INTELLIGENT TRANSPORT SYSTEM

Strategic Plan Outline

Accelerating Digital Transformation in the Road Transport

By: Teklu Adamu

6th National ICT Summit

7–9 October 2019, WINDHOEK

Email: adamut@ra.org.na

Introduction & Overview

- Two of the major challenges on our roads
- Brief introduction to ITS
- Existing capacity within RA and how it can be transformed into a fully fledged ITS **(LIVE DEMO)**
- Benefits of ITS for Namibia and the need for wider stakeholders consultation
- Conclusion

Email: adamut@ra.org.na

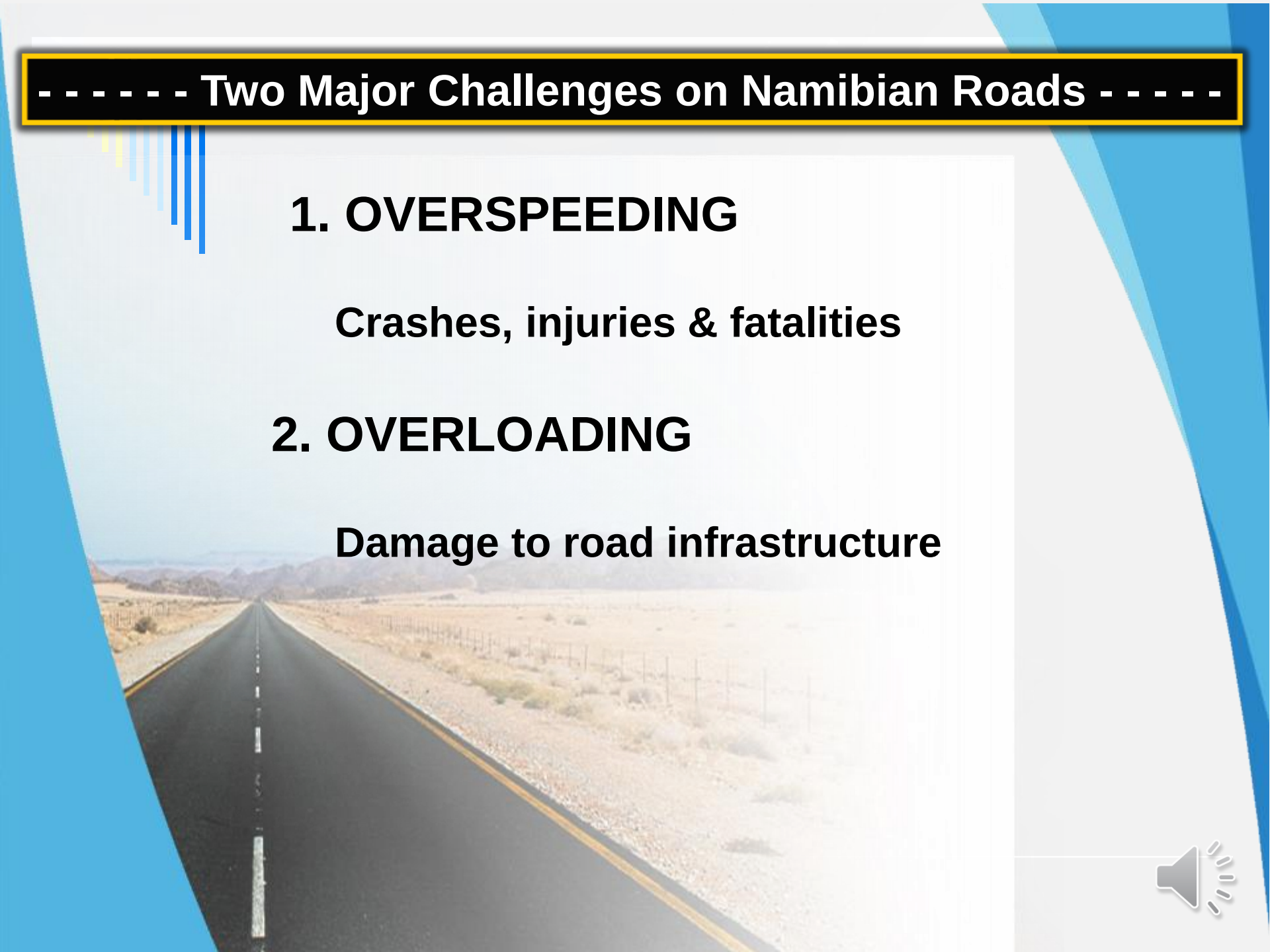
- - - - - - Two Major Challenges on Namibian Roads - - - - -

