automotive
center of
expertise

DRIVE

DRIVE EDITION 2 - 2022

ACE MOBILITY FUTURE DAY

TALCOM SPECIAL

ACE MOBILITY DASHBOARD

Visiting address
Automotive Campus 30
5708 JZ Helmond
the Netherlands
info@acemobility.nl

www.acemobility.nl

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TALCOM SPECIAL
The Automotive Learning Community

Colophon

DRIVE is a publication of ACE Mobility.

Editorial team:	Corine Legdeur, Gentiana Tijssen, Mirthe van Wijngaarden
Text:	TextVast
Photography:	Dave van Hout Photography and Knoops Photography (unless otherwise stated)
Design:	Studio Lauda
Printing:	Zalsman BV

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OUR GREATEST CHALLENGE: HUMAN CAPITAL

Henk Bos
Chairman of the Board
ACE Mobility

This second edition of DRIVE magazine focuses on human capital and the labour market. The automotive industry, like other sectors, is plagued by a shortage of employees at a time when it must keep up with and implement all kinds of innovative developments.

Of course we will focus on contributions from students and alumni – they are our future employees! On page 26 one of them tells us about how he and his team have developed a solar powered car. The winner of the prestigious ACE Student Award 2022 looks back on his groundbreaking graduation research project: using ammonia as fuel in cars. And then there is a pilot I am very proud of: the ACE Mobility Professional Programme: a programme that will make it even easier for students to get a feel for a job in the automotive industry. Our ACE partners play a crucial role in it.

'students and alumni are our future employees!'

In this edition the ACE Partners speak about the challenges they face every day., such as finding enough technical staff. The labour market survey that we recently commissioned also clearly shows this. Our recommendations give them tools to appeal to young people with a talent for automotive and technical professions. Properly qualified employees who continue to learn, grow and keep up with technological innovation throughout their lives – that is the ambition of the HTSM top sector (High Tech Systems and Materials). This is a perfect fit with the activities of ACE, because we see that sharing knowledge between automotive companies and between companies, knowledge institutions and the government is becoming more and more important. TALCOM, the Automotive Learning Community page 8 is a good example of this. Within TALCOM, knowledge institutes and the business community work together intensively on educating and training of automotive professionals, the talent we are all desperate for!

In this magazine you will find the ACE Dashboard, a reference work that provides a complete and up-to-date overview of the status of the automotive sector in the Netherlands at a glance. It's extremely useful!

ACE automotive center of expertise

A COMPLETE AND UP-TO-DATE VIEW OF THE AUTOMOTIVE SECTOR

The automotive sector is flourishing like never before. This is what the brand new dashboard developed by ACE Mobility clearly shows. It lists current facts and figures on five themes. Business developers Stefan Kraaijvanger and Niels Winter discuss the dashboard, which will be updated annually.

There is a lot of topical data available in the automotive sector. Independent research parties such as CBS, Bovag and RAI issue a plethora of data. But the way this information is published, is rather fragmentary. So what does the overall picture look like?

Making connections

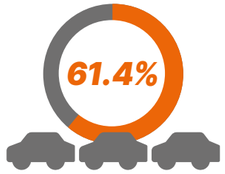
The Automotive Centre of Expertise, ACE Mobility wants to make connections between these different publications. ‘We collate the facts and figures for each theme and supplement them with our own data.’ The themes chosen were sustainability, politics, mobility, economy and human capital: ‘Issues that are of concern to the automotive sector in the 2020s.’

Themes

Apart from sharing facts and figures, ACE Mobility draws conclusions on the themes and places the data in the right context. ‘What do these facts and figures tell us about the current state of the market and projections?’

Trends

The aim is to update the dashboard annually. ‘This will allow us to show trends as from next year. Is employment increasing or decreasing? Will more or fewer electric cars be sold? And what about the number of IP applications by the Dutch automotive sector? These are some of the trends we will be watching.’



Biggest cause of congestion:
61.4% of congestion caused by

Public charging points in the Netherlands
Highest number of public charging points in Europe.

particulates from tyre wear
than the legally permitted amount of particulates from emissions

12.700.000

jobs for Europe due to automotive industry represent a **value of**

€906 billion

KRAAIJVANGER AND WINTER PRESENT A PREVIEW OF EACH OF THE THEMES

Sustainability

Everyone knows there are greenhouse gasses and particle matter in exhaust fumes, but it is less well known that tyre wear also generates particulates. In addition, forecasts for 2030 say that electric cars will make a significant contribution to the increase in particulate matter in the environment. So this is clearly something to be cautious about.’

Politics

The government will be actively investing in smart and sustainable mobility over the next eight years, but where will the money go and who will benefit?

Mobility

There is a clear increase in the number of kilometres travelled on Dutch motorways. It is even higher now than before the COVID-19 pandemic, and expected to increase further in the future.

Economy

Suppliers play a key role in the Dutch automotive industry. It is estimated that the sector has a turnover of close to EUR 20 billion, with suppliers accounting for more than half. Only a small portion of the production is intended for the Dutch market; some 90 per cent is exported.

Human capital

The transition that the automotive sector is going through impacts on the skills and expertise of the people working in the automotive world, and therefore also on education. With over 1.6 million vacancies in Europe, demand for workers in the industry has increased significantly over the past five years. But rising numbers of female automotive students, increasing salaries and an 82% guaranteed job opportunity for young engineers offer hope for the future.

You can find the complete dashboard online on acemobility.nl
Scan the QR code and go to all the automotive facts and figures.

‘The image of automotive needs to be clear to be an attractive sector for new colleagues.’

ENOUGH GOOD PEOPLE AT WORK IN THE AUTOMOTIVE INDUSTRY: THAT’S THE CHALLENGE

This edition focuses on people. In the automotive industry, technological developments are the name of the game, and the people working in this sector need to be well-trained and remain well-trained throughout their careers. ACE director Kees Slingerland discusses ACE’s future vision for human capital.

‘Human capital is not a topic that techies naturally relate to,’ Slingerland kicks off. But it is becoming increasingly clear that it is important to think about it. ‘The biggest challenge in the automotive industry is mainly the increasing shortage of well-trained people.’

Shortage

So, on the one hand, there is a shortage of young professionals. Some of these come from the automotive courses of vocational training institutes and universities, but they are also in demand in other sectors.
In addition, young people trained in electronics, ICT or business administration are also needed, but they are not normally inclined to pursue careers in the automotive industry, Slingerland explains.

Then again, the people currently working in the automotive sector also need to be retrained in new knowledge. After you leave school, you have to keep learning constantly in this dynamic world: life-long learning.’

Image

‘It is important here that people have the right image of automotive. It isn’t just nerds covered in oil and grease,’ says Slingerland. ‘Of course it is an industry dominated by technology, but automotive is above all a modern industry with a lot of innovation in countless areas that impinge on society, like the energy transition, use of renewable materials and safety. The image of automotive needs to be clear to be an attractive sector for new colleagues.’

This is why projects like TALCOM (The Automotive Learning Community) have been launched to bring the companies and training institutes closer together with respect to issues that are currently in play and develop tailored training courses. And that is not only focused on technology, but also on innovative, social and ethical issues.

Future vision

As the future becomes more dynamic and complex, ACE will keep a close eye on trends. ‘We sometimes think we know what the state of the world is. But it is especially important to stay ahead of the curve.’ Mobility of people and goods remains important in our society. The automotive sector enables mobility, but in the future it is likely to be shaped very differently than today. New mobility concepts offer new opportunities to develop our beautiful industry further. ACE is eager to contribute, both in content and technology, and in the ongoing development and growth of the people working in the industry.

LEARNING TOGETHER, LEARNING FROM EACH OTHER

On the following pages, we focus on TALCOM, The Automotive Learning Community. TALCOM is an automotive learning community that contributes to the knowledge of automotive and mobility professionals. The TALCOM community forms the link between automotive education and the mobility industry. Creating a learning community is the goal, whereby knowledge sharing and automotive innovation take centre stage, with the aim of realising a lifelong learning environment for current and future workers in the automotive industry.

The pillars of knowledge sharing are overarching pre-competitive automotive developments, demand-driven education and skills. Developing and maintaining a network is a vital part of this, and the basis of this network is laid by The Automotive Learning Community with partners from education and industry. Demand for and modular supply of automotive knowledge sharing and innovation will be set out on the ACE Academy digital platform.

Main themes

The main themes are Green Mobility (sustainable, clean and safe transport), Smart Mobility (smarter organisation of traffic and transport), Manufacturing and Materials (innovations in materials and production environment) and Human Capital (talent innovation). Digitalisation explicitly forms part of all these themes.

Would you like to know more?

Want to know more or do you have any questions? Please contact Corine Legdeur or Thomas van Berkel. Or check the ACE Mobility website for activities in the ACE Academy.

automotive center of expertise

Provincie Noord-Brabant

Europese Unie

OPZuid

Check the ACE Mobility website.

TALCOM AND HUMAN CAPITAL

‘By acting together, more innovative ideas emerge’

Without (happy) employees there can be no innovation. Unfortunately, staff shortages are a challenge that companies in the tech sector have been facing for some time. ‘That’s why Learning Communities like TALCOM are needed,’ believes Eva van der Boom. As Human Capital coordinator, she deals with labour market transitions for Holland High Tech, which includes ACE Mobility.

The tech sector faces a major challenge: there is a glaring shortage of staff. Eva: ‘As the top sector in the Netherlands, we want to drive innovations. We need people who can and want to work on such innovations.’ For this reason Holland High Tech has drawn up a Human Capital action agenda. ‘Human Capital is a broad term. For me, it means making conscious choices to deploy and retain the right people, taking into account the regional context and ambitions.’

In need of each other

The Human Capital agenda has four action points: linking up and collaborating with other top sectors, designing attractive courses for Intermediate Vocational Education and Universities of Applied Sciences, more women in engineering and shaping Learning Communities. ‘You might consider the latter as the main pillar. Thanks to collaboration in such a Learning Community – between companies, education and government – innovative developments take place, which can be quickly put into practice. This creates a flywheel effect. The pinnacle of such cooperation is when employees in the business sector receive training at the same place where Intermediate Vocational Education, Universities of Applied Sciences and University students work together on assignments for companies. To innovate, those different students and companies need each other, and by acting together, more innovative ideas or ideas arise to make innovations more applicable in the real world. Meanwhile, it is also an opportunity for companies to invest in future employees.’

More women in engineering

The next action point on the Human Capital agenda is what Van der Boom calls attention to: more women in engineering. ‘Girls are often reluctant to opt for a technical education. And those who do, often choose another sector after their studies or during their careers anyway. For example, because there are no flexible working hours or because they miss connection with colleagues. So in several places, you “lose” women in engineering. That is a crying shame. Women are important for diversity within companies and so as a result the gap in the labour market widens even more.’

Therefore, several developments are being attempted: for instance, students were challenged to come up with solutions to this problem. Some ideas – such as an awareness game – are being developed further. ‘In the future, Learning Communities may also play a role in this. They can try and come up with their solutions to get more women into engineering and also apply those ideas in practice.’

NL Holland High Tech Global Challenges. Smart Solutions

Marc Hendrikse, Executive Chairman at Holland High Tech: ‘Learning Communities are a solution to teach new technologies to young people. But also to the people already working in our sector who need to keep developing to keep up.’

Find more information about learning communities on our website: hollandhightech.nl or scan the QR-code.

Learning Community?

START WITH AN URGENT ISSUE

Learning Communities: what exactly are they? And what are they for? These questions were addressed by Tijmen Schipper, Associate lecturer in Lifelong Development at Windesheim University of Applied Sciences, in a position paper.

'A Learning Community is usually a public-private partnership where not only knowledge is exchanged, but where members also work on innovative products and processes. It is about connecting learning, work and innovation. Companies provide new insight in the market, students bring in fresh perspectives and learn in meaningful, real-life environments, and knowledge institutions conduct research and deliver evidence-based understanding. A learning community brings different perspectives together. It is a public-private form of co-creation that contributes to innovation.'

Starting point

'Everything starts with a common and urgent issue that you cannot solve alone. You need another party to take the next step. Depending on the issue, you determine which parties want to tackle the issue together and you set the goal in consultation. Then you discuss the structure you need. Who takes on what role and how much time is devoted to the project? The more common ground the structure has with what is customary in the particular industry, the better. Whether it takes the form of a sprint or a six-month cycle. The next step is to set up the process and work out a safe culture. Does everyone dare to speak their mind? Take your time to set up the process properly before attempting to solve the problem.'

