

TPM QUARTERLY

**FACULTY OF TECHNOLOGY,
POLICY AND MANAGEMENT**

Top electricity network scientist comes to TU Delft

As from 1 December, Professor Marija Ilić will be the occupant of the new chair for 'Control of future electricity network operations' at TU Delft. Ilić has gained world-wide recognition as a leading researcher in the field of (future) electricity networks. Professor Marija Ilić (1951) has initially been appointed to TU Delft on a part-time basis (0.25 fte) for a period of five years. She will also continue in her position as professor in the Faculty of Electrical and Computer Engineering at Carnegie Mellon University in Pittsburgh. Ilić's chair is unique: "This is the first chair ever to be totally dedicated to electricity infrastructures for the future", said Prof. Margot Weijnen, chair of the department of Infrastructure Systems & Services at TPM.

KISSZ

The Technology Dynamics & Sustainable Development research group from the faculty is to represent TU Delft in the Kennis In Synergie voor een Sustainable Zuid-Holland (KISSZ) network, a Network dedicated to sustainable development in the province of South Holland. The initiative has established that tackling sustainability problems requires high quality collaboration between and within knowledge institutes, public organisations and the business sector. KISSZ wants to help address social issues with a long-term focus on sustainability by bringing together organisations with differing backgrounds, visions and potential.

Appointment Hugo Priemus

As of September 2008, Hugo Priemus, former Dean of the faculty, has been appointed a member of the Visitation Committee for Cityregion Eindhoven. This committee is responsible for making recommendations to municipal authorities that find themselves unable to realise their building commitments, and to give the governing committee for the Eindhoven regional authorities advice about the financial penalties that should be imposed. Hugo Priemus has also been installed as a member of the Climate Council for Amsterdam. The city's climate ambition is to reduce carbon-dioxide emissions in Amsterdam by 40 percent (in relation to 1990) by 2025.

Cooperation agreement with NSCU

During the NSCU conference on 6 November 2008, Dean of the Faculty, Theo Toonen, and the NSCU Utrecht (Dutch Foundation for Corporate Universities) signed a contract in which they undertook to set up joint projects in the field of innovative learning environments. The Systems Engineering section of TPM helped to organise the conference.

Number 1 for Systems Engineering, Policy Analysis and Management!

The Bachelor's programme in Systems Engineering, Policy Analysis and Management has topped the table in the Industrial Engineering and Systems Engineering, Policy Analysis and Management category of the annual Elsevier poll for the seventh time! Students from Systems Engineering, Policy Analysis and Management awarded the programme top marks for 17 of the 27 aspects assessed. The programme avoided bottom place on all aspects. A total score of 7.6 put Systems Engineering, Policy Analysis and Management at the top of the table, outstripping the second-placed programme which scored 7.2.

English edition of Quarterly

As from 2009, the English version of Quarterly will only be published online. It can be downloaded as a PDF file via www.tbm.tudelft.nl.

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NWO HONOURS RESEARCH INTO GOVERNMENT AND IT

Government organisations must change; the question is how?

Government services need clever, flexible IT if they are to respond swiftly to fast-changing legislation. At present, this is proving difficult. Their IT infrastructure is often too rigid or works on a step-by-step basis. There must be another way. Faster, better. But how? Over the next few years, the Information and Communication Technology (ICT) section of the Faculty of TPM will be carrying out fundamental scientific research into this area, together with the University of Amsterdam. The Immigration and Naturalisation Service will also be taking part. The collaboration between the two universities and the 'field' was the most important reason for NWO (the Netherlands Organisation for Scientific Research) to honour the research proposal with subsidy.

NWO research is a good source of income and good for the Faculty's reputation. In the last edition of TPM Quarterly, Dean Theo Toonen said: "Indirect funding is becoming increasingly important to the Faculty now that more money is being transferred from the universities to NWO. Furthermore, research honoured with funding automatically has a quality hallmark." But this token of recognition is not the only reason that assistant professors Arre Zuurmond and Marijn Janssen are delighted with the research. "It touches the very heart of TPM. Our research has been designated 'excellent', it is being conducted in a multi-actor system and is socially relevant. It focuses on ground that is internationally almost uncharted, right on the cutting edge of existing scientific insight."

'Old world'

Roughly speaking, the subject of the research is 'Government and IT'. More specifically, it is about how IT will help government organisations to cope with new legislation and regulations in the future. In the 'old world' government services (Tax and Customs Administration, Employee Insurance Agency, Information Beheer Groep, SIB, Immigration and Naturalisation Service, etc.) were given time to prepare for new laws and amendments to legislation. "They were issued on paper. The business operations department translated them into new processes, procedures and

From left to right: Marijn Janssen, Yiwei Gong, Arre Zuurmond

working instructions and the IT department then took care of the computerisation. It was usually up and running within a year", explained Zuurmond and Janssen.

"Nowadays, the Dutch Lower House makes a decision about a new law halfway through December, and two weeks later, on 1 January, it comes into force. This leads to mistakes and massive problems for the administration services. We have seen countless examples over the past few years. Municipal authorities that didn't know where to send people who wanted to take part in civic integration programmes, tens of thousands of tax returns that suddenly went missing ..."

Nowadays, policy is revised at a fast pace and relatively more new laws are being introduced. The environment in which government organisations of the future (say in ten to fifteen years) will find themselves operating, is becoming increasingly dynamic and complex. Janssen: "The basic idea behind our research is that the government is in a fundamental transformation phase. A number

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Government organisations must change; the question is how?

of people from our section are exploring the question of how this government intends to change, and the demands this will make on the IT infrastructure. How will it affect services for citizens? How will the coordination between government organisations change?" These are reasonably concrete questions; the NWO research is focusing on the abstract fundamental issue. Arre Zuurmond continues.

Three regimes

"The law is always at the forefront. If tax laws change, for example, the Tax Administration will adjust its organisation in line. The IT infrastructure will also be modified to suit the new situation. For the purposes of our research, we have isolated three levels: the legal/judicial regime, the organisational regime and the technological regime. All three have their own technological infrastructure. In our research, we will be searching for a manageable control complex between these three infrastructures, which will quicken the passage through the above-mentioned three regimes. Storing laws in a knowledge management system in a particular way will automatically generate the correct procedures and instructions for the organisation concerned. And in turn, these will be automatically translated into service-oriented systems."

In answer to the question of whether IT architecture could be designed to cope with the required dynamism and flexibility, Zuurmond and Janssen give a resounding 'yes'. "Of course it's not that simple. IT designed in the past, for example, was not able to cope. It was too rigid. But it has enabled people to make huge advances over the past thirty years, so they are not just going to push it aside now. And of course it would be too risky to dispense with old systems altogether. They are often kept up-and-

running so that parts can be integrated into the new architecture. But we do need to move away from these monolithic information systems towards sets of smaller IT components, to which individual components can easily be added or changed. Whatever else, we need to work on a more modular basis at all three levels."

Collaboration

In the NWO research project, the ICT section of the Faculty of TPM is focusing all its attention on the socio-technical side of the matter. The Leibniz Center for Law at the University of Amsterdam (an important party in the field of legal research) is examining the legal aspects. The Immigration and Naturalisation Service is a perfect example of an organisation where everything is regulated by laws. There are ten to fifteen of them, all emanating from different Ministries. Sometimes all this legislation even contradicts itself. This is why the Immigration and Naturalisation Service is such a good 'field' partner for the research. "The Immigration and Naturalisation Service is experimenting with legal knowledge management systems and service-oriented technology. We are looking over their shoulders and helping them come up with ideas. The good thing about the Immigration and Naturalisation Service is that it is so well-organised, which is helpful when you're conducting difficult research like this. We can't really do much in an organisation where chaos reigns", according to Janssen.

