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TPM

QUARTERLY



Delft School for
Public Management and Technology

Optimal cross-pollination between academia and practice

Willemijn Dicke

Nobel Prizewinners who give lectures, inspirational debates, top-level masterclasses... when it comes to 'lifelong learning', TU Delft is positively bursting with activity. However, the outside world is largely unaware of the fact. The soon-to-be-launched Delft School for Public Management and Technology intends to change this. Not as a physical school, but as an access portal to the TU Delft campus: the place where it all happens!

They are currently offered in a slightly haphazard way: the Elsevier Technology debates, the masterclasses and practical lectures at the Ministry of Infrastructure and the Environment (I and E) and the Master's programme for students to obtain I and E endorsements (see insets). "So it is high time to put them firmly on the map - together." explains Willemijn Dicke, assistant professor in the Policy, Organisation, Law and Gaming section at TPM. Together with Jeroen van den Hoven, Kim Colman, Mark Bosma and Hans de Bruijn, she is driving the development of the Delft School, at the suggestion of Dean Theo Toonen.

The Delft School seeks to offer an umbrella structure aimed at enhancing the identity of a number of existing initiatives. Dicke continues, "But also to facilitate meetings between those involved in practice and those involved in the teaching and the research areas in which TU Delft occupies an outstanding position. We want to invest in contacts with top executives and leading officials, as well as the general public, in technology-driven environments. We want to sit down with boards of directors, politicians and policymakers in order to clarify problem areas and to look for solutions. The basic objective is that of creating optimal cross-pollination between teaching, research and agenda-setting in the interest of major social challenges and today's international 'Grand Challenges for Engineering' that we subscribe to and which TU Delft's Executive Board has adopted as its starting point for its 2020 Road Map."

As a modest start, therefore, the Delft School will adopt the Elsevier Technology debates, the masterclasses and practical lectures at I and E and the possibility for Master's programme students to obtain I and E endorsements. In addition, the Delft School will seek to build on its partnership with Leiden University, Erasmus University Rotterdam and TU Delft, for which the chairmen of the Executive Boards signed a covenant some time ago. Wijnand Veeneman, for example, is already organising a series of masterclasses on behalf of TU Delft for the Ministry of I and E on typical TU Delft subjects. The intention is for the Delft School to further expand the series to around six afternoons and, where relevant, to include the know-how of Erasmus University Rotterdam and Leiden University.

Top-level experts

"Take a masterclass about managing large infrastructural works, for example. TU Delft can provide the technological knowledge and teach management of processes, Rotterdam can deal with the economic aspects and Leiden can add the legal knowledge. That makes it even more interesting for those taking part." A similar approach can be adopted for such subjects as nuclear energy and nanotechnology. Dicke says, "It means that high-level officials and brilliant young policymakers can not only catch up on the latest technological developments, but also on the economic and legal aspects. The 3TU Ethics Centre offers world-class expertise in the field of ethics, which has been achieved by combining the efforts of top-level experts from the three universities." And there are other plans for the future, too. "We want to organise short courses and Master's programmes, for example, also in a partnership between Leiden, Rotterdam and Delft, together with our international partners, such as those in Tokyo, Singapore, Bangalore or Shenzhen. These courses will also be very appealing."

In addition, the Delft School would like to offer more practice-based PhD programmes (the PD Engs), a new phenomenon in the academic world. "There are many professionals aged around thirty or forty who would very much like to acquire a deeper knowledge of a particular aspect of their work and who would

like to gain a PhD in the subject. Examples that come to mind are risk management, security, privacy and asset management. However, they are deterred by the idea of embarking on a complete academic programme. They will therefore shortly have the opportunity to write a PhD thesis on the basis of slightly different criteria than those for regular PhD programmes."

Another initiative that the Delft School may be launching is the sharing of academic knowledge on subjects that are relevant to more than one ministry. "Take DNA modelling, for example - one of the priority areas in the research partnership between TU Delft and the LUMC in Leiden, also known as Medical Delta. Based on a test-tube of blood, we can already determine which illnesses a person is likely to get. Soon, it will be possible to derive the same information from a DNA swab from the mouth. Or take the use of robotics in operating theatres - that is another imminent innovation. Developments of this kind are unstoppable and have an enormous social impact. It would be great if we could bring the Ministries of Education, Culture and Science, and of Health, Welfare and Sports up to date about the kind of things that are possible, so that they can anticipate these and act appropriately."

Front office

The Executive Board still has to decide which form the Delft School for Public Management and Technology should take. One thing is certain, though: there will be no new campus the size of the current TU Delft campus. "We have a front office in mind - a kind of learning centre tailored to individuals from the practical arena - in The Hague, manned by a handful of people who know TU Delft and the market very well. For that reason, we are also working very closely with the Valorisation Centre. The front office employees could act as representatives of TU Delft; they could give senior figures from the world of politics a virtual or even a real tour of all the unique research and facilities the university has to offer, such as our simulation laboratories."