1. OVERSPEEDING

Crashes, injuries & fatalities

2. OVERLOADING

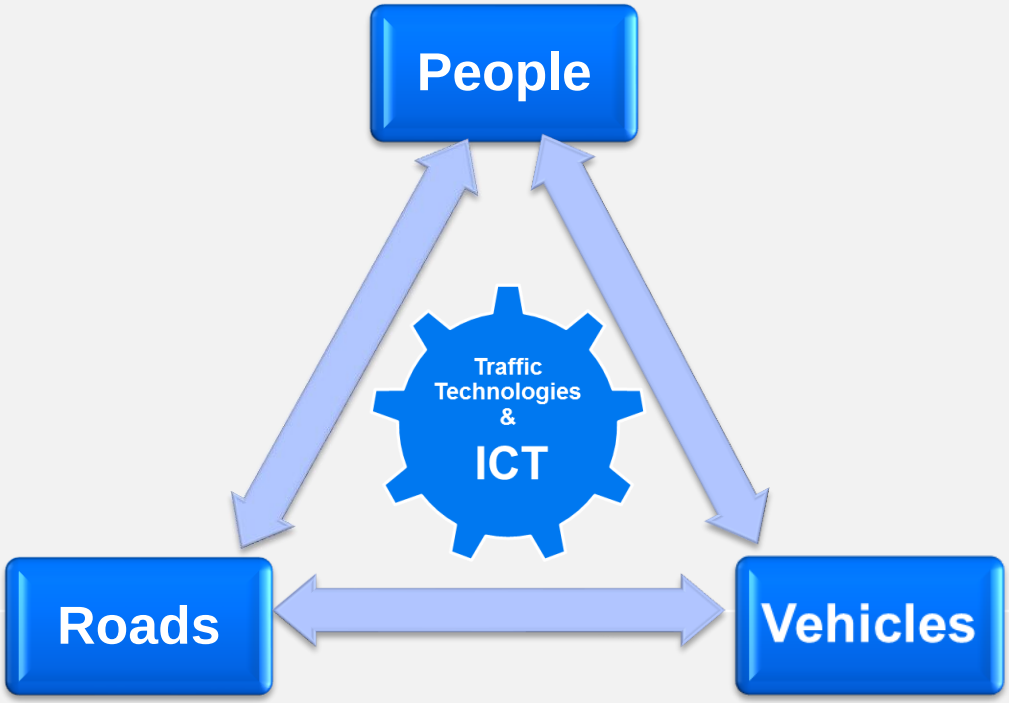
Damage to road infrastructure



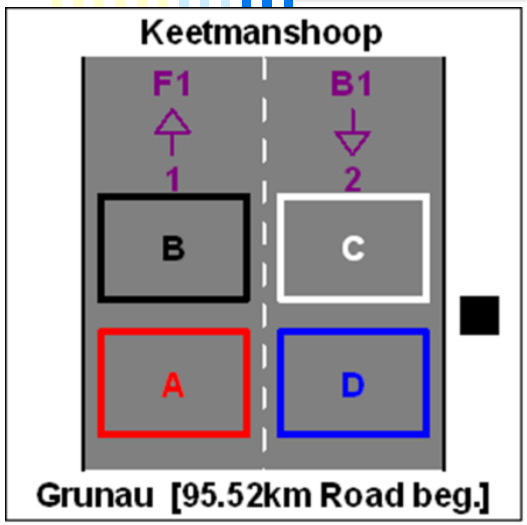
What is an Intelligent Transport System (ITS)?

