

# 2014 Annual Report

Research institutes and public safety

## Thinking safe?

Snowden disclosures

## Living together in a dungeon?

# CONTACT



In these turbulent times, there is a need for contact and interaction. As Chair of the Rathenau Instituut, I work to bring together the scientific community, the political community and wider society. The Institute seeks to do that by providing politicians and policymakers with up-to-date scientific insight and data. And with research concerning technological developments that impact on society. For example, following Edward Snowden's disclosures, the Rathenau Instituut worked with the Upper House of the Dutch parliament to organise an expert meeting in September 2014 on privacy and the security services. That meeting resulted in a document entitled *Cyberintelligence en publiek belang (Cyber Intelligence and Public Interest)*.

However, I believe it is perhaps even more important to help politicians, scientists and the general public to understand each other better. New forms of democracy are needed, and politicians would do well to make more use of 'the wisdom of the crowds'. Society is changing rapidly, yet our political system operates just as it did two hundred years ago. The country is run by an educated elite, while the people's involvement is limited to registering preferences on a ballot paper once every four years.

We need to listen to other voices. We need the knowledge and insight of ordinary people who are faced by the challenges of everyday life and are looking for practical solutions. It is not only politicians who can benefit from the wisdom of the crowds. The Rathenau Instituut also uses public participation mechanisms. Last year, when defining our 2015-2016 Work Programme, we introduced a popular on-line suggestion box and organised public focus groups in Amsterdam and Amersfoort.

The Late Summer Gathering 2014 – with guest speaker Jamil Salmi – was devoted to the public role of higher education. Universities tend to focus on producing excellent students and scientists. But wouldn't it be better to focus on *public excellence*? For me, the ideal university is a place where students learn to be bold and vocal. Where they seek not only to launch their own careers, but also to develop into critical and responsible citizens. Citizens who work with the political community to enrich, revalue and advance our society.

Finally, I wish to report that in 2014 the Board of the Rathenau Instituut invested a great deal of time and energy into the search for a worthy successor to retiring Director Jan Staman. We look forward to working with Melanie Peters and are confident that, with her background as Director of Utrecht University's Studium Generale – a platform for lectures and debates – she will give impetus to the Institute's efforts to promote dialogue amongst the scientific community, the political community and wider society.

**Gerdi Verbeet, Chair of the Board**  
*Rathenau Instituut*

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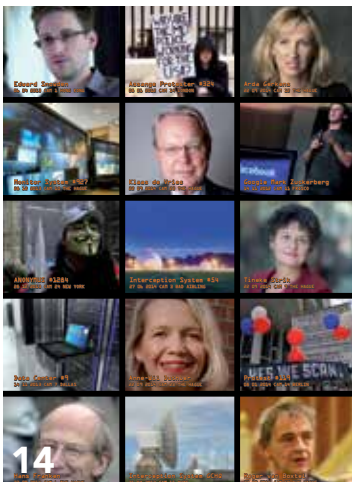
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This Annual Report contains the highlights of 2014. The full 2014 Rathenau Instituut Annual Report in Dutch can be found on our website: [www.rathenau.nl/annualreport2014](http://www.rathenau.nl/annualreport2014)

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## Honest advice?

### Health coaches and -apps

A quality labelling system should be introduced for the apps and e-coaches that give us advice via our mobile phones and other devices. At the moment, there is no guarantee that the advice is reliable. Not enough is done to protect users' privacy, and it is often unclear how an app is funded or how the app providers earn their money. Those are the key conclusions of the Rathenau Instituut's report *Eerlijk advies. De opkomst van de e-coach (Honest advice. The rise of the e-coach)*, which appeared in mid-November. The Institute called for quality labelling, greater transparency and insight into the earning models behind the electronic aids.

The report's authors recommend the development and application of criteria for assessing the

reliability, integrity and privacy aspects of e-coaches. They also call on the supervisory authorities to examine providers' earning models.

Presented at the international technology festival Border Sessions in The Hague, the 'Honest Advice' package received considerable media attention. There were articles in newspapers and journals including *Quest*, *Elsevier* *Just*, *Psychologie Magazine* and *De Correspondent*. Researcher Jelte Timmer spoke on the current affairs magazine programmes *Editie NL* (RTL4) and *Altijd Wat* (KRO-NCRV). Meanwhile Head of Technology Assessment Frans Brom appeared on the radio show *Spijkers met Koppen* (Vara).

## Battle for intimacy



With the appearance of Roxxy the sex robot, Paro the therapeutic robot seal and countless coaching apps for mobile phones, it seems that a battle for our intimacy has started. Technology is all around us and rapidly nestling between us, bringing the future of inter-human relationships into question. In its report *Intimate technology: The battle for our body and behaviour*, the Rathenau Instituut describes these developments as an intimate technology revolution.

According to the authors, the intimate technology revolution brings opportunities not only for innovation, but also for increasing the control we are able to exercise over our lives. At the same time, the potential exists for corporations, governments and our fellow citizens to use intimate technology to

influence or even coerce us.

The Rathenau Instituut therefore calls for a State Commission to investigate the civil rights implications of intimate technology. The Institute also wants the government to promote media awareness and technological citizenship.

