

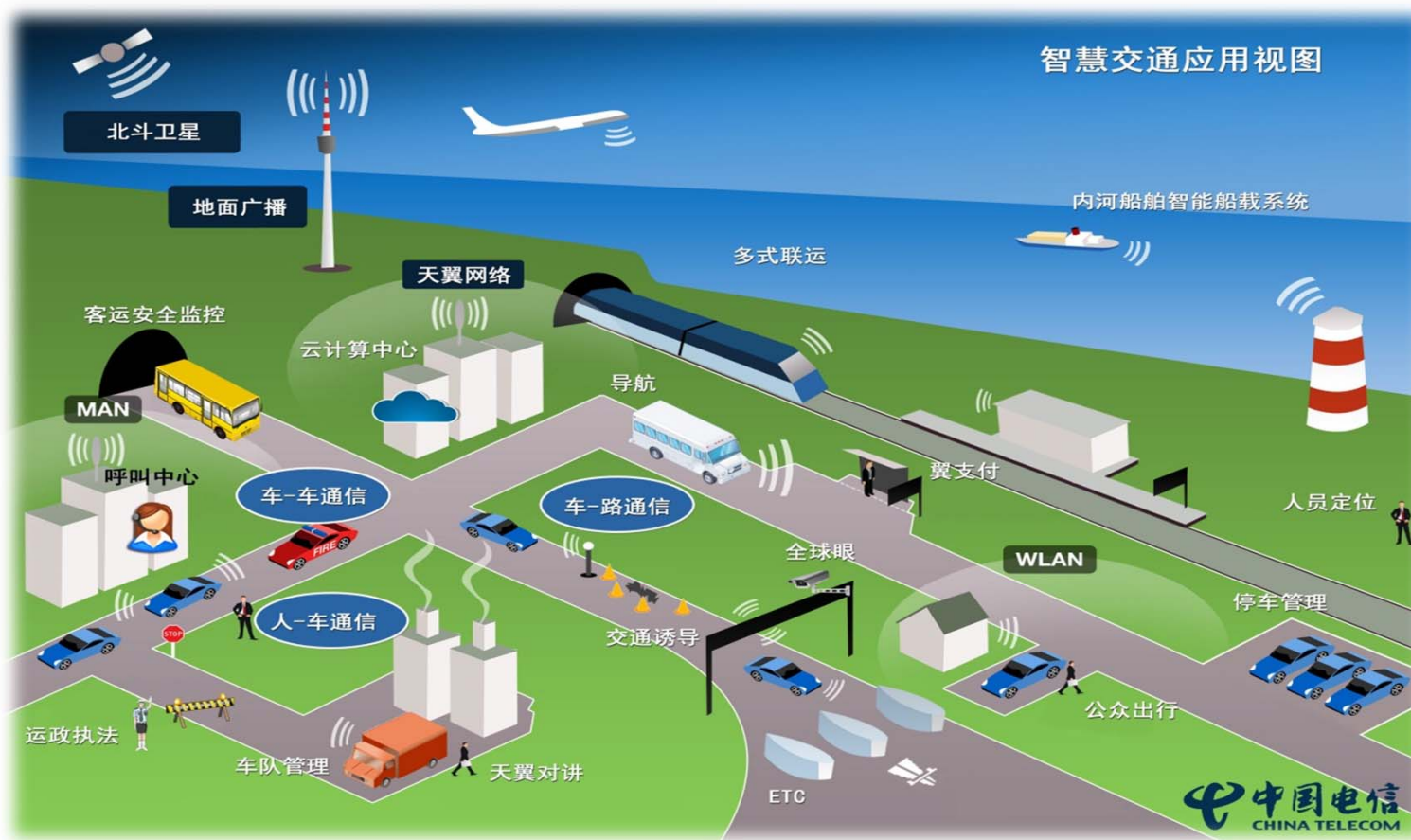


# The Telematics Application Innovation Based On the Big Data

**China Telecom Transportation ICT Application  
Base(Shanghai)**

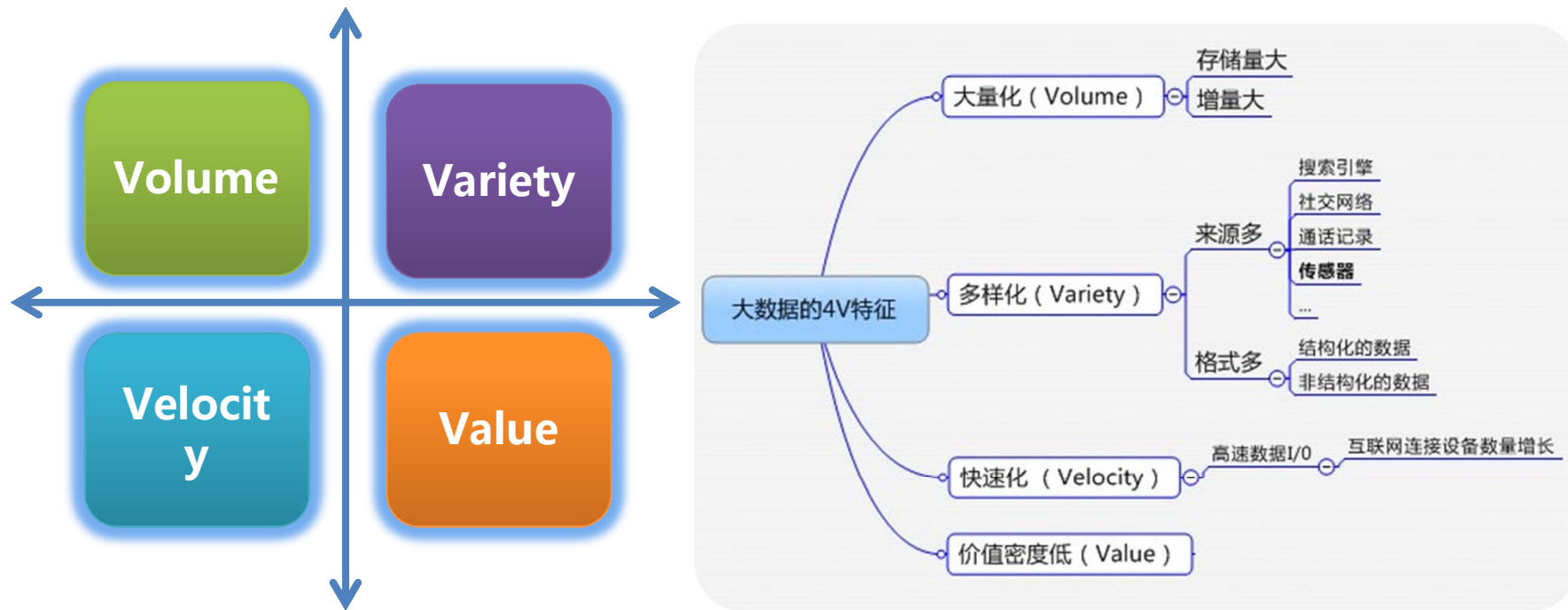
# Big Data be the basis for Telematics Innovation

Providing services based on the ITS data, Telematics make an effective coordination of the person, vehicle and road.



# What's Big Data?

Big Data is the data collection that is unable to capture, management and process by conventional software tools in an affordable time.



**“Volume、Variety、Velocity、Low Value” are the essential characteristics of Big Data. Only with the characteristics, it makes Big Data.**

# The Value of Big Data for Telematics

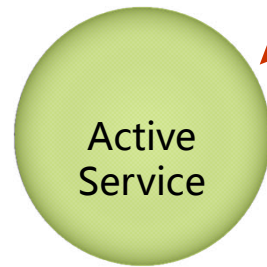
Pre-warning traffic events, such as traffic congestion, driving risk.



Reducing overall costs, such as research and development, maintenance and recall



From passive waiting to active service, such as maintenance reminding, etc.



Through the reasonable analysis and planning, improving operation efficiency of enterprises, such as bus scheduling, logistics lines and stowage planning



# Application on ITS Big Data-Traffic Prediction

Big Data does not analyze the reasons of events, but focus on the data correlations and predict directly whether a traffic event such as congestion will occur in a certain time and a certain road. The data may be collected from:

- probe car with GPS or BDS(Beidou Navigation Satellite System)
- toroidal inductor
- ultrasonic detector
- infrared detector
- mobile signaling analysis
- traffic video
- traffic crowdsourcing
- ...



