Good Morning Ladies and Gentlemen!

“Development of collaboration between Romanian and automotive engineers from other European countries”

Günter Hohl
Past Vice President of FISITA
Past President of EAEC
Vice President of the Austrian Society of Automotive Engineers
Famous Sons of Craiova

**Michael the Brave „Mihai Viteazu“ (1558 - 1601)**

was the Prince of Wallachia (1593–1601), of Transylvania (1599–1600), and of Moldavia (1600). He united the three principalities under a single rule for a short period of time.

**Petrache Poenaru (1799–1875)**

studied in Paris, Vienna and, England, was a mathematician, physicist, engineer, inventor, teacher organizer of the educational system, politician, agronomist, and zoologist, founder of The Philharmonic Society, the Botanical Gardens and the National Museum of Antiquities in Bucharest. In 1827, he invented the world's first fountain pen.

**Corneliu Baba (1906 – 1997)**

was a Romanian Painter, primarily a portraitist, but also known as a genre painter and an illustrator of books.
Development of the Automobile
Early European Inventors

Nicolas-Joseph Cugnot (1725 – 1804)
First steam vehicle
Invention 1769

Richard Trevithick (1771-1833)
First commercial use of a steam car
Invention 1801

Gustave Trouvé (1839 - 1902)
First electric car
Invention 1881

William E. Ayrton (1847 – 1908)
Second electric car
Invention 1882
Early European Inventors

**Carl Benz**
(1844-1929)
First combustion engine vehicle
**Invention 1886**

**Gottlieb Daimler**
(1834-1900)
First combustion engine vehicle
**Invention 1886**
Early European Inventors

August Nikolaus Otto
(1832 – 1891)
First combustion engine vehicle
Invention 1864

Rudolf Diesel
(1858 – 1913)
First Diesel engine
Invention 1864
The automotive industry is a sector of great strength and forms the backbone of the manufacturing industry in Europe.
Role of Automotive Industry in European Economy

**Employment:**
- 2.2 million employees
- 10 million related to industry and service

**Turnover:**
- 700 billion EUR  automotive manufacturers and suppliers
- 520 billion EUR  350,000 small and medium sized enterprises in retail, repair and service sector
Role of Automotive Industry in European Economy

**Jobs**
The automotive industry is a formidable employer in Europe. At least 12 million families depend on automotive employment with 2 million direct jobs and another 10 million in directly related manufacturing and other sectors.

**Growth**
Europe is the world’s largest vehicle producer with an output of over 17 million passenger cars, vans, trucks and buses per year*, or 24% of world vehicle production*.

**Innovation**
Automobiles are highly complex and innovative products. The ACEA members invest annually over €26 billion in R&D, or 5% of their turnover. Total automotive R&D investments, including those from suppliers, are even higher. The auto industry is the largest private investor in R&D in Europe.

* average of the last 5 years

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23-25 October 2014
Craiova, ROMANIA
Role of Automotive Industry in European Economy

... the “engine of Europe”

Made in Europe

The 16 ACEA car, truck and bus manufacturers operate 210 vehicle assembly and engine production plants in 22 countries across Europe, among which 177 in 16 EU Member States, often sustaining the economic fabric of entire cities and regions.

Global Scope

The automobile industry is a leading EU export sector with a net trade contribution of €75 billion. Leading in high-quality products, the industry sells and produces vehicles in all major world markets.

Sustainable Mobility

Cars, trucks and buses are the source of everyday mobility and transportation, fuelling economic activity, social life and cultural exchange. European manufacturers are leading in environmental and safety technologies and are a driving force behind the sustainable mobility concepts of the future.
Role of Automotive Industry in European Economy

A highly innovative sector

Patent Applications filed by the Automotive Sector | 2011

- **58.2%** EU
- **20.4%** Japan
- **13.8%** US
- **2.0%** Switzerland
- **1.0%** Taiwan
- **0.9%** China
- **0.9%** Canada
- **0.7%** South Korea
- **2.1%** Others

In 2011, a total of **8,568 patents** were filed in the automotive sector at the European Patent Office.
The EU automotive industry is a formidable exporter

EU Exports of Passenger Cars (in value)
In 1895, two steam cars built by the French company Gardner Serpollet began circulating.