The report and associated Research Brief attracted a lot of attention from the media and the public. There was coverage from the TV programme *Het Filosofisch Kwintet*; Peter Ester, the Christian Union member of the Upper House of the Dutch parliament, introduced a motion regarding the ethical aspects of technology and innovation policy; Utrecht University's Studium Generale put on a series of lectures entitled *Niet te intiem* (*Not too intimate*) and the Telders Foundation produced a special devoted to privacy and technology.

## Dutch UMCs doing well

Scientifically speaking, the eight Dutch university medical centres (UMCs) are performing very well. They also publish a lot of scientific articles: about a third of all Dutch science papers originate from the UMCs and they are frequently cited by other researchers. Those are amongst the findings of *Feiten & cijfers universitair medische centra* (*Facts and Figures – University Medical Centres*), published by the Rathenau Instituut in August.

Another observation from the survey was that the UMCs' combined research budget is roughly six billion euros. Nearly two thirds of that sum is provided by

health insurers, while one third is in the form of a grant for complex care, research, training and innovation from the Ministry of Health, Welfare and Sport and the Ministry of Education, Culture and Science. The UMCs attract 575 million euros in research funding through organisations such as NWO (the Dutch research council), the health funds and the EU.

Articles about Facts and Figures appeared in various newspapers and journals, including *AD*/Rotterdams Dagblad, *Dagblad van het Noorden*, *Metro*, *de Volkskrant*, *Medisch Contact* and *Science Guide*.



Research institutes like the former Netherlands Vaccin Instituut (vaccination institute) and the Netherlands Forensic Institute play a pivotal role in public safety. Their specialist knowledge, however, is under threat.



Research institutes and public safety

# Thinking safe?

Weather, traffic, water, food: there are many fields in which the Dutch government works to ensure the safety of its citizens. Traditionally, research institutes such as the KNMI, the Netherlands Forensic Institute and the food safety institute RIKILT have played a pivotal role in that context. However, the commercialisation of their relationships with the government and the emphasis on entrepreneurship have led to confusion regarding the core tasks and costs of such institutes. And that is not necessarily in the best interest of public safety, concluded the report *Verstand op Veilig (Thinking Safe)*, which appeared in June.

The report focuses on 'non-academic knowledge institutes' with public safety roles. Such institutes include the Royal Netherlands Meteorological Institute (KNMI), the Netherlands Forensic Institute (NFI), the Netherlands Vaccine Institute and the food safety institute RIKILT. They form part of the disaster response infrastructure made up of government bodies, inspectorates and knowledge institutes, which is mobilised in the event of a disaster. The institutes are on

standby twenty-four hours a day to ascertain the extent, cause and consequences of a disaster, and to provide advice and practical support to those with the task of organising the response.

## **Under threat**

However, the specialist knowledge required for safety policy is threatened, the report states. The source of the threat is the commercialisation of the relationship

between the institutes and their parent departments within government. That process has been ongoing since the early nineties, when arms-length state control was introduced and the institutes were required to take on a market role. Today, in addition to fulfilling their research and safety responsibilities, the institutes are required to seek out income sources on the free market, collaborate with the private sector and focus on innovations with the potential to generate revenue.

According to the Rathenau Instituut, the current situation is not only leading to uncertainty regarding the institutes' core tasks, but also threatening their ability to perform their safety roles. The laws of supply and demand are shaping research agendas, thus compromising the continuity of specialisms that are difficult to market. We have already seen the demise of the Dutch Vaccine Institute, for example. Although the specialisms that are liable to disappear are minor ones, the authors say, the knowledge that they possess is potentially vital for public safety in the event of a disaster. Another worrying development is the shift of attention away from issues with relatively remote impact horizons. Finally, questions are frequently raised regarding the institutes' scientific independence and the potential for unfair competition. The authors

therefore ask whether market models are in fact desirable in the field of public safety.

### Safety role comes first

If problems are to be avoided, the safety role of the research institutes must be put first again, the report concludes. Clear distinction should be made between routine safety-related activities (surveying, inspection and other activities essential for disaster response) and derived activities (scientific research and collaboration with the private sector). Each role requires its own funding, oversight and quality control model.

Both the digital media and the printed media gave a great deal of exposure to *Thinking Safe*. There was coverage from ANP, *Financieele Dagblad* and *Dagblad van het Noorden*. Meanwhile, the Socialist Party raised questions in parliament about the issues involved. From the replies given on 22 September by Minister Opstelten (Security and Justice), it is apparent that the government does not share the Rathenau Instituut's concern regarding the research institutes' performance of their core tasks. The minister emphasised that private finance was essential for the maintenance of expertise and the ability to fulfil (statutory) research responsibilities.

Non-academic knowledge institutes were traditionally government bodies. They undertake three types of research tasks:

- 1 Routine activities that ensure a basic level of safety within society.
- 2 Research designed to enable the most effective possible disaster response. Examples include the improvement of existing test methods and the development of new ones, as well as research needed to develop or increase specialist knowledge.
- 3 More recently, the institutes have acquired responsibility for activities linked to the government's innovation and top industries policy, in which context they act as 'knowledge enterprises'. Examples include marketing innovations and providing training courses and programmes.