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Cathedral

The education we offer at TPM deserves a wide audience, and we are pleased to note that it does indeed attract that audience to Delft. However, there are growing calls for a move in the opposite direction, for taking our courses to 'consumers' – to The Hague for example, or Dordrecht, or to Japan and China. I regularly have discussions on this matter within the faculty and TU Delft. Don't do it, say the sceptics, arguing that would not be efficient. I say we should do it. It's only right in this day and age, and it's right for the future, too. Education should no longer base itself on the past reality of a production economy. It should focus on the new order, that of the knowledge economy. In that sense, the Dutch education system resembles a large cathedral that has fallen over. In the old situation, four-year-olds went inside the cathedral. Some soon came back out again, while others went further inside, deeper and higher into the building before reaching the top: They would eventually obtain their degrees or their PhDs. For a long time, young people were able to climb up the insides of the thick walls of the cathedral. Education and society only met at the pinnacles of the institutions, at the moment of graduation. This continued until an earthquake struck: the 'horizontalisation' of society, caused by the more widespread use of IT, by globalisation and by the greater emphasis on the individual. It is not just society that has changed, but also the way in which people learn, and how education and society have become more interwoven. People of all ages spend their lives going in and out of educational establishments, while accumulating knowledge in other ways – in their job, doing voluntary work, during a sabbatical, or when at the computer. The cathedral has been brought down. It is stretched out in the grass. The building is reasonably undamaged and parts of it are still usable. The side entrances are useful, as they make it easier for people who want to keep learning throughout their lives to gain access. These entrances do exist, but cannot be found everywhere. Work needs to be carried out on the former closed upper reaches of the cathedral in particular, where university bodies have traditionally held sway. This is where the idea should take root that education can be organised in a way that is different to what we are used to – that you can take it to people as well. Universities are largely ignoring the consequences of combined work and study and lifelong learning. We prefer to invite PhD students from China and South Korea rather than bring on board the potential talent that exists outside the university. That potential can be found in both the private and public sectors. If we want to educate government civil servants better, then we must give them the opportunity of gaining a PhD, alongside their work. We should also certify competencies that have been acquired from practical experience, and we should make good use of embedded learning, with structured meetings between teachers and students, because without any direct contact it would not work. And in my opinion there should also be an academy for practice-based professors, so that they could meet high-level academic standards, in addition to their high-level practical knowledge. We, the traditional universities, would then continue to safeguard quality.

This futurist vision requires that we think differently about education and about how the university is structured. First of all we have to accept that the large cathedral has been flooded, before we can start to convert it, to a gallery for example. Just think of the fabulous galleries in the old university city of Bologna: it is no coincidence that that is where the origins of the same process lie.

Prof. Theo Toonen, Dean



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Optimal cross-pollination between academia and practice

Dicke is hoping that the Delft School can start in September. The plan is to first make the low-hanging fruit, in other words the existing initiatives, more enticing by pooling it and presenting it in a single portfolio to interested parties, such as those in The Hague, but also to the members of the less obvious social and economic leading sectors. It means, for example, that conferences of Next Generation Infrastructures and the Delft Centre for Entrepreneurship can be presented under the same flag to policymakers, the private sector and utility companies.

The emphasis in the third to the fifth years will lie on high-level teaching and research. Highly specialised courses will be run for top executives from both the private and public sectors, who will be able to submit a case study on asset management or risk management, for example. Experts from TU Delft and other universities will then be brought in to give their thoughts on the case studies, either online or, if desired, at meetings.

Another ambition is to set up a research section at the Delft School, together with the National University of Singapore and other universities. This will create an international course in water management, for example, a field in which TU Delft excels. Dicke: "At the Delft School, lifelong learning starts with the Master's programmes, in which we include theory and practical aspects. People in mid-career can then take a complementary Master's. And in the longer term, high-level classes in short courses given by outstanding researchers will be available for those seeking to bring their knowledge up to date. There really is something for everybody."

I and M masterclasses and practical lectures

Many contemporary subjects require new academic knowledge, administrative strategies, entrepreneurship and modern social communication. To stimulate knowledge development, TU Delft and the Ministry of I and M have joined forces.

TU Delft organises masterclasses based on such themes as 'Living and moving in the Randstad Delta' (2010) and 'Field-based work' (March 2011). The aim is to allow the knowledge and insights that have been developed at TU Delft to filter through to I and M's day-to-day activities. The masterclasses are given by TU Delft professors at Campus Den Haag for I and M employees and other departments (Housing, Spatial Planning and the Environment; Agriculture, Nature and Food Quality; and Economic Affairs). The Ministry of I and M organises practical lectures on the same themes for TU Delft students and employees. These are given by I and M project managers, directors and directors-general, and take place at TPM. Students and teachers who attend ten lessons receive a certificate/credits for the elective 'Civil engineering & social orientation'. Given the success so far, new masterclasses and practical lectures can be expected in the future.

Elsevier Technology debates

In order to bring the worlds of research and policymaking together, TU Delft and weekly news publication Elsevier organise technology debates once a month. Researchers from Delft give the facts and backgrounds to a problem, before entering into a debate with entrepreneurs, politicians and policymakers. During the proceedings, young researchers from Delft present their latest findings and models. Elsevier journalist and TU Delft alumnus Simon Rozendaal presides, ensuring flowing and high-quality debates. The Elsevier Technology debates are held in the Haagsche Kluis in The Hague on Thursdays, from 17:00 to 19:00.

The programme for 2011 is as follows: • 15 September 'Raw materials are running out!' - Aad Correljé • 3 November 'Do we want to be operated on by robots?' • 8 December 'Wikileaks and internet privacy'

Infrastructure and Environmental Governance endorsement

TU Delft is working with the Ministry of I and M on promoting knowledge in this sector. The Elsevier Technology debates and the I and M practical lectures (see other insets) are examples of this. Attention is also being focused on preparing students who wish to pursue a career in this industry that will be facing ever-more challenging issues. In the 2011-2012 academic year, the Civil Engineering and Geosciences faculty will be launching a number of new initiatives, such as an interdisciplinary specialisation in which hydraulic engineering and water management are combined. Starting in September 2011, the TPM faculty will be offering the Infrastructure and Environmental Governance (IEG) endorsement for the SEPAM and EPA Master's programmes. Students can obtain the IEG endorsement by taking the following components:

1. An introductory course on the I and M field;
2. A number of courses that are supplementary to the regular curriculum and focus in greater depth on one of the I and E areas of focus, such as transport, space or water;
3. An application project jointly supervised by TPM and the Ministry of I and M;
4. A graduation project, which is carried out at an organisation related to infrastructure or the environment.

Past TPM students have regularly graduated on subjects that could be considered for this. Rick Reijtenbagh graduated, for example, on research he had performed into improving drinking water facilities on the Dutch Caribbean BES islands, Diana Vonk Noordegraaf looked at road-pricing, and Martin Ebskamp researched a modelling method for flood risks. In addition to the graduation project, the other components in the endorsement are worth 21 credits (600 hours).

