Science, Technology and Society in Europe

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Editorial

Dear readers,

Our lives are filled with interactions with digital technology. At school, work and at home, a lot of our tasks are done digitally. Whenever we log in (and even when we don't) we leave behind huge amounts of digital traces – our digital exhaust.

These digital traces are valuable for many different actors. City planners want to track our movements through the city to develop better public transportation. The police use information from social media to get an overview of a crime scene. Our online searches for flu treatments might help scientists predict where the next outbreak of the disease might be.

The recent NSA controversy has opened many eyes to the implications this might have on our privacy. Things you thought were private might not be so private after all. Can we trust the companies (and governments) that use our data to also protect our privacy?

In this issue of VolTA, the special report is dedicated to Big Data. You can read the story of how a teen pregnancy was revealed by a retail store and how telecoms companies use Big Data for development projects.

While global companies like Amazon, Facebook and Google have been using Big Data techniques for some time, it is still not certain if and how decision-makers can implement this in their decision processes. The UN Global Pulse is one example of a project that has taken the first baby steps into data-driven decision making. TA institutions can now take an active role in mapping the possibilities and consequences of Big Data and give decision makers informed advice on how to proceed in this area.

How policy makers take advantage of the possibilities and how they address the challenges of the Big Data world will be critical for us all.

Marianne Barland, on behalf of the Editorial Team

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Making Security Choices

Investing in public security systems is not just about technology according to a new European report. How can decision makers choose wisely?

The pan-European DESSI system

The controversy over full body scanners shows that failed projects and high costs can be the result of inadequate decision making when it comes to public security systems.

Several European Technology Assessment institutions have come together for the FP7-funded DESSI project that has developed a decision-making methodology and online tool to help choose the best security option in a given situation. Should drones be used in Norwegian search and rescue at sea? What about security for Danish bus drivers? Or appropriate safety measures in Austrian courthouses?

The idea behind DESSI is that decisions concerning security must be evaluated from a broader perspective than simply technology and the model uses seven key dimensions against which a security option must be assessed. These dimensions range from the legal framework and fundamental rights to the political implications and acceptability. It can be applied to a wide variety of security options.

It is carried out in three phases: the description of the security problem, the description of the alternative solutions and the assessment of these. These three phases make the decision-making process more transparent, involving diverse participants such as employees, external security experts, scientists and industry representatives. In addition, the tool makes the assessments visual throughout the process.

DESSI was developed by a consortium of partners in Denmark, Germany, Austria and Norway and was funded by the 7th Framework Programme of the EU. For the online support tool guiding users through the decision-making process, go to www.securitydecisions.org.

French Energy Debate uses World Wide Views Method

Large scale participatory democracy boosts involvement but citizens want action on sustainable energy policies

As part of France's ambitious public consultation process on sustainable energy, a Citizen Day took place on the 25th May 2013 using the World Wide Views methodology developed by the Danish Board of Technology. In 11 regions of metropolitan France and 3 overseas départements, 1,115 citizens from all walks of life discussed issues relating to the energy transition. Being involved led to a widely shared sense of solidarity: 77% want similar meetings in the future.

The French Minister of Ecology, Sustainable Development and Energy, Delphine Batho was impressed: "The energy politics were definitely challenged by the citizens, and their wishes that this debate should lead to concrete decisions."

For more information see www.transition-energetique.gouv.fr/

For more information on the World Wide Views method see Masterclass on page 19.

Coming up

Where do policies come from?

The research agenda and its 'Dynamics, Challenges, Responsibility and Practice' is the focus of this conference including the creative review of approaches and assumptions reaching the limits of their utility. Session proposals in science, technology and innovation policy studies should be submitted by November 5 to siobhan.drugan@mbs.ac.uk.

www.euspri-manchester2014.com

EU-SPRI 2014, Manchester UK, 18-20 June 2014

Edinburgh Science Festival

'Science at the heart of things' is the theme for one of Europe's largest science festivals. In 2013 there were 220 events attracting over 90,000 visitors and speakers included Professor Peter Higgs (predictor of the Higgs bosun particle) and Professor Rolf-Dieter Heuer (of CERN). The full program of events will be announced in February 2014.

www.sciencefestival.co.uk

Edinburgh Science Festival Edinburgh, Scotland, 5-20 April 2014

Science in/and/for Society

The Alexander von Humboldt lectures, an initiative of Prof. Huib Ernste, take place from September 2013-January 2014 and are run by the Department of Human Geography, Spatial Planning and Environmental Politics at Radboud University, Nijmegen. In addition to the lectures, the program includes preparatory reading groups, seminars and science café events. The overall theme is Science in/and/for Society.

www.ru.nl/humboldt

Alexander von Humboldt Lectures Nijmegen, Netherlands, September 2013-January 2014

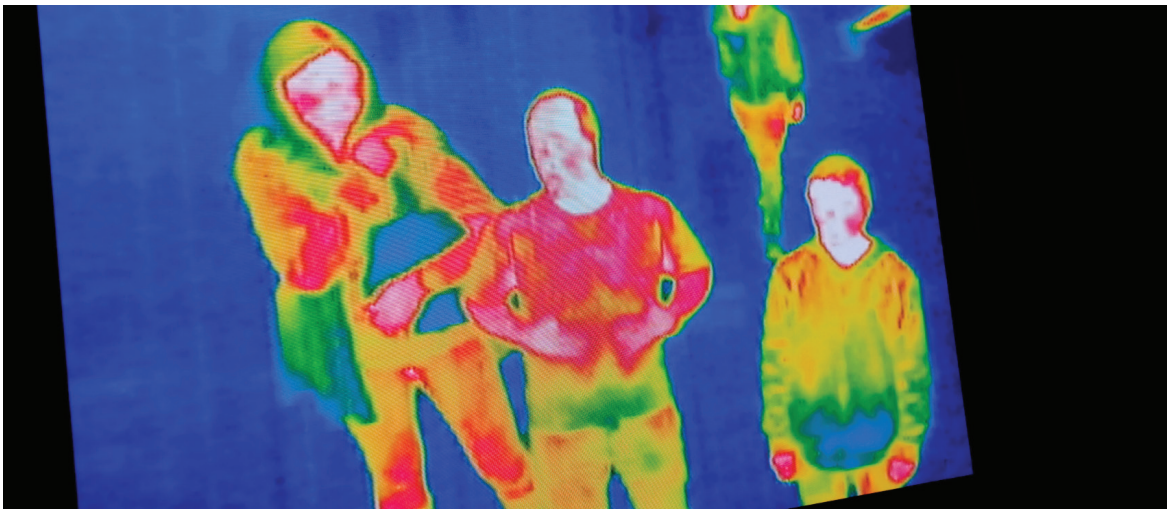

Photo: iStockphoto

States of surveillance

Security comes at the price of privacy. Or so we have been led to believe. But in focusing on this 'trade-off', we ignore the crucial and controversial link between the two: surveillance.

Informed public debate needed

If we want to be safe we can't always be anonymous particularly when we are in public spaces. But is sufficient consideration given to how this impacts on our privacy?

The FP7 Project SurPRISE (surveillance, privacy, security) coordinated by the Institute of Technology Assessment of the Austrian Academy of Sciences is a three-year collaborative project launched in 2012, which is re-examining the relationship between security and privacy. An emergent body of work is questioning the validity of the oft-cited security-privacy trade-off and examining whether, in current security policies and practices, there is sufficient consideration given to the impact of security measures on private citizens: "European politicians and decision-makers seem to assume that citizens accept surveillant security measures and avoid in depth debate about the consequences for their privacy."

A key aim of the project is to identify factors that contribute to the shaping of security technologies as effective, non-privacy-infringing and socially legitimate security devices.

