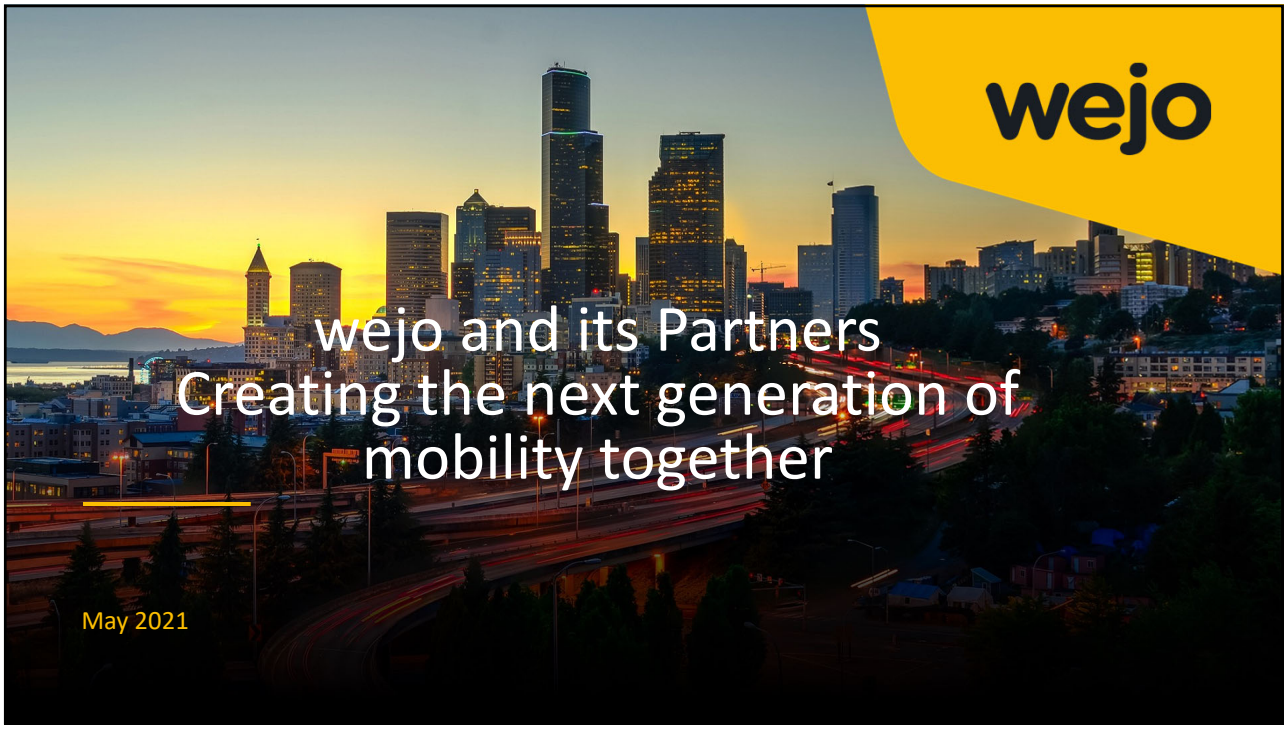


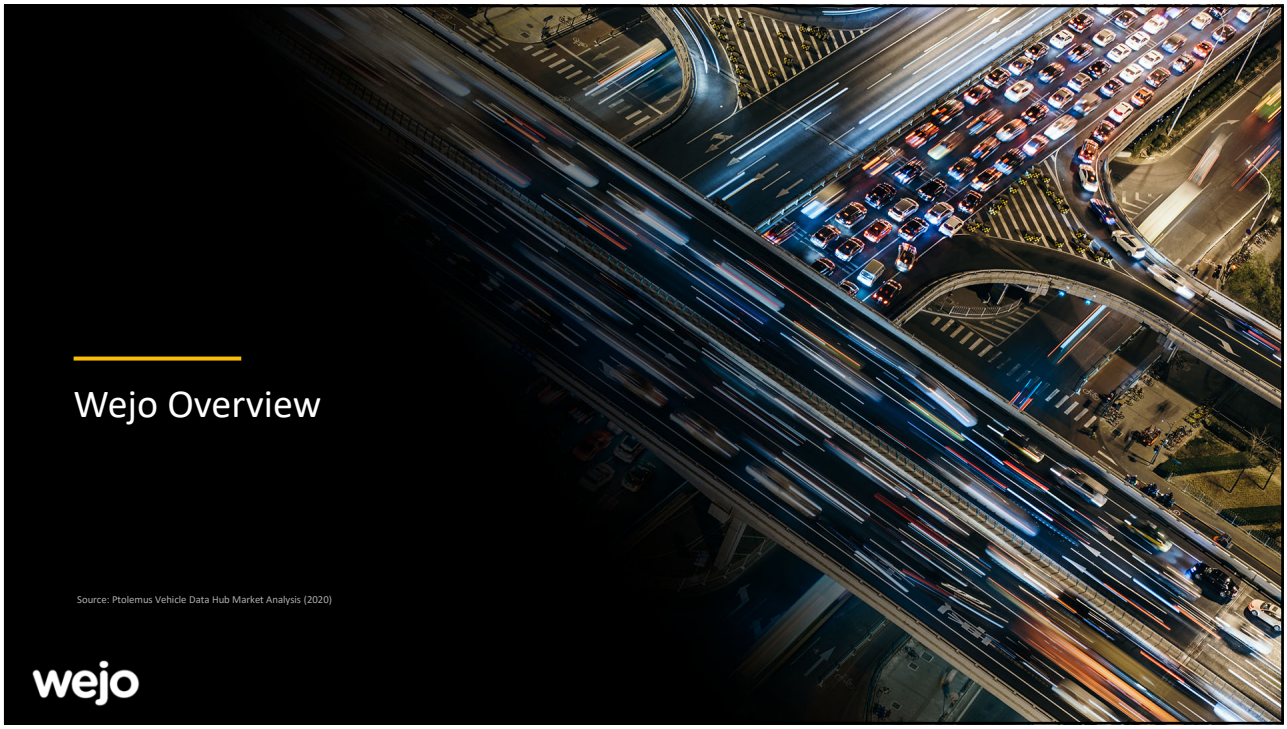
1

Agenda

- Wejo Overview
- Challenges with traditional data
- Differences in traditional 3rd party data
- Wejo data quality and accuracy
- Wejo current OEM data
- Real life Applications
- Executive Summary
- Questions

2

2



3

Our Story

4 Trillion+
Data points captured

Founded in	Employees	OEMs in pipeline
2014	100+	17

Wejo creates mobility intelligence to revolutionise the way we live, work and travel

We organise billions of data points from millions of connected cars, partnering with global automotive manufacturers to stream data at scale and speed.

We transform and enhance big data, turning it into meaningful products that power innovations, drive efficiencies and innovate mobility.