## STORIES FROM THE HOSPITAL

Patients' stories can make an important contribution to the improvement of care. Patients' stories have the potential to contribute more to good care than questionnaire-based surveys or complaint forms. In many cases they can also serve as valuable starting points for the realisation of practical improvements. However, such benefits can be secured only if hospitals are prepared to listen, according to the research report *Sterke Verhalen uit het Ziekenhuis (Stories from the Hospital)*, published by the Rathenau Instituut in March.

Via a website called [patientenwetenbeter.nl](http://patientenwetenbeter.nl) ('patients know better'), the Rathenau Instituut collected more than a hundred patients' stories. The stories were then analysed in collaboration with researchers at the University of Twente's Life Story Lab. The question at the centre of the study was, 'What do patients consider good care?' The findings of the analysis were discussed with care providers and representatives of patients' groups.

From reactions to the report in the news media and social media, and from the views expressed at a debate held by the Rathenau Instituut on 16 May, it was clear that the report's conclusions

and recommendations were warmly received by patients and care providers alike. In the political arena, the report played a role at the General Hospital Care Liaison Meeting at the end of March. The response to *Stories from the Hospital* is exemplified by a letter written by Minister Edith Schippers (Health, Welfare and Sport) to the Lower House of the Dutch parliament on 12 June. In it, the Minister says that the recommendations are in line with the shift in care that she wishes to bring about, namely a shift from systems to people. 'Patients are indispensable for effective evaluation of the care process, but they need to be made more aware of that fact,' Ms Schippers wrote.

## The power of platforms



A road, traffic lights, matrix signs and congestion information together form an infrastructure for transporting people and goods. In the modern world, comparable infrastructures have been created by companies such as Apple, Google, Facebook and PayPal to deliver new services. Services such as Airbnb (overnight accommodation), Expedia (travel), Uber (taxis), 3D Shapeways (3D printing) and the more established iTunes and Spotify (music). Such new services are turning whole industries upside down by using platforms.

For the project *De kracht van platformen (The Power of Platforms)*, the Rathenau Instituut investigated the significance of new platforms for innovation strategies in the domains of health care, energy, journalism and crowd funding. The findings indicated that, while platforms can be enormously powerful stimuli for

innovation, they can also act as barriers to other enterprises, small businesses and community initiatives. In addition, consumers can be faced with high transfer thresholds or costs.

To obtain the maximum benefit from the power of platforms, governments need to adapt their policies, the Rathenau Instituut advises. Access to services must be assured, for example, and systems and services must be (technically) interchangeable in order to remove the transfer thresholds. It is also important that policy is developed in the fields of intellectual property rights, competition and standardisation.

Partly due to ongoing debate about Airbnb and Uber, the report received a good deal of attention, particularly on the internet. Online articles appeared in the *Automatiseringsgids*, *Binnenlands Bestuur* and the *Government Gazette*, for example.

## Seventy per cent of PhDs don't work at universities



Neither doctoral students nor universities pay much attention to the non-academic career options open to PhDs, despite the fact that 70 per cent of PhDs go on to work outside the university system. That was perhaps the most striking finding of the Rathenau Instituut's report *Promoveren in Nederland (Doctorates in the Netherlands)*, published in November 2014.

Based on a survey of more than 2,500 doctoral students, the report also revealed that only a quarter of doctoral students approaching the end of their studies were actively looking for jobs. Students generally undertook doctorates because they were interested in and motivated by their fields of research. Most doctorates went well and doctoral students were generally satisfied with the supervision they received. Asked to rate their thesis

supervisors, two-thirds of respondents gave them eight out of ten or better.

It is only after completing their studies that the cold reality becomes clear to many. Only 30 per cent of newly qualified PhDs are able to find employment within the university system, although nearly twice as many have that ambition. At the PNN's *National PhD Day*, Rathenau Instituut researcher Rosalie Belder stressed that doctoral students should prepare better for the future and develop a plan B: a career outside the university system.

*Doctorates in the Netherlands* was the subject of considerable comment both in the news media and in the social media. Articles appeared in *NRC*, *de Volkskrant* and the university journals, and the publication was reported on BNR News radio.

A close-up portrait of Dr. Melanie Peters, a woman with dark hair pulled back, wearing a dark blazer over a white shirt and large, ornate earrings. She is looking directly at the camera with a slight smile.

## MELANIE PETERS NEW DIRECTOR OF THE RATHENAU INSTITUUT

In October 2014, it was announced that Dr Melanie Peters would become the Rathenau Instituut's new Director with effect from 1 February 2015. She succeeds the retiring Jan Staman. For eight years, Peters has headed the Utrecht University's Studium Generale, playing a central role in the debate on the value of science and the social aspects of new technology.

After reading Food Technology and Toxicology at Wageningen, Peters obtained a doctorate from Imperial College, London. She then worked at the University of Texas in Austin, studying the onset of renal cancer. Peters then became a researcher and toxicologist at Shell Research and Development in Amsterdam.