Zuurmond: "The Immigration and Naturalisation Service is also an organisation that is under almost permanent political pressure. Organisations like this are always looking for a way out and therefore receptive to the latest developments. Other large-scale implementing bodies also benefit in the long run, as they all face much the same problems. One of the reasons that the NWO

honoured our proposal was that three disciplines are working on the project together, while it also satisfies a need within society. Although the research is still in its initial stages, we are already noticing how much we complement and augment each other. We know exactly what everyone can and will do. The partnership is generating a lot of added value."

Idols

Zuurmond looks back with pleasure on the day that the proposal had to be defended in front of a committee of twelve international scientists in a smart hotel in Amsterdam. "It was nerve-wracking", is what they said after their first experience of this 'Pop Idols-like' event. Almost two months later, they received the news that they had been awarded the subsidy, a sum that would pay for them to appoint a fourth researcher. The next step was to find and select a suitable candidate. "Good PhD students don't grow on trees and we needed one to start by 1 September, otherwise we would lose the subsidy."

"We were lucky", says Zuurmond about Yiwei Gong. He was one of the most outstanding students in Information Architecture, he was familiar with the backgrounds of NWO research and very keen to get started. Janssen: "NWO needs good candidates with the conceptual capacity to understand complex questions. Other companies are queuing up to employ people like this. Yiwei could have opted for a high salary and a lease car, but he sees this PhD research as a sound investment in his own future. It took a great deal of effort to get this research off the ground, but now it's up and running we are definitely getting a lot out of it." In the meantime, their latest research proposal has also reached the second round of the NWO selection process. "We're really getting a taste for it."

The end of efficiency?

After the fall of the Berlin Wall in 1989, the Japanese-American publicist Fukojama wrote a pamphlet entitled: The End of History? He asked himself whether time-honoured ideological contradictions would be swapped for a more functional and business-like approach to economics, society and governance. An understandable question in the autumn of that particular year. And one that goes back to the days before we had experienced the impact of the emerging technological revolution.

The last few months have presented us with a treasure-trove of historic moments. Your grandchildren will ask you where you were on the day that Barack Obama was elected. And you will probably be able to give them an answer. The question about what you were doing when the credit crisis, otherwise known as 'the most serious economic crisis since the Great Depression', developed might be a bit trickier. And in all likelihood, those of you who have not lost a personal fortune probably won't be able to remember what they were doing when Fortis and later ABN/AMRO became state-owned banks. But although the moment is not etched in everyone's memory, it is still history.

It is the moment when, once again, it became apparent that management skills and good business operations are not all-decisive. Not even in a financial sector saturated in financial engineering and innovative products. It is the moment when the word 'collapse' took on a new dimension and the term 'system relevant bank' became all the rage. It is the moment when the Government intervened not because of inefficient management or corrupt administration, but because the position of the banks within a system had started to play a role.

This final point should sound familiar to the TPMers amongst us. In this case, 'system relevant' means an institution that is so

important to the functioning and self-preservation of the financial system in a country (or continent), that the Government intervenes if it is in jeopardy. I have already witnessed the first call for the classification of 'system relevant banks'. As all TPMers know, this would mean an end to bureaucracy. You can only decide on what constitutes 'system relevant' once you have gained insight into the workings, the process and the 'emergent' development of the system. These terms may be relatively unknown and therefore sound somewhat abstract, but this does not make them practically any less relevant or operational. TPM research has 'systematically' pointed out the 'systemic' importance of early warning systems. This is also something that the G20 heads of government are demanding, with the Netherlands acting as an outboard motor.

Whether we are talking about transport interchanges, energy companies, hospitals, dykes or innovative activities: TPM tries to look at the larger picture, at the system that they all go to make up. And at the risk that malfunction will lead to large-scale disruption, such as traffic congestion, long-term power cuts, danger to patients, floods or stagnation. We draw the conclusion that solidity, adaptability and resilience are system requirements in all these

sectors. That it is often far more important to aspire to these qualities than to pursue efficiency. Businesses are more than capable of securing efficiency themselves 'for predetermined targets, with pre-determined resources, under pre-determined conditions', according to the definition of efficiency. But these targets, resources and conditions are of vital importance. There must be permanent attention for protecting general and public interests. Self-regulation is certainly important, but there comes a point when government must intervene to prevent the system from failing. And government must be prepared for this point.

The financial sector is not yet part of TPM's field of application. Perhaps this would be a good time. Calculation is already one of our strong points.



HONOURS TRACK PROGRAMMA WILL BE IMPROVED

More stringent selection of excellent students

Since September 2005, excellent Master's students at TU Delft have been able to take part in an Honours Track programme. Internal evaluation showed that there was room for improvement in numerous aspects of the programme.

The Philosophy section of the Faculty of TPM has submitted a proposal for developing the programme further.

"Honours Track (HT) in its new form is an outstanding programme, and the selection of students will be tightened up", says Peter Kroes, who heads the philosophy section and has a seat on the Council of Professors.

The HT programme was originally instigated to challenge excellent students at TU to accomplish more than simply excellent grades in their own subject and specialist area. The programme allows them to develop their interests and knowledge by placing them in a wider perspective. They also learn to contemplate, discuss and present philosophical and social issues. On completing their studies, students who have distinguished themselves via the HT are presented with a special certificate and an endorsement on their degree certificate.

Standing out from the crowd

A proposal to modify the HT programme has been submitted. Three men who have helped compile the proposal are Peter Kroes (Professor of Philosophy and Technology in the Philosophy section), Jeroen van den Hoven (Professor of Ethics in the same section and scientific director of the 3TU Centre of Excellence for Ethics and Technology) and Jelle de Boer (assistant professor in the Philosophy section). "HT has not yet gained the acclaim it deserves. It is difficult to say why this is", says Van den Hoven when explaining the proposals to modify the programme.

"It would appear that students are still getting used to the idea. It goes against the traditional Dutch mentality of not wanting to

Peter Kroes and Jeroen van den Hoven: "Grades will certainly count, but students will be expected to set out their reasons for wanting to join the new-style Honours Track programme."

stand out from the crowd. It is probably also related to the way the HT was originally organised. At present, programme directors search through their records looking for suitable candidates. Anyone with an average grade of 7.5 attained within the nominal time span is eligible. This is set to change. The new organisation involves a more stringent selection of the students." Another significant change will be the increase and intensification of the interaction between HT students and lecturers on the one hand, and between students themselves on the other. This is based on the English tutor system.

Culture swing

Van den Hoven also aspires to changes of a different nature. "We want to make the HT programme more chequered and we hope to stimulate a wider range of the students' intellectual skills. For example, imagine going out to dinner with a student and inviting Frits Bolkestein (who is attached to our section), to join us, or another revered colleague. We could discuss a couple of the student's best essays. We also want to make more use of renowned guest speakers and organise social events to give the programme a more challenging character."

In future, a committee comprising a number of professors and the rector will decide who should be admitted to the HT programme. "We are still working on the details and the criteria", says Kroes. "Grades will certainly count, but students will be expected to set out their reasons for wanting to join the programme."

The proposal was discussed with the programme directors just before the summer. "It was received positively", according to Van den Hoven. The definitive proposal will be submitted to the Executive Board for a decision at the end of this year. Kroes: "I would expect to start working with the new version of the HT programme in September 2009."

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News in brief

IT Section graduate wins Bakkenist Prize

Wibout Roukens has won the highly prestigious Bakkenist Young Talent Graduation Prize for the best Dutch thesis in the field of Information Systems. The prize is awarded every year by the Royal Holland Society of Sciences and Humanities. Wibout wrote his graduation thesis entitled 'Context Aware service bundling for motorcycle police officers', during the graduation research he carried out for the Voorziening tot Samenwerking Politie Nederland or VtSPN (an umbrella IT organisation for Dutch police forces). His research was part of the Freeband User Experience project, in which TU Delft, VtSPN and the Telematica Institute worked together. He was supervised by researchers from the IT section and the Safety Science Group.