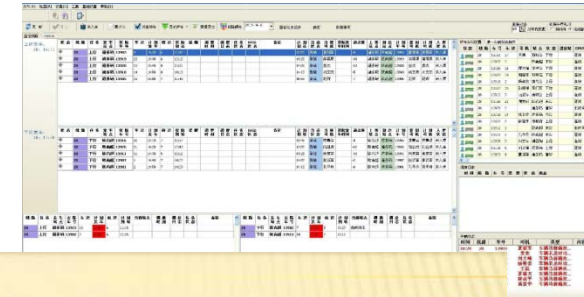
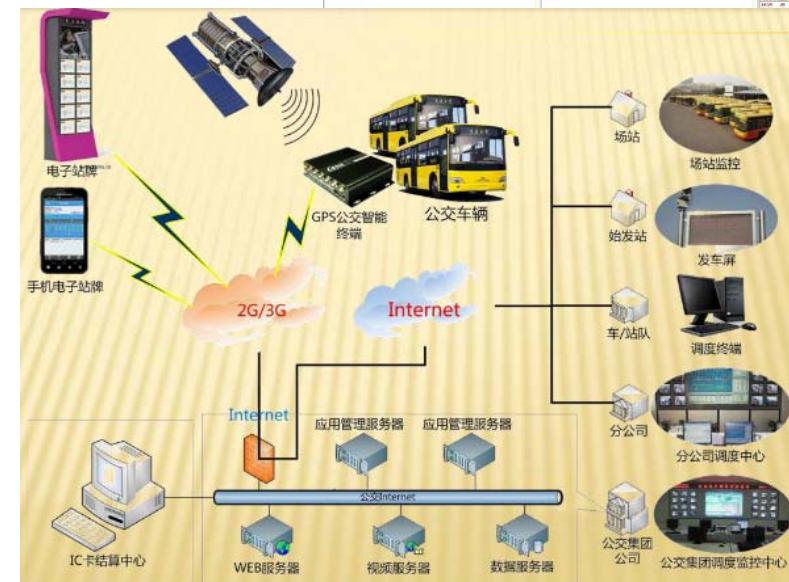
# Application on ITS Big Data–Public Transit Scheduling

The demands of public transport enterprises :

- the least transit capacity
- the shortest running distance
- the least driving time

According to the data of the passenger flow of each site and each period, the vehicles and drivers allocated to the lines, the traffic, the distance, the vehicle speed, etc, The vehicle allocation and departure interval can be determined, so as to solve scheduling problem

Intelligent scheduling

The bus scheduling system

# Application on ITS Big Data – Logistics

## lines and stowage planning

The demands of logistics enterprises :

- Increase the punctuality rate of goods delivery
- reduce the loss rate
- reduce the costs
- reduce the unloaded ratio

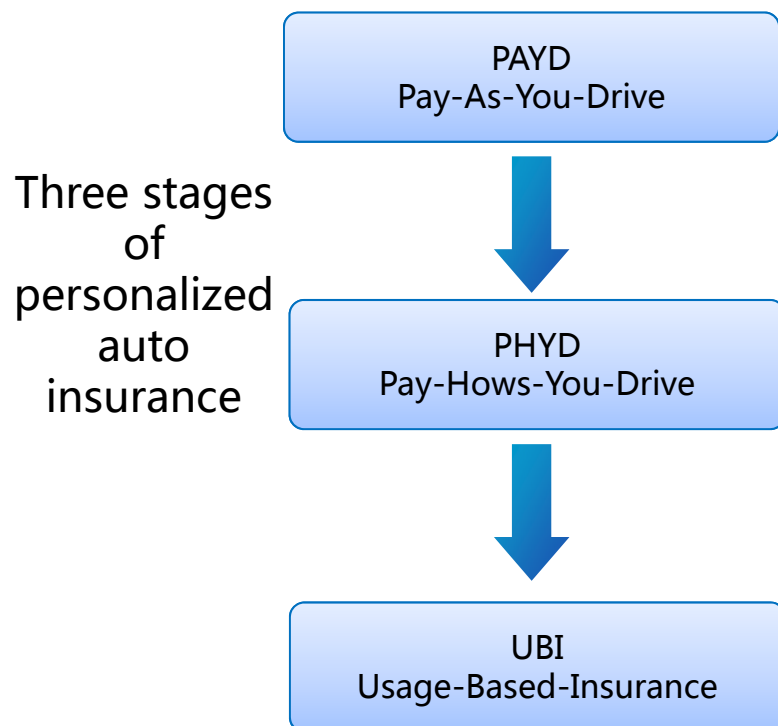
Factors be considered :

- Quantity, volume and weight of the goods
- Address and delivery time
- Truck load and volume
- Fuel consumption
- Road traffic condition
- Differences of regional freight volume
- ...



