

# GLOBAL NETWORK MAPPING TRANSPORT

## Latin American Cities

Managua, Nicaragua  
Duitama, Colombia  
Bogota, Colombia  
Cuenca, Ecuador  
Cochabamba, Bolivia  
Zapopan, Mexico  
Veracruz, Mexico  
Xalapa, Mexico  
Merida, Mexico  
Santo Domingo, DR

## African Cities

Lubumbashi, DRC  
Lusaka, Zambia  
Harare, Zimbabwe  
Gaborone, Botswana  
Maputo, Mozambique  
Cape Town, South Africa  
Douala, Cameroon  
Addis Ababa, Ethiopia  
Kampala, Uganda  
Nairobi, Kenya  
Kigali, Rwanda  
Dakar, Senegal  
Bamako, Mali  
Abidjan, Cote d'Ivoire  
Accra, Ghana  
Lagos, Nigeria

**RESOURCE CENTER FOR MAPPING INFORMAL TRANSIT DATA**

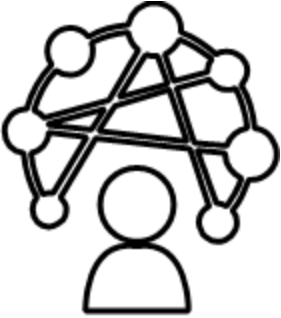


**AFRICA : AUGUST 2018**  
ADDIS ABABA



**LATIN AMERICA : JANUARY 2019**  
MEXICO CITY

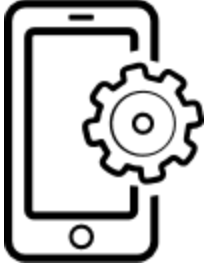
# RESOURCE CENTER STRUCTURE



## OUTREACH

Develop network, city partners

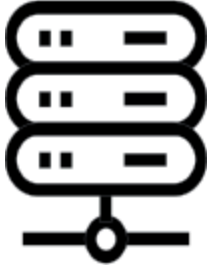
MDBs, bilateral aid agencies mainstream open data collection, peer to peer learning between cities



## TOOLS

Gather and post existing tools, provide documentation

Updating tools including using cutting edge approaches like AI



## REPOSITORY

GTFS exchange, collate existing data, API with existing data

Sustainable model for hosting and sharing global open data,



## TRAINING

Guidebooks on data tools, standards and collection, capacity building workshops

Mainstream into planning curriculum and transportation project work Global training platform for incubation



## POLICY & APPLICATION

Case studies, dashboards to link data to monitoring and planning, Principles of open data and paratransit

Demonstrate global accessibility data, contribute to cities meeting SDGs and other global goals

**SHORT TERM**  
(1-2 years)

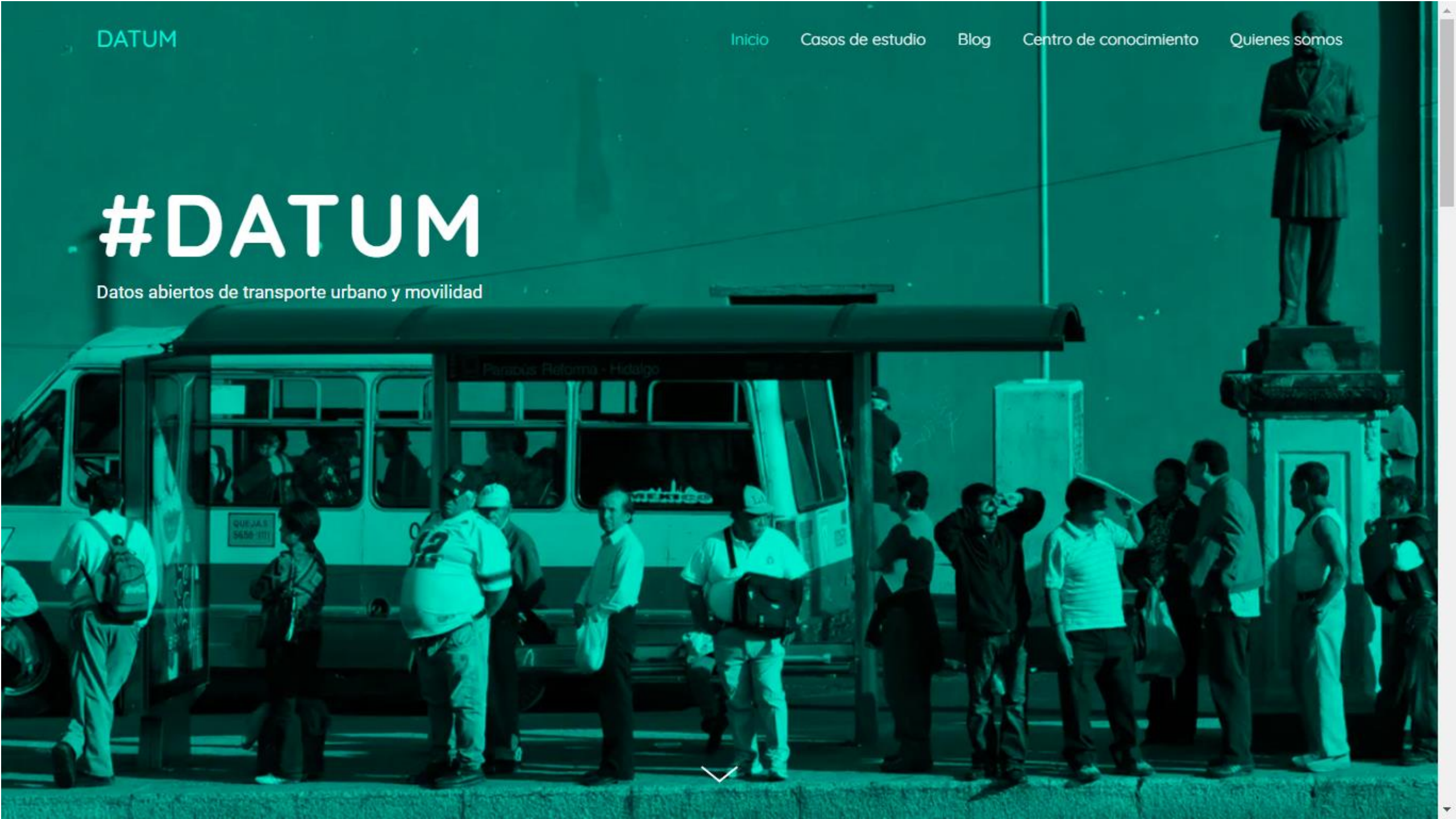
**LONG TERM**  
(3-5 years)

