

How to create a Security roadmap for smart mobility projects and pilots?

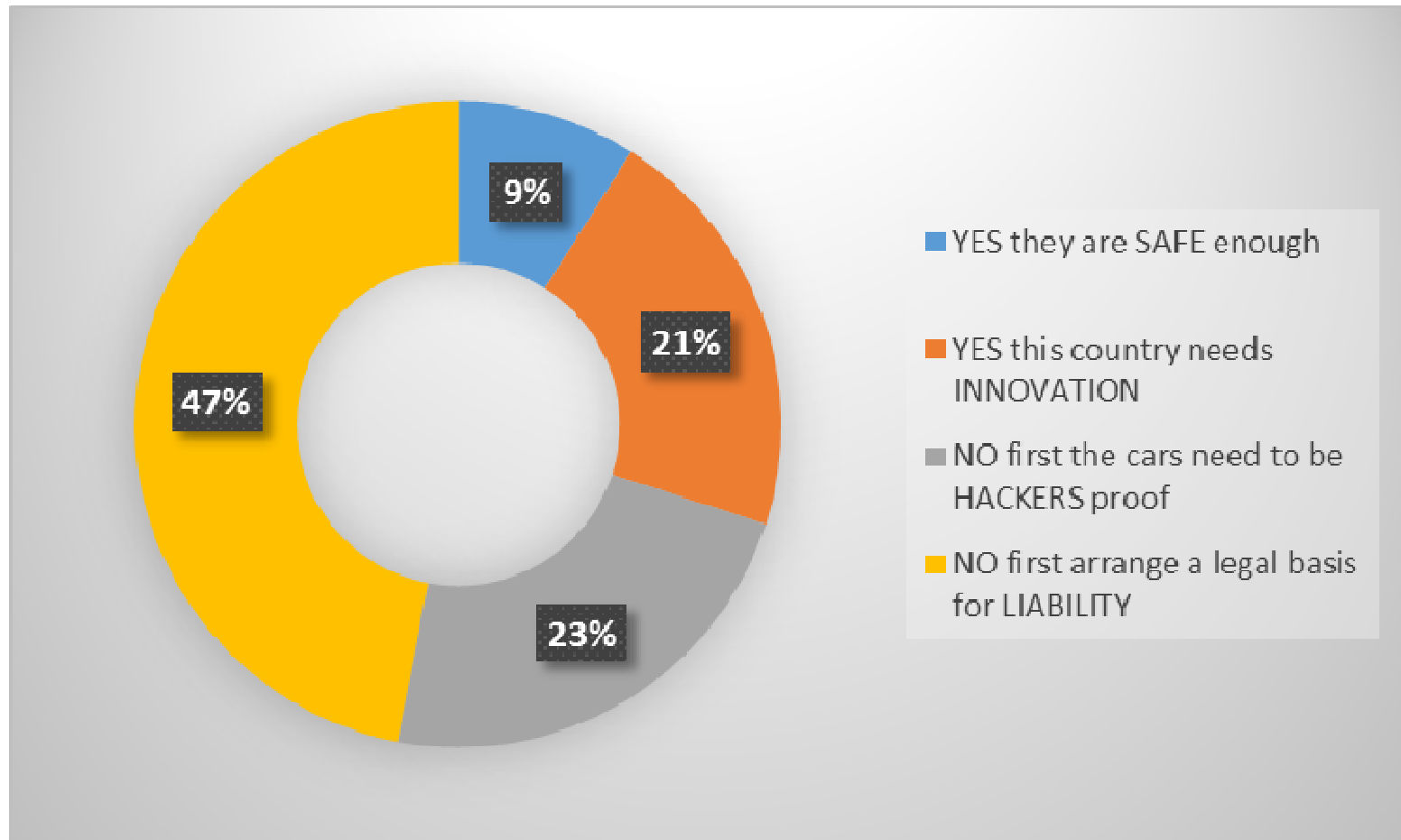
7 April 2016

Gilles Ampt
Chairman national ITS Security table
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Smart Mobility Solutions

→ **Should autonomous vehicles be admitted on our roads soon?**




Poll Financieel Dagblad 22 Sept. 2015 – 753 votes

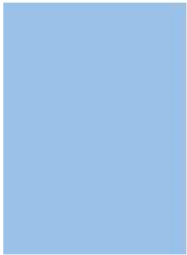




→ Outline

- What is Vehicle Security and what is ITS Security?
 - What are the main risks in ITS?
 - WHEN and how to address ITS risks?
 - Risk visualisation – Practical approach

 - Sharing best practices in ITS Security
 - Dutch National ITS Security round table
- 