In 1895, three inhabitants of the city of Craiova brought auto-carriages with 12 HP engines, Benz type, into the country.

One year later, in 1896, three more "auto-carriages" were brought in different towns, for example, one Peugeot in Bucharest.
Early Romanian Automobile History

A Peugeot car was imported in 1899 by Baron Barbu Bellu

**Baron Barbu Bellu**(1825 - 1900)
as a Romanian baron, Minister of Culture, and Minister of Justice. Bellu, the most famous cemetery in Romania, sits on a plot of land donated by Barbu Bellu to the local administration.

Peugeot car about 1900

Bellu Cemetery
Early Romanian Automobile History

In 1898, one Bollee tricycle in Falticeni

In 1898, one of the first American Oldsmobile in Bucharest

In 1900, Gheorghe Basil Assan Panhard; Registration number # 1B
Early Romanian Automobile History

Prince Valentin Bibescu
(1880 – 1941)
In 1908, Dimitrie Leonida founded the first school of mechanics in Romania. Together with his students, he began collecting items to start the museum. In 1928, the museum was housed inside one of the pavilions from the Carol I Park.

**Dimitrie Leonida (1883 – 1965)**

1906 first electric car
ROMANIA´S BEST DRIVERS

Jean Calcianu (*1893),
In 1934, he organized the first
closed circuit race in the country:
Brasov Grand Prix

Petre Cristea (1909-1995)
He is considered by many to be Romania's best racing driver
Outright winner of the Monte Carlo Rally in 1936

80 competitions
35 international ones
30 wins
20 second places
6 third places
1969 founder of the
Autoturism magazine
Pre-War Romanian Automobile History

Ford Company 1936 in Bucharest Producing Ford V8

Ford Lincoln 1939

LeBaron 1939
Present Romanian Automotive Industry

The Romanian automotive industry: changing gear or changing lanes?

The Automobile Industry Pocket Guide published in September 2012 by the European Automobile Manufacturers’ Association (ACEA):

“The auto market in Romania exhibits a big potential for development in the context of the European auto market”

With Renault also present in the country, Romania is becoming the most important car manufacturing state of Eastern Europe.

Ford Motor Company and the Romanian government signed an agreement to purchase the Craiova vehicle manufacturing plant.
In Romania, a wide range of automobiles, minivans, SUVs, vehicles, buses and trucks are produced.

In 2008, about 250,000 units were exported.
Present Romanian Automotive Industry

Dacia Logan

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Present Romanian Automotive Industry

S.C. AUTOMOBILE CRAIOVA S.A.
A.C.S.A.

Ford B-Max

The United States, Romania and Ford Motor Co flags are displayed in front of the Ford headquarters in Craiova

Presentation event of the first Ford Transit Connect built at Automobile Craiova
Development of collaboration between Romanian and automotive engineers from other European countries

Getting contact to other European automotive engineers via:

- International congresses
- Regional congresses
- National (international) congresses
- Automotive university institutes
- National research institutes
- National automotive societies
International Congresses

FISITA Biennale Congresses

are leading automotive technology forums worldwide, attracting thousands of engineers and specialists from around the globe.
Previous FISITA Congress

482 accepted papers
1138 Participants
290 Students with own sessions

Change of FISITA Presidency from Li Jun to Paul Mascarenas

Handing over FISITA Flag from Jack Martens to Kwang Min Chun
Previous EAEC Congress

LOCATION: Universidad Politécnica de Valencia

THEME: The Automobile in the Second Decade: Sharing all Energetic Solutions
Next EAEC Congress

"Mobility in Transition"
Dresden, Germany, 11.-13.06.2013

Unfortunately cancelled!
Next EAEC Congress

Motto:

Automotive industry role and responsibility in the future of Europe

Abstract submission
15/10/2014

Notification of paper acceptance
15/11/2014

Preliminary program
15/01/2015

Final manuscript submission
28/02/2015

Final program
31/03/2015
National (international) congresses

Romania:
Congresses of SIAR, organized by the local Technical Universities

Austria:
International Vienna Motor Symposia

Germany:

A Broad Range of Services

Further education – the kind you expect: our multi-faceted course range offers you a number of opportunities. Our services include seminars and technology forums. In addition we organise symposia and conferences, inhouse training programmes and develop customised training and event concepts. We would be happy to submit a proposal tailored to your needs.

