Connected Road Safety

HUMAN CENTERED DIGITALLY ENABLED

Transforming road safety for a sustainable world

Manish Godkhindi, ERM

In partnership with

Microsoft | Research **HAMS**

The business of sustainability

ERM

“Road traffic crashes are not accidents, they are completely preventable”

Global Status Report on Road Safety – WHO 2018

1.35 MILLION ANNUAL ROAD TRAFFIC DEATHS

1 One every 24 seconds

LEADING CAUSE OF DEATH OF PEOPLE AGED 5-29 YEARS

VULNERABLE ROAD USERS ACCOUNT FOR 50% DEATHS WORLDWIDE

COVID-19 :

- Essential & Furloughed Drivers
- Mothballed Vehicles
- Transition to ‘new normal’

SDG 3.6 MISSED COMMITMENT TO REDUCE DEATHS BY 50% BY 2020

VISION4HK NETWORK

The corporate challenge

- Hazardous goods transportation
- Field technical services
- Last Mile Delivery
- Corporate Employees

Road crashes cost the world well over USD**$500Billion** or 3% of GDP for most countries

WHO

Road crashes cost US corporates nearly USD**$60Billion** in direct costs

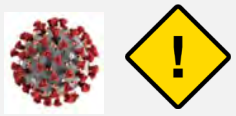
2018 Driver Safety Risk Report

Road safety is a global corporate challenge. Asset intensive industries as well as the services sector need to address this proactively to manage reputational risk, contractor and employee safety and financial loss.

Advanced road safety technologies are essential but not sufficient to mitigate road safety risks.

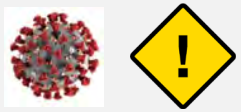
Transition to new normal : COVID-19

- Essential Drivers
- Furloughed Drivers
- Vehicle Maintenance
- Back to ‘new normal’



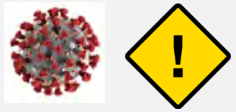
Essential Drivers

- Extended Hours, Full Capacity → Fatigue
- Recruitment, new staff → Training, Eligibility
- Multiple Shifts, Multiple Drivers → Vehicle Sanitisation



Furloughed and Other Drivers

- Mental Health
- Car drivers, route familiarity
- Financial Challenges



Vehicle

- Maintenance checks
- Spare Parts and Preparation
- Mothballed Vehicles

COVID-19 : How do we prepare for the new risks as we start planning to transition into the ‘new normal’ ?

Dynamic Road Safety Risk Management Framework

Driver factors:

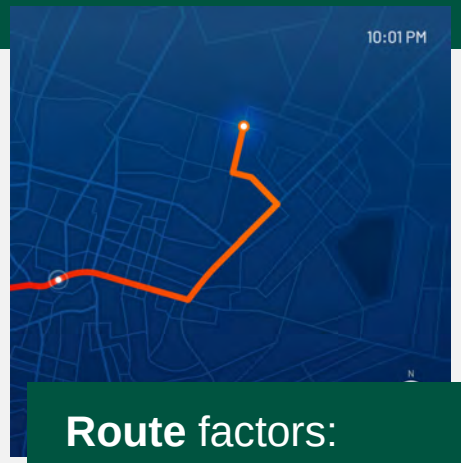
– Driver familiarity with route/vehicle type

– Driver biometrics (fatigue, health and fitness)

Vehicle factors:

– Vehicle maintenance/ inspection regime

– Live telematics showing vehicle health error codes



Route factors:

– Accident history on route and live traffic conditions

– Driver predicted progress against delivery schedule

Cargo factors:

– Cargo type (hazardous non-hazardous)

– Cargo delivery schedule

Conditional factors:

– Weather conditions on the route

– Other driver behaviours

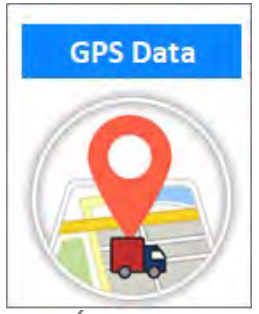
– Organisational factors

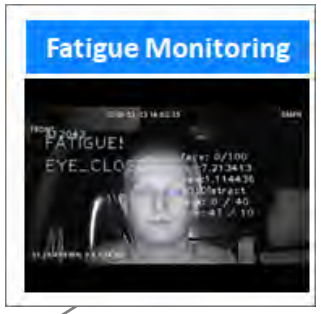
Our framework, based on deep road safety expertise and research projects enables advanced algorithms to identify emerging risk patterns specific to your business**.**

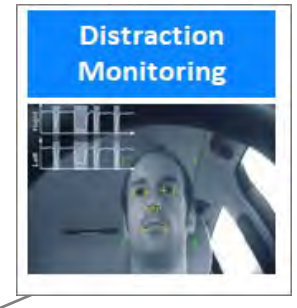
How to address this multidisciplinary challenge ?

Stream of large volumes of new structured data can generate new value

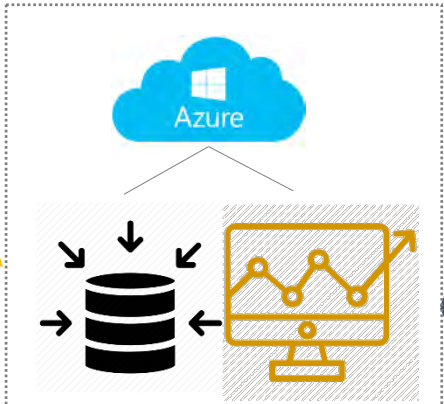
COVID-19







Leveraging leading data sets with lagging sets (structured and unstructured) to derive injury, accident correlation models



Real Time Monitoring

Feedback Control System

This type of data is largely fragmented and legacy in nature. Lack of data ownership. And largely not consolidated in a system, neither integrated with an EHS system.