In 1998, Peters left the research domain to take up a post at the Ministry of Agriculture, where she was account manager for veterinary drugs and hormones. She represented the Netherlands in forums such as the FAO and WHO and on the Board of the European Medicines Agency (EMA).

At the Dutch Consumers' Association, Peters spent six years leading campaigns on themes such as corporate social responsibility and health. She championed consumers' interests in consultation with the business community and within national and international bodies, such as the SER, the European Union and the WTO.

"With her considerable knowledge and strategic insight, Melanie Peters is able to link debates and topics together, to approach issues from new and creative angles and to consistently draw in people from her wide contact network," observed a former colleague.



# 2014 in figures

## Website

**105,801**

visitors

**8,816**

visitors per month

**302,876**

page views

**25,239**

page views per month



**20,155**

publication downloads

**823x**

Sterke verhalen uit het ziekenhuis (Stories from the hospital)

**1,140x**

Intimate technology – The battle for our body and behaviour

**640x**

Promoveren in Nederland (Doctorates in the Netherlands)

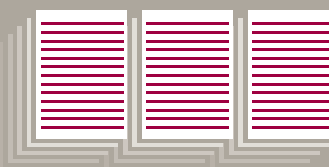
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## In het parlement

In 2014 kwam het Rathenau Instituut 56 x voor in Kamervragen en Kamerstukken.



**56x**

## Blogs

**In 2014, three new blogs were launched.**

### Valorisation

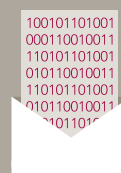
Examples of, experiences with and insights into valorisation – making scientific knowledge available to the economy and society. [valorisatie.wordpress.com](http://valorisatie.wordpress.com)

### Books

The Rathenau Instituut has been publishing about new technology for twenty-five years. In this blog, we consider how technologies have developed since the Institute first published material about them. [rathenauboekenblog.wordpress.com](http://rathenauboekenblog.wordpress.com)

### Science journalism

Part of the project Exploring the Future of Science Journalism, this blog provides a forum for science journalists to debate and publish articles. [wetenschapsjournalistiek.wordpress.com](http://wetenschapsjournalistiek.wordpress.com)



**Total**

**66**

blog posts

### Most read blogs

**1**

Selling big data in the care sector: you can't simply do as you please

**2**

Sugar-free month

**3**

Much ado in Dutch science

**Ton de Bruin @tbruin 23 January**

Fine report from @Rathenau on #singularity, translated as intimate technology

**Wim Schuller @toegangtotrecht 23 January**

Read Rinie van Est's impressive essay on the impact of new technologies

**Jacob van Duivenboden2 @ictzorgen 29 January**

How trustworthy is science according to the Dutch? Interesting research by the Rathenau Institute.

**jacob seidell @jaapseidell 27 February**

Confidence in food science undermined? Debate organised by Rathenau Instituut and WRR featuring @jaapseidell and others

**Ronald Jas @RonaldJas 14 March**

Hot off the press: Interesting study by Rathenau Instituut, how the internet reaches far beyond our privacy

**HOP @hoppersbureau 17 March**

Government spending less and less on research and innovation, says Rathenau Instituut

**WilhelminaZkhsAssen @WZA\_Ziekenhuis 10 April**

What a useful book we've had from the Rathenau Instituut about learning from patients' experiences! Thanks @rathenauNL

**Ger DriesenL&Dexpert @GerDriesen 26 June**

Whoopee! The new #flux, the unsurpassed magazine of RathenauNL has arrived

**Openbaar Bestuur @OpenbaarBestuur 5 August**

#government #parliament Notice of deferment regarding parliamentary questions about the publication Thinking Safe

**Thom de Graaf @Thdegraaf 29 August**

Good lecture by Dr Jalmil Salmi for Rathenau Instituut with strong qualification of all HE ranking lists

**Arjan Geurts @arjangeurts 20 October**

Are we slaves, owned by Google, Facebook and Apple? Good opinion piece by Rathenau

**10voorBiologie @10voorBiologie 24 October**

2 fun animations by Rathenau Instituut: Reinventing the dodo & Bioluminescent streetlamps. Really worth watching! <http://ow.ly/Dgn2P>


**peter vandermeersch @pvdmeersch 3 November**

Doctoral students complain about poor preparation for jobs market

**Claartje van Sijl @VanSijl 7 November**

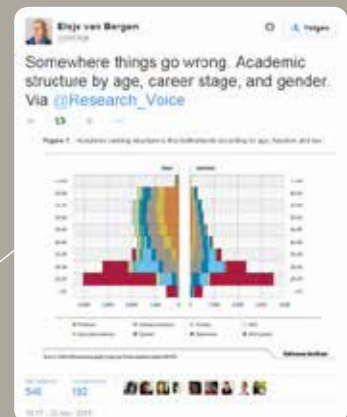
Report Doctorates in the Netherlands shows similar picture to USA @KarenKelsky "An inconvenient Truth"

## 2014 in tweets


**Most retweeted Rathenau tweet**

The following tweet (with a graph from the 2013 report Facts & Figures – Academic Careers in the Netherlands) was retweeted no less than 546 times.

