

# Effective automated enforcement

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Philip J. Wijers - Director Government Affairs  
Sensys Gatso Group  
Chair IRF Road Safety – Enforcement Sub-committee



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# Presentation Outline

1. Background speeding
2. Road safety and speed management
3. Enforcement issues
4. Essential aspects
5. Enforcement models
6. Enforcement technologies

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# Background speeding

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- Expanding and upgraded infrastructure
- Improved vehicle quality and safety features
- Increased feeling of safety by drivers
- Average road network speeds increase
- Human psychology
- Limited driver awareness of the impact of speed



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# Traffic enforcement basics

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Do you remember physics?



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$$E_k = \frac{1}{2}mv^2$$

In which the kinetic energy of an object is equal to half the mass multiplied by the *squared speed* of that object.



# Traffic calming measures

- Infrastructure changes
- Vehicle technology (often EU led)
- Speed regimes and signage
- Education and publicity for higher awareness
- Enforcement

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# Essential preconditions

- Political commitment
- Suitable legal framework
- Solid vehicle owner and driving license administration
- Controlled license plate issuance, presence and readability
- Assure legal and data integrity
- Sufficient fine levels
- Early payment incentive, late payment penalty
- Suitable processing infrastructure
- Minimise court processing
- Small scale start-up
- Publicity, integrity, trust and public support



# The automated enforcement chain

- Detect
- Measure
- Decide on violation
- Register
- Transfer & store evidence
- Process evidence to ticket
- Issue and send ticket
- Receipt of ticket
- Provide evidence upon request violator
- Collect fines
- Remind violating party
- Court

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# Enforcement objectives and guidelines

- Reduce the average speed across various road types in the network
- Create an enforcement environment with a high subjective chance of apprehension (e.g. France)
- Use a wide range of enforcement technologies
- Avoid link with 'revenue generation' and 'taxes'
- Link violation with crashes and reinvest fines in road safety
- Actively communicate reasons, benefits & results of enforcement



# Operational automated enforcement models

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- **Traditional:** All government purchased, owned and executed.
- **PPP:** All privately purchased, owned and executed in a PPP model based on government set criteria and safeguards leading to violator paid road safety.



# IRF White Paper on PPP model Automated Traffic Enforcement



# Public Private Partnerships in Traffic Enforcement

*A White Paper from the International Road Federation*

**White Paper**

[www.IRFnews.org](http://www.IRFnews.org)

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02

# Fixed speed cameras

- Red-light enforcement
- Spot speed enforcement
- Combined red-light / speed
- Locations increasingly shared and known through technology



# Mobile speed cameras

- Spot speed enforcement by police
- Changeable location
- Surprise effect
- Police presence required thus labour intensive
- Set-up rules and procedures



# Semi-fixed enforcement

- Spot speed enforcement by police
- Variable location
- Situation related (road works, campaign)
- Some surprise effect
- Police presence no required
- Extensive set-up rules and procedures
- Battery life



