



**ANNUAL REPORT 2019**  
Connecting the  
automotive sector



automotive  
center of  
expertise



# Validate the available know-how

In 2019, ACE Mobility set up several initiatives to develop know-how for the automotive industry in close cooperation with its industrial partners and with the three automotive Universities of Applied Sciences. By interconnecting education and research with (industrial) practice, ACE aims to further validate the available know-how. ACE succeeded in successfully organising various activities: for example, 33 workshops were organised at companies for automotive students and over 1200 students visited the career day. Also, the HAN Ecomotive team qualified for the international Shell Ecomarathon. Below, an extended overview of our activities is presented.

The small ACE team was able to initiate several new activities: a strategic study on the future of the automotive industry was conducted by KPMG, an extended research programme was set up, expert meetings on selected topics were organised, international projects were started in Poland, the US and elsewhere, an ACE future day was set up as annual event, ACE moved to a new office and new branding was developed. With these additional activities, we fleshed out our slogan even more clearly: together we create the future of mobility.





## Labour market for automotive engineers

The labour market for automotive engineers remains challenging, and will continue to show scarcity. Another challenge is the more complex and more comprehensive integration. Automotive engineers are increasingly becoming systems integrators. This is where ACE can add value. As an intermediate between the labour market and the education institutes, ACE has to play a role in attracting high-quality students to ensure the supply of (new) students matches demand from the industry.

# Know-how

ACE Mobility is ready to play a role in the transition to the bigger picture and facilitate students, educational institutes, professionals and companies in developing and making the necessary know-how available and accessible. ACE will therefore initiate a range of projects together with our industrial partners, both in research and in education. A platform will be developed on which applied science can flourish and where we create the future of mobility together.

# The changing automotive ecosystem

A changing automotive ecosystem needs a different positioning of ACE Mobility.

The automotive industry is challenged by significant changes. Automation, Connectivity and Electrification (which coincidentally is also abbreviated as ACE) are developments that strongly influence present changes in the automotive industry. This implies a comprehensive transition that will take place in the coming decade(s) and that must be managed carefully.

In addition, the societal debate on environmental sustainability is speeding up technological and governance innovations.

New players in the energy and ICT sector are becoming part of the ecosystem, pushed by these new trends and technologies. In order to stay relevant, ACE is increasingly developing (new) partnerships and connections within a changing ecosystem.

## Ecosystem - new sub-sectors

The traditional automotive industry is evolving, as barriers are blurring and new sub-sectors are becoming part of the ecosystem.



Source: KPMG mobility 2030: transforming the mobility landscape Feb. 2019





**RETROSPECTIVE 2019**

Year of new  
initiatives

# 2019 Highlights

**2019**

Sponsored the three Ecomarathon Teams.

**7 February 2019**

**ACE Future Day**  
New branding and new initiatives were presented to industrial and educational partners.

**22-25 May 2019**

Shell Ecomarathon Challenger Event where the HAN Ecomotive team qualified for the international Shell Ecomarathon.

**31 January 2019**

The ACE Expert Session 'Energise Electric Drive' was held at RDM Rotterdam hosted by Rotterdam University.

**4 April 2019**

The ACE Expert Session TOTEM (TOols and TEchniques for Monitoring and Control) for industrial and educational partners was organised in Arnhem.

**28 May 2019**

ACE attended the Drive-2-zero conference in Vancouver, Canada.

*Shell Ecomarathon  
Challenger Event  
22-25 May 2019*



**12 June 2019**

TALCOM (The Automotive Learning Community) project kick-off with industrial and educational partners.

**21 August 2019**

ACE visit to the Polish Automotive Industry Association (PZPM).

**11 October 2019**

ACE Automotive Career Day attended by 40 companies and over 1200 students.

**14 November 2019**

Annual meeting of all partners.



**11 July 2019**

Student Award presentation for the best graduate student to the industrial partners.

**29 August 2019**

ACE visit to Delphi Technologies in Luxembourg.

**14 October 2019**

Contract signed with CALSTART (USA) to work together on the Drive to Zero Initiative.