Switzerland

15. Automotive Day 2014
& BfE Energieforschungstag Verkehr
National (international) congresses

- Automotive university institutes
- National research institutes
- National automotive societies
- Other organizations

A source of information about automotive events is the FISITA website.
National (international) congresses

- Automotive university institutes
- National research institutes
- National automotive societies
- Other organizations

- 88th international scientific and technical conference of AAE «OPERATIONAL SAFETY OF VEHICLES»
  21 - 22 October 2014, Nizhny Novgorod, Russia

- OVK lecture - 919 HYBRID - LE MANS
  21 October 2014, Wien, Austria

- AUTOMOTIVE NVH COMFORT LE MANS 2014
  22 - 23 October 2014, Le Mans, France

- SAE China Congress & Exhibition
  22 - 24 October 2014, Shanghai, China

- 2014 JSAE Annual Congress (Autumn)
  22 - 24 October 2014, Sendai, Japan

- SAE 2014 Active Safety Systems Symposium
  23 - 24 October 2014, Detroit, United States

- 3rd International Congress - SMAT 2014, Science and Management of Automotive and Transportation Engineering
  23 - 25 October 2014, Craiova, Romania

- 7th International Conference 'ADVANCED CHASSIS SYSTEMS'
  23 - 24 October 2014, Turin, Italy

- 7th International Symposium of Lubricants, Additives and Fluids
  23 October 2014, Sao Paulo, Brazil

- FEV Diebel Powertrains 3.0
  28 - 29 October 2014, Montabaur, Germany

A source of information about automotive events is the FISITA website.
Getting contact to European automotive engineers

F2014-ACD-024

CHALLENGES ON THE WAY TOWARDS AUTOMATED DRIVING – DEVELOPMENT; HUMAN FACTORS AND EVALUATION

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KEYWORDS – Driver interaction, automated driving, driver assistance

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Getting contact to European automotive engineers

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- Mitglied in der SAE
Contact to FISITA Member Societies

Europe

America

Asia-Pacific

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Environmental Protection

Two main points with respect to environmental protection are:

- Better Air Quality

- Noise Reduction
Overview of Global Emissions

Transport 17% (Road, Rail, Air & Water)
Deforestation 22%
Industry 25%
Power/heating stations 27%
Household small consumers 9%
Exhaust Gases
Limits from Euro 0 to Euro 5

Particle Emission – g/kWh

NOx-Emission – g/kWh

EU5 2008
EU4 2005
EU3 2001
EU2 1996
EU1 1992
EU0 1988
EU2 1996
EU1 1992
EU0 1988
1974
Recycling

For a relaxed end of life!
Recycling - Materials

2007

- Non-ferro: 7.8%
- Plastics: 13.8%
- Rubber: 5.0%
- Glass: 3.7%
- Liquids: 2.0%
- Others: 2.4%

2015

- Non-ferro: 6.1%
- Ferro: 66.3%
- Others: 2.4%
- Plastics: 16.0%
- Rubber: 1.2%
- Glass: 5.2%
- Liquids: 2.0%

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Recycling - Energy Requirements

Energy required to produce vehicle material

- Glass: Virgin material = 30 MJ/kg, Recycled material = 15 MJ/kg
- Plastics: Virgin material = 45 MJ/kg, Recycled material = 40 MJ/kg
- Aluminium: Virgin material = 90 MJ/kg, Recycled material = 40 MJ/kg
- Ferrous Metals: Virgin material = 40 MJ/kg, Recycled material = 30 MJ/kg

Virgin material vs Recycled material
Conclusion

- Cars, trucks and buses will be the main means for transport for people and goods
- Ensure personal mobility and protection of the environment in the future
- Build up public understanding of the importance of automotive transportation
- Increasing number of legislative demands resulting from the discussion of environmental issues in society
- Fun of driving a car and the feeling of freedom and unlimited mobility
Thank you for your kind attention!

Vă multumesc pentru atentia dumneavoastra!