ALUMNA HILDE VAN DUIJN IS TAKING ROYAL HASKONING BY STORM

“I enjoy challenges and posing challenges”

It sometimes seems as if everything happens automatically for Hilde van Duijn, but of course that is not the case. Success, after all, is related to how someone puts themselves across. As the youngster among the ‘middle-aged men in suits’, the 28-year-old former TPM student is thriving in an interesting position at the offices of Royal Haskoning in Rotterdam - as shown by the fact that she has been named Young Professional of the Year. “I enjoy challenges. I want people from different generations, disciplines and cultures to challenge and inspire each other.”

For three years, Hilde has been part of the relatively small group of management consultants who work at the global consultancy firm (almost thirty people out of a total workforce numbering around four thousand), where she feels completely at home. “I compare the people and the atmosphere here - the pioneering spirit and the informal way of doing things - with those at TPM. When I started working here, it was as if I was back in Delft again. It felt like my second home. And just like at TPM, in the first year I felt that I had to prove that I have substance, being surrounded by so much technical expertise.” This she did, starting with water management projects with the Ministry of Infrastructure and the Environment, for example. At present, she is advising on and helping with the implementation of the European Directive on the Assessment and Management of Flood Risks. What she is adding to the process are her efforts at getting water boards from five countries to learn from each other through exchange of knowledge. Internally, Hilde has been a prominent board member of Young Royal Haskoning for the last two years. As chairman, she broke down the rather hierarchical decision-making structure of what is a platform ‘run by and for young colleagues’. She organised Meet & Greet lunches and arranged for directors to be assigned a young employee as a coach.

“I had been entertaining that idea for some time, and after a session with the directors last year, I was given the green light. It’s great to be given the space to do so,” says Hilde, who - perhaps coincidentally, or perhaps not - was paired with Erik Oostwegel, the Chairman of the Board of Management. An evaluation of the initiative revealed a great deal of enthusiasm for it. “The management come into contact with new ideas. They are especially keen to know what is going on on the shop floor, as well as what employees think of them personally. But they also use us to discuss the policies of the organisation or to test a presentation, for example.”

“I want to create connections that were not previously there, by drawing people out of their comfort zones and getting them to look around them - at other generations, disciplines and cultures,” says Hilde, explaining her way of operating. She will soon be practising what she preaches, by taking six months off. Some colleagues refer to it as a sabbatical, and others a chance to recharge the batteries, but Hilde herself says it is ‘just a holiday’. “I’m going backpacking in Asia, and will be resuming my career afterwards. At Royal Haskoning, perhaps supplemented with a foray into politics.”



Young Professional of the Year

The Young Professional of the Year elections were held for the first time this year. It is an initiative by ICA, the InterCompany Association. This is the largest network of highly-qualified Young Professionals in the Netherlands. ICA represents more than 45 associations for young people working for leading employers.

EPA Master’s programme receives Internationalisation certificate



The Master’s degree programme in Engineering and Policy Analysis (EPA) has received the special ‘Internationalisation’ designation from the NVAO, the Dutch-Flemish educational accreditation organisation. Moreover, the

certificate came with the classification ‘good’. It is a certification for degree programmes that deliver a high standard of quality in internationalisation. On four of the six subjects, EPA achieved an ‘excellent’ score.

It is the aim of TU Delft for its degree certificates to be as highly rated as possible, both in and outside the Netherlands. An international orientation not only opens up more opportunities for graduates abroad, but also raises the quality of the curriculum. In addition, the university actively seeks to attract talented individuals from abroad, and an international orientation is an important factor in persuading them of the merits of TU Delft as an employer and a research institute.

“The EPA Master’s programme trains engineers to be able to analyse, structure and model complex issues,” explains Director of Studies Bert Enserink. “Using their additional knowledge of business administration, they conceive sustainable solutions to complex problems, and are able to design, implement and evaluate projects and policy. Examples of such topics include

how our energy supplies should be structured in the future, issues relating to urbanisation, or dilemmas surrounding genetic screening and nanotechnology. In other words, these are technical questions that have political, cultural, moral and socio-economic dimensions. It is therefore almost inevitable that our graduates end up working in international and interdisciplinary environments.”

Hardwired

Modern engineers must be able to work together with others, feel at home in international and interdisciplinary working environments and, in addition to their technical knowledge, have a feeling for the social environment in which they work and act. “Our vision on internationalisation is therefore hardwired in the overall objective of the programme in order to train students to become strategic advisers who can operate in complex social, technical and political contexts. That is why we also focus on interculturality. One of our greatest challenges in this accreditation process was the translation of the general vision to an explicit vision on internationalisation, as well as the translation of the learning objectives into explicit SMART-formulated learning objectives in the field of internationalisation.”

The challenge also lay in the fact that internationalisation is a self-evident aspect of EPA; its international character has become stronger through the years, while the orientation of the programme, the content of the modules and the didactic methods have been adapted accordingly, for example through the use of foreign cases and a wide variation of didactic concepts in order to accommodate students with different styles of learning. “The accreditation process for the special designation, however, assumes a calculated design based on specific internationalisation objectives. Our challenge was to re-engineer that vision of internationalisation and the related design of the internationalisation dimension.”

For years now, EPA alumni have been saying that they learned most from working with others, with different people from all over the world - and that the value of that intercultural and international experience is incalculable. Enserink continues, “We always regarded the intercultural competencies as a useful secondary benefit, but we now realise that it is an important quality we have to offer. Studying abroad or alongside foreign students can be much more than an enjoyable experience; young people learn to open up to different ideas, they learn how to identify and appreciate differences, and they experience how they can achieve better joint results thanks to their different backgrounds. These are very important qualities for the analysts and strategic consultants that we seek to train. Identifying, acknowledging and quantifying these qualities has been a significant lesson for us in this accreditation process. The fact that we have been rated ‘good’ for this benchmark is very rewarding.”

