# DataSpace / Mobility

We're building India's first unified **DataSpace** for **Urban Mobility**. Join Us!
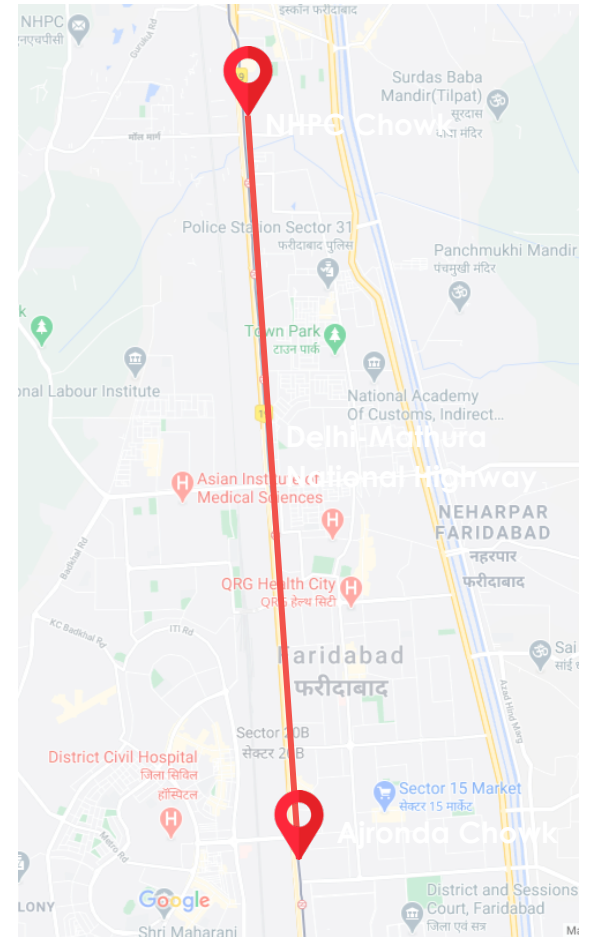
India Smart Cities
Fellowship Programme

Team
**Mobilize**

iscf
Ministry of Housing and Urban Affairs

# 6.2 km
# 290 accidents
# 75 lives lost

**between 2015-2018 in road traffic accidents on Delhi-Mathura National Highway**

Can we **use BIG DATA to save lives?**

Source: Tewatia, S. (2019). Traffic Accident Data Analysis at Section from Sarai Khawaja to Old Faridabad of New Nh-44 (Old Nh-2) Including Bypass in Harayana Using GIS. International Journal of Scientific Research in Science and Technology, 87-96. doi:10.32628/ijsrst196313

# With Mobility DataSpace, here's what is possible…

- ❏ **SHARE** real-time incident updates with emergency services

- ❏ **INTEGRATE** static and real-time datasets to build predictive models

- ❏ **ANALYZE** causes of road crashes from multiple parameters across sectors

- ❏ **PLAN** future road infrastructure upgrades using on-ground evidence

- ❏ **CO-CREATE** civic tech with a vibrant community of problem solvers

The given image shows a mock of an road safety dashboard and does not represent a working version of a platform



🚨 **RED INCIDENT ALERT**
Location: Old Faridabad Chowk
Vehicle Type: 2W (1), HCV (1)
Time: 14:26:00  25-09-2020
Distance to Hospital: 2.3km
Precipitation: Heavy rain