Micro, meso and macro

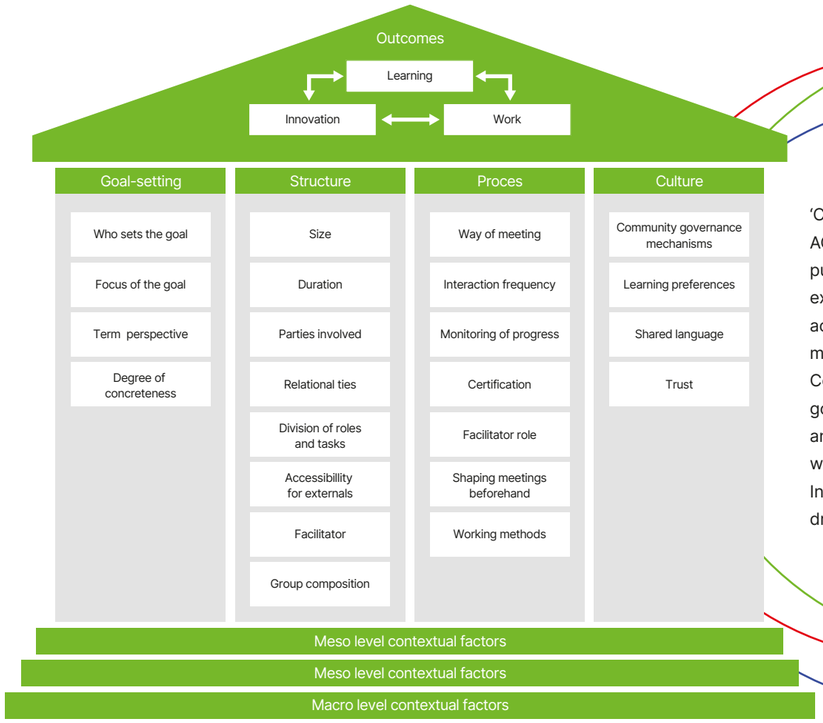
'Learning Communities have different manifestations and returns at micro, meso and macro levels. There are Learning Communities within a single knowledge institution, educational institution and company, but also Learning Communities that involve public and private organisations from the region or from throughout the country. The objective can also vary, from addressing an innovation issue within a company to solving a regional or national social issue.'

Points of attention

'Above all, make sure it doesn't become a talking shop -- there has to be a sense of urgency about a problem. The parties must realise that they are interdependent and that they need to get results as soon as possible. That makes that every Learning Community is different, depending on the issue and the sector. Perhaps Learning Communities from other sectors could inspire each other, such as automotive and logistics. They would have common ground and might be able to start a cross-sector Learning Community.'

Tijmen Schipper,
Associate Professor
Windesheim University of Applied Sciences, Zwolle

Read more about Learning Communities and Lifelong Development on the Windesheim website



'Centres of Expertise such as ACE Mobility are also a form of a public-private partnership. In my experience, depending on how actively people work together, you might also consider them Learning Communities. A Learning Community goes beyond knowledge sharing and exchange; it involves actively working on an innovative issue.
In any case, CoEs can be a good drivers of Learning Communities.'

Source: Schipper, Vos, & Wallner (2022). National Position paper Learning Communities (commissioned by NWO). Zwolle: Windesheim University of Applied Sciences.

ACE'S ROLE IN TALCOM

Learning Community

ACE was, together with Fontys University of Applied Sciences, the initiator of the creation of an automotive learning community in order to actively contribute to the knowledge of automotive and mobility professionals. In the TALCOM community we connect automotive education and the mobility industry. In doing so, a learning community has been created where knowledge sharing and automotive innovation are key. The aim was to realise a lifelong development environment for (future) workers in the automotive industry.

The pillars of knowledge sharing include overarching pre-competitive automotive developments, and demand-driven education and skills. Developing and maintaining a network is a vital part of this. Demand for and modular supply of automotive knowledge sharing and innovation will be further developed on several levels. A digital platform, based on mutual mobility and automotive challenges, is being developed in which colleagues from industry and knowledge partners can connect and where an ACE Academy with workshops, courses, masterclasses and other learning materials will be offered to students and employees in the automotive world.

TALCOM BRIDGES THE INFORMATION TRANSFER GAP

Electrification is a broad topic. Fontys wanted to have more expertise in electric motors, battery technology and safety. Fontys lecturer and TALCOM working group leader Desirée Seo joined the forces of knowledge institutes and companies in TALCOM. This enabled the purchase of a Volkswagen e-Up, which is being used to expand the knowledge of all parties.

Original idea

'It is important for workers and students to know the whole of an electric car and its systems. Big companies often have an electric vehicle or setup that shows how all the systems fit and work together, and that can be used to train employees. Small businesses often do not have such a setup or electric vehicle. So this Volkswagen e-Up, our demonstrator, is an ideal hands-on learning tool.'

Volkswagen e-Up in education

'Two years ago we first sat down with all parties, but it took some time to determine what we needed. We have had the car for about six months now. My colleagues at Fontys started working on the question: how can we integrate the Volkswagen e-Up in our education process? We now have a good programme in place that will be used for a safety course for student teams. We also want to use the car for first-year students, as a 'picture' in which they learn to recognise various components in an electric vehicle. We had all the individual components to show them, but they need to see them in the right context and how they are all connected.'

Making basic knowledge available to businesses

'The companies involved were very interested in this idea. After all, many employees with a mechanical engineering background also need to have basic knowledge of how an electric vehicle works these days. We are now finalising the introductory module. There is also a follow-up module in the pipeline on how to turn a vehicle electric. Companies can come to us to look at the car, but we can teach a practical module on site.'

Added value

'We were pleasantly surprised by how well our partnership within TALCOM worked. You sometimes don't know what people's expertise is, but TALCOM has made that much clearer. New companies were also added through the thematic sessions. There is increased awareness that TALCOM is a platform where you can not only gain knowledge, but also supply it. And this applies not just to companies, but also educational institutions. For example, companies are often already more advanced in the latest technology than the regular study programme, and students - the employees of the future - can absorb that knowledge through TALCOM. As a result, students graduate with the most up-to-date knowledge possible, which is great for the companies working at the forefront of technology.'

Future of TALCOM partnerships

'We need to be aware that TALCOM will come to an end at some point. We must ensure that we maintain partnerships, that companies and knowledge institutes can still find each other and help each other. Knowledge institutes focus purely on the knowledge, they do not need to make money. For companies, the situation is different. When they release information, the question is always: can other companies turn this into a competitive advantage? TALCOM allows us to bridge that gap, and that is what we should maintain in the future; the learning community we constitute now must continue into the future.'

Desirée Seo
Fontys University of Applied Sciences

DEVELOPING A TEACHING GUIDELINE FOR FUNCTIONAL SAFETY

When RAI Automotive Industry NL Green Mobility Manager Gerard Koning and his team developed a self-driving bus years ago, he found that they were true pioneers. There weren't any laws and regulations for self-driving cars yet. But how do you ensure such systems are safe? 15 years ago, he pioneered a topic that is now an integral part of autonomous driving: functional safety. 'Every automotive engineer, from students to experienced professionals, should be aware of it.' Under the banner of TALCOM, Koning is therefore developing a training curriculum on this topic.

15 years ago, functional safety was still a relatively new concept, what has happened since then?

'We were true pioneers at the time. We thought about how we could make sure that the bus would react to the environment in a certain way. At the time, there was really no one in the Netherlands with any relevant expertise. We picked up knowledge in Britain in particular, where the field was further advanced because of military development work. Now that smart, sustainable mobility is in great demand, demand for functional safety experts is also increasing. We want to minimise the risk of accidents and technical failure, which we do through various qualifications. It makes quite a difference whether the probability of failure is 1 in 10 years, or 1 in 10,000 years. If you can demonstrate that, you know what you are talking about. You do this by applying failure probability analyses to the system architecture.'

Value of failure probability analysis

'You can perform an analysis, but you can always forget something. If you start from the system architecture, you can assign a failure probability to each component, down to the level of nuts and bolts. By working in this way, with the accompanying substantiation, you can show why you qualify for certification. It is a way of demonstrating that it is acceptable to expose society to your products.'

Learning pathway in TALCOM

'We thought: wouldn't it be interesting to set up a teaching guideline? And we did that jointly with our partner TÜV and in consultation with industry. First, we mapped their needs. And this has resulted in a learning path consisting of nine modules: from validation management to safety management. You can follow them all, or choose one module. This is how we train the engineers of the future and how we ensure that industry can update its expertise.'

Do you also consult with education?

'We do. We noticed a gap between education and business. Functional safety currently receives very little attention in education. Therefore, we would like to start incorporating this topic. The idea is to do so for the first time in the academic year starting in September 2023. The other years will follow later.'

Gerard Koning
RAI Automotive Industry NL
Green Mobility Manager

WE HOPE TALCOM WILL CONTINUE FOR A BIT LONGER

Calibration company Trescal is involved in several TALCOM projects. Sales manager Kasper Pijs talks about the benefits that this partnership has yielded for them and where there might be room for improvement.

What does Trescal do?

'We are an independent, global organisation that helps companies with our expertise in calibration, testing and validation. I always say: 'Wherever measurements are done, calibration is needed.' So we work not only for the automotive industry, but also for the aerospace, pharmaceutical and energy industries. Companies can come to us for all physical quantities: from geometric to temperature and from mechanical to electrical.'

Concrete issues

'We have been members of RAI AutomotiveNL for years. That's how we got in touch with ACE and we immediately signed up for TALCOM. We felt there was scope to get more young people interested in engineering and calibration in this way. Besides, it is a good idea for our company to get involved in a project like TALCOM, because it may allow us to find answers to concrete work issues. This is how we expand our network.'

What is the added value?

'There is a lot of knowledge in the Benelux, but we still operate far too much in isolation. There are networking clubs, but you also need a place where you can ask questions and join forces. TALCOM provides a good basis for us to seek each other out more. For example, through TALCOM, we have entered into several partnerships with ACE partners.'

What areas are there for improvement?

'Education and the business world are two separate worlds, and we should be looking out for each other. Without TALCOM, for example, I wouldn't have known how we could connect with an educational institution. I believe that interaction makes us all better. Initially, cooperation was difficult, partly because COVID made education less accessible – we couldn't meet for coffee. But now, we meet eachother frequently.'

Time investment

'It does demand that you spend time on working with others. Meetings are no problem, but I also have to prepare PowerPoint presentations on our work and the issues we face in practice. And we also work with the other affiliated partner companies to jointly answer questions for the project. I will therefore soon receive additional support from our QA department -- that's the Quality Assurance department working on improving processes. Because it is well worth spending time on this.'

What projects are still in the pipeline?

'We are still in the 'Electrification' group and hope to get a 'go' for a SLIM scheme soon. That is the *Stimuleringsregeling Leren en Ontwikkelen in MKB-ondernemingen* (Incentive Scheme for Learning and Development in SMEs). CarrosserieNL also put a question to us in the area of high voltage. We actually hope that TALCOM will continue for a bit longer, then we can get even more out of it. Especially now that COVID is behind us, there are more opportunities to strengthen the connections between the companies themselves and education.'

Kasper Pijs
Sales manager
Trescal

Trescal

FURTHER DEVELOPMENT OF TALCOM

the automotive learning community

Now that the TALCOM project has allowed us to launch the Community and ACE Academy, several processes have been started for further development. With these we will be able to translate more in-depth knowledge and innovations into tailor-made courses, workshops, masterclasses and trainings. But we can also refine the ACE Academy as part of the digital community hotspot by developing the Challenge-Based Learning Community. In this way, we will realise an overarching tool to help companies understand internal learning needs and challenges.

Numerous initiatives are currently under way in order to continue developing and supporting the Automotive Learning Community. Some are focused on thematic further development of TALCOM working groups, such as the SafeCLAI project, where others combine different partners in further human capital development. For example:

SafeCLAI

The Autonomous Driving Working Group has set up the SafeCLAI (Safety Concept for Low-speed AV Implementations) project. In the course of 2021, this project idea was developed in both plenary workshops and many bilateral consultations into a concrete practice-oriented project proposal entitled SafeCLAI. The project proposal was submitted in April and approved in October 2021.
The project started in February 2022, immediately delivering an expansion of the working group due to the large partner group associated with the project.