Achieve the reasonable vehicle scheduling and optimal planning of line and stowage through the comprehensive calculation considering various factors

# Application on ITS Big Data – UBI (Usage-Based-Insurance)



PAYD : Focus on single parameter such as miles, speed, .etc. Use static analysis methods to assess the driving style or risk.

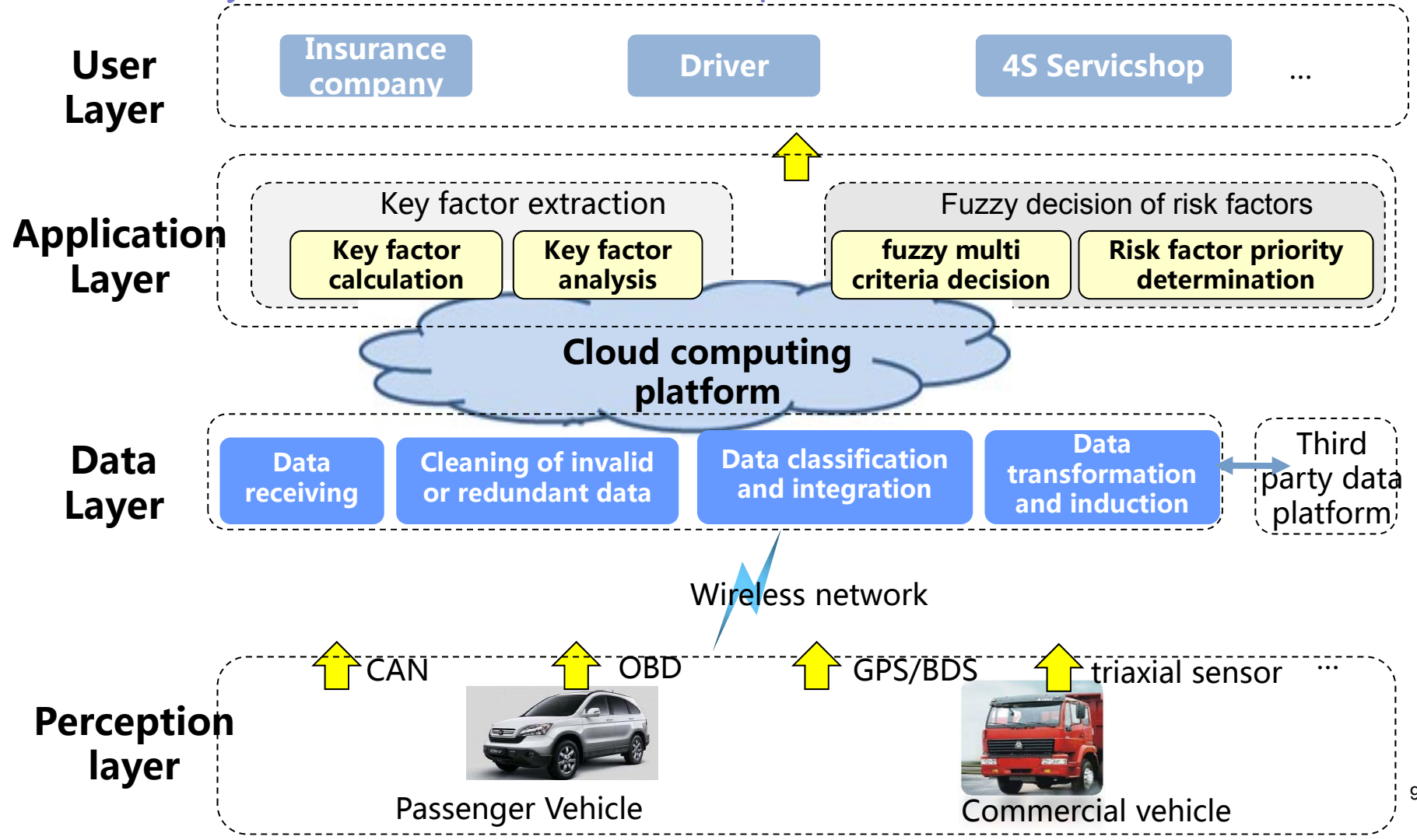
PHYD : Focus on the key parameters that characterize the driving style, using both static analysis tools and dynamic analysis tools.

