UNECE regulatory developments on Cybersecurity and OTA

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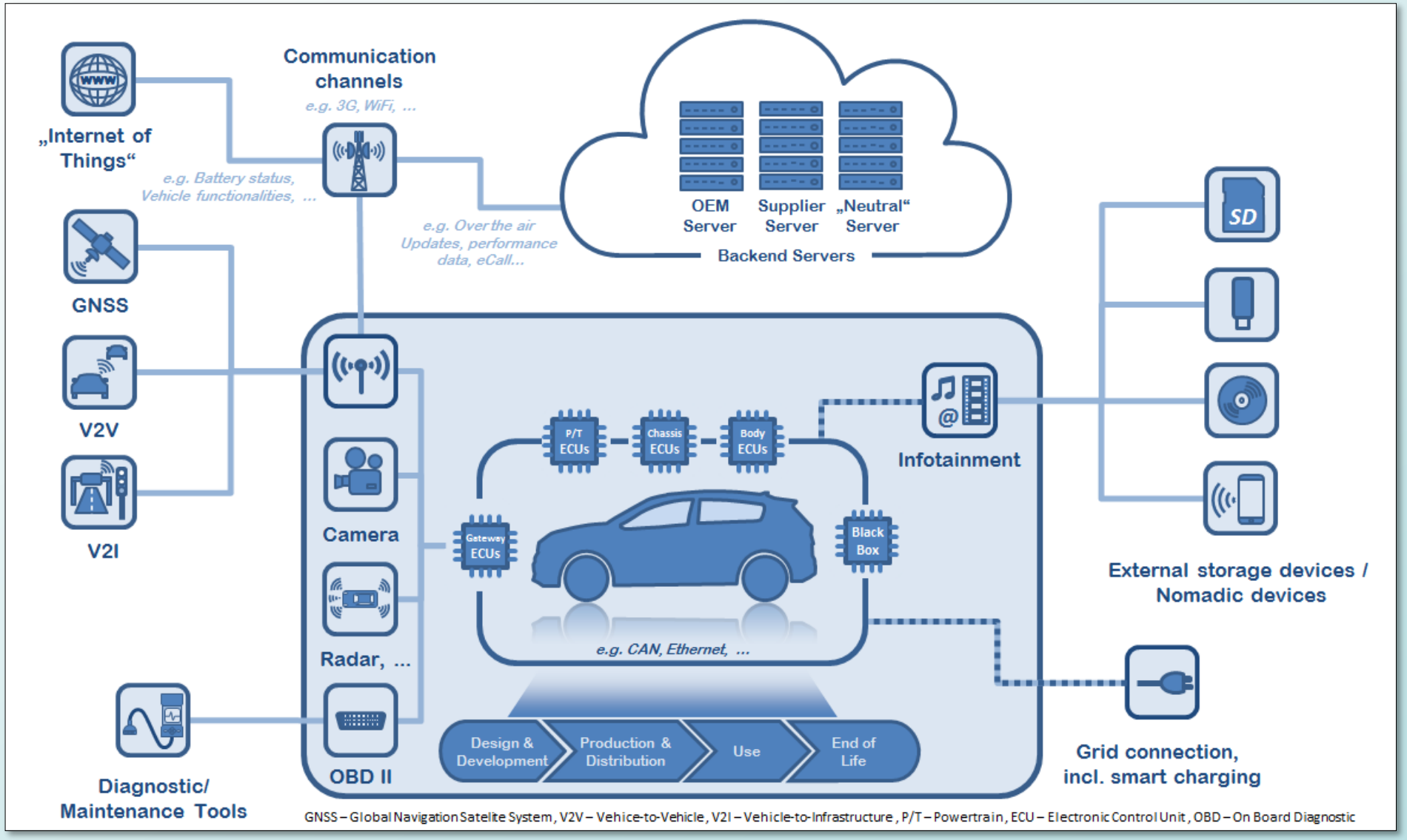
PSA GROUPE