SLIM scheme: strengthening the learning culture

The further development of the Automotive Learning Community in this SLIM scheme (SLIM is a government program focused on developments in smaller companies) will boost structural learning and development in a community (ecosystem) of the smaller companies in the automotive industry. It also includes knowledge institutions in this sector. The scheme aims to strengthen the learning culture within the (automotive) ecosystem. In the learning community, learning processes are set up and professional networks are formed, giving participants access to (specialist) knowledge. In addition to digital forms of learning, this includes provision of informal learning as well as proactive learning in the workplace itself, linked to technological innovation. By developing and fostering a new learning culture in companies, the scheme will respond to current and future innovative developments within the industry. The current digital twin development related to digitalisation and sustainability certainly adds to the sense of urgency.
In this light, a generic learning-needs scan for the ACE community is being developed and will be further refined over time. Getting the companies involved using the learning-needs scan yields insights, both at individual company level and the level of the ACE community.
This is done by focusing on how jobs and the necessary knowledge, skills and competences develop in the fast-changing technical environment of the automotive industry. The learning-needs scan thus acts as a flywheel for the learning community.

ACE made the application to the ministry of Sociale Zaken en Werkgelegenheid along with four SMEs: VB-airsuspension, AE magnetics, Metafas and Trescal. Partners of the project plan already include HAN, Fontys, Summa, TU/e and Lightyear.

National Growfund

ACE is a workpackage leader (Human Capital activities) within various Growth Fund initiatives with a mobility scope. ACE has written its own approach for this, which has now been included in four proposals. This affects the themes of battery, hydrogen, CCAM and charging infrastructure.
From this Human Capital participation, ACE is also able to bring other ACE projects towards the Growth Fund initiatives. Implementation of both the IMIAT program and the Hydrogen Test Facility within hydrogen and CCAM, respectively, are very promising.

In addition, the extensive analyses within the different initiatives leads towards specific intervention schemes and well organized cooperation. Backbone for all of that, during operation, will be the Challenge-Based Learning Community Platform.

AN INTERVIEW WITH CORINE LEGDEUR
COMMUNICATION ADVISER AT ACE MOBILITY

EXPERIENCE CENTRE FOCUSES ON DEVELOPMENTS IN THE AUTOMOTIVE WORLD

ACE Mobility took the initiative to create a VR Experience to give a view on the many developments in the automotive and mobility world. It is a nice game for as well automotive students as for a broad public. Donning a VR headset, you step into ‘the world of automotive’. It offers a realistic picture of the future mobility. ACE Mobility’s Corine Legdeur explains.

The purpose is to give the broad public, pupils, students, employees and employers in the technology sector a fair idea of all the work that goes on in the automotive sector. Legdeur thinks that the awareness of new technologies in mobility might get more attention. ‘Many people do not have a good idea of the developments in the automotive and mobility sector. The impact of skills needed in the automotive and mobility industry is enormous. Think for example of the technologies developed by companies like NXP that are applied throughout the whole automotive industry.’

Broad sector

What Legdeur and her colleagues mainly want to make clear is that the Dutch automotive sector has so more to offer than you might think. ‘For example, people who study computer science or who do a minor in sustainability can also make extremely important contributions. In fact, they are very welcome indeed! Conversely, training of automotive students is now so broad and technically advanced that their expertise can be of great value to other sectors.’

Immersion

With the Experience Centre we aim to dispel any misconceptions about the industry. ‘We want to show how versatile the field really is.’ But how can the ACE Mobility team get this message across? ‘We have opted for a Virtual Reality (VR) experience because it is such a great tool to illustrate what the industry entails. It is an immersive, low-threshold method that can be used in various ways, for example during information or career days,’ she says.

Together with students

ACE Mobility engages the help of students to flesh out the presentations and maintenance. Various ACE partners are involved: ‘They may have their own VR experience that we can add to our story.’ Legdeur is also looking further down the road. ‘At some point we want to develop an Augmented Reality experience, but let’s first make this success, shall we?’

NOW THERE ARE MORE POSSIBILITIES, DEMANDS ON ENGINEERS ARE ALSO INCREASING

Sensata Technologies has been a proud partner of ACE for ten years. Bart Kooi, Engineering Manager at Sensata, tells us more about this successful partnership.

What exactly does Sensata Technologies do?

'We develop and manufacture sensors and electrical systems for the automotive, freight, aircraft and aerospace industries, and vital components for the global energy transition. Every car in Europe has sensors from Sensata. Our sensors make means of transport cleaner and safer.'

How did you get to partner with ACE?

'Myself, I have only been involved for four years, but Sensata has been working with ACE for over a decade.
In the automotive industry, you often only speak to the end-customer. It is great to meet fellow companies through this partnership, for example, during the events organised by ACE Mobility. In some cases, we can give each other a helping hand. But you don't just meet competing colleagues, you also meet talented future workers. It is great that business, education and government are getting so much better at finding each other.'

Is that important?

'Definitely. The automotive industry is developing rapidly. Education systems, for example, are not yet set up to develop electronic cars. Education needs us -- businesses -- to innovate. And conversely, we need education, because that is where our future power is developing.'

Besides the automotive industry evolving at lightning speed, what other change are you seeing?

'Five years ago, electric cars were manufactured by purchasing complete systems. Now you see big players like BMW and Volkswagen focusing far more on questions like: what is safe? And: How do I make this car as ecofriendly as possible? No longer do they opt for complete systems; they prefer high-quality components for a safer and cleaner car.'

How do you see the future?

'There are going to be massive changes. The throughput of a development process and the application of new car parts are accelerating. We used to have two and a half years to develop a new sensor or other component.
Now you see plans being finalised within a year. You can also see that the issue of safety is high on the agenda. Sensors account for a major part of that safety. Everything has to be made and tested very carefully. Now that there are far more possibilities, demands on engineers are also increasing. They are under a lot of pressure.'

Is Sensata struggling to find good employees?

'For now, we are doing fine. We find a lot of talented students abroad. I think our company is attractive to students because employees here get to interact with all kinds of departments. On the one hand, you work here with standardised processes to develop new components; on the other, you speak to experts in a range of different fields within the company and the work is extremely varied. You will also be given responsibilities early and opportunities to grow. That has proved attractive to good employees so far.'

Sensata Technologies

AN INTERVIEW WITH JOOP VERHAGEN, PROJECT MANAGER

FEASIBILITY STUDY ON ACE HYDROGEN TEST FACILITY COMPLETED

It sounds simple: hydrogen is the ideal solution for the mobility sector in general and for long-distance heavy goods transport in particular. Or is that a little too simple? Perhaps. The fact is that hydrogen has a lot of potential as a sustainable energy carrier. Undeniably, there is still much work to be done before it is a viable alternative. The ACE Hydrogen Test Facility should help with that. Below is an interview with Joop Verhagen, who along with his colleague Frank Rieck has been immersing himself in recent months in the future world of hydrogen on behalf of ACE Mobility.

Although hydrogen is currently being experimented with as an energy carrier and fuel for electric vehicles, mass production is not yet a reality. 'The reason for that,' Verhagen begins, 'is that there is still a lot of development work that needs to be done, but the industry clearly sees potential. One-off prototypes are already being developed.' 'ACE Mobility heard the news, and took up the gauntlet and asked me to investigate whether there is a need in the market for a hydrogen testing facility that both education institutes and business can use.'

Heavy duty applications

According to Verhagen, smaller SMEs in particular are finding it difficult to test their applications of hydrogen as a fuel for electric vehicles. 'Creating an in-house test facility is far too expensive. And also, they often lack the expertise needed required to carry out tests. The idea is that a test facility is needed to ensure that wonderful innovations can be developed further and are not left on the shelf. A place where drive systems, components and vehicles including hydrogen tank filling can be tested, especially for heavy duty applications in, for example, agriculture and construction.'

Electromagnetic compatibility (EMC)

Verhagen involved companies from various sectors in the investigation in order to get the most complete picture possible of the challenges and bottlenecks. The main topic was electromagnetic compatibility. Verhagen also looked at current projects in the industry and a market survey was done. The HAN University of Applied Sciences was also actively involved in the process. It soon became clear that there definitely is a need for a shared test facility where complete vehicles can be tested and where testing under extreme conditions can also be carried out. Verhagen: 'If you want to bring a prototype to market, you have to be sure that it will work in extreme weather conditions, for example.'

Wish list

The wish list for the new test facility is now clear. There is a need for an EMC room for pre-certification of electromagnetic compatibility. And there is a lot of interest in an experimentation facility with climate chambers and workrooms. 'Companies should be able to rent this space for a certain period of time, like a day or a week. We will provide the test engineers, but companies can also choose to bring in their own people. Or, even better, opt for a combination of internal and external staff. That would offer valuable synergy.'

Extended workbench

In the corridors, the idea is already being called the 'extended workbench' for education and business. 'You could also call it "shared services", says the project leader. 'In any case, it must become a low-threshold facility where business and education institutes can reinforce each other, learn from each other and where innovation is facilitated. It will help students and employees get an idea of the innovations in the field of hydrogen, and will contribute to the continuous training of workers in the automotive industry.'

Cooperative

Verhagen: 'A benchmark study has shown that a cooperative is the most obvious legal form. It will allow the interests of business, knowledge institutes and financiers from the government and the business community to be properly represented: big and small companies, students and engineers, government and business, you name it. They will then jointly realise zero emissions innovations in the HGV automotive sector.' The project has a price tag of between 7 and 10 million euros. In the months ahead we will study how we can find funding for the cooperative. How many organisations want to invest in it will become clear after a call for tenders in the autumn. Other forms of financing like subsidies are also being looked into, and a suitable location is being sought. So, to be continued.

Joop Verhagen,
Project Manager

'The project has a price tag of between 7 and 10 million euros. In the months ahead we will study how we can find funding for the cooperative.'

After reading this, have you become interested in the ACE Hydrogen Test Facility? Or do you have another idea for the test facility? Then scan the QR code for more information.

AN INTERVIEW ALUMNUS HAN - DAF

I can put my technical knowledge to good use as a purchaser

Kfir Kedem (25) got his first taste of working for DAF when he studied Automotive Engineering at the HAN University of Applied Sciences. He enjoyed it so much that after graduation he returned to work full-time at the Eindhoven-based truck manufacturer. 'Great to see how every DAF employee plays their part in building and developing a truck.'

You are now Commodity Manager at DAF. What makes this job fun?

'It is very dynamic; every day is different. As a Commodity Manager, I am responsible for the procurement of truck parts. Some days I work in the office, on others I travel to suppliers, who are often based abroad. I talk to them about our strategic partnership and often inspect the production line. Communication is an important part of my job. In fact, it is a combination of talking, listening and solving problems together.'

You chose a different direction from many of your former classmates.

'True. Like many of them, I chose to study Automotive Engineering because I love cars. But I found out while studying that a job as an engineer did not suit me. There is not enough variety and besides, you spend a lot of time looking at a computer screen. When it was time to specialise after two years of study, everything fell into place. I chose business management. My parents were both entrepreneurs and they often talked about business at the kitchen table. So this specialisation was a logical choice for me. It turned out to be a great move: my current job is right up my street.'

You did two internships at DAF. How did you find those?

'That I came back for a second internship tells you all you need to know. The people who work here are wonderful. Even as a trainee you really feel part of a team. Both internship assignments were at the intersection of engineering and communication. For example, during my second internship, I laid the foundations for a tool that the sales department could use to sell more and more trucks in a more targeted way. I did research and made a preliminary first draft. That was fascinating.'

What things did you learn in your studies that are reflected in your current work?

'Although my studies were more technical than my current job is, I can put that knowledge to good use, for example, when I look at technical drawings of truck parts, or when I talk to suppliers. And I learned a lot about communication and doing market research. I still use that.'

And what proved different in practice?

'DAF uses very different systems than I used at HAN. You have to get to know those. The same applies to business processes, strategies and products. You only learn the real work in practice. That is why I was glad that at HAN you were occasionally assigned study projects, where you tackled a real problem from the field.'

How do you expect your career will pan out?

'The automotive industry is my passion. I can express it in my current job as a purchaser. So I am in the right place here. This sense is reinforced by the fact that innovations in automotive just keep coming. In my spare time, I run a website (www.auto-trendy.com) where I write about these innovations. I could easily write an article every day because I find this industry so interesting.'

Kfir Kedem
Alumnus HAN University of Applied Sciences - DAF

YouTube.com: Vlog - Werken bij DAF

IN CONVERSATION WITH STUDENT TEAM HAN HYDROMOTIVE

CUTTING OUR TEETH ON THE REAL WORLD

HAN Hydromotive is a student team from the Automotive programme of the HAN University of Applied Sciences who have been specialising in developing the most energy-efficient hydrogen-powered car possible since 2009. And they have been pretty successful, says Team Manager (and student) Joris Oosterhuis (21).