# GLOBAL NETWORK OF PARTNERS



# #DATUM

Datos abiertos de transporte urbano y movilidad



# #DATUM year 1



## STATE OF ART REPORT

experiences from other  
latin american cities



## PILOT PROJECT

mid-sized latin american cities  
santiago de los caballeros



## WEBSITE

resources, training, materials  
<https://datum.la/>

# TRB 2019

## PILOT CITY WORKSHOP

many of you came  
together to determine pilot city

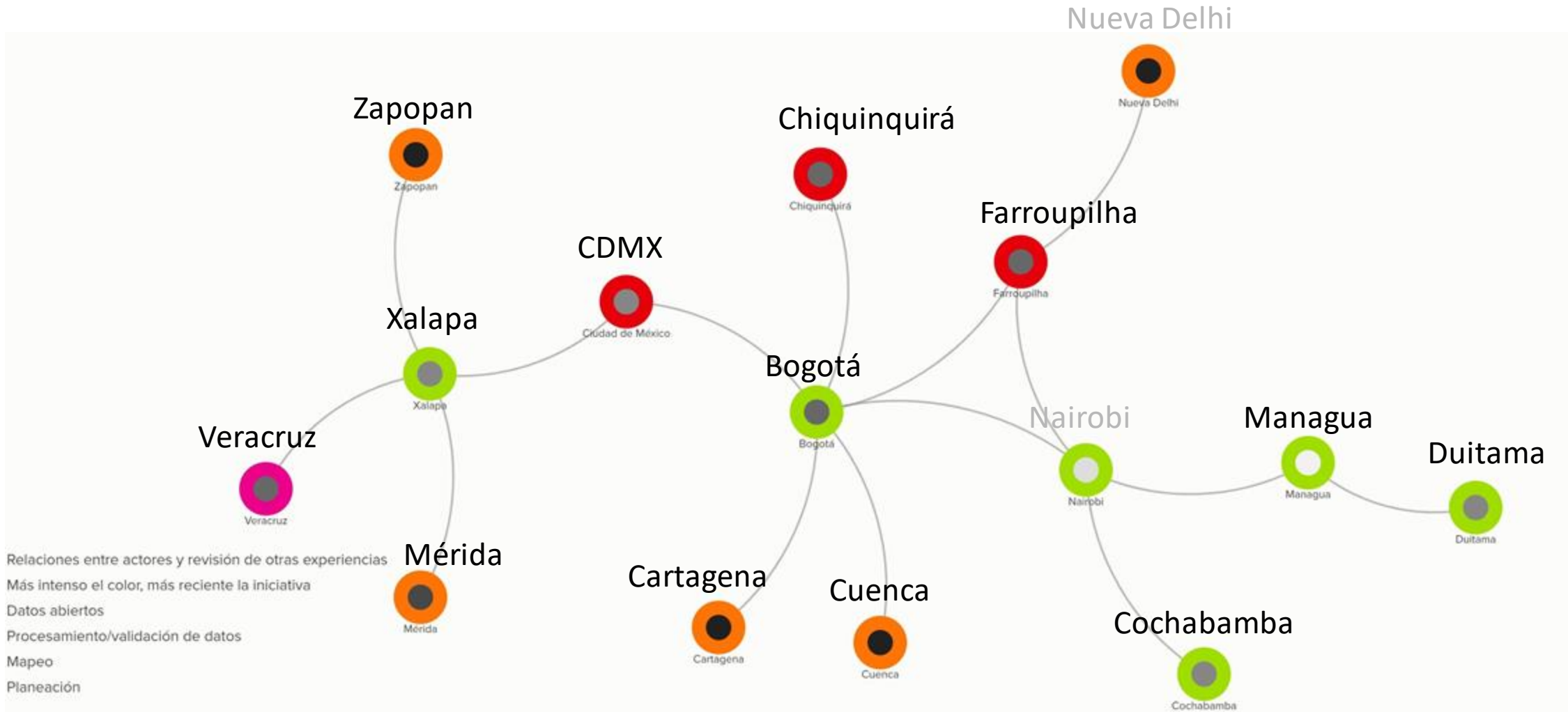