Research in the first phase of the project has been structured in three parts: technological developments, the evolution of privacy legislation within the EU, and alternative solutions for security problems. The resulting reports centre on new surveillance-oriented security technologies, such as Smart CCTV, drones, Deep Packet Inspection (DPI) and body scanners, which are being currently being used to reinforce security within the EU. The reports explore the challenges and opportunities in regulation concerning privacy and security and examine the societal and legal dimensions of the security-privacy trade-off. A main objective is that citizens discuss these issues and their privacy implications. 2,000 citizens from 9 European countries will be consulted at meetings and are expected to contribute a diverse spread of opinions.

A very important element in these discussions is consideration of alternatives that do not make extensive use of surveillance technologies but have security-enhancing effects. Policy is needed to: "counter a reductionist exclusionary and surveillance-oriented strategy." Many of the suggested alternative security enhancing solutions address social inequalities and social injustice and "require a reactivation of what could be called a 'communitarian spirit'". Crime prevention needs to be tackled at its roots. Urban and environmental design, the 'design' of society rather than control and surveillance measures, are vitally important because security systems, no matter how advanced by their nature, leave room for error. They cannot offer a blanket guarantee against crime.

An informed public debate about what could be called 'acceptable' risks is what is required:

"It should take for granted the premise that liberty and freedom are risky in many respects and that both are rooted in the fundamental right to privacy, however this concept is spelled out."

More information about the SurPRISE Project together with links and news for other surveillance and security related projects and events is available at:

http://surprise-project.eu

06

Interpreting the digital exhaust of everybody, everywhere

Big Data

Text:
Marianne Barland

Photos:
Birgitte Blandhoel,
iStockphoto, Barcelona
Supercomputing Center

Locating crime spots, or the next outbreak of a contagious disease, Big Data promises benefits for society as well as business. But more means messier. Do policy-makers know how to use this scale of data-driven decision-making in an effective way for their citizens and ensure their privacy?

'The new development is not necessarily that there are so much more data. It's rather that data is available to us in a new way.'

90% of the world's data have been created in the last two years. Every minute, more than 100 million new emails are created, 72 hours of new video are uploaded to YouTube and Google processes more than 2 million searches. Nowadays, almost everyone walks around with a small computer in their pocket, uses the internet on a daily basis and shares photos and information with their friends, family and networks. The digital exhaust we leave behind every day contributes to an enormous amount of data produced, and at the same time leaves electronic traces that contain a great deal of personal information.

Until recently, traditional technology and analysis techniques have not been able to handle this quantity and type of data. But recent technological developments have enabled us to collect, store and process data in new ways. There seems to be no limitations, either to the volume of data or technology for storing and analyzing them. Big Data can map a driver's sitting position to identify a car thief, it can use Google searches to predict outbreaks of the H1N1 flu virus, it can data-mine Twitter to

The supercomputer MareNostrum, located in an old chapel built in 1920, is one of the fastest supercomputers in the world and the main resource of Barcelona Supercomputing Center

predict the price of rice or use mobile phone top-ups to describe unemployment in Asia.

The word 'data' means 'given' in Latin. It commonly refers to a description of something that can be recorded and analyzed. While there is no clear definition of the concept of 'Big Data', it usually refers to the processing of huge amounts and new types of data that have not been possible with traditional tools.

The notion of Big Data is kind of misleading, argues Robindra Prabhu, a project manager at the Norwegian Board of Technology. "The new development is not necessarily that there are so much more data. It's rather that data is available to us in a new way. The digitalization of society gives us access to both 'traditional', structured data – like the content of a database or register - and unstructured data, for example the content in a text, pictures and videos. Information designed to be read by humans is now also readable by machines. And this development makes a whole new world of data gathering and analysis available. Big Data is exciting not just because of the amount and variety of data out there, but that we can process data about so much more than before."

In Victor Mayer-Schönberger's book, *Big data. A revolution that will transform how we live, work and think*, the concept of 'datafication' is used to describe this development: that information is transformed into data so that it can be organized and analyzed by machines. Location is one form of information that has really been embraced as an important element in Big Data analysis.

Although location is not a new kind of data, its value has grown with the fact that many of us walk around with a GPS in our pockets. Tracking the movements of citizens in city planning, giving coupons and advertisements to customers nearby or finding the nearest bus-station and calculating travel time to your next destination, are only a few examples of services that are using location as one of their key elements. Combined with the fact that we are willing to share our location with a lot of different services, it has become a very important kind of data in many types of analysis.

More and messier

Victor Mayer-Schönberger describes some characteristics that can help explain Big Data and its possible use. The first is related to the amount of data accessible. Traditionally, researchers and analysts relied on a sample to do their analysis. Now, we have the technology to gather and analyze much more data – is some cases even ALL the data about a phenomenon. Having an enormous amount of data (like for example in Google or Facebook) gives us the opportunity to explore and examine details of the

Digital exhaust

The digital traces we leave behind when using digital services

dataset, something that was never an option when working with a sample, simply because the amount of data was too small.

The second characteristic is something Mayer-Schönberger calls the 'messiness' of data. As the scale of information increases, so does the number of inaccuracies. In a sample, it is important that the figures are as correct as possible. With big data, Mayer-Schönberger argues that the amount of data gives us a more valuable output, even though more errors may occur.

A tendency to move from causality to correlations is the third characteristic described by Mayer-Schönberger. New data-mining techniques can give us information about what is happening, without explaining why. Even though certain situations will demand causal explanations, the correlations are enough in many situations. Correlation shows us the relationships between data. This relationship, depending on its character, gives us the possibility to predict certain events. In Mayer-Schönberger's words: "Correlations help us capture the present and predict the future".

'Computers can calculate where and when future incidents are likely to happen. They can be surprisingly precise, allowing the police to be on site before anything actually happens'

Supermarkets are (predictably) users of Big Data analysis and prediction based on a person's shopping habits. Target, a US chain of retail stores, has collected data about their customers' shopping habits for many years.

In 2010, a man entered a Target store, furious that they had been sending his teenage daughter pregnancy and baby related advertisements in the mail. Why would Target encourage teen-pregnancy like this? The Target manager didn't know what had happened and apologized to the father. A few days later the manager decided to make a follow-up phone call, and was met by an embarrassed father. It turned out that his daughter was indeed pregnant, and the father admitted that he hadn't known the whole truth.

Recently Target have started using Big Data techniques to analyze the huge amount of data they have collected, with the aim of sending more personalized advertisements to customers. In following their shopping habits, analysts found several interesting correlations:

"Women on the baby registry were buying larger quantities of unscented lotion around the beginning of their second trimester. Another analyst noted that sometime in the first 20 weeks, pregnant women loaded up on supplements like calcium, magnesium and zinc. Many shoppers purchase soap and cotton balls, but when someone suddenly starts buying lots of scent-free soap and extra-big bags of cotton balls, in addition to hand sanitizers and washcloths, it signals they could be getting close to their delivery date."

Knowing and acting on these data, Target sends out customized advertisement to women who, according to their analysis, are pregnant. This is how they knew a teenage girl was pregnant, even before her father. This story shows how unstructured data are now used in complex analysis; it is not only how often and when we buy something that can be analyzed, but also the content of our shopping bags.

Predictive policing

Predictive policing is the use of criminological data models and historical crime data to quantify the probability of where and when future crimes will occur. This information is presented in a way that is useful for the operational and strategic activities of the police (such as a map for patrolling police officers showing likely hotspots).

To take this to the extreme, it also means that the police are no longer led by 'facts', but by probability calculations created by complex algorithms. In this respect this is a new way of thinking about police work.