10.7m+
vehicles on platform

290b
miles curated in total

12b
data points captured daily

Super-low latency, transmitted every 1-3 seconds from the vehicles, **95%** to customers in under 32 seconds

5-10%
Average

The anonymised vehicle data that Wejo receives represents **one in every 28 vehicles** in the USA

Awards
5+

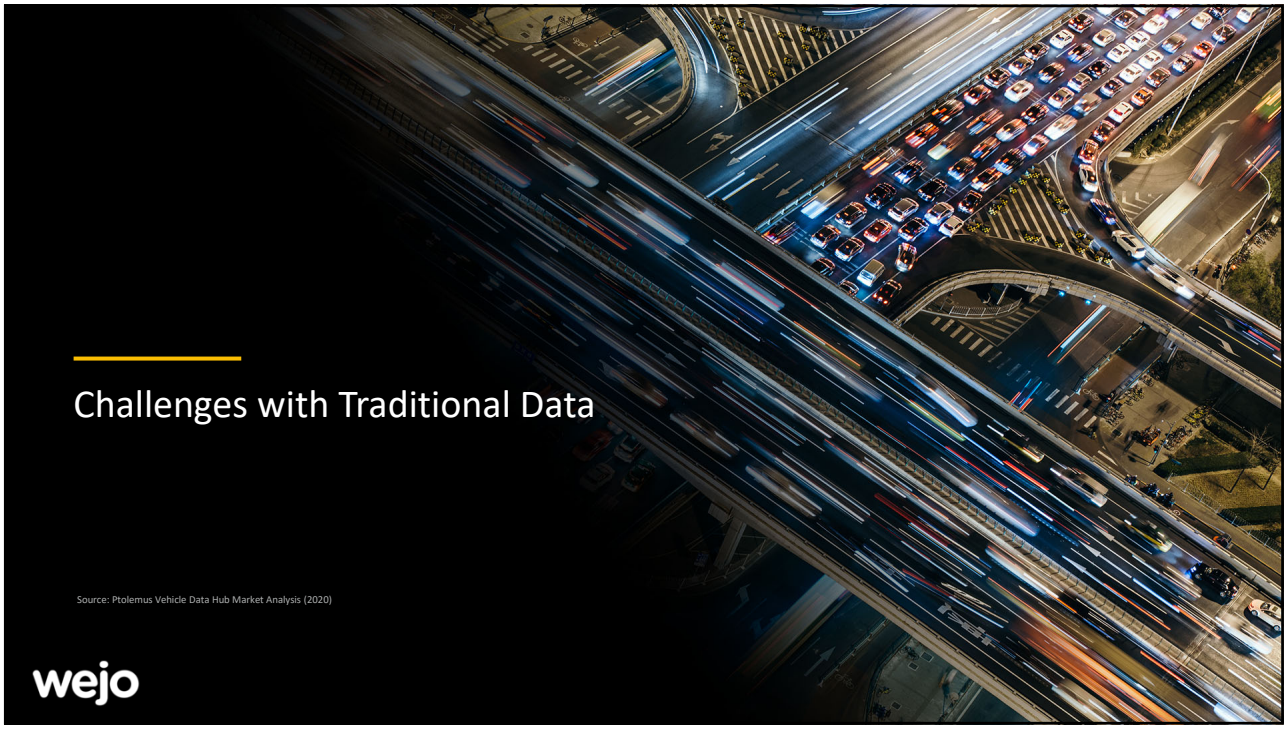
EY Building a better working world

Richard Barlow wins **Disruptor** category in **EY Entrepreneur of the Year Awards**

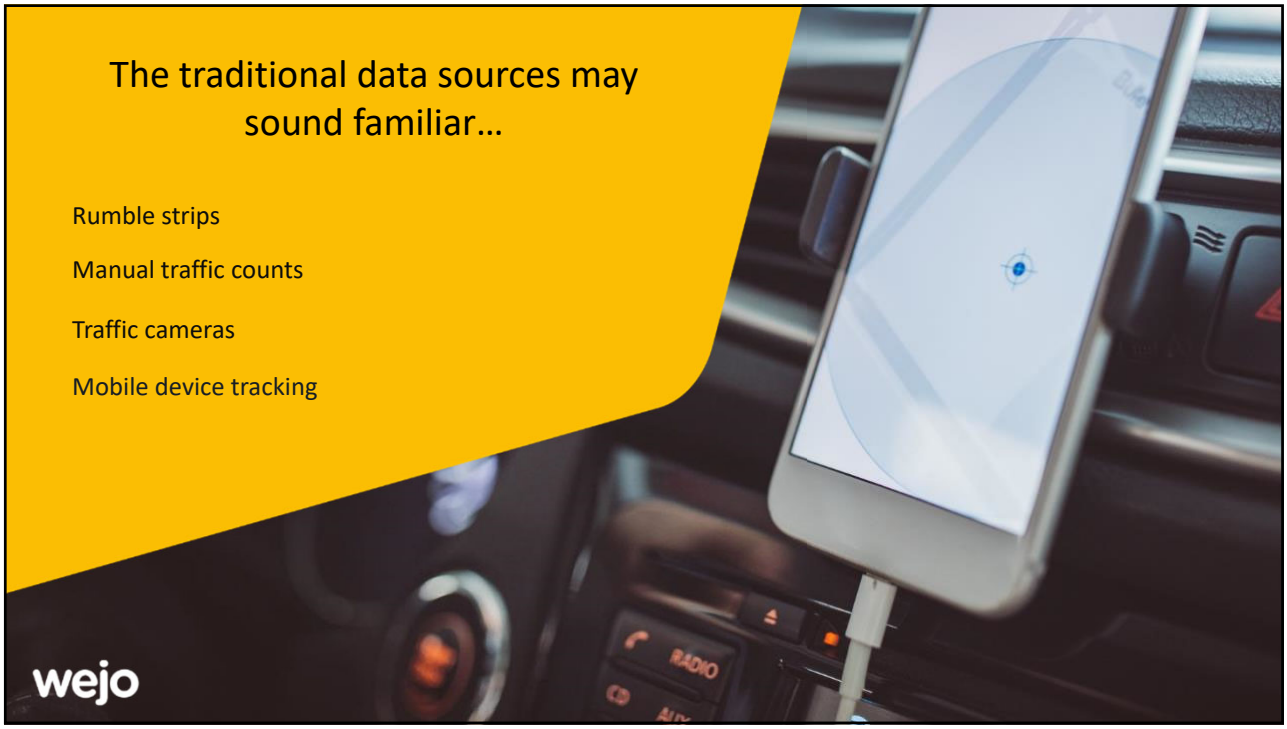
Our data is, **cleaned**, **normalized** and **structured** using Wejo's proprietary common data model.

wejo

4


Challenges with Traditional Data
Source: Ptolemus Vehicle Data Hub Market Analysis (2020)
wejo

