

# TPM QUARTERLY

FACULTY OF TECHNOLOGY, POLICY AND MANAGEMENT

"I'M NOT A CONTROL FREAK, BUT A BIG PICTURE FREAK"

## Theo Toonen: the new TPM dean

**Though nurtured in the 'soft sector' and long-standing head of Social and Behavioural Sciences in Leiden, Theo Toonen is no stranger to hard technology. As a Professor in Public Administration, he thinks people in his field must be able to count too - just as engineers must recognise people's practical needs and wants in their theoretical models. This month Toonen took over the faculty deanship from Jeroen van den Hoven.**

A deanship at TU Delft is not the most obvious choice for a political scientist from Nijmegen. "I'm not an exact sciences man", Theo Toonen readily agrees. "I went on to do public administration, so I am a social scientist, but these labels mean little to me. I prefer to think in interdisciplinary and practical terms. I am fascinated by the administrative sides of technological issues, but also by the technical sides of administrative issues."

In the course of his career this specific interest brought him steadily closer to typical TPM subjects. After obtaining his doctorate in public administration at Erasmus University Rotterdam and holding scientific positions at home and abroad, Toonen was appointed as Professor in Public Administration at Leiden in 1990. From 2003 until the start of this year he was dean of the Faculty of Social and Behavioural Sciences, focusing on economic issues, administrative reform and water management. Since the early nineties he has been a prominent voice in the debate about the creation of a new mega-province in the west of the Netherlands, known as the Randstad Province. Recently mobility and accessibility in the Randstad has been a particular area of interest for him. He is member of the Water Advisory Committee, the Council of Transport and Public Works and the Board of Stimulansz, a foundation that sprang from the decentralisation of the Dutch social security system and is increasingly pursuing 'excellent services' through ICT applications in the social domain, including healthcare.

### More depth and substance

It was his interest in this type of subjects that ultimately brought Toonen to TPM. In his own words: "Here in Delft I am getting an opportunity to expand this agenda. That would be more difficult from Leiden where, incidentally, I will remain involved in more general public administrative projects, such as international comparative analyses of administrative services and civil service systems and public management and governance. That is complementary to what is happening here at TPM." The other agenda, i.e. the other subjects that Toonen has specialised in, makes an excellent fit with TPM themes: internationalisation, knowledge economy, innovation, urbanisation, water, transport, sustainability, infrastructures. Toonen: "In the early nineties we spoke about the Randstad Province from an abstract administrative angle. There was virtually no other material for getting a grip on the subject. Here in Delft you see the nuts-and-bolts side of things, and how infrastructure aspects are taken into account... A lot has changed for the better in this field. So basically I have opted for more depth and substance. And I hope to learn even more from the technology side."

### Fatherly

The Leiden university weekly *Mare* described Toonen's style of leadership as 'fatherly' (because he saw no need to 'formalise every step') but also as 'self-willed'. Toonen can go along with

*continued on page 2*

### Milton Mueller - the first XS4All full professor at TU Delft

The Internet provider XS4All has established a three-year chair at TU Delft. The research will concentrate on the security and privacy of Internet users, with a special focus on mobile Internet. The first professor to take up the post is Milton Mueller, an American, from the iSchool (School of Information Studies) at Syracuse University. His part-time appointment (0.4 FTE) commenced on 1 January 2008.

"We see Prof. Mueller's appointment as an opportunity to boost our teaching and research activities in the field of Internet management and security and privacy in mobile Internet", says Harry Bouwman, head of the Information and Communication Technology section in the Faculty of Technology, Policy and Management, where the chair has been established. "Identity theft, spam, phishing and other forms of illegal Internet practices are areas that would greatly benefit from targeted research. We are delighted that XS4All has enabled us to appoint someone of Prof. Mueller's calibre." (see further page 11)

### Student awarded

Diederik Apotheker wins the Mainport Innovation Thesis Award in the MSc-Theses category with his SEPAM MSc thesis on a port-related subject. He received the price during the Mainport Innovation Event 2007, organised by the 'Rotterdams Havenbedrijf'. The price consists of € 1000 and one year accompaniment by the 'harbourman 2007' Peter Goedvolk, general manager of the Argos Group. The thesis is entitled 'The Design of a Regulatory Framework for a CO<sub>2</sub> Pipeline Network' and describes the problems surrounding the regulation of a pipeline network for CO<sub>2</sub> in the context of CO<sub>2</sub>.

### ICT section wins NWO grant

A research proposal submitted by the Universiteit van Amsterdam and TU Delft, entitled 'Advanced Governance of Information services through Legal Engineering (AGILE)', has obtained funding from the Netherlands Organisation for Scientific Research's (NWO) Jacquard programme. Marijn Janssen and Arre Zuurmond (both members of the Information and Communication Technology section at the TPM faculty) are participating in this proposal, which will support a new PhD position. The study will focus on the development of a design method and a distributed service architecture. This is intended to help organisations administer the growing body of laws and regulations within a network of organisations, and to translate these into concrete measures, with the associated ICT infrastructures.



### New book by Dr Patrick van der Duin

'Knowing Tomorrow' was published December 2007. The book is about how different sciences deal with the concept of the 'future'. Scientists from various countries including the US, Australia, Italy and the UK made contributions to the book. Earlier (summer 2007) the book 'The Cyclic Nature of Innovation: Connecting hard sciences with soft values, 17'. by Prof. Guus

Berkhout, Dr Patrick van der Duin, Dr Dap Hartmann and Dr J.R. Ort was published. This book describes the Cyclical Innovation Model and shows its application to a number of cases.

### Oeuvre Award 2007 for Louis Goossens

Dr Louis Goossens, Safety Science Group, receives the 'Oeuvre Award 2007' at the Universities Day for Risk Management, awarded by the NVRB (Netherlands Association for Risk Analysis and Business Continuity) and the GVW (Society for Safety Science).

continuation of page 1

*Theo Toonen: the new TPM dean*

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this, though he finds the latter term a little strong. "I work on trust and cooperation and delegate a lot. Obviously the buck stops with me, but I'm not one to keep a tight grip on everything. I don't believe in the tendency to set quantitative performance targets for every single business process. I think the best way to run things is to make clear arrangements about who is responsible for what and to trust one another. You could say that I'm not a control freak, but a big picture freak." His natural preference for a more relaxed style of leadership and inclination to give others space to make their own contribution also has a flip side - which may well explain the qualification of 'self-willed'. Critics in Leiden sometimes found him too abstract and would wonder in what direction he was heading. Toonen: "Far from nailing everything down in advance, I want to free up space for cooperation and innovation. In the end, everybody saw that things worked out just fine. My method is aimed at tangible results and it usually delivers." In Leiden Toonen will be leaving behind him a renovated building, a string of KNAW and NWO science laureates and a reformed faculty with millions in the coffers.

**Points for improvement**

In Delft too he first of all intends to find out what people want. He wants to get to know everyone and have lots of discussions before deciding what course to take. But the new dean has already put his finger on some potential improvements that he is happy to share with us. "At the moment there are lots of systematic constraints in the international higher education and university sector. You have to go with the system, whether you like it or not. TPM is good when it comes to the application of knowledge, the commercial funding is in excellent shape. But the indirect funding, the financing from NWO (Netherlands Organisation for Scientific Research), needs more attention. To survive in the long term, TPM needs to strengthen its academic side. Quality is getting more and more important. We must all look for ways of winning external peer recognition and high ratings for the quality of our research, including at international level. I'm not sombre in this respect, there are plenty of talented researchers here."

Apart from working on TPM's international reputation, Toonen also sees other challenges for the faculty. "What to think of healthcare as a domain of application, for instance. That's

already being discussed and the Executive Board of TU Delft has identified healthcare as one of the four research priorities. At the Faculty of Social and Behavioural Sciences in Leiden we have already staked a lot on this area, in partnership with Leiden University Medical Centre. We need demedicalisation in healthcare. This is about technical and instrumental aspects, but also decision-making processes and, hence, administrative, organisational and economic aspects. The sector may be called soft, but it is as hard as nails when it comes to social and financial issues. TPM must also position itself more clearly within TU Delft as a faculty where a lot of knowledge is to be gained in this field."

