Clearing the air; creating a path to sustainable mobility

Executive Summary

Geneva, Switzerland
7-8 November 2017
“No one should be subject to unclean air as a result of future mobility.”

Dan Nicholson, FISITA President and General Motors VP Global Propulsion Systems
Introduction

The FISITA Summit is the annual, by-invitation, technical leadership conference for FISITA Corporate Members – an exclusive group of automotive and mobility systems leaders.

The 2017 FISITA Summit was held in Geneva, Switzerland, featuring high quality content, regarding the challenging theme, ‘Clearing the air; creating a path to sustainable mobility’. Key topics of presentation and discussion within the programme included ‘economic and environmental impact’, ‘global regulatory activities’ with the final session focussed on ‘building an industrial strategy for sustainable mobility’.

In this rapidly changing landscape, regulation and sustainability have become critical and increasingly volatile topics, which have specific importance to us in the automotive and mobility systems engineering community. We also know that much of the discussion is driven by public perception and emotion. Facts, including the impact on the customer and the underlying physics, are often demoted to secondary considerations.

FISITA, as the global organisation linking the automotive and mobility systems industry, engineering societies and academia has a critical, central role in supporting progressive discussions based on fact and technological expertise, at events such as the FISITA Summit.

The Programme Committee once again created a compelling and incredibly challenging agenda for this year’s Summit – this Executive Summary highlights key talking points from our excellent speaker presentations and important discussions that took place as part of the dynamic World Café session.
Erik Jonnaert, Secretary General, ACEA

Reshaping Europe’s Auto Industry: Towards Clean and Smart Mobility

“There are exciting times ahead in the auto industry.”

- The automotive challenge is to deliver clean, smart and safe mobility that stays affordable, this is the opportunity for innovation
- Clean mobility is about addressing two issues:
  - Air quality
  - Climate change
- Local air quality issues have become the main priority, but these require different technical and non-technical solutions
- Europe needs a more coordinated approach
- Need to link EU long-term climate objectives to the reality of the market

Dr. Grzegorz Ombach, VP Engineering, Qualcomm

The Future of Automotive is Connected, Autonomous, Electric & Wireless

“There are many challenges for the industry, not just technological but also social issues.”

- The future is electric
- Semi & dynamic wireless charging is a progressive solution
- Work needs to be done to ensure safe operation under all conditions
- Be agile and open in communication and working with others around you

Dr. Detlef Juerss, Vice President Engineering & Chief Technical Officer, Adient

Opportunities in a Changing Automotive Market Environment

“A number of disruptive game changers will affect the automotive industry, which will lead to entirely new vehicle types.”

- Once vehicles achieve high levels of autonomy, passengers will get new possibilities to use their riding time for daily routines and non-driving activities
- Adient is developing advanced comfort features for autonomous driving, and will deliver solutions that reflect the needs for alternative ownership models, global connectivity trends and new business models in an urban context

Dr. Doug Parr, Chief Scientist and Policy Director, Greenpeace UK

Public Pressures and Public Policy on Environmental Challenges

“There’s a growing aspiration for 100% renewable energy - the economics look good.”

- The automotive industry is facing continued and growing environmental pressures regarding climate change, air pollution, quality of environment, and from those seeking economic advantage
- Increasingly there is a trend of action being implemented from cities as well as regions and nations
- There are many opportunities for companies and governments in the transition from internal combustion to electric vehicles between 2030-2040
- NOx emissions of cars compared to EU emissions standards are showing relatively high conformity factors
- The automotive landscape is changing, with traditional manufacturers visibly shifting strategy to electric
- Newcomers are challenging the status-quo and will continue to do so

Bernhard Biermann, Vice President Europe & South America, FEV Europe GmbH

Ways Towards Low Impact Powertrains

“There is good reason that all power train solutions will co-exist in the near future.”

- CO2 emission reduction of 20% required to achieve target for 2021 and European legislation set to become more stringent
- The consumer trend continues to be the purchase of larger rather than smaller vehicles
- Clean fuel will help to reduce pollution: ‘E-fuels’ can be used as effective chemical storage for regenerative energy
- In order to achieve equal CO2 fleet emissions, seven diesel cars can be replaced with one electric and six gasoline cars
- The technologies should compete to reach best overall technical solutions

Summit Programme
Regulatory Activities and Global Regulations

**Martin Lutz,** Head of Sector Air Quality Management, Berlin Senate Department for Environment, Transport and Climate Protection

**Motor Traffic and Clean Air in Cities – A Natural Antagonism?**

“We still need to curb emissions with legally binding limit values.”

- Air quality standards and emission regulations are lacking coherence
- NOx is a concern for current diesel engines and diesel ban might be the quickest countermeasure
- New diesel buses are superb in terms of emissions which shows that combustion engine can fulfill city’s needs
- Regulatory incoherence on EU-level often triggers restrictive local action
- Progress needs to made faster on NOx emissions in order to avoid diesel bans from major cities, which currently are seen to be the most effective solution

**François Guichard,** Focal Point on Intelligent Transport Systems and Automated Driving, UNCE

**Regulatory Activities of the World Forum for the Harmonization of Vehicle Regulations Contributing to a Sustainable Mobility**

“Solving the issues for automated driving is crucial for manufacturers, governments and users.”