Another example of use of unstructured data is more recent. During the Boston marathon bombings in April 2013, the Boston police adopted a new approach to data gathering in their investigation. Crowdsourcing is a term that most commonly describes co-founding of new products or services on websites like Kickstarter.com; everyone who likes an idea or concept can donate money to help get it into production. In Boston, the police used crowdsourcing to gather crime information and asked everyone who had pictures or video of the bombings to send them in. A kind of digital 'tip hotline'. But unlike the usual telephone line where witnesses call in and a lot of information gets lost, getting the pictures or videos directly into their system helped the police establish an overview and timeline very quickly.

In addition to tips from the public, the police gathered data from social media including tweets and the location of the tweeters. This use of unstructured data is one of the truly innovative elements of Big Data, and will probably continue to grow, both in the police and other sectors.

Picture a scene from the movie Minority Report. Tom Cruise's character works in a police unit which knows how to predict a crime before it has happened. They are present at the (future) crime scene before something happens, and arrest people for the crimes they intend to commit. This might have been science fiction in 2002 when the movie came out, but it is now a reality in many police districts all over the world.

Every day, the police gather huge amounts of data, both for operational and investigative use. Over time, these data can create a picture – both of the developments in criminal activity and of how the police do their work. In a future where the data gathering will increase, it gets even more important to use these data in decision making.

After the terror attacks in Norway in 2011, the Norwegian Board of Technology (NBT) launched a project called 'Openness and Security after the 22nd of July'. The Norwegian police and intelligence service were severely criticized in the official report investigating the terror attacks and a significant element related to the way the police used and analyzed data – or more specifically, the fact that they don't. Making better use of data they already have – and how they can harness new data from smartphones, social media and other sources – is one of the topics the Norwegian Board of Technology examined in their project.

Project manager Prabhu explains the concept behind predictive policing: "By feeding criminological models with both crime data and data from other sources, computers can calculate where and when future incidents are likely to happen. The predictions can be surprisingly precise, allowing the police to be on site before anything actually happens. Predictive policing models don´t just say crime is likely to happen on this street, because that is what has happened in the past, but because a number of factors come together at that precise moment to make that particular spot a high-risk environment. Knowing when and where the risk of crime is highest can increase the effectiveness of police work considerably. A 'when-and-where' analysis takes into account not only areas where there have previously been a number of crimes, but also when they occurred. An analysis like this can be visualized as so-called hot-spots: a map that shows police patrols where the highest risk of crime is at a given time.

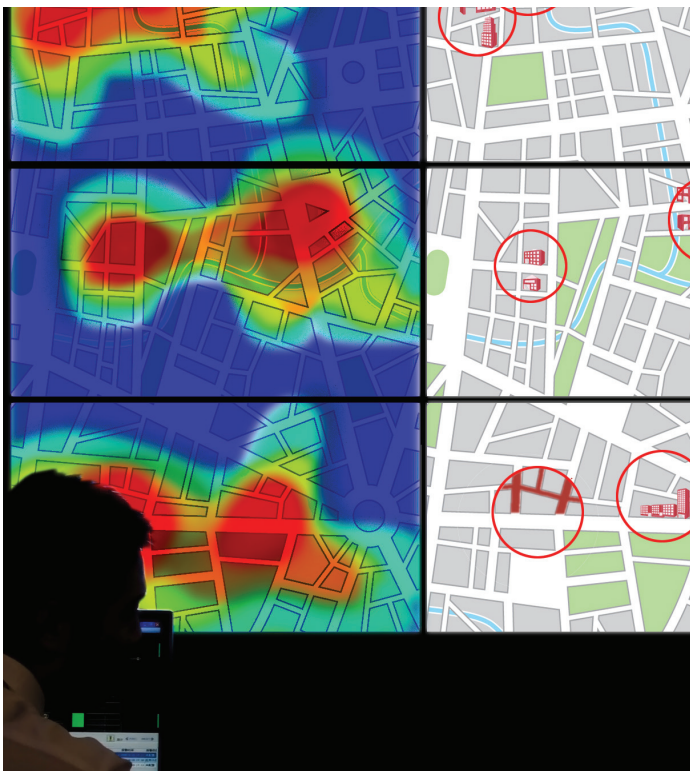

Illustration by Birgitte Blandhoel

This illustration shows hot-spots that can be used to determine where the crime risk is the highest

Criminal history

The Netherlands is one country where the police have started using Big Data techniques that analyze criminal history together with the time of the day or week, the weather, geographical data and socio-demographics. The police in Amsterdam have used this method when the country celebrates its annual event, Queen's Day. Analyzing data from previous years, they were able to make a detailed plan of where and when to position themselves during the day, to be visible to the audience and (hopefully) prevent crime from happening.

The NBT's project discusses several examples of data-mining techniques and uses of Big Data: crowdsourcing information, function-creep, data-sharing and real-time information. But while these are new and exciting tools to examine, project manager Prabhu states firmly that these analyses only show part of the picture: "Predictive analysis is not a crystal ball that tells you the future, but mathematical models that express the probability of an incident happening based on certain theories and environmental elements. If you see a correlation between a weather pattern and a certain type of crime, it might be silly not to act on it." But it is

important to remember that correlation does not equal causation and that you need insight into the data. You need knowledge about the models behind the analysis and the kind and quality of the data being used. This kind of analysis and use of data is still somewhat new, states Prabhu, and it will take time for its practice to mature.

Privacy in the age of Big Data

When discussing Big Data it is impossible not to touch upon how this challenges our privacy.

In 1995 the EU defined personal information as: "Any information that could identify a person, directly or indirectly", and an important principle in privacy legislation has been that you should be able to decide who collects your personal information, and when and how they are allowed to use it by giving your consent.

Although this is a good principle, it is not able to take into account the explosion in data production that has happened the last years. As Mayer-Scönberger argues in his book, not all Big Data sets contain personal data. But now there are more types of data that are able to identify you than before, because different datasets can be linked.

Previously, your name, address and social security number were typical examples of personal data. Now, you can also be identified from your location, shopping habits, movie preferences or Facebook network. Only a small amount of information is needed to identify a person from their digital exhaust. By capturing and combining more data, re-identification is easy: even if you are 'anonymous' in one dataset, you can be re-identified by linking this to another set of data.

The movie rental and streaming company Netflix learnt a very expensive privacy lesson in 2006. They launched a contest with a million dollar prize, for anyone who could improve (by ten percent) their engine that predicted users' film recommendations. At the same time they released a dataset of 100 million rental records to help the developers. Personal information like name, user name and IP-address had been removed, but researchers at the University of Texas at Austin compared the data from Netflix with reviews from IMDB (the Internet Movie Database) and found matches between the anonymized data from Netflix and data from IMDB, with full names. The research showed that by looking at the more obscure movies they could identify the user 84 percent of the time.

As well as refining the consumer data of first-world moviegoers, Big Data is enabling greater understanding of the needs and habits of those who have been poorly understood up to now. The exploding amount of data being produced is also coming to a great extent from developing countries. In 2010 there were over five billion mobile phones in the world of which over 80 % were in developing countries. In certain areas of the world where the telecommunication infrastructure is weak, mobile technology has become the preferred method for money transfers, job hunting, selling and buying items, looking up medical information – virtually everything.

'Correlations help us capture the present and predict the future'

Global pulse

All this activity produces a lot of data, and in 2009, the Executive Office of the United Nations Secretary-General launched Global Pulse, a Big Data initiative for tracking and monitoring the impacts of global and local socio-economic crises. Big Data can be used to help decision-makers gain real-time understanding of how different incidents impact populations in developing countries. One project is looking at online text content (blogs, news posts, social media etc) in Indonesia to search for indications or predictions of trends in the official Consumer Price Index. Another project investigates how social media and online user-generated content can be used to enrich the understanding of the changing job conditions in the US and Ireland, by analyzing the mood and topics of online conversations.