santiago de los caballeros





# STATE OF ART REPORT

experiences from 21  
latin american cities

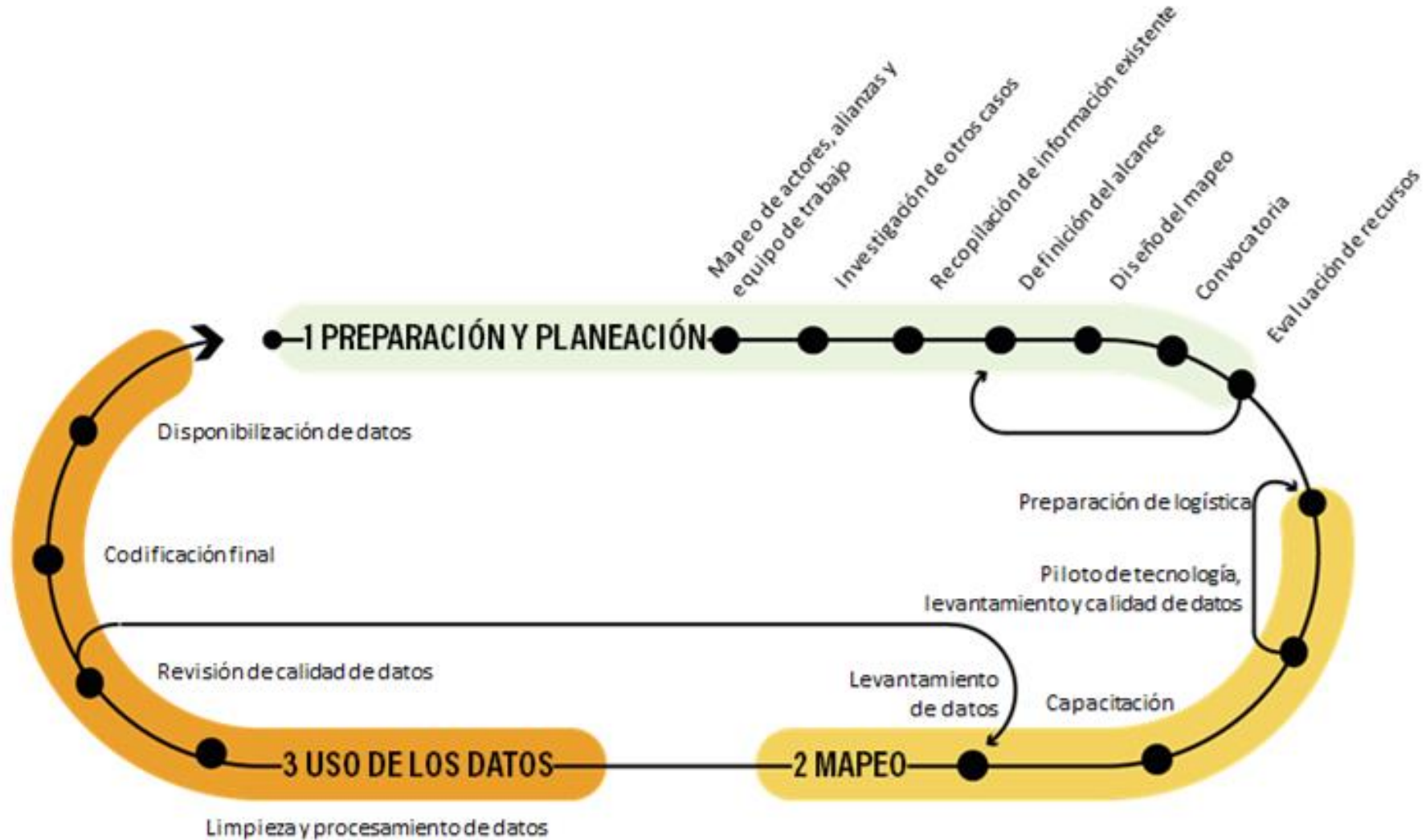






# RESEARCH TO METHODS

“innovation is developing transport routes through participatory mappings”





## B. Pilot of data collection and GTFS





## Objectives:

1. Map public transport routes,
2. Promote the use of open data,
3. Collect additional information from the user's perspective,
- 4....through a participatory process