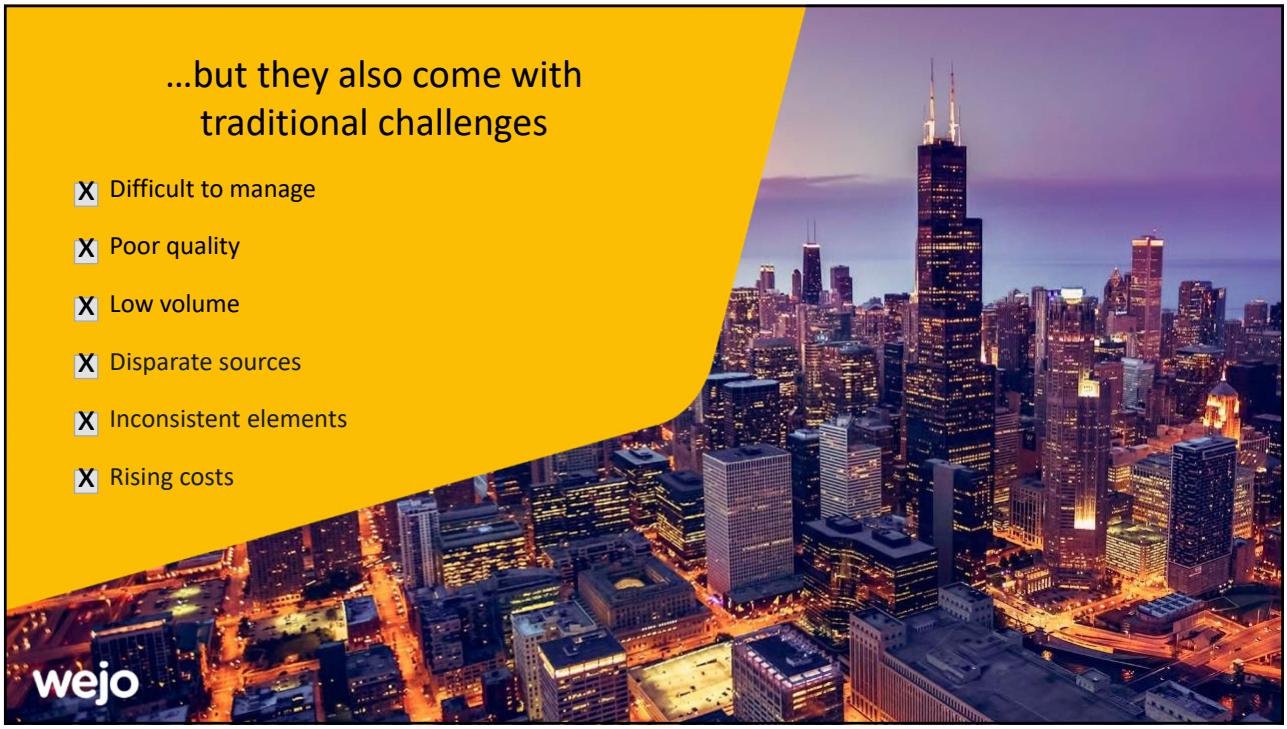
5


The traditional data sources may sound familiar…
Rumble strips
Manual traffic counts
Traffic cameras
Mobile device tracking
wejo

6

…but they also come with traditional challenges

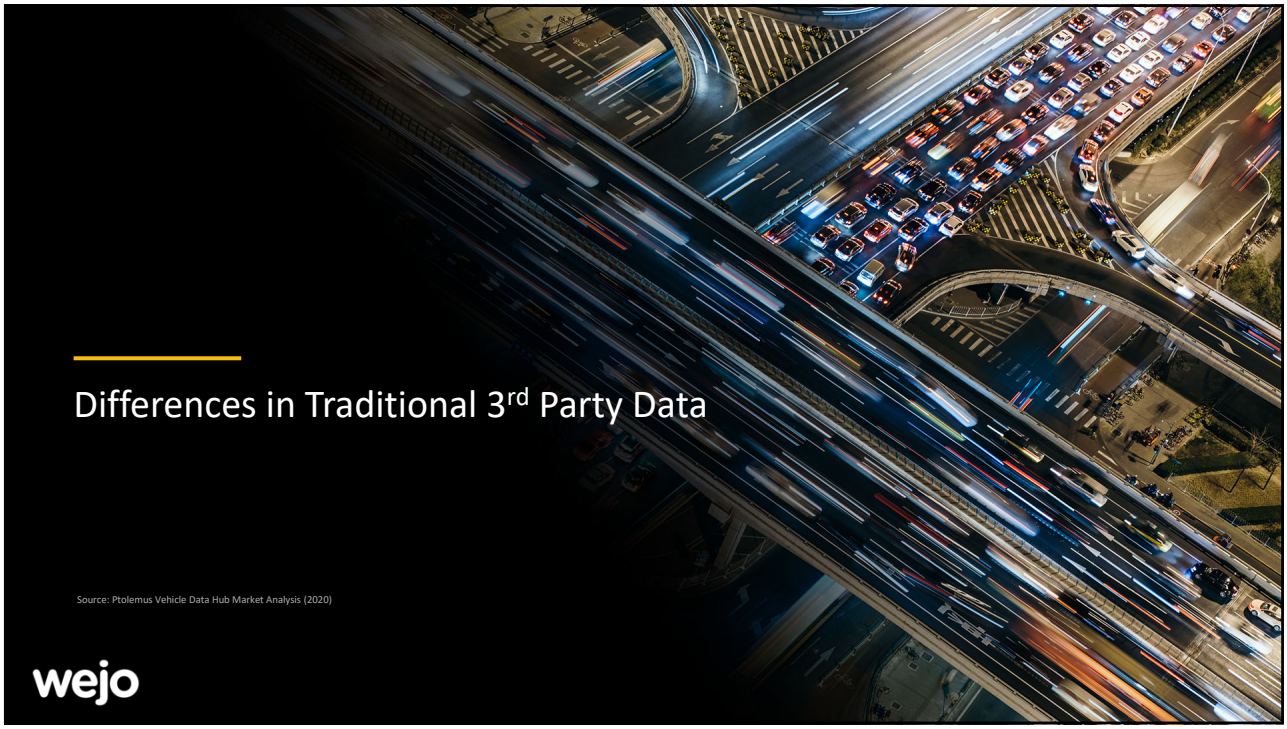
- X Difficult to manage
- X Poor quality
- X Low volume
- X Disparate sources
- X Inconsistent elements
- X Rising costs



7

Differences in Traditional 3rd Party Data

Source: Ptolemus Vehicle Data Hub Market Analysis (2020)



8

Positioned in the middle of the mobility ecosystem

Source-agnostic

Secure and privacy-protected

Flexible by design

CONNECTED CAR

- OEMs
- Telematics service providers / Tier 1+s
- Connectivity providers
- Smart mobility providers, fleets etc

wejo ADEPT

- CONSENT MANAGEMENT
- STANDARDIZATION
- LOCALIZATION
- STREAM
- BATCH
- INTELLIGENCE
- APPS

VALUE

MARKETPLACES

- Mapping & Navigation
- Government & Municipalities
- Engineering & Construction
- Retail & Entertainment
- Parking
- Finance & Leasing

SECURITY & REGULATORY WRAPPER

wejo

9

Wejo is the only high resolution streaming vehicle data specialist, with a focus on broad marketplace creation

Wejo is increasingly in discussions with OEMs to be their streaming vehicle data platform.

wejo © wejo Ltd.