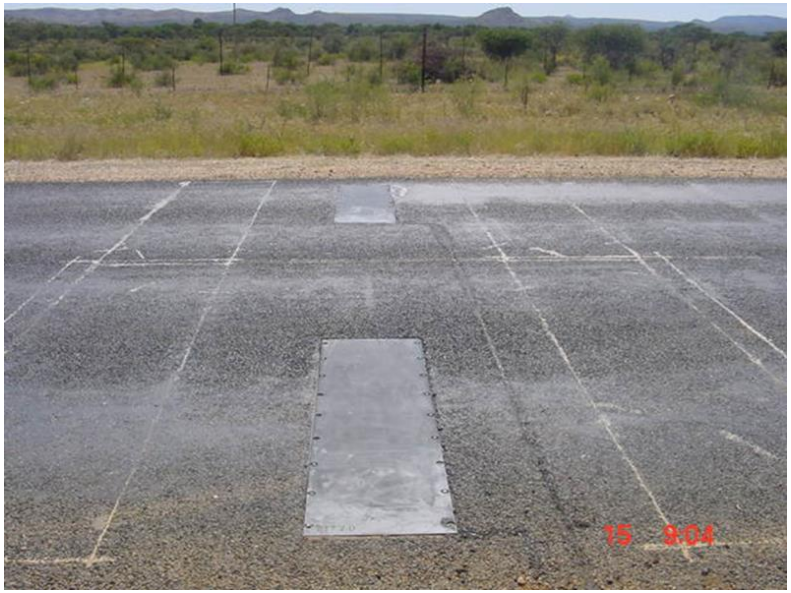
- Integrated application of advanced road traffic technologies in tandem with **ICT** to enhance **Safety & Efficiency** in the road transport sector.
- **ITS complements the RA's statutory mandate.**

