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MARIJN MAAS
DARE TO FALL ON YOUR FACE WITH AN INNOVATIVE START-UP

BYE BYE, BUNKER THE END OF AN ERA
SUCCESS

‘The Bachelor College seems to be successful. It was not a gamble, but rather the result of good thinking, studying the literature and a look at best practices. We saw good examples at MIT and the University of Utrecht. After WWII, HASS education was introduced at MIT. A quarter of their subjects were related to the humanities, arts and social sciences. This was the inspiration for the USE (User, Society, Enterprise) subjects for TU/e’s Bachelor College. We want our engineers to know how to apply their discipline in the context of users, society and companies. We learned from Utrecht’s Faculty of Science that you can expect a better performance when you offer fewer subjects but more credits. And this increased freedom of choice motivates students.’

AFRICA

‘After my training in Chemical Engineering at TU/e (’74-’82), I wrote a PhD proposal on applying technology assessment in developing countries. The link with chemistry was that I looked at the sugar processing industry in Kenya. After getting my PhD, I worked in Zambia for five years. At UNZA, the University of Zambia, I was the manager of a group that produced food processing equipment; for example, peanut and corn peelers. I returned to Eindhoven in 1992 but Africa still calls to me a little. I would like to teach there.’

EDUCATOR

‘During the open days, I always say: ‘There’s one thing I never wanted to be: teacher. Because my dad and grandpa were already teachers. And now look at me - I’ve become a teacher also.’ I even went so far as to become a professor. However, I find teaching to be a very nice thing to do. I really noticed it when I came back from Africa to TU/e – that is and will always be my university – to become a lecturer. And in Zambia I had learned that education was the most important thing for the development of a country.’

MIDTERMS

‘In addition to other duties, I supervise PhD students as a professor. The first PhD student that I’m working with - together with Perry den Brok - is going to conduct research on midterms in the Bachelor College. People have had a lot to say about it. Students think that having mid-terms is too much like being back in high school and the change has created more workload for teachers. However, the tests do appear to work for improving the academic success rate. In another study, we’re looking at the science-mentality-model. Should different types of science students be offered different sorts of subjects? And should they be coached differently? I’d like to create a PhD position to tackle this question.’

PASSION

‘I have two passions: connecting technology and practice and contributing to solutions for environmental problems. In 2008, I set up the Sustainable Energy Technology master’s program. After that, I became the program director for the Department of Industrial Engineering & Innovation Sciences. As a result of these activities, I was then asked to become the Dean of the Bachelor College and now I’m a professor. It’s been a natural course of events that pleases me greatly.’

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The prevention or reduction of aggressive incidents through the use of light - that’s the goal of TU/e’s Intelligent Lighting Institute’s De-escalate project. The project is being carried out in collaboration with Philips and the municipality of Eindhoven and Stratumseind as its testing ground. Since early this year, tests have been conducted with dynamic Street lighting in this well-known bar street in Eindhoven.
De-escalate and the Living Lab form a part of the larger project, Stratumseind 2.0. The municipality of Eindhoven, TU/e, Philips and restaurant and bar owners are working together to improve the attractiveness of Stratumseind. Every year, there are a few hundred incidents in the 225-meter bar street, ranging from destruction and swearing to aggravated assault. The De-escalate project recently won the Don Berghuis Award, the most important national safety prize.

'In a lab, there are few distractions so people almost always respond to changes. The question is whether this effect is the same in practice,' says project leader De Kort. However, TU/e researchers can make use of a living laboratory. Since last year, Stratumseind has become a 'living lab' which means that for four years data will be collected from the bar street. Smart cameras count the number of visitors, providers supply data about the origins of the party crowd and sound meters record peaks in sound. Also weather data, beer sales and social media traffic are tracked. During a later stage of the project, this data will be combined with police figures.

Dynamic lighting scenarios

Every weekend for the next two years, the lighting scenarios in Stratumseind will vary in color, intensity and dynamics. To facilitate the project, LED lamps designed by Philips have been placed along the entire bar street’s length. Through observation and psychological tests, researchers can look at the effects of the different light scenarios. However, de Kort doesn’t expect that aggressive situations can be completely eliminated. ‘If someone is determined to raise a fuss, we can’t prevent that. We do hope, though, to give visitors a more positive interpretation of their environment.’
Prominent alumni visit campus

The brand new alumni club Mens Agitat Molem, made up of a group of leading TU/e alumni, came to TU/e for the first time in February. Gerard Kleisterlee, former CEO of Philips and now chairman of Vodafone, and Rokus van Iperen, CEO of Canon Europe were among the members who were present. Both men were formerly chairmen of TU/e’s Supervisory Board. More than twenty people, including ‘only’ two female alumni, visited the soccer robots lab and admired Stella, the successful solar car from Solar Team Eindhoven. Afterwards, the group toured Flux, the new home of Electrical Engineering and Applied Physics. College President John Mengelers, an alumnus of the Mechanical Engineering Department, would like to see more of a bond with this group in the future and in addition to an ambassador function, thinks the group could be used as a sounding board. The group will again be invited to the university in the autumn.

On Thursday, 30 April, TU/e will celebrate its 59th birthday. It’s a time marked by transition as illustrated by the entirely new educational structure embodied by the Bachelor College and the Graduate School - concepts that connect to society’s main challenges and which define the face of our university. Another transition during this time will also be a change in rector during the Dies Natalis. After 10 years in the role, Rector Prof. Hans van Duijn will step down. (read the interview with him on page 22). Prof. Frank Baaijens will succeed him. The rector, his successor and the Chairman of the Executive Board, Ir. Jan Mengelers, will talk about the transitions occurring within academia and TU/e. And TU/e will award an honorary doctorate to Prof. Theodore Stathopoulos from Concordia University, Canada during this dies. He is a global authority in the field of urban physics and wind engineering (see this issue’s back page).

Dies Natalis TU/e
Thursday 30 April 2015
Catharinakerk, Stratumseind 2 (Catharinaplein) Eindhoven
ALUMNI DAY NEW STYLE: TU/eXperience Day

Make a note of Sunday, 31 May in your calendar for the TU/eXperience Day; an event that will integrate both the annual Alumni Day and Public Day into a single festival. During the special alumni program, TU/e will provide lectures on Robotics and Data Science, a TU/e quiz and a discussion forum with renowned university alumni. In the second half of the afternoon, every department will open their doors for a renewed acquaintance with and between alumni. The Public Day’s successful events such as workshops, research project demonstrations and kid’s activities will also be a part of the schedule. And don’t forget the campus; new buildings like Metaforum and Flux have given the grounds a new allure that’ll be all dressed up for the event with music and sports demos.

For more information: tue.nl/tuexperience

In search of individuality and identity: the DNA book

TU/e’s core are the people who work there. That message is abundantly clear in TU/e’s DNA book presented last December. TU/e’s story was recorded through interview sessions with dozens of employees and students. In addition to text and photos, additional digital content was added to the book through augmented reality. Movies and 3D animations can be viewed with a smartphone. The book’s release was also coupled with the creation of a website where all of the stories can be found online. This ‘story web’ (www.tue.nl/stories) is regularly updated with current stories about TU/e students and staff.

If you’d like to receive a copy of the book, send an email to alumminet@tue.nl. The first 25 interested parties will receive a free copy.

Storage chamber for degree new alumni gift

Since January, TU/e graduates have been receiving a new alumni gift. The blue fleece scarf has been replaced by a sleek storage chamber for the master’s degree that was inspired by the prominent red slash in the TU/e logo. Giving something to the graduates that says ‘TU/e proud’ - that was the university’s goal with its alumni gift. During its quest for an appropriate new gift, the university included some soon-to-be graduates and young alumni in its discussions. TU/e has had 1,250 copies of the new diploma holder produced for this calendar year.
He never finished his academic training but he passed the test of successful entrepreneurship with flying colors. Now Marijn Maas, co-founder of the Greenhouse Group, helps innovative start-ups conquer the world. Maas is in his thirties and calls himself an old geezer, but when he talks about facilitating young innovators, his enthusiasm is immediately visible. Maas thinks that the Netherlands need to become a ‘hotspot’ for these sorts of companies and the establishment of tax-free zones would be a huge support to this enterprise. Otherwise, Maas fears an exodus to the US, where venture capitalists prey on promising start-ups.