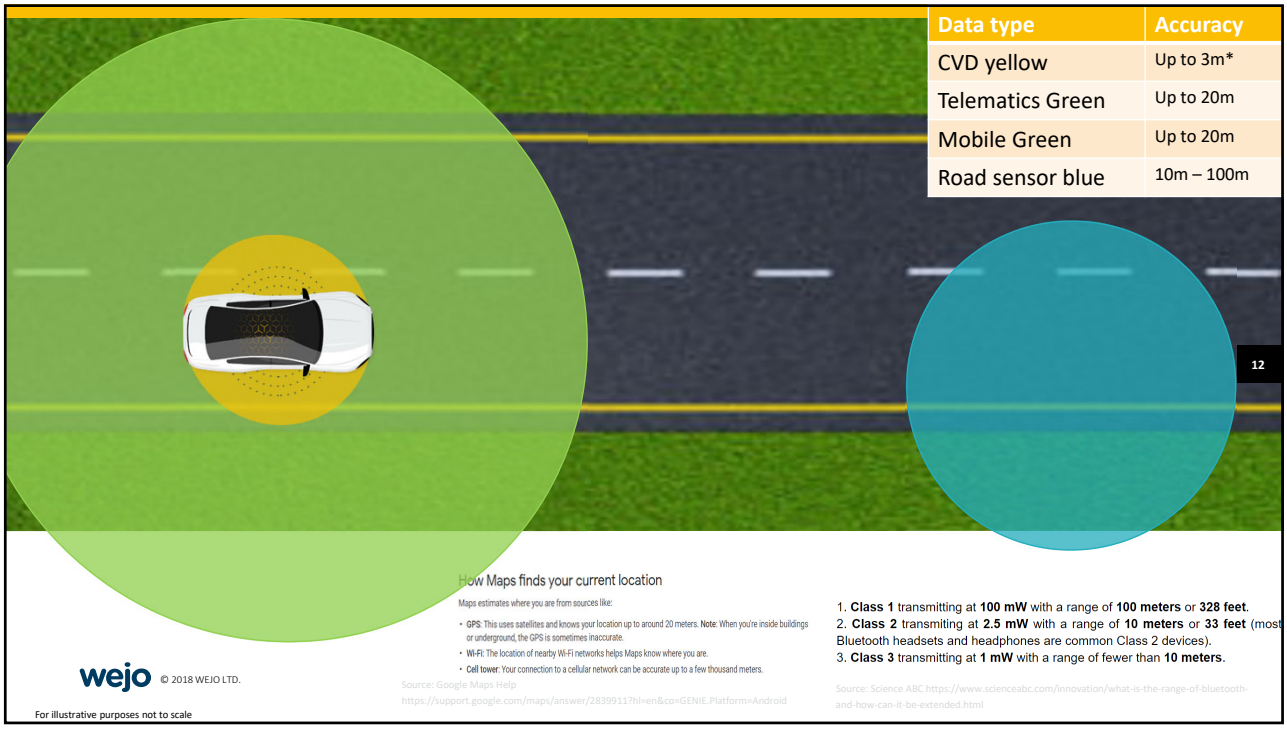
10

10

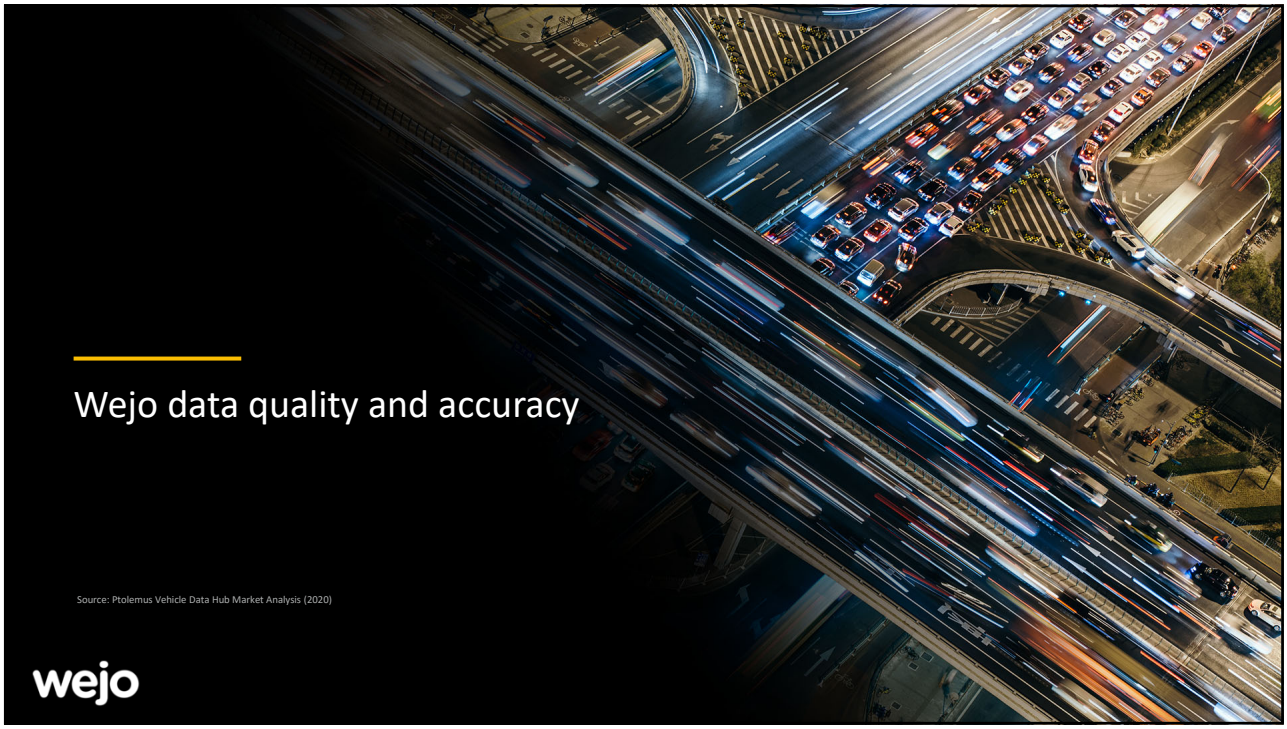
Why wejo is #1

Technology, markets & accreditations	wejo	The Rest of Vehicle Data Hubs
Embedded connectivity focused	✓ **100%** datapoints directly from embedded device, driving better quality	– **10%** data points from embedded device, 90% aftermarket derived = poor quality (frequency/latency) data
Live streaming vehicle volumes	✓ **10+ MILLION** live exclusive OEM derived vehicles	– **<1 MILLION** live non exclusive OEM derived vehicles
Neutral Server proposition	✓ **Neutral Server +** providing **ENHANCED** product offering for OEMs	– Similar to that offered by multiple other competitors
Platform-as-a-Service proposition	✓ **YES** providing OEMs with bespoke data platform capabilities	– **NO** platform-as-a-service propositions advertised
BI & Analytics propositions for data provider	✓ **YES** multiple BI & Analytics capabilities in development for global OEM partners	✗ **NO** BI & Analytics propositions advertised
Data points processed per day	✓ **12 BILLION** processed from 100% embedded sources	✗ **2.6 BILLION** processed from > 90% aftermarket, <10% embedded sources
Data exchange distribution methods and capabilities	✓ **9 DATA EXCHANGE OPTIONS** providing the broadest distribution functions for vertical markets	– **4 DATA EXCHANGE OPTIONS** limiting distribution options for vertical markets
Data security accreditation	✓ **ISO27001 & ISO27005 IN DEVELOPMENT**	– **ISO27001**
Product and service focus	✓ **END-TO-END PRODUCT FOCUS** from data analysis, data exchange, service & product development and service & product offering	– **LIMITED PRODUCT FOCUS** narrowed to data analysis and data exchange only
Vertical markets targeted	✓ **17** with a focus on broader market value creation	– **14** mainly focused towards fleet operators

11



12

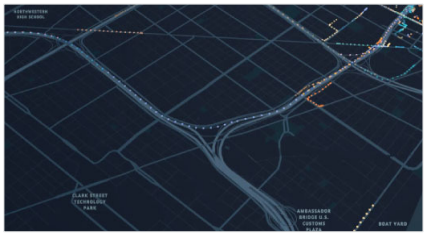


13

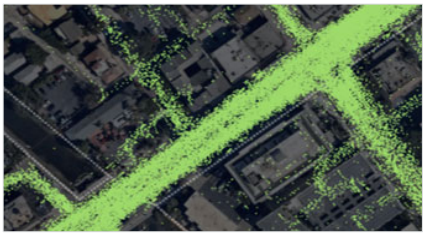
Introducing Wejo's connected car data

Key features of our rapidly growing, high resolution connected car data asset

1-3 second capture rate, with a latency of 30 seconds*.



High volume of journeys tracked, 1.3 billion per month.



Accuracy down to 3 metres† allowing identification of parking areas and speeds on highway lanes.

Historic events providing insight into incident hotspots.

wejo

* 95% of data points received by partners in 30 seconds. wejo SLA 60 seconds.

†95% of data points accurate to 3m, biased on location.