3
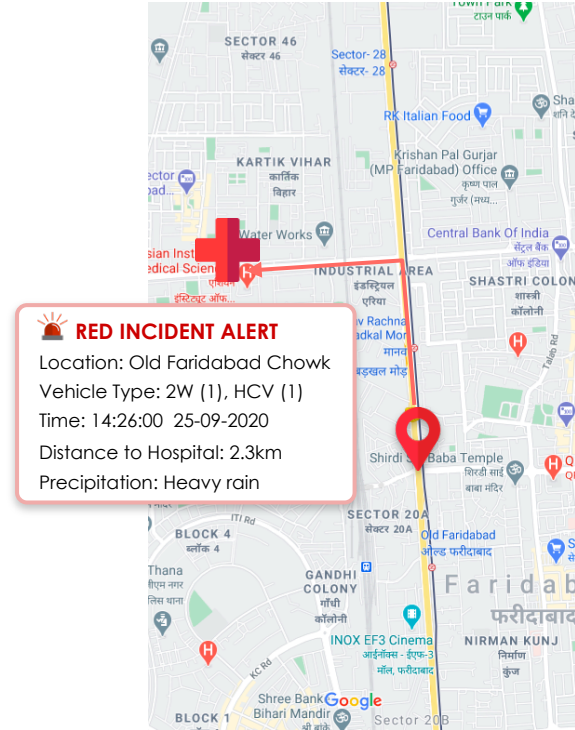
# Mobility DataSpace in Action

**Input Datasets**

**Detailed Road Geometry and Land-Use**
Captured and analysed through **drone-surveys**

**Historical data of road accidents**
Location, transport modes involved, for accidents, fatalities

**Crowd-sourced reporting of incidents**
Social media, Citizen grievance apps

**Real-time weather data**
Pattern of precipitation, daylight hours

**Video analytics from CCTV feed**
Distribution of vehicles by type, average speed, near-collisions

**Intelligent Traffic Management System**
Average speed along major corridors, Adaptive Traffic Signalling,

## Mobility DataSpace

Data Store    Standards

APIs    Data licenses

**Users**

Start Ups    Academia
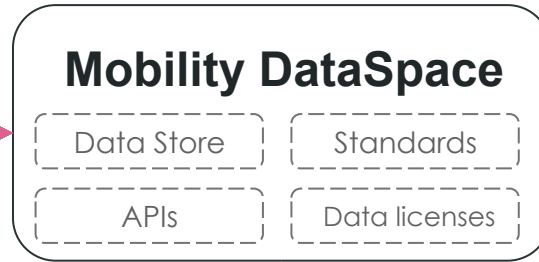
Private Companies    R & D Institutions

**Achievable Solutions**

**Emergency services alert system**
Automatic notification to ambulance, traffic police when incident is reported

**Updated road infrastructure maps**
Based on road-geometry data captured in drone-surveys

**Evidence-based urban design**
Context-specific changes to road geometry to reduce accidents

**Continuous feedback** to monitor impact of infrastructure upgrades

**AI/ML-based incident prediction model**
Real-time and static data combined for predictive analytics to diagnose real-time traffic safety conditions.

# What is
# Mobility DataSpace?

India's **first unified data ecosystem for urban mobility**
Built by Team Mobilize, India Smart Cities Fellowship Programme 2020
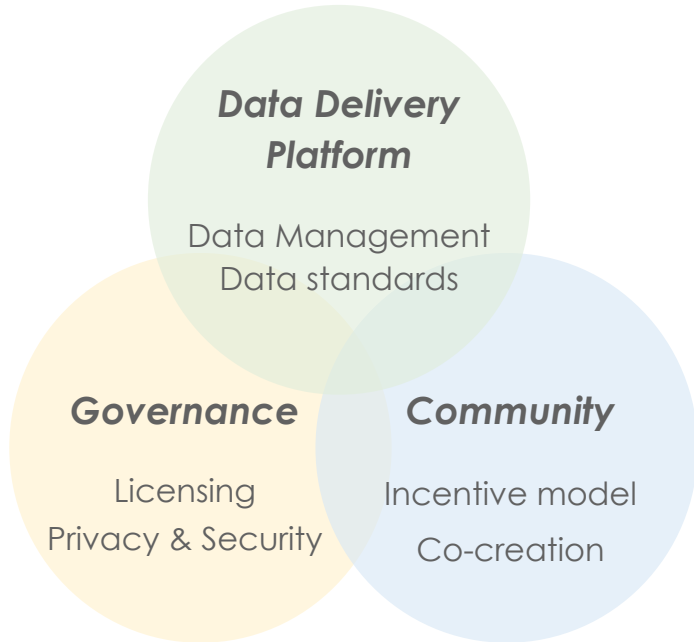
Website: https://dataspace.mobi/

# Mission Statement

**PROBLEM**     The **lack of a robust data culture** in India's urban mobility sector acts as a constraint in the development of sound government policies, efficient service delivery and innovation from the private sector.