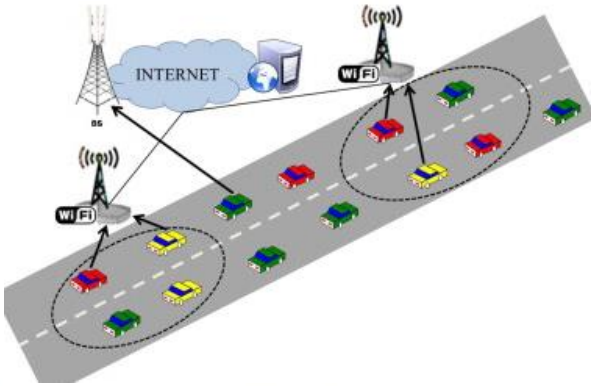
- **Components of ITS:**



Some Technologies used in ITS







Loops, Piezos, WIM, GPRS, TELEMATICS, FCD, V2V, V2I, RFID etc

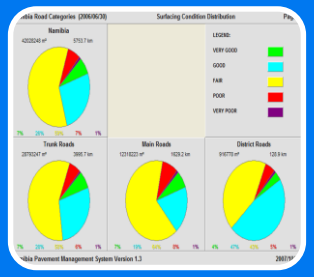
EXISTING CAPACITY IN RA: TSS

Establish/Repair Traffic Monitoring Sites

- Permanent and Adhoc Stations
- Install machines, Solar Panel, Battery, etc

Set up Machine and Extract data

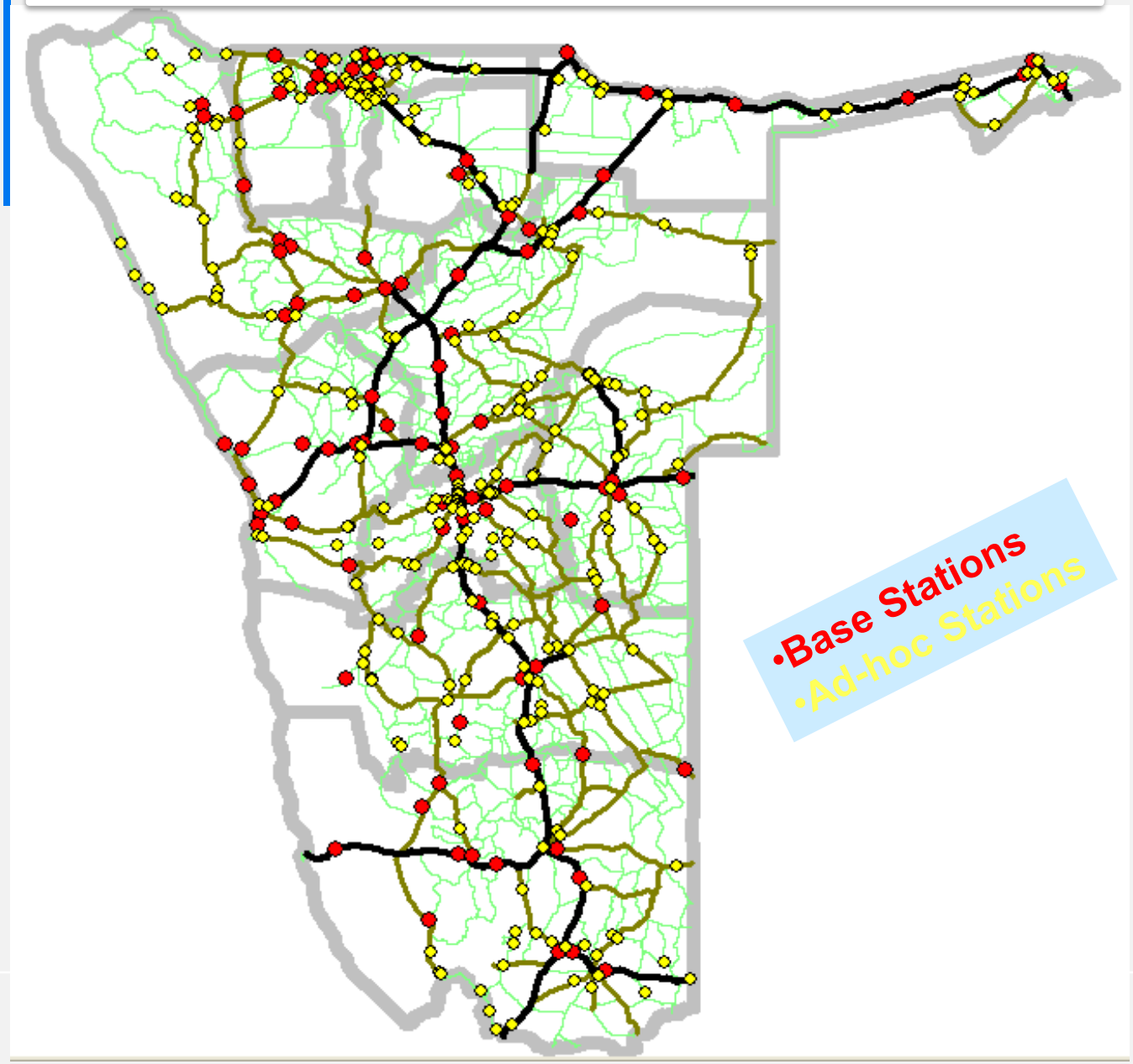
- Calibrate and Inspect
- Data collection (Milking)
- Remote access via **GPRS**



Analyse data and prepare reports

- To share with stakeholders
- To make various managerial and technical decisions

TRAFFIC MONITORING STATIONS



TRAFFIC DATA BEING COLLECTED AT THE STATIONS

- **Data:** Volume, Speed, Direction, Lane, Date, Time, Length & Class of vehicles (Light & Heavy).
- **Importance:** for road network management, planning, designs of roads, road safety studies, economic researches etc
- **Stakeholders** include Engineers, Economists, Traffic Law enforcement officers, Business community, Government agencies & NGOs, International Development partners etc
- **More benefits can be derived from developing the existing capacity further using ICT; hence the development of this ITS strategy.**

Live traffic view on Namibian roads

The way forward

- **TSS must not continue being a mere traffic data collection tool.**
- **It's high time for TSS to evolve to ITS** as RA and the nation at large need to tap into its potential benefits **especially for improvement of road safety**, **road infrastructure preservation**, crime prevention, road user charges and revenue collection.
- Reposition and upgrade already existing TSS capacity to realise ITS in Namibia.
- **Use traffic data in real time for road transport law enforcement purposes.**

Why do we need ITS for RA?