Can you tell us a bit more about the Shell Eco-marathon?

'The Shell Eco-marathon is an annual competition, named after its sponsor, Shell. It is a race, but it is not about being the fastest, but about the most efficient car. The aim is to achieve the lowest possible consumption per kilometre. Or rather: to drive the highest possible number of kilometres on one litre of fuel. This year the race was held at the TT Circuit in Assen.'

You finished third, what is the secret of your car?

'We mainly focused on simplicity. No bells and whistles, but an efficient vehicle that does what it is meant to. And that helped us during the race. Our car didn't break down once.' Another reason for the success was that 'we developed an alignment system that reduces friction between the tyres and the road surface and makes the car even more fuel-efficient.'

Did you do better than the last edition?

'Absolutely. In 2019, our team drove 630 kilometres on 1 litre of hydrogen. This year, we extended that by over 300 kilometres. This was mainly due to a new fuel cell that is more economical and lighter. As a result, we are closing the gap with the competition. Also, this vehicle is much lighter compared to its predecessor.'

Apart from this third place, what else has it brought you?

'It is a great learning experience to put the theory into practice. And it is also invaluable to work together with other students. Last but not least, we have gained new skills, such as sponsorship recruitment, marketing and PR.'

To what extent is HAN Hydromotive a stepping stone to the business world?

'As students, we are cutting our teeth on the real world. For example, we drew up the contracts for sponsorship deals ourselves. The fact that we already had quite a few contacts in the business world came in handy when finding internships, because the threshold is far lower.'

How do you see the future of HAN Hydromotive?

'It would be great if we could form a multidisciplinary team, so that we can also use the expertise of other HAN programmes, from electrical engineers to communication specialists. The ultimate goal is to contribute to a more sustainable future with a team of enthusiastic students.

Joris Oosterhuis
Team Manager HAN Hydromotive

Never mind the job description; look at the person

Due to technological innovations and staff shortages, there are hundreds of vacancies in the automotive sector. So the Fontys HRM Dynamic Talent Interventions lectorate and ACE joined forces, and conducted a labour market study into the recruitment and selection process.

The study outlined the current situation based on data analysis of 53 ACE partner vacancies as well as interviews. It was quite a job, but it showed that there are clearly areas for improvement. For instance, currently, many steps have to be taken before interview candidates are approached by the hiring manager. Researcher Floor van Dijk: 'The connection between recruiters and the department needs to be far closer. One option might be for recruiters to be involved longer in the hiring process. By sending messages early on, you give the applicant the sense that their application is being looked at. You can also collect feedback directly that may improve the recruitment process.'

Meet & greet

A big question facing both small and large companies is how to find the right people. Where is the intended target group? Van Dijk: 'Companies draw up a vacancy based on a job description, while actually you should look at the person themselves.' There are better ways than posting a boring job ad online and then waiting to see who turns up. 'One of the ACE partners organised a meet & greet where interested parties could get a feel for the atmosphere in the company. This is a way to connect with people, to explore opportunities to make a team stronger, because you zoom in on someone's skills rather than the overall package in a job description. The number of applicants at that company was many times higher than a regular job posting online.'

Follow-up research

Now that the points of attention have been identified and initial recommendations made, it is time for the next phase. The lectorates of Ger Post, a lecturer in Industrial Engineering and Entrepreneurship, and Marian Thunnissen, a lecturer in Dynamic Talent Interventions, will undertake the follow-up research. The aim of this follow-up is to give ACE partners concrete tools. ' These may be employee journey surveys, where several of potential and current employees are interviewed at a company. This is done to map the process of exploring, applying and onboarding and their perception of it.' The goal is to gain insight into when the employee makes crucial decisions and what factors are involved. Students will also be asked to help explore the survey.

You can find the full labour market survey report using this QR code

RECOMMENDATIONS RECRUITMENT & SELECTION IN THE AUTOMOTIVE INDUSTRY

Knowledge of labour market supply
Personnel needs of organisation are now paramount. Knowledge of the target group and the labour market is crucial, but currently inadequate.

Recommendation:
Put the intended candidate centre stage
- Develop and strengthen own skills in marketing, communication and sales
- Use expertise of marketing department in your organisation

Focus on traditional candidates
Despite developments in the automotive industry, many companies are still looking for regular automotive engineers, and candidates with just the right experience and expertise. Job postings and the recruitment process leave little room for 'unusual suspects'.

Recommendation:
Be receptive to 'unusual suspects'
- Start a broad recruitment drive
- Utilise other recruitment strategies and channels to tap into different target groups
- Look at development potential of less perfect candidates

Distinctive job descriptions
Vacancy announcements contain many detailed standard texts based on job descriptions, making them too long and unremarkable to applicants.

Recommendation:
Provide specific information on job
- Limit job requirements to what is truly necessary
- Use social media and other means, such as videos, to show what the work is like

Attractiveness of the organisation
Recruiters have insight into the uniqueness of the organisation and what attracts applicants to it, but this is rarely used and made explicit in the recruitment and selection of new employees.

Recommendation:
Promote uniqueness of organisation
- Create your own unique 'working for...' website
- Take inspiration from other companies, such as Coolblue

Set-up of the recruitment process
In larger companies, the recruitment process is fragmented, and lack of cooperation between recruitment and the line manager can affect turnaround times and candidate contact. The high number of vacancies puts pressure on recruiters, causing them to focus on quantity over quality in the process.

Recommendation:
Fast turnaround & good contact
- Ensure short lead times
- Supervise and train executives in onducting interviews
- Professionalise recruitment activities aimed at strengthening quality

Floor van Dijk & Marian Thunnissen

WE'RE LIKE A SMALL BUSINESS

IN CONVERSATION WITH STUDENT TEAM NOVAFAST

Completing the iLumen European Solar Challenge with a home-made solar car, that is the mission of Fontys University of Applied Sciences student team NovaFAST, which has ACE as its main sponsor. Their car bears the name 'Dragon'. Team Manager Oskar Kolman (23) and PR Manager Harm Spanjers (21) are passionate about their project.

Oskar Kolman
Team Manager

Harm Spanjers
PR Manager

What does the team look like?

Oskar: 'NovaFAST consists of 19 people working full-time on this project. We study at various Fontys courses, such as ICT and mechanical engineering. So we are learning a lot from each other.'
Harm: 'Oskar and I both study mechanical engineering. When we heard about this task in the studyprogramme 'Electric Driving' where this car is being developed, we immediately wanted to join in. And we have never looked back. In fact, we worked throughout the summer!'

So you are pretty ambitious! How come you had to work so hard?

Harm: 'In September, we want to compete in the European Solar Challenge at the Zolder racing track. That's a 24-hour race. To be ready on time, we will have to work flat out over the next few weeks.'

What is your team's goal?

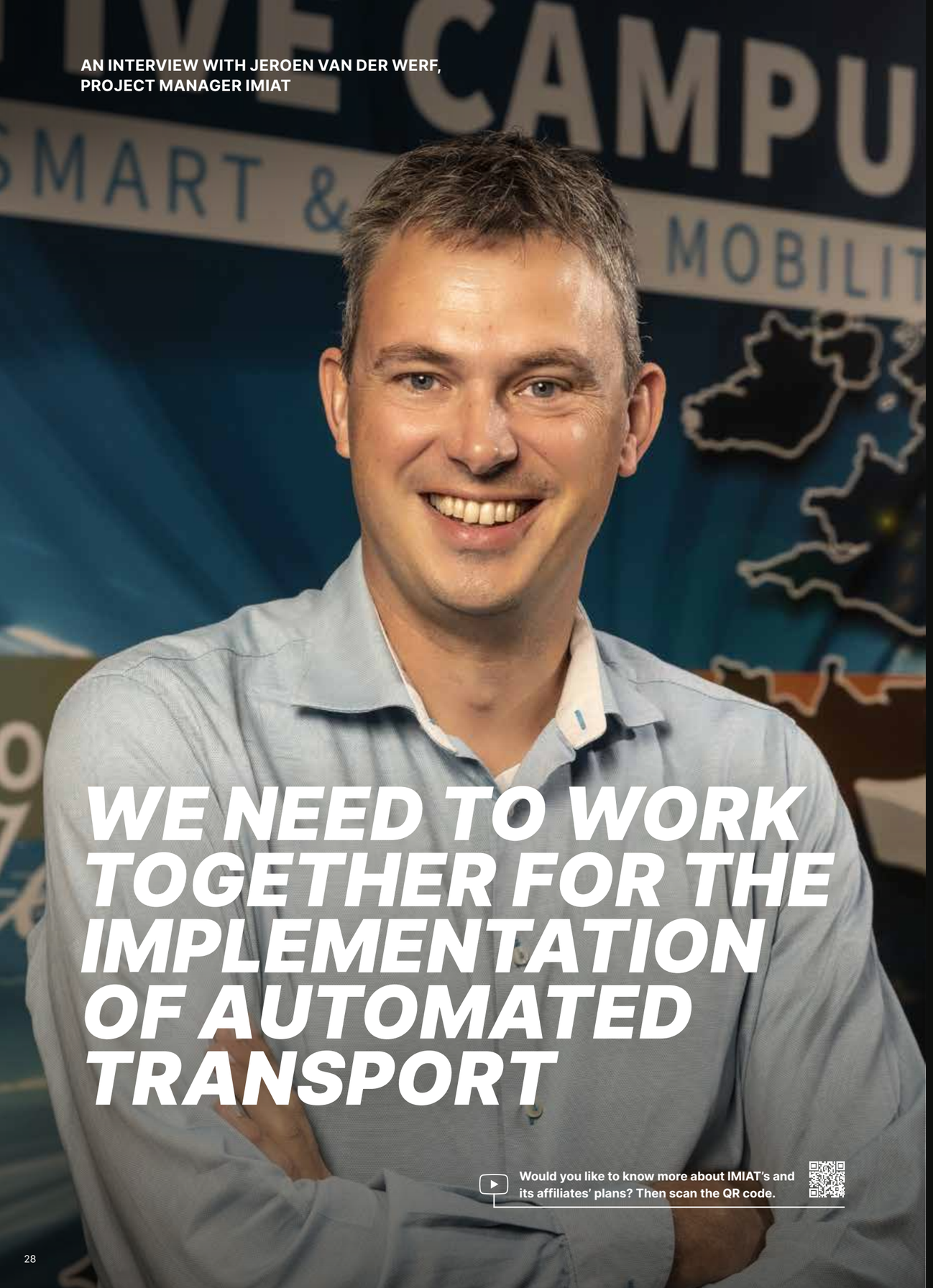
Oskar: 'Our car is intended to serve as a showcase to convince the industry that the personal transport life cycle can be carbon neutral. Currently, the focus is still on reducing emissions during use, but the production and the recycling processes are still environmentally damaging. We want to change that.'
Harm: 'To achieve that we use new materials. For example, we replace recycled carbon with flax, which is vegetable material.'

What has struck you most about this minor?

Harm: 'We have had quite a few setbacks. Some parts broke and delivery times were disappointing. But we have also learned about patience and perseverance!'
Oskar: 'I got a lot of energy from the multidisciplinary team. I found it inspiring to see how you can build a top team based on motivation and talent, where everyone can contribute their personal expertise.'

NOVAFAST

AN INTERVIEW WITH JEROEN VAN DER WERF,
PROJECT MANAGER IMIAT



WE NEED TO WORK TOGETHER FOR THE IMPLEMENTATION OF AUTOMATED TRANSPORT

Would you like to know more about IMIAT's and its affiliates' plans? Then scan the QR code.

About two years ago, the IMIAT programme was launched. Its aim was to realise the implementation of Connected & Automated Transport (CAT) in road transport in partnership with governments, industry and knowledge institutes. An interview with project manager Jeroen van der Werf.

What does IMIAT mean exactly?

'The acronym stands for Innovation Mobility Implementation Automated Transport. It's quite a mouthful, but it boils down to allowing transport companies' vehicles to drive autonomously. We want to realise this goal by 2030. This may sound ambitious, but we know it is a pressing issue in the logistics sector.'

Why automated freight transport?

The Netherlands has a lot of high-tech know-how in ICT, data and other technologies that the automotive industry also uses. In the field of Connected and Automated Transport, these technologies have already been applied on a small scale in passenger transport, but in automated transport, there is still a long way to go. It is vital that companies, knowledge institutions and government participate.