Driver Behavior, Training Records

Previous accident, near miss reports

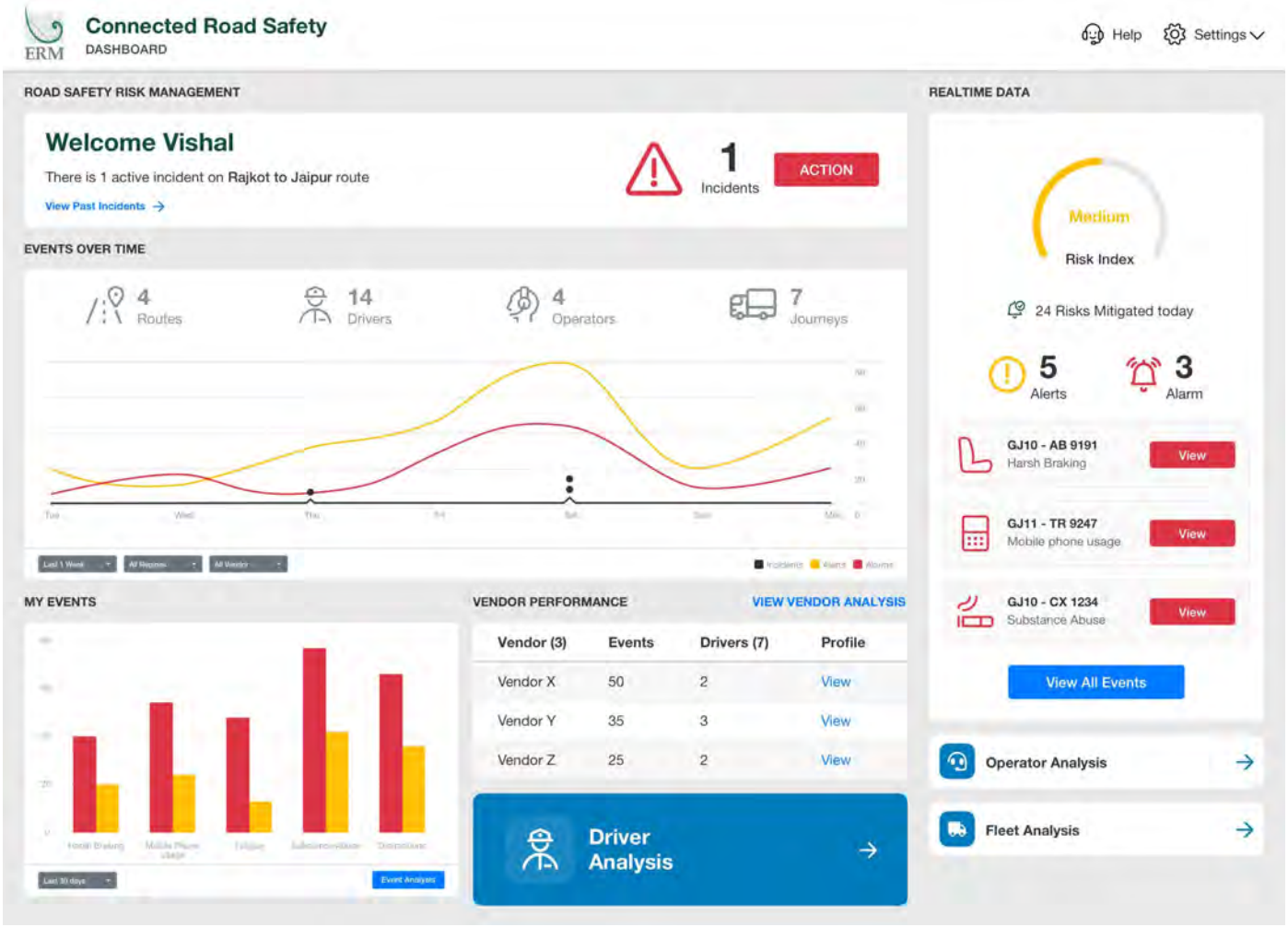
Road Conditions, Weather Patterns

Vehicle Maintenance, Scheduling JMPs..

Enterprise EMIS system

How to bring it all together ?