Best paper award for TPM student

Stephanie Janssen was awarded the best paper award for young researchers during the CEDA Dredging Days. The paper she presented was based on the Master's thesis she wrote in the Policy Analysis section: 'Contractor's involvement in project development. Partnering as one of the possible practices to increase project success for the contractor'. The research involved exploring the options a contractor has to increase the success of a project. A contractor has a great deal of professional knowledge experience at his disposal. One of the methods that came out of the research is partnering. Partnering is a more intensive form of cooperation between the client and the contractor, in which they both aspire to optimum deployment of each other's sources.

Best paper award for member of TPM staff

Stephan Lukosch from the Systems Engineering section has won the German Computer Science Association best paper award. He wrote his paper entitled 'Informal Knowledge Management by Audio-based Collaborative Storytelling' together with Michael Kebl.

Freedom on the internet no longer a matter of course

It is twenty years ago last month since a Dutch scientist became the first non-American to receive an e-mail on his computer in Amsterdam. This signalled the birth of the internet: a spontaneously created information network that flew the flag for freedom. Nowadays in 2008, the flag is still flying, but the mast is starting to buckle. In his inaugural lecture, TPM Professor Milton Mueller made a stand for the protection of individual freedom on the world wide web.

Internet was once a dream, but according to the American Milton Mueller, it is now one big mess. On 17 October 2008, he formally accepted a chair for research into the security and privacy of internet users, set up by internet provider XS4ALL. In his inaugural lecture, he literally said: "It [the internet] is an organism that has become infected with viruses and worms, a planet occupied by alien botnets. (...) It encompasses all our present and past social problems: war, hate, discrimination, evil, perversion and dominance." Mueller states that although politicians want to relieve us of these problems, he does not think that they are any more likely to do this online than they were offline. Which does not mean that we should sit back and do nothing. He is adamant that we should be tackling the problems relating to privacy and security on the net. It is the only way to uphold the freedom that we once considered so matter of course on the medium. Mueller's job is to explore the best way of doing this.

Typical TPM approach

He is working on the assumption that the architecture of the internet can no longer cope with the problems. The simple principle of TCP/IP can no longer guarantee our freedom and security. The code worked as a framework, within which users could constructively swap information. But the framework has become a victim of its own success. Nowadays, it is not only the architecture of the internet that is important in matters of privacy, protection and freedom of the users. Alongside technical factors, economic, political, legal and social factors also play a vital role. So Mueller's approach to freedom and security on the internet is a typical TPM approach, which he is going to apply to two themes. The first is the role of national government in matters of freedom and security on the internet, and the second is the responsibility of service providers.

Voluntary fire brigade

National states (the first theme) form the largest threat to freedom on the net, because they are more concerned about their



own power and security than about the individual rights of citizens and users. At the same time, a certain degree of governance is needed to keep the system working properly and to protect us from things like spam, viruses and phishing, and from invasions of our privacy. Mueller is looking for an administrative structure for the world-wide internet, which is able to safeguard the freedom of individuals and organisations. To him, a structure like this is more important than ever, now that freedom is no longer a matter of course. At present, informal networks of technicians across the world are making decisions about security on the internet.

They no longer have direct ties with national governments, but operate like a voluntary fire brigade that leaps into action in an emergency, but which has never actually sat down and taken serious stock of its activities and knowledge. Research into these networks may provide a greater understanding about which rules need to be devised for which problems, and insight into who should be doing what in this virtual world.

Far-reaching implications

Mueller's second research theme deals with the service providers. They are acquiring increasingly more responsibility in terms of

privacy, protection and freedom on the net. They sometimes seem to be playing the role of both judge and policeman, while in fact they are no more than private parties. Mueller thinks that we need trans-national comparative research into the roles and responsibilities of providers. An extra point for special attention is the use of specialised software for Deep Packet Inspection (DPI). This enables providers to analyse the content of individual data packages and take action. In the past, they could only move the packages on the basis of the information appearing on the outside (in the header). The use of DPI has far-reaching implications for the freedom, privacy and protection of internet users. Mueller wants to find out how users across the world are responding to the possibilities of DPI and in turn, how their reactions are affecting the service providers' use of it.

Mueller has been appointed to the Faculty of TPM as an endowed professor for a period of three years. He is also attached to the iSchool (School of Information Studies) at the University of Syracuse, United States.



Managers and professionals, about management as a problem and a solution

Professionals do the real work in our society: they are the ones who teach our children, perform operations, catch criminals, or carry out research. Over the last few decades, their work has been increasingly hampered by the gradual upsurge of managers. And all that goes with them: more bureaucracy, superfluous procedures and far too much model talk. As a result, professionals are finding themselves less and less able to focus on their core tasks. Management is the problem rather than the solution.

In this book, Hans de Bruijn shows us that although this is all true, it is only half the story: sometimes, management can be the solution. And when it is, management-bashing by professionals is just as easy as the model talk from managers.

Management as a problem and a solution can sometimes lead to a surprising appreciation of what goes on inside professional organisations. And to advice (albeit possibly counter-intuitive) to managers and professionals. Managers, for example, need to accept that a professional organisation is an island empire and that professionals are forever re-inventing the wheel. There's nothing wrong with this. And the message to professionals is that the oh-so-despised performance measurements or protocols, for example, can sometimes actually enhance the professionalism of the service being provided.

'Large hospitals will not survive'

Over recent decades, numerous amalgamations have caused healthcare institutions to grow substantially in size. However, voices from social and political circles are now warning that Dutch hospitals and nursing homes have become too large. Quality and efficiency leave a lot to be desired. So will large hospitals survive, or not?

'THEY WILL SURVIVE, BUT...'

Dr J.L.T. (Jos) Blank



'The market mechanism first appeared in the hospital sector two years ago. It was supposed to shorten waiting lists and have a positive impact on price forming. As a result, we now have a number of newcomers on the scene: special clinics for standard treatment, such as hip, knee, cataract and varicose vein operations. This new development is obviously at the expense of output in existing hospitals. Another consequence of more liberal market forces is increased competition. Hospitals are trying to defend themselves by amalgamating and are therefore becoming steadily larger.

Small institutions are comparatively expensive, whereas larger ones benefit from scale increases in terms of staffing and equipment. But there is a turning point at which the disadvantages start to outweigh the advantages: as hospitals grow, bureaucratic layers, for example, will push up the costs per unit. National and international research has shown that there is an optimum scale for a hospital: efficiency is at its highest in a hospital with 200 to 300 beds. Here in the Netherlands, we have enormous hospitals: even the smallest has around 200 beds. This is quite unlike other countries, where 100 to 150 beds is the norm. Many Dutch hospitals are therefore operating beyond the turning point. This makes them relatively expensive and less than efficient.

For some reason, the quality in large hospitals is thought to be higher than in smaller ones. Background research into scale increases in the healthcare sector carried out last spring by the Institute for Public Sector Efficiency Studies shows that this has never actually been proved. The most important aspect is that patients are treated by specialists with the right experience, knowledge and skills. And these specialists are not just found in large hospitals.

There is also a fear that large hospitals are less accessible than small ones, particularly for the chronically ill and senior citizens. However, it is a striking fact that the number of healthcare locations has not dropped, despite all the amalgamations. On the contrary, we are seeing quite the opposite in the shape of external outpatients' clinics. Moreover, there are ten times as many outpatients' clinic appointments as hospital admissions. Poor accessibility to accident and emergency departments is being compensated by a close-knit ambulance network, well-equipped ambulances and trauma helicopters.