Marijn Maas
Facilitator of start-ups
‘Look, I’m an old geezer now,’ Marijn Maas (35) says with a broad grin because he knows this isn’t something people in their thirties usually say about themselves. His office decor in the Admirant, an imposing building in the center of Eindhoven that used to house the head of Philips, is hip and playful. Swings hang in the hallway and tricycles are scattered across a black floor with road markings. It all contradicts his claim to already be of an advanced age. ‘What I mean is that I won’t set up a new Google or Facebook. A 17 year-old is going to do that. So let’s facilitate these young innovators so that the next Facebook comes from the Netherlands. If we all work together, why couldn’t we achieve that?’ It’s a discussion stimulated by the Dutch government’s ambition to make this country a ‘hotspot’ for innovative start-ups. In order to attract more foreign startups and investors, a platform called Startup Delta was founded at the end of last year. Within this new initiative, the Ministry of economic affairs and the city of Amsterdam are collaborating with research institutions, funding agencies, large companies and other start-ups. Former European Commissioner, Neelie Kroes, is leading the Amsterdam-based platform. A good 120 kilometers south of the project, Maas enthusiastically expresses his own ideas on the subject.

‘Start-ups are like young plants that you need to protect. You can only harvest them when they’re fully-grown - not when they only have a few leaves.’

‘The Brainport region of Eindhoven is a beautiful area for innovative entrepreneurship. There’s a lot of technology knowledge at TU/e and Fontys. Tilburg also provides knowledge in the fields of data science and econometrics. In addition, Eindhoven is also one of the most famous design cities in the world.’

‘Subsidies make people lazy’

To keep promising start-ups in the Netherlands, Maas suggests making pension funds account for their investment behavior. ‘Dutch pension funds now invest over 90% of their money abroad, including in ‘venture capitalist’ funds in the United States. Let’s invest part of that money in the Netherlands. That’ll give innovative entrepreneurship here a firm push.’ Maas is convinced that money invested in innovative entrepreneurship will eventually pay for itself twice over. Successful companies provide jobs and - in the longer term - for even more economic activity. ‘Look at Stockholm. They’ve recently had some big exits: Spotify, Mojang, Skype, all takeovers that involved billions of Euros. People from these companies are rich and they’ll use their money to invest in new start-ups. The money is circulated and it creates an ecosystem that’ll sustain itself. That’s what you want to get done and it doesn’t happen with grant money.’ This sort of ecosystem, in which innovative entrepreneurship thrives, isn’t just a matter of free-flowing money. You also need an inspiring environment where people with fresh...
between one corner of Silicon Valley and the other. Each region has its specialty: Amsterdam is strong in financial and marketing start-ups while Eindhoven has more technically-driven companies. We need to link the right knowledge institutions to the right companies and then act as one cohesive unit to the outside world; and eventually also add Enschede to the mix. That would make the Netherlands a lot more interesting for investors.

After being registered as an International Management student in Maastricht for eight years, Maas eventually quit his studies. Unfortunately, academics didn’t combine well with running a fast-growing business. He wonders if he would’ve stayed focused on his studies if more attention had been given to entrepreneurship in the curriculum. ‘That could be’, he says hesitantly, ‘if there had been more subjects that had to with practical topics, maybe...’ He stops to ponder the question, then continues enthusiastically: ‘Educational programs should involve more Dutch success stories in their teaching. Think of Booking.com - it’s one of the world’s largest digital success stories - but we barely celebrate it here.

Maas particularly thinks about expanding beyond the borders of Brainport Eindhoven. If it was up to him, Eindhoven and Amsterdam would start cooperating more intensively with each other in order to put the Netherlands on the map as a region for start-ups. ‘Let’s face it, the distance between Eindhoven and Amsterdam is just as great as
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Invite those people to the university, let them give lectures and inspire students!’ In order to make the Netherlands a zone for start-ups, Maas thinks the educational system needs to change anyway and become more focused on entrepreneurship than it is now: ‘Students shouldn’t only be looking at the science of things. They also need to look at entrepreneurship. Why is it that it’s totally normal in the US to continue on after bankruptcy while in the Netherlands you’re considered a complete failure? It’s a cliché, I know, but it’s true. Our schooling could provide for a different mentality and for a higher quality of new ideas.’

‘Don’t be afraid to fall flat on your face’

However, Maas doesn’t give the impression that education could’ve led him to the path he’s now on. For young entrepreneurs, a healthy dose of stubbornness is probably just as good as a workshop on entrepreneurship. And as for his advice for young people who’d like to follow in his footsteps, he doesn’t hesitate for a second: ‘Firstly, secondly and also thirdly, do something you like and that you’re passionate about. And also: do! The only difference between entrepreneurs and non-entrepreneurs is that entrepreneurs do. Don’t be afraid to fall flat on your face. Just get out there and do it. Don’t become an entrepreneur to get rich but rather because you see a problem you want to solve and because you have a vision. I don’t have a problem with money, of course, but that’ll come naturally if your business is successful. I strongly believe that if you only chase after money, you often fail. You have to want to make a difference.’ 🙂
Bye bye Bunker

Grabbing a beer at the AOR, going crazy at concerts, eating in the Mensa - what student didn’t spend hours hanging out in the bunker during his studies? The concrete colossus is still owned by TU/e but it’ll be abandoned after Potentiaal’s renovations are completed at the end of 2016. A trip down memory lane.
Architecture alumnus De Voogd recalls the seventies as a beautiful, turbulent time. As a student, you stood apart from society. Many students got out of bed around noon in order to be back at the Bunker by the end of the afternoon. Food in the Mensa, table football in the AOR, and then you’d hang out at the bar all night.

At that time, you often found a motley collection of Volkswagen vans and ugly Ducks outside of the Bunker. “There were no required car inspections then so many students bought their own car for 200 guilders. People frequently drove home completely blind drunk.”

During its first years, the Bunker was a real student bar, but soon visitors from outside also came. They came for the ‘super parties’ in the AOR and to eat in the Mensa. ‘You’d especially see people of all kinds in the Mensa. One day, I even found myself sitting across from my former French teacher.’ According to De Voogd, the food in the Mensa was not the best. ‘If it really wasn’t fit to eat, there’d be a cacophony of banging spoons to protest. Those same spoons were also sometimes used to launch endive stamppot through the hall.’

De Voogd was protestant, so becoming a member of SSRE was an obvious choice for him. ‘But I felt more at home with the students who didn’t join clubs.’ The independent students didn’t always mix very well with the rest. ‘Especially, the posh set from the E.S.C. formed a separate club. As non-members, we could never get in with them, unless we brought a good-looking girl with us. Of course, once we got inside we’d always try to shake things up a bit.’

In the seventies, Henk van Heusden (62) stood behind the bar in the AOR. He was also the manager of the AOR for a while.