To realise the strategic **vision** and **mission of RA** in pursuit of Vision 2030 and NDPs

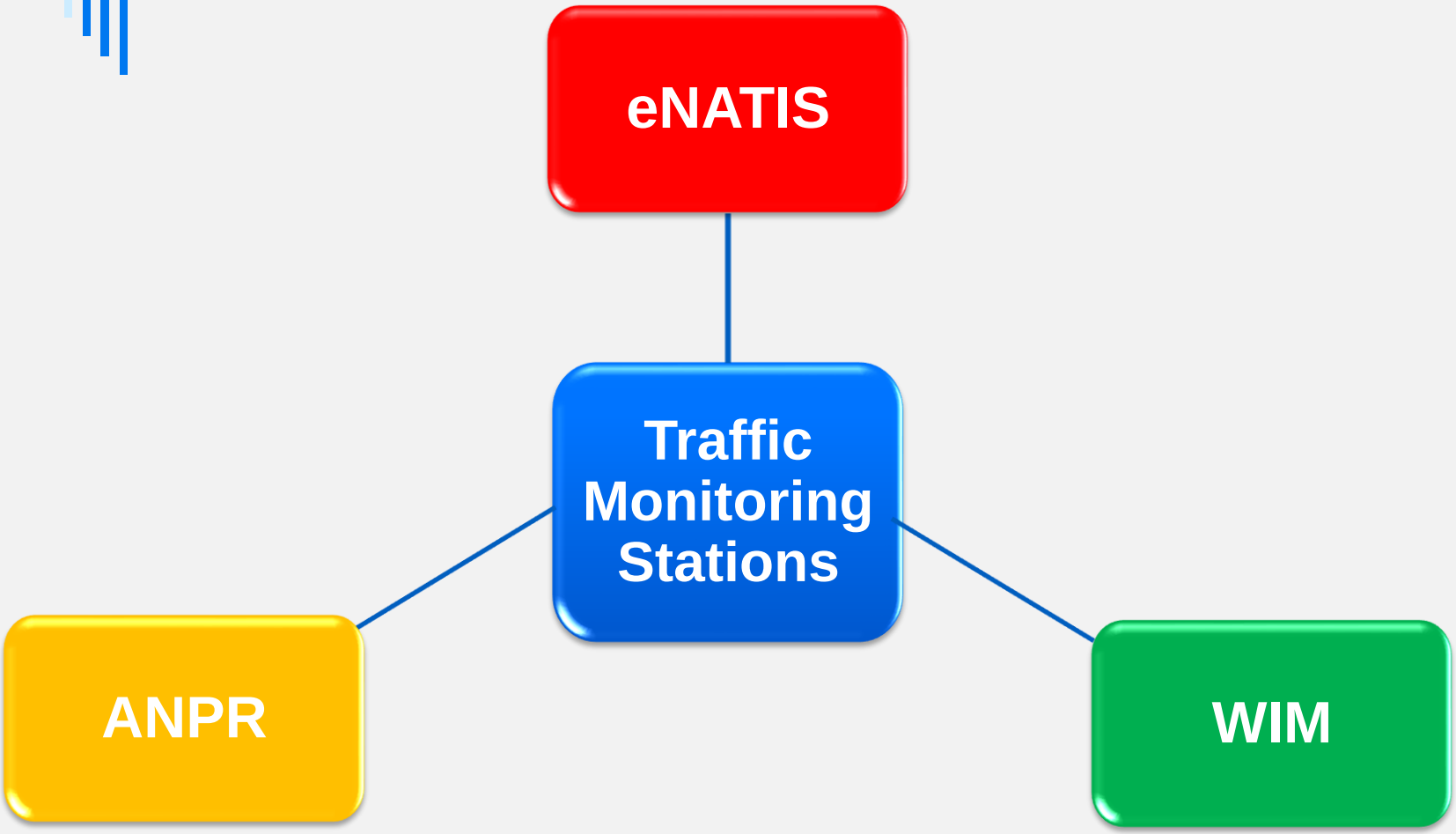
- **Safety**
- Efficiency
- Preservation
- Security
- Enforcement

- Enhanced traffic monitoring & control
- Stakeholder satisfaction
- Logistics hub of SADC
- Best roads in Africa

SAFETY, SAFETY, SAFETY!!