In my opinion, low complex, high volume services will only be provided in the future by specialised clinics and medium-sized hospitals. The high complex, low volume services will continue to be provided in the teaching hospitals and top clinical hospitals, of which there are still plenty. Another question to be considered is the future of the cross-subsidising: teaching hospitals and top clinical hospitals receive substantial funding for education and research, which means that some healthcare is also being funded by education and research. This allows care to be provided below cost price: in other words, it is a form of unfair competition.

It would also seem that the market mechanism is stagnating. Some parties say that a market mechanism of 50% is adequate, whereas others would rather see 90%. Whatever else, the process is taking longer than had first been assumed. As long as the majority of healthcare still falls outside the market mechanism, large hospitals will continue to benefit from the old system. But what will happen if this changes?

My conclusion is that large hospitals will be able to survive, but that they will have to surrender some of their work (the bulk work). They will need to use their position of power to safeguard their share of the market. Then there is the question of how market forces and cross-subsidising will develop further. These are all factors that will play a major role in the issue of whether or not large hospitals will survive.'

Dr Jos Blank is Associate Professor of Public Sector Efficiency at TU Delft. He is also director of the Institute for Public Sector Efficiency Studies, which carries out research into efficiency in the public sector.

'OF COURSE THEY WILL SURVIVE'

Drs. B.J.M. (Gita) Gallé



'I do not agree with the proposition, just as I do not agree with the suggestion that small hospitals are bound to survive by definition. The tendency towards differentiation has been emerging for some time now. The term 'the hospital' is actually out-of-date. Medical specialist care is described in functional terms in the Healthcare Insurance Act. The word Medical Centre is much more widely used. To my mind, there will always be room for both small and large hospitals in the future.

On the one hand, there is political concern that large hospitals are becoming too bureaucratic and are losing sight of their customers. On the other hand, there are claims that small hospitals are not providing care of a high enough quality. Neither dogma is true. We are seeing hospitals partnering or cooperating with other hospitals in the region or other parts of the country in order to improve quality. In this way, they are not wasting precious energy on amalgamation processes, but medical specialists can still ensure that patients are given maximum quality at the right location. Doctors can build up enough experience and continue carrying out the procedures they are good at. We are also seeing the emergence of scale increase at procedure level, as certain procedures are moved to smaller centres and clinics in line with specialist differentiation.

So in short, we are looking for organisational forms in the healthcare system that satisfy the increasing demand for quality, but that also meet current efficiency requirements. This can be achieved by means of both cooperation and scale increase. After all, you need a certain dimension or volume to reap benefits from any investment. Consider the investments in equipment and training, for example. So scale is very important from the efficiency angle. But the way it is organised is differentiated.

Research has shown that small hospitals score well in terms of speed, service and short lines (as is true of many small organisations). People know each other, know who does what and they feel involved. Large hospitals, however, are also trying to organise themselves in a way that will stimulate involvement and responsibility. With the aim of optimising the product; healthcare.

As the transparency of, and insight into, quality increase, hospitals will feel more encouraged to do the right things and be good at the things they do: high quality and efficiency. This applies to all hospitals, whether large or small. Another factor is the huge difference in the way healthcare is organised per region. Care in Zeelandic Flanders, for example, is very different from healthcare in the city of Amsterdam. To an extent, the environment determines how services should be organised to best suit the clientele.

Of course every hospital has a scale at which efficiency will be highest. Although this is an important criterion, it is by no means the only one. It is all about finding a perfect balance between quality and affordability. And let us not forget the perspectives of innovation, training & education and employment market prospects. Scale is a relevant issue in all these aspects. But we do not necessarily need large hospitals to secure this. It can also be achieved by means of cooperation: every hospital focusing on its strong points and contracting out the rest to another hospital. That is the great thing about networks and alliances. Ultimately, everyone benefits.'

Gita Gallé is director of the Netherlands Hospitals Association. She is also a member of the Netherlands Advisory Council of Investors in People and a member of the Supervisory Council for the Almere Schools Group.

ALUMNA ANNELIES DIJKZEUL:

Entrepreneur, with firm roots in TP

When she was young, she wanted to be an inventor. Nowadays, alumna Annelies Dijkzeul is channelling her inventive energy into being an entrepreneur. She and two fellow-systems engineering, policy analysis and management specialists run the Kwink Groep consultancy in The Hague. Their TPM studies are the driving force. "We learned to look at issues through the eyes of both a policy analyst and an engineer. This is where our real strength lies."

The paint is barely dry, the official opening is only just behind them. The location is strategic: a stone's throw from the political nerve centre of The Hague, diagonally opposite the Hofvijver. The modern interior complements the way these enthusiastic entrepreneurs work. "We help organisations to resolve social issues and we do this with a young, fresh and inventive outlook." Clients include Government ministries, provincial and municipal authorities and organisations such as the Directorate for Public Works and Water Management and ProRail.

But Annelies was not always heading in this direction. She started her studies at TU Delft on a course in Industrial Design Engineering. "I soon realised that modelling clay and drawing kettles all day wasn't really my thing. It seemed such a narrow view of the world, whereas I'm terribly inquisitive! I am

constantly amazed at the things that happen in life, which is why I prefer to explore social topics. I find them much more interesting."

So a programme in Systems Engineering, Policy Analysis and Management, where she specialised in Transport and Logistics, suited Annelies down to the ground. For her graduation research project at Berenschot Process Management, she decided on the management/political perspective 'Steering between the dilemmas of regulation'. Or in other words: how can regulators in sectors such as energy and telecom keep control of the market parties? Should they adopt the role of policemen or directors? "The research produced some great images and sharp observations."

Golden mix

The alumna started work with the Advisory Council for Research on Spatial Planning, Nature and the Environment (2005) and Berenschot Process Management (2006). She and Bill van Mil and Maarten Noordink have been self-employed since August 2007. But whatever she does, TPM is always at the heart of her working activities. "TPM teaches you to explore both the rational and the soft side of large-scale complex projects. A golden mix! As a TP graduate, you understand the technology of the internet, but you also know what is involved in building a high-speed rail link. You learn to examine the background: why was the Zuiderzeelijn rail link never built, and why has the Betuwelijn suddenly become six times more expensive than was estimated? The answers can often be found at the managerial level: ambiguous agreements, hidden agendas or pride."

She continues: "The recurring theme in the programme is learning a systematic and analytical method of unravelling and solving problems. You are taught to approach a problem as if it were a system, to divide into tiny parts: what goes in, what comes out and why do we need that product? You learn to unravel the interests and requirements of those involved (actors) and to analyse how this affects their role and attitude in a process. This can be very enlightening, even with non-technical problems such as a new healthcare insurance system. So we are putting the approach we learned at TP into day-to-day practice. I am so pleased that I chose this programme."

Annelies is still a regular visitor to the TPM building. "I'm working here on a project about 'public interests' with Professor Hans de Bruijn and some of his colleagues. The main question is: does the Government actually know what citizens want? Does current policy, which was designed in the ivory towers of The Hague and focuses on stimulating market forces in the power and telecom sector, public transport, healthcare and the banks, for example, actually meet the needs of consumers? I was also at the last round of open days giving information as an alumna, and I really enjoy coming to the Faculty for brainstorming sessions. So as you see, I'm staying close to my roots!"

But she hasn't quite let go of her childhood dream. "It's quite possible that I'll still invent something one day. But it's also possible that I shall eventually want to do more than consultancy. Maybe one day I'll stop shouting instructions from the touchline and make myself part of the game. There's still so much to look forward to!"





An interactive and advisory role for students

Education in the Master's programme in Systems Engineering, Policy Analysis and Management (SEPAM) in the Faculty of TPM occasionally uses role play actors to act out a difficult management situation. During a lecture, the actors take on the role of actors in a complex decision-making process, in order to create a situation that will be familiar to students.

Responding to the actors' arguments in the role play teaches the students to adopt a strategic standpoint. They are allowed to give instructions to the actors during negotiations, for example by suggesting a different strategy, another type of behaviour or an actual argument. The actors follow these instructions, the role play continues and the students can see whether their instructions work.