Also at the European level

The Internationalisation certification mark is a pilot project of the NVAO. The aim is to examine how certification can help institutions stand out in terms of internationalisation. A total of twelve institutions with 21 programmes have taken part in the pilot project. Ten of these received the ‘Internationalisation’ certificate, and a ‘good’ ranking.

The European Consortium for Accreditation has since announced its intention to examine whether a designation of this kind could be introduced at the European level. TU Delft plans to follow this ‘best practice’ for other programmes.

Highflyers

TPM students have achieved outstanding successes in all corners of the world. But what kind of things are they involved in? In this edition of TBM Quarterly, we have put four highflyers in the spotlight - without wishing to take anything away from anyone else, of course.



Victory in the Battle of the Best Bèta

By Nadine van Minderhout

"Thanks to six Master's students from TU Delft, we have won the Battle of the Best Bèta (the best science student). The students concerned are Lizet Bloo and Femke de Korte (SEPAM), Nadine van Minderhout (TIL), Zoë Lagerweij and Rianne Langenberg (Applied Mathematics) and Daphne Nederstigt (Architecture). The Battle of the Best Bèta is an Accenture and Plan Nederland initiative, and 160 science students took part."

"Plan enables people to sponsor children in developing countries for a fixed amount per month. However, in practice, the registration process in the developing countries themselves, including Zambia, is time-consuming and inefficient. The organisation would like to improve the reliability of the process. The time that would be saved as a result could then be devoted to concrete development projects that would make a structural contribution to the quality of life in the villages."

"Our team, which was one of two delegations from TU Delft, was selected during the preliminary round in November. In the six weeks that followed, we developed an appropriate solution under the guidance of consultants from Accenture and employees of Plan Nederland. In addition to the use of technology, we had to take account of the local circumstances and what technical resources were available. At the same time, we had to consider carefully what the impact of our plans would be on the local organisation.

The results of the last eight teams were presented to the jury in the final. In declaring our team the winner, the jury commented, "Their plan is impressive. The possible effects of each scenario have been worked out in detail. Moreover this is an energetic team that gives the impression of being able to combine practical solutions with a well-argued approach. The result is a very sound solution that could actually be put into practice straight away." (This is an abridged version of their comments.) As well as a reward from the sponsors, we won a trip to Zambia, where we will be validating and refining the plan together with the strategy consultants from Accenture and the relevant Plan employees.

We got to learn about every aspect of the consultancy profession during the programme. It is fantastic that our team is now travelling to Zambia in order to evaluate and experience the effects for ourselves. If this pilot scheme is successful, the solution will be extended to Plan locations all over the world, thereby benefiting the lives of children everywhere."

What is OCW?

The objective of OCW is to make high-level course material freely available online. It is now an important means of competing internationally to attract the best students and researchers. A quarter of TU Delft's Master's students come from abroad, as do sixty per cent of PhD students.

Most of the visitors to ocw.tudelft.nl come from the Netherlands, the US, India, China and other Asian countries. These are also the countries that many students come from. Foreign students use the courses for study material or to find out more about the possibility of studying in Delft. Our own students often use the material to quickly look something up in advance of a fast-approaching exam, for example.

The course can be found at ocw.tudelft.nl

Learning about SEPAM from the inside

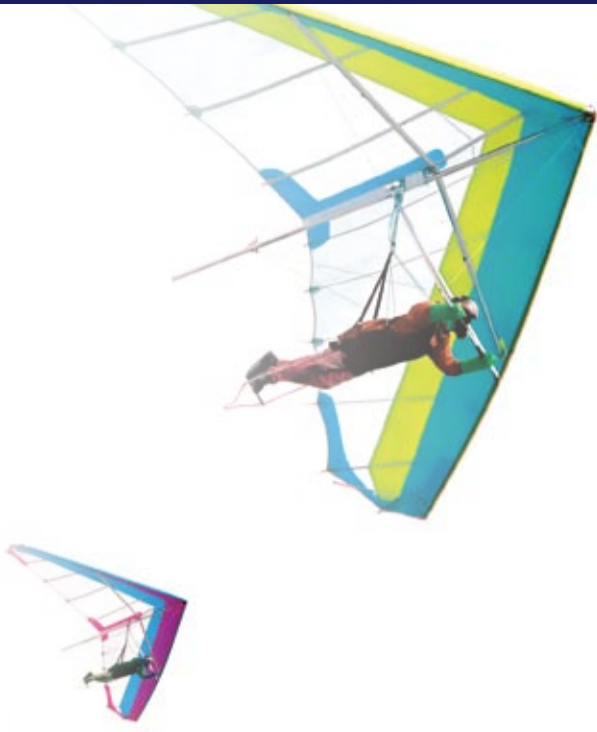
How do you help secondary school pupils find out whether the SEPAM programme (Technische Bestuurskunde) is right for them? One way is through the well-attended information days and taster days, but now everyone can gain an impression of the programme by going online. The OpenCourseWare (OCW) provided by TU Delft now includes the SEPAM introductory course.

The course is based on the SEPAM week, the first week of lessons for first-year students, in which they learn about the important subject areas in the SEPAM curriculum. There is a theory lesson for the first two hours in the mornings, about mathematics or law for example, followed by a case study on which the newly gained theory knowledge can be set loose.

The OCW course is structured in the same way. Secondary school pupils can watch lectures from the SEPAM week that have been recorded using CollegeRama, and then work on the case study. This gives them an idea of the main subject areas of the programme, and they gain an immediate impression of what goes on in a lecture room. There are also informative films in which students explain why they find SEPAM such an interesting and enjoyable programme, teachers explain something about their field, and alumni describe how they apply their SEPAM knowledge on a daily basis. More information is on hand for anyone wishing to dig deeper, as well as the details of contact persons.