The ITS Strategy of RA 2018 - 2023

1. Weigh In Motion (WIM)
2. Average Speed Over Distance (ASOD)



Goal 1. WEIGH IN MOTION (WIM)

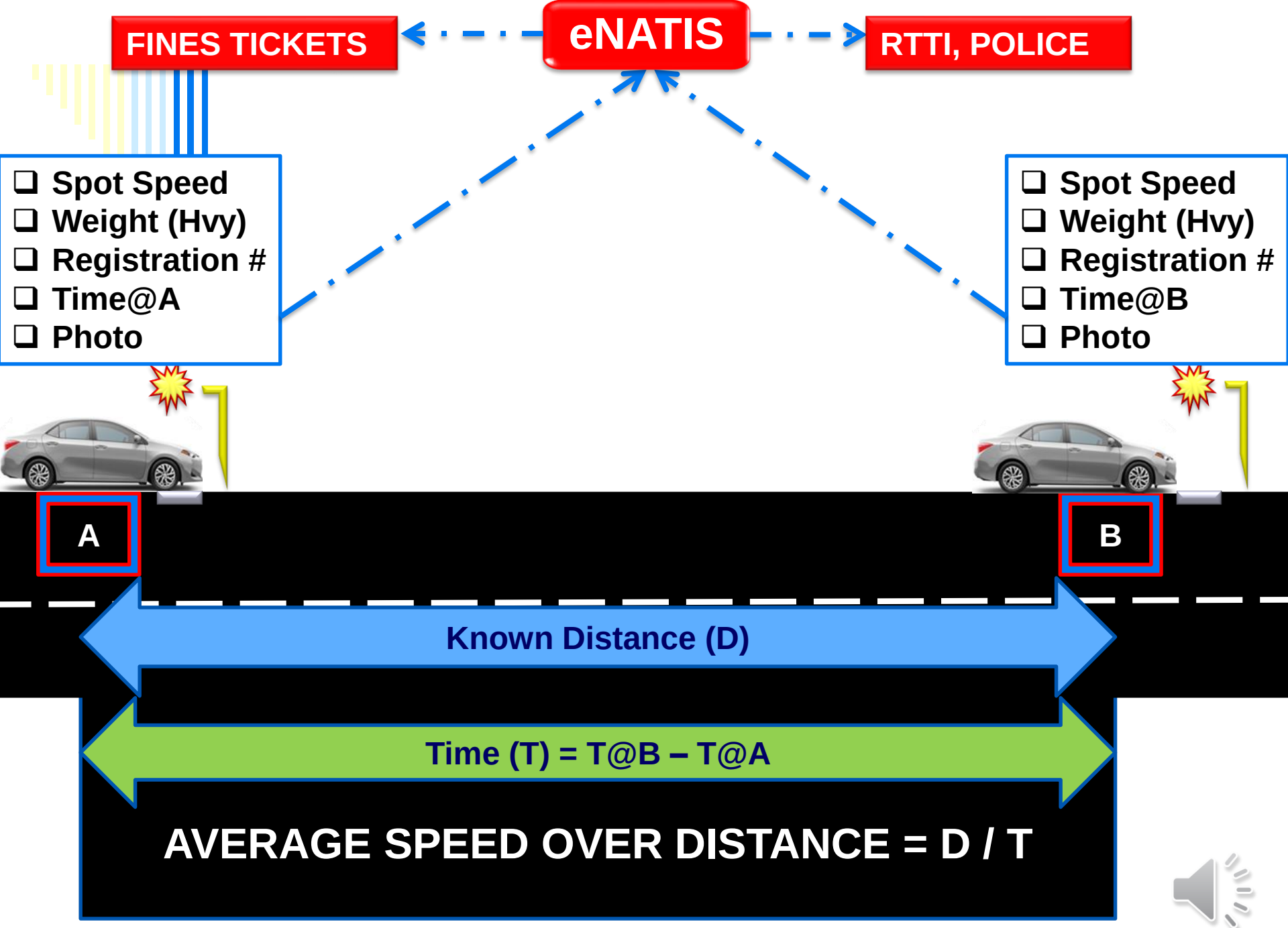
Economical, efficient and unmanned protection of roads from overloading.