**VISION**     Team Mobilize aims to build a **unified DataSpace** for Urban Mobility that will enable **democratic sharing** of **standardized, high quality** urban mobility related **datasets among various stakeholders** in the quadruple helix model - Government, citizens, academia, and industry.

Further, through sustained dialogue and collaboration with these stakeholders, the project hopes to **incentivise a "culture of data"** within the urban mobility sector.
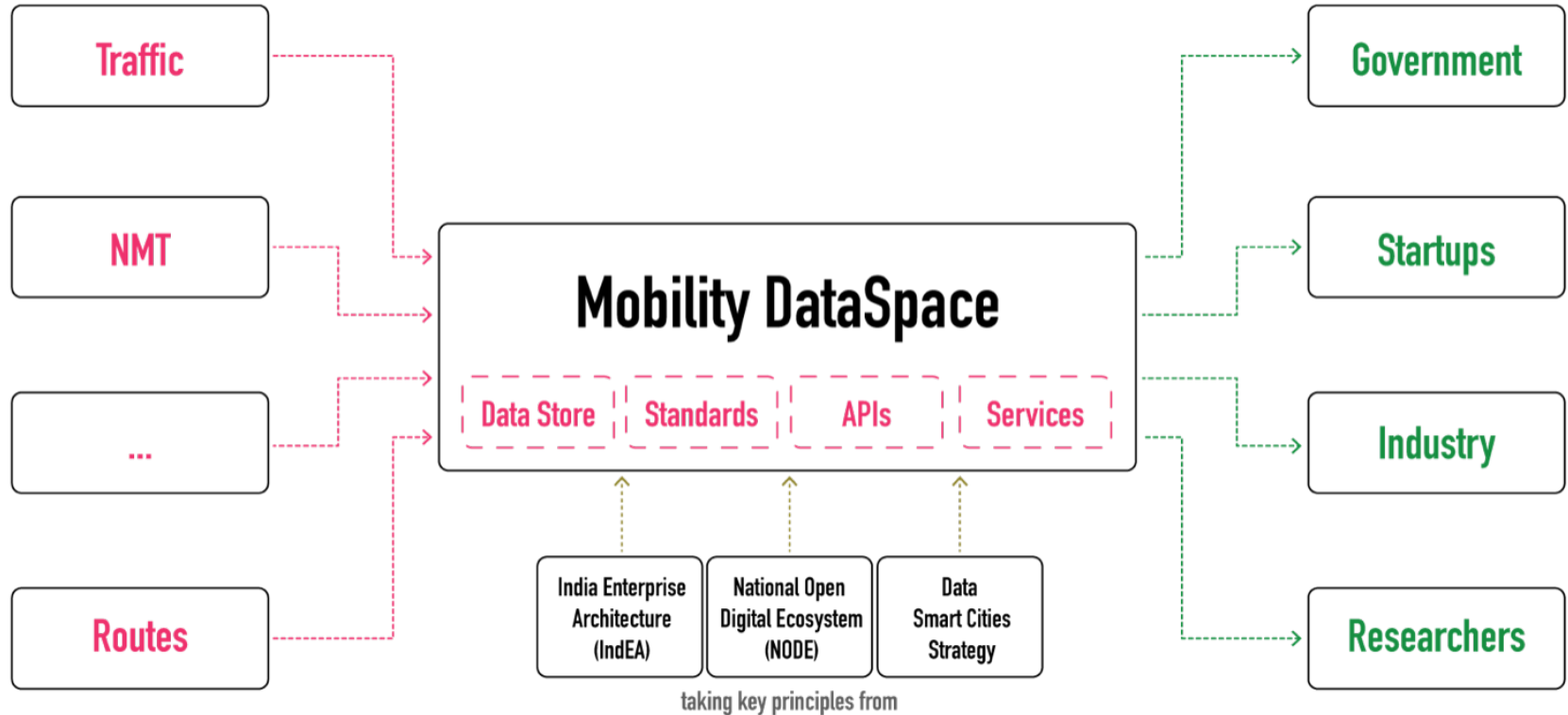
# 3 Foundational Pillars of Mobility DataSpace