"The Master's programme focuses on highly complex technological and administrative issues", says Hans de Bruijn, Professor of Public Administration. "In my subject, Organisation & Management, we explore the administrative side. The fact that many students only have a limited conceptual framework when it comes to administrative complexity is quite a problem. You can see and touch technical objects; it is not difficult to visualise them. But this is much trickier with administrative processes. I can talk about them, but the role play allows students to experience how these processes work and build up a more extensive framework of reference. They see immediately that certain interventions work and others do not."

During the role play, de Bruijn explains to his students which decision-making patterns become visible in the simulation and how this relates to what he has told them during previous lectures. De Bruijn: "I give the lecture to the actors once and spend a morning helping them practise. The simulation is not pre-programmed. The process is different every single time, and depends on who plays which role and which instructions the students give. So it's just like real life."

This teaching method has already been used in the Master's programme a number of times and the students are very appreciative. The role play creates a learning environment by imitating credible and familiar situations, in which the students can experiment with the actors' behaviour. It allows them to acquire knowledge and experience that they can put to good practical use, and it brings theoretical concepts to life. Students are quicker to achieve the desired results. They are asked for their opinions on specific problems, which helps them to present themselves better in the field. Someone is listening to what 'they' see.

On 28 November, members of the TPM Arachnion alumni association will be treated to a guest lecture in this format during the tenth anniversary celebrations. It should be a useful learning experience for alumni, who could possibly use it in their own organisation.

START HOLLAND PROGRAM ON ENTREPRENEURSHIP

Encouraging entrepreneurship in students

Wednesday 12 November saw the launch of the entrepreneurship programme HOPE (Holland Program on Entrepreneurship). HOPE is a joint initiative on the part of Erasmus University Rotterdam, TU Delft and Leiden University. The aim of the programme is to stimulate a culture of entrepreneurship at the three universities. A huge network of students, academics and entrepreneurs was already beginning to emerge during the festive opening, which was held in the Cruise Terminal Rotterdam.

Delft Centre for Entrepreneurship is supervisor of HOPE. HOPE wants to raise awareness in the universities. Students should be aware of the entrepreneurship option, whether as self-employed businessmen and women or as enterprising employees within a company. The universities want to create room to encourage staff and students to innovate, to come up with fresh, new ideas and to make use of opportunities. One of the first moves is to make entrepreneurship an important part of the regular curriculum for more than 50,000 students.

At the start of the opening programme, Minister Van der Hoeven from Economic Affairs congratulated the universities on HOPE via a video message. Van der Hoeven sees HOPE as a very promising initiative and has high expectations of the partnership between the universities in the area of entrepreneurship. This was followed by the official signing of the

contract by the Chairs of the Executive Boards of the three universities; Jan Willem Oosterwijk from Erasmus University Rotterdam, Paul van der Heijden from Leiden University and standing in for Dirk Jan van den Berg, Marco Waas from TU Delft. After the partnership had been made official, more than four hundred guests were treated to visions of entrepreneurship from entrepreneurs, university professors, prominent members of the business world and students with start-up businesses. The speakers shared their views on what it takes to turn students into entrepreneurs, whether as self-employed businessmen and women, or as enterprising employees within a company. HOPE's official launch ceremony was followed by a ten-minute film in which entrepreneurs and business leaders including Peter Bakker, CEO of TNT, and ABN AMRO board member Wietze Reehoorn explained the importance of entrepreneurship to both students and businesses in the Netherlands. They linked their arguments to the need for innovators to improve the current Dutch economic position.

According to the Chair of the Executive Board at Erasmus, Jan Willem Oosterwijk, knowledge and entrepreneurship are two essential facets if we are to pull the economy out of the quagmire. "It is only logical to combine these two facets to create powerful synergy", explains the Erasmus director in the film. HOPE will embody this synergy by providing students with information, as well as giving them a helping hand when starting their business. The next speaker, the Belgian Professor of Entrepreneurship Hans Crijns from the Vlerik Management School, wished 'baby' HOPE every success. "The Netherlands is scoring well with this new initiative. Your country already serves as one of the best practices in Europe in terms of entrepreneurship;

HOPE will almost certainly fulfil this role for the Netherlands."

He was followed by Derek Roos, CEO of IT company Mendix, who claimed to see his company as the symbol incarnate for HOPE. "In our company, we also see the merging of two ultimate disciplines: the knowledge of how to bring a product onto the market, and the knowledge of technology." Marco Waas, Dean of TU Delft, continued with an argument about the combination of science and entrepreneurship required to achieve excellence and inspire a breakthrough. Michiel Muller, joint founder of Route Mobiel, Tango and Bieden & Wonen (an auction site for houses that recently came onto the market), told the four hundred-strong audience that as a former economics student at Erasmus University, he would have been glad of HOPE when starting out as an entrepreneur. "If I had had the right information about starting up a business when I was young and enthusiastic, I possibly wouldn't have made the mistakes I did." The opening concluded with an entertaining juggling act featuring entrepreneurship, in both the literal and the figurative sense.

The final part of the evening was a 'walking dinner', which gave all those present the opportunity to network. Students, entrepreneurs and heavyweights from business and university circles all found themselves in the same room. And not without success. For example, during the official programme ABN AMRO board member Wietze Reehoorn heard the young student/ entrepreneur Sjoerd Geurts talking about the company he had just started, StudentCar, and decided to make him an offer. "I asked him to ring me after the pilot phase. They might just have found their first big customer. This is the whole point of HOPE: to challenge students."

Cell broadcast from trial to practice

Is cell broadcast an effective and efficient addition to the siren alarm system used to alert the public to disasters in their vicinity? Yes, according to research carried out by the Safety Science Group at the Faculty of TPM. "The social relevance and the technical and organisational complexity of research like this makes it right up our street", says project leader Ellen Jagtman. And what makes it even better is that the research findings can be put to direct practical use. Minister Ter Horst from Internal Affairs has already decided to introduce cell broadcast as part of the public alarm and information system.

In the event of a disaster in your area, the sirens are sounded and people are left to their own devices to find out what has happened and what they should do. Using cell broadcast (which will probably take another two or three years) people in the direct vicinity of a disaster will be sent a warning along with up-to-date information about how to respond. But it involves more than simply sending a text message.

"You have to be certain that all members of the public in a certain area will receive the message. This requires people to do just one thing", explains Jagtman. Ensure that their mobile phone is always correctly set up and switched on. "The fact this system relies on



On 14 October, Ben Ale, Professor of Safety Science and Disaster Abatement, handed over the final report of the evaluation of trials with cell broadcast as part of a public alarm system to Henk Geveke, director of the National Safety Department, Ministry of Internal Affairs and Kingdom Relations.

the public being a constituent part is what makes it so complex", continues assistant professor Ellen Jagtman.

Since 2005, she and her research team have been involved in the organisation, implementation and evaluation of large-scale trials using cell broadcast. TPM hopes to maintain close involvement once the system is unveiled. The research carried out over the last few years concentrated on four main themes; range, acceptance, technology and content. It showed that the technical problems in the broadcasting infrastructure can be controlled, resulting in a potentially good range. The implementation on mobile phones leaves room for further improvement. The level of acceptance of cell broadcast among members of the public acquiring new experience of this kind of technology was high.

Eighty to ninety-four percent of those taking part in the trials saw cell broadcast as a valuable addition to the sirens. Jagtman: "There is, however, a high risk factor if the system fails to live up to expectation. It will need careful management. Cell broadcast will only be effective if it is embraced by the public as a whole. The main challenge is to keep the public involved." Administrators and operational services also appear keen to accept cell broadcast. They see the possibility of sending text messages on a local and regional scale as a huge advantage.