At first, van Heusden helped to manage the Reductie-kantoor, the small mail order business in the Bunker where students could order discounted products - from pans to stereo equipment. From that position, he soon moved on to managing the AOR and working as a bartender. Twenty bartenders ensured that the AOR was open seven days a week from 4pm to 2am. Bands performed regularly, including popular groups such as the British Magna Carta. ‘English bands liked coming to the Netherlands. We often booked them on a Monday because it was the cheapest day. They used the Bunker as a tryout for their Dutch tour.’ There were also table football championships, beer drinking contests, playing cards, swing dance nights and the renowned ‘P’ evenings where a lady from the red light district would come in and do a striptease. ‘All we had to do was put up a piece of paper with a ‘P’ on it and we’d be packed to the rafters.’
On a busy day, he and three colleagues would prepare 1,800 to 2,200 meals. Huub Wijnen worked from 1974 to 1977 in the Mensa and had some great times there. It was his first job after cooking school. Wijnen had previously done an internship at the Mensa and then applied for an open position. He thought it was a big plus that he wasn’t required to work on the weekends there. He worked every day from 10:00 until 20:00 in the Mensa and offers up one story after another about the place. He recalls the ‘grandpa’ who came every day precisely at 12:00 to have his lunch. And Thursdays were always extra full - Wijnen suspects because fried rice or noodles were on the menu. ‘And we always had fried fish on Fridays because back then it was still Catholic times.’

Everything had to be as cheap as possible, says Wijnen. ‘We could only spend 1.25 guilders on ingredients and students then got soup, a main course and a dessert for 2.60 guilders. The meals were of good quality but sometimes we had to do the craziest things to keep them cheap. I remember that once I had to open hundreds of cans of French fries that we’d bought. I had pain in my fingers after that.’

He remembers well the time another cook accidentally put too much curry in the soup. The students retaliated by stacking their still-full plates into a pyramid. As the youngest employee, it was Wijnen’s ‘honor’ to clean them all up.

After work, they often cooked separately for the E.S.C - who didn’t want to eat with everyone else in the large hall. The Mensa staff also made sandwiches for in the AOR - and also grabbed themselves a beer there. Even though he hasn’t been there for years, Wijnen thinks it’s a horrible shame to lose the Bunker’s student bar. ‘I had such a great time there. Nobody was bothered by us because the Bunker didn’t have any other buildings around it. We always had a lot of fun.’

During these events, the beer flowed like water. At one time, the AOR even had one of the largest beer turnovers in the south. Van Heusden: ‘Thirty kegs moved through the place every week.’

‘In the space of two days, thousands of people came through the doors; from old people to families with children,’ says Van Heusden. ‘For many students of that time, there was still a desire to do something good for society.’ He also remembers the impact students from Limburg had. ‘To a great extent, the Limburgers determined the atmosphere during the week. Because they almost always went home on Friday, weekends at the AOR were a lot quieter.’

Van Heusden doesn’t think that his architectural studies (1970-1979) suffered because of his work at the AOR. ‘At the time, we didn’t really care about graduating quickly. It was only from the mid-seventies on that students became more motivated. Our generation mostly wanted to have a lot of fun.’

During Christmas, the students organized what they called ‘Christmas Inns’. Underprivileged people from Eindhoven could come to the Bunker to eat cheaply and listen to live music.
'No, our relationship didn’t start in the AOR. The story isn’t that beautiful...,' explains Joost van den Buijs. 'I went to go live in a dorm where Marjan also lived for a while. Love came a bit later.' Marjan didn’t spend much time in the AOR but Joost did - especially during the first few years. 'It was mostly after eating in the Mensa. Then I went with friends to the downstairs bar to drink special coffees like Irish coffee or Tia Maria. Sometimes I went to the bar upstairs, like for a party, but I can’t say I spent a lot of time there. I was more likely to be found in the sports center.' Joost and Marjan both graduated from TU/e on Wednesday, September 16th, 1987. Both had studied mathematics with a focus on computer science. Joost: ‘Because the family had to come for our graduation, we decided to also get married on that day. In the morning, we went to the town hall, had lunch with our families in the graduation hall in the main building, and in the afternoon we went to the graduation ceremony which was then followed by a reception.

We realized that doing everything on the same day was going to be exhausting so we planned the wedding party for Saturday, September 19th - in the upstairs bar of the Bunker. Of course! Where else were you going to go as a student?

At seven o’clock, my mother-in-law took a look at the kitchen where the snacks would be made later, grabbed a bucket and some cleaning rags she’d brought along and scrubbed everything down. Meanwhile, the rest of the family took the garden chairs and umbrellas out of the storage room and made sure they were also clean. It was a big, fantastic party of about 150 people. For many, it was their first encounter with Eindhoven student life and the special Belgian beers they could get at the student bar. We were the last to leave the party at 6:45 in the morning. What a special memory.'
Between 1983 and 1990, Gudule Martens (49) spent a lot of evenings in the Bunker. ‘It was a place where anything could happen.’

When I first began studying, there were some problems with education grants and some students who had a full scholarship didn’t get any money at all,’ recalls the Architecture Department alumna. ‘During that time, three of us ate at the Mensa on one card. We divided soup, meat and dessert; you could get unlimited amounts of pasta, potatoes and vegetables. Three men could even eat just fine that way on one card.’

She doesn’t think the Bunker was a male bastion. ‘There was a relatively large number of women registered at TU/e during the year I began my studies. The men were happy - even though the total number of female students was only about 5% of the student population. So it was pretty easy for us to get free beers in the AOR.’

Martens recalls a night when students came up with the idea to go knock down Christmas trees by only using their heads. ‘It ended with holes in their heads and a lot of blood. Fortunately, First Aid in the Diaconessenhuis was crawling distance away. The infamous girl group act, Centerfold, was also a part of those years. ‘That was a complete madhouse. The rented fences were literally folded down around the bouncers.’

The Bunker’s hygienic conditions weren’t optimal. ‘It was dark, damp and dirty. I’ve always thought that the Mensa closed because they couldn’t get the cockroaches under control.’ Martens once watched a line of cockroaches march up the bar and over the columns.

Martens, who’s now an architect, has never found the Bunker to be a nice building. ‘But the bold and non-traditional was always a good fit in Eindhoven and TU/e. Moreover, it was a place where anything was possible - especially in the AOR. It’s such a shame that it has closed its doors.’

The Mensa had already closed in 2000. In 2007, TU/e’s student cultural associations took over the building on the Kennedylaan. The E.S.C. is now in the center of Eindhoven and SSRE and Demos also want to be in the city. Now, the university is considering where the cultural associations can be housed in Potentiaal after its renovation. After that, TU/e will decide what to do with the empty Bunker.

In the early nineties, the AOR turned over huge profits. The student bar was second only to the Efteling as a customer for Dommelsch beer. Even famous artists found their way to the AOR to perform - people such as Herman Brood, Youp van ’t Hek, De Dijk and Doe Maar. However, students became busier with side jobs, sports and other activities and the flood of students going to the Bunker decreased. Also, Stratumseind became increasingly more focused on drawing students.


2000 >>
'There wasn’t a Thursday that went by without a visit to the AOR,’ says Van Schaik. ‘After a heavy night of drinking, we were hanging out while the customers were being pushed out the doors and I got to talking with DJs Mars and Muis. It seemed there was a vacancy for a DJ. I’d been interested in music for years and deejaying seemed like a great idea. I didn’t have any experience but that wasn’t a problem. Not long after, I had my job interview and I still remember my answer when they asked why I wanted to be a DJ: ‘What could be better than making sure people have a good time?’ Van Schaik started as a DJ in January 1997. ‘I quickly ended up in the most sought-after place; Thursday evening in the main bar. Every week, I was responsible for the music in a room with about a thousand people in it. I was very nervous. It was hard work, but once the night got underway, it was so much fun. It didn’t matter if the CD player occasionally skipped or the lights went out. That was a part of the charm.’

‘I amused myself for years there. I could never get enough of the view of all those people going crazy. Thursdays were never boring but there were Thursdays that stuck out more than others. Other DJs were brought in regularly and they’d usually deejay from 1-3am. After that, I’d take over until 4am or later. I’ve had Lady Aïda, Armana, Astrid Barthezz, Erick E, DJ Jurgen, Michel de Heij and Ronald Molendijk ‘open’ for me. The best memories I have are of crowded venues such as during the intro, especially when I was there spinning my own style. In the beginning, I played popular house and later it went in the direction of techno via trance.’