*Data Delivery Platform*

Data Management
Data standards

*Governance*

Licensing
Privacy & Security

*Community*

Incentive model
Co-creation

*Foundational Pillars* & Strategic Objectives

**DATA DELIVERY PLATFORM** - unified digital platform to share high quality **standardized** data on urban mobility and allied sectors
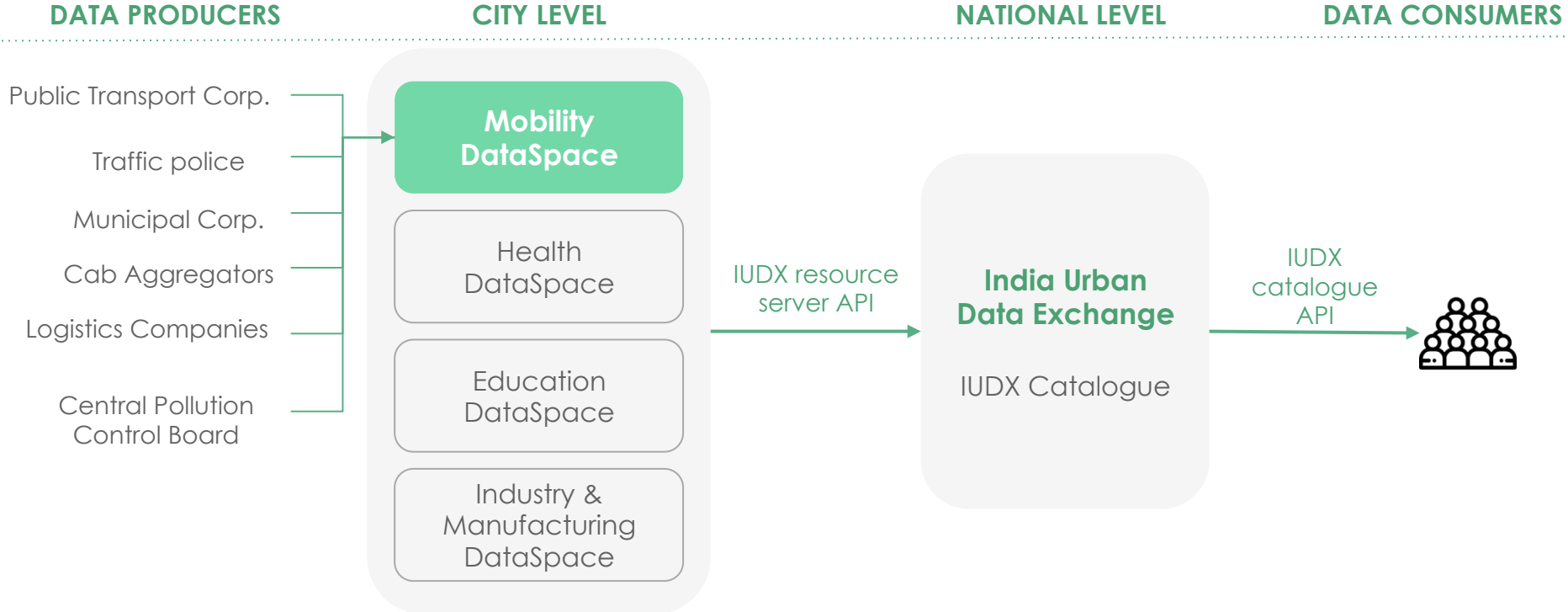
**GOVERNANCE** - clearly define the **rules of usage** for this platform along with **responsibilities and liabilities** of various actors within the ecosystem.

**COMMUNITY** - facilitate **collaboration** and **co-creation** among government organisations, private companies, start-ups, research institutions

# Envisioning the Mobility DataSpace

# Convergence with IUDX

| DATA PRODUCERS | CITY LEVEL | NATIONAL LEVEL | DATA CONSUMERS |
|---|---|---|---|

Public Transport Corp.

Traffic police

Municipal Corp.