**May**

**June**

**July**

**August**

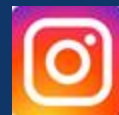
**September**

**Data  
collection**

**Data and  
results delivery**

**Preparation**

**Processing  
and coding**



@mapeandosantiago  
#mapeandosantiago

**1. Qualitative  
information  
gathering (*Mapeo  
complementario*)**

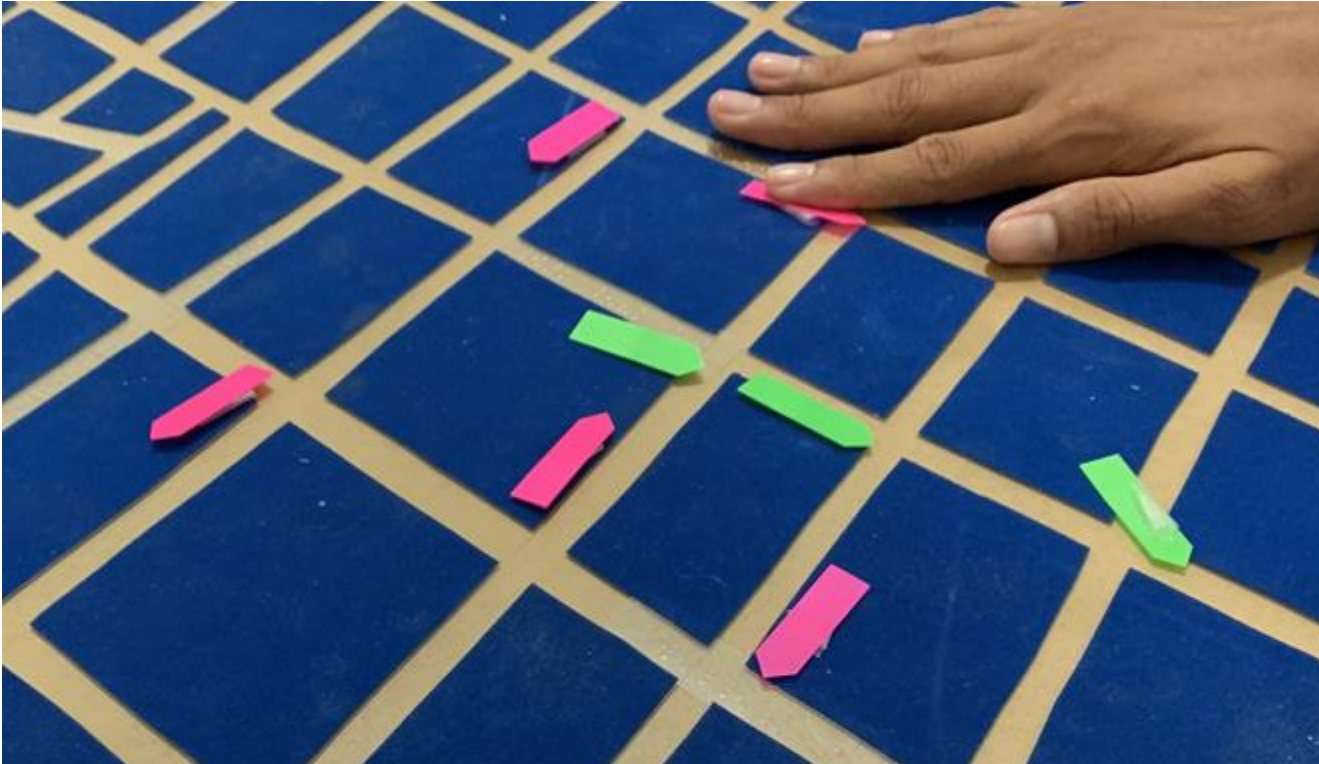
**2. Service survey**

**Mapeando Santiago**

**3. Participatory audit  
to public space**

**4. Transport routes  
mapping**





**1. Qualitative information gathering:  
Walking focus groups: accessibility, security and safety.**

**Total: 4 groups.**

**Duration: 2h 30 min per group.**

**Participants: 38 people from 5 civil society organization.**



## Women focus group 1: Los Pepines

*“Las mujeres son las más acosadas. En cualquier momento uno no sabe cuál es el tigre dentro del grupo”.*

*“Cuando los niños salen de la escuela tienen que lanzarse a la calle porque el espacio no es tanto”.*





*Q: "Problems perceived last month":*

**34% related to the vehicle,**

**20% related to drivers training or behavior,**

**18% related to lack of signaled stops or lack of shelters.**



**Satisfied or very satisfied**



**Unsatisfied or very unsatisfied**

1° It is easy to identify my route (63%)

2° Accessibility offered by the system:

- ✓ Service hours (49%)
- ✓ There is a route linked to my origins and destinations (46%)
- ✓ Ease of reaching public transport boarding points (44%)
- ✓ Distance to boarding points (43%)

- x Driving or drivers (62%)
- x I know where to find route information (57%)
- x Appearance and preparation of drivers (57%)
- x Vehicle comfort (55%)
- x Safety on the way to boarding points (52%)
- x Security inside vehicles (47%)



