Big Data Challenges

1 Volume	• **130 TB /car/year** • **Capture and Process 30,000 Signals from every car**
2 Variety	• Streaming, Batch, multiple formats • Diverse Data Types (Sensor data, location data safety data)
3 Velocity	• Real Time data processing
4 Veracity	• Suitable analysis models
5 Value	• Value is maximized when combined with data from other sources (decision making) • Reduce maintenance cost • Insurance (Blackbox)

1 Data Source	• **Electronic control units** • **vehicle plug ins** • **IoT data**
2 Data Messaging & Store Layer	• Cloud / Edge • Latency • Data Transmission / compressed Data (Batch / Stream)
3 Analysis Layer	• Low latency needed • Time series • Machine learning Models • Business intelligence
4 Consumption Layer	• Insurance Companies • Improve Safety aspects (Hazard detection)) • BI / Visualization • Predictive Maintenance • Public Services