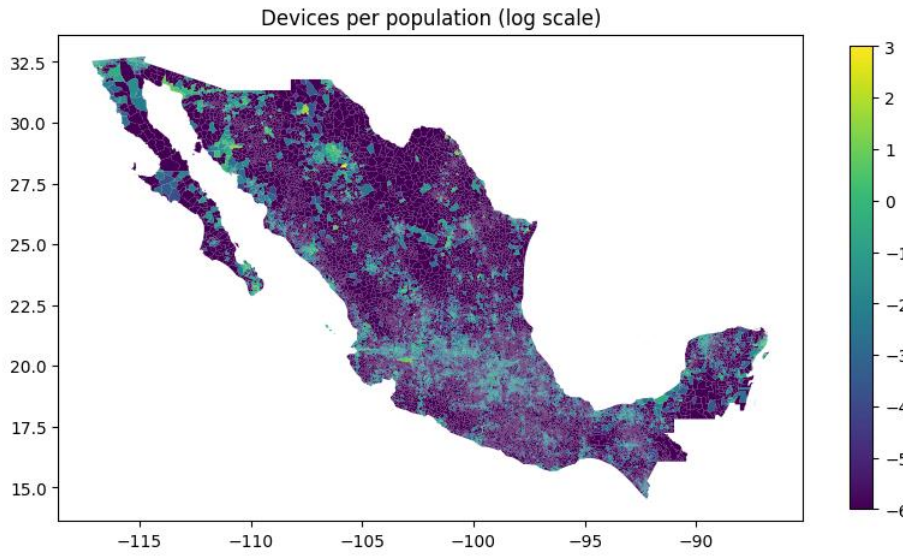
Early Results for Mexico



We can measure both speed and estimate number of devices per capita

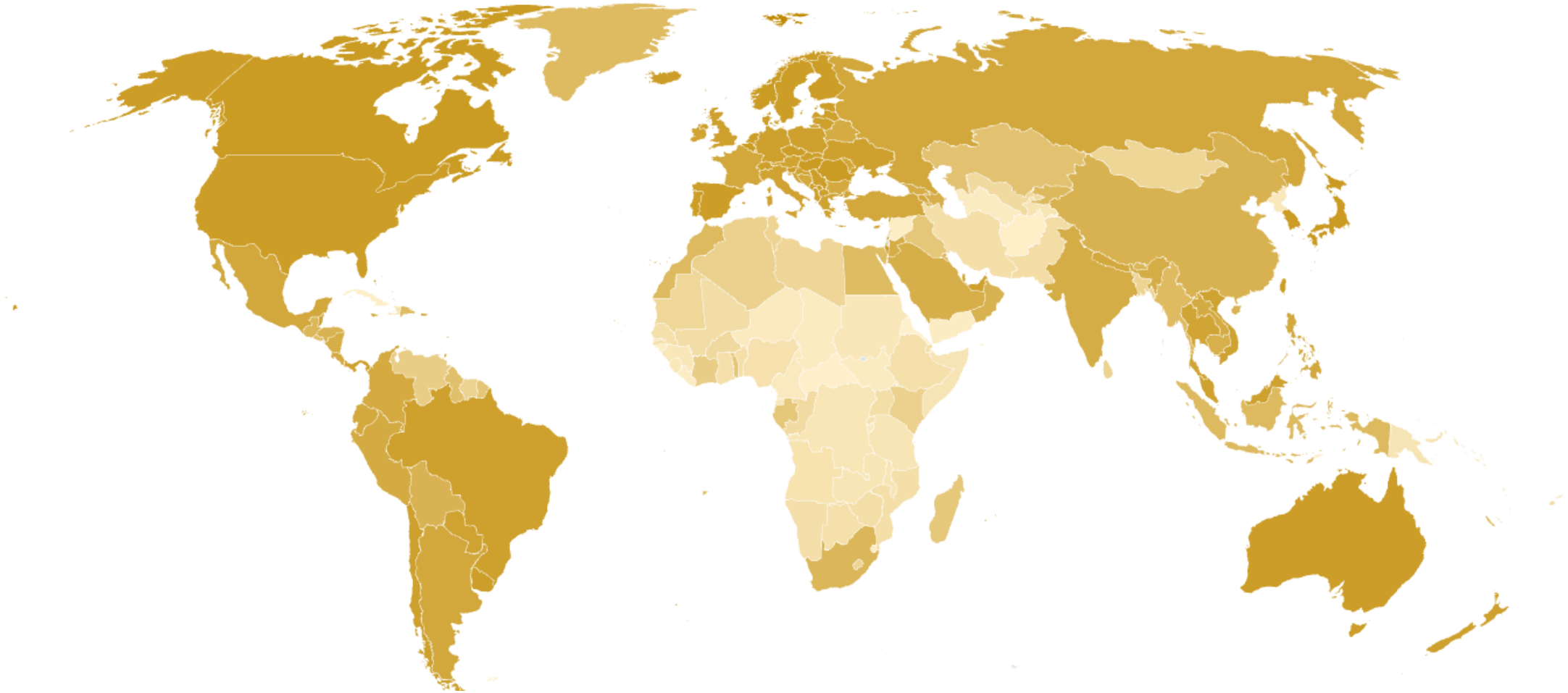
Both are correlated with households with internet access, and initial exploration suggests these could be used in a predictive model





Coming Soon: Worldwide Data

Fraction of Devices with >10 Mbps download speed




Microsoft
Thank you

Contact and Links

Contact Info:
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Links:
US broadband dataset:
https://github.com/microsoft/USBroadbandUsagePercentages

Digital Equity Dashboard (dashboard link blog post)
https://blogs.microsoft.com/on-the-issues/2022/07/14/digital-inequity-dashboard-broadband-access/