‘I had Lady Aïda and DJ Jurgen ‘open’ for me’

Even in the noughties, everything was possible in the Bunker. ‘There was nothing breakable there and we took full advantage of that fact,’ says Van Oosten who studied Architecture and did a master’s in Technology and Policy. A wooden wine barrel hung in the E.S.C clubhouse from a hook in the ceiling, ‘we regularly hoisted people up in that thing and whipped them around the room.’ During her year on the executive committee, she once spent a week removing hay from the E.S.C’s room. ‘It was a tradition that the previous executive committee would organize a party with the aim of leaving the club as dirty as possible. ‘They threw a farm party that year. ‘After the party, we threw the hay in the fireplace and suddenly the police and fire department were at the door because the whole Kennedylaan was full of smoke.’

She remembers assaults by student associations from other cities. ‘Hundreds of men would try to invade our society to steal our stuff. The Bunker really functioned as a bunker during those times. ‘The E.S.C-clubhouse was also leased to external parties during the weekend. ‘That often meant parties with bald men and bonk bonk music. It could be a little scary for the E.S.C bar staff.’

Van Oosten can even still bring the smell of the building to mind. ‘There was such a typical bar smell; a combination of wooden floors and beer.’

The discontent the bar brought about eventually resulted in the E.S.C’s relocation to the Ten Hagenstraat in the city.

Between 2001 and 2008, Els van Oosten (32) spent a lot of time in the clubhouse of the Eindhoven Student Corps (E.S.C), which was located in the Bunker.

‘I can still smell it: wood floors and beer’
New Scientist verandert je kijk op de wereld met fascinerende ideeën uit de wetenschap. Het van oorsprong Engelse magazine is het grootste weekblad ter wereld op het gebied van wetenschap en technologie. De Nederlandstalige editie verschijnt maandelijks met diepgaande achtergrondartikelen en opinie. Het combineert de beste internationale artikelen met eigen kopij, waarin de focus ligt op Nederlands en Belgisch toponderzoek.
Departing Rector Magnificus Hans van Duijn:
‘I didn’t think a merger between Delft and Eindhoven was a good idea’

He was TU/e’s longest-serving Rector Magnificus and in the ten years that Hans van Duijn was at the helm, the university underwent some turbulent changes. He admits that there’s little time for rest and reflection in the education world. In recent years, he’s headed two major education projects with the aim of educating the engineers of the future. During the university’s dies natalis on April 30, he’ll pass the torch to his successor, Frank Baaijens.

When he took office as Rector Magnificus on 1 April 2005, Van Duijn advocated a sense of calm in academia and at his university. He felt that the continuous changes in the academic world had created too much hassle for students and staff. However, the alumnus of the Technical Physics Department also hadn’t been idle the previous five years. He became a professor of applied analysis and then just four years later, he was appointed to be the Dean of the Department of Mathematics and Computer Science. A year later, he moved up to rector. During the previous years, he earned his PhD in Leiden and he had worked in Delft and at the Amsterdam Centre for Mathematics and Informatics. During his education at TU/e, he was charmed by mathematics and continued to teach even during his term as Rector Magnificus.

Upon taking office, Van Duijn says that he encountered a worrying situation in certain courses. ‘They attracted few students, had a high dropout rate and the students that did make it through took an awful long time to do it,’ explains Van Duijn. ‘I was genuinely worried that the Ministry of Education, Culture and Science would say that certain small courses of study would have to merge with each other. We had to modernize our university and the students had to adapt their study behaviors.’

‘I was afraid that we’d bottom out’

In a controversial interview with university magazine Cursor and during his speech to open the new academic year, Van Duijn threw the cat among the pigeons. ‘I had to do it because I was really afraid that we’d completely bottom out. It took a while before people realized what was going on. Some people felt it was proof that we just offered difficult courses. My criticism on the inadequate level of mathematics at this university made some program presidents furious. But I was convinced that our entire educational system here needed to be overhauled.’
Hard work and the dedication shown by many taskforces and staff made it possible to introduce a new educational model in September 2012: the Bachelor College. The new model offers students more choice and the hope is that this change will make the programs more attractive to young women. The Graduate School will also begin during the coming academic year which will encompass all education beyond the bachelor’s degree. In addition to the master’s degree, that includes design and PhD programs.

‘At the time, we put a lot of pressure on introducing the Bachelor College quickly’, says Van Duijn. ‘Together with Professor Lex Lemmens, who later became dean of the Bachelor College, we really put the gas on. Otherwise, we would’ve lost another year getting things set up. Lex was pure gold for me and the organization during the implementation of this process. As dean, he’s responsible for the five basic subjects given to all students and he also looks at, for example, how much use students make of their right to choose in the curriculum and to what extent they exercise this right.’

Van Duijn wants to acknowledge another project that also took a lot of time and energy - namely, the compulsory institutional audit from the OCW. This test allowed the board to show the government that they were in control of what was happening at the university. ‘In 2013, we worked hard to achieve a good result on this test and it was sometimes an eye-opener for us. So much has changed in the outside world as far as legislative requirements and demand for examinations and other matters. This whole operation was being handled on top of everything else we were doing. That made it pretty tough.’

What does Van Duijn think of the criticism expressed by some people that universities have become over concerned with efficiency? ‘It’s true that today’s academic world does approach everything through numbers. Look at the performance agreements that universities have to make with the Ministry of Education, Culture and Science. It’s a sign of the times and you have to participate in it. I think we strike a nice balance at our university. We offer education on a small scale, with a good ratio between the number of students and teachers. If I talk to our students, I don’t get the impression they’re really involved with what’s going on in Amsterdam.

‘The occupation of the Bungehuis and Maagdenhuis by UvA students who want more of a say in their university.’ We talk to our students regularly, certainly about how these major adjustments might be affecting them. It helps, of course, that we don’t offer degrees with a large number of students such as law or psychology but there’s also definitely still room for growth here.’

As rector, it goes without saying that he’s also responsible for the university’s research endeavors. Is he satisfied with developments in this area? ‘As far as that’s concerned,
2013 was a really great year for me. We had brought in Jan Mengelers, who was chief executive of TNO, as the new chairman, we’d scored extremely well in NWO’s Gravity Program and we’d started our Impulse Program, through which we added 250 PhD positions by cooperating with the business community. It was all so well-balanced. After the holidays, DIFFER opened its doors here on campus and we created the Institute for Complex Molecular Systems with Professor Bert Meijer. I’m really proud of it but you really have to stay focused to keep up the good work. Otherwise, it’ll elude you.’

During his time as Rector Magnificus, the collaboration with Delft and Twente also became more solid. ‘Within the 3TU Federation that came about in 2007, we were able to achieve a lot and also to get financial support for our projects from the oCW. The lines of communication are short between the three institutions and we easily agree on who should do what and if we can complement and strengthen each other in various areas.’

While he’s on the subject, Van Duijn says that a merger between Delft and Eindhoven was in the works around the time of Chairman Amandus Lundqvist’s departure in April 2010. ‘The Supervisory Boards - both of which were very focused on the commercial prospects of a merger - were very charmed by the idea and the possibility was seriously considered. But I didn’t think it could happen. Two institutions, so different in size and with the same areas of focus - I didn’t want to be responsible for that,’ he says smiling broadly.

‘We’re not really working towards a large Brabant university’

At the moment, he sees the University of Utrecht, and its associated teaching hospital, as TU/e’s main university partners. ‘We’re working jointly on at least five research lines and I see some very good opportunities there for the future.’

Last year, Van Duijn also revealed that TU/e and Tilburg University are looking to jointly create a Graduate School for Big Data & Entrepreneurship in Den Bosch in 2016. Will we see more of these sorts of collaborative projects in the future? ‘If you have a complementary outlook with another institution in terms of education and research in areas such as Big Data, then I think you’ve got something really valuable there. In this case, we have that with Tilburg. In addition, we’re also working with Maastricht on the Chemelot Campus in Heerlen. Beyond that, there’s currently nothing more like these projects in the pipeline. We really aren’t trying to create one big Brabant university, you know.’

