



**Big Data and AI for smart and
optimized mobility networks :
Ridership monitoring and prediction**



REACH

NEXT GENERATION DATA INCUBATOR

Bilbao, 27th September 2023

How do citizens use public transport in a post-covid era?

Billions *Of data points daily**

88% *Of these data not used**

38% – 45% *Citizens have avoided public transport use since the pandemic**

30% *Would use public transport often if they had access to the occupancy information**

Barriers to monitor new mobility patterns



Origin-Destination surveys



No alighting information



Passenger counting systems

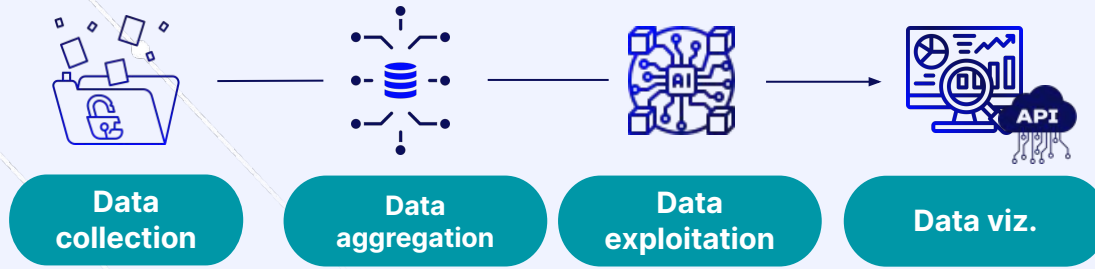


Manual data treatment

*International Data Group, IBM, Interna

**Transit & Moovit Research (2021)

A complete and automated process



GTFS, Ticketing, AVL

Cutting-edge **AI & Big Data** algorithms for **KPIs** calculation & prediction

Offer

TRANSPORT ANALYTICS

OCCUPANCY API

FRAUD TRACKER

MOBILITY PLANNER

Benefits

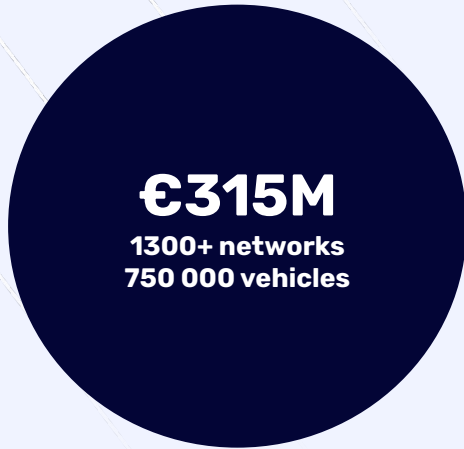
- Monitor daily occupancy and OD flows
 - Occupancy prediction
 - Optimise the offer
- Democratize the access to data*

*Transit & Moovit Research (2021)

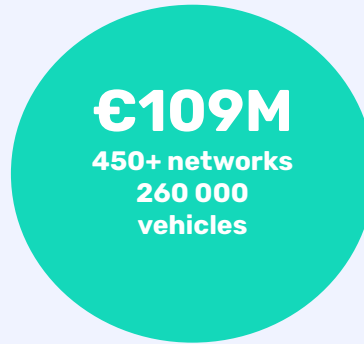


Market size and target market (Europe)

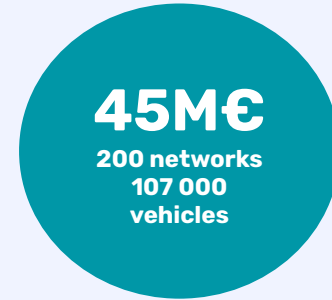
Target: Transport networks in Europe, cities >50k inhabitants (urban network), regional networks (interurban bus and trains), equipped with ITS systems



TAM (Europe)
(West, central, north,
east Europe)



SAM
FR, SP, UK, IT, PT,
Benelux, Switzerland



SOM
FR, SP, UK, IT, PT,
Benelux, Switzerland



USP : Transport expertise, user-friendly interface, algorithmic reliability, multi KPI

BI solutions

IT consulting companies



Multi-source data

Medium

Medium

High

High

Medium

Low

Medium

User-friendly

High

Medium

Medium

Low

Low

High

Medium

Data cleansing & reliability

High

Medium

Medium

Low

High

Medium

Medium

Automatisation

High

High

Medium

High

High

Medium

Medium

Transport expertise

High

Medium

High

High

High

Low

Medium

Data security

High

High

High

High

High

High

High

OD reconstitution

High

High

High

High

Medium

Low

Medium

Occupancy reconstitution

High

High

High

High

Medium

Low

Medium

Occupancy prediction

High

Medium

Medium

Low

Low

Low

Medium

Accessible pricing

Low

High

Low

Medium

Low

High

Medium

SaaS for Public Transport Authorities (B2G) and Public Transport Operators (B2B)



Bus



Tramway



Subway



Train



Set-up

2 months

PRICING

- # of data sources
- Data complexity
- €40K to €50k



Run

1 year access (renewable)

PRICING

- €/month/vehicle (€36 - €80)
- Type of vehicle
- All modules vs. selected modules/indicators
- Length of contract



Additional services

Upselling

PRICING

- Transport consulting
- Reporting
- €5K to €20K
- 40% discount subscription other SaaS