**Driver of quality**

PhD education is a specific area where Toonen would like to play a role as a driver of quality. "Being in a technological environment you could consider making this a priority - by increasing the number of doctorates, professionalising the supervision and accelerating the process. And also by making sure you can compete in the international talent market for PhDs. The whole concept of the trainee research assistant is going to change because the government wants to transfer funding from the institutions to the NWO. PhD successes are becoming more important in the financing of universities and university research, whilst also serving as a quality mark. Which means that Delft too must address the issue of 'Graduate Schools'. The Renewal Impulse from NWO is designed to support young people and make them independent as quickly as possible. It will have great consequences for the relationship between the PhD supervisor and the PhD candidate in the future. We must plan ahead for this, and not just at TPM by the way."

**Juggling time**

Perhaps the biggest challenge for Toonen will be the time-juggling act. He thinks that a dean must spend a lot of time in the field, as the faculty's face to the outside world. He will have to combine this with his work inside the faculty, a longer commute to work and - not in the last place - looking after his children of eleven and fourteen. "I want to continue working from home one day a week on average and also be there for them on other days if necessary. My children are still fairly young and they can do with someone in the vicinity. That was possibly the trickiest point in deciding to move to Delft: how am I going to combine it all? Time will tell."

**Professor in Philosophy Jeroen van den Hoven was deputy TPM dean until 1 March. He led the faculty for over six months.**

**Looking back, what are his thoughts and advice for the new dean?**

"The great thing about the temporary deanship was that I got to know the faculty better. Normally speaking you work in a selective circle and now I have spoken to a lot of people I would never see otherwise, including a lot of administrative and support staff." Even so, Van den Hoven has no regrets about passing the baton. He now has time for his own research work and his tasks as director of research of the 3TU Centre of Excellence for Ethics and Technology that was started up last year. And in the coming period he will also act as chairman of the programme committee of the new NWO programme entitled 'Socially Responsible Innovation'. And that was what he liked least about the deanship: the limited time that was left for research.

**'NWO potential'**

Van den Hoven agrees with Toonen's action list for TPM. "NWO is obviously extremely important. I think we need to give more encouragement to researchers whose applications just fail to make the grade, we need to stimulate them to improve and try again. And when recruiting new staff we must always ask ourselves: what is the NWO potential? Because NWO is where research funding can be found and research reputations are built."

**Minimal involvement**

Van den Hoven also agrees that internationalisation is important, as is the healthcare domain and PhD education. He adds that TPM still has to work hard on its positioning within TU Delft. Recently, the Executive Board identified four education and research priorities: energy, environment, infrastructure and health. TPM had only a minimal involvement in that process. Van den Hoven: "We must serve these new pillars from our faculty, we cannot afford not to do so. What's more: there is every reason for doing this, precisely from our system perspective. But evidently we are too easily overlooked. We must do something about that and we must also take some of the blame ourselves. We're very good at telling each other how wonderful TPM is, but evidently we are less good at convincing the outside world of how important our broader approach to technology and applied science can be in achieving socially responsible applications. I also sometimes detect a deeply unscientific attitude among colleagues at other faculties. Some engineers have a blinkered focus on their own technical inventions and have no eye for how people actually use technology and the social complexities involved. These are the colleagues we must win over, and that strikes me as a great challenge" - a challenge that Van den Hoven will no longer take up as dean but possibly, and in fact probably, as vice-dean.



ENERGY SECTOR NEEDS NEW MINDSET

# Emissions trading fails to reduce CO<sub>2</sub> emissions



**CO<sub>2</sub> emissions trading is doing little to reduce carbon emissions in the Dutch electricity sector - so concluded Emile Chappin after modelling investment decisions in the sector. Practice bears him out: there are advanced plans for four new coal-fired power stations in the Netherlands. And coal-fired electricity production is the prime source of CO<sub>2</sub> in the atmosphere. What can be done? Gerard Dijkema and Rob Stikkelman look at possible solutions.**

Electricity producers can choose between various types of fuel: coal, clean coal, gas, biomass, wind or nuclear energy. The simulation model that Chappin constructed last year shows that CO<sub>2</sub> emissions trading is a marginal consideration in the choice of fuel. Evidently, electricity producers are not too bothered about the price they pay for carbon emissions. The vast majority still favours coal, the worst carbon polluter. The reason is simple: the expected costs of emission rights are negligible compared to other investment outlays.

#### **Disconcerting conclusion**

Emile Chappin drew this disconcerting conclusion during his graduation project after building a model involving six autonomous electricity producers (with different profiles). Other modelled factors included the physical electricity infrastructure, the operational decisions facing producers and the possible long-term strategies. Emile Chappin: "For all our scenarios we calculated that CO<sub>2</sub> emissions would inevitably rise, with or without emissions trading. Because the demand for electricity is constantly increasing and coal is an attractive and cheap option for the producers." His supervisor Gerard Dijkema adds: "In fact, four new coal-fired power stations are planned in our country and have been approved by Minister Cramer. These will put the Netherlands' Kyoto targets even further out of reach."

Rob Stikkelman, Director of the TPM Center for Port Innovation and Regional Development, confirms that the balance between

environmental and economic interests is often tipped in favour of the latter. "In Rotterdam, for instance, commitments have been made to cut the CO<sub>2</sub> emissions by 50% relative to 1990 levels by 2025. But industry and commerce must obviously remain viable in the port area. While E.ON is pressing ahead with plans to build a power station that will emit 8 million tons of CO<sub>2</sub> annually, the municipal council of Rotterdam is also giving another provider, Electrabel, a free hand. So Rotterdam will soon have two new large power stations." Stikkelman is involved in the Rotterdam Climate Initiative, the climate programme of the port community that set the ambitious emissions reduction target. "I will be really impressed if Rotterdam succeeds in cutting its emissions by half. After all, without intervention CO<sub>2</sub> emissions will continue to grow, so you are actually talking about a 70% reduction in 2020. The new coal-fired plants should be 'capture-ready'; in other words, they should be able to accommodate carbon capture facilities. But nobody knows exactly what that means in technical, economic and legal terms."

#### **Solutions**

What is the solution? Dijkema and Stikkelman have several answers. Auctioning emission rights would be a great start in making the rights scarcer and hence more expensive. A lower emissions ceiling would also create scarcity. Another option is to slap a tax on products with a large carbon footprint. Dijkema: "Policy documents routinely claim that a lot of research remains necessary to develop CO<sub>2</sub> capture technology. But the technology has already been in use for fifty years, also in electricity power stations. The real problems are the costs of investments, space and performance loss at the power stations. Another obstacle is the need to construct facilities and infrastructure for storing carbon dioxide underground."

The solution that really rouses the researchers' enthusiasm is to break through traditional fuel choices. Stikkelman: "We are at a crossroads. If we build coal-fired plants now, we're stuck to them for forty years. We must not just focus on CO<sub>2</sub> emissions, but look at the big picture. Where are we going to get our energy from in the coming decades? How dependent are we prepared to be on the existing energy infrastructure? At the moment, we convert fossil fuels into specific energy products.

*From left to right: Rob Stikkelman, Gerard Dijkema en Emile Chappin*

Coal and natural gas are used for electricity, petroleum for transport fuels and natural gas for heating. But technically we are already perfectly capable of converting a mix of fossil fuels into a single synthesis gas that can be used for all these energy products. This makes you less dependent on the unpredictable supply of specific fossil fuels. And as an added bonus, it is relatively easy to extract pure CO<sub>2</sub> from synthesis gas. But to make this transition happen, we need a new type of energy infrastructure: a synthesis gas infrastructure."

#### **Typical TPM**

The realisation of such an infrastructure is a typical TPM issue. A solution is available to reduce the environmentally-harmful production of electricity. So is the innovative technology for making synthesis gas. But producers are not taking it seriously. Dijkema: "The electricity infrastructure is a complex system of providers, customers and physical infrastructures that are all interconnected. Nobody owns the system as a whole, so it is difficult to make changes. With the model that Emile Chappin has developed we can show for the first time in hard figures what is and what is not included in investment decisions and what the consequences are for CO<sub>2</sub> emissions in the future. Now we must get round the table with producers to improve the model and help them make better decisions."

# Opportunities for TPM in healthcare

The Executive Board of TU Delft identified health as one of the four education and research priorities. The Faculty has a lot of in-house knowledge, methods and technologies that could be harnessed to great benefit in the health sector.

Some TPM staffers, incidentally, are no newcomers to the domain. Thomas Schriek and Gerrit van der Kamp graduated in medical subjects; ex-students have a successful company the Vreelandgroep, focussing on the healthcare sector. Jos Blank published a book about the business processes at hospitals; and in 2004 Alexander Verbraeck was one of the first to apply TPM system thinking to healthcare, namely at the gynaecology outpatient department of the VU University Medical Centre (VUMC) in Amsterdam.