Introduction

- Necessity of Software Updates
  - New functions and services of the **connected vehicle**
  - Necessity to update software on vehicles **during the whole vehicle life**
  - Some vehicle manufacturers (Tesla) make already SW updates OTA Over The Air in order to **add new ADAS functions** on **already registered vehicles**
- Risk of cyberattacks
  - Security impact: Hacker may get access to **private data** or may **manipulate** existing vehicle software
  - Safety impact: Hacker may use vehicle as weapon for **criminal actions** / terrorist attacks
  - Economic impact
    - Worldwide cybersecurity market: 3,1 billion € (2004), 67 billion € (2015) and 152 billion € (2020 forecast Gartner).
    - Automotive cybersecurity market: about 683 M € in 2023 (IHS Markit)
    - Example for economic risk: 1.4 M Jeep Cherokee recalled after successful attacks + cost of the class action which is still ongoing

Cybersecurity concerns the **whole vehicle**

Example for risks of unsecured access :



⇒ **Cybersecurity cannot be covered by certification of only some specific components**

Global Automotive Standards and Regulations to address Cybersecurity and SW updates

UN / WP.29 – World Forum for Harmonization of Vehicle Regulations

› Draft Proposal to introduce Regulations on Cyber Security and Software Updates

ISO TC22/SC32/WG11 - Cybersecurity

› ISO/SAE 21434 Cybersecurity Engineering

ISO TC22/SC32/WG12 – Software update

› ISO 24089 Software Update Engineering

National Discussions

› Germany VDA QMC

› UK BSI PAS 1885:2018

› …

European Union

› Cybersecurity Act

› General Data Protection Regulation

› NIS Directive

› Draft C-ITS Delegated Act

China

› Cybersecurity Law

› Encryption Law

› SAC/TC 114/SC 34/WG Cyber

Regulation American Market

› NHTSA Cybersecurity Guidelines

› Draft SELF DRIVE Act

› Draft AV START Act

=> The UN Regulations will be the first regulations worldwide on automotive Cybersecurity and SW updates

OICA created “Cluster 4” in order to follow the UN activities

Subgroup Cyber Security / OTA

Pilot: Kai Zastrow, PSA

Active members (attend UN + OICA meetings):

Mark Grainger, SMMT
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Erika Apro, Mazda
Jens Schenkenberger, Hyundai
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René Nulens, Toyota
Tatsuya Ota, JAMA
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Eva Meier, Audi

Members to be kept in info loop:

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Joost Vantomme + Jocelyn DELATRE, ACEA
Paolo Alburno, Erik Vandervreken, CLEPA
Tim Vink, Honeywell
Tan Xu, CAAM
Thomas Goldbach, Opel
Torbjorn Andersson, Autoliv
Harry Lightsey, GM
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Tech. Expert Group Cyber Security

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Shigeyuki Kawana & Hiroshi Honda, Toyota
Christian Urban-Seelmann, Wabco
Markus.Tschersich, Continental
Christophe Jouvray, Valeo
Jacques Kunegel, Actia / PFA
Robert Rohr, Matthias Hense, BMW
Alessandro Farsaci, IVECO
Dominique Roudink, Xin Ye, Catherine Keen, Ford
Jansson, Tania Ottebrink, Volvo Cars
Di Jin & Alan D Wist, GM
Rob Hare & Mitsuhiko Kikuchi, Nissan
Masahiro ODA, Denso
John Ellam & Steve McCabe, JLR
Alex Frost, Bentley
Jianzhong Huang, SAIC Motor
Markus Mitropoulou, Veoneer

Members to be kept in info loop:

Albert Held & Jan Waldmann, Daimler
Bernd Lutz, Sabir Idrees, Werner Mueller, Bosch
Pierre Gachon, Renault