UBI : a pricing model based on the vehicle usage and driving habits, predicting the risk probability of each drivers and accurately calculating the premium.

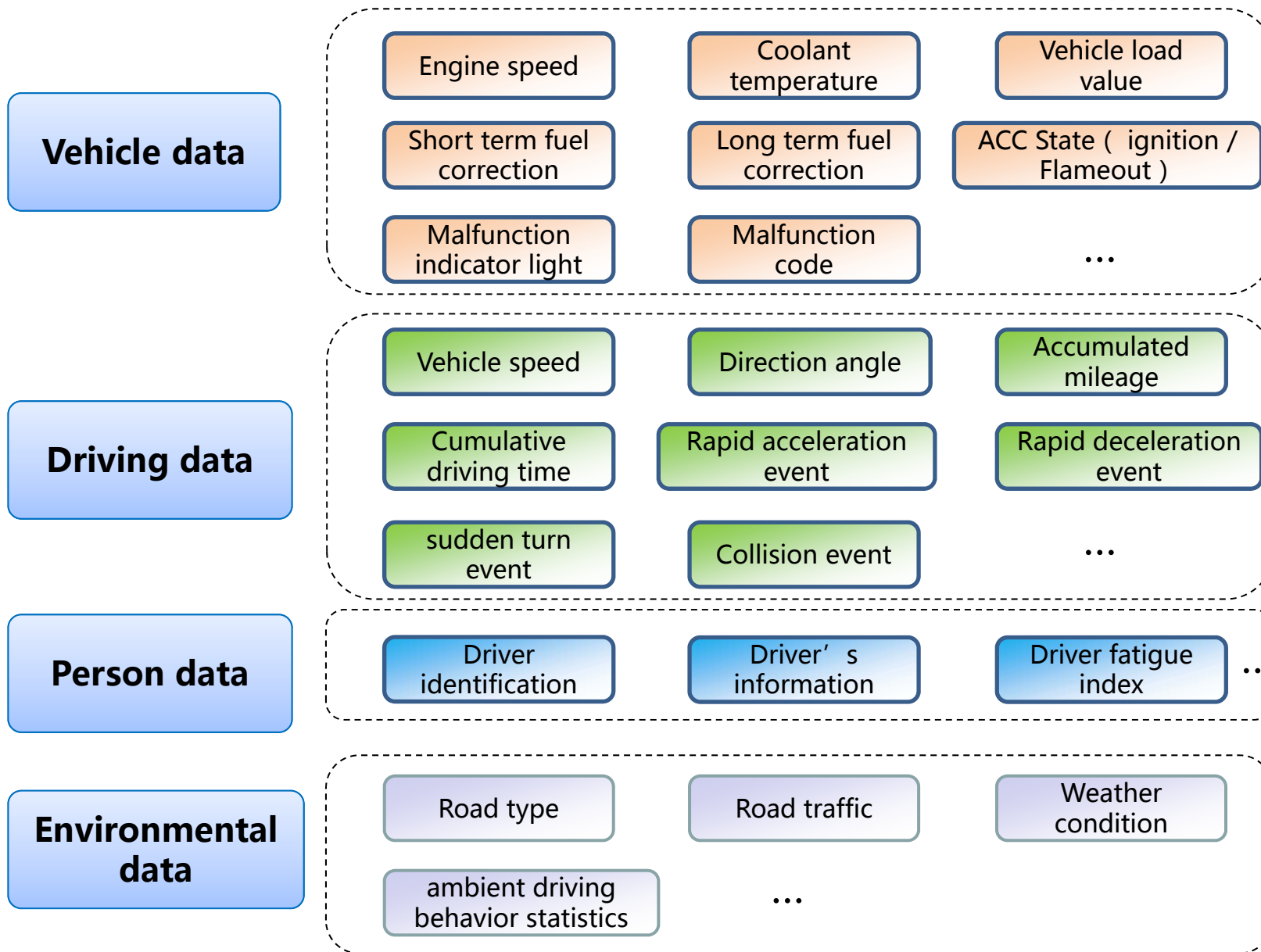


# One innovation hotspot: driving behavior analysis

China Telecom is researching the algorithms of driving behavior analysis and risk assessment, and provides some trial services .