The introductory course is designed to help school students get a clearer idea of whether SEPAM is for them. If it is, then we have gained suitable new students in our ranks, and if it is not - well, it's better to discover that before they embark on the course.





Combining two degree programmes to the best possible effect

By Merijn van Os

"I made full use of the relative freedom of choice of subjects for the Bachelor's final project. This gives you the opportunity to choose that one subject you have always wanted to know more about, or in which you are very interested. In my own case, it meant combining both my programmes, SEPAM and Psychology."

"I made full use of the relative freedom of choice of subjects for the Bachelor's final project. This gives you the opportunity to choose that one subject you have always wanted to know more about, or in which you are very interested. In my own case, it meant combining both my programmes, SEPAM and Psychology."

Agent-based modelling is one of the many modelling methods for tackling SEPAM-related issues. As well as technical aspects, these issues often involve human components, or actors. In some cases, it is enough to model these actors as entities that behave consistently and rationally, while in others this kind of simplification of reality can have too great an impact on the results from the models. It can therefore be useful to model the psychological mechanisms in greater detail in order to describe the reality more accurately. Despite the fact that this opportunity for improvement is being recognised by a growing number of researchers, it is not used often enough for concrete applications. So there is plenty of work to do!

As part of my Bachelor's project, I tried to model a 'psychologically responsible' representation of trust (among potential investors in a capture, transport and storage infrastructure for CO₂) in an agent-based model. In a thorough investigation of relevant literature, I compared different theories about trust, and described the most important features. I then selected and implemented a theoretical model in an agent-based model on that basis.

A psychologically based representation of trust was found to consist of a function of different variables (such as the benevolence of an investor). Some of these variables, as well as their specific relationship to trust, are difficult to establish or estimate. As a result, the question remains whether the representation is sufficiently valid or actually adds anything. Further research will be needed to show this one way or the other and to bring about improvements.

Although there are many aspects of my end product that need improving, I feel my project has been successful and instructive. I am very pleased that I have finally been able to combine both my study programmes to the best possible effect and have been greatly inspired to embark on another research project."

Bachelor's graduation project in Boston

By Jolanda Koot

"After two-and-half years in which you study all kinds of disciplines, the latter part of the third year of the Bachelor's programme is reserved for the graduation project. This is your opportunity to apply all the knowledge you have acquired in the previous years to your own research project. Last year, I was given the chance to carry out a research project in America, about which I was very excited. I did my minor in applied mathematics, focusing on risk analysis and optimisation. I was taught by Radboud Duintjer Tebbens, who had links with a research organisation in Boston."

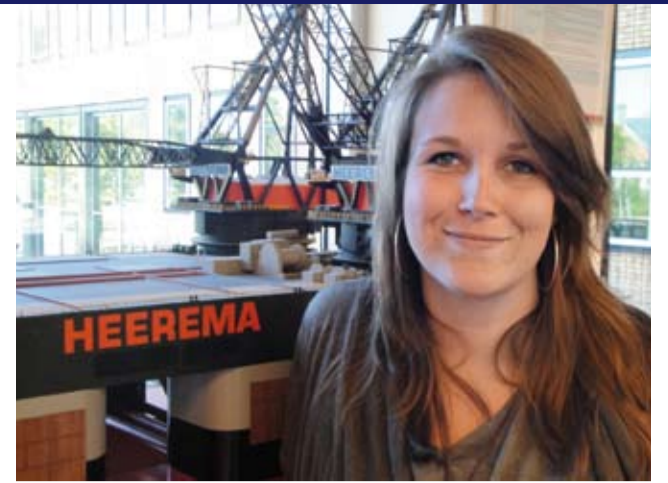
"I carried out my research for KidRiskInc, an organisation that was set up ten years ago at the Harvard School of Public Health. The purpose of the organisation is to conduct research into all kinds of aspects relating to the risks in the field of children's health, for which mathematical models are developed as tools. This is not so much purely medical research, but rather research that charts the development of childhood diseases, and can help people make decisions relating to this subject.

My research project - 'Quantifying the corporate commitment to children's health' - looks at the attitudes of the US's one thousand largest companies to children's health. Much is known about the conduct of non-profit organisations and government bodies, but there is little information about large companies, even though this could be very important when it comes to securing funding for research and reducing the risks associated with children's health. I applied Latent Class Analysis in order to identify different patterns of behaviour, for which the skills I learned in the SEPAM Bachelor's degree programme proved very useful. It is essential to consider the preconditions imposed by public administration. The range of actors involved was complex, while the SEPAM approach to problems proved instructive for the often mathematically minded PhD holders and professors.

Personally, I learned much from the American work ethic. Students are more motivated: working days from 07:00 to 22:00 are no exception, and the research carries on during the weekends as well. In short, this research project was most instructive in a number of different ways."



In the middle: Jolanda



The multidisciplinary SEPAM approach has lost none of its appeal

SEPAM graduate (with distinction!)
Catherine Barney

"My decision to opt for the SEPAM Bachelor's programme was down to chance. With my Nature and Technology profile, I knew that I wanted to study at TU Delft, but none of the courses I looked at felt right. I stumbled across SEPAM by chance, and it became pretty clear that this was what I was looking for: a combination of technology, economics, law, policymaking and project management. The multidisciplinary approach that you learn is something that I still find very interesting and useful now, six years later."

"I knew fairly quickly that I wanted to do my graduation project for the SEPAM Master's degree programme in the system engineering research group. I had worked with the people in the group before, and it had been an enjoyable experience. Also, I found the graduation assignments that had been carried out here to be very interesting. After a long search I ended up at Heerema Marine Contracts: an offshore engineering and execution company in the oil and gas industry, where I started off using the lessons I had learned. This included a way of documenting and using the knowledge picked up during one project for the benefit of another. The title of my graduation project was 'Cross-project learning in project-based organizations: Designing the lessons learned process from a technological, organizational and social perspective'.