More information is available on www.tbm.tudelft.nl/cellbroadcast or on www.cellbroadcast.postbus51.nl.

TPM organises successful Rathenau TA Autumn School for the 7th time

Exploring and practising different approaches, concepts and methods within the field of Technology Assessment. This is the aim of the Rathenau Technology Assessment (TA) Autumn School, which was held for the seventh time from 6 to 9 October. Once again, TPM and the Rathenau Institute were the driving forces behind this successful course.

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Technology Assessment is a way of bringing technological innovations in line with social developments. TA also stimulates public and political opinion-forming regarding the role of science and technology in society. The Rathenau TA Autumn School was attended by sixteen participants from the Netherlands and Belgium, from TA organisations such as the Rathenau Institute and the Flemish ViWTA (Flemish Institute for Scientific and Technological Aspect Research), research institutes, the higher education sector and government-related bodies. All were eager to learn more about the latest thinking and knowledge on technology assessment, and the interaction between technology and society. They also explored the question of how new technology can be better geared towards social needs

and requirements. The course involved lectures by prominent TA professionals and discussions. The participants worked on a concrete TA project of their choice, in which they could apply some of their newly-acquired knowledge.

Two projects

There was a choice of two projects, employing interviews with relevant actors as the main way of gaining insight into social aspects and differences in interests and opinions. In the first project, led by Prof. John Grin (UvA), the Interactive Technology Assessment method was applied to the topic of nanotechnology in food. This method was designed as a way of steering development processes in a direction favoured and deemed socially responsible by those with a vested interest. The second project, led by Dr Jaco Quist (TU Delft), revolved around backcasting for fuel-cell cars as a sustainable decentralised energy supply. The idea behind creating future scenarios and deploying backcasting methods is that it provides a means of exploring and steering change processes. In both projects, interviews with experts and interested parties formed a basis for analysing desirable and undesirable social effects. The project showed that both the envisaged future scenario and the people interviewed did not focus enough on users and undesired side-effects.

Alongside the projects, lectures and discussions formed a major part of the Autumn School. One of the subjects featured new examples of public participation such as technology festivals at the Rathenau Institute and the ViWTA. Attention was also focused on constructive TA (by Prof. Arie Rip), transition management and TA (by Prof. Josée van Eijndhoven), and innovation policy and TA (by Prof. Ruud Smits).

"A good combination of lectures and practical work."

PARTICIPANT FROM UMC ST. RABBOUD NIJMEGEN



The TA Autumn School was organised by the Technology Dynamics & Sustainable Development section of the Faculty of TPM. It was commissioned by and jointly organised with the Rathenau Institute, an independent technology assessment organisation that examines the effects of science and technology on society from the public angle.

The TD&SD section has been active in the field of technology assessment for many years. The work carried out there involves making social-technological analyses of the interaction and dynamics of technological developments, such as sustainable energy innovation, technology transfer and water systems. Another important area is the development and application of control and intervention instruments intended to improve the alignment between technological possibilities and social requirements.

For more information: TD&SD section, Dr Karel Mulder and Ir. Mariette Overschie.

The added value of open standards

The European Union could save 280 billion Euros if it applied (open) standards. China is threatening to use them in a trade conflict with the United States. To soldiers in areas of armed conflict, they can mean the difference between life and death. These are not aspects that the Faculty's IT section would first associate with (open) IT standards.

Standardisation is currently a hot item within the Faculty and TU Delft as a whole. The subject corresponds perfectly with TPM's focus on multi-actor systems and the multi-perspective approach. The interest is not only in research into standardisation, but has also spread to teaching standardisation. Prof. Fokkema, Rector Magnificus of TU Delft, recognises an urgent need for TU-wide education in this field. The 'Standards Edge' conference series is one of the most internationally prestigious conferences about standardisation.

The conference *The Power of Procurement* (Brussels, 6 and 7 November), which focused on the role of standards in the purchasing policy of governments, organisations and companies made it clear that standards have political, economic and social dimensions. The Faculty and TU Delft were 'technical sponsors' of the conference. We want to promote the importance of the subject and involvement with it at European and international level.

Government purchases account for 16 percent of the European IT market. A government needs to realise a resilient and enduring IT infrastructure to ensure the simple, effective and long-term provision of products and services to its citizens. Should a government be able to insist that citizens buy specific operating systems, specific programmes and specific technology to make this possible? One thing is clear; a government with IT purchasing policy based on open source software and open standards can have a huge impact on the IT market and can swiftly ensure critical mass around new, innovative and particularly open technology.

Sectors such as the oil and gas industry and the banking sector are already convinced of the added value of standards. In business-economic terms, the advantages of open technology for cross-border transactions with goods and services far outweigh the possible (temporary) competitive benefits of closed technology. The European Union can save 280 billion Euros by replacing paper invoices with digital transactions. The technology is there, the standards are available, more than enough knowledge is on hand. The most time is being put into trying to form a consensus between governments, 'stakeholders' and the corporate sector.

So why is it taking so long? IT standards, even (open) standards, can be used to regulate and protect individual markets. The development, approval and control of standards are open to external political and commercial influence. For instance, several governments have decided to start using open document standards in the foreseeable future. In 2008, Microsoft managed to get approval from the International Organisation for Standardisation ISO for a self-designed file format, Office Open XML. This was Microsoft's second open document standard. The way in which this decision was reached seriously damaged the integrity of the ISO and as a result, governments are now questioning the quality and reliability of standardisation organisations.

So should governments be taking a more active interest in the development and approval of open IT standards? Consultations about standards within the World Trade Organisation (WTO) and

the World Intellectual Property Organisation (WIPO) are not going smoothly. The United States, Europe and Japan are already holding secret negotiations about the Anti-Counterfeiting Trade Agreement (ACTA). ACTA allows tougher action to be taken against illegal downloading and puts restrictions on the privacy enjoyed by citizens on the internet. During the conference, a powerful case was put forward for ensuring the firm entrenchment of digital citizens' rights when developing open IT standards. And not without reason.

Vice-admiral Juan Moreno of the NATO Standardisation Agency added a special dimension to the discussion about standards. NATO operations are allocated to and carried out by 66 different countries. Standards and interoperability are essential if troops are to be deployed effectively in complex situations; they often mean the difference between life and death. A bomber loaded incorrectly because the instructions are not clear could be the difference between hitting a target and hitting your own troops.



'What are we complaining about if even the networks aren't standardized'

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Arachnion second anniversary celebrations

The alumni association 'Arachnion' of the TPM Faculty was founded in 1998. The last ten years have seen many get-togethers with interesting speakers and relaxing drinks parties. On Friday 28 November 2008, Arachnion celebrated its second anniversary at the Faculty, followed by drinks in café Het Proeflokaal in Delft.



The evening started with a buffet, at which Arachnion members could swap news of each other's working lives. After the buffet, it was time to return to the lecture hall. Els van Daalen gave a rundown on developments at TPM over the last ten years, such as the new building, the Bachelor's - Master's structure and the recent positive development in the number of first-year students of the bachelor Systems Engineering, Policy Analysis and Management. This last point was, of course, important to Arachnion, as these students are all potential future members.

To rekindle memories of their student days at TPM, Hans de Bruijn gave a lecture about actors in multi-actor systems. He illustrated this with role play using four actors acting out a case. The members watching were asked to respond to the actors' behaviour: the actors were given instructions to change their behaviour, thereby influencing the outcome of the situation.