'After the successful European Truck Platooning Challenge in 2016, in which electronically linked trucks drove in a convoy, transport companies came to ACE Mobility with a new problem. Their growth is constrained by a shortage of drivers. Because CAT no longer has a driver in each vehicle, you can run more vehicles with the same number of drivers. It also makes traffic flows more manageable, improves traffic throughput, reduces transport costs and contributes to the market share of Dutch logistics service providers.'

'We conducted a comprehensive social cost-benefit analysis. As a result, we now have a clear picture of the financial benefits of this development, which we actually quantified. It requires substantial investment from private and public parties, such as for adapting infrastructure and permitting processes, but it will ultimately save billions of euros: 66 billion euros by 2050.'

IMIAT's next steps

Introducing CAT untested overnight is unthinkable. Professional phased experiments, simulations, tests and homologations of all innovations must be completed successfully first. The test phase is executed in a virtual environment ('Digital Twin') that is sufficiently similar to the real situation. In addition, testing and implementations will take place in a closed environment, semi-open environment and real-life in areas relevant to the use case. The Experiments Act allows for professional road testing after proper preparation.

'We want to start by breaking down the big objective into manageable, smaller working groups and projects. For example, by testing on closed sites or at night on the road between Helmond and Eindhoven. We also want to engage additional parties and formulate the first concrete steps. Because we can tell you what we want to achieve, but above all we obviously want to implement it in practice and achieve our goal.'

What does IMIAT need for this?

'The more companies from different sectors - i.e. engineering, logistics - commit to this, the better. And not only to companies, but also education institutes. We are also eager to forge international partnerships. For instance, we recently started working with SZTAKI, a research institute in Hungary that has a huge test facility for this kind of research programme. In any case, we hope to be taking real concrete steps from the summer of 2023.'

Jeroen van der Werf,
Project Manager
IMIAT

AN ACE INDUSTRY PARTNER SPEAKS

IT IS OBVIOUS THAT WE HAVE TO INVEST IN YOUNG TALENT

ARRK SPG is the latest addition to the ACE Mobility family. Managing Director Mario Neijts explains why his company has entered into this cooperation.

What does ARRK SPG do exactly?

‘We produce plastic parts and assemblies for various sectors, including the automotive industry, from prototypes to pre-series and small-series products. Our customers are often in the upper segment. For example, brands like Porsche and Audi, but also DAF and Mercedes-Benz Trucks.’

Can you give an example of a project?

‘We recently completed a project for Porsche, for which we made about 140 sets of bumpers for a new car model. Our prototypes are extensively tested and validated. Based on that, improvements are added to the design before they go into (mass) production.’

How big is your organisation?

‘Our organisation has been part of the Japanese ARRK Corporation since 2006. This has led to enormous growth and endless possibilities. Worldwide, some 3,000 people work for the organisation, but in the Netherlands - in Nederweert - a small group of 12 operate as supply chain directors between our customers and our local as well as global suppliers. The solution-oriented culture of our organisation has not changed.’

Why this cooperation with ACE Mobility?

‘Like almost all companies in the technology sector, we are looking for technical talent. And especially for technical project managers. So it’s obvious that we need to invest in young talent. Young people are going to drive the next phase of growth and development. We hope to gain some exposure through the ACE partnership. Also, we hope to forge connections with various knowledge institutions so that we can hopefully kindle interest among potential employees for our work and our company. For example, we go to the ACE Automotive Career Day to contact graduates.

It is important for us as a company to attract talented students, otherwise you won’t survive in the marketplace with the current innovative developments.’

What are you looking for in potential new employees?

‘We are looking for enterprising personalities who feel they own a project. You don’t have to be extroverted -- we have plenty of guys who do important work on their computer. It’s all about feeling responsible and wanting to develop yourself and broaden your mind and experience. That is what we are looking for at ARRK SPG.’

What can future interns and g raduates expect from ARRK SPG?

‘Students on a work placement or graduation project come into contact with a whole range of techniques, from machining to injection moulding, from finishing to complex assembly and from bumpers to lighting. Trainees shadow more experienced youngsters and see what will be expected of them when they start working for us. All our employees are fully involved in the company, from the customer’s first request to the actual end product. So you go through the whole process. And that is a great learning experience.’

How do you see the future?

‘We are currently doing work for three major start-ups that are developing EV projects, including Helmond-based Lightyear. By cooperating with such innovative parties, we are in a sense forced to keep innovating. So we will continue to operate at the cutting edge of technology and the market.’

ARRK
SPG Pre-Series Tooling & Prototyping

AN INTERVIEW WITH JAN VAN WIJK

Besides connecting businesses and education, ACE is also engaged in conducting research in the automotive sector. ACE Head of Research & Development Jan van Wijk briefly explains the studies and discusses their purpose.

Van Wijk: 'The industry has changed tremendously in the last decade. We have made giant leaps in vehicle development. As ACE Mobility, we really need to be on top of these developments by conducting studies in tandem with our partners. If you don't, you will lose track of what the market needs in terms of innovation.'

Not only are those studies interesting in the context of sustainability, they also bring many opportunities for Dutch industry. 'Ultimately, you really want those studies to have long-term effects. Of course, we are hopeful that the Netherlands will be at the forefront of innovations in the mobility industry.' says Van Wijk.

A SELECTION OF ACE'S RESEARCH PROJECTS

Project title: **ACE Hydrogen Test Facility**
Partners: HAN, Hyster-Yale, NPS-Driven, Cap-Gemini, Zepp Solutions, UMS, Holthausen Clean Technology
Duration: 2-3 years
Started in: 2021
Ends in: 2023
Explanation: Exploring the possibilities of setting up a professional test and experimentation centre for hydrogen vehicles.
Contact: Joop Verhagen

More information on page 20 of this magazine or scan the QR code.

Project title: **IMIAT**
Partners: DB Schenker, KLG, Ewals Cargo Care, TRTA, TBA, ICTGroup, Technolution, V-tron, Capgemini, Siemens, Terberg, Monotch, HAN University of Applied Sciences, Fontys University of Applied Sciences, Erasmus University
Duration: 10 years
Started in: 2020
Ends in: 2030
Explanation: Working with transport and mobility industry partner to make freight transport autonomous.
Contact: Jeroen van der Werf

More information on page 28 of this magazine or scan the QR code.

Project title: **Monitoring**
Partners: RET, ViriCiti, VDL, e-Traction, Van Hool
Duration: More than 2 years
Started in: 2022
Ends in: 2025
Explanation: Monitoring 50 electrified city buses and verify the data collected
Contact: Stefan Kraaijvanger

More information about this project, scan the QR code.

Project title: **HTSM Automotive Roadmap**
Partners: KPMG, HAN, Fontys
Duration: 10 years
Started in: 2020
Ends in: 2030
Explanation: Overview of expected developments within the automotive industry worldwide.
Contact: Jan van Wijk

More information about this project, scan the QR code.

INTERVIEW WITH ALUMNUS HAN - HYSTER-YALE

At Hyster-Yale Group I can develop and I get loads of opportunities

Every day, Mike Ramharak (27) walks among the huge forklifts and container handlers of Hyster-Yale Group in Nijmegen. As Vehicle Integration Engineer, he is part of the design and development process of these trucks, from prototype to production. Within a year at Hyster-Yale, he took the first step towards this managerial position.

What makes Hyster-Yale a great employer?

'They just let me get on with things. It's up to me to decide how I manage my team and how I approach certain issues. But perhaps best of all: I can develop here and get loads of opportunities.'

So what opportunities has the company offered you?

'I arrived at Hyster-Yale through a traineeship. Although the intention was actually for me to work with a different company every year, I liked it so much that I stayed. I started out as a design engineer. After eight months, I was told that my supervisor would move to a new position. I was doing so well that I jumped at the opportunity to replace him. I was given a year to prove myself. That was three years ago.'

How have you benefited?

'Because I was offered this opportunity, I was able to learn a lot in a short time. As a rookie with little work experience, I had to manage far more experienced people. Fortunately, I like a challenge. I have learnt to use the talents of the people in my team and I make sure I work with the team, instead of just telling them what to do. I have also learnt technical skills, partly by checking designs from colleagues.'

What does your working day look like?
'At Hyster-Yale, we make forklifts and container handlers from 6 to 52 tonnes. What my day is like, depends on the stage a project is in. Take for example designing or building a prototype or setting up production. I find the prototype phase particularly interesting. After all, I love being innovative. I also enjoy problem-solving and ensuring the right people in my team are in the right place.'

In 2018, you graduated in Automotive Engineering at HAN University of Applied Sciences. Why did you choose that study?

'I already knew as early as the second year of high school that I wanted to do that course. Unlike other students, I didn't tinker with cars and scooters back then. So I had a lot of catching up to do on cars and parts knowledge in the first year. Fortunately, it didn't take long to get that under my belt. I eventually chose the pathway constructor/tester and product development as a special subject. I found the freedom you get in this study and the technical workshops that allow you to use your hands extremely valuable.'

Anything that could still be improved?

'From my perspective, I would have liked even more focus on business. Someone who conducts analyses in a research centre might see it differently. But for me, it would have been nice to see more project-based work at school, because it is very inspiring and because you reap the benefits in business.'

Mike Ramharak
Alumnus HAN University of Applied Sciences Hyster-Yale

YouTube.com: Vlog - Working at Hyster-Yale

ROBIN HUIJERJANS WINS ACE STUDENT AWARD 2022

ACE STUDENT AWARD 2022

‘Actually, I will just keep doing what I did’

Robin Huijerjans - Winner ACE Student Award 2022

In July, he received his diploma and at the beginning of August he started his first day working as a draughtsman-constructor at VIRO in Echt. But Robin Huijerjans (22), a graduate of the Fontys Automotive Engineering programme, has already won his first prize. His graduation project at VIRO won him the ACE Student Award 2022. So it’s hardly a surprise that the company where he did his internship hired him immediately after his graduation.

Did you find there was a gap between school and practice? After Robin found his feet at VIRO, he didn’t feel out of place. ‘I can actually just keep doing what I did,’ he notes drily. ‘My schooling provides a good basis. I just need some internal training and I hope that I can join a project soon.’

Ammonia

His prize-winning graduation internship was suggested to him by VIRO. The engineering firm, which works for both automotive and industrial customers, asked Robin to develop a tank for ammonia applications. Robin decided to broaden the research question. ‘The techniques for using ammonia as a fuel are very similar to how LPG is also used as a fuel. I wanted to take a broader look at the possibilities of using ammonia as a fuel and how that would affect the total powertrain.’ In consultation with his project supervisors, Robin started out with an extensive literature study. ‘The subject was new to me,’ he explains. ‘There were some minor projects, but the development is really still in its infancy.’

Gathering knowledge

He reviewed, analysed and compared hundreds of papers and research reports. Gradually, he decided to focus on trucks because of the long distances driven. ‘Of course, the long-term perspective is fascinating. For the short term, it soon became clear that, as with LPG, using ammonia in a combustion engine is the most logical option at present. But going forward I am convinced it will become possible to use ammonia in a fuel cell.’ Robin is aware that the technology still has some way to go. But, who knows, further research may be one of the keys to solving the nitrogen problem in Dutch agriculture. Robin: ‘Imagine that in the future you could capture the ammonia, store it locally and then use it as fuel, then we would solve several problems at once. The ammonia surplus and diesel emissions would be a thing of the past.’

Formula 1

The jury of the ACE Student Award 2022 raved about the young engineer’s plan. And Robin will be putting the knowledge he has gained into practice on a daily basis. The minor ‘Future Power Train’ that he took in the final phase of his education is a perfect fit with his new job. Robin: ‘It is great to be able to put what I have learned into practice. And even better, I will be learning a whole lot more!’ What actual prize did he win? Robin beams. ‘Two tickets to a European F1 Grand Prix. I will be going some time next year.’

Last year’s winner

In 2021, Umang Tulsi won the ACE Student Award. He 'collected' his top prize on 10 June, when he attended the Grand Prix at the Red Bull Ring in Austria. 'It was an extraordinary trip, especially as it was my first visit to Austria.

The atmosphere, the venue, the pre-race events and the Formula 1 race itself made me appreciate winning the 2021 ACE Award even more. This dream would not have come true without my participation in the ACE Student Award. I'm sure Robin is also going to enjoy his trip!'

Do you want to know more about Umang’s winning graduation project? Then scan the QR code below.

YouTube.com:
ACE Student Award 2021

AN INTERVIEW WITH SASKIA LAVOO, PROGRAMME MANAGER AT ACE MOBILITY

ACE Mobility Professional Programme

Students who are close to graduation, but want to gain an extra bit of experience can take advantage of the ACE Mobility Professional Programme, which in addition to technical skills, helps them to develop their personal skills.