And, of course, there’s one final question that we have to ask now that TU/e’s DNA book has been published. What does he think the DNA of TU/e is? ‘I would say, TU/e’s DNA is the care we take in offering quality and the care we put into

Alumnus will take the helm as new university Rector Magnificus

Professor Frank Baaijens (1958) will take over from Hans van Duijn on 30 April. He considers it a great privilege to become the rector of the university where he graduated and earned his PhD. ‘This is a beautiful university with highly-motivated and committed students and staff. It’s going to be a wonderful challenge to shape TU/e in the coming years; to position it in such a way that young people will want to come study here and that the best researchers, teachers and staff will want to work with us.’

Baaijens thinks that the steady growth of the bachelor’s programs is not only good for the university, but also for society. ‘There is a huge need for well-educated engineers. TU/e offers an excellent education, just look at the reviews from Elsevier’s annual survey. Intensive contact between researcher/teacher and student and their interconnectedness with research were central. The rapid growth in student numbers combined with major changes in our educational model have given rise to a higher workload. In addition to the personal consequences of these changes, we also need to be careful that the intensity and quality of our research doesn’t suffer - especially now that the competition for scarce resources for this research has become undeniably more intense. The high quality of our education is inextricably linked with our excellent research and related infrastructure.’
our courses. Those things are never up for discussion. Just look at how carefully we handle appointments.

In addition, I’d say it’s also our institution’s integration in Brainport. Part of our DNA, are also the short lines of communication between teacher and student and between staff and management. You can see that reflected in the pedestrian bridge system all over campus. What’s new is that we’re becoming increasingly more international in terms of staff, students and doctoral candidates. That was quite different ten years ago. I also hope that the campus will become livelier, with lots of activities after 6pm. Hopefully, permanent housing on campus will help make that happen.’

Van Duijn wants to remain active at TU/e after finishing his term as rector. ‘I want to put significantly more time into my research. I’ll join Professor David Smeulders’s group in the Mechanical Engineering Department to make a contribution in mathematics. I’ve also been invited to teach by universities in Lyon and Austin, Texas. And there are also administrative tasks to take care of but those are going on the backburner.’

According to Baaijens, fundamental research is still needed for the renewal and development of research skills at TU/e. ‘In addition to our own resources - which are relatively limited - the NWO and the European Research Council (ERC) are, in particular, the preferred sources for funding this research. Eighteen months ago, TU/e scored excellently in the NWO’s Gravity Program. I also think it’s a good development that the originally person-oriented programs from the NWO and ERC are now open to teams of researchers. The complexity of current research requires the collaboration of researchers across disciplines. That’s something TU/e is good at.’

He’s also a big supporter of further strengthening ties with alumni. ‘They can be great ambassadors for our university and a source of inspiration for the students. Their careers are very diverse and all that accumulated experience and knowledge is of great usefulness for today’s students. So it would be nice if we could have a network of experienced alumni-entrepreneurs who would help coach new TU/e graduates.’
Computer models often perform better than flesh and blood experts—even in tasks where you wouldn’t expect it, such as in providing medical diagnoses.

At the request of the Catharina Hospital’s dermatology department in Eindhoven—which was being overwhelmed with concerned people—Chris Snijders developed an app, OddSpot, which can detect with 90 to 95% accuracy if that suspicious spot on your skin might mean bad news.

On the basis of fourteen simple questions about yourself and the spot in question, and possibly later supplemented with a picture, OddSpot gives the chances that the spot is ‘actinic keratosis’ or ‘basal cell carcinoma’, two of the most common skin cancers.

According to Snijders, professor of Sociology of Technology and Innovation at TU/e, the app performs almost as well as a dermatologist, and much better than a GP, in offering a correct diagnosis.
90 percent certainty that the OddSpot app will give a correct diagnosis.
‘I THINK CARTOGRAPHY IS FASCINATING’

As a child, she already wanted to study mathematics, although music was also a real option. Bettina Speckmann (42) laid the foundation for her academic career at her hometown university in Münster, but soon after ventured into the world. After Vancouver and Zurich, she arrived in Eindhoven in 2003, where she has been a professor of applied geometric algorithms since 2012.

‘I’m from a classic academic family: my father is a professor emeritus of neuro-science and my mother is a family doctor. There was little discussion about studying and getting a PhD in my family: it was the natural thing to do. Like my grandfather and father, I went to the Gymnasium Paulinum in Münster, founded in 779. It’s the oldest independent secondary school in Germany. Originally, it was a boys’ school and a lot of teachers weren’t used to girls yet. A physics teacher once told me that I’d never get a higher grade than the best boy in the class. I didn’t let it stop me. I was a good student and my highly-educated mother was a kind of role model. My passion for mathematics was fueled by my grandfather. When I was a toddler, he taught me to count with wooden blocks and I thought it was fascinating. In high school, I took a math class with an inspiring female teacher. She had a PhD and she made it clear that high school math was just the beginning. So I wanted to study mathematics, even though I briefly considered music.

Later I got a diploma for church music: as a part-time organist, I had a well-paid student job. If a pastor or minister in Münster needed an organist for a mass or wedding, I often got a phone call. I also loved acting and I think teaching is great fun. That acting experience helps me now if I’m up on a stage in front of an audience as a teacher. Your story should be informative and entertaining.

‘I already had the ambition to become a professor early on in my life’

I got a master’s of mathematics in Münster with a minor in computer science. I thought it would be ideal to find a university job where I could choose my own research topic. Early on, I already had the ambition to become a professor but, of course, you have to work to make that happen. Directly after my graduation, I got a grant from the Studienstiftung [German National Merit Foundation] and went to the University of British Columbia in Vancouver for a year. They offered me a PhD position and I stayed there for five years until I received a postdoc position at ETH Zurich. I worked there in a great group and they were going to extend my contract. But then I got an email from Mark de Berg in 2003. He’d been appointed as a professor of algorithms at TU/e and was looking to build up his group. In the meantime, I’d already started a relationship with a Dutch researcher, who I’m now married to. He was a lecturer in the same field and I was already travelling between Switzerland and Utrecht in my private life. I chose for an assistant professor position at TU/e and exchanged ETH for Eindhoven.

I’ve been a professor at TU/e since 2012. My work focuses on geometric algorithms which can be applied to many areas. For instance, the analysis of geographic data can be visualized on maps using algorithmic methods. I think cartography is fascinating. When I won the ICT Award, my research was popularized in the media as “birds, pedestrians and vehicles”. At the time, I was part of a large European project using, among others, bird migration data collected by researchers from Amsterdam.
At the moment, I’m focusing on research topics set out in my Vici grant. It’s about complex moving objects; phenomena that cannot be captured well as a single point. You can easily abstract a moving person or car as a moving point. But a growing hurricane, a changing coastline, a glacier or a riverbed - these cannot by captured by a single moving point. Predicting geographic patterns is not my expertise: we mainly work on the algorithms to recognize the geometry of complex patterns and to extract information from this analysis. It’s a good fit with data science, but the geometric or spatial aspects call for quite different analysis methods than used, for example, for process mining.

I recently got a grant awarded for a research project in the top sector “creative industries”. It’s a half a million euro project where we collaborate with the University of Amsterdam and OCLC, a company that manages a huge database of library data. This database allows people to find information on billions of books including a book’s author, title, publisher, edition and sometimes where and when the book was used. With such data one can create fantastic maps detailing the dissemination of books and knowledge. We’re going to build systems that will combine algorithms and visualization, allowing users to quickly access in-depth information from that data. I want to use the coming years to build up my own group which currently functions purely on external funding.