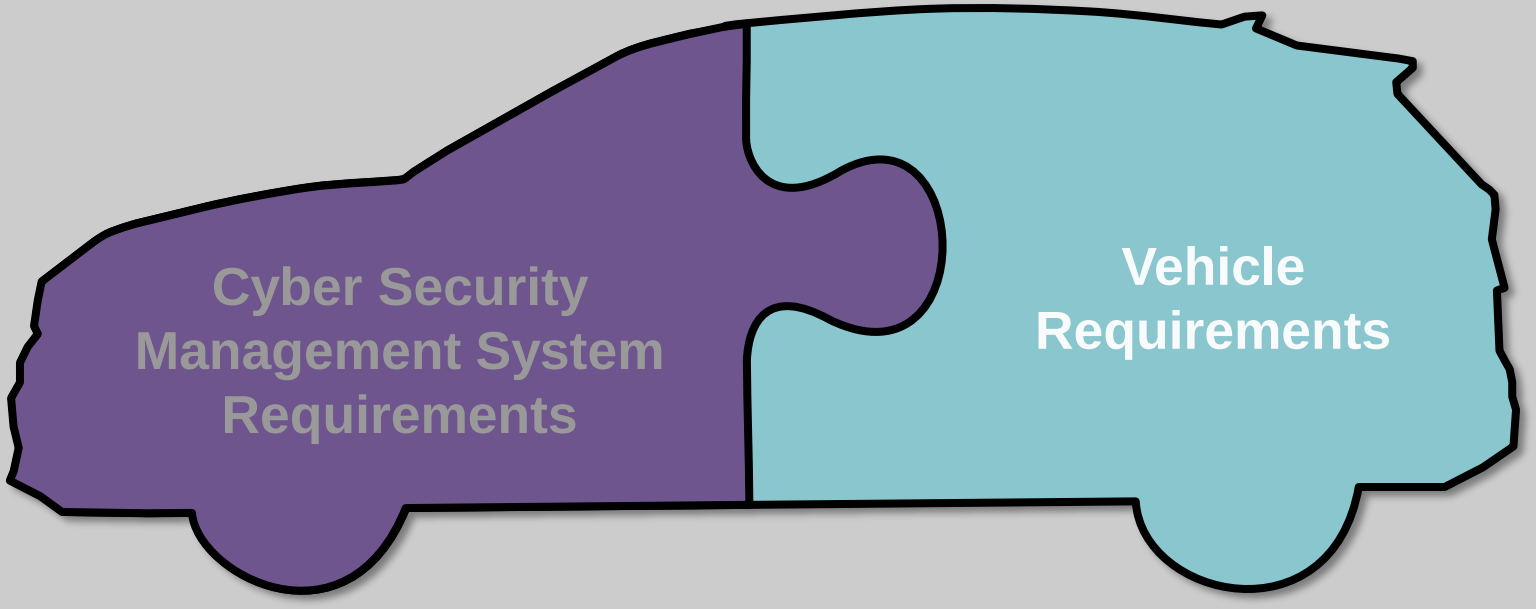
=> Large number of experts from manufacturers and suppliers all over the world.

UN Regulation on Automotive Cybersecurity

Split approach for the cybersecurity assessment:

i) Assessment and certification of vehicle manufacturer **cybersecurity management system**

ii) Assessment and certification of **vehicles**



Organizational structure & processes

Design of the vehicle EE architecture, risk assessment and implementation of mitigations