	2020	2021	2022	2023	2024	2025	2026	2027
# of clients	10	15	20	25	32	42	55	65
Countries	France Morocco	France Morocco	France Morocco	France Morocco Spain	France Morocco Spain, Italy Benelux	France, Morocco Spain, Italy Benelux, Portugal Switzerland	France, Morocco Spain, Italy Benelux, Portugal Switzerland	France, Morocco Spain, Italy Benelux, Portugal Switzerland
Market share	1,3%	2%	2,7%	3,8%	5%	7,2%	8,9%	12%
Revenue (€)	600k	900k	1,2M	1,7M	2,3M	3,25M	4M	5,4M



3 pillars of our commercial strategy

1

Internationalisation → European networks with ITS and similar data context to France

2

Upselling → Additional products, transport & data consulting, reporting

3

Partnerships → Collaborate with consultancy companies (data & transport), ITS companies, local transport associations.



REACH

NEXT GENERATION DATA INCUBATOR



- International exposure
- Product-market fit
- Algorithmic improvement
- Product improvement



2 new opportunities in Spain



"Your software is a monster!"

Urrotz Larrañaga
Technological Modernisation
Bilbao City Hall

BilbaoEkintza

REACH
DATA PROVIDER

Our Team



Coralie Triadou

General Manager
15 years Mobility & management



Eglantine Schmitt

Chief Product Officer
PhD, 10 years experience in Tech/Data, Product Management



Noëlie Cherrier

Head of R&D
PhD, 5 years experience in Data Science and IA



Julien Zamor

Technical Director
15 years experience in tech/data.



Armelle Chevenez

Chief Operations Officer
Transport Engineer. 8 years experience in operations and consulting



Lorena Garay

Business Manager
5 years experience in Business Development and Transport

SciencesPo
CHARTRE GRAPHIQUE INSTITUTIONNELLE

SCIENCES SORBONNE UNIVERSITÉ

MINES ParisTech

SYSTRA

cea

université PARIS-SACLAY

Company overview

5

Years R&D

90%

Algorithms' accuracy

95%

Contracts renewed

32

Employees

25

Clients

300

Users

Industry and academic recognition



Amblard, V., Dib, A., Cherrier, N., & Barthe, G. A Bayesian Markov Model for Station-Level Origin-Destination Matrix Reconstruction.
In ECML PKDD 2022





Thank you!



Product roadmap



1

Integration of socio-demographic data in O-D reconstitution



2

Integration of multimodal data (bicycles, parkings)



3

Integration of weather forecast in occupancy prediction



GO-TO-MARKET STRATEGY - 6 MONTHS

1

Key mobility events



2

Partnership development: ITS companies + mobility associations



3

Patent Citio's algorithms (O-D reconstitution, occupancy prediction)





Set-up

€15k to €50k

- # data sources
- Data complexity
- Size of the network



Run

Annual subscription

BASIC PRICING :

- Bus: €36-42€/month/vehicle
- BRT: €35-60€/month/vehicle
- Tram, subway: €50-€80/month/vehicle

The price depends on the # of modules in the platform activated (6 available modules) AND on the size of the network.

5 categories of networks:

- < 100 buses
- 100 – 200 buses
- 200 to 300 buses
- 300 to 500 buses
- >500 buses

Additional discount for multiple-years engagement.



Upselling

Additional services

Transport consulting & reporting (€5k to €20k)

Sell of additional products (SaaS platforms) with 20% to 40% discount:

- Fraud Tracker
- Transport Planner
- Mobility Planner



Annual contract value per type of customer

- **Tier 1.** Small-sized city/fleet: 30k (20%)
- **Tier 2.** Mid-sized city/fleet: 50k (60%)
- **Tier 3.** Big-sized city/fleet: 80k (20%)
- **Set-up:** 50k



Ratio LTV/CAC

Customer acquisition cost

€50 000

- Sales, marketing expenses

Customer lifetime value

€176 000

Total revenue/# customers

**Ratio LTV/CAC =
3,52**



CITiO Ridership Analytics & Occupancy API

IA & Big Data Technologies for a Securised Data Value Chain



Data collection

Multi-sources:

Schedule (GTFS)
Open Source Data

Operations (AVL)

Ticketing

Counting cells

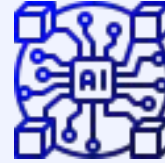
From Multi-stakeholders:

Transport networks,
Municipalities, ITS
companies



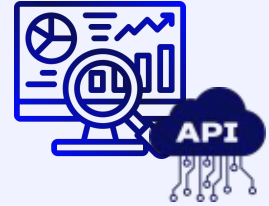
Data aggregation

**Securised data
cleansing and storage** in
a single reliable database



Data exploitation

Cutting-edge **AI & Big
Data algorithms** for **KPIs
calculation & prediction**



Data visualisation

Data made available... :
Ridership KPIs graphic +
cartographic visualisation;

Occupancy prediction
and information

...for Multi-stakeholders:

Transport operators,
Municipalities, Passengers

Benefits

- Daily OD flows monitoring
- Daily occupancy monitoring
- Onboarding / alighting
- Occupancy prediction
- Occupancy prediction communication

And for **REACH** ?
NEXT GENERATION DATA INCUBATOR

Citio's algorithms improvement
for + transport networks