Cab Aggregators

Logistics Companies

Central Pollution Control Board

**Mobility DataSpace**

Health DataSpace

Education DataSpace

Industry & Manufacturing DataSpace

IUDX resource server API

**India Urban Data Exchange**

IUDX Catalogue

IUDX catalogue API

IUDX resource server compatible

9

# Defining the Rules of Engagement

**PRINCIPLES**

**FEATURES**

INTEROPERABILITY

CONTROLLED SHARING

CONFIDENTIALITY

TRANSPARENCY

ACCOUNTABILITY

● **Sector-specific Data Standards**

IUDX-compatible APIs

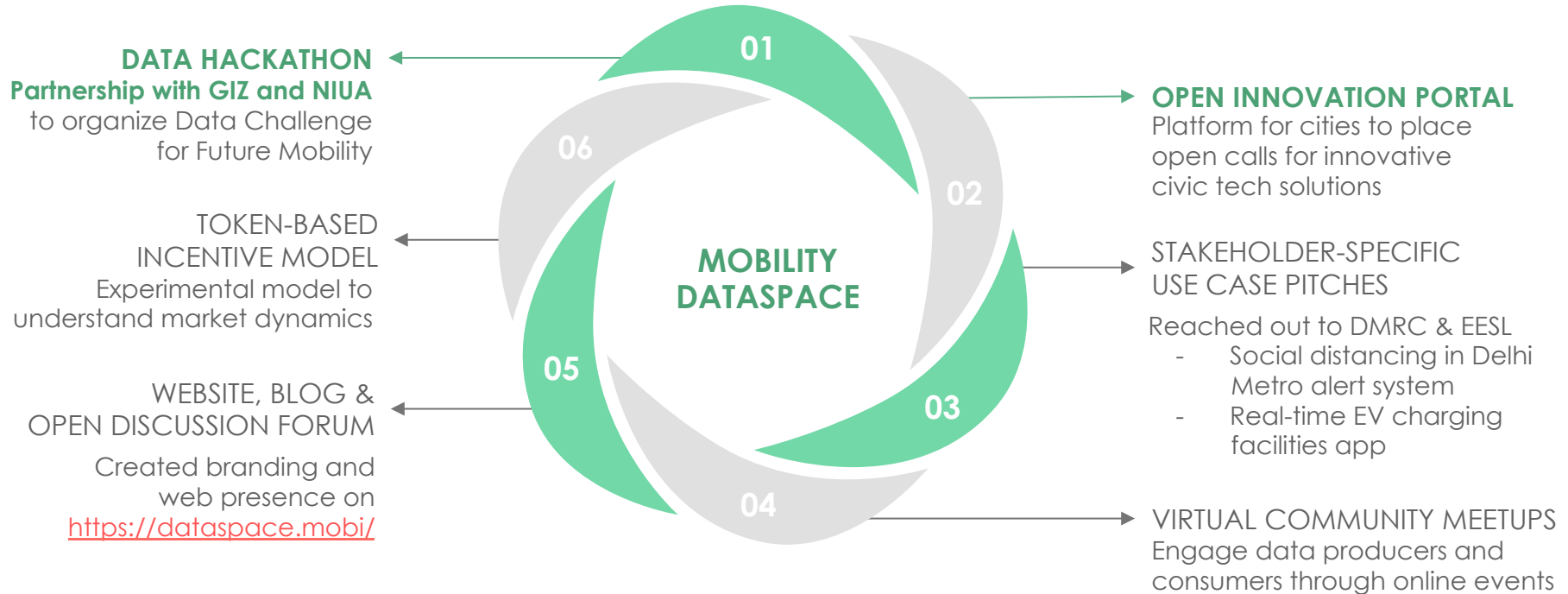● **IUDX Access Mechanism**

● **Custom Data Licenses**

Monitored transactions

● **Open Source**

Open Documentation and Resources

Non-personal Data - regulatory compliance

# Modes of Community Engagement

**DATA HACKATHON**
**Partnership with GIZ and NIUA**
to organize Data Challenge
for Future Mobility

TOKEN-BASED
INCENTIVE MODEL
Experimental model to
understand market dynamics

WEBSITE, BLOG &
OPEN DISCUSSION FORUM
Created branding and
web presence on
https://dataspace.mobi/