‘I never say ‘no’ to new ideas’

If everything goes the way I envision it, I will still be working at TU/e in 10 years. And right now everything is running smoothly. I’m really happy with the good students here. My colleagues from universities in remote corners of Germany tell me that their talented students just leave. The technically-minded students from the southern parts of the Netherlands know where to find us, though we don’t, unfortunately, attract many women. My PhD students are my priority. They’re very productive and constantly want to discuss new ideas with me. And I can’t ever say ‘no’ to that.’

‘It’s difficult to pinpoint a single spot in a growing hurricane’

Detecting groups in moving objects. The bigger the group, the darker the color.
TU/eXperience Day
Sunday, 31 May, 2015
Alumni

tue.nl/tuexperience

Your fascination × our connection

Alumni program:
Lectures in Robotics and Data Science
The big TU/e Alumni Quiz
Alumni forum discussion
Get reacquainted with your faculty

Exciting demonstrations and workshops for kids and young people

TU/e
Technische Universiteit Eindhoven
University of Technology

Where innovation starts
Slash dug through the stack of most-recent theses in order to highlight five for you. In five minutes, you can soak up information that would otherwise take you hours to plow through.

**MASking GAS FROM BIOMASS**

By means of a gasification process, biomass such as wood or grass, can be made useful as a renewable energy source. The more the research progresses towards making this process possible, the more economically attractive it becomes to gasify biomass. The hope is that over time biomass will make a significant contribution to Dutch energy production. During his PhD, Remco Lancee focused his research on the natural mineral, olivine, which is used as a catalyst in the gasification process. He examined how this material behaves and under what circumstances the material works optimally. In order to do this, he made extensive use of XPS (X-ray Photoelectron Spectroscopy), a sensitive surface characterization technique which rapidly provides detailed information about samples.

**SAVING SUNLIGHT IN HYDROGEN**

Solar energy is a promising alternative to conventional energy sources, but methods to make efficient use of solar power are still in development. It’s attractive to directly convert energy from sunlight into fuel such as hydrogen. This is possible through a process called photocatalytic water splitting. Yi Zhang created a process called photo(electro)catalytic in order to increase the efficiency of this process. She looked at how to promote light absorption and accelerate the charge transfer. Her research, for which she used plasma-assisted atomic layer deposition, led to a method of hydrogen production with inexpensive, simple materials and equipment.
**FATTY ACIDS IN A SICK HEART**

Heart failure is the world’s leading cause of death. The heart needs fuel in order to pump blood throughout the body. In a healthy heart, this fuel comes mostly from fatty acids, and to a lesser extent, glucose. **Desiree Abdurrachim** investigated how changes in the metabolism of fatty acids affect the heart’s functioning. Hearts affected by diabetes, for example, are almost completely dependent on fatty acids, which is associated with an increased risk of heart failure. She developed MRI and MRS (magnetic resonance spectroscopy) techniques to measure the cardiac function and metabolism in live mice. Those techniques are then used to examine mice that have a modified fatty acid metabolism.

**DISTINGUISHING BETWEEN DEAD AND LIVE TUMOR TISSUE**

A new method of treating tumors called High Intensity Focused Ultrasound, or HiFU, heats tumors after which the temperature of the tumor can be measured via MRI. The advantage of this method, which makes use of ultrasound, is that the patient doesn’t need to undergo surgery. **Stefanie Hectors** examined which forms of MRI could distinguish successfully-treated tumor tissue from any remaining living tumor tissue. She mainly looked at combinations of various MRI scans by means of clustering techniques. This analysis method can lead to a more rapid introduction of HiFU for the treatment of malignant tumors.

**PROSTHETIC MEMBRANE FOR KIDNEY CELLS**

Current dialysis treatments for kidney patients leave a lot to be desired. It’s an obvious step to use living kidney cells to cleanse the blood. However, to keep these cells alive and functional outside of the human, an artificial environment is required that mimics the natural environment of these cells. These cells grow on the so-called ‘basal membrane’, which is very important for keeping these cells alive. **Björne Mollet** investigated the possibilities for using non-covalent, or supramolecular building blocks, in making a synthetic basal membrane. Because the connections between these building blocks are reversible, you can easily combine them in a way that is similar to the structure of natural materials.
Both completed their studies at TU/e. The planner chose the path most in line with his education. While the venturer went outside the boundaries of his.

Alarm
In elementary school, I gave a speech on electricity. I had built little circuits to show how it all worked. During high school, the attic was my electronics workshop; it was full of old TVs, soldering irons, you name it. My showpiece was an alarm system I’d built myself. My mother had to use a cardboard card with aluminum foil and a code on it to get into the attic.

My idea had always been to go study electrical engineering, until the computer came out in the early 80s. My uncle was a senior boss at Philips and he brought home an ‘Instructor 50’ during a vacation. Later, he brought a ‘P2000’ which you could connect to a TV. I thought that was amazing. With computer programming, you could quickly transform your thoughts into something without having to be super handy. My first personal computer was a TRS-80 Color Computer - I can still feel the 1000 guilders burning a hole in my pocket like it did when I went to the store to buy it.

Simple Rules
During my computer science education, I started with logic - totally my thing. Logic is a wonderful system of simple rules that allow you to create beautiful and complex things. I got a 10 on the first exam. I quickly realized that I leaned more towards technical automation than administrative automation. Making things move is the most fun you can have. And building robots? That’s the pinnacle of happiness for me.

Employment
My supervisor, Martin Rem, had asked me if I wanted to do my PhD with him, but I really preferred to go do something at the cross-section between industry and research. After my military service, I started at PTT Research where I worked on the automatic reading of bank payment and transfer cards. In that time, the systems were mainly used for verification, but our system was so good that we could automatically process a large part of the flow. After that, I went to the National Aerospace Laboratory. That seemed to be my ultimate place to work - after years of playing with flight simulators, I’d gotten my pilot’s license. But everything there was a long-term project and bogged down in politics and subsidies. I felt there was too little focus on the end result. It was terrible.

Making your mark
At first, I kept myself busy with low-level control software. Now, I’m more on the application side of things. For instance, an electron microscope is a very complicated device; as a non-physicist, it’s difficult to make your mark there. On the other hand, the software is so complex that it really presents a challenge. What I really like to do is not only to think of a solution to a problem, but also show why it’s a good solution. I would like to be more active on the scientific side of things. For example, I’d like to get involved in guiding TU/e graduates. But that’s rather difficult at FEI. We mostly focus on physical scientific developments and not on developments in software. We have the top players in the electron microscopy field in house. I couldn’t possibly add to that conversation.
Compromise
I did pretty well in science at school; it was a sort of natural flow then to go on to a technical education. You’ll always end up in a good place with a technical university degree - that was the idea. I went with my gut when I chose for mechanical engineering. It seemed like a nice compromise between industrial engineering and management science, which at the time I thought was less technical, and applied physics, which I knew would be a tough program.

Passion
I did an internship at Shell and graduated at Philips. They were both nice places but I already had the idea that mechanical engineering positions wouldn’t be a good fit for me in the future. And even though I was really into my courses, I also discovered that I was passionate about organizing events. For example, I helped organize the 1991 European Week in Eindhoven. Hundreds of students came from all over Europe, great guest speakers, good parties - I still think that we created something major back then even though we had little experience and not so many people working on it.

Proud
Looking back, it probably would’ve been better if I’d done industrial engineering and management science. But I’m proud of my mechanical engineering education. In any case, a technical education is cool to do, even if only for the fact that it puts you through your paces. You learn how to take complex problems and cut them into pieces - which then makes it easier to explain those pieces to a large group of people. It’s 20 years later and I still take pleasure in that every day.

Discussion
One thing I like about working for Coca-Cola is that you’re part of something big, that I’m part of a brand that’s known worldwide. But if you’re managing ‘the Netherlands’ then it’s do-able to oversee everything here well. The large countries attract more attention so we have relatively more freedom here, even within this large international system. The Netherlands is a challenging market. We have quite a lot of competition and there is always a debate in our society around soda - which is often driven by image, rather than by facts. It’s a nice challenge to make Coca-Cola a winner in such an environment.