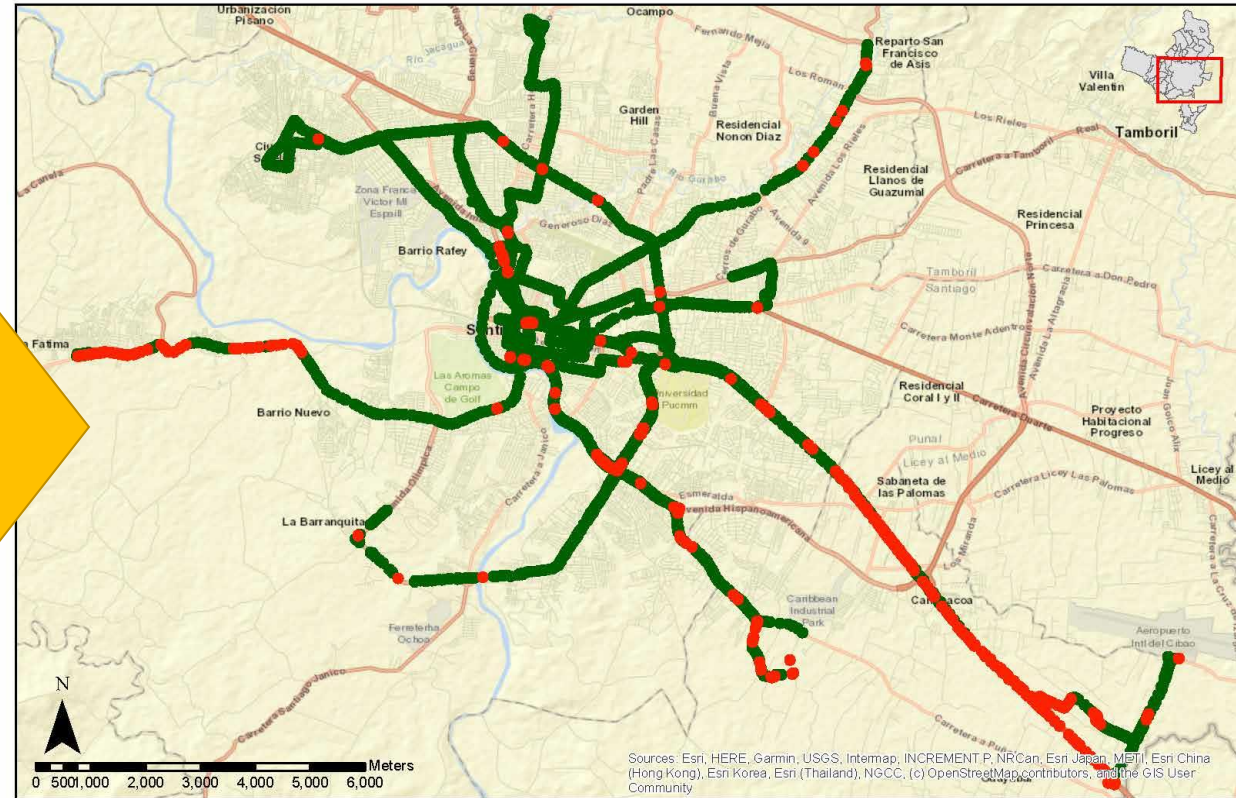
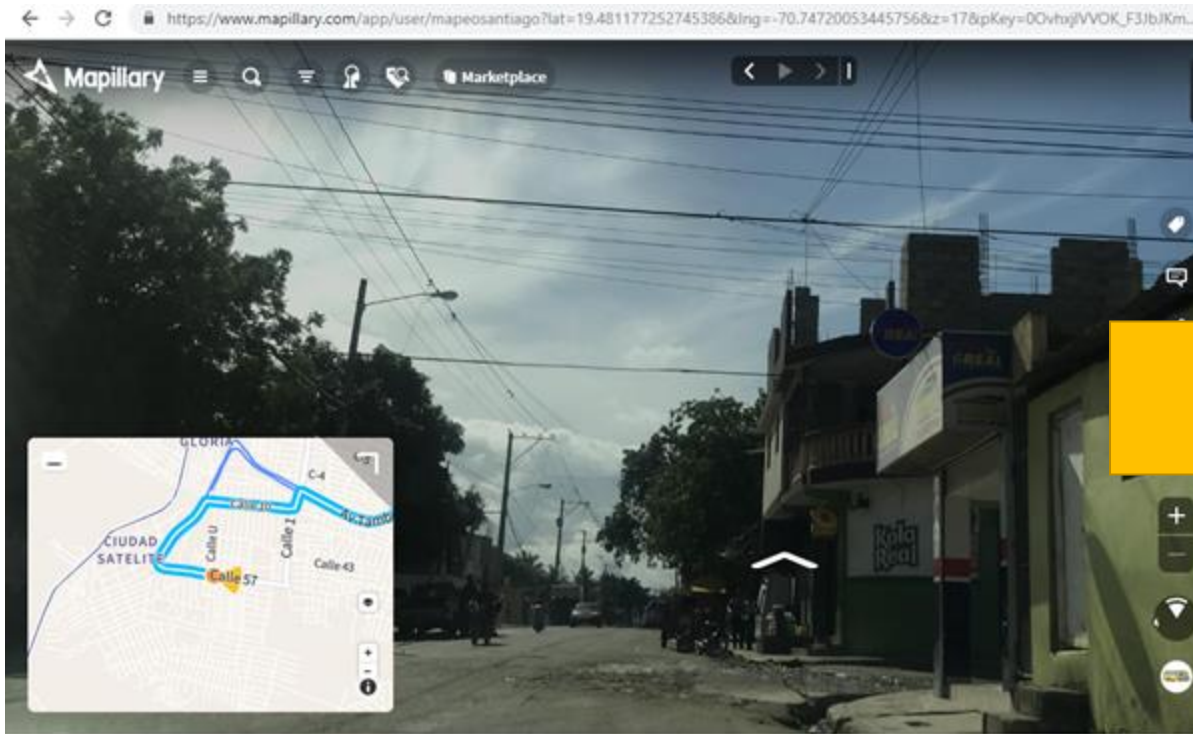
**Mapillary:**  
Image taken  
every 20 m.

### 3. Participatory audit to public space



**MapMap:**  
Route record

### 3. Participatory audit to public space



Mapillary



### 3. Participatory audit to public space

Creation of a georeferenced and coded digital base of **3200** images from more than **160 km** of city coverage.



