VIANOVA

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Landeshauptstadt München

Freight in the Fast Lane

Harnessing data for sustainable urban deliveries

POLIS25
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A strategic approach to loading zone planning

High conflict for curb space

Frequent double parking

Munich: Metropolis in Metamorphosis

Logistics Concept Munich

→Reduced traffic through old town

→Pedestrianisation efforts

→Reclaiming of parking spaces for micro-mobility & green spaces

→Need for additional loading infrastructure to better organize urban logistics

A strategic approach to loading zone planning

Understand the Freight environment

Strategically locate additional loading zones

A strategic approach to loading zone planning

1

→Where are the gaps in the infrastructure?

2

→How are existing loading zones used?

3

→Where can we optimally expand our loading zones?

Which data sets can we use?

1

→Population density

2

→Commercial density

3

→Commercial vehicle stop data

Data-Driven: A More Informed Approach

Traditional solutions fall short

→Observation bias

→Costly hardware

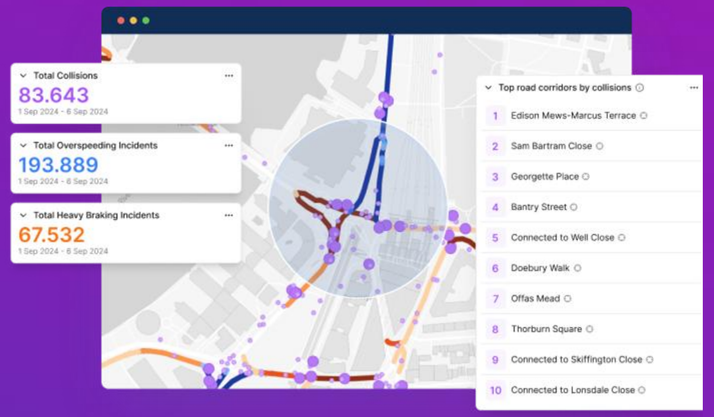
→Streetlight effect