The upshot is that I have designed a new process which, because of its multidisciplinary character, enables businesses to use valuable knowledge acquired from completed projects to perform more effectively in new projects. On 25 February 2011, I gained my SEPAM Master's degree with distinction. On top of that, my project resulted in my getting a job. The design is regarded by Heerema as effective and appropriate, and for that reason I returned to Heerema on 16 May - to test my design in pilot schemes so that it can be implemented for every project.

Given that my interest lies in the oil and gas industry, this automatically means working in a male-dominated environment, and things are no different at Heerema either, in that respect. It could be said that working in that kind of environment for a woman brings both benefits and drawbacks. One disadvantage that I have experienced is that as a woman you have to do much more to prove yourself than men do. I think that as a woman in a technical environment you will always encounter advantages and disadvantages; what matters is how you deal with them."



In short

Dissertations



ALBERT PLUGGE

IT outsourcing from the perspective of service providers
8 March 2011, Delft

More information:

www.dissertaties.tbm.tudelft.nl

TPM to house University of Oxford summer school

From 24 August until 3 September, TPM will be home to an international summer school of the Oxford Poverty Reduction Initiative, dealing with economics and poverty and development. The summer school is related to a major conference on global justice and development that is being organised by the 3TU Centre for Ethics and Technology from 6 to 8 September. The conference will be preceded by two public lectures, to be delivered by the renowned philosopher Martha Nussbaum and the Nobel Prize winner for Economics, Amartya Sen. For more information about the conference and the public lectures, please go to www.ethicsandtechnology.eu/hdca

New book by Casper Hartevelde: Triadic Game Design

Many designers, policymakers, teachers and other professionals are starting to realise that games have a practical use that goes beyond their recreational function. This has led to an growing number of attempts at using games in a constructive way. Games have been devised for teaching students about history, for reminding patients to take their medication, to attract recruits into the army, and to gather data for the purpose of improving search engines. In spite of these developments, little is known about how games of this kind are designed. This book is one of the first to look into the core of game design, and describes an approach for doing so successfully.

STW awards 3.4 million euro grant to CEG/TPM/Architecture research programme

Under the leadership of Professor Han Vrijling and Matthijs Kok of CEG, researchers from CEG, TPM and Architecture have developed the Multifunctional Flood Defences research programme. The programme has now been awarded funding to the tune of 3.4 million euros from the STW (technology foundation) perspective programme. The research is being conducted on a multidisciplinary basis and focuses on technology (risk assessment), management (finance and governance) and design (urban and rural design challenges). Two 'cross-cutting' research themes have also been defined around integrated design and adaptivity and robustness. TPM's share in this research programme is substantial, amounting to more than 600,000 euros. PhD students and post-doctoral researchers will be appointed to PA (Wil Thissen and Pieter Bots) and POLG (Bertien Broekmans). This successful proposal illustrates the power of multidisciplinary collaboration at TU Delft. Other contributors to the programmes are the University of Twente, Wageningen University, Deltares, IHE and a large number of knowledge users from inside and outside the Netherlands. More information is available from: j.s.timmermans@tudelft.nl



INAUGURAL LECTURE BY YAO-HUA TAN

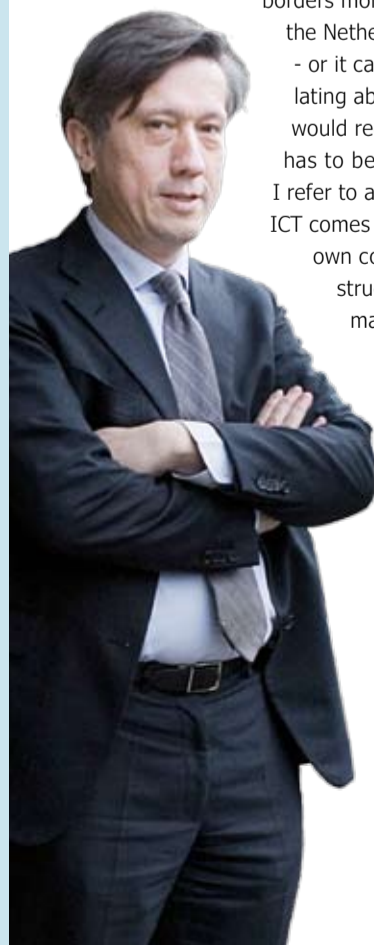
How ICT strengthens trust between the public and private sectors

He has been associated with the TPM faculty as a full professor for almost two years now, but it was not until late April that he found the time to deliver his inaugural address. Yao-Hua Tan, head of the Information and Communication Technology section, used it to set out the outlines of his research. He elaborates on these for the Quarterly. The heart of his message is that ICT innovation requires more diplomacy than programming.

Within five years, the Netherlands must have a sound ICT infrastructure for e-government, for a government that works efficiently, using electronic services. "TPM experts are excellently placed to help build that infrastructure," says Yao-Hua Tan. "I focus on e-government for international trade, and my colleague Marijn Janssen carries out research into what is needed to better serve citizens. Ultimately there should be one infrastructure for both - and for that, you need one part technology to four parts diplomacy."

Closing borders

Take the export of a container from the port of Rotterdam, for example. Ever-stricter border controls - resulting from anti-terror measures but also from concerns about food safety - mean a great deal of paperwork for a single container. The average is twenty documents. Physical inspections of goods hold up trade flows even more. The government can tighten the borders more and more, thereby weakening the Netherlands' position as a trading nation - or it can put greater trust in the self-regulating abilities of exporting companies, which would require less supervision. Tan: "There has to be a basis to this kind of trust: what I refer to as responsible trust. And this is where ICT comes in. If companies can show that their own control systems are in order, if they structure them so that they cannot be manipulated, then there is a basis for trust."



The point is that the companies themselves know how best to design these systems.