Global Pulse (www.unglobalpulse.org) has identified three main opportunities of Big Data for global development:

- Early warning: early detection of anomalies can enable faster responses to populations in times of crises
- Real-time awareness: Fine-grained representation of reality through Big Data can inform the design and targeting of programs and policies
- Real-time feedback: Adjustments can be made possible by real-time monitoring of the impact of policies and programs.

Kenth Engø-Monsen works as a senior data scientist in the telecommunication company Telenor. During the last year, Telenor has partnered up with Global Pulse and will collaborate by providing analysis and data for their projects. Engø-Monsen sees great value in projects like these: Telenor collects large numbers of data, he says, but being a commercial enterprise, Telenor uses this data for advertisements and product development. But seeing that the same kind of data can be used in humanitarian projects is inspirational, he smiles.

Telenor is cooperating in several projects with Global Pulse and Harvard University. One of the projects is about understanding how human movements affect the outbreak and spread of diseases in a country in Asia. "By mapping how humans move by looking at the activity on their mobile phones we can identify some patterns", he explains. "Together with health data from the local health care system and epidemiological models we see how the disease spreads and creates outbreaks in different places in the country. The project's aim is to identify the areas in which the government should put in the most measures when trying to prevent the disease from spreading."

A similar project that was done in Kenya some years ago presented their results in Science magazine in 2012. By studying data on mobility and health, the researchers discovered that the area around Lake Victoria was one of the most active 'hubs' in the transmission of malaria. Based on this information, the researchers recommended that government measures would be most effective in this area. Eliminating malaria here would lead to fewer outbreaks in other areas.

Analyses like these have quite a lot in common with how the police view the possibilities of Big Data; the combination of datasets over time can create possibilities for prediction. Hot-spot maps for disease transmission work in the same way as crime hot-spot maps - decision-makers are able to extrapolate information on where their measures might be most effective.

"Data from mobile phones and our tools to collect and analyze them are so fast that we can actually update the information daily, even hourly," says Engø-Monsen. "This is something quite revolutionary, and can help decision-makers be much more effective than today. Previously one had to wait several months before information had been collected, processed and analyzed. Now, one can get information that is almost real-time. In cases like the outbreaks of dangerous diseases or other humanitarian crisis this could be of great help."

Global Pulse has a set of privacy and data protection principles that they follow when collecting, analyzing and storing data. These are based on a number of global legal instruments dealing with privacy and data protection. Respect for individual privacy forms the cornerstone of Global Pulse's work. In addition, every data provider usually has their own privacy officer that ensures that the company follows both internal and national privacy regulations.

How do Telenor, who collect a lot of personal information about their customers ensure privacy when using this data in projects like Global Pulse? "Telenor is very aware of the sensitive nature of the information we collect,"states Kenth Engø-Monsen. "All data is anonymized carefully and any personal information like a phone number or name is removed before the datasets can be used in the project."

Location is key information in these projects, as

Differential privacy

Microsoft is one company that has started to look into differential privacy. In a white paper they explain the maths behind it.

Differential privacy is a technology that enables users to extract useful information from databases containing personal information and, at the same time, offers strong individual privacy protections. The seemingly contradictory outcome is achieved by introducing relatively small inaccuracies in the answers provided by the system. These inaccuracies are large enough that they protect privacy, but small enough that the answers provided are still useful.

The user will never get direct access to the database. Instead, a piece of software is put between the database and the researcher. When the user asks for information in the database the software adds 'noise' to the answer, so that it does not reveal any personal information. Imagine a user who wants to know how many citizens in a city suffers from a certain disease. If this number is one, it could be very easy to identify this one person. The software then adds some 'noise' and could give the researcher the answer of 1, 0 or even -1. The user knows that some kind of noise has been added, and can draw the conclusion that very few people in this city have the disease, without knowing the exact number.

Microsoft Corporation 2012: *Differential privacy for everyone*

mobility patterns are the cornerstone of the analysis. "We never use the location of individuals in the datasets", Engø-Monsen explains. "What we do is aggregate the data. This means that we look at the movements of larger groups – never the individual."

A new privacy concept?

Technological development and our digital habits have changed the context of privacy. The amount of personal information out there is so much bigger than even just a decade ago and needs to be defined and protected in new ways. Robindra Prabhu suggests a new mathematical approach called differential privacy as a possible solution. "Differential privacy is privacy by design in a new way Rather than explicitly removing sensitive information from the dataset, this approach seeks to build privacy protecting measures into the operations performed on the data. When a user performs an operation on the data, the privacy mechanism kicks in. This is done by installing a digital guard between the database and the user that 'blurs' the answers in a way that keeps the sensitive information hidden without diminishing the value of the output."

Big Data analysis offers huge potential for private companies giving them more information about their costumers and their preferences and so helping them design more profitable products and services. But can this technology be used in policy-making, and how?

This May, Neelie Kroes, a Vice-President of the European Commission, and European Commissioner for Digital agenda, stated, "Knowledge is the engine of our economy. And data is its fuel." She argues that better data will provide the public sector with services that are more efficient, transparent and personalized. In addition, data can empower citizens by giving them more information and knowledge.

One of the few governmental areas that have started to look into Big Data is the security/intelligence field. But the lack of transparency and openness in these organizations contributes to keep Big Data as something mysterious and threatening. Seeing the work done in the UN project Global Pulse gives us more hope of how these techniques can be implemented in a much broader way in society.

Kenth Engø-Monsen explains how they inform decision-makers through Global Pulse.

"When developing new technology or new methods

Read more

www.unglobalpulse.com

Global Pulse is an innovation initiative launched by the Executive Office of the United Nations Secretary-General, in response to the need for more timely information to track and monitor the impacts of global and local socio-economic crises. The Global Pulse initiative is exploring how new, digital data sources and real-time analytics technologies can help policymakers understand human well-being and emerging vulnerabilities in real-time, in order to better protect populations from shocks.

www.predpol.com

The mission of PredPol is simple: place officers at the right time and location to give them the best chance of preventing crime. The PredPol tool was developed over the course of six years by a team of PhD mathematicians and social scientists at UCLA, Santa Clara University, and UC Irvine in close collaboration with crime analysts and line level officers at the Los Angeles and Santa Cruz Police Departments.

Big Data gets personal – Technology Review's special on Big Data

Big data and personal information are converging to shape the Internet's most powerful and surprising consumer products. They'll predict your needs, store your memories, and improve your life—if you let them.

www.technologyreview.com/businessreport/big-data-gets-personal/

BIG – Big Data Public Private Forum

Building an industrial community around Big Data in Europe is the priority of this EU-funded research project, together with setting up the necessary collaboration and dissemination infrastructure to link technology suppliers, integrators and leading user organizations. The project wants to promote adoption of earlier waves of big data technology and tackle existing barriers as policy and regulation issues.

www.big-project.eu/

Books

Victor Mayer-Schönberger (2013): *Big Data – A revolution that will transform how we live, work and think. (HMH)*
Eric Siegel (2013): *Predictive analytics. The power to predict who will click, buy, lie or die. (Wiley)*
Phil Simon (2013): *Too big to ignore. The business case for big data. (Wiley)*

there is always a technology component and a market component. Because Global Pulse is a non-profit humanitarian project we get a chance to test the technology component without thinking about the market component. We can focus on developing technology and analytical models that actually work. When we have a finished, successful project, Global Pulse and the UN can take the technology and the results, show it to decision-makers to prove that this is something useful. Global Pulse helps to bridge the gap between data providers and telecommunication companies on the one side and governments and decision-makers on the other side."

