

### ZKE network

#### (Safety, availability, case processing)

- Centrally recording all alerts and interventions
- Providing data to RUS for **maintenance optimisation** and **protection of infrastructure**; e.g. early warning in the event of misshapen wheels, defective bogies or badly adjusted pantographs before **a limit is exceeded**.

### Uplift measurement

#### (Availability)

Preventing contact line faults

### Natural hazard alert systems

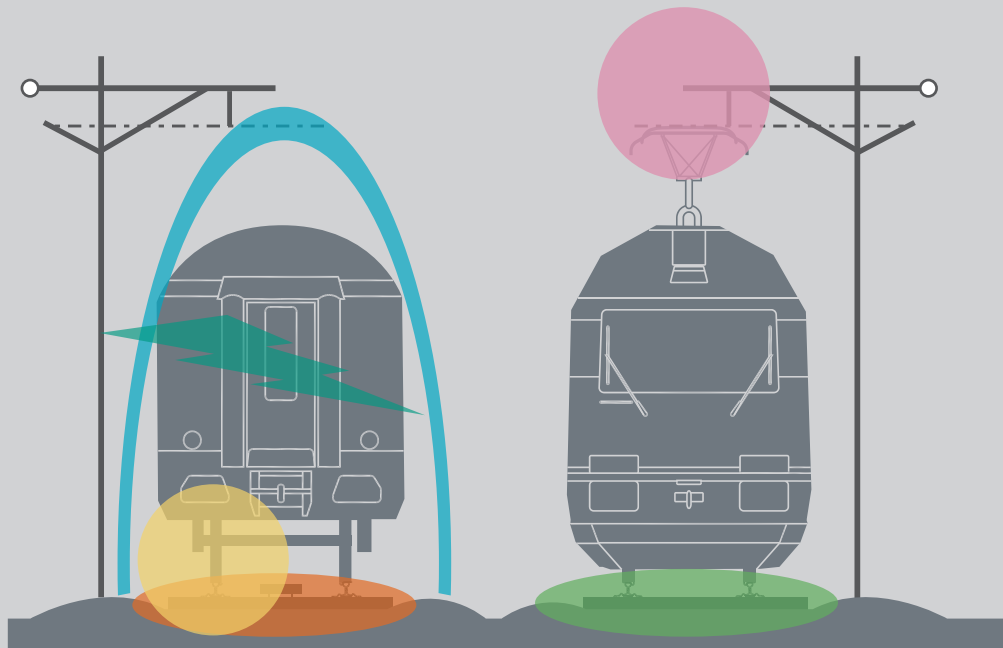
#### (Safety)

Preventing collisions with obstructions in the event of rockfall, landslide, mudslide or avalanche

### Dragging equipment detection

#### (Availability)

Preventing damage to the infrastructure caused by low hanging objects



### Profile clearance and aerial detection (Safety)

- Preventing clearance profile breaches
- Preventing contact line damage by vehicle aerials on rolling roads

### Fire and chemical detection (Safety)

- Preventing safety-critical situations due to fire or loss of hazardous goods

### Hot box and brake-locking detection (Safety)

Preventing derailment by and wheel failures

### Wheel load checkpoints (Safety)

- detecting load displacement, axle overloading
- severe wheel defects
- route loading (load spectrums)