- **Complement weigh bridge operations**
  - ***Screening of trucks for weighbridges. Keep records.***
- **Real time loading law enforcement by ANPR & WIM Bending plate**
  - ***24 hours; large area coverage closing escape routes; day and night enforcement in real time; ANPR photographic evidences.***
- **Improve road safety**
  - ***Overloaded vehicles pose risk to all.***
- **Pavement and Bridge management**
  - ***Axle load data for Designs & performance analysis***

Goal 2. Average Speed Over Distance (ASOD)

- Unmanned speed law enforcement 24/7
- Takes average speed over distance & at spots
- Identify vehicles with own unique speed limit
  - *Buses, minibus-taxis, trucks with own speed restriction*
- Compliments enforcement by mobile speed cameras
- Automatic Number Plate Recognition (ANPR)
  - *Vehicle road worthiness, licensing, theft, Warrants, Summons, NAMPOL etc status*
- Real time violation detection
- Photographic evidences
- Improves road safety enforcing traffic laws


AVERAGE SPEED CAMERAS IS WATCHING YOU
120
WARNING
Average Speed
Prosecution
120
Average Speed
120
Average Speed
Enforcement
Ave Speed
Enforcement
For 71km
Ave Speed
Enforcement
For 71km


FINES TICKETS
eNATIS
RTTI, POLICE
❑ Spot Speed
❑ Weight (Hvy)
❑ Registration #
❑ Time@A
❑ Photo
❑ Spot Speed
❑ Weight (Hvy)
❑ Registration #
❑ Time@B
❑ Photo
A
B
Known Distance (D)
Time (T) = T@B – T@A
AVERAGE SPEED OVER DISTANCE = D / T

BENEFITS OF ITS FOR STAKEHOLDERS

MVA Fund
The Motor Vehicle Accident of Namibia
Driven to lend a helping hand!

Road Fund Administration
Safety • Efficiency • Equity

NAMIBIAN POLICE

ROADS AUTHORITY

ITS POTENTIAL BENEFITS FOR RA

- Improve road safety
- Deter overloading
- Measure pavement performance (E80s)
- Enforce road transport laws smartly
- Enhance quality of traffic data
- Monitor traffic in real time
- Support weighbridges

ITS POTENTIAL BENEFITS FOR MVAF

- Minimise road crashes
- Minimise severity of injuries
- Determine cause of accident
- Keep record of offenders
- Monitor emergency response time
- Instil discipline among motorists
- Reduce expenses