For commercial purposes, it might be sufficient to use Big Data to see correlations. For governments, it is important to also look at the causality in order to react to the analysis in a proper way.

When it comes to policy-making, we need to see the people behind the data.

Open Data

The quality of data is critical for policy makers. Is it sufficient? Is it secure? And how can the use of this data benefit citizens? Volta looks at new reports on nano technology, eGovernment and the digital social innovation project bringing people and data together.

Photo: iStockphoto

Digital Social Innovation

Digital inclusion in Wales, ridesharing in Sweden, civic tech apps to encourage governments to perform better, these are just a few examples from the network of European organizations and communities currently delivering digital social innovation. Launched in September 2013, the network is part of a large research project funded by the European Commission and led by Nesta, together with project partners Esade, Future Everything, IRI, Swirrl and Waag Society. Over the next 18 months, they are gathering information on data organizations or communities that make innovative use of digital technologies such as crowdfunding, crowdsourcing, open and user generated data, to bring people together to solve social challenges. To be included in the network, an organization must focus on grass-roots or 'bottom-up' communities of users; use online/digital tools or methods in a disruptive way; make a positive social impact; work in the European Union; create a 'network effect' through collaboration online i.e. the larger number of users a service has, the better it works.

www.digitalsocial.eu

Swiss nanomaterials

Not enough is known about how nanoparticles behave in the environment and how they interact with living organisms according to a report published in 2013 by TA-SWISS. It examines the life cycle of the nanomaterials most commonly used in Switzerland and shows that despite claims that materials made with nanotechnology pollute less than traditional substances, there is scarcely any comprehensive research on their effects on health and the environment. Nevertheless, nanomaterials are already on shelves, in many cases without consumers knowing. The interdisciplinary TA-SWISS report looks at human and environmental toxicology, but also related issues such as global warming, resource conservation and practical utility. Ten policy recommendations include a call for more specific research on nanomaterials in wastewater and the development of standardized test methods for identifying nanomaterials, the labelling of consumer goods and the creation of a registry of nanoproducts.

Nanomaterialen: Auswirkungen auf Umwelt und Gesundheit. Study by the Centre for Technology Assessment, Martin Möller, Andreas Hermann, Rita Gross, Mark-Oliver Diesner, Peter Küppers, Wolfgang Luther, Norbert Malanowski, David Haus, Axel Zweck.

www.ta-swiss.ch/en/projects/nanotechnologies/nano-and-environment/

eGovernment security

With governments increasingly relying on computer systems to provide their services, a report titled Security of eGovernment Systems published by STOA (the unit for the Assessment of Scientific and Technological Policy Options for the European Parliament) in July 2013 is both timely and necessary. In this report, researchers of The Danish Board of Technology, Rathenau Institute (The Netherlands) and the Institute for Technology Assessment and Systems Analysis (Germany) assess policy options for decision makers. Three case studies (procurement, passports and health care) are analysed together with policy options. In health care, for example, an increasing amount of private information is in circulation and with a political desire for interoperability across Europe it is imperative that security policies are in place. Recommendations include the development and use of security checklists, minimizing data through anonymization, using gateways to achieve interoperability, and evaluating the trade-offs between privacy, security, usability and costs.

www.europarl.europa.eu/stoa/cms/cache/offonce/home/publications/studies;jsessionid=B293D54866B9A4175B9C6FE1DD3B5B16?reference=IPOL-JOIN_ET(2013)513510

Communicative TA

Technology assessment is inherently communicative. Without some link to the outside world, reports and studies would disappear unnoticed in archives. But at what point in a project does the communication need to start? What is needed to stimulate the debate?

Text:
Hanneke Teunissen
Photo: Loes Schleedoorn

'Unexpected twists are stimulating. Try inviting a policeman to talk at a debate on human enhancement like we did.'

Let's start with a bit of theory. There are three so-called schools of TA: Classical TA, Participatory TA and Argumentative TA. Communicative TA belongs to the last category because it initiates a discussion that includes values and ethics, which distinguishes it from the purely technocratic arguments of Classical TA and the one-way stream of information towards parliament of Participatory TA. Institutes that do more than just inform the public about published reports such as organizing exhibitions and public debates, are doing Communicative TA.

It is not, perhaps, a term that is universally used but this does not mean that many institutes aren't engaging in activities that fall into the category of Communicative TA. Encouraging a response is what matters. It's a method that seeks to open up the public forum, to stimulate debate and opinions, and that explicitly steers discussion towards an open-ended, rather than closed, result. A recent debate about human enhancement held by the Rathenau Institute, for example, did not intend to come to hard and fast conclusions, but rather enable participants to give voice to their views and think about the subject. A diverse, even playful agenda can encourage debate. Christine D'Anna Huber of the Communication Department at TA-SWISS has been working on ambitious plans for the coming months: an exhibition on nanomaterials, public debates on robotics in healthcare and a cartoon contest for art schools.

Frans Brom, head of the TA-department at the Rathenau Institute in the Netherlands, thoroughly approves of this approach: "Unexpected twists are stimulating. Try inviting a policeman to talk at a debate on human enhancement like we did." The Norwegian Board of Technology ran an exhibition on the future of ageing and welfare technology, which obviously struck a chord. "We did this in cooperation with the Norwegian museum of science and technology, " explains Marianne Barland, communications advisor at NBT. "The exhibition was so popular that it later travelled all over Norway to be displayed at different events."In 2011 the Rathenau Institute worked on a project that included discussion of the market for human tissue. A documentary, with a title loosely translated as 'Baby for sale', was broadcast on national television and attracted a lot of media attention.

Institutes with a healthy budget for communications are particularly well equipped to apply Communicative TA successfully. But where this is lacking, strong links and a good network and collaboration with other institutions help to expand resources and maximize impact, according to D'Anna Huber. Brom thinks that Europe would benefit from more public debate on the societal impact of new technology and could therefore use more Communicative TA but current obstacles also include the diversity of languages, the absence of unified politics and a lack of appropriate media. His hope is therefore directed at creative visual forms of communication like videos, cartoons and animations: "Images go beyond national and language borders. They can help build a European civil society around technological developments that call for debate and public dialogue."

In 2010 the Rathenau Instituut was present with a robot at an art festival to stimulate the debate on new technology

Marietje Schaake on digital freedom: Nowhere left to hide?

'It's people at the forefront of the struggle for freedom who bring about change, and that struggle is increasingly being played out online.'

Text:
Gaston Dorren
Photos courtesy of
Bram Belloni

In January 2011, Egyptian protesters found themselves deprived of digital communication as western companies switched off systems in compliance with the orders of the Mubarak government. Chinese bloggers, on the other hand, managed to outwit massive state censorship and found Google on their side, at least, that is, after a company policy change in 2010. In Syria, the Assad regime is capable of bombing civilian targets but unable to clamp down entirely on the opposition forces' livestreaming the atrocities. The National Security Agency of the US government, which routinely analyses the online activities of all of us, would probably have made a better job of that.

There can be no doubt that a new frontline has opened between governments that don't trust their citizens and citizens who don't trust their governments. The battle is an old one, of course, but the crucial part played in it by digital technology is quite recent. "In many countries, it's people at the forefront of the struggle for freedom who bring about change, and that struggle is increasingly being played out online", says Liberal MEP Marietje Schaake, author of the Digital Freedom Strategy in EU Foreign Policy, a report adopted by the European Parliament last year.

A lot has been made of how the internet and mobile telephones empower people, and examples are easy to find. But as Schaake's report points out, governments and terrorists are equally keen to use these technologies. With all computers connected to one searchable network and all telephone data interceptable, there's nowhere left to hide for dissidents. It's true that not all repressive regimes are currently as tech-savvy and well equipped as China and Iran, but it will not be long before others catch up.