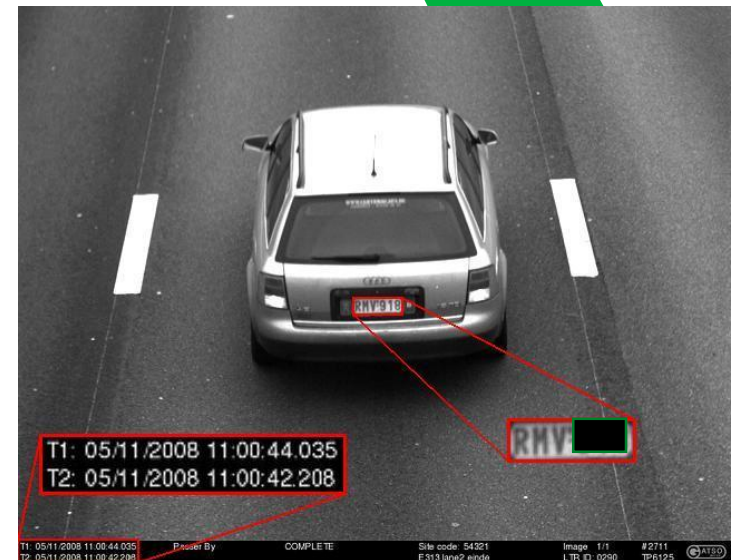
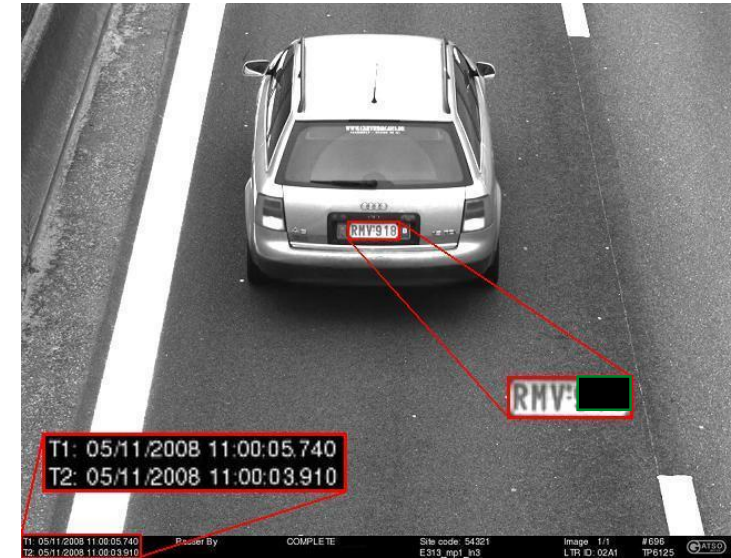
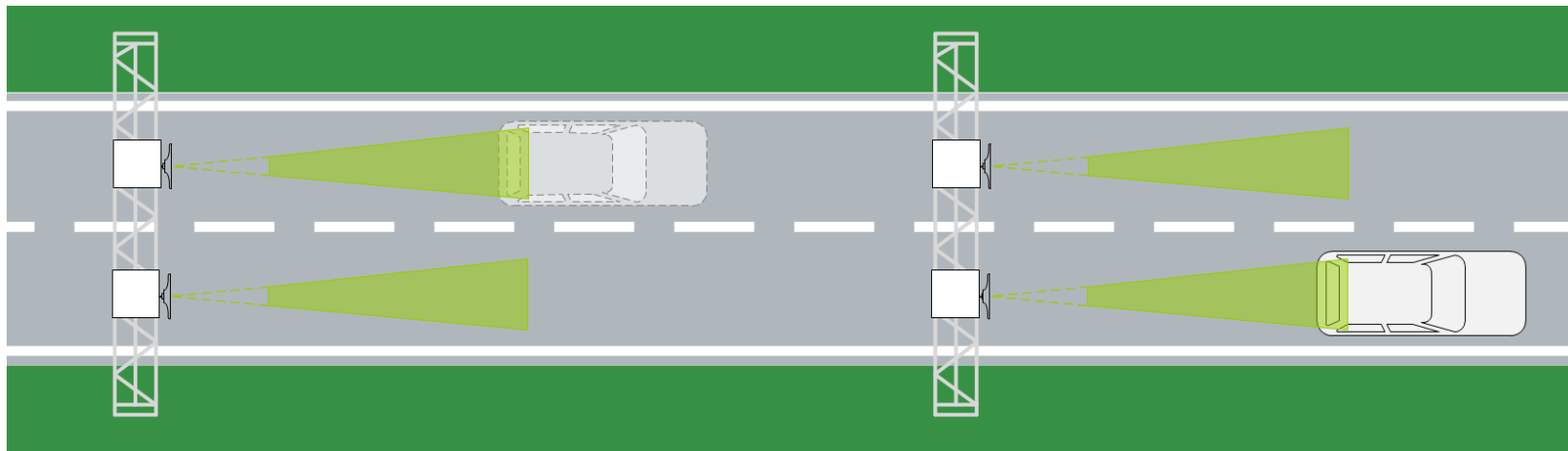
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# Average speed safety cameras