'The origin of this programme was that the business community felt there was a gap between market demand and the level of knowledge and personal skills of recent graduates,' project manager Saskia Lavoo explains. 'Also, education institutes had been toying with the idea of putting together this kind of programme for students in their final year for quite some time.'

Not a test, but a learning experience

The programme is aimed at 'preparing' students for working life and everything that comes with it. 'To be admitted to the programme, you go through an application process, just like you would for a job,' Lavoo says. ACE partners sit on the application committee and help pick candidates.

Lavoo emphasises that the ACE Mobility Professional Programme is not an official part of their regular learning programme. So there is no test associated with the programme. Lavoo: 'It's about active participation and applying knowledge in practice.'

Not just technical expertise

Students participating in the programme are offered a session every fortnight organised by one of the ACE partners, from RDW and VB-Airsuspension to Hyster-Yale and DAF. 'The sessions are focused on professional development skills. So it's not just about technological expertise, but also mainly about presentation skills and solution-oriented thinking.'

Early exposure to practice has proved valuable for both students and businesses. 'We see participating students making huge strides in the last six months of their studies. In fact, they often join the companies involved afterwards. How great is that?'

How do partners and students experience

High time to talk to a student and an ACE partner who participated in the programme.

MARC DE BRUIN, RDW

DURING THE TALKS, YOU GET REALISTIC EXPECTATIONS OF EACH OTHER

RDW has participated in the ACE Mobility Professional Programme before, and will do so again next year. Senior Consultant Marc de Bruin discusses the reasons behind RDW's participation.

What kind of company is RDW?

'We are a government service, but still an independent administrative body. Our responsibility is certifying and monitoring all kinds of vehicles in terms of safety and mobility. We also supervise companies, register and provide a range of data and issue documents. We employ some 1,800 people in our 21 branches in the Netherlands.'

What challenges do you face?

'Modern cars are like mobile computers, and that involves (digital) security risks. For instance, it is now possible to pass on the data generated to third parties, such as insurance companies. Digitisation is moving incredibly fast. We also conduct research focusing on digital and technological developments. So it's not just vehicle certification. Our role is far broader.'

How did RDW get involved with the ACE Mobility Professional Programme?

'We have been an ACE partner for many years. I also teach at a University of Applied Sciences and I feel the interaction between teaching and the professional field is a bit like a calling for me. Education needs teachers who bring practical experience, and the professional field is eager for new talent. The programme brings these closer together and provides students with a realistic picture of what exactly RDW does.'

What role did RDW play in the programme?

'The first time I gave a presentation at the Automotive Campus; the second time, participants joined us in Veldhoven. During the break, they were given a tour and some saw that their idea of what RDW actually does was wrong. It is not humdrum civil service at all. There is a lot of in-depth study involved, because we also do research. It is important that students get an accurate picture of the various activities that RDW is responsible for. And the programme is instrumental in that.'

Will you participate again with the next batch of students?

'Absolutely. No matter how good your job application text may be, it is only face to face that you really get realistic expectations of each other. And that also happens during the programme. Students will find out that we are also involved in registering gadgets, like drones, for example. And we can discuss opportunities for a possible internship and ask about students' motivation. Because even though interning at a nearby testing station may sound good, for students the ICT office in Groningen is probably far more interesting, because that is all about technology and innovation. So this programme provides an opportunity for both the student and the company to get to know each other better.'

RDW

STIJN HUIJER, STUDENT

YOU QUICKLY GET A GOOD IDEA OF THE PROFESSIONAL FIELD

Next year, Automotive student Stijn Huijer (25) will graduate from the HAN University of Applied Sciences He has already completed the ACE Mobility Professional Programme and tells us about his experience.

Why did you decide to join the ACE Mobility Professional Programme?

'I was halfway through my internship when I heard about the programme. It is actually aimed students who are close to graduation, but I was still allowed to participate. The programme seemed to add value to me as a student because you can dip your toe in the water at different companies. It's a straightforward way to get a sense of the professional field.'

How did you like the programme?

'I really enjoyed it and it was well organised. It did not take much time, as it is only seven half-days. And you not only get a glimpse of the work, but also of the atmosphere in the companies. As long as you go into it without preconceptions, listen carefully and ask questions, you'll be fine.'

What did you think of the group?

'I liked that I could follow the programme with a small group of seven people, so you can connect faster and it doesn't take long to get to know people. On top of that, not everyone had the same study background. Next to automotive students, there were business administration students. You quickly find that they have a different perspective on certain things; they see your research project with very different eyes.'

Which course from the ACE partners stood out for you?

'At Louwman's, I learnt more about presenting. That's not really my thing, but it was invaluable. I took away from that that I really need to prepare well and that I'm no good at improvising. It's important to keep that in mind when I have to give presentations in my work. But the visit to VB-Airsuspension really stood out for me.'

What can you tell us about that?

'I already knew VB-Airsuspension a little bit. But the visit only made me more excited. The versatility of the work was appealing to me, but also the atmosphere on the shop floor. I was so excited that I sent an open application letter immediately after the visit. That worked out well, as I will graduate there next year. I am going to study the damping effect of air bellows.'

What would you like to pass on to students considering joining the programme?

'Just do it. It's nice to get out, have a day off your usual study activities, without it taking up too much time. Just keep in mind that you need to plan your final assignments before graduation well, because it is a shame for everyone if you miss one of the programme days. At the end of the day, you do it for your own good.'

This school year, the ACE Mobility Professional Programme will take place from February to June 2023.

Want to know more about the programme or are you interested? Then scan the QR code

ACE MOBILITY FUTURE DAY

Digitalisation and mobility – these were the topics in focus at the ACE Mobility Future Day, which was held on Wednesday 18 May at Summa Automotive in Helmond. Speakers from major companies such as TomTom, ANWB and KPN gave lectures on digitalisation and the future of mobility. The audience was a mix of business people, international guests and of course students.

How will ICT applications impact the automotive sector? How does digitisation affect research, and what does it mean for education and the employment market? Here, too, it is vital for (future) employees to have sufficient knowledge of ICT. How can you use smart ICT tools to influence people's behaviour? These are just some of the topics that were discussed at the event.

You can find some of the answers in the pages of this magazine. There, the keynote speakers look back and share their views on the ACE Mobility Future Day.

WE MUST INNOVATE TOGETHER

Edwin Bussem is a Smart Mobility Business Developer at KPN. At a conference about mobility, KPN might not be the first company to come to mind. But the telecom provider plays a vital role in smart mobility.

A smart car that tells you where you can park, that keeps a parking space free or detects a cyclist diving across the road. These are just a few of the applications made possible by cars communicating with their environment. 'This requires a good internet connection, a party that links data together and cooperation between the government and the automotive industry,' explains Bussem. He has seen internet usage increase dramatically in recent years, partly due to the introduction of smart cars. 'The average connected car (NUMMI) may use up to 25 GB of data per hour. That is what an average smartphone user uses over several months.'

'The automotive industry is stuck in a rut.'

Smart linking

And yet we are only at the beginning of a true transformation. Most cars do not yet have such an internet connection and the necessary infrastructure is not yet in place. 'In order to make smart driving possible, the parties I just mentioned need to find each other. We as KPN can contribute to this. We know how to send data safely, but we do need help from the mobility sector to come up with new, creative applications.'

Who is going to pay?

According to the business developer, demand for smart solutions will continue to rise in the years ahead. 'It is becoming ever busier on the roads and at the same time we are striving to keep traffic accidents and CO2 emissions to a minimum. The government expects all data to be sent securely. And automotive companies also need to be certain that their self-driving cars cannot be controlled remotely, either accidentally or by bad actors. And above all, we love our creature comforts. Watching Netflix, listening to music on Spotify, all these things that need an internet connection to work. And that is just the car itself. What about all the infrastructure? In short: more and more demands are being placed on telecom companies by the automotive sector.'

And that demand is not easy to deal with. To guarantee fast 5G network coverage, many more phone masts must be installed, especially in places where currently not that many are needed, such as along roads. Bussem: 'At the border crossing near Venlo alone, we would be nine masts short of meeting the needs of the cars of the future. That is just fifteen kilometres of motorway, so imagine how many additional masts we will need for the rest of the country, especially in city centres. Who is going to pay for those? It is not profitable for KPN to keep installing new masts and the government can't afford it. So is it a cost that OEMs must cover? Or will the consumer foot the bill?

Appeal to the industry

Bussem calls on people in the industry to come up with ideas. 'KPN has been active in the industry for some time, but for a telecom provider like ourselves it isn't easy to see what the future of automotive will look like. Still, we are very keen to support it. That's why we need input from the automotive industry.' And although the automotive industry desperately needs internet connectivity, the parties do not yet know how to find each other. 'The automotive industry is very set in its ways, and reluctant to address the question of who owns the data. That is why we must be prepared to talk to each other, to innovate together. We are ready to start, but we cannot wait forever.'

Takeaways from Future Day

'The presentations of the other speakers made me realise that during the COVID pandemic they had not stood still. Bringing different parties together is what makes me tick, so I want to do that for KPN. It's working with students that I really love: they have grown up in the digital age and think outside the box. And that's what the automotive industry needs now.'

Edwin Bussem,
Smart Mobility Business Developer
KPN

THE HUMAN COMPONENT SEEMS TO BE AN AFTERTHOUGHT'

Stella Donker is an Associate Professor at Utrecht University. While the ACE Mobility Future Day focused on technological developments, Donker was asked to discuss the human factor. 'It is a component of this transformation that we are going through, that should not be underestimated'

The automotive industry is currently all about technical innovation. Car dashboards teem with innovations that aim to improve the driving experience and enhance driver safety. But is that actually what the driver wants? Not always, according to Donker. 'We are currently transitioning from being in control of the car to completely surrendering any sense of control. That is a step that should not be underestimated. Because when is the human in charge and when is the computer in charge?'

She gives an example. 'Sensors of (partially) self-driving cars work well, but not perfectly. Suppose there is snow on the road, so the lines between the lanes are no longer visible. Then the control of the car is temporarily transferred to the driver. But how do you do this and when? Is a beep sufficient to alert the motorist, or is it more effective to address the driver personally, by name?

Confusion

Donker calls the current period – with semi-autonomous driving – a confusing, undesirable interim phase. 'It places very high demands on the driver, because he or she has to be alert all the time, even though in many cases no action is needed. The driver should know what driving mode he or she is in and what is expected of him or her. If there is a mismatch, this can lead to an accident. For example, if the driver mistakenly believes that the vehicle is in adaptive cruise control mode, when in fact it is in non-adaptive cruise control mode, a collision may result.'

Information display

Donker gives another example: 'On the motorway there are matrix signs that provide drivers with information. Currently, some companies are developing products to display this information in your car. That sounds good, but we need to answer a few pretty critical questions. Such as: why provide information in the car that is already available? And, if there is a good reason for this, how do we protect motorists from information overload? And ensure that they get correct information?' Donker therefore argues for an interface with a high level of user-friendliness, and for applying knowledge from the social sciences to find the best way of transmitting information to the driver.

Joining forces

Donker calls for companies to work with behavioural experts in the development of innovations in the automotive industry. At present, experts are still too isolated from each other. Ideally, I see a team where everyone sits together, including behavioural scientists and technology philosophers. You need the expertise of all parties to build a beautiful and safe integrated product. And in such a team context, you can analyse problems together and come up with solutions.'

Stella Donker
Associate Professor
Utrecht University

'Create teams where everyone sits together'

Takeaways from Future Day

'I noticed that as a researcher I too tend to be in my own bubble. The other speakers made me realise that the human component tends to be an afterthought in technological innovations. What makes sense to me as a researcher may not make sense to a businessman or woman. So days like the Future Day contribute to insights like this. It demonstrates that we have to talk to each other.'

OPEN INNOVATION IS THE KEY TO SUCCESS

Bálint Vanek is Senior Research Fellow at the Institute for Computer Science & Control (SZTAKI). During The ACE Mobility Future Day, he talked about what the automotive industry can learn from aviation and vice versa. He also zoomed in on the Autonomous Systems National Lab, a partnership of several organisations.

Takeaways from Future Day

'I liked that students could also ask questions. It is good that this way they get in touch with experienced business leaders.'

'SZTAKI runs the lab, in which several research institutes work together. I see it as a hotbed for innovation. We use, among other things, the ZalaZONE test facility, which is a veritable playground,' Vanek kicks off. Just as on the Automotive Campus here in Helmond, government, knowledge institutions and industry are actively collaborating there. 'ZalaZONE is a test track where both companies and academic research institutes can test their latest ideas.'