'Technology has developed so fast that most politicians, both in Europe and elsewhere, just haven't kept up'

Schaake's outlook, however, is pragmatic: "I don't think repressive governments can create watertight systems to control their citizens. It's more of a cat-and-mouse game. People keep finding ingenious ways to get digital information out of their country and to access information. Actually, several technological innovations have started with individuals under pressure, e.g. in Tibet, where people learned how to circumvent cyber attacks from China. In China, people use metaphors and puns to get their message across on social media. Even though the censorship apparatus employs at least 30,000 people and is continuously updating the list of politically sensitive terms, they can't stop online discussions of government blunders and other political issues. So I think that the jury is still out, and that's why this is the moment to develop smart policies in defence of digital freedom. After all, the EU claims to be not a mere economic community, but one of values too, and its support for global freedom of expression reflects that. Unfortunately, this support is fragmented across several policy areas and, what's worse, it has a blind spot for digital media. Technology has developed so fast that most politicians, both in Europe and elsewhere, just haven't kept up. I can only hope the American Congress would not have given the NSA such a wide mandate if they'd understood the actual implications."

Leading by example

So what should the EU do to catch up with the times in its defence of freedom of expression? If governments and citizens are indeed playing a cat-and-mouse game, how can it empower the mice rather than the cats? "In the report, I've set out to make digital freedoms a common theme in a whole range of foreign and security policies", Schaake says. "Trade policy is one. There should be a framework for restricting the export of what I term 'digital weapons'. Some technologies have quite obviously been developed and are even being marketed for purposes that are blatant violations of human rights. Take mass surveillance systems, for example. I don't think there can ever be any justification for those, in any country. Mass surveillance is always a disproportionate measure to take. So you definitely don't want to export such technologies to countries like Syria – but that's exactly what some European companies have been doing. Some other technologies are okay for countries with a firm rule of law. For instance, it can be legitimate for the police to practice lawful interception – although even within the EU, excesses occur. But you don't want to export that sort of technology to countries where the law carries little weight, so that people's fundamental rights go unprotected."

The EU hasn't got a monopoly on digital monitoring, tracking and tracing, surveillance and censoring technologies. So why bother to restrict exports if nasty regimes can go shopping elsewhere? "Of course, it would be utopian to think we can stop digital weapon systems being developed and traded altogether. But in politics, you have to practice what you preach, even when it costs money. I'm a strong believer in leading by example. It's the best way to convince other countries to do likewise and the next step may be to suggest an international convention. You always have to start somewhere: the ban on cluster munitions wouldn't have happened if some countries hadn't taken a first step, regardless of economic interests. In many cases, the right thing to do is also economically smart. Apart from hurting human rights, China's censorship and surveillance also make it harder for western companies to operate in line with their own corporate policies.."

Marietje Schaake has been a Member of the European Parliament for the Dutch liberal party D66 (Alliance of Liberals and Democrats for Europe) since the elections of 2009. She studied Sociology, American Studies and New Media in Amsterdam. Her main areas of interest include internet freedom and other human rights, as well as international trade. In 2011, the *Wall Street Journal* called her 'Europe's most wired politician'.

www.marietjeschaake.com, Twitter @marietjeschaake

What else can Europe do? "We're the world's largest development aid donor. We can use this position to fight corruption and to further transparency. Technology can empower people, and that's what we should look for. When we insist that governments publish their budgets online, it becomes easier for journalists and activists to scrutinise government spending and more difficult for officials to embezzle large sums of money. Technology can also help prevent vote rigging. When I was an election observer in Nigeria, I was impressed by Project Swift Count whereby a huge number of local citizens witnessed the counting process and sent text messages with their polling stations' results to a central office. The aggregated figures were then compared to the official results. The EU could facilitate systems like this elsewhere.

The EU Neighbourhood Policy is another important area. We're the main trading partner of most neighbouring countries, which potentially gives us strong leverage. A number of these countries are also candidate member states and will therefore have to meet the Copenhagen criteria [the rules that determine whether a country is eligible to join the EU, for example, democratic stability]. I'm happy to say that in response to a question I asked the Commission, digital freedoms have been included in these criteria.

Security policy too could be a tool to guarantee digital freedom. But what actually happens, both in Europe and America, is that our freedom gets curtailed under the guise of cyber security or the war on terror. Politicians tend to perceive security and liberty as a trade-off, a zero-sum game. It's not! If you want to defend your freedoms against an outside threat, eroding them from within is an extremely contradictory and counterproductive thing to do."

Beyond the engineering approach

For those who still feel that the internet is more suited for repression than democratisation, Schaake has a few more suggestions designed to shift the balance. "In Egypt, western companies would have been in a stronger position in resisting the regime's instructions to switch off the internet if the EU had had a clear policy in place. We should state unambiguously that European companies are not allowed to do such a thing and give them political support when it comes to the crunch. This incident was a first, and we should draw lessons from it. We should not underestimate the influence companies have on the internet infrastructure."

Companies should also be encouraged to think harder about the effects their innovations may have on society. "An engineering approach alone is too narrow; technology developers should be aware of their social responsibility. It's shocking to see what some very clever technologies end up doing in countries like Bahrain, Azerbaijan and all the others we've talked about. Do you remember how Apple wanted to introduce a system that would enable cinemas to automatically switch off the camera function in telephones? I can see why Hollywood would want that, but just imagine how many governments would be delighted to have such systems in places where the police crack down on protesters, for instance. We can't stop that technology

'Some technologies have quite obviously been developed and are even being marketed for purposes that are blatant violations of human rights'

developing, but we can decide that certain applications should not be used. Digital face recognition is a good example: after an outcry against it, Facebook decided to turn it off. It would have been better if they'd thought before they acted."

The paternalistic temptation

Obviously, there's no excuse for repression, but could there conceivably be a place for benign paternalism when it comes to internet access? After all, the web opens the floodgates to an incredible amount of mostly western information and values, ranging from some of the noblest to much of the lowest. In a society unaccustomed to such exposure, this may well be a bit overwhelming and even destabilising– much like the printing press in 15th century Europe. But Schaake won't have it: "It's the sort of discourse governments like to use when they want to limit freedom. Russia, for instance, justifies deep package inspection under the guise of defending intellectual property rights and protecting minors against pornography. My position is: the freer the internet, the better."

Citizen solutions

Societal problems cannot be solved by decision-makers alone. This is the thinking behind the citizen consultancy program World Wide Views (WWViews). The recent project on biodiversity held in India involved thousands of citizens across 25 countries and was a resounding triumph.

Text:
Jorgen Madsen

'Consulting citizens from all over the world gives a stronger foundation for making political decisions'

Before the UN COP11 Convention on Biodiversity held in Hyderabad, India in October 2012, 3,000 people from countries as diverse as Canada, Bolivia, Uganda and the Philippines participated in day-long meetings which started at 9 a.m. in Japan and ended 25 hours later in Arizona, U.S.A. They deliberated and voted on a wide range of biodiversity-related topics, such as the protection of coral reefs, meat consumption, and overfishing. The participants showed a great interest in biodiversity, and indicated that involving them in the decision-making process had given them a feeling of ownership in the decisions.

Results from the deliberations were bundled in a report that was handed to the Executive Secretary of the UN Secretariat for Biodiversity. The outcome of voting showed that there was strong, worldwide, public support for taking further political action to stop the decline in biodiversity. There were some differences in emphasis from country to country, but not between continents.