FROM TPM STUDENT TO SUCCESSFUL BUSINESSMAN:  
JAAP BEERENS, JAN VAN DER EIJK EN HERRE VAN KAAM  
(VREELANDGROEP)

From left to right: Jaap Beerens, Herre van Kaam,  
Jan van der Eijk.

## Three kings

**They may still be wet behind the ears, but ex-students Jaap Beerens, Jan van der Eijk and Herre van Kaam are already successful businessmen. What do they remember about their student days at the Faculty of Technology, Policy and Management and how did they go about launching their career in society?**

**"They were good old days. We arrived after the teething problems had been sorted out, and left before the first wave of reorganisations." Jaap Beerens, Jan van der Eijk and Herre van Kaam were TPM students between 1997 and 2003, when the faculty was still fired by the pioneering spirit. It was intimate, informal and approachable. In this setting, the friendship and the plans of this trio grew and blossomed into their own engineering consultancy. Even before they graduated (on 6 January 2000) they had founded D3K, a witty abbreviation of the Dutch 'De Drie Koningen' (The Three Kings).**

Jaap, Jan and Herre now function as partners within the Vreelandgroep Organisational Consultancy, which is based in Baarn. In 2005, D3K merged with the Vreelandgroep. Both parties were

working in the healthcare sector. "We came into contact through other people and discussed joining forces, until we eventually took the bull by the horns and suggested merging. At that time, the Vreelandgroep had four partners and three consultants. All good facilitators with a sound network, and much further in their organisational development than we were. But they lacked processing power. It took just four months to reach agreement about the merger. It was amazing how smoothly we were able to merge two companies into one", explains Jaap.

Nowadays the Vreelandgroep helps guide organisations and teams in the healthcare sector through complex change processes, by providing advice, project management and interim management. Their aim for the next few years is to grow into a company employing some twenty members of staff. Which just goes to show how rapidly things can develop for three young men who, despite having had done all the right homework before starting their business, did not know exactly how things would pan out. Jan: "We wanted to get into the business world; do something involving simulations, applying techniques and methods. But we didn't have a clue about our market." Herre: "I remember standing outside the Chamber of Commerce after have registered, and thinking: right; the company's there, now for the customers. Luckily, the Faculty came to our aid." For example, they found them some accommodation and Professor Alexander Verbraeck (Systems & Simulation, Systems Engineering research group) gave them work for two to three days a week. "We bought our first PCs from what we earned."

In answer to the question of whether they think it is TPM's job to give budding business talent a helping hand, they answered:

"Perhaps not formally, but it makes good marketing sense. The fact that so many ex-TPM students are successful businessmen and women illustrates just how practical this programme is."

Round about the time they graduated, Jaap, Jan and Herre decided to focus on D3K. They explored the horticultural branch (and quickly rejected it on account of the limited funding available for research) and the healthcare sector. Matters such as market forces, cut-backs, transparency in the area of quality and new issues including patient logistics, mean that the Vreelandgroep will have plenty to do in the foreseeable future.

Can TPM graduates easily find their way to your doors? "We help administrators and managers with decision-making processes relating to organisational issues. This involves using simulations and games, so that we can provide insight into the implications of interventions and change. I couldn't help but notice potential employees amongst the eighteen students who recently visited our office. The students that particularly stand out are the ones who aspire to becoming good organisation consultants. They have to be interested in more than just good computation models."

# Madonna: towards a virtual outpatient department

**How can a hospital outpatient department use ICT to become more customer-focused? That is the question that the VU University Medical Centre (VUMC) gynaecologists asked themselves a few years ago. They were keen to give their patients the very best service as well as clear information about what they could expect right from the first complaints. What treatment methods and medicines are possible, which doctors are available for consultation, how long are the waiting times? Apart from providing patients with good information, they also wanted the outpatient department to operate as efficiently as possible.**

This change in mindset is taking place at a growing number of hospitals as they adapt to the newly competitive environment in the health sector. The VUMC gynaecologists set up a project named *Madonna*: a 'healthcare renewal initiative' aimed at enabling women to visit a virtual outpatient department from their computer at home. Via an intelligent and active web portal, the patient creates her own profile and can check with which health worker (GP, specialist, pharmacist) she can best make an appointment, in what hospital and within what time scale. But before this splendid vision for the future becomes reality, quite a few intermediate steps remain to be taken. Alexander Verbraeck and his then colleague Wieke Bockstael were involved

in *Madonna* in 2004. They made detailed calculations to establish the specific effects of specific ICT measures on patient treatment processes. Verbraeck explains: "We made a computer simulation showing which processes patients go through with different ICT applications. You also see what the differences are in terms of treatment duration, costs and quality." Verbraeck and Bockstael used six scenarios in their simulation: (1) the 'old' situation (2) a theme-based consultation service for special complaints using the Xtree telephone application, (3) a theme-based consultation service using e-mail, (4) a website with general patient information and appointment scheduling option, (5) a website with information, appointment scheduling option and a link to electronic patient records (EPR) for the health workers, and finally (6) an advanced portal with an EPR that both patients and health workers can access.

Verbraeck: "It gave us insight into highly complicated processes. Even in the case of very common complaints, there are lots of routes that the patient can potentially go through. Just getting this into clear focus was already a major step forwards. Next we ran our calculations for each scenario." The study showed that the more ICT you use, the more time gains you achieve for patients as well as for doctors, nurses and support staff. And the potential benefits may be even greater, because due to a lack of data Verbraeck and Bockstael have not yet been able to calculate the effects of the 'ultimate' *Madonna* scenario: an entirely virtual outpatient department.



"Even in the case of very common complaints, there are lots of routes that the patient can potentially go through"

Verbraeck is enthusiastic about the opportunities of simulation techniques for healthcare. "Health is becoming increasingly prominent at congresses in the simulation world. Which is not so strange. Clear improvements are possible in healthcare, and a great many people are involved. As a faculty we already have everything we

need to serve the sector, not only at patient level but also at the level of hospitals and even higher. The great thing about simulation techniques is that you can clearly demonstrate and quantitatively substantiate the effects of ICT measures with moving pictures. And that really gets people moving."

FROM RESEARCH TO THE PRACTICAL SITUATION

## Making the transition with a book

**It is not a subject that would appeal to many people: the efficiency of hospitals and the effectiveness of healthcare policy. Efficiency in the public sector makes one think of cut-backs and austerity, as if everyone working in healthcare, education or public transport is being put on rations.**

**"But who could have anything against efficiency?" asks associate professor Jos Blank from the Faculty of TPM. "You have to separate it from the political decisions that nibble away at the scope and the quality of the service being provided."**

A few years ago, Jos Blank published *Public Provision and Performance*, a highly-acclaimed book about the efficiency and effectiveness of public sector policy. According to the NRC Handelsblad critic, every politician should have this book on their bedside table and be forced to read a chapter every night. Publisher Elsevier recently (December 2007) published the book that can be seen as the sequel: *Evaluating hospital policy and performance: contributions from hospital policy and productivity research*. Jos Blank asked leading scientists in the field of healthcare economics



and efficiency monitoring to consider the efficiency and effectiveness of hospitals from a number of different perspectives\*. He also wrote three articles himself.

Blank has been conducting research into efficiency in the public sector for twenty years. He joined TU Delft a little more than a year ago, founding the Institute for Public Sector Efficiency Studies (IPSE) at the Faculty of TPM.

"Research into efficiency in the public sector is carried out very unsystematically, making it very arbitrary," explains Blank. "There is no guidance, coordination or uniformity. IPSE Studies is designed to improve this state of affairs so that the results can be put to better use. But IPSE Studies is also there to bring the information that has been gathered to the attention of the policy-makers and managers working in public facilities."

Publishing a book is a perfect move. The researcher/scientist: "It allows us to make the transition from what researchers are doing to what policy-makers can do with the research findings. Research reports and publications

in journals or scientific magazines are of no practical use to the management on the work floor. It is often a case of: the more scientific, the better. A book allows us to describe our experiences in a way that can be understood by policy-makers and managers."