**MOBILITY
DATASPACE**

01
02
03
04
05
06

**OPEN INNOVATION PORTAL**
Platform for cities to place
open calls for innovative
civic tech solutions

STAKEHOLDER-SPECIFIC
USE CASE PITCHES

Reached out to DMRC & EESL
- Social distancing in Delhi
  Metro alert system
- Real-time EV charging
  facilities app

VIRTUAL COMMUNITY MEETUPS
Engage data producers and
consumers through online events

11

# Team Mobilize
Supported by India Smart Cities Fellowship Programme 2020

**Aparna Ramesh**
Architect and Urban Planner
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**Abhishek Upperwal**
Data Scientist
IISc, Bangalore

**Manuel Diego**
Architect
University of Nottingham,England

Mentors
**Dr. OP Agarwal,** CEO, WRI India
**Mr. AN Nanda Kishore**, DFID Programme Coordinator & Team Leader NUIS, NIUA

# Let's begin to innovate with data

**Real-time traffic layer with insights on travel behaviour**

Infer traffic patterns and travel behaviour parameters with **crowdsourced data** from cab aggregators, public bike sharing companies, logistics operators, etc.

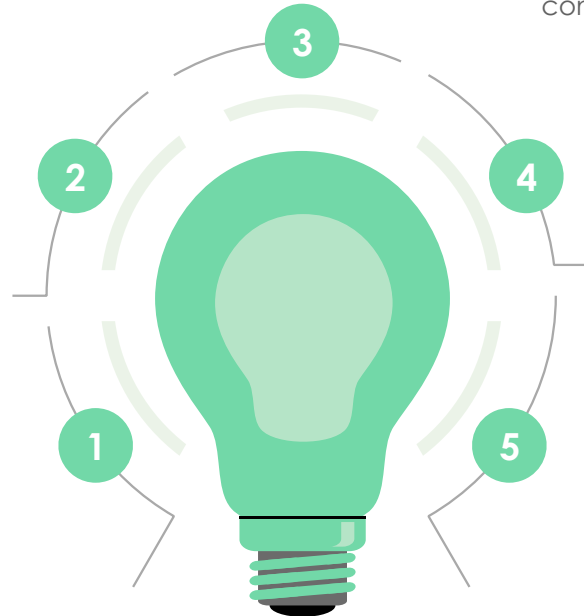**Social distancing alert system in public buses and metros**

- **Public health index** developed based on real-time data of occupancy in metro stations, trains, bus stops.
- Insights can be **integrated with Google Maps** or Transit Apps

**Real-time parking availability**

- Track **occupancy of parking spots** through Point of Sale devices/ parking meters.
- Insights on peak usage and vacancy can be **used for future investments**

**Real-time tracking of Electric Vehicle charging facilities**

- Enable **real-time bookings** of most suitable charging facilities in the area for your EV
- Aggregated data can be used to build a **centralised dashboard for DISCOMs**

**Multi-modal trip planning**

- Enable integrated trip planning across multiple modes **based on live GPS feed** from public transit
- Analytics can be used for intelligent traffic management