The WWViews1 Project citizen consultation contributed in an important way to the UN COP11 Convention on Biodiversity. Recorded in the final decision of the meeting is a call on all countries to support projects such as WWViews on Biodiversity. This is a resounding triumph for the WWViews method.

The thinking behind WWViews is that societal problems cannot be tackled by decision-makers alone. Because of their global scale, they are complex and often require more than policy alone to solve them. Solutions to worldwide problems such as the decline in biodiversity and the need to reduce fossil fuel use must come from the broad base as well as the narrow top, and methods such as deliberative democracy enable decision-makers, experts, stakeholders and citizens to work together.

In times of crisis, politicians can seem inattentive to citizens' views. Yet making decisions in the absence of citizen support, however fast or 'efficient' it seems, leads to long-term problems if people feel their views are not recognized in the outcome. Time 'saved' is thus often time wasted because at some point there will be a demand for a decision to be revised. For long-term success, citizens can be made to accept decisions through being involved, even if those decisions are difficult or unpleasant ones.

Professor Birgit Jaeger at the Department of Society and Globalisation at the RUC-Roskilde University in Denmark has monitored several events where policy is developed through citizen deliberation processes via the WWViews method. She is very positive about the World Wide Views Alliance in itself, which falls under the responsibility of the Danish Board of Technology and is connected with UN COP meetings. She suggests that it is perhaps an even more important phenomenon than the results of the meetings. With the UN giving World Wide Views its seal of approval, it has created a channel for citizens' voices to merge into the decision-making process and created a platform ready to respond on many subjects on the UN agenda. The UN can directly tap into the opinion of people worldwide when it needs to.

Read More?

Partners interested in organizing citizen consultation are invited to get in touch with WWViews coordinator Bjorn Bedsted (**bb@tekno.dk**). The DBT are now fundraising, on behalf of the World Wide Views Alliance, WWViews2 on Biodiversity 2014 leading up to COP12 in Korea.
www.wwviews.org

Highlight

The storyteller

Floris Kaayk, Dutch filmmaker, visual artist and 'Creative City Ambassador' of The Hague was one of the instigators of the (fictional) Rayfish Footwear Project, where customers could design their own personalized sneakers chosen from genetically modified stingray leather.

Text:
Katalin Fodor and
Pál Hegedüs

Photos courtesy of the artists

State of mind?
Energetic. I've just had a great inspiring meeting about one of my new projects.

Biggest success?
Until this point in my career I would consider talking live on NBC news about my Human Birdwings project as a big success, but so was watching my film The Order Electrus during the opening night of the IDFA festival in Amsterdam.

How did you get where you are?
It started with my parents pushing me to go study at the art acadamy. After that I spend a lot of time setting up and realizing my own projects. I always try to tell stories which haven't been told before.

Failures?
No real failures, I would call them disappointments. Usually a project feels like a disapointment right after I finish it, it needs time to get my appreciation. Maybe because of the amount of time and effort I've put into it, and then suddenly it's finished and nothing can be changed anymore. There are always points that could do with improvement.

Dreams?
My biggest unfeasible dream is to direct a big budget, innovative, intelligent Hollywood blockbuster. A more realistic dream would be to turn my two new projects into a big success.

What will it take?
A lot of time, technical challenges, money, talented team members and frustrations. The projects I've realised so far were big adventures, so for sure I will encounter some unexpected twists before my new work is finished.

Biggest fear?
Becoming old-fashioned and outdated.

What inspires you?
Technology, science, the internet, riding my bike, taking a shower, walking in dawn or in darkness, catching a wave with my surfboard.

Could you share your plans for the future?
I'm working on two very exciting fictional online stories, one about my fantasies on the current developments in bio-technology and bio-hacker communities, the other about wi-fi transcendence.

What would you change?
I would like to spend my time more efficiently on creative processes. I get distracted very easily when I'm working on the preparations of a project.

For more projects and information: **www.floriskaayk.com**; for more information about the Rayfish Footwear Project **www.rayfish.com** or **www.nextnature.net**

Wanted: better times

Technology Assessment (TA) provides unbiased independent advice to politicians, policymakers and the public. An essential service, surely, when citizens feel distanced from the decision making process. But can it be successfully spread throughout Europe? And, if so, how?

Text:
Pascal Messer

Photos:
iStockphoto
and US Public Domain

Those are the underlying questions of *Expanding the TA-landscape Country studies*, and the *Cross-European Comparative Analysis of barriers and opportunities for establishing Technology Assessment as a means of policy advice*, two recent PACITA publications by Leonhard Hennen and Linda Nierling from the Karlsruhe Institute of Technology (KIT/Itas).

Hennen and Nierling had no small job in deducing common drivers and barriers for TA, out of seven country case studies. The countries explored (Ireland, Hungary, Belgium (Wallonia), Bulgaria, Czech Republic, Portugal), all have different political, economic and cultural systems and traditions. With no shortage of sections headed 'Lack of Capacities and Transparency' or 'Discontinuity and Deficient Management of Reform Strategies', or 'Strong Experts – Weak Citizens', well, it just makes one long for those Technicolor 1970s and 80s; the years when current (western) Technology Assessment institutes sprang into bloom.

According to Hennen and Nierling those were the days of 'highly developed and differentiated national R&D systems' with 'strong and visible government commitments' in 'relatively advanced welfare economies'. There was a strong and articulated public interest in science and technology, with vivid public debates. There was a general 'anti-industrialization' or 'anti-consumerism' mood and there were 'citizen initiatives on every political level demanding a say in planning decisions and R&D politics, as these were regarded to interfere with citizens' rights'. In the academic world, problem oriented research and self-reflexive science gained importance, sparked off by environmental politics, leading to social sciences trends like risk assessment, systems analysis, and ethics. There were policymakers who 'strongly and explicitly' demanded support of the best available scientific knowledge, and who wanted to take on public concerns. In short, the political, economic, societal and cultural situation was ideal for the concept of TA to prosper.

Fast forward to 2013. These days the need for unbiased policy advice on science and technology might be even greater, but things are rather different. Take for instance, the global financial crisis. The countries researched (except for Ireland and Belgium (Wallonia)) are all lagging behind the EU 27 in terms of their GDP. Most are in the midst of a disappointingly slow economic modernization, or an industrial restructuring which leads to political and social tensions. Most countries are struggling with setting up an innovation policy that improves competitiveness. But there is little or no coordination and no vision, and a lack of democratic or transparent decision making structures. Especially in Eastern and Central European countries, it seems difficult to abandon the heritage of a hierarchical and centralized, bureaucratic R&D system. Governments set R&D strategies, structures and funding (with separate ministries for education, economy and science), with parliaments having little or no say in science and technology issues. Add to this a public unawareness of science and technology, little media reporting, no (tradition of) public debates, little or no experience with TA activities and the soil for successfully embedding (parliamentary) TA looks barren indeed.

But authors Leo Hennen and Linda Nierling seem undaunted by this. Throughout both their

In the 1970s and '80s in the academic world, problem oriented research and self-reflexive science gained importance, sparked off by environmental politics. Policymakers 'strongly and explicitly' demanded support of the best available scientific knowledge.

studies 'windows of opportunity' for TA keep popping up, reminding the reader of legendary Dutch soccer player Johan Cruyff, who once said, "Every disadvantage has its advantage." For TA to be successful, the authors seem to suggest, it should adapt itself to the particular circumstances. So, for instance, when countries are dealing with uncoordinated R&D activities, TA is often explicitly expected to contribute to the strategic planning of the R&D landscape and to the evaluation of R&D capacities. TA in these cases, could identify 'socially sound and robust innovation pathways' and, in the context of globalization and crisis, 'contribute to lower costs of trial and error learning.'