**546x**  
retweeted



## Sociale media



**3,915**

Twitter followers  
(end of 2013: 3,044)



**1,382**

LinkedIn followers  
(end of 2013: 675)



**407**

Facebook fans  
(end of 2013: 273)



Edward Snowden  
06 04 2013 CAM 1 HONG KONG



Assange Protester #324  
08 01 2012 CAM 14 LONDON



Arda Gerken  
22 09 2014 CAM 12 THE HAGUE



Monitor System #927  
28 12 2013 CAM 10 THE HAGUE



Klaas de Vries  
22 09 2014 CAM 23 THE HAGUE



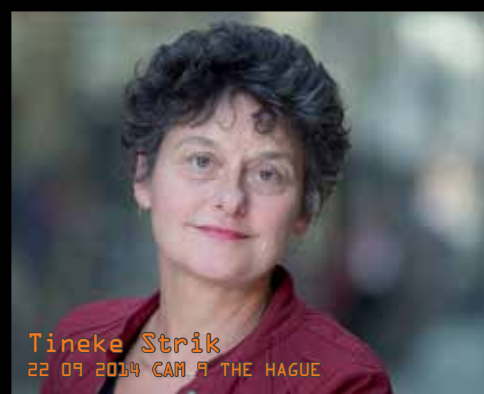
Google Mark Zuckerberg  
14 11 2012 CAM 11 FRISCO



ANONYMUS #1284  
28 12 2013 CAM 24 NEW YORK



Interception System #54  
27 06 2014 CAM 3 BAD AIBLING



Tineke Strik  
22 09 2014 CAM 9 THE HAGUE



Data Center #9  
14 11 2013 CAM 7 DALLAS



Anne-Wil Duthler  
22 09 2014 CAM 23 THE HAGUE



Protest #119  
08 01 2014 CAM 14 BERLIN



Hans Franken  
22 09 2014 CAM 6 THE HAGUE



Interception System GCHQ  
31 08 2012 CAM 15 BUDE



Roger van Boxtel  
22 09 2014 CAM 19 THE HAGUE



## Snowden disclosures

# Living together in a dungeon?

According to Jean-Jacques Rousseau, we are only truly safe when living in a dungeon. The French philosopher was quoted in the debate on cyber intelligence held in the Upper House of the Dutch parliament in September 2014. The debate was prompted by the disclosures made by Edward Snowden regarding the activities of the US National Security Agency (NSA).

Before the subject was addressed in parliament, the Upper House and the Rathenau Instituut together organised an expert meeting on privacy and the security services, which took place on 6 May 2014. In preparation for that meeting, the Institute drew up a memorandum entitled *Cyber Intelligence and Public Interest*, based on interviews with various experts. From the interviews with experts, it became apparent that the methods used by intelligence and security services were open to question in various respects. The supervision of such agencies and the adequacy of the statutory framework within which they operate also became focuses of discussion.

### Technological development

Discussion was necessitated mainly by the rapid technological development that has taken place since the Intelligence and

Security Services Act (Wiv) came into force in 2002. Under the Wiv, for example, only non-cable communications traffic (i.e. satellite traffic) may be monitored on a non-targeted basis. However, most traffic now travels via (fibre-optic) cables.

In the intervening years, the (statutory) distinction between data and metadata has also been blurred. Nowadays, metadata (who is communicating with whom, when, for how long and from what location) can be highly sensitive, because of the insight given into a person's movements and position within social networks. Consequently, metadata can also be regarded as personal data, a number of specialists contended.

Other changes in intelligence practices since the Wiv was drafted include the hacking of web forums and the use of so-called end-point operations by the security services.

End-point operations involve the interception of information while it is still with the service provider and/or the user, before it is encrypted. The key question in the context of such activities is how many innocent people are consequently included in an investigation? And what damage may be caused by, for example, installing malware (harmful software) in order to gain access to the end point?

### Closer supervision

Changing intelligence practices appear to require the definition of tighter authorisation criteria and closer supervision, the experts said. In that context, it was important to consider not only the legality of a technique, but also its *efficiency*: how effective a detection technique is in relation to any collateral damage, such as the weakening of an infrastructure by malware. The latter point is particularly important because businesses cannot protect themselves against the sophisticated techniques used by the intelligence services, except by completely withdrawing from the internet. Nor indeed can a private citizen who becomes the innocent focus of an intelligence operation. When information about citizens is gathered, it is also important to consider questions such as, how long is the data retained?

Can incorrect information be corrected? How can people protect themselves if malware is maliciously installed on their computers, making them the subject of the security services' suspicion?

At the expert meeting on 6 May and in the subsequent Upper House debate, concern about the matters outlined above gave rise to a number of motions. For example, the government was asked to consider whether Dutch legislation and supervision arrangements were consistent with the European Convention on Human Rights (ECHR), and to put an end to unconditional, non-targeted large-scale surveillance of communications between innocent citizens. Another motion called on the government to commission the Rathenau Instituut to investigate the desirability of a committee able to advise on the ethics of the digitalisation of society. The motions were passed in October.