Learning from aviation

Numerous tests are being conducted on autonomous vehicles and autonomous production systems at the track, from acceleration and braking tests to endurance tests and trials of the advanced driving assistance system ADAS. ZalaZONE is also widely used by the aviation industry. Does Vanek see similarities between the two worlds? 'Absolutely. Indeed, I think they can learn a lot from each other. In certain areas, aviation is way ahead of the automotive sector. Consider, for example, the autopilot. It has been in use in aviation for 20 years and is absolutely reliable.'

Working together

With cars also becoming increasingly autonomous, Vanek says these two sectors can learn a lot from each other. 'So my appeal to people is: exchange knowledge so that not every industry reinvents the wheel.' He gives an example of companies that are already on the right track. 'Take for example Lilium Jet, which collaborates with Audi on security. Or Airbus working with automotive companies on a City Airbus concept. Learn from each other, benefit from each other's knowledge. Open innovation, that's the key to success.'

Future

How does Vanek see the future? 'I expect that in 10 years' time, people will no longer own vehicles, but use mobility solutions (Mobility as a Service - ed.). You will soon have the choice of, for example, public transport, (robo)taxis and eVTOL (electric air taxi) planes. You choose between them depending on your destination. Of course, cars will remain available, but they will be (far) more autonomous than they are today. In fact, I expect us to be running tests with level-5 vehicles at our track in ten years' time. These cars are so advanced in terms of autonomous driving that a driving licence is no longer necessary.'

THE AUTOMOTIVE SECTOR SHOULD BE FAR BOLDER

Technological developments are moving at an incredible pace. This also puts demands on companies that are active in this sector as suppliers, such as TomTom. This Dutch manufacturer of navigation systems grew rapidly in the 2000s. But whereas some companies just rest on their laurels, TomTom has chosen to innovate again and again. In his keynote speech Paul Hesen outlined his views. 'In my opinion, the automotive sector should innovate and implement innovations much faster.'

'Who remembers what this thing is?'

Hesen shows an unwieldy, square device with an LCD screen at the front and a large suction cup on the back. The students in the room look puzzled. A few of the older attendees of the ACE Mobility Future Day raise their hand. 'This device, our first own navigation system, was a real game-changer in the 1990s. It meant an end to getting lost on the road, and to marital breakdowns on the way to the south of France,' jokes Hesen.

It now feels like ancient history; after all, everyone now has the maps of every city and village in the world in their pocket. 'The world has changed at a rapid pace. It was up to us to keep up with it. We knew: in the future we would no longer be selling devices, but our software and maps. And so that is what we have focused on. In fact, they are now used in all iPhones worldwide, but also in in-car systems of major car brands such as the Volkswagen Group.'

Speed of innovation

To keep up with these changes, Hesen says it is important to keep innovating. For TomTom, but also for all companies and suppliers in the automotive sector. 'That's why I say to everyone in this room: dare to innovate. Of course it does happen, but on average innovation moves slower than in other sectors. We need to be bolder. Take Tesla as an example. It issues frequent software updates, sometimes perhaps a little too frequent. But it is better to correct errors than to sit back. If automotive companies continue to sit back, they will miss the boat and other (software) parties will jump into the breach. It is time to make a giant leap.'

Flywheel effect

TomTom itself also continues to innovate. 'With every product or software update we want to achieve a "flywheel effect". It takes a lot of energy to set a flywheel spinning, but with each turn it gets easier and eventually it keeps going by its own momentum.' During his presentation, Hesen used YouTube as an example of such an innovation with a flywheel effect. 'In the beginning, nobody knew about the video platform. Gradually, people started watching videos and uploading them themselves. This got viewers and advertisers interested, and it then spread like an oil slick. That is how it was with us. Our navigation systems were respected, but it was only when we added live traffic information that they really took off. The more cars share their data, the more accurate traffic predictions become and the more people will choose the product.'

Paul Hesen
VP Product Management
TomTom

Takeaways from Future Day

'The location of the Future Day made sense to me: knowledge institutions like Summa College are where you are likely to find the employees of the future. There is so much demand for good employees that students can practically pick the job they like. So it was good that there were also college students in the room, and they asked good questions.'

Mitsubishi Turbocharger & Engine Europe (MTEE) has been an ACE partner for eight years. Turbo Engineering Manager Mark Bos talks about the links between the company and the HAN University of Applied Sciences and what role young engineers play in MTEE's future plans.

What is the story of Mitsubishi Turbocharger & Engine Europe?

'MTEE started in Almere in the 1990s to serve the European automotive industry with turbochargers for car engines. We have since grown from a sales outlet of the Japanese Mitsubishi company to an independent development site employing 90 engineers. We provide full service to customers' development projects, from design to the pre-development phase.'

How did you come to partner with ACE?

'We were looking for interns and graduates and for this we connected with the HAN University of Applied Sciences. In fact, many of our employees were trained there. As we got to know ACE better, we started to consider the partnership as a way to scout for talent: who could work with us? We felt it was a good way for our company to connect with graduates. We have now been an ACE partner for eight years and it is great to have a voice. In technological innovations, we believe that is necessary.'

How important is the link to education?

'MTEE has a specific product in turbochargers for car engines. It is important that students already learn about them during their studies, as an addition to their regular curriculum. That ensures that students become more knowledgeable about them and that they can find out what to expect in the workplace. We also enjoy giving lectures, because it brings us into contact with young, inquisitive people who might come to work with us. Also, graduate students often have a positive impact on collaborative projects. For example, Rami Awad won the 2020 ACE Student Award with his graduation research. That was a great achievement for him, but it was important work for us too.'

What are you looking for in a potential employee?

'The many partnerships in the European automotive industry require a certain type of engineer. Obviously, he or she must be well trained in technology and development. But to convincingly convey cases to our European customers' techies, communication skills are just as important. This is what we have been working on with ACE: how can we ensure that there is also room in the curriculum to develop those kinds of skills?'

How will electrification affect MTEE?

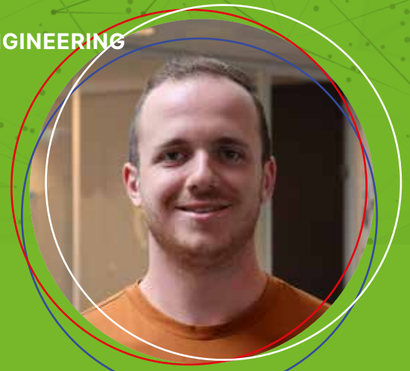
'The turbo we are working with now is mainly intended for internal combustion engines. But we are now also investigating turbo boosters and solutions for fuel cells. We are lucky to be part of a large company, as it gives us plenty of room to develop new products. By getting in now, we have until 2030 for product development. Young engineers also play an important role here, as they bring us enthusiasm and innovation in electronic engineering.'

MITSUBISHI TURBOCHARGER AND ENGINE EUROPE B.V.

YOUNG ENGINEERS PLAY AN IMPORTANT ROLE IN OUR PRODUCT DEVELOPMENT

INTERVIEW WITH ALUMNUS FONTYS - CAPGEMINI ENGINEERING

Automotive is broader than just product development



Lorenzo Riem's (25) studies started out a bit tentative, but once he was in the right place, he never looked back. After his graduation project at consulting firm Capgemini Engineering he was offered a job.

You started at the Eindhoven University of Technology (TU/e) seven years ago, but apparently it took you a while to find your niche?
'I did know that I wanted something to do with engineering or automotive. At the TU/e, they let you design something, but other people would then test it. I wanted to do that myself. At Fontys University of Applied Sciences, I was allowed to tinker, it was far more hands-on, which suits me better.'

How did you learn about ACE?
'During my Electric Driving minor, I worked on a solar car. I was in the first class. That's how I got to know ACE, which was the main sponsor. I looked at what engines were being used and I also worked on merging all the data in the team. When I got close to graduation, I already knew ACE, and that is how I came to apply for the ACE Professional Development Programme.'

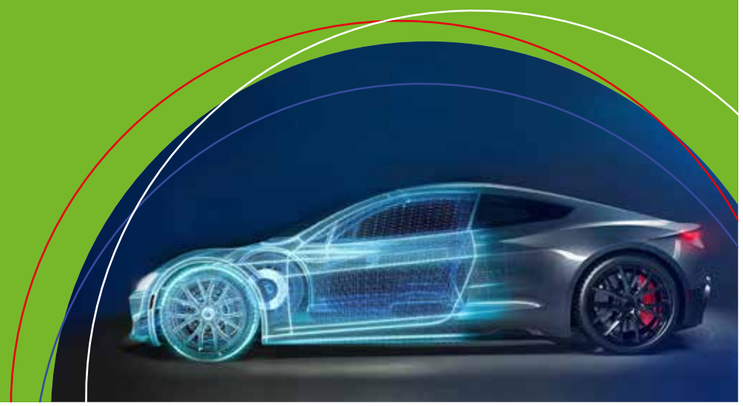
It's unusual to get into ICT via automotive, how did that happen?
'I did my graduation project at Capgemini. That was about designing a self-driving car. After graduation, I was offered a job at Capgemini as a consultant in the field of software engineering. Many people think of automotive only in terms of product development, but it is broader than that. I am not a developer, I find advising companies and data analysis interesting. And there is also a great need for people like that. For me, this position was new, but I taught myself.'

What are you doing now?
'I am a junior consultant at Capgemini. For example, I now work for DAF, where I also did an internship in my final year. For my work, I sometimes have to travel. In fact, I have just returned from Istanbul. I am goal-oriented and enjoy working with other people to find solutions. This can be quite challenging, as different cultures sometimes give rise to different ways of working. In the Netherlands, for example, we tend to work on the basis of the technical guidelines and plans, while in other countries solutions are sought along the way. You have to be able to adapt.'

Where do you imagine your career going?
'It is difficult to see what the future will bring because technological developments are happening faster than ever. For now, I want to develop further as a software/consultancy engineer first. I do see myself advancing to a senior position in due course. Maybe one day I want to start my own business, but for now I'm focusing on my current workplace.'

Do you have any advice for new automotive students?
'You have so many choices and opportunities during your studies to explore what you really want. Take those opportunities and – if you are lucky, like me – you will soon find out what you like. It is energising when you find the right position.'

Lorenzo Riem
Alumnus Fontys University of Applied Sciences
Capgemini Engineering



AN INTERVIEW WITH GENTIANA TIJSSEN

JOBPORTAL
an online platform where students and companies can link up

ACE's mission is to narrow the gap between the automotive industry and education. And with the current job market and rapid technological developments, companies are lining up to snare students. Therefore, ACE decided a few years ago to build a jobportal.

From internships to graduation and also job vacancies, students and companies find each other on the online platform. The idea originally arose in order to offer ACE partners companies an additional service, and it proved to be very successful. Whereas there were 10 requests outstanding in 2020, there are now 90. So the number of users is increasing and demand continues to grow. It is great for our ACE partners to be able to quickly find good students to fill their vacancies, but it is also an effective way for students to find a workplace.

If you thought ACE was only offering the platform to the Universities of Applied Sciences, you'd be wrong. ACE is also promoting the jobportal through its own ACE channels such as social media and the newsletter. Although vacancies are currently mainly aimed at automotive, engineering and mechanical engineering students, ACE wants to widen the scope. The automotive sector is in transition, and there is an increasing demand for general engineering staff as well, such as ICT, data and sales experts. Therefore, we want to attract students with various backgrounds to our jobportal.

Gentiana Tijssen
Communications Officer
at ACE Mobility

Are you keen to take a look at the jobportal and discover the latest vacancies? Then scan the QR code.

OUR TEAM, OUR HUMAN CAPITAL

Kees Slingerland
Director at ACE Mobility

The automotive industry is one of the most exciting industries, with big challenges in sustainability and great opportunities in trendsetting ICT applications. There is a great deal of new know-how that must be developed, and the ACE network, with universities and businesses, is a dedicated structure to get this done. The ACE team manages a broad R&D portfolio in the fields of renewable fuels, self-driving cars, monitoring and test facilities and applications of light-weight components.

At the same time, we are urgently in need of more highly educated and trained young professionals. With the Universities of Applied Sciences and in collaboration with ACE's partners, we are developing education and training activities for students and professionals (Life-Long Learning) and our Job Portal offers opportunities for internships and junior engineer positions.

With our activities and in cooperation with our partners we play an important role in the automotive industry. Together, we create the future of mobility.

