

# Global Harmonisation of Technical Requirements

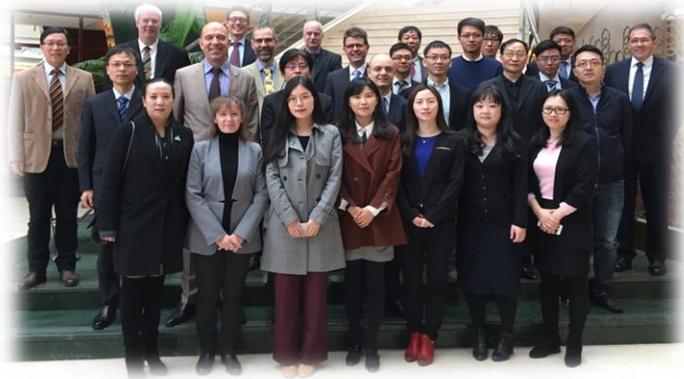
Innovation needs Good Regulation

## Our “Once in a Lifetime” Journey



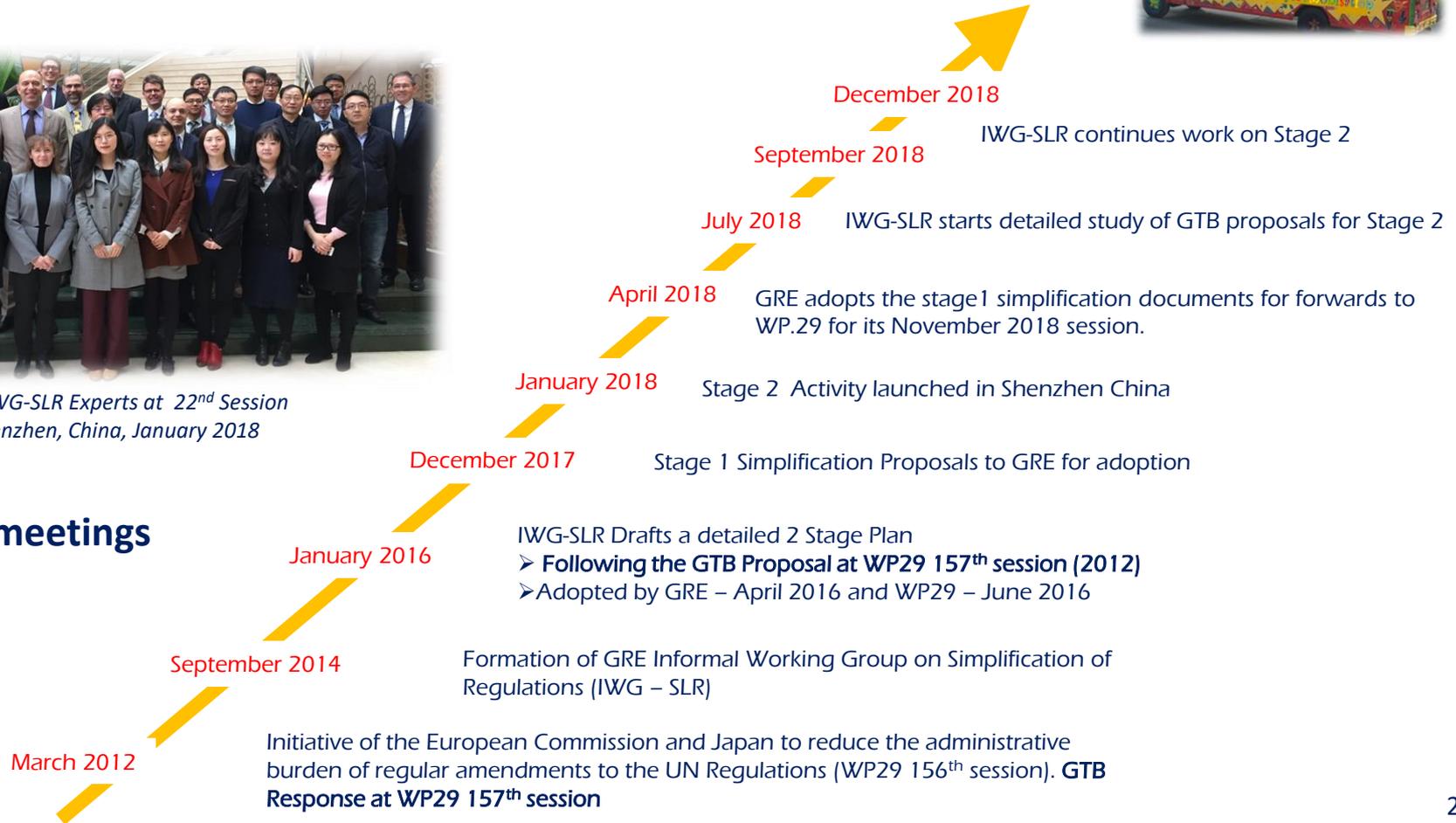
The journey so far  
and the challenges ahead