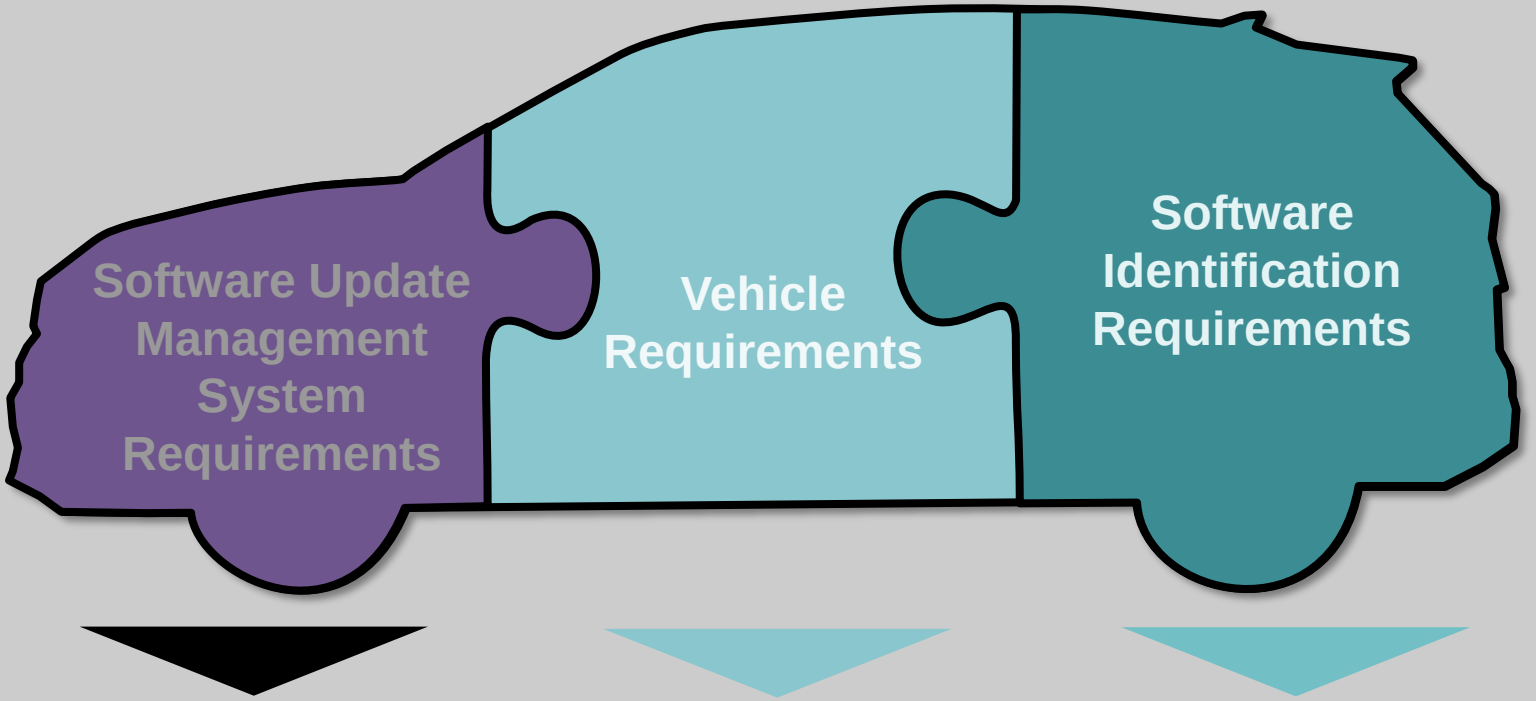
UN Regulation on SW updates

Split approach:

i) Assessment and certification of vehicle manufacturer **SW update management system**

ii) Assessment and certification of **vehicles**

iii) Implementation of **software identification number** for each regulation (RxSWIN)



Test Phase of draft UN Regulations

Scope: 2 draft UN Regulations on Cybersecurity and SW updates

Test phase:

- Participating Authorities / Technical Services:
  - France, Germany, Japan, Korea, Spain, The Netherlands, UK
  - DEKRA, Epoche, Idiada, RDW, Secura, TÜV Nord, TÜV Rheinland, TÜV Süd, UL, UTAC, VCA …
- Over **15 vehicle manufacturers** (of categories M and N)
- From February to August 2019

Aim:

- Verify the **robustness** of the **draft regulations** (not of the tested vehicles)
- Verify that **different approval authorities** / technical services **reach the same conclusions** for the **same vehicle manufacturer**

Results:

- Report on Test Phase (see WP29-179-24)
- Interpretation documents
- Draft amendments to current texts