1  2  3  4  5

13

# Work in Progress (June - August 2020)

### AGILE Method
For project management with OKRs, weekly sprints & well-defined KPIs

### Multi-city approach
Bhubaneswar,Kochi,Trivandrum Surat, Pune, Varanasi, NDMC, Faridabad

### Building Data Standards
Attempted data standard documentation methods

### Dialogue with stakeholders
Course correction based on feedback

### Branding
Domain name, email address and website https://dataspace.mobi/

### Review of data licenses
In order to build custom licensing templates

### Partnerships
With other organisations working on Data GIZ & NIUA, IUDX

### Experiments with open source tools
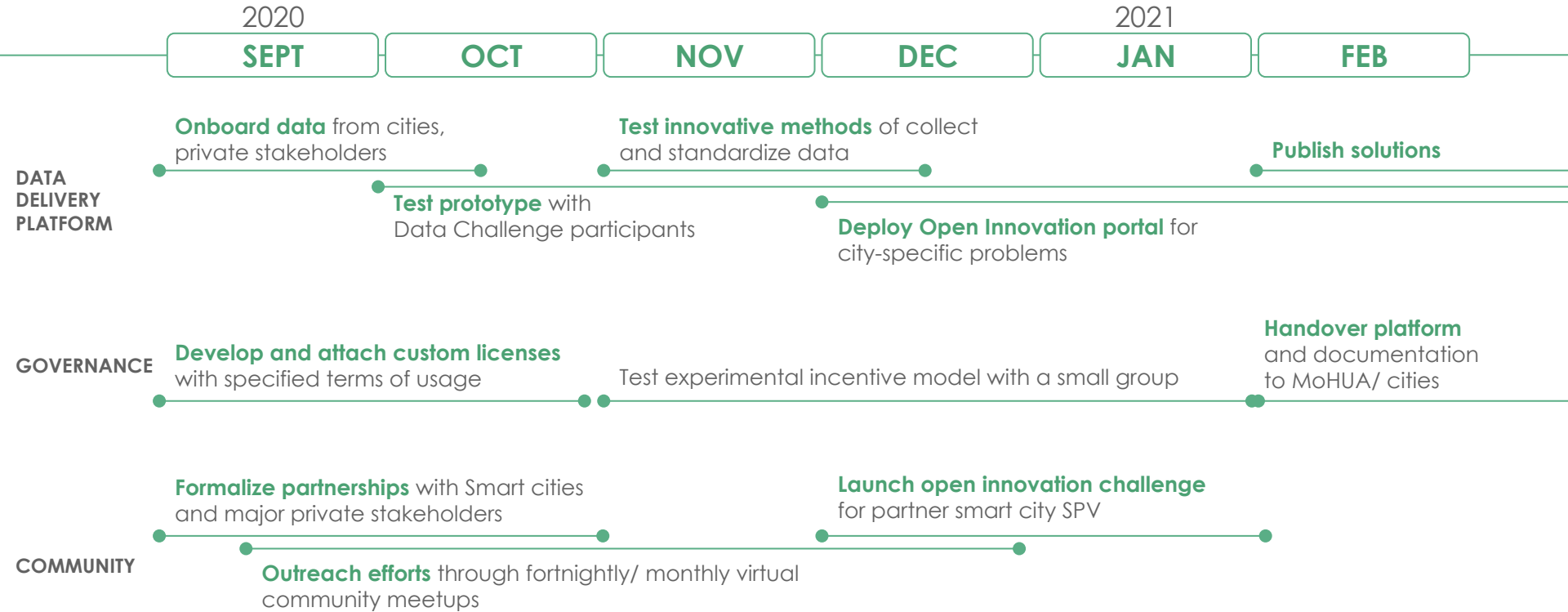CKAN Data platform, discussion forum, data challenge platform

### Identifying funding opportunities
For compute and storage resources to experiment and build prototypes

# Milestones (Sept 2020 - Feb 2021)

| 2020 | | | | 2021 | |
|------|------|------|------|------|------|
| **SEPT** | **OCT** | **NOV** | **DEC** | **JAN** | **FEB** |

**DATA DELIVERY PLATFORM**

**Onboard data** from cities, private stakeholders

**Test prototype** with Data Challenge participants

**Test innovative methods** of collect and standardize data

**Deploy Open Innovation portal** for city-specific problems

**Publish solutions**

**GOVERNANCE**

**Develop and attach custom licenses** with specified terms of usage

Test experimental incentive model with a small group

**Handover platform** and documentation to MoHUA/ cities

**COMMUNITY**

**Formalize partnerships** with Smart cities and major private stakeholders

**Outreach efforts** through fortnightly/ monthly virtual community meetups

**Launch open innovation challenge** for partner smart city SPV

# Challenges

### Project Development

**Building trust** - Partnerships and collaboration with industry, academia

### Data Delivery Platform

**Access to Data -** Access to digitised datasets in the cities

**Compute and Storage Resources** to build and test a prototype

### Governance

**Identifying suitable licensing options** for private and public data owners

### Community

**Incentive Model** - identifying a test bed to study market dynamics

**Continuous engagement** with public & private stakeholders

# DataSpace / Mobility

Let's build a safer Faridabad for all.
We would love to collaborate with you!

Email: hi@dataspace.mobi

Website: https://dataspace.mobi