Image by mapeosantiago Jun 14, 2019

## 4. Routes mapping



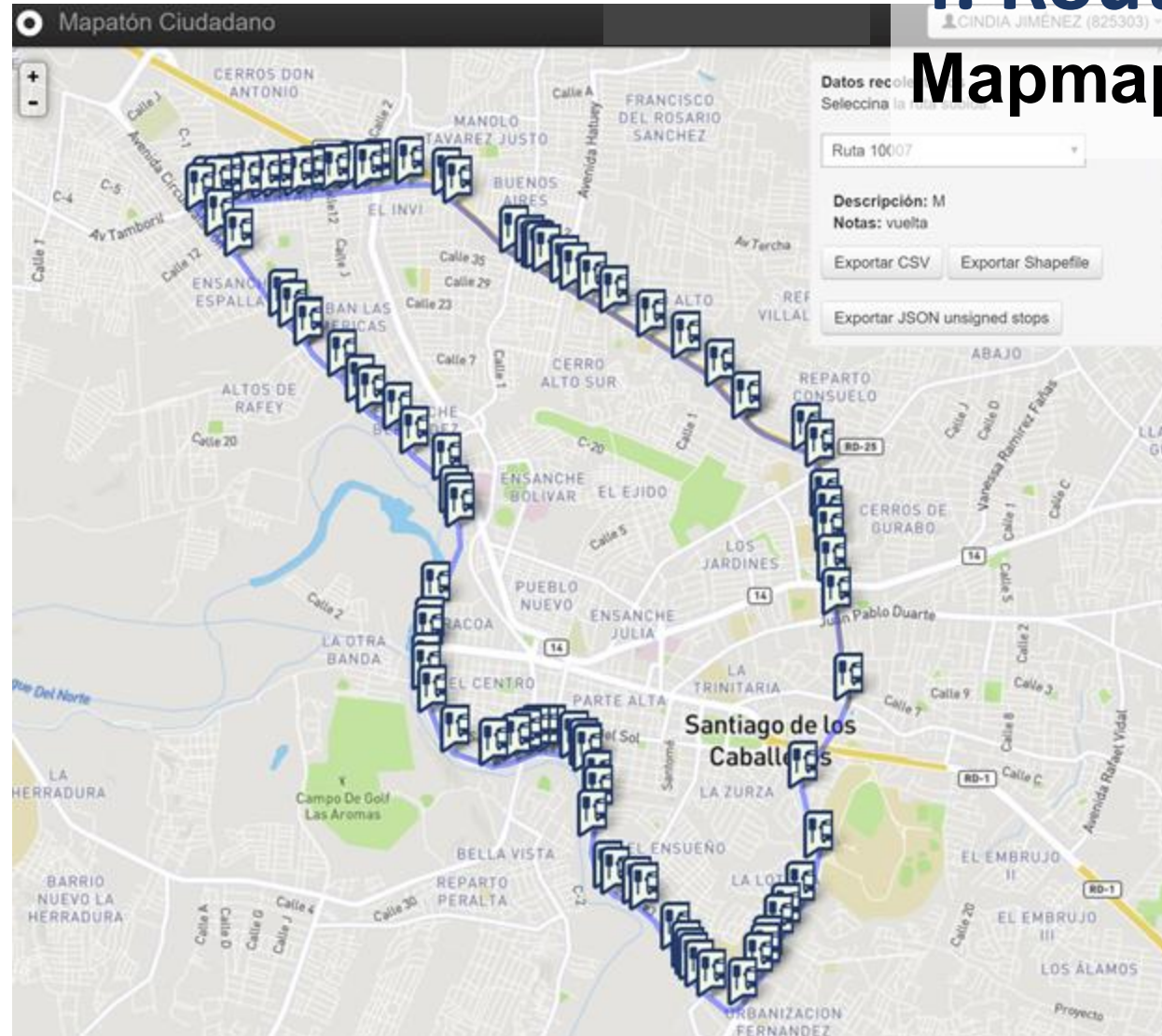
## 4. Routes mapping

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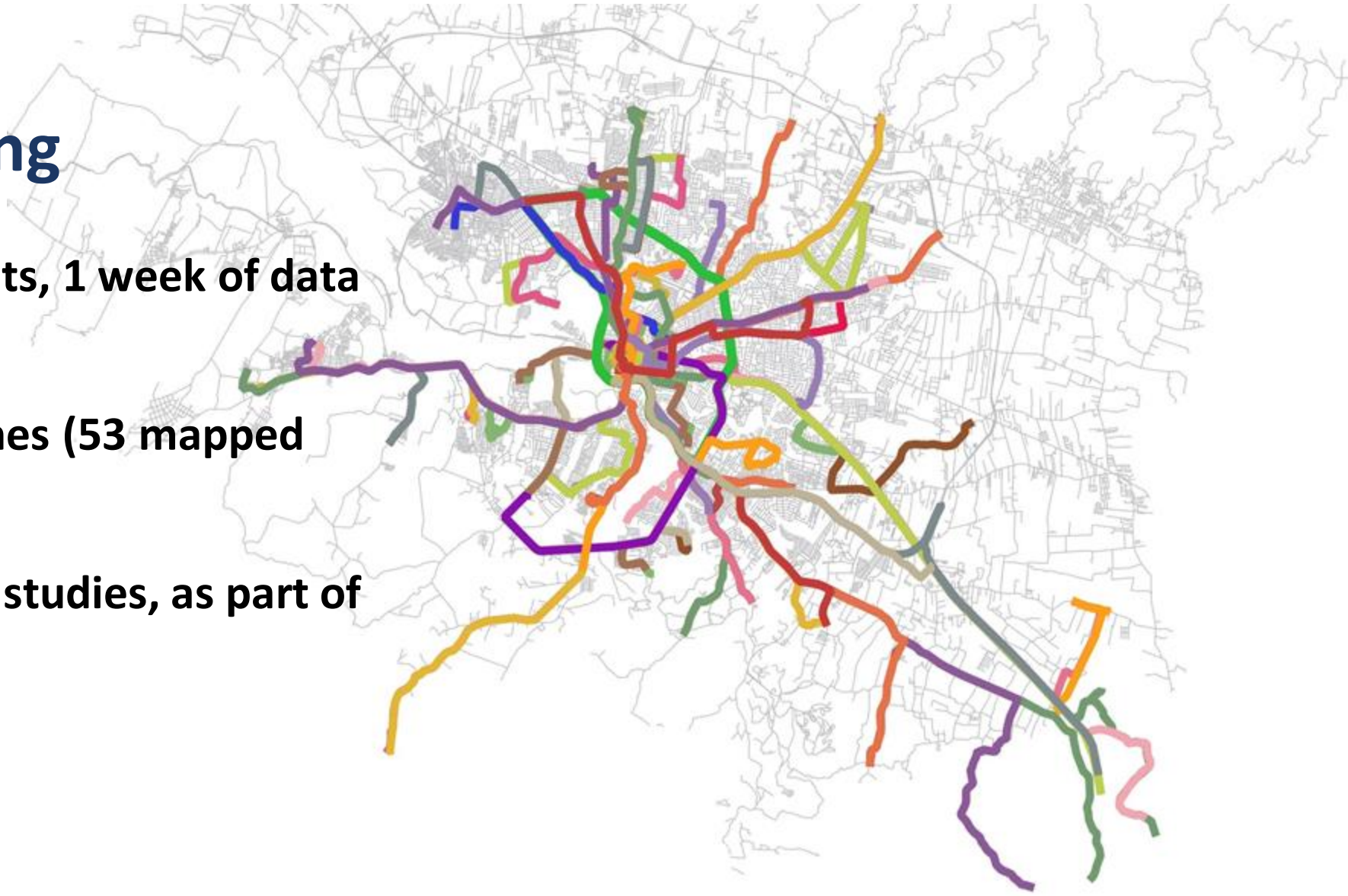


# 4. Routes mapping Mapmap output



## 4. Routes mapping

- 28 volunteer participants, 1 week of data collection
- 28 urban and its branches (53 mapped routes)
- Service frequency field studies, as part of the methodology.