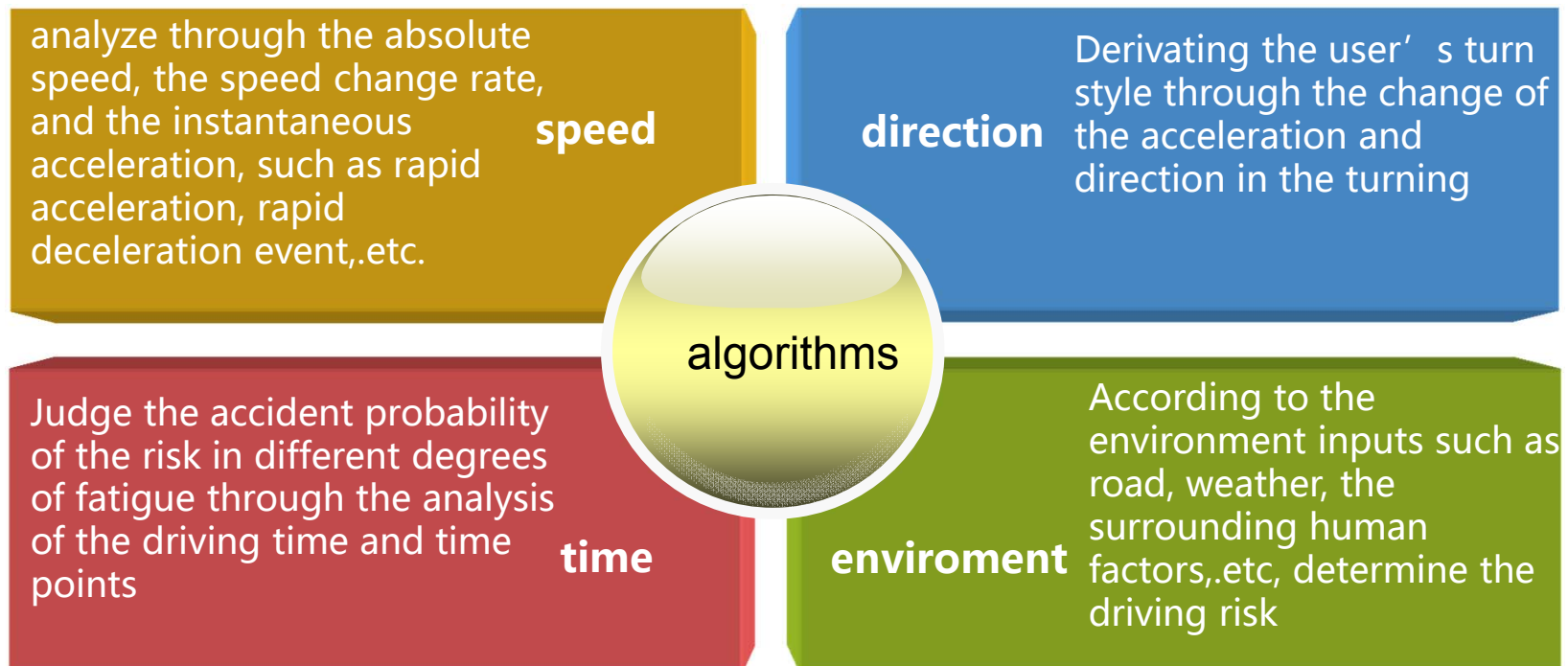


# Data concerning driving behavior analysis



# Analysis algorithm types

Various types of algorithms have different emphases. They are suitable for different application scenarios.



# Applications based on driving behavior analysis

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## Insurance companies

- Support insurance companies to provide UBI service and improve their GLM premium model through the dynamic analysis on user's driving style and risk, combined with the static user data such as compensation rate from the insurance.