14

Wejo Data Correlation

Station	Wejo Data		Data Provider 'A'	
	Pen.Rate	Correlation	Pen.Rate	Correlation
P0039 N	2.43%	0.951	2.63%	0.76
P0039 S	2.46%	0.961	3.66%	0.823
P0061 E	3.04%	0.973	3.10%	0.723
P0061 W	2.93%	0.949	3.20%	0.751
P0080 N	3.85%	0.948	2.29%	0.716
P0080 S	3.73%	0.933	3.24%	0.762
MEAN	**3.07%**	**0.953**	**3.02%**	**0.756**

- ✓ *In Fort McHenry Tunnel (Maryland) altitude of waypoints is consistent with the tunnel profile*
- ✓ *Based on analysis at 6 ATR stations in Maryland*
  - ✓ *Wejo's probe penetration rate is about 3%*
  - ✓ *Wejo's number of probes has very high correlations at about 0.95 with field traffic counts*
- ✓ *It was verified that within 30 seconds Wejo receives data points generated by probe vehicles*

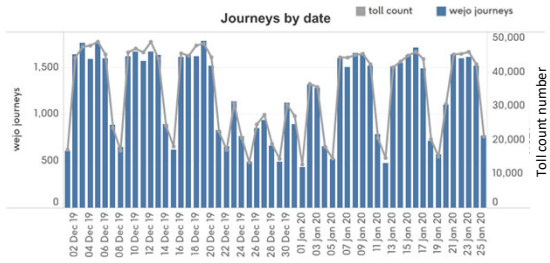
15

15

Ground truth

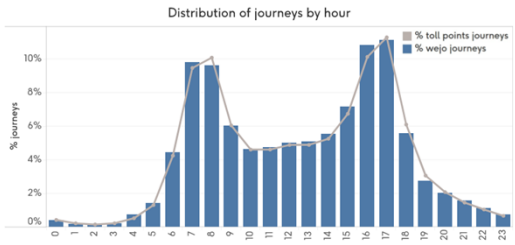
Case Study

Day of Month



Comparing Wejo journey volumes to toll data report provided by a DOT partner, distribution of data from the two sources match up well.

Hour of day



Comparing Wejo journey volumes to toll data report provided by a DOT partner, distribution of data from the two sources match up well.

16

16

17

Wejo offers a range of data, insights and tools accessible to any business

wejo

Access to raw and derived datasets to support modelling and analytics

Mobility intelligence and data science toolsets

Developer tools providing ways to incorporate data in apps and propositions

STREAM	BATCH	INTELLIGENCE	DATA LABS	DEV LABS
Live feeds of near-real-time data for low latency applications	Deferred and bulk data for one-off or regular transfers	Pre-defined and customizable reports and visualizations	Self-serve access to Wejo datasets and data science tools for data evaluation, profiling analysis and advanced modelling	Suite of APIs that give developers on-demand access to Wejo and vehicle data
				COMING SOON

wejo

18

Vehicle Movement Data

Core Attributes	
Name	**Description**
Data Point ID	Unique identifier for an individual captured datapoint.
Journey ID	Unique identifier for individual vehicle's movements through to an ignition off event happening.
Captured data and time	Timestamp captured for each datapoint. (ISO8601). Including UTC off-set.
Latitude	The North-South positioning of the vehicle on the Earth's surface.
Longitude	The East-West positioning of the vehicle on the Earth's surface.
Speed	The speed in kilometres per hour that the vehicle was travelling at the time datapoint was captured
Heading	The direction that the vehicle was heading at the time the datapoint was captured
Ignition Status	The ignition status as the time the datapoint was captured

Optional Attributes	
Name	**Description**
Geohash	Representation of a square on the Earth's surface.
Zip Code	The zip or postal code in which the vehicle was located at the time of datapoint capture.
State / Region Code	The region/state code in which the vehicle was located at the time of datapoint capture.
Country Code	The country in which the vehicle was location at the time of datapoint capture.
Squish VIN	A subset of the characters in a standard 17 character VIN solely to describe the vehicle make, model and production year and not to identify individual any vehicle. The first 8 characters with the 9th character skipped and then the 10th and 11th characters.
Vehicle Make	The make of the vehicle at the time of datapoint capture.
Vehicle Model	The model of the vehicle at the time of datapoint capture.
Vehicle Year	The year in which the vehicle was manufactured at the time of datapoint capture.

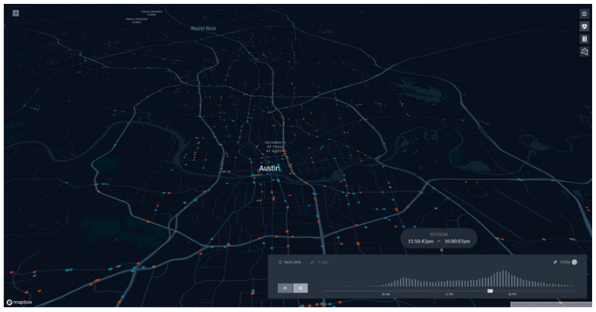
19

19

Driver Event Data

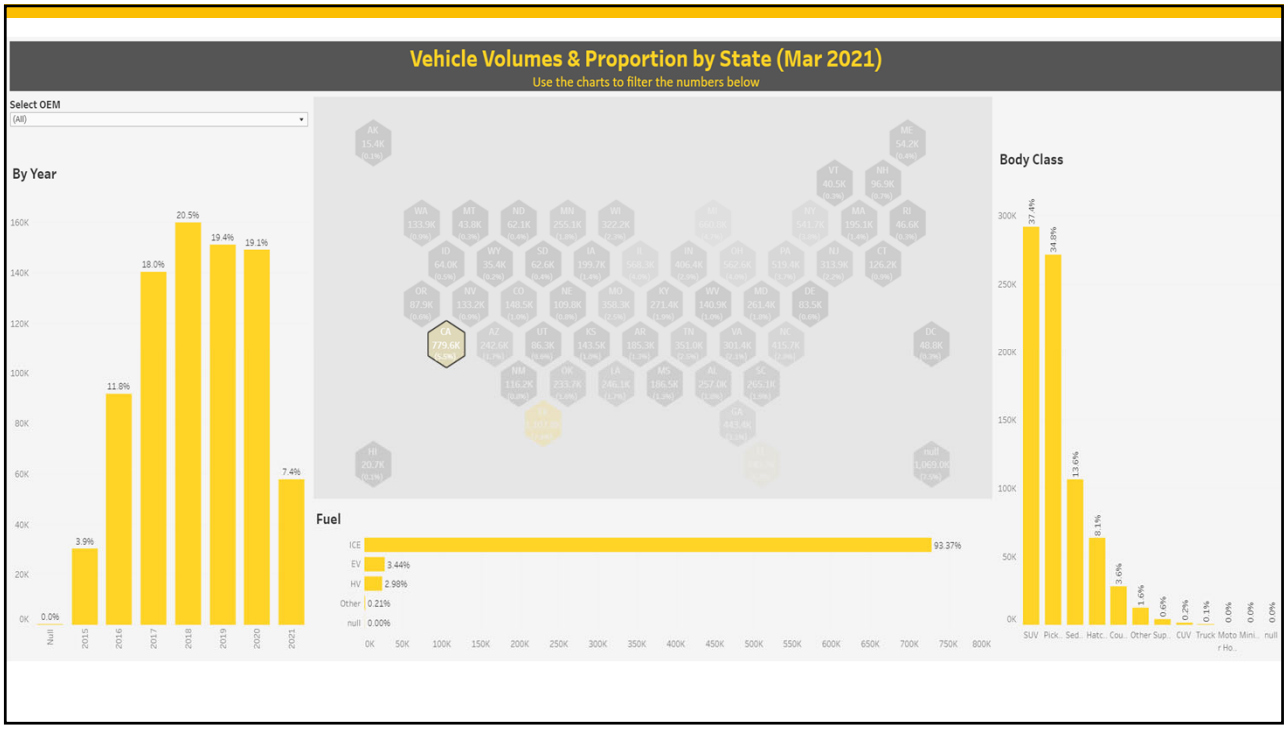
Core Attributes	
Name	**Description**
Datapoint ID	Unique identifier for the for the event
Trip ID	Unique identifier for an individual vehicle's movements through to an ignition off event happening.
Device ID	Unique identifier for the vehicle that the event was recorded by
Captured Date and Time	Timestamp captured for each datapoint.
Time zone offset	Time zone offset of the captured timestamp
Latitude	The North-South positioning of the vehicle on the Earth's surface.
Longitude	The East-West positioning of the vehicle on the Earth's surface.
Speed	The speed in kilometres per hour that the vehicle was travelling at the time datapoint was captured.
Heading	The direction that the vehicle was heading at the time the datapoint was captured
Ignition State	Representation of ignition state when the datapoint was captured
Event Type	An identifier for the recorded event (See "Event Types" section)
Journey Event Change Type	Ignition on or ignition off
Seatbelt Change Type	Latched or unlatched
Acceleration Change Type	Harsh braking or harsh acceleration
Speed Threshold Event Type	Speed above or below threshold
Exterior Temperature	External temperature at time of data point capture
Wiper Status	Wiper interval during in climate weather
Fuel Consumption	Representative of fuel use
Odometer	Taken at the time of data point capture
ABS Braking	Acceleration or braking along the x-axis

Optional Attributes	
Name	**Description**
Geohash	Representation of a square on the Earth's surface.
Zip Code	The zip or postal code in which the vehicle was located at the time of datapoint capture.
State / Region Code	The region/state code in which the vehicle was located at the time of datapoint capture.
Country Code	The country in which the vehicle was located at the time of datapoint capture.