- Average speed enforcement





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# Moving speed enforcement

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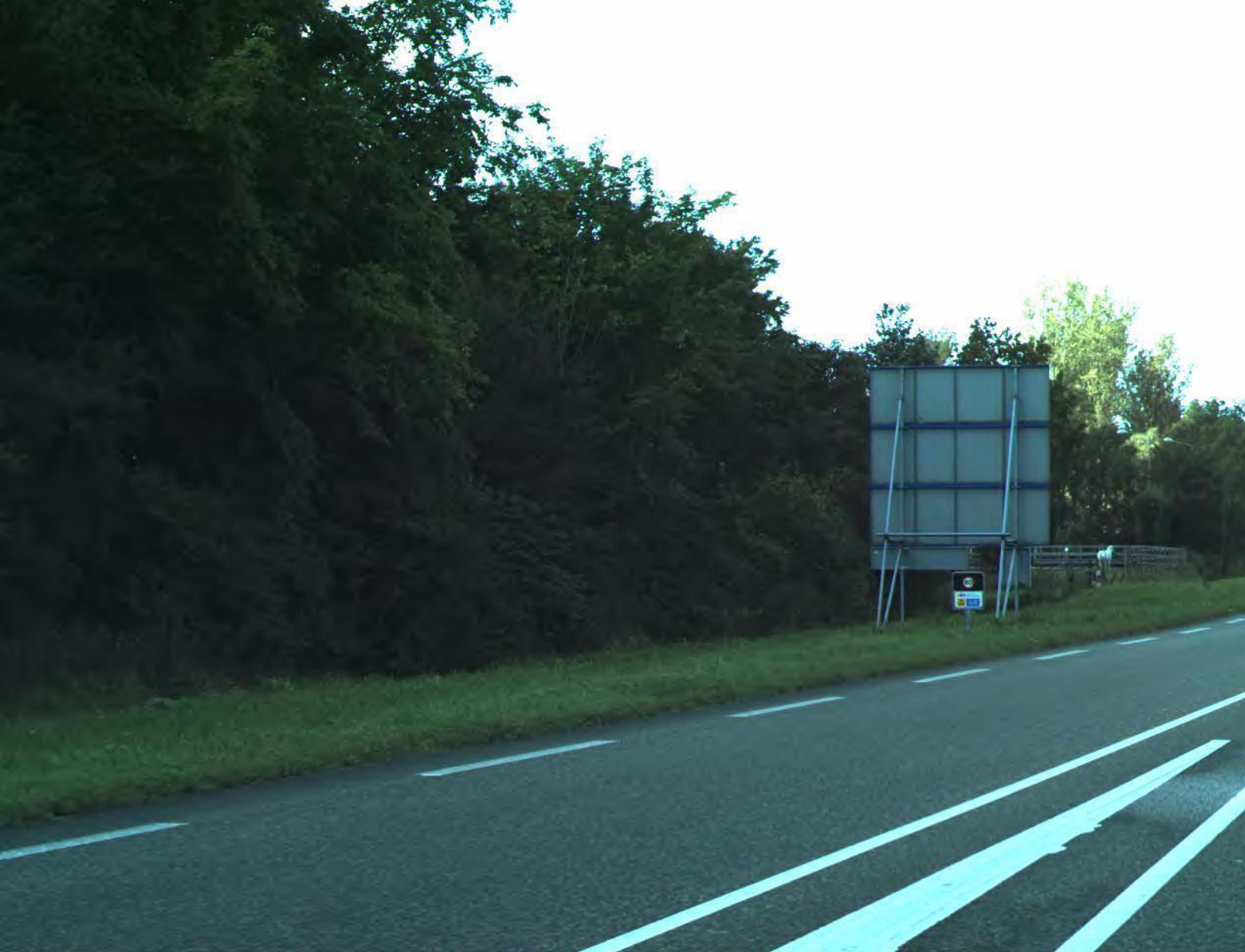


## » Key concept

- Unmarked vehicles (due to info on camera locations)
- Moving and stationary
- Approaching and receding

## » Advantages

- Surprise effect
- Effective and flexible operation
- Operational cost savings



Serial nr: **GATSO** Location: Gatso Date: 2012-09-12 Time: 13:49:37.602

nr	Date	Time	OffenceType	OwnSpeed	DifferentialSpeed	VehicleSpeed	VehicleDirection	Elapsed
# 382	2012-09-12	13:49:35.998	speed	71.2 km/h	147.3 km/h	76.1 km/h	approaching	1.604
# 381	2012-09-12	13:49:34.864	speed	72.4 km/h	135.6 km/h	63.2 km/h	approaching	2.738
# 380	2012-09-12	13:49:33.958	speed	71.6 km/h	152.3 km/h	80.7 km/h	approaching	3.644
# 379	2012-09-12	13:49:32.698	speed	72.2 km/h	152.2 km/h	80.0 km/h	approaching	4.903