- We need harmonisation of vehicle emission regulations for safer, better transportation
- The same emissions regulations should be applied to diesel and petrol vehicles
- United Nations Economic Commission for Europe supports electric, connected and automated vehicles as the solution for sustainable transport

Building an Industrial Strategy for Sustainable Mobility

**Dr. Chengyin Yuan,** Deputy President, BJEV R&D Institute

**BAIC’s Approach on New Energy Vehicle Ecosystem**

“The Innovation chain, industry chain and ecological chain need to come together.”

- BAIC is among the top five automotive groups in China, with more than 100,000 electric vehicles on the roads, which have accumulated a distance of more than 1.4 billion km
- BAIC’s goal by 2020 is to produce 500,000 electric vehicles a year
- The transformation of traditional automotive to new energy and intelligence has become a global and domestic trend
- It is important to collect new data from the consumer for new energy vehicles because this is a completely new era of transportation
- By the end of 2017, the number of EV battery exchange stations in Beijing will reach 202, and the radius between stations will be around 5km

**Ms. Margo Oge,** Distinguished Fellow, ClimateWorks Foundation

**Driving the Future**

“The future of mobility should be shared, electric and autonomous.”

- In the light of urbanisation, major cities will become more powerful than government - they will lead the way for future mobility
- By 2025 all new vehicles should be zero emissions
- Legislation related to the environment makes economic sense for the future
- Electric vehicle owners will not return to internal combustion engines if the cost is reduced and range improved

World Cafe

- Did the automotive industry lose its leadership in the discussion on sustainable mobility – and if yes, when and why?
- How should OEM’s, regulators and NGO’s work together in order to find common solutions for air quality and criteria emissions?
- How can FISITA play a leading role supporting this discussion? Please suggest FISITA’s agenda for the next 3 years
Outcomes and next steps

- Automotive leadership has been challenged by new mobility players and a changing landscape. FISITA is a convener of thought leadership within the international automotive and mobility systems technical community, via its established and frequent stakeholder forums. Newcomers with traditional and ‘new discipline’ engineering expertise are welcomed into this non-competitive membership group and FISITA should continue to proactively build membership with Industry Committee support.

- Trust between industry and regulators has weakened in recent times. There are many factors that have contributed towards this truth. In solution, it is clear that the neutral and pre-competitive forum of FISITA supports honest, open and sincere discussions and engagement between technologists, engineers, experts, and NGO’s in order for all relevant stakeholders to come together and contribute towards the positive and progressive dialogue on emissions and air quality issues.

- Through its sequence of annual events and long-term member-led initiatives, FISITA provides informative content to its global network, this can be more visible and usefully deployed in order to build dialogue within its community and with those looking to influence or contribute to these important discussions.

The Engineer 2030 collaboration of Academic Advisory Board and Industry Committee and the development of the Mobility Ecosystem through the Industry Committee demonstrates that working together through the FISITA network is a progressive environment for the development of common solutions.

The FISITA Technical Committee should be utilised in forming technical positions of commonality, for the international FISITA community to then use to deliver fact and support the education of all stakeholders with relevant, factual information which can be further utilised in future air quality and emissions discussions.
Closing Presentation

Dr. Axel Friedrich,
Consultant, Dr. Ing. Director and Professor a.D.

The truth is on the road
“What’s the point of regulation without monitoring or penalties?”

- Many current emission testing procedures are challenged because they do not replicate realistic driving conditions
- Almost all current commercial vehicles exceed the NOx standard of Euro 6 when evaluated against a real driving test
- In our tests, real world NOx emissions of several modern diesel engines are far above the cycle test results
- For fuel consumption and noise production, the situation appears to be similar to that of emissions

Conclusion

By inviting industry regulators and NGO representatives such as Mr. Lutz and Mr. Friedrich to the FISITA World Automotive Summit delegates had the unique opportunity to understand their views on the subject of emissions and sustainable mobility.

During the World Café session, delegates concluded that trust between industry, regulators and NGO’s has weakened and one of the main factors that led to this development was based on the differences between the driving cycle evaluation and real driving emissions, leading to uncertainty and confusion within the marketplace.

With the ongoing support of its Corporate Members, FISITA is uniquely placed to provide a relevant technical perspective on important and progressive matters such as air quality and emissions, ensuring external stakeholders and their audiences are in receipt of the facts that their working assumptions are then based.

FISITA has been a relevant partner to the industry for seven decades. In these times of significant change, the organisation can provide leadership and the technical perspective to support industry, consumers and policy makers as it delivers against its vision ‘To Promote Excellence in Mobility Engineering’ and the development of safe, sustainable and affordable mobility solutions for all.

Engineers create solutions, FISITA will continue to support them to do so.