Both the expert meeting and the Upper House debate attracted considerable attention from the media. Articles appeared in *Financieele Dagblad*, the current affairs column *Een Vandaag* and in various specialist web magazines.

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## Day-old male chicks

In the Netherlands, approximately 45 million day-old male chicks – the unwanted brothers of females bred for egg production – are gassed with CO<sub>2</sub>, a practice that has been causing considerable social unease. In 2013, the Ministry of Economic Affairs (EZ) asked the Rathenau Instituut to work with stakeholders to look into the availability of socially acceptable and economically viable alternatives. The report *Op eieren lopen – verslag van een stakeholder-dialogue over eendagshaantjes (Walking on eggs – Report on a stakeholder dialogue regarding day-old male chicks)*, appeared in early May.

The report considers three alternatives: the genetic modification of laying hens using a fluorescent jellyfish gene; rearing the male chicks to maturity; and sex determination in the egg.

While there is social resistance to genetic modification, rearing the male chicks to maturity is not an economically viable option for the mainstream poultry industry. Sex determination in the egg therefore appears to be the most promising proposal, but requires further research.

The report was submitted to the State Secretary for Economic Affairs on 27 May 2014. In response to the stakeholder dialogue, the Ministry of Economic Affairs, Leiden University, representatives of the poultry industry, the Dutch Society for the Protection of Animals and the Leiden-based company Ovo signed a joint statement of intent to take forward the in-egg sex determination option. The Ministry and Leiden University have made available a total budget of 550,000 euros for the research.



## FUTURE OF THE UNIVERSITY?

In 2025, today's six-year-olds will be knocking on the doors of our universities. But will they all be able to get in? Or will access be limited, meaning that they have to pay, take their chances in a draw, sit an admission exam or make an application in order to secure a place? Those are the questions at the centre of Future Strategy of Dutch Universities, a joint project undertaken by universities' association VSNU and the Rathenau Instituut.

Strategic discussions regarding the future of universities often focus on specific topics, such as student finance, student numbers, innovation policy or MOOCs. However, the various developments affecting the sector are inter-related and take place against a rapidly changing social backdrop. High time, therefore, for a future-oriented strategy development exercise. The process drew on the joint Rathenau-VSNU report *Vizier Vooruit (Sight Forward)* for analysis of the opportunities and risks facing Dutch universities.

With input from experts, scientists, administrators and students from the higher education sector, the book's authors developed four future scenarios based on two critical variables: whether

universities are primarily public or private entities and the extent to which universities operate in a competitive setting. Analysis of the scenarios involved addressing a number of topical issues and dilemmas, such as what a university's core function is, how regional/national/international a university should be and who should pay the university.

The scenarios were used during a number of regional meetings with universities and their stakeholders, and at a concluding session at the Duin en Kruidberg conference centre.

*Sight Forward* generated interest in the general media and the university journals, with articles also appearing in specialist newsletters, such as *Onderzoek Nederland* and *Science Guide*.





## Jan Staman's top five

What does Jan Staman, retiring Director of the Rathenau Instituut, see as the five themes of 2014?

### 1 The university

Universities need to reinvent themselves. They are under fire. Demands are being placed upon them from all sides: by students, by policymakers, by politicians and by the community. We have sentenced ourselves to a single definition of the excellent research university, which formulates its own excellence criteria. But there is no such thing as the ideal university, Jamil Salmi argued at our annual Late Summer Gathering. Salmi, who has advised on higher education in more than ninety different countries, stressed that every country and every system should strive for diversity. Only by operating as a collective made up of equally high-quality but diverse institutes for higher education can we meet the demands of the modern world. Variety and a new social legitimacy are essential. "Be yourself," said Oscar Wilde. "Everyone else is already taken."

### 2 Non-academic knowledge institutes

A re-evaluation of our non-academic knowledge institutes is needed. I am referring to organisations such as the National Institute for Public Health and the Environment (RIVM), the Netherlands Forensic Institute (NFI) and the Royal Netherlands Meteorological Institute (KNMI). Much more emphasis should be placed on their importance to society – for our store of knowledge, our safety and the development of standards. Non-academic knowledge institutes are often overshadowed by universities. However, when it comes to the development of knowledge for policy and the assurance of the most tangible aspects of society – tackling highly contagious diseases in people and animals, for example, or disaster response, or production process standardisation – we are profoundly dependent on non-academic knowledge institutes.

### 3 Eye-opener

People often suppose that fundamental research necessarily takes place in universities. Or that there is a natural divide between fundamental and

applied research. So the year's real eye-opener was *Naar een lerende economie* (Towards a learning economy), a report by the Scientific Council for Government Policy (WRR). The report detailed how the fundamental research underpinning truly valuable commercial and scientific breakthroughs has traditionally taken place in the R&D labs of companies such as Bell (a subsidiary of AT&T) and at establishments such as the Philips Natlab. So is there really a divide between the so-called 'top industries' and the universities?