## Vehicle drivers

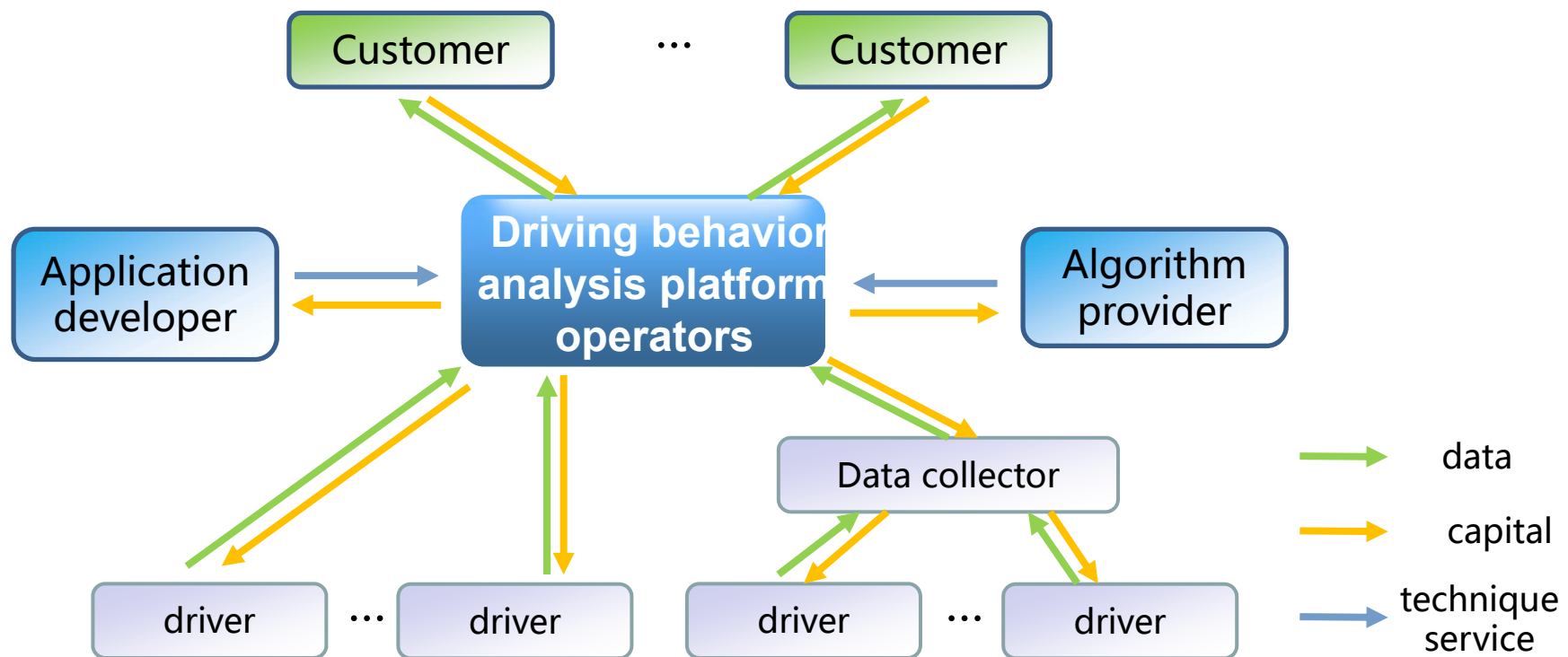
- Evaluate the driver's driving style and give advice to help the driver to correct dangerous or inefficient driving habits
- give a timely warning of potential risks and reduce the accident occurrence based on the real time dynamic analysis to the driving process.

## 4S enterprises

- Predict the loss of vehicle components by acquiring and analyze the vehicle condition data and the driving habits .The 4S enterprises then can be actively give tips of maintenance, or monitor on the scale component failure.

# Business model of applications of driving behavior analysis

- Every role in the industrial chain can share the benefits
- The faster the data and capital flows ,the better the Big Data applications develop.



# Prospects for the Telematics applications In the era of Big Data

## driverless cars



## New energy vehicles



Telematics  
+  
Big Data

## Automobile manufacturing



## Vehicle Infrastructure Cooperation



Thank You !