An added benefit of a book like this is that policy-makers will start asking for more research of this kind. Jos Blank is less interested in the impact that publishing the book will have on enhancing his academic reputation. At present, he has no concrete plans for subsequent publications, but he would find it easy to come up with suitable subjects. "In the same way as we have done with hospitals, we could now write about international school systems. Which system gives the best results under which circumstances? Or it might be interesting to explore organisations at the business operations level. Up until now, research has mainly been focused on predictable policy issues. And innovation in the healthcare sector is another hot item. That would make a good sequel to the previous book."

\* *Different perspectives*

*The articles in Evaluating hospital policy and performance cover subjects including the effects that networks, types of ownership, market concentrations, business operations and innovation have on the efficiency of hospitals. The chapters relate to the developments in various countries, such as the United States, the Netherlands, Finland and Australia. Editor Jos Blank compiled the book together with his American colleague Vivian Valdmanis.*

HOSPITALS UNDER THE KNIFE AT TPM

# Graduates prescribe treatment for healthcare sector

**The Dutch healthcare sector is in a state of flux. New legislation has led to a free market and more competition. Patients can choose where they want to be treated, so hospitals are having to improve their efficiency and service. But what is the recipe for success? This question is providing interesting research work for TPM students, including graduates Gerrit van de Kamp and Thomas Schriek.**

## Gerrit van de Kamp: "Task differentiation has great potential"

Many hospitals are struggling with over-full waiting rooms, which do little to boost their image. They are also having to cope with the increased demand for care resulting from an ageing population, a higher level of welfare, demanding consumers and a wider range of medical possibilities. The problem is particularly poignant for outpatient departments, as this is where most treatment takes place. The call for cost-effective and efficient solutions to all matters medical is therefore also becoming louder.

Bearing the free market processes in the Dutch hospital system in mind, what would be a suitable management concept for outpatient departments? This question was at the crux of Gerrit van de Kamp's graduation project entitled 'Outpatient planning in a demand-based healthcare market'. The student of Systems Engineering, Policy Analysis and Management, specialising in Transport Policy and Logistics' Organisation carried out his research under the auspices of YNNO Consultancy. He graduated last November.

"To make a proper diagnosis of the present problem, I observed the practices in outpatient departments at Waterland Hospital, Flevo Hospital and the Gelre Hospitals", says Van de Kamp. "I enhanced my observations with a review of the relevant literature and documents. This showed that the largest bottleneck areas for the patients are long waiting lists and for the staff, long hours; in some cases, overtime had become structural. Moreover, there is no room for emergency treatment and specialist capacity is limited. In short; it is taking a great deal of effort to keep outpatient departments running normally."

### Simulation study

In response to his findings, Van de Kamp asked himself the following crucial question: is it possible to improve control of the clinics while maintaining the efficiency of the care production? "Using interviews and conversations with outpatient department staff and organisational consultants, I drew up a list of measures. I then chose three measures relating to appointments diary management to be the subject of a simulation study."

In his simulation model, he tested blocking certain parts of the appointments diary in order to create extra room for variation in treatment times and emergency treatment. He also looked into task differentiation. Patients were no longer treated by just one specialist, as is customary, but by a number of different staff. Finally, he explored the implications of relaxing the reserved time, which is the time set aside for each appointment.

"I came up with some very interesting findings. One of the most important conclusions I drew is that task differentiation has great potential. At present, specialists have all the expert knowledge. What I would expect to see in the future is that nurse practitioners will start specialising and the specialist will take on the role of supervisor. An equally important aspect is that patients will play a larger part in controlling their own treatment process. They will be able to make appointments online and manage their own patient files. This will provide a more efficient solution to the demand for care."

Van de Kamp thoroughly enjoyed his graduation project. "The healthcare sector appeals to me and I have gained a lot of useful knowledge." He has been working for YNNO in Amersfoort since 1 January. "I am going to carry on developing my simulation model and obviously join other projects too."

## Thomas Schriek: Patient logistics; a golden opportunity

**The Sint Lucas Andreas Hospital in Amsterdam wants to win a larger share of the market. Improved patient logistics is one of the action points that will help realise this goal. As part of his graduation project, Thomas Schriek got the chance to look into this, with a focus on ophthalmology. It was a golden opportunity for this student taking the Master's programme in Transportation, Infrastructure and Logistics (TIL), who actually started out studying medicine.**

"To create a good overall picture of the current situation, I started by defining the hospital system as a whole. I also reviewed the literature and interviewed a lot of the people concerned about what they consider important. This threw up four painful obstacles: long waiting times in the outpatient departments, the overruns for appointments in the outpatient departments, long waiting lists for operations and long waiting times for patients having operations. I then measured the relative scores within the department. I also made a note of the causes next to every

achievement indicator. The foremost cause of long waiting times and overruns in appointments in the outpatient departments is the incidence of emergencies and the variation in treatment times."

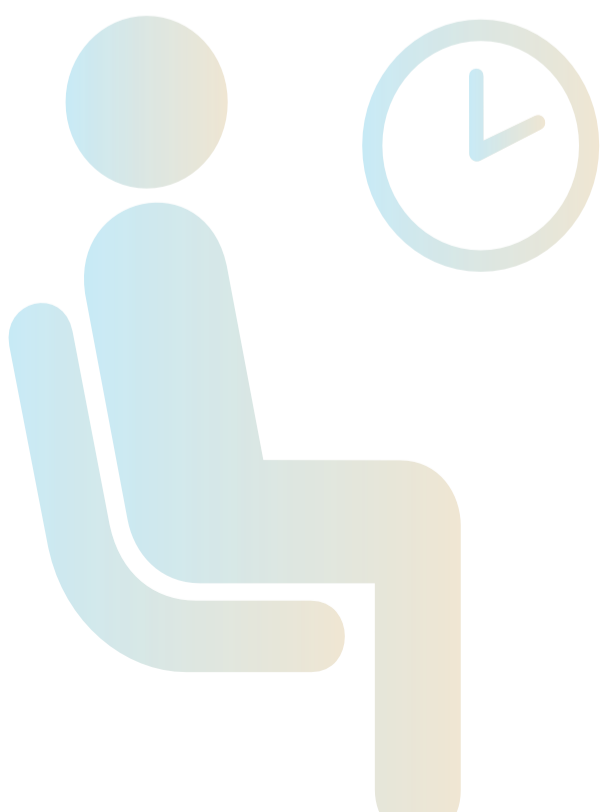
Schriek compiled a long-list of possible solutions for reducing waiting times. He examined one of the subjects from this list in greater depth; the waiting time for an outpatients' operation. His angle was: what is the impact of a variation in arrival intensity? "I built a quantitative model in Excel, which calculated the effect of various measures. It took account of breaks, differing appointment times for patients and time buffers. All these aspects are not part of current practice."