Conservation
Sustainability is an important part of Coca-Cola’s business model and I like that I can make a small contribution to that. Eventually, I would like to be more active in the conservation field. I’ve been saying for years, when people ask me what I want to do later, that I want to be the director of bird conservation or natural monuments. I’m being more or less serious when I say that, even though there are plenty of people who are better qualified than me for those jobs.

Gut feeling
Do the right thing. That’s my favorite slogan. Fight for what’s right, even if you might not benefit from it. And if in practice everything is more complicated, expensive or laborious than you expected, try to occasionally follow your gut feeling. In the end, it’s usually right.
OPEN ACCESS:
How can we make scientific knowledge more accessible?
publishing worldwide without exorbitant profits
If the Dutch government has its way, everyone will have free access to all Dutch scientific publications in 10 years’ time. But the current negotiations between universities and publishers to make that possible have been fraught with difficulty. Is open access a curse or a blessing? After the Open Access Symposium at TU/e on 10 March, six experts from the library, publishing and academic worlds discussed this pressing question with Slash. How can the new culture of open access best be achieved for all the involved parties in the near future?
As a researcher at a university you live - often without realizing it - in a bubble. Scientific knowledge is available everywhere and you can effortlessly stay up-to-date on the latest developments. But when you’re an engineer at a small company and you’d like to consult a scientific article, that knowledge is suddenly surrounded by high fences. That’s why Dutch Secretary of Education Sander Dekker thinks scientific articles should be free for anyone to read in the near future. And the Mission participants are completely behind that idea. ‘Academic knowledge created with public funds should belong in the public domain. Period!’, proclaims Waaijers forcefully. Everyone nods. Waaijers is one of the experts who assembled in the university library - the heart of scientific knowledge - shortly after the end of the Open Access Symposium.

Surrounded by books and toiling students, discussion leader Lucas Asselbergs and the other experts tried to remove the inescapable obstacles blocking the route to open access. Even though they’re all in the same boat, there are, nevertheless, conflicting interests.

‘The main problem is that the big publishers have a monopoly’

The main problem is that the big publishers have a monopoly’. Anthonie Meijers says to kick off the discussion. ‘The so-called ‘article processing costs’ are way too high. In order for open access to succeed, these costs will have to be significantly reduced. Publishers make huge profits. That’s all paid by the universities and, therefore, from our research money. It’s terrible. It’s not that I’m against publishers, but I am against prices that don’t reasonably reflect the costs incurred.’

‘There are indeed huge price differences between magazines’, interjects Waaijers. ‘A large number of them use a ‘zero publication fee’, but there are also magazines that dare to ask for €4000 per publication. And that difference in cost isn’t just because of quality differences in peer review. There are also excellent magazines that fall under the ‘zeros’ category. I think we need to realize that in embracing open access, we’re asking publishers to turn towards a service delivery model.

**Prof.dr.ir. Anthonie Meijers**, university professor of the philosophy and ethics of technology, Department of Industrial Engineering & Innovation Science, TU/e. ‘We must abandon the publishing monopoly’

**Merle Rodenburg MSc**, responsible for open access and research data management and specialist in scientific information at the Information Expertise Centre, TU/e. ‘Both publishers and sponsors need to change how they do things, as it is now, the system is obscure and absolutely not transparent’

**Leo Waaijers**, open access consultant, platform Quality Open Access Market (QOAM), former librarian, TUD and WUR. ‘Researchers need to be price-conscious when they want to publish their articles’
Publishers are providing a service instead of asking the author to give up his/her rights in return for publication, as was originally the case. In essence, that’s the organization of peer review, with some nice things thrown in like layout and distribution. This service model is a market model and we need to do everything we can to get it off the ground. Get researchers to be more conscious of prices. Make the differences in cost more visible. That would be a big leap forward.’ Still, the aforementioned profiteering and ‘article processing costs’ are better than they could be, says Laura Hassink. She’s joined the discussion on behalf of Elsevier, a publishing house that’s engaged in tough negotiations with university association, VSNU, over the open access policy. ‘Of course, we’re a commercial company - we make profits and have shareholders. But there have been enough independent studies to investigate the price-per-article structure. As far as price level goes, Elsevier’s prices fall in the average range.’ And according to Max Haring from the Springer publishing house, similar studies have shown that non-profit organizations, such as the Public Library of Science (PLoS) charge prices that don’t differ much from commercial publishers. ‘To keep their organization running, they have to ask for similar prices as those charged by publishers like Springer. That says enough.’ Waaijers responds heatedly: ‘Elsevier or Springer’s annual report from the CEO to the shareholders should be required reading for university libraries. He boasted of profits of 35%-40%. And about that 35% he said: ‘It’s a bit on the low side. I promise you more next year.’ That also says enough.’

The price-conscious scientist. Lucas Asselbergs writes the phrase in bold letters on a large sheet of paper. It’s thrown out in discussion several times and seems to be a key concept in relation to open access. Merle Rodenburg thinks it’s important to inform and support scientists as much as possible. ‘Within that framework, it’s also good to remember that because the current publishing system is too expensive - with its high license fees and profits - open access began as a counterpart to that system. Now we see a shifting of costs but things haven’t gotten cheaper. A website where you can compare costs, like you already have to compare health insurance companies, would be a positive step towards providing researchers with more insight into costs. And at the same time, it would give them some help in choosing a suitable open access journal.'
That all sounds very nice, admits Meijers, but the scientist is mostly guided by a journal’s reputation. ‘A publication in Nature helps your career more than an article in the Eindhoven Journal of Physics.’ Waaijers: ‘Of course, a researcher can choose for prestige but then he or she should pay for it. This also applies if you want to drive a Mercedes. Fine, but you’ve got to pay for it.’ Going after prestige isn’t optional for a researcher, says Marijtje Jongsma. ‘We’re forced to choose for prestige. That’s especially true for young researchers. If you want a good job or to qualify for a subsidy, then you have no choice but to go after prestige. Otherwise, you’re committing scientific suicide.’

Prestige proves to be a difficult concept. Isn’t prestige not what we say it is? And don’t we talk too much about it, about groundbreaking articles that were published or certain people who sit on the editorial board as a figurehead? How can you compete with prestige? Meijers: ‘The only way to do that is if the university itself offers prestigious alternatives. Let’s have someone like Bert Meijer or Nobel Laureate Gerard ‘t Hooft associate his name with a new open access journal. That’ll make a difference.’

Rodenburg is also curious how sponsors such as NWO will deal with future grant applications. ‘Because in addition to your track record, it’s very important for your grant request where you’ve published. NWO says that they’re increasingly considering open access to be more important, but I don’t hear them making any statements about how they’re going to change their assessment standards. You can’t say one thing publicly and then, in private, do something else. That’s a double standard.’ According to Jongsma, that’s also the conflict in the workplace. ‘If you do your PhD here in the Netherlands and publish too many articles open access, it’s important that open access is also accepted in the US if you choose to do a postdoc there. We have to make an impact worldwide. And maybe we should stop publishing just to publish and go back to the core of true scientific communication.’

Perhaps approval could come from an unexpected place, such as from the publishers. Hassink: ‘We get a lot of manuscripts and the rejection rate is continuing to rise. It would be good if we worked towards producing less manuscripts but better ones.’ She’d also like to emphasize that publishing houses - Elsevier, in any case - want to make the step towards open access, but only if it happens in a sustainable way. ‘If we make Dutch articles available for free, we can’t charge foreign researchers for them. And you can’t force them to publish their articles open access. Most countries choose the green route [see box] when it comes to open access; the Netherlands and the UK are an exception by going with the golden variant.’ Meijers: But then everyone needs to go sustainable. Right now, we need to pay for both subscriptions and processing costs, with a budget that’s only getting smaller. For both libraries and researchers that’s definitely not sustainable.’
And just when the discussion gets going, it’s time to round things up. Because the participants have already sat through an entire symposium, it’s been decided that this Mission session shouldn’t last the usual three hours. However, after an hour of brainstorming, moderator Asselbergs’s sheet is already full of useful recommendations. The notion of the price-conscious scientist was joined by other concepts such as transparency, international cooperation, alternative magazines and slogans such as ‘follow the money’ and weighing price against performance. One thing is clear: there’s still a lot of work to do before engineers outside the university system can freely dive into the literature.