## HIGH LIGHTS OF THE YEAR

### Talent

The growth and availability of sufficient and high-quality automotive talent remains one of ACE's priorities. For this reason, we are carrying out a range of activities in order to support the universities in their quest for sufficient enrolment in automotive courses and, even more, to ensure sufficient graduates moving into industrial employment. Internships, graduation projects, workshops, a transfer project to the TU/e, the Student Award, an automotive career day and promotion of the future profession of automotive engineers were part of this.

## 31 Students

students took part in the ACE pre-master Automotive Technology TU/e



7 x Fontys and  
1 x Rotterdam



took the pre-master mathematics course

9 x Fontys, 2 x HAN,  
12 x Rotterdam

## 33 Workshops

**924 : 33 = 28**

Deelnemende  
Studenten

Studenten  
per workshop

**490**

bachelor programmes of the three universities of Applied Sciences

500 in 2018  
489 in 2017



**124**

118 in 2018  
110 in 2017

**227**

262 in 2018  
267 in 2017

**139**

120 in 2018  
112 in 2017  
Fontys AM 57 in 2019



HAN UNIVERSITY  
OF APPLIED SCIENCES



**73**

interns UAS (Universities of Applied Science)  
automotive training with partner companies



**65**

graduates UAS (Universities of Applied Science)  
automotive training with partner companies



## HIGH LIGHTS OF THE YEAR

### **Industry**

#### **ACE Academy**

The Automotive Learning COMMunity (TALCOM) is a programme in which training courses and education are developed and offered to professionals in the automotive industry. The programme is sponsored by the European Community, OP Zuid and the Province of Noord-Brabant. One of the goals is to deliver the ACE Academy as a continuing Life-Long Learning system. Interesting is the participation of around 40 companies, local authorities and know-how institutes, who merge their education products into training courses tailored to the needs of industry. The programme started in 2019 and initially selected five topics: electrification, automated driving, biometrics, lightweight materials and smart industry. The roll-out to actual courses is expected in 2020.

The TALCOM programme has been made possible with support of the European Union, OPZuid and the Province of Noord-Brabant.



### International activities

The automotive industry is a global industry and Dutch automotive companies work completely internationally. The challenges are global and the knowledge that ACE develops and makes available is internationally applicable. For this reason, it is important for ACE to develop into an international knowledge centre. In 2019 contacts were established with international parties. A Memorandum of Understanding was signed with CALSTART in the United States for which ACE as European programme management will initiate contact with partners in Europe in the international Drive to Zero project.

### Student Award 2019

ACE invites graduates from one of the ACE industrial partners to present their graduate research and results to the industrial and educational partners. Every year, the best students are invited to present their studies to a jury. The jury mainly takes into account the level of possible application in the company where the student did his research project. The winner of the Student Award 2019 was Ronald Feijns who developed a research tool for testing roof pressure in electric vehicles at Altran in Helmond. Normally, such tests are done physically, but Ronald Feijns' was a digital tool.



### ACE Automotive Career day

Companies want to introduce themselves to students even before they graduate. And this is what they did during the ACE Automotive Career day in Arnhem on 10 October 2019. Over 40 companies and approximately 1200 students from all over the country got to know each other through presentations and stands for internships, graduate projects or professional careers.

Participating companies  41

Participating students  1200

## HIGH LIGHTS OF THE YEAR



# Research

The content of three research themes Professional Monitoring, Lightweight and Future Mobility (Automotive Mobility as a Service included), defined in 2018, was discussed with key ACE companies. The ACE research team met about once a month to plan, coordinate, and evaluate the joint research on these themes.

### **Professional Monitoring**

Professional Monitoring started with the fully electric VDL Citea e-Bus equipped with new in-wheel e-Traction motors in the service of public transport operator RET in Rotterdam. Student teams of the three ACE Universities participated in project management, data acquisition and data analyses. The development of a new more professional data acquisition tool has been started and will be tested in a new H2Drive project and possibly later in the Global Commercial Vehicle Drive to Zero projects with CALSTART in California.