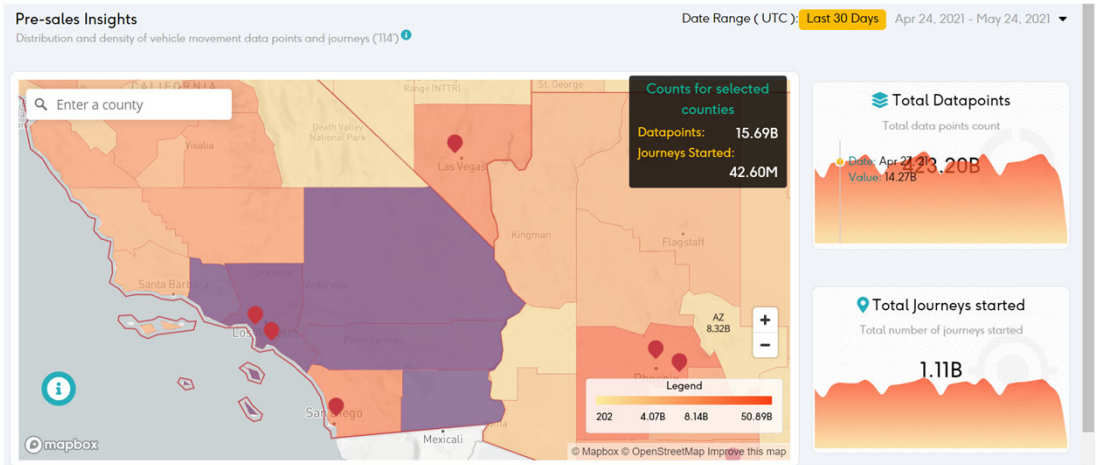
20

20



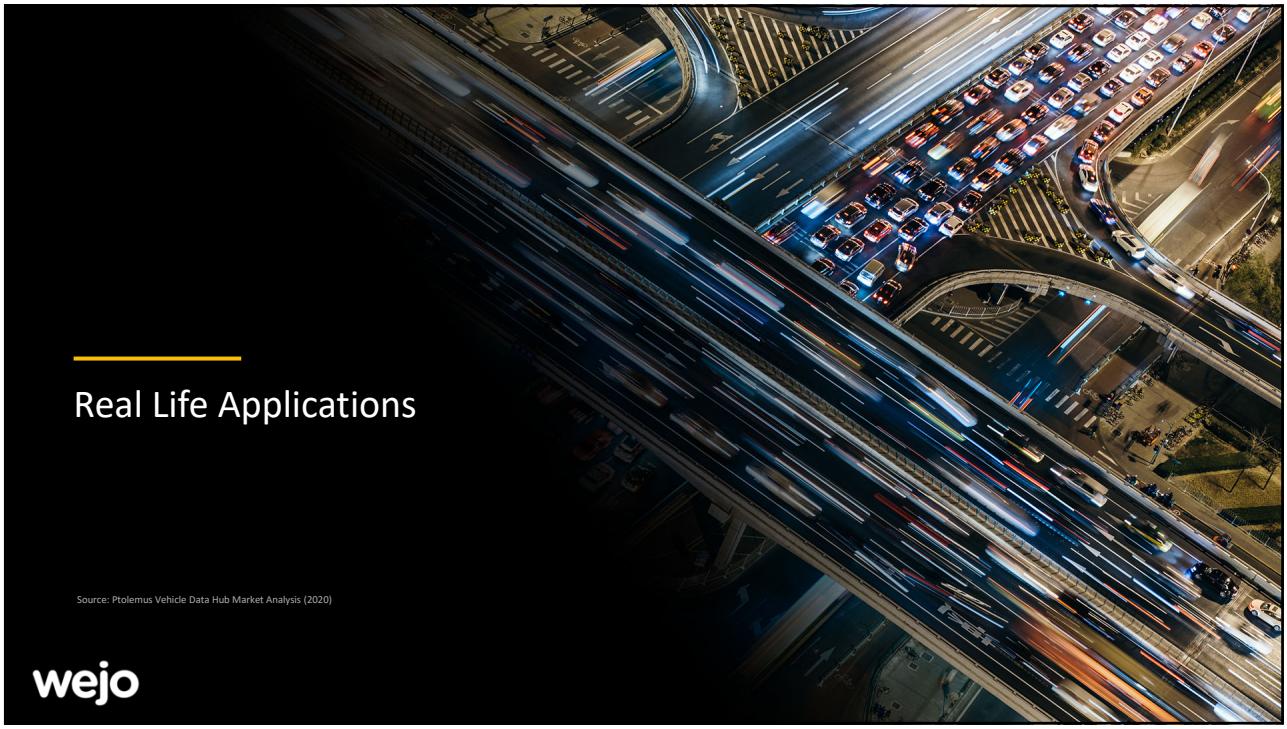
21

Datapoints in SCAG



22

22



23

Who is using Wejo Data in the Space

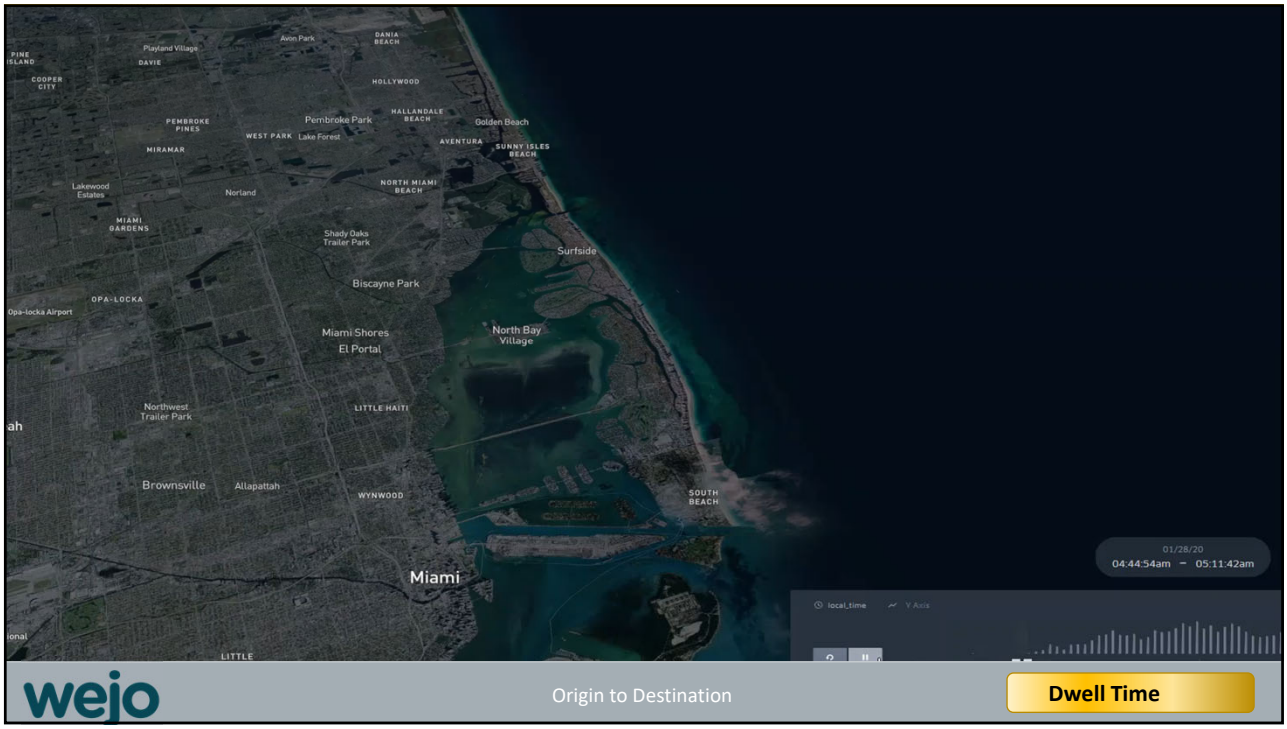
CDM Smith	CDM Smith utilizes Wejo historical Vehicle Movement Data for specific geographic locations around the US to enhance their Tolling practice. CDM Smith takes in the raw data and builds out specific modules utilizing their Cloud infrastructure to help with things like revenue prediction, O/D analysis, and traffic flow assessment. CDM Smith choses to use Wejo data over sensor data or mobile data due to its cost effectiveness (no need to deploy/maintain sensors) and granularity (down to 3sq. meters of accuracy).
HDR	HDR utilizes Wejo historical Vehicle Movement Data for specific geographic around the US to enhance their Traffic Engineering practice. HDR takes in the raw data and utilizes its developed algorithms to help their clients determine traffic flow, O/D analysis, turn count ratios, and changes in driver behavior due to Covid. HDR choses to utilize Wejo data sets over their mobile data due to the richness of the data. HDR was not able to garner accurate insights compared to their current data provider.
FDOT	Wejo have been working with the Florida Department of Transportation on a number of opportunities relating to safety, congestion and work zone mobility. FDOT has found value in Batch Vehicle Movement and Driver Events This has involved a long-term Proof of Concept with a major Civil Engineering firm proving out 4 concepts. Wejo have also provided a feed into a Traffic Management Center in a major district of Florida with the Civil Engineering firm providing the dashboard capabilities.