Laura Hassink, senior vice president, Physical Sciences Elsevier.
‘If the world switched to open access tomorrow that would solve a lot of problems’

Dr. Marijtje Jongsma, president Trade Union for Science (VWO).
‘Don’t lose sight of the career prospects of young scientific talent. Open access publishing isn’t accepted everywhere’

Dr.ir. Max Haring, executive editor, open access magazine SpringerPlus, Springer.
‘Researchers need to be able to decide what the best fit is for themselves.’

**Three models for scientific publishing**

In the **classical model**, scientists publish their articles in a magazine that research institutions, such as universities, need to subscribe to in order to read that magazine. Freely accessible, open access publishing has two variants: green and gold. In the **green variant**, users still need to pay for a subscription but the researcher is allowed to put the author’s last version online, for example a university’s database. Almost 80% of publishers already allow authors to go ‘green’ within 12 months. TU/e also focuses on the green route: as of April 1, 2015, TU/e researchers are required to submit their final manuscript to the Information Expertise Center. After the expiration of any possible embargo, the article can then be found in the TU/e Repository. In the **golden variant**, the magazine is free but the scientist pays the publisher for the publication of his or her article.
‘The invention of the “undo” button is worth a Nobel Prize in Computer Science.’

‘If current price developments continue, sustainable electricity will be cheaper than fossil fuel based energy within 50 years.’

‘The best way to rate the appreciation of a TV show, movie or music piece, is by measuring the amount of illegal downloads.’

‘Social media turns casual acquaintances into keepers.’

‘Many people are not aware of the potential impact of robotics on human life... until they see a bunch of robots playing soccer.’

‘voq ghur bl’reS nov Hol je’
(transliterated from Klingon)

‘Beginning with a phrase in a foreign language increases one’s credibility’

‘The best way to rate the appreciation of a TV show, movie or music piece, is by measuring the amount of illegal downloads.’

Proposition from the thesis ‘Hydrodynamics of Rotating Multiphase Flows’ by Kevin van Eeten.

Proposition from the thesis ‘Packed bed chemical looping combustion; experimental demonstration and energy analysis’ by Paul Hamers.

Proposition from the thesis ‘Is Complexity the boss?! Medical technology is people work’ by Michaël Lansbergen.

Proposition from the thesis ‘Metal Implant Artifact Reduction in Magnetic Resonance Imaging’ by Chiel den Harder.

Proposition from the thesis ‘Real-time Scalable Video Coding for Surveillance Applications on Embedded Architectures’ by Marijn Loomans.

Proposition from the thesis ‘A Model-based Robust Control Approach for Bilateral Teleoperation Systems’ by César A. López M.

‘The best way to rate the appreciation of a TV show, movie or music piece, is by measuring the amount of illegal downloads.’

Do you have a sustainable business plan that helps combat climate change? Sign up for the Postcode Lottery Green Challenge and you could win €500,000 to take your plan to the next level, creating a fairer, greener world for everyone. Deadline for entries is 1st June 2015. Find out more at www.greenchallenge.info
MEDICAL SPECIALIST

‘After my Applied Physics studies at TU/e, I got a PhD in medical physics and dermatology in Nijmegen in 1980. Clinical physics became a profession in the seventies. The clinical physics program structure in Eindhoven - the first two years with more courses at TU/e and the last two years in a practical hospital - is called the Eindhoven Model. It became the basis of the program’s structure as set out in the law and has set the example for European legislation.’

AN IMPORTANT STEP

‘In 1988, I grabbed the opportunity to work as a medical physicist at St. Joseph Hospital in Eindhoven [now the Máxima Medical Centre]. Through this work, I educated people in Applied Physics. Before that, I had left my job in heart and vascular surgery in the Radboud Hospital in Nijmegen. I am fascinated by educating people and I’ve always liked working with serious young people. I want to lift them up, not hold them back. That is to say, I want to give them a good foundation and then let them loose. Young people can do more than you think.’

A PLASTER ON THE MOTHER’S BELLY

‘The monitoring signals we get from newborn children in the Neonatal Intensive Care Unit - which has been in use in the Máxima Medical Centre since 1988 - can also be used as a source of information to help determine their condition. In a similar way, we can also assess the condition of unborn babies. We’ve come so far that we can even collect this information via a plaster on the mother’s belly. In the future, we will apply these analyzes in order to prevent diseases in newborns. They can then use their energy to grow instead of to recover from an illness.’

MRI

‘In 1995, I introduced MRI in the St. Joseph Hospital. The machine wasn’t only to be used for diagnosis but also for scientific research by TU/e and Philips. In 2000, the relationship with Philips was such that they gave the Department of Applied Physics an older MRI machine for free and kept it operational. When the N-laag building was demolished, the MRI disappeared, but the Darcy lab got a worthy successor.’

GRANDPA

‘I’ll still be the president of the board of directors for the Clinical Physicist Education Foundation until October 2016. At least for a little while, I think I’ll keep an eye on how my work will be continued there. At the moment, there’s no follow-up for the courses ‘Clinical MRI’ and ‘Function measurement and monitoring’. But I’m also going to enjoy my nine granddaughters and my hobbies, checkers and billiards.’
People often first associate the word ‘aerodynamics’ with fast cars and planes with little wind resistance. However, in its broadest sense, the word also refers to everything associated with the movement of gases. For example, at TU/e researchers calculate wind discomfort in the built environment and examine the effect of atmospheric turbulence on the weather.

220 BC
Archimedes formulates the principle of buoyant force in a fluid (liquid or gas): The upward force encountered by a body in a fluid or gas is as large as the weight of the displaced fluid or gas. According to legend, the Greek philosopher thought of this in this bath. Then he ran naked into the street crying ‘Eureka!’

1789
Italian Giovanni Battista Venturi describes for the first time the suction effect which comes about when a fluid is pushed through a narrowing tube. This phenomenon is now known as the Venturi Effect.

1822
Frenchman Claude-Louis Navier formulates equations for the motion of fluids, later called the Navier-Stokes equations.

1904
German engineer, Ludwig Prandtl, presents the concept of the boundary layer at a mathematics conference in Heidelberg.

1922
Briton Lewis Fry Richardson develops a numeric procedure to forecast the weather.

1980s
TU/e’s Transport Physics group develops windmills that can also be used to pump water at low wind speeds in Sri Lanka, Sudan and the Cape Verde Islands.

1989
TU/e adapts the computer simulation technique, Computational Fluid Dynamics, to wind research and through this effort, leaps to the forefront of the field.

2006
The Netherlands becomes the first country in the world with a standard for the analysis of wind comfort and wind danger in the built environment: nEn8100.

2013
The Solar Team Eindhoven wins the Cruiser Class of the World Solar Challenge in Australia with an aerodynamically-optimized family car run on solar energy.

2014
TU/e decides to build a new and unique atmospheric boundary layer wind tunnel building on campus. It’s expected to be ready by the end of 2015.

2014
Professor Bert Blocken provides TU/e’s first Massive Open Online Course (MOOC) on ‘Sports and Building Aerodynamics.’ The free online course attracts 13,000 participants from all over the world, and covers the optimal order of cyclists during a team’s timed trial in addition to other topics.

2015
TU/e awards an honorary doctorate in Urban Physics & Wind Engineering to prof. Theodore Stathopoulos of the Concordia University in Montreal.