### **The smart production cell for lightweight research**

The smart production cell for lightweight research at IPKW Arnhem has reached its realisation phase. A cooperation project has been agreed with the Fontys University research team for 3D printed metal inserts for which the equipment has been ordered. Rotterdam University started the supporting application engineering research on Lightweight thermoplastic composite materials. Together, ACE research will be able to explore and develop automotive parts for the industry 4.0 in a circular economy.



### **Mobility as a Service**

Mobility as a Service is a new research project within the third research theme Future Mobility. This theme needed some more definition to find out in what respect MaaS can add value to the automotive sector. For this, several consultations have taken place (e.g. VDL ETS, Arval and KPMG), including interviews about car-sharing and a presentation of Automotive Design for MaaS on 9 December at ARVAL. The Future Mobility theme also led to a new plan for an Innovation Hub Mobility on Implementing Automated Transport (IMIAT) in the Rotterdam region. Future Mobility research will be continued.

## **Farewell of Pieter van Baardwijk**

On 16 May ACE said good bye to Pieter van Baardwijk. Pieter has worked for many years trying to improve the connections between automotive education and the market place. It was a wonderful ceremony, attended by his family, during which popular philosopher Bas Haring made a presentation.



# Personnel

## ACE team

Kees Slingerland  
Saskia Lavoo  
Corine Legdeur  
Stefan Kraaijvanger  
Rianne Holten

## Council of lectors

Frank Rieck, University of Applied Science Rotterdam  
Bram Veenhuizen, University of Applied Science Arnhem en Nijmegen  
Rik Baert, University of Applied Science Fontys  
Chris Huijboom, University of Applied Science Arnhem en Nijmegen  
Hans Krikhaar, University of Applied Science Fontys

## ACE board of management

Henk Bos, RAI Vereniging, chair  
Ella Hueting, University of Applied Science Fontys  
Leo Kusters, AutomotiveNL  
Hans Maas, University of Applied Science Rotterdam  
René Tönissen, University of Applied Science Arnhem en Nijmegen

## Supervisory board

Kees Boele, HAN  
Hans Corstjens  
Zakia Guernina, University of Applied Science Rotterdam  
Joep Houterman, University of Applied Science Fontys  
Henri Koolen, VDL  
Marinka Nooteboom, Nooteboom





### **ACE Programme council**

The ACE programme council consists of representatives for the partners in the automotive sector and automotive education. The programme council advises the ACE board on the course that should be followed and the development of ACE.

### **Graduating and interns**

Fedor Lammers, graduating student automotive programme HAN.  
Jeffrey van den Wildenberg, graduating student communication.

# Partners ACE

In 2019, ACE had 22 partner companies. Louwman Group and Snoeks Automotive joined ACE in 2019. ACE had 5 strategic partners: Fontys Automotive, HAN Automotive, University of Applied Science Rotterdam Automotive, RaiVereniging and RAI Automotive Industrie NL.





**PREVIEW 2020**  
Highly dynamic year  
with exciting results

*together  
we create  
the future of  
mobility*

## Preview 2020

It can be concluded that 2019 was a year in which the small ACE team delivered a considerable set of activities, with quite a few new initiatives among them. 2020 will again be a highly dynamic year, with new initiatives and exciting results. No wonder: the automotive industry is challenging, not only because of the many developments that are taking place, but certainly also because it is such an interesting industry, with technological innovation and significant impact on our society.

The good news is that, after a period of investing in new initiatives, the first results are coming in. The TALCOM programme will deliver its first courses, the research activities will report first outcomes and the international network is beginning to materialise. Our partners will even more strongly experience the impact of being a partner of ACE Mobility.

*Yes, together we create the future of mobility.*



automotive  
center of  
expertise

**Visiting address**

Automotive Campus 30  
5708 JZ Helmond  
the Netherlands

**Mailing address**

P.O. Box 1015  
5700 MC Helmond  
the Netherlands

[info@acemobility.nl](mailto:info@acemobility.nl)

[www.acemobility.nl](http://www.acemobility.nl)