MARICOPA ASSOCIATION of GOVERNMENTS	Maricopa Association of Governments has been ingesting monthly batches of wejo data for their use in analyzing transport planning and modelling, studying traffic flow, forecasting travel demand, analyzing origin and destination trends, and identifying traffic event hotspots. Maricopa can use our data in multiple applications from various vendors such as Iteris and NoTraffic or by ingesting into their own cloud-based apps. MAG uses plenty of data, but ultimately chose to use ours based on the accuracy and granularity over other mobile data providers
NORTH CAROLINA Department Of Transportation	Wejo's ongoing relationship with the North Carolina Turnpike Authority resulted in Wejo participating in a pilot program. The goal of the pilot is to produce data that will be used to develop clear criteria that can analyze the throughput of specific toll sections of the road network. The result will be data that identifies revenue impacts to the toll system. In addition, wejo produced a statewide study of origin to destination patterns during 2020 to understand broadly impacts of the pandemic
PURDUE UNIVERSITY	Wejo have developed a strategic relationship with Purdue University over the last 18 months to develop deep seated relationships with many of the DOT's. Purdue have been leveraging Connected Vehicle Data to showcase its capabilities back to the likes of INDOT. More recently Purdue have leveraged weather-based data to show the impacts of snow and inclement weather on vehicle movements in and around the Indiana region.

24

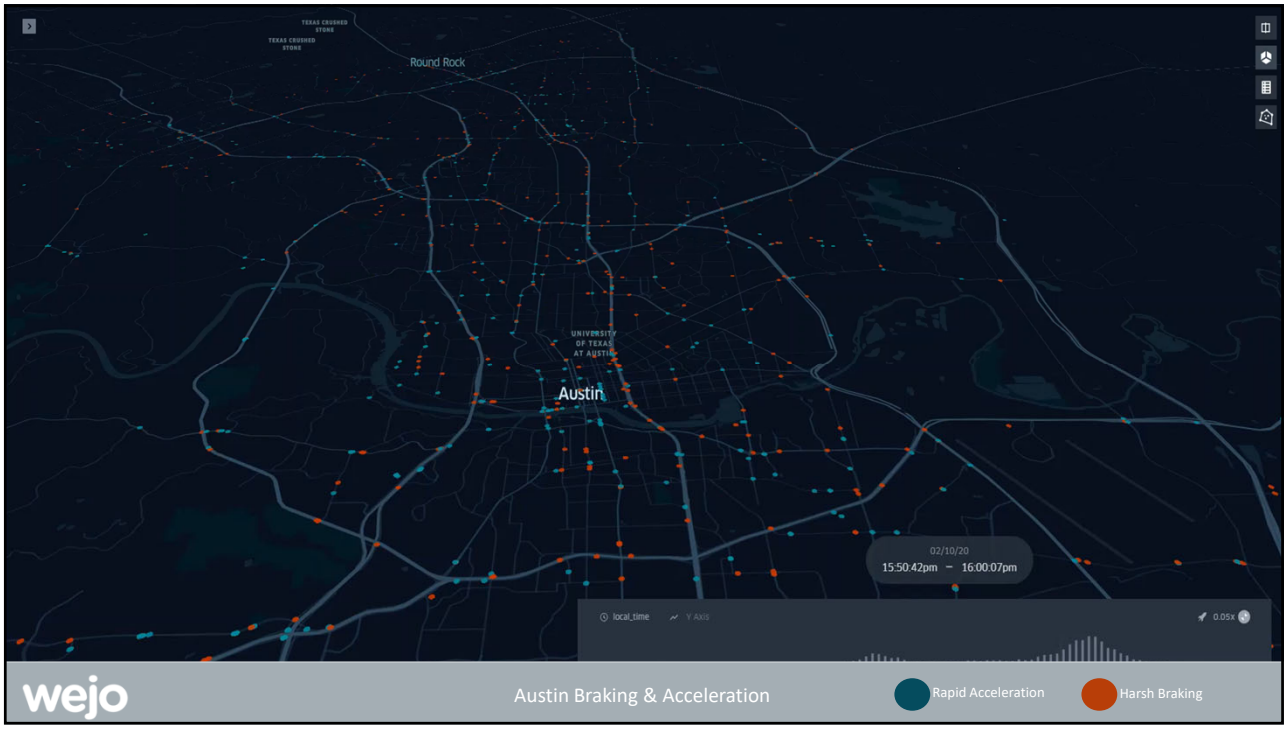
24


PLANNING
Analysing the impact of road closures
Plan effectively for major or minor workzones
Implement ITS strategies with confidence