1. Think Persona – Road Safety Manager, Operator, Vendor, Driver



2. Focus on Risks, KPIs and critical events

3. Think Data Quality, Governance

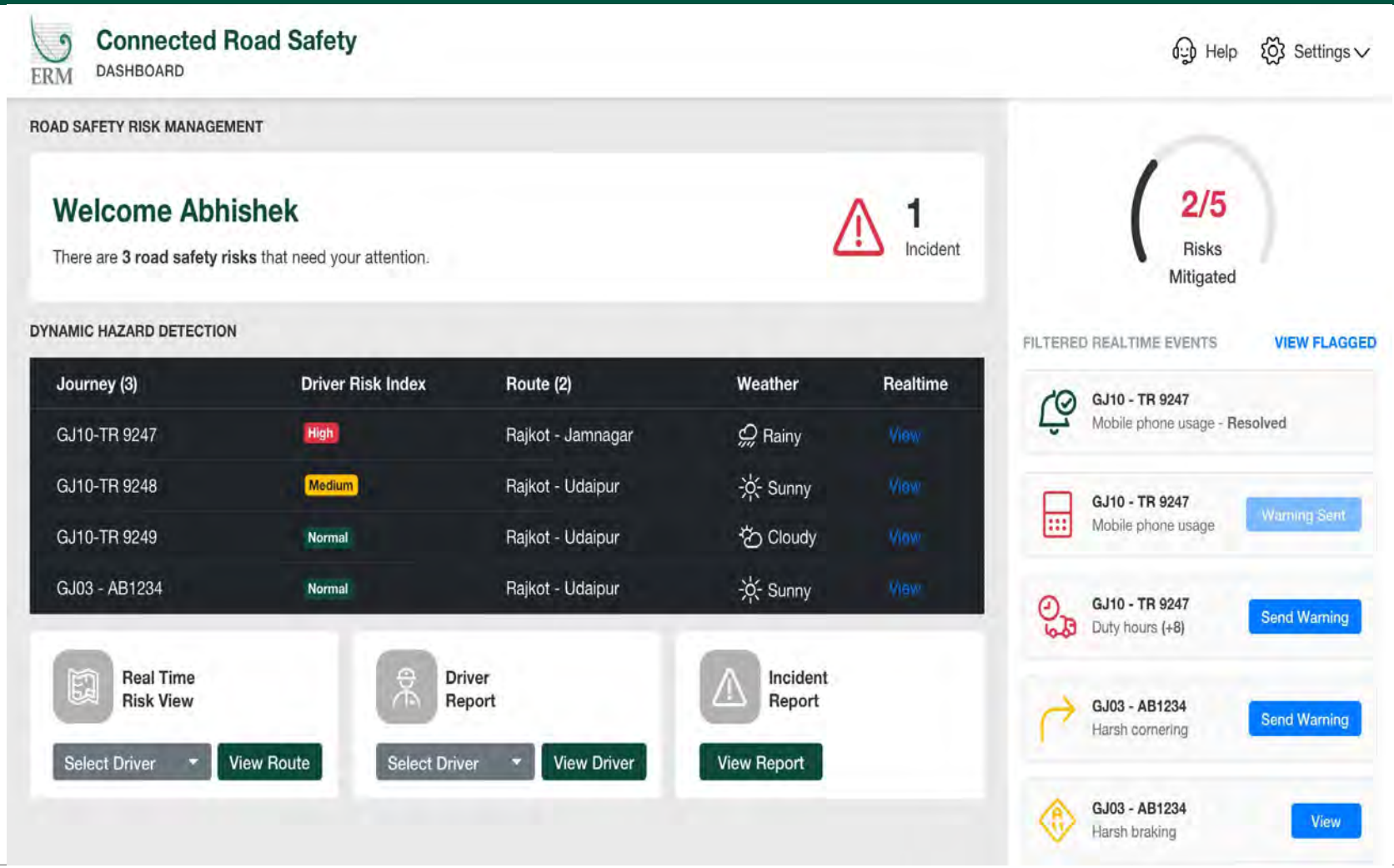
4. Think EMIS System (EHS system)

