# Traffic Management

# Phase 2 : INNOVATION

- Integrating Historical Traffic data and machine learning Algorithms to predict Congestion patterns

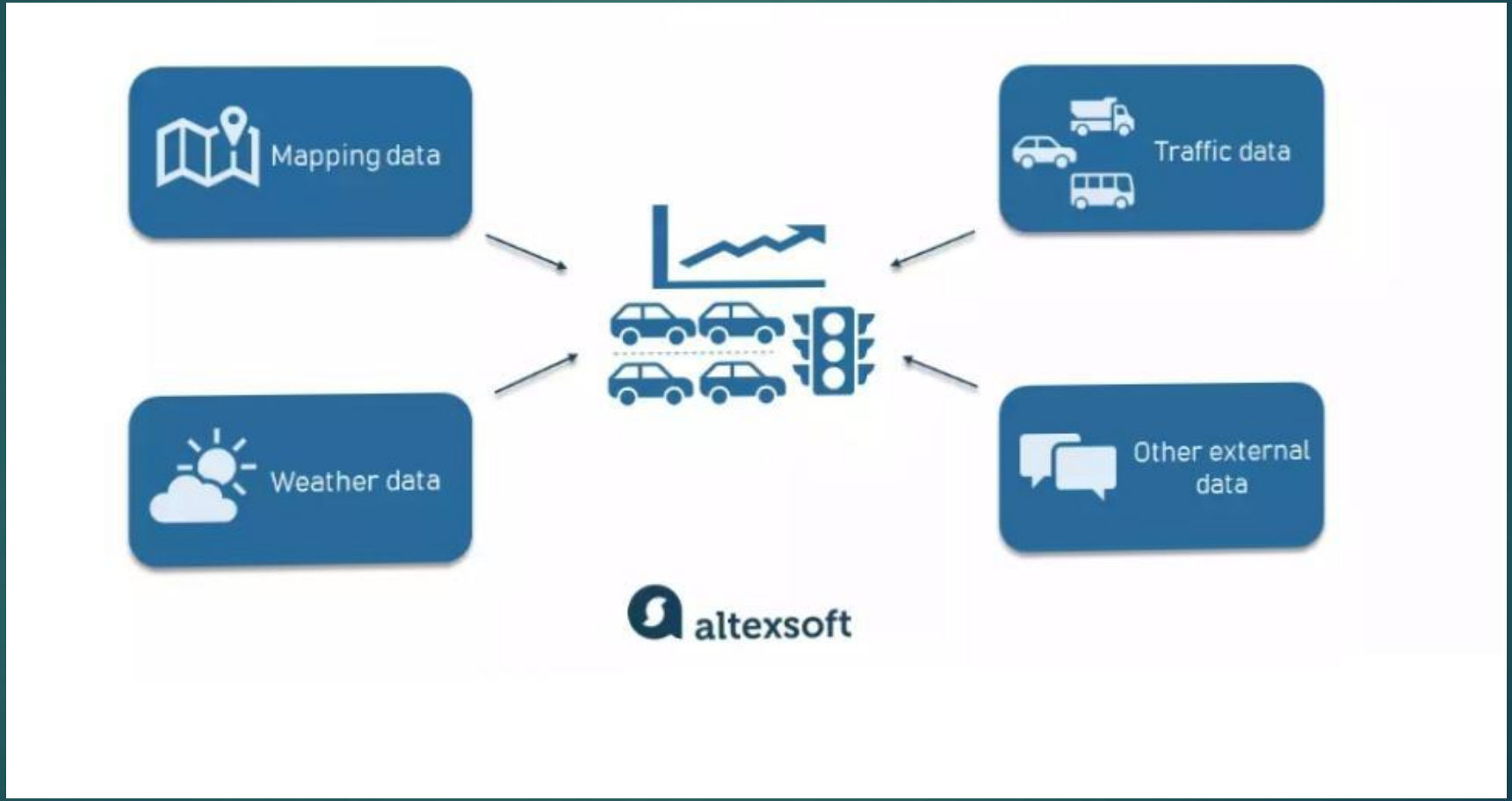
# Traffic prediction:

- *Traffic prediction has always been a challenge for transportation planners and city managers. With the increasing growth of cities and the number of vehicles on the roads, the need for accurate and reliable traffic predictions has become more pressing. In recent years, machine learning has shown great promise in solving this problem.*