=> The regulations work and will provide value

Milestones for implementation of UN Regulation

- Test phase with some authorities and some vehicle manufacturers to test and fine-tune the draft text — February – August 2019
- GRVA decision on content of the final text for UN Regulation — February 2020
- Formal adoption by UN WP.29 of the UN Regulation — June 2020
- Entry into force: legal act is available for application in UN Member States — December 2020
- Contracting Parties require those legal acts for whole vehicle type approval / whole vehicle certification
  - Japan - 2020 for automated vehicles SAE level 3 or higher
    - 2022 for all vehicles with Over The Air update capability
  - European Union - June 2022 for new EU Whole Vehicle Types
    - June 2024 for new registrations in EU
    - SW update regulation probably 1 year later (2023 / 2025)
  - Other countries (Korea (guidelines), Australia, Russia, etc.)

dates are estimations

=> Main challenge: Finalize the UN Regulation on time

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Cybersecurity situation in China

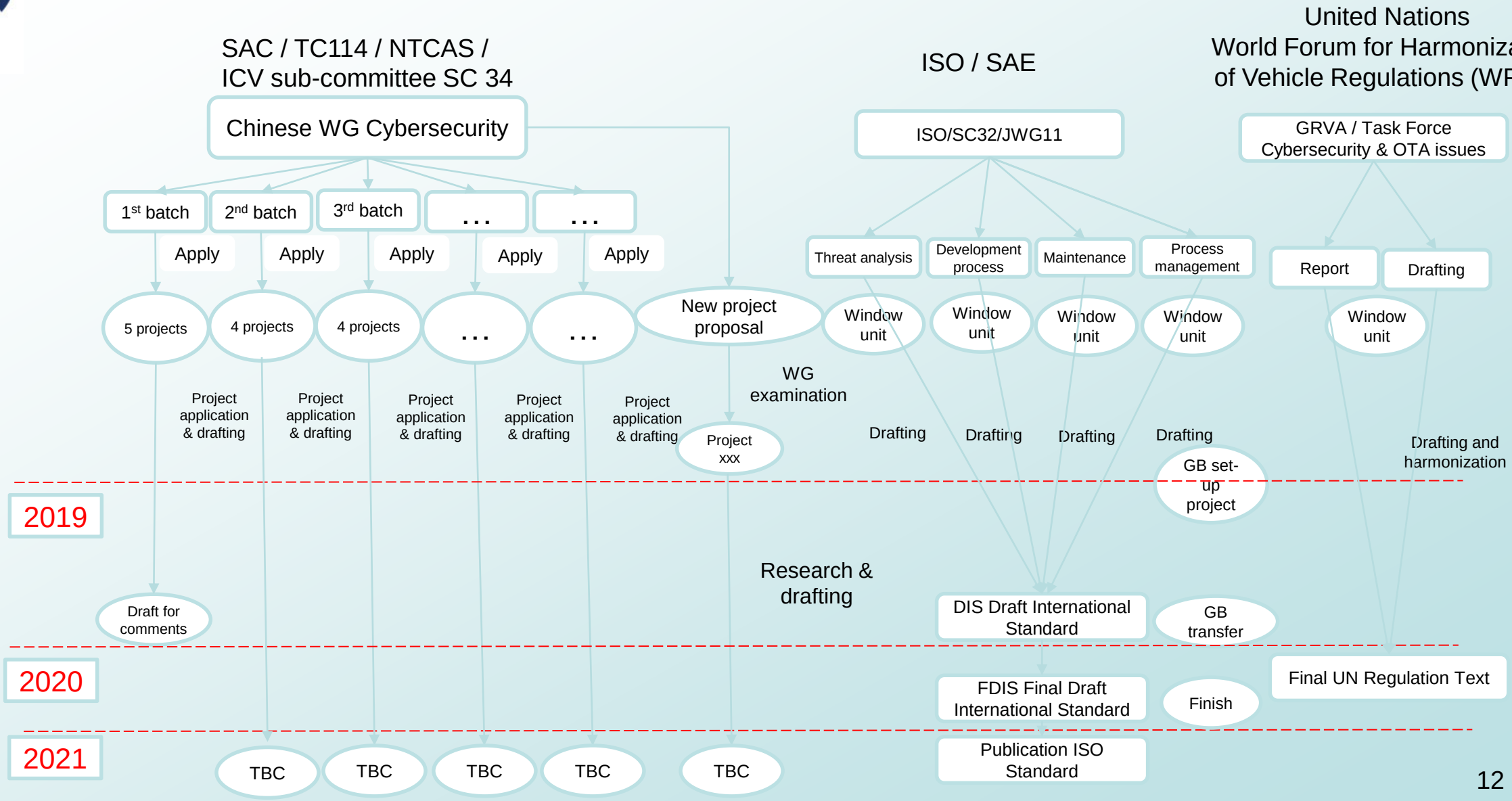
Exchange between Cluster 4 and Liaison persons of Chinese WG on Cybersecurity