Driver Risk Index

1. Think Persona – Road Safety Manager, Operator, Vendor, Driver

5. Driver Risk Index

4. Think EMIS System (EHS system)

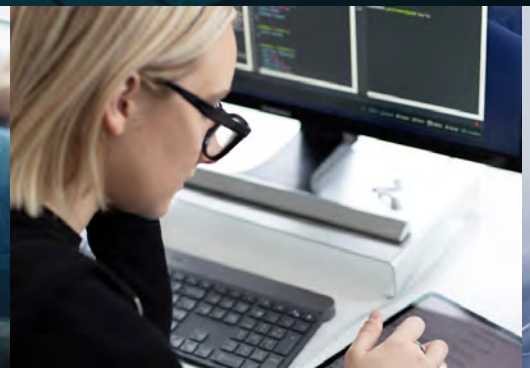


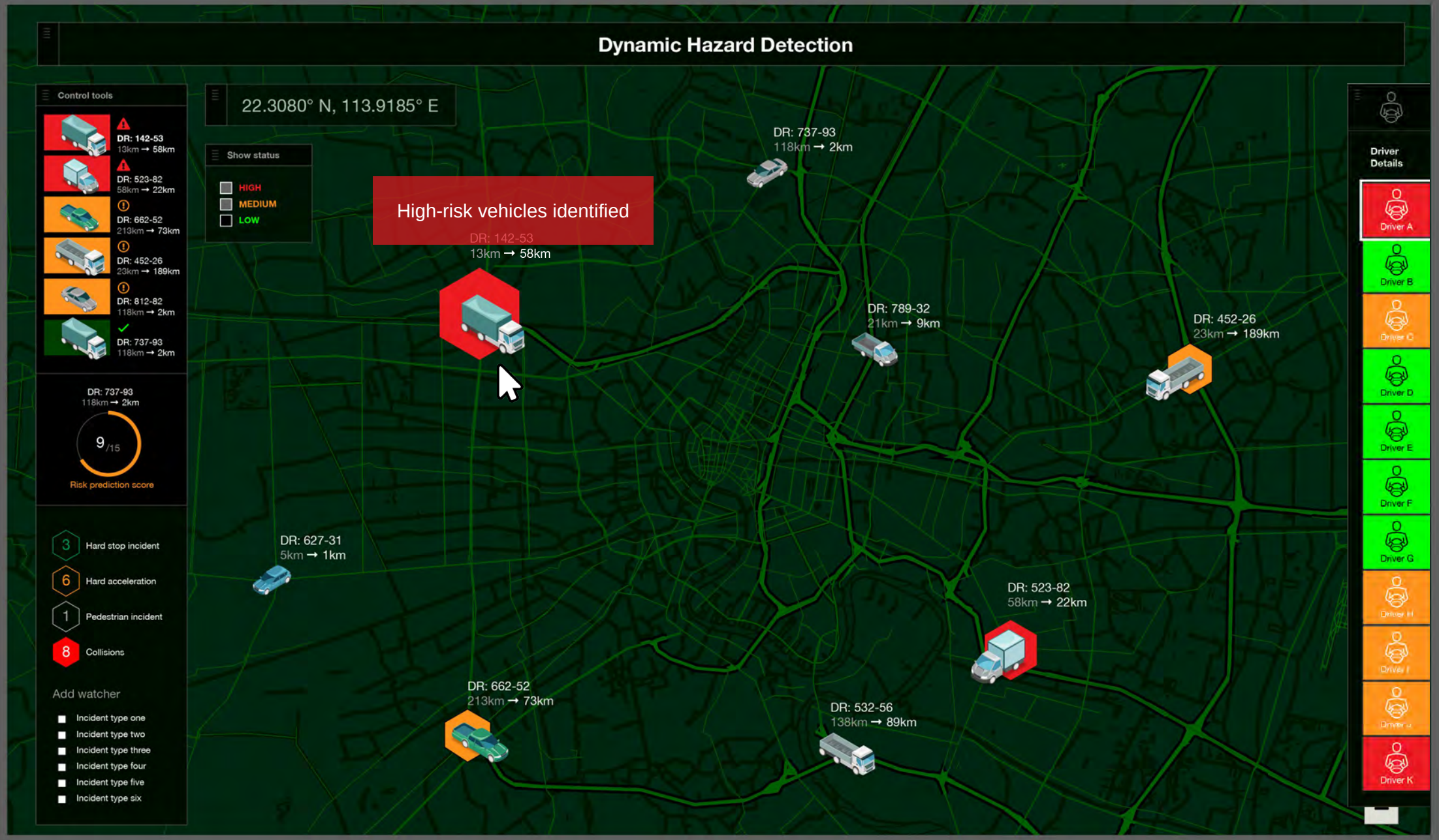
2. Focus on Risks, KPIs and critical events