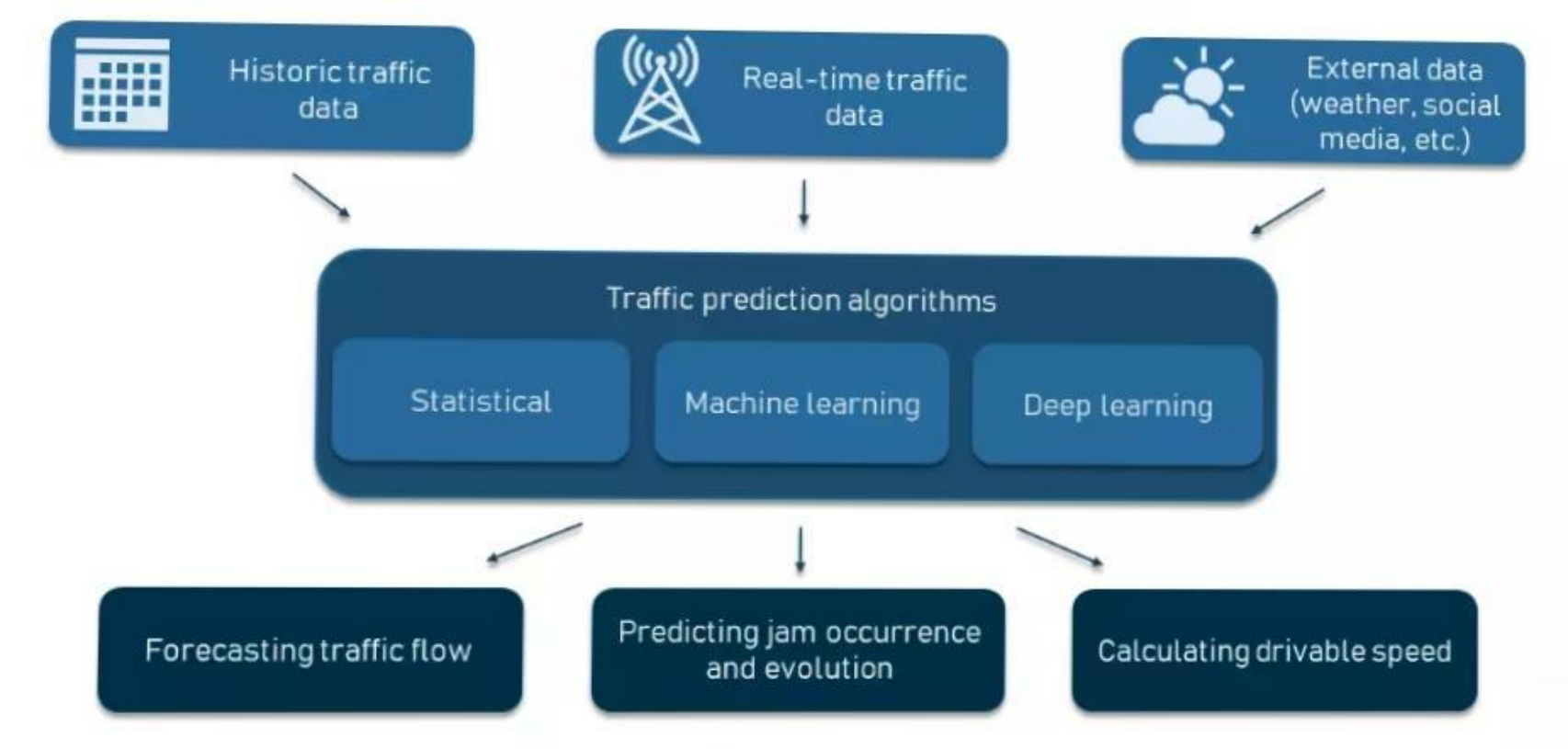
# Machine learning algorithms that can be used for traffic prediction, includes:

- Regression
- Artificial neural networks.
- Time-series analysis

# Data needed for traffic prediction:



# How traffic prediction works:



# Innovative Ideas to Reduce Traffic Congestion:

- *Traffic Light Optimization*
- *Parking Zone Extension*
- *Autonomous Vehicle Usage*
- *Pedestrian Traffic Monitoring*
- *Drone Usage by City Management*

# HARDWARES-IOT ROAD SENSORS INCLUDING:

- RFID (radio frequency identification) tags
- AIDC (automatic identification and data collection) tags
- Temperature sensors
- Air quality sensors
- Connected CCTV cameras  and traffic light systems

# Software Used in traffic management:

Cloud computing and edge processing capabilities:

- Traffic data platform/data lake
- Cloud-based traffic control systems
- Geographic information systems (GIS)
- All supporting transportation apps
- Computer vision
- Optical character recognition (OCR)
- Reinforcement learning

# Conclusion:

- *Implementing innovative ideas for traffic flowcontrol can greatly improve efficiency and reduce congestion on the roads. By utilizing technologies such as smart traffic lights,predictive analytics, connected vehicles,dynamic lane control, and adaptive speed limits, we can create a smarter and more efficient transportation system. These innovations have the potential to make commuting faster, safer, and more convenient for everyone*

# Thank you