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Security Experts Say That Hacking Cars Is Easy

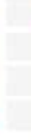
by Jonathan Vanian @JonathanVanian JANUARY 26, 2016, 6:47 PM EDT



New car features come at a cost

Automobiles may be getting more advanced, but that

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Vehicle Security = Control

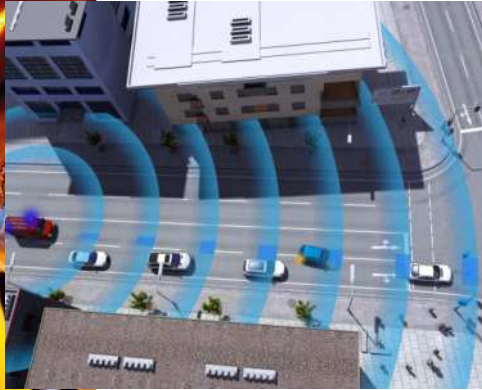
→ ***Risks of Connected Vehicles***

- Vehicle theft (digital attack)
- Motor management manipulation (unauthorized remote control)
- Data loss (privacy)
- Software updates (reliability, authorization)

- *Smart mobility and ITS (reliability of sensor data)*



→ The future of Cooperative driving



Emergency Vehicle



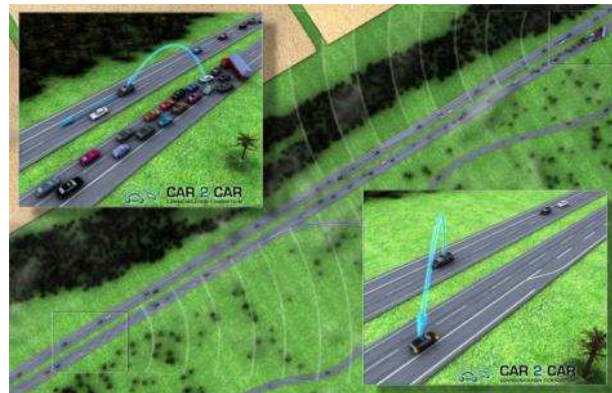
Green Light Optimal Speed Advisory



Hazardous Location Warning



Warning Lights on



Avoidance of traffic jams



Local Road Works Warning

→ Initial risks in V2X communications

Threats	Likelihood/ Impact/ Risk assessment	(ETSI) design requirement/ <u>Organisation Measure</u>
GNSS jamming and spoofing	critical	Monitoring. Robust design e.g. dGPS
Radio signal jamming	critical	Radio frequency agility and control
Message saturation	critical	Message frequency control and Authentication
Replay of expired/ old messages	critical	Message timestamps
Injection of false messages	major	Authentication and monitoring
Emergency vehicle masquerade	critical	Authorisation and authentication
Malware installation at ITS stations	critical	Secure design and certification
Eavesdropping, location tracking	privacy (legal)	Pseudonym certificates

→ When and how to address ITS application risk?

- Risk ownership
 - › delegation of risk would be window dressing
- Risk assessment
 - › repeatedly needed as risk landscape is evolving
- Legal compliance
 - › New EU privacy law (GDPR) demands risk based approach
- Security baselines
 - › Stakeholders require organisations to be in control
- New control set for ITS *communications*
 - › designed for C-ITS not yet for cellular ITS-applications