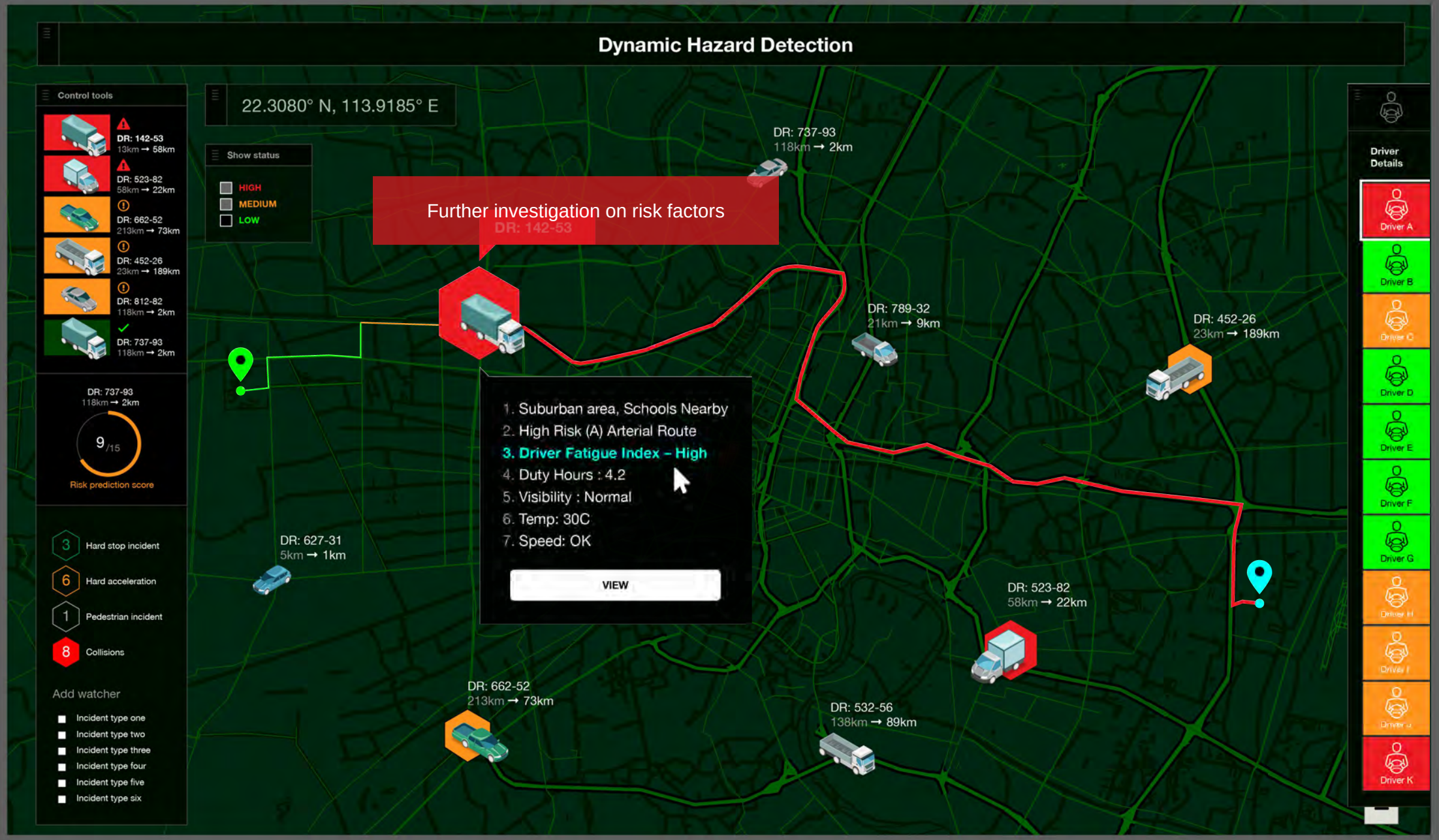
3. Think Data Quality, Governance

Imagine balancing road safety and fleet performance by combining digital technologies and road safety expertise.