Results: 15.1% casualty reduction within first 6 months

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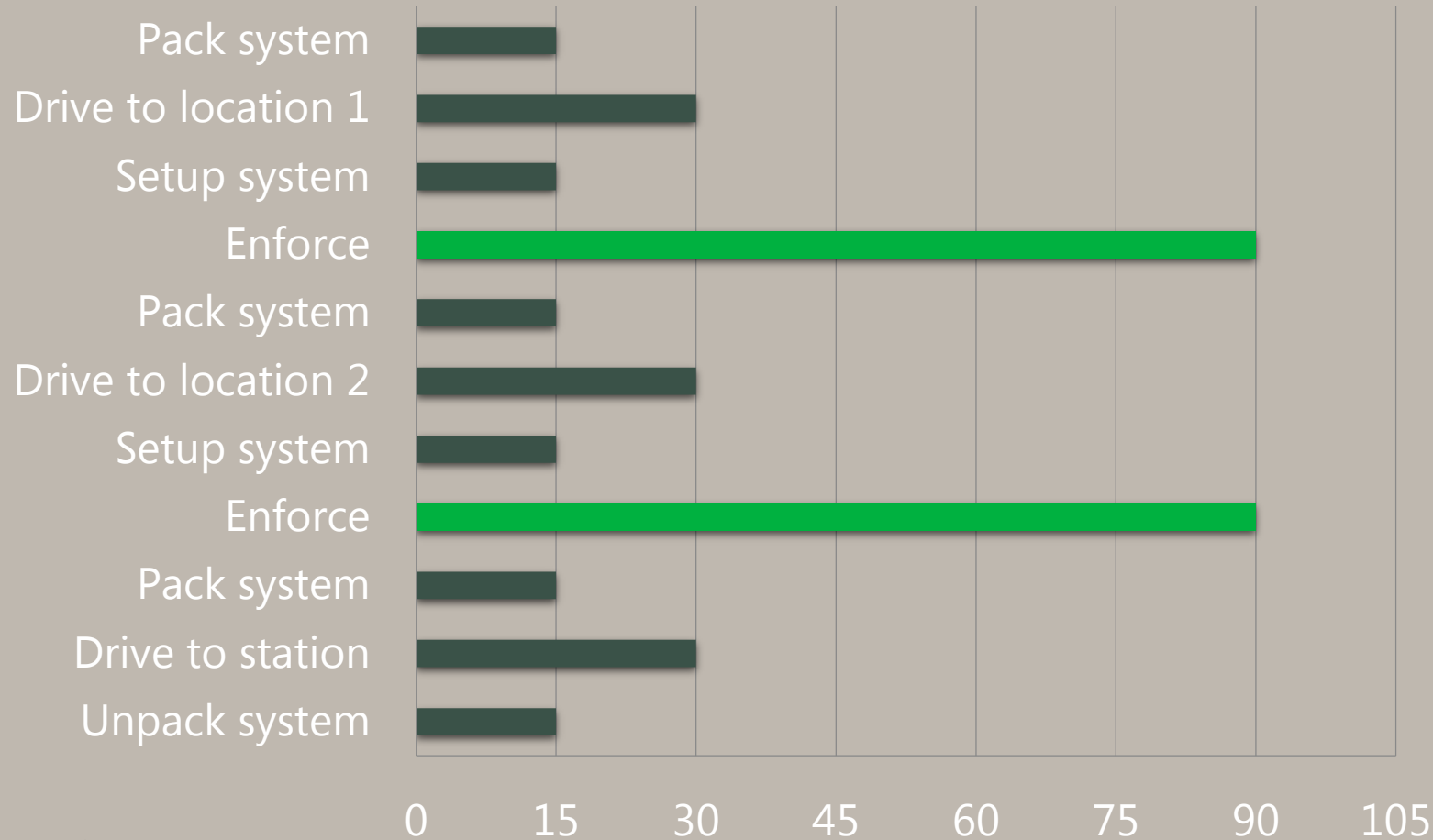
“ *Without the new mobile and moving speed cameras, we would not have seen such a reduction* ”