Automotive Cybersecurity in Chinese ICV Standard System
(SAC / TC114 / NTCAS / ICV sub-committee SC 34 / WG Cybersecurity)

No.	Batch	Project	Status	Cluster 4 liaison participation						
				BMW	Continental	Daimler	PSA	SAIC	Valeo	VW
1	1st batch	General technical requirements for Cyber security of vehicle	Draft available	Y	Y	Y	Y	Y		Y
2		CyberSecurity Technical specifications of remote service and management system for electrical vehicle	Draft available			Y				Y
3		Information security technology requirements of on-board information interactive system	Draft available							Y
4		Information security of automobile gateway	Draft available					Y		Y
5		Technical requirements for information security of electric vehicle charging system	Draft available			Y				Y
6	2nd batch	Information security technology requirement of OBD				Y		Y		
7		Technical requirement of	Pre-research		Y	Y		Y		
8		Guid… management of automobile	Pre-research	Y						Y
9		Specification for risk assessment of vehicle information security	Pre-research					Y		Y
10	3rd batch	Test method of vehicle information safety	Pre-research	Y		Y				Y
11		Road vehicles – Cybersecurity engineering (adoption of ISO 21434)	Pre-research			Y	Y		Y	Y
12		Requirements for standardization of onboard computing platforms research	Pre-research		Y		Y			Y
13		Technical requirements for information safety of on-board ECU	Pre-research		Y					Y
Etc.						Y				

New Cybersecurity list with 28 standards under preparation by CATARC

Cybersecurity Working Groups



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Opportunities for global harmonization

What will happen after adoption of the two UN Regulations in 2020?

- Make sure that 54 signatory countries of 1958 Agreement apply the UN Regulations (and do not invent national requirements)
- USA requested UN TF to extract a list of requirements that may be used for countries outside 1958 Agreement
- China has started the drafting of 13 national cybersecurity standards, in total 28 standards foreseen …

THANK YOU FOR YOUR ATTENTION!

Link to the latest draft versions

Draft versions after Tokyo meeting of UN TF (12-14 November 2019)

UN Regulation on Cybersecurity: TFCS 16-31rev1

UN Regulation on Soft Updates: TFCS 16-34rev1

Access to vehicle data and Cybersecurity

- CITA International Motor Vehicle Inspection Committee
- EGEA European Garage Equipment Association
- ETRMA European Tyre & Rubber Manufacturers
- FIA Fédération Internationale de l'Automobile
- FIGIEFA Federation of Independent Automotive Parts Distributors

- Those stakeholders use the UN Task Force on Cybersecurity in order to introduce new requirements that the vehicle manufacturer shall give access to the data on vehicles for authorized persons.

- The UN Task Force has clarified in the scope of the Regulation that it is without prejudice to other regulations governing access to data or data protection.

Summary: Cybersecurity defines requirements for the lock system but not who gets the key!

Liaison persons
Cluster 4 – Chinese WG on Cybersecurity

Company	Member of Cluster 4	Member of Chinese WG
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