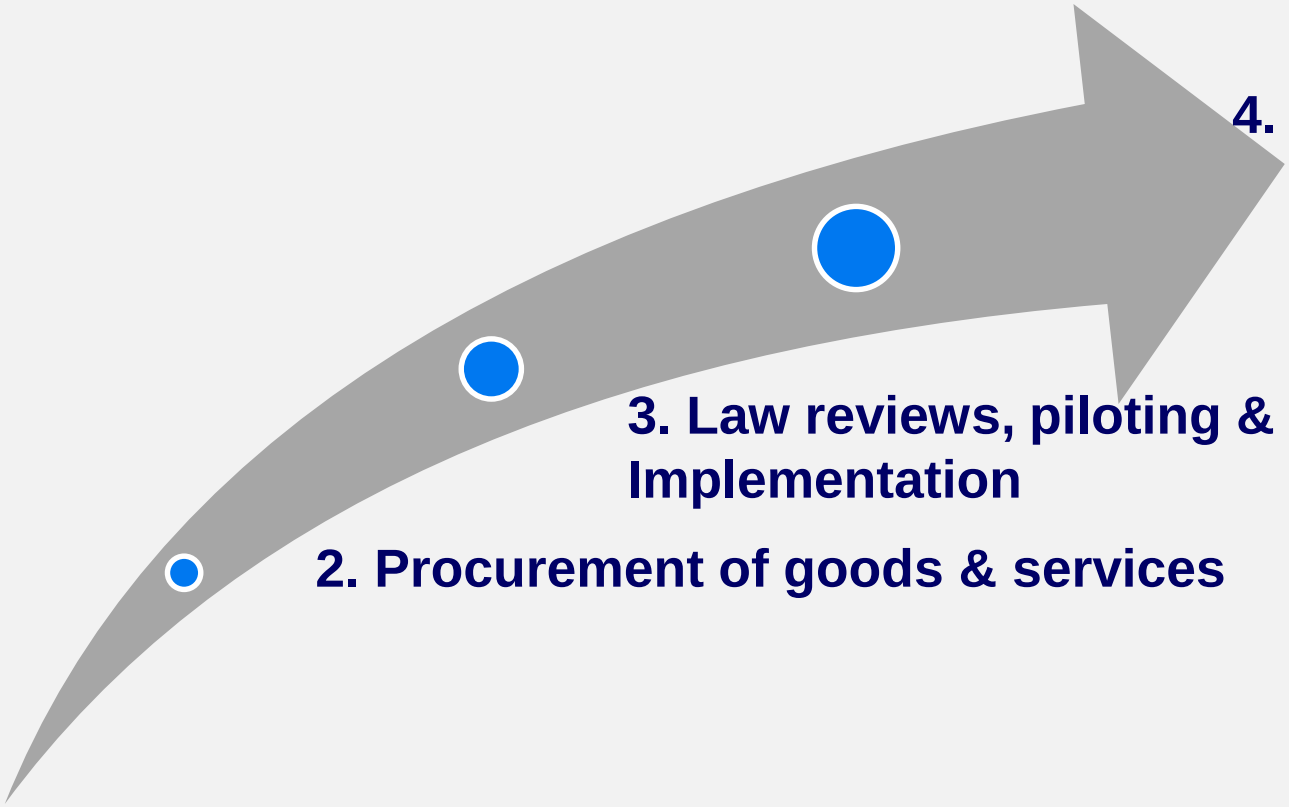
ITS POTENTIAL BENEFITS FOR RFA

- **Optimise revenue collection**
  - Mass Distance Charges
  - License fees
  - Traffic violation fines
  - Financial planning
- **Save costs**
  - Road maintenance
  - Weighbridge operations
  - Road accidents
  - Promotes honesty

OTHER POTENTIAL BENEFITS OF ITS INCLUDE

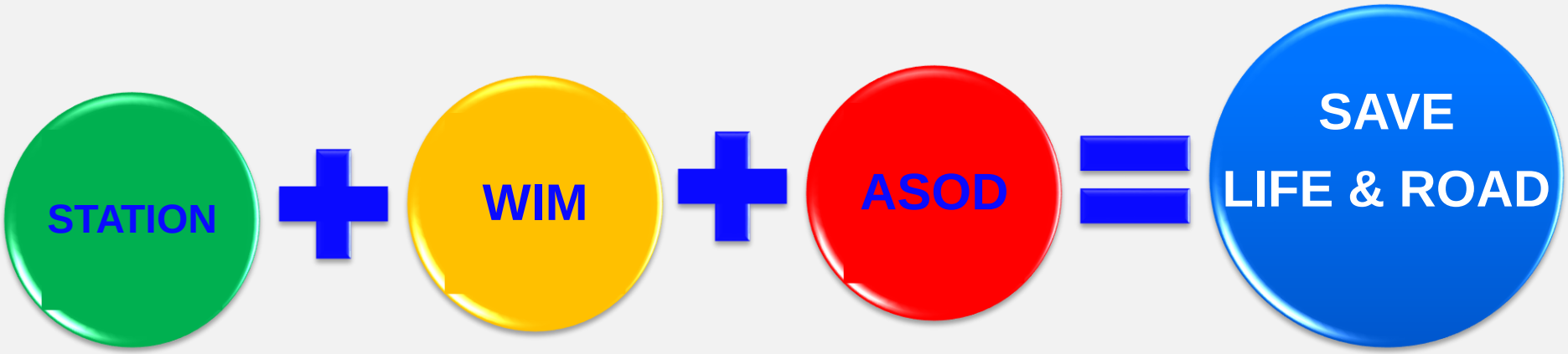
- Enhances smart policing
- Track criminals
- Assist road blocks
- Compliments existing speed cameras
- Promotes behavioural change
- Draws public attention to road safety

ITS STRATEGY FOR WIM & ASOD



1. Planning and consultations; Feasibility study that identifies and prioritise road links.

CONCLUSION



ICT is a great ally for road safety and efficiency. This ITS strategy can only be realised by the cooperation of the road safety stakeholders & the ICT sector. So let us work together!

Questions, Suggestions, Comments

Email: adamut@ra.org.na