Risk is a management process

Risk is a choice of management



Secure

Continuous improvement

→ Risk management

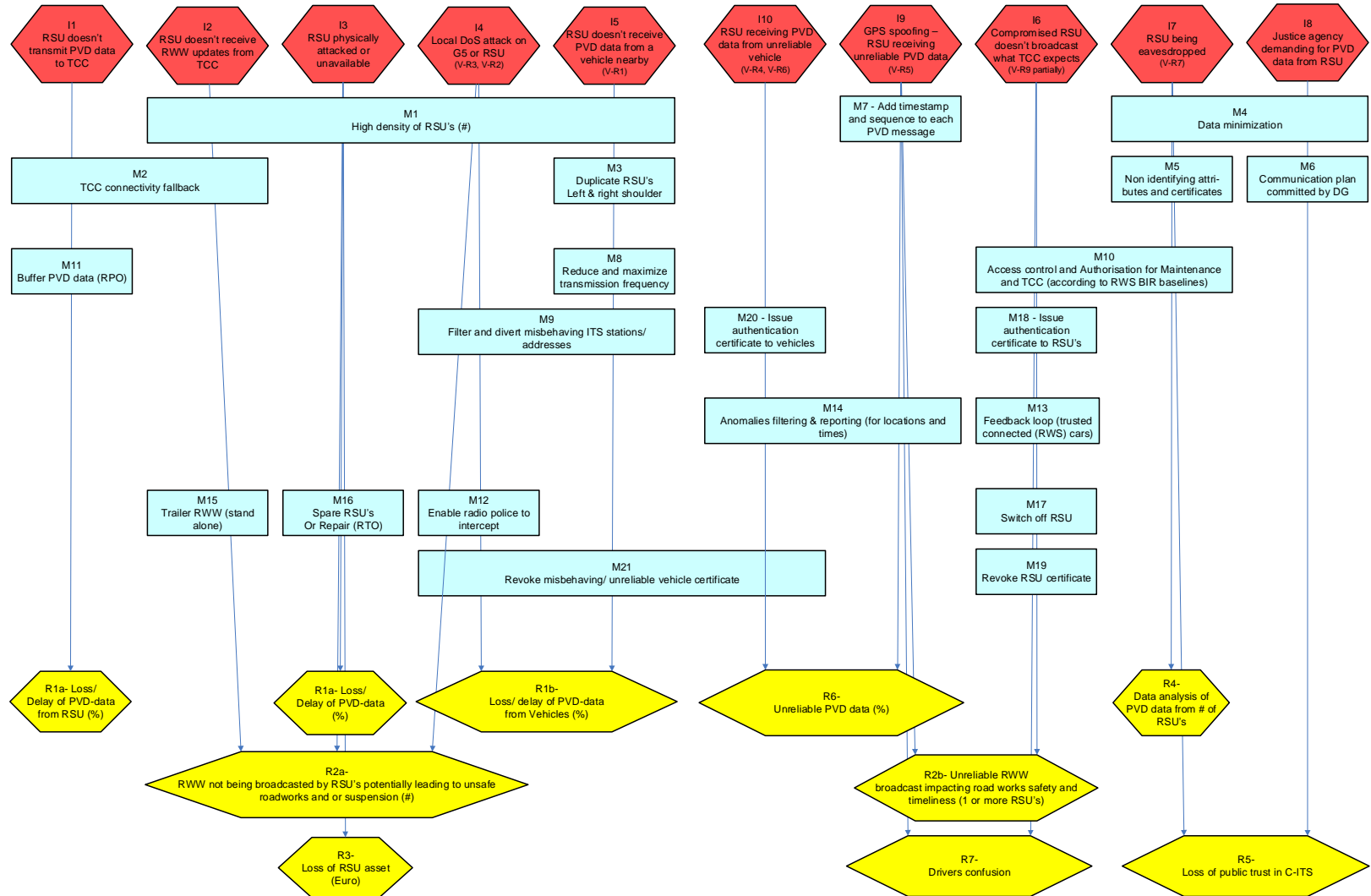
- Objective is being in control
- Know your risks: accept them or mitigate them
 - Assessment of assets and values
 - Stakes are availability, integrity and confidentiality
 - Business ownership
 - Insights in threats and impact
 - Mitigation options
 - Measures and controls
- Dynamic process
 - Threat landscape
 - Business impact
 - Evaluation of controls