The case being acted out was the intended construction of the Second Maasvlakte near Rotterdam. The four actors played the roles of: the Mayor of Rotterdam, the Queen's Commissioner, a representative of the Environmental Movement and the secretary-general of the Ministry of Transport, Public Works and Water Management, who had all been invited by the Mayor to discuss a draft report. The Mayor did his best to sell the report, but created resistance by failing to listen to the other actors. Following instructions from the audience, he opened his

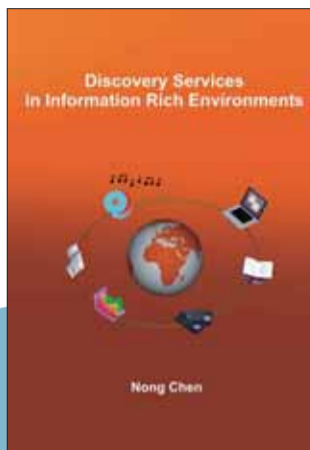
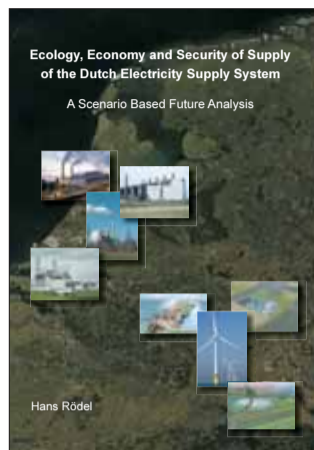
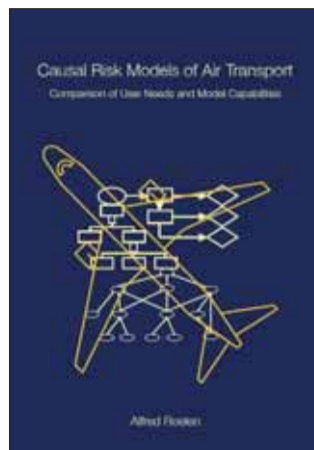
mind to the opinions voiced by the other actors, which led to more dialogue and less resistance.

It was impressive to see how the actors were able to modify their behaviour in line with the instructions given, thereby demonstrating the effect of certain behaviour. Their improvisation skills caused great hilarity when the Mayor enthusiastically swatted a fly into a pulp before the very eyes of the environmentalist. Eventually, groups of alumni advised the actors about which strategy would best help them to defend their interests.

After the lecture, the party moved to Het Proeflokaal where members of Arachnion, the Curius board and a number of lecturers from the faculty took the opportunity to catch up and enjoy a drink together.

More news and information about Arachnion is available on the renewed website: www.arachnion.tudelft.nl

Dissertations



ALFRED ROELEN, *'Causal risk model of air transport. Comparison of user needs and model capabilities, Delft, November 2008*

Aviation safety is so well developed that individual organisations cannot rely on the number of accidents as useful indicators of the safety level of their operation. Adequate control of risks requires the availability of a method to determine the level of safety as a function of the current status and of proposed or expected changes to the aviation system. Aviation safety policy plans have therefore proposed the development of causal risk models. Unfortunately however, they failed to specify or even describe such models other than in the most general of terms. Causal model development was stated as a goal in itself, without consideration of how such a model should be used. The objective of this thesis is to clarify these issues by comparing user requirements with the performance that can be delivered by various modelling techniques. The thesis answers the question what causal risk modelling adds to current safety management approaches and what the criteria are for ensuring it makes a successful contribution to safety. Experience gained in several causal model development projects (particularly for the Federal Aviation Administration and the Dutch Ministry of Transport and Water Management) are used to illustrate how a causal model should and should not be developed and used.

HANS RÖDEL, *'Ecology, Economy and Security of Supply of the Dutch Electricity Supply System: A Scenario Based Future Analysis', Delft, October 2008*

The Dutch electricity sector has been transformed into a liberalized international energy market. Market players are 'free' to choose from various electricity generation options when replacing or expanding production capacity. However, choices that are made now will influence emissions (ecology), integral costs (economy) and availability (security of supply) for the next 25 - 40 years. This thesis shows if and how, based on the current electricity supply system, an optimal balance of ecology, economy and security of supply can be achieved.

First, the current electricity supply system is described to create a frame of reference. Then, future technological developments are described for electricity production options. Four potential scenarios are constructed featuring various uncertainties: the globalising versus the local economy; priority versus subordination for the environment; and the security/insecurity of the fuel supply. These four scenarios are worked out with a specially developed techno-economic simulation model; the results are analysed in terms of ecology, economy and security of supply. The findings indicate that it is impossible to arrive at an optimal balance for the defined scenarios. Scenarios with a low environmental impact lead to high integral costs and vice versa. However, by applying a smart combination of various

modern generation technologies, CO₂ capture and storage, the deployment of biomass and the re-use of residual heat it is possible to reach an optimal balance whereby the additional integral costs can be kept under control compared with the lowest-cost scenarios. To achieve this, clear growth and incentive guidelines need to be established for the various production options. This thesis will form a good starting point for that exercise.

JESSICA CHEN NONG, *'Discovery Services in Information Rich Environments', Delft, December 2008*

Technology availability has significantly encouraged information sharing in organizational coordination processes distributed over various (geographically) locations. However, the huge amount of available information, the heterogeneous nature of the information resources, and the information seekers' dynamically changing information needs make it increasingly difficult for organizations and information seekers to find the right information in the right format and at the right time. The objective of our research was to formulate a new design theory aimed at improving current ways of designing personalized multidisciplinary information seeking and retrieval systems (PMISRS). Taking advantage of valuable theoretical models and frameworks developed in the fields of information retrieval, information seeking, context-aware computing, situation awareness and service-oriented approaches, we explored a set of concepts and relationships required for modeling and designing PMISRS. These concepts and relationship are independent of any domain semantics. They can be used to represent the characteristics of a wide range of information intensive domains at a high level of abstraction. We tested and evaluated the applicability and the novelty of our design theory by applying it in a case study in which we built a prototype of a PMISRS in a typical multidisciplinary information intensive domain, crisis response in a Port.

EVELIEN VAN RIJ, *'Improving institutions for green landscapes in metropolitan areas', Delft, November 2008*

This dissertation considers institutions to protect and improve green metropolitan areas. It explains why farmers have a crucial role, and why their situation is alarming. It addresses the consequences of the implications of the neo-liberalization of the state. It explains why, in many cases, cross-subsidizing green areas with built developments is not a viable financing solution, and why a combination of hierarchical and network-oriented approaches works best in practice. It investigates tensions between strategic spatial planning, operational spatial planning, and operational land development and their consequences for green metropolitan areas. It also explains why 'Slow Planning' can help to preserve dynamic green areas near cities, and why this requires incremental institutional change.

RUBEN JONGEJAN, *How safe is safe enough? The government's response to industrial and flood risks, Delft, October 2008*

The government's response to industrial and flood risks Unfortunately, disasters can never be completely ruled out. The Dutch national government has therefore committed itself to the concept of risk rather than the false promise of absolute safety. The objectives of this study were to evaluate current regulatory practices in the domains of industrial and flood safety in the Netherlands, and to formulate proposals for improvement. The outcomes of such an endeavor obviously depend heavily on the chosen yardstick to distinguish between superior and inferior policy alternatives. Throughout the dissertation, social improvements have been defined in a way that is consistent with the approach followed in societal cost-benefit analyses. Needless to say, different approaches might yield vastly different results.

Because the study of risk and regulation requires a strongly multidisciplinary effort, the dissertation draws upon both the social and natural sciences. It is exactly the attempt to bring together various disciplines that, I hope, will make this thesis an interesting and thought-provoking read. The three main topics covered by the thesis are:

1. The Dutch industrial and flood safety policies: the influence of regulations and liability rules on resource allocation; current practices and alternatives.
2. Methods for risk evaluation and their conformity with a utilitarian perspective on risk appraisal: cost-benefit analysis, FN-criteria, the precautionary principle.
3. Ways for dealing with losses: optimizing disaster preparedness, the (un)insurability of large-scale floods, the relations between insurance and system safety.