ERM Connected Road Safety




Dynamic Hazard Detection
Control tools
DR: 142-53
13km → 58km
DR: 523-82
58km → 22km
DR: 662-52
213km → 73km
DR: 452-26
23km → 189km
DR: 812-82
118km → 2km
DR: 737-93
118km → 2km
DR: 737-93
118km → 2km
9 /15
Risk prediction score
3 Hard stop incident
6 Hard acceleration
1 Pedestrian incident
8 Collisions
Add watcher
Incident type one
Incident type two
Incident type three
Incident type four
Incident type five
Incident type six
22.3080° N, 113.9185° E
Show status
HIGH
MEDIUM
LOW
High-risk vehicles identified
DR: 142-53
13km → 58km
DR: 737-93
118km → 2km
DR: 789-32
21km → 9km
DR: 452-26
23km → 189km
DR: 627-31
5km → 1km
DR: 523-82
58km → 22km
DR: 662-52
213km → 73km
DR: 532-56
138km → 89km
Driver Details
Driver A
Driver B
Driver C
Driver D
Driver E
Driver F
Driver G
Driver H
Driver I
Driver J
Driver K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22.3080° N, 113.9185° E
Show status
HIGH
MEDIUM
LOW
Further investigation on risk factors
DR: 737-93
118km → 2km
DR: 142-53
DR: 789-32
21km → 9km
DR: 452-26
23km → 189km
1. Suburban area, Schools Nearby
2. High Risk (A) Arterial Route
3. Driver Fatigue Index – High
4. Duty Hours : 4.2
5. Visibility : Normal
6. Temp: 30C
7. Speed: OK
VIEW
DR: 627-31
5km → 1km
DR: 523-82
58km → 22km
DR: 662-52
213km → 73km
DR: 532-56
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Driver Details
Driver A
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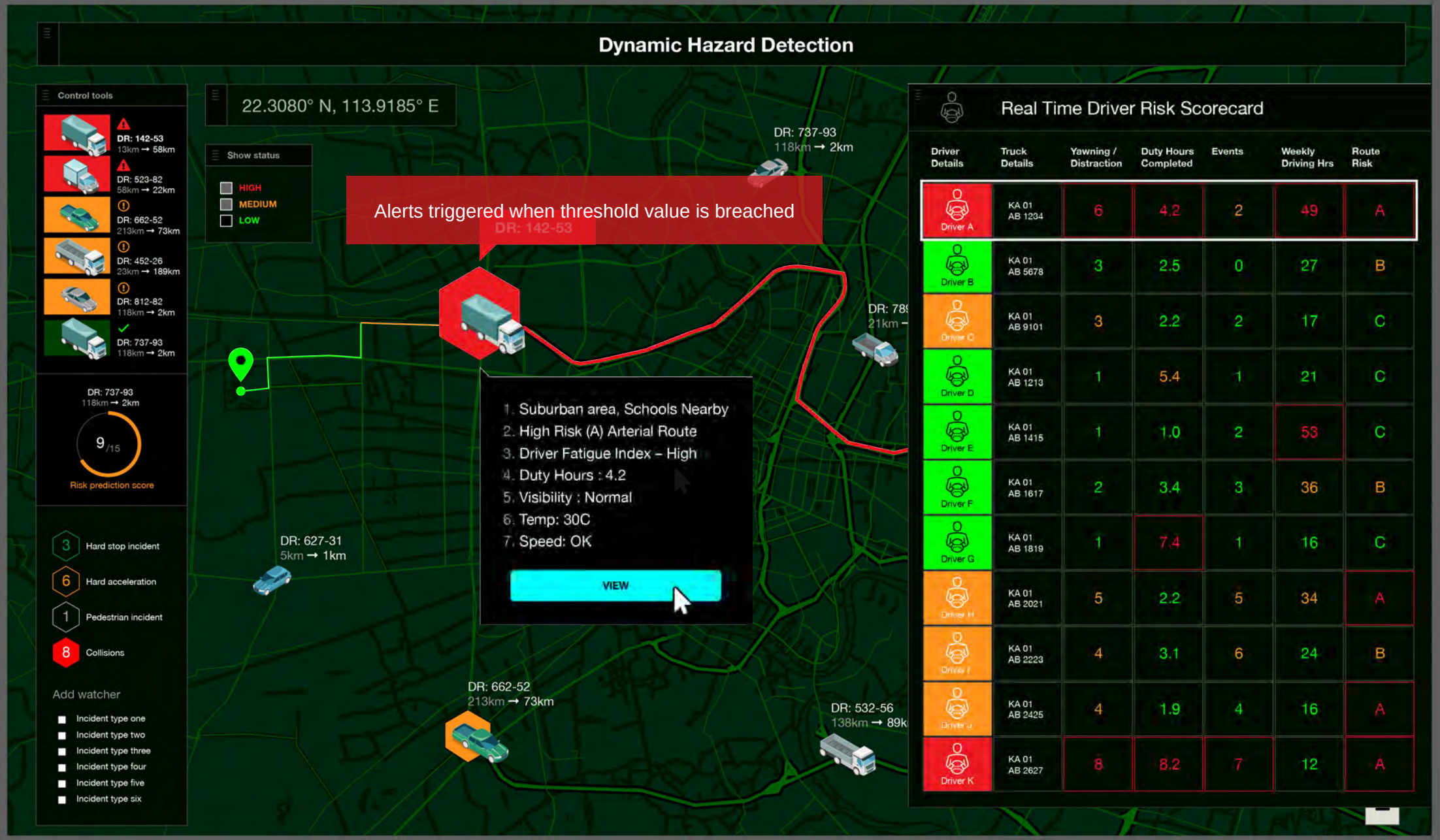
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22.3080° N, 113.9185° E
Show status
HIGH
MEDIUM
LOW
Alerts triggered when threshold value is breached
DR: 737-93
118km → 2km
DR: 142-53
DR: 789
21km →
1. Suburban area, Schools Nearby
2. High Risk (A) Arterial Route
3. Driver Fatigue Index – High
4. Duty Hours : 4.2