If there is something wrong with a carton of yoghurt in the supermarket, then the dairy producer will be able to establish where the rest of the batch is in a matter of hours. The government can also reap the benefits of this information. Tan explains, "What makes it difficult is that the safety



issues that affect a globally operating scrap metal dealer are different to those that affect an exporter of dairy produce. With scrap metal the major safety concern is the possibility of hidden bombs, whilst dairy producers are more concerned with food safety. The companies involved therefore have different tracing systems and different notions of safety. The government has to set safety requirements, but should translate them to individual industries and companies. Systems can then be devised accordingly. The deployment of the technology is easier than the process of negotiation that precedes it."

Bananas

This new system-based monitoring of exports has not really taken off yet. Companies have to obtain an AEO certificate for it, and far fewer are doing so than expected. Tan knows the reason why: "Companies have to make huge investments for this, sometimes tens of millions of euros. There is no point in doing so if such systems can only be used for Customs purposes. I think that ICT could also be used for sustainable trade, which would make investing a more attractive proposition. When a container with fruit arrives in the port of Rotterdam, the contents are transported on in lorries, which emit large amounts of CO₂ and cause a great deal of congestion on the roads. Bananas, however, could easily be transported via inland shipping instead, which is cleaner and less costly. This is because they are picked when green and ripen during transport. This does mean that your company's system must be able to tell you which are the containers with the bananas in them, and which ones contain the grapes. As a company, you would help reduce CO₂ emissions." By extension, there is an added function which the expensive company control system can perform: that of fair-trade certification. Businesses are given this certificate if they are able to show, say, the exact route taken by coffee beans after they leave the small cooperatives in Brazil. Tan says, "By applying the requisite ICT we should be able to make a real difference in three areas: Customs, reducing CO₂ emissions and fair-trade certification. These are topics that matter in the boardroom. Corporate social responsibility is a strong motivational force for businesses."

Future

Much research is needed to design systems in such a way that they can be deployed in different areas. The research involves various disciplines. At TPM, Tan switches easily between the Philosophy section of Jeroen van den Hoven and the Economics of Infrastructures section of John Groenewegen. It is precisely this way of working that enticed him to move from Amsterdam to Delft two years ago. "I am convinced that all of TU Delft will be organised along socio-technical lines in ten years' time. Working solely on the basis of technology is no longer possible - the future lies in the multidisciplinary approach."

Professor profile

NAME

Michel van Eeten

POSITION

Professor of Public Administration, in particular the governance of infrastructures in the Policy, Organisation, Law and Gaming section. I am also the director of the TPM Graduate School, which is currently being set up.

Tell us about your personal life

I am married with two daughters, aged five and two. We have been living in Delft for a few years now. Originally I am from a small village in Limburg, although our lives here in Delft have a village-like character. Everything occurs within a radius of about five kilometres. We use our bikes to get around.

Favourite leisure activity?

My favourite leisure activity is reading and writing. I have more books on my bedside table than I can read. It's a matter of curiosity. Sometimes I don't go beyond the beginning of a book, and that's enough. I have been writing for almost ten years now. At first, it was just for my weblog, but after a few years that blog brought me into contact with a literary agent, who guided me towards writing a novel. I wrote it in parallel to my work at the university. In the end, it turned into a story that featured a considerable science component. The book came out at the end of 2008, and I am now working on a second novel. I find it so fascinating that I have reduced my commitments as an academic so I have more time for writing. As well as a novel, I have a few other writing ideas that I would like to try.

Highlight of your career?

I am very sensitive to the need to find the right shape for things - a research project, a presentation or an idea. If you can find that shape or form, then being an academic is the best profession I can imagine. A moment like that can occur at any time, even late in the afternoon in a little back room somewhere.

Sometimes, the right form is actually perfectly conventional. Last year, I found a way of investigating a particular question relating to internet security using an econometric method, something that apparently had never been done previously. That got the attention of the BBC, among others. At other times, the form is somewhat less conventional. For my inaugural lecture I wanted to write something that was somewhere between an academic discourse and a literary essay - an experiment. The result was far from perfect, but it was a good moment to start my professorship with a new form.

"I am very sensitive to the need to find the right shape for things. If you can find that shape or form, then being an academic is the best profession I can imagine."

Biggest current challenge?

Together with Johannes Bauer of Michigan State University and two PhD students, Shirin Tabatabaie and Hadi Asghari, I have been researching patterns in the worldwide network of infected computers - so-called botnets. We approached this in classic TPM fashion: we built econometric models that used policy and economic factors in order to get to the bottom of this technical security question. It gave us worldwide visibility, in the academic world and among government bodies alike. We now have to develop new ideas to take the research further.

What do you enjoy most about your work?

The intellectual freedom. It's a classical answer, but it's something I genuinely experience. It's a great privilege to be able to go so deeply into the ideas that fascinate you the most.

Why Delft?

Although I studied public administration, I am also a science student drop-out: I studied physics for a year in Eindhoven, which was not a great success. However, I have always remained interested in science and technology, which makes TPM a logical place to be. Obviously, that is a version of events that I have put together in retrospect. It is true, of course, but if I had ended up somewhere else for whatever reason, then I would have come up with a different account, which would have been equally true.

Your best characteristic?

Curiosity and the enjoyment I take in 'tinkering' with things. I often spend an hour or two with some PhD student I don't even know, trying to get to grips with their research. At times like that, I forget everything else. If I manage to get an idea together that successfully and elegantly connects questions, data and conclusions, that makes me very happy.

Your worst characteristic?

Impatience, and my inability to conceal it.

What subject do you think should be high on the political agenda?

That is not something you should ask academics. It has very little to do with expertise and everything to do with what is going on in society. That is what politics is about. Every academic would like a greater focus on their field. Thank God that kind of narcissism does not determine the political agenda.

Source of inspiration?

Science itself. Great research, discerning observations. I sometimes read a book or an article and think, 'that is the kind of quality I would like to achieve'.

Your life philosophy?

Not the faintest idea.



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Abroad with Curius

Curius, the TPM student society, is attracting more and more members every year. The greater level of involvement has resulted in no fewer than four study trips being organised this year. For each target group, committees of enthusiastic members are hard at work to set up a fantastic trip.