# Our journey so far - Simplification of the UN Regulations



GRE IWG-SLR Experts at 22<sup>nd</sup> Session  
Shenzhen, China, January 2018

27 meetings



# Our journey so far - Chinese simplification of GB standards



*Inaugural Meeting of C-GTB – Tianjin China - September 2013*



# Our journey so far – activities in USA - NHTSA



*The Panel at the DVN US Workshop – January 2017*



January 2012

September 2012

2013/2014

August 2015

June 2016

October 2018

NHTSA, SAE and GTB start a dialogue relating to new lighting technologies and what is needed to adopt them in U.S. regulations

First Meeting in Washington DC

NHTSA Vehicle Research and Test Centre work on ADB

NHTSA Report - Adaptive Driving Beam Head lighting System Glare Assessment

SAE J3069-201606 (Adaptive Driving Beam Recommended Practice) Published

Publication of NHTSA NPRM Adaptive Driving Beam

# Our journey so far – DVN regulatory sessions



The Panel at the DVN Tokyo Workshop – June 2018



# Our journey so far - building consensus to develop GTR's



## Participants

- Korean vehicle manufacturers
- Japanese Automobile Parts Industry Association (JAPIA)
- India (ARAI)
- Chinese Lighting manufacturer
- Japanese Automotive Manufacturers Association (JAMA)
- Japanese Government (MLIT and Chair of WP29- AC3 (Administrative Committee for the UN 1998 Agreement))
- UNECE - GRE Chair
- GRE Chairman

## Written statements from:

- China (CATARC)
- American Automotive Policy Council (representing Fiat Chrysler Automobile, Ford Motor Company and General Motors Company)
- The European Commission

## Industry Consensus following DVN Workshop – Tokyo – June 2018

- It is time to start working on GTR's
- GTR's shall be the future basis for lighting and light-signalling regulation.
- New technologies need to have globally harmonised technical requirements available for application in all markets
- Some nervousness to commit resources to this major task because of the previous failed attempts.



## Current Situation

- ❖ Industry is ready if Contracting Parties will commit to support
- ❖ Contracting Parties are interested but are worried about ultimate opposition from industry
- ❖ China and India have committed to actively support
- ❖ All parties waiting for one to act as a first sponsor
- ❖ Development of GTR's is a permanent agenda item of GRE
- ❖ Terms of reference of the GRE SLR Informal Working Group include the objective of developing technical requirements suitable for the 1958 and 1998 Agreements



## Potential Primary Stakeholders

CP's of 1998  
Agreement at GRE

China  
EU  
India  
Japan  
Republic of Korea  
USA

GRE NGO's

CLEPA/MEMA/JAPIA  
GTB  
IEC  
IMMA  
ISO  
OICA  
SAE

## Status of Discussion with CP's

- CP's not interested to transform the existing regulations and standards into a GTR
- GTR for Lighting and Signalling for AV's considered to be unsuitable to justify the effort required to develop GTR's
- Need a project that is new for all stakeholders and based upon new technologies



## Ensure that Regulations are not barriers to Innovation

- UNECE System is currently in line with innovation under the 1958 agreement
- UNECE Stage 2 Simplification – emphasis on developing technical requirements suitable for the 1958 and 1998 Agreements (Objective testing requirements)



Major rework of the UNECE requirements for testing of Adaptive Systems



## Adaptive Road Illumination Systems

### US NHTSA NPRM

Docket No. NHTSA-2018-0090



Emphasis on Glare to other road users

### UNECE / China

UN Regulations 48 and 123 + Draft GB Standard



Emphasis upon satisfactory glare and visibility performance under “Real World” conditions



Based upon 1958 Agreement Type Approval, including assessment by a Technical Service inspector in real traffic conditions

### Prime Concern?

- Correct reaction of the system to adapt to traffic conditions
- Avoid causing glare to other road users