H.E. Manuel Valls - French Interior Minister  
(later Prime Minister)

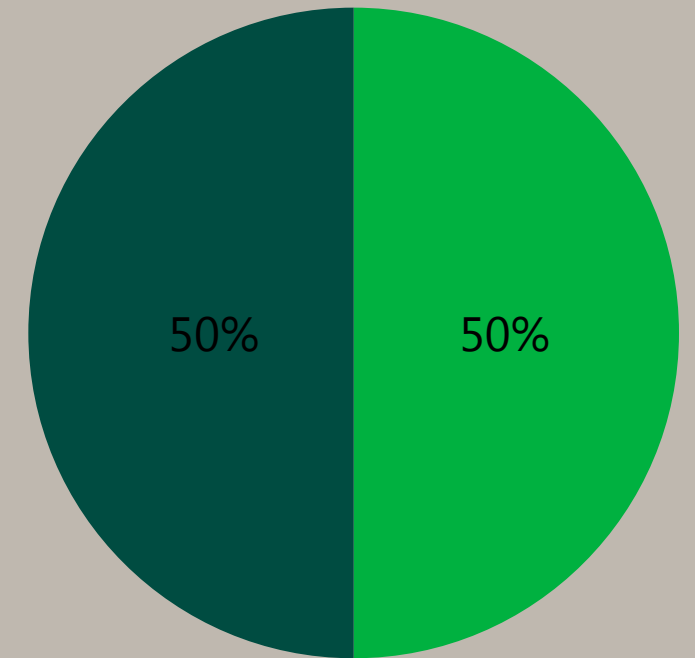


# Enforcement: efficiency

## Mobile system

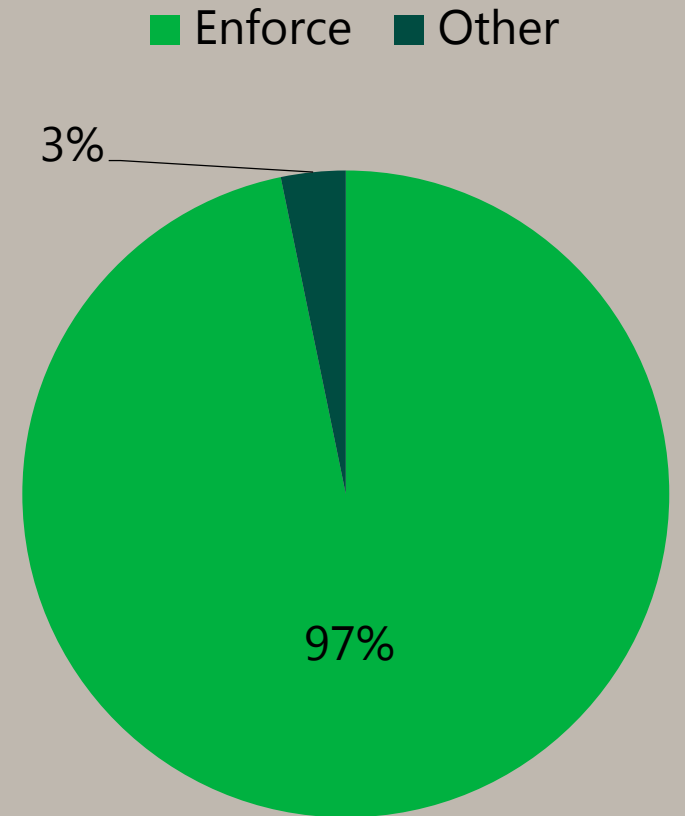
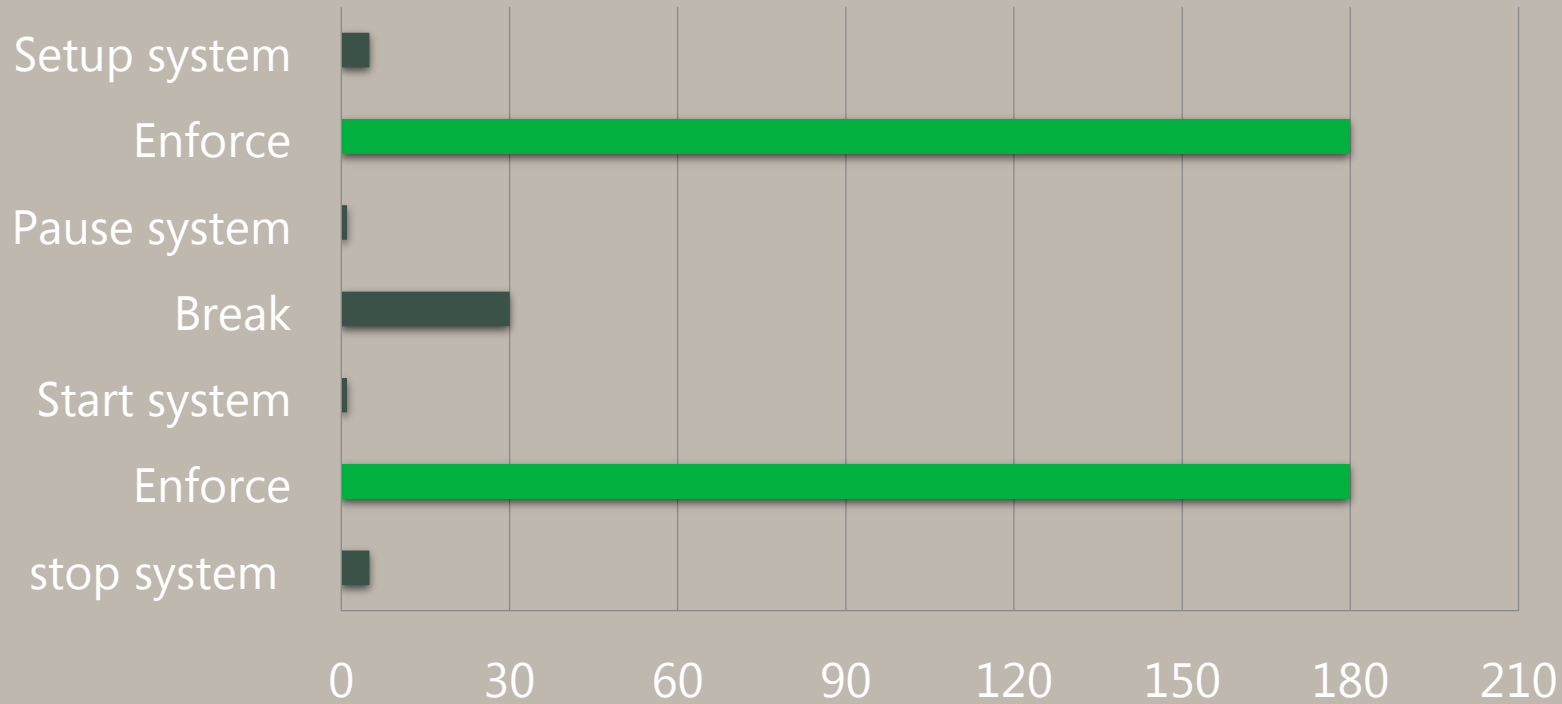


■ Enforce ■ Other



# Typical shift

## T-Series In-vehicle



# Key facts

- » **Gradual project approach by the client**
- » **Additional features implemented after initial delivery**
- » **450 systems delivered to date**
- » **Focus on high risk national and country roads**
- » **Optional: in-vehicle ANPR and black list (stolen, no PVI, no insurance, no road taxes, crime related, unpaid fines, anti-terrorism, etc)**

## Conclusion

- » **The use of a combination of overt and covert enforcement solutions can lead to significant road safety improvements.**
- » **To be combined with an multimedia campaign announcing programme, benefits and continuous updates on operational results.**
- » **To maintain public support fine revenue should be reinvested into road safety improvements and fine notifications should be road safety related.**



**Always remember:**



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$$E_k = \frac{1}{2}mv^2$$



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and use all speed management instruments to reduce the average road network speed.

Thus all Bulgarians will benefit from improved road safety and better quality of life.





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# Благодаря за вниманието

# Thank you for your attention



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