Study trips are an important part of Curius' activities. One of the main areas Curius focuses on is career orientation. Precisely because SEPAM is such a broadly based programme, students can really benefit from taking a look at the employment market and seeing the kind of opportunities that the programme brings. Another cornerstone is that of a broad-based international outlook, which is especially fitting given how TU Delft seeks to profile itself in the international arena. These two aspects can be combined perfectly in a study trip. Visits are frequently made to businesses in both the Netherlands and abroad, thereby enabling students to acquire as broad a picture as possible.

The first-year committee is currently planning a two-day trip to Paris, during which presentations and guided tours of various companies will be given, in Paris itself and en route. For the 50 participants, it will be their first opportunity to get a feeling of the international field. The second and third-year Bachelor's students will be going to Budapest this year, where they will visit BKV (the public transport company in the city), Getronics and the Dutch Embassy. Master's students have already been on the first of their two trips this year. A 30-strong contingent went to Helsinki and Stockholm in March on what was an orientation



Curius on a visit at the Dutch Embassy in Helsinki

exercise, with visits to companies both in and outside the Netherlands such as KPMG, Fokker and Alliander, who challenged the students with case studies and workshops. The second trip will be taking place in the summer, when 20 students will be spending three weeks in China. As part of the preparations for the trip, the group are working on an 80-hour case study, which is being organised by the faculty. The case study will provide useful experience for the students, and the fee that will be earned from it will go towards funding the trip.

So Curius offers every group the chance to find out more about the employment market both in and outside the Netherlands. It also means that students themselves can raise their own profiles among the companies concerned. For Curius members, it is an outstanding opportunity for self-development, alongside their regular studies.

Right on top: Bachelor students on a visit at the Service Center of Getronics in Budapest.

Right below: Students work on a case at Ernst & Young on the head office in Rotterdam.



Ask TPM

The TPM Advisory Council was appointed in November last year. The function of the new Council is to act as a kind of sparring partner for TU Delft; a social environment that reflects ideas about teaching and research that exist within the university. Among the topics featured are the future development of research programmes and the competencies that our future graduates may need. In principle, the Advisory Council meets three times a year, and it consists of Hans van der Vlist (former Secretary General of the Ministry of Housing, Spatial Planning and the Environment, now involved with ABD Top Consultants), Renee Bergkamp (Ministry of Economic Affairs, Agriculture and Innovation), Bertrand van Ee (DHV), Stijn van Els (Shell), Ludy Geut (Berenschot), Thessa Menssen (Port of Rotterdam) and Yvo Saanen (TBA). We asked the chairman, ir. Hans van der Vlist, about the demand at ministries for 'lifelong learning' and how the TPM faculty could meet that demand.

In general, it can be said that employees in ministries should aim for maximum development. It is important that, in the process, they move in step with society and do not lose touch with real life. They are expected to want to keep learning for their whole lives and to constantly be moving forward - while serving the State, preferably. Moving over to the private sector is fine, of course, but the aim for anyone doing so is that they feel their time as a civil servant has been worthwhile, and that as they leave, they are acting as good ambassadors to the 'outside world'. Because of my background, I can only speak on behalf of the Ministry of Housing, Spatial Planning and the Environment, but in principle

every ministry gives their employees what they need for their self-development: the facilities, of course, but also courses and training programmes. These may vary from learning skills that are specific to the kind of work that someone does, such as 'political sensitivity', to complete management programmes. Master's programmes are also an option.

An important contribution to the training programme is made by the 'Nederlandse School voor Openbaar Bestuur' (NSOB) - an institute that specialises in linking academic knowledge about public administration in the Netherlands to everyday practice.

Lifelong learning is also a key priority for TU Delft. In this framework, the university is seeking ways to build bridges between the political world in The Hague and the world of technology - in areas like infrastructure and the environment, security, the economy and nuclear energy. TU Delft has already formulated a number of ambitions and is developing various activities. Examples include the Elsevier Technology debates, the masterclasses and practical lectures at the Ministry of Infrastructure and the Environment, and the Master's programme in which students can gain I and E endorsements. The research projects at Next Generation Infrastructures and Safety & Disaster Management are also closely related to policymaking in The Hague.

The latest initiative by Dean Theo Toonen is also an interesting phenomenon: the setting up of the Delft School for Public Management and Technology, a platform for optimal cross-pollination between the academic world and day-to-day practice in The Hague.

The programmes the NSOB runs in The Hague often focus on socio-political issues. TU Delft must now assess the relevance of its knowledge and research to The Hague. The public administration aspects in particular are fascinating, with subjects such as nuclear energy, fire safety and complex decision-making. However, I do believe that the emphasis should be laid on customised solutions and even in-company study programmes. Speaking for myself, with my TU background, I can certainly see the added value in that.

TPM's educational programmes

■ BSc Systems Engineering, Policy Analysis and Management ('Technische Bestuurskunde', TB) ■ MSc Systems Engineering, Policy Analysis and Management (SEPAM) ■ MSc Management of Technology (MoT) ■ MSc Engineering and Policy Analysis (EPA) ■ MSc Transport, Infrastructure and Logistics (TIL) (in cooperation with the Faculty of Civil Engineering & Geosciences and the Faculty of Mechanical, Maritime and Materials Engineering) ■ MSc Information Architecture (IA) (in cooperation with the Faculty of Electrical Engineering, Applied Mathematics and Computer Science) ■ MSc Geomatics (in cooperation with the Faculty of Civil Engineering & Geosciences and the Faculty of Aerospace Engineering)

Did you thoroughly read the available information and are you considering enrollment in a TPM-programme? Are you not sure your educational background is sufficient? Then please contact one of our study advisors: Drs. Marja Brand ✉ (m.j.c.c.brand@tudelft.nl) or Drs. Danielle Rietdijk ✉ (d.rietdijk@tudelft.nl).