### 4 'Complexity'

We are nowadays very fond of describing things as 'complex'. There is no conference at which the word is not widely used, no call for Horizon 2020 (the EU's research and innovation programme – ed) and no government document that doesn't make reference to 'complex problems' or a 'complex society'. The suggestion is always that complex issues can be resolved only by modern science, preferably by means of 'co-creation'. I regard that outlook as disastrously misguided. What we want from politicians is that they get to the crux of complex issues, that they take decisive action. That's the only way to resolve them.

### 5 All change

We are currently in a transitional period. Everything in society is shifting, changing. Nothing is sacrosanct any longer; privacy, human rights, religion, immigration policy, the financial world; all our convictions, systems, institutes and assumptions are in a state of flux, being shaken up, breaking apart at the seams. Everything is up for debate. There's a poster in the popular series signed by the fictional Dutch character Loesje, which says, "Shall we get lost together? I know the way." Well, the trouble is that now no one seems to know the way. I foresee a row developing about the metaphors used to describe society and the state in 2015. Interesting times. I'm looking forward to them.



## WORKING TOGETHER FOR THE COMMON GOOD

Adapting to climate change will involve more fundamental modifications to the way we live and the way our society is organised. That in turn will require new forms of collaboration: the coproduction of knowledge by a process in which the interests, information and expertise of various parties are combined.

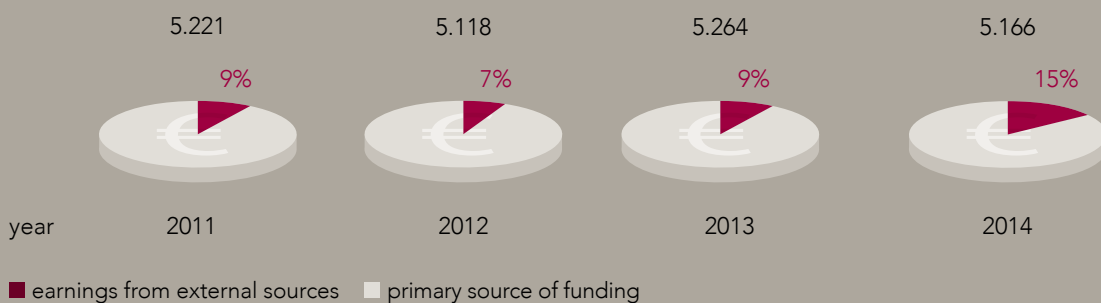
Over the last four years, in the context of a public-private partnership funded from natural gas income (BSIK), the Rathenau Instituut has studied knowledge coproduction in the projects Room for Climate and Knowledge for Climate. From the research, it is apparent that knowledge coproduction is not a spontaneous process. Rather, it requires active organisation, because researchers and stakeholders have their own perspectives on the problem, their own ideas about the best solution and their own ways of working. The way that stakeholders are involved in the project is also very significant. If their involvement is symbolic, they will have no influence on the process, the research indicates.

The experience of knowledge coproduction gained in the Netherlands – both in the context of the two projects mentioned, and in other fields – can be profitably utilised when addressing what the European Union calls the ‘grand challenges’ facing society. In addition to climate change, those challenges include raw materials, energy, transport, population aging and food security. In the European research programme Horizon 2020, a budget of 31 billion euros has been earmarked for the investigation of the grand challenges in the period up to 2020. In the Netherlands, there is little scope for further public-private knowledge development, because natural gas income is no longer being invested in the knowledge infrastructure.

# 2014 in figures

## Finances

### Income in k€



The Rathenau Instituut's primary source of funding is the Dutch government's Ministry of Education, Culture and Science (OCW). The Institute also works with the European Parliament, the European Commission and various other institutions. In recent years, like other government institutions, the Rathenau Instituut has experienced two cost-cutting programmes, the second of which began in 2014. In 2012, a series of incremental reductions to the lump sum grant began, to reach six per cent in 2015. In 2014, a further efficiency saving was implemented, of five per cent in that year, rising to ten per cent on a structural basis with effect from 2015. In

response, the Institute adopted a strategy of seeking to structurally increase earnings from external sources, while also structurally reducing costs. The cost reduction was achieved by cutting expenditure on materials and internal projects, not by reducing staff costs. The Rathenau Instituut aims to secure twenty five per cent of its income from external clients. In order to preserve the Institute's independence, twenty five per cent is also the intended external funding ceiling. External projects are assessed on the objectives of the institute.

Additional information is available from [www.rathenau.nl](http://www.rathenau.nl)

## Staff

### FTEs 2014



### Proportion of permanent/temporary personnel in % as of end of 2014



### Inflow and outflow

The Rathenau Instituut is striving for a balance between the development of knowledge and attracting new knowledge. Two new employees joined in 2014: one in the Technology Assessment Department and one in the Operations & Support Department. Twelve employees

left the Institute: two from the Technology Assessment Department, eight from the Science System Assessment Department and two from the Operations & Support Department. Four people were offered a permanent position.