## How to assure satisfactory performance of Adaptive Systems under “real world” conditions

**Solutions** exist to define objective requirements for low-beam / high beam (GRE Stage 2 Activity)

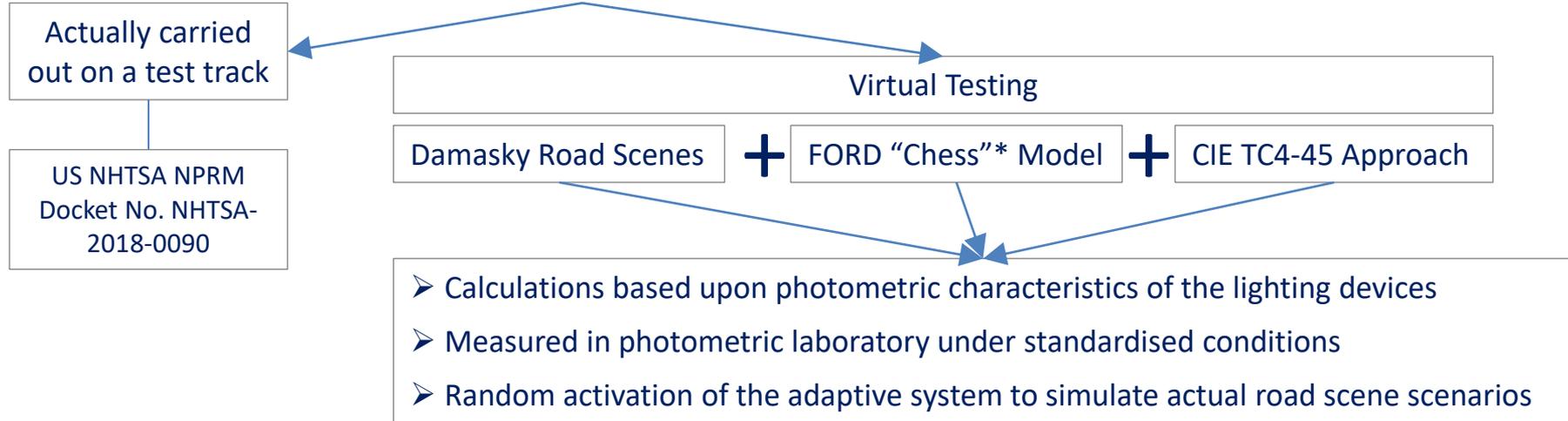
- Established glare / visibility compromise for non adaptive devices
- Need to account for demographic factors , e.g. mega-cities / ageing population / etc.

**Need** to develop a satisfactory assessment procedure for adaptive systems suitable for 1958 and 1998 Agreements

- NHTSA NPRM “on-road” photometric assessment
- GRE IWG-SLR starting to discuss as part of Stage 2 simplification



## “Real-World” Objective Testing of Adaptive Systems



### Project Steps

1. Mathematical model of real road geometry and traffic
2. Standardised photometric measurement of the characteristics of the lighting elements of the adaptive system
3. Virtual Test Routine

\* **Comprehensive Headlamp Environment Systems Simulation (CHESS)** model that was developed in the 1970s by Ford Motor Company is an attempt to evaluate headlighting performance under a wide range of real-world conditions. (Subsequently refined by UMTRI)



## Development of the Virtual Testing Procedure

- Evaluate the illumination performance of the system
  - Evaluate glare to other road users
- } ➤ under the various modes of the adaptive system
- } ➤ during the system's response to the presence of other road users

- ✓ Globally standardised procedure
- ✓ Part of a GTR for performance requirements (glare and visibility) for adaptive systems
- ✓ Could for the basis of NCAP systems to encourage performance improvements



- Development of global technical requirements for the assessment of adaptive system performance with emphasis on glare effects under “real world conditions”
- Industry must lead and encourage support of the Governments
- Research required
- Supporting technologies already exist (Image capture and photometric analysis, Data storage and processing etc.)
- New experts required in our groups
- Development of software for virtual testing
- Creation of “standard” road scenes – based upon real road geometry
- Governmental funding may be available due to the nature of this work



## I believe that:

We need global technical requirements for adaptive lighting systems to remove barriers to innovation

These technical requirements must be suitable for adoption under the UNECE 1958 and 1998 agreements

For true global harmonisation and synchronisation we need a Global Technical Regulation (GTR)

Government support is a fundamental requirement but will not be forthcoming without a strong coordinated initiative by global industry

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Thank you for listening

Success depends upon OUR commitment