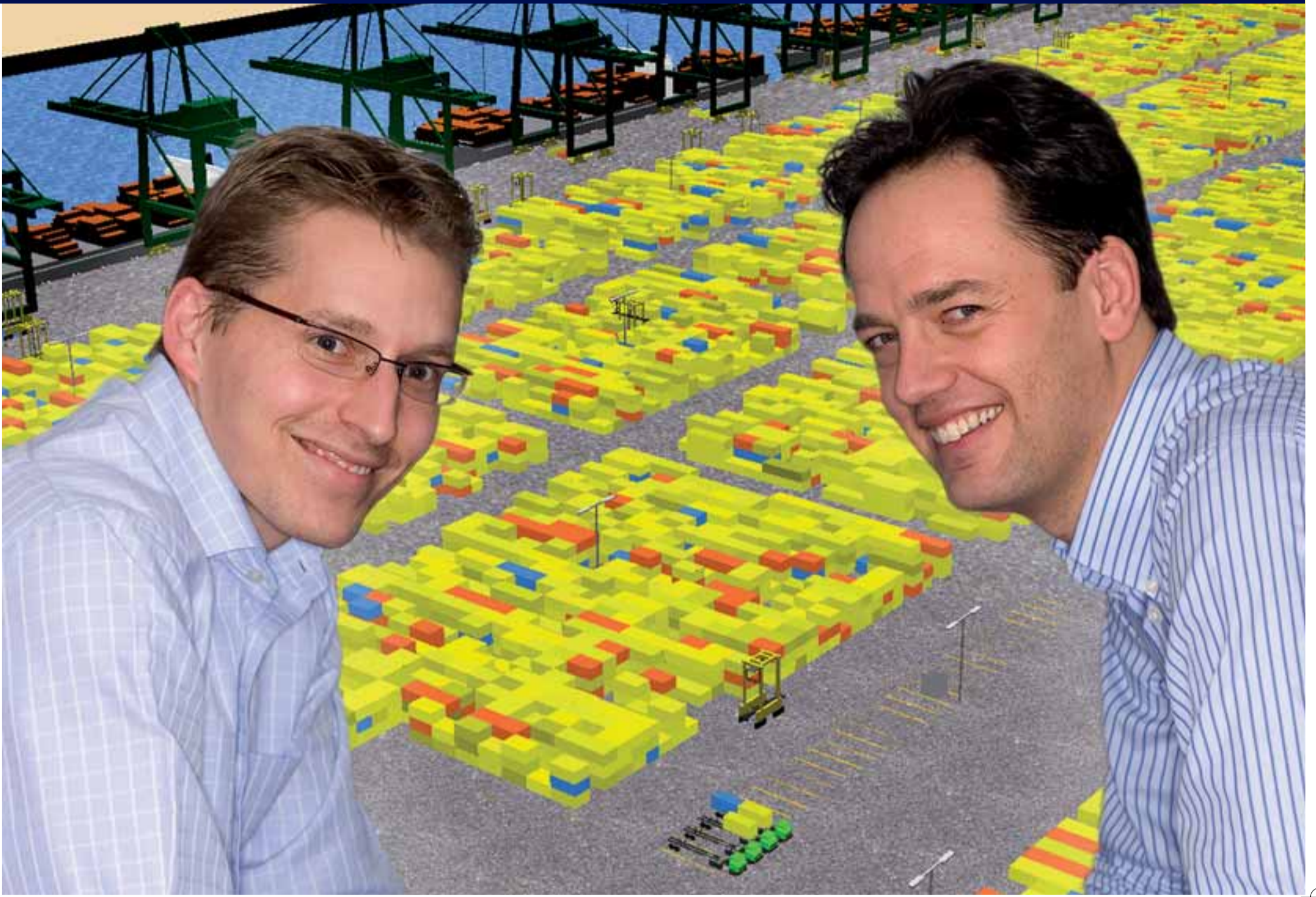
### Increased production, reduced waiting times

The result was fantastic: the average total number of hours worked stayed within the target figures and the average total waiting time dropped significantly. "Much to everyone's relief, the operating theatre was hardly ever left empty. Changing the appointment times even made it possible to operate on an extra patient, to reduce waiting times and yet still be ready on time.

The model is a real asset to planning in ophthalmology. Production can be increased and the waiting time per patient can be drastically reduced. I would also expect the model to work in other surgical departments, such as neurosurgery, urology and ENT."

Schriek graduated on 5 February 2008. He looks back on his graduation project with great enthusiasm. "At first I thought: I'm going to change the world. But the further I got, the more I realised that a lot of thought had already gone into many of the processes. It was only small things that needed adjusting, although that didn't make them any less important." He is not certain what he wants to do next. "I'll be starting work; that's for sure. I've already been approached by a number of companies and I'm interested in consultancy in the area of patient logistics. I feel a certain affinity with the healthcare sector, perhaps because of my period studying medicine. On the other hand, I don't just want an advisory role. I want to get my hands dirty! I suppose I'm still in debate with myself about my next move."





KLAAS PIETER VAN TIL (TBA)

## “We immediately bought five desks, not just two”

**In 1992, Klaas Pieter van Til and Yvo Saanen were among the first intake of TPM students. They had originally intended to spend five years working in the business sector after graduating in order to gain some work experience before starting up their own business.**

**“But we decided to start our own business before we even got that far. Just do our own thing. We couldn't imagine working for someone else from nine until five every day. Why wait five years? Yes, I suppose it was about ‘feeling free’ really”, reflects Klaas Pieter.**

He and Yvo are now directors of TBA BV, a Delft-based research and consultancy company with branches in Düsseldorf and Satu Mare (Romania) and a staff of almost sixty people. They work on the development of simulation models and real-time operating software for complex logistic systems. TBA has been operating for eleven years now and has developed into one of the world's leading companies in the field of simulation for container terminals. Their specialisations also include airports, factories and transport systems.

Klaas Pieter and Yvo launched their consultancy as two good friends who know each other through and through.

They spoke about this aspect at length before the official launch, with people including their dean Henk Sol and Professor Rob van der Heijden who supervised both their graduations. They received assignments via the Faculty even before they had finished their studies and during the early days of TBA. “We will always be grateful for this. It helped us to cross the threshold and enter the real world of business”, explains Klaas Pieter.

“We were determined that TBA would succeed right from the very start”, he continues. “We began with an office at home and nine months later, we rented our first 75 square metres of office space in a multi-tenanted office block. The fact that we immediately bought five desks, not just two, showed the extent of our ambition. We used the first couple of years to gain experience: we did what we enjoyed most and what we were good at. We took everything we were offered, and this included work from the Faculty: setting up and giving lectures, and taking part in a number of projects. We only started to focus after about three years.”

“Doing your work properly and delivering a high-quality product”, are the key factors Klaas Pieter cites as the reasons for TBA's success. Ports throughout the world are now using their software. On 1 January 2006, the two ex-TPM students sold seventy percent of the shares to the German Gottwald Port

*Yvo van Saanen and Klaas Pieter van Til*

Technology. Schiphol Airport, Heineken and Philips are also among TBA's illustrious clientele.

Recently TBA has successfully completed the first phase of testing of its automated fleet management system TEAMS for Euromax, the new ECT terminal currently under construction in Rotterdam. Within two months of the start of the testing period, TEAMS was controlling the movements of the Euromax fleet of twenty-eight Automated Guided Vehicles (AGVs).

“You really can't go wrong if you choose the TPM programme.”

But do the founders ever look back on their days at TPM? “Yes, the Faculty is still very dear to me”, answers Klaas Pieter. “We sometimes have students on internships here, even

though most TPM students don't have the right profile for this kind of work. We aren't so much looking for managers as for people with a more technical background. I recently addressed a group of prospective students. It's something I enjoy doing as I can say from my heart: you really can't go wrong if you choose this programme.”

BEST PAPER AWARD FOR IT ASSOCIATE PROFESSOR MARIJN JANSSEN

# "Combine flexibility and responsibility"

**"A huge honour". This is how Dr Marijn Janssen describes the Best Paper Award with which he was presented on 13 December 2007 at the International Conference on Theory & Practice of Electronic Governance (ICEGOV 2007) in China. He won the award for his paper *Adaptability and Accountability of Information Architectures in Interorganisational Networks*, which according to the jury was 'the best contribution to constructing the foundations for Electronic Governance'.**

Marijn Janssen is an associate professor in the Information and Communication Technology section, and programme manager of the SEPAM (Systems Engineering, Policy Analysis and Management) Master's. Last December, he attended ICEGOV 2007, a conference organised by the United Nations University. The aim: to bring together the theory and the practice of Electronic Governance. "A unique experience, as it was highly relevant in both scientific and practical terms. Moreover, there were representatives from all across the world, including Africa and India."

In his paper, Janssen sets out design variables and considerations for adaptability (flexibility) and accountability (responsibility) in public service networks. "Private and public organisations are keen to work together, preferably in small-scale interconnectable modules. This would allow new business processes to be com-



pleted, specifically aimed at customers. Although this is still in the future, it's certainly possible in theory!"

Using modules can lead to dissipation and cause confusion about who is responsible for what. A contradiction arises: from the IT angle, disconnecting the modules will create a flexible system, but the accountability aspect puts integrity high on the list of priorities. The fact that the efficiency of interconnected modules cannot be tested in advance forms another obstacle. An entirely new system is being created."

## **Safeguarding uniformity**

Another point for special attention is that the Government wants to treat everyone equally, according to the same rights. One of the trickier issues is how to ensure that everyone goes through a uniform process. "Imagine that someone applies for building permission. A final decision is arrived at via a series of sub-decisions, but how can you guarantee that everyone will be treated the same? The accountability requirement means that business processes and systems should be interconnected to provide clarity on the decisions that have been made. But the flexibility tendency entails letting go of the reins and linking everything through real time."

Many systems are either accountable-based or adjustable-based. "My paper aspires to a combination of both aspects. The current technique reveals a certain disparity. But with clever designing, complementary systems are a definite possibility. A good example is the use of a joint Document Management System. The adaptability (flexibility) is taken care of because little information is exchanged between the modules, but so is the accountability, as all the information is concentrated in one place. So all we have to do is devise more ideas like this. That is my real challenge."