→Limited visibility

Data-Driven: A More Informed Approach

→**Why multivariate?**

→**Why connected vehicle data?**



→**How much data?**

A New Data-Driven Approach

Connected fleet data

Raw Data
GPS Coordinates
Speed
Vehicle Type
Fuel Type

BRIDGESTONE

A New Data-Driven Approach

Connected fleet data

Raw Data
GPS Coordinates
Speed
Vehicle Type
Fuel Type

Insights
1.7 Million Points
220,000 stops
24/7 × 12 months
City-wide visibility

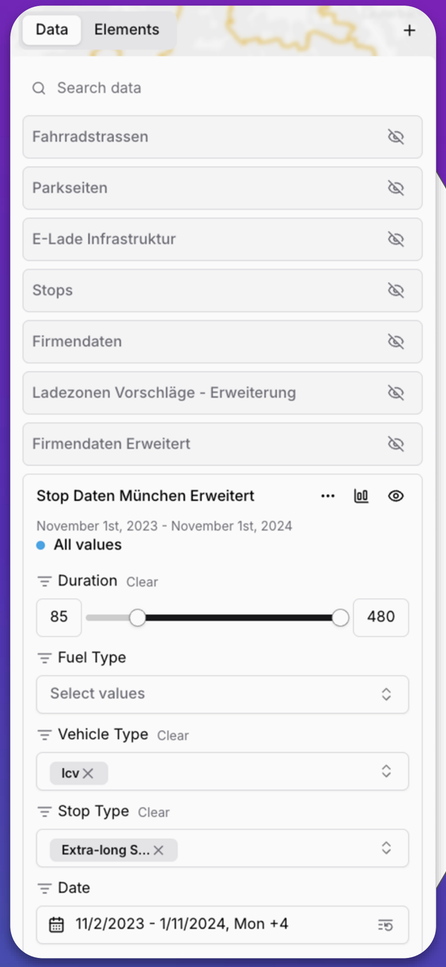
A New Data-Driven Approach

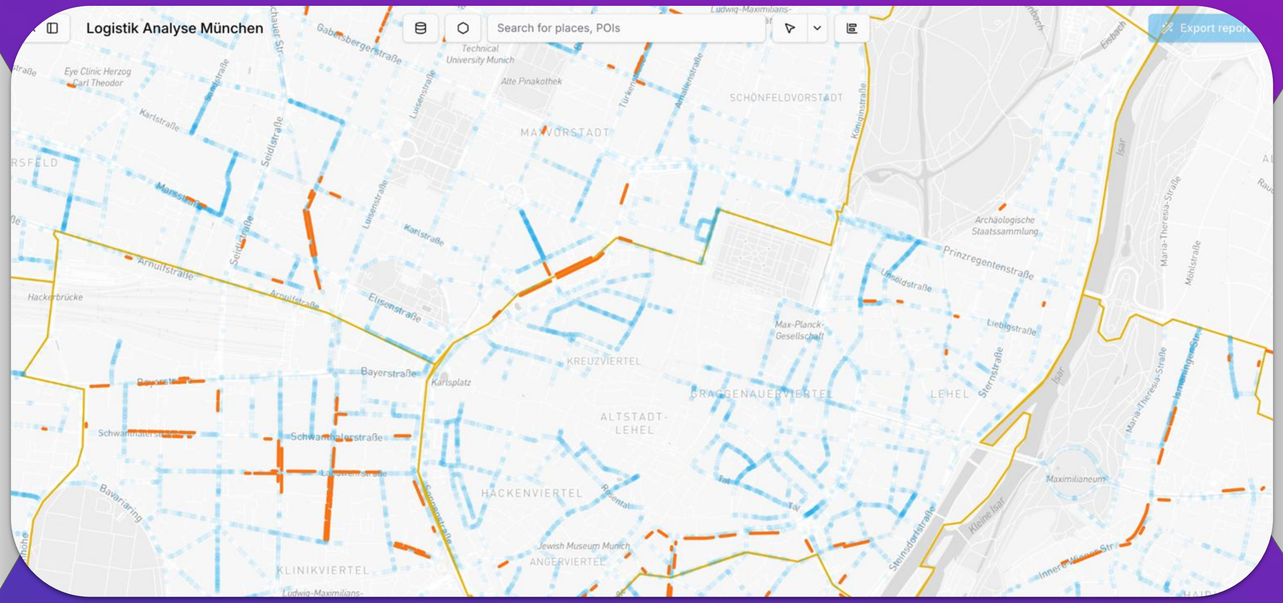
Comprehensive Data Ecosystem

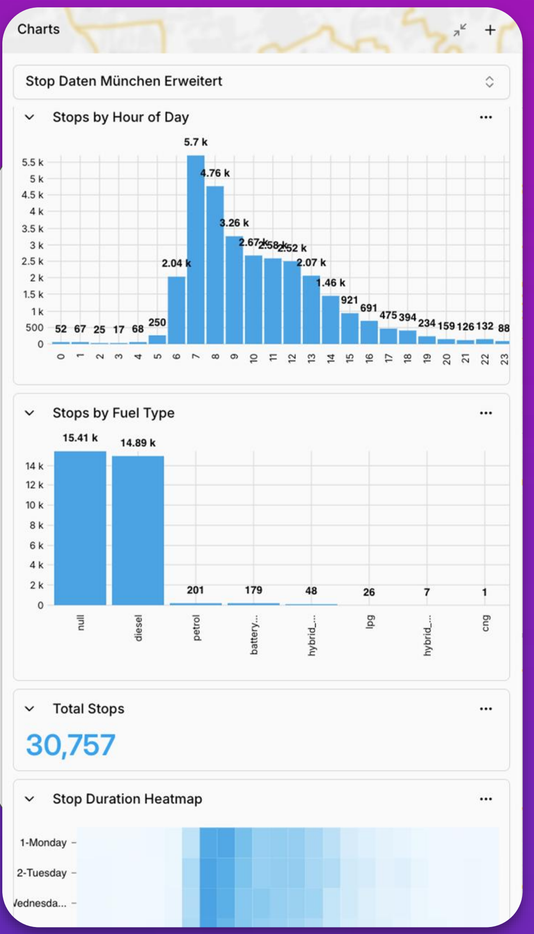
1. **EV-Charging Infrastructure**
   Number of bays
   Number of chargers
   Power output
2. **Cycle Networks**
   Length
   Street name
3. **Live Parking Regulations**
   Permanent parking restrictions
   Dynamic rules
   Segment level classification
4. **BMS Floating Car Data**
   Stop duration
   Vehicle type
   Fuel type
5. **Current Loading Zones**
   Permanent infrastructure
   Dynamic parking options
6. **IHK Commercial Activity**
   Business size
   Delivery demand
   Industry
7. **Munich Population Density**
   Count of registered population per city block