# Publications

## Periodicals

### Flux

- no. 10 (January): Ignorance
- no. 11 (June): Friction

### voITA

- no. 6 (April): Genetic privacy
- no. 7 (November): Ageing

### 12 x Newsletters

## Research Briefs

### **Maak veiligheid kerntaak publieke kennisinstellingen**

Blankesteijn, M., P. Faasse, L. Koens & B. van der Meulen

### **Gebruik patiëntenverhalen voor betere ziekenhuiszorg**

Egmond, S. van, M. Heerings en G. Munnichs

### **Struggle for our intimacy**

Est, R. van, & V. Rerimassie (also available in Dutch)

### **Tem de robotauto**

Kool, L. & J. Timmer

### **Waarborg de kwaliteit van digitale coaches**

Kool, L., J. Timmer en R. van Est

### **The emergence of platforms: new policy required**

Kreijveld, M.; met medew. van J. Deuten en R. van Est (also available in Dutch)

### **Subject resources to minimum standards**

Krom, A. & A. van Waes (also available in Dutch and German)

### **Wetenschap als strijdtoneel: publieke controversen rond wetenschap en beleid**

Munnichs, G., M. Blankesteijn & A. Thijssen

## Facts & Figures

### **De Nederlandse universitair medische centra**

Chiong Meza, C., J. van Steen & J. de Jonge

### **Drijfveren van onderzoekers**

Goede, M. de & L. Hessels

### **Total Investment in Research and Innovation (TWIN) 2012-2018**

Steen, J. van (also available in Dutch)

## Reports, books and scientific articles

### **Talent proof: selection processes in research funding and careers: dissertation**

Arensbergen, P. van

### **Verstand op veilig: de waarde van publieke kennisinstellingen voor de veiligheid van Nederland**

Blankesteijn, M., P. Faasse, L. Koens & B. van der Meulen

### **Contested science : public controversies about science and policy**

Blankesteijn, M., G. Munnichs & L. van Drooge (also available in Dutch)

### **Verslag van de workshop 'facultaire financiering van onderzoek'**

Chiong Meza, C.

### **Case study TKI Maritime: a strategic public-private partnership for the Dutch maritime sector**

Deuten, J., A. Reitsma, T. Wardenaar & L. Hessels

### **Challenges for the European governance of synthetic biology for human health**

Douglas, C. & D. Stermerding

### **Sterke verhalen in het ziekenhuis: leren van patiëntervaringen voor goede zorg**

Egmond, S. van, M. Heerings en G. Munnichs

### **Intimate technology: the battle for our body and behaviour**

Est, R. van, V. Rerimassie, I. van Keulen & G. Dorren (also available in Dutch)

### **From bio to NBIC convergence: from medical practice to daily life - report written for the Council of Europe, Committee on Bioethics**

Est, R. van, D. Stermerding, V. Rerimassie, M. Schuijff, J. Timmer en F. Brom (also available in French)

**Future knowledge;  
4 scenarios for the future  
of Dutch universities**

Faasse, P., B. van der Meulen & P. Heerekop.  
(also available in Dutch)

**Promoveren in Nederland:  
motivatie en loopbaan-  
verwachtingen van promovendi**

Goede, M. de, R. Belder & J. de Jonge

**Intellectual salmon run:  
knowledge transfer and  
dynamics between academia  
and industry: dissertation**

Gurney, T.

**Institutional and geographical  
diversification of water research  
networks**

Heringa, P., L. Hessels & M. van der Zouwen

**Verslag debatreeks  
'vertrouwen in de wetenschap'**

Jonge, J. de

**Eerlijk advies: de elektronische  
levensstijlcoach**

Kool, L., J. Timmer & R. van Est

**De kracht van platformen:  
nieuwe strategieën voor  
innoveren in een  
digitaliserende wereld**

Kreijveld, M.; met medew. van J. Deuten & R. van Est

**Expert paper and expert  
working group reports for  
the future panel on public  
health genomics**

Krom, A. & D. Stermerding

**Policy brief on health genomics**

Krom, A. & D. Stermerding

**Private Health? Sharing DNA  
in a big data world**

Messer, P.

**Op eieren lopen: verslag van  
een stakeholdersdialoog  
over eendagshaantjes**

Munnichs, G., A. van Waes & F. Brom

**SynBio politics: bringing  
synthetic biology into debate**

Rerimassie, V. & D. Stermerding

**Tem de robotauto: de  
zelfsturende auto voor  
publieke doelen**

(red) Timmer, J. en L. Kool

**Broadening the debate on shale  
gas: guidelines for decision-  
making based on the Dutch  
experience**

Waes A. van, A. de Vries,  
R. van Est & F. Brom

**Organizing collaborative  
research: the dynamics and  
long-term effects of multi-actor  
research programs: dissertation**

Wardenaar, T.

This document is the public annual report of the Rathenau Instituut, in which we outline our work in 2014. The full Rathenau Instituut 2014 Annual Report can be found (in Dutch only) on our website:  
[www.rathenau.nl/annualreport2014](http://www.rathenau.nl/annualreport2014)

## Colophon

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Rathenau Instituut  
Anna van Saksenlaan 51  
Postal address:  
Postbus 95366  
2509 CJ The Hague  
The Netherlands  
Phone: +31 (0)70 342 1542  
E-mail: [info@rathenau.nl](mailto:info@rathenau.nl)  
[www.rathenau.nl](http://www.rathenau.nl)

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