Winning the Best Paper Award has already opened many doors. For example, Janssen was invited to present the same paper at the HICCS 2008 conference. "I listened to the five best papers from various conferences here. It was very interesting and I learned a lot about current research. I have also been invited to give a number of workshops in China."

## New TPM study area ticks all the boxes

**'Train compartments' for meetings, quiet rooms, sturdy white working tables with or without computer and soft orange-coloured lounge sofas: the TPM library has been transformed into a study and project area with a modern industrial look. The new study landscape was officially opened last October. Judging by the large number of users, it ticks all the boxes.**

More study spaces and multifunctional workstations in the university building: it was a long-held wish of TPM students. So TPM and the OTB research institute decided to close their shared faculty library to create the required space. The library shut its doors for the last time on 9 July last year.

Almost all of the 800 books were given a new home. All the unique works, for instance, can now be consulted in the Central Library of TU Delft. Other books were picked to make a special journey to a far-flung destination, namely the library of the Moi University (MU) in Eldoret (Kenya). This university has a large library building where there is still ample space for new additions, particularly in view of the rapidly growing number of students. Some of the most popular and frequently borrowed books remain at the faculty.

So the 'old' library has undergone a veritable metamorphosis. Peter Nugteren (23), who is in his third year of the SEPAM Bachelor's programme, is delighted with

the result. "As a member of the Curius student society I, along with others, provided input for the new interior and functionality. We now have a marvellous study landscape where you can study, discuss, read and use wireless internet. I spend a lot of time here, particularly during the lecture-free weeks before exams and the exam periods."

## **Excellent alternative**

That the Faculty no longer has its own library is not something he regrets. "On the one hand, it's a pity there are no longer any books here, but to be honest I never went there all that often. And I think the same goes for a great many students. The new area is an excellent alternative. It's perfect really, though the quiet area could be a bit bigger. It can be pretty noisy here, particularly when project groups are holding meetings."

Even students of other faculties regularly find their way to the study centre. One example is Zhao Liang (24), first-year student in Civil Engineering. "I rarely went to the old library, but I come here often now: to read readers, do assignments and write reports, and also for a chat with other students. The chairs are comfortable and the atmosphere is pleasant. Lots of people make use of this space, so I certainly think it meets a great need."



# Philosophers explore the boundaries of responsibility

**Dr Nicole Vincent from Australia and Dr Jessica Nihlen-Fahlquist from Sweden recently joined the ranks of the Philosophy section. Both post-doctoral researchers have forsaken their native country for three years to carry out TPM research into responsibility. Vincent is working on the interface of neuroscience, the law and philosophy. Nihlen-Fahlquist is focusing on moral responsibility within complex Research & Development (R&D) networks.**

## Nicole Vincent: "The interpretation of the data is crucial"

Nicole Vincent is Polish by birth. She studied computer sciences and philosophy in Melbourne and obtained her PhD in accident law reform at Adelaide University. She has also taught philosophy in New-Zealand. She moved to Delft at the end of October last year to carry out research into the common ground between insight into 'responsibility' from neuroscientists, in the law and in philosophy.

"The law holds people responsible, unless they are ill or underage. Philosophers have other ideas. They consider the 'free will' to be important. However, the law does not recognise this, and so there is dissonance between the law and philosophers. And then there are the neuroscientists. They look for physical explanations for particular behaviour, among psychopaths for example. Their findings do not tally with either the law or the insight gained by philosophers."

It is all about how you interpret the data. "Consider, for example, a kleptomaniac. A kleptomaniac has to steal, even if he doesn't need what he steals. The law takes account of this irresistible urge to steal. But does this factor count or not? Neuroscientists could find an abnormality and conclude that it is a fault of the brain. Does that mean that this person is ill? Or is he just a bad person? Science does not hold the key and neither does the law. So philosophy examines all the different ways of thinking and looks for factors that may make a person responsible for his actions."

### **Not black or white**

A factor that complicates matters even further is the various degrees of responsibility. "Imagine you bought books from a door-to-door salesman. Later on, you start to regret it; you were not thinking rationally when you bought them. Although you are normally a responsible person, in certain situations you turn out not to be. A psychopath can also be very rational. It is a classic example of not acting responsibly, but being held responsible for your actions. So it is never simply black or white."

Vincent is gathering as much information as possible. She helped organise a conference in Sydney, which brought neuroscientists and philosophers together to discuss the issue. She also reads a great deal, particularly new publications by other philosophers. But also about the precise definition of 'responsibility' according to the law. She uses all this knowledge to develop guidelines for policy-makers in politics, the judiciary and neuroscience to help determine when a person is responsible.

The significance of her research touches on many areas. "First and foremost, on ourselves. Everyone should be clear about whether an action is responsible or not. Then there is the law, which imposes sanctions or provides help. The sharper the boundaries, the better. And finally you have politics. Debate about obesity, alcoholism and smoking in relation to health is currently a hot item: is it people's own fault or are the people concerned simply unlucky? Here too, it is important to understand under which conditions someone is considered to be personally responsible."



## Jessica Nihlen-Fahlquist: "It is time to stop hiding"

Jessica Nihlen-Fahlquist studied Philosophy and Political Sciences at Linköping University and obtained her Master's degree in Political Sciences at Uppsala University. She carried out PhD work at the Royal Institute of Technology in Sweden between 2002 and 2007. She will shortly be defending her PhD thesis.

Meanwhile, she has been accepted at TU Delft to carry out post-doctoral research into responsibility in R&D networks. Last November, Nihlen-Fahlquist moved to Delft with her husband and two-year-old son. "My PhD project involved analysing ethical aspects within traffic security, focusing on 'moral responsibility'. This post-doctoral project explores much the same area, but this time applied to complex R&D networks. Very interesting and a golden opportunity!"

The research was prompted by the question of responsibility in large-scale building projects. "The R&D networks concerned comprise large numbers of varying players: university researchers, businesses, government organisations, etc. But what happens in the event of environmental damage, for example? Who is to blame? Usually nobody feels responsible; it is everybody's fault. But increasingly, society wants to pinpoint someone who will take responsibility. Moreover, it is important in terms of preventing the same thing from happening again in the future."

Traditionally, philosophical theories have focused on situations where damage is caused by one specific individual. There are

also theories relating to groups of people, in the form of a company for example. This is called collective moral responsibility. "However, R&D networks fall outside both categories. Up until recently, philosophers have paid little attention to the matter of responsibility in complex contexts like this. This is where I see a challenge."

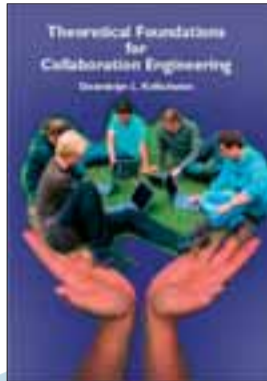
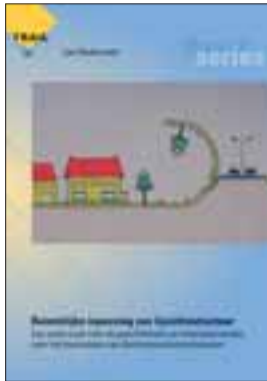
### **Standards & values**

People tend to have firm opinions about when you can reasonably hold someone responsible for certain forms of damage. "If one of your guests breaks a valuable vase, there is a huge difference between whether they did it on purpose or by accident. We have standards and values with respect to situations like this. If the person concerned did it on purpose of their own free will, we will hold him or her responsible. If it was an accident or happened under coercion, we won't."

So the key question is when is it considered reasonable to hold individuals responsible for mistakes if they are not working independently, but as part of an R&D network. "Particularly when you realise how many potentially damaging activities are carried out in a collective context like this. If standards and values are not visible, individuals can 'hide' behind the group without having to shoulder any responsibility. But it is time to stop hiding. The consequences of activities jointly carried out by a group of individuals are potentially huge and can affect large numbers of people. Carefully conducted research is therefore in the interests of society."

Nihlen-Fahlquist hopes to complete her research in 2010. And what will she do next? "When I was doing my PhD research, I didn't know whether I wanted to work in a university. At the moment, the idea of working in a university as a researcher is quite appealing. But I am also interested in working for a research institute, a government organisation or in industry. It depends on so many other things, but I am open to all kinds of challenges. I think it is best to be both flexible and purposeful. After all, that's what got me here."

