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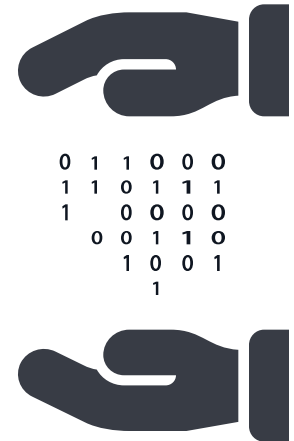
# Workshop “Hybride Communicatie”

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# Requirements in security and availability of a network

The conditions for a faultless, safe and stable operation of complex, networked systems are - in addition to measures of IT security - a high availability of the communication infrastructure and the necessary data and services. Among aspects that should be respected in safety-critical systems such as ITS are:

- Confidentiality,
- Integrity,
- Protection of privacy and
- Operational reliability with respect to demands of availability
- Fault tolerance,
- Redundancy and
- Real-time capability.



# Concepts of IT security

The terms safety and security mean two completely different things in IT. The term security summarizes all measures that protect the technical system against external attacks. The term safety encompasses all measures that contribute to operational safety; i.e. the protection of the system's environment from system failures.

For example, the protection from deliberate manipulation of Car-to-X messages concerns Security, whereas the protection from unintended mishandling or from dangers caused by technical faults -such as failure of a car-to-X communication system – concerns Safety

	Security	Safety
Concepts	<ul style="list-style-type: none"><li>• Data Protection</li><li>• Access Control</li><li>• Tamper resistance</li><li>• ...</li></ul>	<ul style="list-style-type: none"><li>• Back Up Systems</li><li>• Failure Management</li><li>• Tests</li><li>• ...</li></ul>
Method	<ul style="list-style-type: none"><li>• Encoding</li><li>• Authentication Mechanisms</li><li>• Access Management</li><li>• Certification</li><li>• Safety Check</li><li>• &amp; Logging</li><li>• ...</li></ul>	<ul style="list-style-type: none"><li>• Reliable Concepts</li><li>• Check of Input</li><li>• Operation manual in case of fraud (Fraud management)</li><li>• Logging of mistakes and causes</li><li>• ...</li></ul>
Security risks and violations	<ul style="list-style-type: none"><li>• Unauthorised access to data and information systems</li><li>• Attacks on IT</li><li>• Manipulation of Communication/ Datastream...</li></ul>	<ul style="list-style-type: none"><li>• Failure of technical components</li><li>• Faulty communication</li><li>• Error conditions caused by misuse and wrong reaction</li><li>• Protection of endangered areas</li><li>• ...</li></ul>

Concepts of IT Security & Data Safety

# Assumption

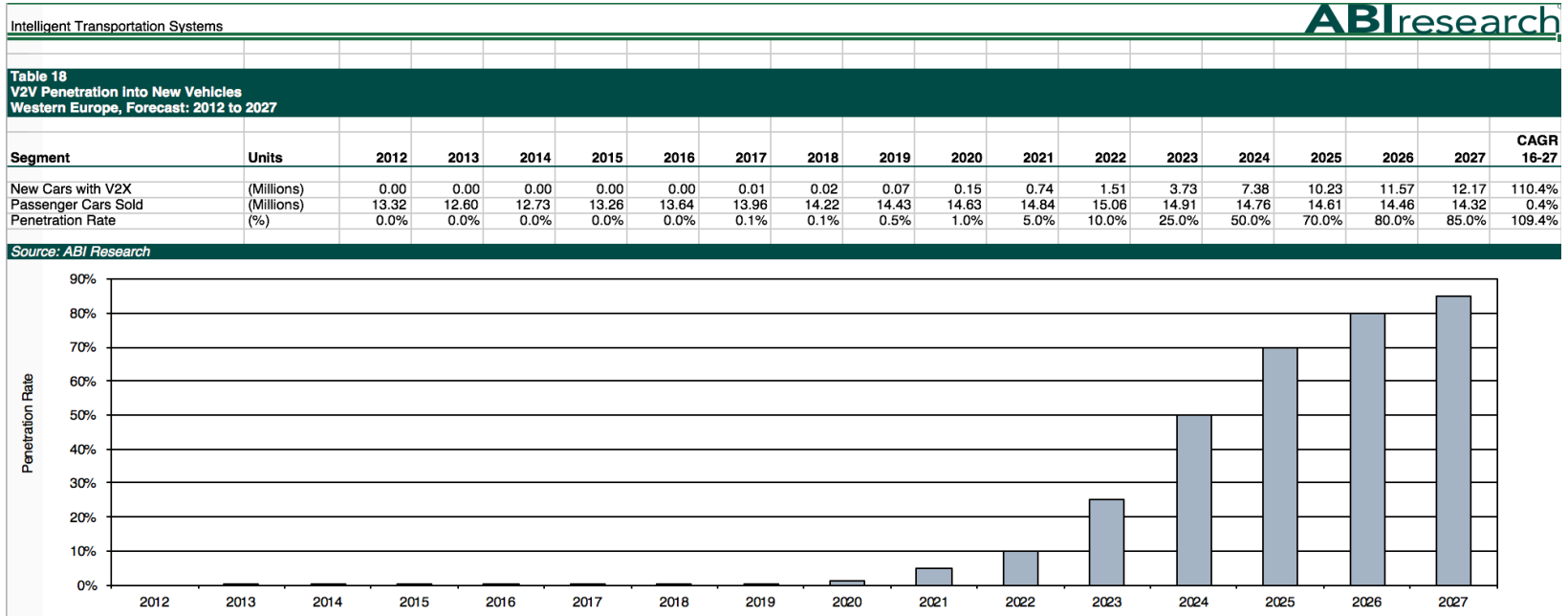
Comparing communication technologies in terms of transmission quality, WLAN provides a very low latency at high data rates and moderate reliability. Mobile is indeed complementary with a very high data rate, moderate latency and high reliability. And finally, Broadcast distributes traffic information with very high reliability, low data rate and moderate latency. The quality of the transmission can thus be subsumed as being high for WLAN, moderate for Mobile and Broadcast. It should be emphasized that this comparison is made only in relation to the requirements of current applications.

	WLAN / DSRC	Mobile Radio	Broadcast
Focus of application	Security, Sustainability	Sustainability, Comfort	Comfort
Relation to infrastructure	high	low	low
Communication direction	Bidirectional	Bidirectional	Unidirectional
Direct/indirect Communication	Direct (eg. via Relays)	Indirect (via Infrastructure)	N/A
<b>Transmitting quality</b>			
Latency	very low	low	moderate
Data transfer rate	high	Very high	low
Reliability	moderate	high	very high

Comparison of existing primary communication technologies



# Forecasts on V2V (DSRC) equipped vehicles shows that a relevant set of vehicles will be on the road not before 2025



## Key takeaways

- Independent from the underlying network there needs to be an access point to get and deliver relevant data in time to fuel the different services
- Reliability, availability and integrity of the network and services must be given

Thank You