In countries where parliaments have little or no role in S&T policymaking and where the relevant actors (science academies, government, the parliament, industry, the general public) are not communicating, 'TA could be an independent and unbiased player to induce communication on 'democratic' structures in S&T policy making.'

When there is 'untransparent decision making, a lack of democratic structures, a lack of competences or a lack of strategic long-term thinking', TA could 'underpin decisions with the best available knowledge in an unbiased manner.'

'TA underpins policy decisions with the best available knowledge in an unbiased manner'

The public debate function that many present TA institutes have seems the most difficult to pin down: 'Involving the public is seen as a challenge. Motives of democratizing S&T policy making are often merged with paternalistic motives of 'educating the public' (media, lay people). It has to be clarified to what extent TA's mission of 'stimulating public debate' can adopt that purpose without becoming 'persuasive'.'

In the comparative analysis, Hennen and Nierling outline three different paths for the further development of new TA infrastructures, based on the following classifications:

Supporters of the parliament

"In Wallonia, Ireland, and to some extent Portugal, members of parliament or parliamentary committees expressed their interest in TA. Thus, in these countries, the parliament was selected as the main addressee for TA activities. In Wallonia, there is a parliamentary decree for TA since 2008. In Ireland and Portugal the parliaments have a rather weak political role. In Ireland, TA is regarded as a possibility to strengthen the role of parliament. In Portugal the advantages of a TA unit at the parliament are seen as a possibility to support the 'political, social, and economic' development of the country. In all three countries, the country studies suggest to use existing institutions for future TA activities. In this way, national academic expertise in S&T can be used. Furthermore, there was a special interest for participatory aspects in a future TA unit."

The innovative explorers

"The national recommendations for Bulgaria and Lithuania present a possible new TA model: the network model. In both countries, during the PACITA activities, TA was identified as 'an unrecognized need' by relevant decision makers. The main function of a TA network would be to raise awareness for S&T topics, both within society and with relevant decision makers. Both countries would consider a pilot project helpful, in order to improve the understanding of - and possible 'products' of TA, and to help 'prove' it's national relevance. The two NGOs from Bulgaria and Lithuania participating in PACITA are both well connected to the national S&T landscape. In their networks there is relevant expertise and they could function, also, to address decision makers on S&T issues. Both country studies identified possible windows of opportunity for TA in the current system with regard to a new national innovation strategy (Bulgaria) or with regard to funding options from the European structural fund (Lithuania). Problematic, however, is the lack of academic traditions in the field of interdisciplinary, problem oriented research and a lack of trained personnel in both countries."

The institutional traditionalists

"The Czech Republic and Hungary make up a third group. Both countries have in common that the academies of sciences are decisive players in the field of S&T policy. The national academies in both countries have been in contact with TA, respectively, with TA-like activities (especially foresight and STS). Both countries, though, are pessimistic about the establishment of a TA unit in the future. Barriers to be dealt with are lacking options for national funding of TA in the current situation, a lack of trained personnel, but also a general lack of interest of the decision making sector in S&T as well as a lack of interest of the public. The best chances to build up a TA institution, is for TA to be integrated into existing governmental institutions which are responsible for the monitoring and evaluation of S&T. Here TA could support the development of national agendas and strategies for research and technology development. In Hungary, the Academy of Sciences (with its extensive membership) appears to be the only public institution that has the infrastructure and the human resources to investigate policy alternatives related to scientific issues. In the Czech republic and in Hungary, PACITA could, to some extent, contribute to raising awareness of TA as a tool for improving the knowledge base of policymaking and for modernizing structures of democratic decision making."

The authors conclude that TA 'has to be responsive

A massive protest in Bulgaria, earlier this year. Many Bulgarians are unhappy with energy, banking and media policies. In the PACITA project, Technology Assessment - as a provider of unbiased knowledge on S&T issues - was identified as an 'unrecognized need' by Bulgarian decision makers.

to the given policy context and to the expectations and demands expressed in the countries explored'. Whereas the PACITA project focuses on TA by national ('macro') authorities and policy making bodies, TA could also be practiced on the EU level (within for instance the European Commission's 'Responsible research and innovation initiative'), within ('meso') regional or local bodies, or even ('micro' level) within industrial companies or in individual research institutions.

Empty signifier

Leonhard Hennen and Linda Nierling sternly note, though, that 'being responsive to the given policy context', should not imply to give up the 'normative core of TA as a concept'. As argued by TA Nestor Arie Rip last year at a PACITA meeting in Karlsruhe, 'TA might be in danger of becoming an empty signifier, if it lends itself to any demand for 'rational' decision making and planning by policymaking bodies or authorities.' As the authors conclude:

"TA, as a concept, implies the role of a critical observer of R&D policymaking activities that necessarily asks for some institutional independence to provide space for reflection beyond short-sighted political agendas and an openness for a broad spectrum of perspectives being applied in assessment processes…"

Read More?

A Cross-European comparative analysis of barriers and opportunities for establishing Technology Assessment as a means of policy advice

http://digbib.ubka.uni-karlsruhe.de/volltexte/1000036423

Expanding the TA-landscape Country Studies

www.pacitaproject.eu/wp-content/.../TA-Practices-in-Europe-final.pdf

Data surveillance
Who's watching EU?

European confidence in data privacy protection has suffered a blow after revelations that the US National Security Administration (NSA) has been intercepting European digital communications. What do members of parliament think?

Text:
Katalin Fodor and
Pál Hegedüs

Photo:
iStockphoto

Data privacy sacrosanct

"Data protection is enshrined in the Charter of Fundamental Rights of the EU. The whole EU law is inspired by this principle. We do not have the right to judge the laws of other states, be they in agreement with ours or not. What we care about is protecting our citizens and their privacy. If there is a clash between these two principles, a reasonable solution must be found. This does not mean that we can accept any foreign meddling into our affairs, unless it is justified by higher-level interests."

Lara Comi (Italy) Group of the European People's Party (Christian Democrats)
www.laracomi.it

EU must react

"The United States have a different view point on data protection from the EU. Due to the recent events we are now witnessing a change in the discussion in the US. Every citizen needs to be able to decide how his or her personal data can be used. Data protection standards within the EU are very high. The use of European personal data by US companies is a difficult issue when the data is being stored on US servers. EU Member States will have to react towards the US."

Manfred Weber (Germany) Group of the European People's Party (Christian Democrats)
www.manfred-weber.de

Raise the level of protection

"The latest revelations about the US are a 'wake-up call' for the European citizen and all those dealing with data protection in the EU. We are working on a reform of data protection rules in the EU. We must insist on maintaining the high level of data protection achieved in Europe and strive to raise this level, both in the private and in the public sector. It is about the daily life of the European citizen, it is about effectively protecting the citizen's fundamental rights."

Dimitrios Droutsas (Greece) Group of the Progressive Alliance of Socialists and Democrats
www.europarl.europa.eu/meps/en/107977/DIMITRIOS_DROUTSAS_home.html

Big Data. Big business.

[Viviane Reding, Vice-President of the European Commission and EU Justice Commissioner, addressed the issue at the DLD conference held in Munich 15th July 2012]

"I call on all Member States to follow Chancellor Merkel's leadership so that the EU data protection reform can be finalised before the elections of the European Parliament in May 2014. Essentially this is about trust. Trust has been lost in all these spying scandals. Our central task now is to restore it. Without trust the digital economy cannot grow. Big data is potentially big business. Potentially. If we can make it safe…"

Viviane Reding Vice-President of the European Commission, EU Justice Commissioner
http://europa.eu/rapid/press-release_SPEECH-13-637_en.htm

Read More?

The US surveillance programmes and their impact on EU citizens' fundamental rights

www.europarl.europa.eu/committees/en/libe/home.html