Professor Profile

NAME

Wil Thissen

POSITION

Professor of Policy Analysis, head of Policy Analysis section

"I have been attached to TU Delft since 1986 and was involved in the development of Systems Engineering, Policy Analysis and Management from the word go. Our new dean Theo Toonen recently referred to me as 'Mister SEPAM', but I think that's going a bit too far. At the time, I suggested and explored the idea of a new degree programme in Systems Engineering, Policy Analysis and Management, but there was a whole team that actually set to work during the pioneering phase. The programme has been around for sixteen years now and the basic idea is still our guiding principle: to train people to think and analyse in terms of technology and design, without losing sight of what is going on in the 'real world' of policy and management. I never imagined that the programme would become so successful. It even has an international name for being unique. TU Delft should be very proud."

What are some of the highlights of your career?

"Before I started at TU Delft, I was carrying out research for the Directorate-General for Public Works and Water Management into managing the Oosterschelde storm barrier. This was still being built at the time. We designed a system that was eventually (three or four years later) incorporated into the actual construction. This isn't something that happens every day."

"After studying applied physics and obtaining a PhD at TU Eindhoven, but before my time at the Directorate-General for Public Works and Water Management, I spent two-and-a-half years working at the University of Virginia. I built up a lot of very special memories during this stay. It was an exciting and inspiring period, both scientifically and social-culturally. My wife and I spent a long time deciding whether or not to stay there. We finally chose to return to the Netherlands. It took us a long time to adjust during the first year, but we never regretted leaving America. We still pay regular visits."

What is the best thing about your work?

"There's so much. The diversity of the subjects in our programme, for example. We explore such a wide range of issues: infrastructure and transport, energy, spatial planning, transitions to sustainability, and so on. This is one of the things I really like about this field. Other programmes tend to concentrate on just one of these subjects. We are constantly switching between different fields. The best way to do this is on the basis of concrete questions from society. For example: we have been commissioned by Essent to look into the long-term changes emerging in society, and how they will affect demand on the energy networks. Which areas are uncertain

and how can network operators start responding at this early stage? We are researching this in a technical context, but from an economic and organisational angle."

How do you allocate your time?

"I think I spend about a third of my time supervising PhD students. General faculty duties and being head of a section takes about another third. I'm in charge of a team of about 25 people, so this involves administrative duties and personnel management. Securing subsidies is another time-consuming task. I also do some direct teaching. Supervising graduation candidates and giving tutorials, interacting with young people; I still enjoy this and want to continue doing it. So what's left? Writing articles, speaking at conferences, taking an active part in external networks and international activities in professional organisations... Yes, there are so many things I enjoy in this job. Unfortunately, there's no time left to carry out my own research. It's a pity, but I can't complain."

How about your spare time?

"We enjoy going to concerts or other performances like the National Ballet, which we attended recently. I am always particularly thrilled to spend an evening in the *Concertgebouw*. I may have grown up in the Beatles era, but I now prefer Beethoven and Mahler concerts. I try to play tennis once a week with a group of friends. But I only really relax when we stay at our cottage in the north of France. I love the peace there, and being outside. It's probably because I grew up on a farm."

"If at all possible, we combine attending conferences with an extra holiday or the chance to experience another part of the world. We usually visit a number of museums wherever we can. My wife is an art historian and she has taught me a lot about art and history. This didn't come naturally to me as a boffin, but it's something I have learned to appreciate."

Good and bad characteristics

"I think I should let other people comment on my good qualities. One of my poorer characteristics is that my optimistic nature leads me to take on more than I can manage in a given period. I am constantly battling with deadlines and I'm envious of colleagues who somehow manage to get everything finished on time. I should probably learn to say 'no', but I get so enthusiastic when someone approaches me with a good idea. I let myself be persuaded to attend yet another conference or anything else that seems too tempting to resist."



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Curius



2008 has simply flown by with a programme of enviable proportions. Excursions, lectures, drinks and company visits. With so many fun things to do, our job at Curius is to make sure that we organise our events to the highest quality. The continuous stream of participants is all the reward and confirmation we need to know that our excursions are going down well.

This was recently the case when an expectant audience packed into Room A for the lunch-time lecture about the credit crisis given by Prof. Alfred Kleinknecht. Alfred explained how the crisis had emerged and developed, managing to keep the interest of both lecturers and first-year students. His concluding invitation of "are there any questions?" was met with an enthusiastic barrage of questions that proved difficult to halt.

So at the end of the first quarter, while everyone else had their noses buried in their books, our Parents' Day committee was making a final sprint to complete the preparations for the forthcoming Parents' Day on time. The fact that by the end of the day, several parents had enquired about evening lectures only goes to prove how successful it had been.

Obviously there are also plenty of great things to do outside the Faculty, so we took the first-year students on a trip to visit the Schiphol Group. A chance to look behind the scenes of a

company where a lot of our graduates end up. On Schiphol, we were given a presentation and set straight to work examining the 'Alders report' for clues to whether all the actors involved had been taken into account. After we had all presented our findings, it was high time for a drink.

In the meantime, the Consultancy Cycle has started: on seven consecutive Tuesdays, seven prestigious consultant companies give presentations and highlight cases before a select group of students high above Rotterdam in the Euromast. A unique opportunity to take a peek behind the scenes of a company. Visit www.consultancy-cycle.com for more information!

So having read about all the things that have taken place, what can we still look forward to? The winter sports holiday with Curius is rapidly approaching. We'll soon be leaving for Les Deux Alpes in France with a group of 25 students to experience the ultimate in winter merriment. And then there's the P-co party on 11 December, which will this year be even bigger and better than previous years, with DJ Gregor Salto! Just a small selection from the list of forthcoming activities. A complete rundown and more information are available on www.curius.nl.



We hope to see you soon in the Curius 'hok' or at one of our activities!

The 16th 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)**
- **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)

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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:

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ASK TPM

This autumn, the world-wide spectre of the credit crisis is casting a shadow across many a face. We are all preparing to feel the resulting economic recession in our wallets. The Government has estimated economic growth for 2009 at an 'optimistic' 0 percent, while international forecasters are predicting a slight shrinkage in our national economy. In other words, it's bad news! People tend to look for a glimmer of light when times are hard, and some of them seem to have found this in the environment. An economic recession means a drop in the production, and therefore also a drop in the smoke pouring from industrial chimneys and in waste being dumped on land and at sea. But is this really such a positive effect?

We asked Professor Cees van Beers, professor of innovation management in the Technology, Strategy and Entrepreneurship section.

"As a naturally optimistic person, my instinct is to embrace this positive news, but as a trained economist, I am sceptical for two reasons.

First of all, this is just a temporary, short-term phenomenon. Once the economy starts to recover, which it will, the chimneys will soon start smoking again.

Secondly, when looking at the long term, we forget the influence of technology. We will only accomplish a structural improvement of our natural living environment if we can design new, less-polluting production technology such as machines that consume less energy, and develop new sources of alternative power such as wind, hydrogen, solar energy, etc.

However, cutbacks on investments in the development of less-polluting production methods will have to be made, as banks are currently only lending money at high interest rates. This causes a rise in the cost of investment, which in turn leads to the cancellation of numerous clean energy projects. The total project funding for clean energy projects in the United States has already dropped by 25 percent since September.

Alongside this, falling oil prices are pushing up the relative price of using alternative energy sources. The Texan oil magnate T. Boone Pickens invested \$ 58 million of private capital in the development and promotion of wind energy earlier this year. At the end of October, he announced that the halving of the oil price had made this a bad investment. But is this really such a bad thing? Surely there will be more money for projects like these once the recovery sets in? True, but it will be a long time before investors embark on long-term high-risk commitments in clean energy investment projects.

In other words: although the curbed economic growth caused by the credit crisis will certainly lead to a slight short-term drop in pollution, we will pay the price in the long term as the development of sustainable technological will also suffer substantial delays."