A New Data-Driven Approach

Vianova Intelligence Platform

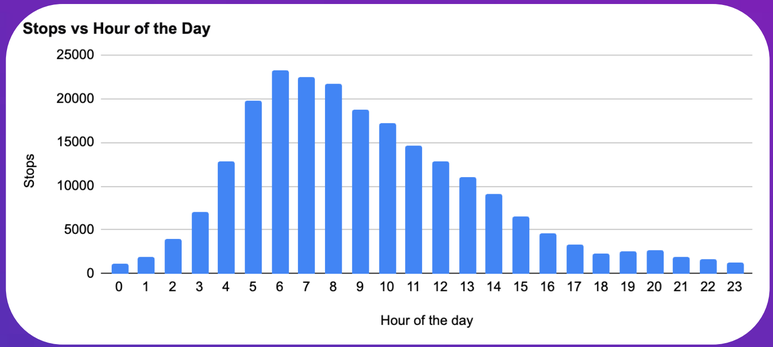




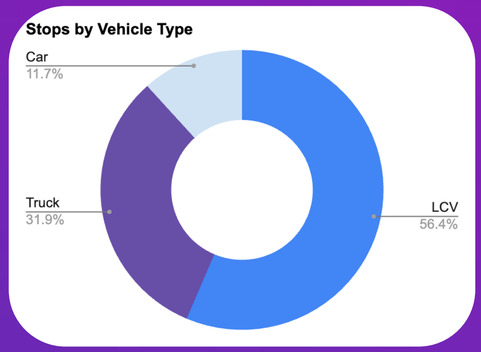


A New Data-Driven Approach

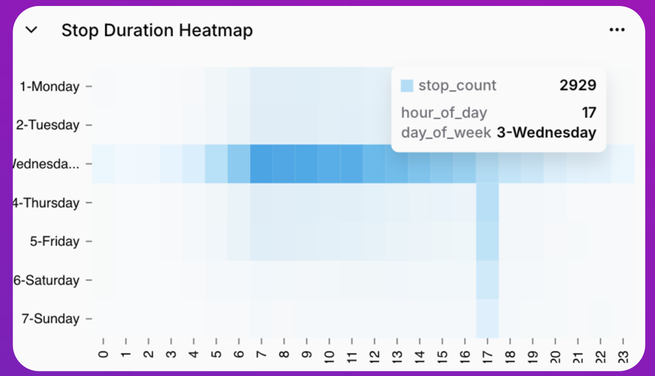
AI Powered Data Analysis



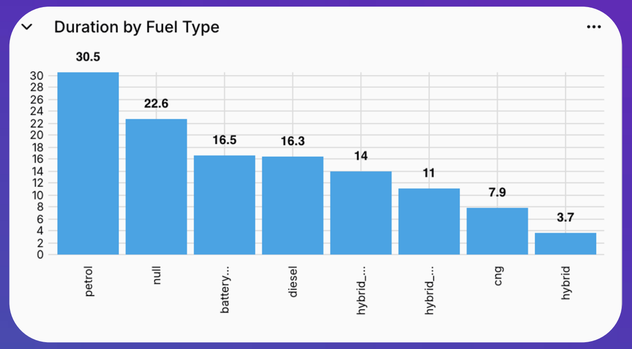
Temporal Dynamics



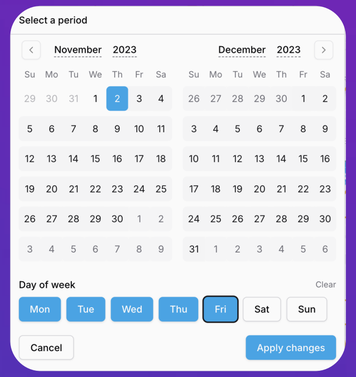
Vehicle / Industry Type



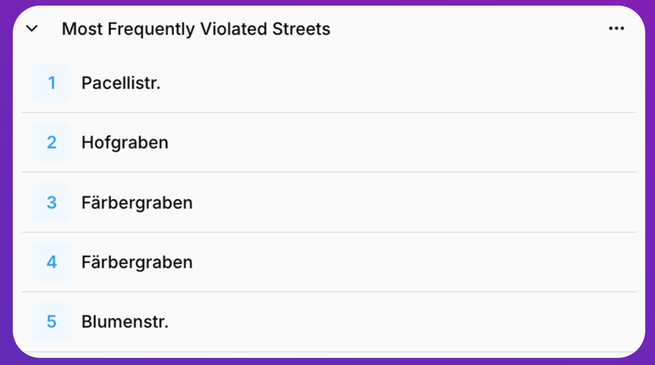
Parking Behaviours



Fuel Type Distribution

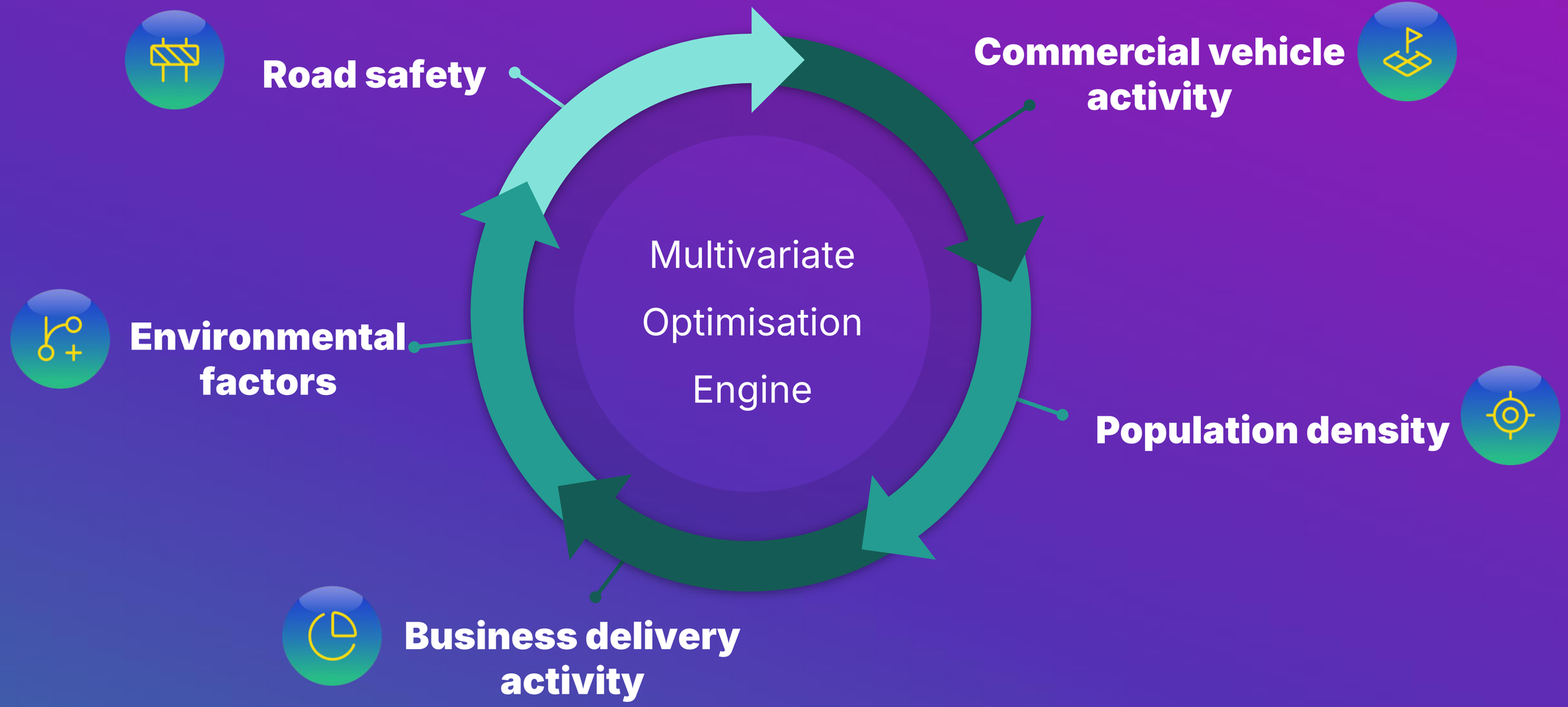


Precision Date Filtering



Street Level Insights

Loading Zone Optimisation



Loading Zone Optimisation

🚲 Safety Settings

Bike Parking Influence

0.50

0.00 — 1.00

Cyclepath Avoidance

0.50

0.00 — 1.00

Environmental factors

💼 Business Activity Settings

Retail/Commercial Bias

0.75

0.00 — 1.00

Priority Industries

Choose an option