# Dissertations



J.L. BONEBAKKER, *Finding representative workloads for computer system design*, Delft, December 2007

Computersystem and processors are the result of a multi-year, capital and resource intensive effort, for a processor it typically takes five years from inception to reality. The design of computer systems and processors depends on simulation, alternatives like making prototypes are prohibitively expensive. Simulation is not without problems, the fastest simulator is still a factor thousand to a million slower than the target design. Over the past years the complexity of processors has increased dramatically, as a result the speed at which they can be simulated has not increased. The most important ingredient of processor and computer system simulation is the target workload. The time and effort needed to simulate different design alternatives restricts the number of workloads that can be considered. Consequently the selection of workloads is essential, if the chosen workloads are not representative of actual computer system use, then the design will be incorrectly optimized. Currently on a small set of standardized workloads are used, predominantly SPEC cpu2000.

In this thesis we develop a method to collect workload characterization data from real computer systems and use that to select a set of representative workloads. We show how the representativeness of SPEC cpu2000 is limited with respect to actual computer system usage. With an improved selection of representative workloads we can improve the processor and computer system design proces.

MR A.A.J. NEDERVEEN, *Spatial Integration of the Main Line Infrastructure*, Delft, December 2007

When making decisions on new infrastructure, the Dutch Government reacts far too negatively to public reaction from the local population and other interested parties. Decision-making procedures on expanding or constructing railway lines or motorways are usually very drawn out. It is often assumed that opponents of new infrastructure use every legal remedy at their disposal to delay projects: 'We've been talking about it for fifty years and nothing's happened.' Opponents are often dismissed as NIMBY (Not In My Back Yard) fiends. This PhD research examines 51 plans for motorways and railway lines devised between 1993 and 2001, and the 33,000 public reactions they provoked.

Elements of the designs have been correlated into a model. The model exposes a design's strengths and weaknesses, making it possible to predict public reaction before the consultation rounds begin. However, the model is not intended to replace public consultation procedures; it is merely an aid for the decision-making process. If more consideration is given to the wishes of interested parties during the design phase, time and money can be saved further along the line. The current decision-making procedure allows the Ministry of Transport, Public Works and Water Management too much power, and provides little guarantee that fair consideration will be given to the interests of others. After all, the Ministry's primary aim is to expand the capacity of the railways and motorways and not necessarily to ensure proper spatial integration.

DR G.L. KOLFSCHOTEN, *Theoretical Foundations for Collaboration Engineering*, Delft, December 2007

Collaboration is often presented as the solution to numerous problems in business and society. However, collaboration is challenging, and collaboration support is not an off-the-shelf-product. This research offers theoretical foundations for Collaboration Engineering. Collaboration Engineering is an approach to design and deploy high value recurring collaborative work practices that can be transferred to practitioners to execute for themselves without ongoing support from (external) professionals. We present a theory on the quality of a collaboration process design for Collaboration Engineering and offer support to design and transfer such process designs. Evaluating the supporting concepts, we found that practitioners that facilitated collaboration processes could achieve similar quality as professional facilitators. Our design approach, theory, and collaboration process building blocks (called thinkLets) can be used to develop new collaboration support systems, and can be used to transfer collaboration support skills. ThinkLets also offer a framework for research on patterns of collaboration at a higher level of detail, which will allow us to gain new insights in predictable, effective and efficient tools and techniques for collaboration support.

DRS H.P.A. KNOPS, *A Functional Legal Design for Reliable Electricity Supply. How technology affects law*, Delft, January 2008

The liberalisation and international integration of electricity markets have led to a dramatic increase in the complexity of the electricity sector. Rather than hierarchical control, it is the legal framework ('rules of the game') that determines the behaviour of actors such as power generators, traders and network operators. Because of the unusual technical and economic characteristics of electricity markets, their performance is very sensitive to the formulation of the legal framework. Still, a structured approach to formulating the legal framework has not yet been developed. This dissertation meets this demand. This study proposes a design method for the analysis and design of the legal organisation of a technically complex sector such as the electricity industry. The method takes into account the relevant policy goals, legal constraints and technical characteristics. The proposed method is applied to several critical cases in the electricity sector. For technical functions it is analysed how roles, responsibilities, rules and government control should be arranged in the context of the liberalised EU electricity market. A critical appraisal is made of past and current legislation and improvements for the legal organisation are suggested. The study finds inter alia that the long term functions such as investment in generation capacity and in the networks have not yet been adequately arranged. Further this dissertation provides a structure and a method to effectively arrange these issues on a European level.

ARNAUD GASNIER, *The Patenting Paradox*, Delft, 2008

Many companies, research organizations and universities are patenting more and more; however, little value is extracted from these patents. This behavior is called the 'Patenting Paradox'. Why does it exist? What are its effects? How can this paradox be solved? This book addresses these issues. It provides: models to better understand the complexity of patent management; and tools to help the firm navigate in the competitive environment. Current practices are illustrated with pertinent patent information. This book also presents the results from a survey among more than 1,100 patent users, which explains the roots of the paradox in the firm.

The book explores new ways to intervene in the firm based on gaming techniques. Games offer a simplified reality to understand complex systems, as well as a risk-free environment to explore new practices. This book describes a new game on patents and three settings to use it in order to remedy the paradox and resolve three current concerns: raise awareness, improve collaboration and refine strategy. Experiments have been set up throughout Europe (Holland, France and Austria) among 160 graduates and professionals to show the effectiveness of such interventions. This book advises how firms could use these models, tools and interventions in-house.

DRS M. HOUTENBOS, *Expecting the unexpected: A study of interactive driving behaviour at intersections*, Delft, January 2008

Given the high number of encounters in traffic and the low number of accidents in which these result, it can be concluded that road users are quite good at interacting safely. To achieve a better understanding of this interactive behaviour, this thesis focused on road users' expectancies. In an explorative study, the aspects road users mention in their expectancies of interaction situations in traffic were studied. The mentioned aspects were distinguished into three categories: references to 1) right of way, 2) other road users and 3) the location of other road users (past, present and future). Subsequently, two experiments were conducted using linked driving simulators, which allowed for the study of interaction behaviour between two real people, rather than between a real and a pre-programmed road user. In the experiments, participants were confronted with expected and unexpected behaviour of a road user coming from an intersecting road. Additionally, in the second experiment, the interaction space was increased (by adjusting the infrastructure and providing information).

Unexpected behaviour does not necessarily lead to a critically unsafe situation. The available interaction space is initially used to safely settle the interaction situation; additional interaction space is used to increase efficiency. It can be concluded that car drivers are quite capable of dealing with situations in which the behaviour of other car drivers is in conflict with the priority regulation if the interaction space allows for it.

# Professor Profile

## NAME

**Milton Mueller (53)**

## POSITION

**Endowed professor in the field of the security and privacy of internet users, Faculty of TPM, chair instigated by internet provider XS4ALL. Also attached to the iSchool (School of Information Studies) at the University of Syracuse, United States.**

**Member of the editorial team for the journals Telecommunications Policy, The Information Society, and Info: the journal of policy, regulation and strategy for telecommunication, information and media. Partner in the Internet Governance Project, an interdisciplinary collaboration of researchers in the area of internet management and policy.**

**Author of works including Ruling the Root: Internet Governance and the Taming of Cyberspace (2002).**

## Motivation

I am utterly fascinated by the way communication technology brings about change in institutions and in human behaviour. My fascination began while I was working for AT&T in California in the early nineteen-eighties, when I found myself in the grips of the 'information revolution'. Nowadays, I am mainly interested in the trans-national politics of the internet. It is a world-wide network, which can no longer be seen purely in a national context. Problems relating to security and privacy must be tackled from a cross-border perspective.

## TPM

The chair in Delft has given me a base both in Europe and America. I am very happy about this. It puts me in an even better position to explore the international aspects of internet management. In Delft, I shall be focusing on privacy in combination with mobile internet. I am delighted to be allied to a progressive internet provider like XS4ALL. I have access to first-hand information about the workings of the internet.

For the next few months, I shall be spending ten days a month in Delft, and the rest of my time at the University of Syracuse in the

State of New York, but I shall be in Delft full-time in September and October. Naturally I shall be conducting research, and alongside this supervising two PhD students and giving various lectures.