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Continuous improvement

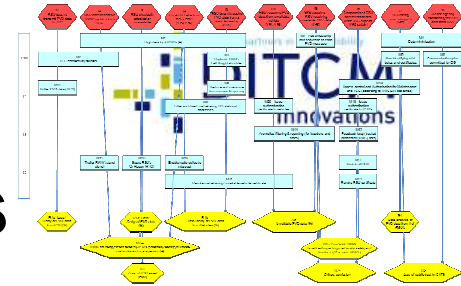
→ Risk Reduction Overview - Roadside



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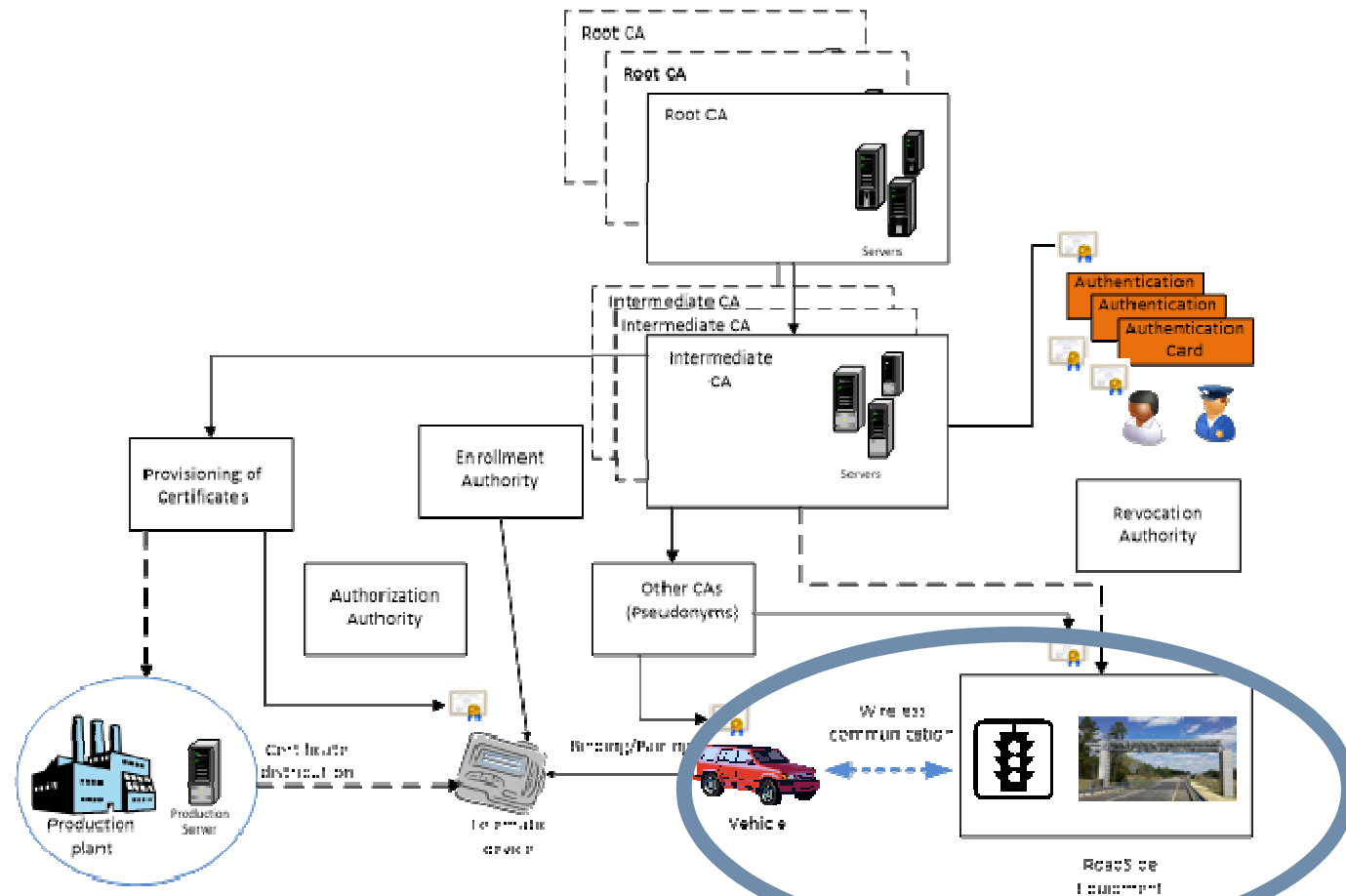
→ Risk Reduction Overviews



- Objective is to facilitate Management discussion and decision making
 - Give management insights (PICTURE)
 - Show initial risks and residual risk
 - Show strength and scope of measures
 - Balance costs of measures vs risk reduction impact
 - Design of balanced set of measures
 - › Preventive, detective and corrective actions
 - › Fail safe principles
 - Plan measures and control (time and budget)

→ How can V2V trust and V2I trust be built?

- PKI Trust model (EC C-ITS platform WG5)



National ITS Security round table

- Community of government, industry, research representatives
- Sharing best ITS security practices
- Action plan
 - Awareness raising campaigns
 - Security governance practices (ITS contracts)
 - Risk repository building and sharing
 - Learning experiences from C-ITS pilots
 - Standards and policies development (international and national)
 - Documentation and FAQs
 - Legal affairs liaison (privacy, liability)

Dutch C-ITS round tables

- Enabling topics for acceleration the implementation of large scale Smart Mobility Solutions.
- One place in NL where discussions takes place and decisions are made. National governance connected to international gremia.
- Topics: C-ITS Architecture, Dutch Profiles & Standardization, Security, Human Behavior vs. Smart Mobility, Effects of Smart Mobility, Legal Aspects of Smart Mobility




Useful links and addresses

- For RRO introduction (Risk Reduction Overviews)
- rro.sourceforge.net/tool
- For introduction to ITS Security governance guidelines (in Dutch)
- http://www.ditcm.eu/images/ITS_Ronde_tafel_Security/sessie_231115/vergaderstukken/Korte%20handreiking%20Security%20ITS-%2030%20november%202015.pdf
- Website <http://www.ditcm.eu/its-round-tables/security>
- Email to security@ditcm.eu to join or to submit your questions



→ Recap

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