Multivariate Optimisation Engine

🚚 Commercial Vehicle Settings

Trip Duration Preference

Slightly Favor Short

Favor Short Trips — Favor Long Trips

Time of Day Preference

All Day Equal

Morning Peak Only — All Day Equal

Vehicle Types

bus × car × lcv × truck ×

Fuel Types

battery_electric × cng × diesel × hybrid × hybrid_diesel × hybrid_petrol × lng × lpg × petrol ×

Population density

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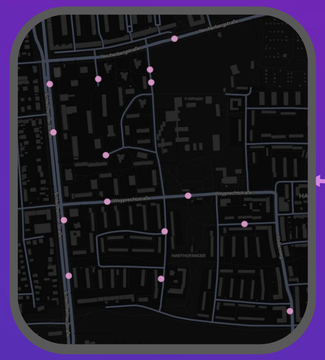
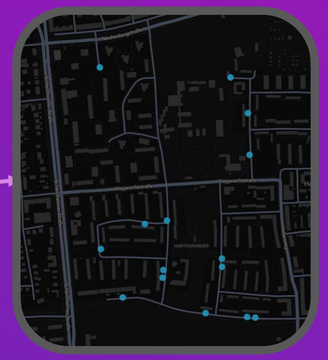
Loading Zone Optimisation

Iteration is key to success

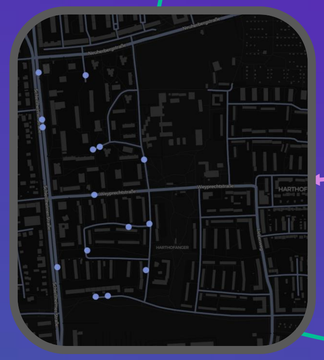


Model 1

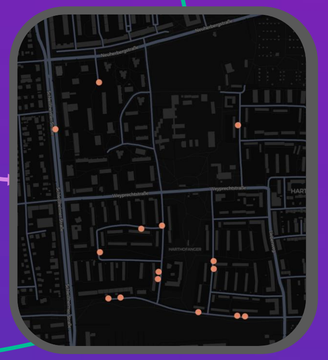
Harthof focus district



Model 4



Model 2



Model 3

Loading Zone Optimisation

1

→Peak hours

- 39% of stops took place between 06:00 - 09:00
- Elevated congestion risk
- Dynamic infrastructure potential

2

→Long-duration

- 38% of stops lasted longer than 30 minutes
- Tradespeople and service industry specific
- Greater impact on parking availability

3

→Short-duration

- Growing home delivery segment
- Potential for avoiding double parking

Takeaways and Insights

1

→Supercharged prioritisation

2

→In-person validation

3

→Data-driven investment case

Takeaways and Insights

1

→City-wide freight baseline established to implement 800 additional loading zones

2

→Stop duration is valuable indicator to locate dedicated service parking areas (e.g. tradespeople)

3

→Stop data is no silver bullet for optimal locations ↔ data triangulation necessary

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Thank you!

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