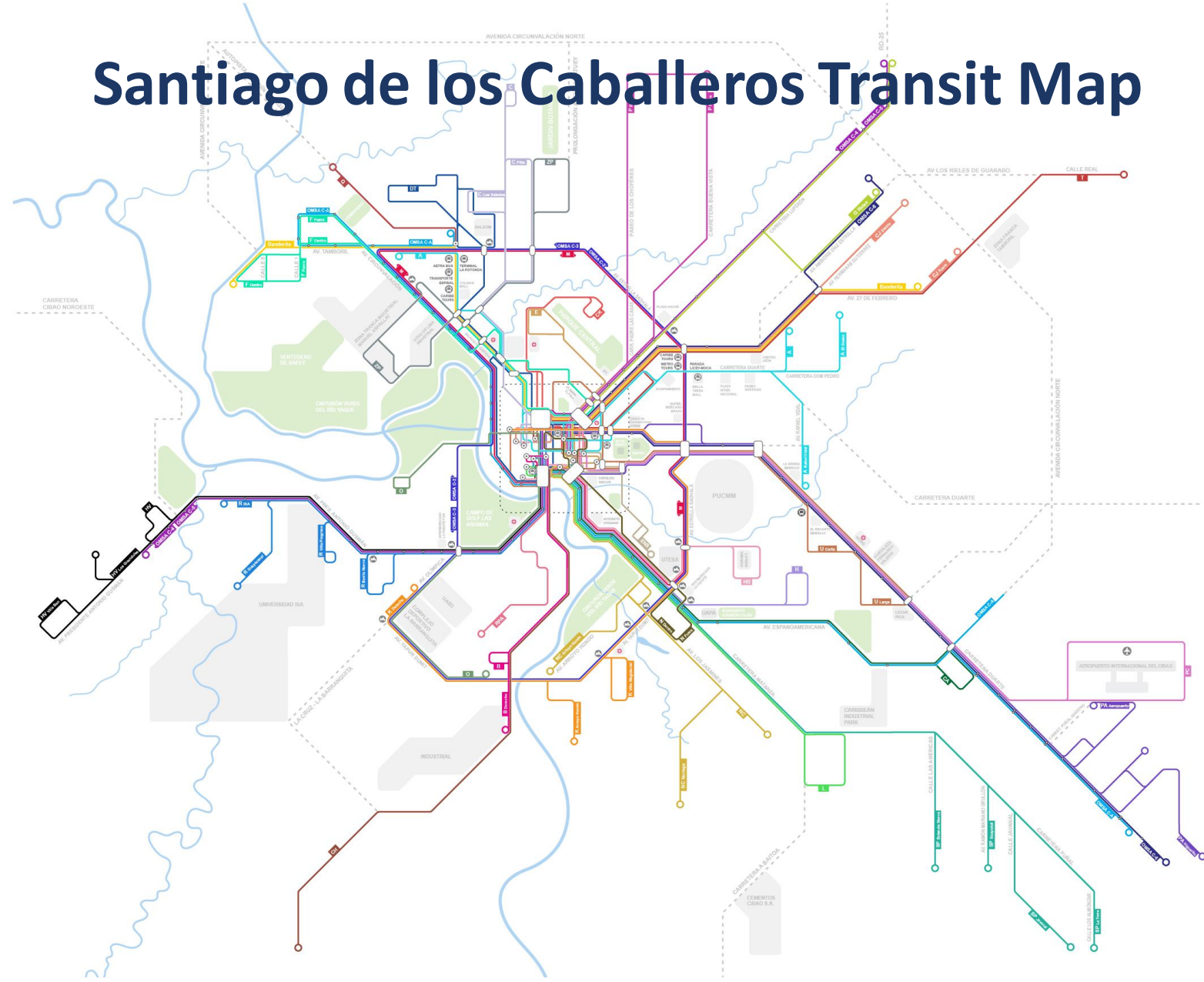
# Santiago de los Caballeros Route Map

**Turning  
collected  
data...**



# Santiago de los Caballeros Transit Map

Turning collected data...  
... user friendly information:



## MAPA DE TRANSPORTE PÚBLICO DE SANTIAGO SANTIAGO DE LOS CABALLEROS, REPUBLICA DOMINICANA

**Legenda**

- Inicio - Finis - Ruta - Parada - Intersección - Terminal de Autobuses - Paradas Motoconductor - Aeropuerto - Hospital
- Vías - Zona Verde - Zonas de Interés

**Rutas Urbanas**

- 1. Ruta 1: Centro - Zona Industrial
- 2. Ruta 2: Centro - Zona Comercial
- 3. Ruta 3: Centro - Zona Residencial
- 4. Ruta 4: Centro - Zona Educativa
- 5. Ruta 5: Centro - Zona Industrial
- 6. Ruta 6: Centro - Zona Comercial
- 7. Ruta 7: Centro - Zona Residencial
- 8. Ruta 8: Centro - Zona Educativa
- 9. Ruta 9: Centro - Zona Industrial
- 10. Ruta 10: Centro - Zona Comercial
- 11. Ruta 11: Centro - Zona Residencial
- 12. Ruta 12: Centro - Zona Educativa
- 13. Ruta 13: Centro - Zona Industrial
- 14. Ruta 14: Centro - Zona Comercial
- 15. Ruta 15: Centro - Zona Residencial
- 16. Ruta 16: Centro - Zona Educativa
- 17. Ruta 17: Centro - Zona Industrial
- 18. Ruta 18: Centro - Zona Comercial
- 19. Ruta 19: Centro - Zona Residencial
- 20. Ruta 20: Centro - Zona Educativa

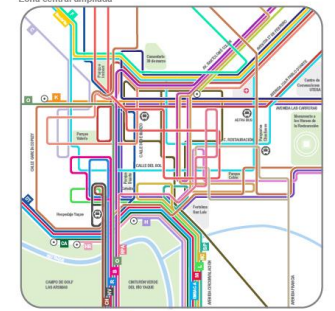
**Rutas Interurbanas**

- 1. Ruta 21: Centro - Zona Industrial
- 2. Ruta 22: Centro - Zona Comercial
- 3. Ruta 23: Centro - Zona Residencial
- 4. Ruta 24: Centro - Zona Educativa

**Rutas Estatales**

- 1. Ruta 25: Centro - Zona Industrial
- 2. Ruta 26: Centro - Zona Comercial