5. Visibility : Normal
6. Temp: 30C
7. Speed: OK
VIEW
DR: 627-31
5km → 1km
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213km → 73km
DR: 532-56
138km → 89k
Real Time Driver Risk Scorecard
Driver Details
Truck Details
Yawning / Distraction
Duty Hours Completed
Events
Weekly Driving Hrs
Route Risk
Driver A | KA 01 AB 1234 | 6 | 4.2 | 2 | 49 | A
Driver B | KA 01 AB 5678 | 3 | 2.5 | 0 | 27 | B
Driver C | KA 01 AB 9101 | 3 | 2.2 | 2 | 17 | C
Driver D | KA 01 AB 1213 | 1 | 5.4 | 1 | 21 | C
Driver E | KA 01 AB 1415 | 1 | 1.0 | 2 | 53 | C
Driver F | KA 01 AB 1617 | 2 | 3.4 | 3 | 36 | B
Driver G | KA 01 AB 1819 | 1 | 7.4 | 1 | 16 | C
Driver H | KA 01 AB 2021 | 5 | 2.2 | 5 | 34 | A
Driver I | KA 01 AB 2223 | 4 | 3.1 | 6 | 24 | B
Driver J | KA 01 AB 2425 | 4 | 1.9 | 4 | 16 | A
Driver K | KA 01 AB 2627 | 8 | 8.2 | 7 | 12 | A

Detailed real-time information on driver, vehicle and external conditions.
Ability to directly alert driver, immediately.

Driver details

DR: 142-53

10:03

Concentration threshold exceeded: **Risk of collision**

Send Alert

13km → 58km | 42km/h | 32°C | 3 in last 30 days | 16 in last 30 days | K Laghari

Speed profile

Route Events

Feedback

LIVE: Eye Tracking

LIVE: Driver

LIVE: Road Ahead

LIVE: Weather

32°C

Connected Road Safety – Best Practices

Data – Asset or Liability

Data can be your biggest asset if you curate it well – well labelled, good quality, training data

Fatigue is a complex problem

Needs contextual research, Human Behaviour Metrics

Focus on Business KPIs

Start with the Safety and Risk outcomes not technology.

Cross Functional Team

Multidisciplinary teams need to come together to deliver change. Integrate with Enterprise systems

Data Ownership, Privacy

Ensure you own the data … always.

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