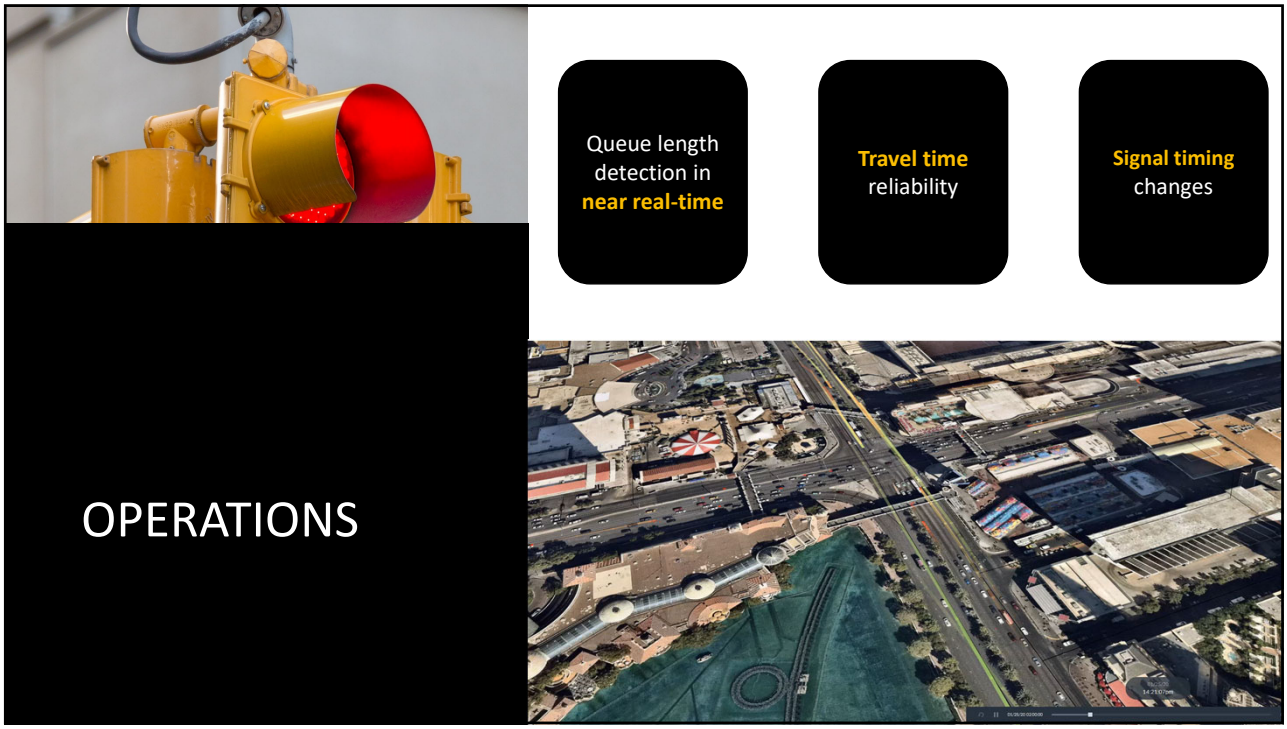
25


Playland Village
Avon Park
DANIA BEACH
DAVIE
COOPER CITY
HOLLYWOOD
PEMBROKE PINES
Pembroke Park
HALLANDALE BEACH
Golden Beach
WEST PARK
Lake Forest
MIRAMAR
AVENTURA
SUNNY ISLES BEACH
Lakewood Estates
Norland
NORTH MIAMI BEACH
MIAMI GARDENS
Shady Oaks Trailer Park
Surfside
Biscayne Park
OPA-LOCKA
Opa-locka Airport
Miami Shores
El Portal
North Bay Village
Northwest Trailer Park
LITTLE HAITI
Brownsville
Allapattah
WYNWOOD
SOUTH BEACH
Miami
LITTLE
01/28/20
04:44:54am – 05:11:42am
local_time
Y Axis
wejo
Origin to Destination
Dwell Time

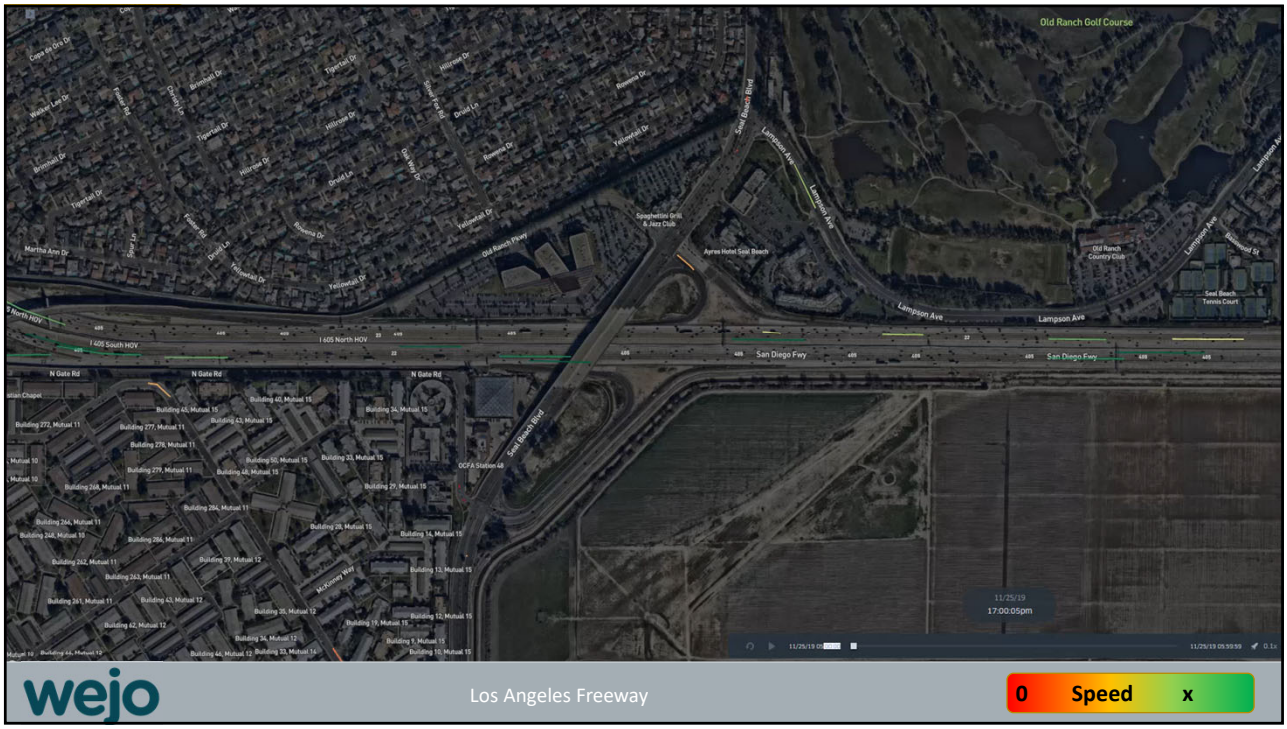
26


Round Rock
Austin
02/10/20
15:50:42pm – 16:00:07pm
wejo
Austin Braking & Acceleration
Rapid Acceleration
Harsh Braking

27


OPERATIONS
Queue length detection in near real-time
Travel time reliability
Signal timing changes

28


Old Ranch Golf Course
Lampson Ave
San Diego Fwy
I 405 North HOV
I 405 South HOV
N Gate Rd
Seal Beach Blvd
Old Ranch Country Club
Seal Beach Tennis Court
11/25/19
17:00:05pm
wejo
Los Angeles Freeway
0 Speed x

29


03/29/20
14:24:58pm
wejo
I-95 near Florida/ Georgia
0 Speed x

30


Executive Summary
Source: Ptolemus Vehicle Data Hub Market Analysis (2020)
wejo

31


Big data has its challenges
Complexity & Diversity
Cost & ROI
Regional Factors
Privacy & Security
No Single Marketplace
wejo

32

Wejo is the global leader in mobility intelligence.

Executive Summary

- Connected Vehicle data is replacing and enhancing many existing data sources currently being used by major DOTs and Agencies
- Wejo's mission statement and goals align with TxDOT's Vision on mobility
- Unique attributes collected from Connected Vehicles can be used to directly influence vision zero projects enhancing quality of life for Texans
- Wejo has deep relationships with many research institutions and platform providers to be able to harness the power of big data

33

33

Questions

34

34


wejo
Thank you
www.wejo.com
Andrew Wollet
AVP Sales
Andrew.Wollet@wejo.com
Jim Eaton
Solutions Engineer
James.Eaton@wejo.com

35