- 3. Ruta 27: Centro - Zona Residencial
- 4. Ruta 28: Centro - Zona Educativa

**Zona central ampliada**



Datos desarrollados a través de una cooperación entre el grupo DATUM (Datos Abiertos de Transporte Urbano y Movilidad) del cual hace parte el Banco Interamericano de Desarrollo (BID), World Resources Institute (WRI) México, MIT Centro de Datos OpenGIS, WRI International Policy Lab y Center for Sustainable Urban Development, con las instituciones locales Pontificia Universidad Católica Madre y Maestra (PUCMM), Centro de Desarrollo Estratégico de la Ciudad y Movilidad de Santiago (CEDCS) y el Departamento del Municipio de Santiago, investigaciones financiadas por el Ministerio del Fomento.

Datos geográficos por: CATUM y 38 entidades de la PUCMM, UNED, UTEA, UNED, UNED  
Mapas base de: Mapbox, OpenStreetMap, Mapbox, OpenStreetMap

PAIS: MIA S.A. INFORMACIÓN: [miamia.com.do](http://miamia.com.do)  
Creado en Agosto 2015



**4. Routes mapping  
Volunteers group**

# MAP LAUNCH SEPTEMBER 2019



# RECOGNIZE VOLUNTEERS







# #DATUM

Datos abiertos de transporte urbano y movilidad

C. Resource Center website:  
[www.datum.la](http://www.datum.la)





[Ver pantalla completa](#)

Características y herramientas de los casos de estudio

¡Compártenos la iniciativa de mapeo de tu ciudad!



## Tutorial para diseño de mapa esquemático de rutas de transporte público

*El siguiente proceso se usó para el diseño del mapa para usuarios en su versión para disponibilizar en espacios de información al usuario y en su versión de bolsillo.*

# #DATUM

Datos abiertos de transporte urbano y movilidad



Thank you