## The Netherlands

Dutch cultural values are very similar to my own convictions, so the decision to come to the Netherlands was not a difficult one. If you look the way we approach the internet, there are huge differences between the Dutch and the Europeans on the one hand, and the Americans on the other. In the US, we see the internet in a global perspective, whereas here, people tend to focus more on their own country. Americans explore broad-based coordination problems relating to the internet, and we consider the consequences of our legislation for other countries and legislators. Here in the European Union, the perspective is national. Although Dutch policy-makers are certainly aware of the world-wide implications of the internet, the legislation concentrates firmly on Dutch users. These differences are also apparent in industry. There is much less pressure from the commercial sector to enforce rules about the use of internet than there is in America. This too is the result of the local focus and the smaller overall scale. In Hollywood, for example, there are huge economic interests surrounding copyright and intellectual property rights. As a result, the call for protective measures is loud and clear. Over here, the debate on issues like this is more balanced.

## Biggest challenge

The biggest challenge is to get the relevant data for my research disclosed. As my research often involves politically or commercially sensitive data, internet providers or the justice authorities and police are reluctant to reveal it. Moreover, data is replaced so quickly. The problems we faced two or three years ago with domain names or spam have more or less solved themselves, and we are now having to tackle other issues. In my efforts to keep pace with development in these areas, I find myself being pulled further into the depths of the internet.

## Biggest pitfall

The most difficult facet of my work is to round off research at the precise point when policy-makers can make good use of the information you are providing. The rapid pace of developments on the internet often means that your interesting ideas or conclusions are six months too late.

## And five years from now...

No idea. Perhaps my three-year appointment here at TPM will be extended to five years. If so, in another five years I shall be reconsidering my position at here at Delft. But first of all, I want to concentrate on the next three years!



continuation of page 1

## News in brief

### Universities in the Province of Zuid-Holland stimulate entrepreneurship

Erasmus University Rotterdam, TU Delft and Leiden University are joining forces to develop a powerful, innovative centre for entrepreneurship. The Delft Centre for Entrepreneurship, attached to the Faculty of TPM, is one of the initiators of HOPE (Holland Programme on Entrepreneurship). The new centre will be responsible for embedding 'learning about entrepreneurship' firmly into the teaching programmes at the three universities, both jointly and at each university individually. A whole range of new activities has been devised: new courses, innovative teaching methods within and outside the curricula, new combinations of programmes, collaboration between the three universities and composites of science, technology and entrepreneurship. The unique partnership between the universities, each with its own individual programme profile, provides an ideal basis for innovative education in entrepreneurship.

In early February, the universities received three million Euros for HOPE from the 'Learning about Entrepreneurship' subsidy

programme. The programme is an initiative of the Ministries of Economic Affairs and Education, Culture and Science. The aim is to stimulate entrepreneurship in the Netherlands by generating more interest for the subject in education. HOPE has resources amounting to 8 million Euros.

### Framework agreement between Nicis and TU Delft

On 12 December 2007, the Nicis Institute concluded framework agreements with a number of universities\*), including TU Delft, setting out the ground rules for collaborative ventures in the areas of research and knowledge dissemination.

These framework agreements crystallise the arrangements governing their collaborative ventures in the area of urban research. These collaborative ventures have three objectives:

- to strengthen the focus and critical mass of scientific research in the field of urban issues;
- to enhance the societal relevance of this research and the practical applicability of the research results for the urban parties and for the cities themselves;

- to provide an initial boost by the future acquisition of international (primarily European) research funding.

Nicis (Netherlands Institute of City Innovation) Institute, is the Societal Top Institute (an institute where knowledge is developed at a high level and applied to a societally important theme) for the cities. The university research to be mediated by Nicis will be demand-driven, i.e. based on urgent issues raised by the cities themselves. There are six themes in all: Economics and Innovation; Education and the Job Market; Welfare and Integration; Housing; Safety and Governance. Each of the six Nicis themes has a single university research group as lead partner. TU Delft will be tackling the theme of Governance. Prof. Marina van Geenhuizen (Faculty of TPM/OTB) heads one of the university/urban consortia focusing on the theme of Economics and Innovation.

\*) Delft University of Technology, Universiteit van Amsterdam, Leiden University, Utrecht University, and VU University Amsterdam.

# Curius

**We are well into the new year, the exams are behind us and the coffee is flowing freely again at Curius HQ. It was certainly high time to bring some life back into the place! After a quiet period over Christmas, we began 2008 by working on our latest ideas.**

**The new website is almost ready, excursions have been organised for most of the first-year courses, we are in talks to get cheaper books and a survey of members is being prepared.**

After all this hard but enjoyable work, it is great that normal service has been resumed. And activities are already under way. Forty first-years have visited the North-South Line metro construction site in Amsterdam. A group of Master's students spent a full day at Schiphol Airport. And the second and third-years had a day out at the Vreeland Group in Baarn.

Presented on 21 February, the new yearbook is the culmination of months of hard work by its editorial committee. Many a beer was enjoyed on their tab at the presentation ceremony.

The annual Management Workshops were held on 12 March. This year's theme was 'isks: opportunities or barriers' and the speakers were Ferdinand Mertens, Jenny Thunnissen, Peter van Ooyen and Jurgen van Grinsven.



## Forthcoming activities

Over the second weekend in April, the Interaction Committee is accompanying forty second and third-years to Milan, where they will visit Capgemini and savour the local culture.

The following week, the Business Tour committee is heading for London. But first they will be dropping in on Nuon and Ikea in the Netherlands. Visits in London include Barclays and Lehmann Brothers, but the rest of the programme has yet to be confirmed. Keep an eye on the website for more details.

Alongside these educational and social activities, this year we have decided to introduce sports into the mix. The Master's Committee has already organised a skating trip, and the Activities Committee has been snowboarding. The next sporting event we are taking part in is the Batavieren Race, a relay run from Nijmegen to Enschede, on 26 April. Training sessions for keen participants are being held every Wednesday in the weeks leading up to the race.

See you soon at Curius. The coffee is always ready!



The 15th Board of SVTB Curius

## 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)
- MMSc 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)

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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)  
Ir. Daniël Holt (d.holt@tudelft.nl)

## ASK TPM

Ir. Behnam Taebi is the perfect person to answer this question. He studied materials science at TU Delft, finding the right link between technology and society through philosophy. He is now a PhD student with the philosophy section, studying the technical choices that need to be made regarding nuclear power, placed in the justice paradigm. His line of approach is that wisdom begins with knowledge of technology, but that this should always be considered in the light of the justice paradigm: what is a justified course of action regarding nuclear power, in view of the technological possibilities?

"Debate about nuclear power is already in full swing. Nuclear power has two important advantages: it allows us to meet our own energy demands and it reduces greenhouse gases. But nuclear power also involves huge risks. For example, safety risks (accidents, theft) and the dreaded proliferation: the manufacture or distribution of technology for destructive purposes. And then there is the Achilles heel: the waste. Nuclear waste carries a radiation hazard that lasts for 200,000 years.

Without wishing to involve myself in the debate on the desirability of nuclear power, I am singling out a crucial choice regarding the production of nuclear power (i.e. whether or not to recycle nuclear waste) and placing it in the philosophical justice paradigm. The first option, also known as the American alternative, involves burying the nuclear fuel underground for 200,000 years after a single round of radiation. However, there is another option. This is known as the European alternative and involves recycling the irradiated nuclear fuel. This reduces the radiation period to approximately 5,000 years, and also reduces the volume of nuclear waste considerably. But recycling also has disadvantages, the most significant being the risk of proliferation for the present generation. The pure plutonium released during the recycling process is an important component of nuclear weapons.

*Minister Verhagen is arguing the case for resurrecting nuclear power in the Netherlands. Nuclear power gives a guaranteed energy supply and generates far fewer greenhouse gases than fossil fuels. But it also has major disadvantages. So what is the best course of action?*

In theory, about 8 kilos would be enough for a Nagasaki bomb.

So there are advantages and disadvantages attached to recycling nuclear waste; the advantages are mainly long term and the disadvantages can be experienced short-term. This is interesting ground for philosophers: which considerations should be taken into account when making decisions about recycling? This question can be answered by making a fair distribution of the plusses and minuses between the generations, otherwise known as intergenerational justice.

So to sum up, this field is in a state of flux and serious choices need to be made. It is up to philosophers to translate the technical alternatives into moral values, and to expose and make explicit the conflicts of values that are often implicit to these choices. Justice is a perfect paradigm for ensuring a rational balance in the debate on desirability. What constitutes a justified course of action for us and for the future? Are our interests compatible with those of future generations? And how do we make responsible choices in this matter?"