Saskia Lavoo
Programme Manager
at ACE Mobility

'My working week is dominated by the ongoing development of ACE Mobility. I am the connection, so to speak, between the partners, students and educational institutions. Being that connection is what I love about my job. I am always on the lookout for ways to respond to industry needs, and for projects and activities that our partners can team up with.

We are getting better and better at finding each other in this fast-paced automotive world. That is very important, because we need each other. So I hope that in the future, education and business will become even better attuned. It is a major challenge for us as a team to bring these worlds together, both in terms of development and pace.

Our team has a clear mission, and everyone at ACE is equally committed and responsible.

WE ARE ACE

Niels Winter
Business Developer
at ACE Mobility

‘I spend half my time on IMIAT (Innovation-hub Mobility on Implementation Automated Transport), the project for developing autonomous freight transport, and the rest of my working week on international contacts, especially on building a student network. We are focusing on France and the US in particular, but we are also linking up with international companies that want to partner with ACE.

I have been working here since January. I graduated last year in Automotive Management at Fontys, a course that is now called Automotive and Mobility Management. Last year, I did my graduate internship at IMIAT. That’s when I decided I wanted to work here. There are so many interesting developments in this sector… We are dealing with new technology and developments are happening at lightning speed. At ACE, I get a behind-the-scenes look at all kinds of companies involved in automotive.

My goal for the near future is to work with a consortium to launch an IMIAT project focusing on the realisation of autonomous driving, with autonomous vehicles driving around a test site. I would also like to help develop ACE as an independent project organisation. Internationalisation is part of that; developments do not stop at national borders. We want to become a well-known brand in Belgium and Germany too.’

Gert Blom
Business Development Manager
at ACE Mobility

‘From 1 October, I will be joining ACE as business development manager on a self-employed basis. Until the end of September, I was employed by the Helmond city council. I was already in touch with ACE director Kees Slingerland to help the organisation with a European project proposal. I joined Helmond city council in 2003 to put the city on the map internationally. That is going pretty well now, so it was time for something else. At ACE, I am sure I can take on a lot of new challenges. I am very much looking forward to that.

I will be searching for European project partners on behalf of ACE. A great deal of funding comes from the EU, and although governments are important, their role is mainly as facilitators. One example of that was that the Dutch authorities allowed the closing of the motorway between Eindhoven and Helmond for a trial of self-driving cars. But we are also finding that the European Commission in particular is increasingly focusing on what citizens want. Are they in favour of self-driving cars, for example?

In 2023, the Automotive Campus will again host Automotive Week. I was already chairman of the organising committee, and I still am, but now as a representative of ACE. We have a small but strong team at ACE that is really focused on content, and ready to take on any challenges together.’

Joop Verhagen
Project Manager
ACE Hydrogen Test Facility

‘At ACE I am investigating the feasibility of a test and experimentation centre for using hydrogen as a fuel in electric vehicles and machinery, especially for heavy duty applications in transport, agriculture, civil engineering, forestry, industrial sites, terminals and the like. That is to say: long-distance transport vehicles and heavy machinery.
We are in the process of finalising the business plan. By the end of this year, we will know if we are ‘go’. We are working on the final touches: the location (Helmond or Arnhem?), the revenue model and the educational content.

I have been working for ACE for about a year now, averaging two days a week. I am a firm believer in the energy transition and in hydrogen as an energy carrier for electric transport, which is why I work here. A lot of one-off prototypes have been conceived, but now it’s all about developing them into real-world applications. We are good at that in the Netherlands; many companies are working on it. For the ACE Hydrogen Test Facility, cross-fertilisation between education and industry is very important and that is what ACE Mobility is good at. The working atmosphere here is wonderful. We have a good mix of youngsters and older people. The young people know where to go, and the older ones know how to get there. It is a marriage made in heaven.’

‘It is great to be involved in a sector that is on the verge of a huge change’

Gentiana Tijssen
Communications Officer
at ACE Mobility

‘What appealed to me the most about this organisation, is what ACE stands for: strengthening the connection between education and the automotive industry. We make all this happen with a small team. The strength of our team lies mainly in its dynamism and dedication. All members have their own specialism, but when it’s crunch time we help each other out where we can. So together we get a lot done.

In recent years, we have made great strides and have succeeded in raising ACE’s profile significantly. People from the industry but also from government authorities now know us and know that we stand for quality.

We have our work cut out in months and years ahead. Internationally, we want to put ourselves more on the map. In this context we set up an international student exchange programme last year. And, of course, there are magnificent events coming up. Next to a number of small-scale meetings and sessions, the ACE Automotive Career Day, the Automotive Weekand the presentation of the Student Award are again scheduled for the coming year. These are great occasions to further enhance the partnership between industry and education!’

Corine Legdeur
Communication Adviser and
Project Developer at ACE Mobility

‘What inspires me at ACE Mobility is that we are getting better at facilitating innovation opportunities for industry and anticipating labour market challenges together with industry. What makes us unique is that we are the connection, the linking pin, between industry and education. In my role, I am jointly responsible for ACE’s positioning and profile.

I am also involved in the project development of the programme on self-driving freight transport and other programmes. We collaborate with the Centres of Expertise of other universities of applied science, with governments and, of course, with our own partners.

We also see that the learning community is evolving; these are developments that ACE Mobility facilitates. I find our digital visibility and platform developments inspiring. Through our partnerships with other Centres of Expertise we are always learning new things, and that makes this position very interesting.’

Jan van Wijk
Head of Research & Development
at ACE Mobility

‘The automotive industry is changing at an incredible pace, so it is vital for ACE to keep abreast of the latest developments. As head of research and development at ACE Mobility, I am involved in the studies that ACE conducts.

Businesses and education institutes have to partner with each other, as this ensures that people stay focused on what the market needs. And that applies not only to technology, but also to areas like human-social, economics and sustainability.

In the many years that I have been involved with ACE Mobility I have seen the organisation grow enormously. We are now playing a proactive role for all parties who come to us for advice. Ten years ago, I couldn’t have predicted that, so it’s inspiring to witness it up close.’

MOBILITY DRIVES US

Stefan Kraaijvanger
Business Developer
at ACE Mobility

‘I am in daily contact with several leading automotive companies and my role is to support a range of large projects. It’s seriously cool! What I like most about my job is that I have learned so much in a few years, not only from incredibly experienced people in the industry, but also from my immediate colleagues.

Last September, I did a part-time course in project management, and I now apply the knowledge I gained there in my daily work. The projects I work on are diverse and innovative. I help look for suitable partners, but also for ways to obtain grants.

Something else I really enjoy doing is working with second-year automotive students. I organise and give them workshops. It is great to be in a world where there is so much innovation and change. I am eager to stay involved in this for a long time to come.’

Jeroen van de Werf
Project Manager IMIAT
at ACE Mobility

‘The Innovation Mobility Implementation Automated Transport project (IMIAT) is one of ACE Mobility’s initiatives. Connection is what ACE stands for, and the same is true of the IMIAT project. Our goal is to put the Netherlands at the forefront of the implementation of Connected & Automated Transport (CAT). Of course, you can’t put CAT into practice untested overnight; experiments, simulations and tests have to be conducted first.

In the Netherlands, we have plenty of technological know-how in ICT and data, but in the automotive sector it has only been applied on a small scale in passenger transport. There is certainly much more to discover and realise in the field of automated transport.

The aim is to get this done by 2030. There is of course far more involved than just designing and realising vehicles, for example developing them in such a way as to be fully in compliance with adapted rules. As challenging as this may seem, there certainly is no lack of interest in this project. The participating organisations are excited, and so that gives us plenty of confidence. We sense the Netherlands is ready for this!’

Thomas van Berkel
Programme Manager Human Capital
at ACE Mobility

‘TALCOM stands for The Automotive Learning Community. It is a project that is all about collaboration between business and education. Automotive professionals, now and in the future, constantly need new knowledge because technological developments in this sector are happening at lightning speed. That is why up-to-date education programmes that respond to transitions in the sector have never been more important. By having education and industry tackling challenges together and developing new learning formats and complementary training materials on those topics, they can meet industry needs. That is our vision for this project.

We set up the ACE Academy where organisations, students and workers can work on particular topics and also find a training, module or learning environment where they can enhance their competences, knowledge and skills. We also explicitly bring together regular education, commercial training and professional training so as to make our top sector agile in the long term.

The growing group of organisations that are active in the community jointly contribute to the creation of the Automotive Learning Community. I find bringing innovation, education and business together highly inspiring. And in TALCOM, everything comes together: working, learning and innovating.’

Ingrid van Lierop
Office Manager
at ACE Mobility

‘I have now been part of the ACE team for almost two years. My background was in social work and in sales; I can perfectly combine the two in my job as office manager. I think it’s tremendously cool that education and industry come together here.

My role is to make sure that the office runs smoothly. I take over some of my colleagues’ work where necessary. But it is also great to see many different parties connecting through us.

The two years I have been here have been extremely varied. I really like that in my work. The supporting role I play in events and projects gives me a lot of energy, and I enjoy the variety of the job. Finally, working in a small team to me is very special, because it means that I get to see the whole organisation and all its different projects.’

Frank Rieck*
Head of Research and Development
at ACE Mobility

‘I have been involved with ACE right from the very beginning. For four years now I have been a Research & Development consultant at ACE. I always say: we have to learn from the past and work for the future. So it is good to see that ACE Mobility has undergone a huge change in recent years.

The small team at ACE Mobility has generated a wealth of great ideas. The people here understand each other, so we quickly agree on what the next step should be. And we can take those steps this because we are increasingly taking the initiative. We have become even more entrepreneurial.

I am thrilled to be a part of this wonderful ACE family that is working for the future of the automotive industry. Of course, we do that for instance by setting up valuable research projects together with our partners. Our work has helped to put the Netherlands on the map as a leader in smart e-mobility. That is something we have achieved together nationwide. With such a team, I am keen to keep working, even though I am already officially retired.’

** Frank was involved with ACE Mobility until 1 October*

Members of the ACE Board:
- Henk Bos (chairman)
- Ella Hueting
- Gerrit Averesch
- Albi van Buel

Members of the ACE Supervisory Board:
- Rob Verhofstad (chairman)
- Joep Houterman
- Marinka Nooteboom
- Hans Corstjens
- Henri Koolen

INTERVIEW WITH ALUMNUS HAN - PON AUTOMOTIVE

I enjoyed expanding my network

The ink on his HAN Automotive Engineering degree is not yet dry, but now that Boaz van der Hart has completed his studies, he has the world at his feet. Unfortunately, that involves making choices, and he's always found that difficult. One thing is certain, though: sustainability is going to play a role in his career path.

Why did you study automotive engineering?

'Automotive and especially mobility have always appealed to me. To be honest, I chose this course because I wanted to finish my first year quickly, because I was planning to go travelling. When I came back from a wonderful trip around the world, I wasn't sure I wanted to continue with this study.'

But you did?

'I must thank my mentor for that. He said: 'Boaz, this was not what you promised me. You have to finish what you started.' And so I did. Then the passion returned, especially when I became team manager of the HAN Hydromotive Team. It was pretty challenging though, after travelling for so long, to suddenly have a lot of responsibilities.'

How did you come into contact with ACE Mobility?

'I met Saskia Lavoo through the Hydromotive Team, as ACE was the main sponsor. And we clicked right away. Thanks to ACE, I was able to expand my network, for example, by meeting people at career days. It's a small world, so it really helps if you know a few faces.'

What has ACE Mobility meant to you?

'I enjoyed meeting ambitious students in the the ACE Mobility Professional Programme. We started this pilot with four of us. A larger group of students is even better, though, because you learn most from interaction. I found it extremely valuable as a student to get an idea of what working life would be like. There is no pressure yet, you meet a company "by chance" and that can throw up a few surprises. For example, I found out that the RDW not only checks license plates, but also does plenty of research. I have learnt many skills, not least in presentation. It was all well organised, and we finished with a ceremony and celebrated on the go-kart track.'

You have just graduated. What's next?

'I did an internship at PON Automotive, a car distributor in the Netherlands. Initially, I did preliminary research for Porsche on complaints about their charging station service partner. Then I did a market research, which led to recommendations. After my internship, I was able to continue working on a zero-hours contract over the summer. Of course, I could opt to get a master's degree. Many people say that is what I should do, but I have decided to keep that for later. I first want to get some work experience under my belt. I want to focus mainly on sustainable developments. I am convinced that clean mobility is achievable, provided we have the right mindset. But obviously it would be quite a shock to trade in your own lease car for one that you share with five others. I wonder what the future holds for me!'

Boaz van der Hart
Alumnus HAN University of Applied Sciences
Pon Automotive